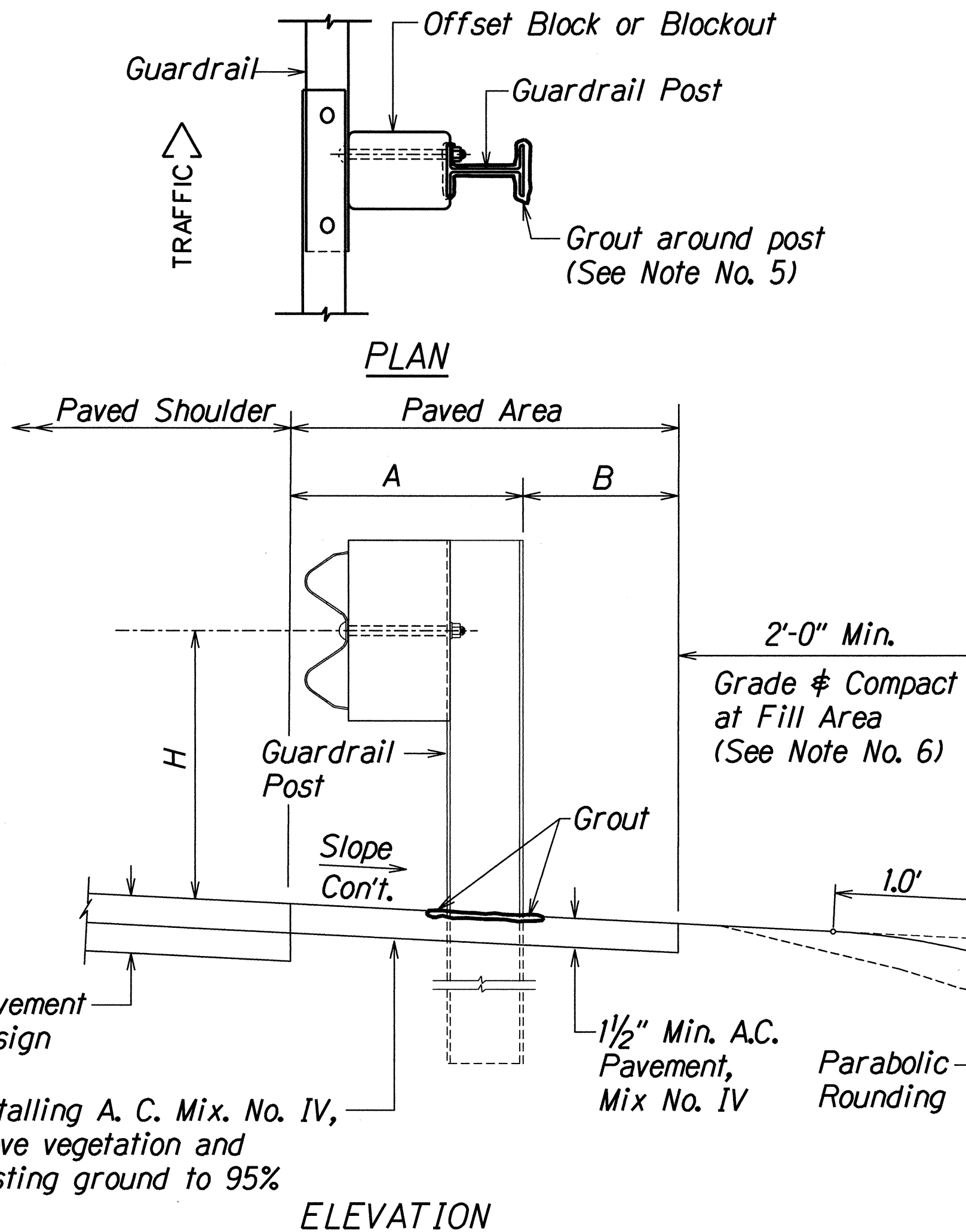
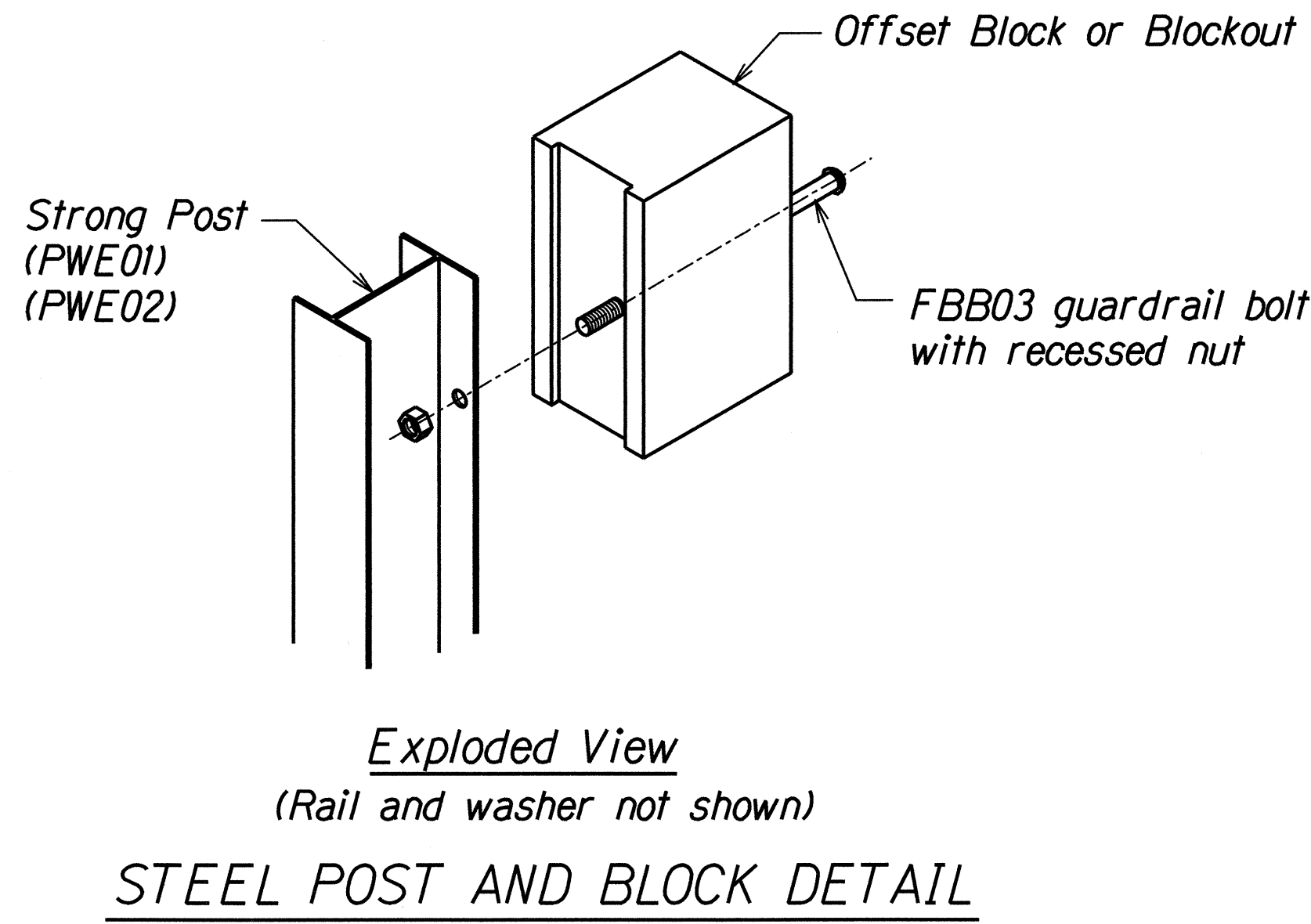
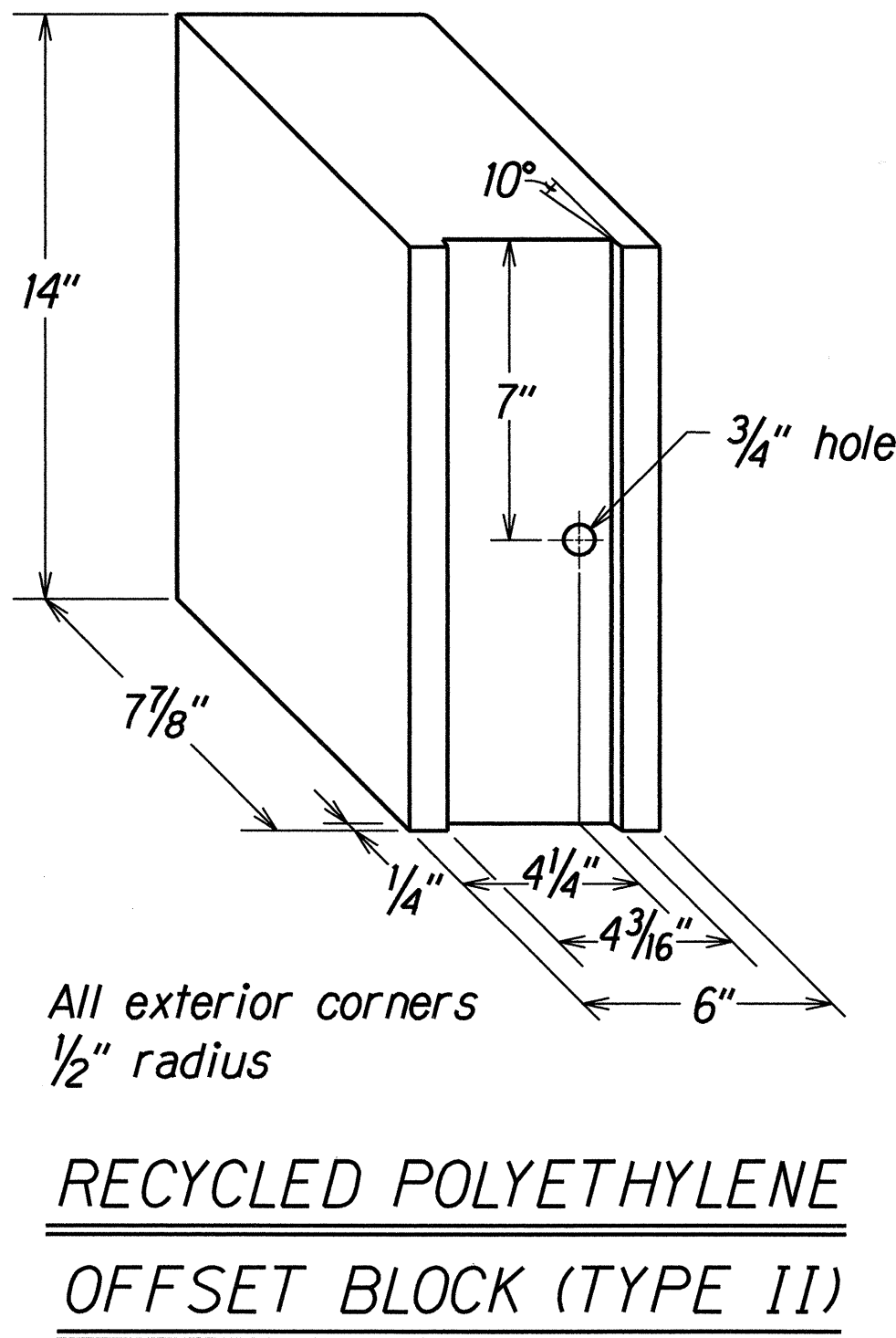
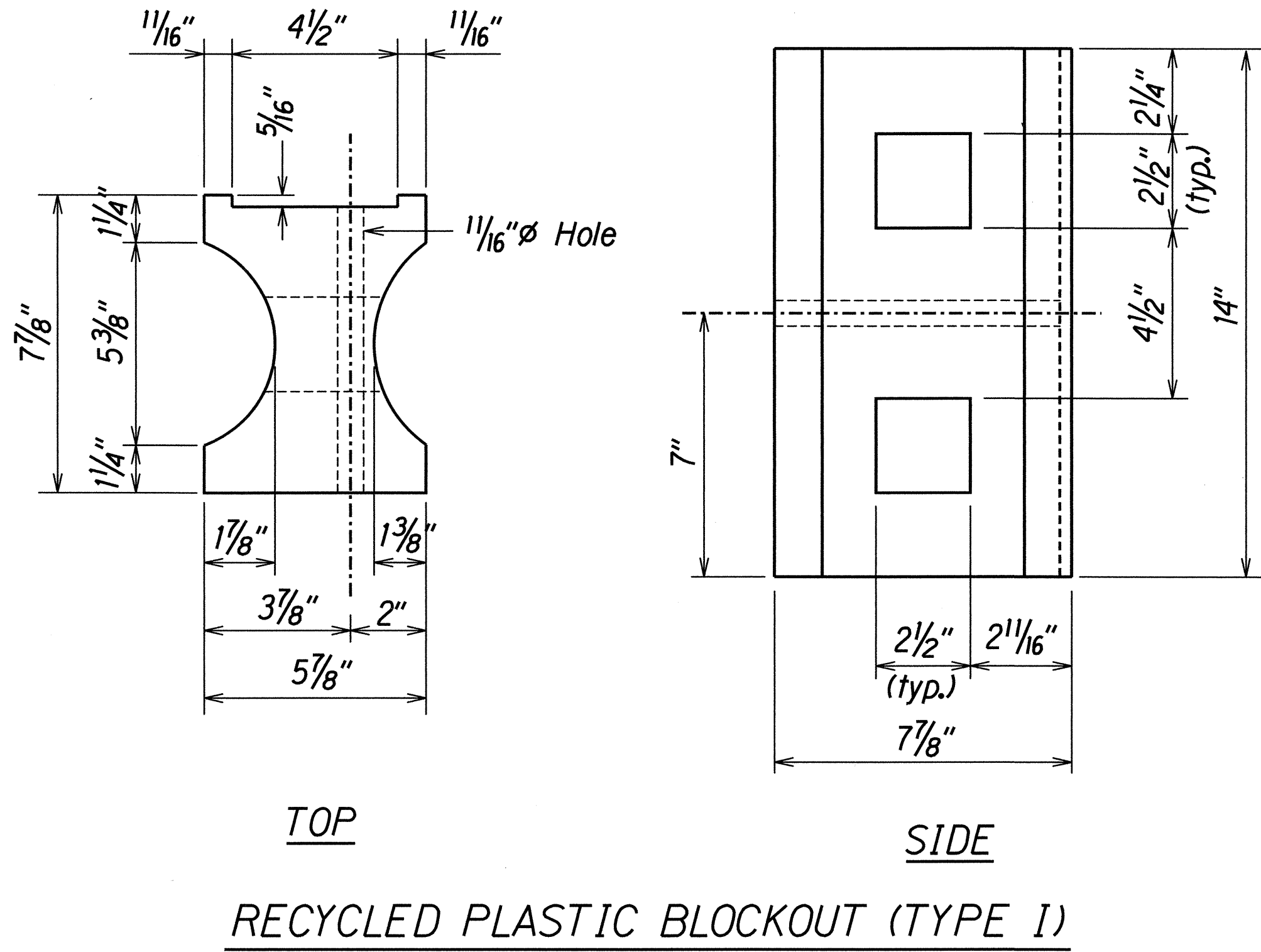


