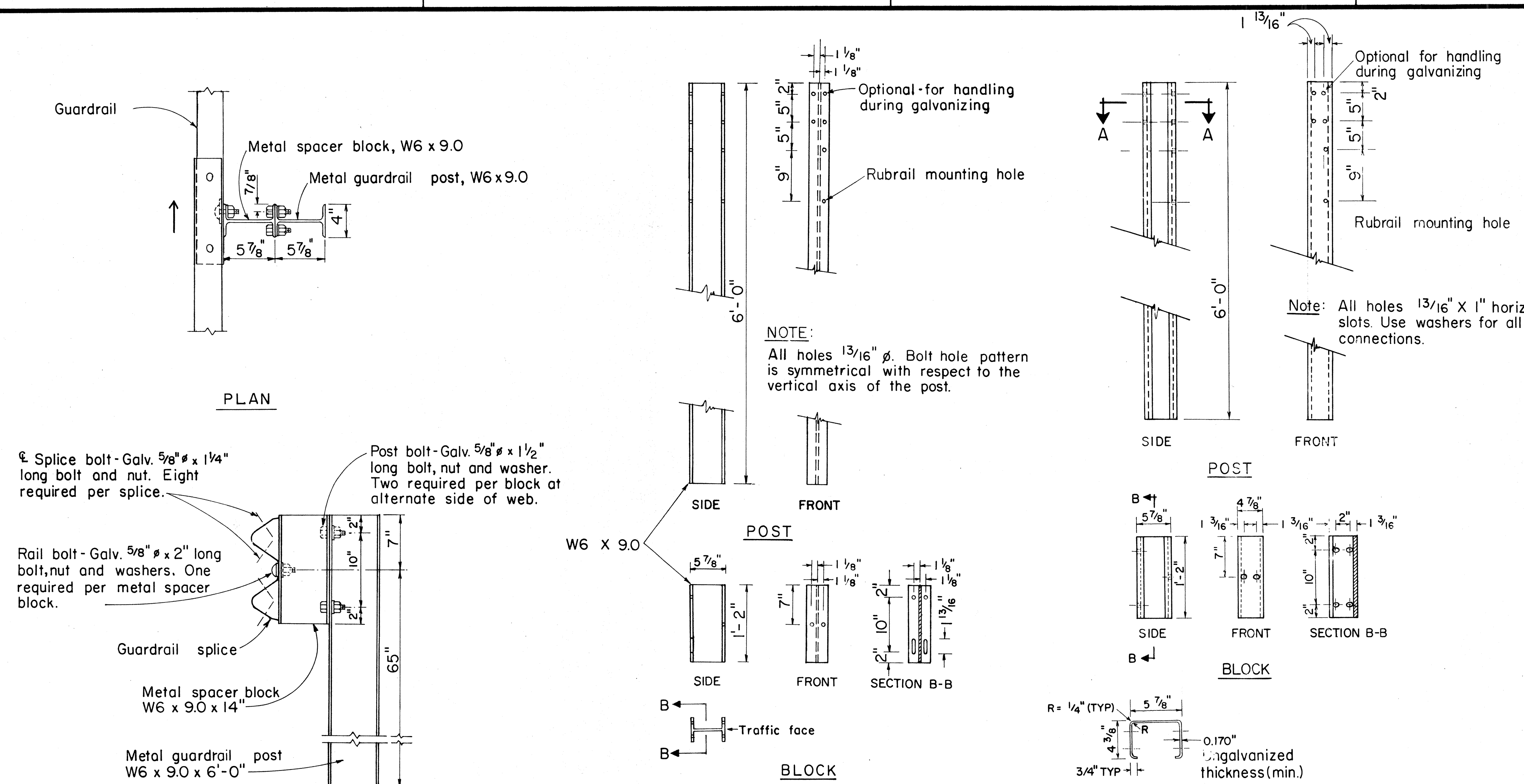


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FR-093-1(6)	1983	25	51

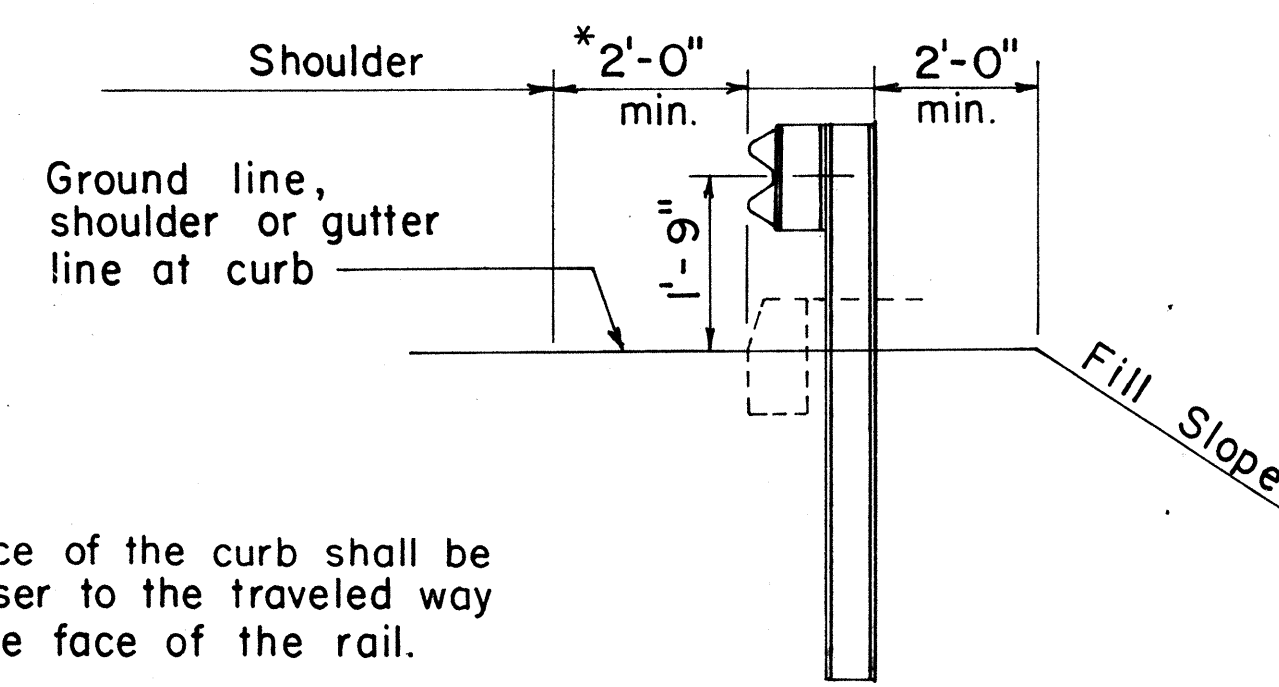
GENERAL NOTES

- 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.

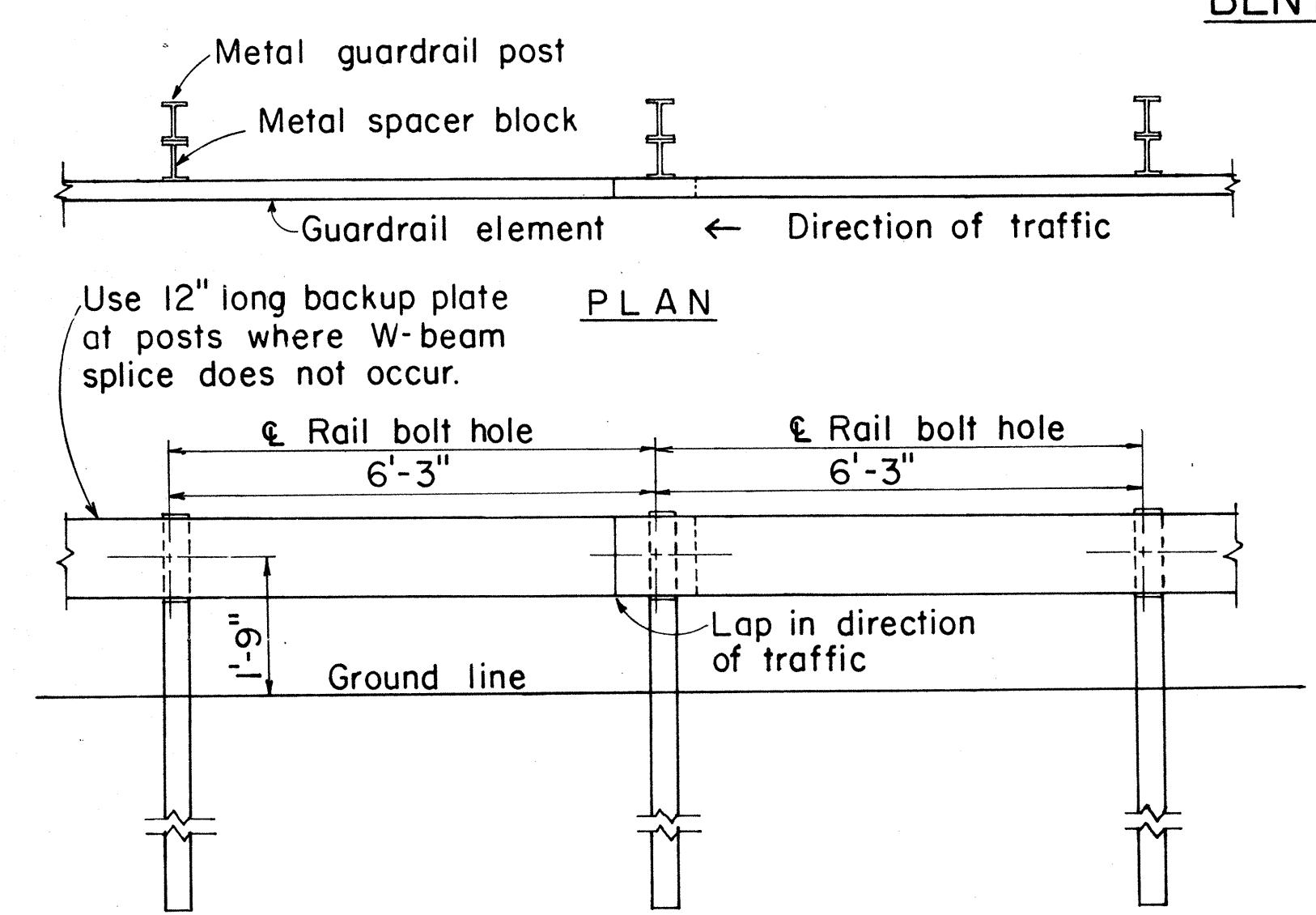


SINGLE METAL GUARDRAIL ON METAL POST WITH METAL SPACER BLOCK

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



Note:
The face of the curb shall be no closer to the traveled way than the face of the rail.



