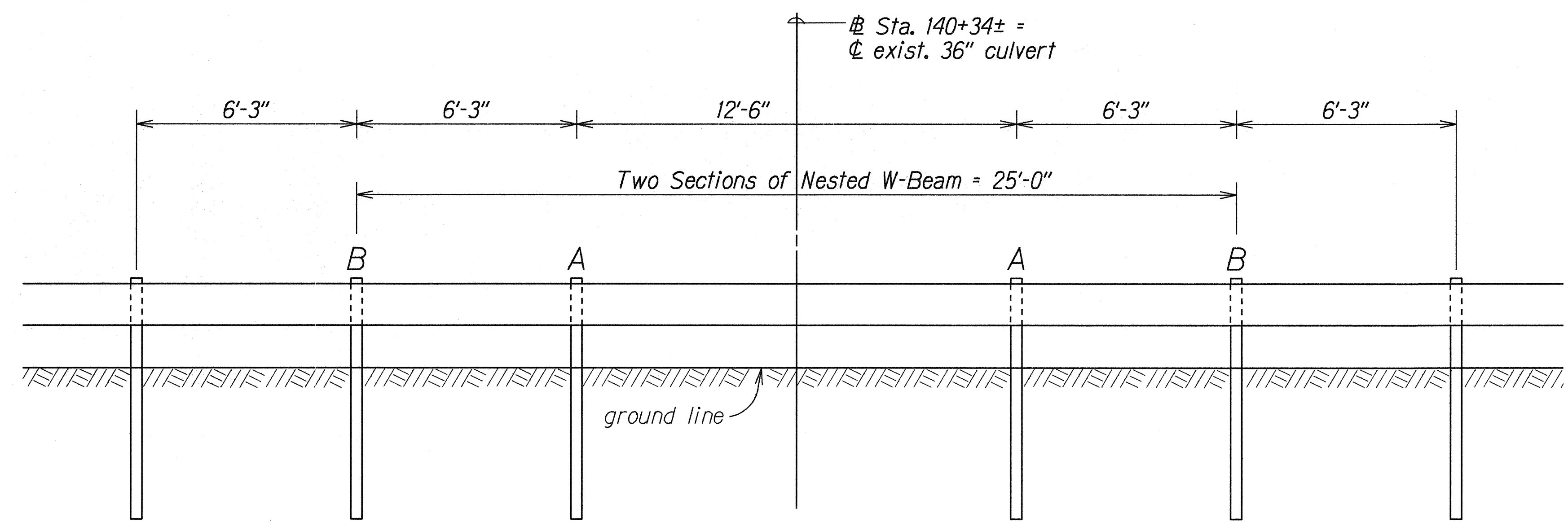
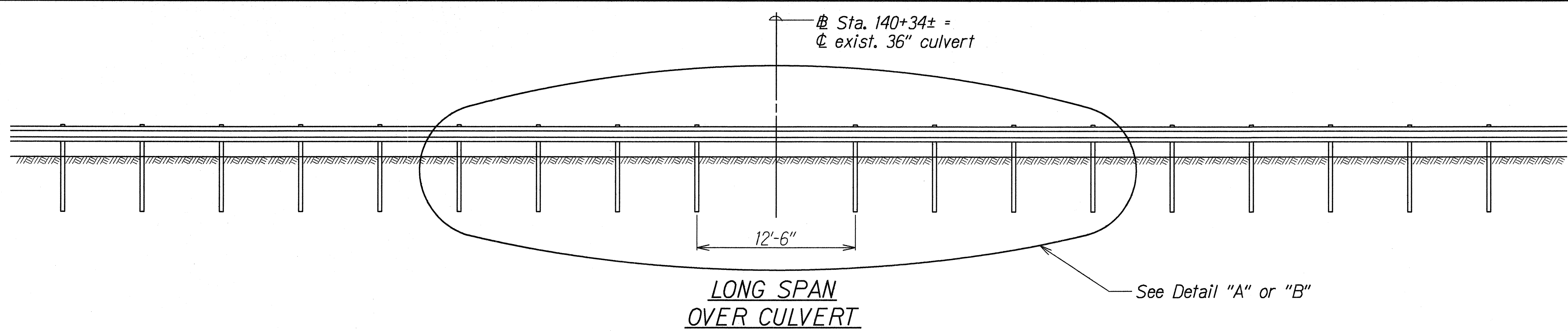
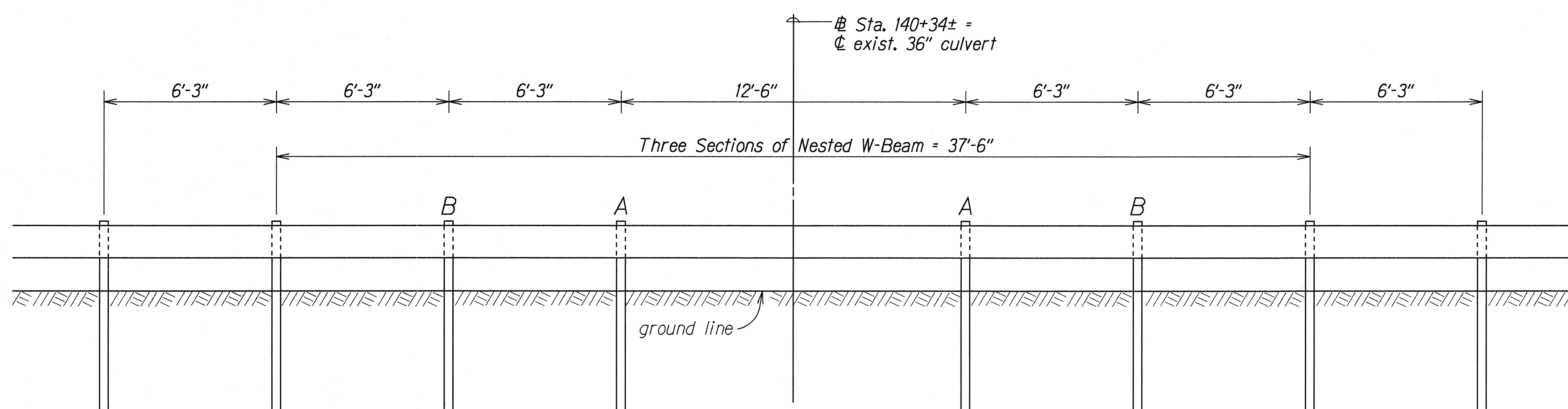


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19G-02-99	2000	21	27



DETAIL "A"
(FOR SPLICE IN CENTER OF 12'-6" SPACING)



DETAIL "B"
(FOR SPLICE AT POST OF 12'-6" SPACING)

NOTES:

1. The Nested W-Beam Rail Element shall be offset 6'-3" from the underlying w-beam rail.
2. Should the splice of the underlying w-beam rail occur at posts "A", install Nested W-Beam Rail per Detail "A".
3. Should the splice of the underlying w-beam rail occur at posts "B", install Nested W-Beam Rail per Detail "B".

