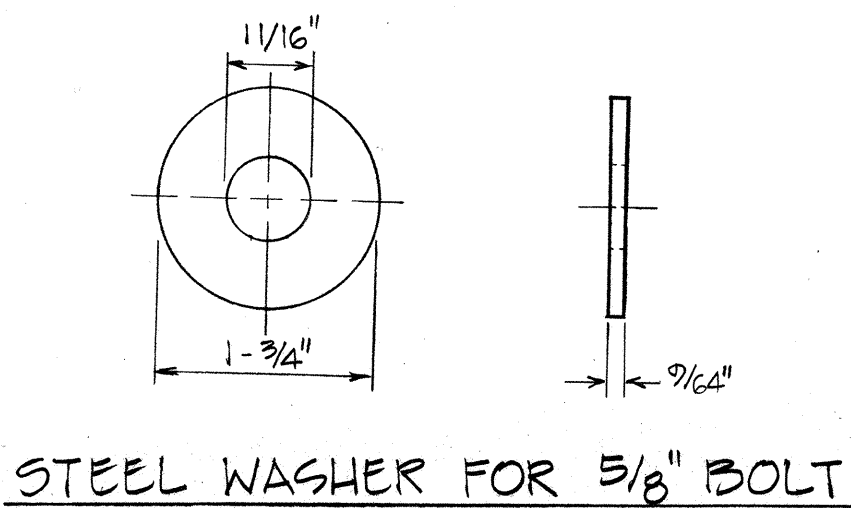
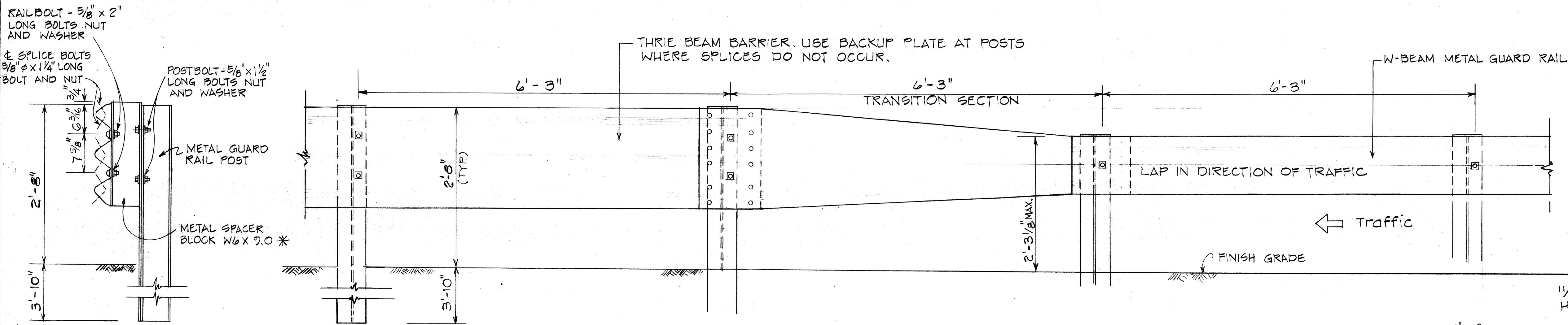
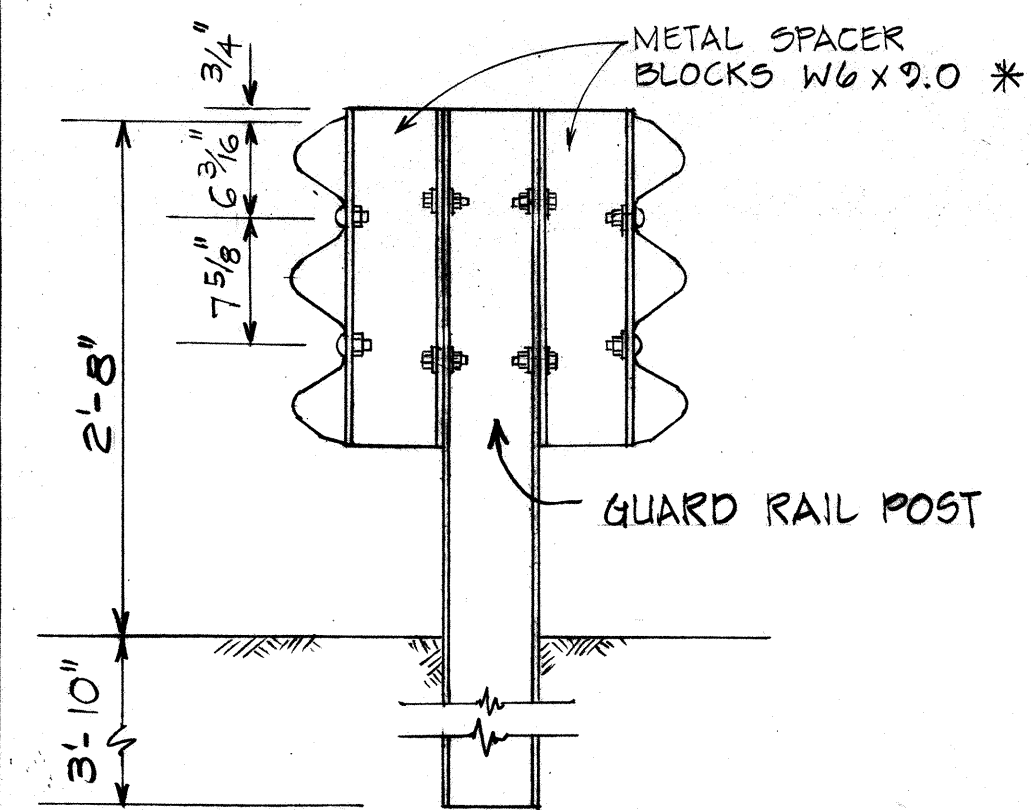


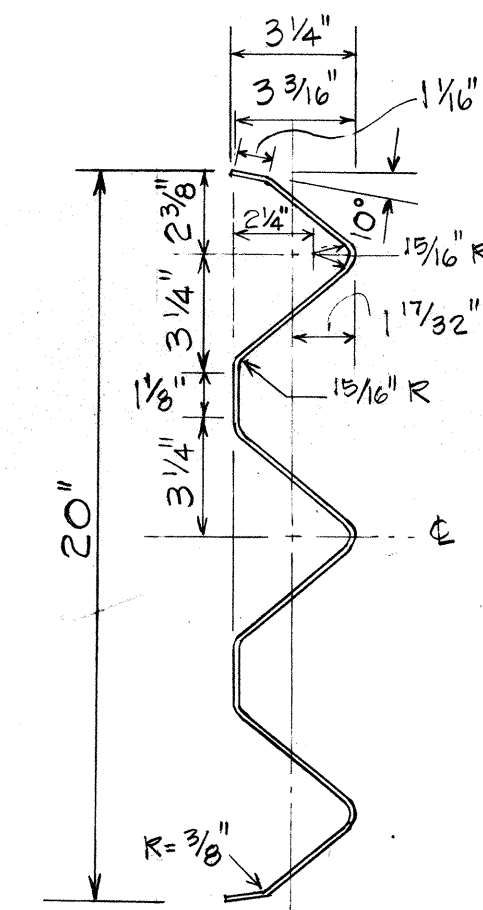
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IRH-1(1985)	1985	20	59