NO.	REVISION	APPROVED BY	DATE
1	Supersedes sht. DT 500 approved 12/30/69.	H.C.	9/22/82

APPROVAL RECOMMENDED:
Erich Tanaka
TRAFFIC ENGINEER
9/7/82
DATE

APPROVED:
Robert Salsich
ASSISTANT CHIEF, ENGINEERING
9/22/82
DATE

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

STANDARD DETAILS

METAL GUARDRAIL

Scale: As Shown

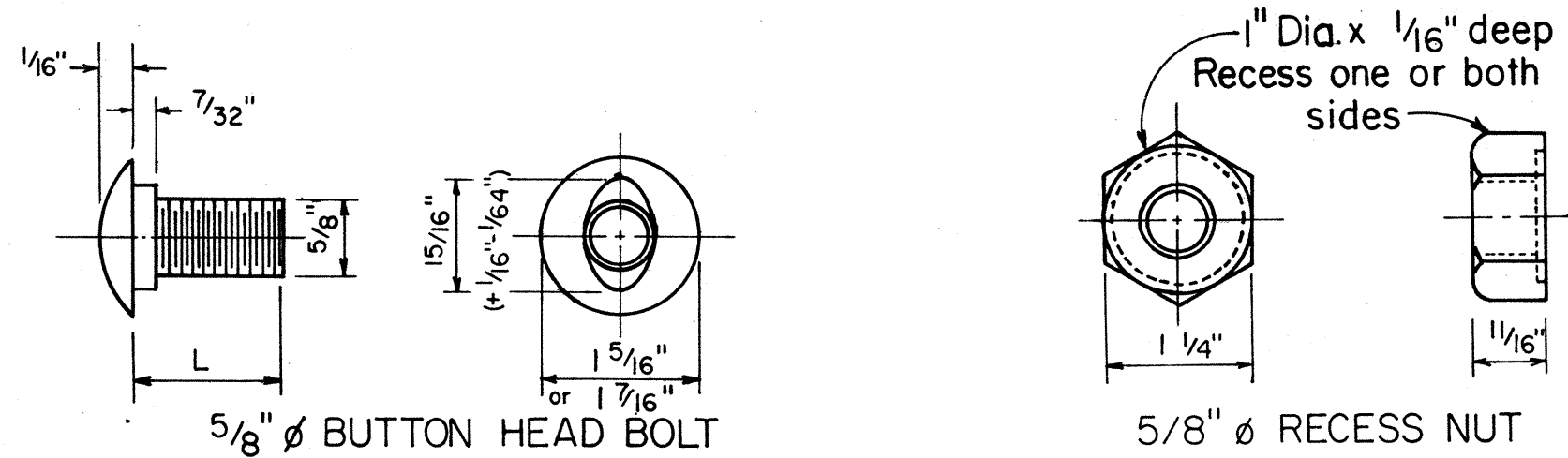
July, 1982

SHEET NO. 1 OF 6

SHEETS DT 500

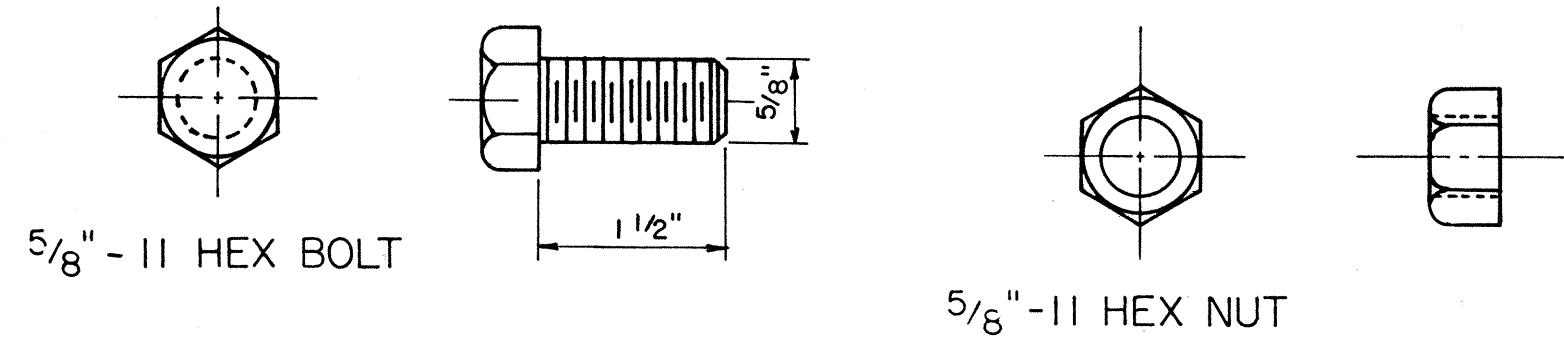
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FR-093-1(6)	1983	26	51

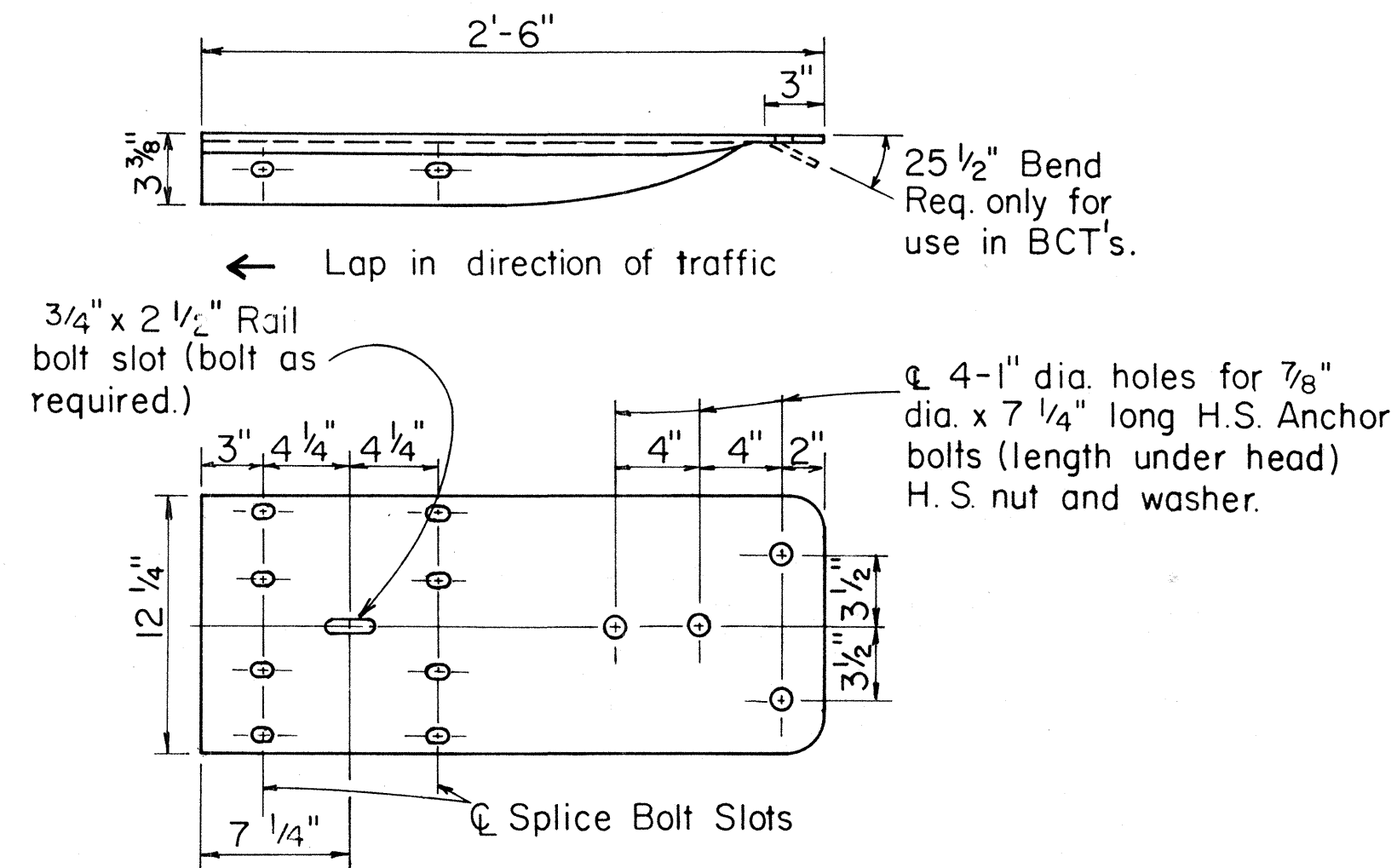


L	Thread Length	Intended Use
1 1/4"	Full length thread	Splice rail elements
2"	1 1/2" min. thread len.	Fasten rails to posts

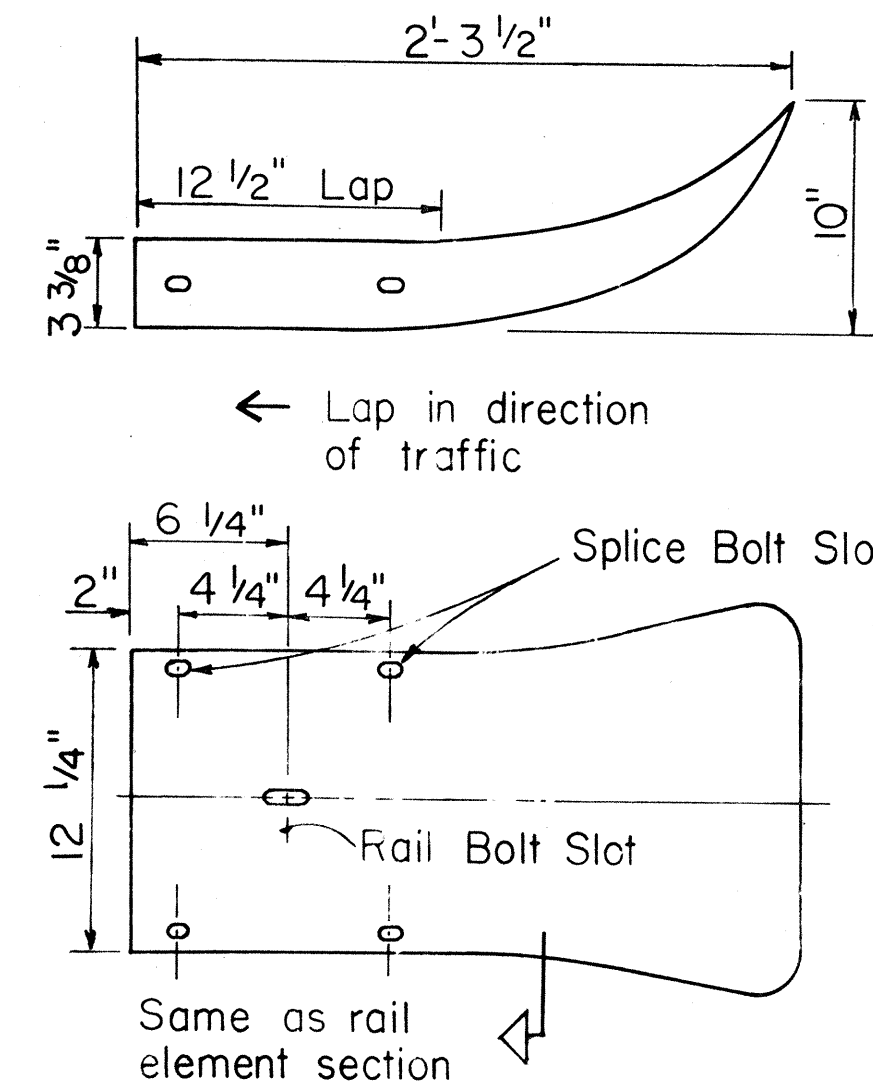
**5/8" BUTTON HEAD BOLT
AND RECESS NUT**
Scale: NTS



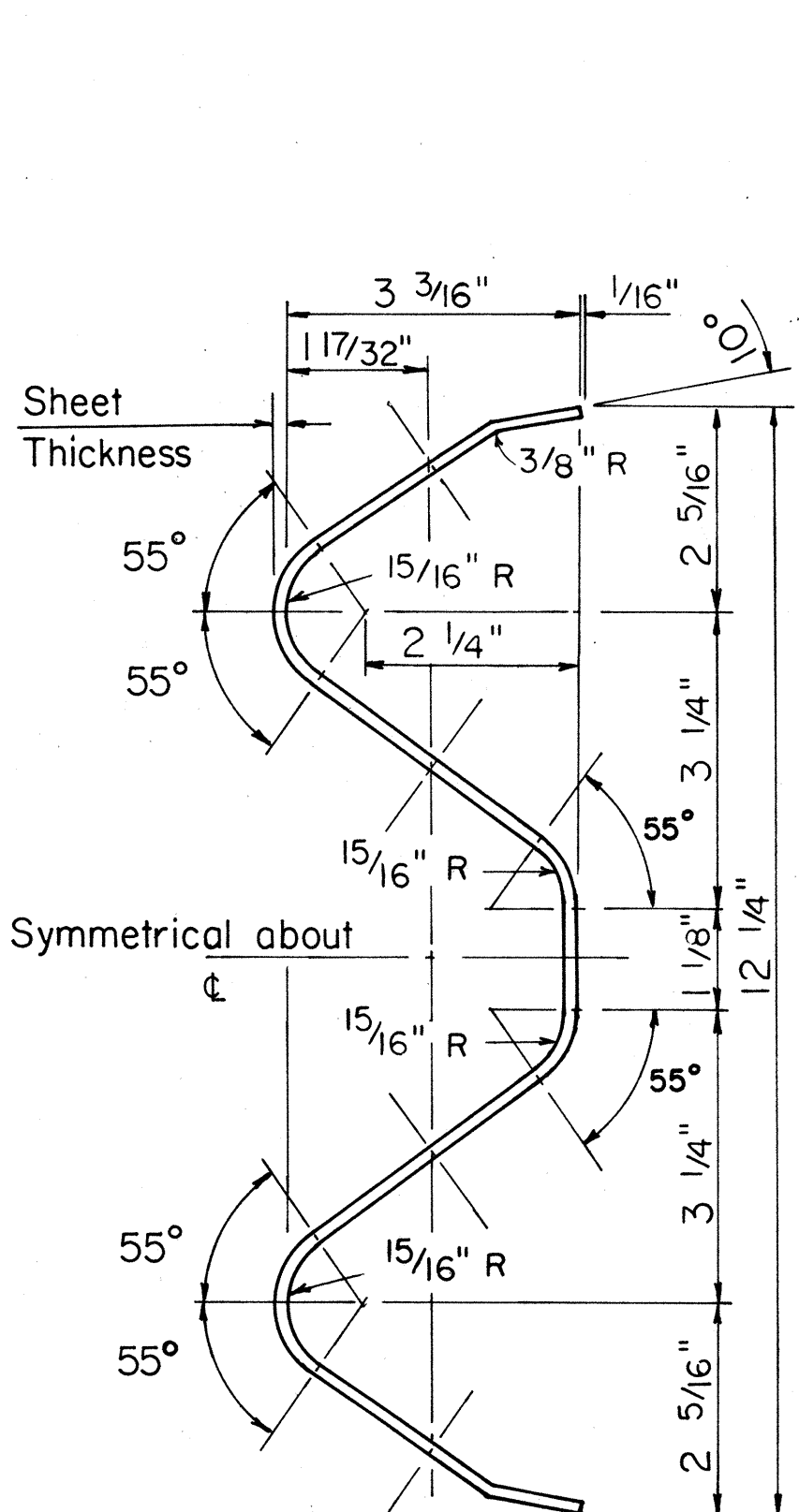
5/8" HEX POST BOLT AND NUT
Scale: N.T.S.



