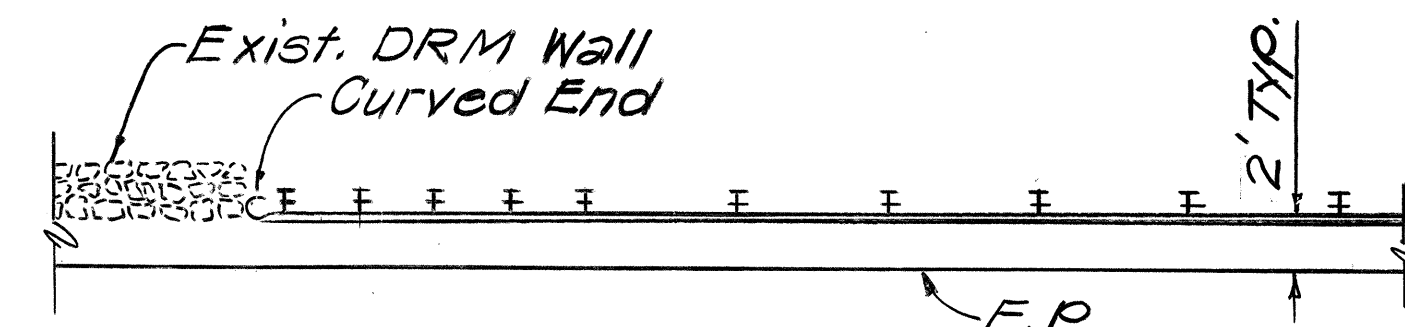
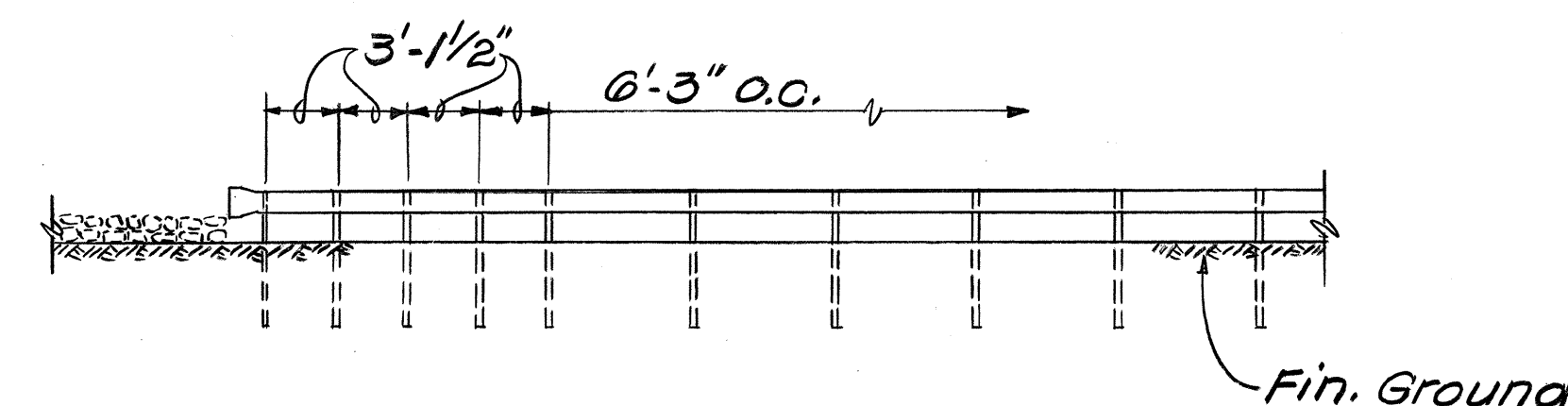


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-84	1984	15	29



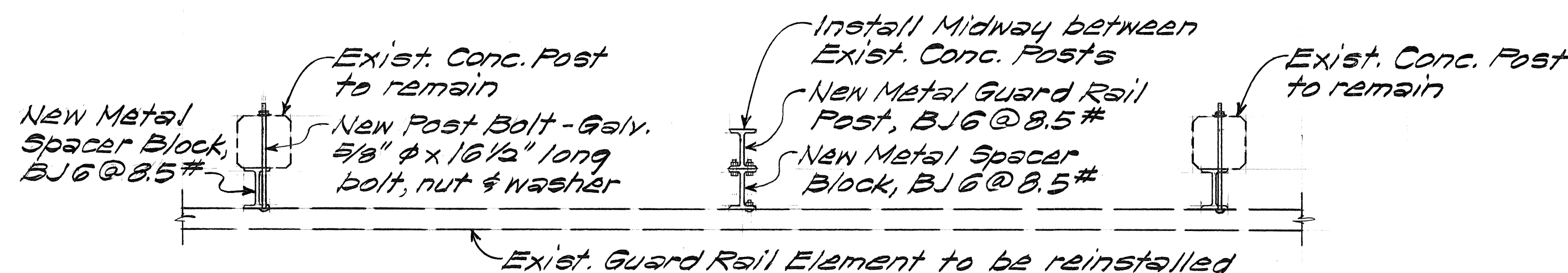
PLAN



ELEVATION

TYPE GR-3 END CONDITION

Scale: 1/8" = 1'-0"



NOTES:

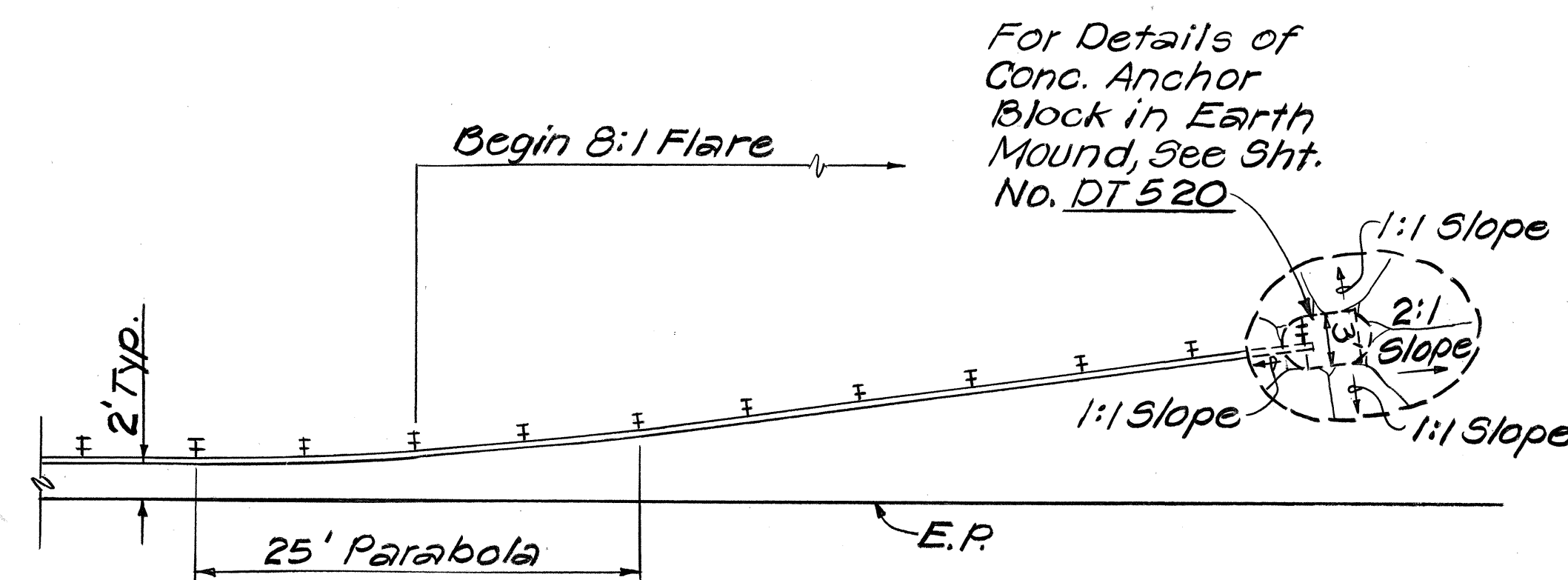
1. The Contractor may install new metal guard rail posts in lieu of the existing concrete posts. If the Contractor elects to use new metal guard rail posts, he shall remove all the existing concrete posts. No additional compensation will be made for this work but shall be considered as part of the work performed for Reconstructed Guard Rail.
2. If there is an existing DRM wall behind the existing guard rail, the new metal guard rail posts shall be embedded in concrete. No additional compensation will be made for this work but shall be considered as part of the work performed for Reconstructed Guard Rail. For details of Post Embedded in Concrete, see this sheet.
3. Existing concrete post may have to be adjusted to meet the vertical alignment. No additional compensation will be made for this work, but considered as part of the work performed for reconstructed guardrail.

RECONSTRUCTED GUARD RAIL PLAN

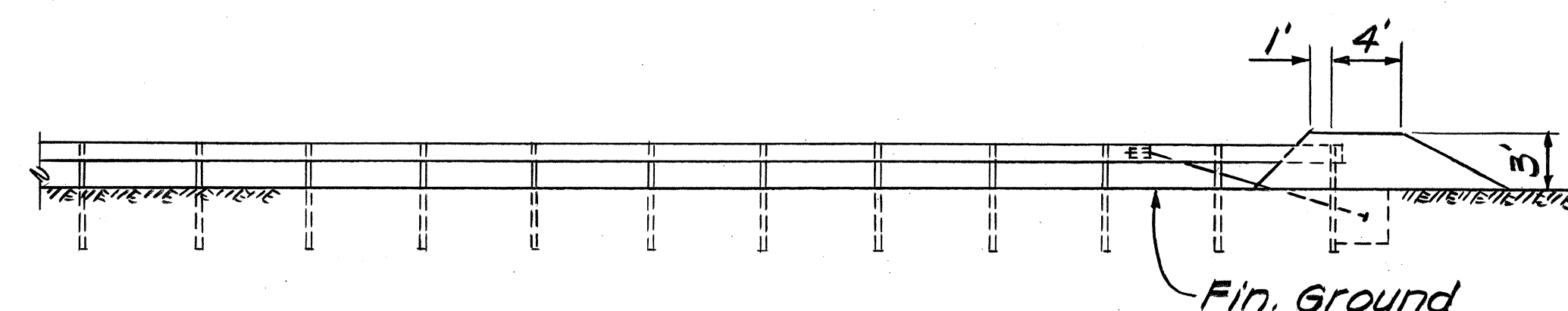
Scale: 3/4" = 1'-0"

GUARD RAIL NOTES

1. The Guard Rail Schedule shows the approximate limits and lengths of the type (i.e. Guard Rail with Steel Post, or Reconstructed Guard Rail) of guard rail to be installed. The actual locations shall be determined in the field by the Engineer. The Engineer may change the type of guard rail shown in the Guard Rail Schedule in the field and the Contractor will be paid for the type of guard rail actually installed.
2. The GR-2 and GR-3 End Conditions will be paid for as Guard Rail, by the linear feet of the type (i.e. G.R. w/ Steel Post, or Reconst. G.R.) actually installed.
3. Any existing rock walls damaged by the Contractor while installing the guard rails shall be replaced or repaired at his expense, to its original condition as directed by the Engineer.