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

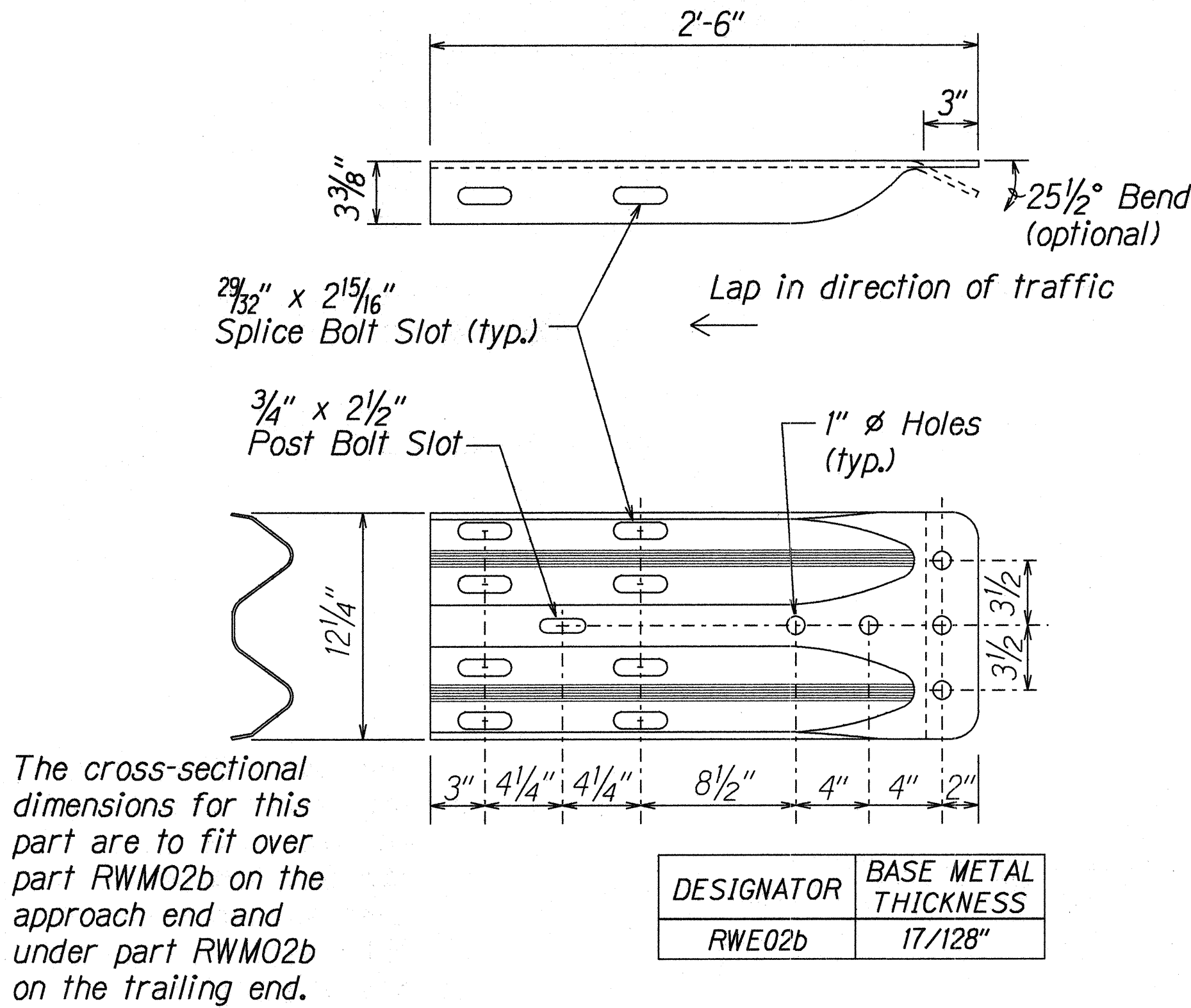
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL DETAILS
HAWAII BELT ROAD
DRAINAGE IMPROVEMENTS
Vicinity of Maulua Gulch, Laupahoehoe
Gulch & Kaawalii Gulch
Project No. 19G-02-99

