

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	4804-01-83	1984	5	10



CW20-1a 48" x 48"



CW20-2d 48" x 48"



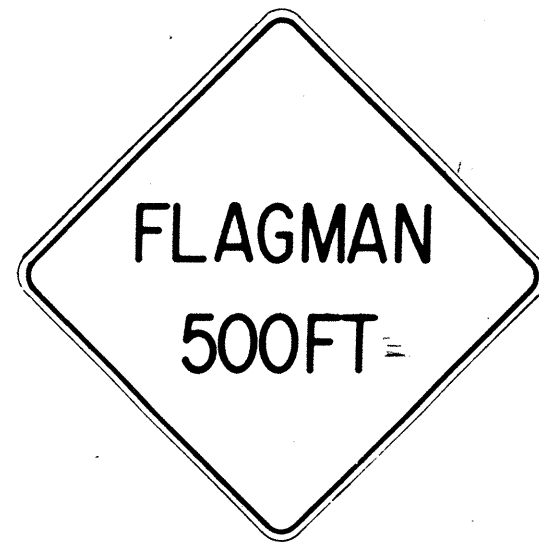
CW20-3b 48" x 48"



CW20-4d 48" x 48"



CW20-5d(L) 48" x 48"



CW20-7c 48" x 48"



CW21-1 30" x 30"



CW21-2 30" x 30"



CW21-3 36" x 36"



CW21-4 36" x 36"



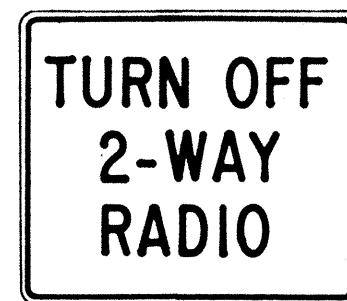
CW21-5 30" x 30"



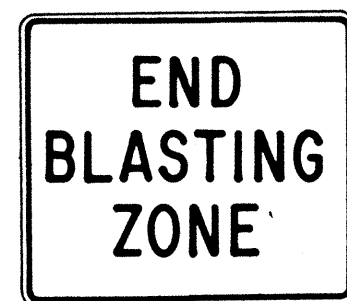
CW21-6 30" x 30"



CW22-1b 48" x 48"



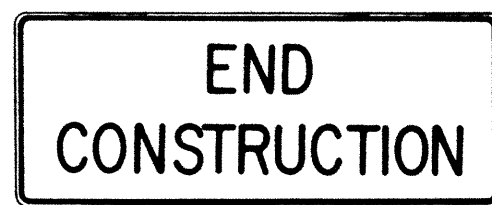
CW22-2 42" x 36"



CW22-3 42" x 36"



CG20-1(5) 60" x 36"



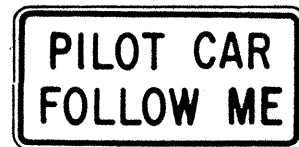
CG20-2 60" x 24"



CM4-9(R) 30" x 24"



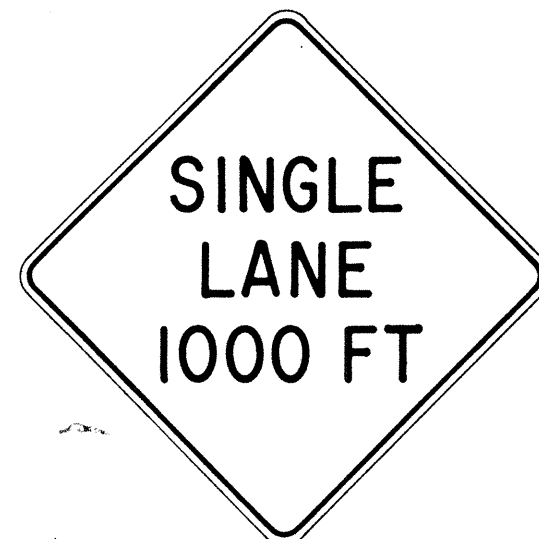
CM4-10(R) 48" x 18"



CG20-4 36" x 18"



CW23-1 36" x 36"



CW23-2b 48" x 48"



CW23-3(R) 48" x 48"

GENERAL NOTES

- Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs," 1972, and as amended.
- All construction signs shall be reflectorized.
- All construction signs shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in () indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
- For "CW" series signs, suffixes a,b,c and d are as follows:
a-1500 FT, b-1000 FT, c-500 FT and d-AHEAD.

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 104 Approved 12-30-69	H.T.	3/23/72
2	Revised General Note 1	H.T.	10/16/74
3	Revised General Note 2	H.T.	9-16-75
4	Revised General Note 2 and sign CG20-1(5)	H.T.	9-14-76

APPROVAL RECOMMENDED:
Erich Tanaka 3/21/72
TRAFFIC ENGINEER DATE

APPROVED:
Shirley S. S. S. 3/23/72
ASSISTANT CHIEF, ENGINEERING DATE

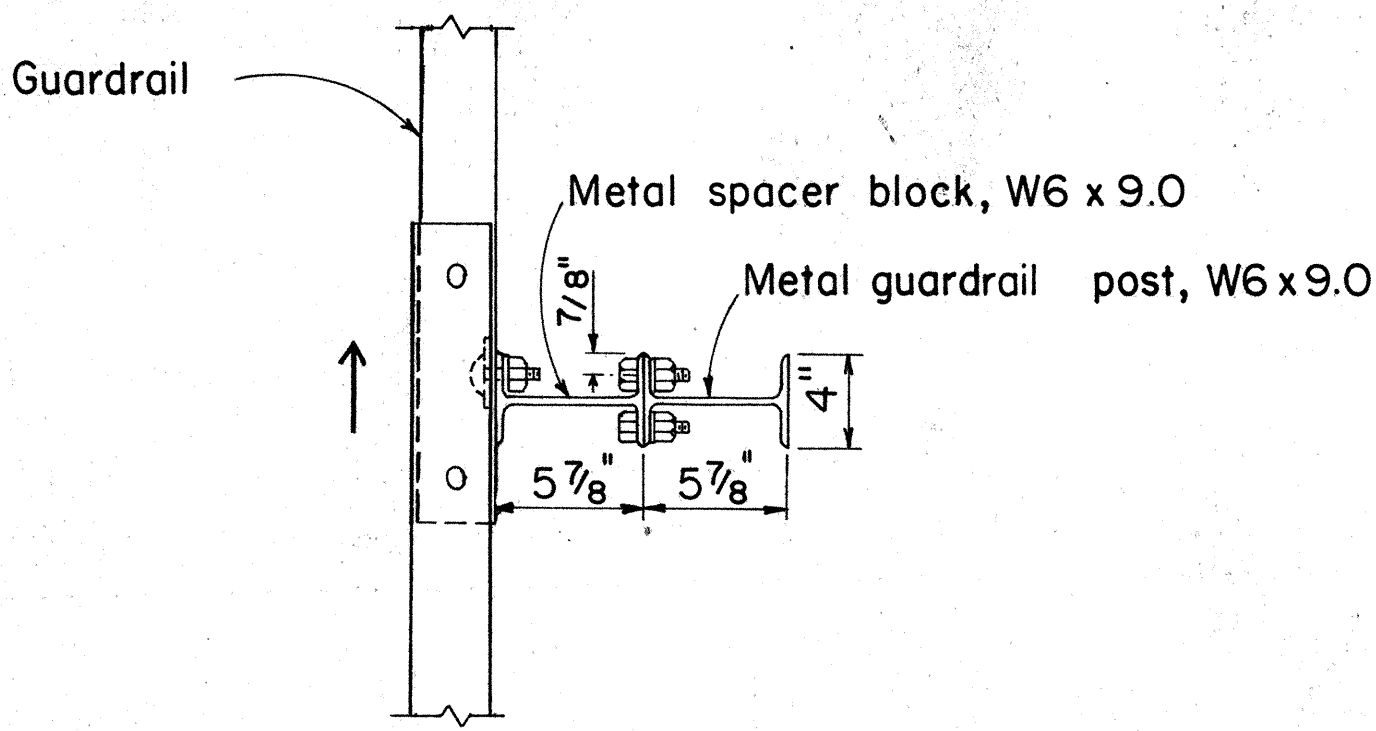
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION STANDARD DETAILS CONSTRUCTION SIGNS NOT TO SCALE SHEET No. 1 OF 6 SHEETS DT 104
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DATE	____
SURVEY PLOTTED BY	____
DESIGNED BY	____
QUANTITIES BY	____
CHECKED BY	____
ORIGINAL PLAN	____
NOTE BOOK	____
No.	____

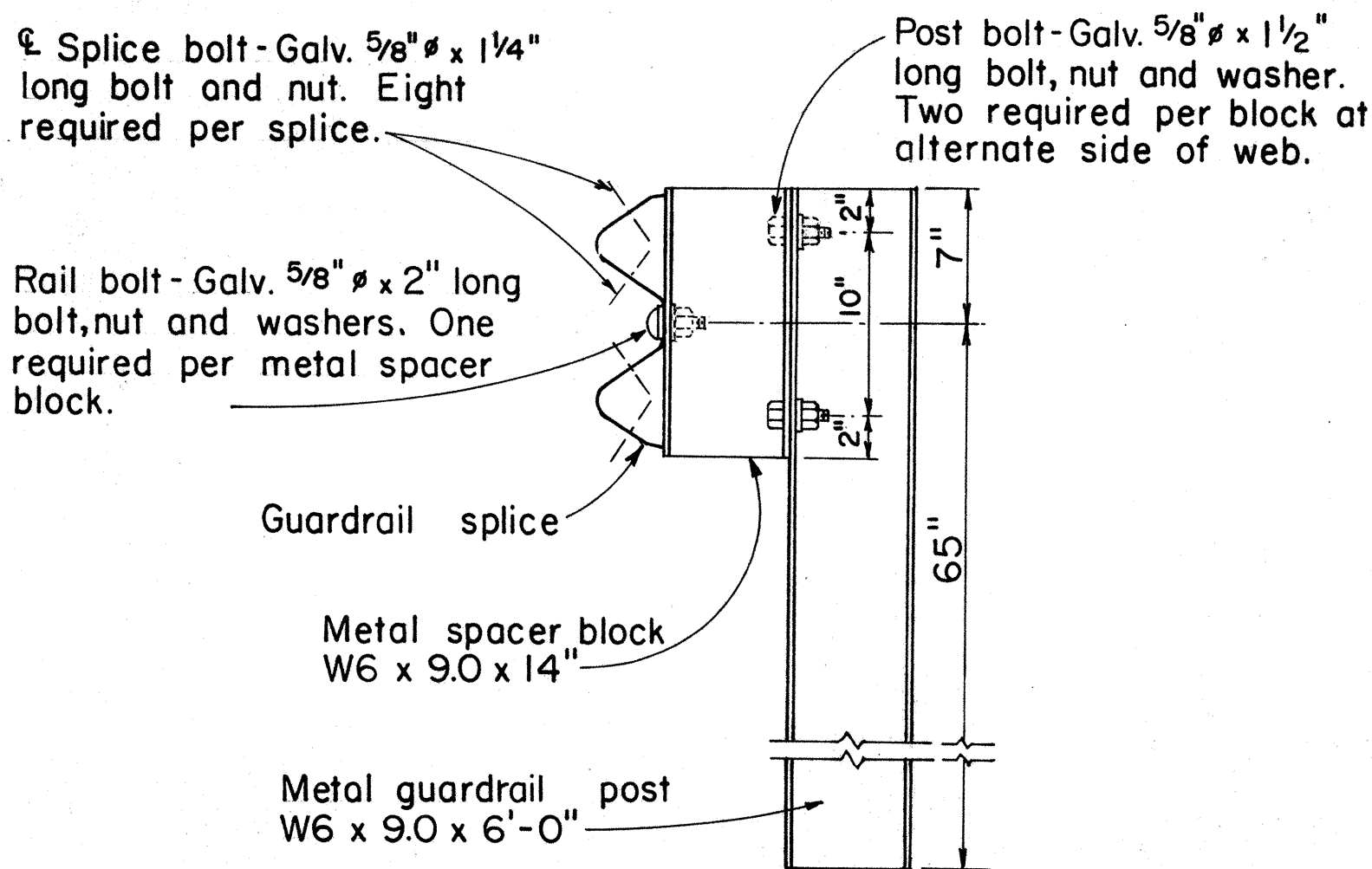
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	480A-01-83	1984	6	10

