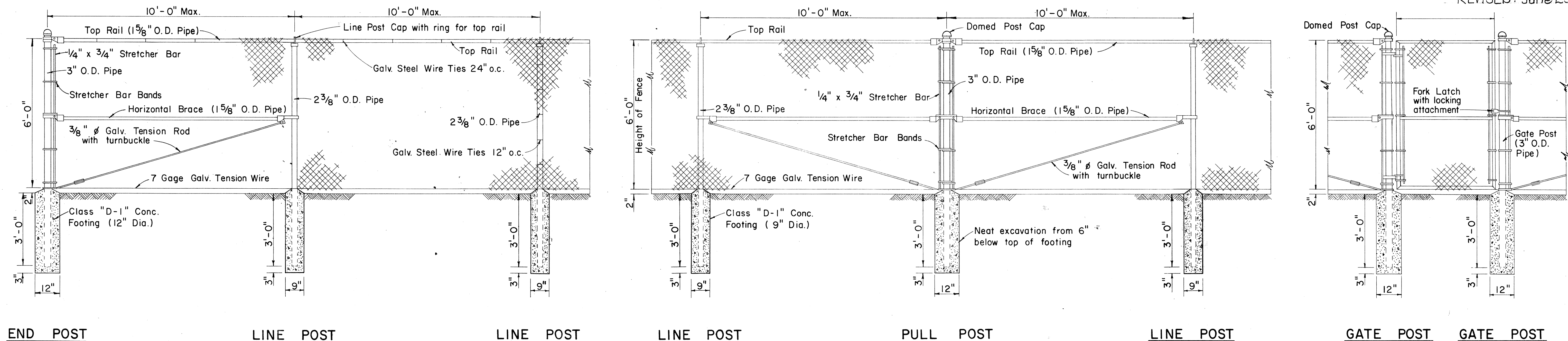


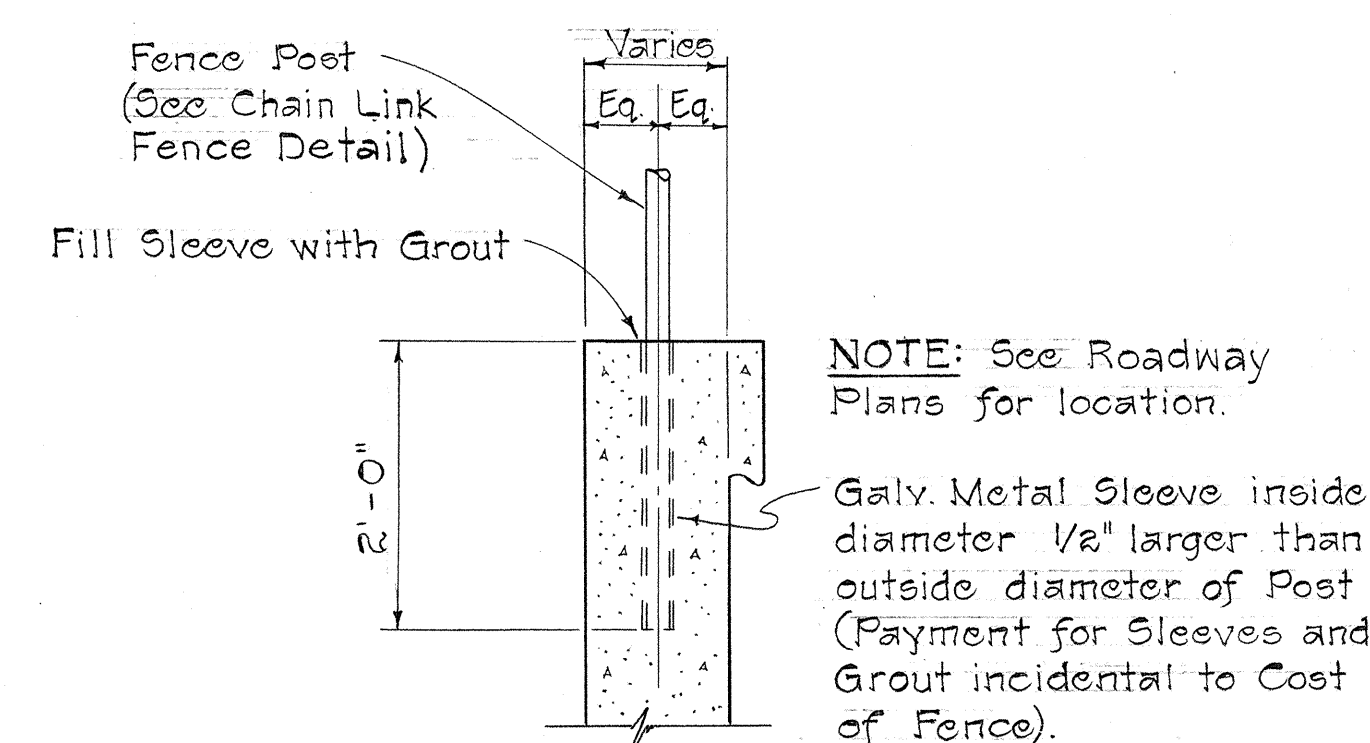
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	5-0630(11) 5-0630(7)	1968	12	83

REVISED: June 23, 1968



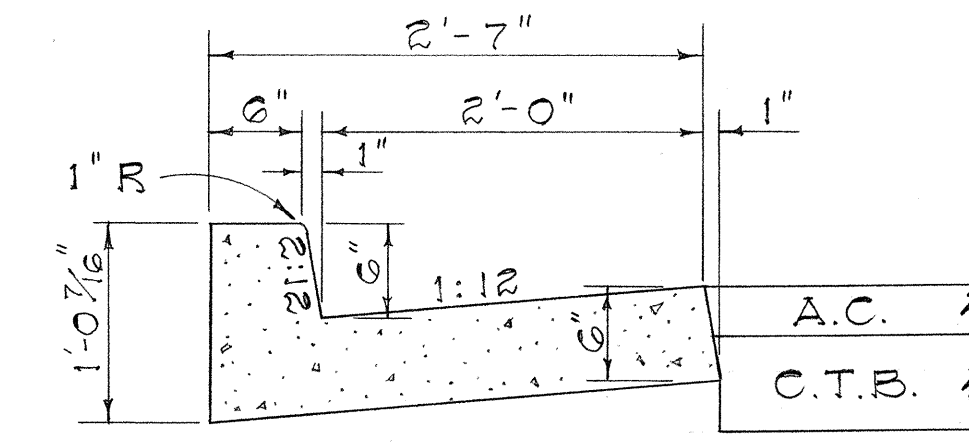
CHAIN LINK FENCE DETAIL

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



TYPICAL SECTION OF FENCE POST ON CONC. RETAINING WALL

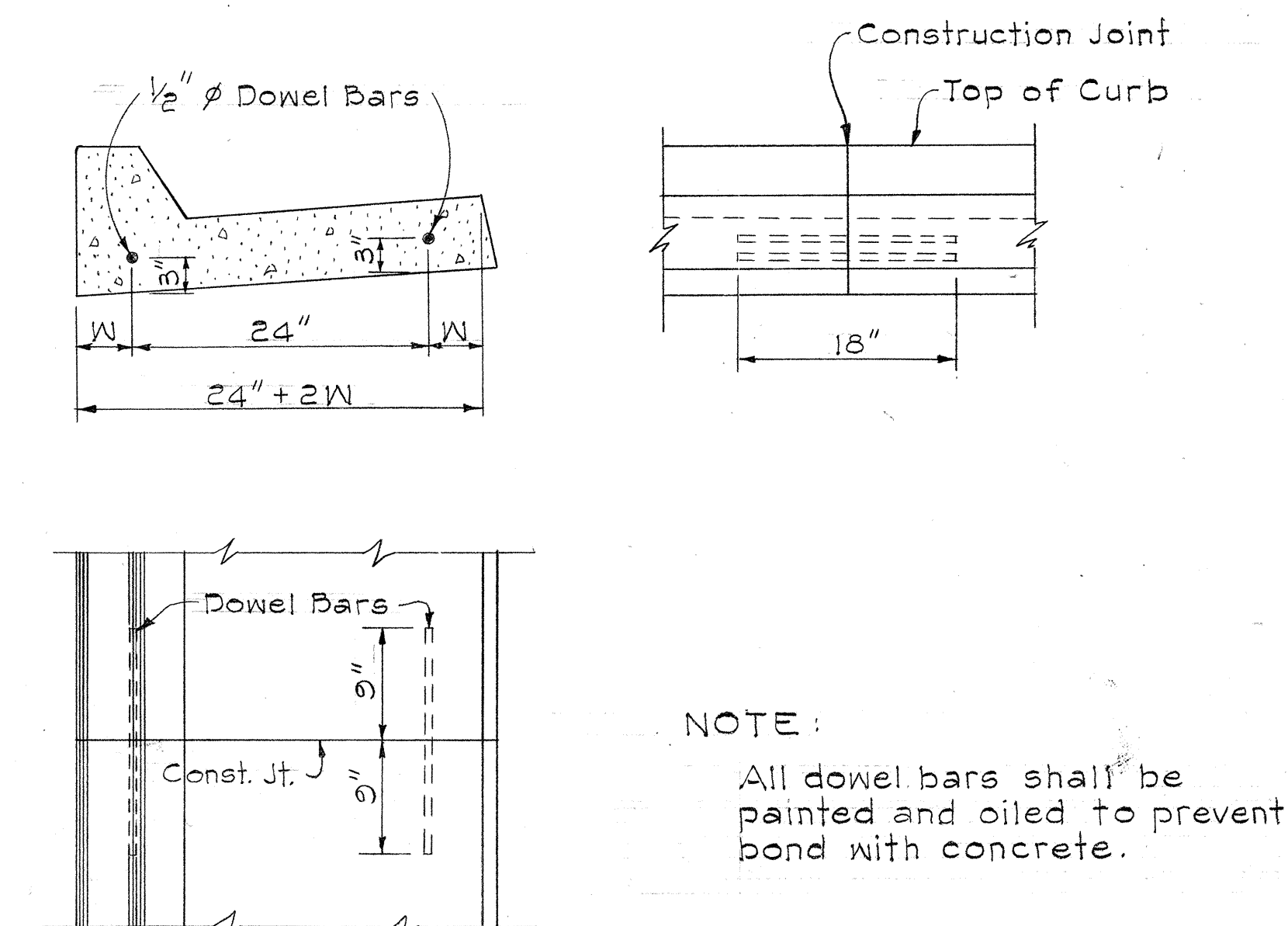
Scale: 3/4" = 1'-0"



TYPE "DG" CURB & GUTTER

DETAIL OF CAST-IN-PLACE CURBS AND CURBS & GUTTERS

Scale: 1" = 1'-0"



TYPICAL CONSTRUCTION JOINT DETAIL FOR CAST-IN-PLACE CONC. CURB & GUTTER

Scale: 1" = 1'-0"

DETAIL FOR E AND REFERENCE SURVEY MONUMENT

Scale: 1" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

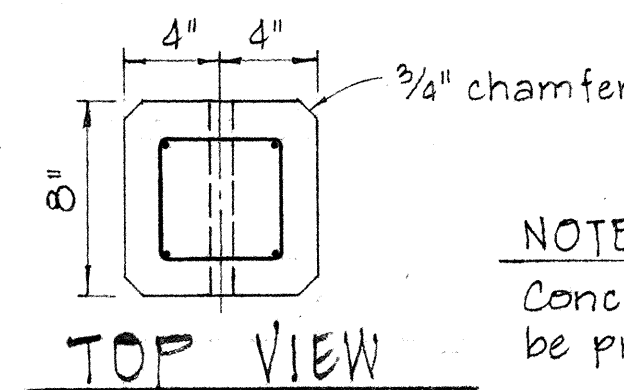
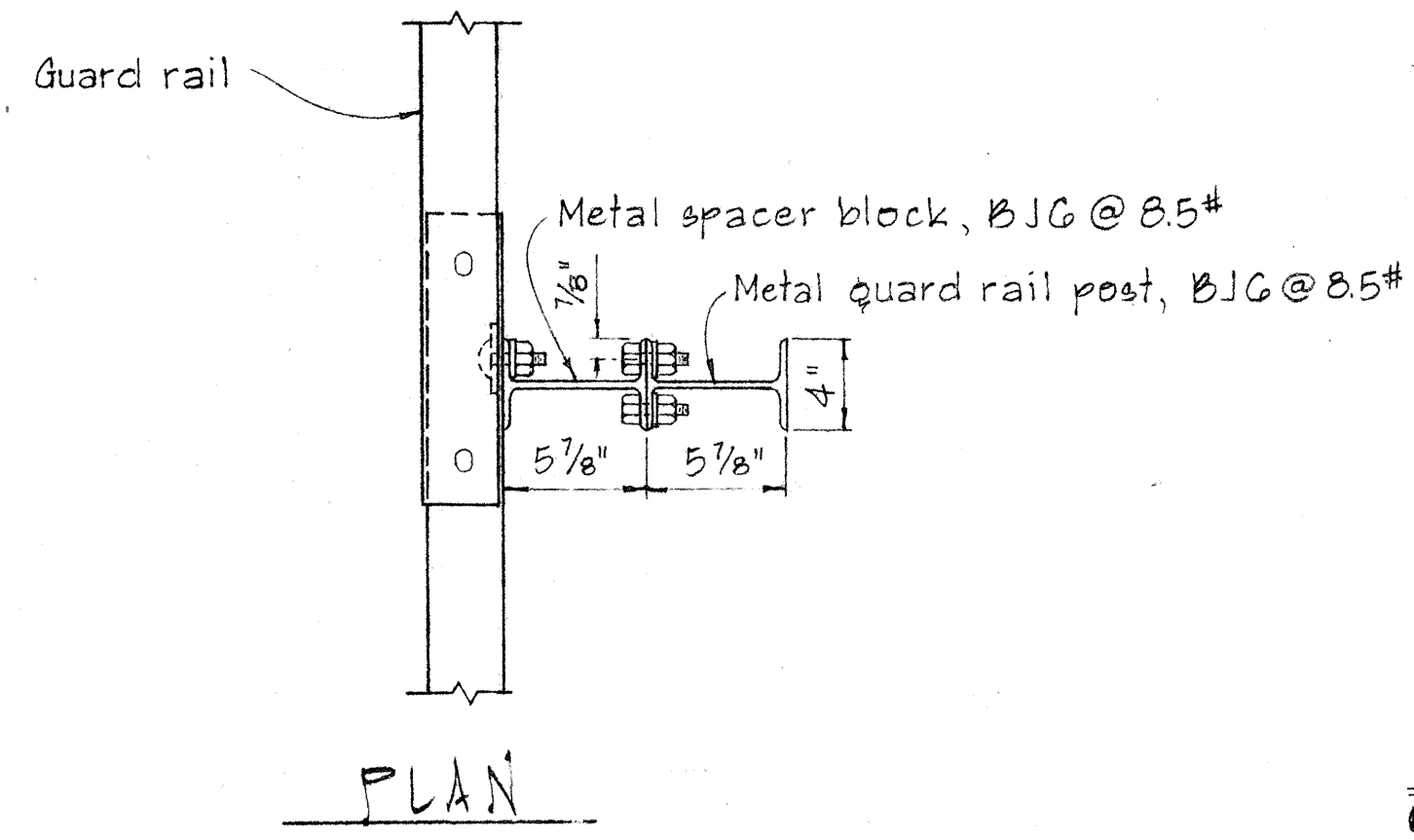
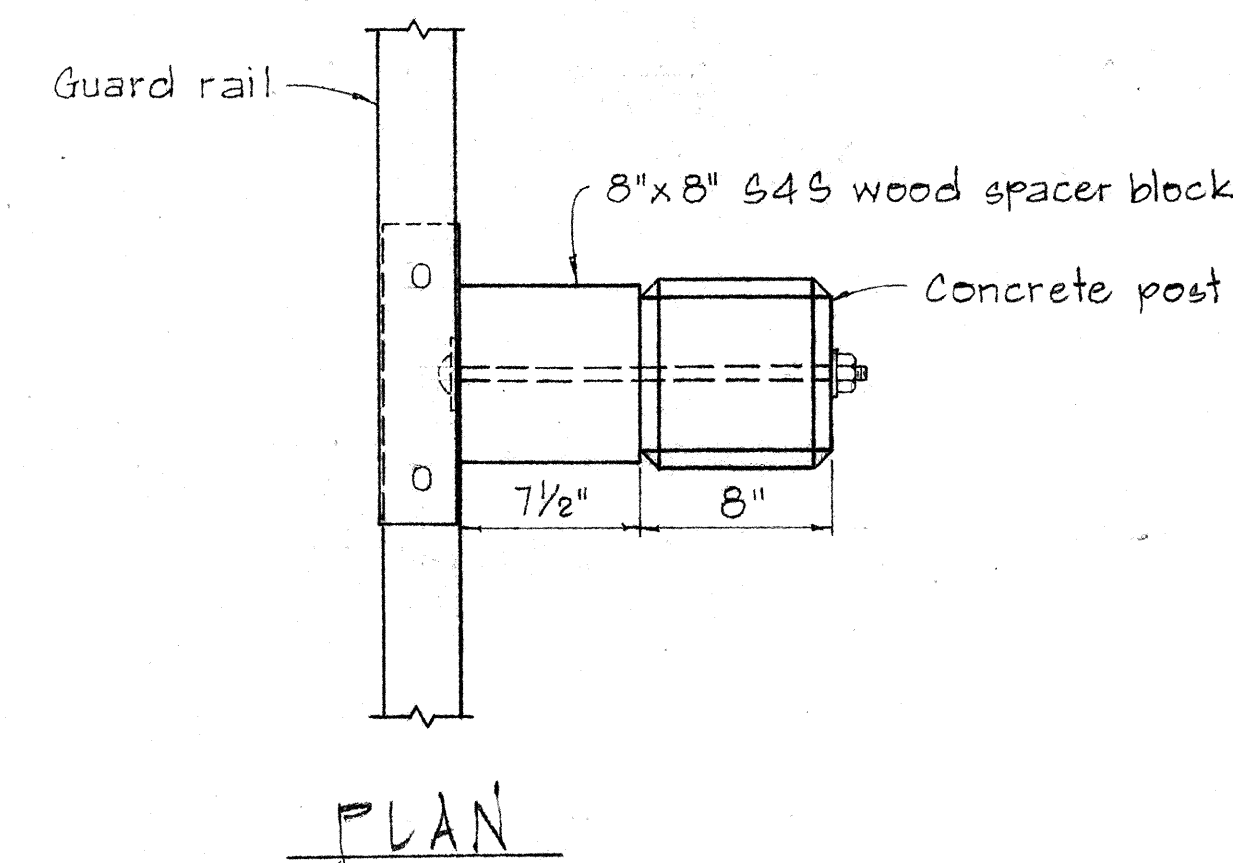
MISCELLANEOUS ROADWAY
DETAIL

MOKAPU SADDLE ROAD
F.A.S. Proj No. 5-0630(11)
AND
F.A.S. Proj No. 5-0630(7)
Scales: As Noted Date: Nov., 1967