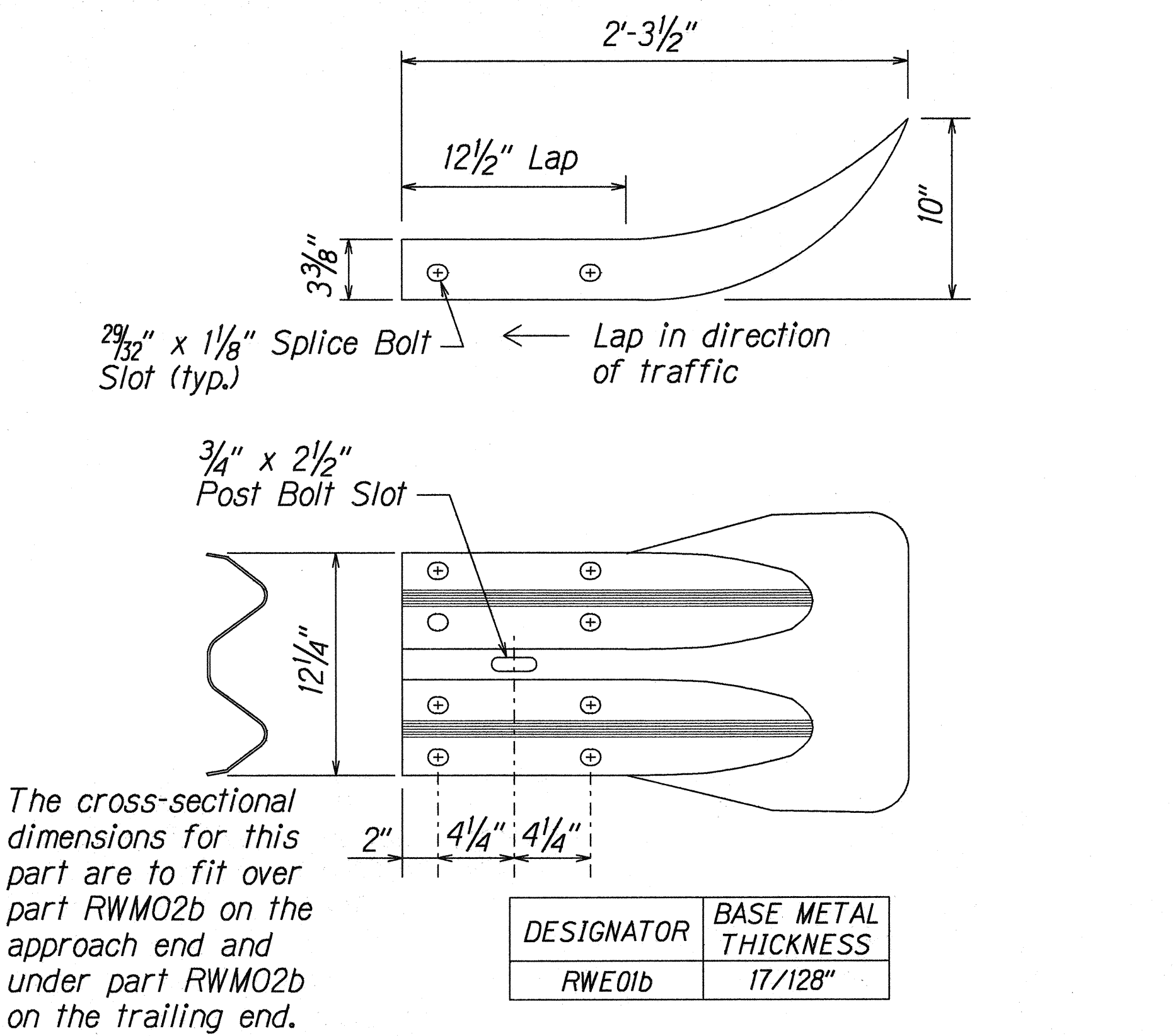
Scale: NTS
Date: Nov. 1999

SHEET No. 2 OF 8 SHEETS

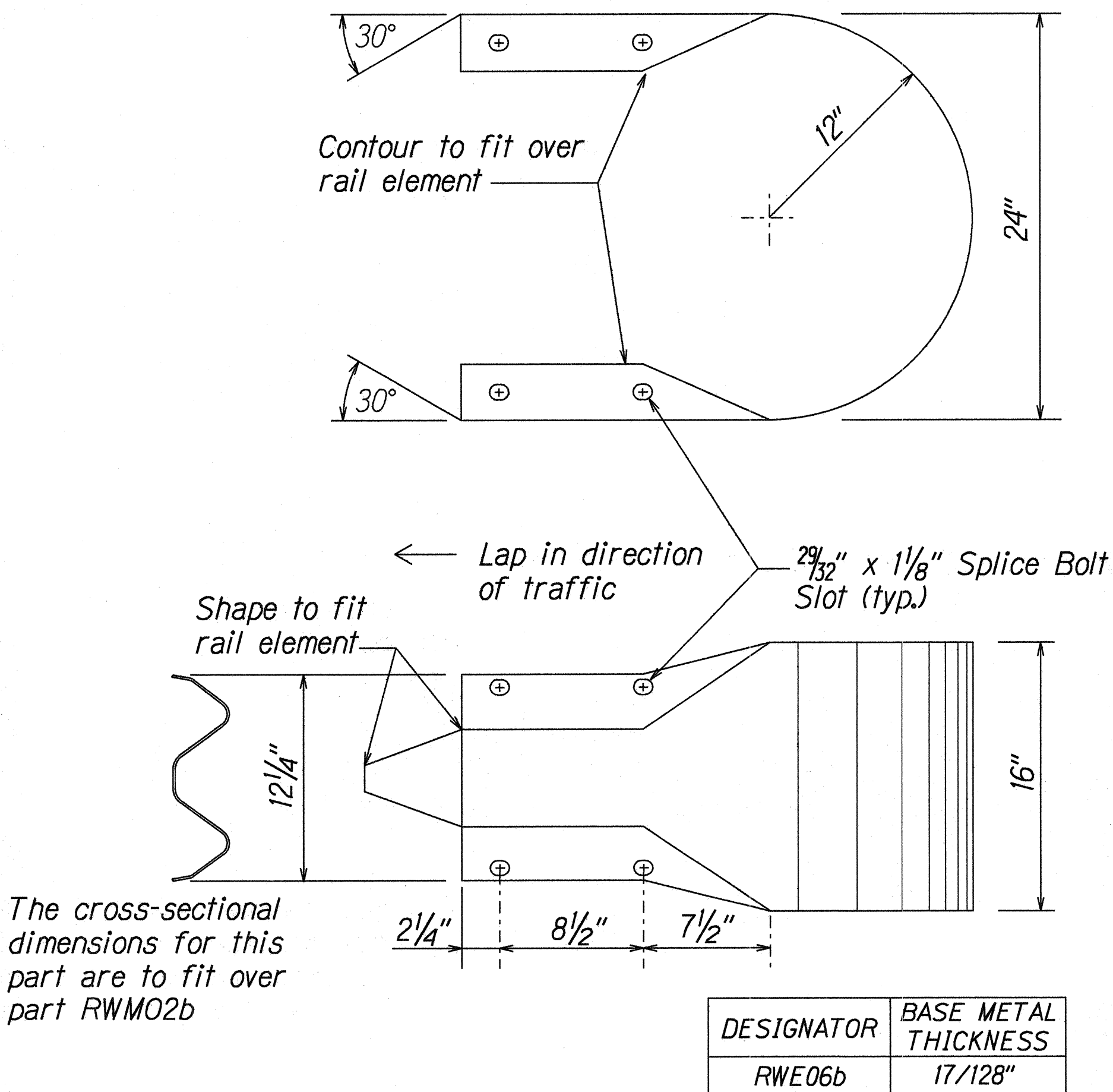
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HAWAII	HAW.	19G-02-99	2000	24	27