PLAN



ELEVATION

TYPE GR-2 END CONDITION

Scale: 1/8" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

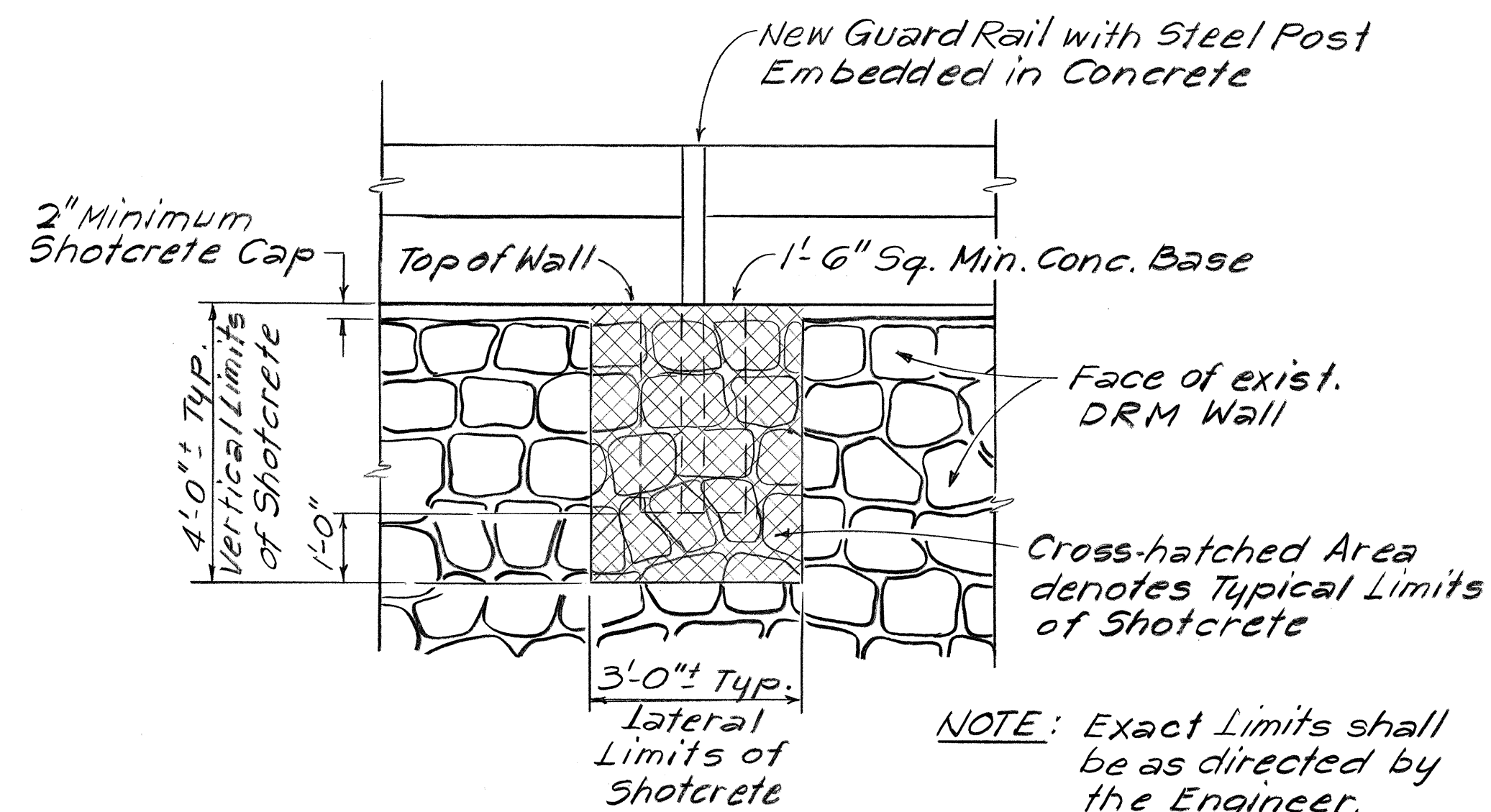
GUARD RAIL DETAILS AND NOTES

HANA HIGHWAY IMPROVEMENTS
HONOMANU TOWARDS HANA
PROJ. NO. 360AB-01-84

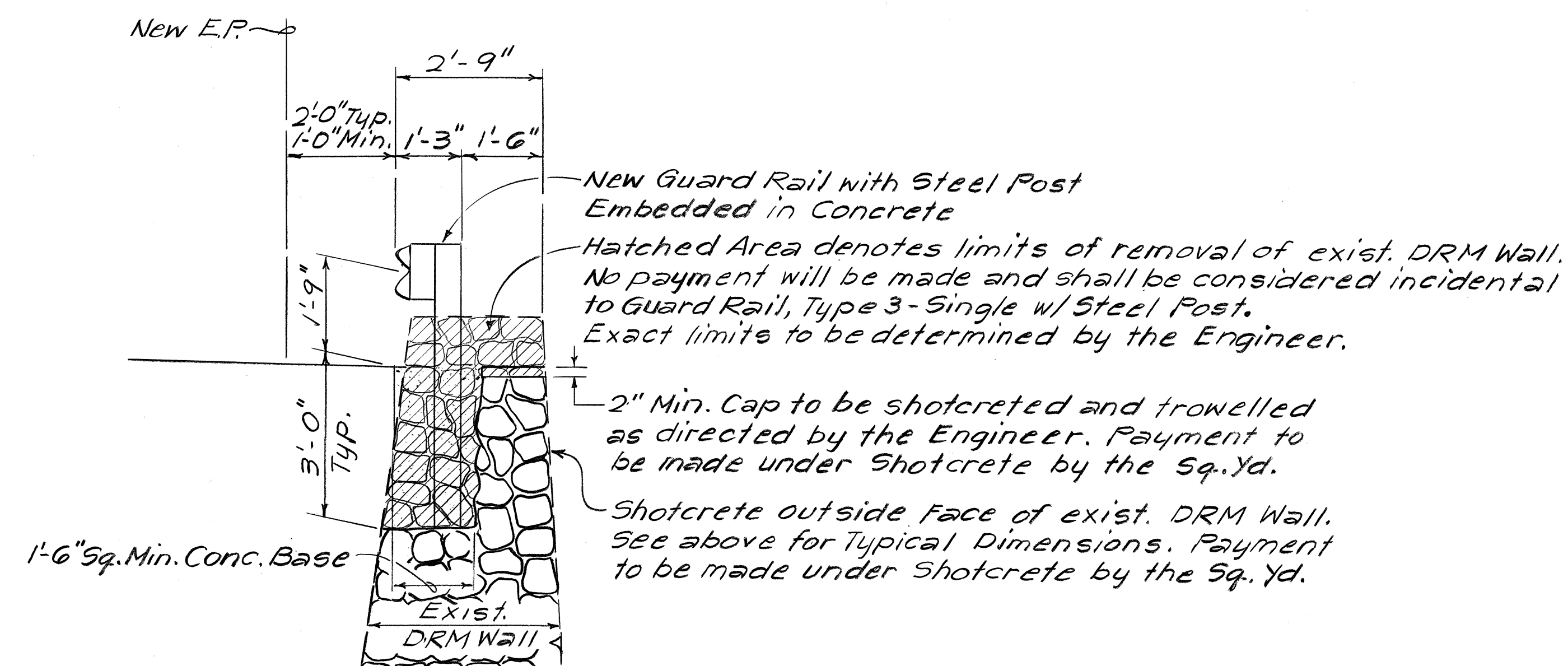
Scale: As Shown Date: June, 1983

SHEET No. 1 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-84	1984	16	29



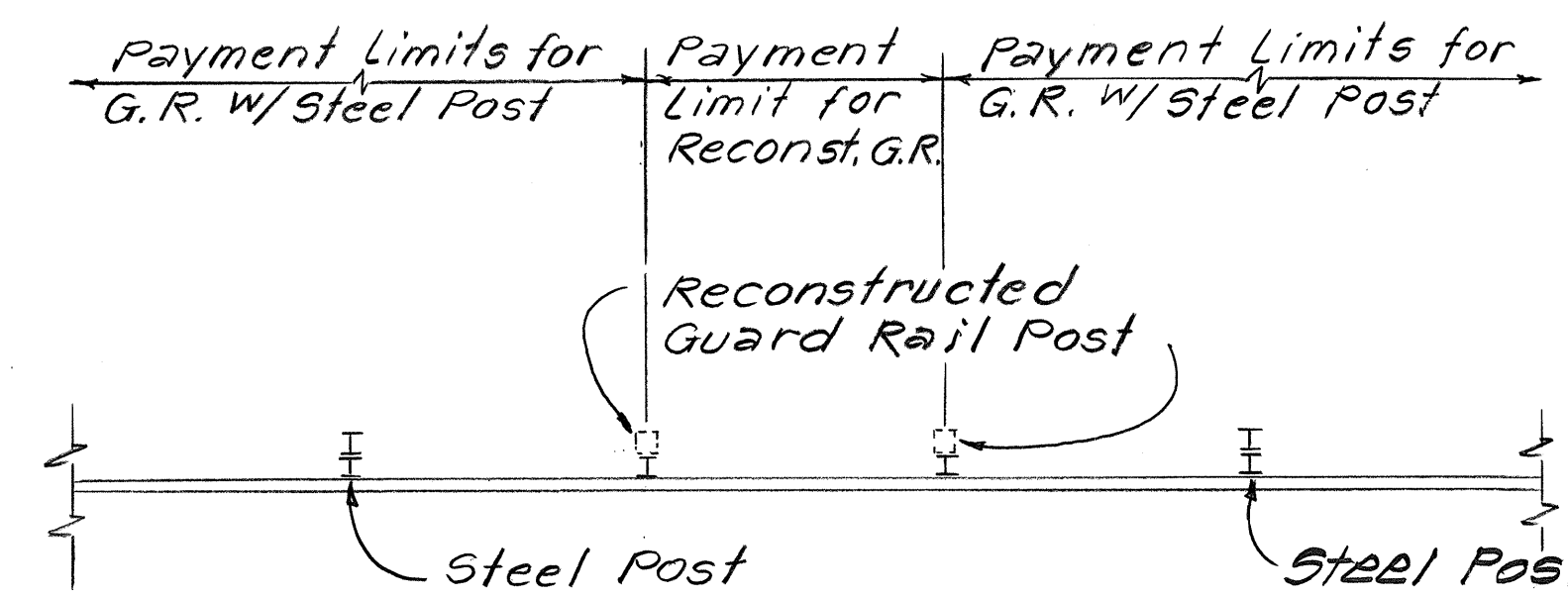
ELEVATION



TYPICAL SECTION

GUARD RAIL WITH STEEL POST
EMBEDDED IN CONCRETE

