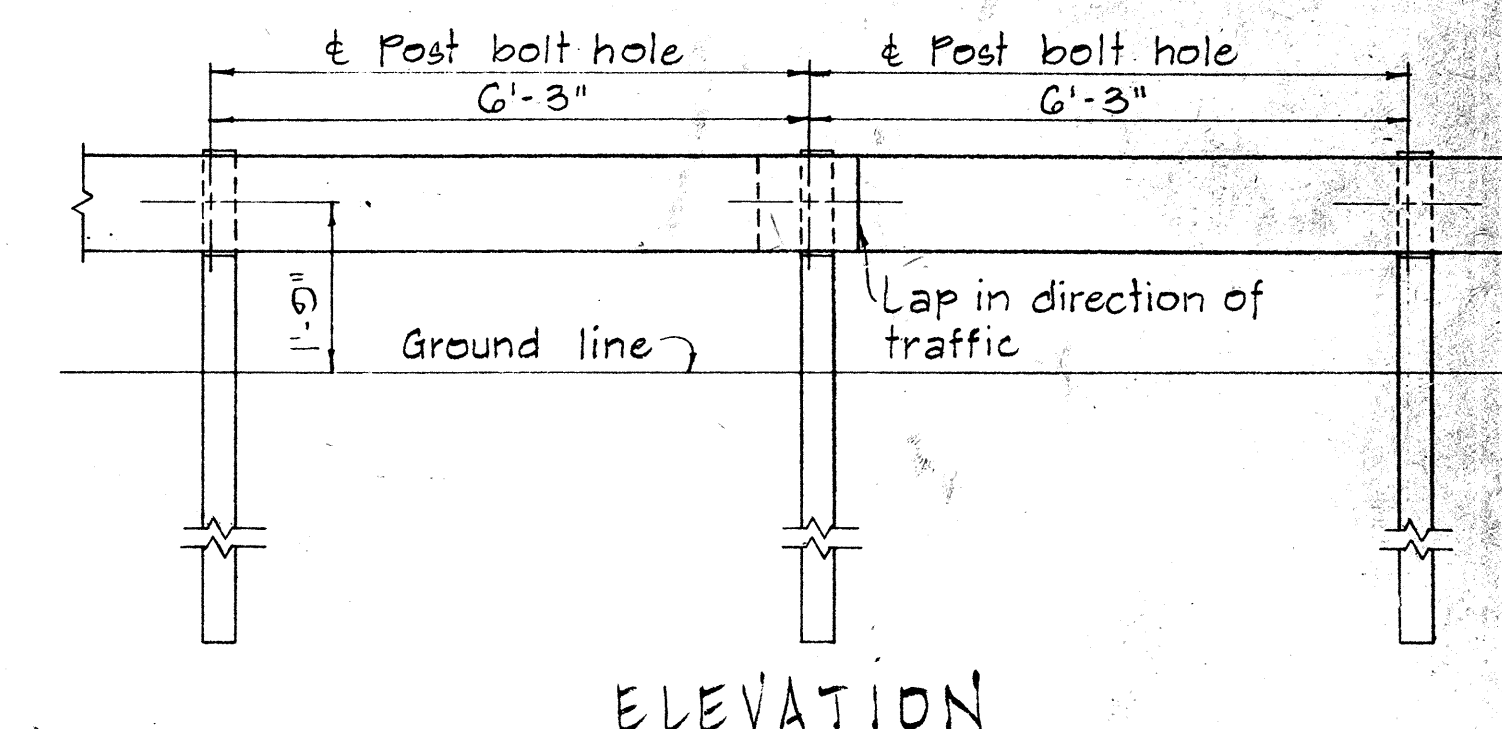
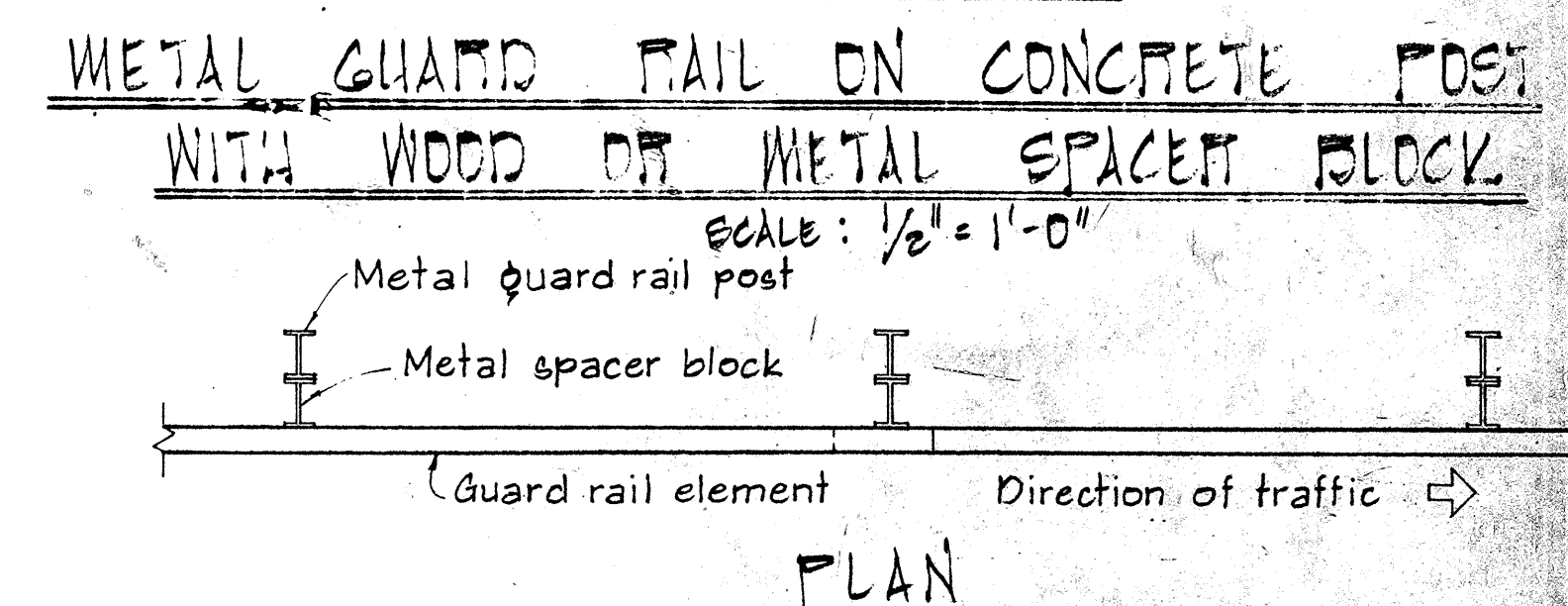
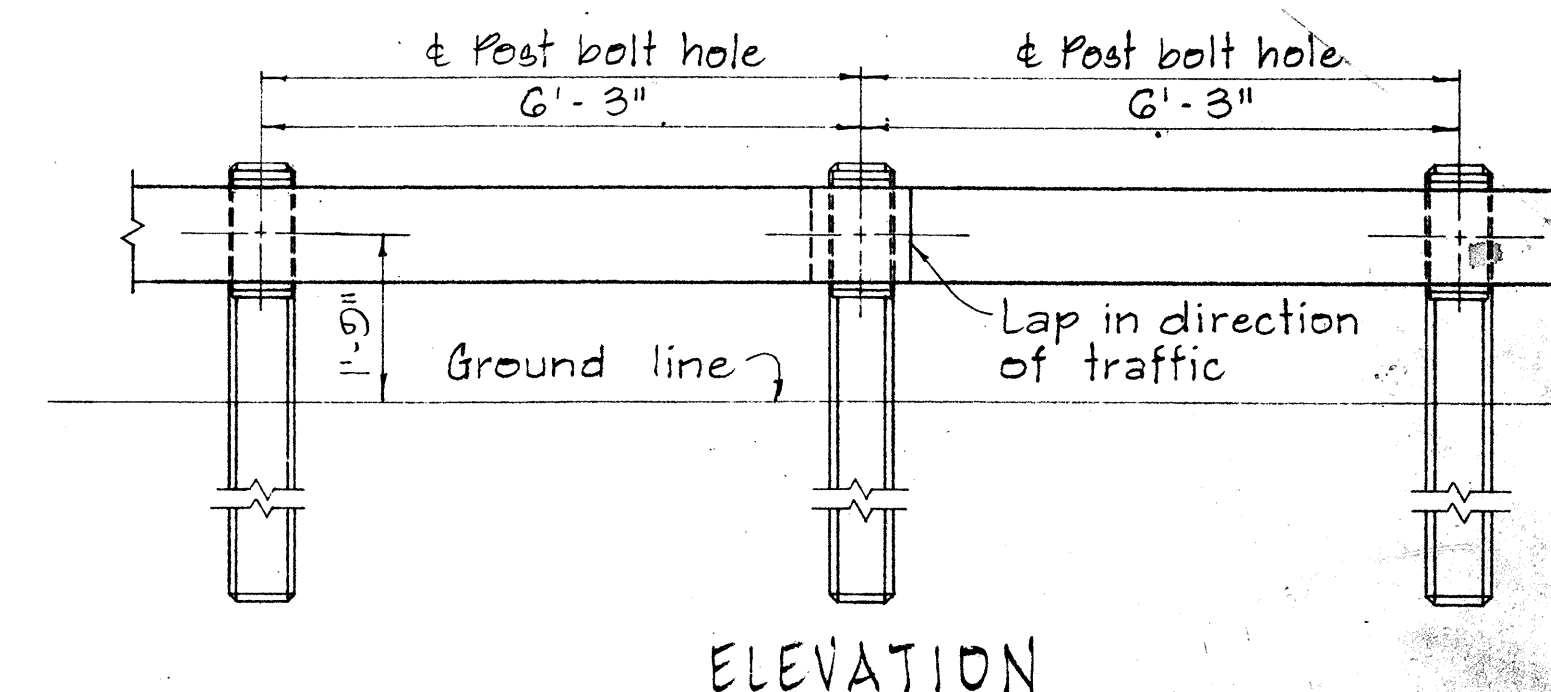
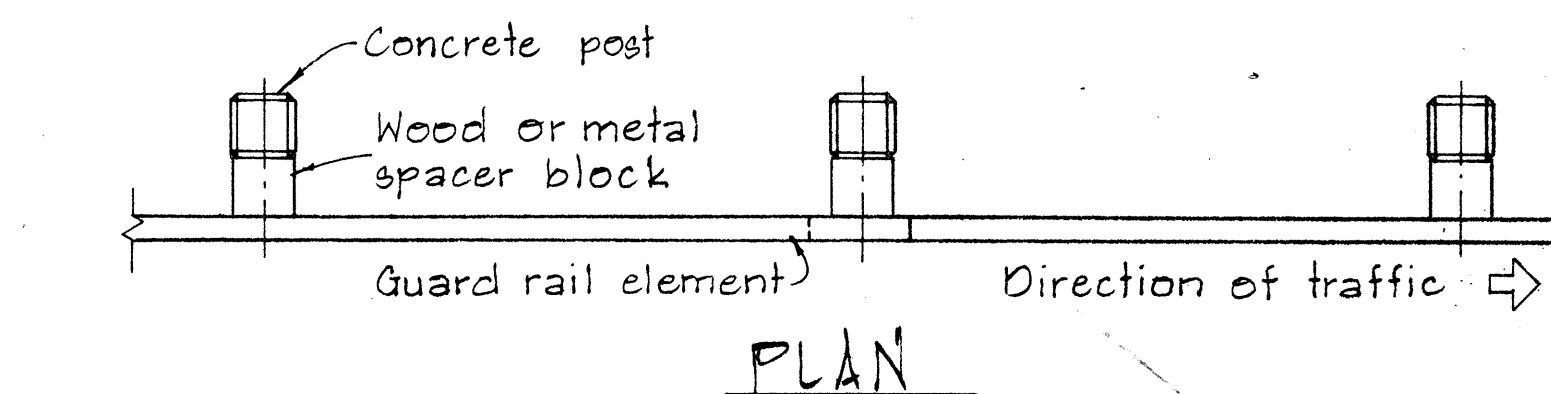