GENERAL NOTES

- Both of the alternate type posts may be used on any one project however, only one type of post shall be used in any single run of guardrail.
- All hardware, posts and blocks shall be galvanized. No punching, drilling or cutting will be permitted after galvanizing.
- Connection details for bent plate post and block shall be similar to the details shown for structural shape post, and block.
- Where conditions require, special post lengths in increments of 6 inches may be specified.
- For details of rail elements, bolts and nuts, see sheet DT 501.
- All fasteners, posts, blocks and rail elements shall conform to the latest edition and amendments of "A Guide to Standardized Highway Barrier Rail Hardware", a report prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee.



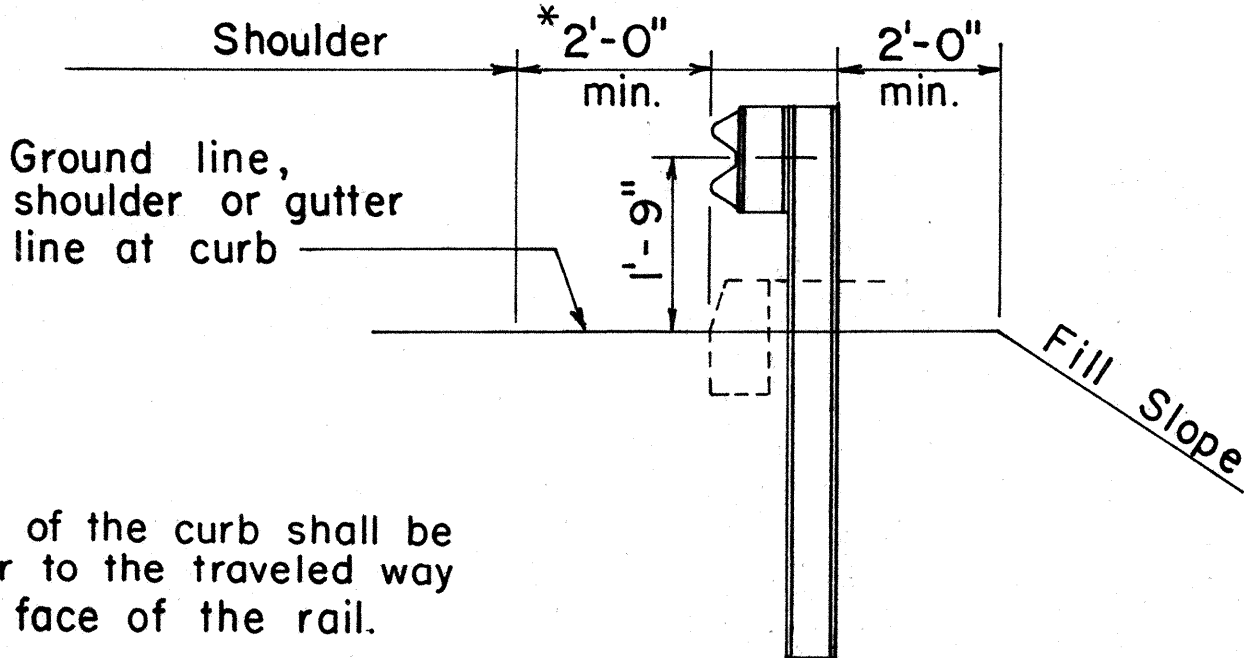
PLAN



ELEVATION

SINGLE METAL GUARDRAIL ON METAL POST WITH METAL SPACER BLOCK

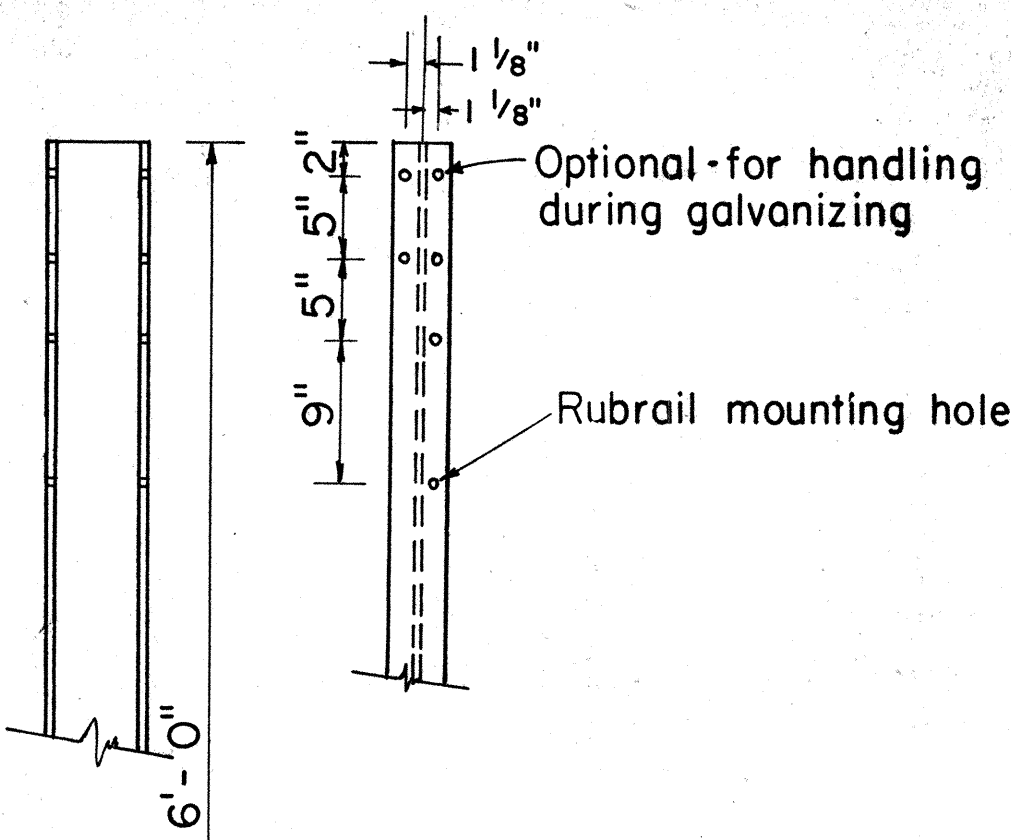
SCALE: 1 1/2" = 1'-0"