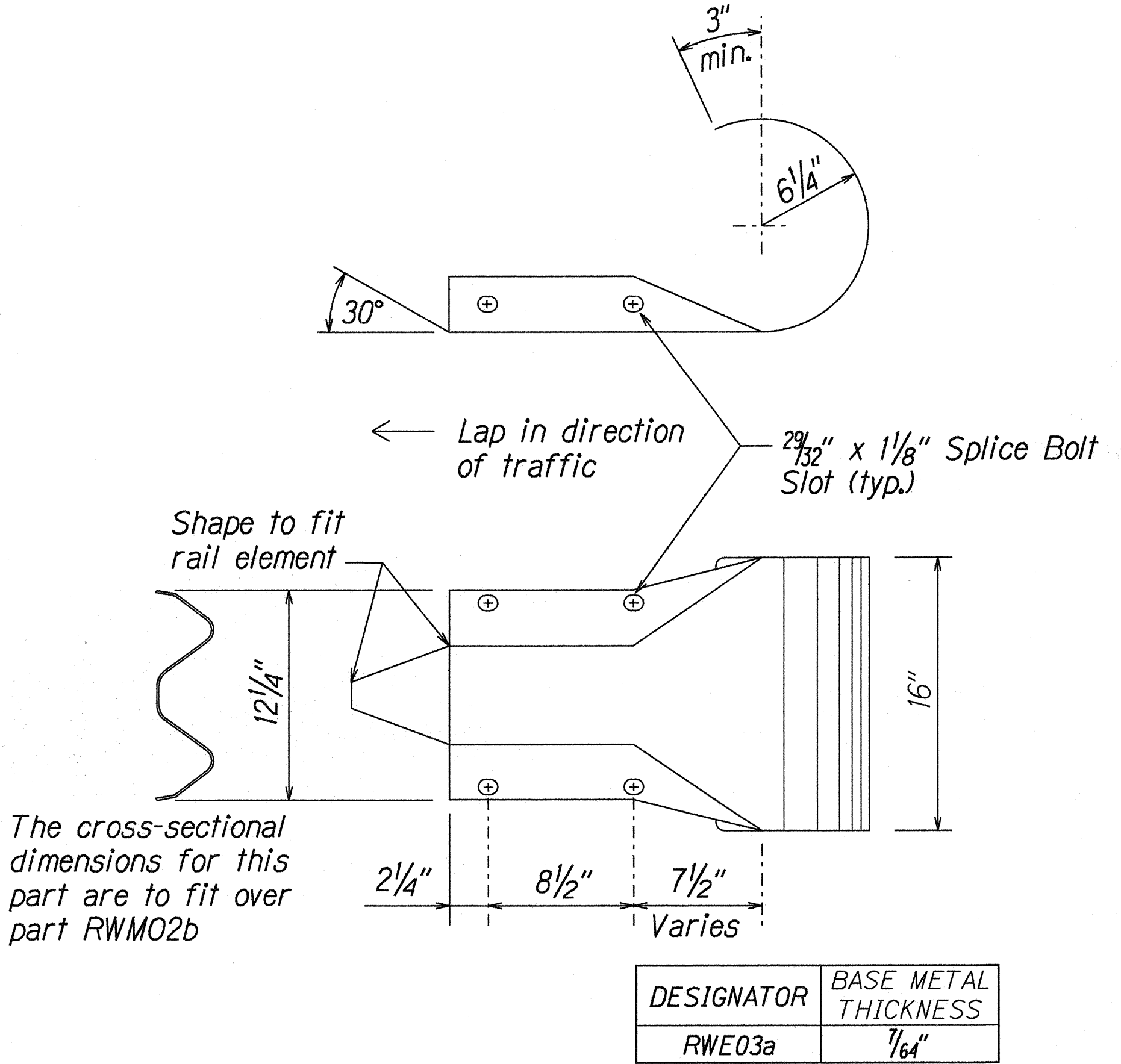
W-BEAM TERMINAL CONNECTOR (RWE02b)



W-BEAM END SECTION (FLARED RWE01b)



W-BEAM END SECTION (BUFFER RWE06b)



W-BEAM END SECTION (ROUNDED RWE03a)

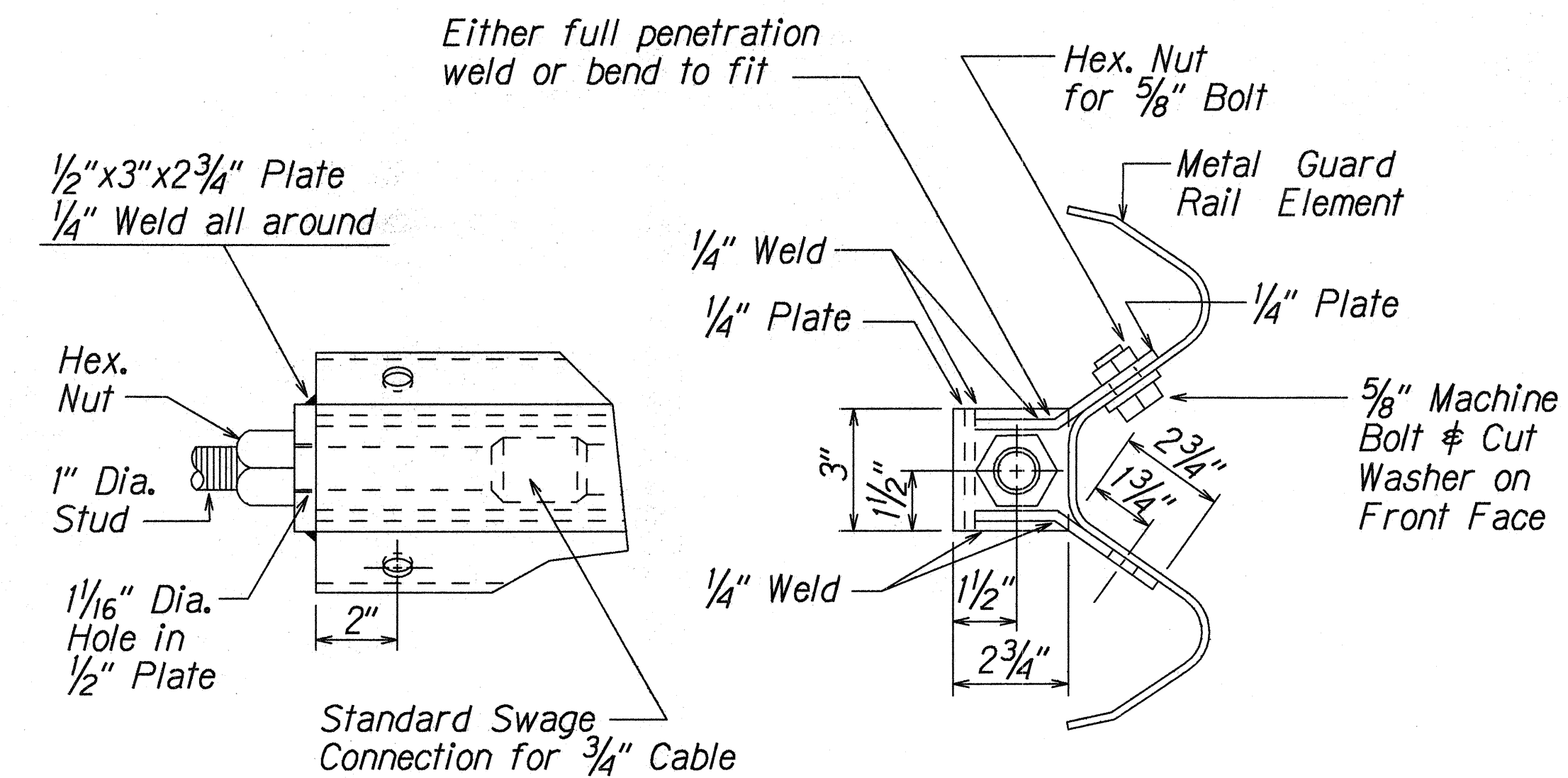
ORIGINAL PLAN	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
DATE	