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



PAYMENT LIMITS FOR RECONSTRUCTED GUARD RAIL

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

GUARD RAIL DETAILS

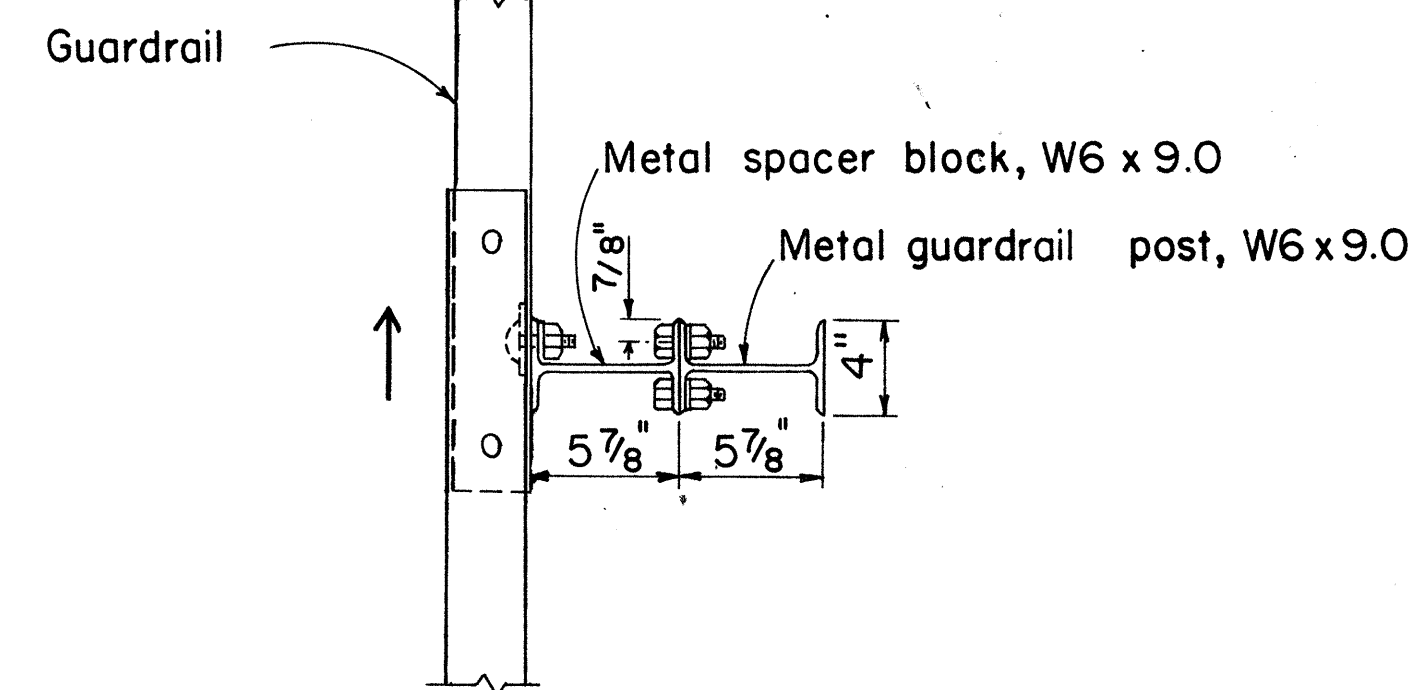
HANA HIGHWAY IMPROVEMENTS
HONOMANU TOWARDS HANA
PROJ. NO. 360AB-01-84

Scale: As Shown Date: Aug. 1983
SHEET NO. 2 OF 5 SHEETS

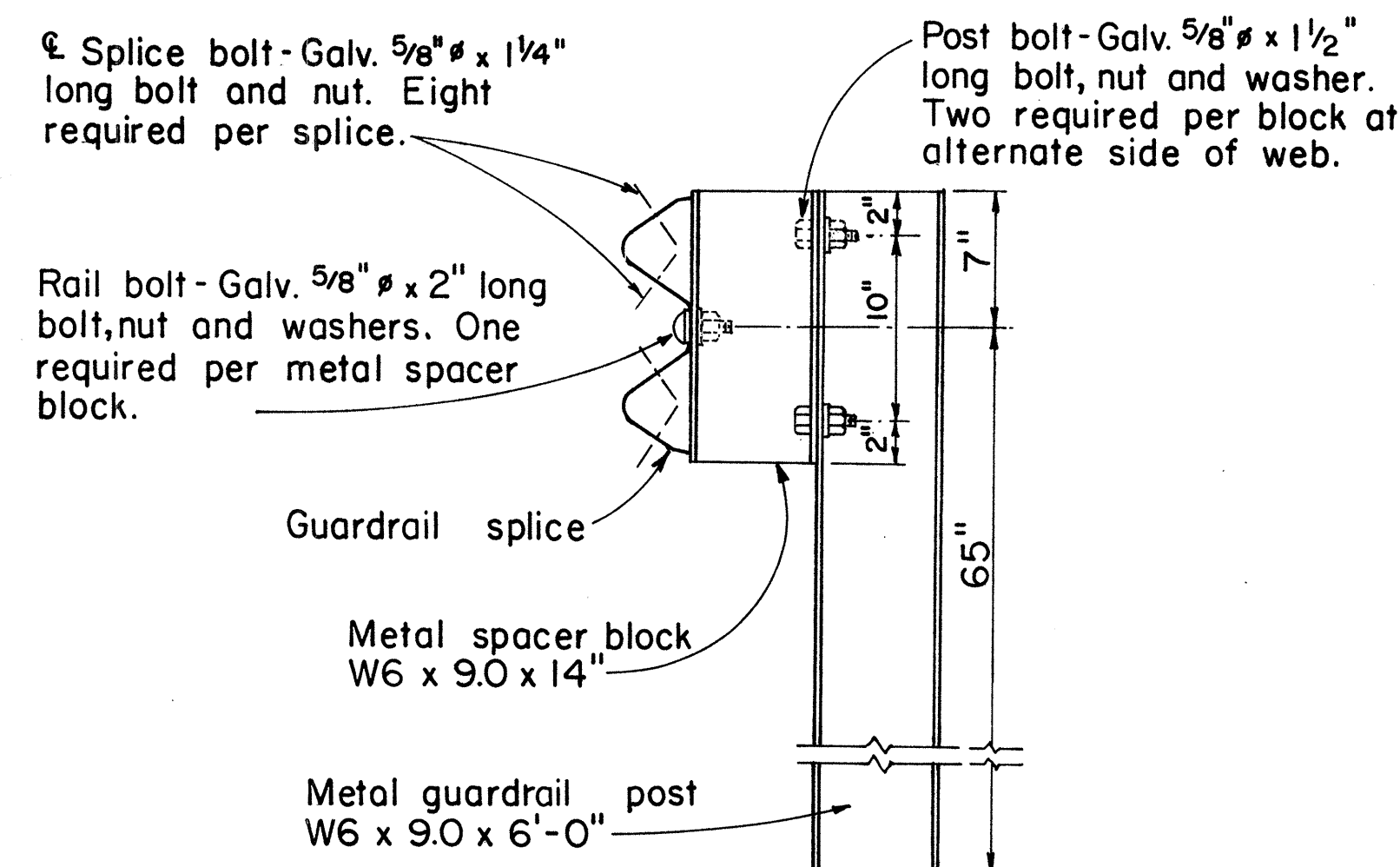
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-84	1984	17	29

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.