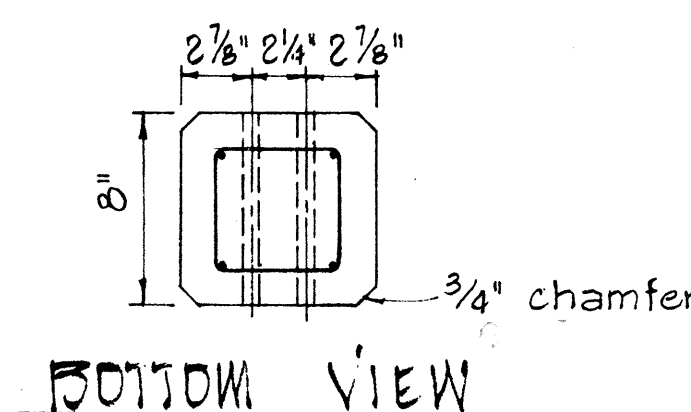
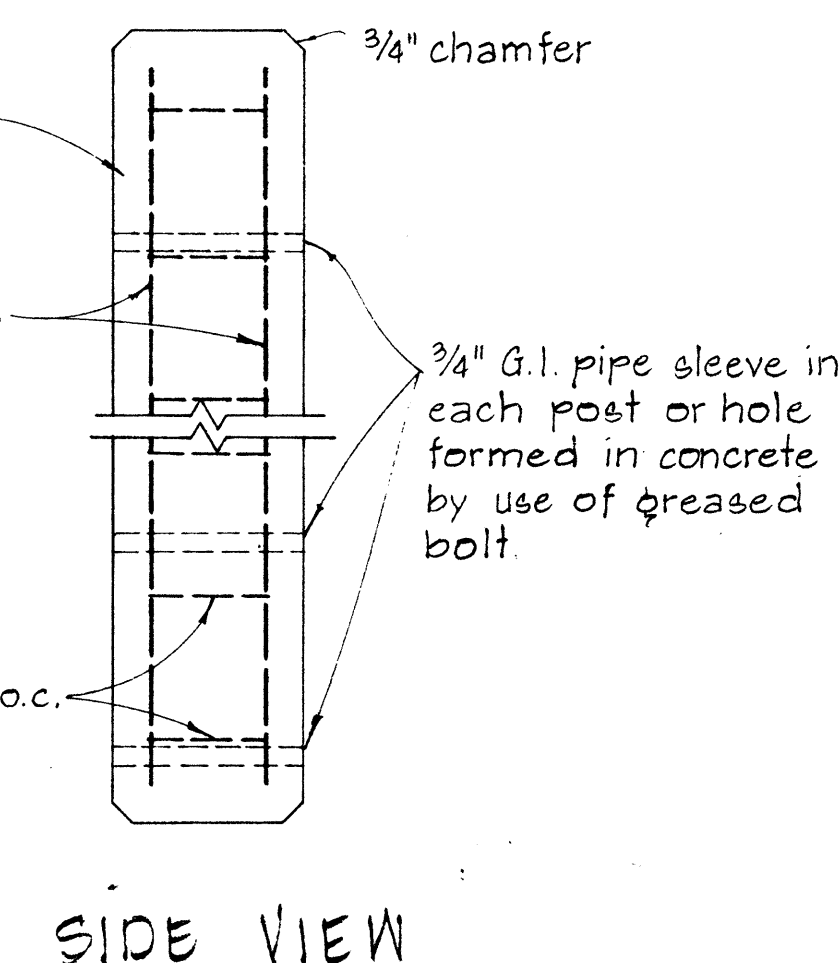
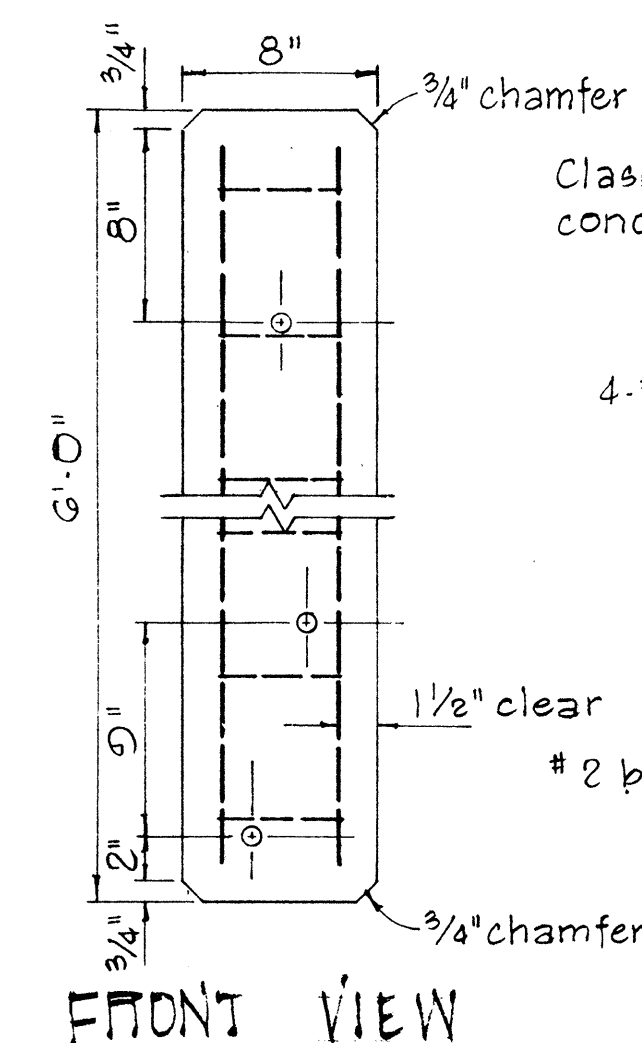