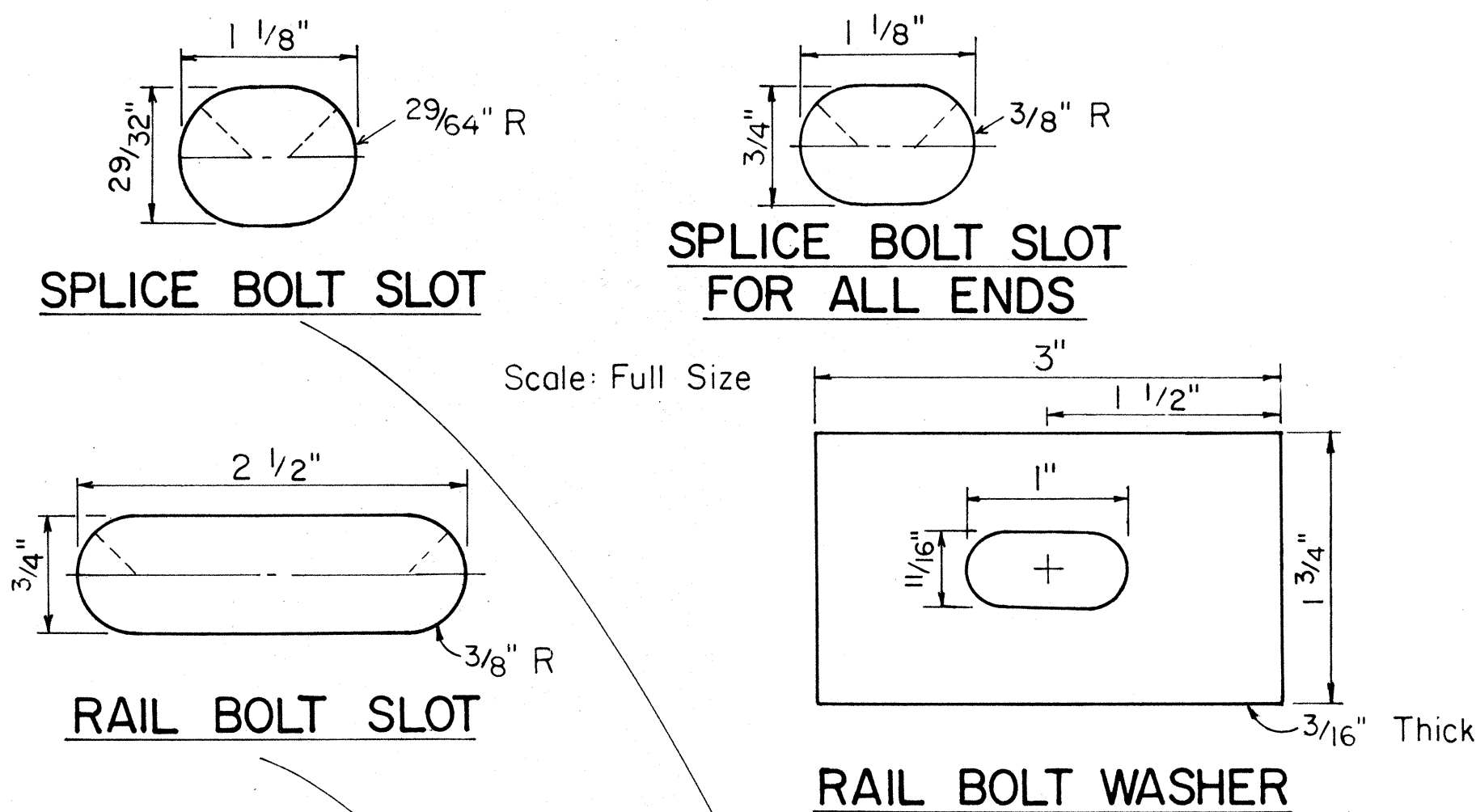
W BEAM TERMINAL CONNECTOR
Scale: 1 1/2" = 1'-0"