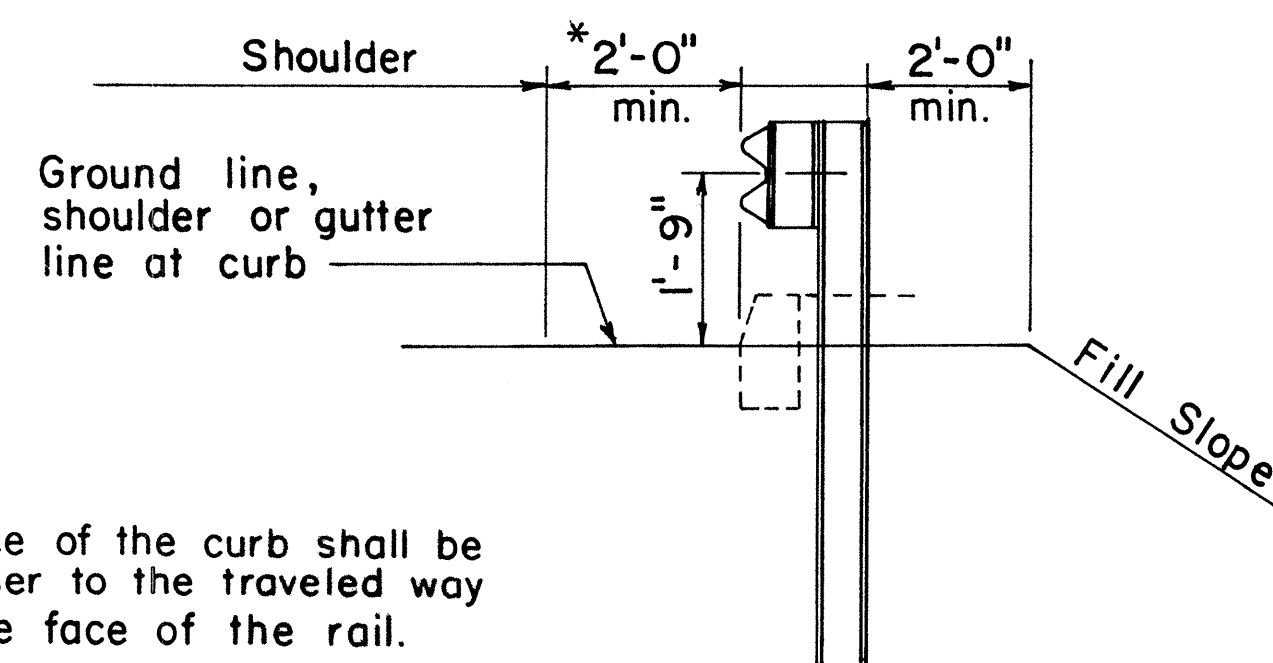
PLAN



ELEVATION

SINGLE METAL GUARDRAIL ON METAL POST WITH METAL SPACER BLOCK

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



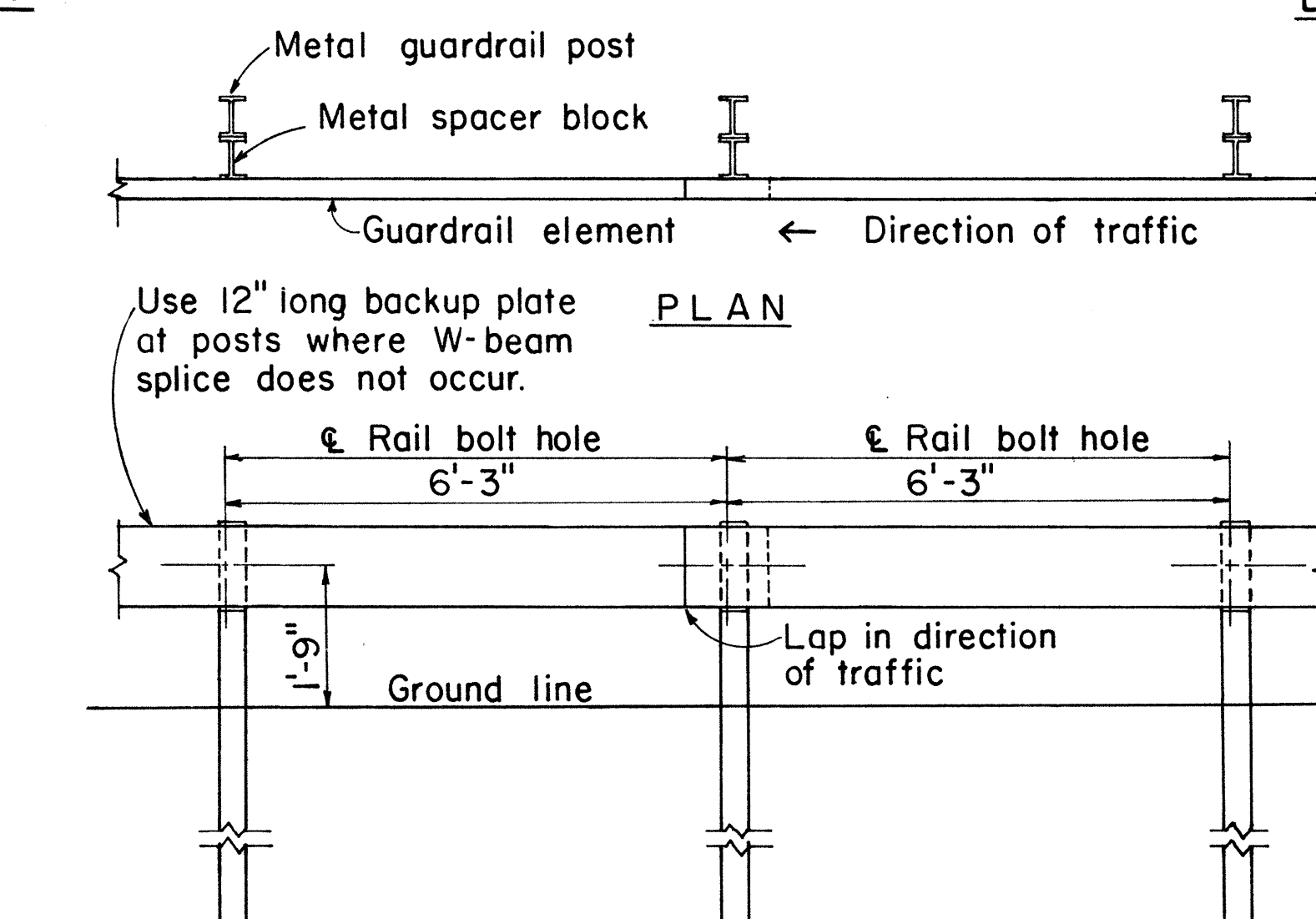
AT SHOULDER SECTION

TYPICAL METAL GUARDRAIL DETAIL

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

STRUCTURAL SHAPE POST AND BLOCK

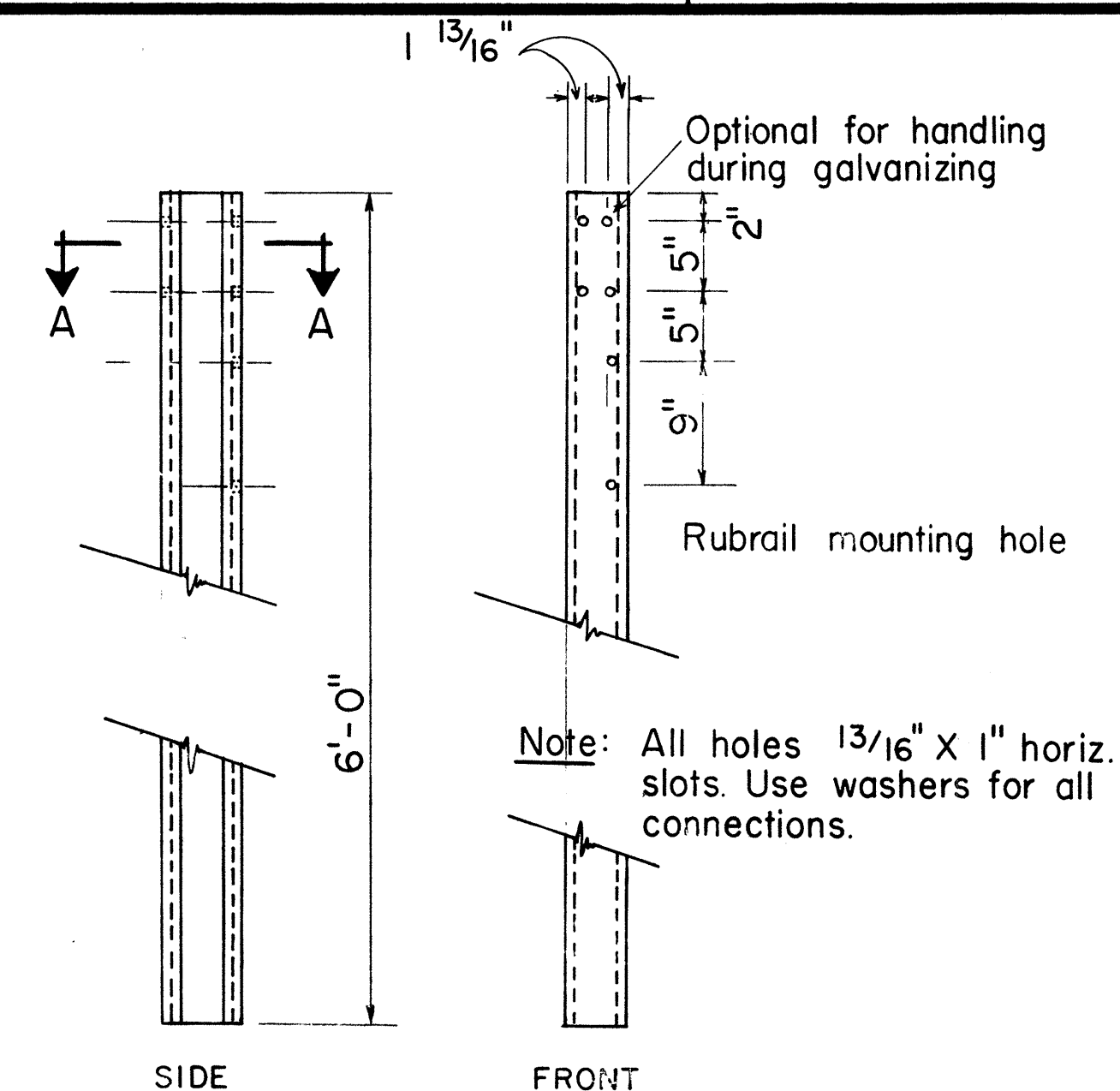
SCALE: 1" = 1'-0"



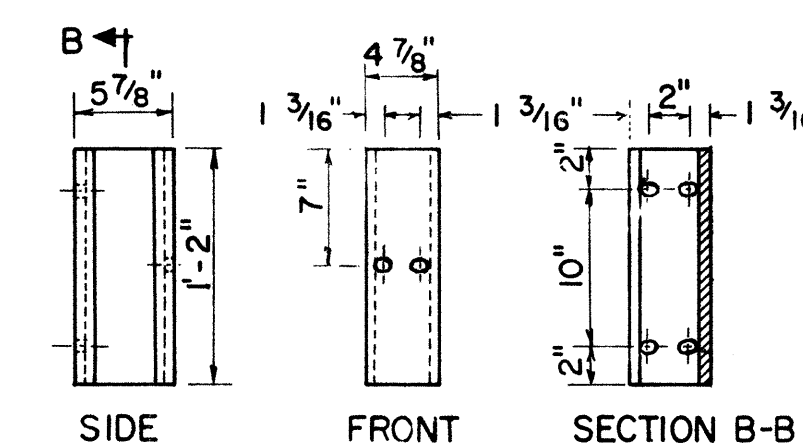
ELEVATION

METAL GUARDRAIL ON METAL POST WITH METAL SPACER BLOCK

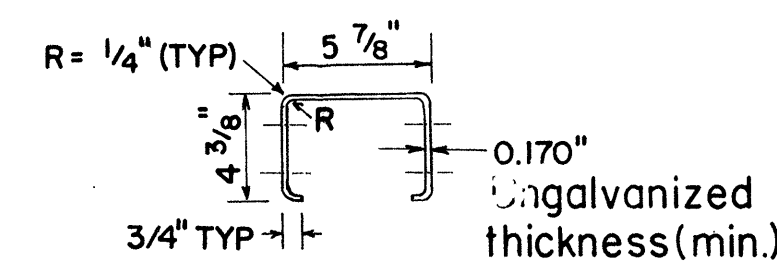
SCALE: 1/2" = 1'-0"



POST



BLOCK



SECTION A-A
N.T.S.

BENT PLATE POST AND BLOCK

SCALE: 1" = 1'-0"

APPROVAL RECOMMENDED:
Evelyn Tanaka 9/1/82
TRAFFIC ENGINEER DATE

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

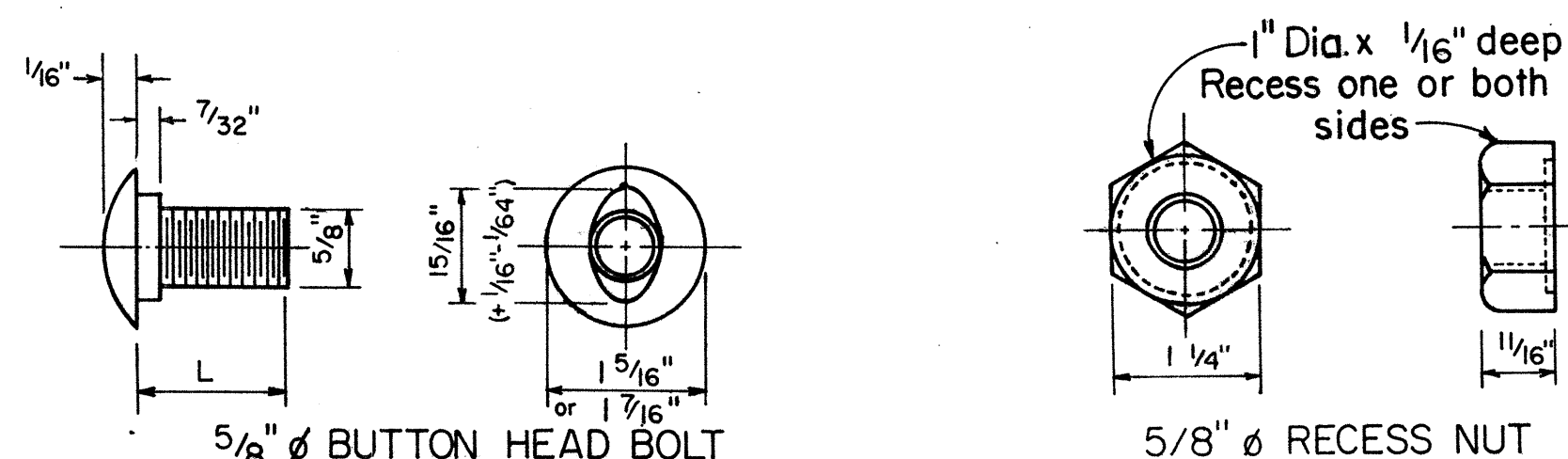
NO.	REVISION	APPROVED BY	DATE
1	Supersedes sht. DT 500 approved 12/30/69.	H.P.	9/22/82