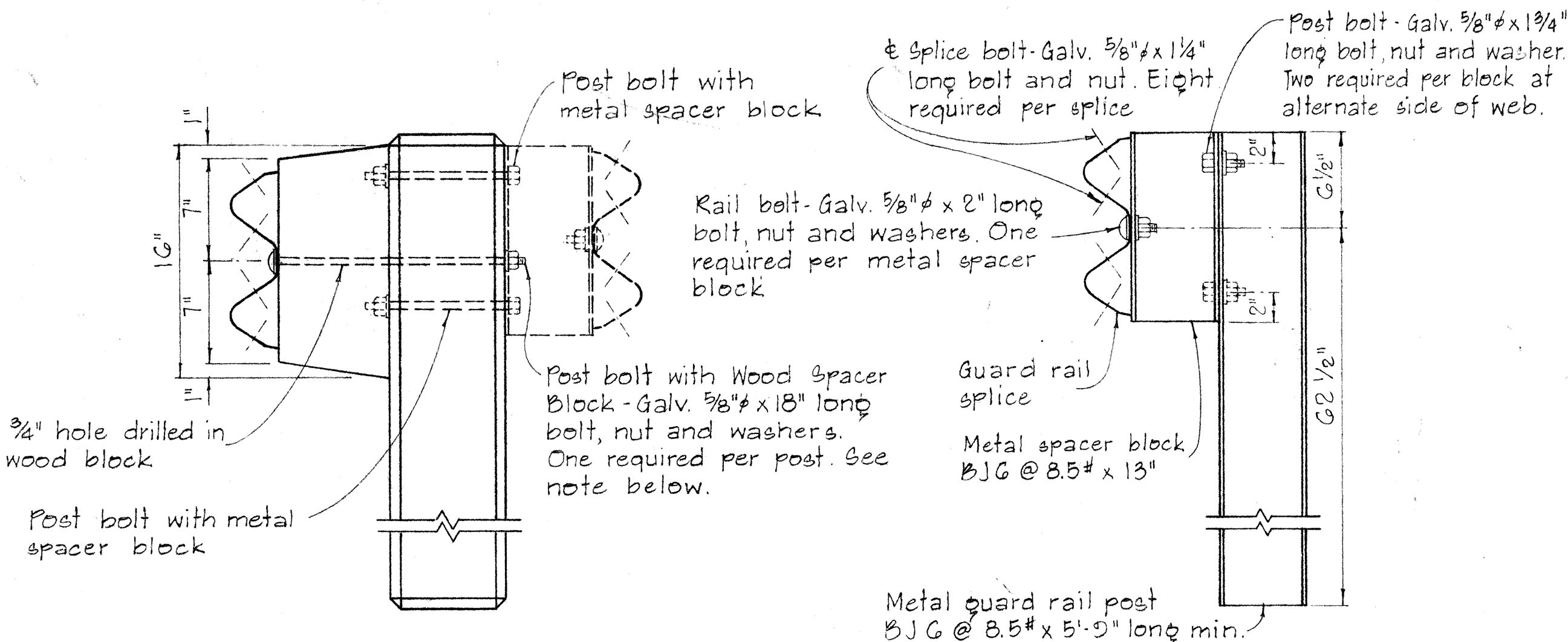
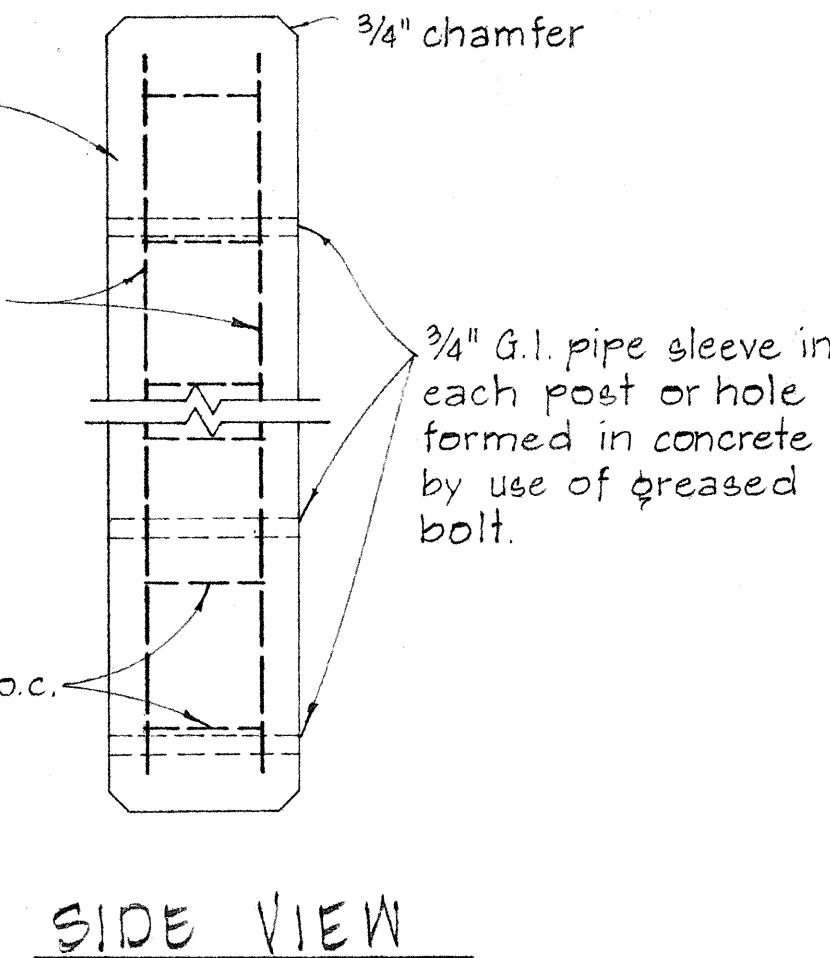
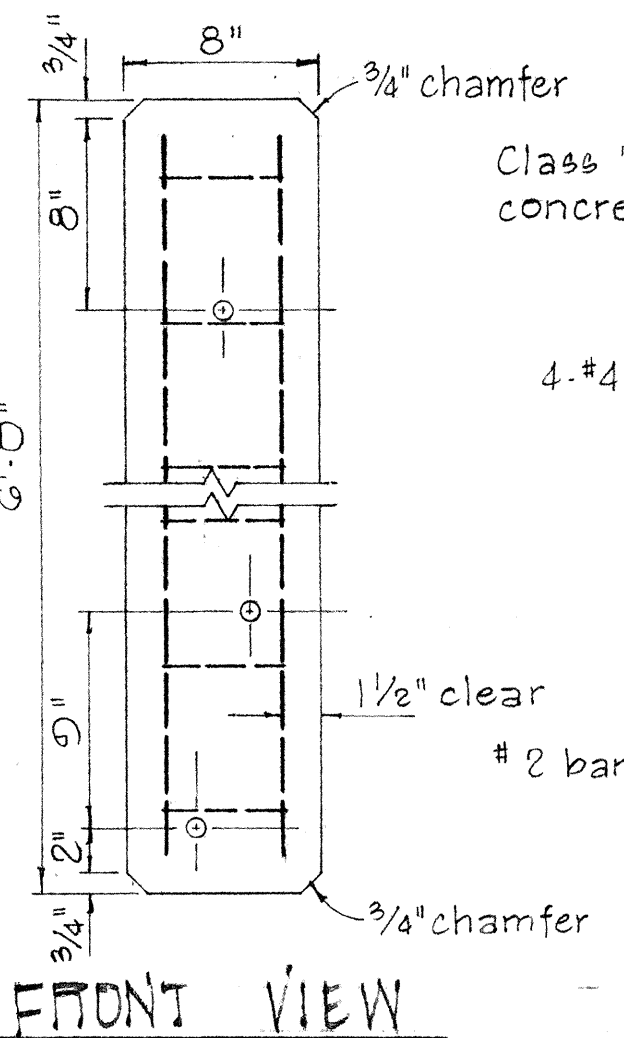
SHEET No. 1 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	S-0630(11) S-0630(7)	1968	14	83

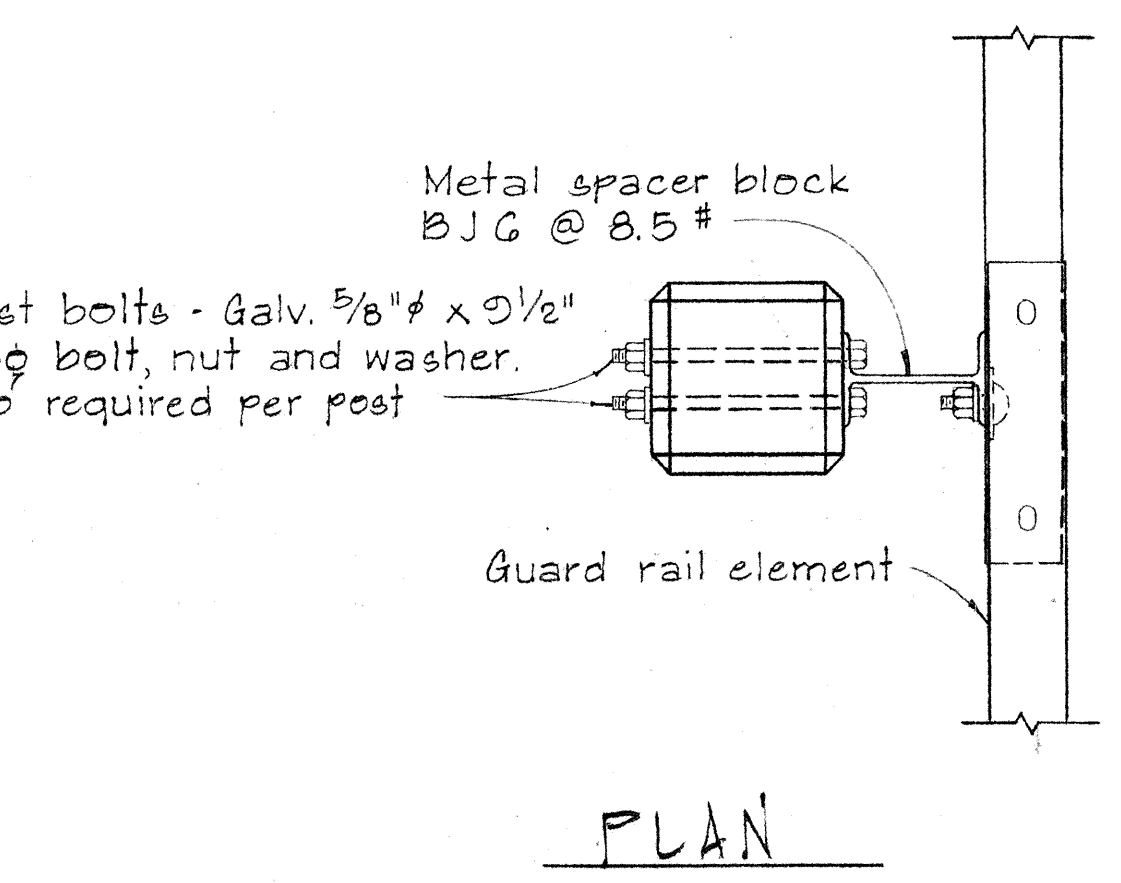
REVISED: 12-11-66



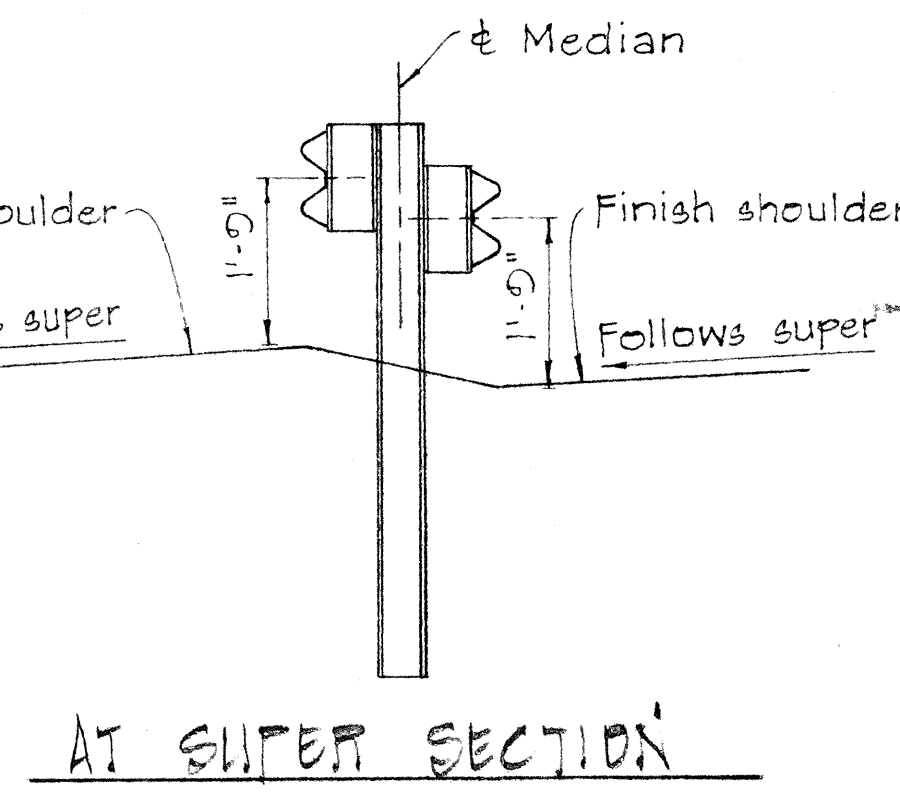
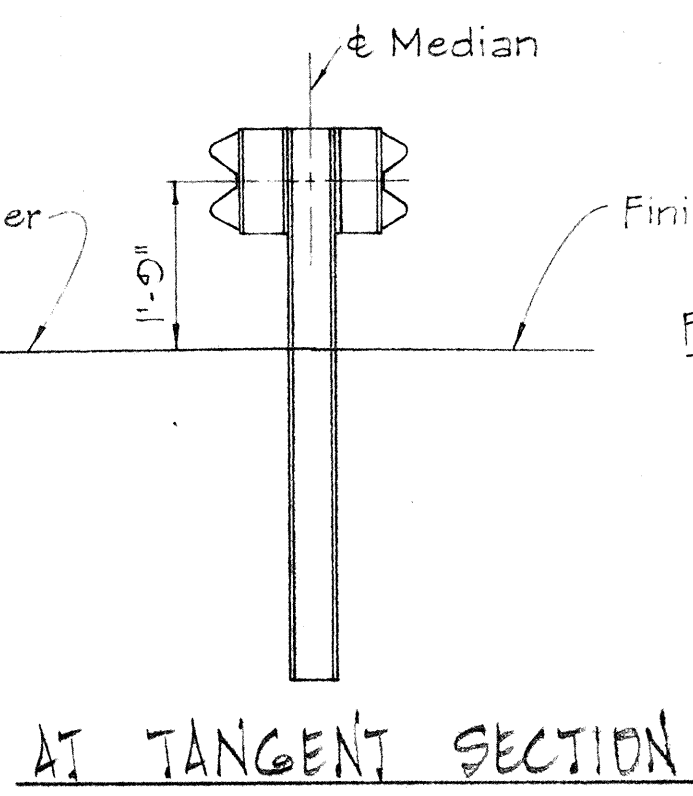
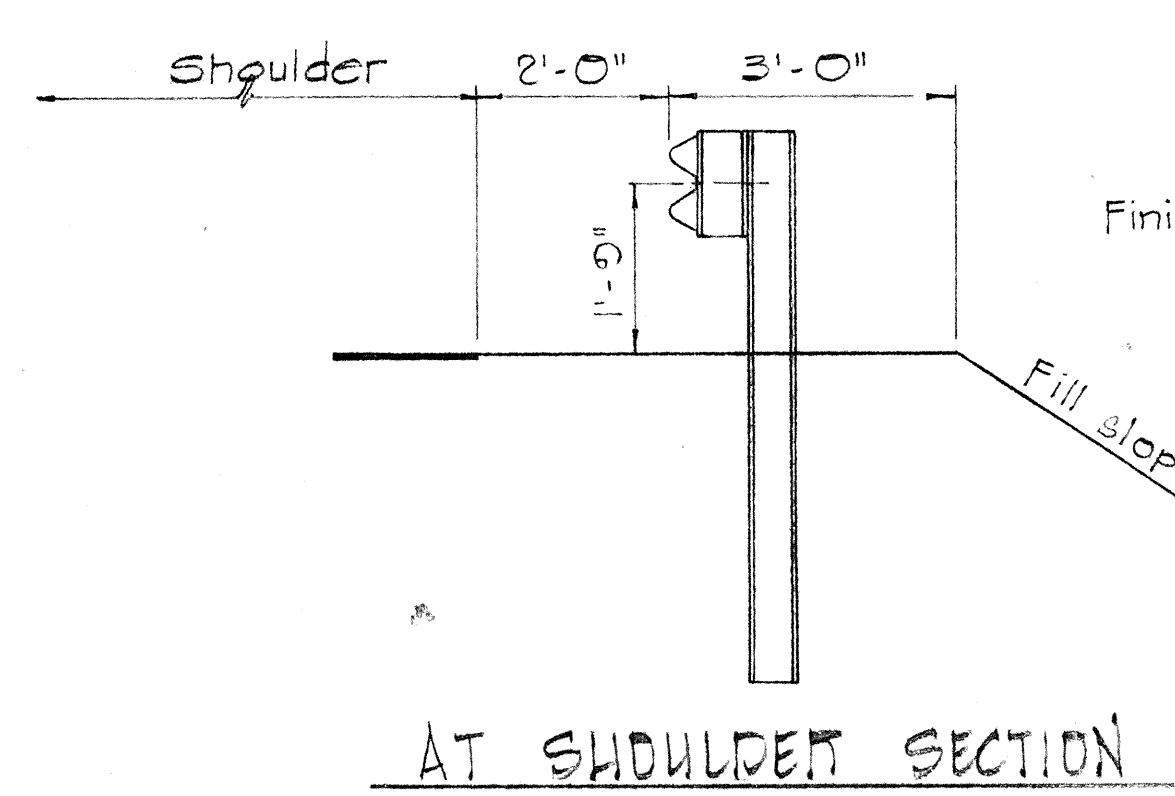
NOTE:
Concrete post shall be precast



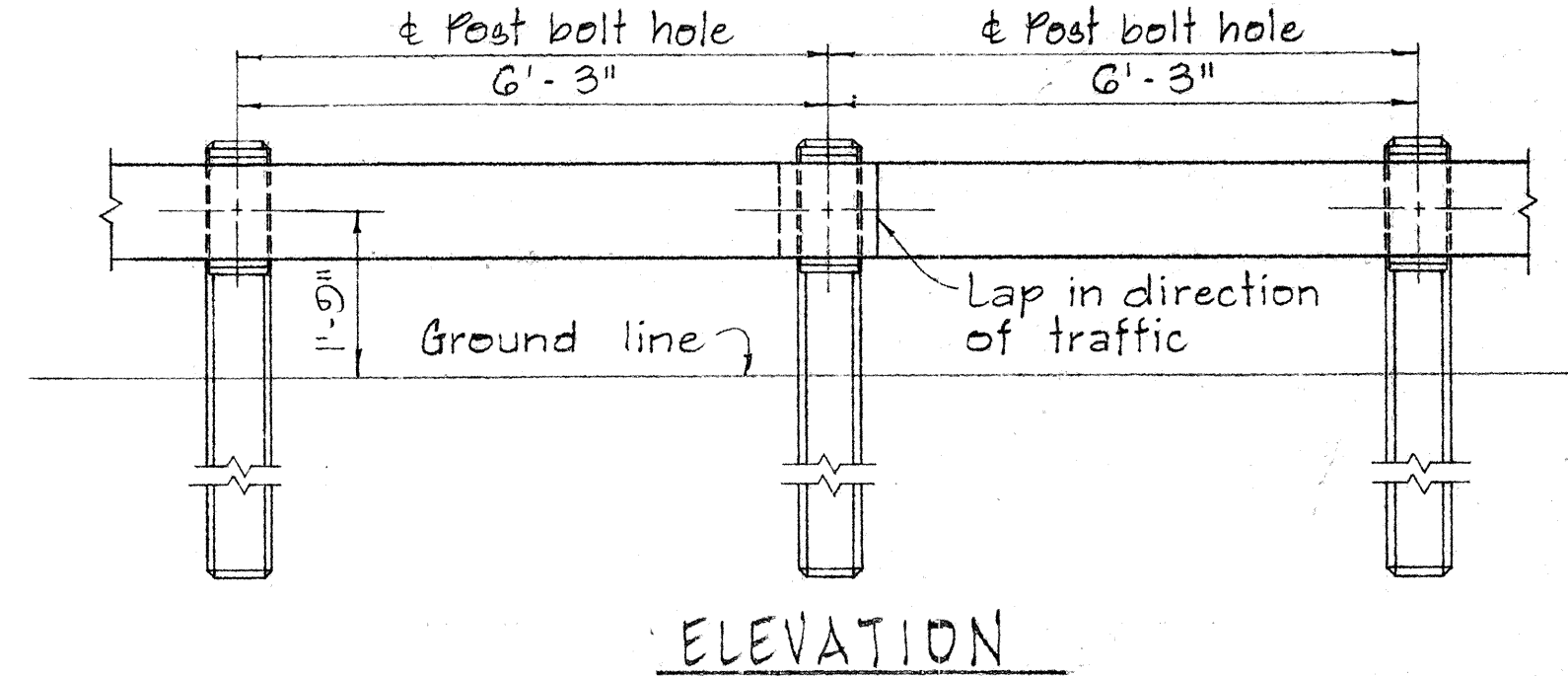
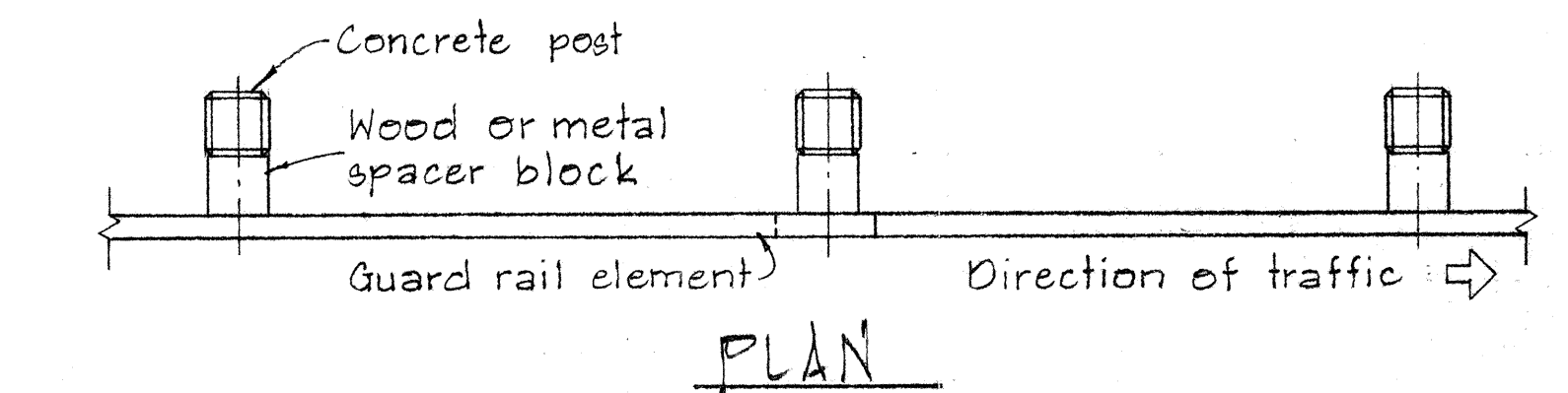
SINGLE METAL GUARD RAIL ON METAL POST
WITH METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"



