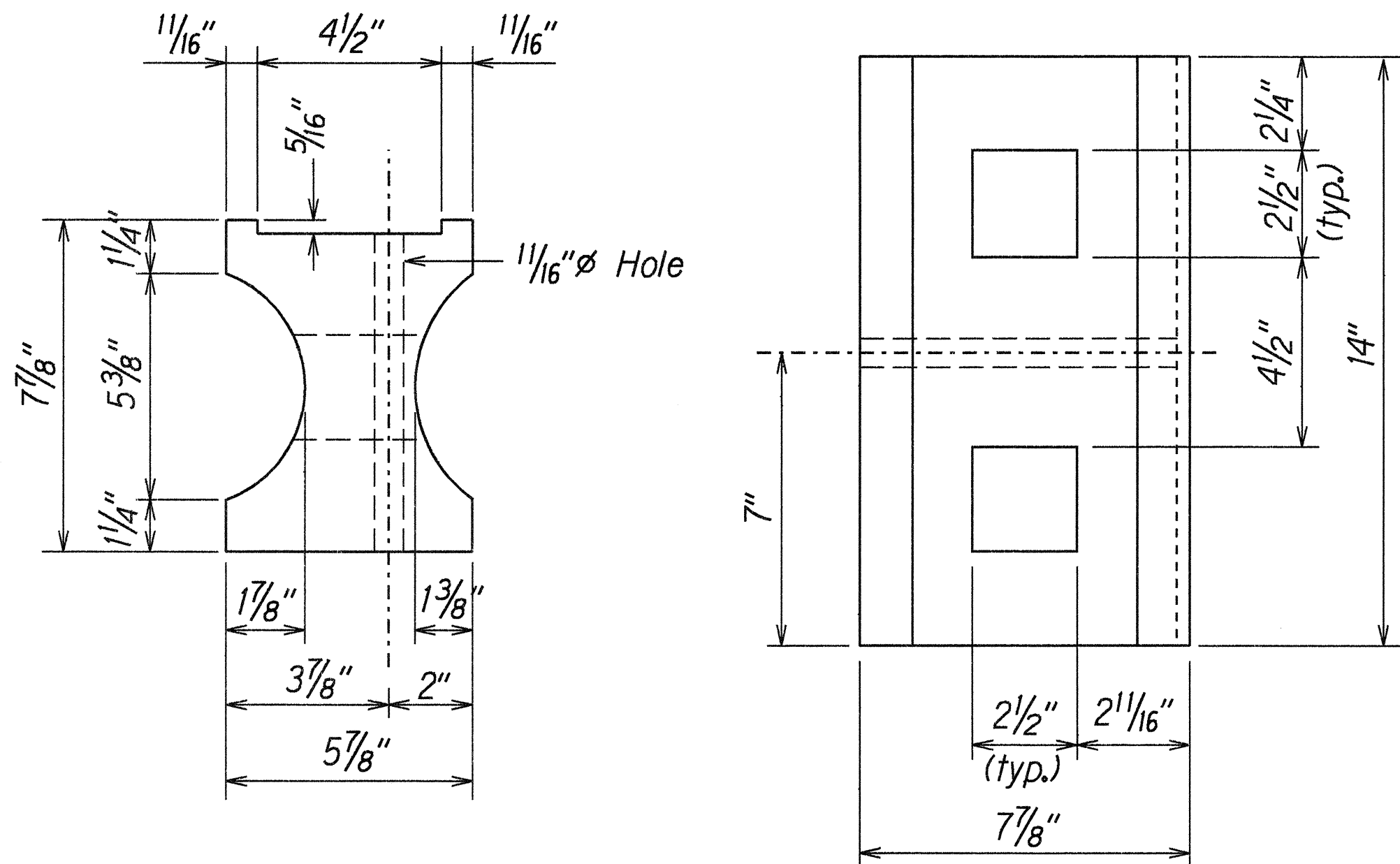


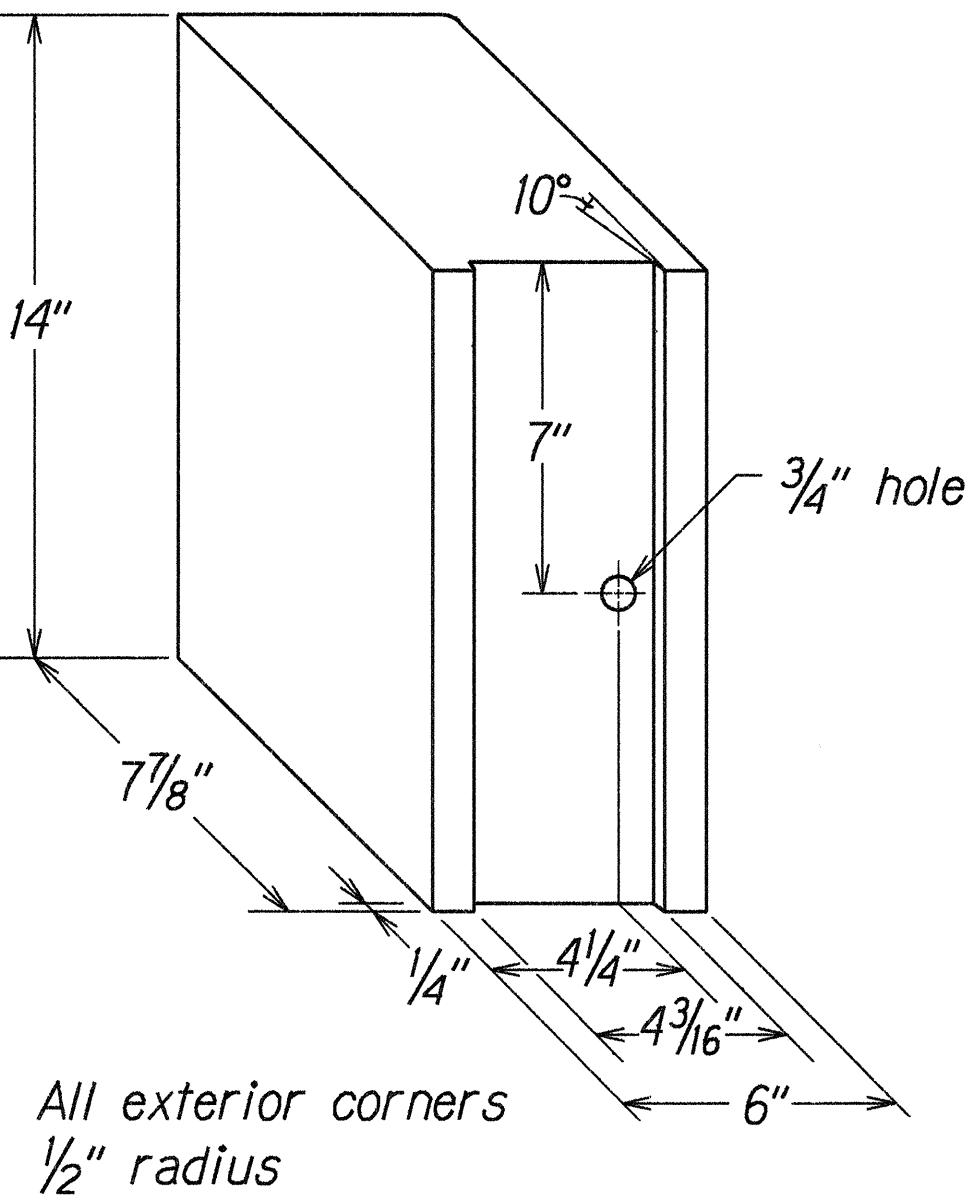
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19H-01-00M	2000	10	19

GENERAL NOTES

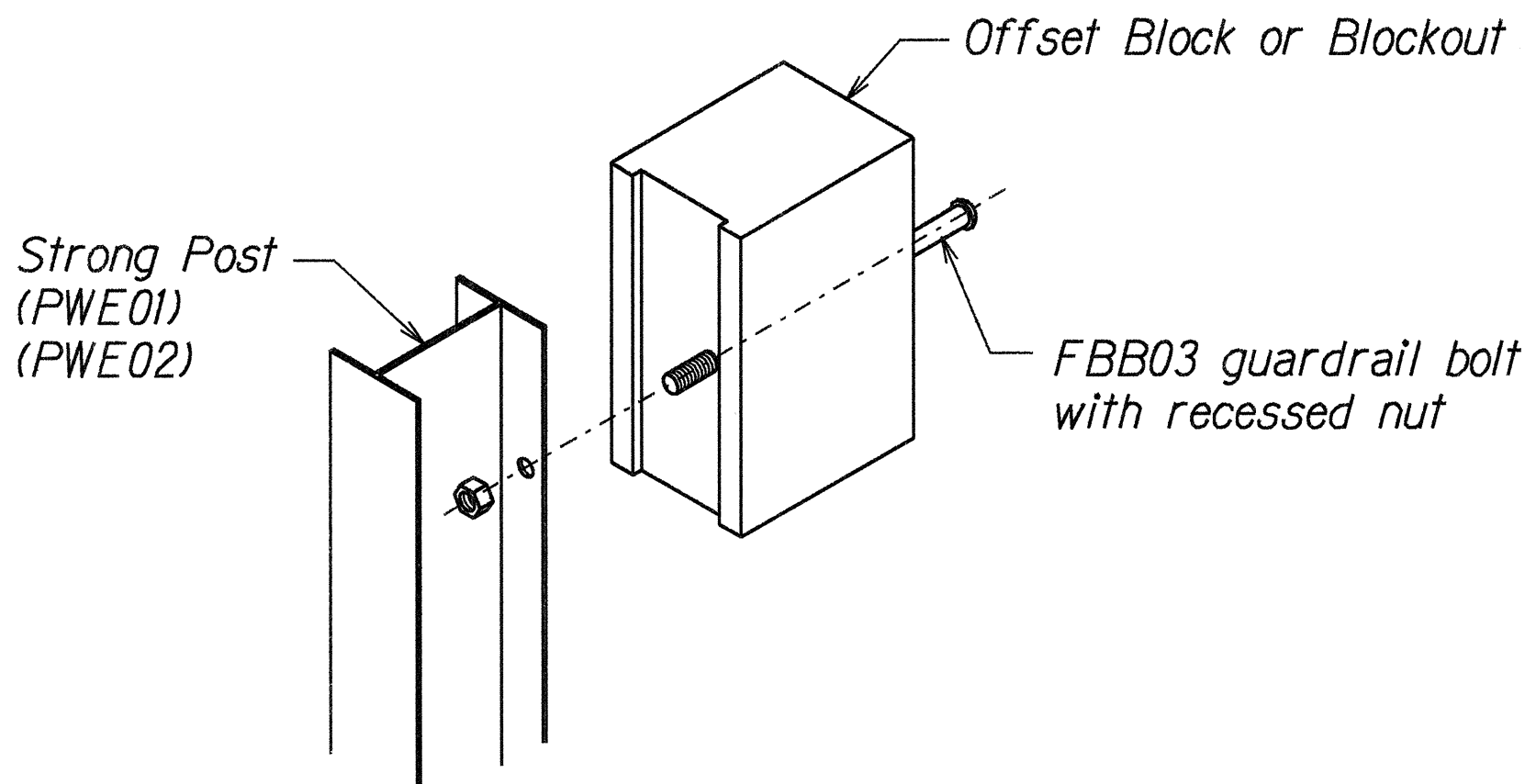
- All hardware, posts and fasteners shall be hot-dip zinc coated galvanized after fabrication. No punching, drilling or cutting will be permitted after galvanizing.
- Where conditions require, special post lengths in increments of 6 inches may be specified.
- All fasteners, posts, and rail elements (i.e. FBB03, PWE01, RWM02b, etc.) 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, Subcommittee On New Highway Materials, Task Force 13 Report. Dimensions of fastners, posts and rail elements have been converted from metric units into their present form.
- The Recycled Plastic Block or Offset Block shall be approved by the State.
- After the guardrail posts are installed in the paved area, the Contractor shall grout around the guardrail post and seal all cracks in the paved area that was caused during the guardrail post installation. If required by the inspector/engineer, the Contractor shall tamper the paved area around the guardrail post prior to grouting. The cost for this work shall not be paid for separately, but shall be considered incidental to the various guardrail items.
- When standards for the fill slope area cannot be met, a site specific, engineer approved design may be used.