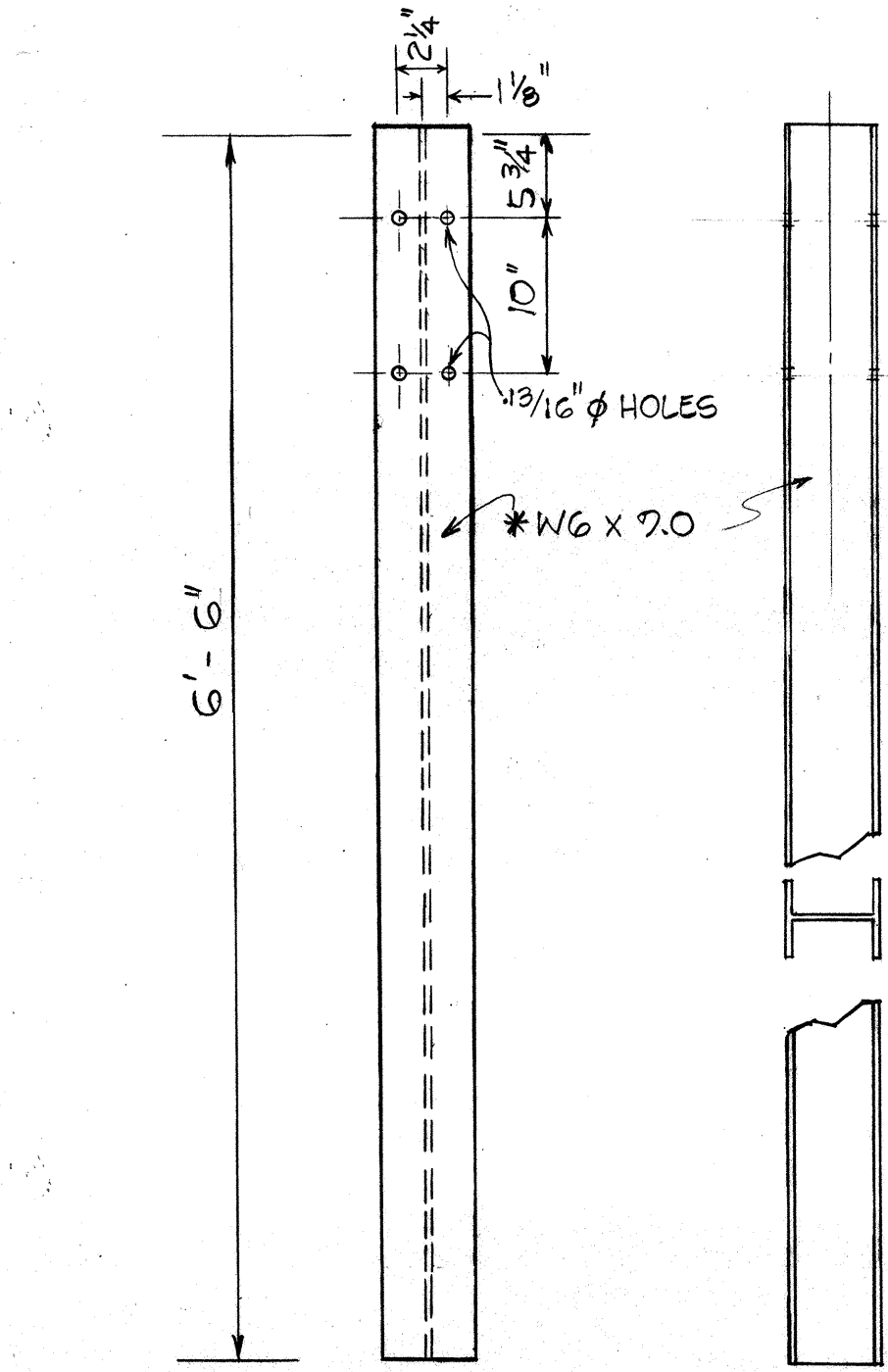
SINGLE METAL GUARD RAIL
ON METAL POST W/METAL SPACER BLK.



SECTION THRU
RAIL ELEMENT
Not to Scale

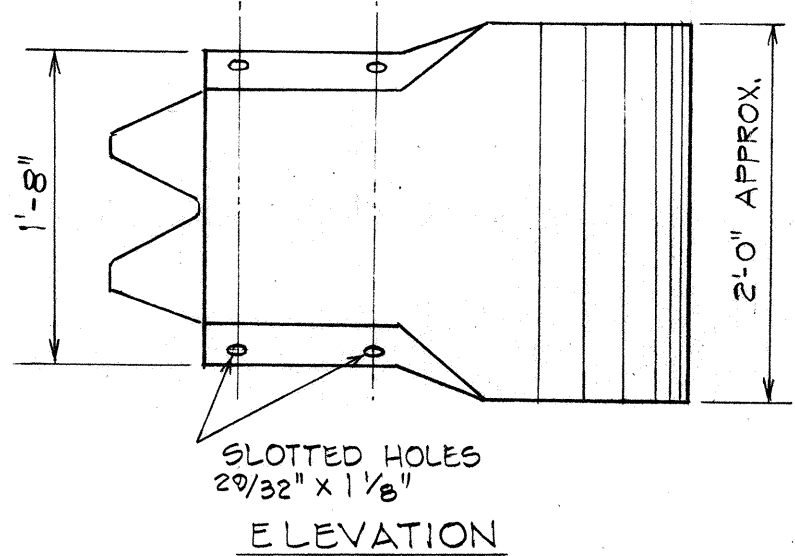
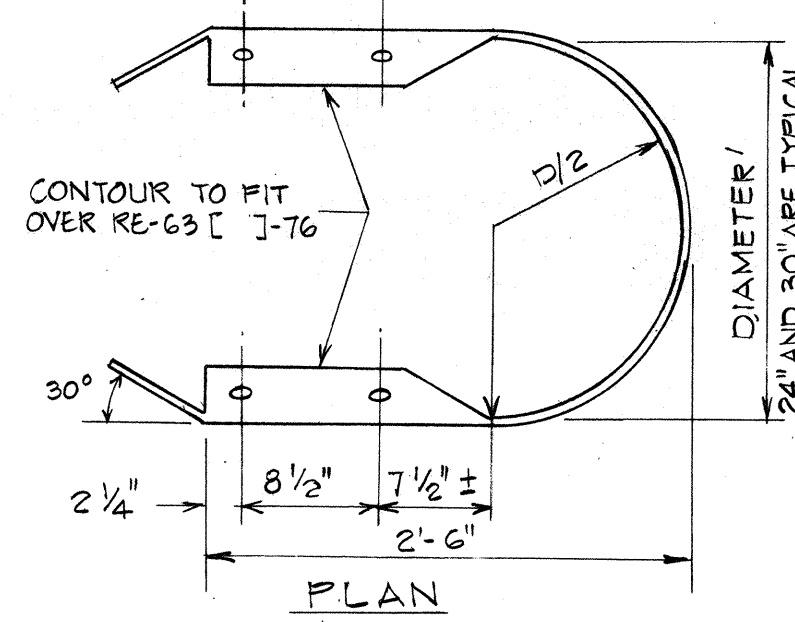
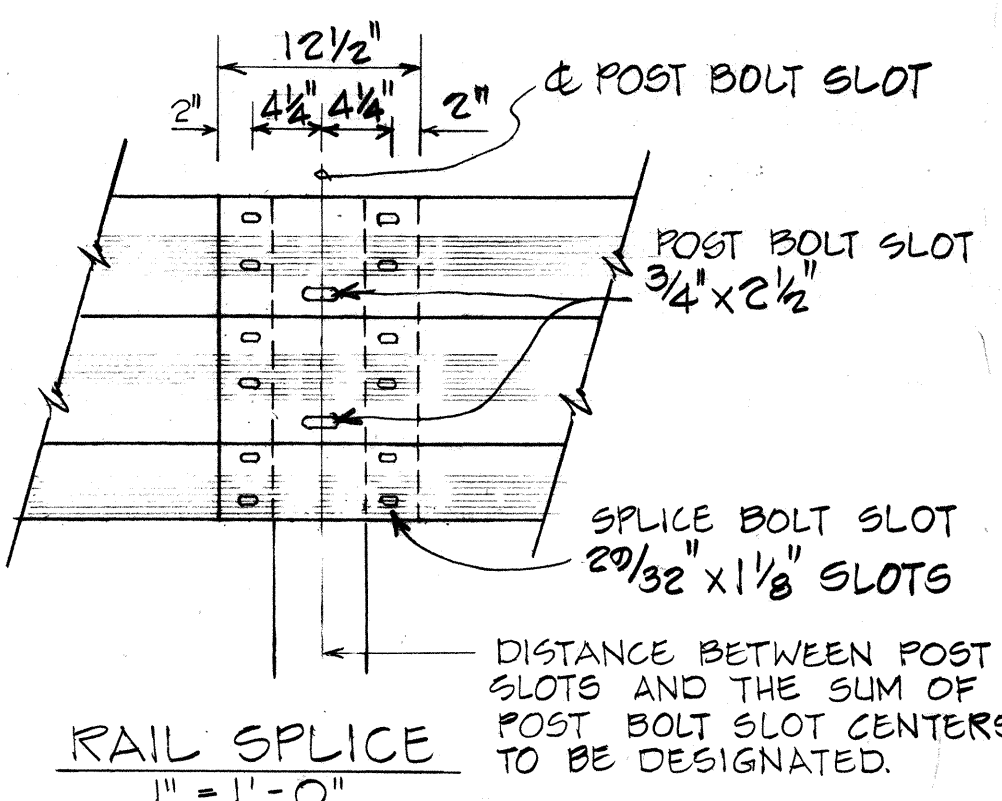