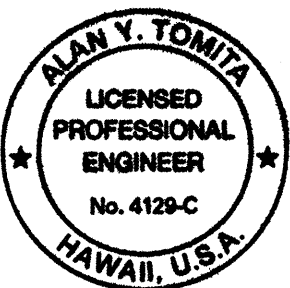
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-083-1(41)	1999	28	89

GENERAL NOTES

1. All hardware, posts and fasteners shall be hot-dip zinc coated galvanized after fabrication. No punching, drilling or cutting will be permitted after galvanizing.
2. Where conditions require, special post lengths in increments of 6 inches may be specified.
3. 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.
4. The Recycled Plastic Block or Offset Block shall be approved by the State.
5. 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.
6. When standards for the fill slope area cannot be met, a site specific, engineer approved design may be used.



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"



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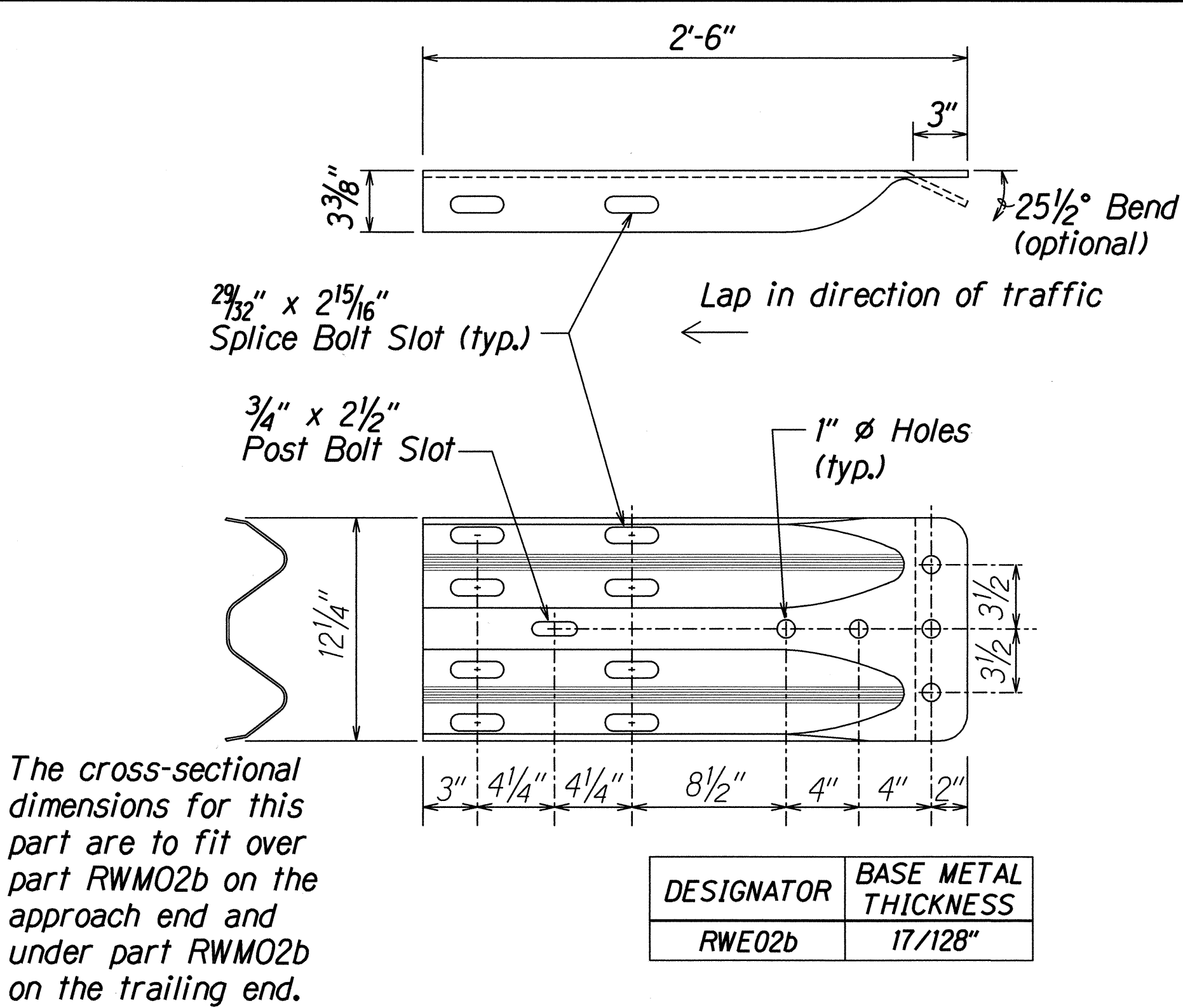
Alan Y. Tomita

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
MISCELLANEOUS GUARDRAIL DETAILS-1
KAMEHAMEHA HIGHWAY RESURFACING
Kaneohe Bay Drive to Kahiko Street
F. A. Project No. NH-083-1(41)
Scale: NTS
SHEET No. 1 OF 5 SHEETS