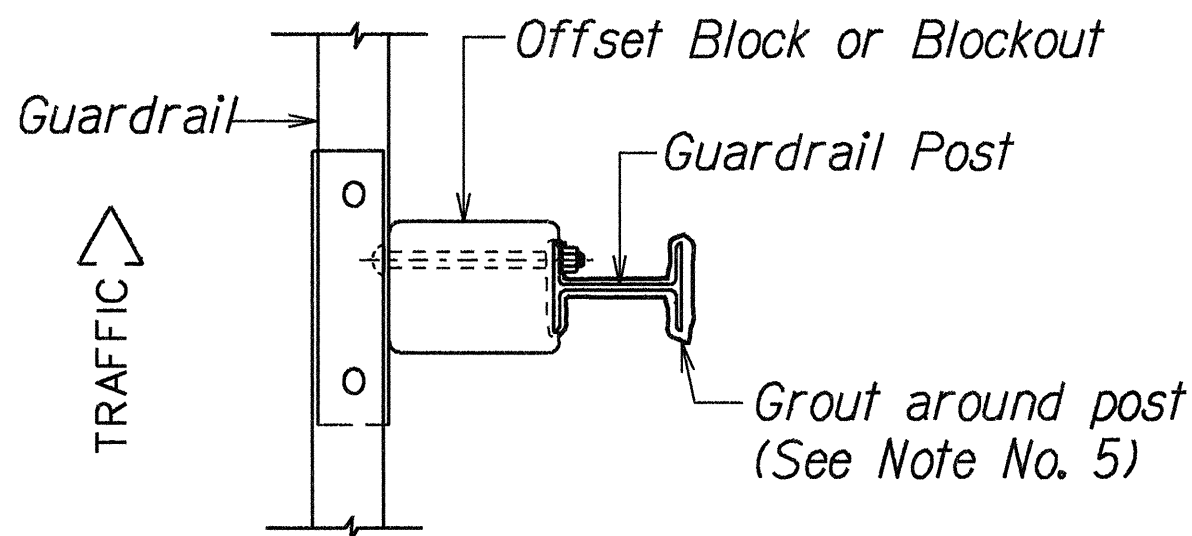
TOP  
SIDE  
RECYCLED PLASTIC BLOCKOUT (TYPE I)



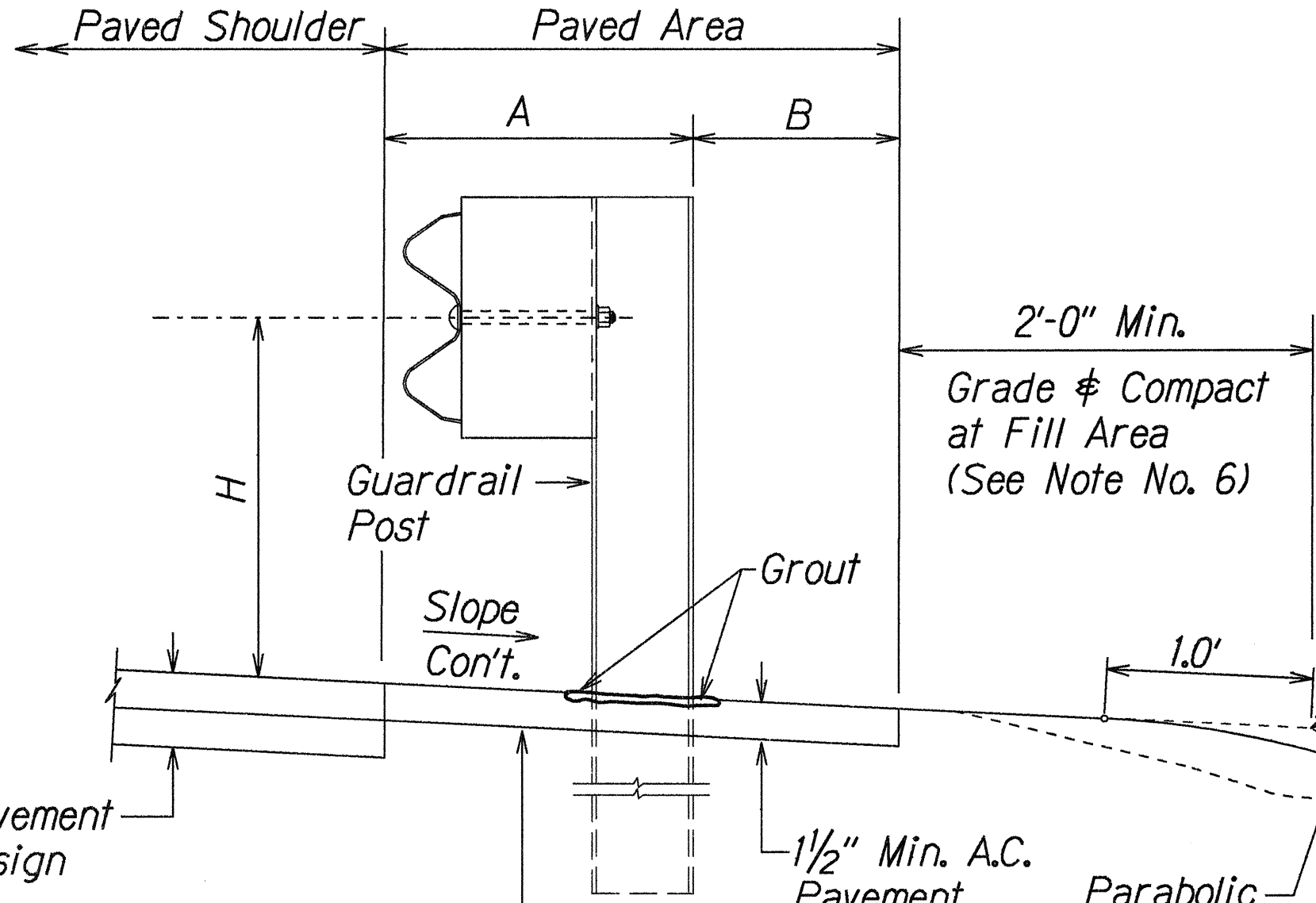
RECYCLED POLYETHYLENE  
OFFSET BLOCK (TYPE II)



Exploded View  
(Rail and washer not shown)  
STEEL POST AND BLOCK DETAIL



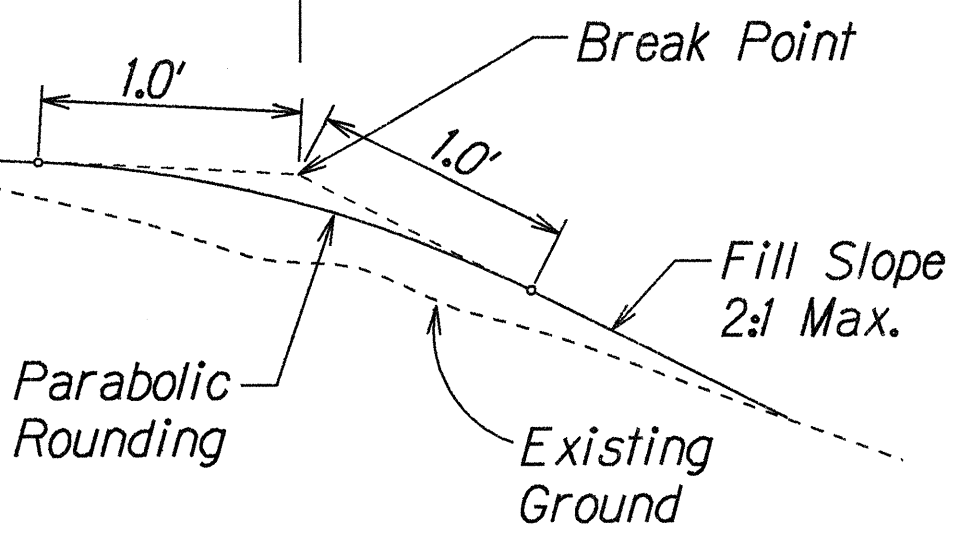
PLAN



GUARDRAIL TYPE	DIMENSION		
	H	A	B
Strong Post w/W Beam	1'-9 5/8"	1'-6"	1'-0"
Rubrail	2'-0"	1'-6"	2'-0"
Modified Thrie Beam	2'-0"	2'-0"	1'-0"

Prior to installing A. C. Mix. No. V, level & remove vegetation and compact existing ground to 95% compaction.