AT SHOULDER SECTION

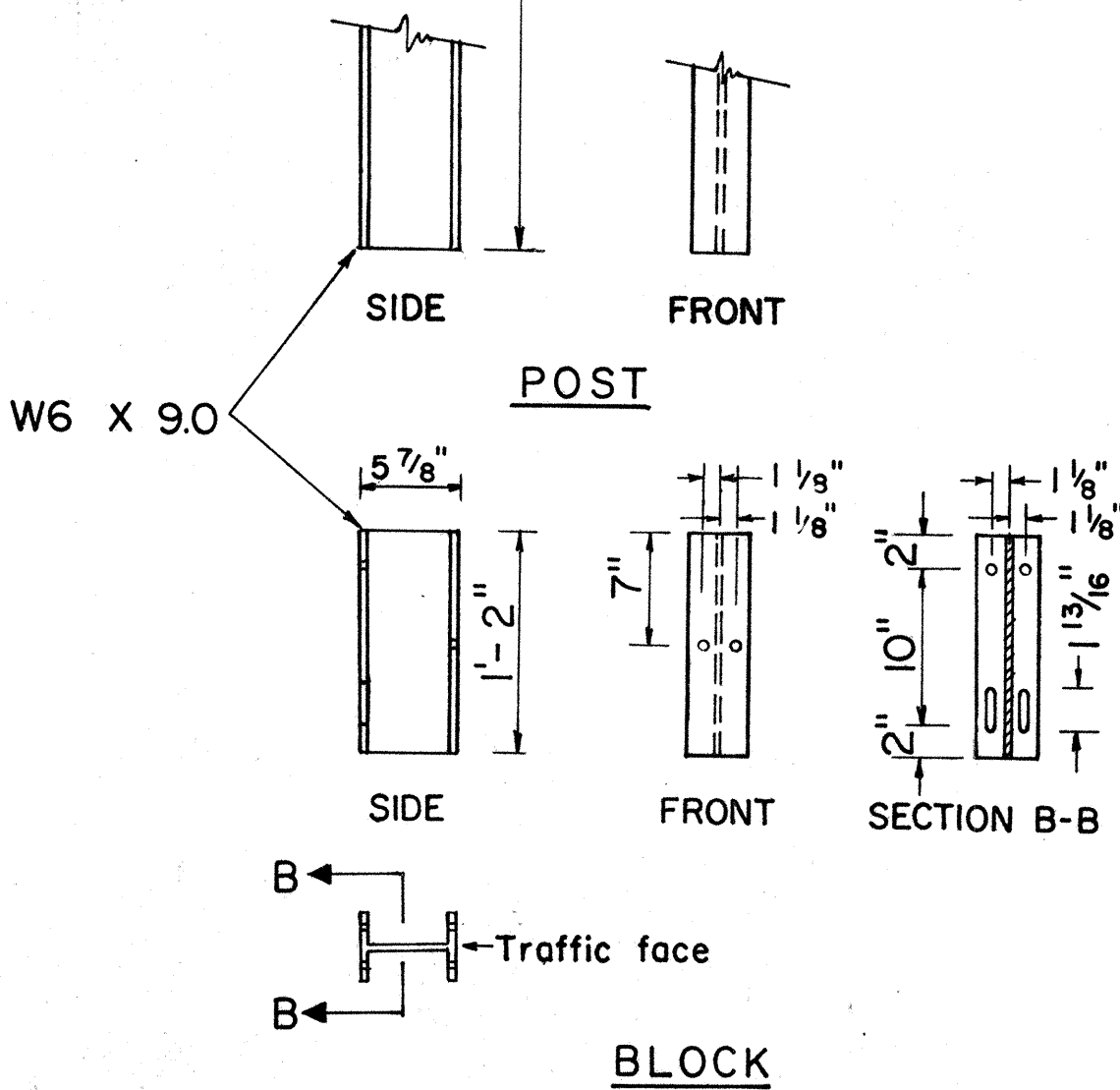
TYPICAL METAL GUARDRAIL DETAIL

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



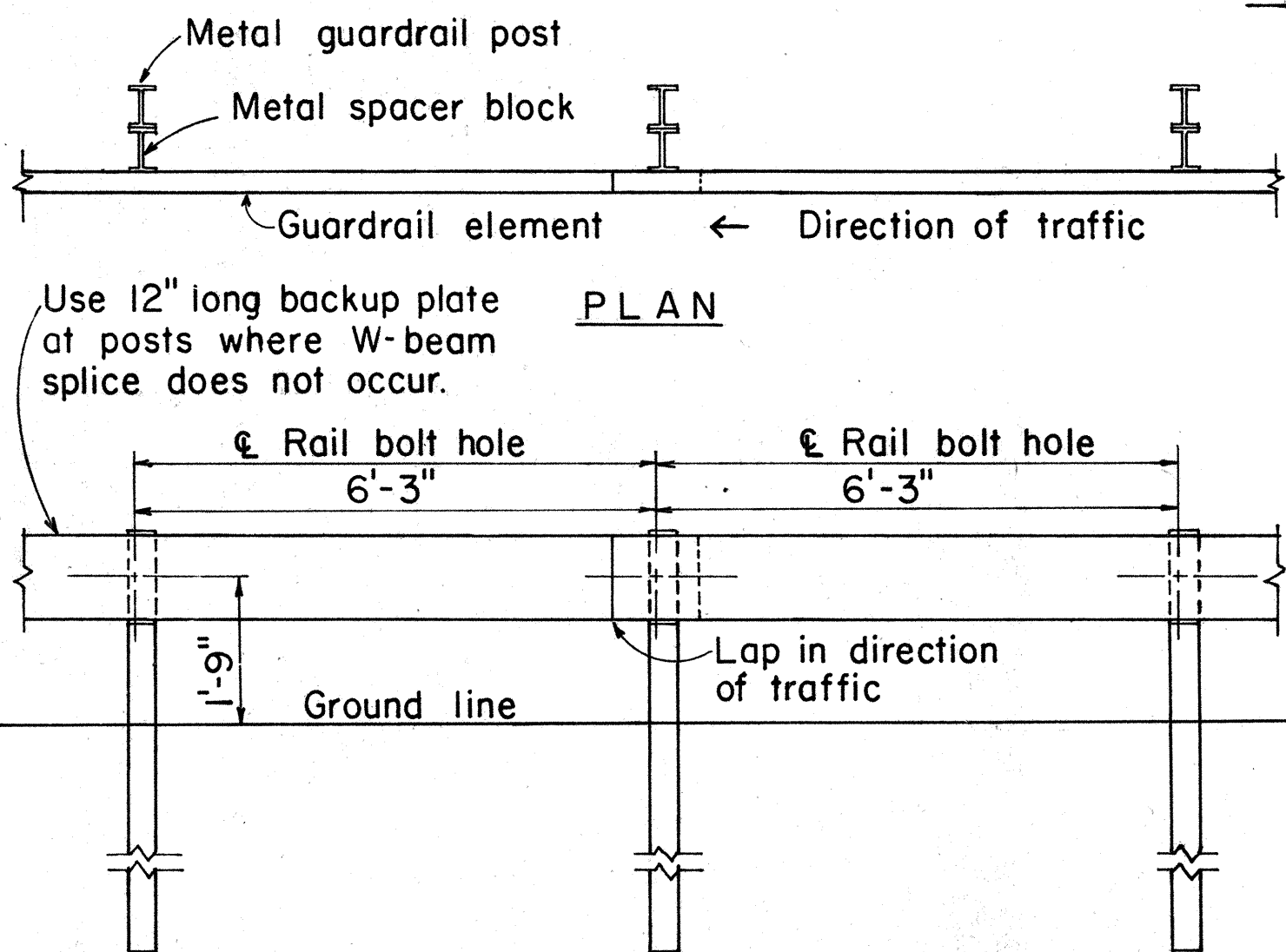
NOTE:

All holes 13/16" ϕ . Bolt hole pattern is symmetrical with respect to the vertical axis of the post.



STRUCTURAL SHAPE POST AND BLOCK

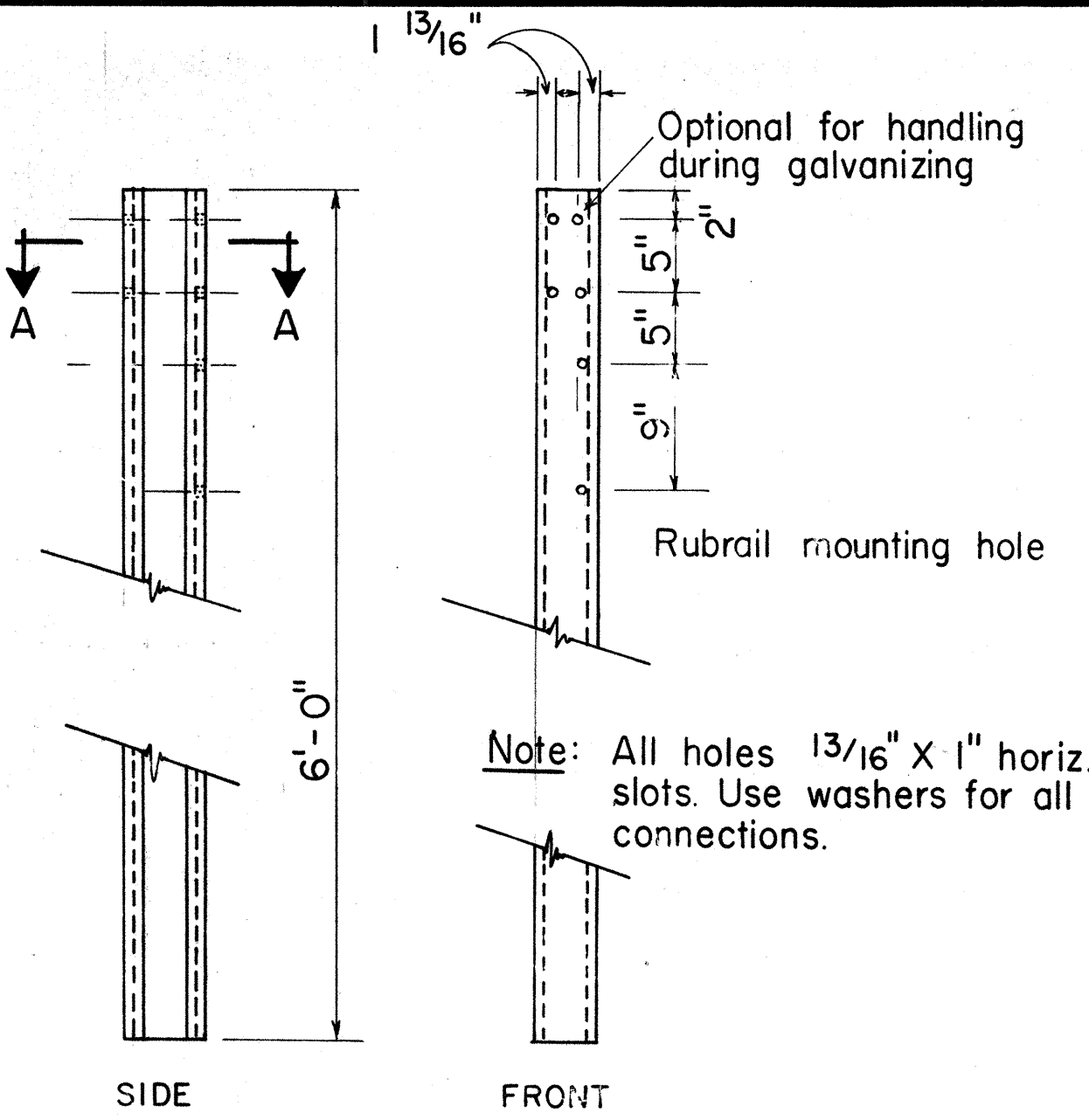
SCALE: 1" = 1'-0"



ELEVATION

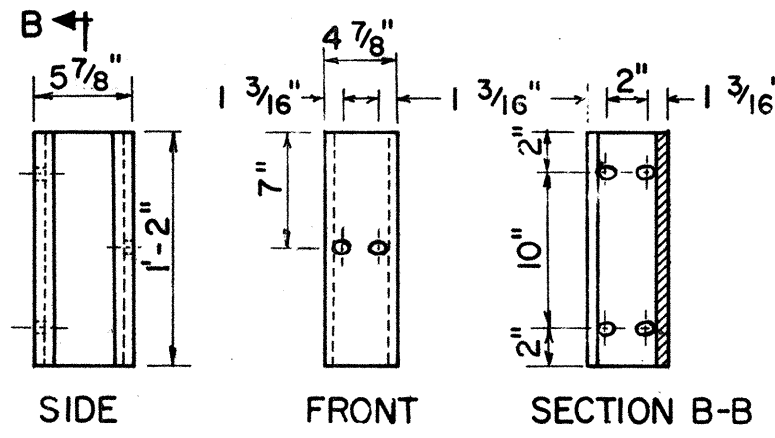
METAL GUARDRAIL ON METAL POST WITH METAL SPACER BLOCK

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



SIDE

POST

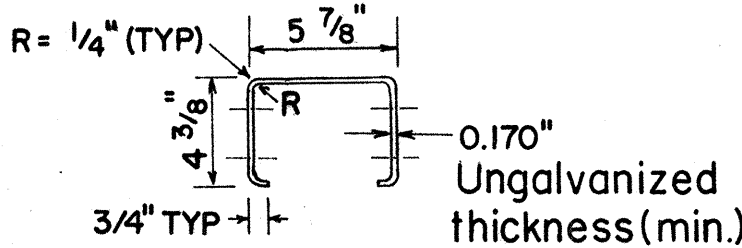


SIDE

FRONT

SECTION B-B

BLOCK



SECTION A-A

N.T.S.

