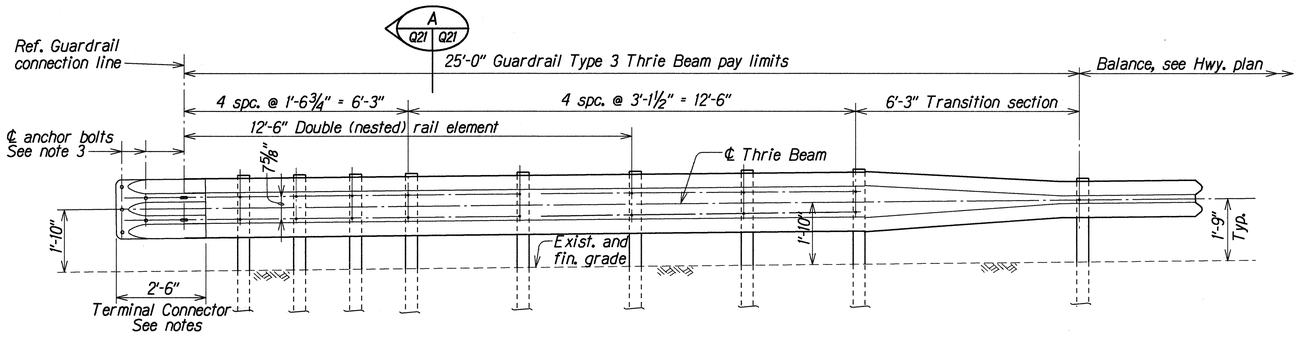
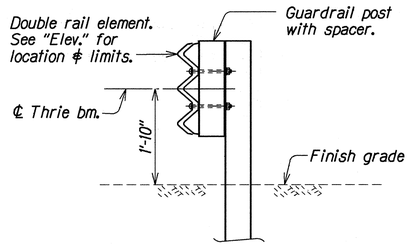


ELEVATION

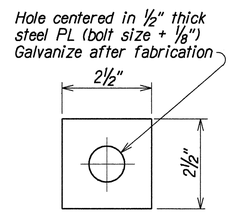
TYPICAL TYPE 3 THRIE BEAM METAL GUARDRAIL UPGRADE

Scale: ½"=1'-0"



SECTION A Q21 Q21

Scale: ¾"=1'-0"



CAP PLATE DETAIL

Scale: 6" = 1'-0"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0900(53)	2000	61	73

NOTES:

1. The work necessary to connect guardrail to concrete end post or metal spacer block shall include all labor, materials, tools, equipment and incidentals necessary to complete the work and shall be incidental to Item No. 606.3112, Guardrail Type 3 Thrie Beam Transition to End Post or Jersey Barrier and will not be paid for separately.
2. Terminal connector, guardrail post, spacer block, transition section and all other associated hardware will not be paid for separately and shall be considered incidental to Item No. 606.3112 - Guardrail Type 3 Thrie Beam Transition to End Post or Median Barrier.
3. See "General Notes" on Sht. Q1 for additional jersey barrier, guardrail and drilling information.
4. All anchor bolts shall be high strength bolts conforming to the requirements of AASHTO M 164. See Special Provisions.
5. Anchor bolt length shall be such that a snug fit of the elements and full thread engagement plus ¼" (max) is attained.
6. Terminal connector, Thrie Beam Metal Guardrail and Transition Section shall be fabricated from 10 gauge steel conforming to the requirements of AASHTO M 180 and shall be hot-dip galvanized after fabrication. See Special Provisions.
7. Guardrail posts, spacer blocks, "terminal connectors" and all anchor bolts, cap PL, bolts, nuts, and washers shall be hot-dip galvanized after fabrication.
8. Cap PL shall be fabricated from ASTM A 36.
9. First 25'-0" of guardrail adjoining "Terminal Connector" shall be galvanized steel and supports spaced as shown on the detail drawings. This section of rail shall be placed on tangent to end post or parallel to roadway, unless conditions at site renders it impossible to do so. Flare point to be determined in field.
10. Double (nest 1st panel) thrie beam elements at all end post connections.
11. Where double (nested) beam occur, 12" "Back-up Plate" not required.
12. Heads of through anchor bolts shall be placed on the traffic side of the rail.
13. Drilling of through holes shall be done in such a manner as to prevent cone puncturing of the daylighting end.