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS METAL GUARDRAIL

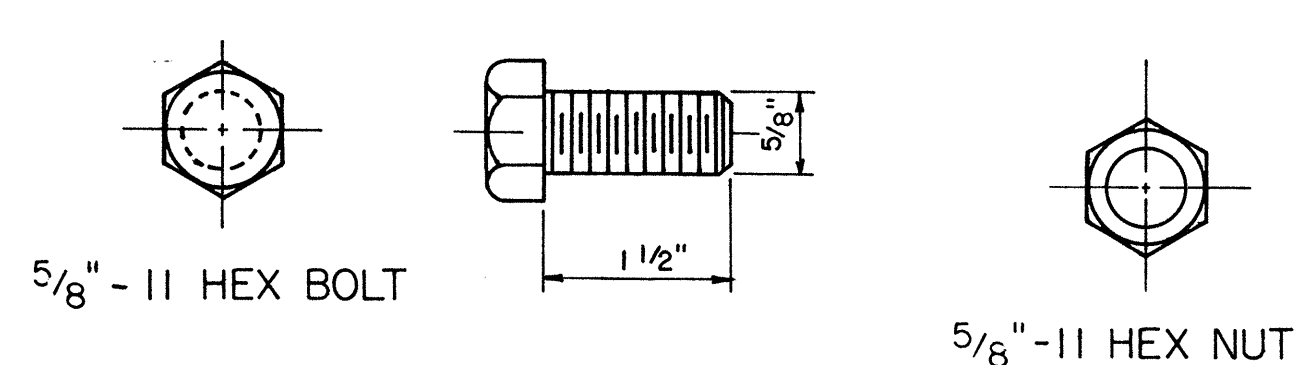
Scale: As Shown July, 1982
SHEET No. 3 OF 5 SHEETS DT 500

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-84	1984	18	29

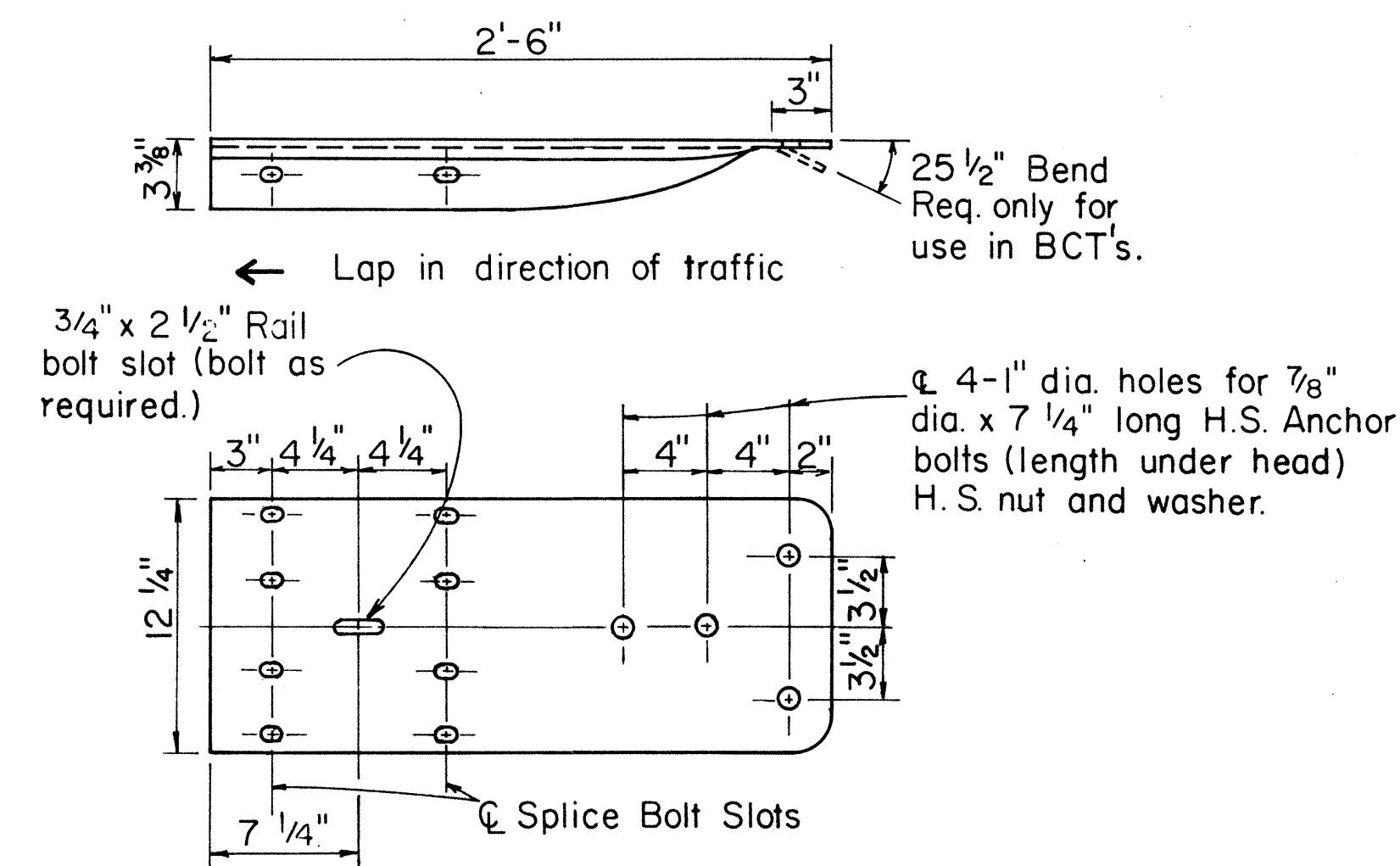


L	Thread Length	Intended Use
1 1/4"	Full length thread	Splice rail elements
2"	1 1/2" min. thread len.	Fasten rails to posts

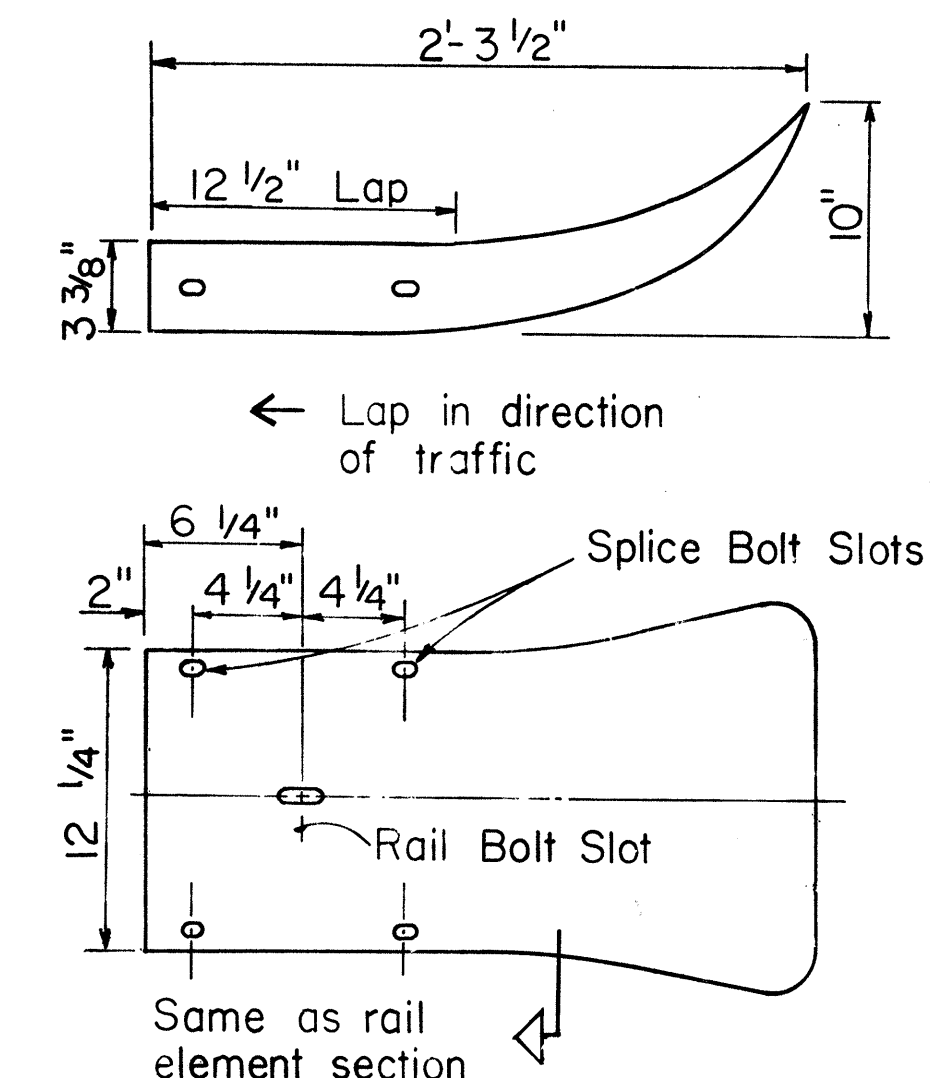
**5/8" BUTTON HEAD BOLT
AND RECESS NUT**
Scale: N.T.S.



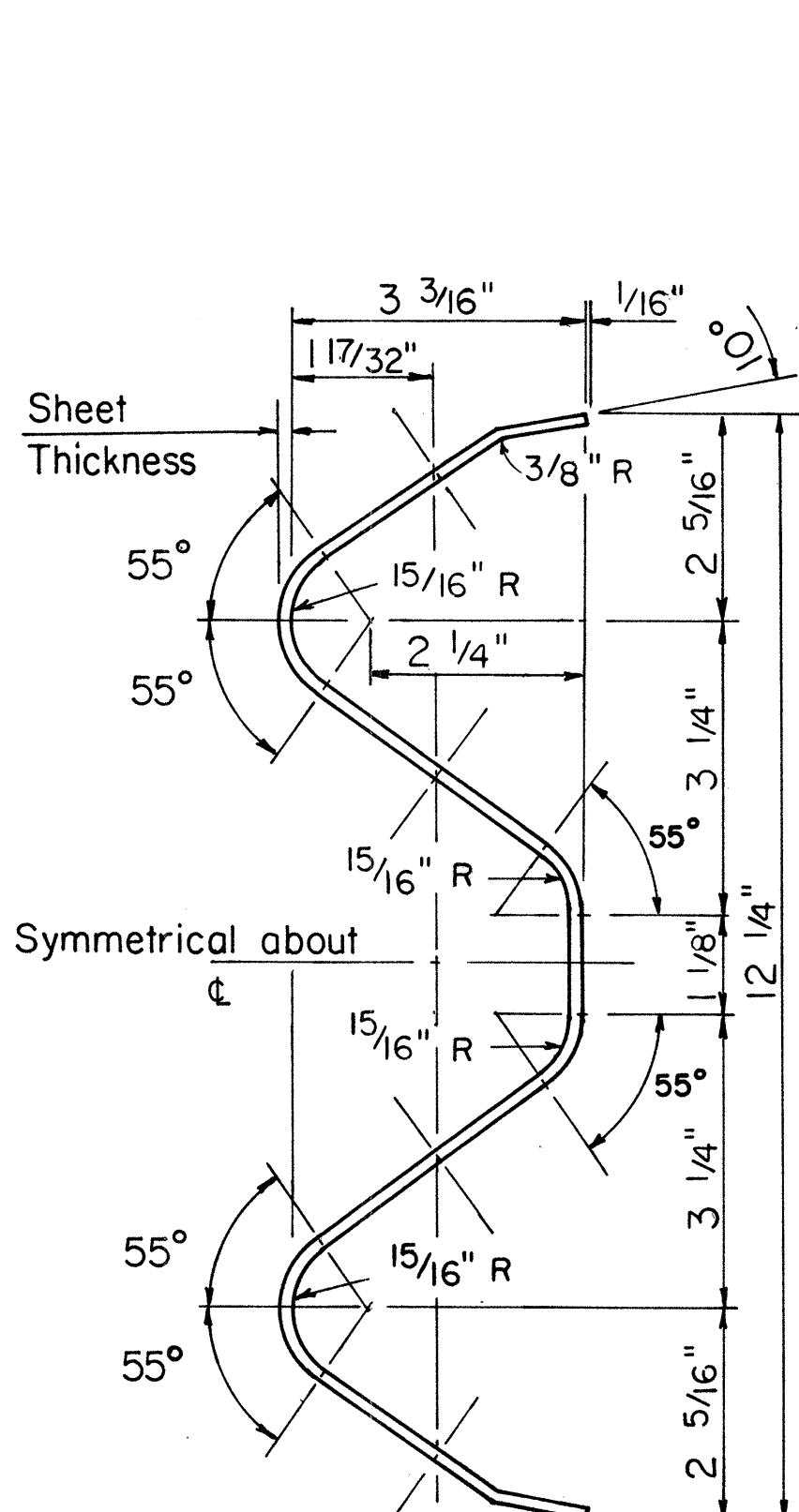
5/8" HEX POST BOLT AND NUT
Scale: N.T.S.