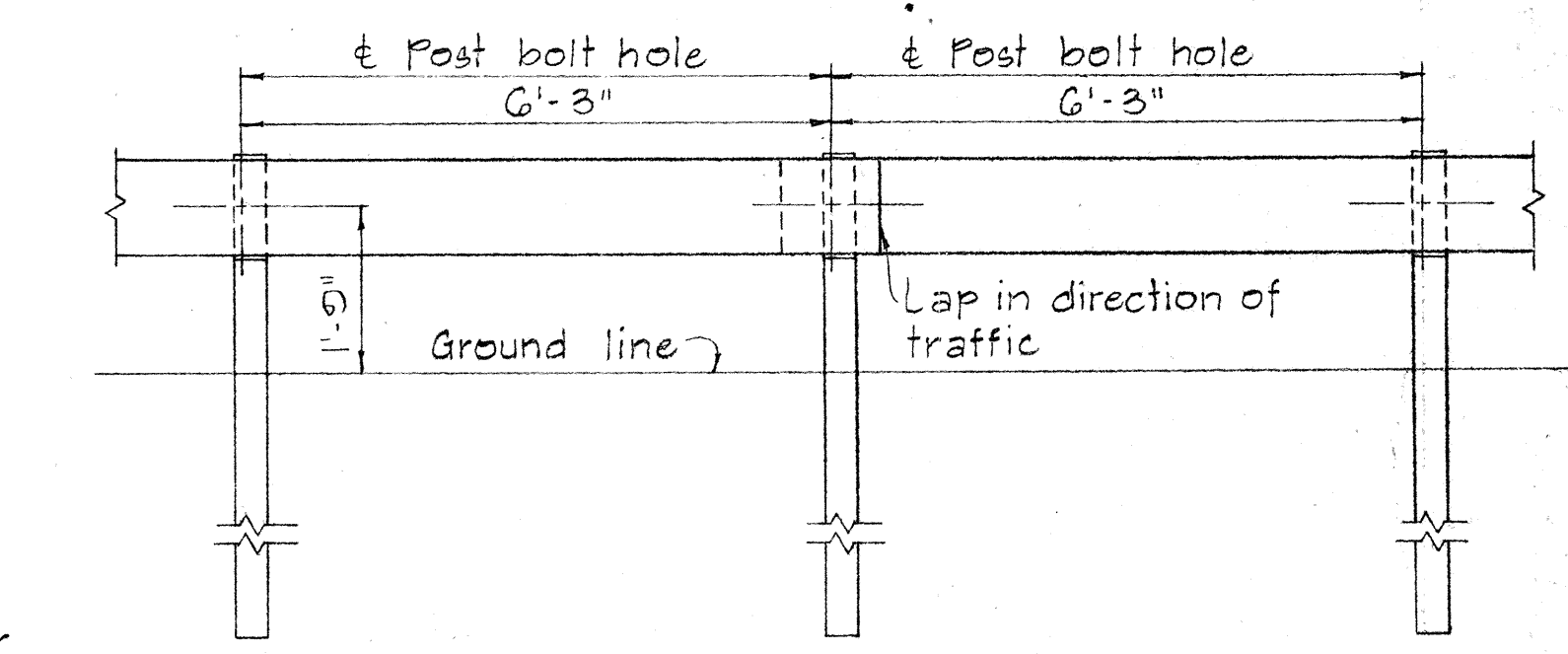
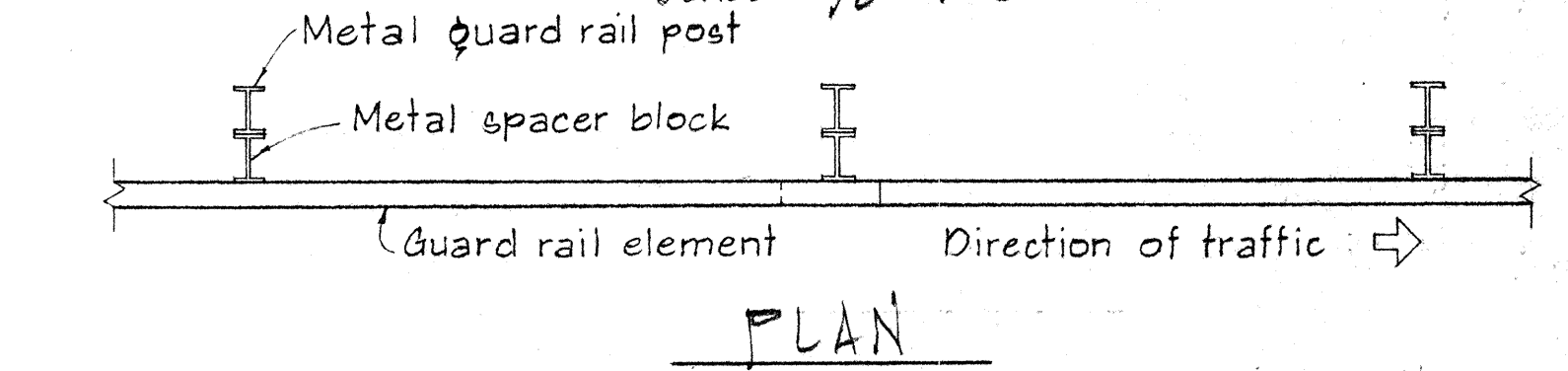
SINGLE METAL GUARD RAIL ON PRECAST
CONCRETE POST WITH WOOD OR METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"



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



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



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL GUARD RAIL

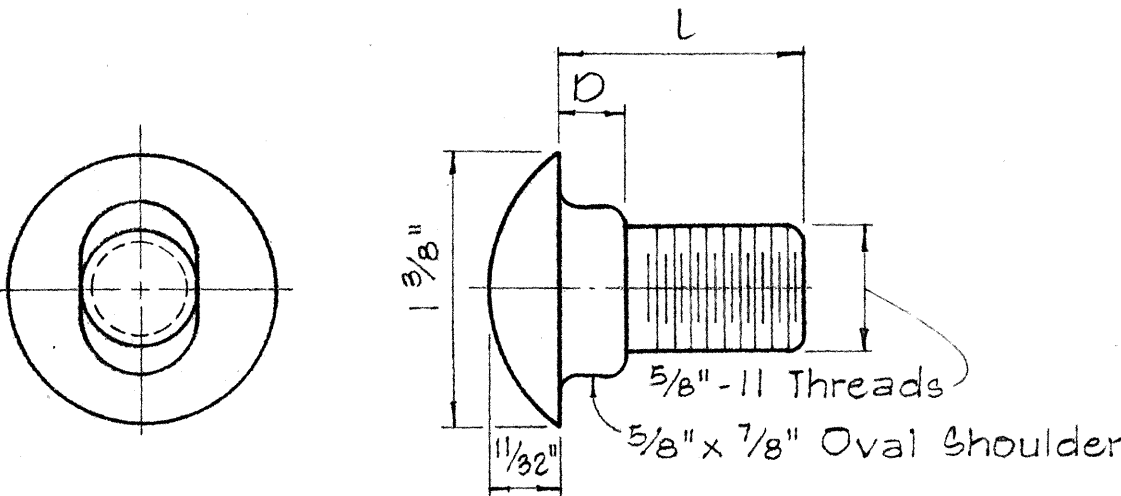
SCALE: AS SHOWN NOV. 1968
SHEET No. 3 OF 7 SHEETS DT 500

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	S-0630(11) S-0630(7)	1968	15	83

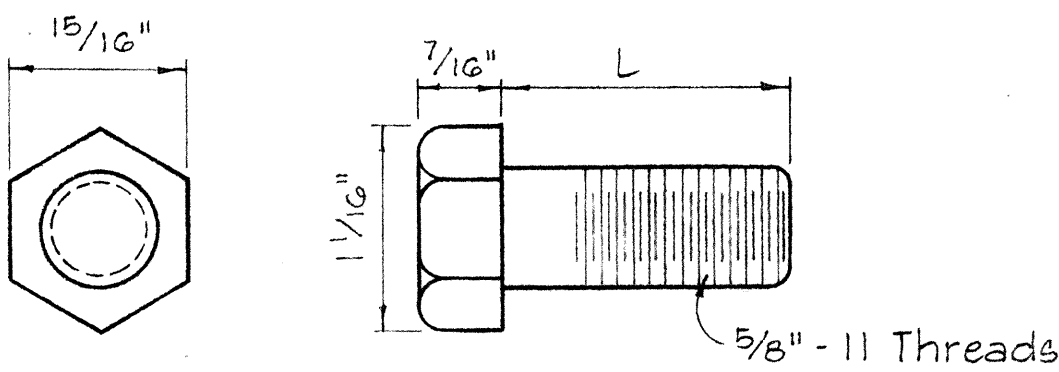
Revised: Dec. 11, 1968

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	3 1/2"
Post Bolt for Metal Post w/ Metal Block	1 3/4"



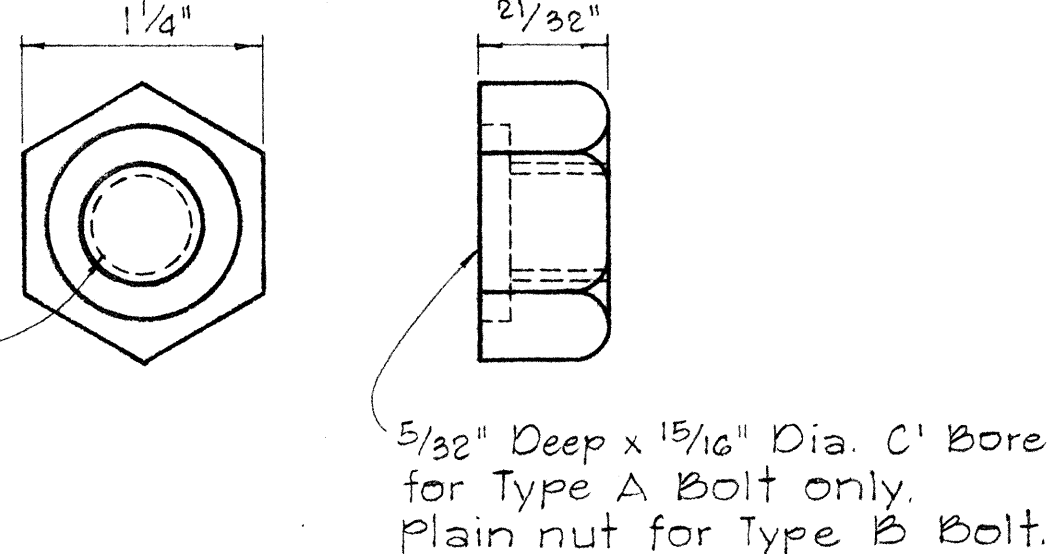
TYPE A BOLT



TYPE B BOLT

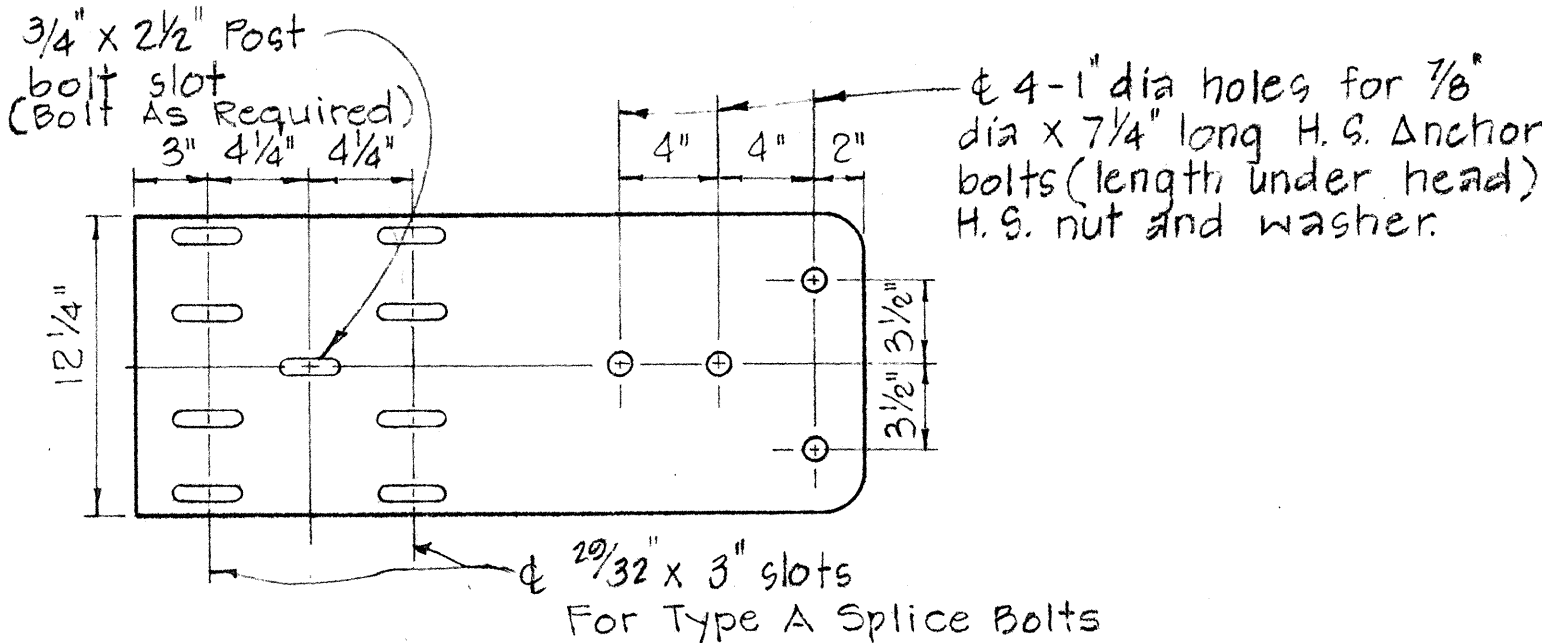
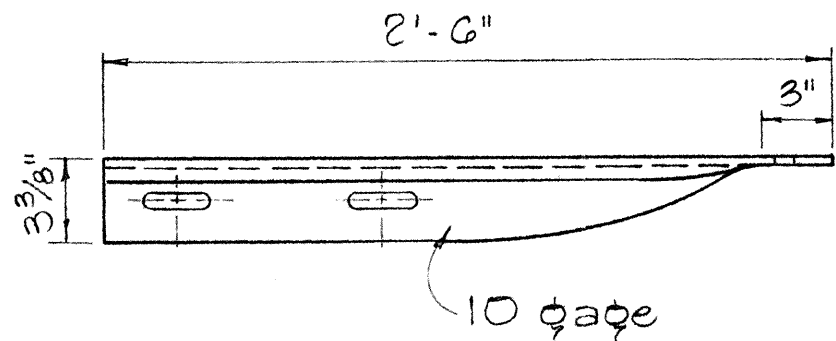
SPUCE RAIL AND POST BOLTS

Scale: Full Size



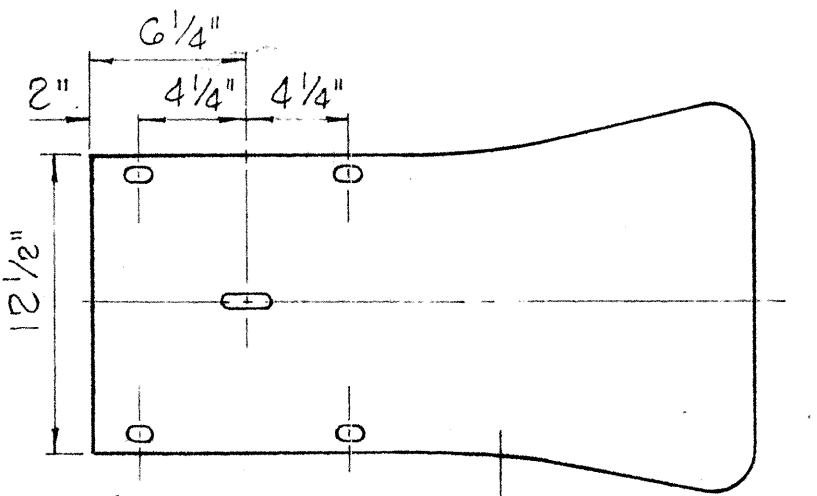
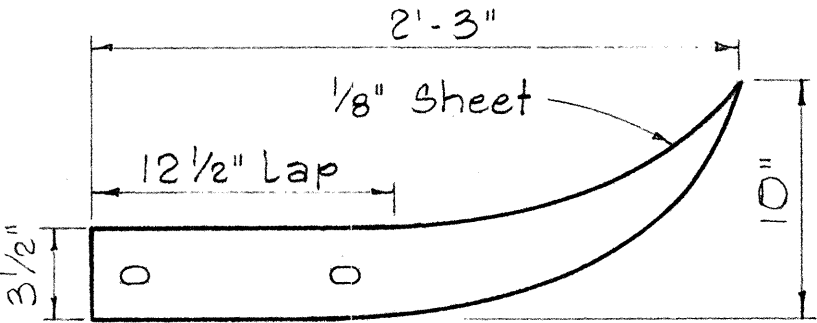
HEXAGON NUT