ELEVATION  
TYPICAL GUARDRAIL INSTALLATION



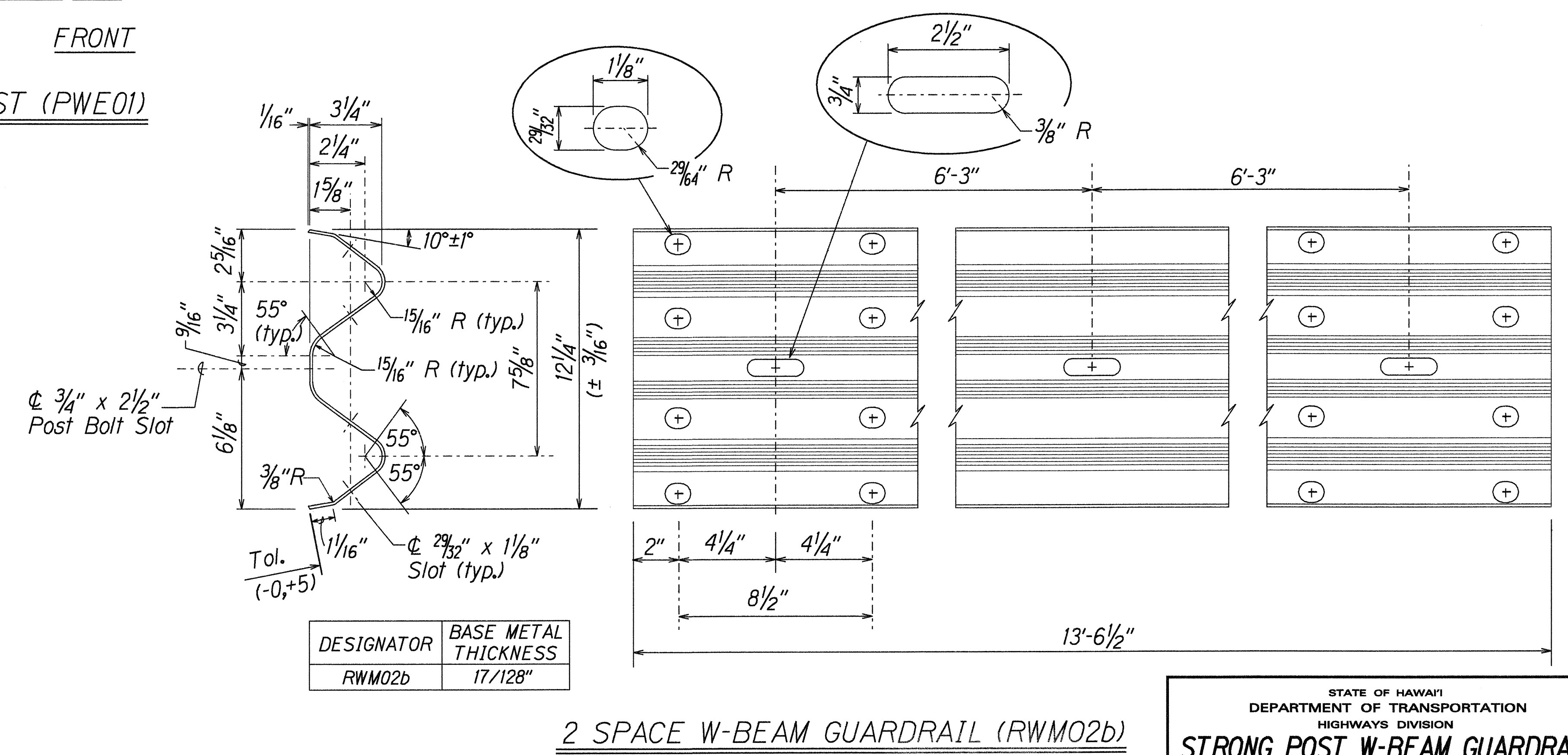
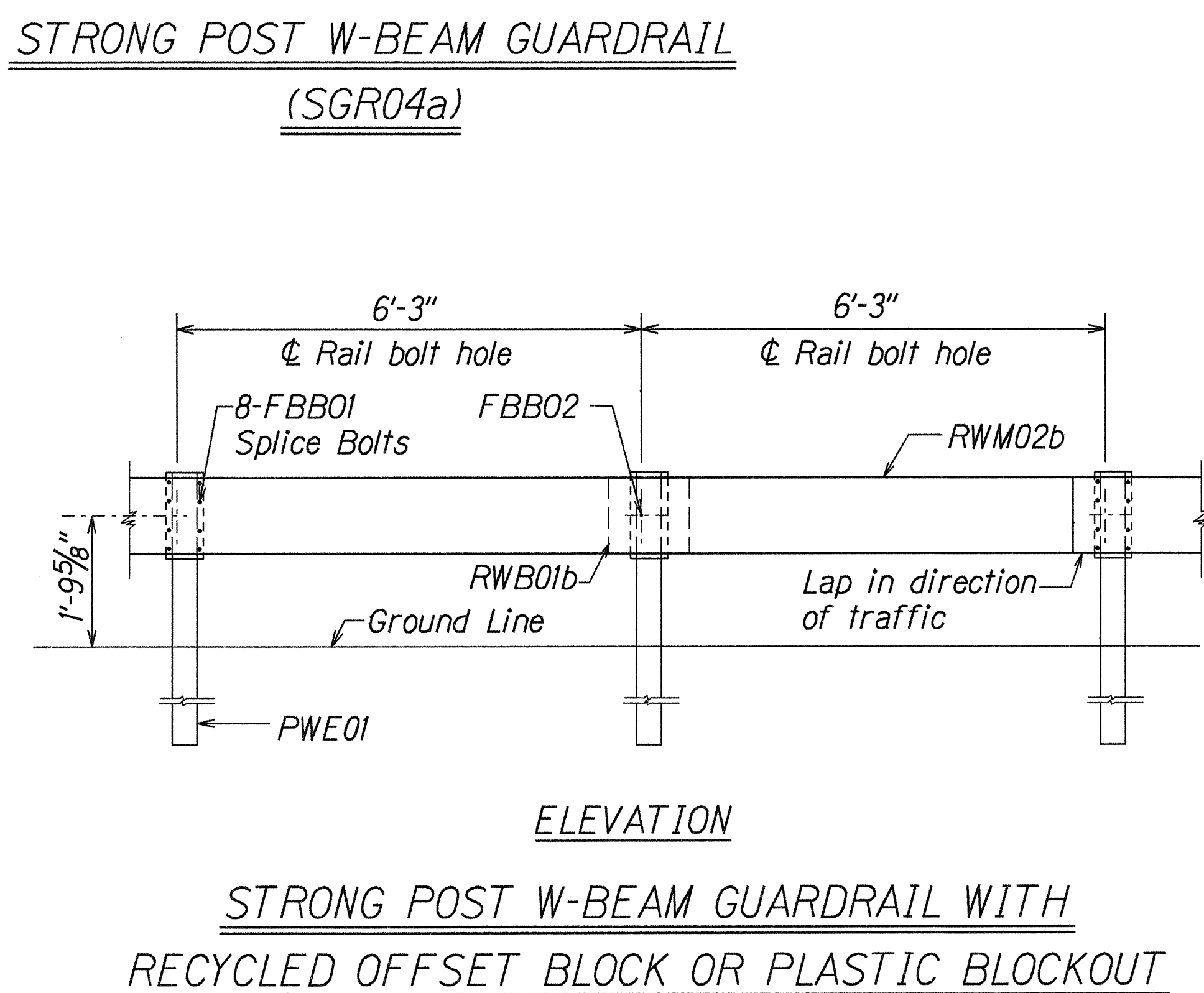
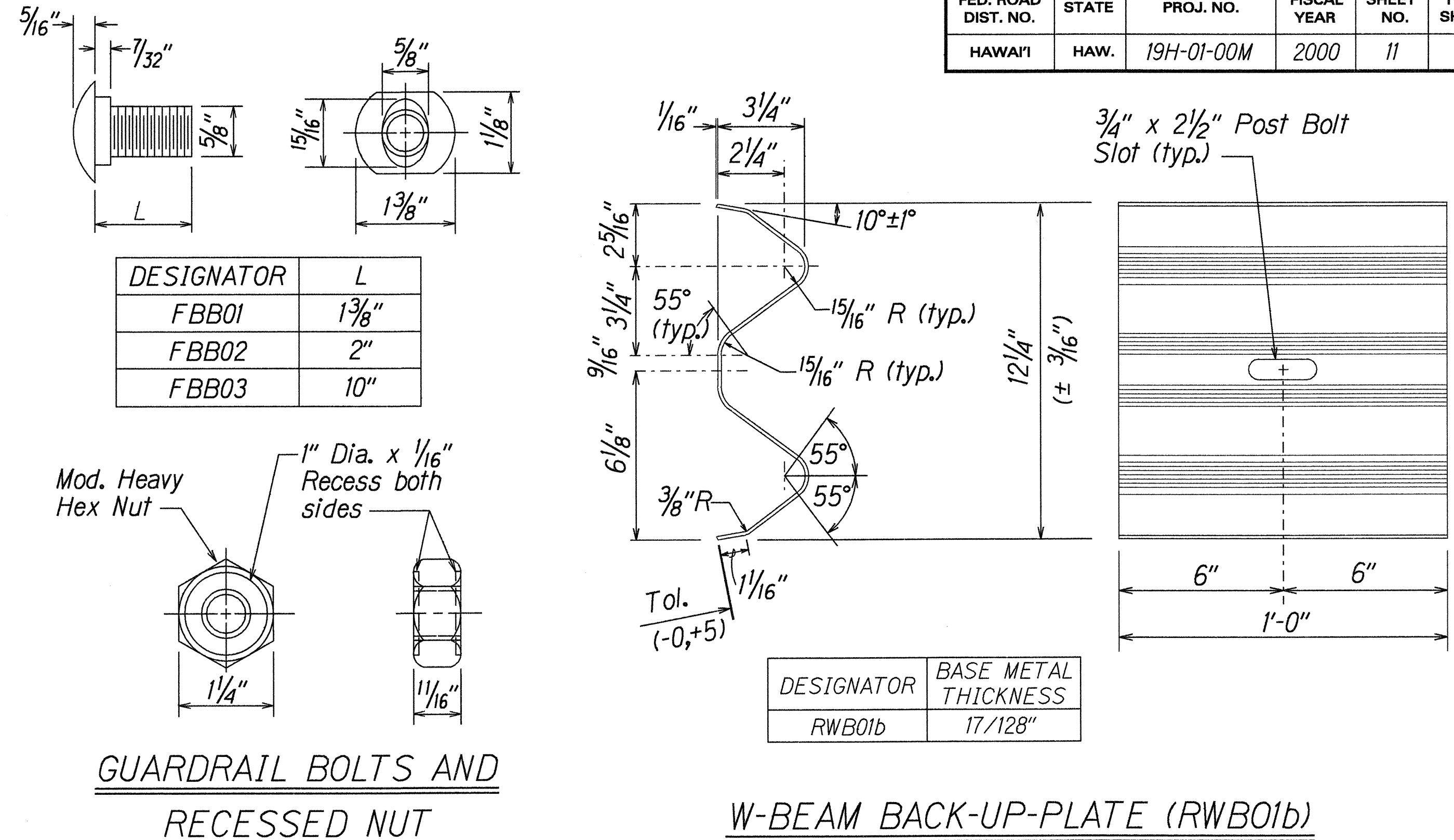
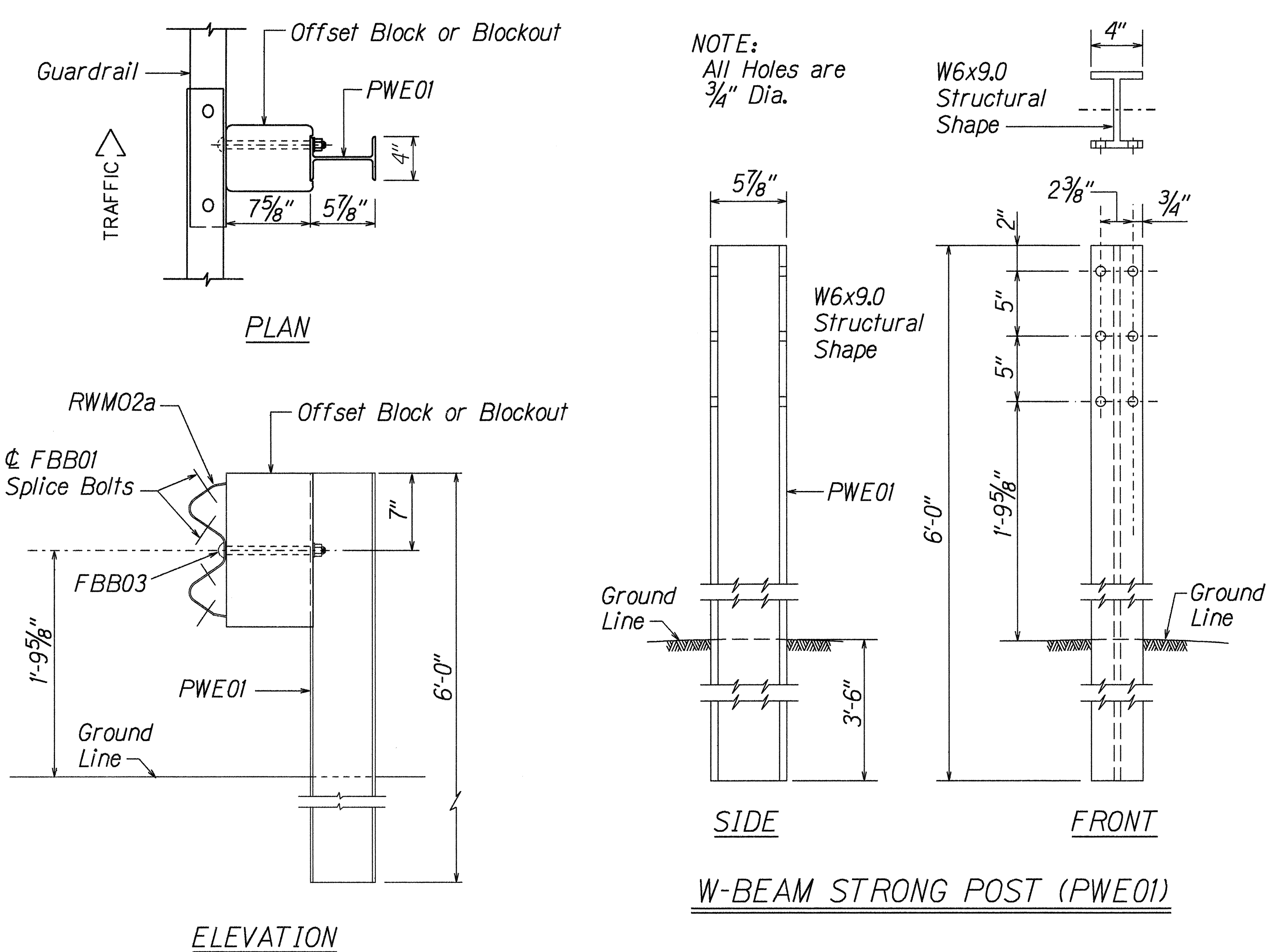
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**GUARDRAIL DETAILS & NOTES**  
  