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



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

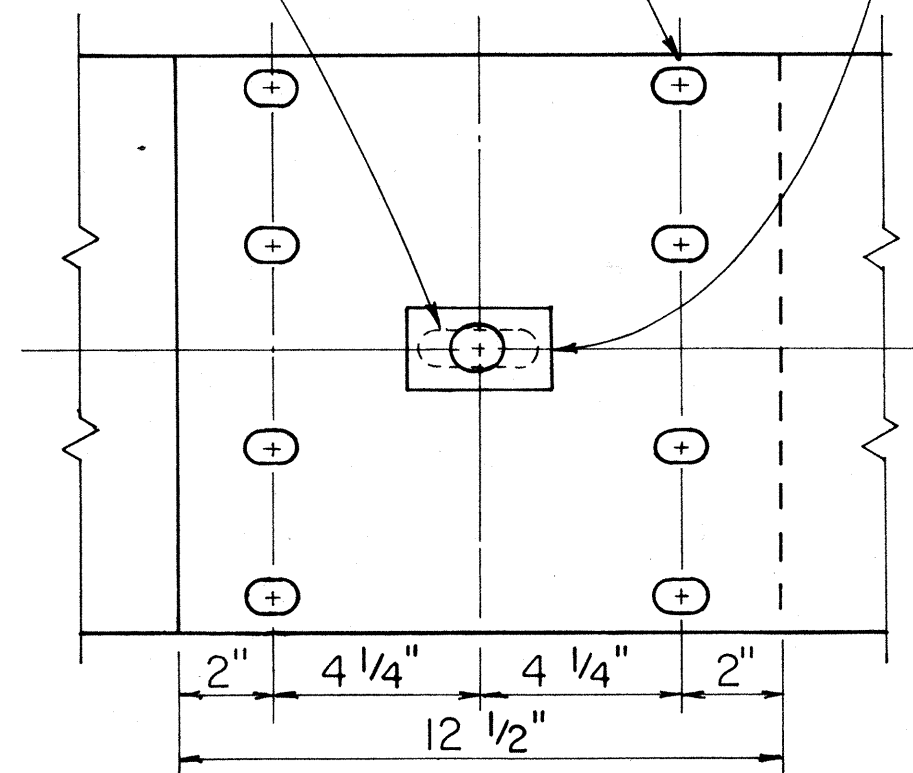


SPLICE BOLT SLOT

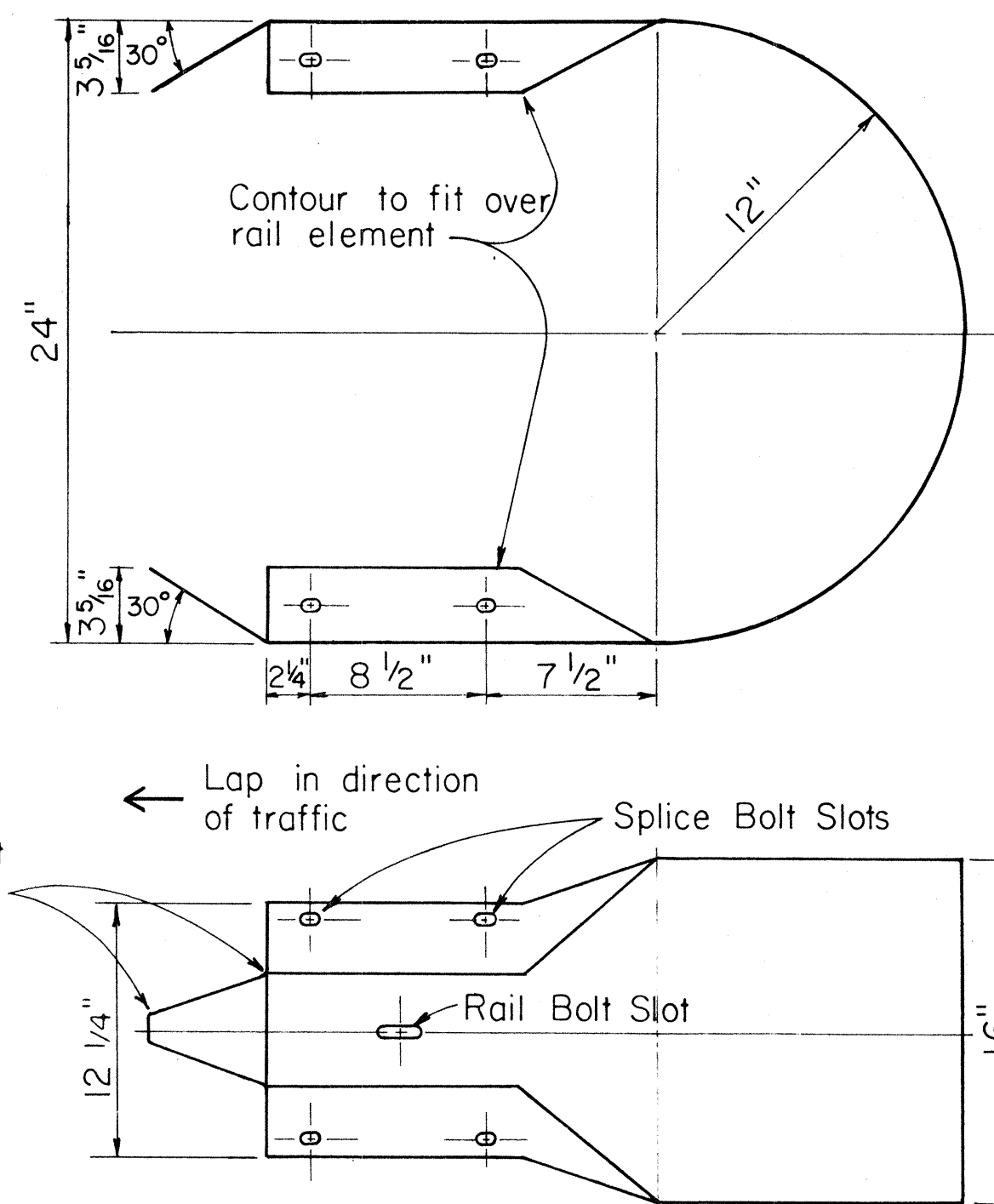
**SPLICE BOLT SLOT
FOR ALL ENDS**

RAIL BOLT SLOT

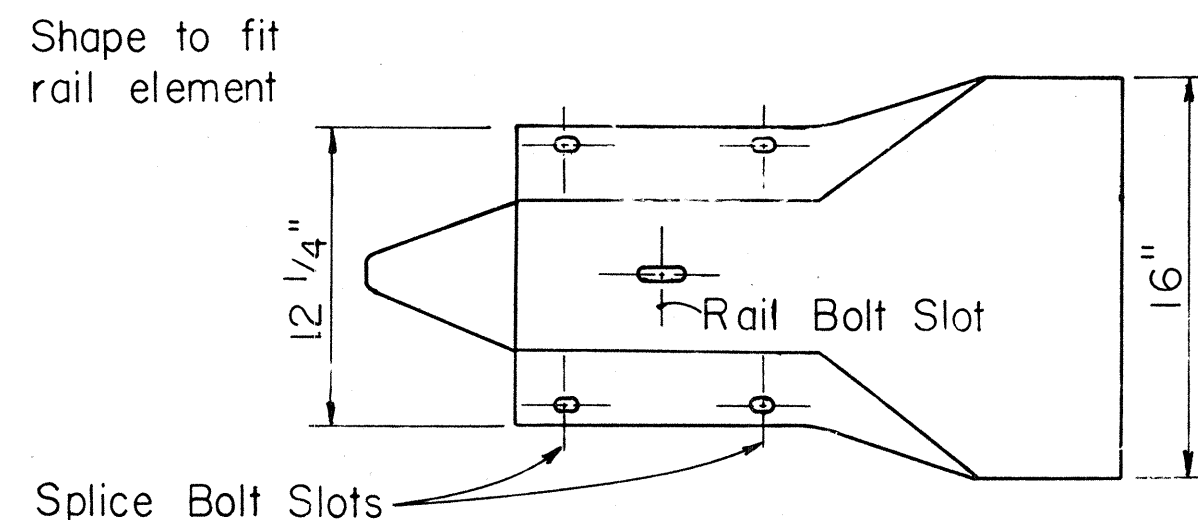
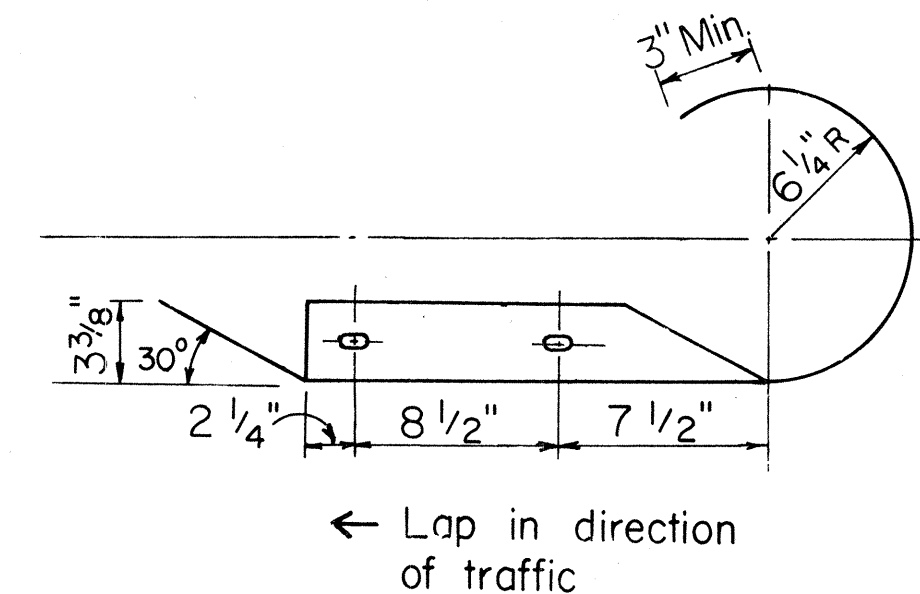
RAIL BOLT WASHER



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:
Erich Tanaka 9/20/82
TRAFFIC ENGINEER DATE

APPROVED:
Shelton S. S. S. 9/22/82
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes sh. DT 501 approved 12/30/69	Hf.	9/22/82

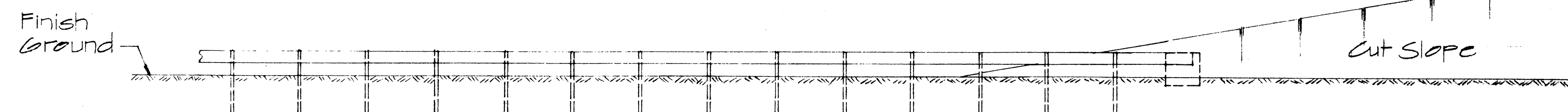
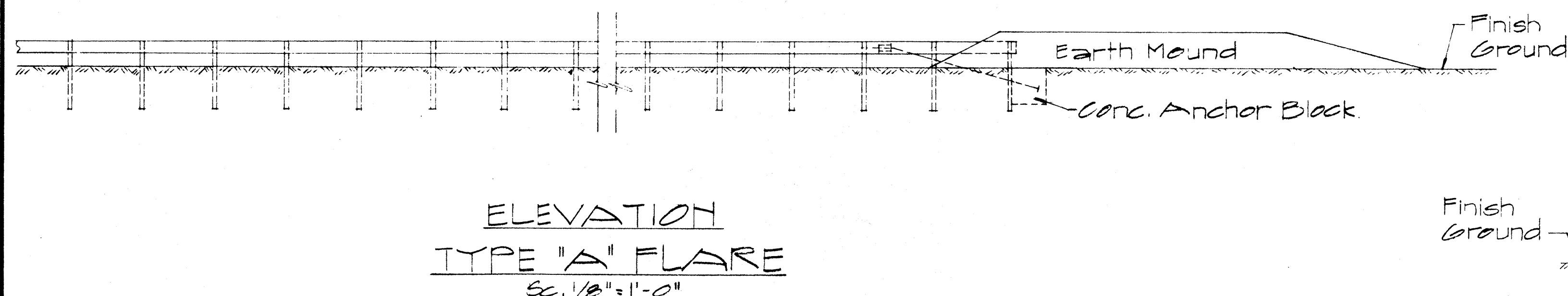
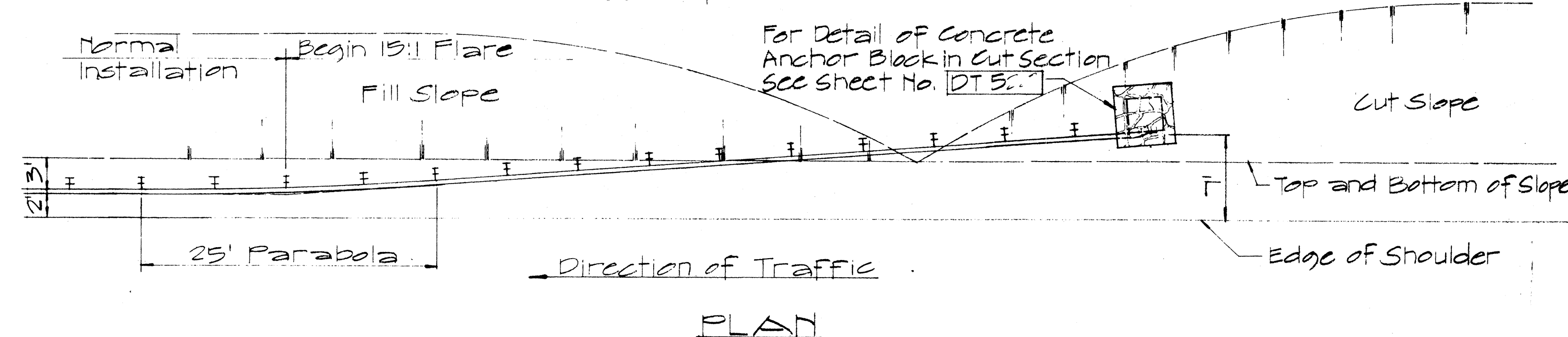
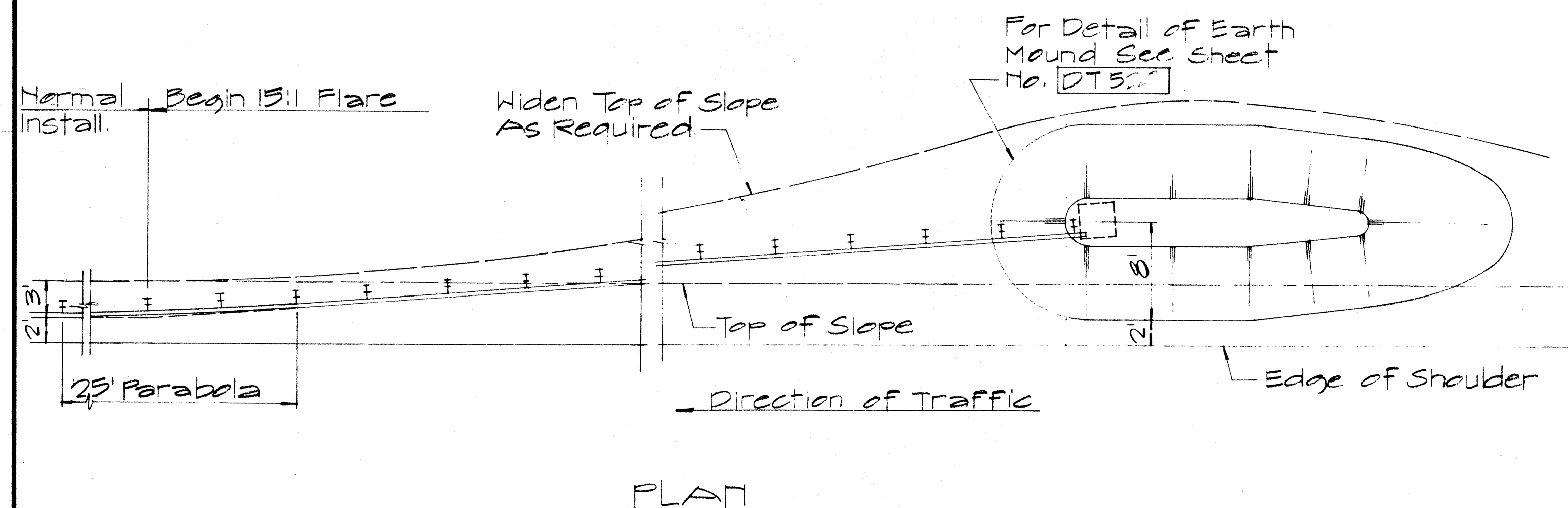
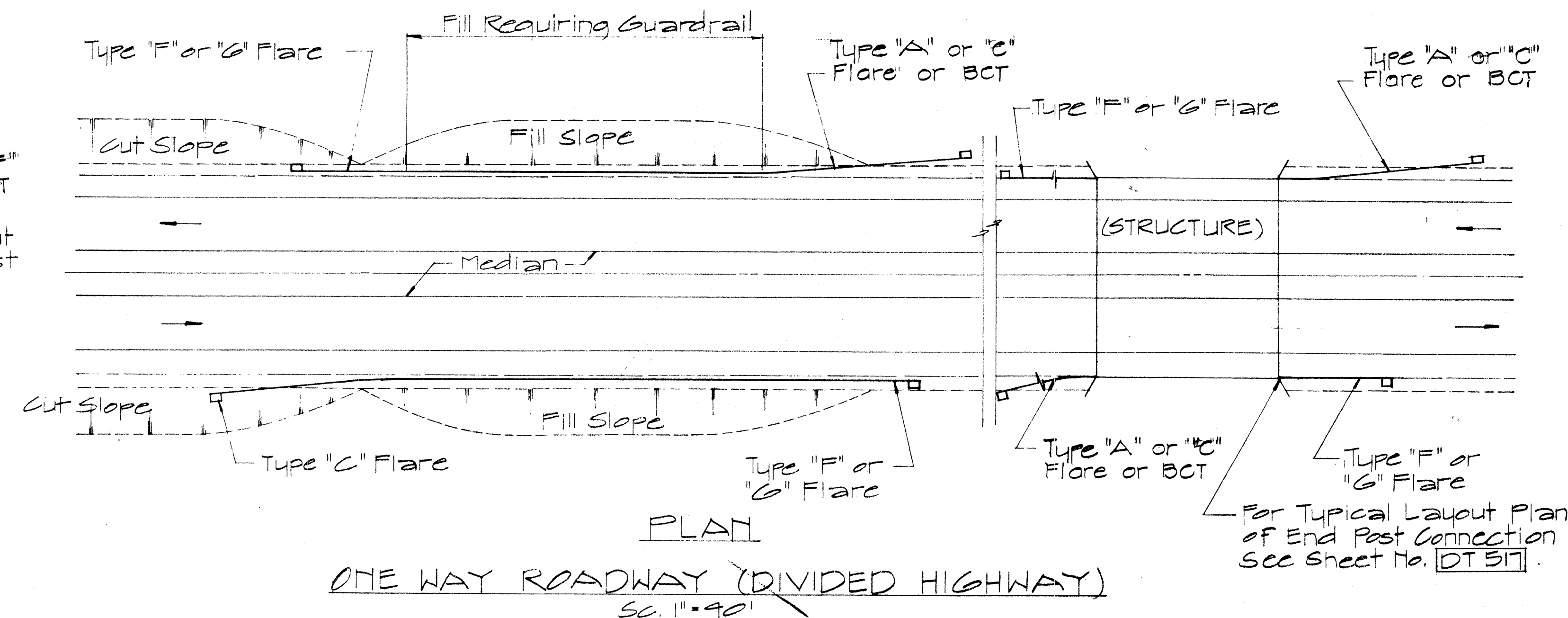
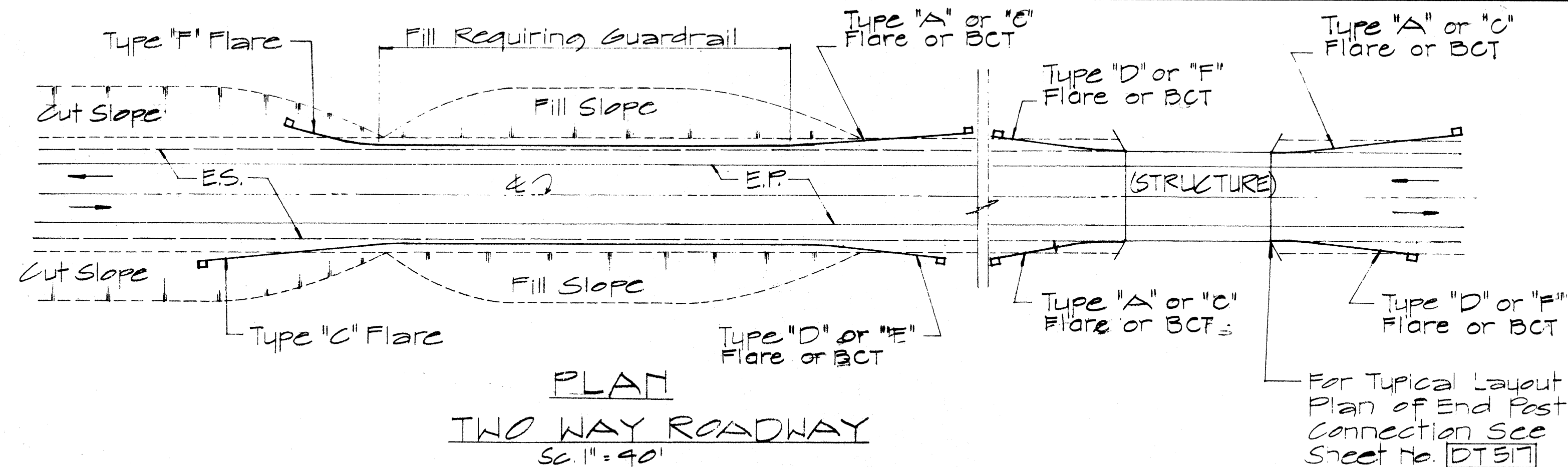
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
STANDARD DETAILS
METAL GUARDRAIL
Scale: As Noted July, 1982