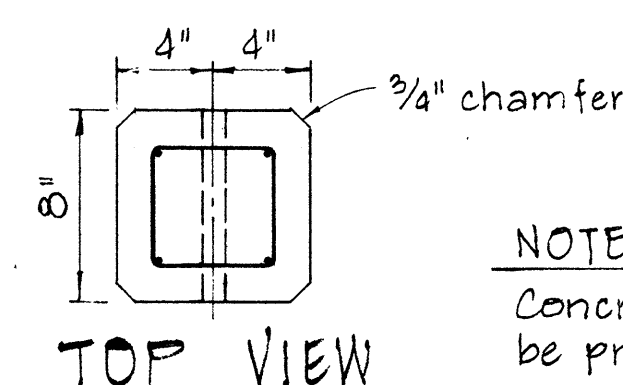
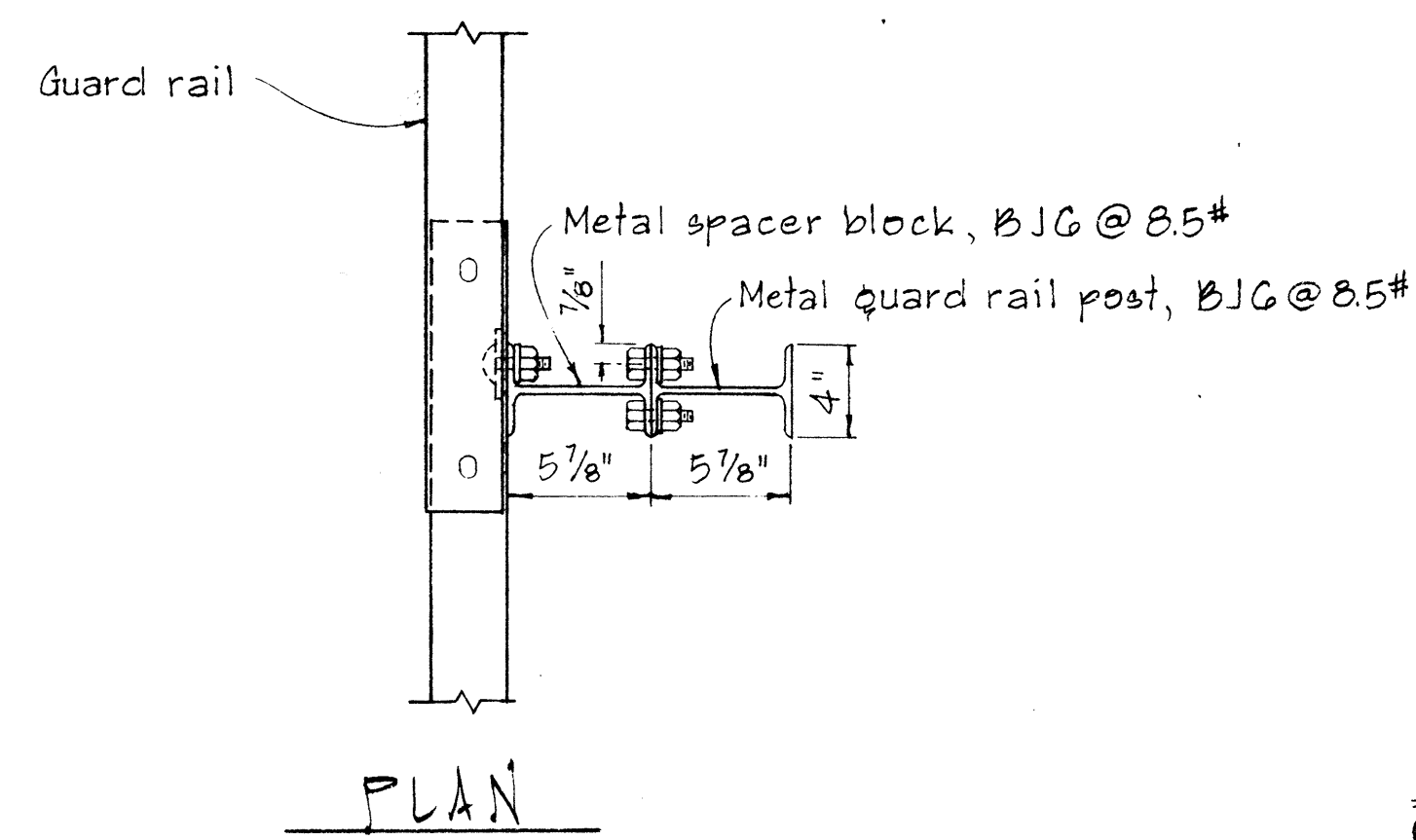
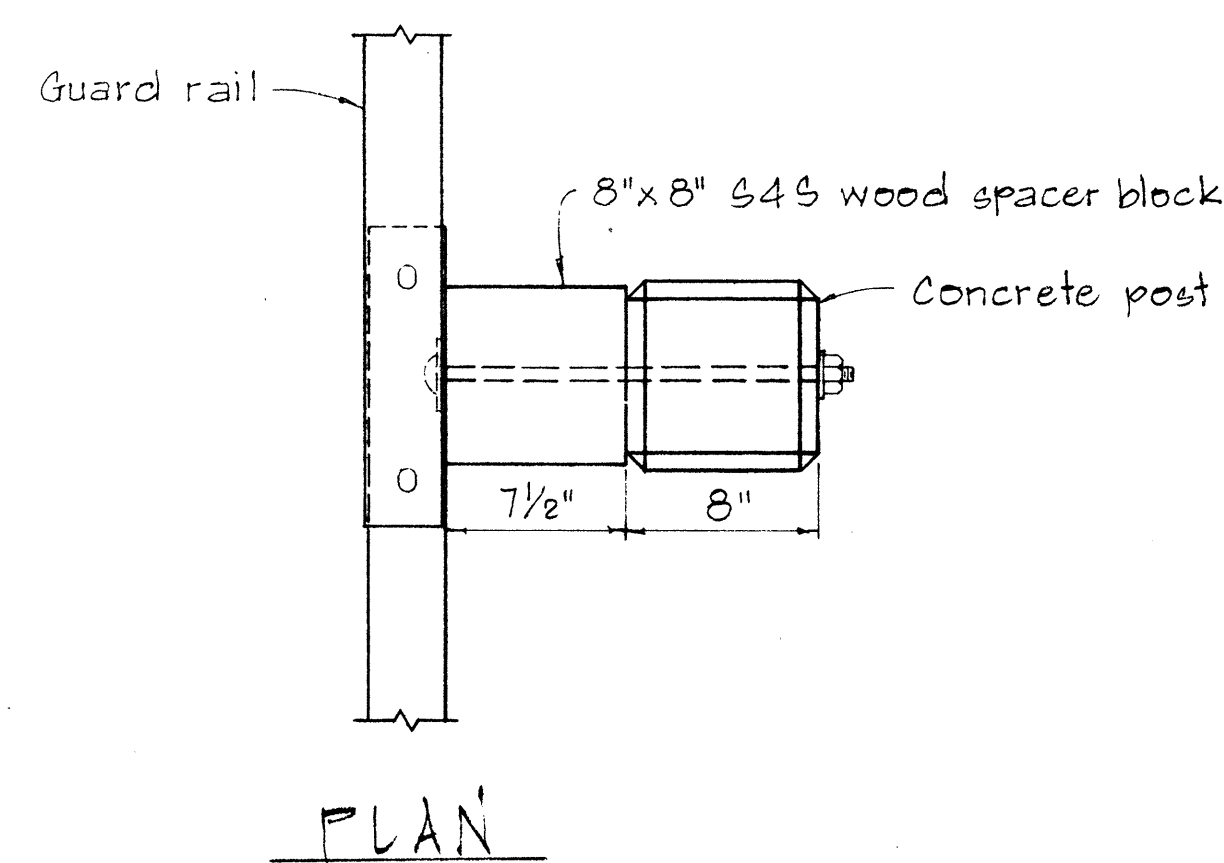
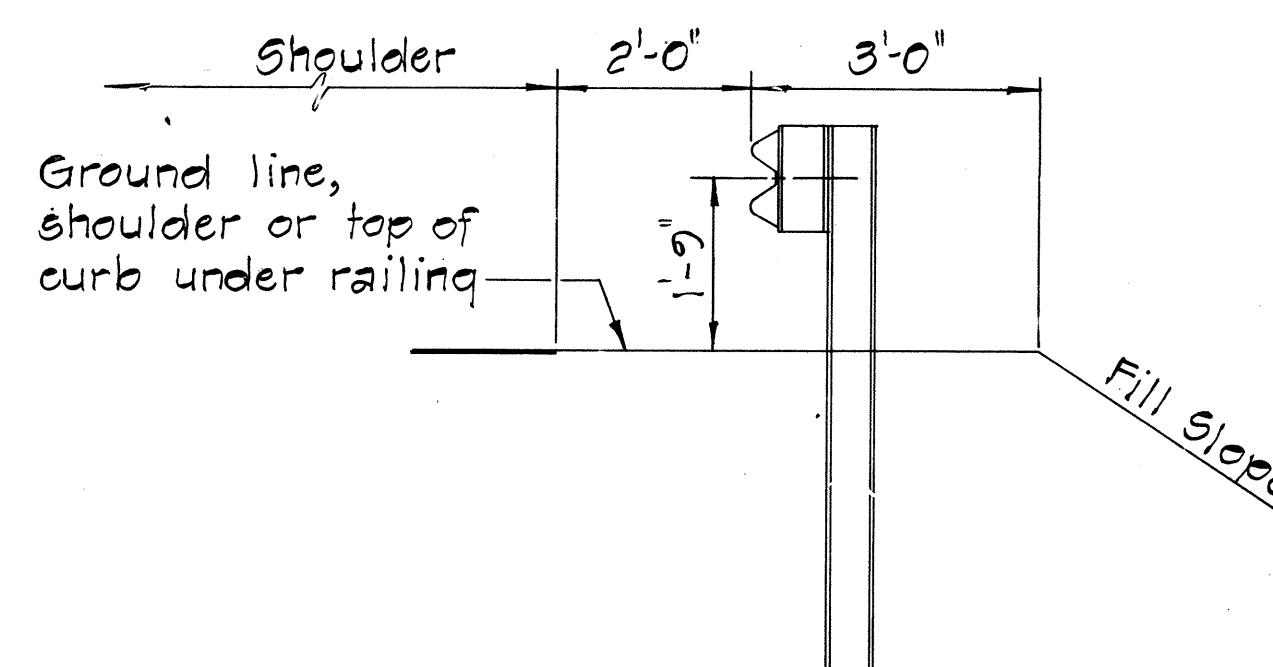