13/01/99 101-ruby/guardrail/1051rev.dgn (standard plan TE-51-r09/01/87)

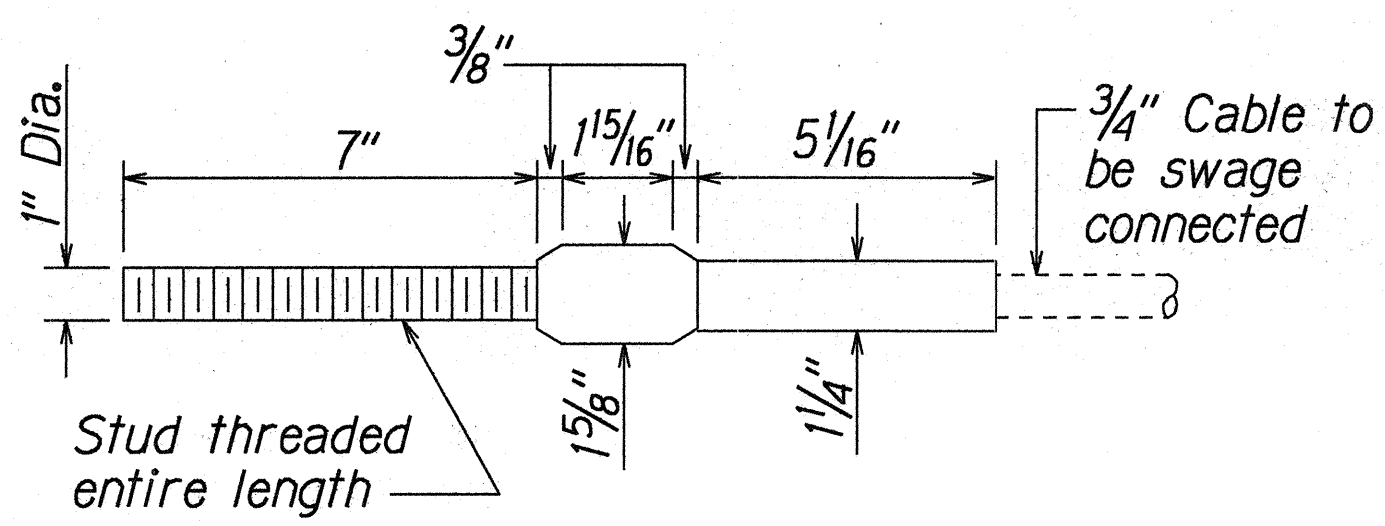
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRONG POST W-BEAM GUARDRAIL
HAWAII BELT ROAD
DRAINAGE IMPROVEMENTS
Vicinity of Maulua Gulch, Laupahoehoe
Gulch & Kaawalii Gulch
Project No. 19G-02-99
Scale: NTS Date: Nov. 1999
SHEET No. 5 OF 8 SHEETS

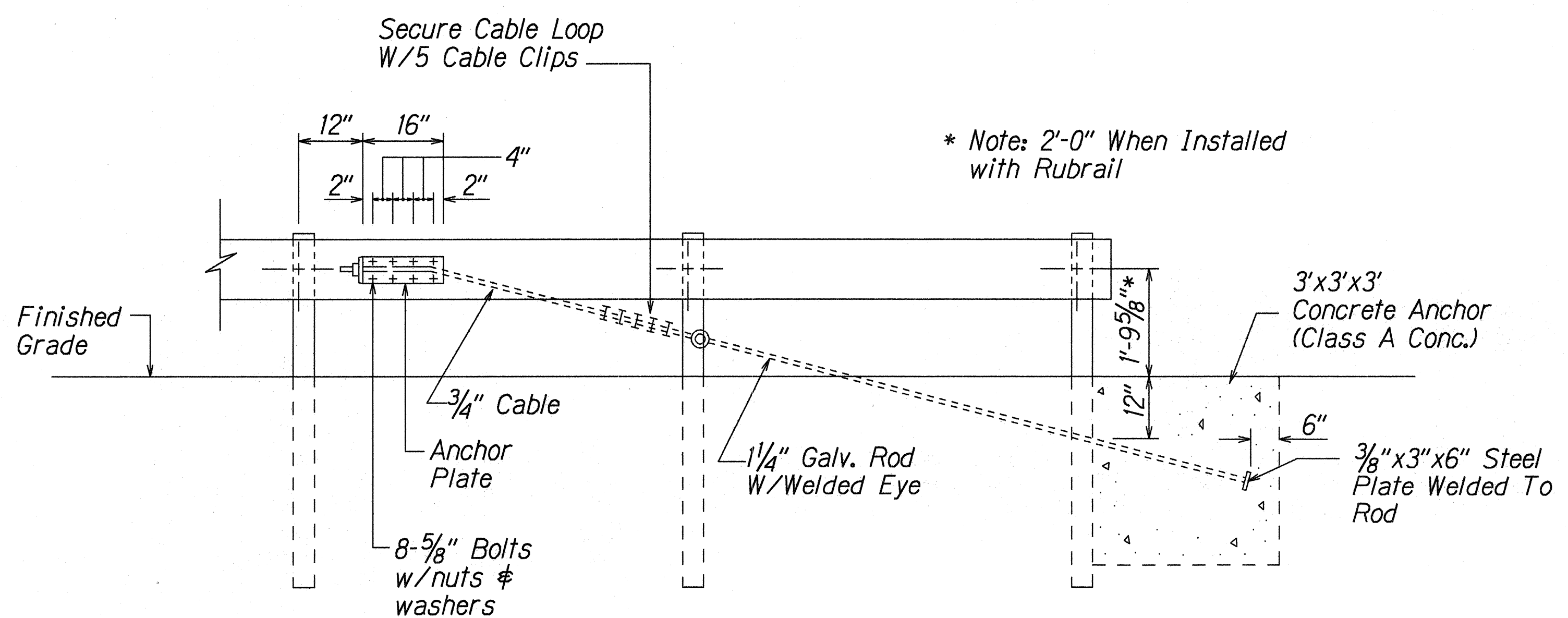
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19G-02-99	2000	25	27