SHEET No. 2 OF 6 SHEETS DT 501

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FR-093-1(G)	1983	27	51

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:
Eishi Tanaka
TRAFFIC ENGINEER
12/29/69
DATE

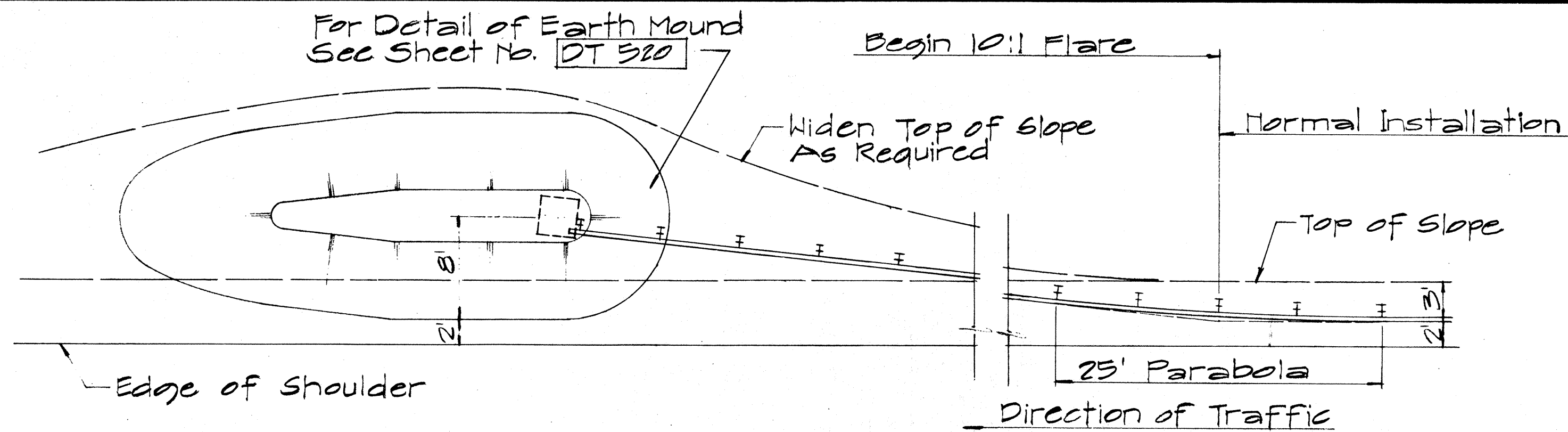
APPROVED:
Assistant Chief, Engineering
12-30-69
DATE

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

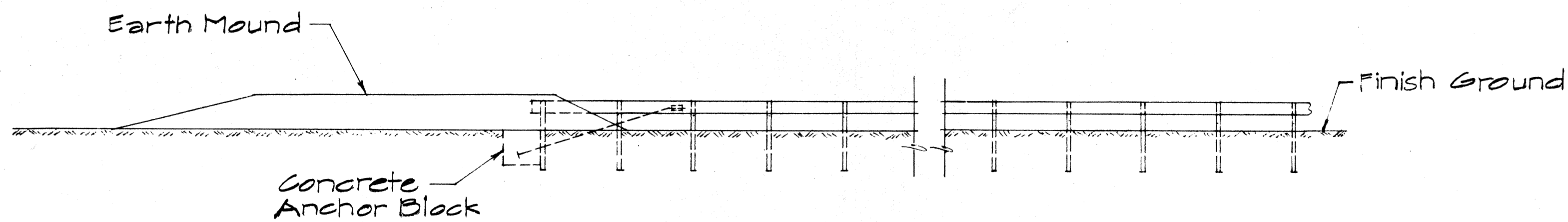
NO.	REVISION	APPROVED BY	DATE
1	Delete Type "B" Flare and Type "E" Flare	H.T.	6/15/82

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. 3 OF 6 SHEETS DT 516

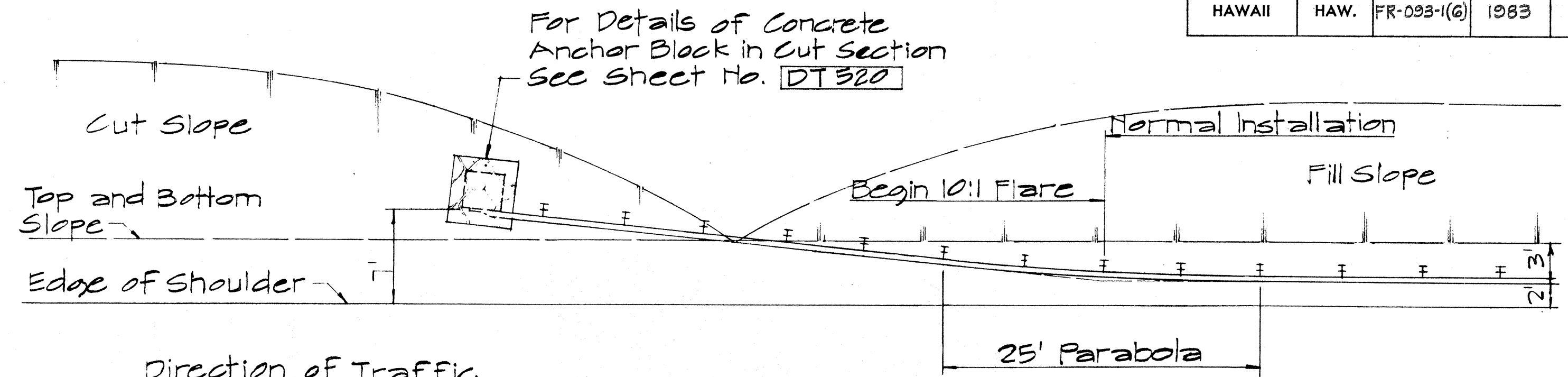
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FR-093-1(6)	1983	28	51



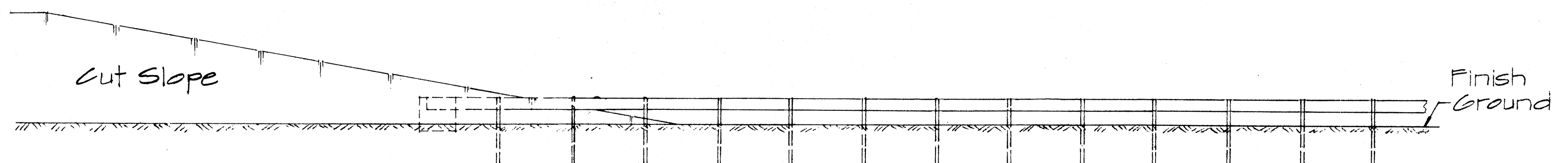
PLAN



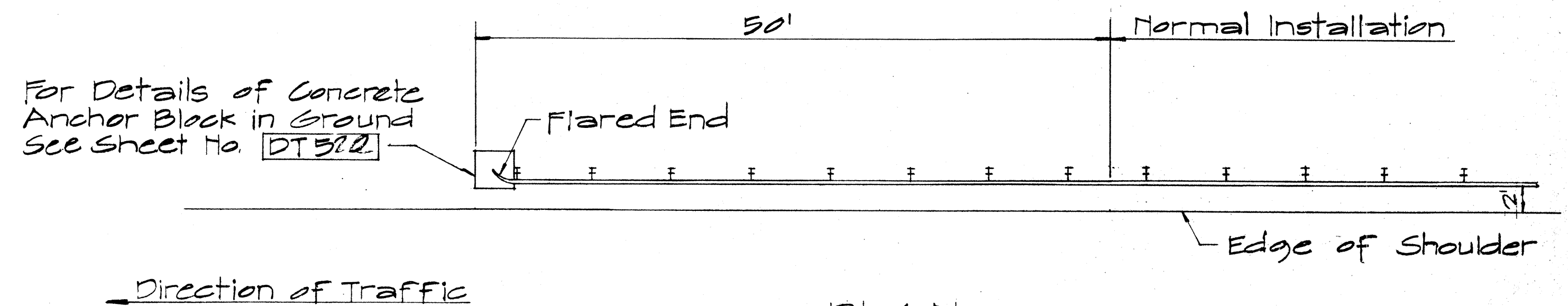
ELEVATION
TYPE "D" FLARE
Sc. 1/8" = 1'-0"