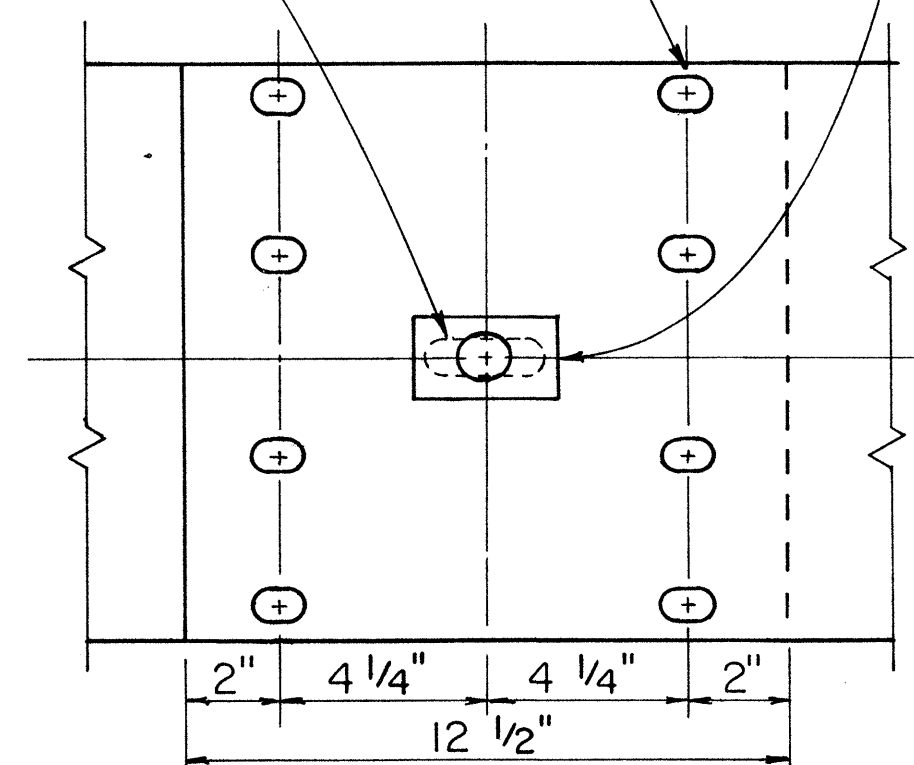
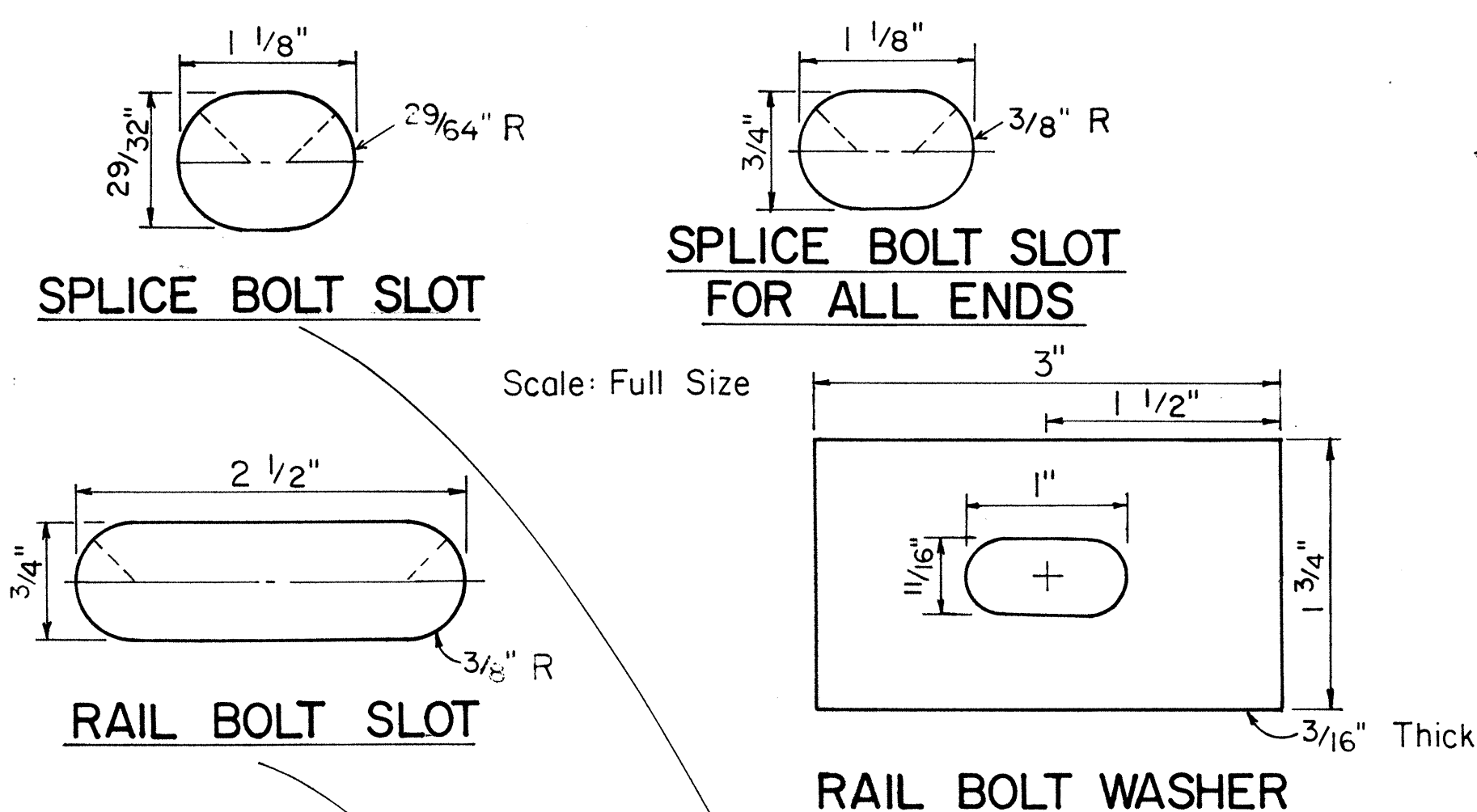
W BEAM TERMINAL CONNECTOR
Scale: 1 1/2" = 1'-0"



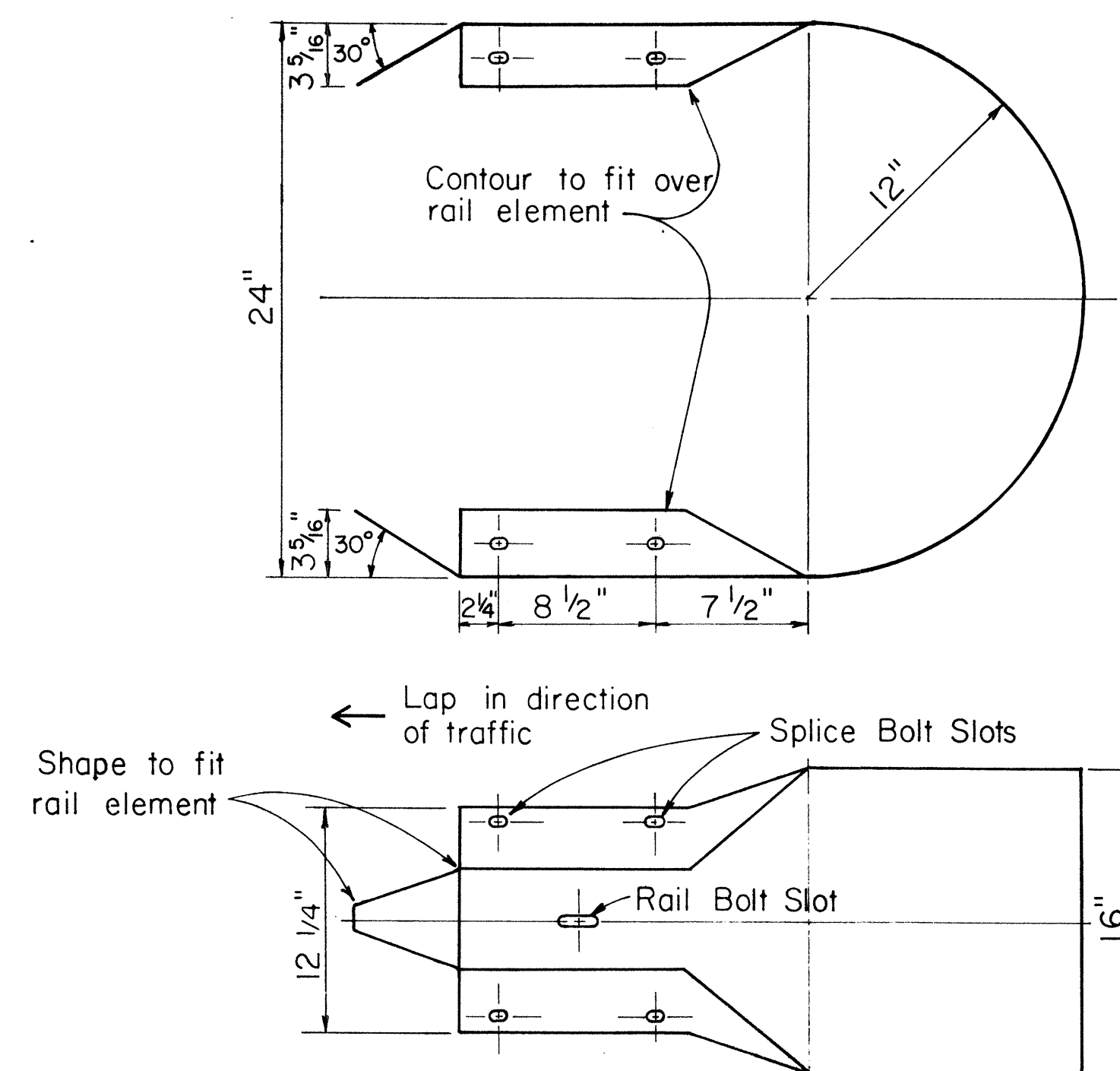
W BEAM END SECTION (FLARED)
Scale: 1 1/2" = 1'-0"