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	440B-02-82	1982	3	8



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 1/2" = 1'-0"



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

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

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

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. OF SHEETS DT 500

DESIGNED BY	
DRAWN BY	
CHECKED BY	
DATE	

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

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"

Technical drawing of a bolt and nut assembly. The left view is a top-down cross-section of a nut, showing concentric circles representing the outer and inner diameters. The right view is a side elevation of a bolt passing through the nut. The bolt has a hexagonal head with a width of $1 \frac{3}{8}$ inches and a thickness of $1 \frac{1}{32}$ inches. The shank of the bolt has a diameter of D and a length of L . The threads are labeled as $\frac{5}{8}$ inch - 11 threads. The nut is labeled as $\frac{5}{8}$ inch x $\frac{7}{8}$ inch oval shoulder.

15/16"

Technical drawing of a mechanical part, likely a bracket or support. The drawing shows a side view with a vertical flange on the left and a horizontal base. A dimension line at the top indicates a width of $2\frac{1}{32}$ ". A callout line points to the vertical flange.

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

Diagram of a curved sheet metal piece with dimensions: 2'-3" total length, 12 1/2" lap, 3 1/2" height, and 1/8" sheet thickness.

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

FLARED END

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

Technical drawing of a rail element cross-section. The drawing shows a central rectangular section with a width of $12\frac{1}{2}"$ and a height of $12\frac{1}{2}"$. The top and bottom edges of this central section are chamfered. The total width of the assembly is $16\frac{3}{4}"$. The distance between the centers of the two vertical bolts is $12\frac{1}{2}"$. The distance between the centers of the two horizontal bolts is $6\frac{1}{4}"$. The drawing is labeled "Shape to fit rail element".

CURVED END

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

APPROVAL RECOMMENDED:

Eichi Tanaka

TRAFFIC ENGINEER

APPROVED

24/06/2024
ASSISTANT CHIEF, ENGINEERING

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

METAL GUARD RAIL

Scale: As Noted

August, 1968

SHEET No.	OF	SHEETS	DT 50
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1

NO.	REVISION	APPROVED BY	DATE
1	Revised Hole Size for Rectangular Rail Washer	Hr.	2/10

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 3/8"

RAIL SPICE

Scale: $3'' = 1' - 0''$

RAIL ELEMENT SECTION

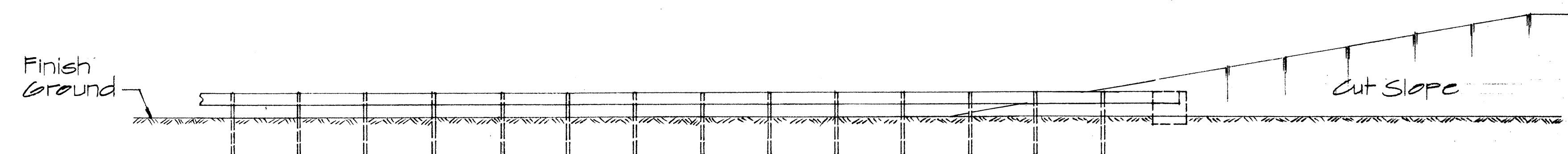
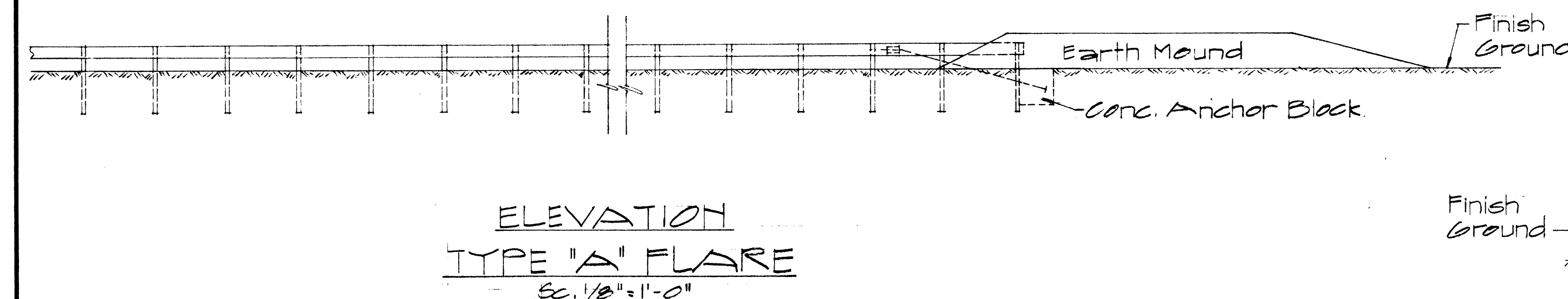
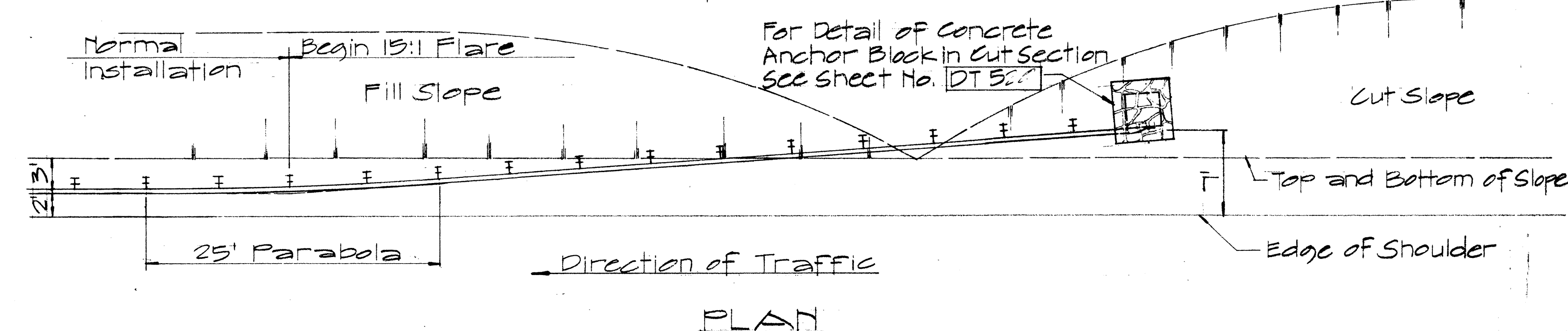
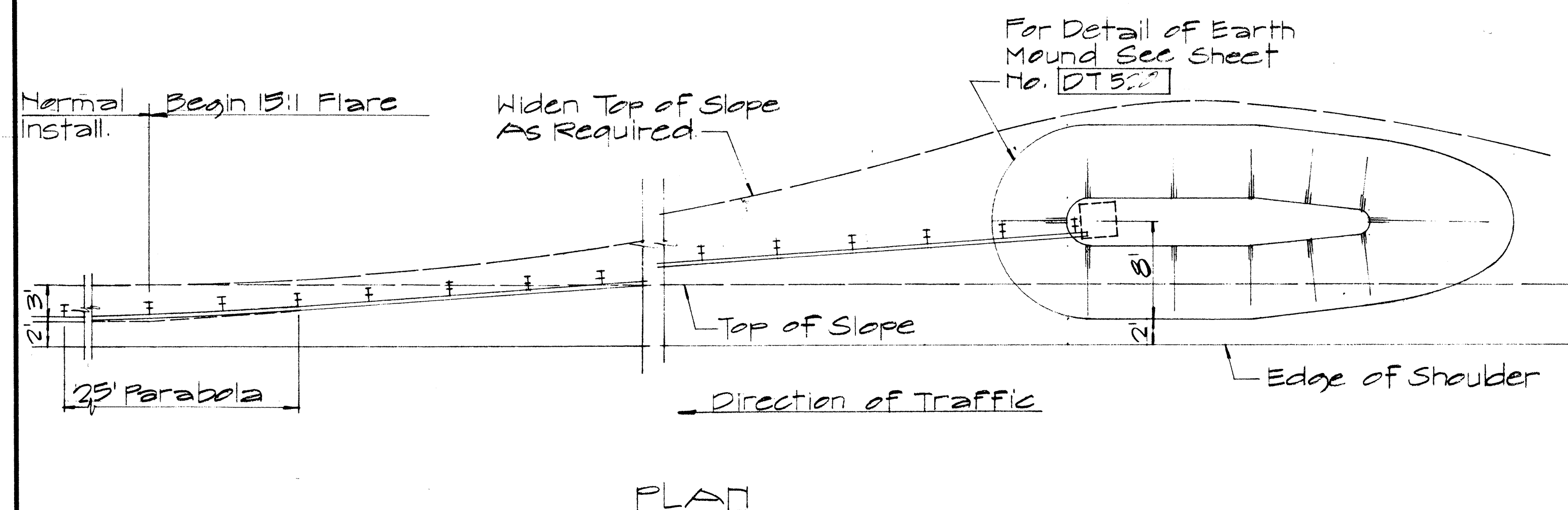
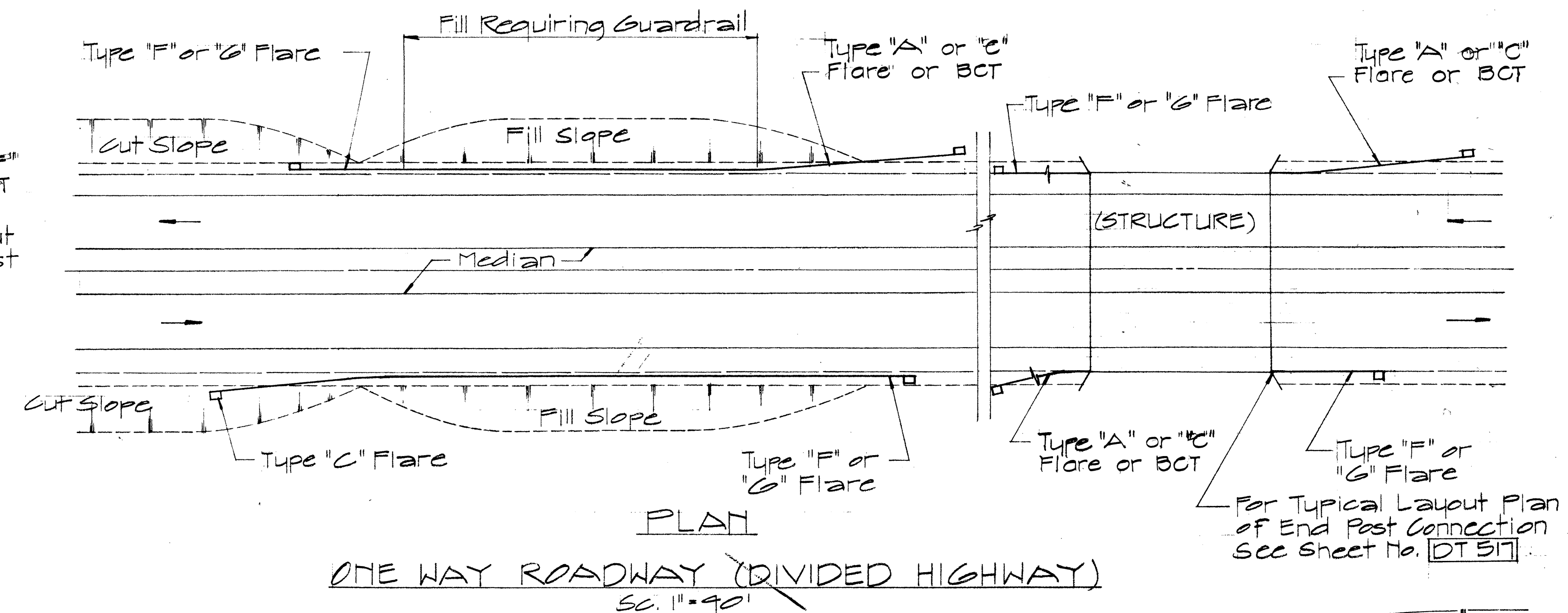
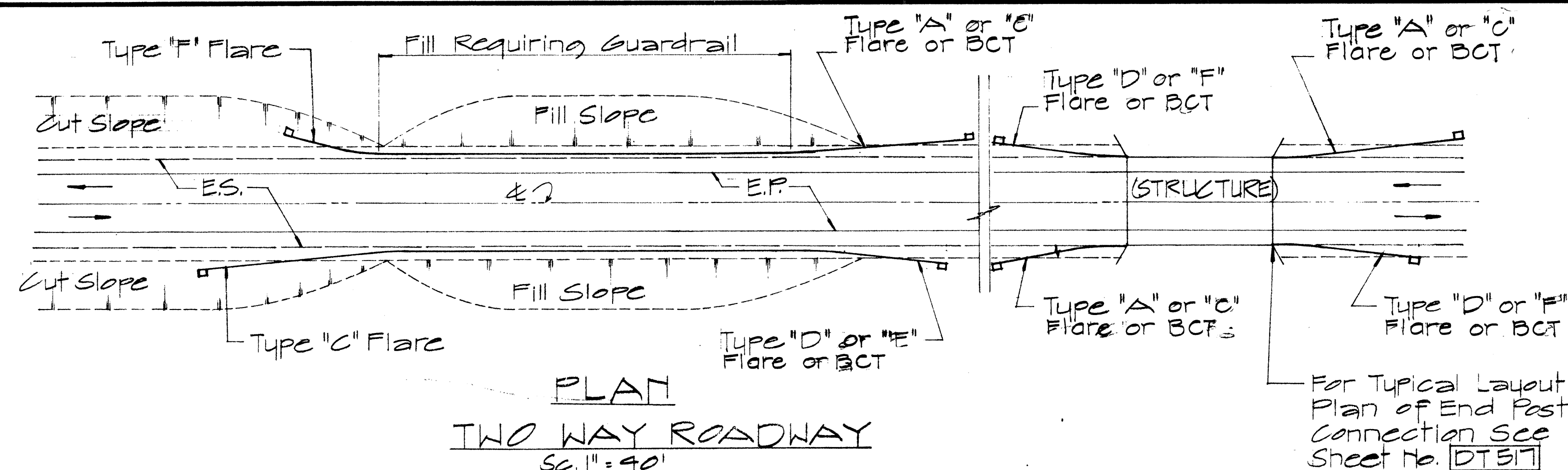
Scale: 6" = 1'-0"