DOUBLE METAL GUARD
RAIL ON METAL POST WITH
METAL SPACER BLOCK



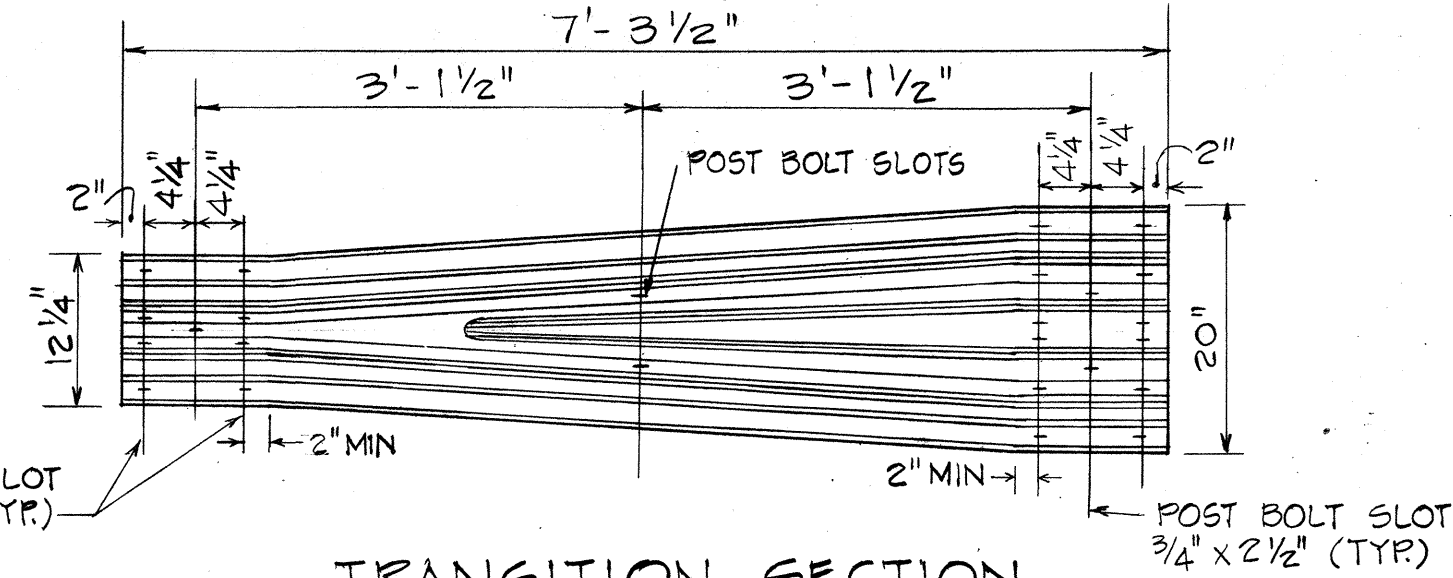
POST DETAILS
1" = 1'-0"

TRANSITION SECTION
Scale: 1" = 1'-0"

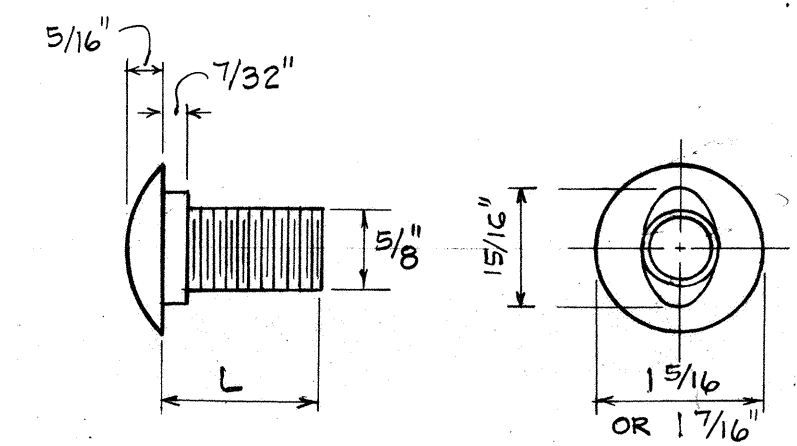
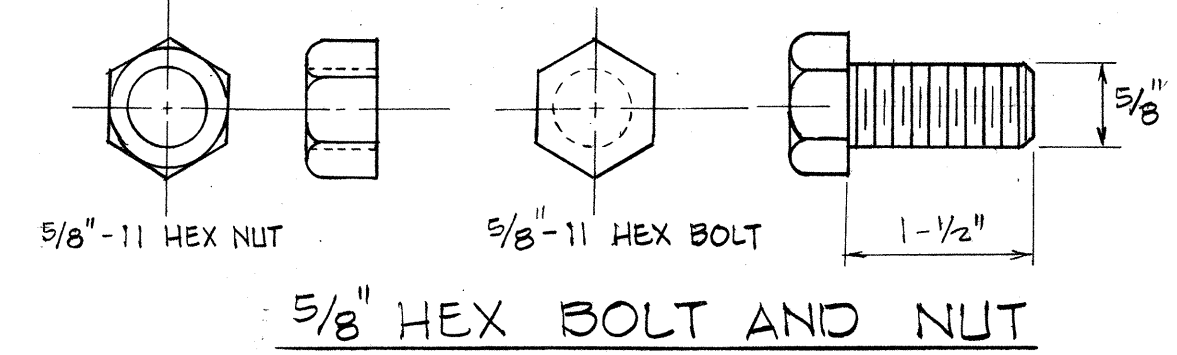
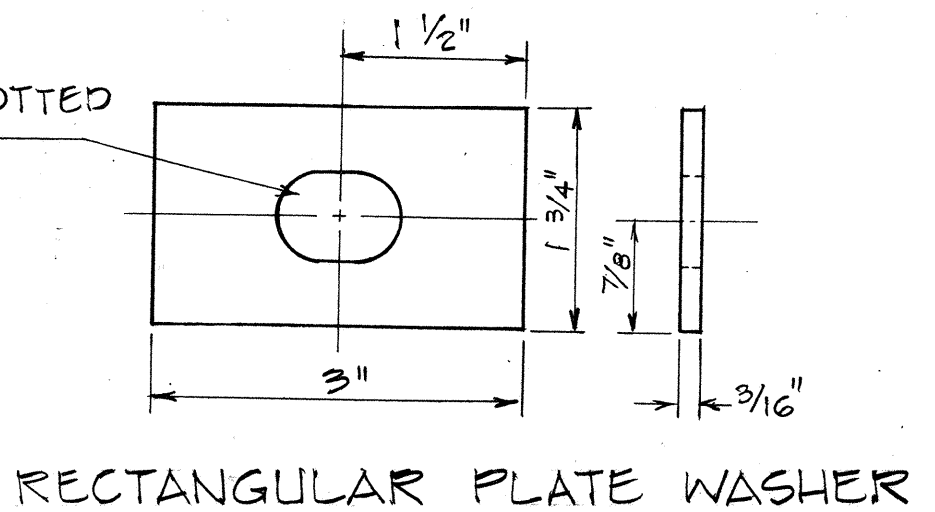


END SECTION (BUFFER)
Scale: 1" = 1'-0"

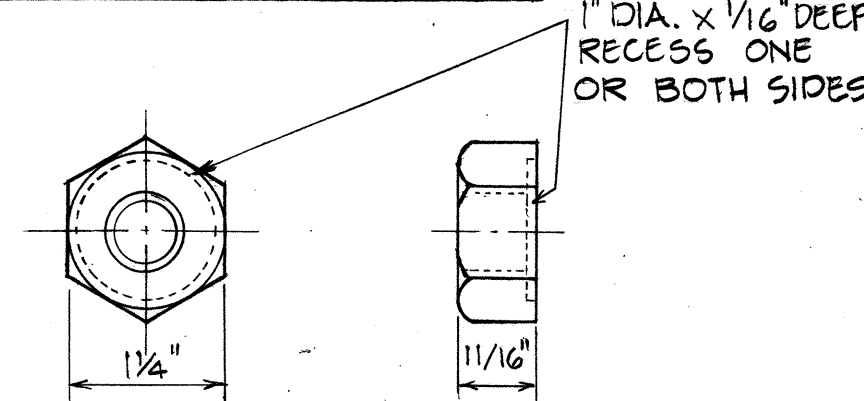
BACKUP PLATE



TRANSITION SECTION



L	THREAD LENGTH
1 1/4"	FULL THREAD
2"	1 1/2" MIN THREAD LENGTH



5/8" BUTTON HEAD BOLTS
AND RECESS NUT

* REPLACED W6 X 8.5, WHICH IS ACCEPTABLE AS AN ALTERNATE.