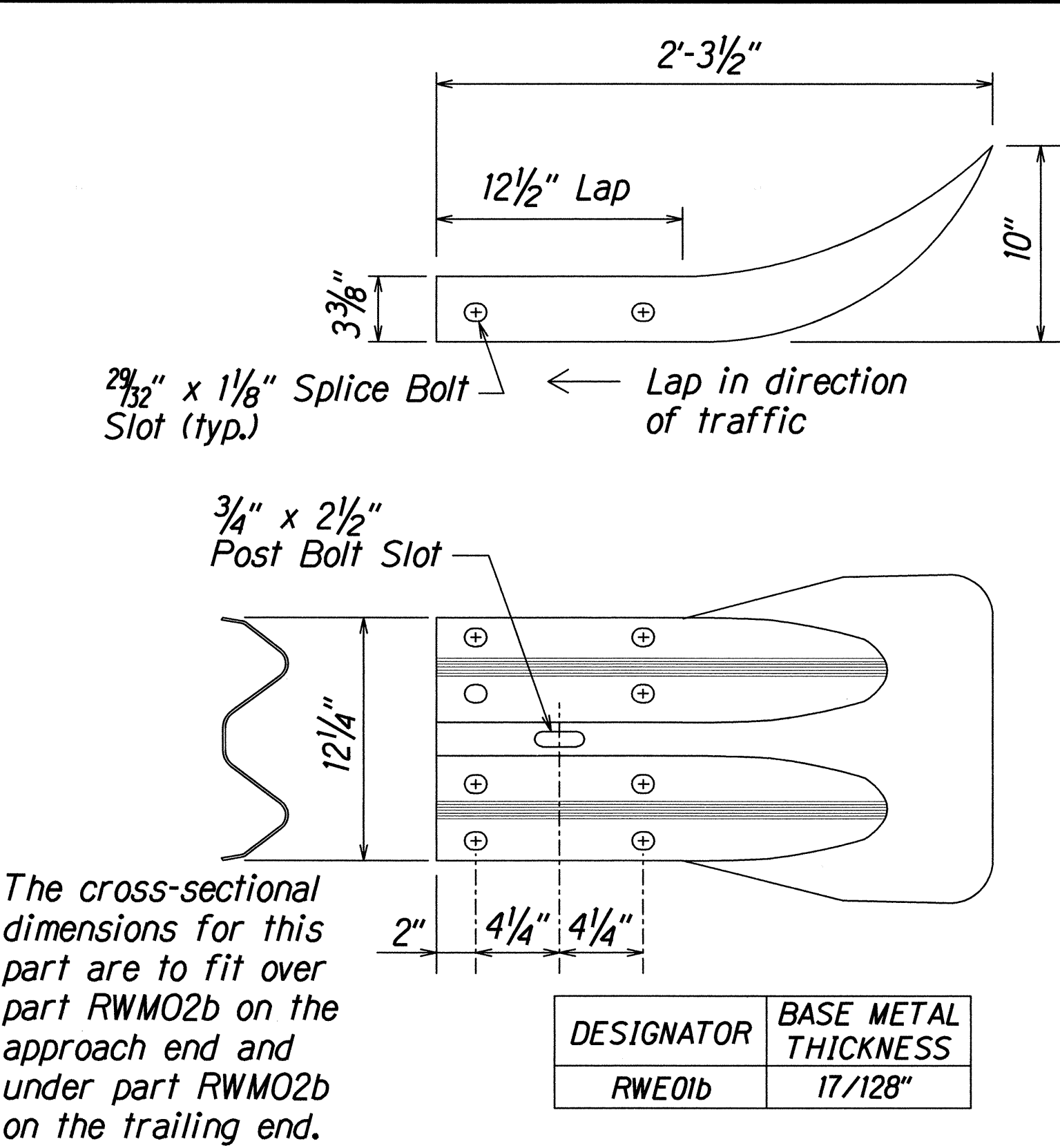
Date: May, 1999

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

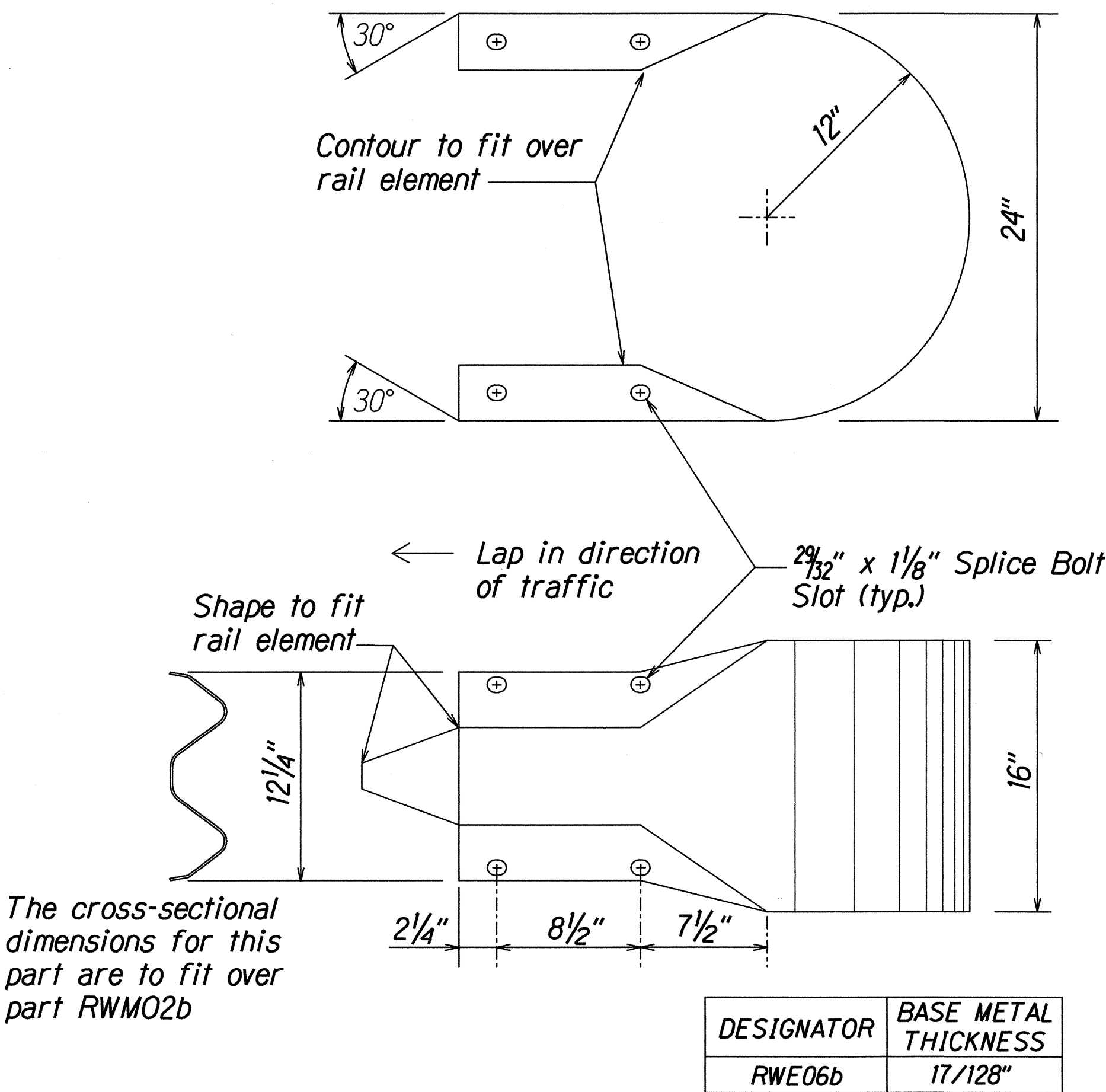
Standard plan TE-50 r03/06/87



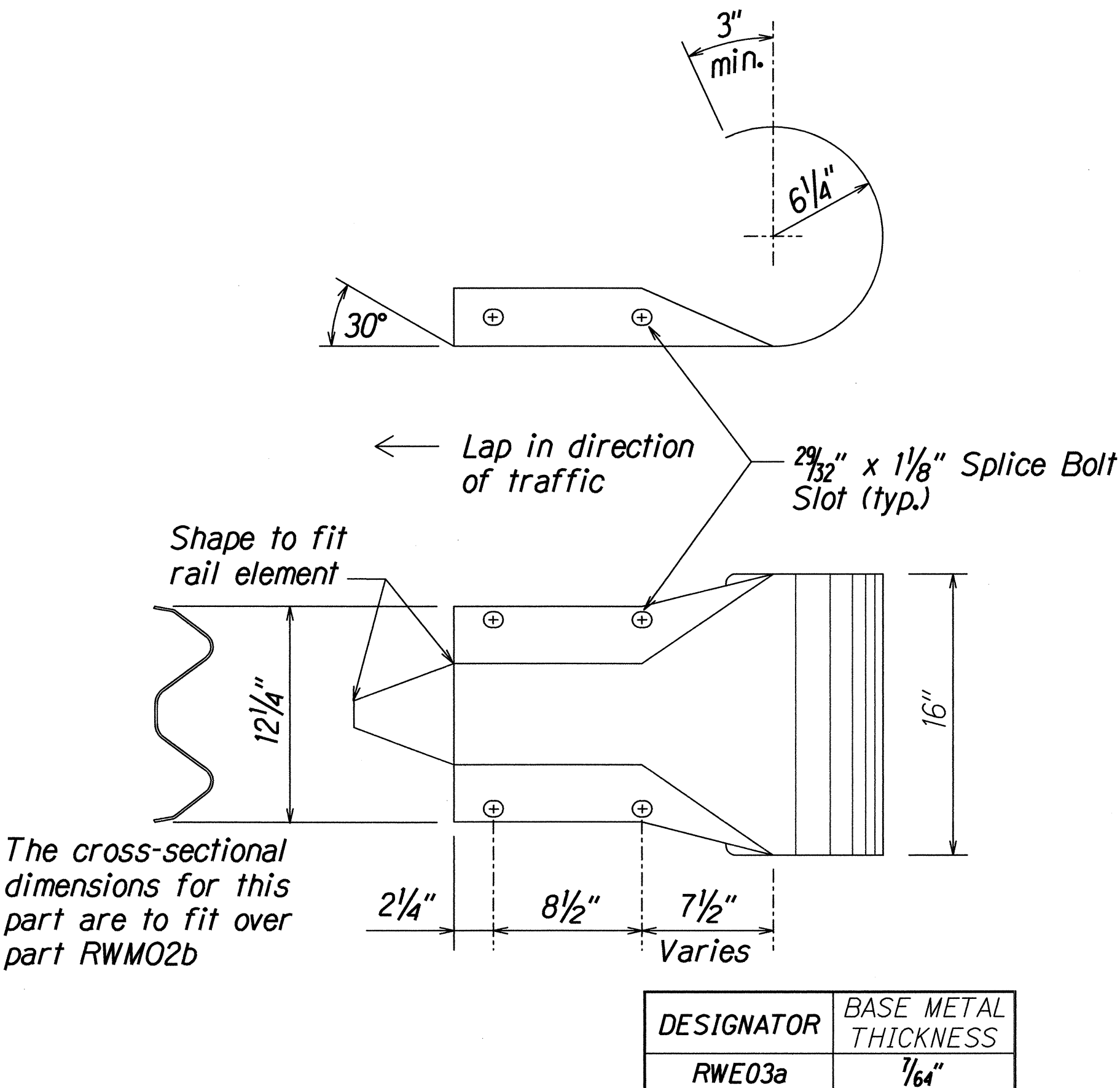
W-BEAM TERMINAL CONNECTOR (RWE02b)