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	440B-02-82	1982	5	8

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:
Erich Tanaka 12/29/69
 TRAFFIC ENGINEER DATE

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

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

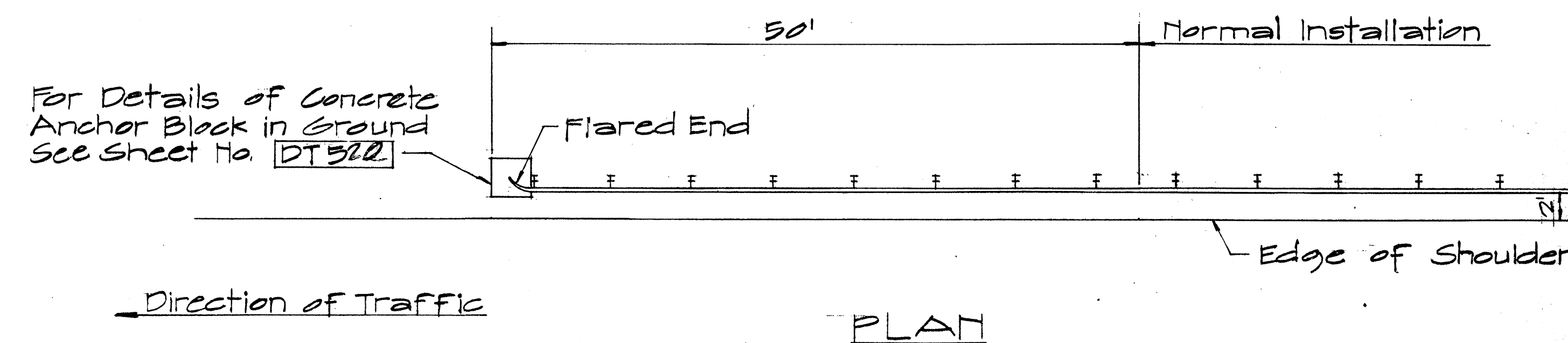
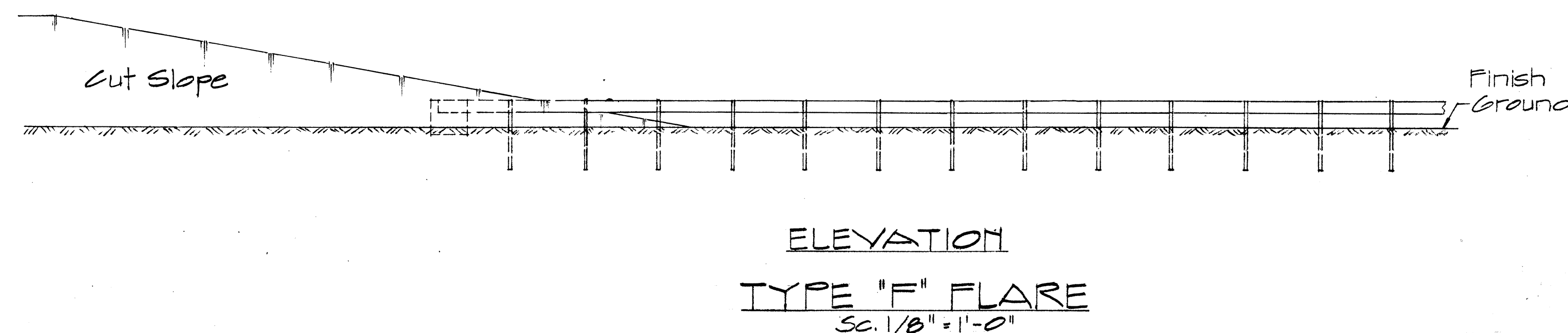
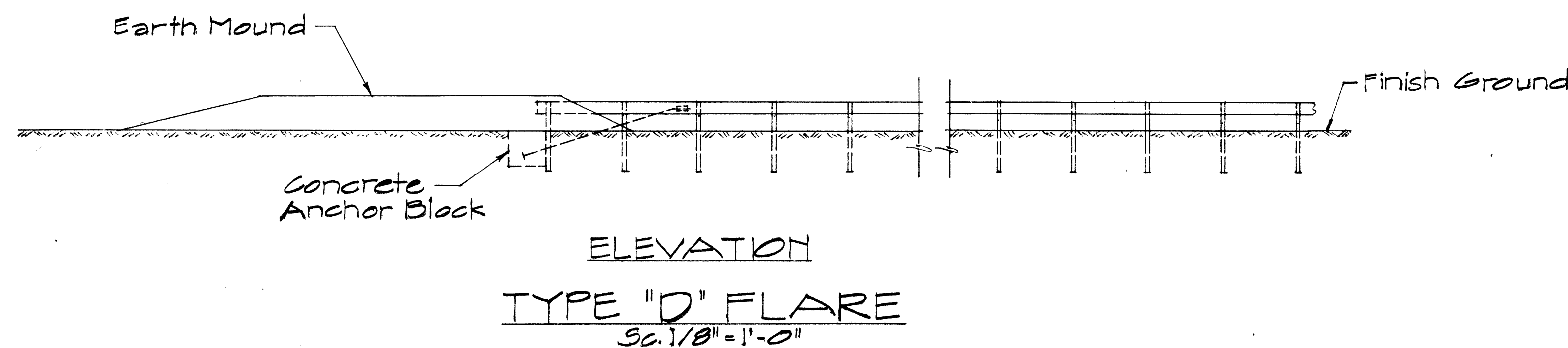
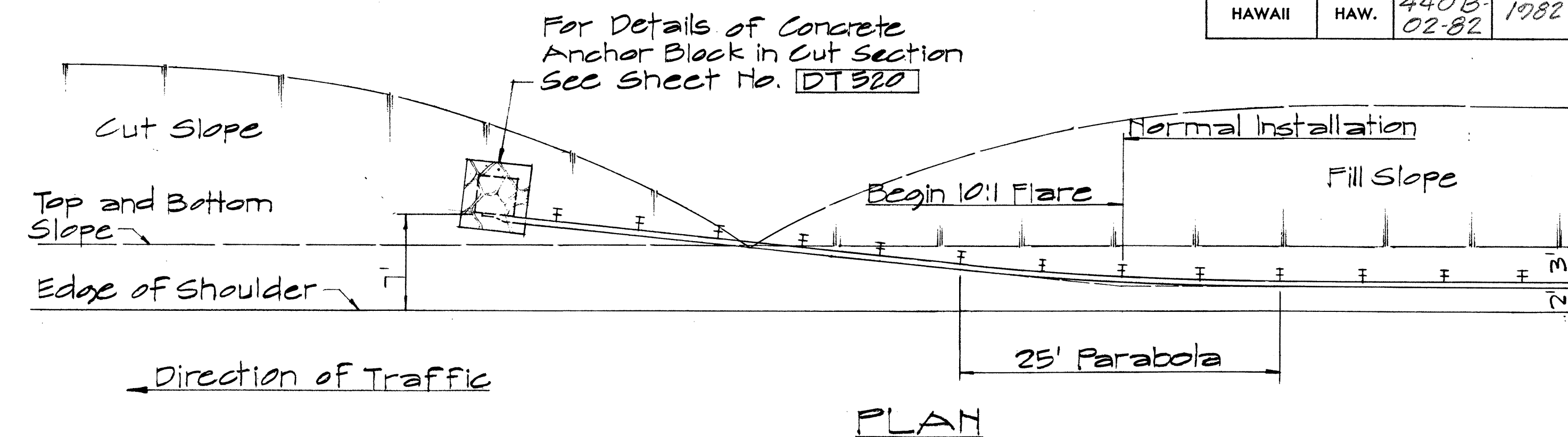
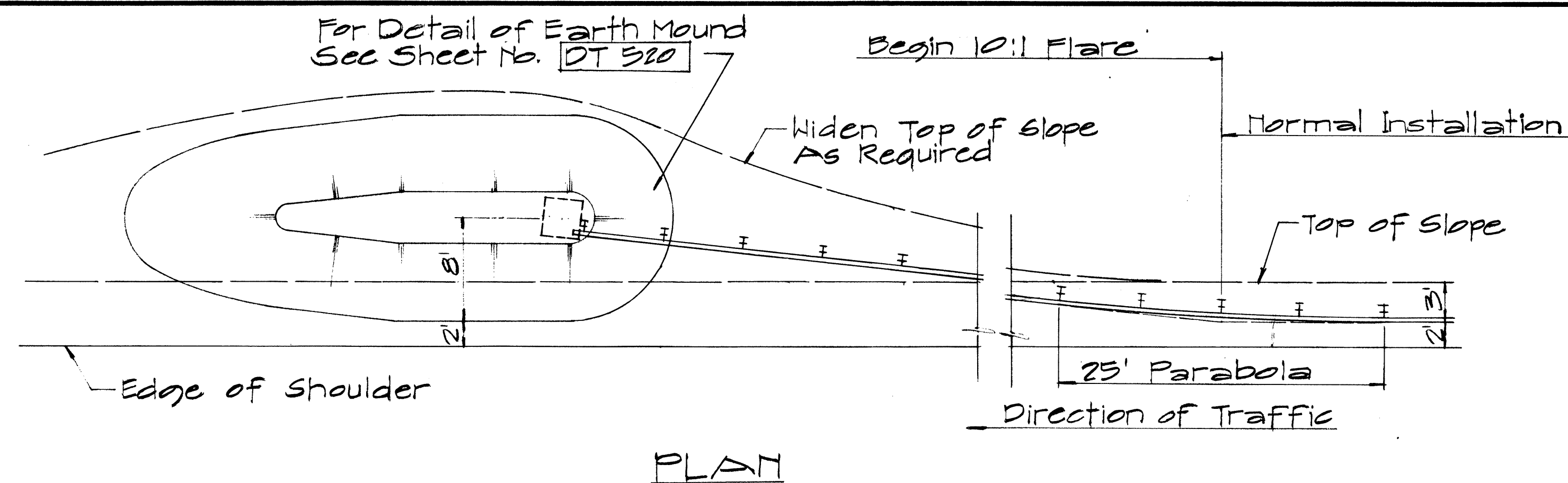
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