ANCHOR PLATE DETAILS

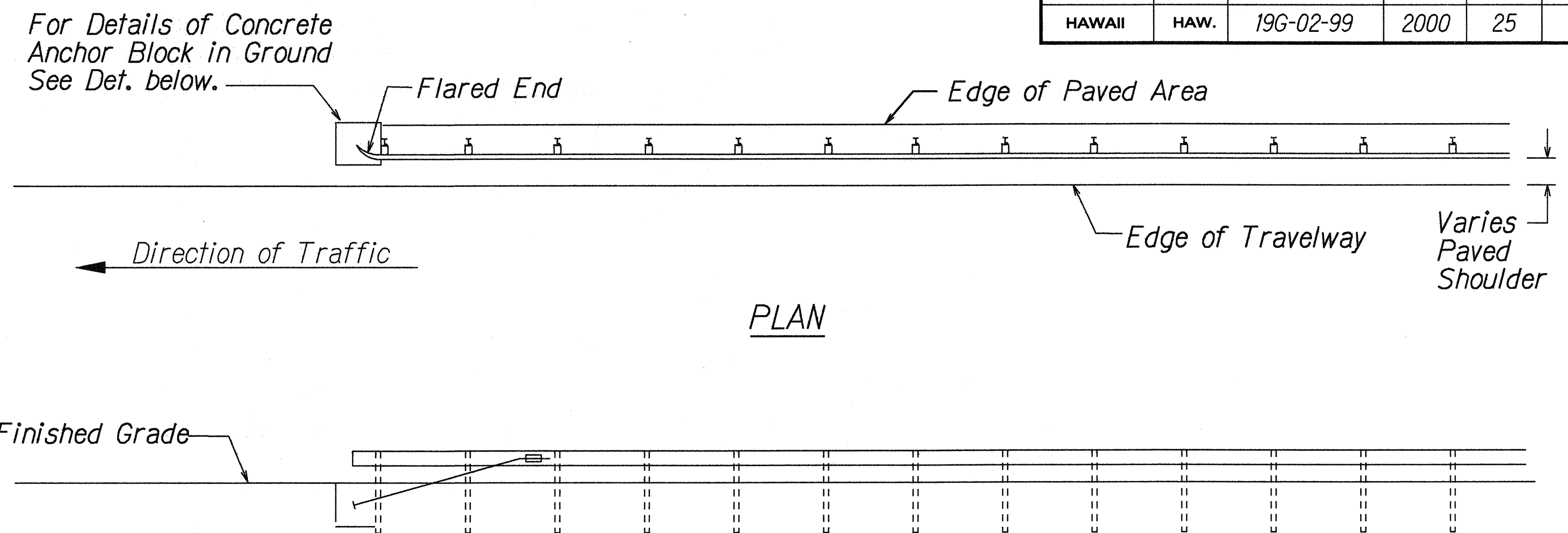


STANDARD SWAGED FITTING AND STUD



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.



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.