Scale: Full Size



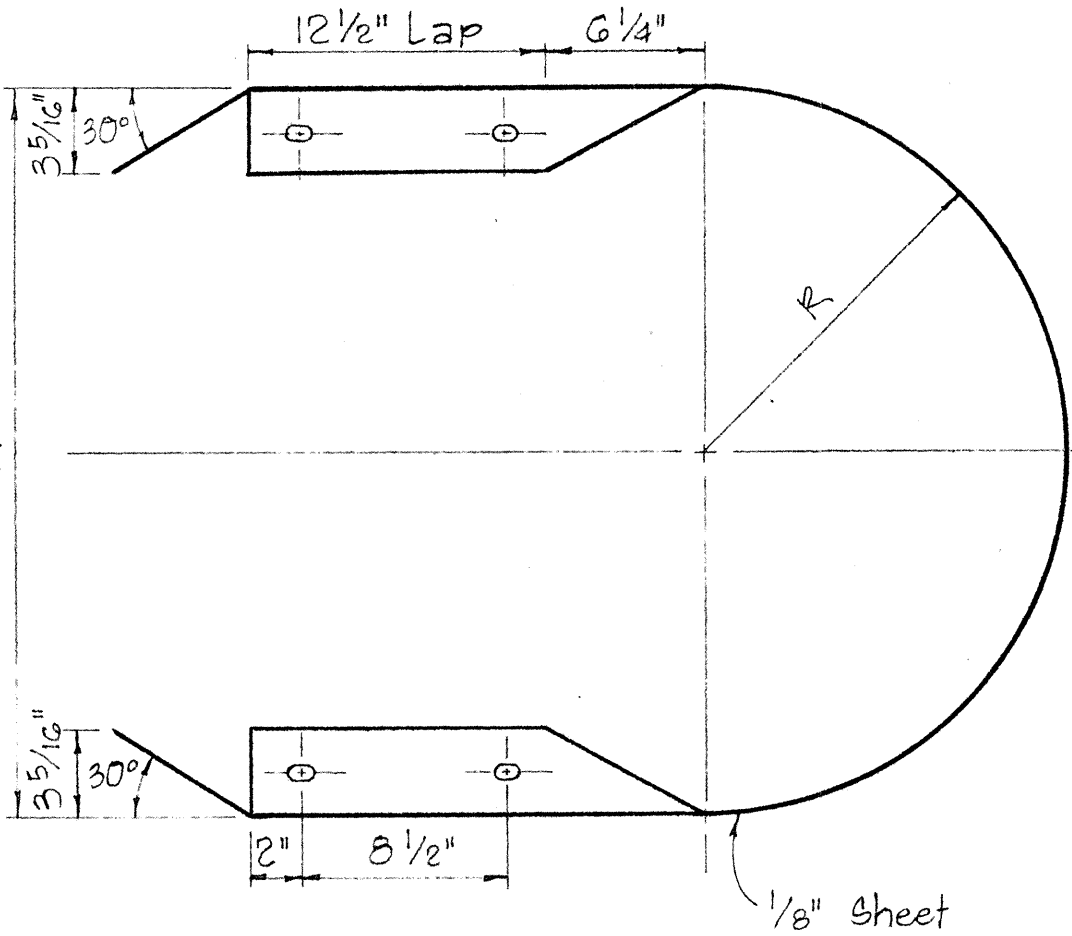
SPECIAL END SHOE

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



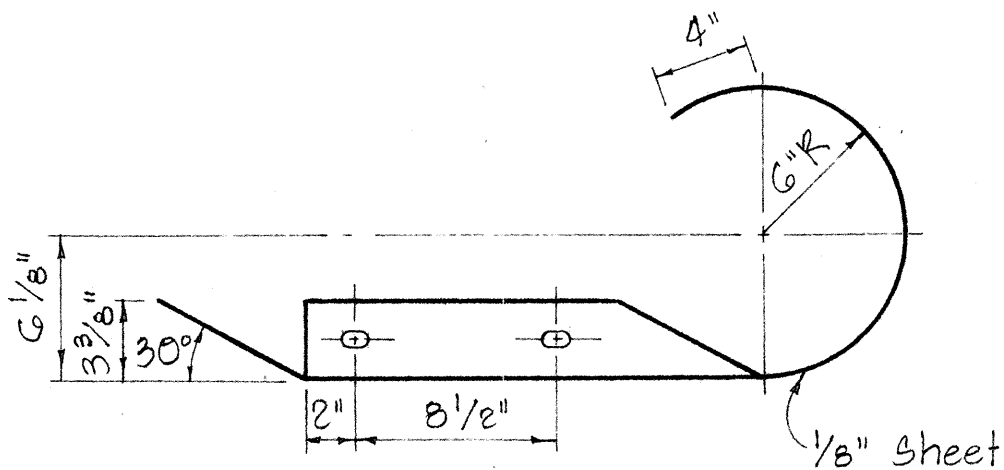
FLARED END

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



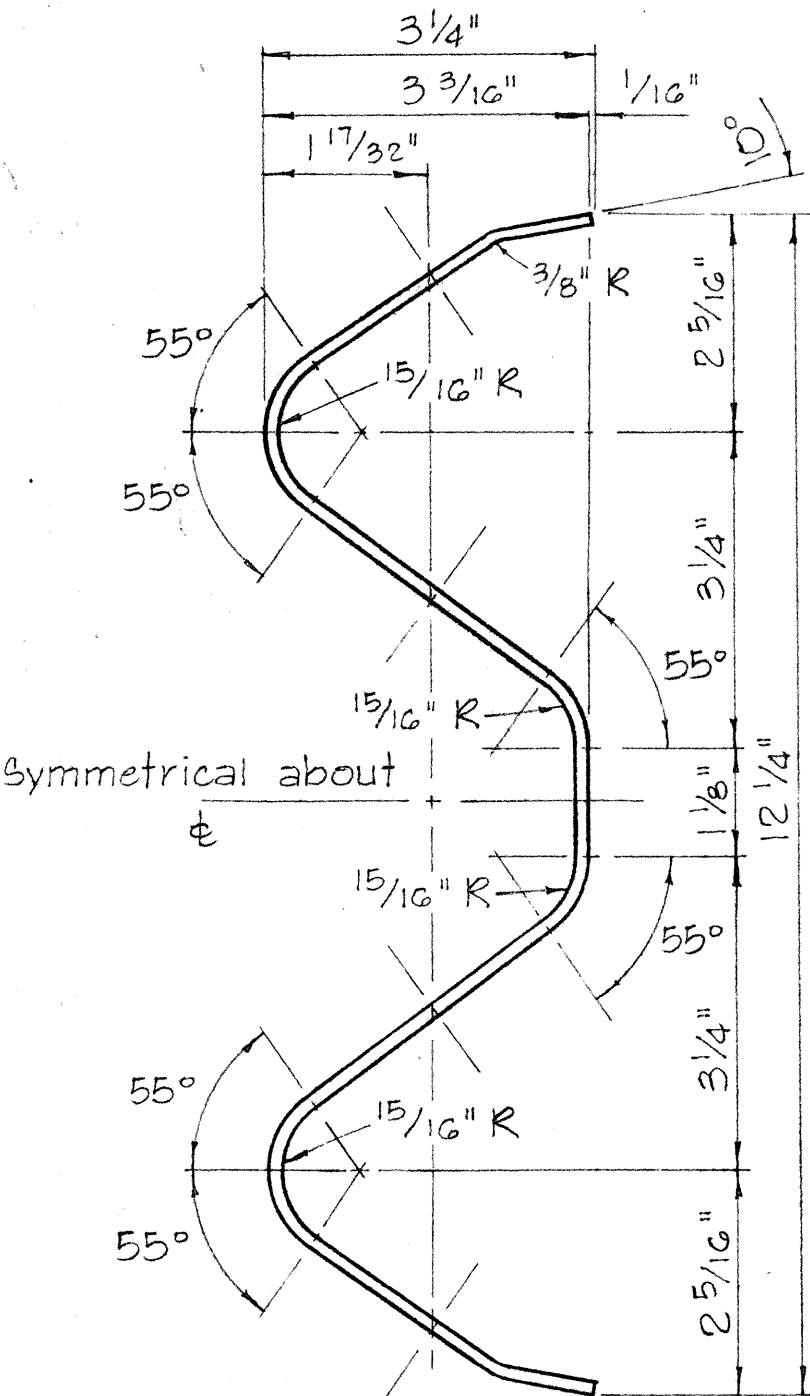
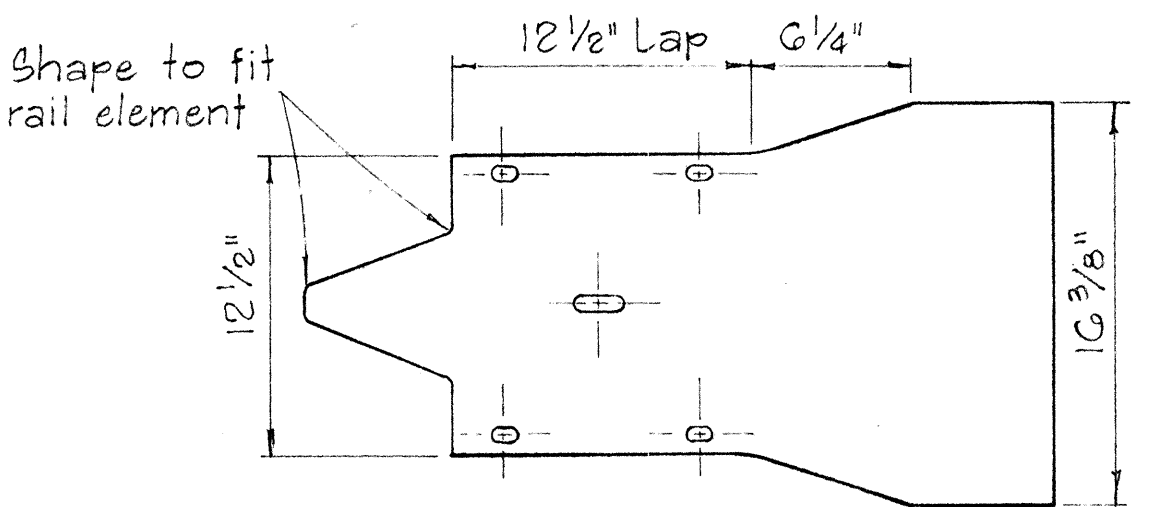
MEDIAN END

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



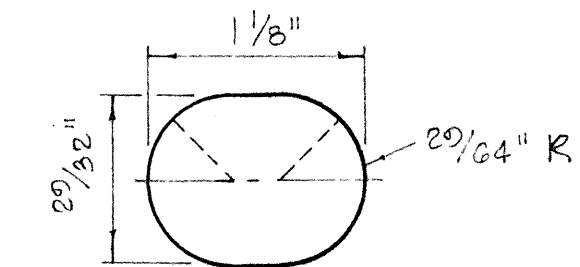
CURVED END

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



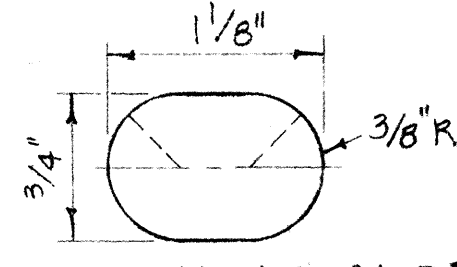
RAIL ELEMENT SECTION

Scale: 6" = 1'-0"

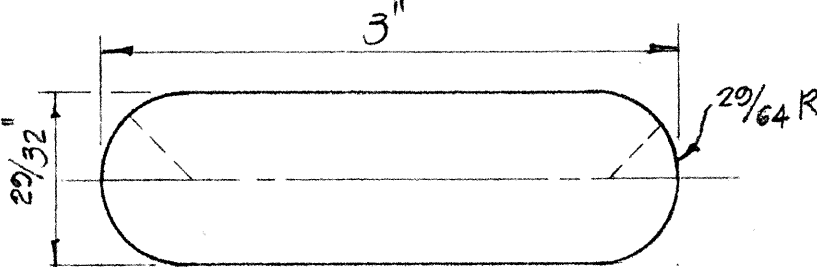


SPUCE BOLT SLOT

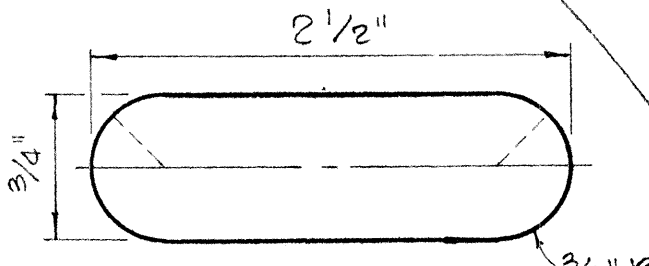
Scale: Full Size



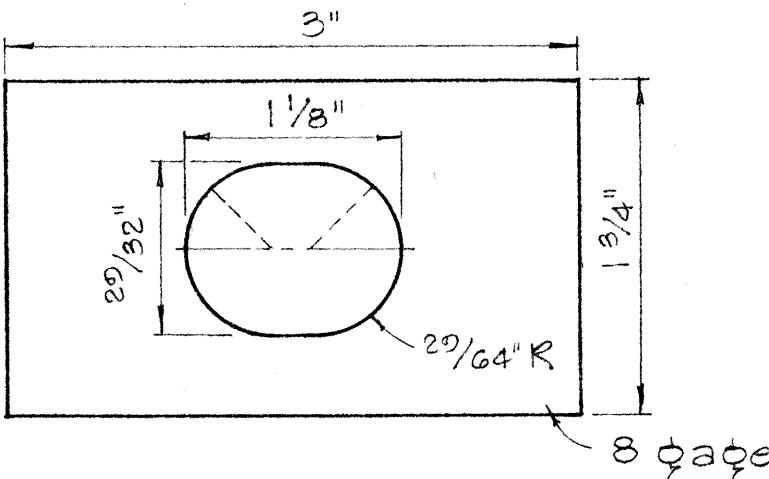
SPUCE BOLT SLOT FOR ALL ENDS



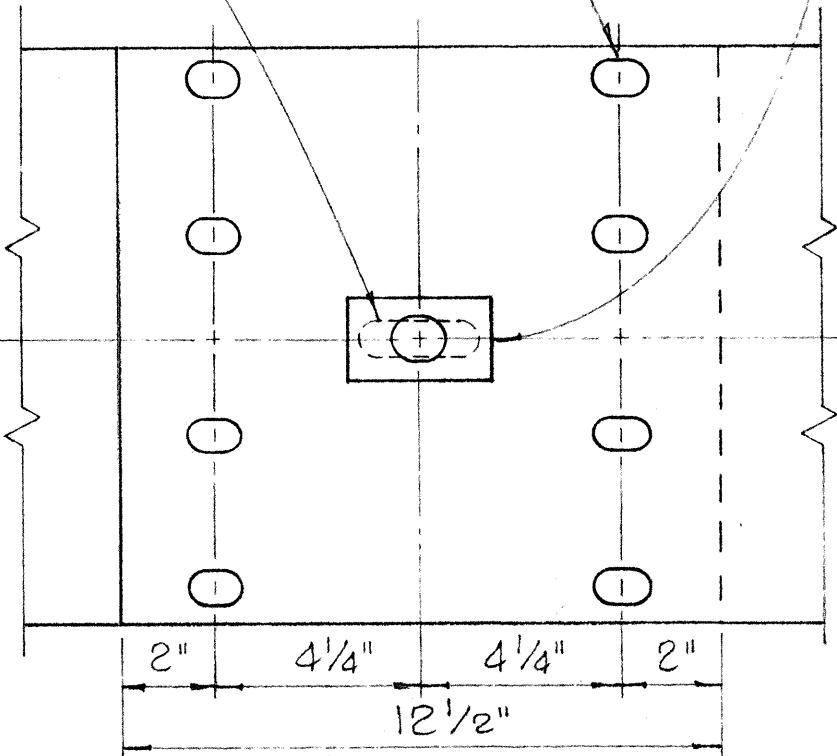
SPUCE BOLT SLOT FOR SPECIAL END SHOE



POST BOLT SLOT



RAIL WASHER



RAIL SPUCE

Scale: 3" = 1'-0"

NOTES:

- H.S. Bolts shall conform to the requirements of ASTM A-325.
- Special End Shoe shall be fabricated from 10 Gauge steel, conforming to the requirements of AASHO 180.

MEDIAN END DIMENSIONS		
TYPE OF POST AND BLOCK	W	R
Double Metal Guard Rail on Concrete Post with Wood Blocks	25 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"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

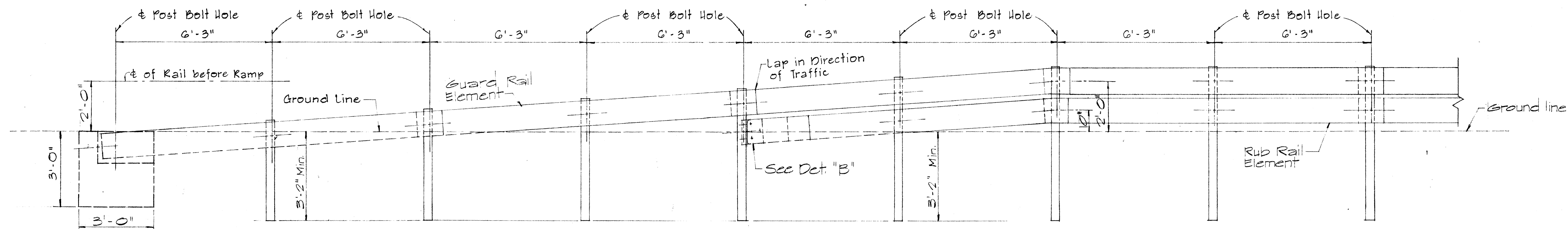
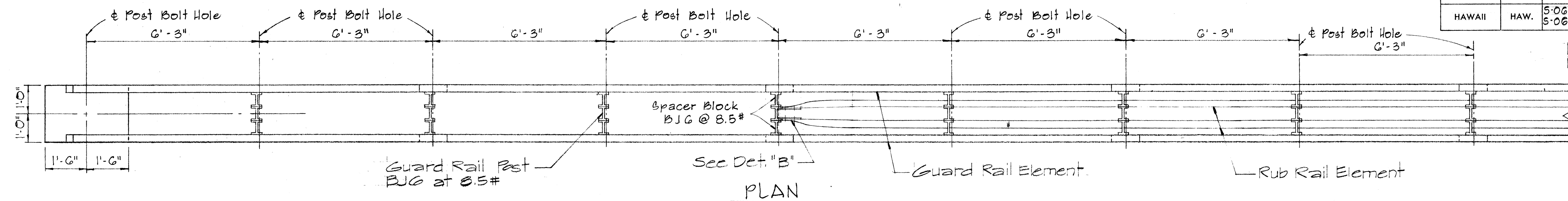
STANDARD DETAILS
METAL GUARD RAIL

Scale: As Noted August, 1968

SHEET No. 4 OF 7 SHEETS DT 501

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	5-0630(7) 5-0630(11)	1968	16	83

REVISED: 12-11-68
REVISED: 2-29-69

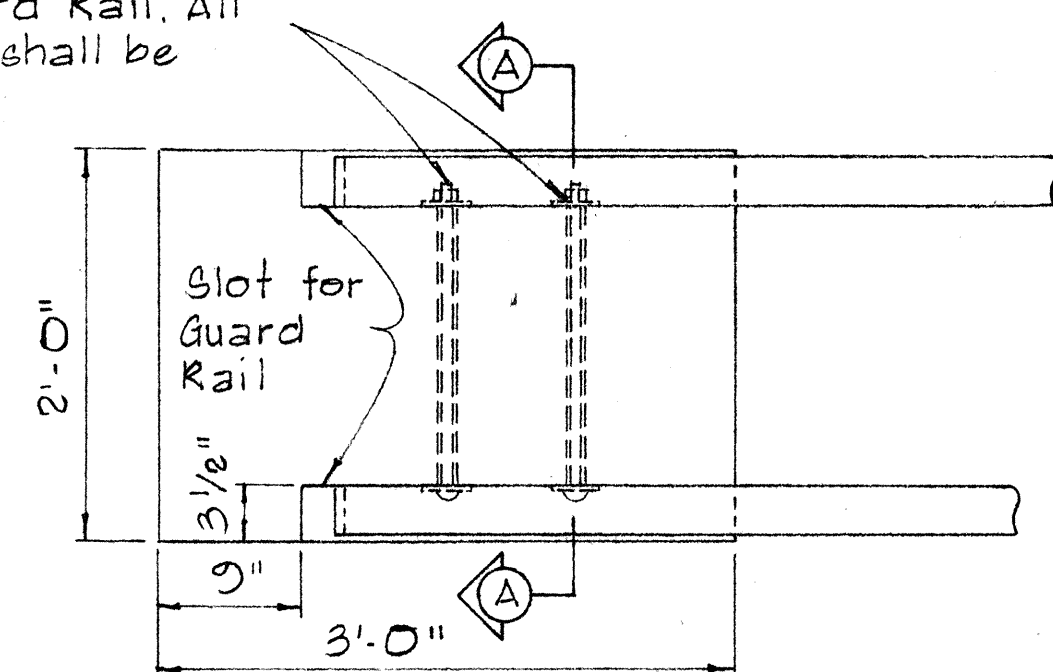


ELEVATION

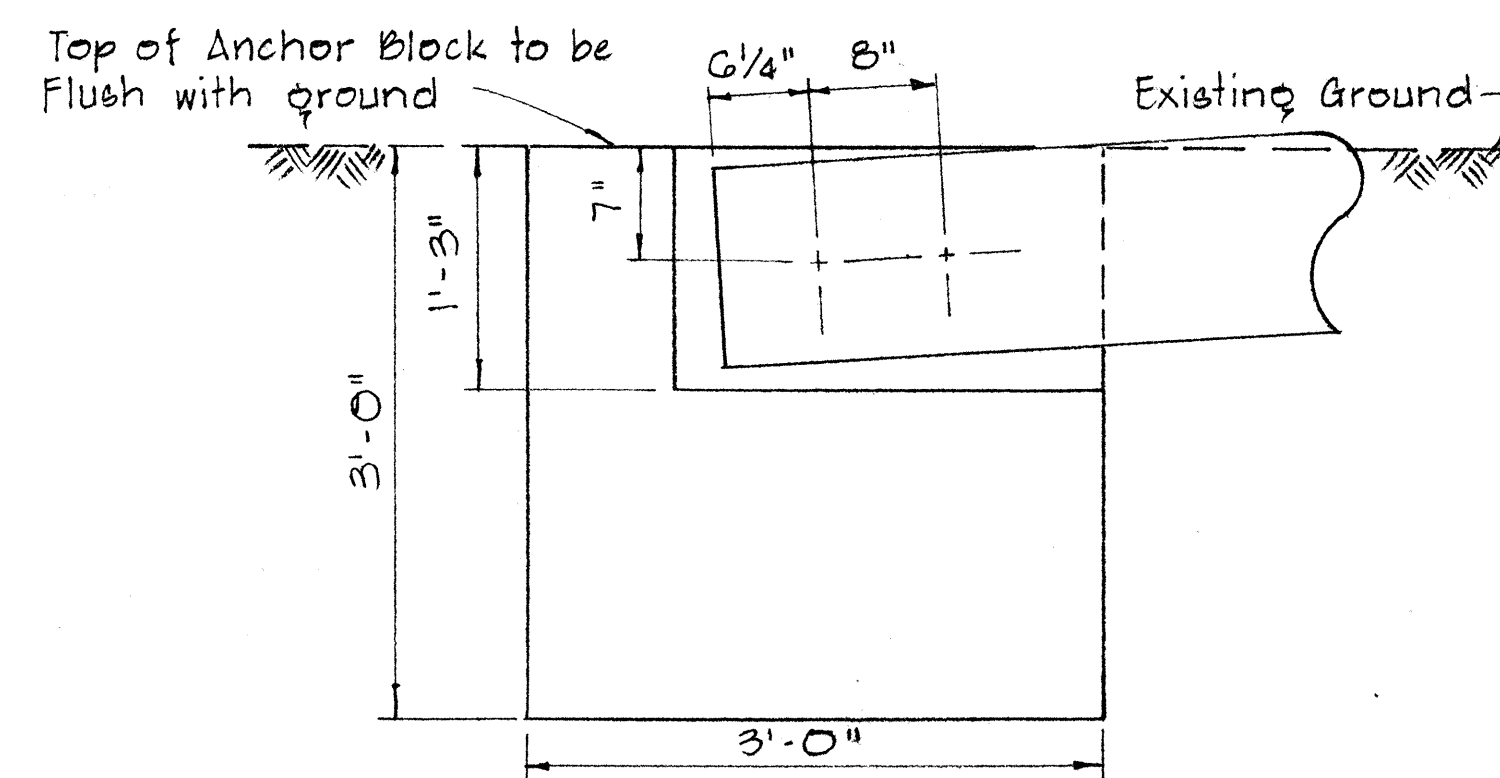
STRAIGHT APPROACH - RAMP END ANCHORAGE (MEDIAN)

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

5/8" Bolts with 3/4" G.I. Pipe Sleeve in each hole. Incidental to Metal Guard Rail. All Metal Pieces shall be Galvanized.