BENT PLATE POST AND BLOCK

SCALE: 1" = 1'-0"

APPROVAL RECOMMENDED:

Erich Tanaka
TRAFFIC ENGINEER

9/1/82
DATE

APPROVED:

Robert Zaleski
ASSISTANT CHIEF, ENGINEERING

9/22/82
DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes sht. DT 500 approved 12/30/69.	<i>K.P.</i>	9/22/82
2	Added General Notes No. 6	<i>P.D.</i>	9-28-83

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

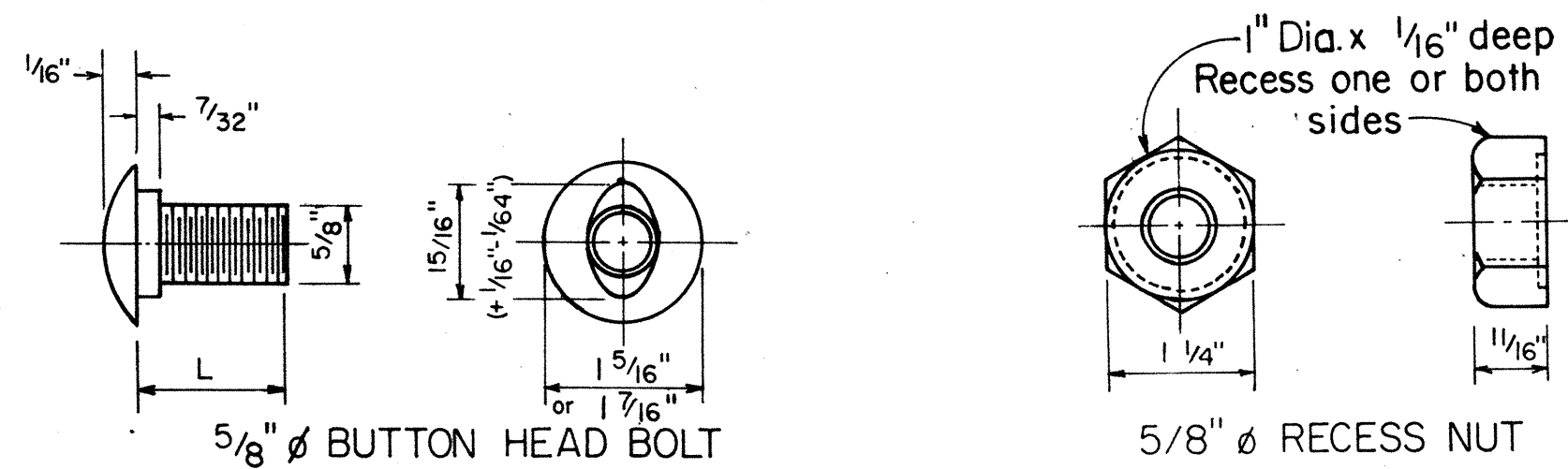
STANDARD DETAILS

METAL GUARDRAIL

Scale: As Shown July, 1982

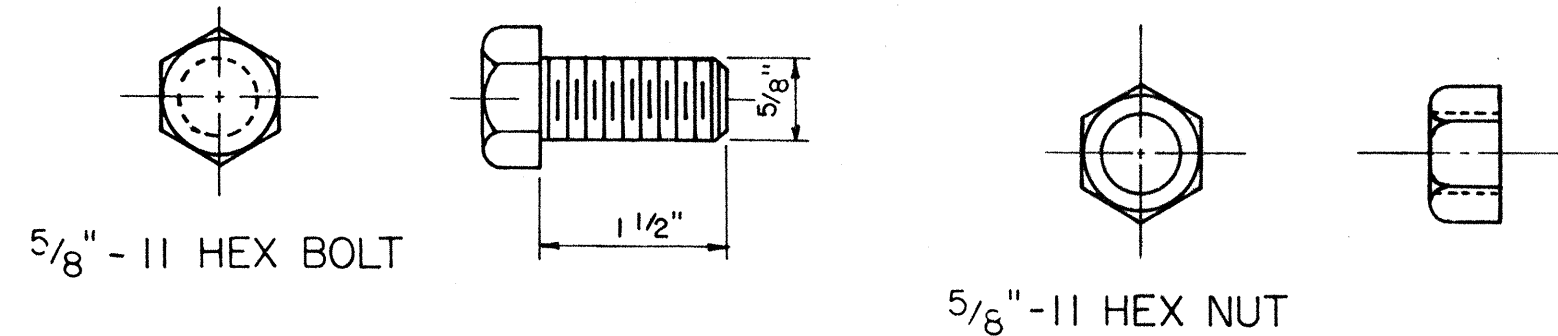
SHEET NO. 2 OF 6 SHEETS DT 500

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	480A-01-B3	1984	7	10

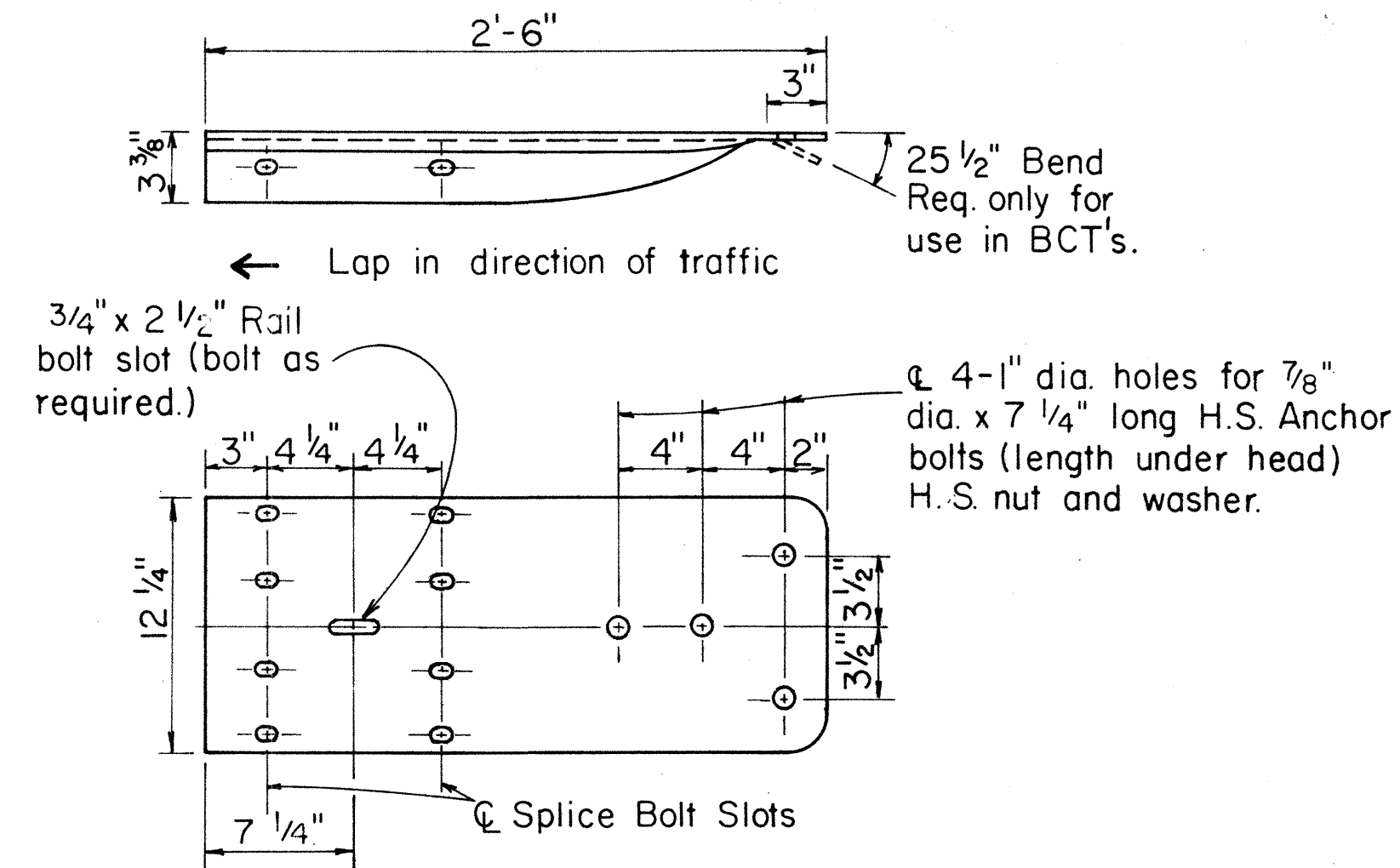


L	Thread Length	Intended Use
1 1/4"	Full length thread	Splice rail elements
2"	1 1/2" min. thread len.	Fasten rails to posts

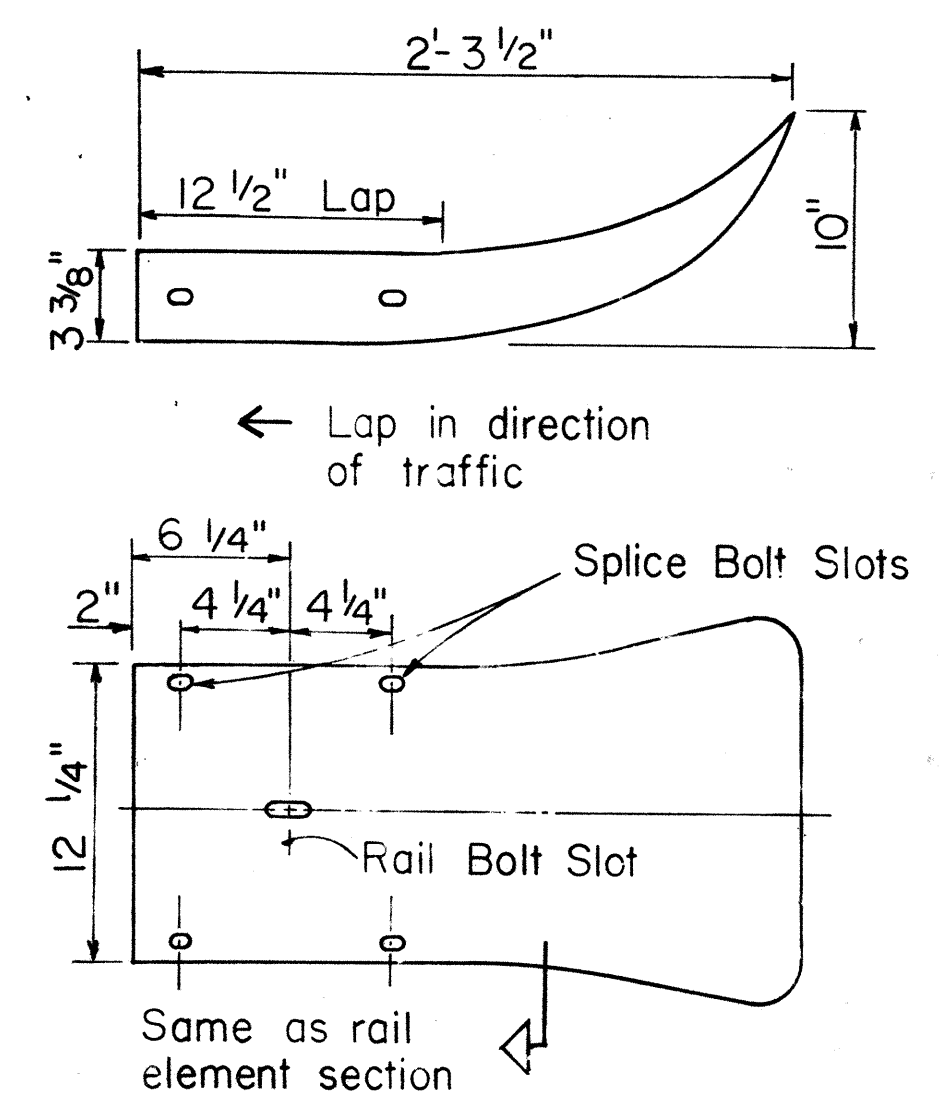
**5/8" BUTTON HEAD BOLT
AND RECESS NUT**
Scale: NTS