HAWAII BELT ROAD  
EMERGENCY REALIGNMENT  
VICINITY OF OPEA STREAM  
PROJECT NO. 19H-01-00M  
Scale: Noted Date: March, 2000

SHEET No. 1 OF 5 SHEETS

ORIGINAL PLAN	DATE
SURVEY PLANNED BY	
DRAWN BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	
APPROVED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19H-01-00M	2000	11	19



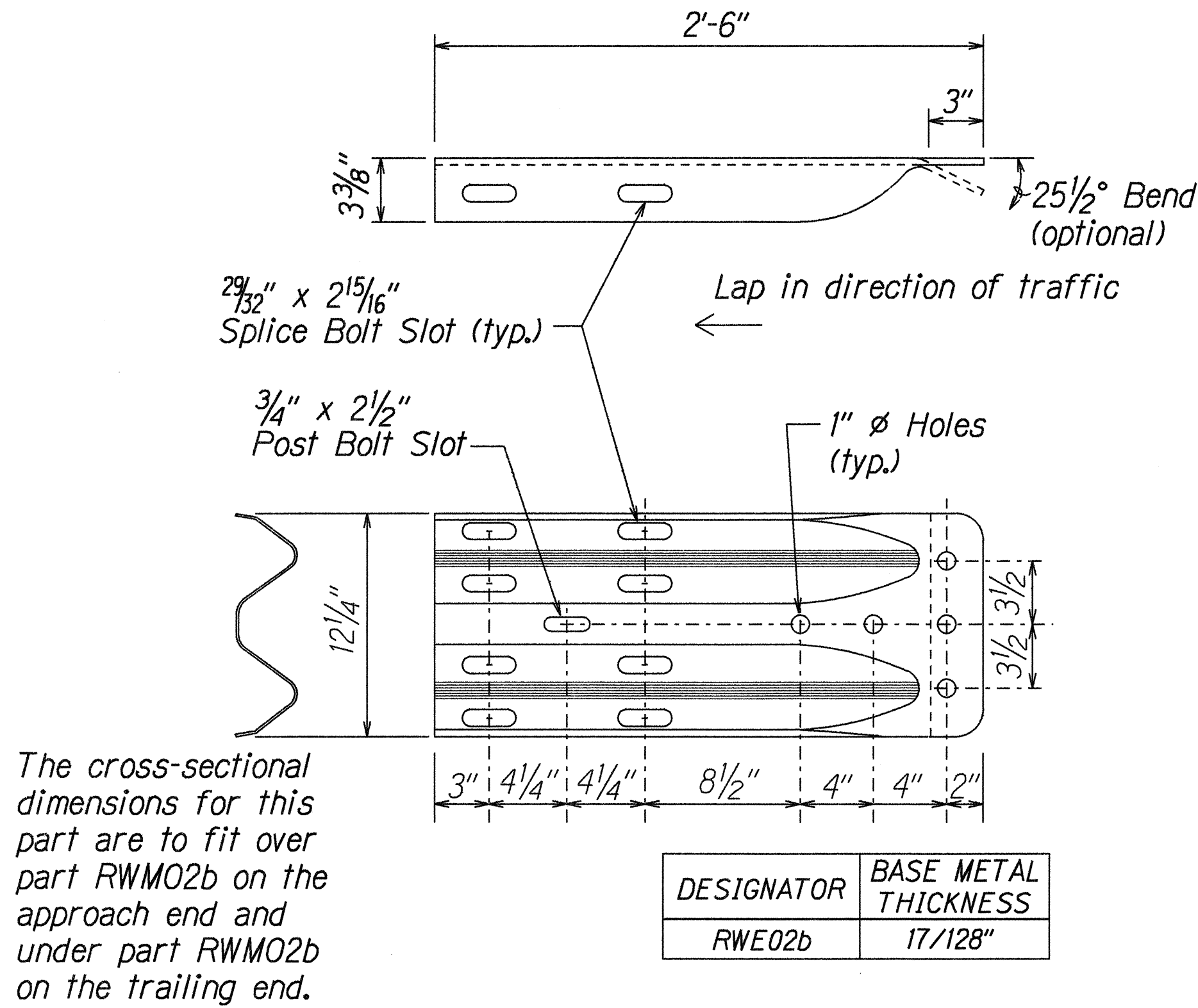
DATE	
DESIGNED BY	
CHECKED BY	
APPROVED BY	
PROJECT NO.	19H-01-00M
SHEET NO.	11

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

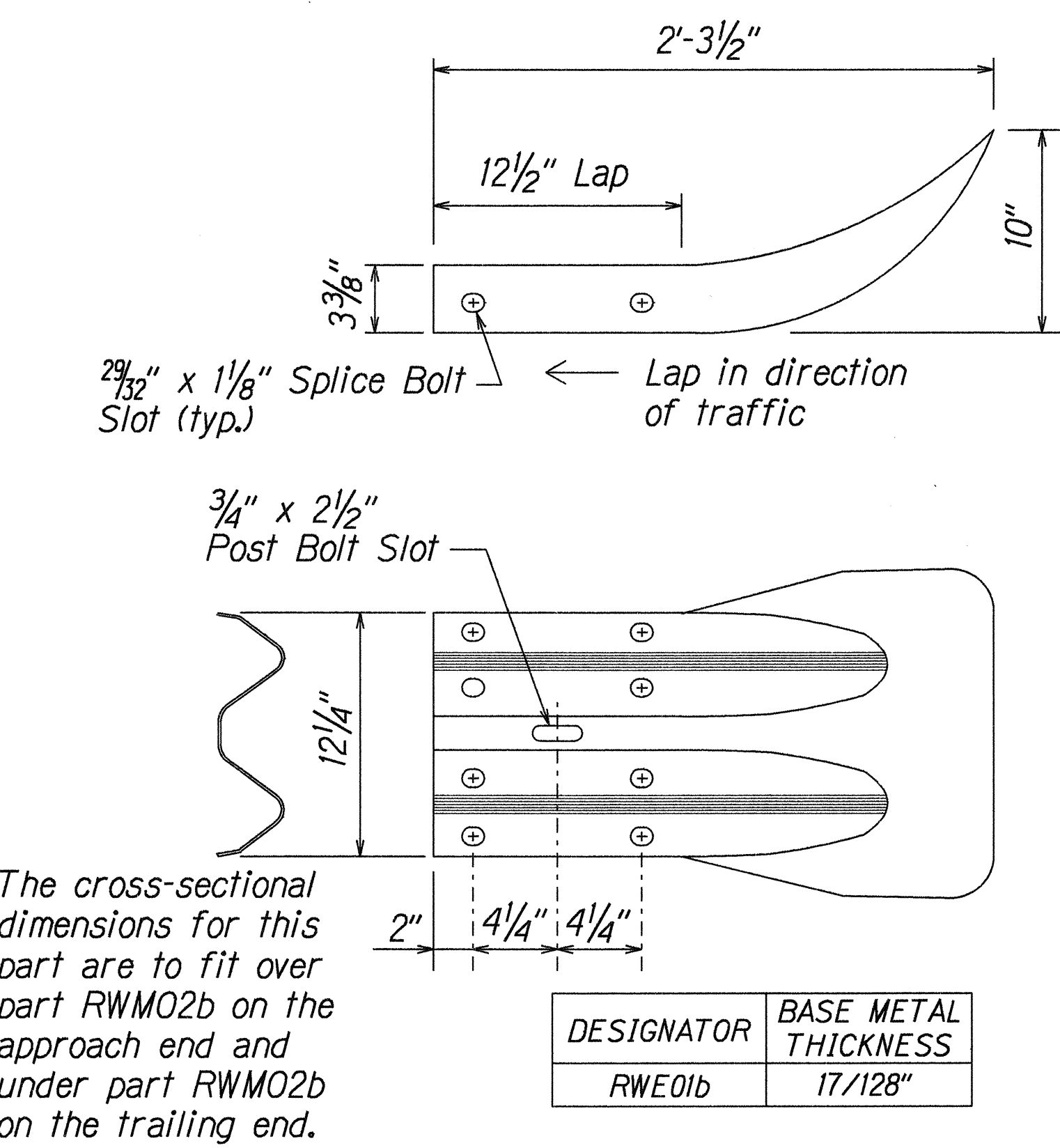
**STRONG POST W-BEAM GUARDRAIL**  
HAWAII BELT ROAD  
EMERGENCY REALIGNMENT  
VICINITY OF OPEA STREAM  
PROJECT NO. 19H-01-00M  
Scale: Noted Date: March, 2000