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

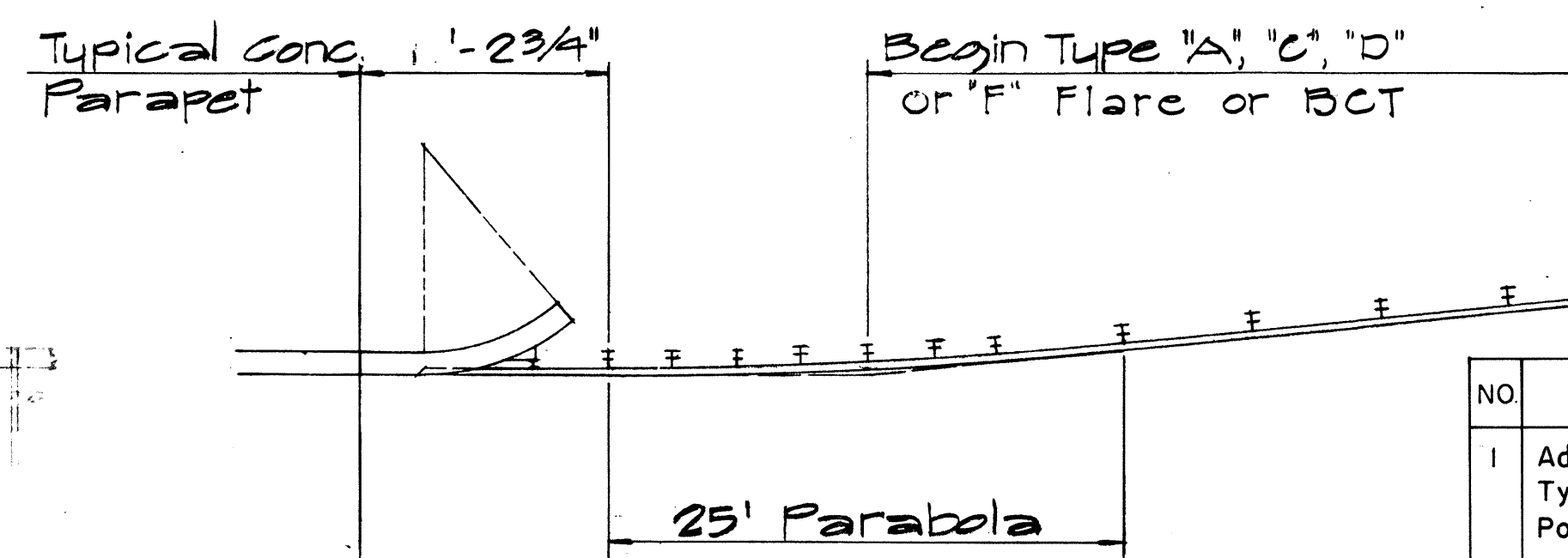
Sc. As Noted April 1969
 SHEET No. OF SHEETS DT 516