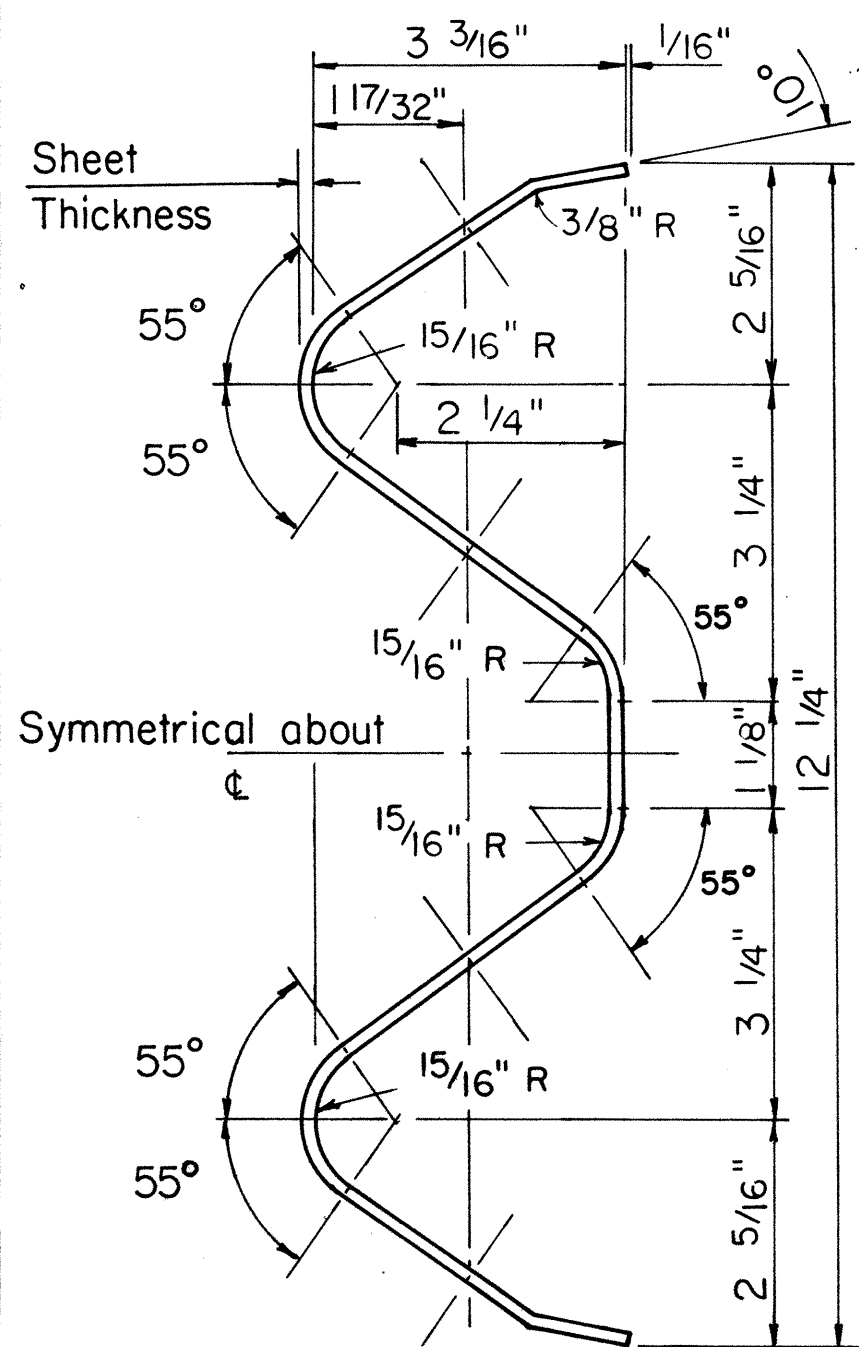
5/8" HEX POST BOLT AND NUT
Scale: N.T.S.



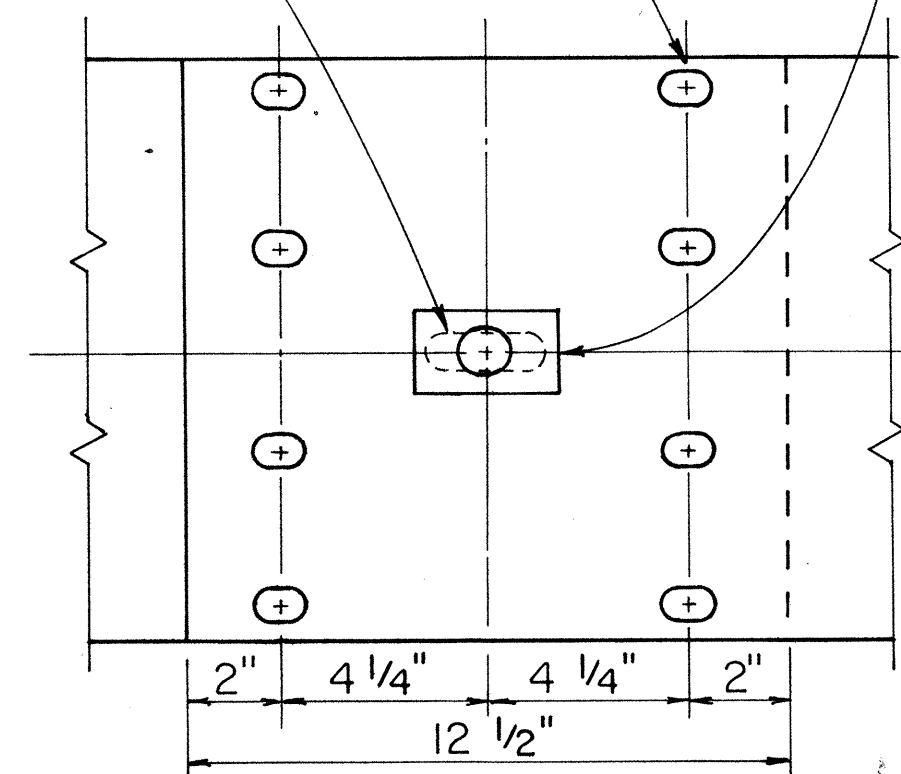
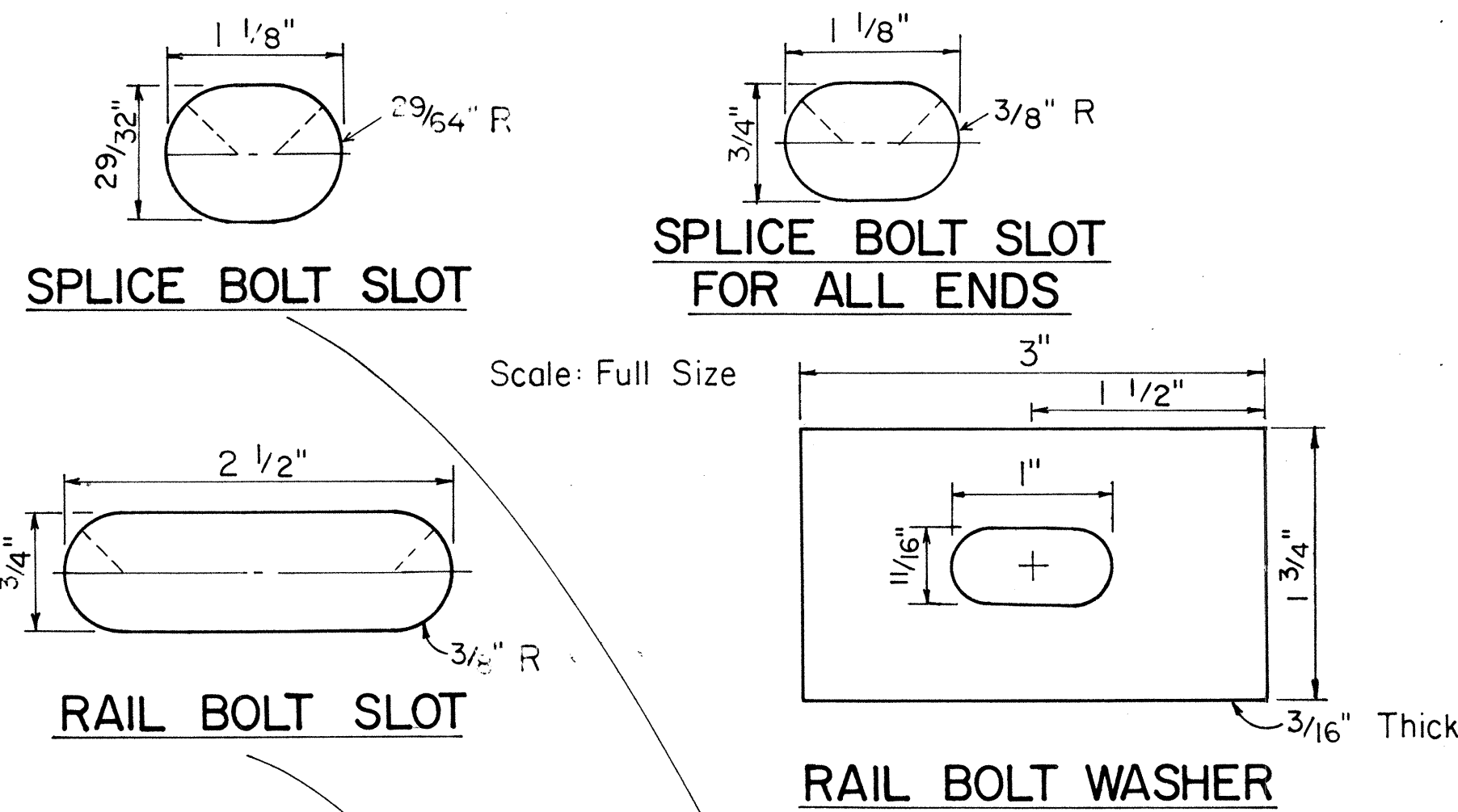
W BEAM TERMINAL CONNECTOR
Scale: 1 1/2" = 1'-0"