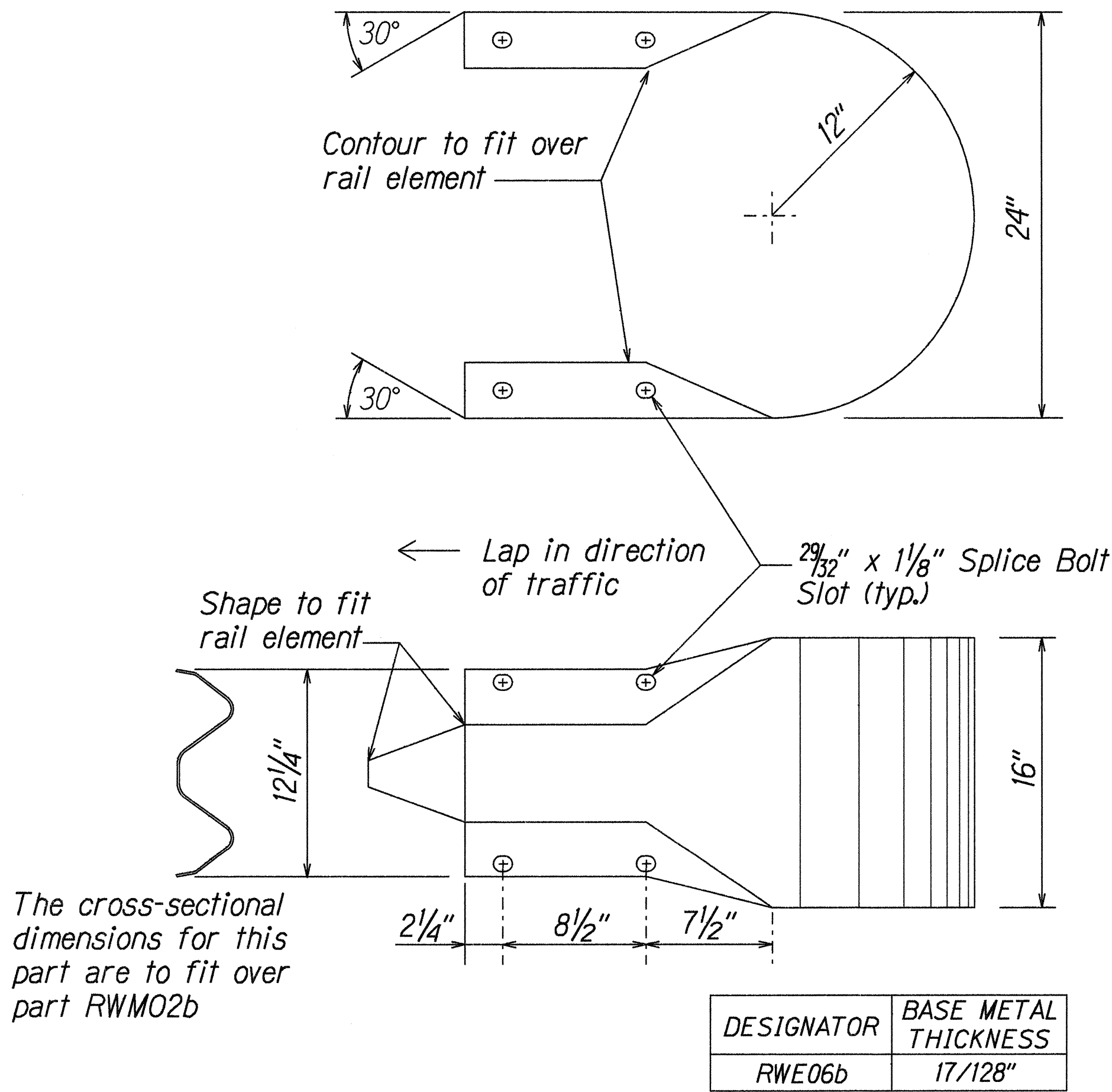
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HAWAII	HAW.	19H-01-00M	2000	12	19



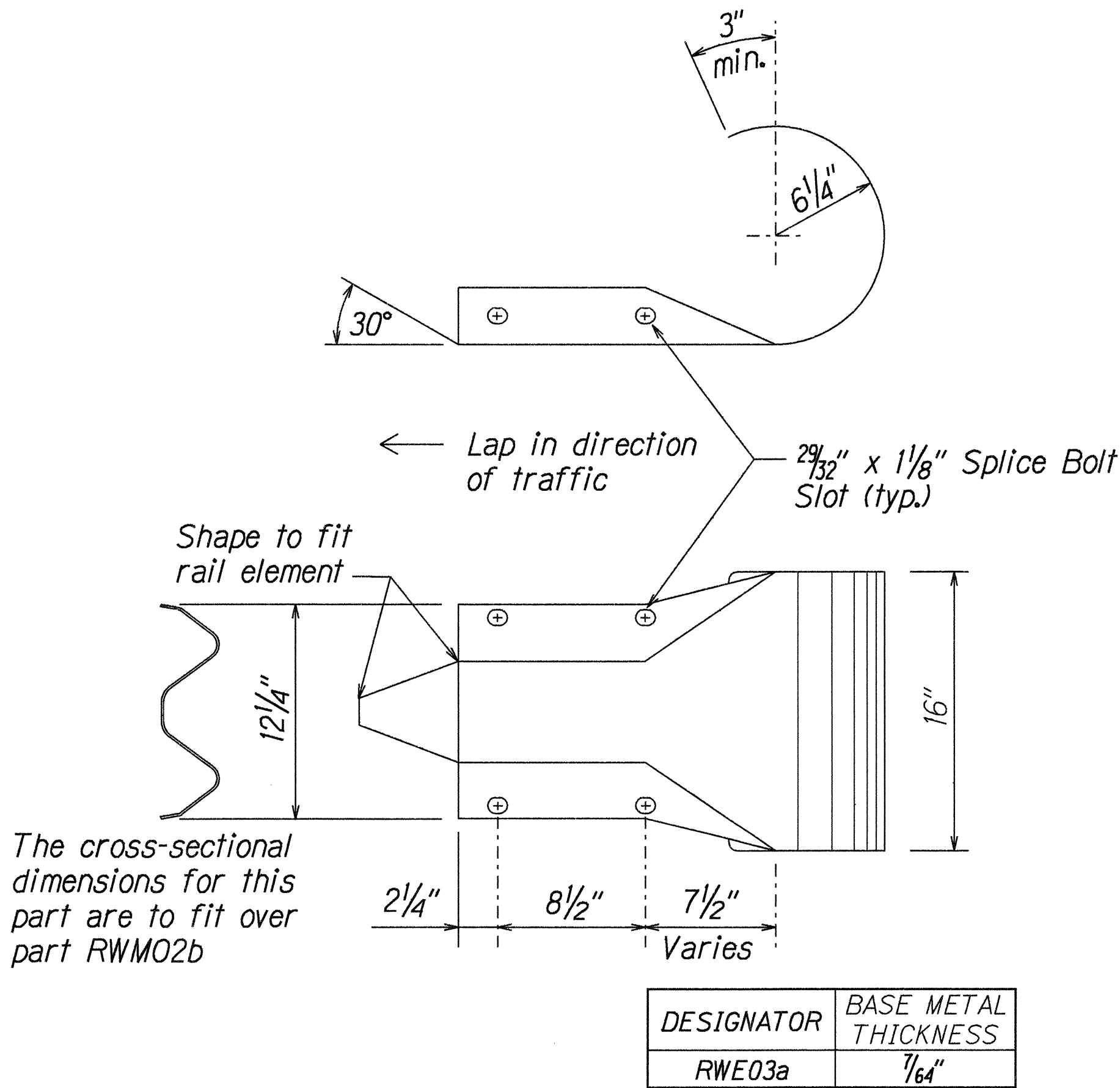
W-BEAM TERMINAL CONNECTOR (RWE02b)



W-BEAM END SECTION (FLARED RWE01b)



W-BEAM END SECTION (BUFFER RWE06b)



W-BEAM END SECTION (ROUNDED RWE03a)