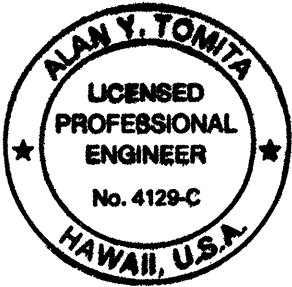
W-BEAM END SECTION (FLARED RWE01b)



W-BEAM END SECTION (BUFFER RWE06b)



W-BEAM END SECTION (ROUNDED RWE03a)



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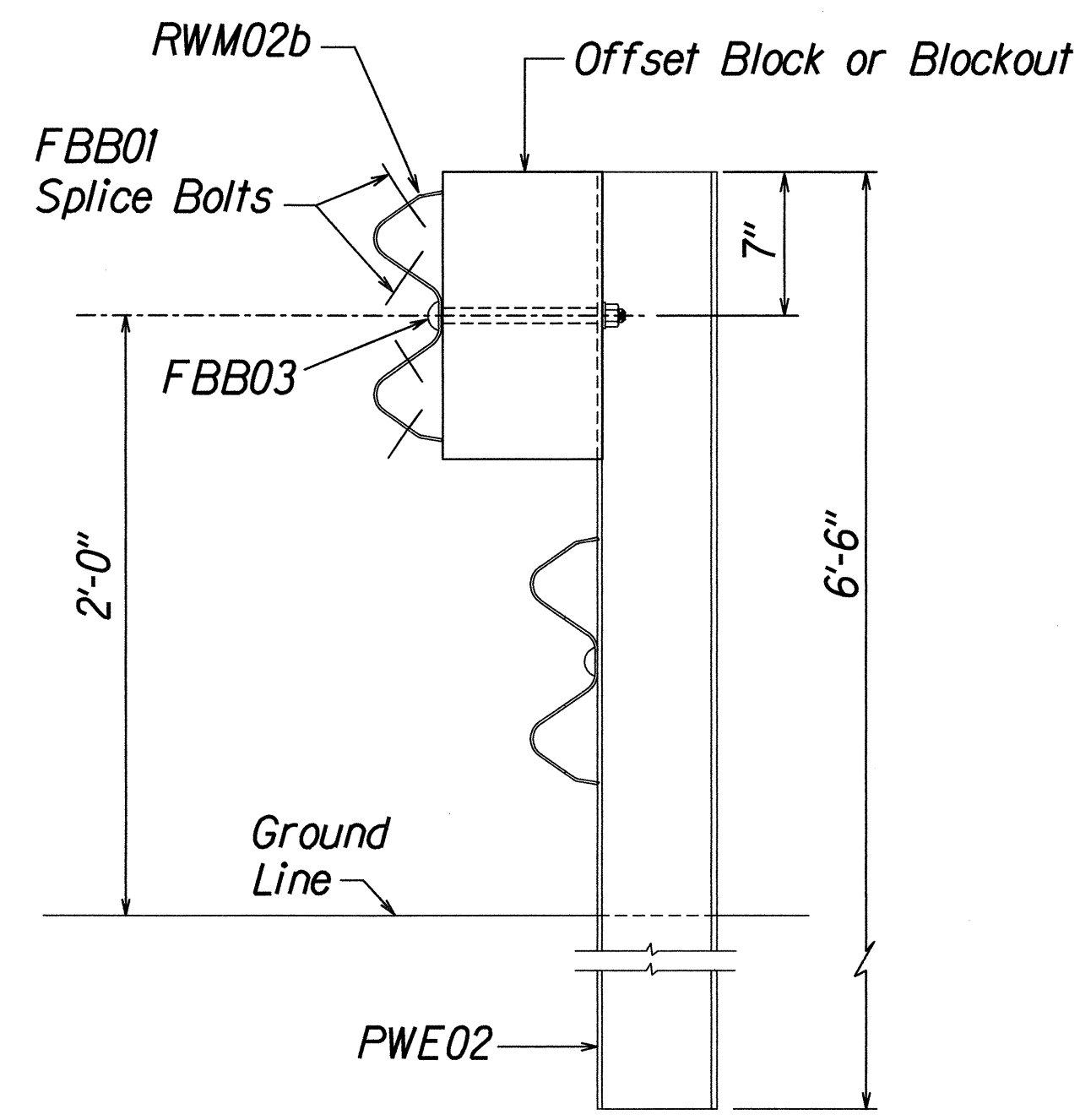
MISCELLANEOUS GUARDRAIL DETAILS-3