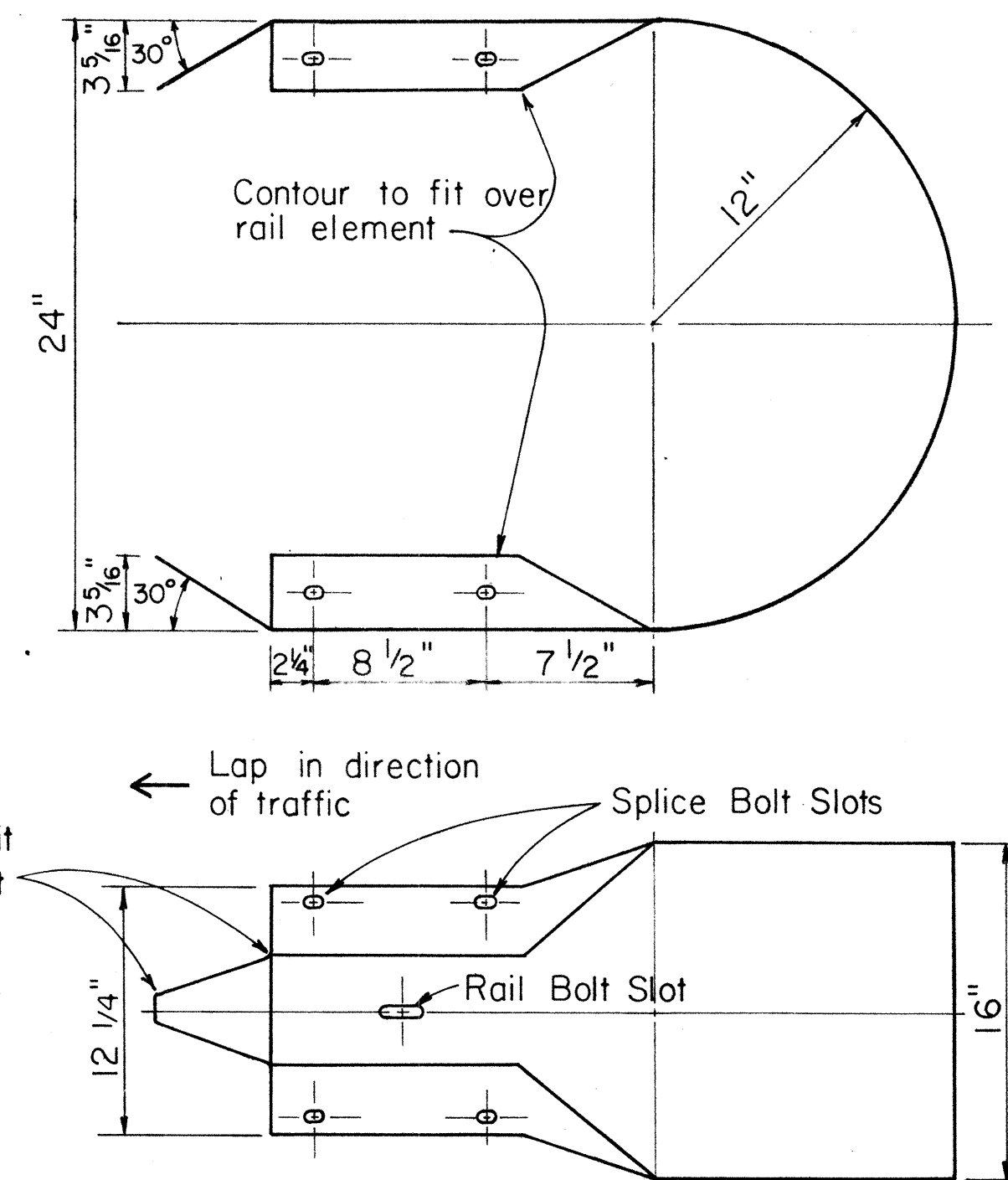
W BEAM END SECTION (FLARED)
Scale: 1 1/2" = 1'-0"



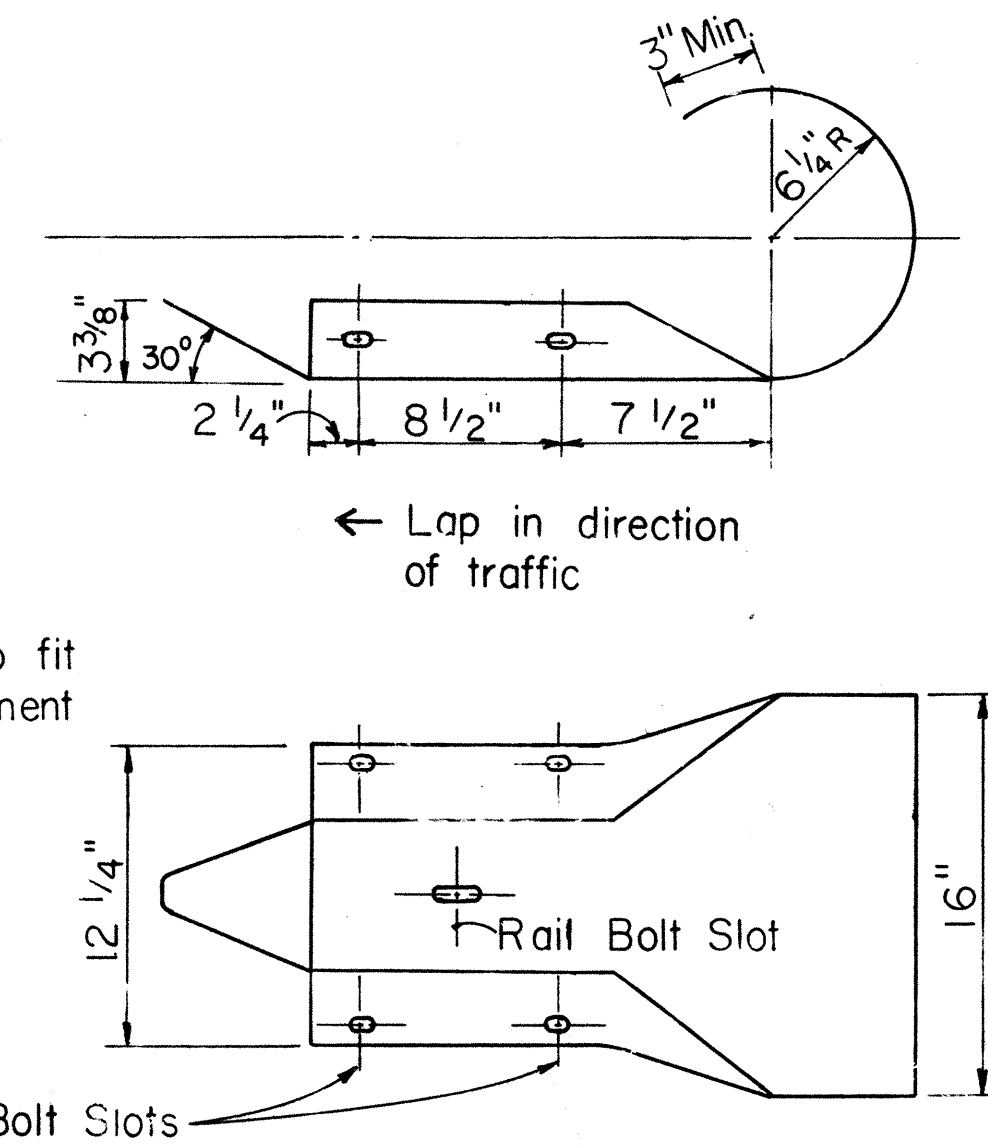
RAIL ELEMENT SECTION
Scale: 6" = 1'-0"



RAIL SPLICE
Scale: 3" = 1'-0"



W BEAM END SECTION (BUFFER)
Scale: 1 1/2" = 1'-0"



W BEAM END SECTION (ROUNDED)
Scale: 1 1/2" = 1'-0"

APPROVAL RECOMMENDED:	9/20/82
<i>Eishi Tanaka</i>	DATE
TRAFFIC ENGINEER	
APPROVED:	9/22/82
<i>Shelton S. S. S.</i>	DATE
ASSISTANT CHIEF, ENGINEERING	