ORIGINAL PLAN	DRAWN BY	DATE
	DESIGNED BY	
	CHECKED BY	
	APPROVED BY	

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

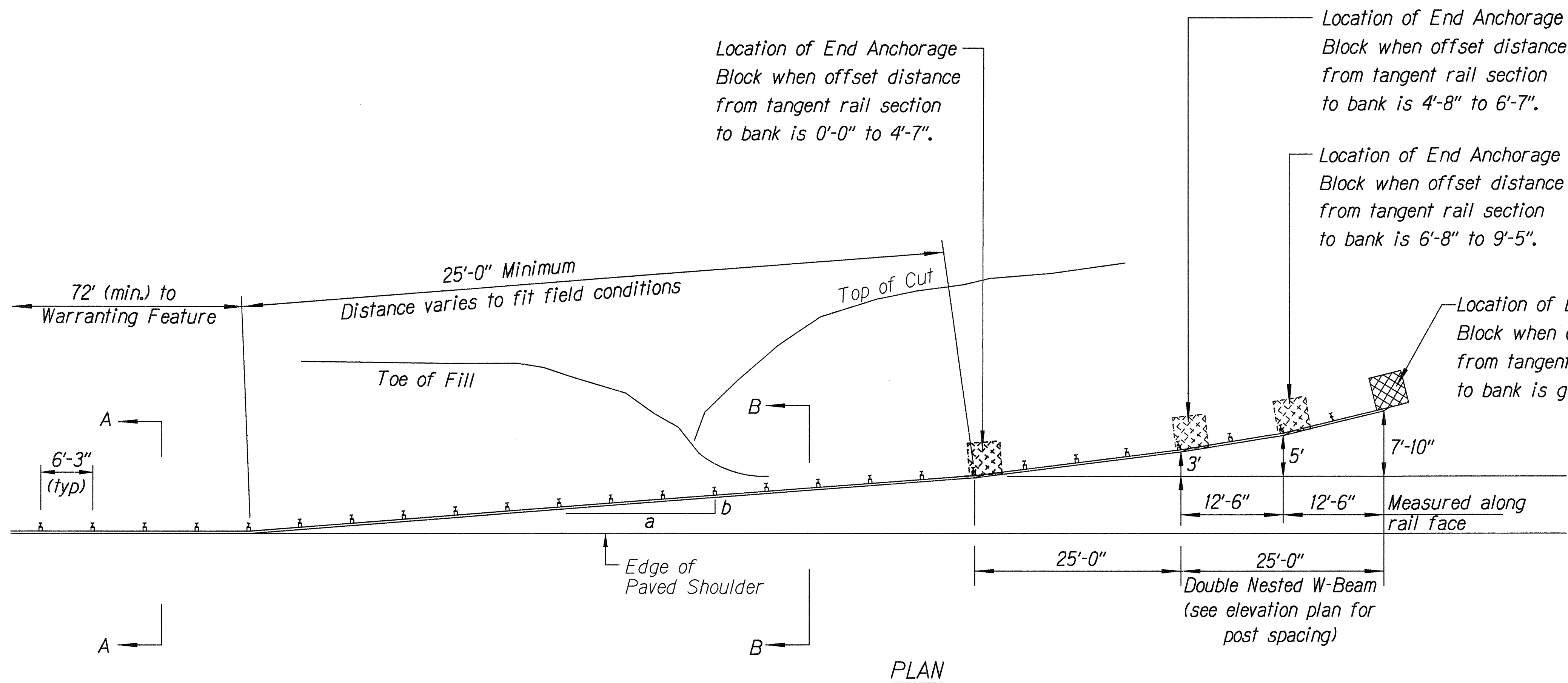
STRONG POST W-BEAM GUARDRAIL  
HAWAII BELT ROAD  
EMERGENCY REALIGNMENT  
VICINITY OF OPEA STREAM  
PROJECT NO. 19H-01-00M  
Scale: Noted Date: March, 2000

SHEET No. 3 OF 5 SHEETS

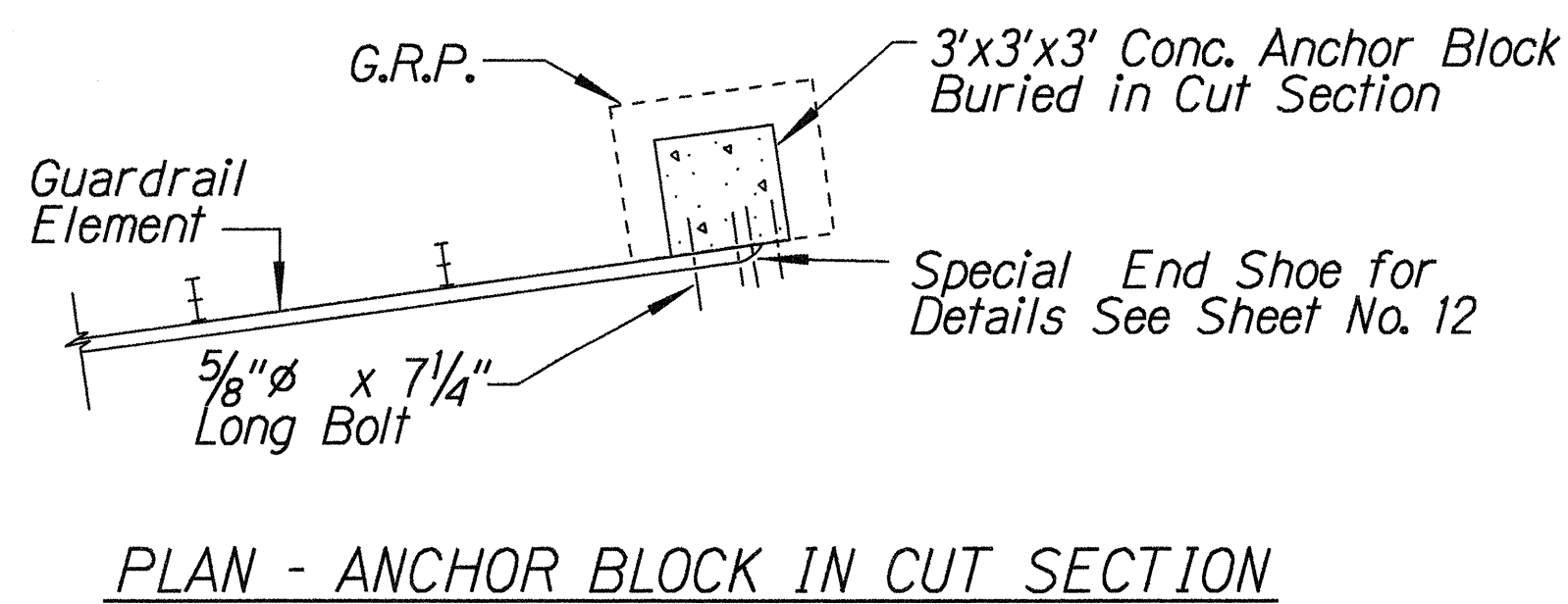
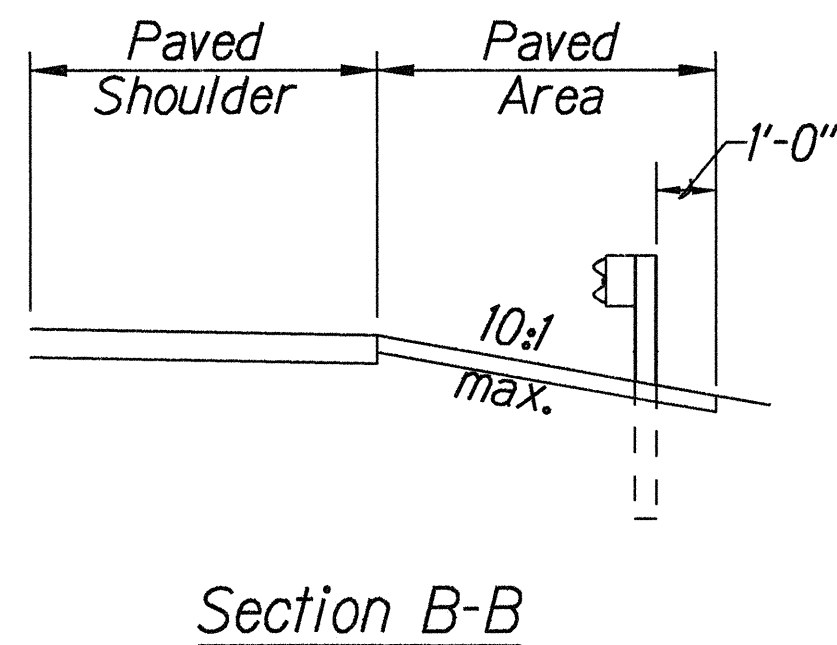
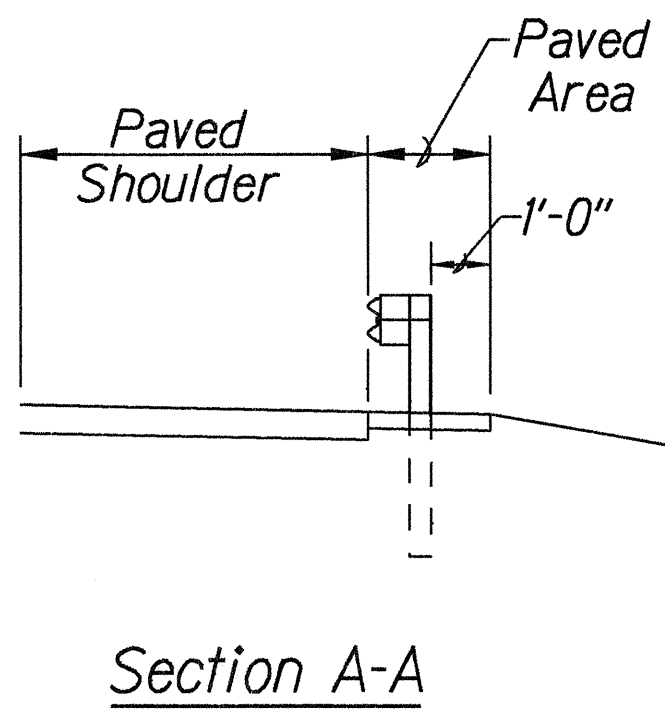
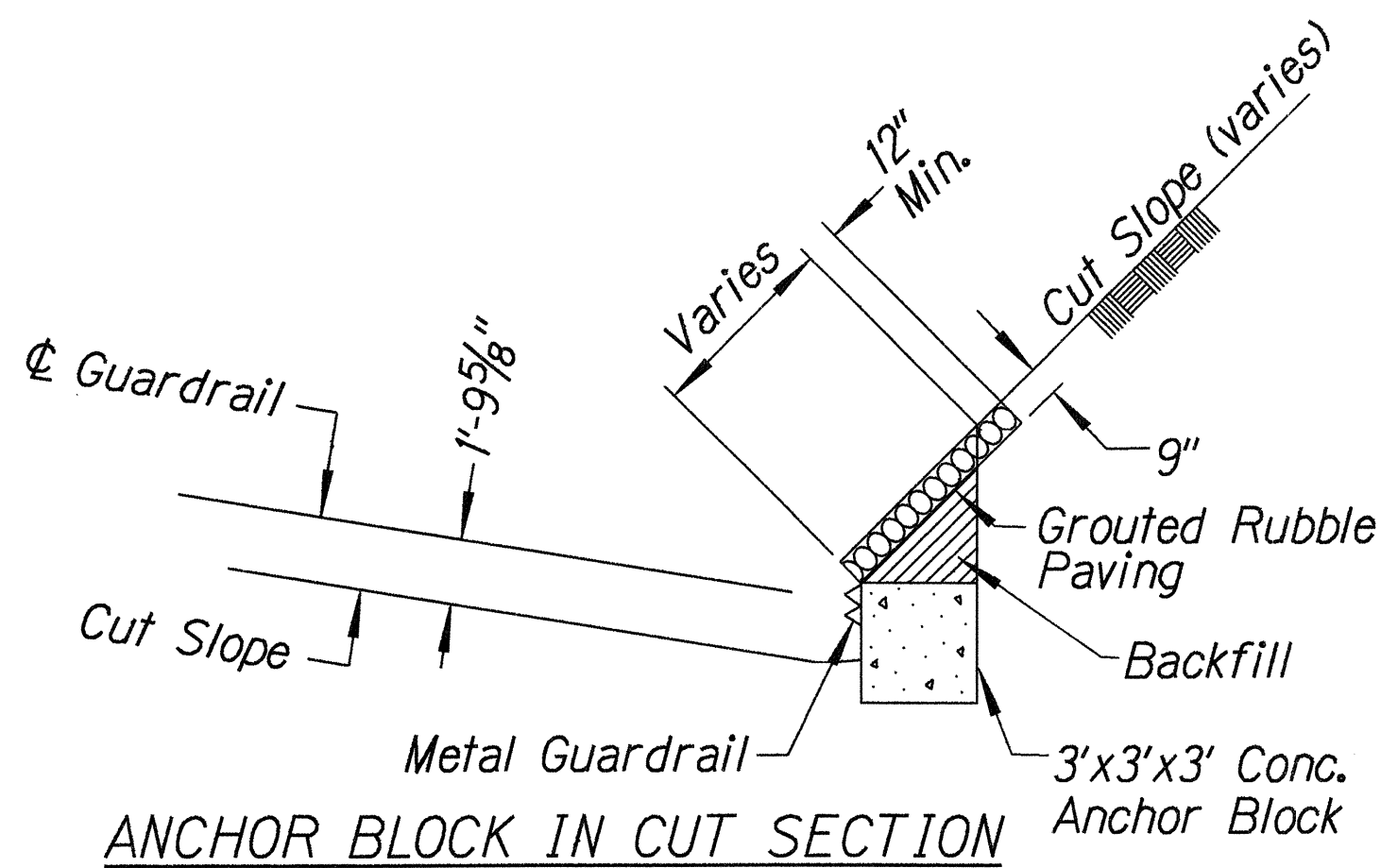
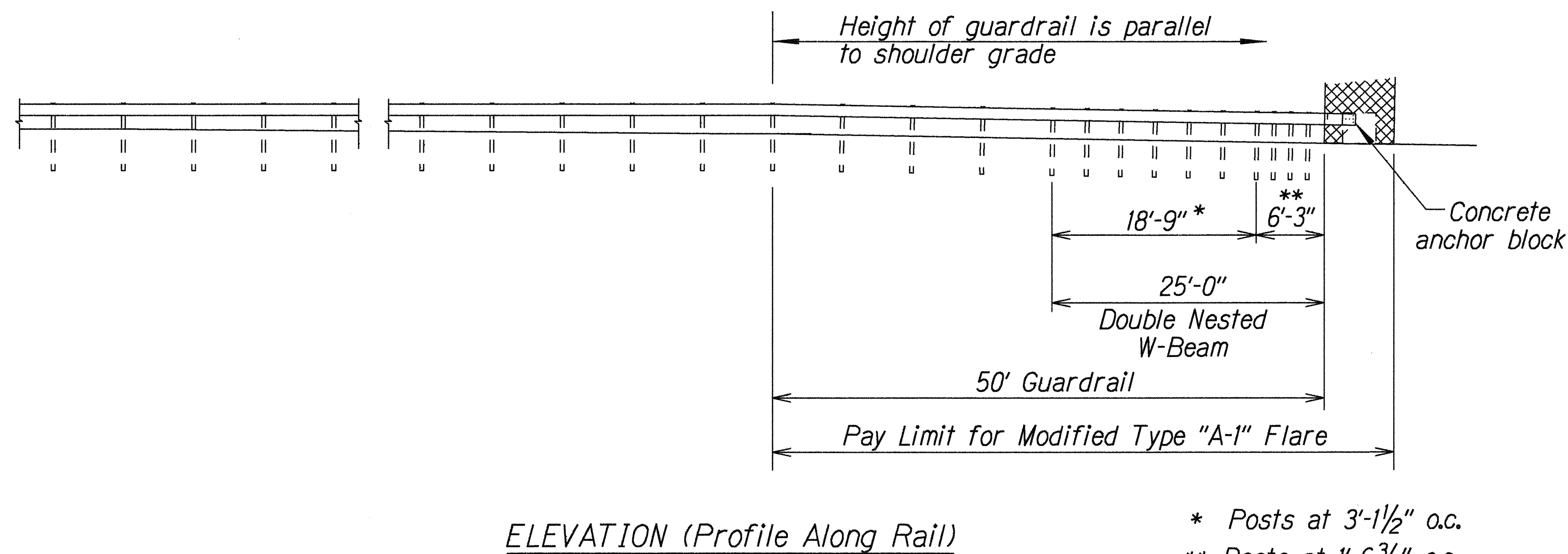
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19H-01-00M	2000	13	19