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	440B-02-82	1982	6	8



NOTE:
For detail of Breakaway Cable Terminal (BCT) See Sheet No. DT 517



TYPICAL LAYOUT PLAN OF END POST CONNECTION

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

ELEVATION

TYPE "G" FLARE

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

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

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

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

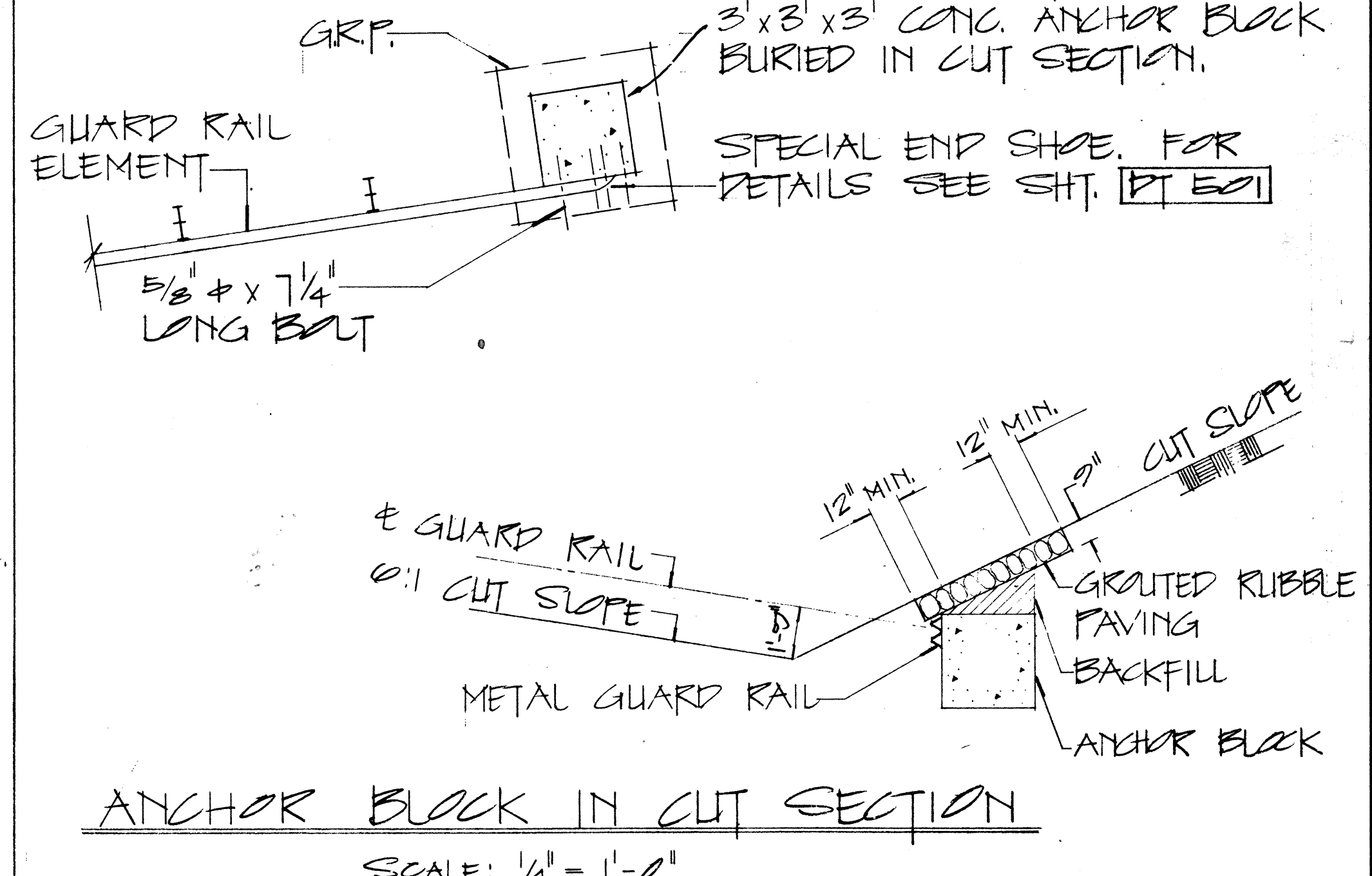
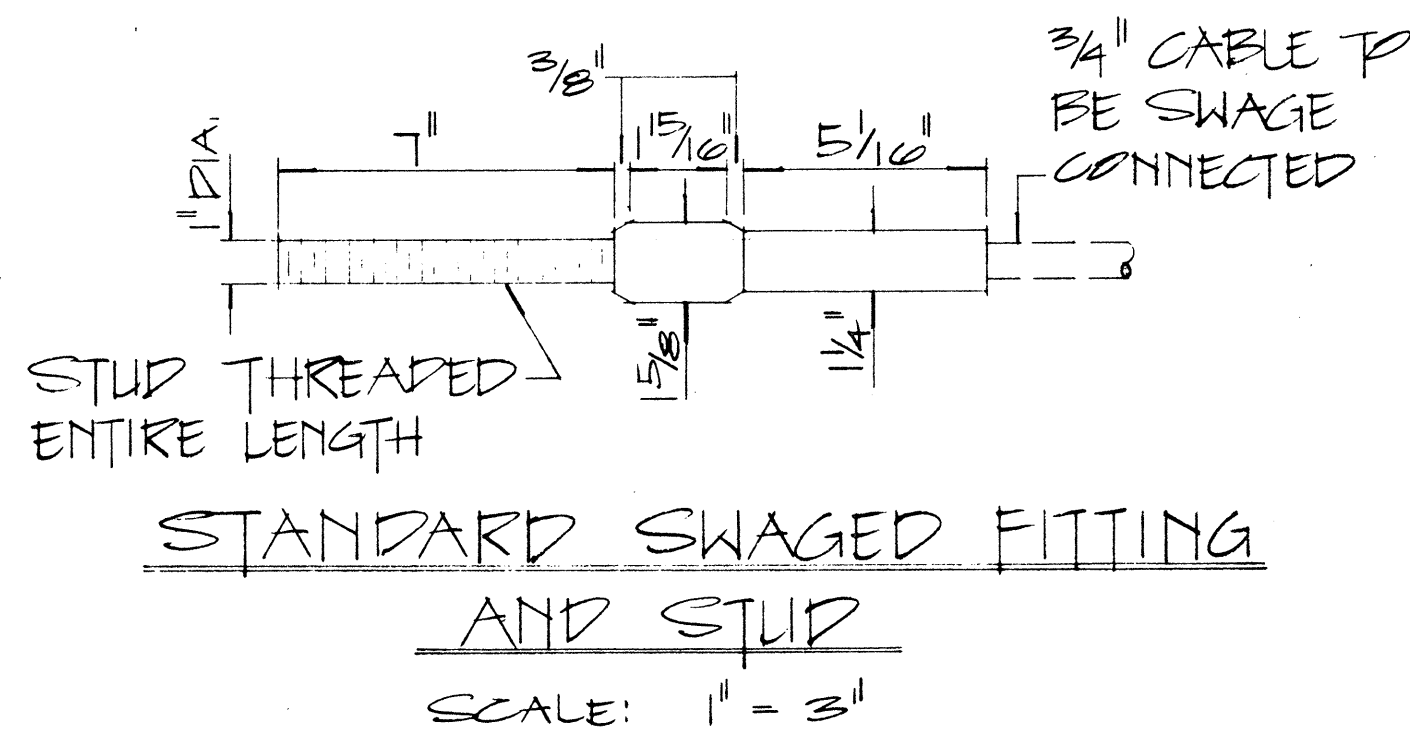
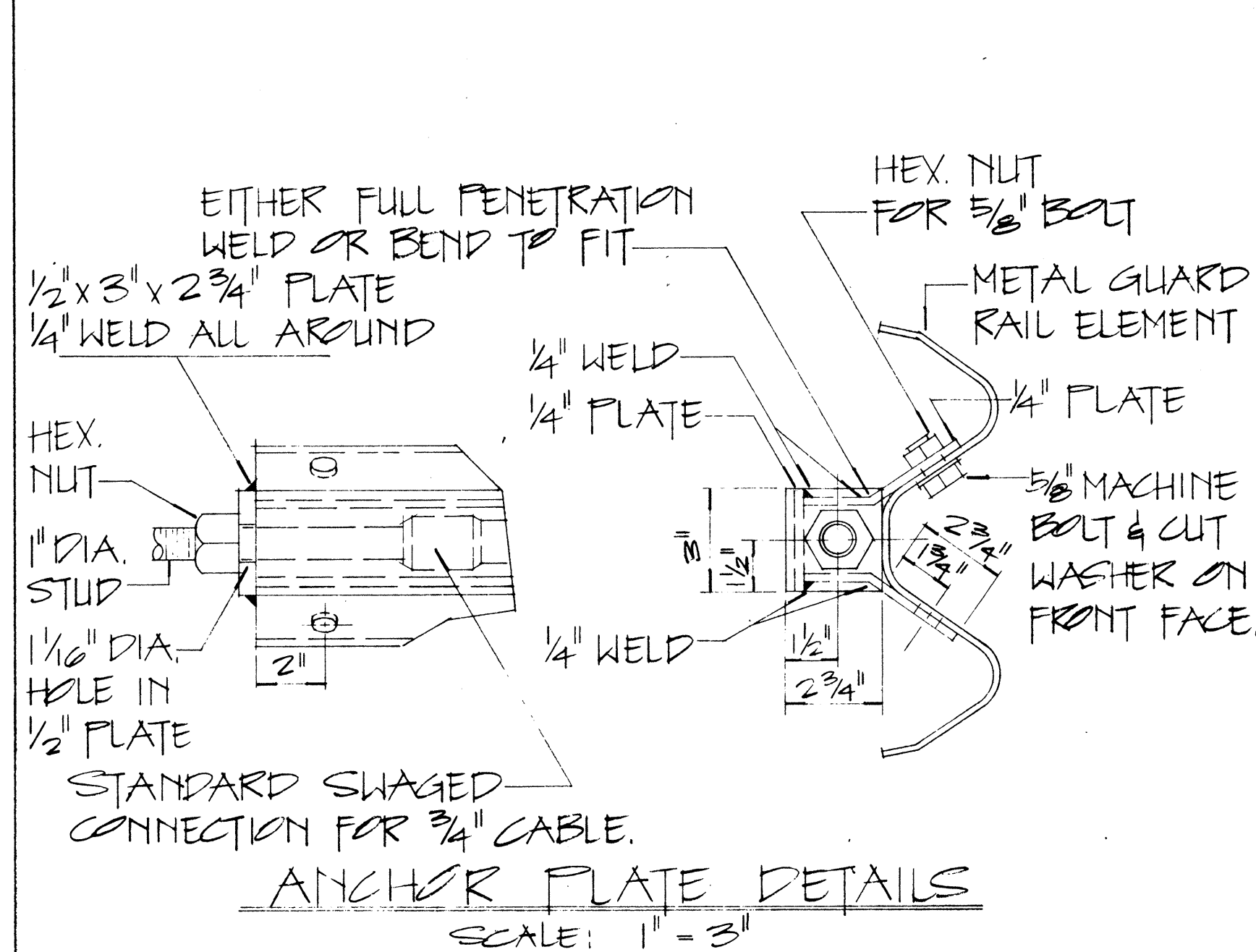