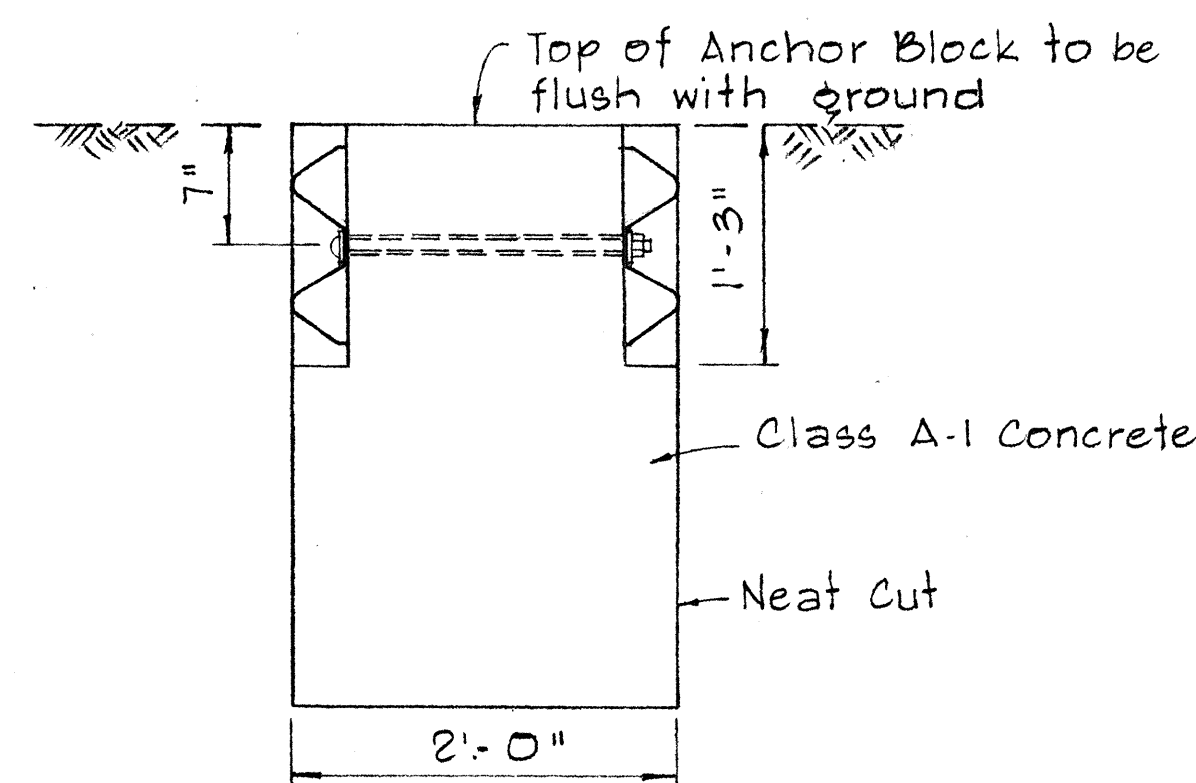
PLAN



ELEVATION

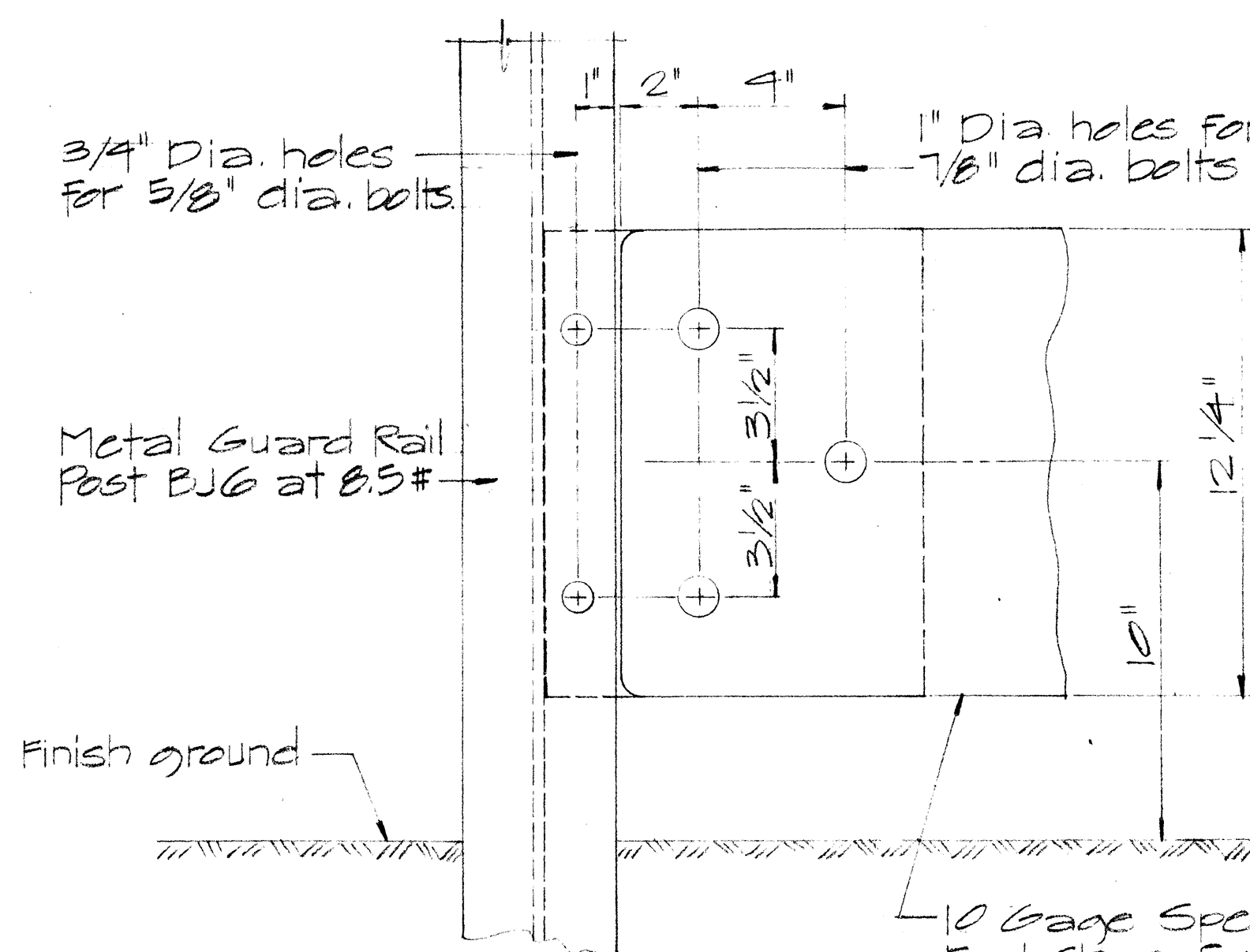
CONCRETE ANCHOR BLOCK FOR RAMP END

Scale: 1"=1'-0"



SECTION A-A

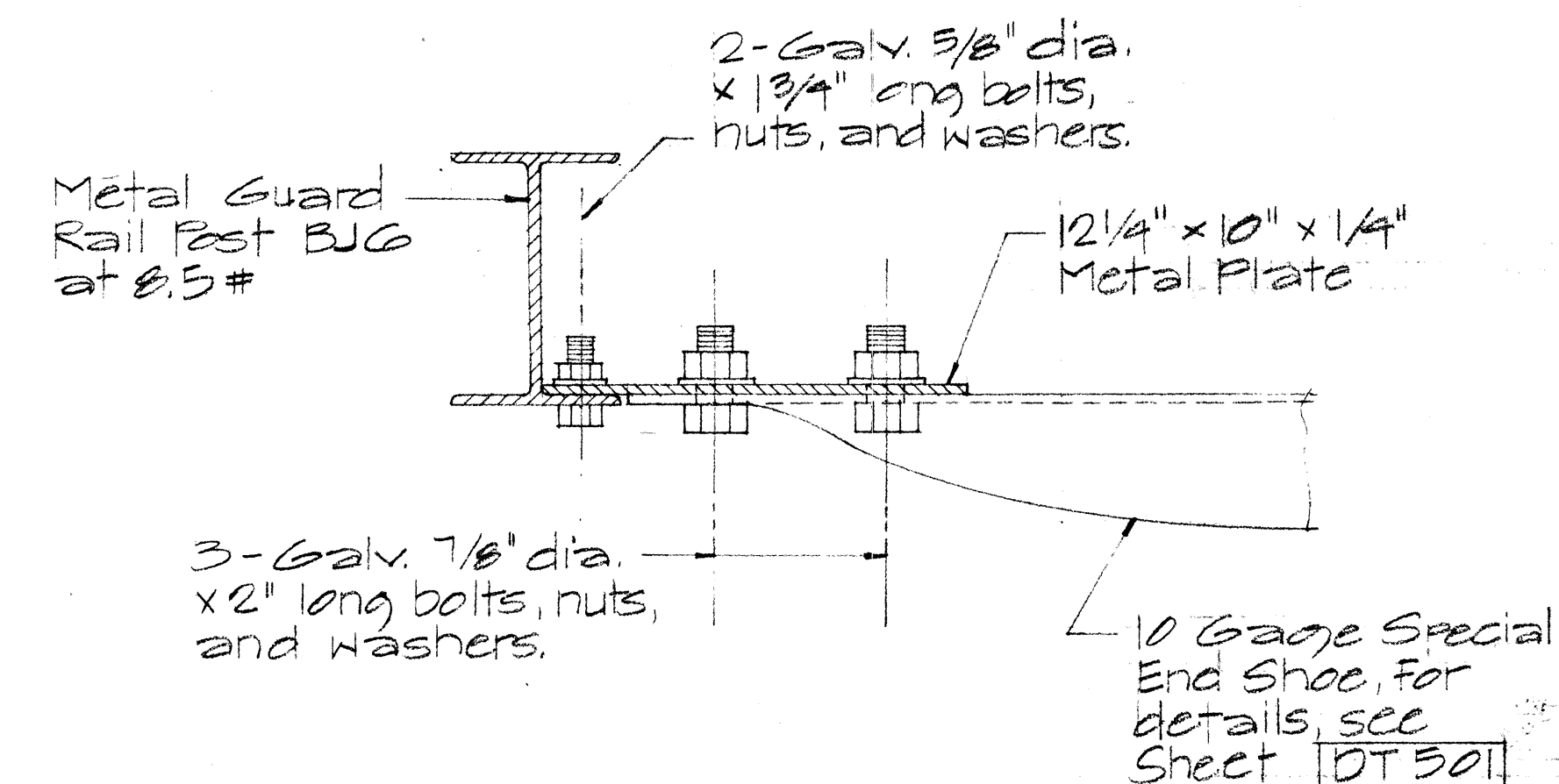
NOTE: Concrete, Excavation, and Miscellaneous Appurtenances necessary to anchor the Guard Rail Ends, shall be incidental to the Metal Guard Rail.



ELEVATION

DETAIL "B"

Scale: 3/4"=1'-0"



PLAN

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAIL GUARD RAIL RAMP END ANCHORAGE

Scale: as Noted

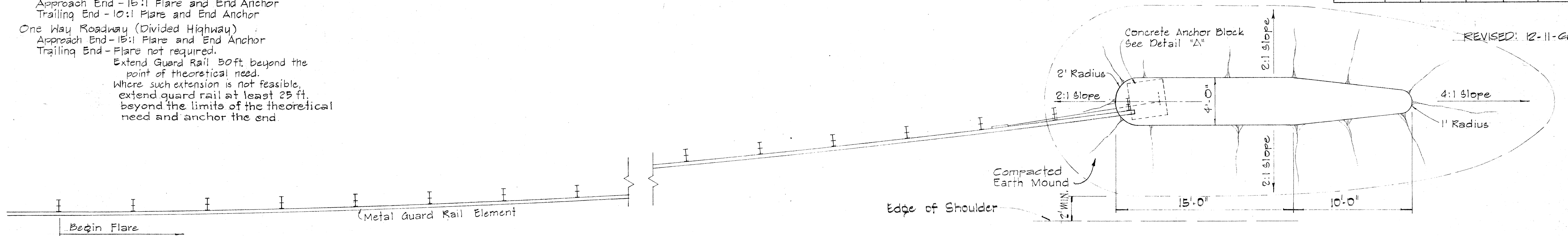
August, 1968

SHEET No. 5 OF 7 SHEETS DT 502

NOTE:

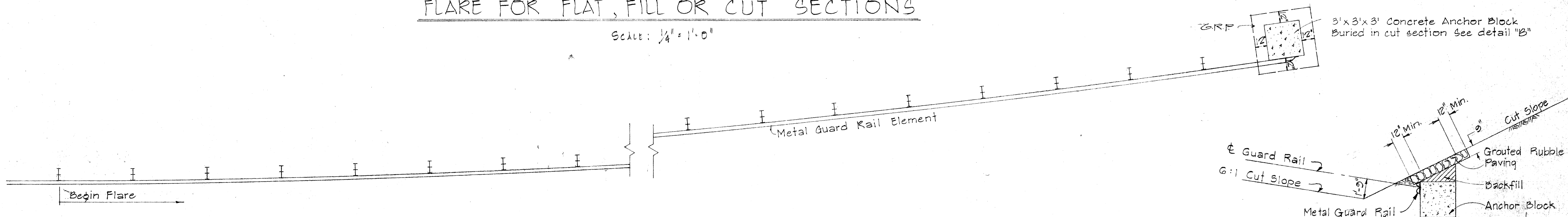
Two Way Roadway:
 Approach End - 15:1 Flare and End Anchor
 Trailing End - 10:1 Flare and End Anchor
 One Way Roadway (Divided Highway)
 Approach End - 15:1 Flare and End Anchor
 Trailing End - Flare not required.
 Extend Guard Rail 50ft. beyond the point of theoretical need.
 Where such extension is not feasible, extend guard rail at least 25 ft. beyond the limits of the theoretical need and anchor the end.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	5-0630(11) 5-0630(7)	1968	17	83



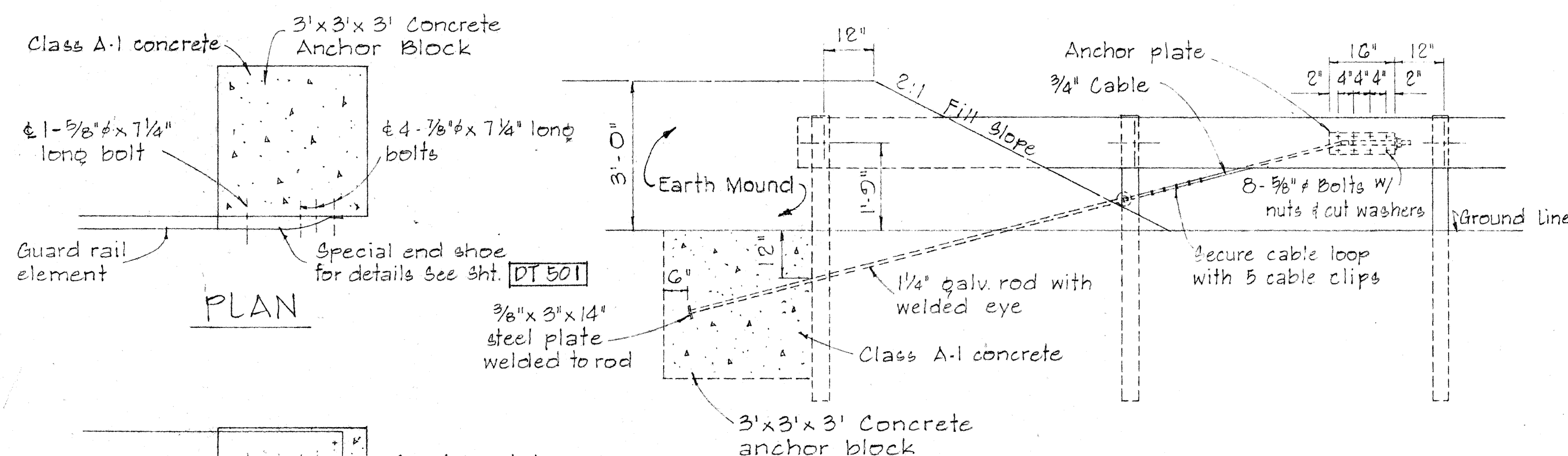
FLARE FOR FLAT, FILL OR CUT SECTIONS

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

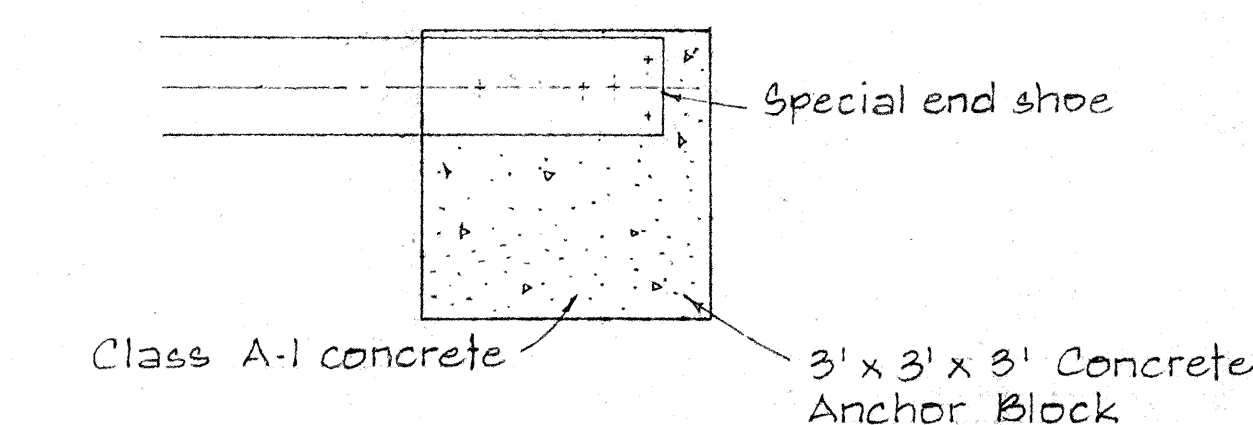


FLARE FOR CUT SECTION

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



PLAN



ELEVATION

ANCHOR BLOCK DETAIL

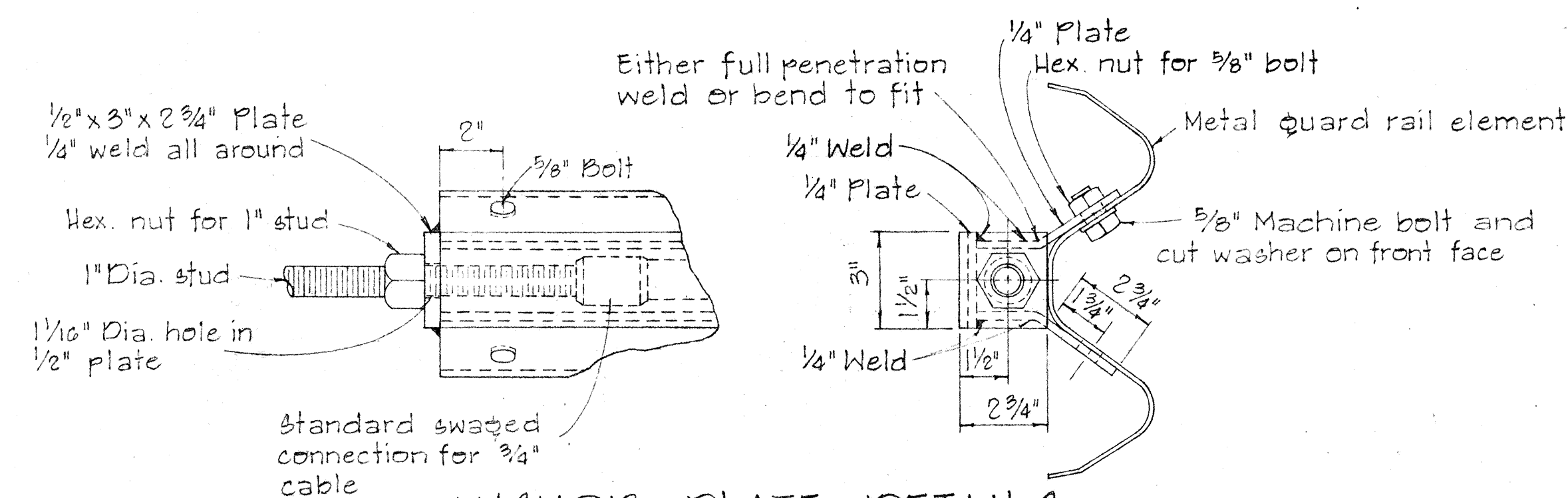
Scale: 1/2" = 1'-0"

DETAIL "A"

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

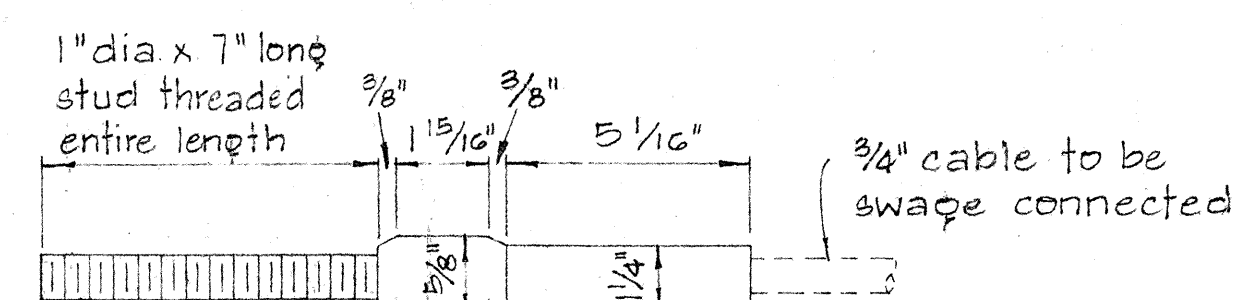
NOTE:

- Galvanized Anchor Rod, Metal Guard Rail and Post buried in ground shall be covered with coat of coal tar enamel.
- Concrete, GRR, Excavation, Earth Mound, Anchor Rods, and Miscellaneous Appurtenances necessary to anchor the Guard Rail Ends, shall be incidental to the Metal Guard Rail.