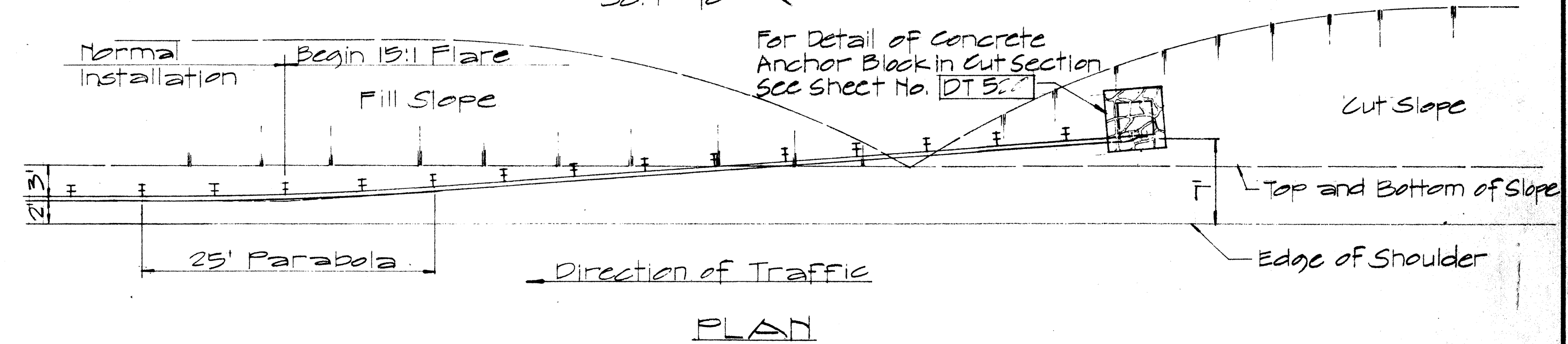
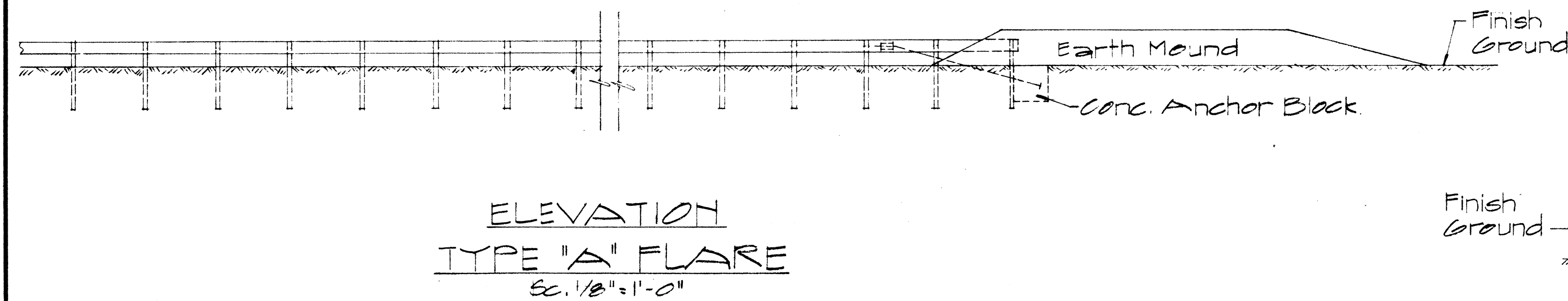
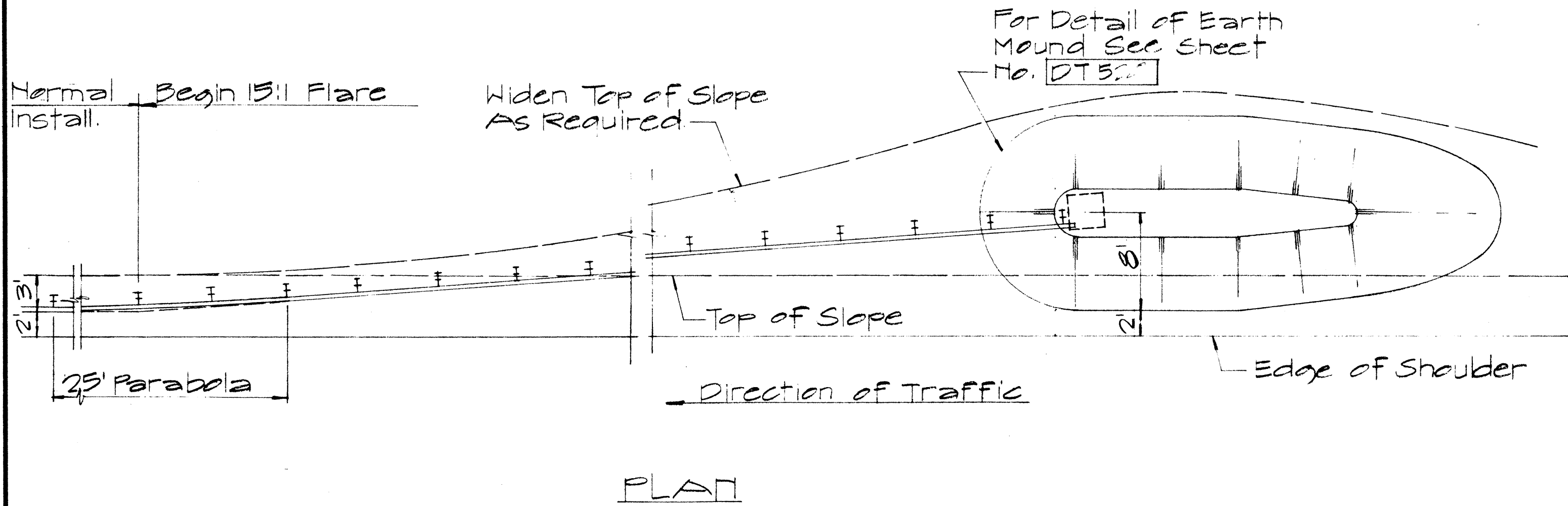
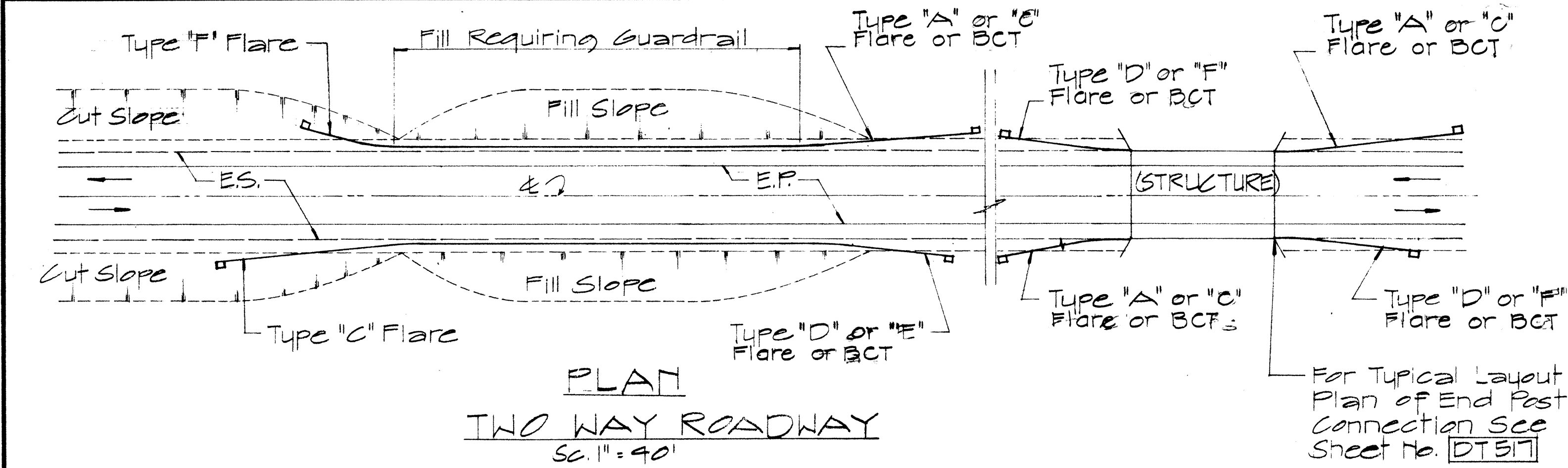
NO.	REVISION	APPROVED BY	DATE
1	Supersedes sht. DT 501 approved 12/30/69	H.T.	9/22/82

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
STANDARD DETAILS
METAL GUARDRAIL
Scale: As Noted
July, 1982
SHEET NO. 3 OF 6 SHEETS DT 501

ORIGINAL PLAN	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	480A-01-83	1984	8	10

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

NO.	REVISION	APPROVED BY	DATE
1	Delete Type "B" Flare and Type "E" Flare	H.T.	6/15/68