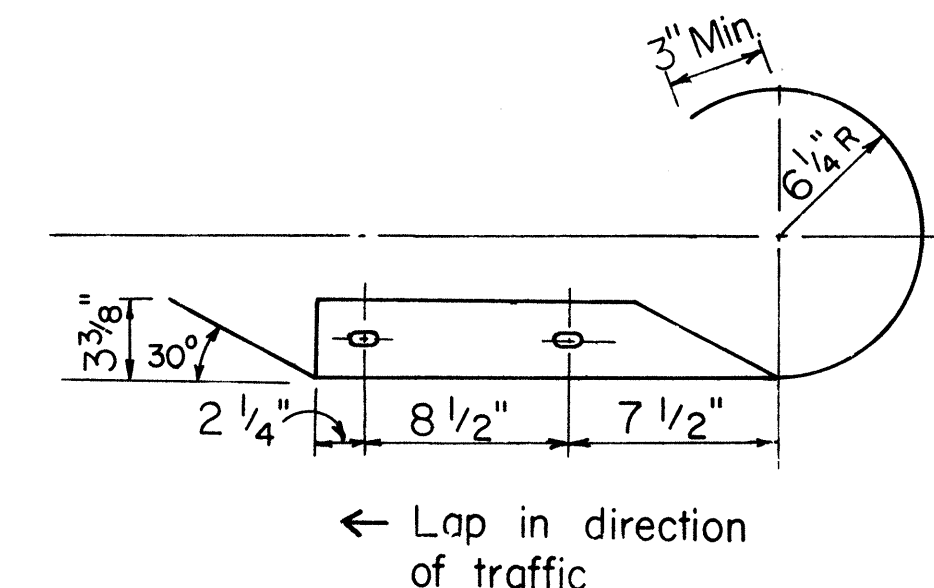
RAIL ELEMENT SECTION
Scale: 6" = 1'-0"



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"

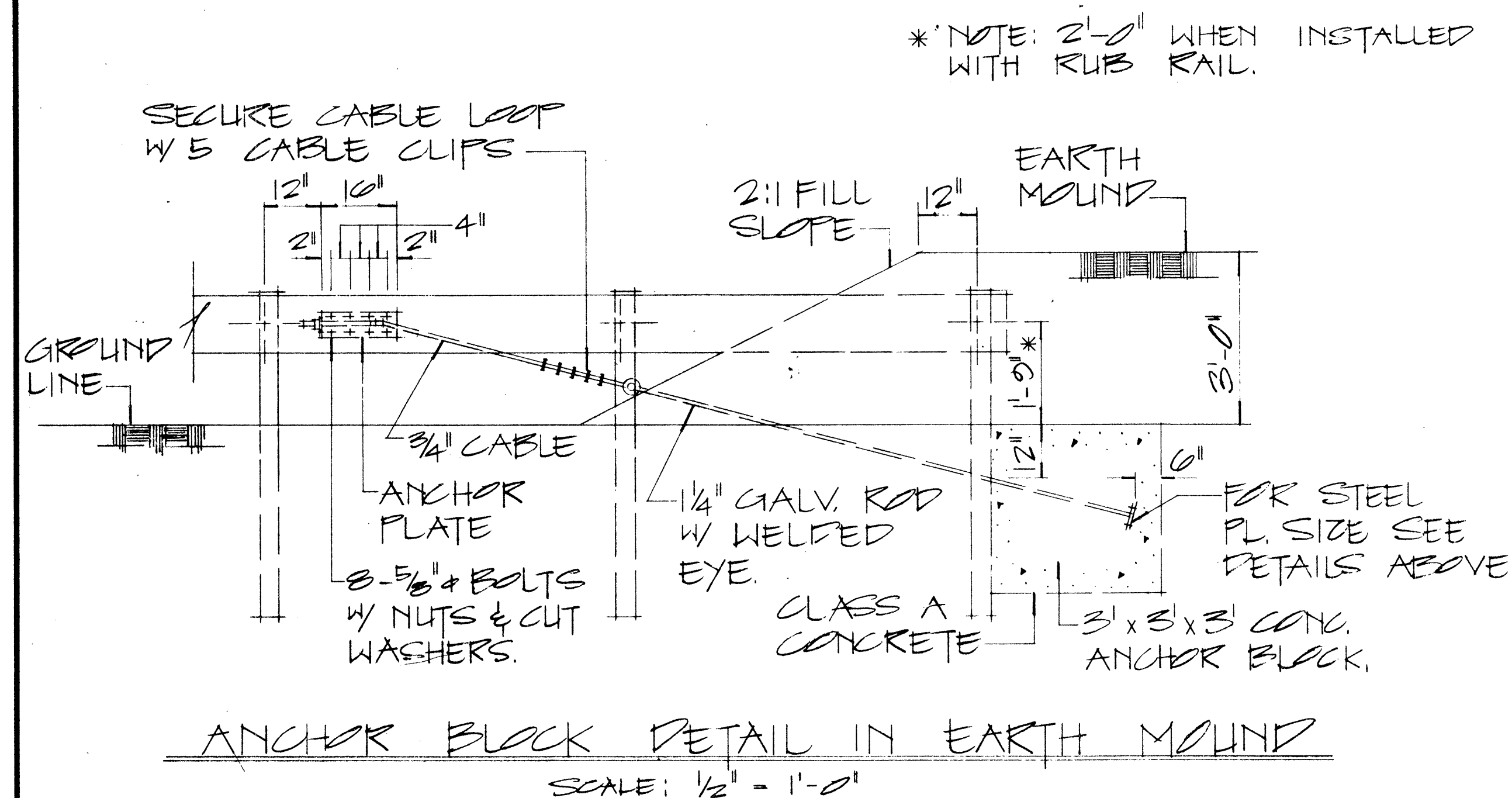
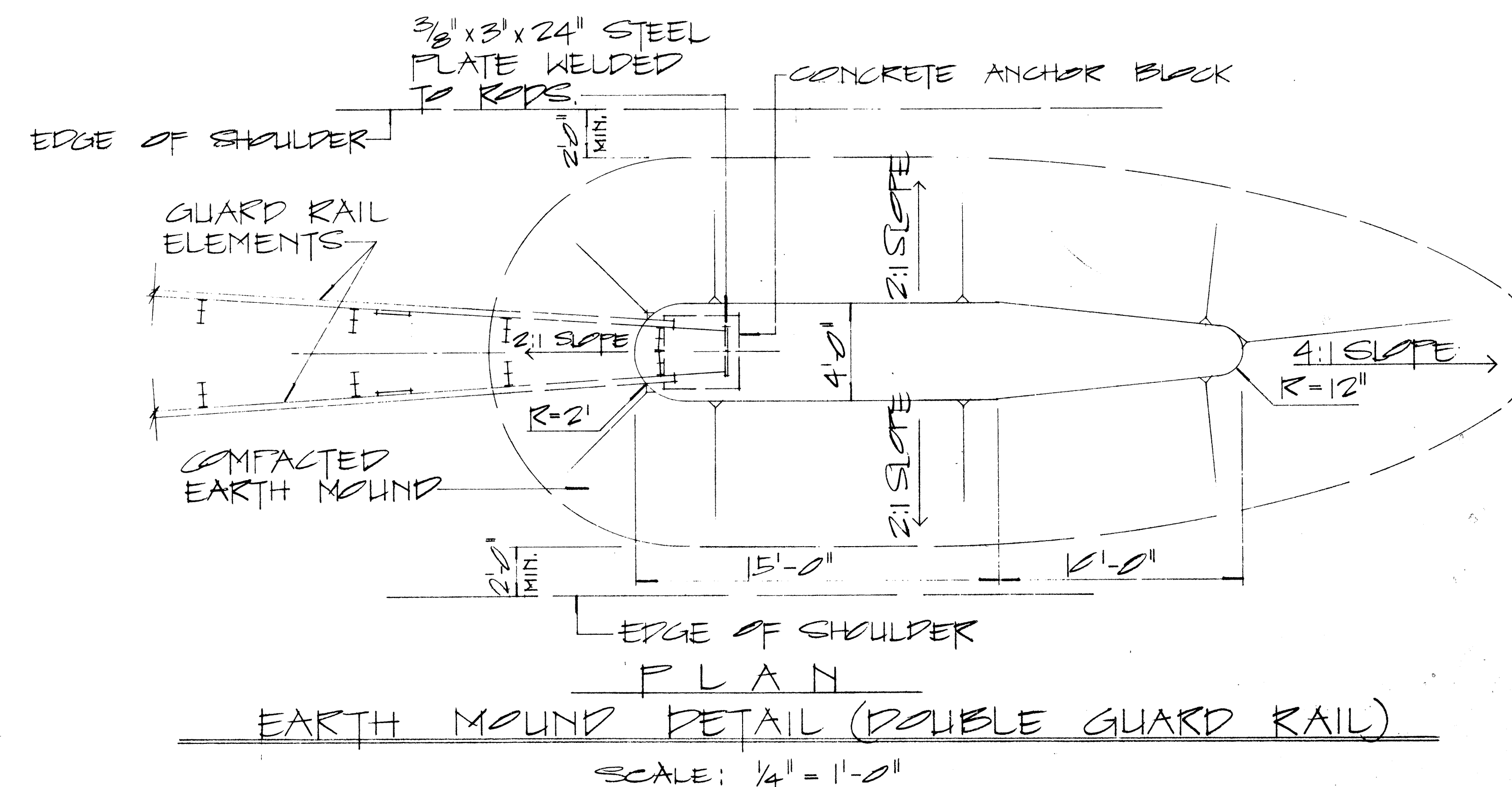
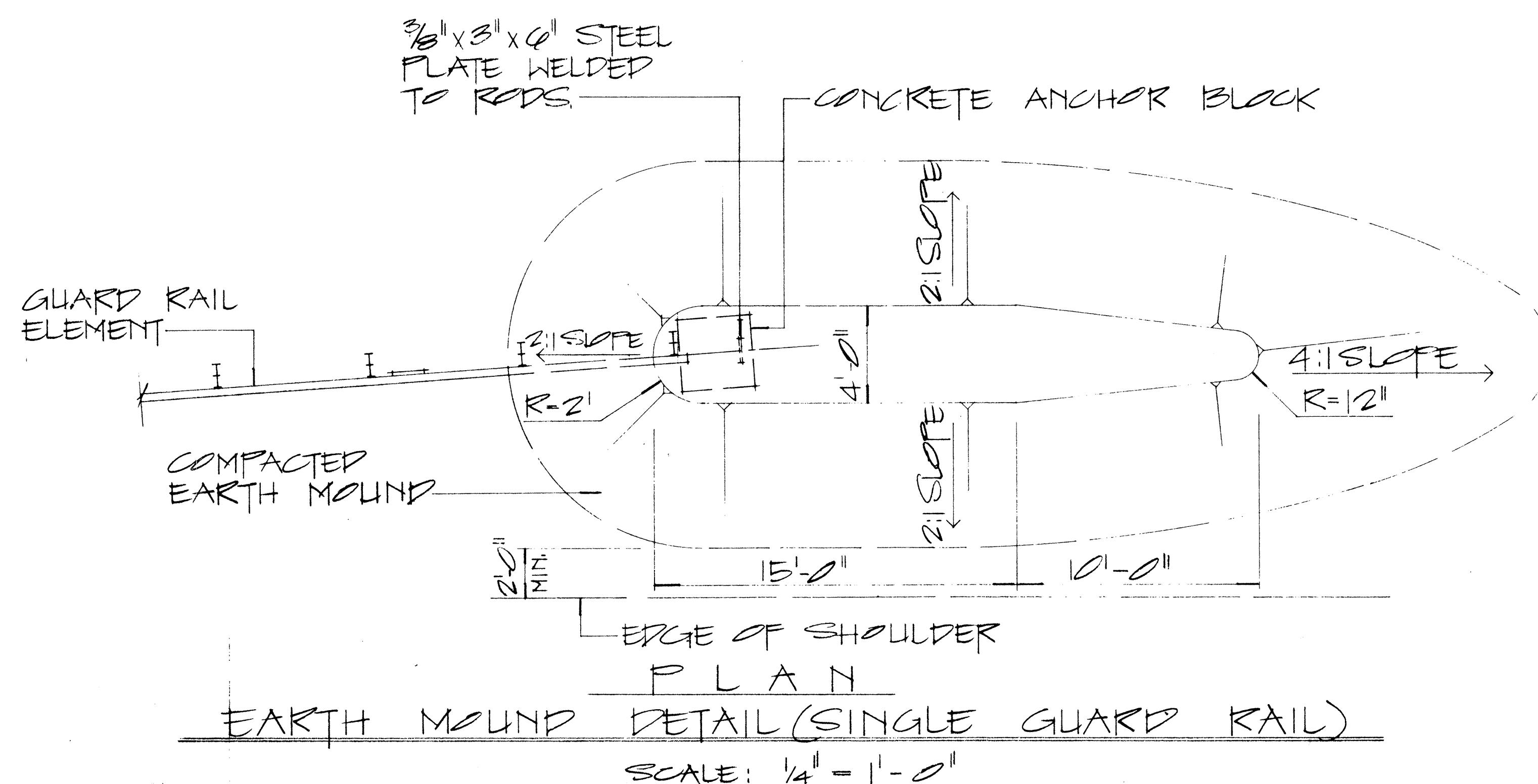
APPROVAL RECOMMENDED:
Erich Tanaka 9/20/82
TRAFFIC ENGINEER DATE