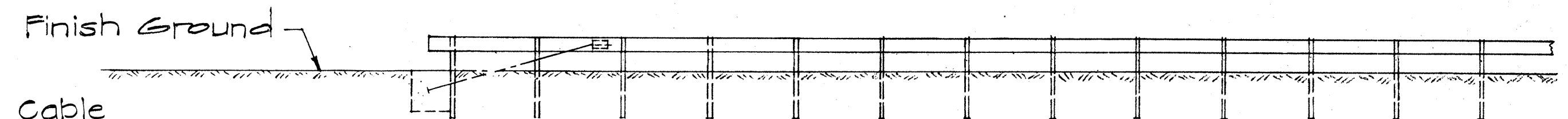
PLAN



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

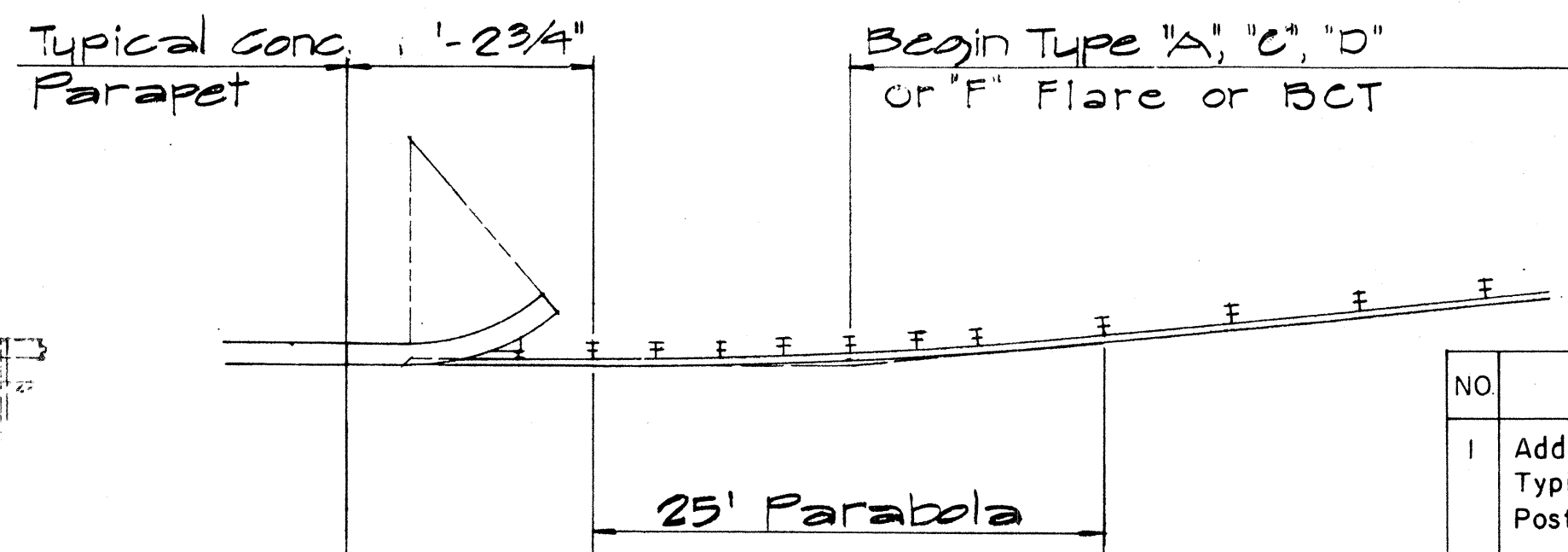


PLAN



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

NOTE:
For detail of Breakaway Cable Terminal (BCT) See Sheet No. DT 519



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:
Euschi Tanaka
TRAFFIC ENGINEER
DATE 12/29/69

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

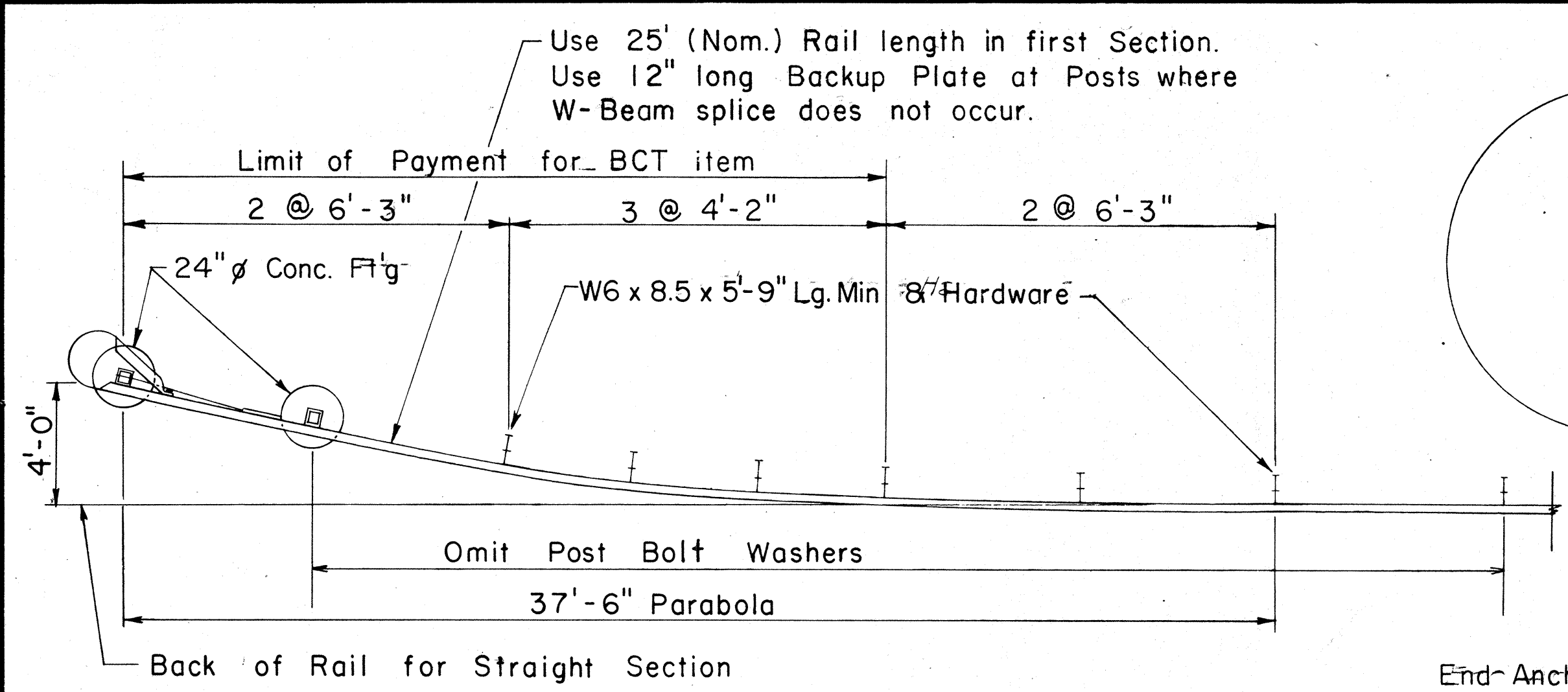
STANDARD DETAILS
TRAILING END
FLARE - ONE & TWO
WAY ROADWAY

Scale: As Noted April 1969

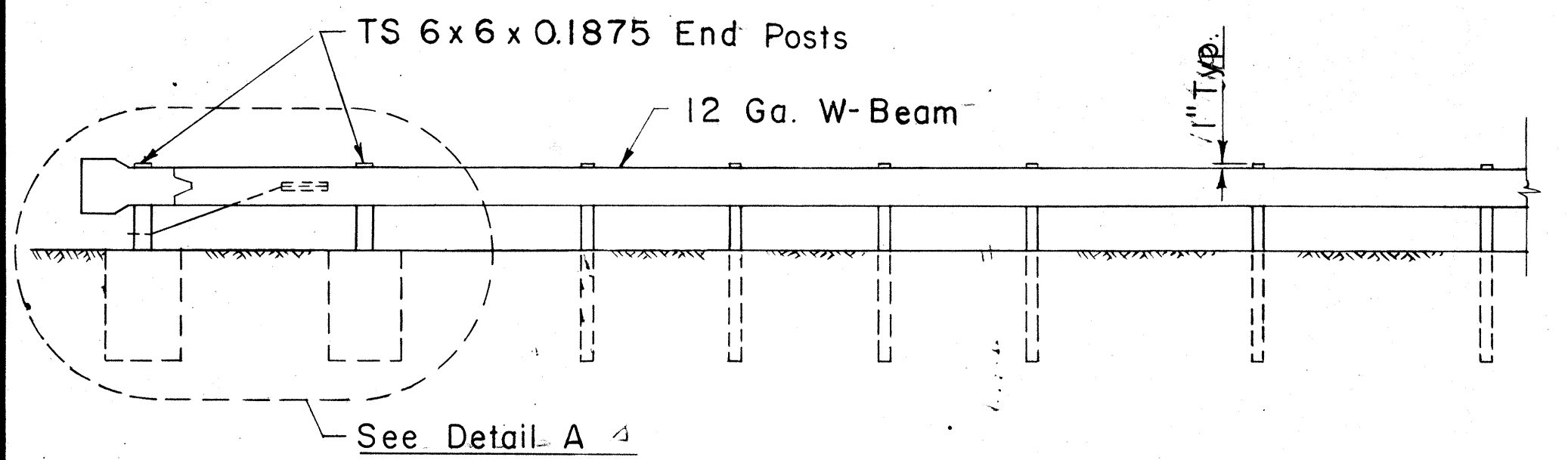
SHEET No. 4 OF 6 SHEETS DT 517

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FR-093-1(6)	1983	29	51

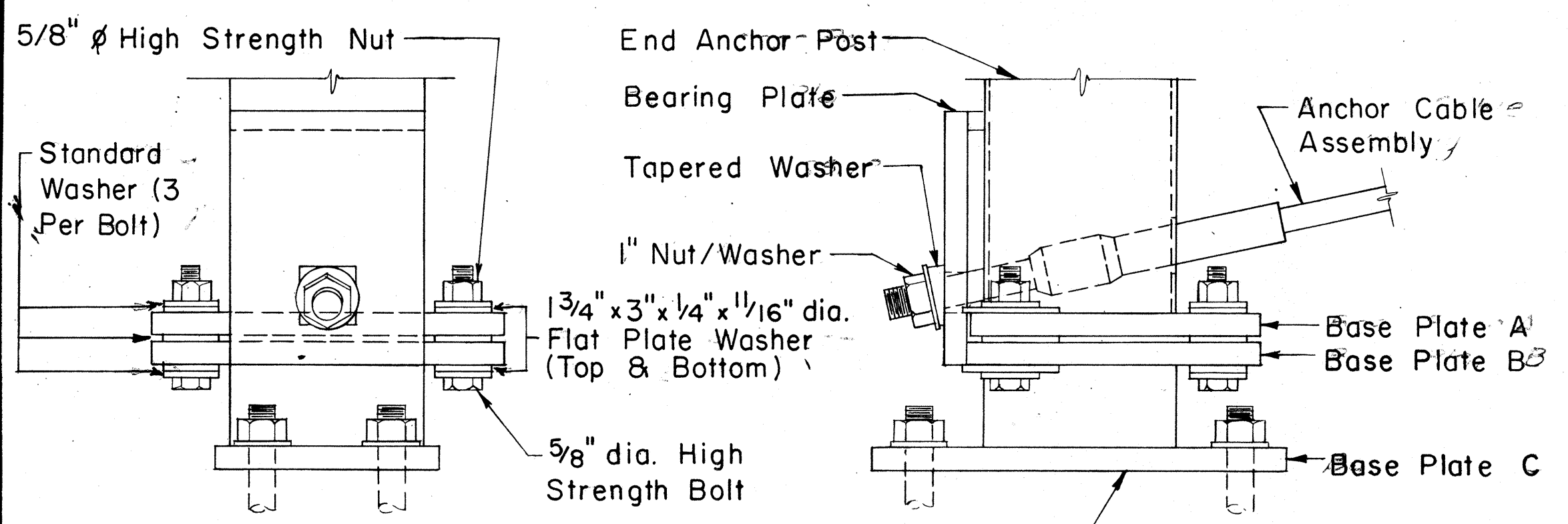
- NOTES:**
1. Anchor Plate and Anchor Cable Assembly (Standard Swaged Fitting and Stud). See Standard Detail Sheet No. DT 520.
 2. Other Anchor Cable Assemblies may be used. Minimum breaking strength of assembly should be 40,000 lbs.
 3. Second Terminal Post does not require holes to accommodate Anchor Cable.
 4. Slip Base Load shall be controlled with a Calibrated Torque Wrench - Torque 155 - 170 ft. lbs.
 5. Concrete shall be Class A.
 6. B.C.T. Hardware has been superseded by "A Guide Standardized Highway Barrier Rail Hardware," A report prepared and approved by the AASHTO-AGC-ARTBA joint cooperation committee. All hardware shall conform to above mentioned publication and as revised from time to time.