KAMEHAMEHA HIGHWAY RESURFACING
Kaneohe Bay Drive to Kahiko Street
F. A. Project No. NH-083-1(41)
Scale: NTS
Date: May, 1999

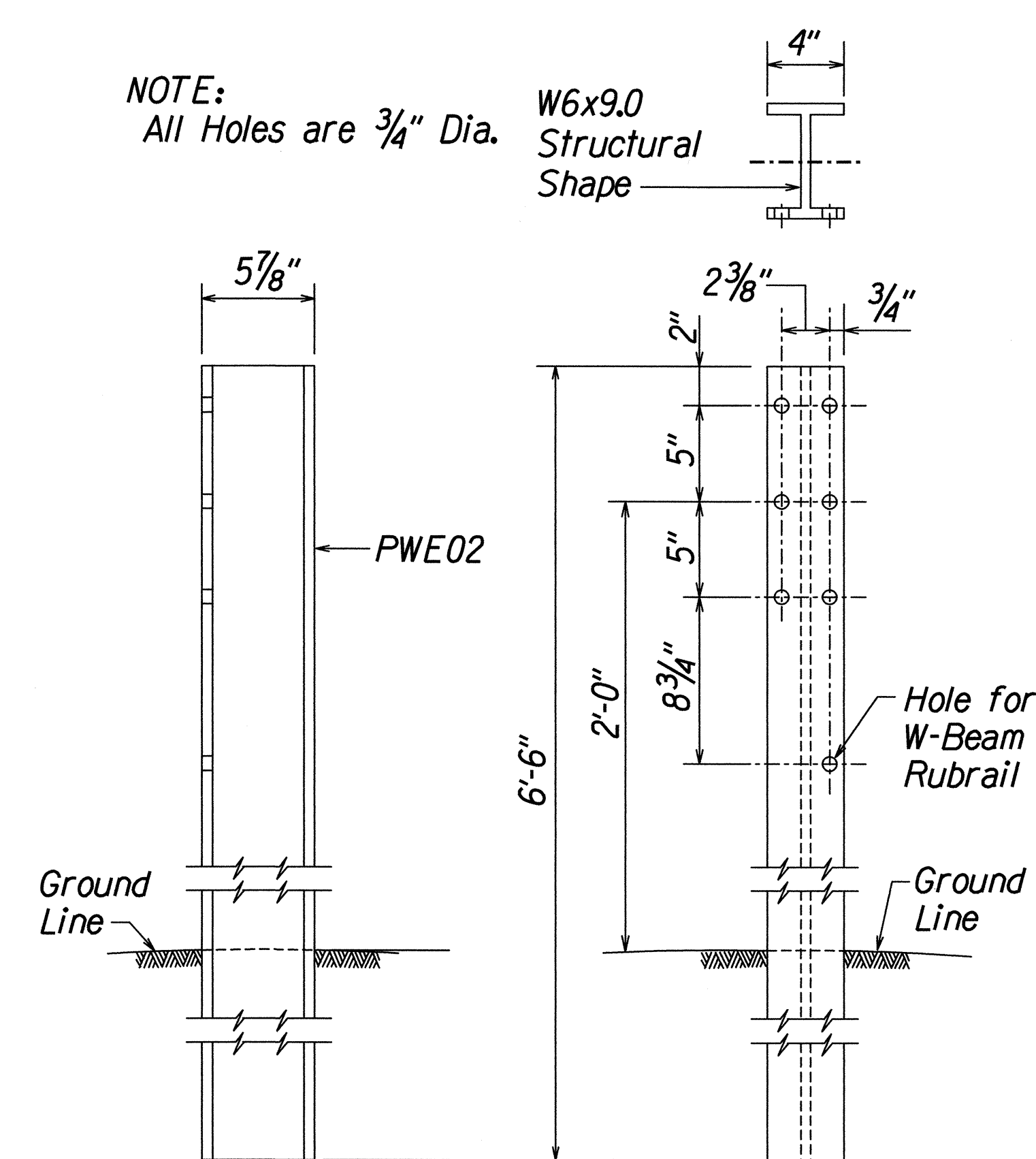
SHEET No. 3 OF 5 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
CHECKED BY	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

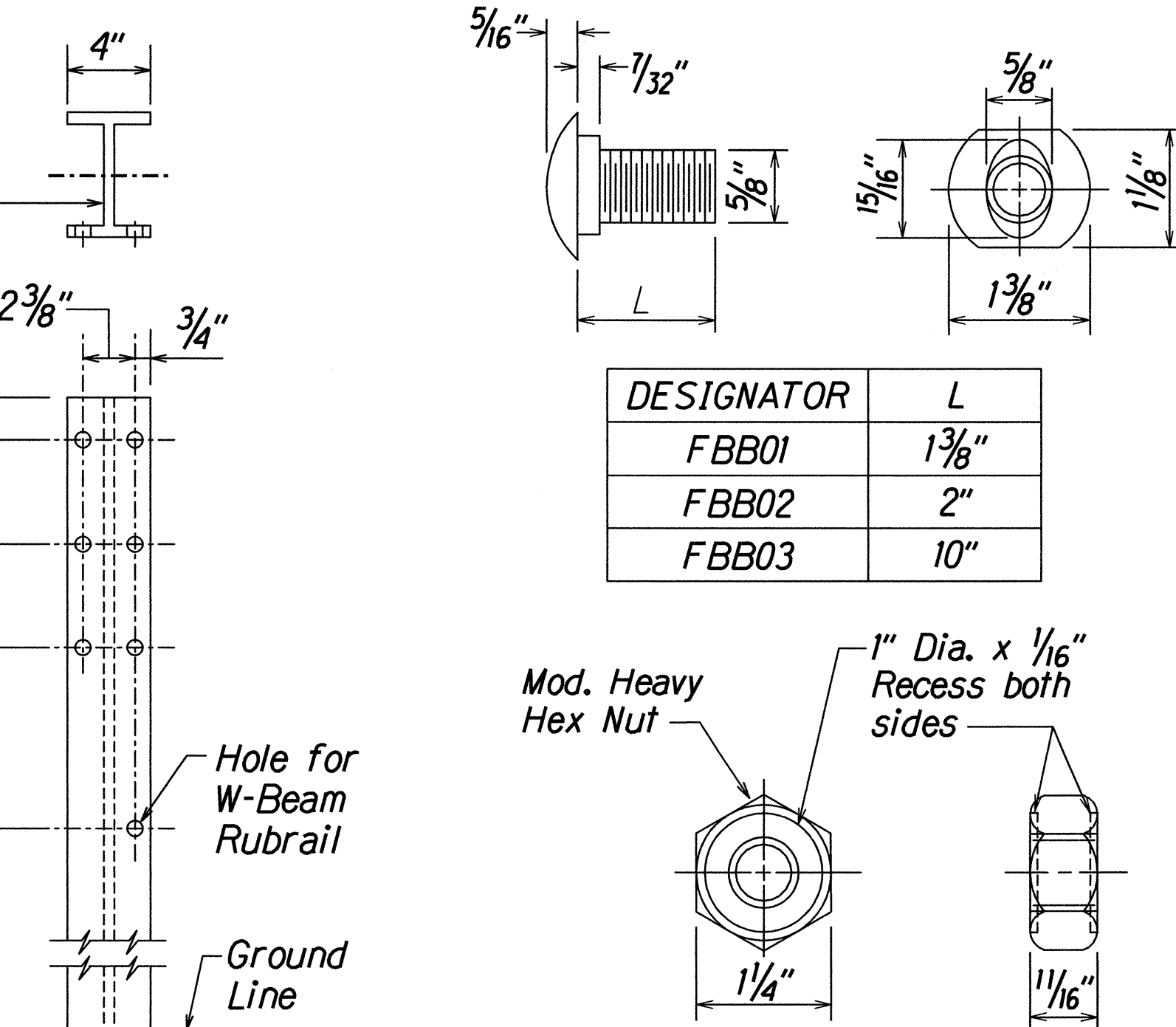
13/01/99 rd/ruby/guardrail/restdesign (standard plan TE-51 r09.01/87)