APPROVED:
Harold Schick 9/22/82
ASSISTANT CHIEF, ENGINEERING DATE

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

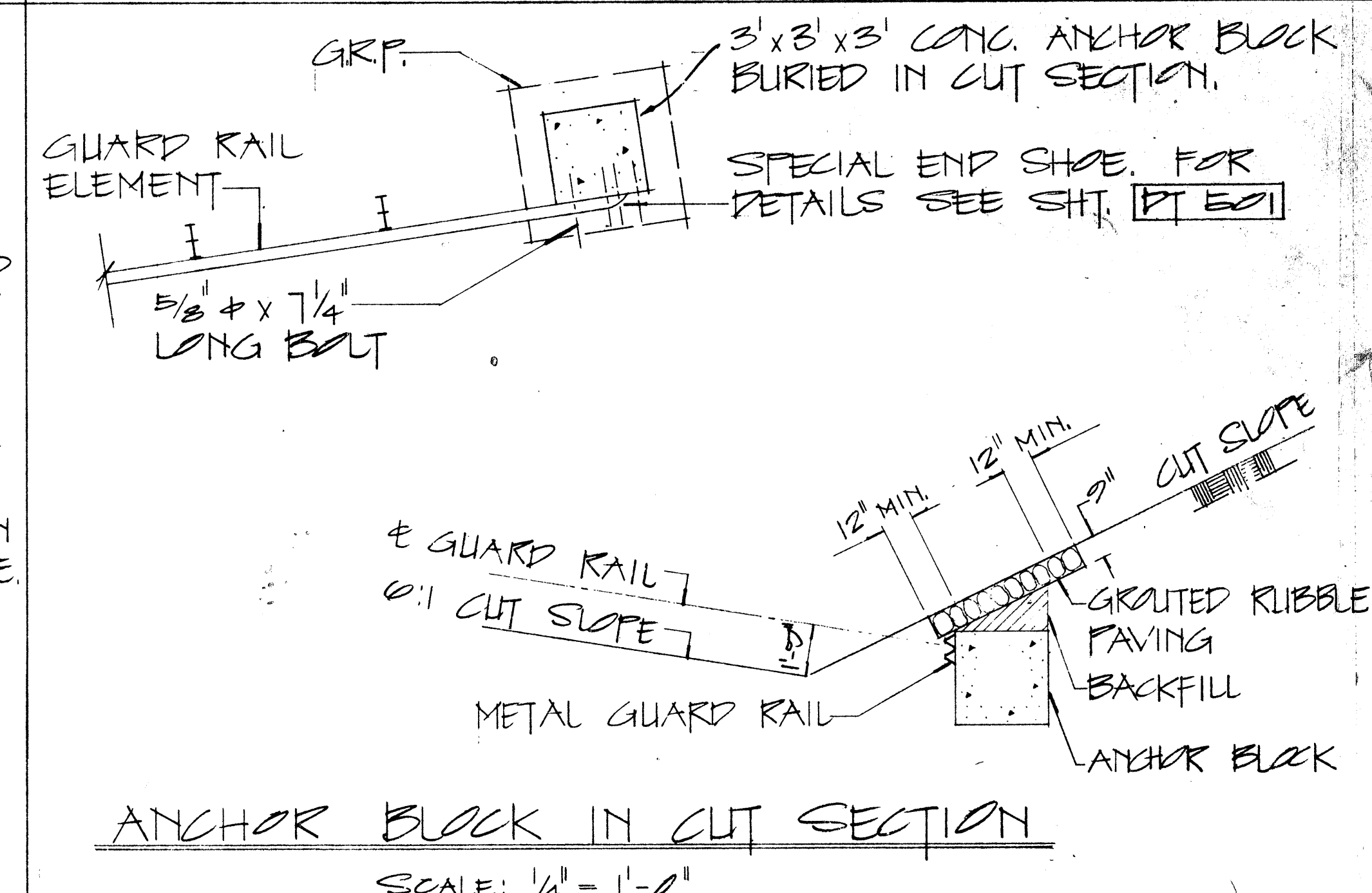
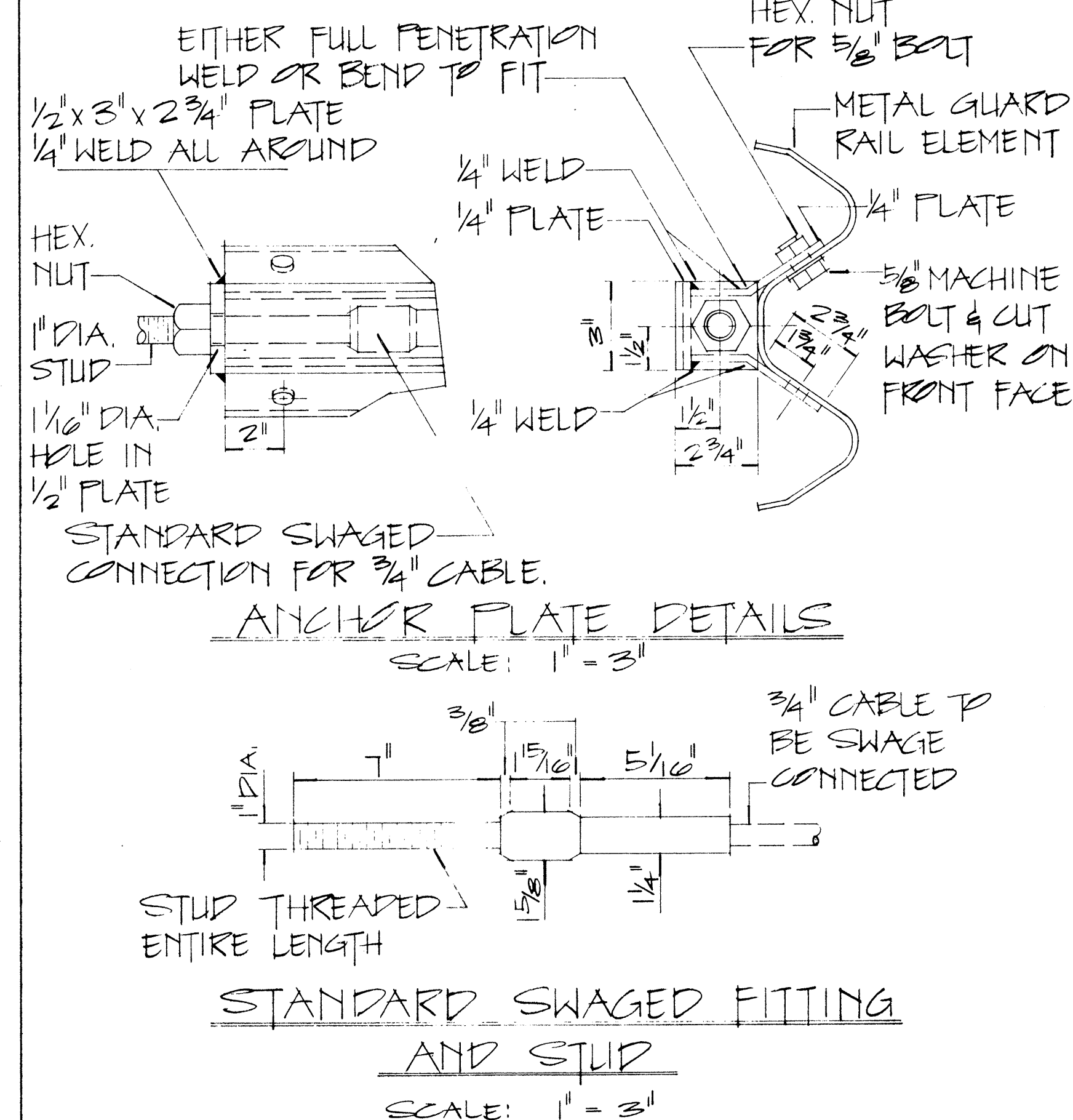
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
METAL GUARDRAIL
Scale: As Noted July, 1982
SHEET No. 4 OF 5 SHEETS DT 501

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-0184	1984	19	29



NOTE:

1. GALVANIZED ANCHOR ROD, METAL GUARD RAIL AND FAST BURIED IN GROUND, SHALL BE COVERED WITH a Min. 20-Mil Thickness of Coal TAR ENAMEL. Conforming to AWWA Standard: C 203
2. CONCRETE, GRP, EXCAVATION, EARTH MOUND, ANCHOR RODS AND MISCELLANEOUS APPURTENANCES NECESSARY TO ANCHOR THE GUARD RAIL ENDS SHALL BE INCIDENTAL TO THE METAL GUARD RAIL.



APPROVAL RECOMMENDED:		DATE	
<i>Eisuke Tanaka</i>		<i>12/29/62</i>	
TRAFFIC ENGINEER			
APPROVED:		DATE	
<i>Am. 22461</i>		<i>12-30-62</i>	
ASSISTANT CHIEF, ENGINEERING			

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
EARTH MOUND AND
ANCHOR BLOCK DETAILS

SCALE: AS SHOWN 2/10/60

SHEET No. 5 OF 5 SHEETS DT520