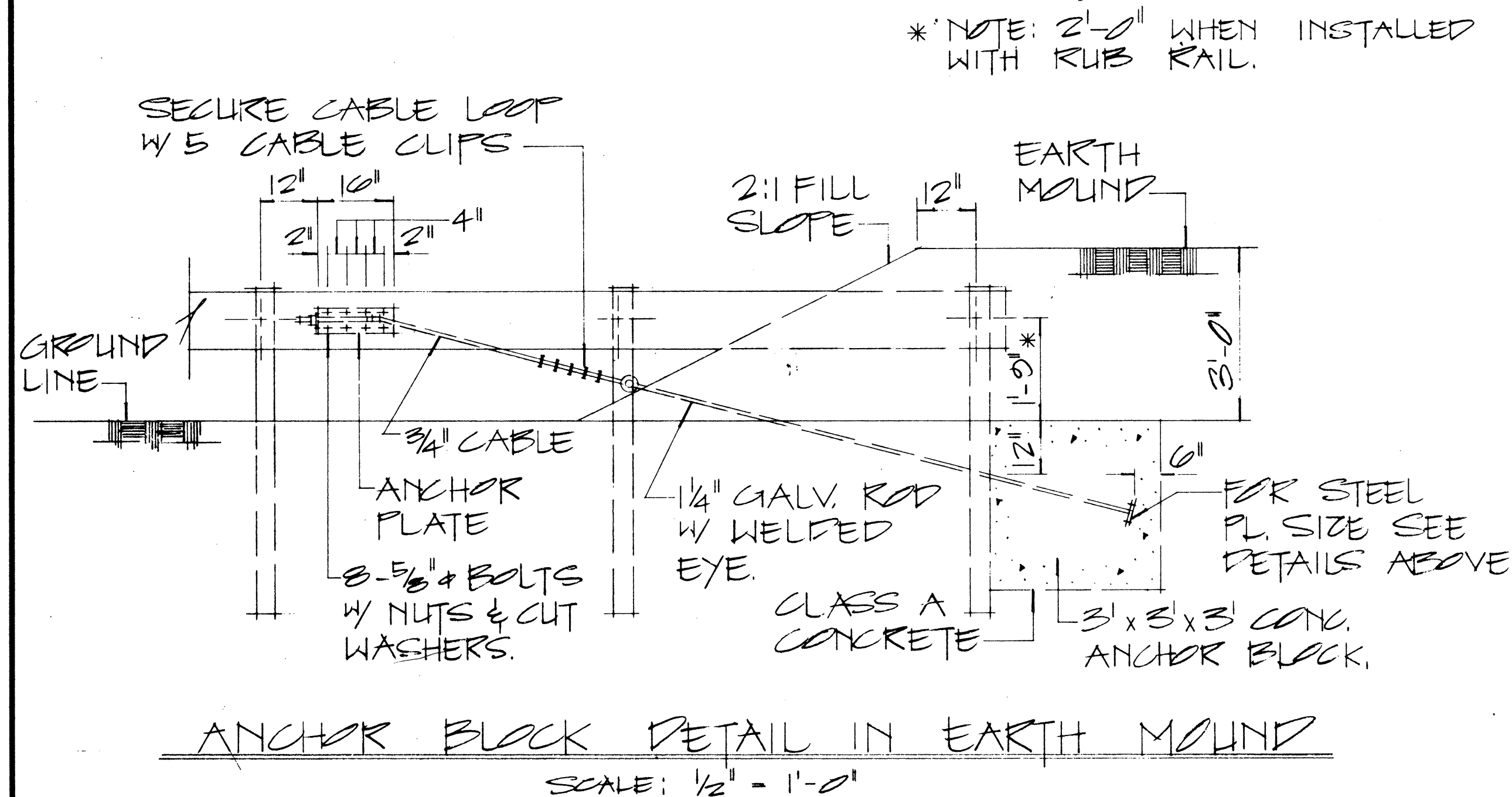
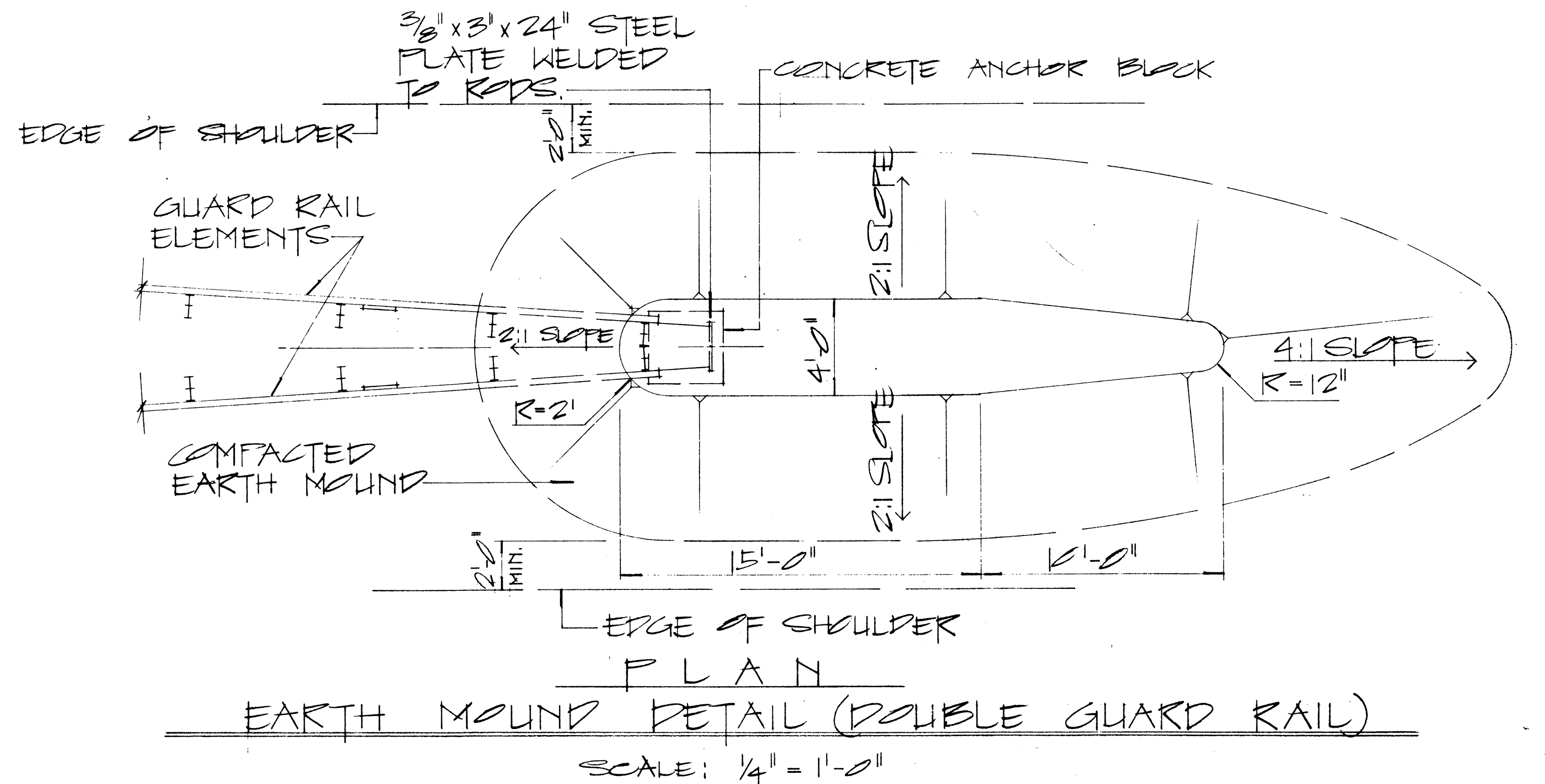
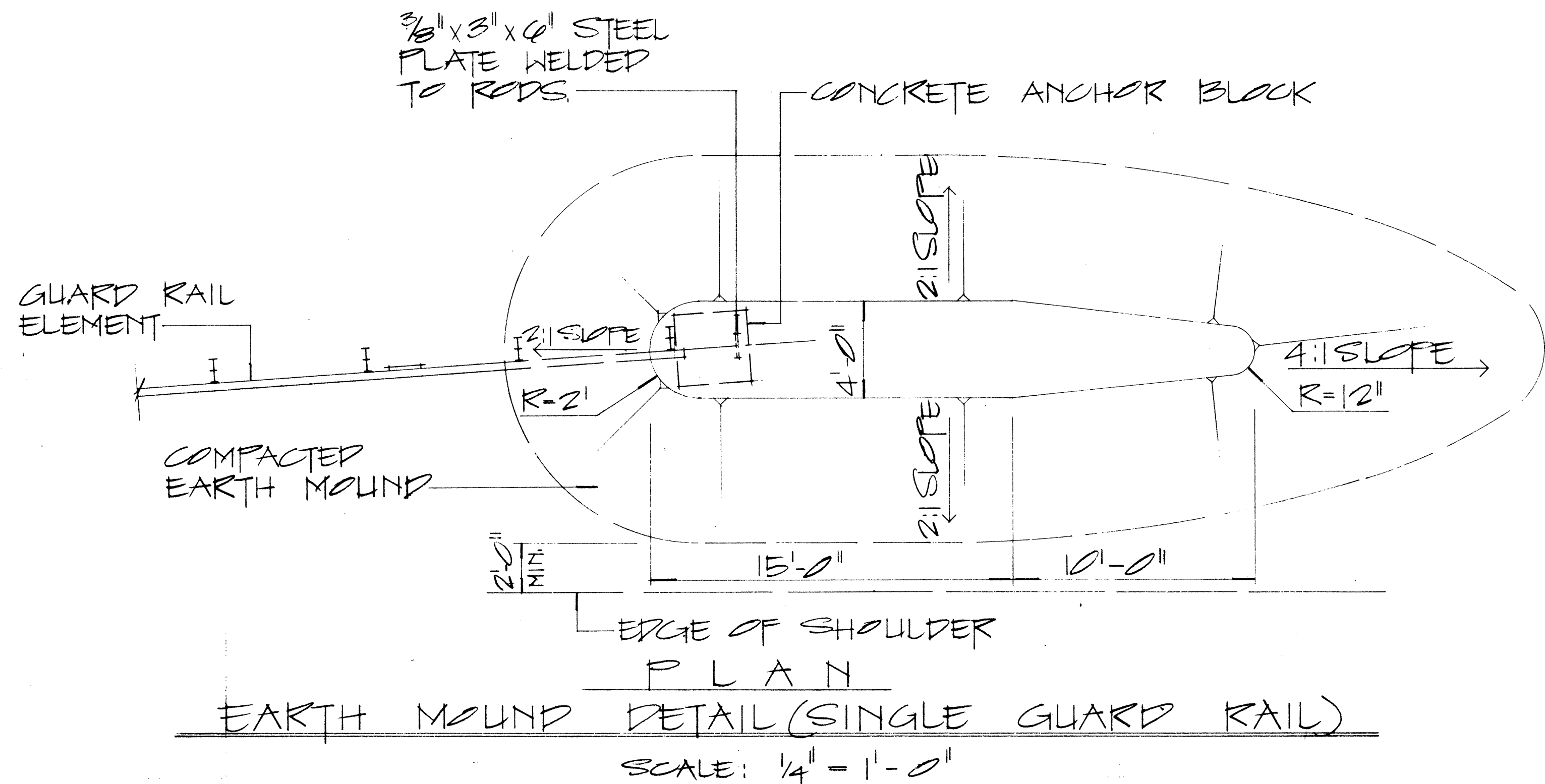
STANDARD DETAILS
TRAILING END
FLARE - ONE & TWO
WAY ROADWAY

Scale: As Noted April 1969

SHEET No. OF SHEETS DT 517

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
NO.	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	440B-02-82	1982	8	8



APPROVAL RECOMMENDED:

Eishi Tanaka 12/29/69 DATE

TRAFFIC ENGINEER

APPROVED:

[Signature] 12-30-69 DATE

ASSISTANT CHIEF, ENGINEERING

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. OF SHEETS

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