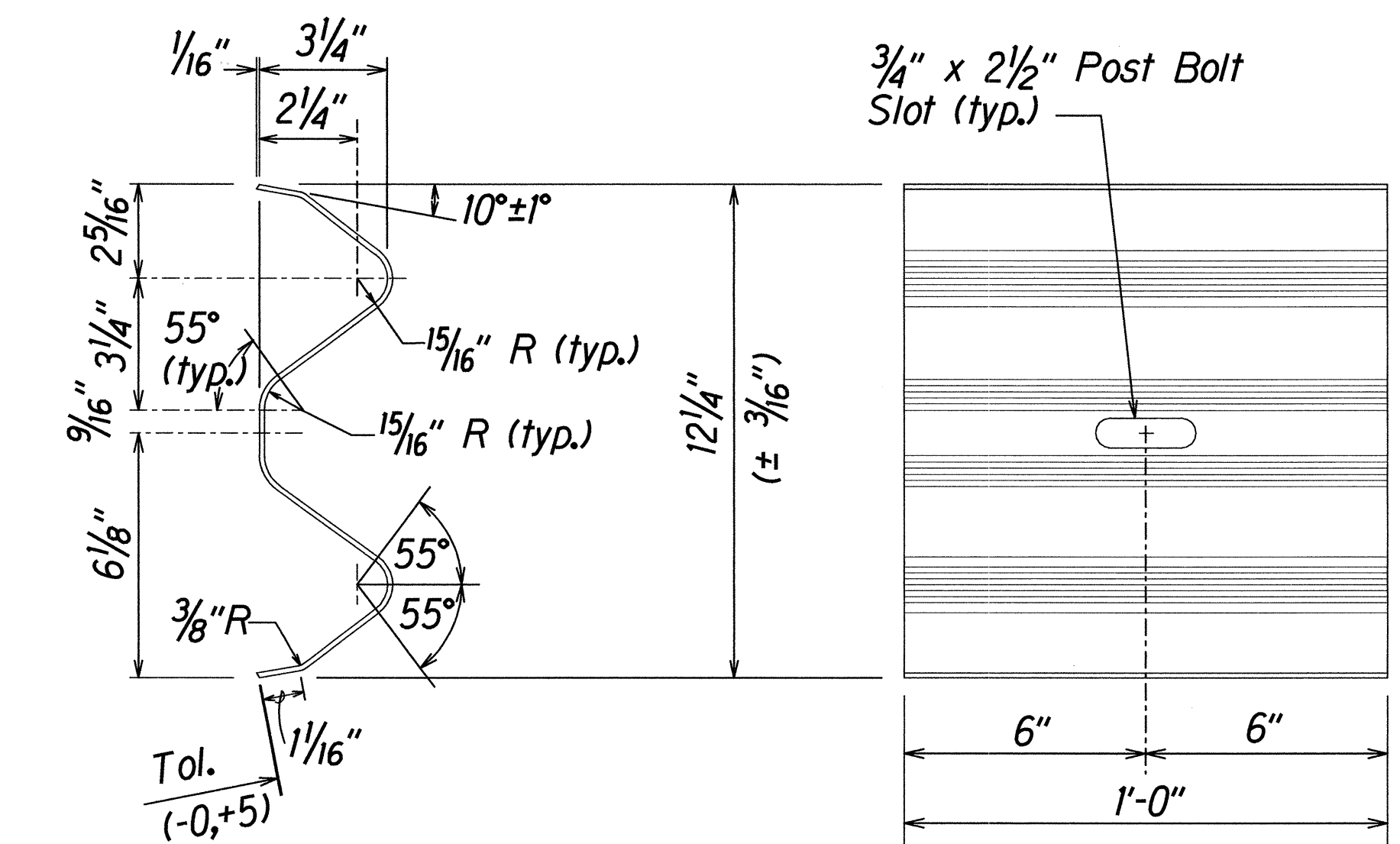
ELEVATION
STRONG POST RUBRAIL (W-BEAM) GUARDRAIL



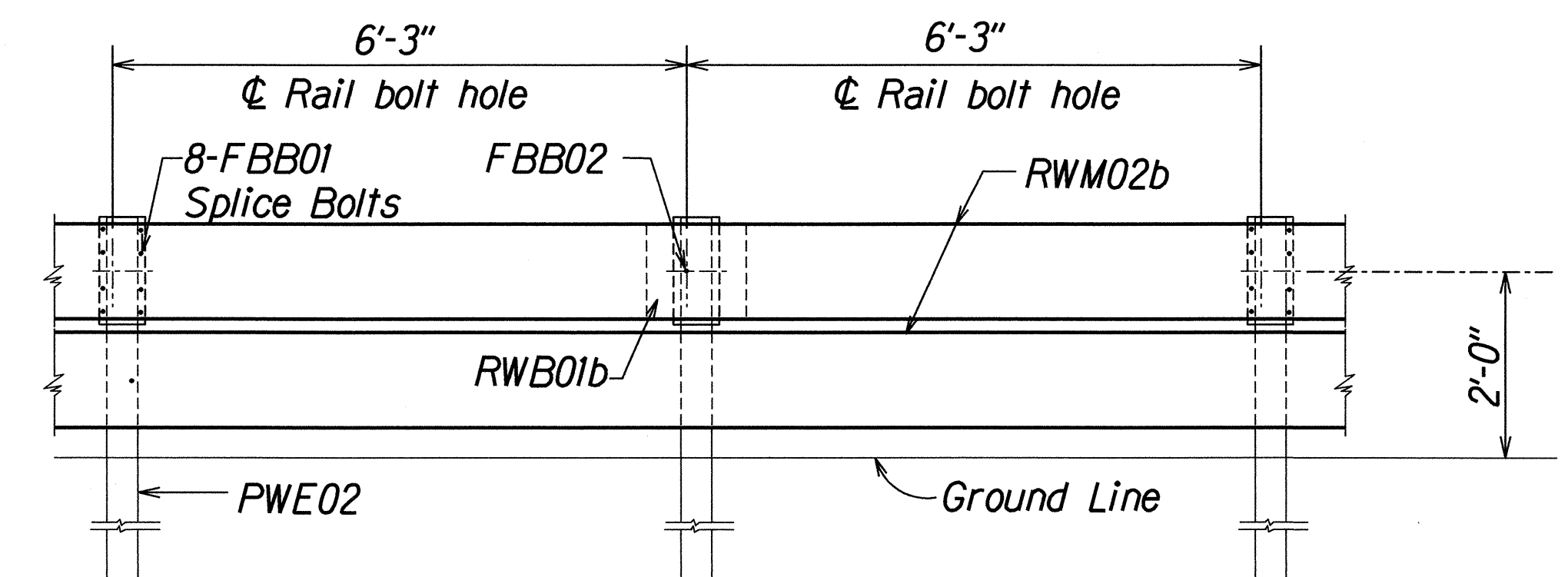
SIDE
W-BEAM STRONG POST (PWE02)