ORIGINAL PLAN			
NOTE BOOK		SURVEY PLOTTED BY	DATE
Hhon/Hhotbq21		DRAFN BY	LMA
No.		TRACED BY	
		DESIGNED BY	JW
		QUANTITIES BY	JW
		CHECKED BY	DCO

MAY 1999
MAY 1999
MAY 1999
MAY 1999

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL TYPE 3 METAL GUARDRAIL

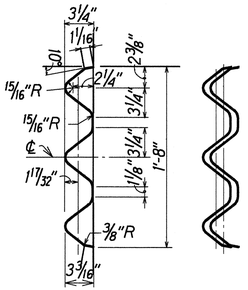
METAL GUARDRAIL TYPE 3 THRIE BEAM DETAILS

HONOAPIILANI HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS
High Street to Puamana
Federal Aid Project No. STP-0900(53)

Scale: As Noted Date: May 1999

SHEET No. Q21 OF 22 SHEETS

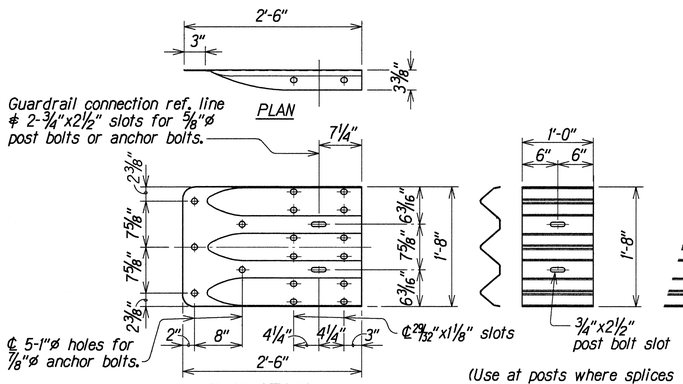
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0900(53)	2000	62	73



SINGLE DOUBLE

SECTION THRU RAIL ELEMENT

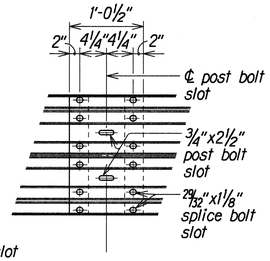
Scale: 1½" = 1'-0"



ELEVATION

TERMINAL CONNECTOR

Scale: 1" = 1'-0"



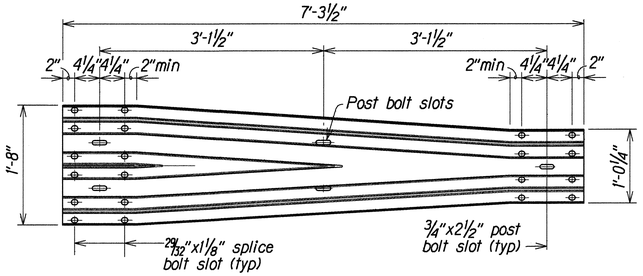
(Use at posts where splices do not occur.)