ANCHOR PLATE DETAILS

Scale: 1" = 3"



STANDARD SWAGED FITTING AND STUD

Scale: 1" = 3"

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

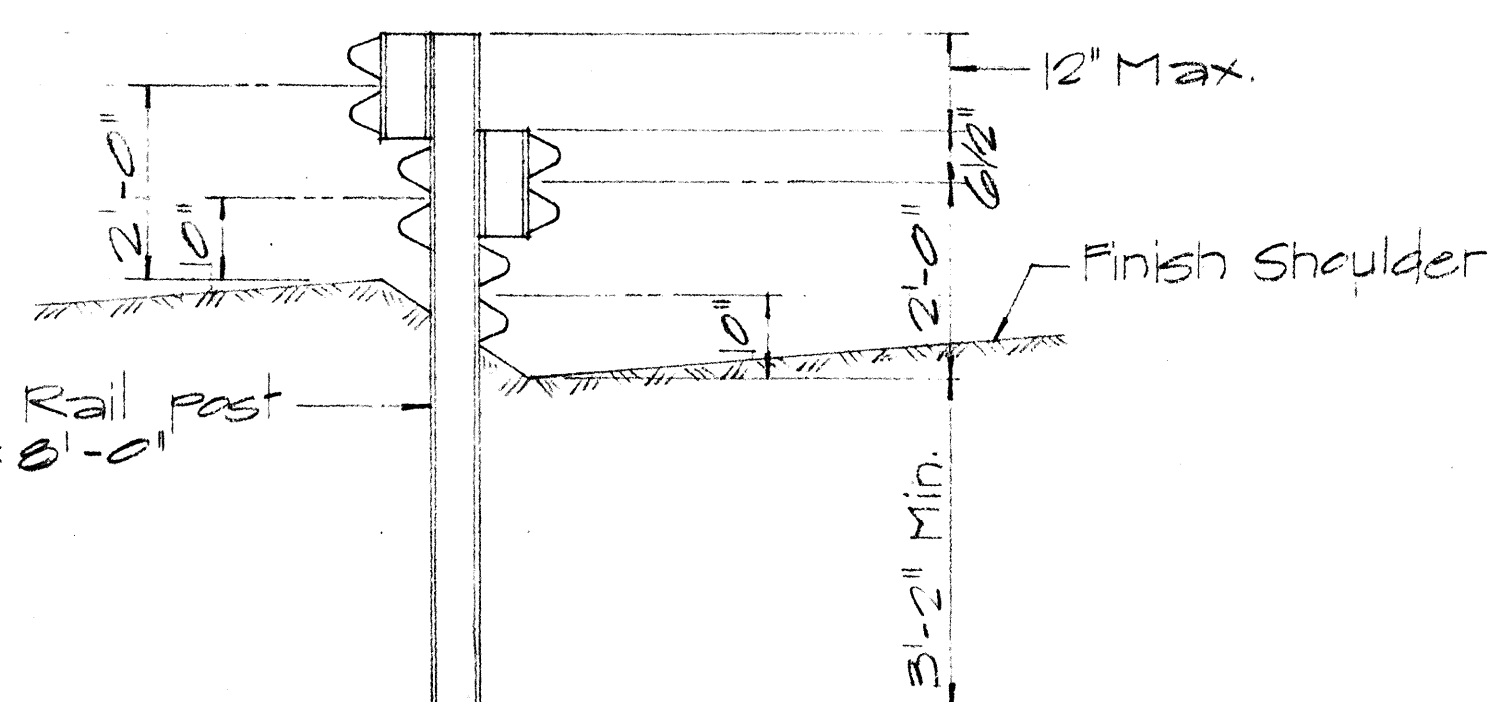
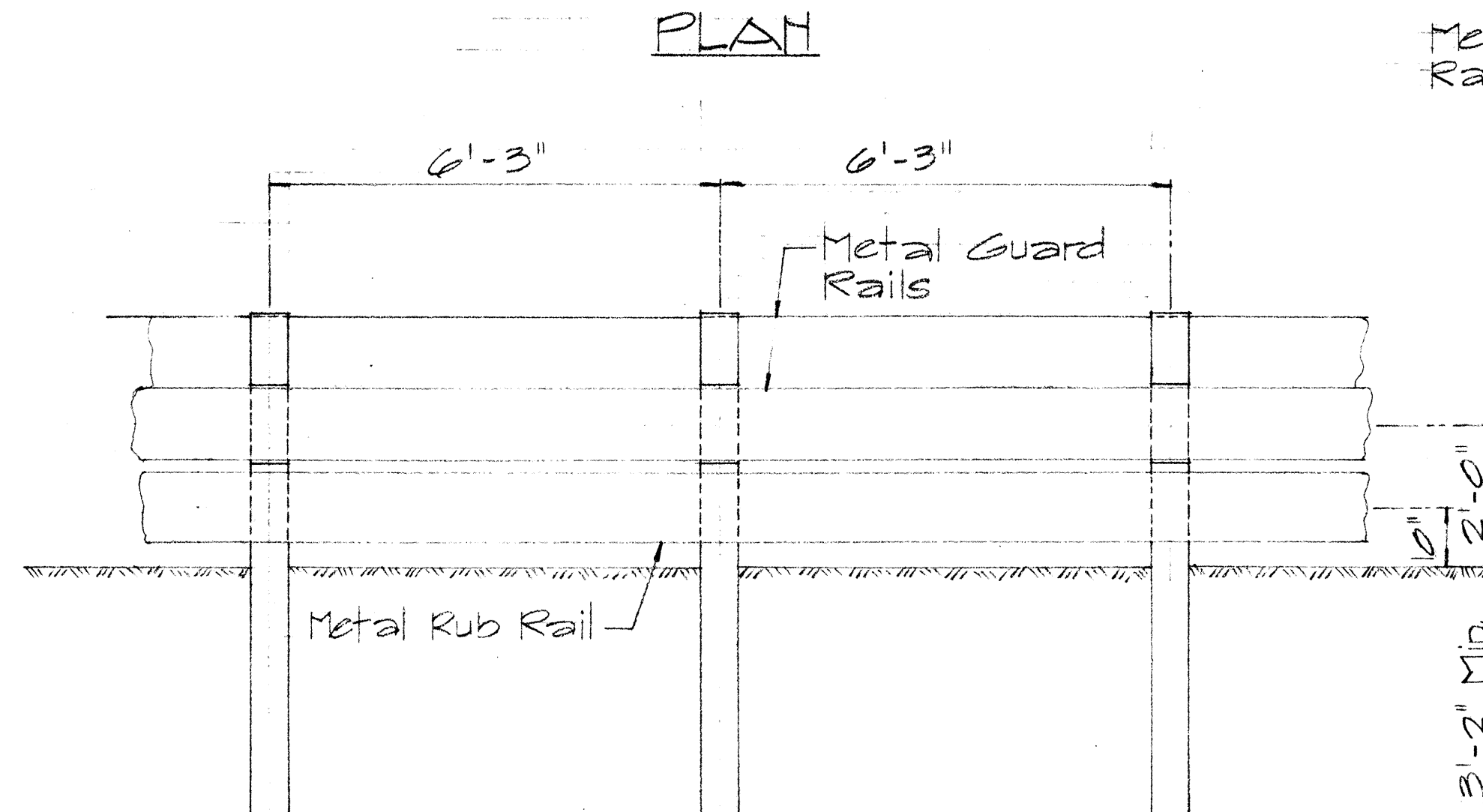
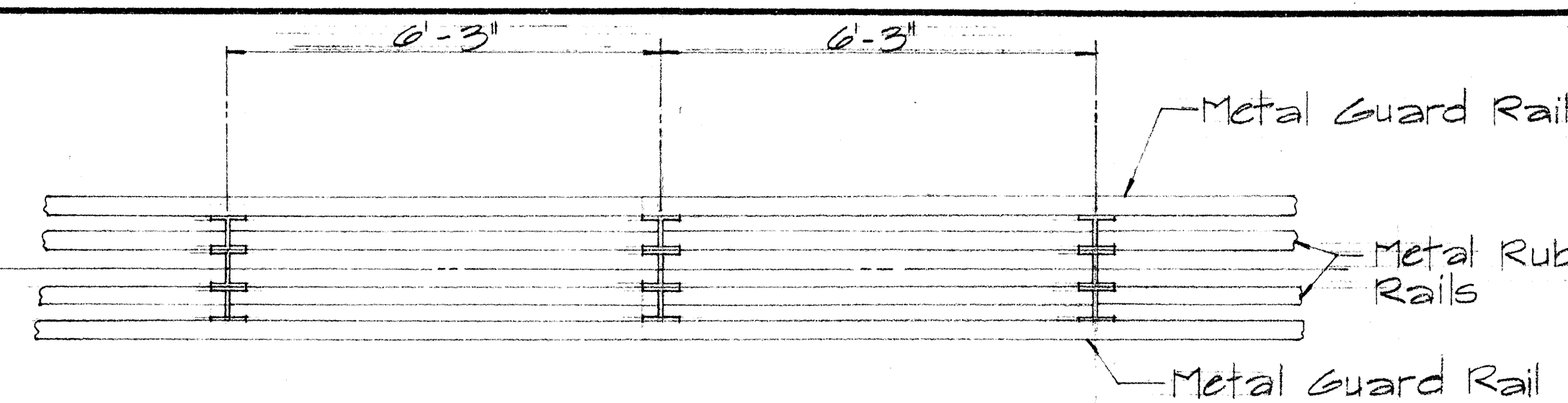
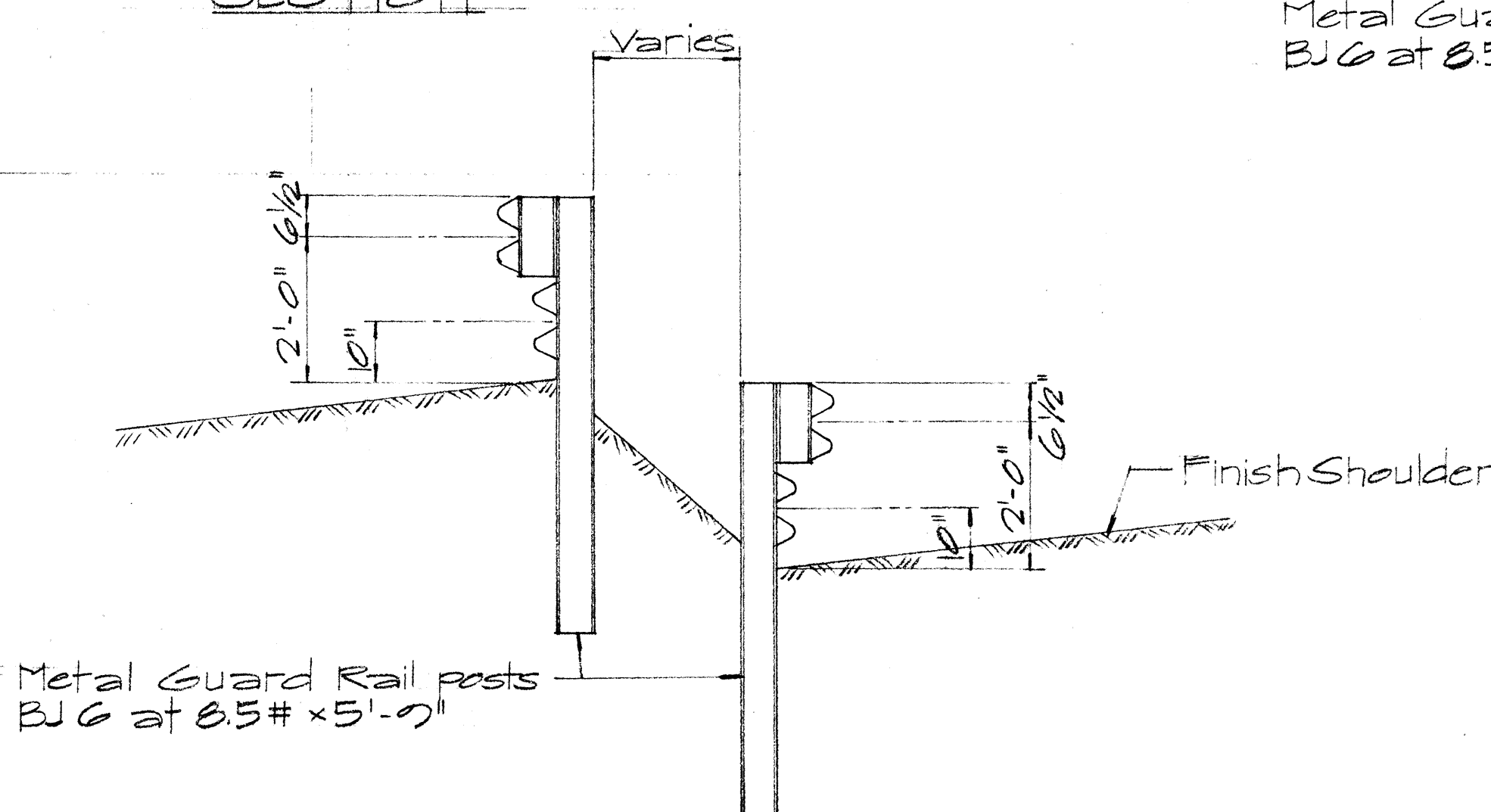
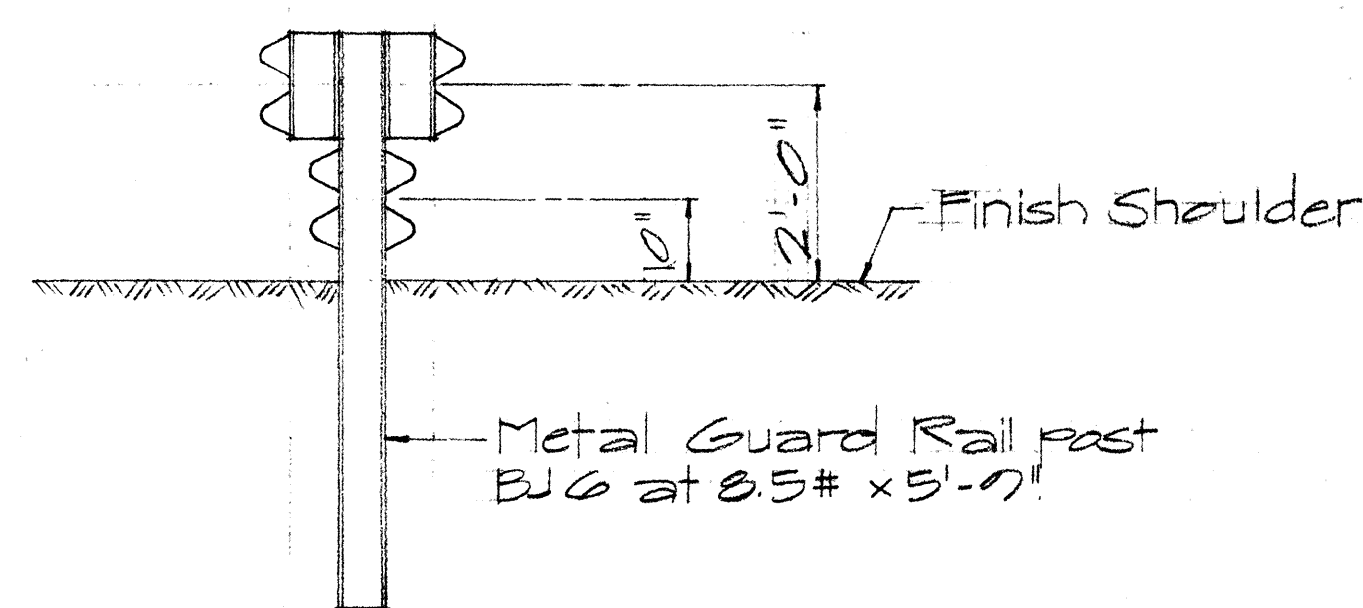
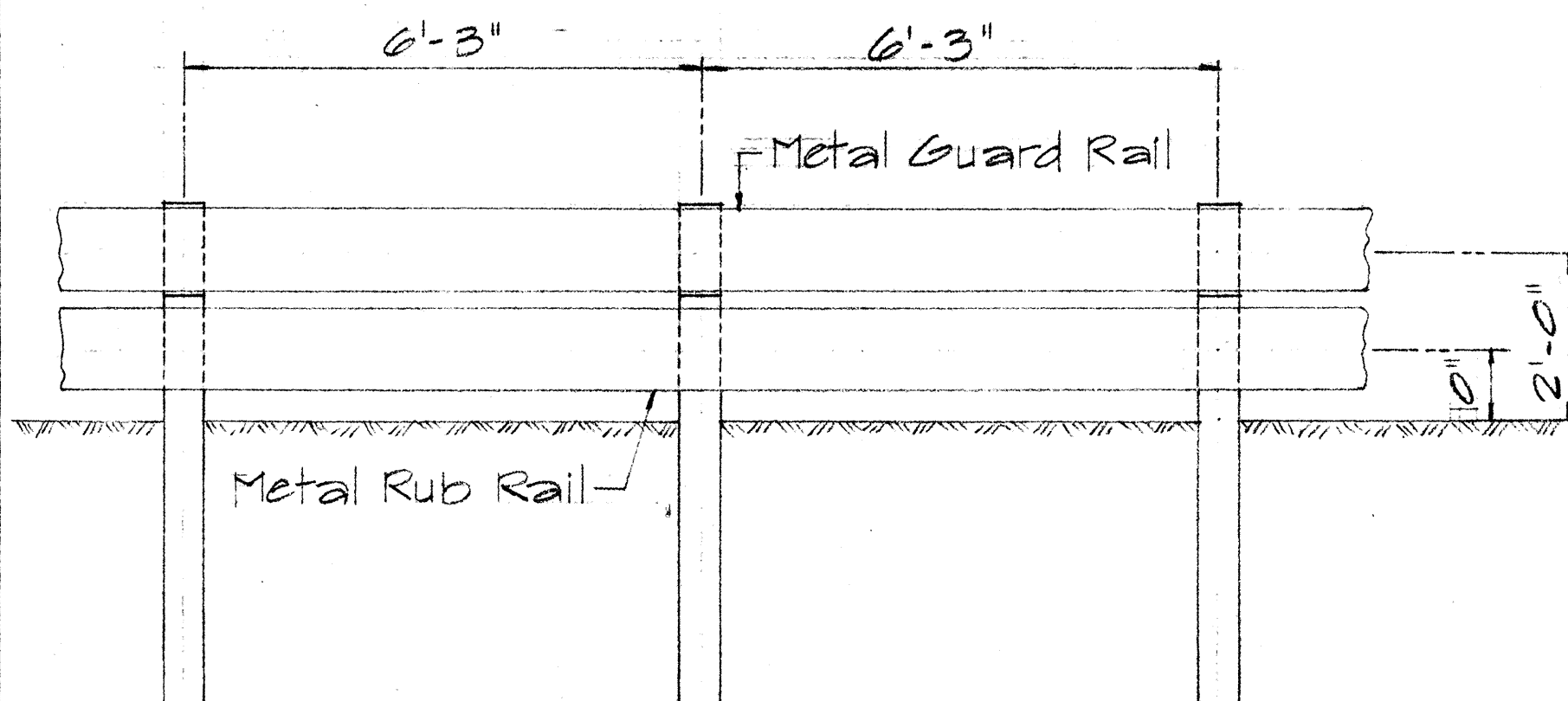
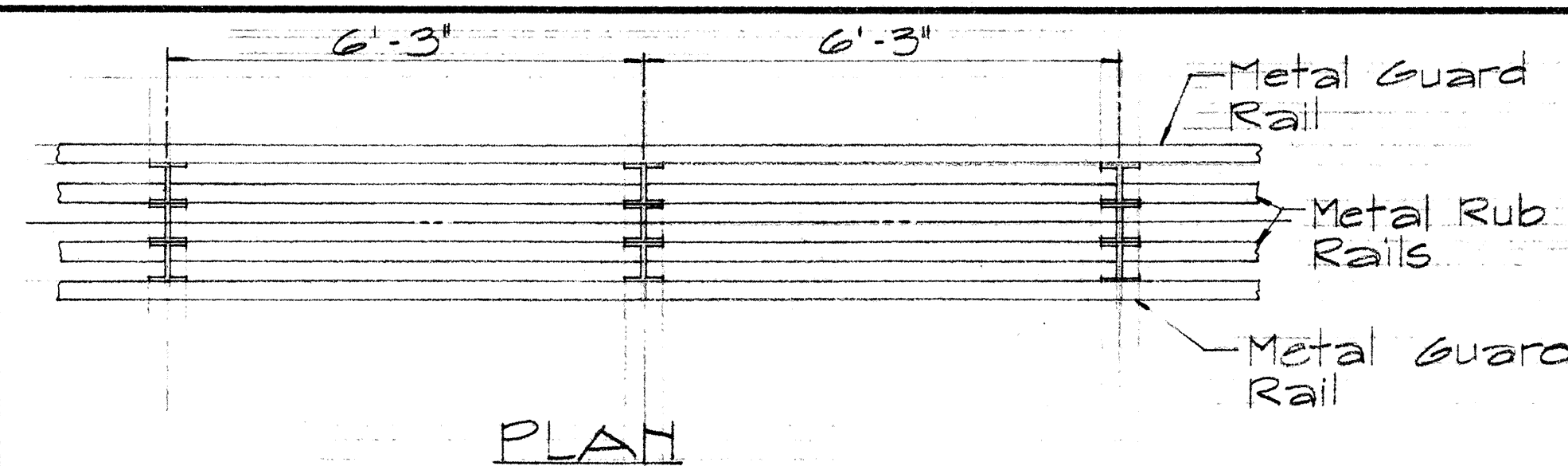
METAL GUARD RAIL FLARE DETAIL