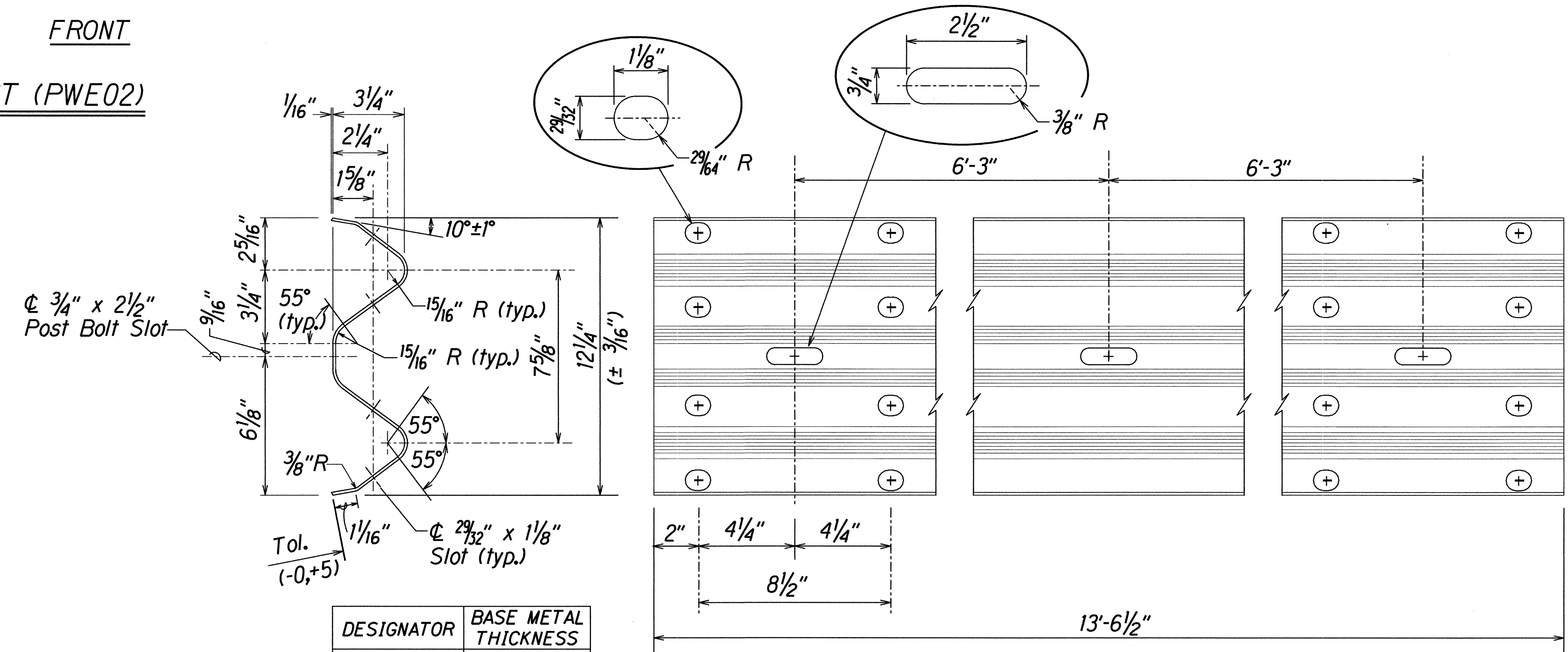
GUARDRAIL BOLTS AND RECESSED NUT



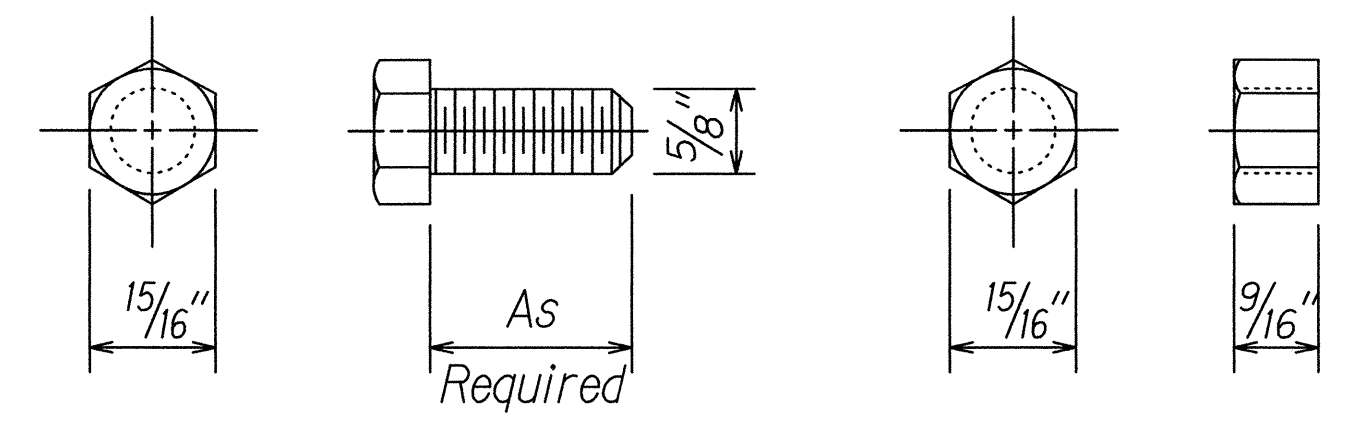
W-BEAM BACK-UP-PLATE (RWB01b)



ELEVATION
STRONG POST RUBRAIL (W-BEAM) GUARDRAIL WITH RECYCLED OFFSET BLOCK OR PLASTIC BLOCKOUT



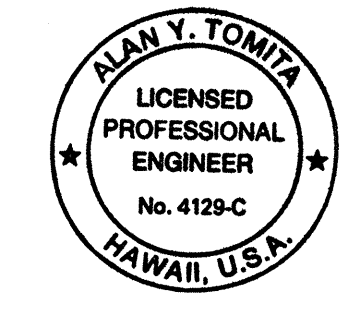
2 SPACE W-BEAM GUARDRAIL (RWM02b)



HEX BOLT & NUT (FBX16a)

SURVEY PLOTTED BY: _____
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 CHECKED BY: _____
 DATE: _____
 NOTE BOOK: _____
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Standard Plan TE-52 rtr/03/89



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HIGHWAYS DIVISION

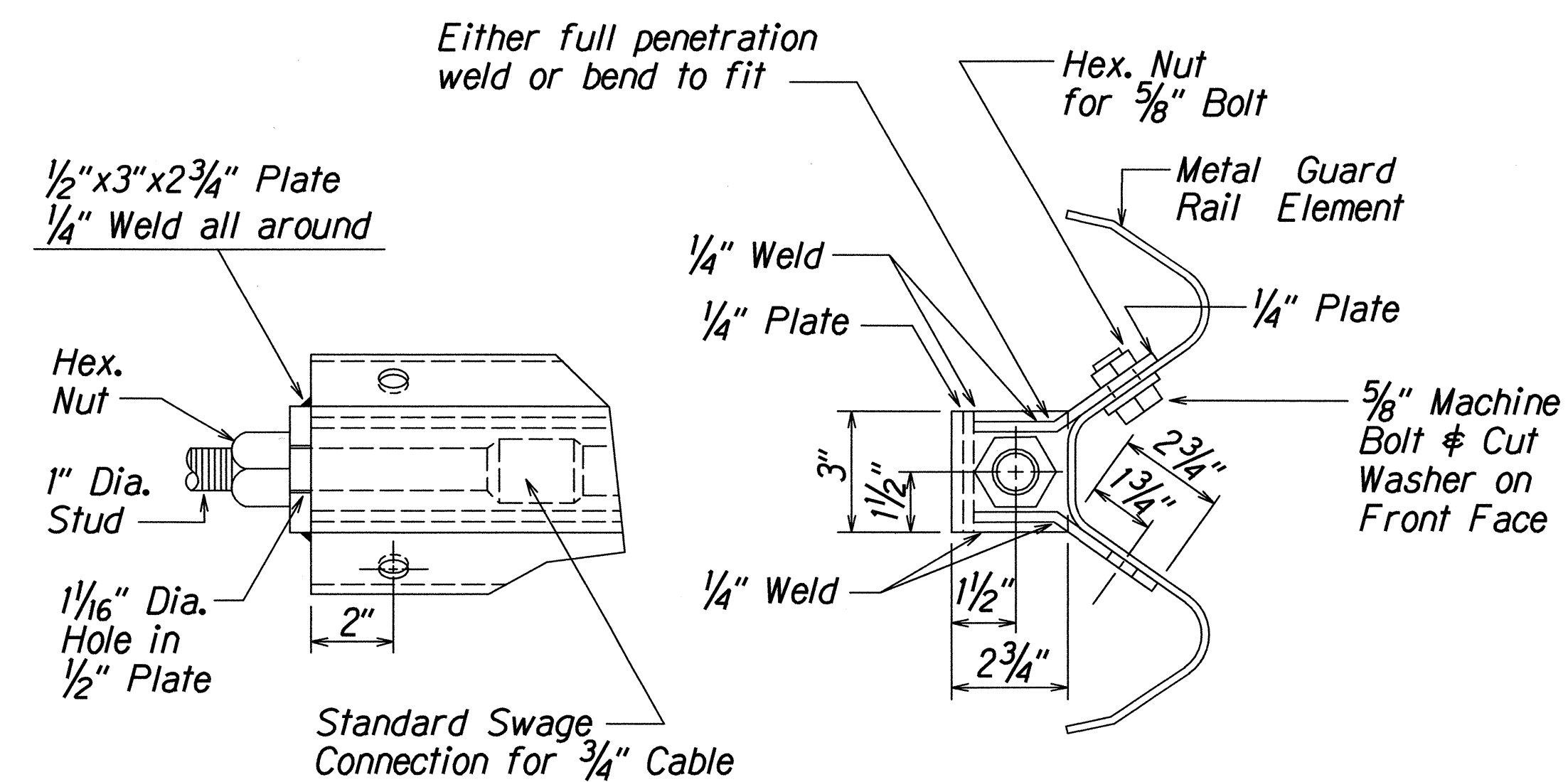
MISCELLANEOUS GUARDRAIL DETAILS-4

KAMEHAMEHA HIGHWAY RESURFACING
Kaneohe Bay Drive to Kahiko Street
F. A. Project No. NH-083-1(41)