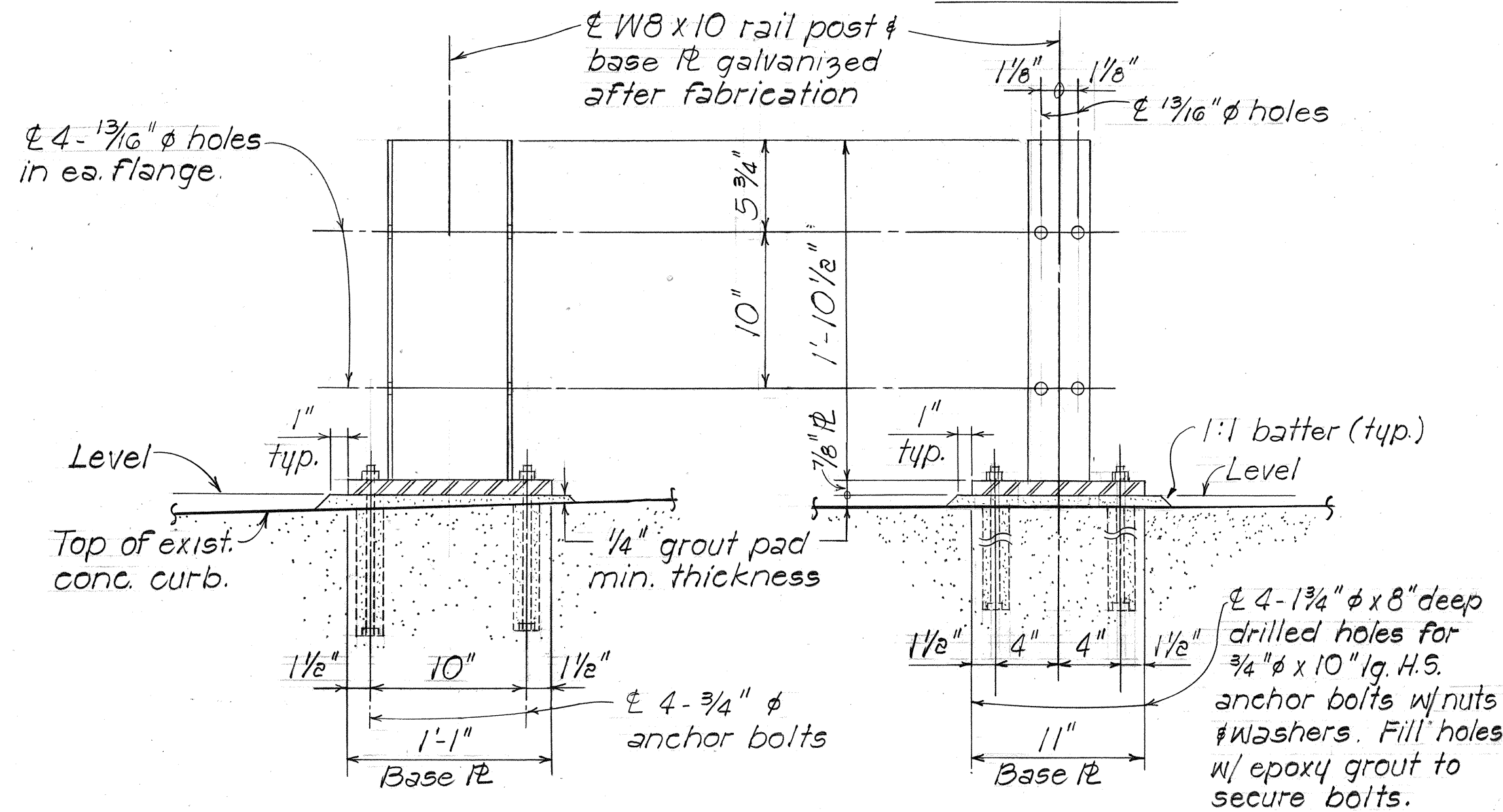
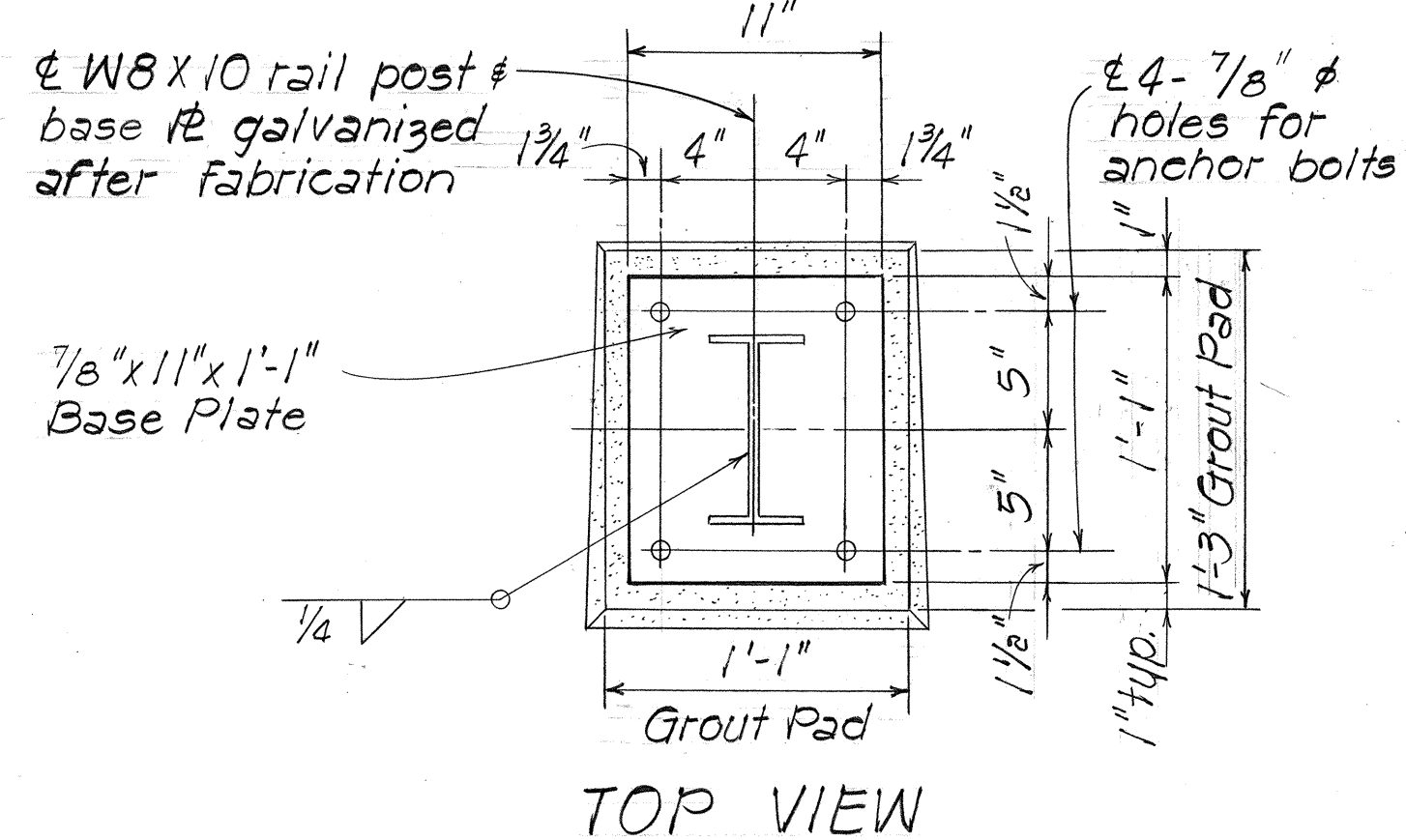
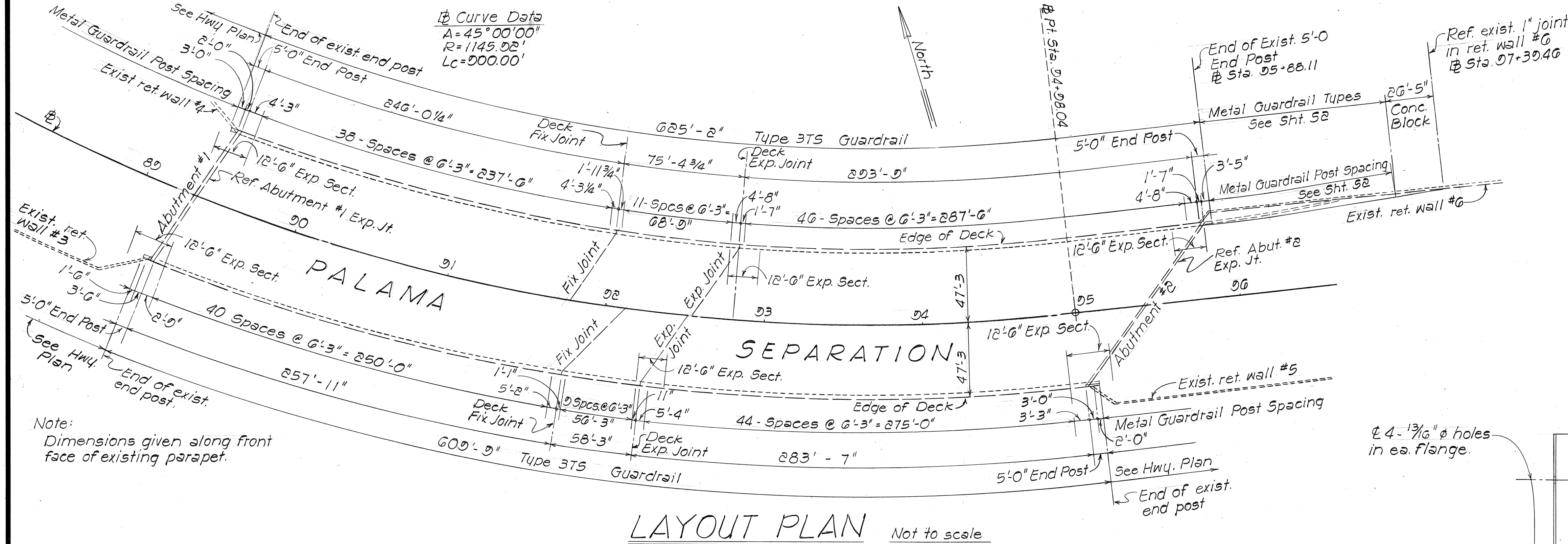
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