Scale: As Shown

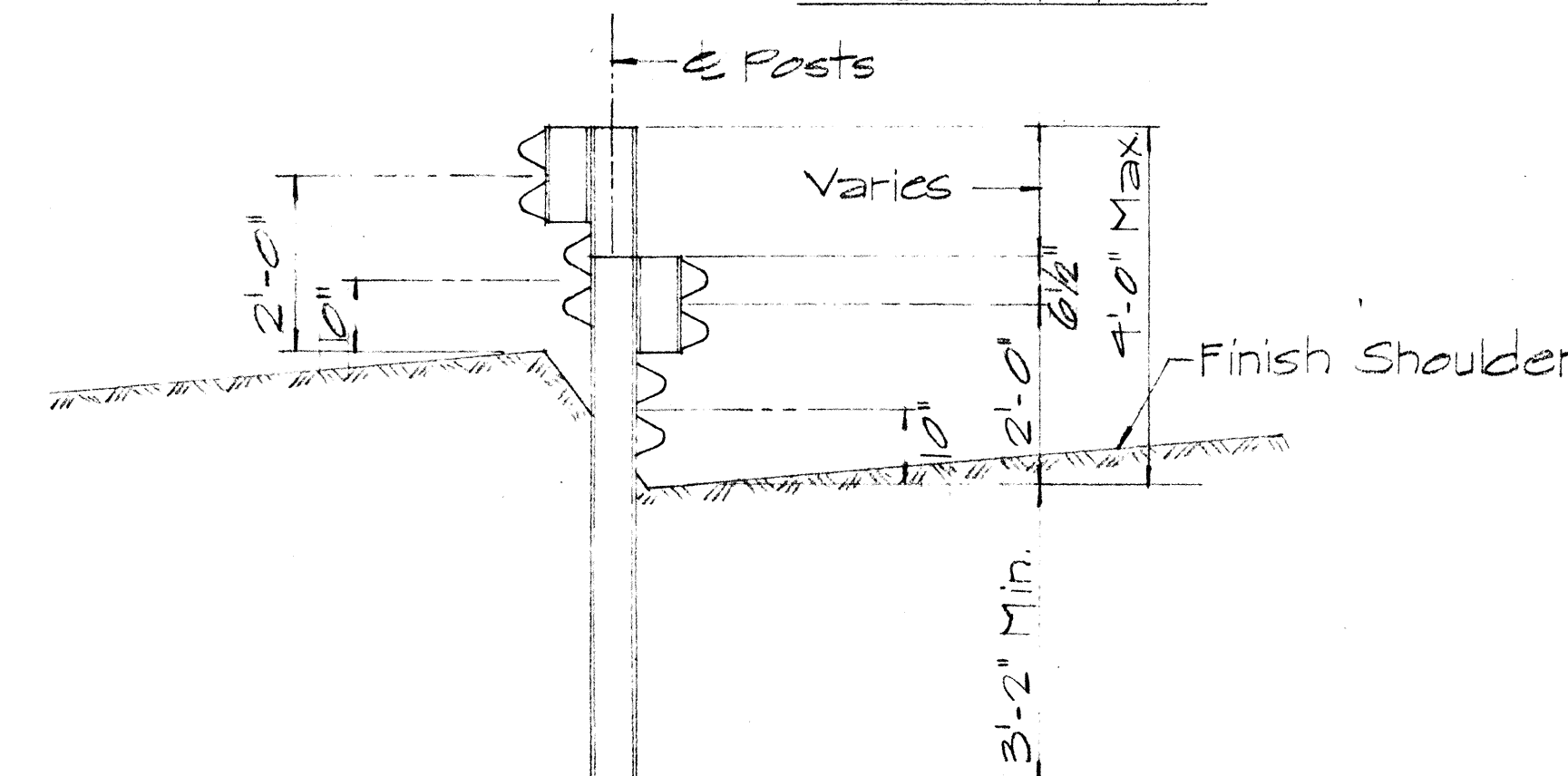
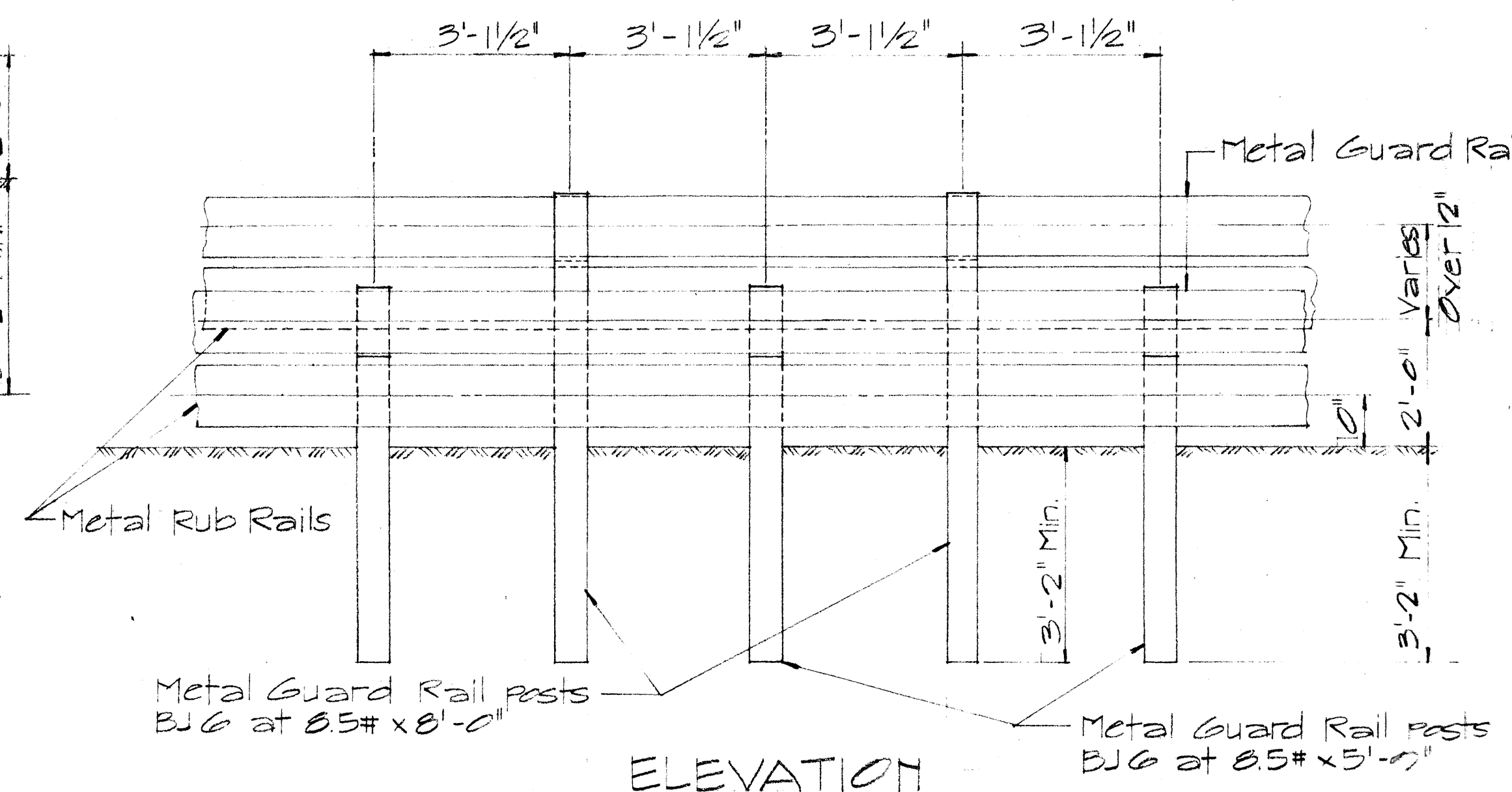
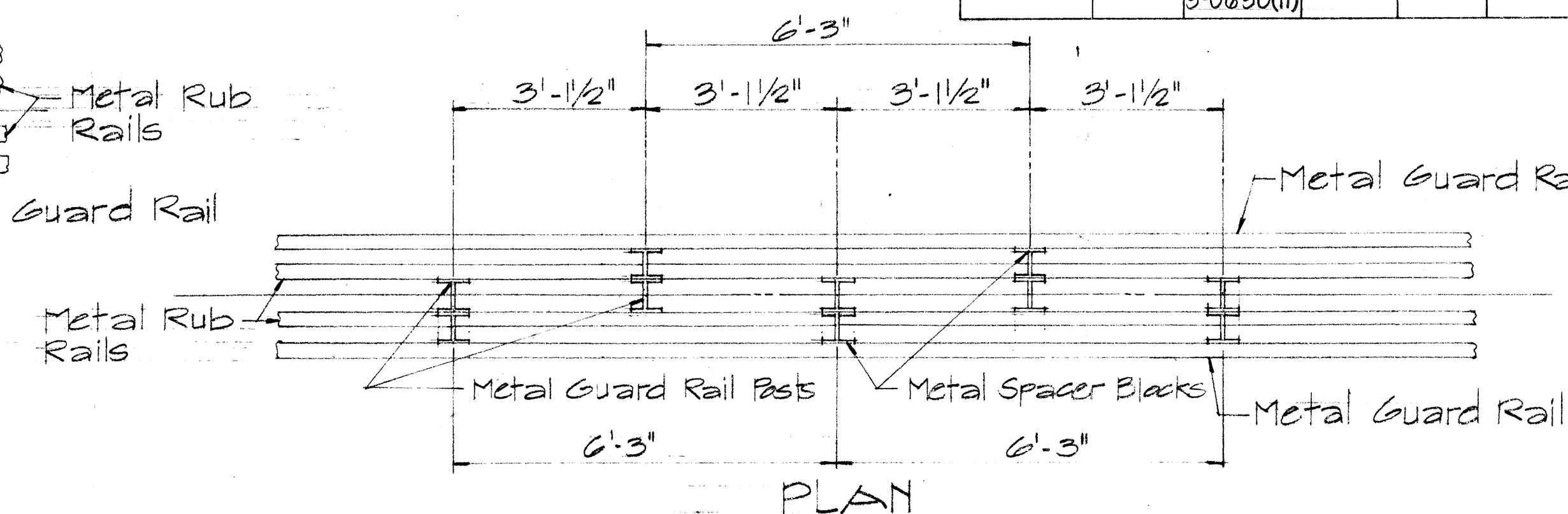
Nov. 1968

SHEET No. 6 OF 7 SHEETS DT 503

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	5-0630(7) 5-0630(11)	1968	18	83



TYPICAL SAW TOOTH INSTALLATION
Sc. 1/2" = 1'-0"



TYPICAL STAGGERED INSTALLATION
Sc. 1/2" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

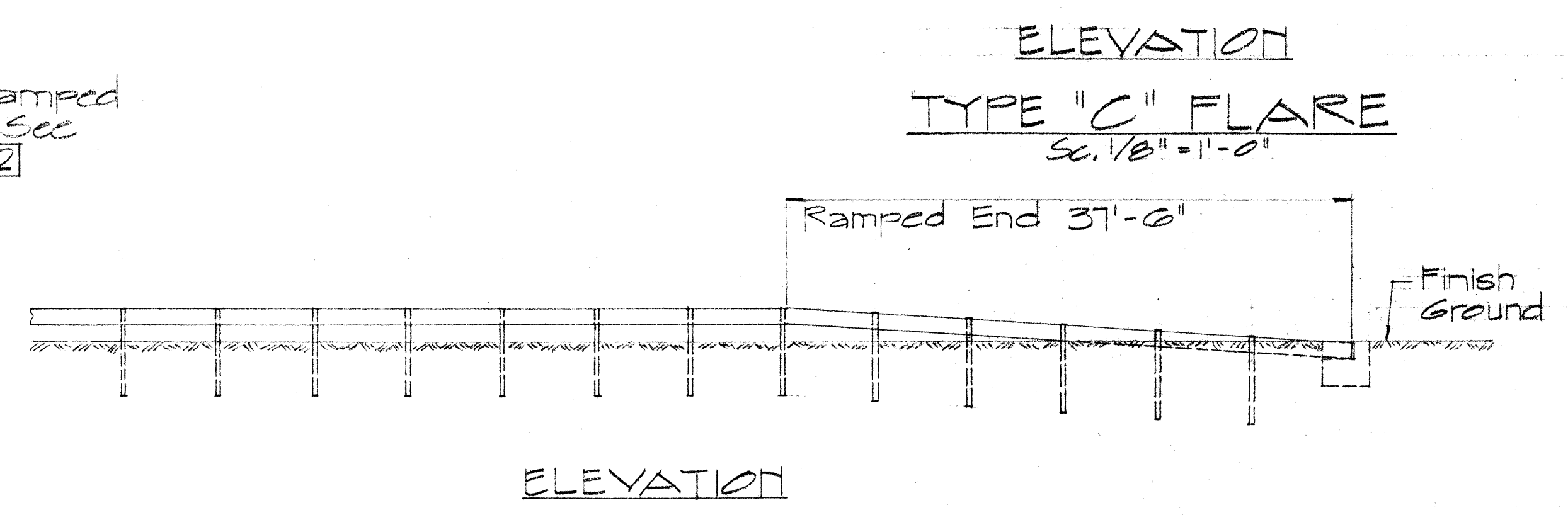
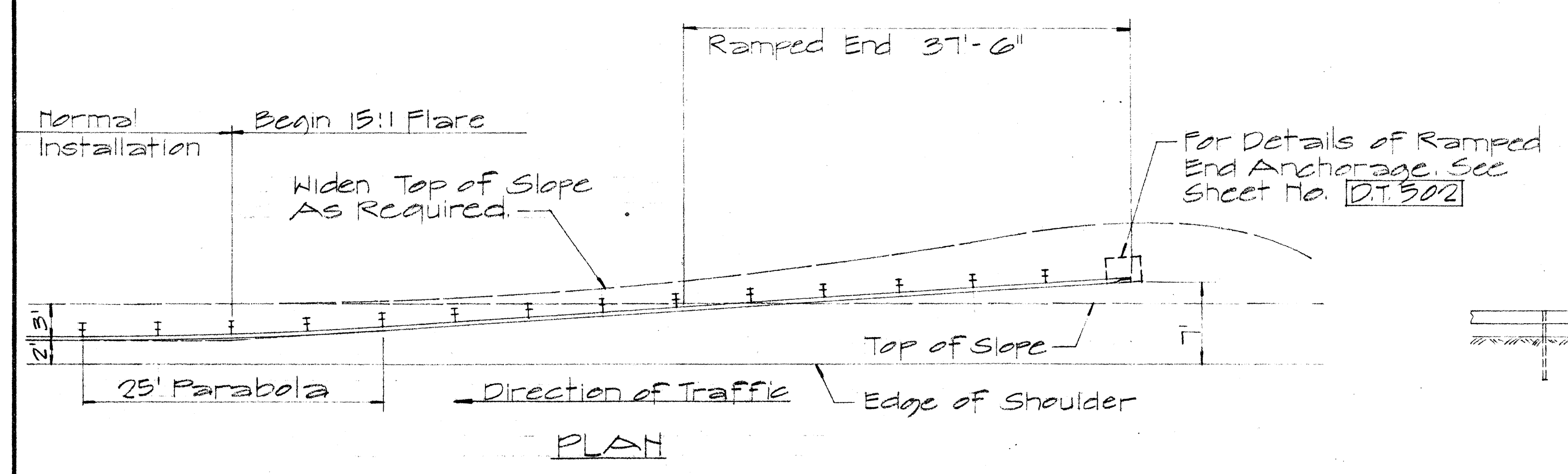
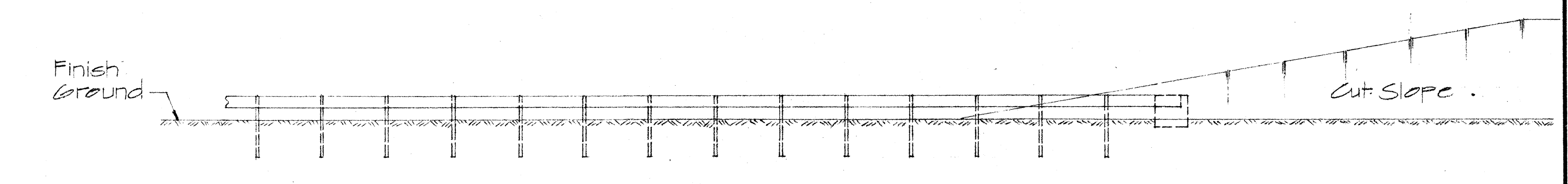
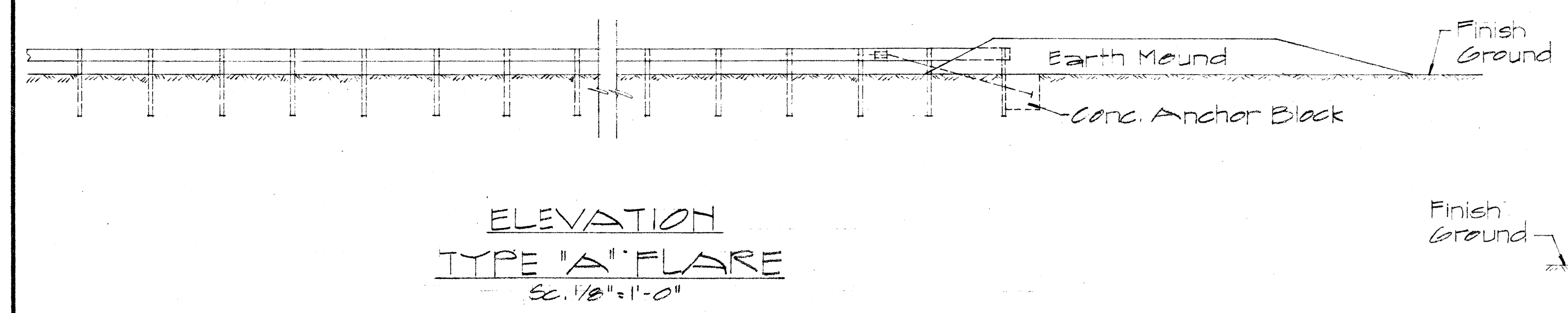
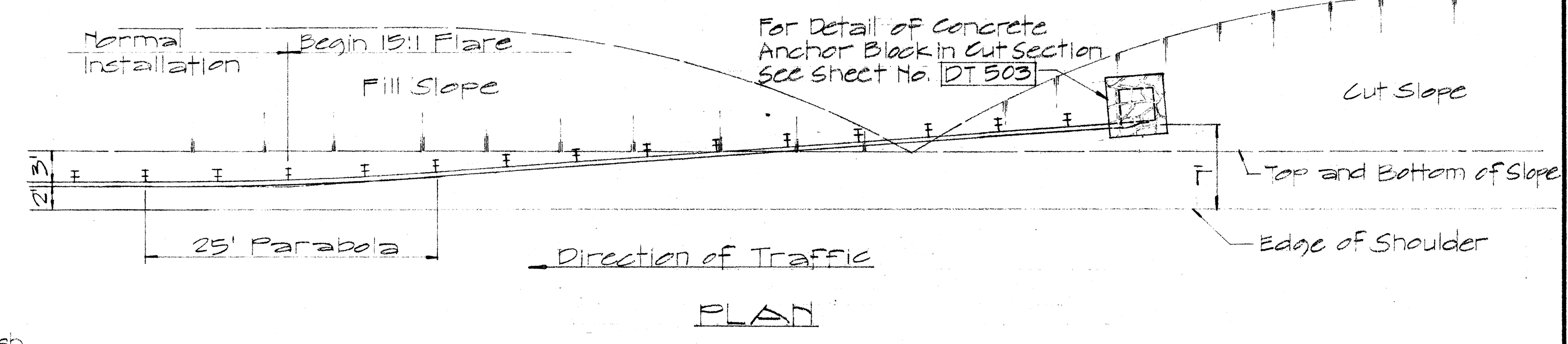
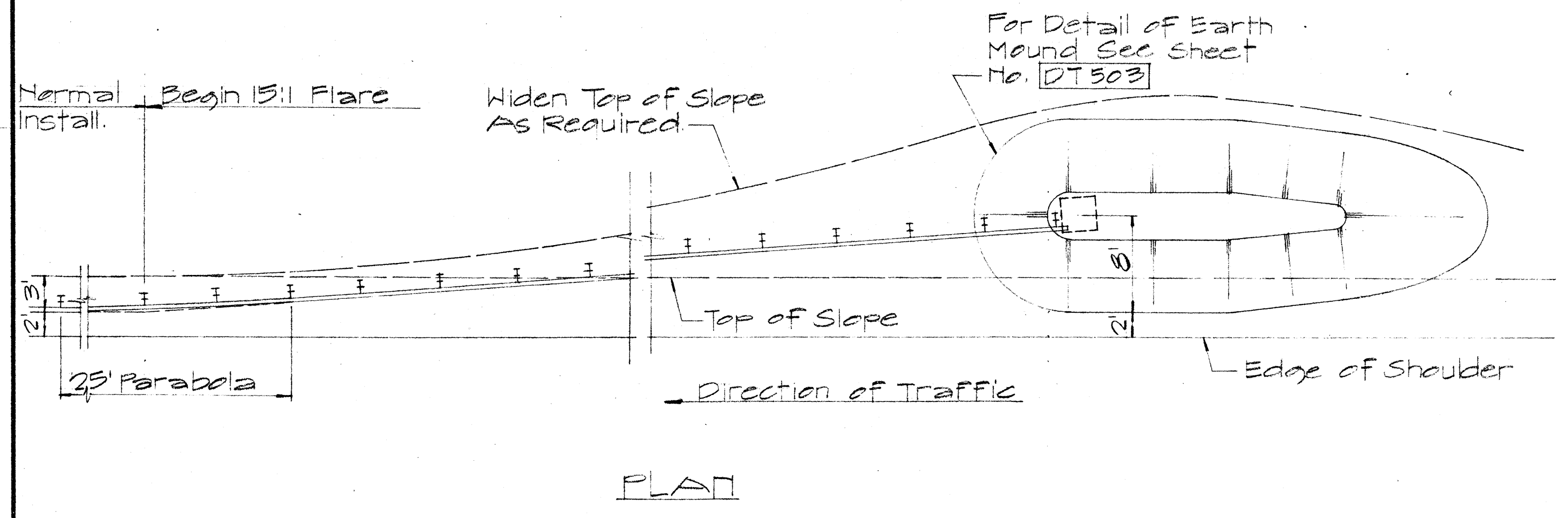
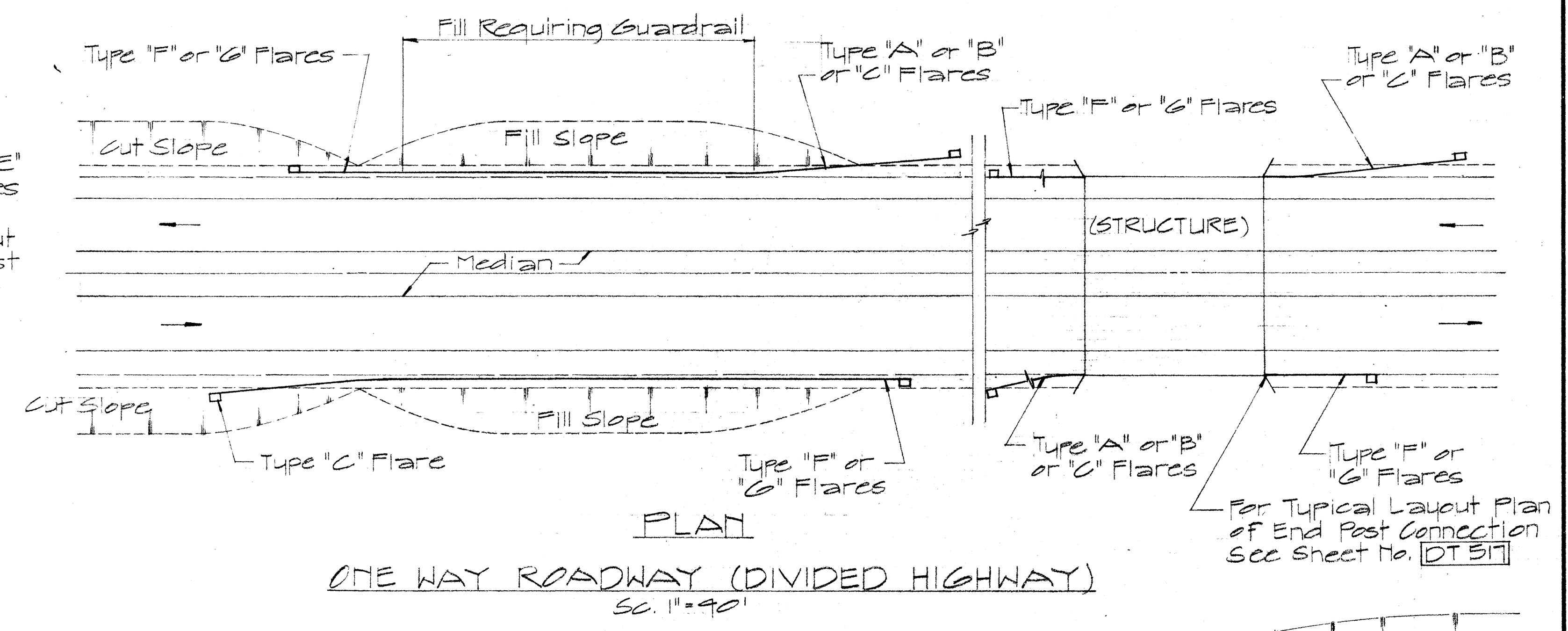
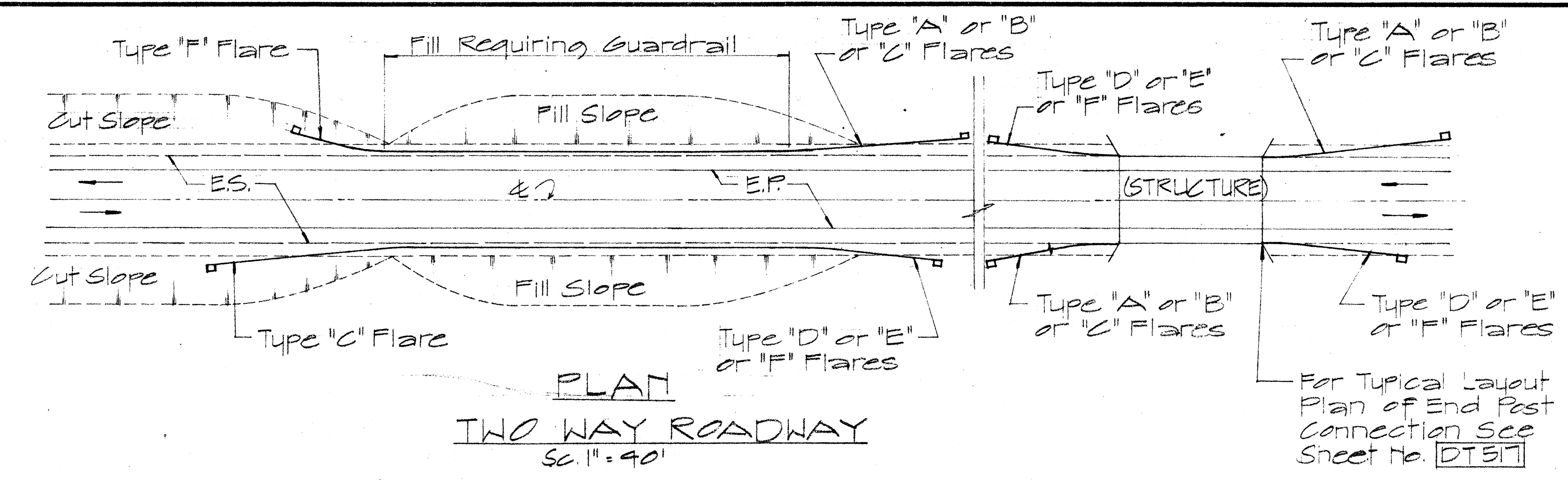
STANDARD DETAIL
METAL GUARD RAIL
WITH RUB RAIL