BACKUP PLATE

Scale: 1" = 1'-0"

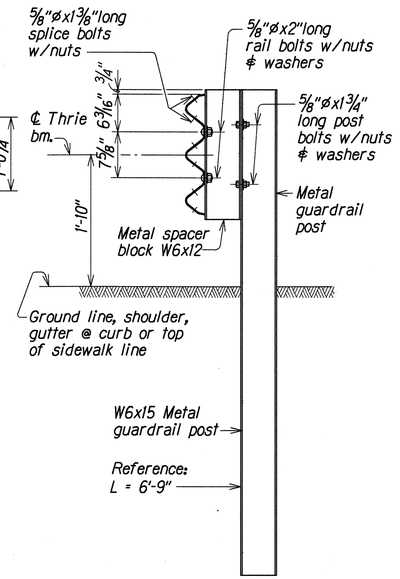
RAIL SPLICE

Scale: 1" = 1'-0"



TRANSITION SECTION

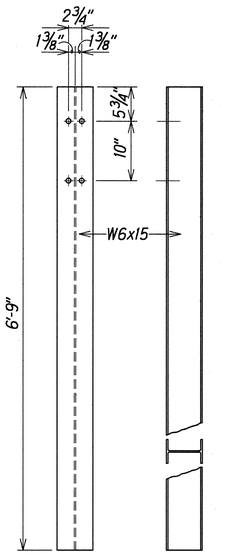
Scale: 1" = 1'-0"



TYPICAL SECTION

METAL GUARDRAIL ON METAL POST WITH METAL SPACER BLOCK

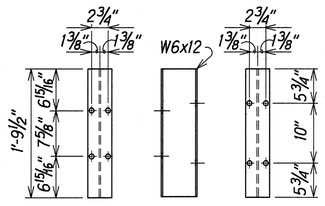
Scale: 1" = 1'-0"



FRONT SIDE

POST DETAILS

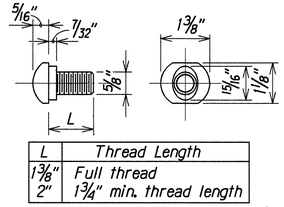
Scale: 1" = 1'-0"



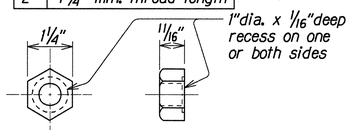
FRONT SIDE REAR

SPACER BLOCK DETAILS

Scale: 1" = 1'-0"



L	Thread Length
1⅜"	Full thread
2"	1¾" min. thread length

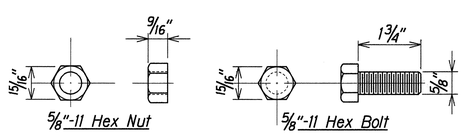


5/8"ø BUTTON HEAD BOLT ℄ RECESS NUT

Scale: 6" = 1'-0"

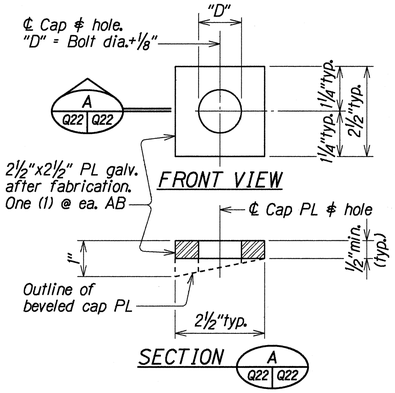
STEEL WASHER FOR 5/8"ø BOLT

Scale: 6" = 1'-0"



5/8"ø HEX BOLT ℄ NUT

Scale: 6" = 1'-0"



CAP (BEARING) PLATE DETAIL

Scale: 6" = 1'-0"

METAL GUARDRAIL TYPE 3 THRIE BEAM AND APPURTENANCES DETAILS

ORIGINAL PLAN	SURVEY PLOTTED BY	KSC	DATE	MAY 1999
	DRAWN BY			MAY 1999
NOTE BOOK	TRACED BY	ST		MAY 1999
No. (Not Used)	DESIGNED BY	ST		MAY 1999
	QUANTITIES BY	DOD		
	CHECKED BY			

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL TYPE 3 METAL GUARDRAIL

METAL GUARDRAIL TYPE 3 THRIE BEAM AND APPURTENANCES DETAILS

HONOAPIILANI HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS
High Street to Puamana
Federal Aid Project No. STP-0900(53)

Scale: As Noted Date: May 1999

SHEET No. Q22 OF 22 SHEETS