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



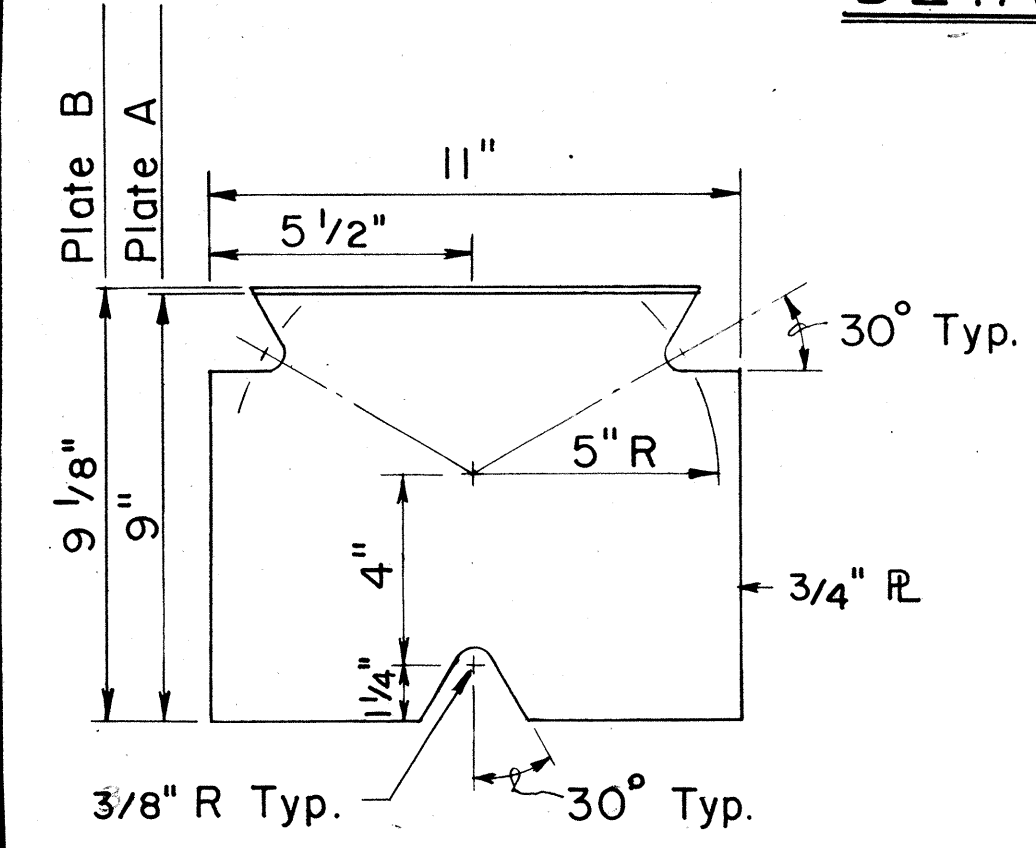
ELEVATION
Scale: 1/4" = 1'-0"



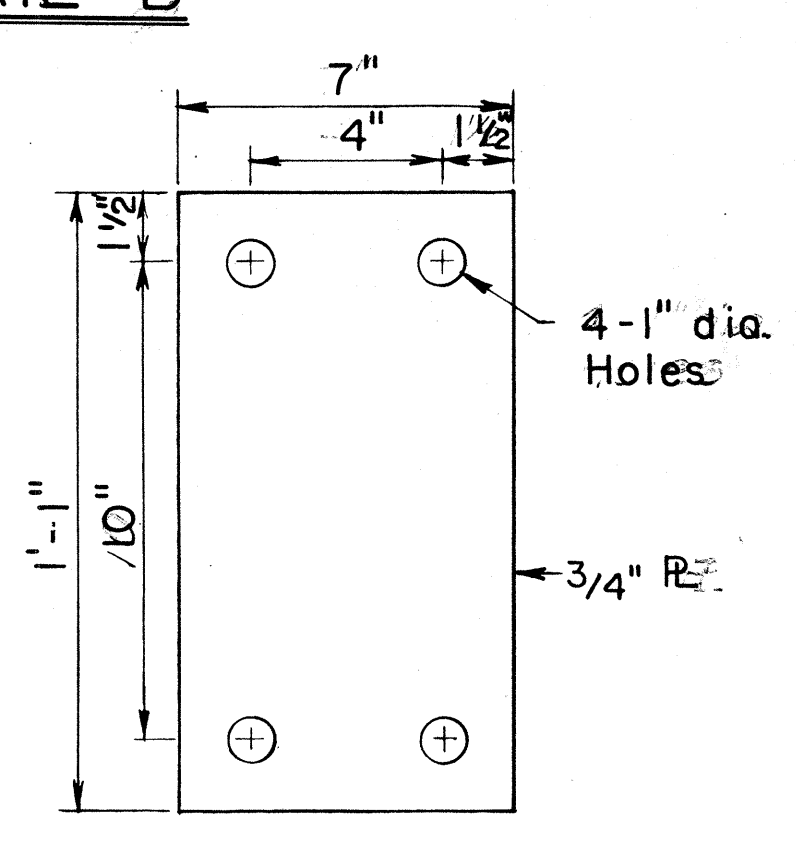
SIDE ELEVATION

FRONT ELEVATION

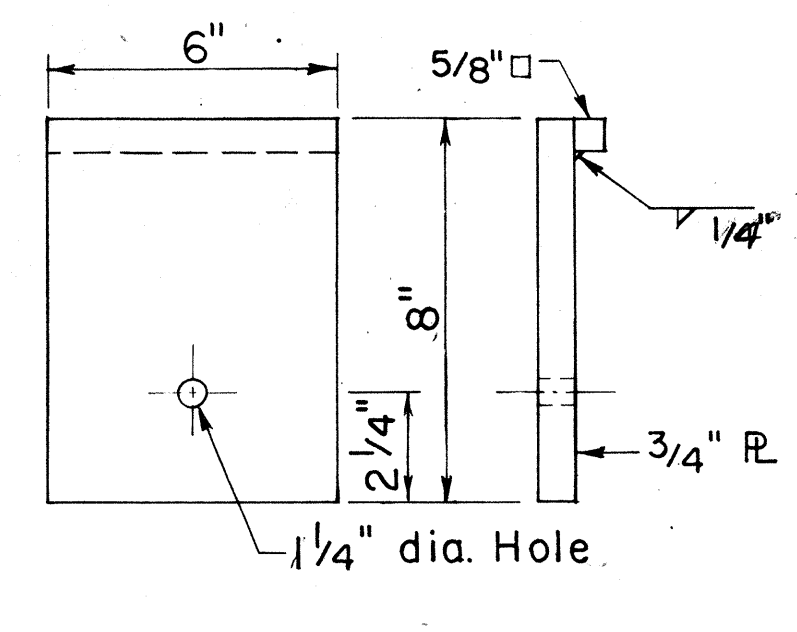
DETAIL B



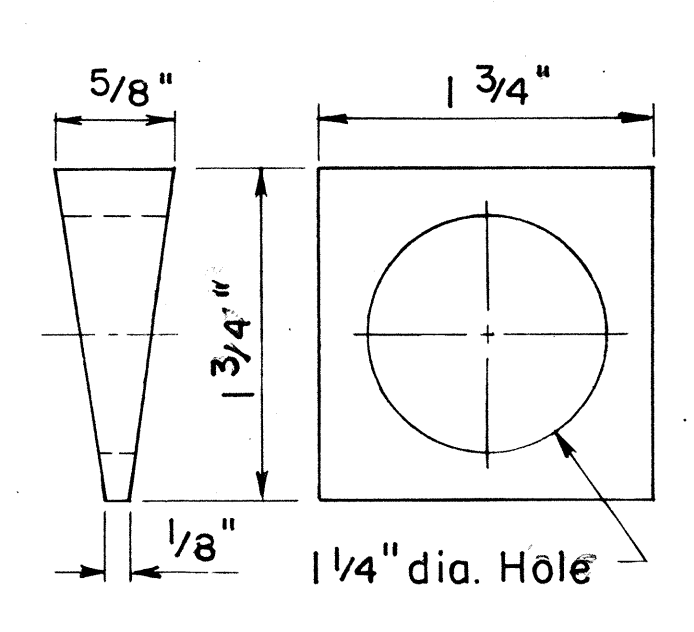
BASE PLATES A & B
Scale: 3" = 1'-0"



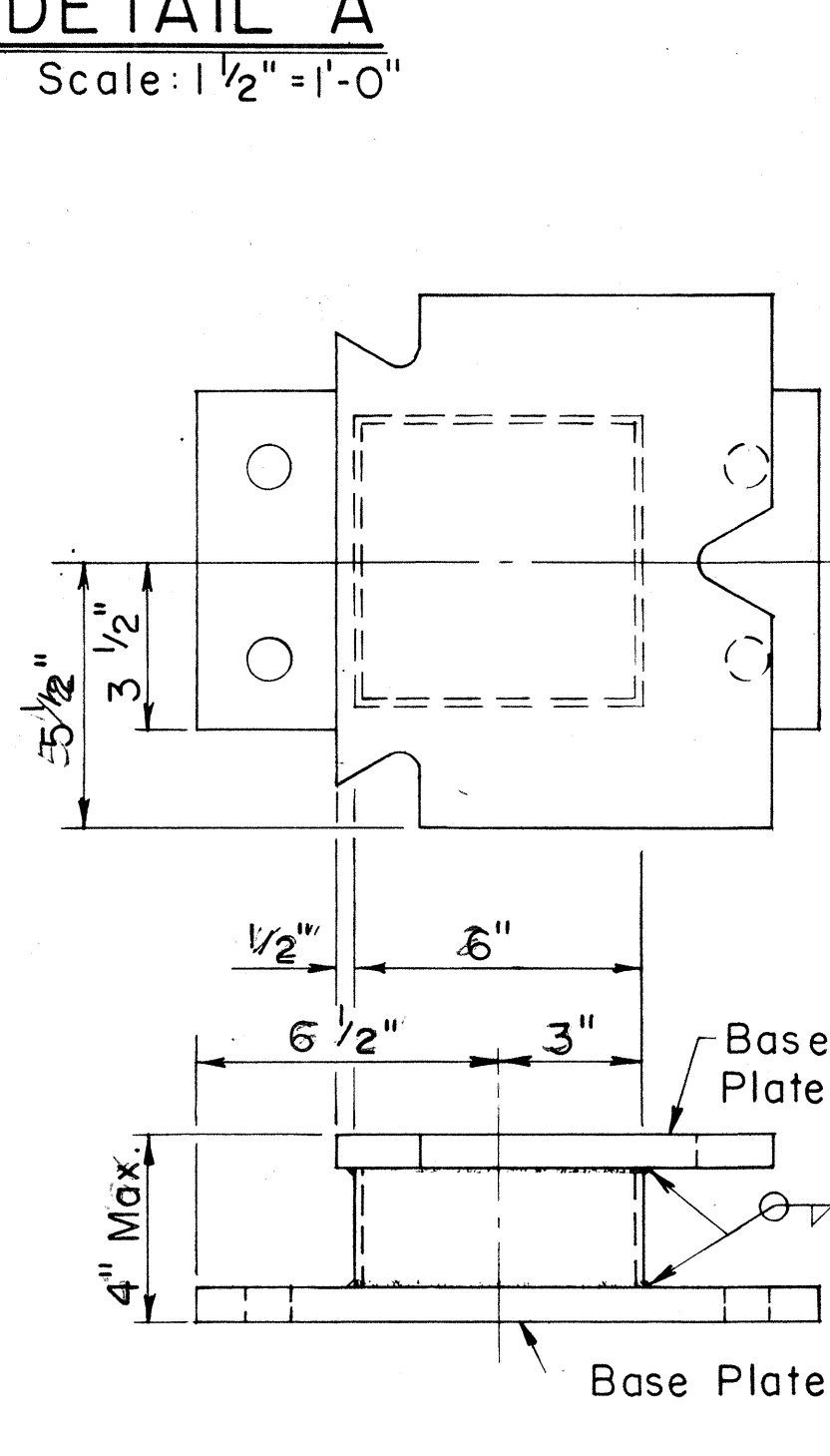
BASE PLATE C
Scale: 3" = 1'-0"



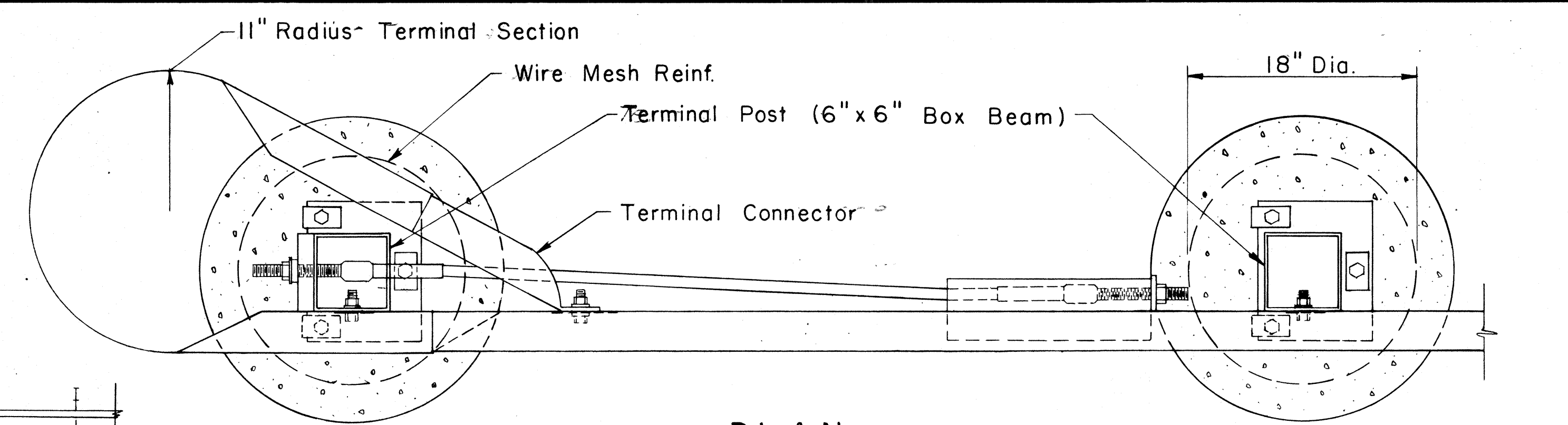
BEARING PLATE
Scale: 3" = 1'-0"