Scale: 1/2" = 1'-0" Feb. 14, 1969

SHEET No. 7 OF 7 SHEETS DT 514

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	3-0630(11) 5-0630(7)	1968	18A	83

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



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

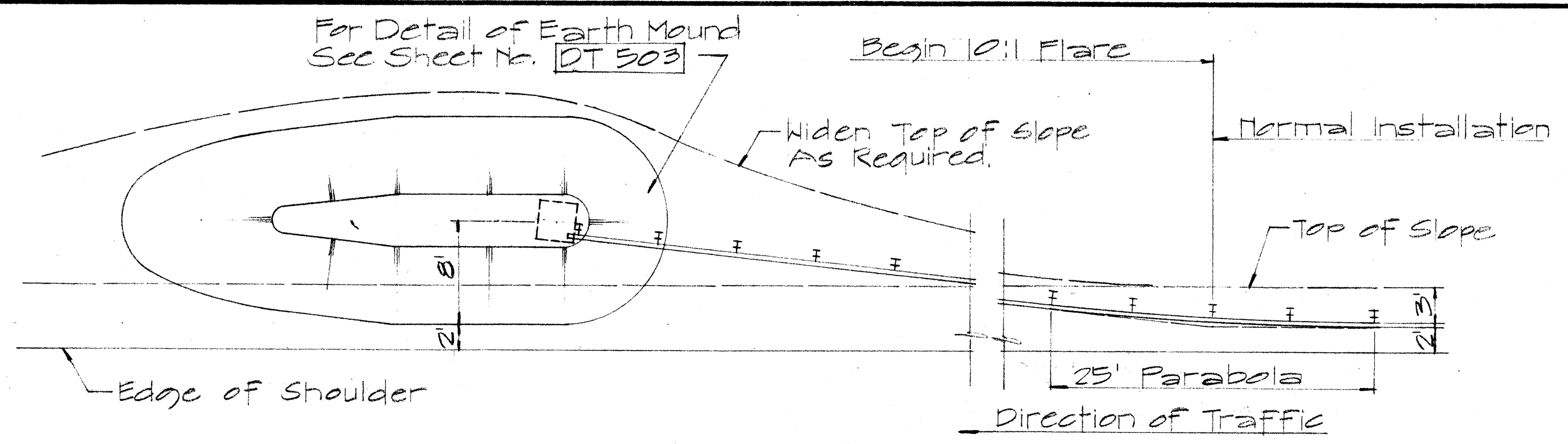
**STANDARD DETAILS
OF APPROACH END
FLARE - ONE & TWO
WAY ROADWAY**

Sc. As Noted April 1968

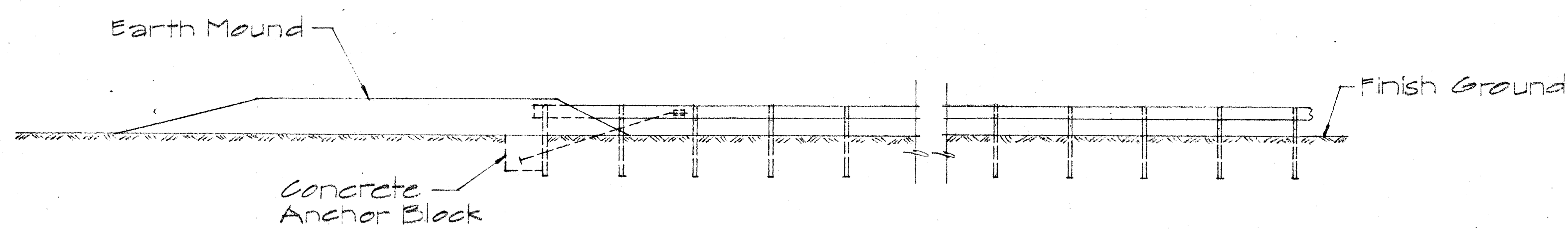
SHEET No. 7A OF 7 SHEETS DT 516

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
NOTED 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.	5-0630 (11) 5-0630 (7)	1968	18B	83

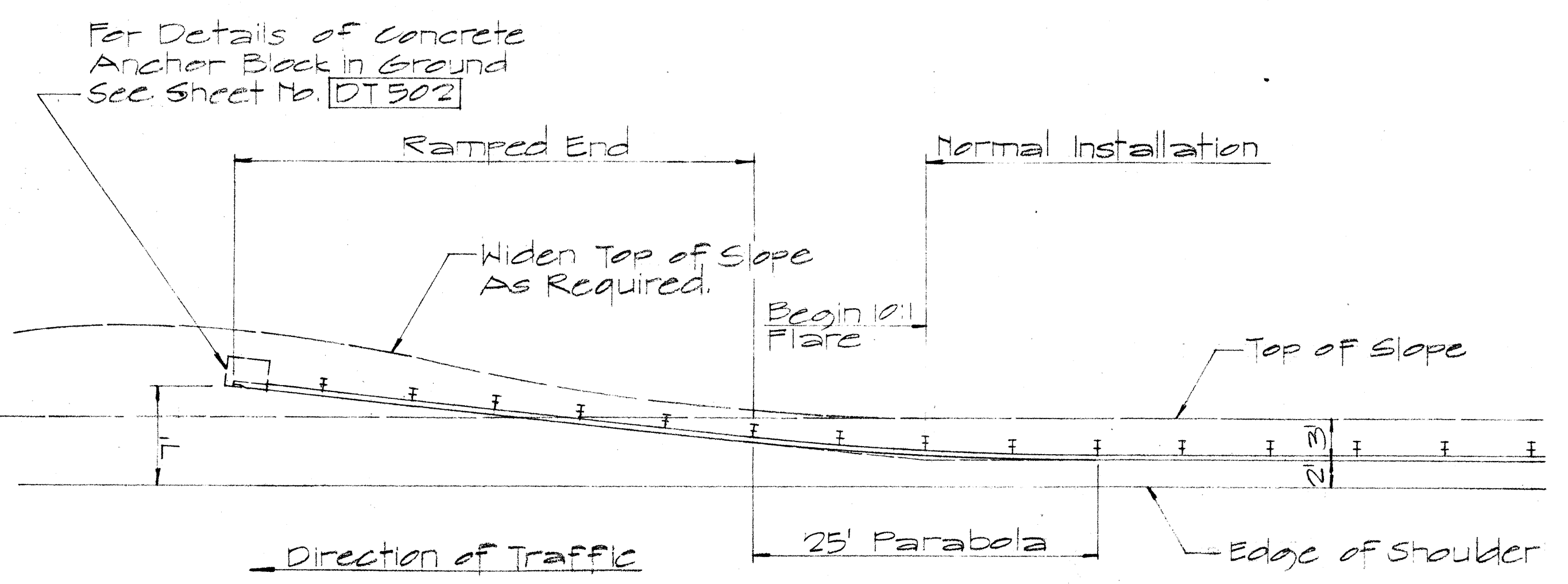


PLAN

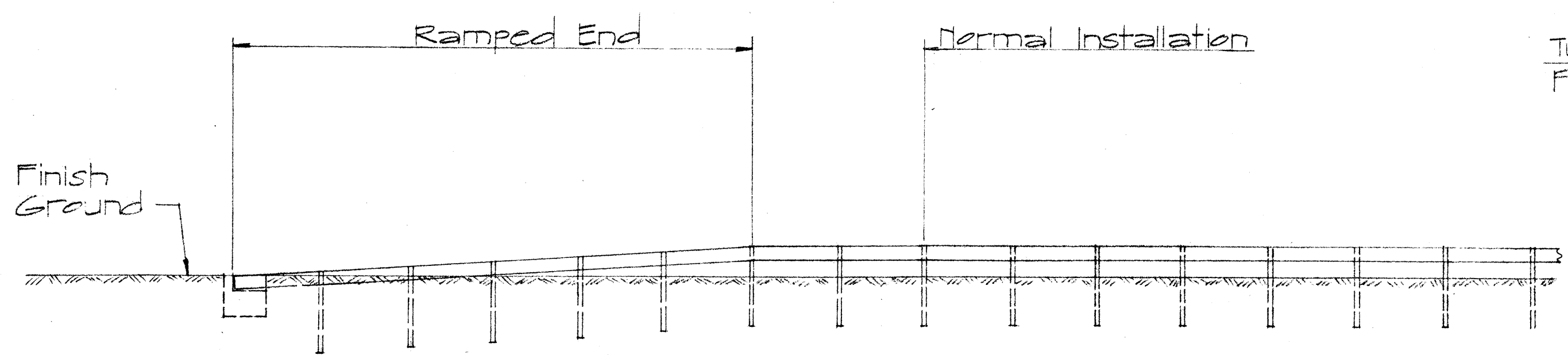


ELEVATION

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

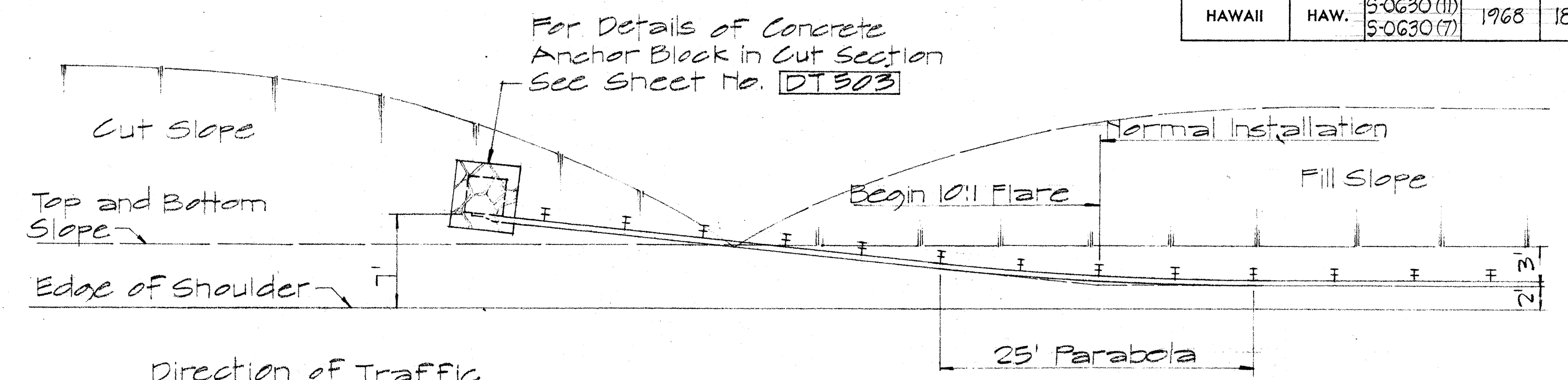


PLAN

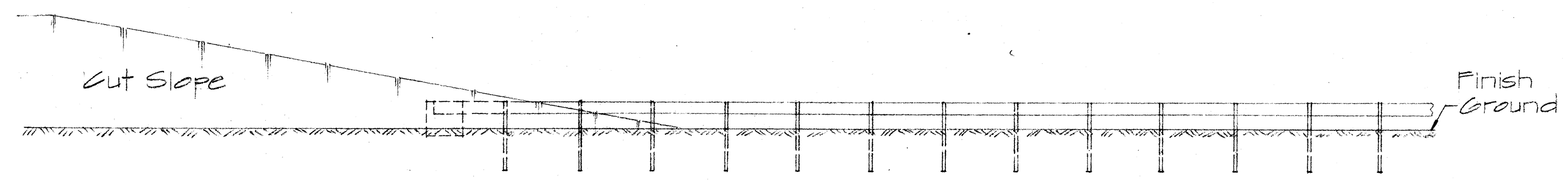


ELEVATION

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

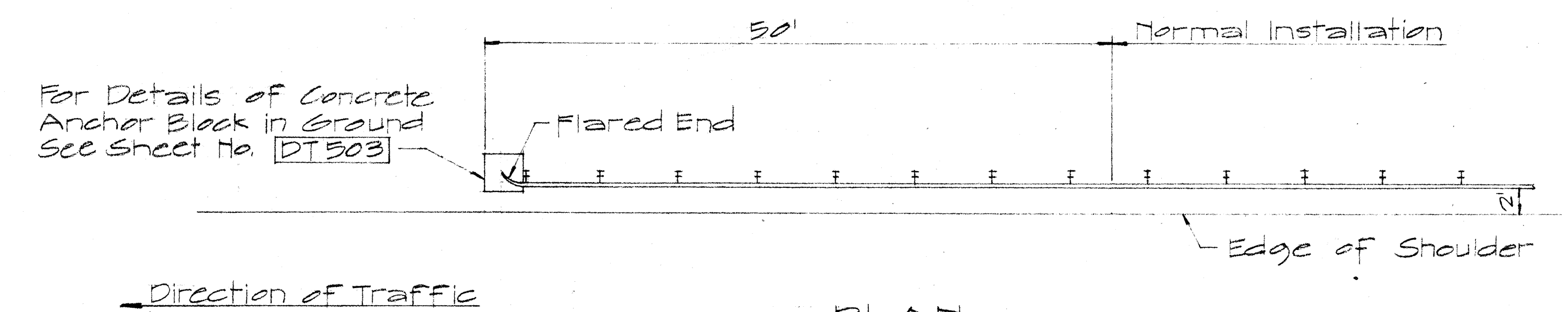


PLAN

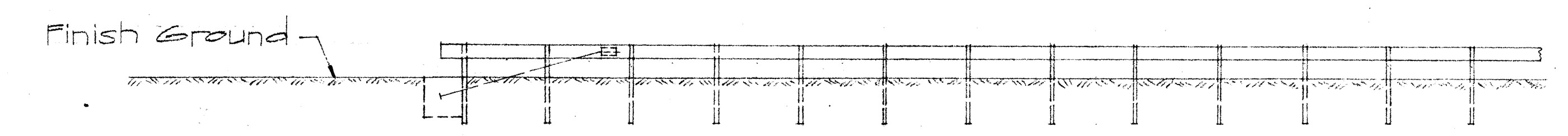


ELEVATION

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

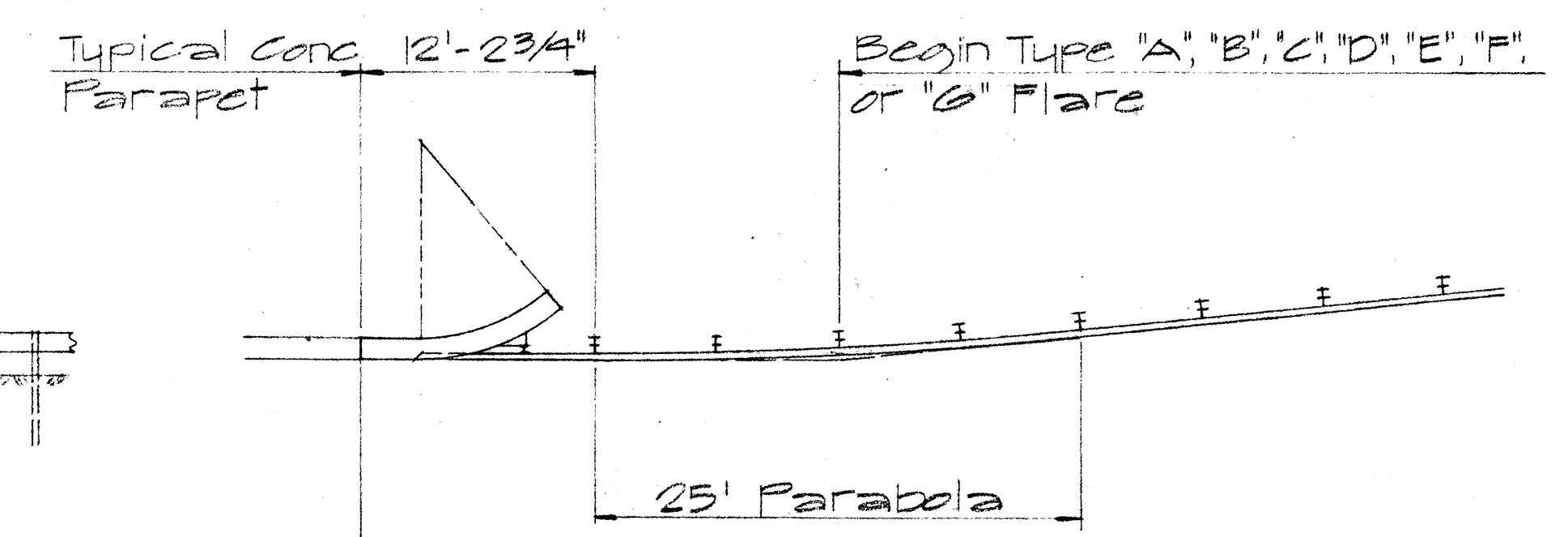


PLAN



ELEVATION

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



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

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. 7B OF 7 SHEETS DT 517

ORIGINAL	DATE
PLAN	
NOTED BY	
DESIGNED BY	
CHECKED BY	