TYPICAL DETAIL
GUARD RAIL TYPE 3
THRIE BEAM

Scale: As Shown Date: April, 1985
SHEET NO. 1 OF 1 SHEETS

USE ONLY WHERE APPLICABLE

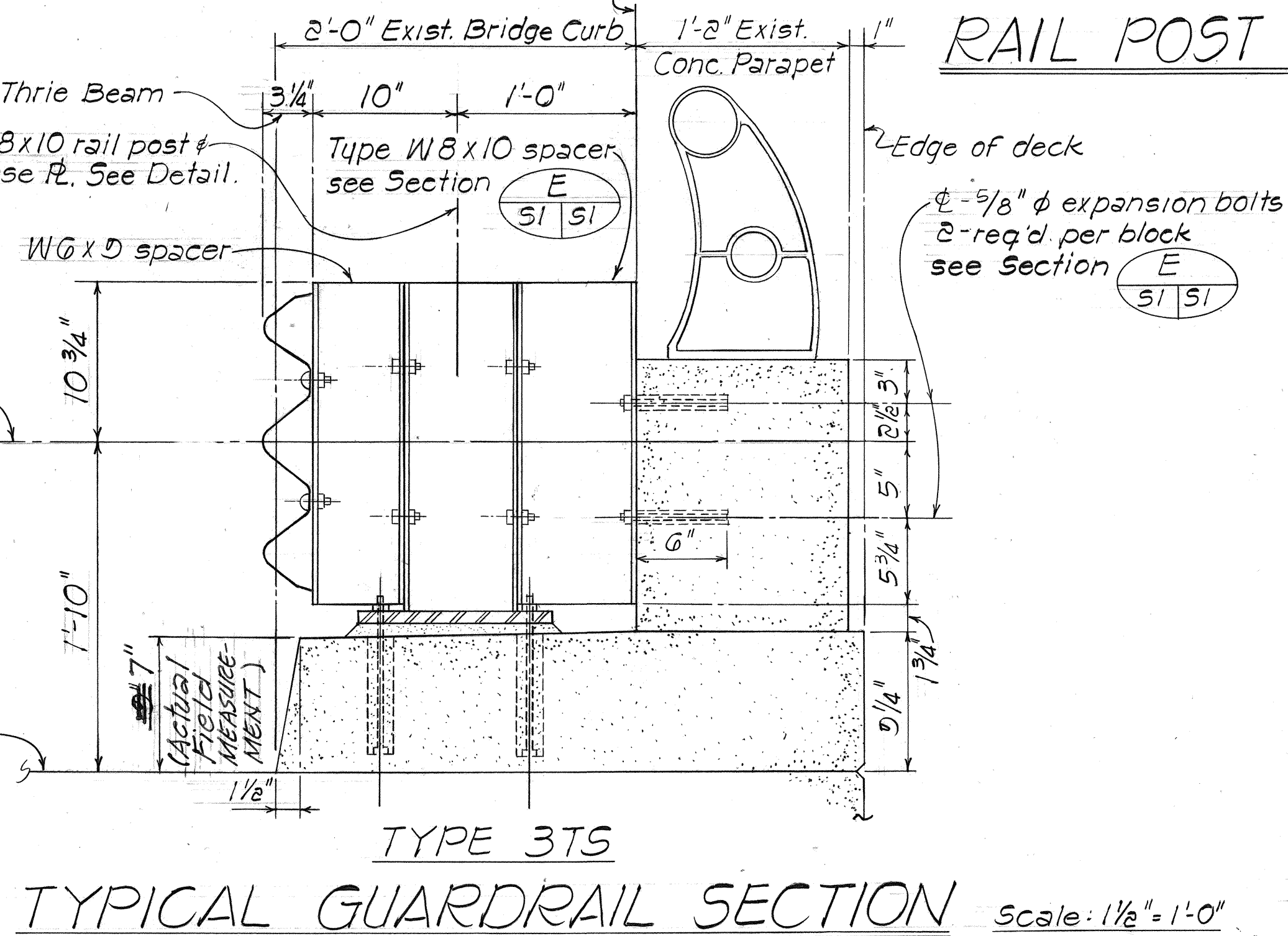
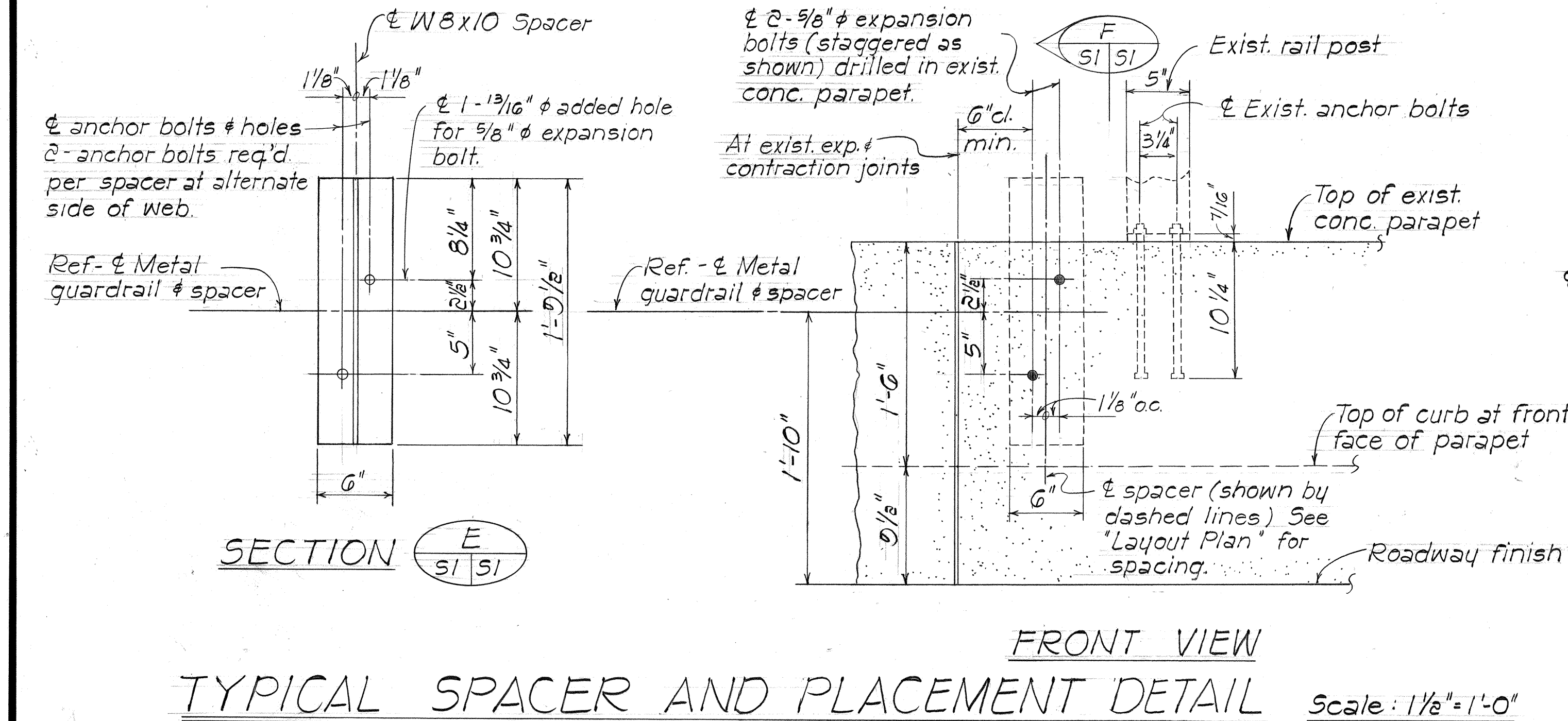
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1R-HI-1(198)	1985	21	59