ORIGINAL PLAN

DATE

11/03/99

SURVEY PLOTTED BY

10/1/99

DRAWN BY

10/1/99

DESIGNED BY

10/1/99

CHECKED BY

10/1/99

10/1/99

10/1/99

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

TYPE "G" FLARE

HAWAII BELT ROAD

DRAINAGE IMPROVEMENTS

Vicinity of Maulua Bulch, Laupahoehoe

Gulch and Kaawalii Gulch

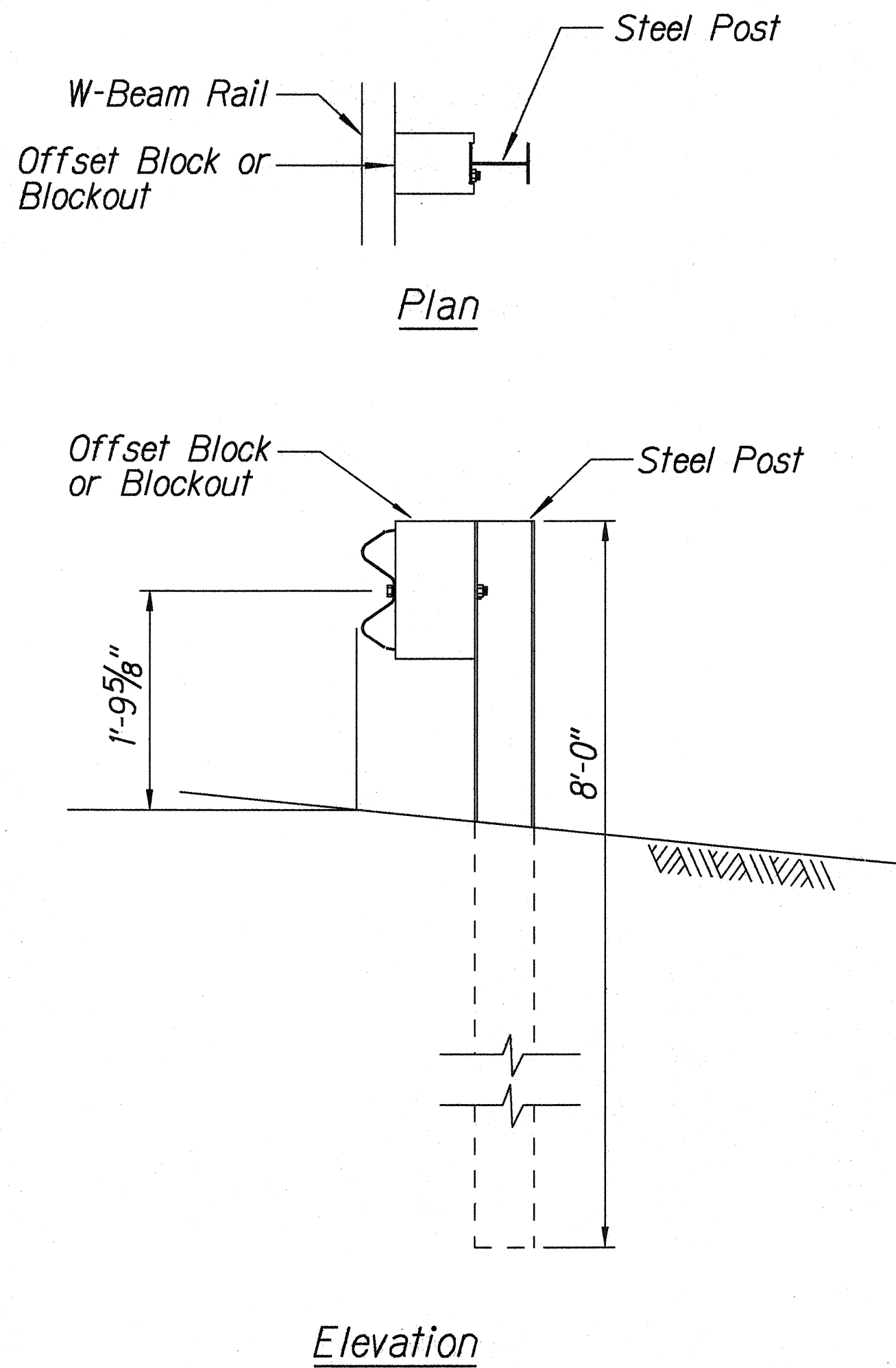
Project No. 19G-02-99

Scale: NTS

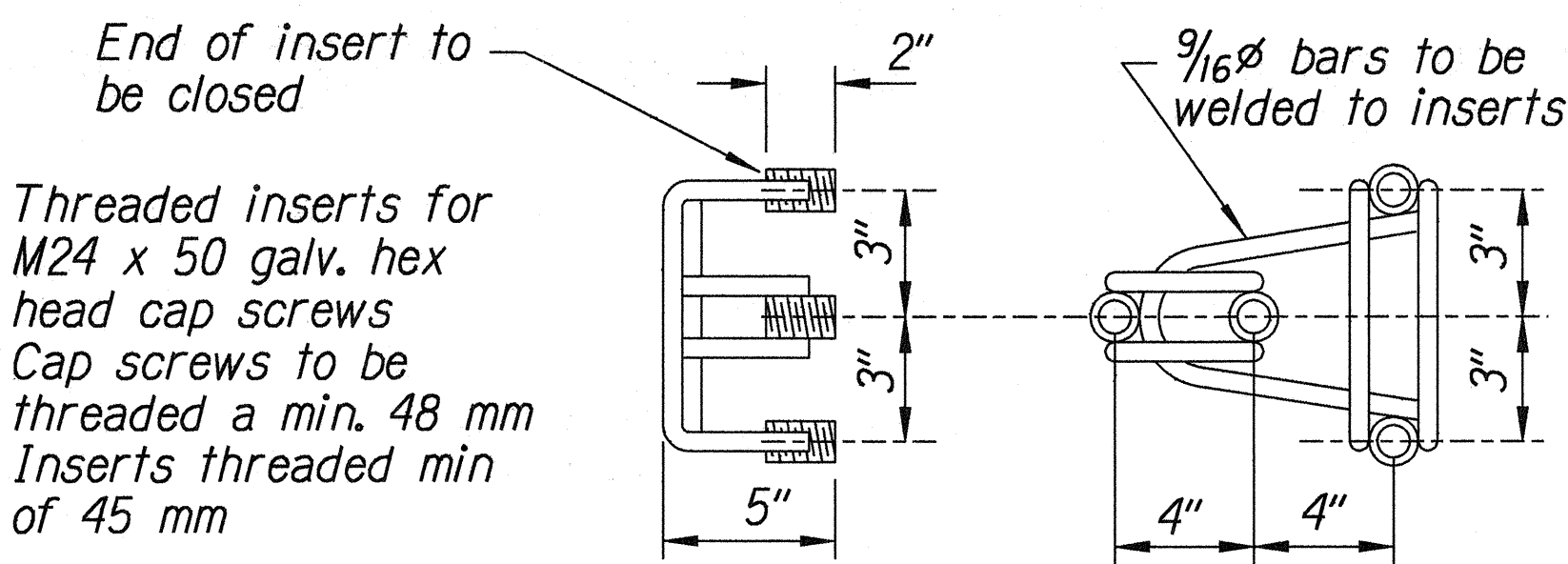
Date: Dec. 1999

SHEET No. 6 OF 8 SHEETS

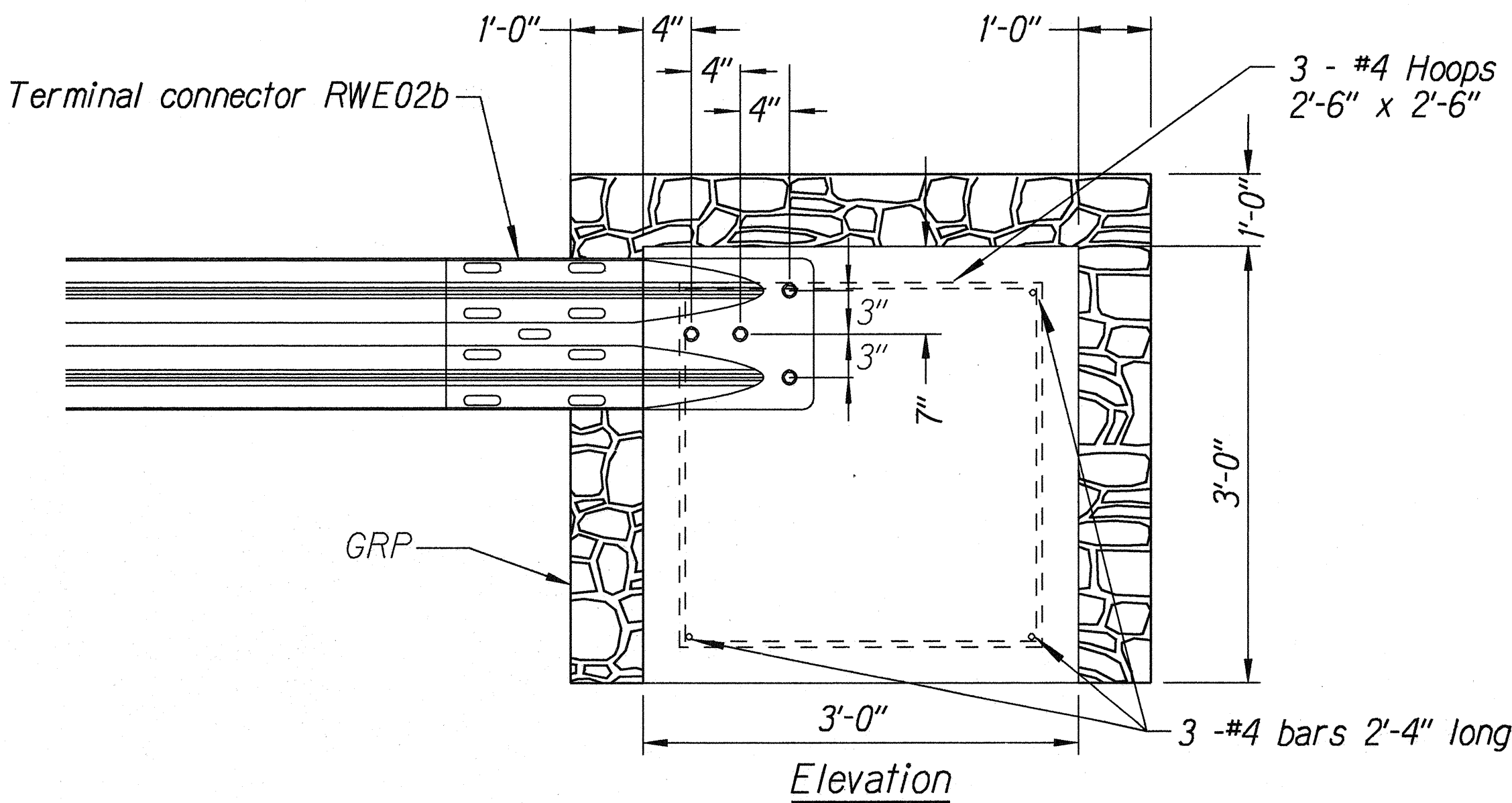
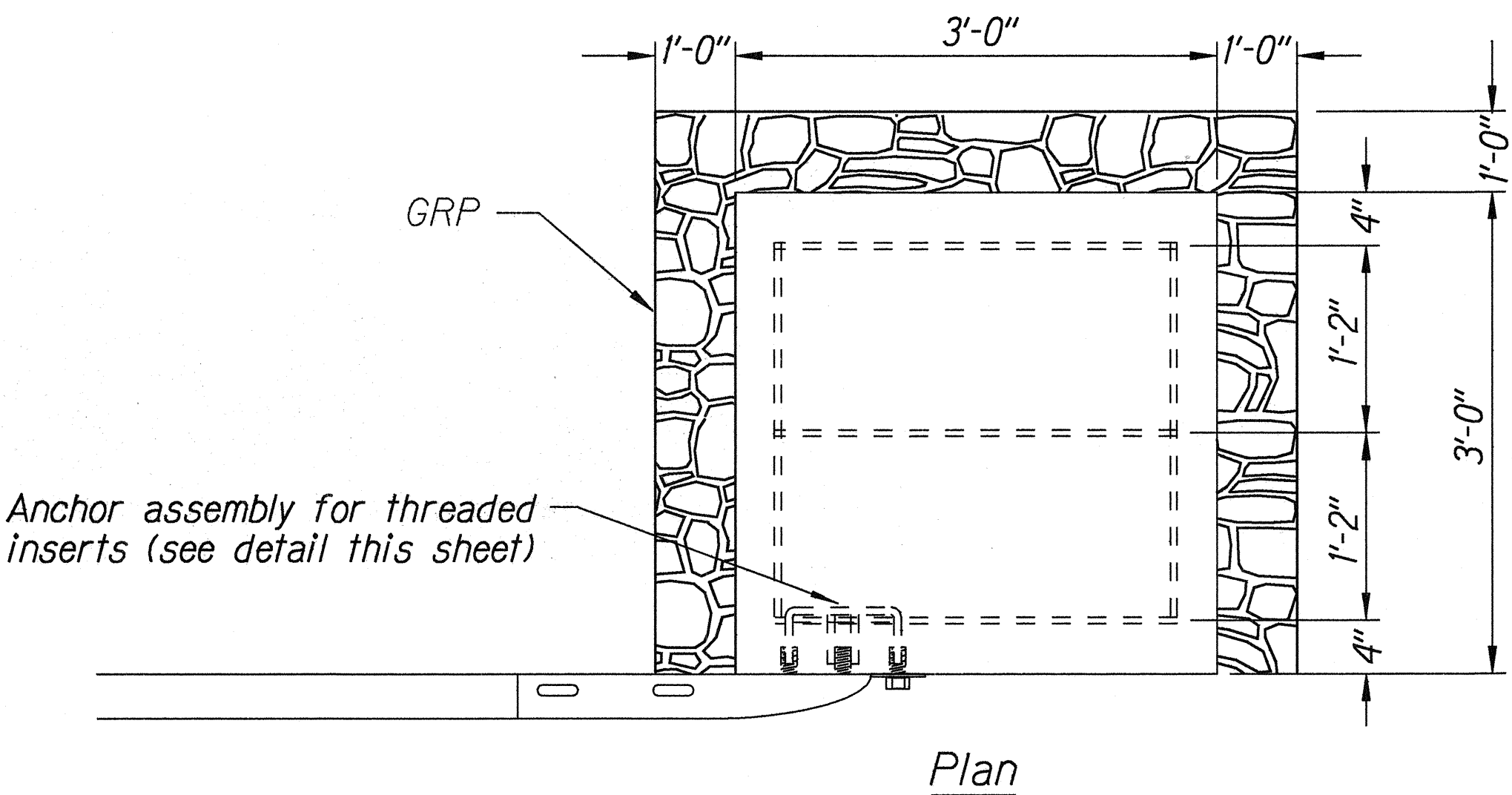
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19G-02-99	2000	27	27



STRONG POST W-BEAM GUARDRAIL



ANCHOR ASSEMBLY
CONCRETE BLOCK ANCHOR



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
NOTE BOOK	DRAWN BY	
ddj/mre	DESIGNED BY	
N. flare2	CHECKED BY	

17/01/99 1d1rby/guardrail/flare_al_2.dgn (standard plan TE-58 07/01/86, TE-59 nt/03/89 & TE-60 07/01/86)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MODIFIED TYPE "A-1" FLARE
HAWAII BELT ROAD
DRAINAGE IMPROVEMENTS
Vicinity of Maulua Gulch, Laupahoehoe
Gulch & Kaawalii Gulch
Project No. 19G-02-99
Scale: NTS Date: Nov. 1999
SHEET No. 8 OF 8 SHEETS