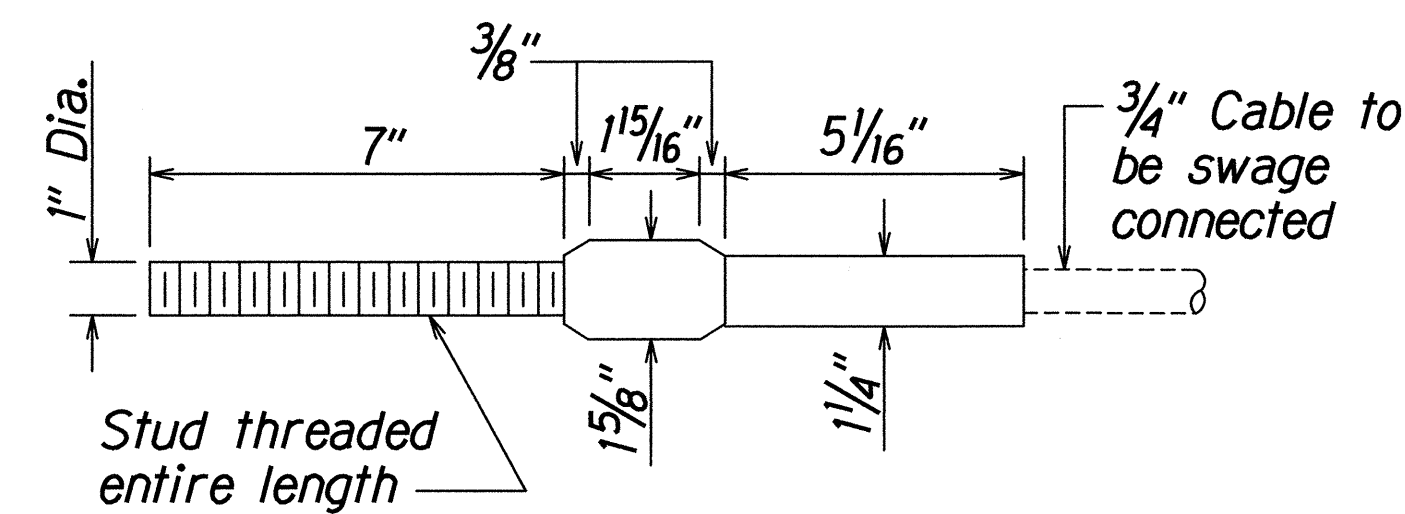
Scale: NTS Date: May, 1999

SHEET No. 4 OF 5 SHEETS

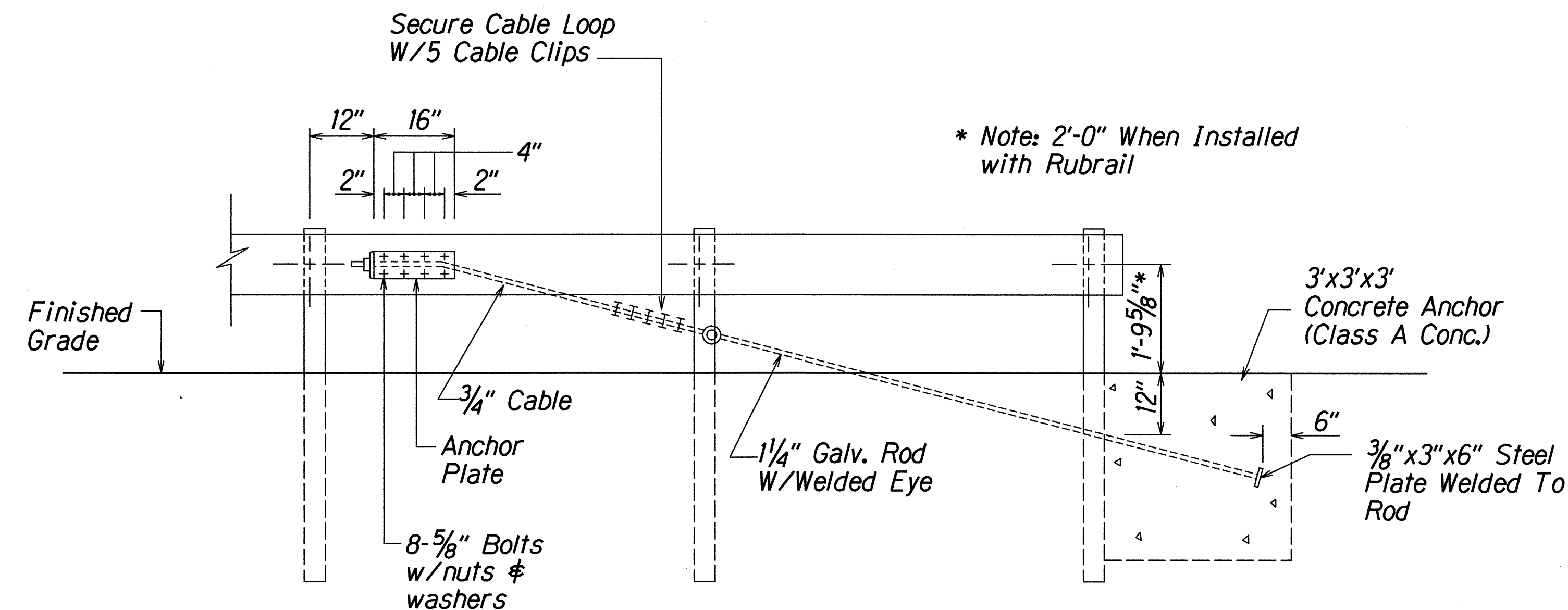
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-083-1(41)	1999	32	89



ANCHOR PLATE DETAILS



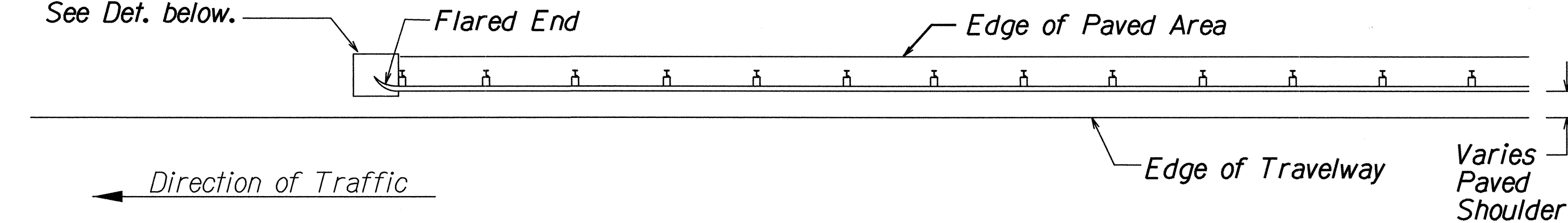
STANDARD SWAGED FITTING
AND STUD



ANCHOR BLOCK DETAIL

- Concrete, G.R.P., excavation, anchor rod and miscellaneous appurtenances necessary to anchor the guardrail ends shall be incidental to metal guardrail.

For Details of Concrete Anchor Block in Ground See Det. below.



PLAN

ELEVATION

TYPE "G" FLARE END TERMINAL

NOTE:

Type "G" Modified End Terminal is a site specific end terminal with a taper and radial termini. A site specific detailed drawing is required for all Type "G" Modified End Terminal and must receive Engineer's approval.

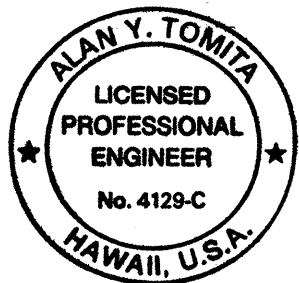
The taper (flare rate) of the guardrail shall follow the latest edition of AASHTO'S Roadside Design Guide (currently, Table 5.6 - Suggested Flare Rate for Barrier Design, page 5-21, Jan. 1996 edition).

The radius of the radial termini is an Engineer's judgement based on the site evaluation. The Engineer shall consider safety (minimize the spearing & blunt end situation); degree and potential seriousness of the hazard; bicycle and pedestrian accessibility; maintenance equipment accessibility; Right-of-Way availability; the smallest radii the metal w-beam/thrie-beam railing can be constructed (check with supplier/contractor); posted speed limit; angle of vehicle impact; and aesthetics when designing the Type "G" Modified End Terminal.

During construction, the Contractor shall layout the proposed Type "G" Modified End Terminal and receive approval from the Construction Engineer prior to installation.

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HIGHWAYS DIVISION

MISCELLANEOUS GUARDRAIL DETAILS-5

KAMEHAMEHA HIGHWAY RESURFACING
Kaneohe Bay Drive to Kahiko Street
F. A. Project No. NH-083-1(41)

Scale: NTS
Date: May, 1999

SHEET No. 5 OF 5 SHEETS