- GENERAL NOTES**
- See Standard Specifications for Road & Bridge Construction Hawaii 1985 & Special Provisions.
 - For (a) Thrie beam - See Special Provisions & Typical Detail Sheet.
(b) Terminal Connector - See Special Provisions & Standard Detail Sheet, DT 501
(c) Spacer Block - See Standard Detail Sheet, DT-500
 - Concrete shall be Class A
 - Reinforcing steel shall be ASTM G15 Grade 40
 - All anchor bolts shall be high strength bolts conforming to the requirement of ASTM A325, and shall be hot dipped galvanized.

ESTIMATED QUANTITIES			
ITEM NO.	ITEM	UNIT	QUANTITIES
G06.311	Guardrail type 3WG (Type 3 - Single with steel post)	Lin. Ft.	85
G06.312	Guardrail type 3TG	Lin. Ft.	41
G06.313	Replacement parts for thrie beam	Each	1
G06.314	Reconstruction of concrete block (Terminal treatment)	Each	1
G06.322	Guardrail type 3TS	Lin. Ft.	1,235

RAIL POST DETAILS Scale: 1 1/2" = 1'-0"

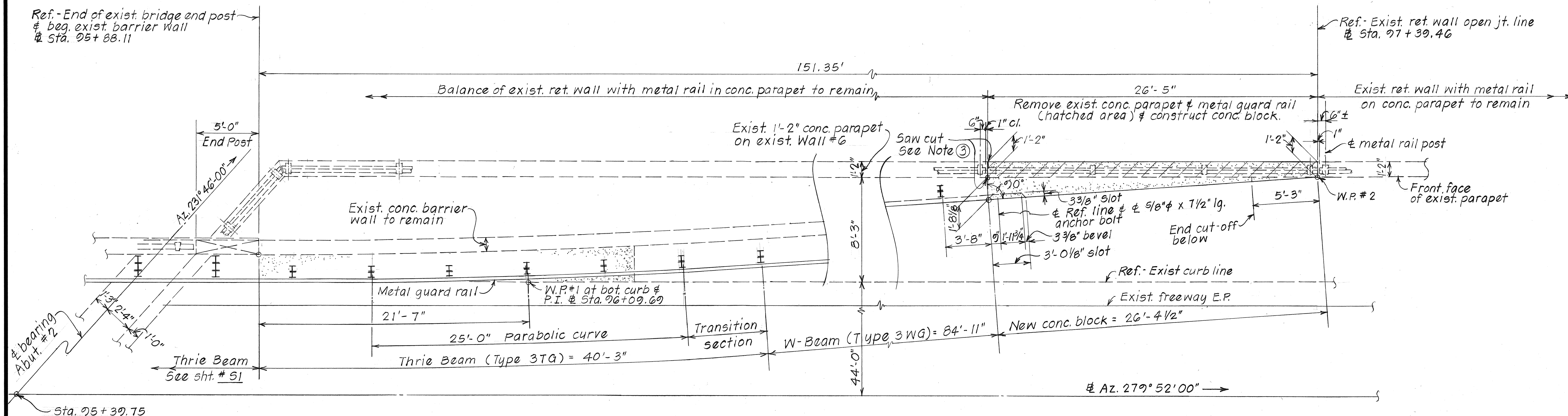


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

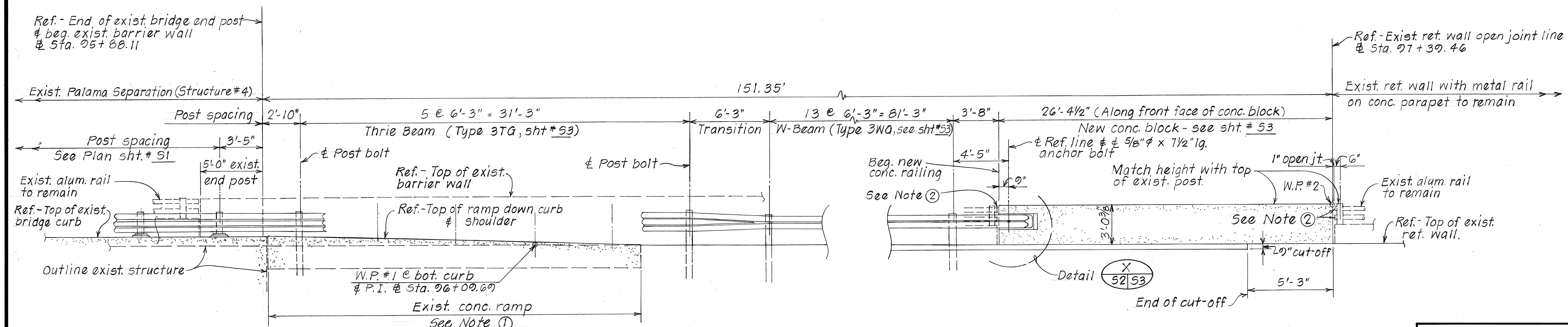
THRIE BEAM RETROFIT
PALAMA SEPARATION
INTERSTATE ROUTE H-1 RESURFACING
KALIHI I.C. TO QUEEN EMMA SEPARATION
FAP NO. 1R-HI-1(198)
Scale: As shown Date: May 1985
SHEET No. 51 OF 5 SHEETS

ORIGINAL PLAN	DATE	DESIGNED BY	CHECKED BY
NOTE BOOK	10/2/85	TS	LA/GT
QUANTITIES BY	10/2/85		
TRACED BY	10/2/85		
DRAWN BY	10/2/85		
SURVEY PLOTTED BY	10/2/85		

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(198)	1985	22	59



PLAN
Scale: $\frac{1}{4}" = 1'-0"$



ELEVATION
Scale: $\frac{1}{4}" = 1' - 0"$

NOTE:

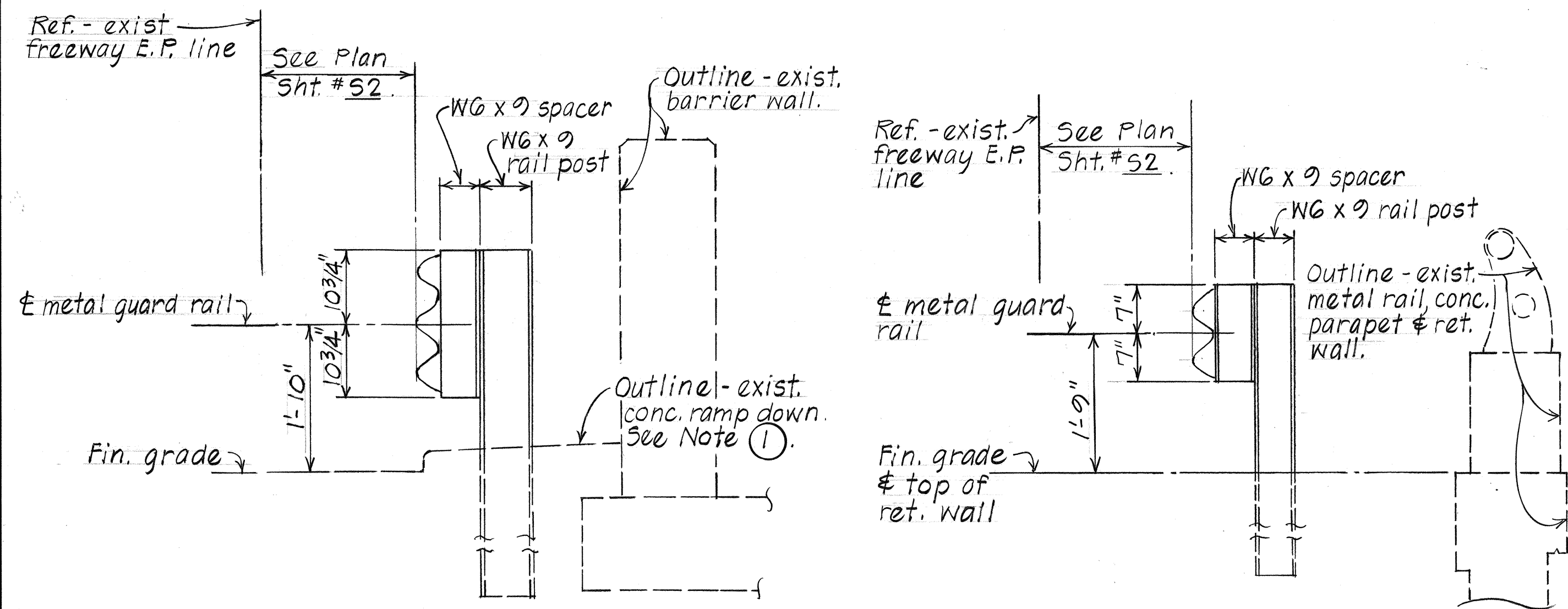
1. Where guard rail post occurs on exist ramp, remove approx. 1 concentric sq. ft. of ramp concrete and refinish with A.C. to match exist. grade after installation of post. (Incidental to Type 3TG)
2. Cap end of both railing (Incidental to conc. block.)
3. The extremity of the parapet to be removed shall be saw cut on both face to a depth of 1/2". Reinforcing shall be left intact, cleaned and incorporated in the reconstruction of the conc. block.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

THREE BEAM RETROFIT
PALAMA SEPARATION
INTERSTATE ROUTE H-1 RESURFACING
KALIHI I.C. TO QUEEN EMMA SEPARATION
FAP NO. 1R-HI-1(198)
Scale: As shown Date: May 1985

SHEET NO. 52 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1R-HI-1(198)	1985	23	59



TYPE 3TG

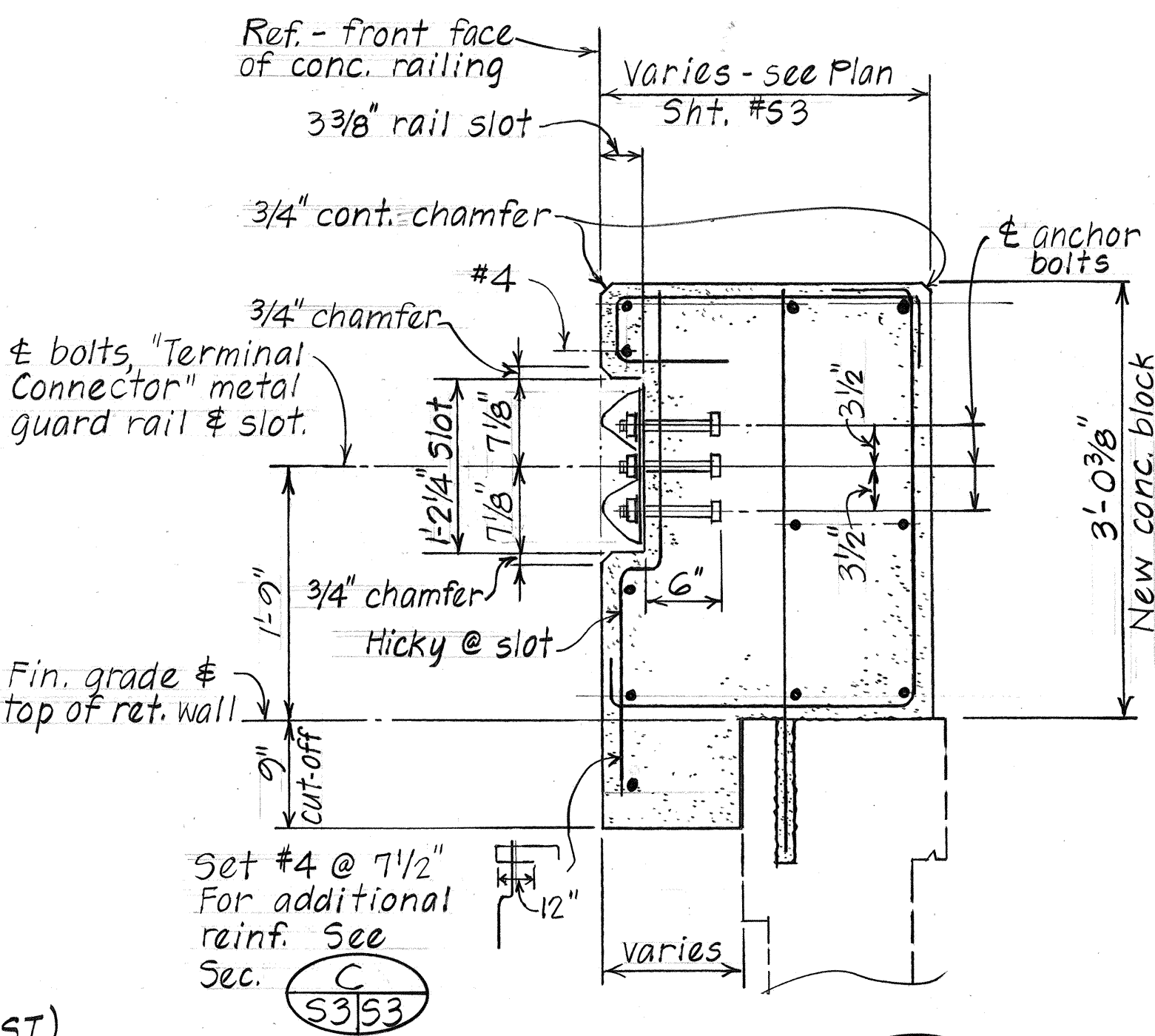
TYPE 3WG
(SAME AS TYPE 3 - SINGLE W/STEEL POST)