General Notes

1. All posts are 8'-0" in length within the 50'-0" pay limit for the Modified Type "A-1" Flare.
2. 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-AGCARTBA Joint Cooperative Committee.
3. Limit of payment for Modified Type "A-1" Flare shall be 50'-0" from End Shoe including Anchor Block and GRP work.
4. Excavation, Anchor Block, Backfill and GRP work shall be considered incidental to the Modified Type "A-1" Flare.



Design speed mph	a:b
68	15:1
62	13:1
56	12:1
50	11:1
43	10:1
37	9:1
31	7:1



STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

MODIFIED TYPE "A-1" FLARE

HAWAII BELT ROAD

EMERGENCY REALIGNMENT

VICINITY OF OPEA STREAM

PROJECT NO. 19H-01-00M

Scale: Noted

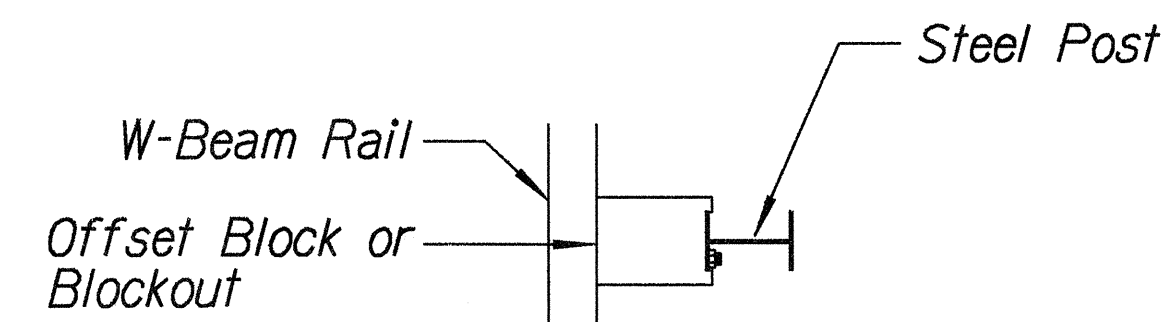
Date: March, 2000

SHEET No. 4 OF 5 SHEETS

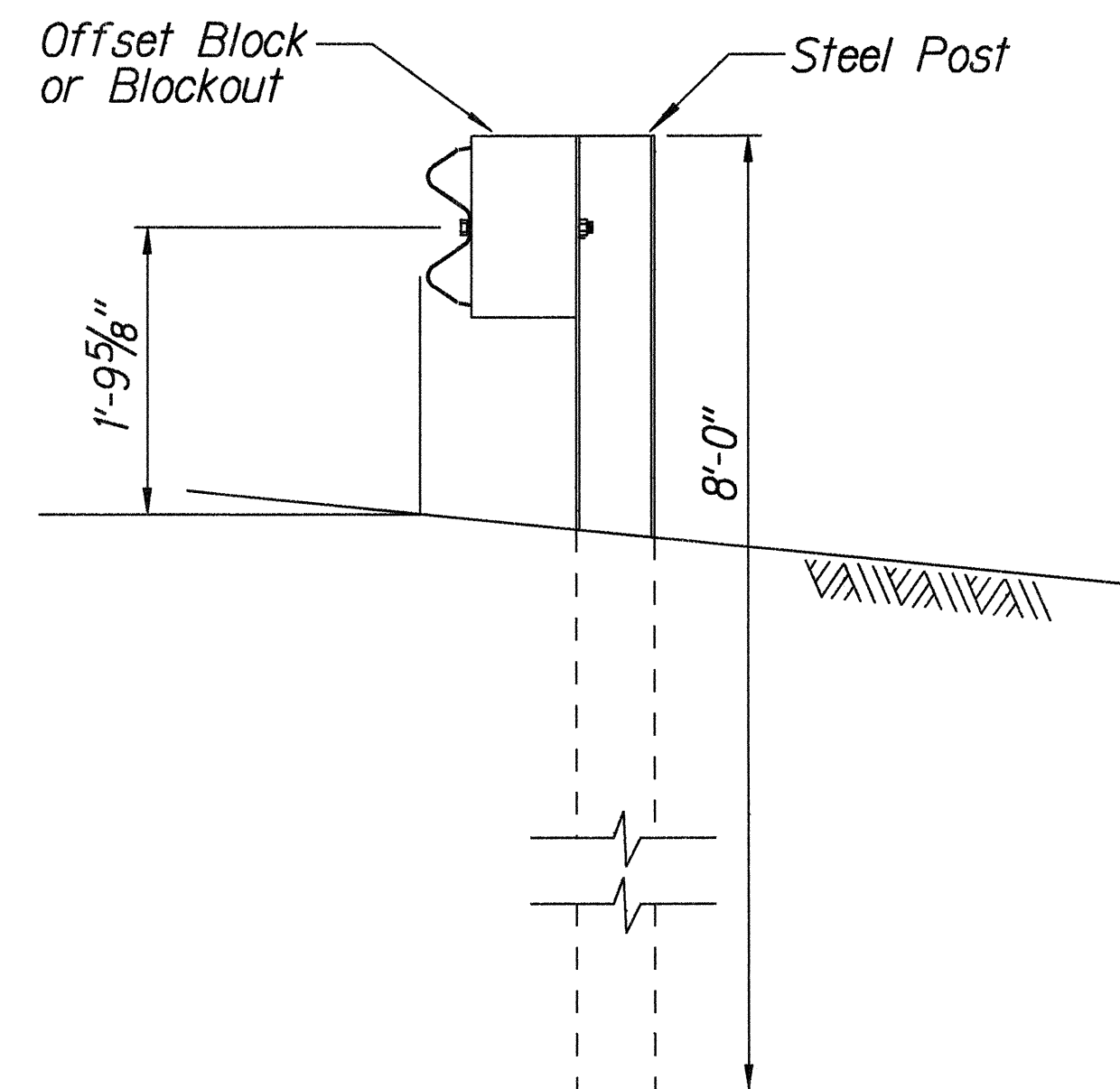
13