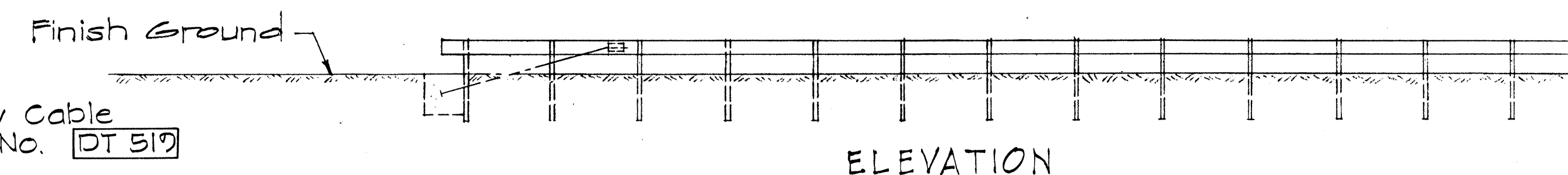
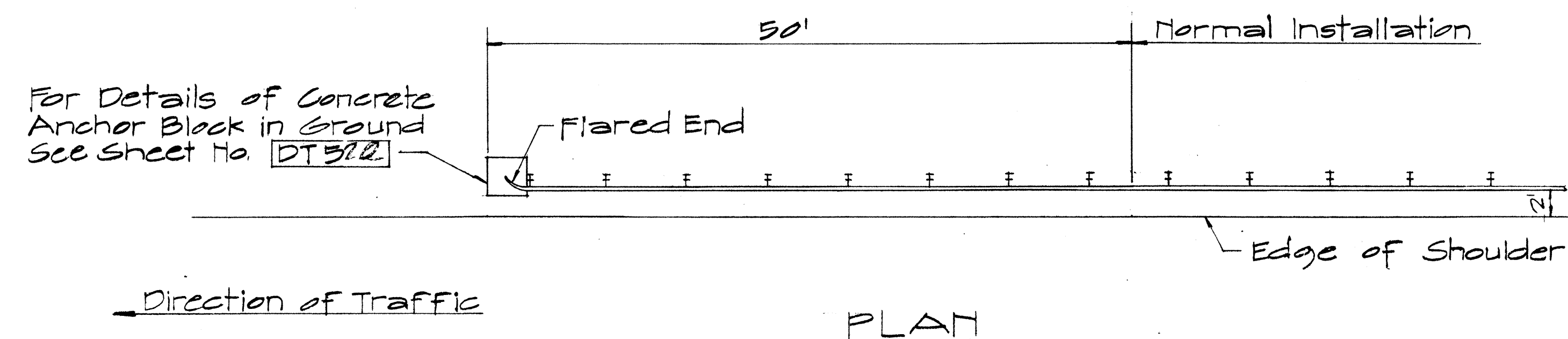
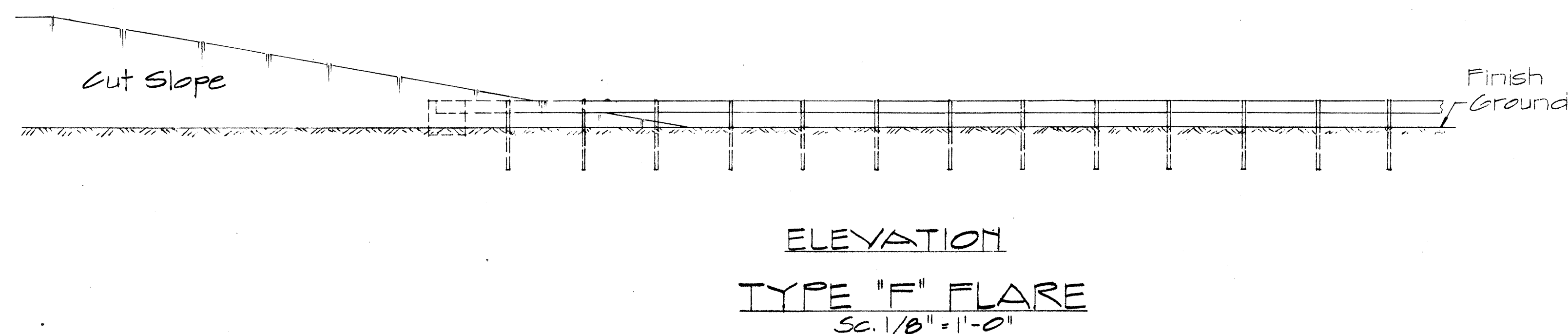
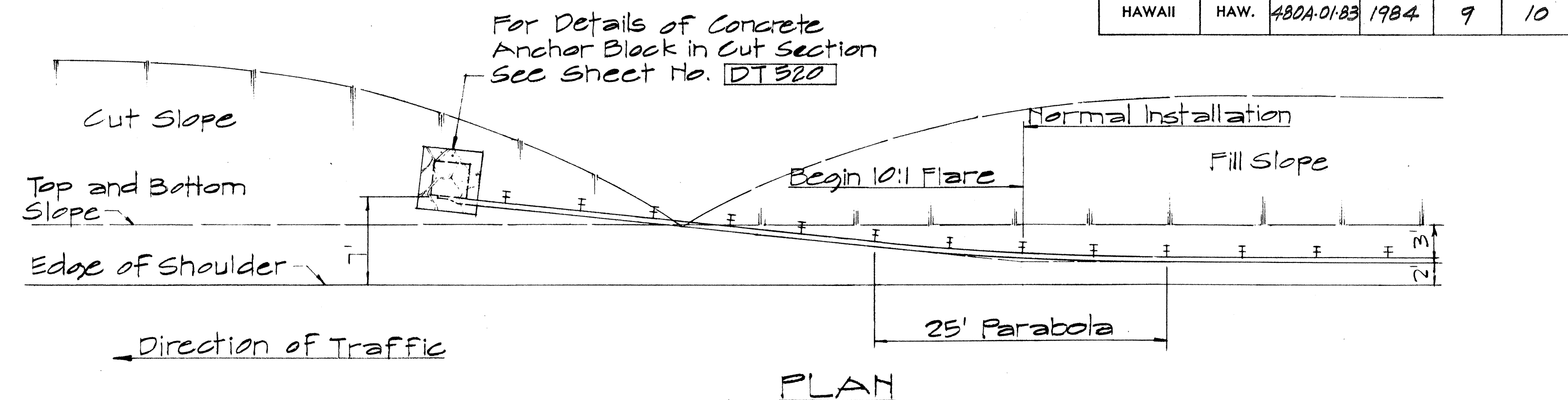
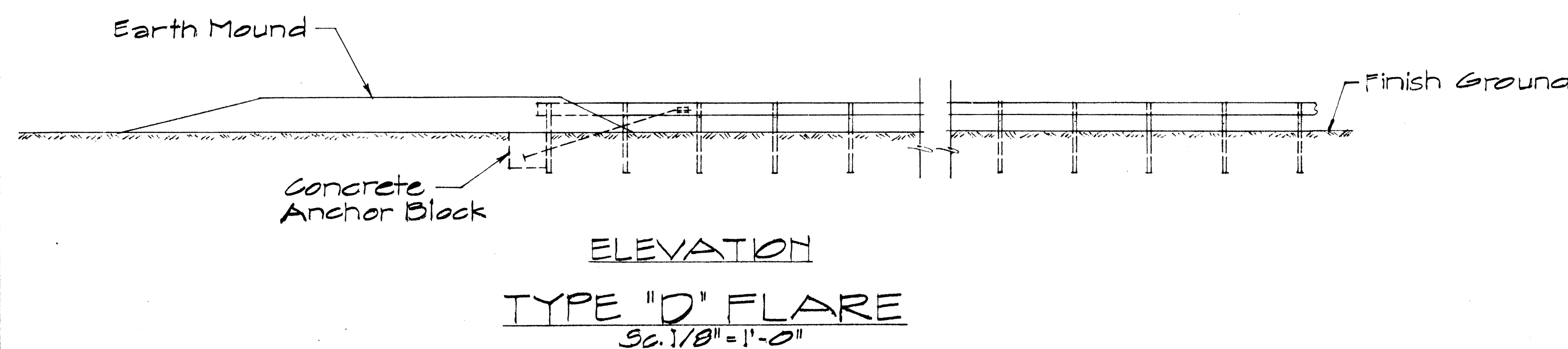
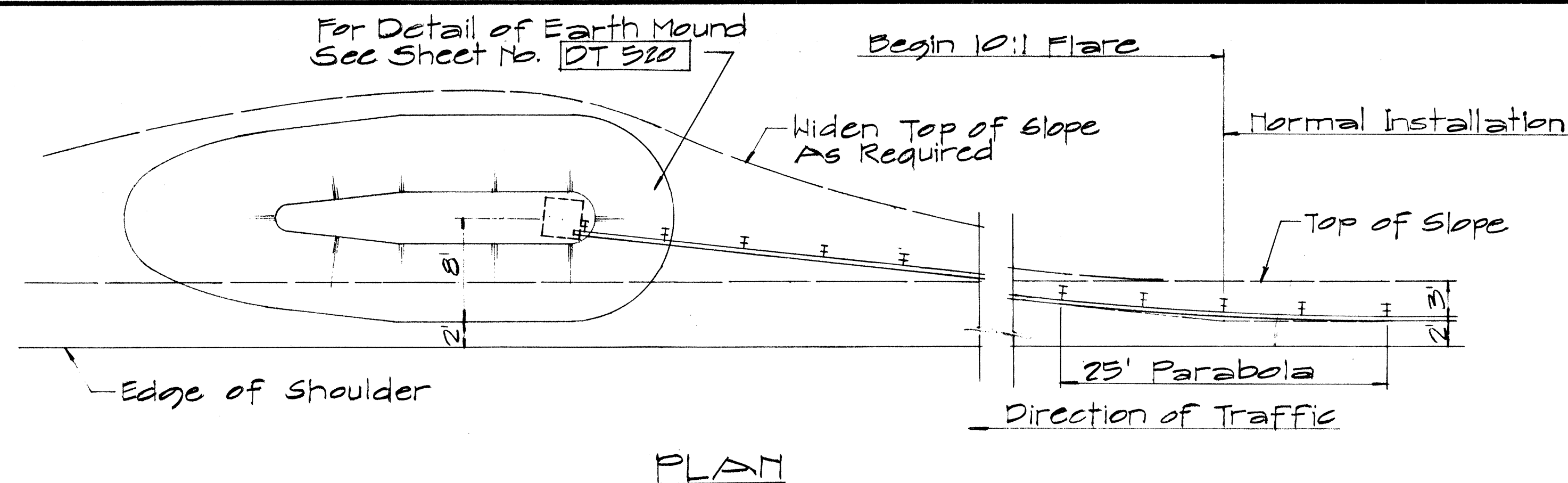
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

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

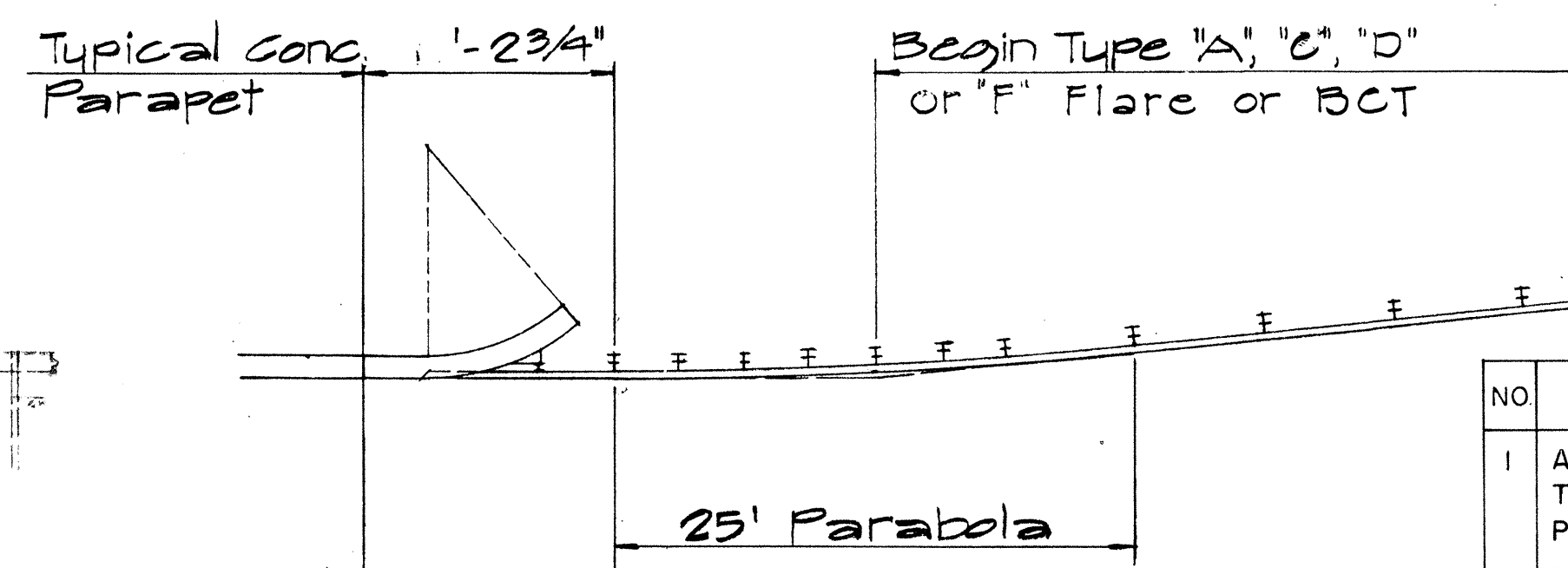
Sc. As Noted April 1969
 SHEET No. 4 OF 6 SHEETS DT 516

DATE	
SURVEY PLOTTED BY	
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.	480A-01/83	1984	9	10



NOTE:
For detail of Breakaway Cable Terminal (BCT) See Sheet No. DT 512



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:
Eishi Tanaka
TRAFFIC ENGINEER
DATE 12/29/69

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
TRAILING END
FLARE - ONE & TWO
WAY ROADWAY

Scale: As Noted April 1969
SHEET No. 5 OF 6 SHEETS DT 517

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