TYPICAL GUARD RAIL SECTIONS

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

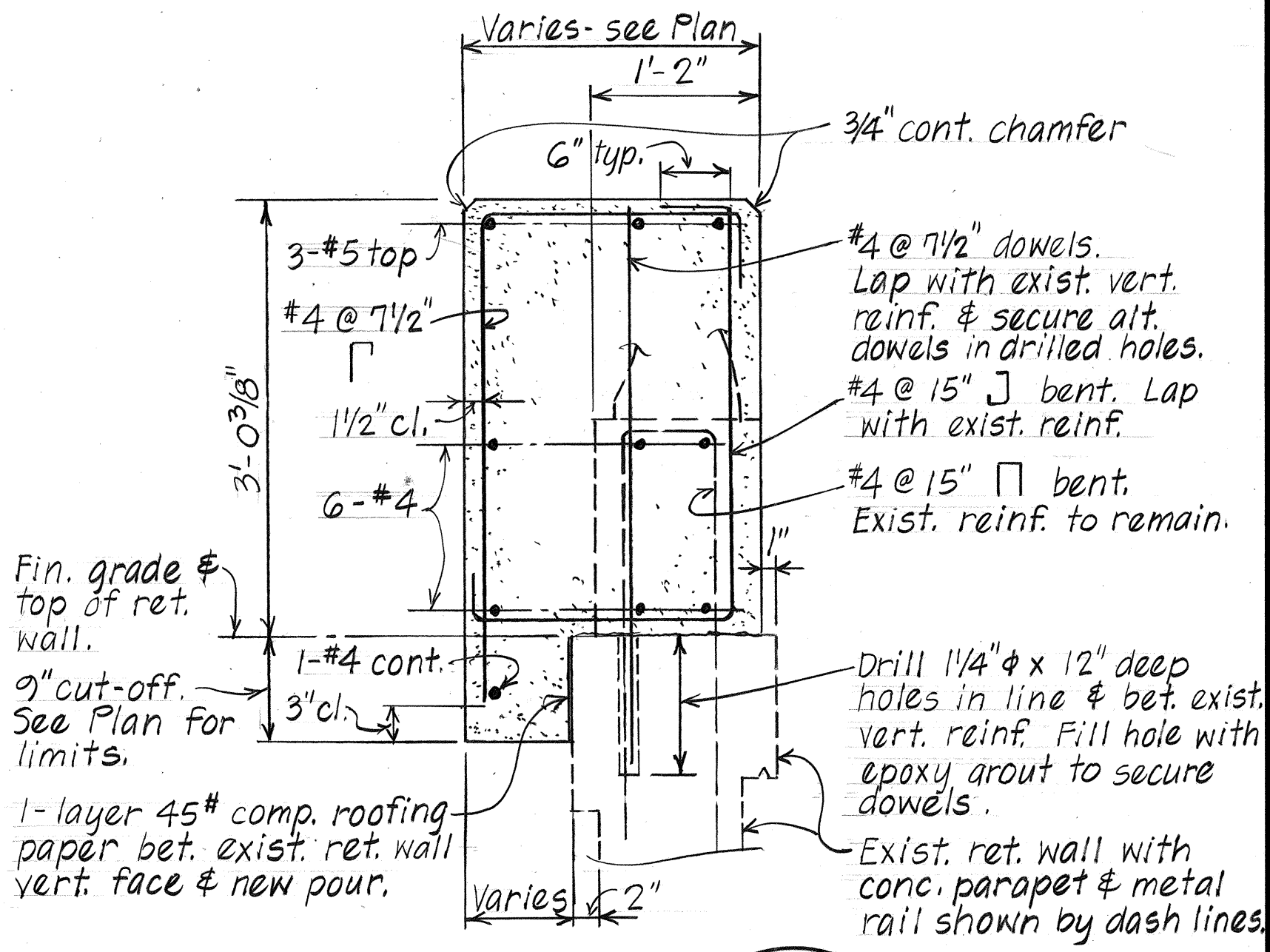
NOTE:

- Where guard rail post occurs on exist. ramp, remove approx. 1 concentric sq. ft. of ramp concrete and refinish with A.C. to match exist. grade after installation of post. (Incidental to Type 3TG guardrail)



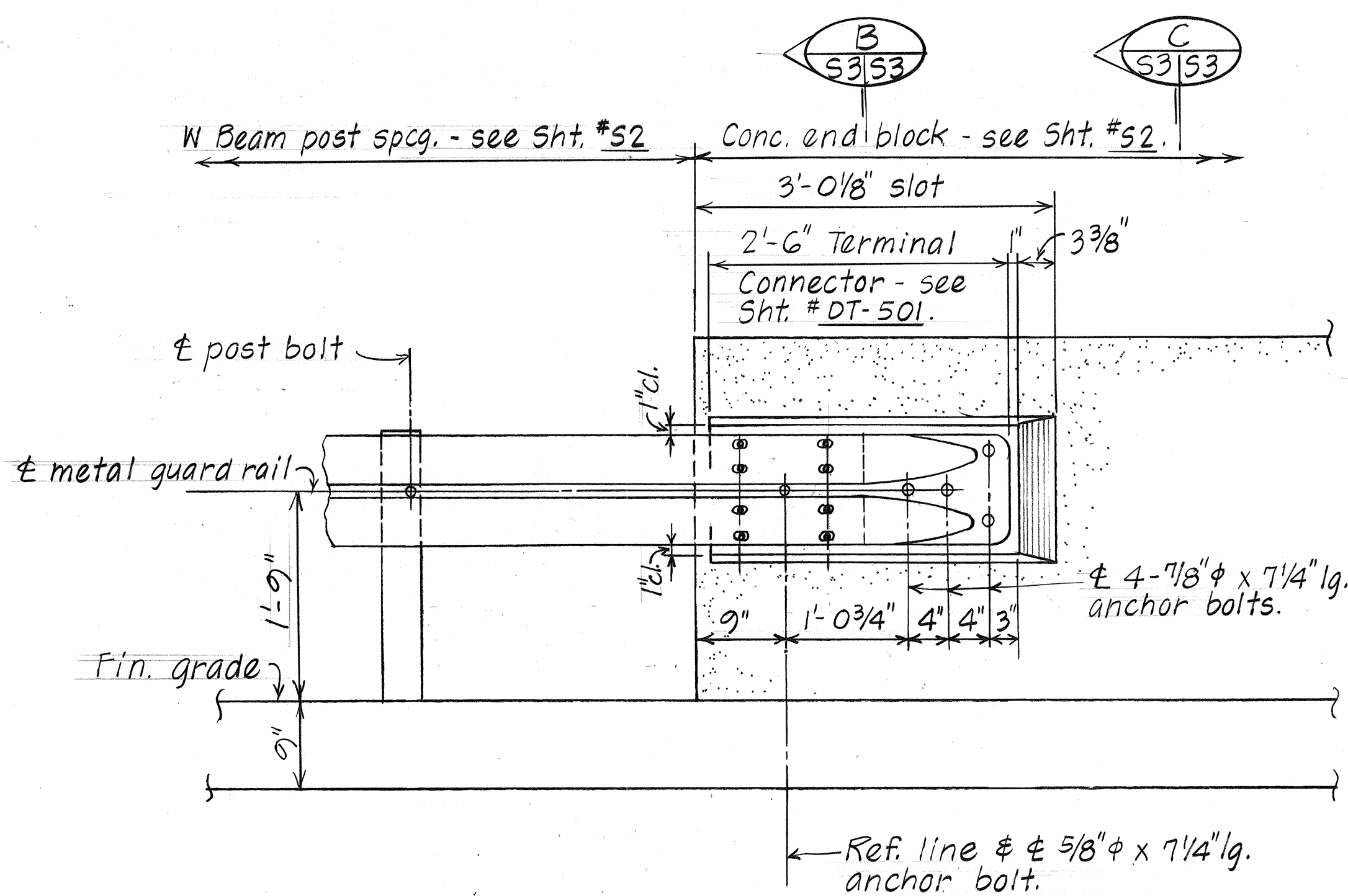
SECTION B 53/53

Scale: 1" = 1'-0"



SECTION C 53/53

Scale: 1" = 1'-0"



DETAIL X 52/53

Scale: 1" = 1'-0"

ORIGINAL PLAN	DATE	DESIGNED BY	CHECKED BY
PLAN	MAY 85	LA, T.S.	LA, T.S.
NOTE BOOK			
No.			

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

THREE BEAM RETROFIT
PALAMA SEPARATION
INTERSTATE ROUTE H-1 RESURFACING
KALIHI I.C. TO QUEEN EMMA SEPARATION
F.A.P. NO. 1R-HI-1(198)

Scale: As Shown Date: May 1985

SHEET No. 53 OF 3 SHEETS