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19H-01-00M	2000	14	19

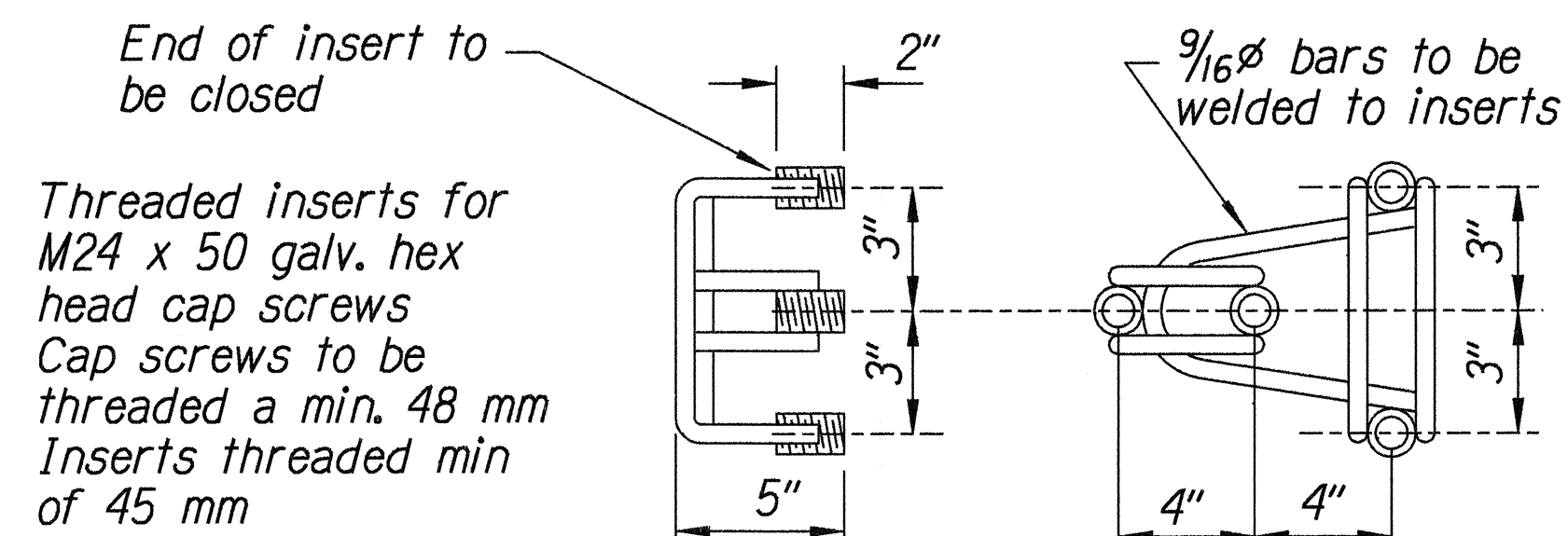


Plan

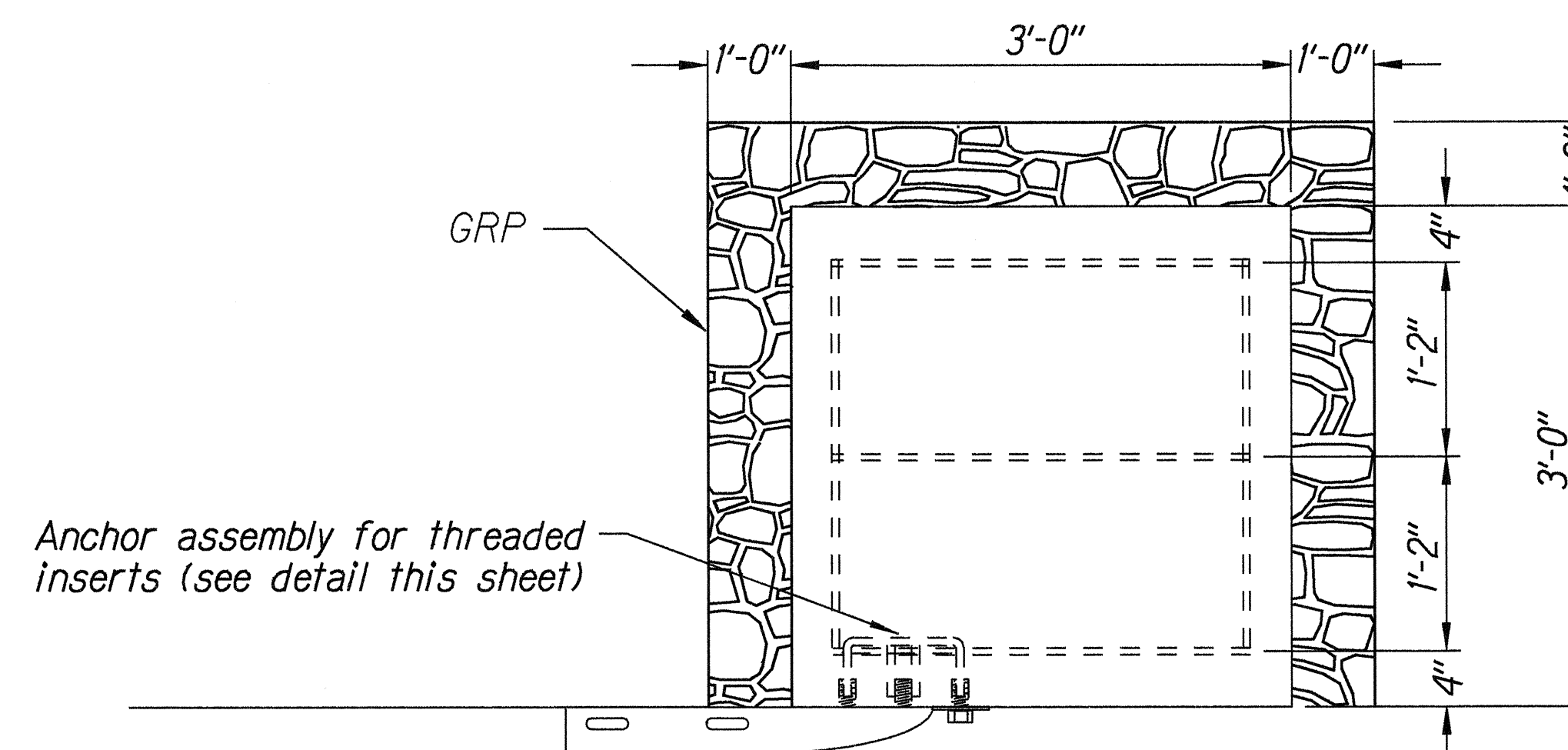


Elevation

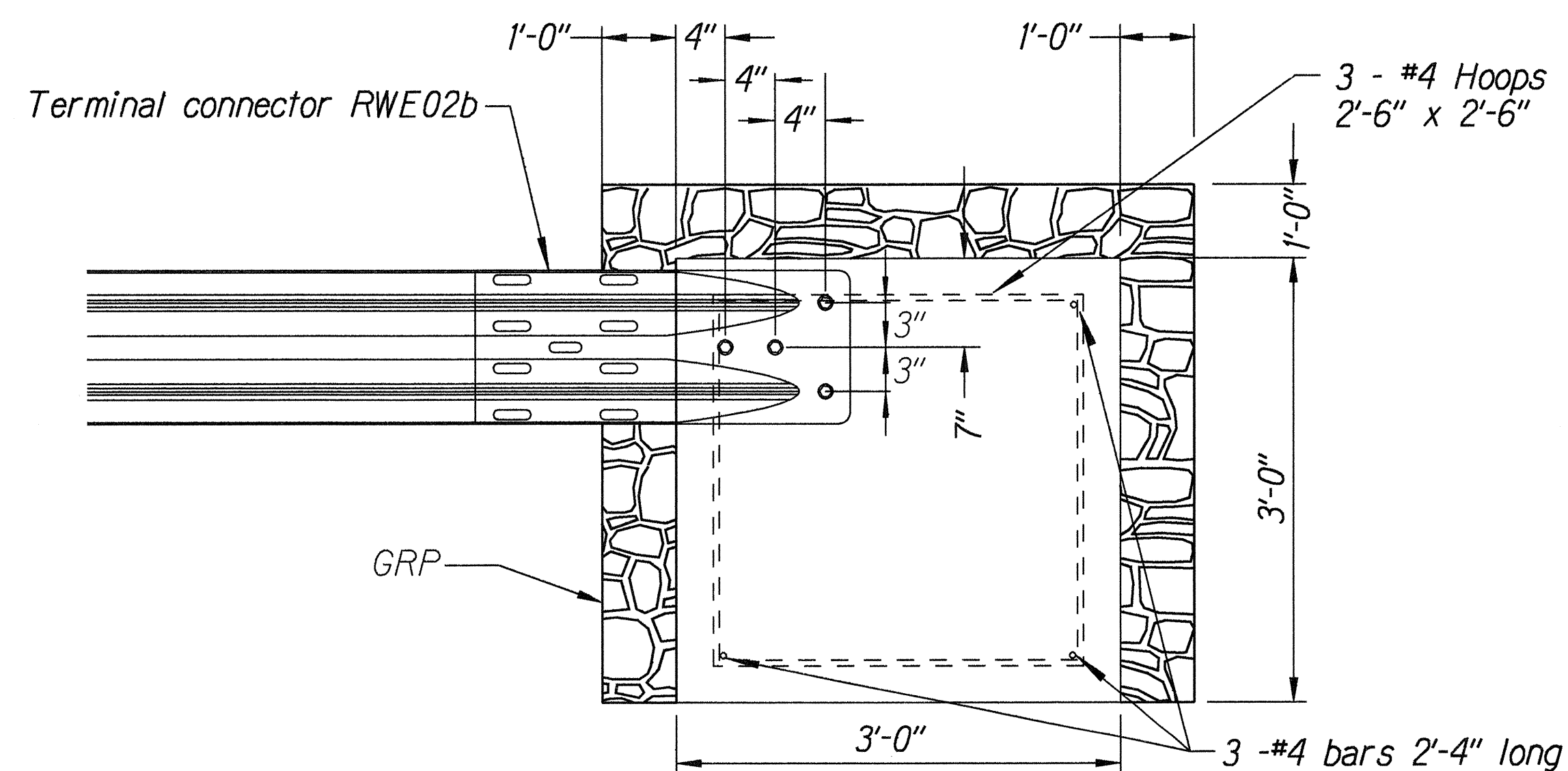
STRONG POST W-BEAM GUARDRAIL



ANCHOR ASSEMBLY  
CONCRETE BLOCK ANCHOR



Plan



Elevation

CONCRETE BLOCK ANCHOR  
(3' X 3' X 3')

BACKSLOPE ANCHOR TERMINAL END ANCHORAGE DETAILS  
MODIFIED TYPE "A-1" FLARE

Note:

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-AGCARTBA Joint Cooperative Committee.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTED	DRAWN BY	
DESIGNED BY	CHECKED BY	
APPROVED BY		

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**MODIFIED TYPE "A-1" FLARE**

HAWAII BELT ROAD  
EMERGENCY REALIGNMENT  
VICINITY OF OPEA STREAM  
PROJECT NO. 19H-01-00M

Scale: none Date: March, 2000

SHEET No. 5 OF 5 SHEETS