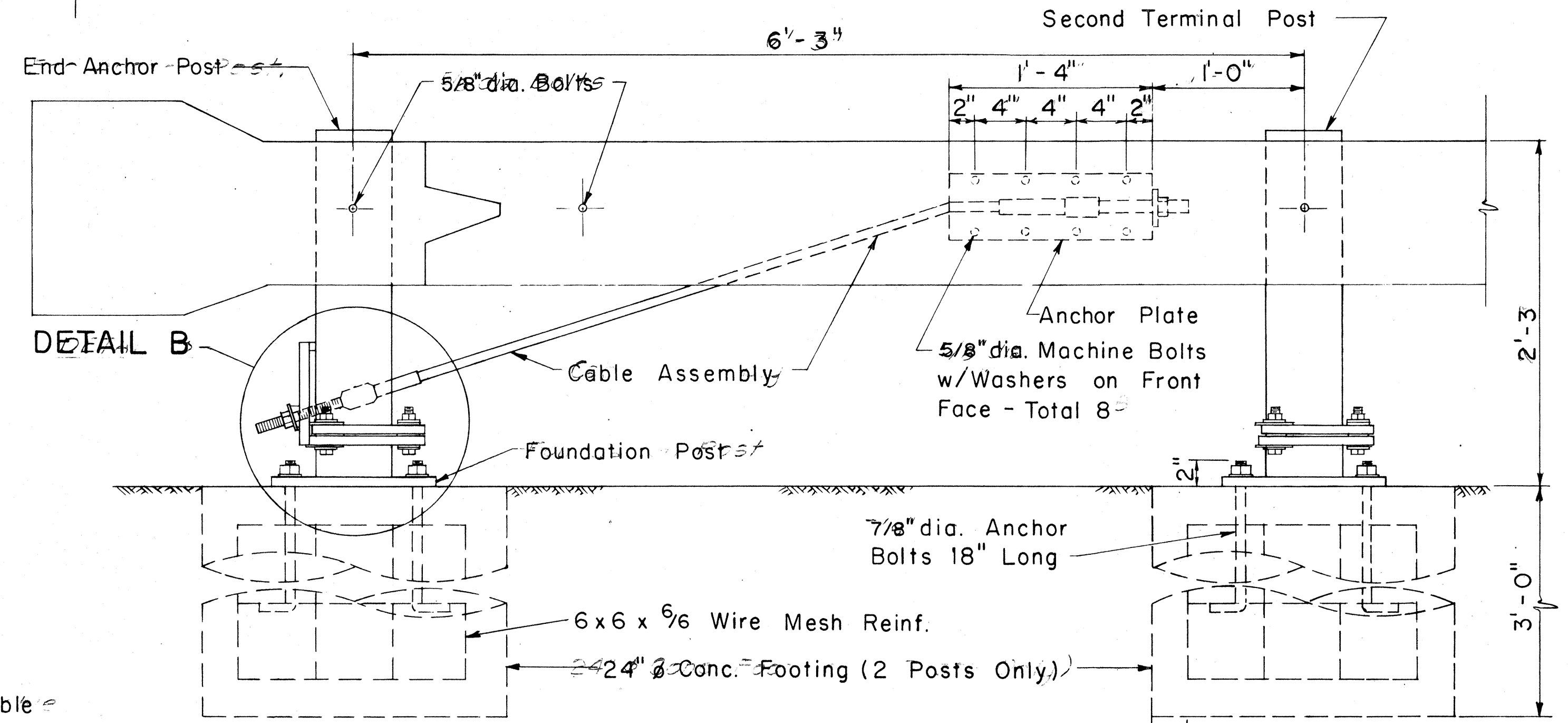
TAPERED WASHER
Scale: Full Size



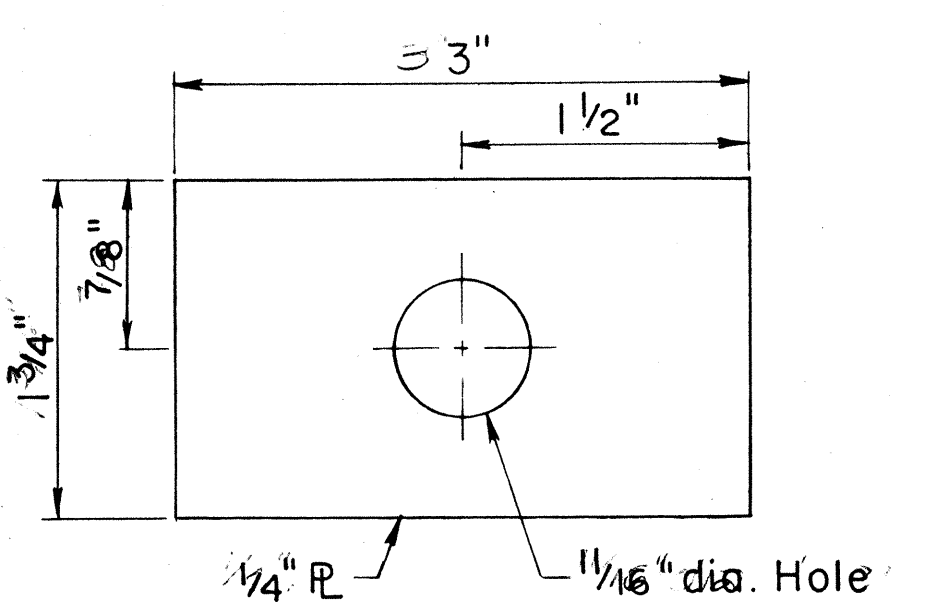
FOUNDATION POST
Scale: 3" = 1'-0"



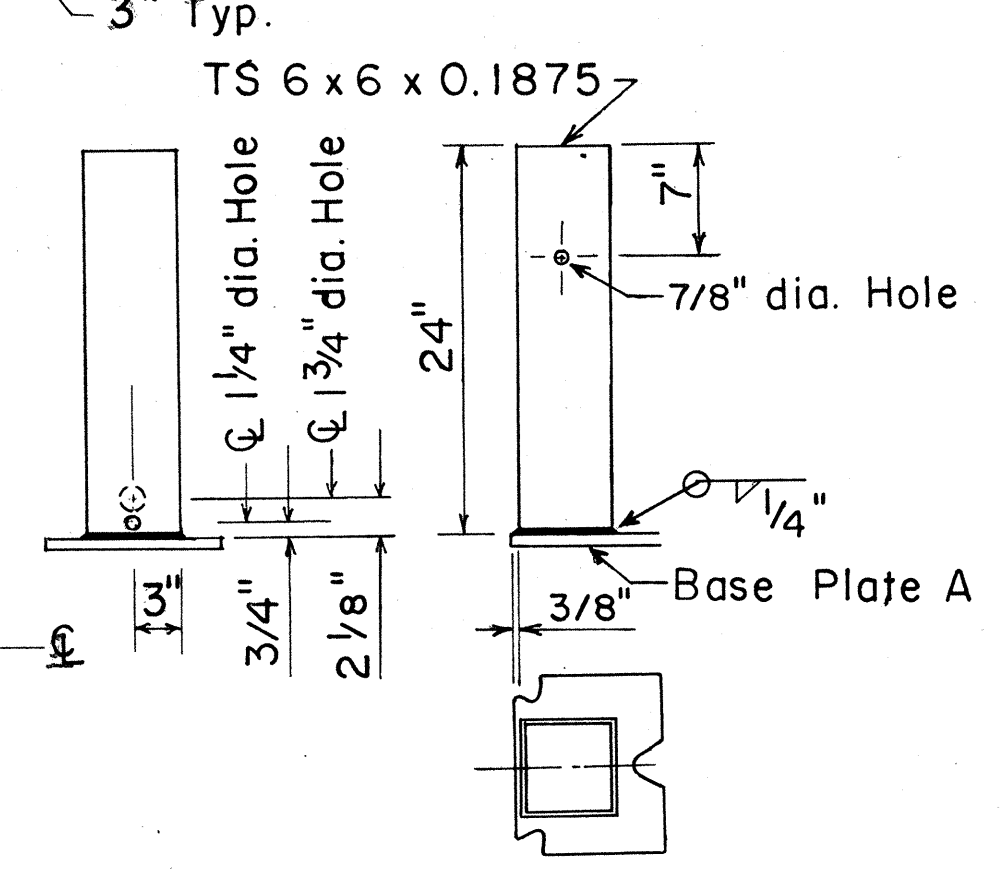
PLAN



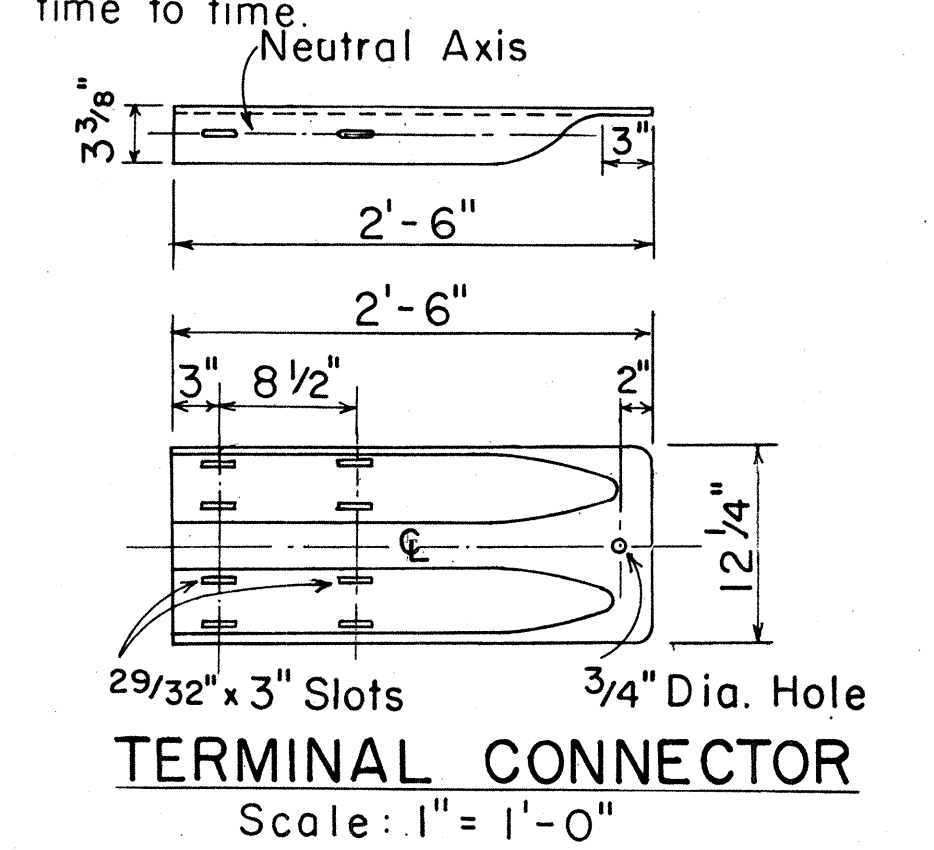
ELEVATION
DETAIL A
Scale: 1 1/2" = 1'-0"



FLAT PLATE WASHER
Scale: Full Size



TERMINAL POST
Scale: 1" = 1'-0"



TERMINAL CONNECTOR
Scale: 1" = 1'-0"

APPROVAL RECOMMENDED:
Erich Tanaka
TRAFFIC ENGINEER
6/14/78
DATE

APPROVED:
Harbor Sakaiishi
ASSISTANT CHIEF, ENGINEERING
6/15/78
DATE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 519 Approved 12/30/69	H.T.	6/15/78
2	Added Note 6	H.T.	12/1/80

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAIL

BREAKAWAY CABLE TERMINAL (BCT)

Scale: As Shown Date: June 1978
SHEET No. 5 OF 6 SHEETS DT 519

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

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TRACING PAPER