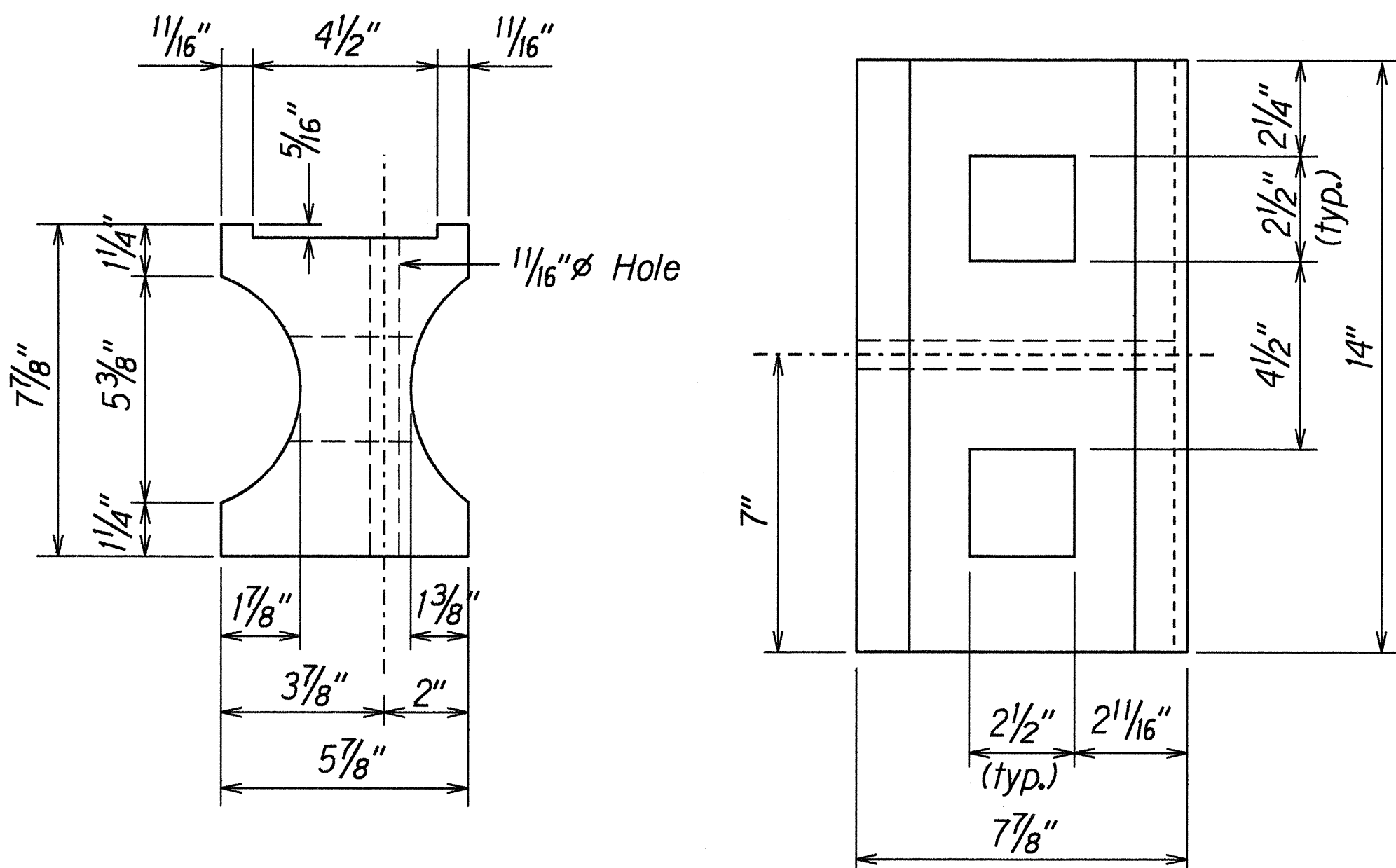
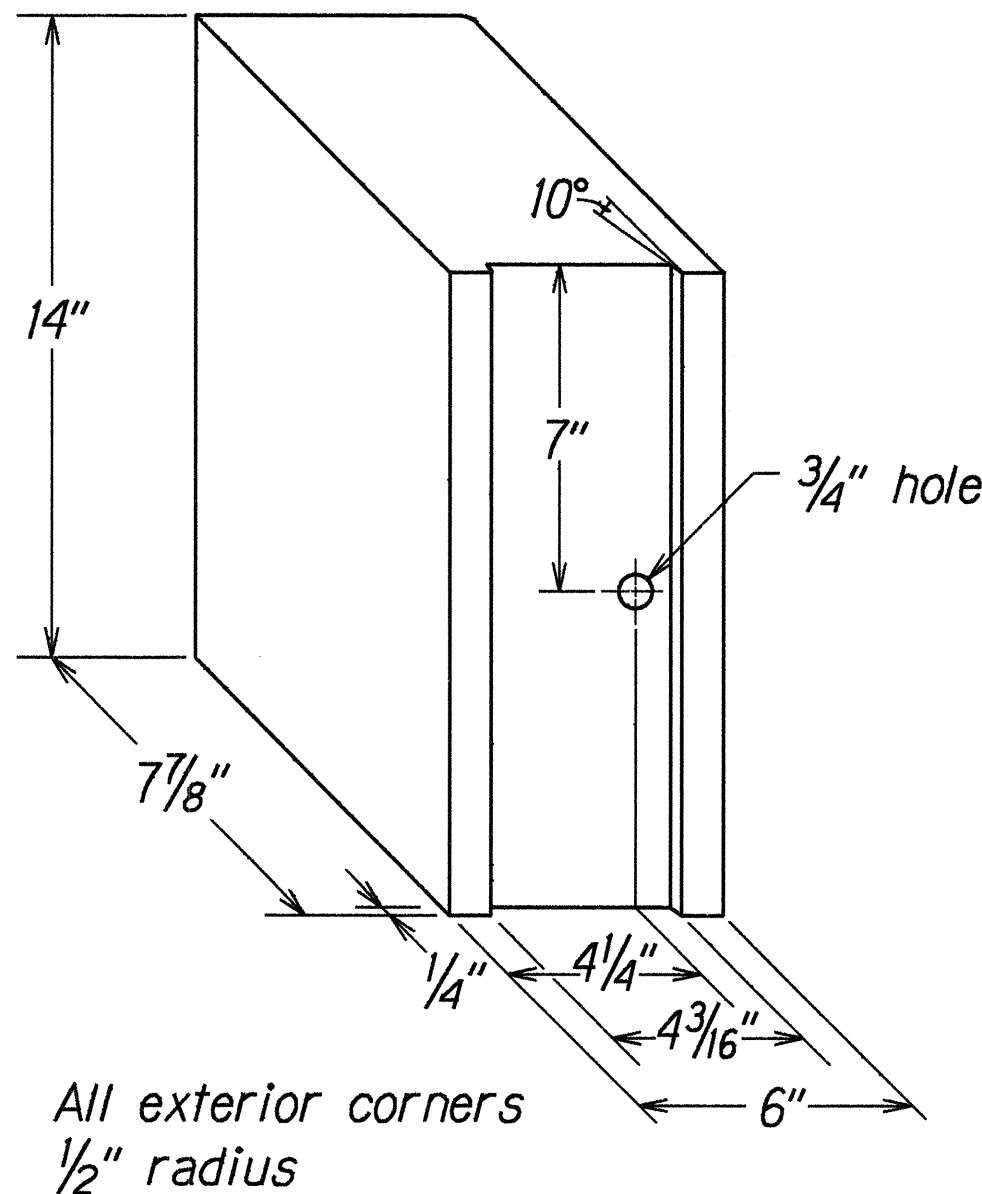


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-093-I(19)	1999	10	49

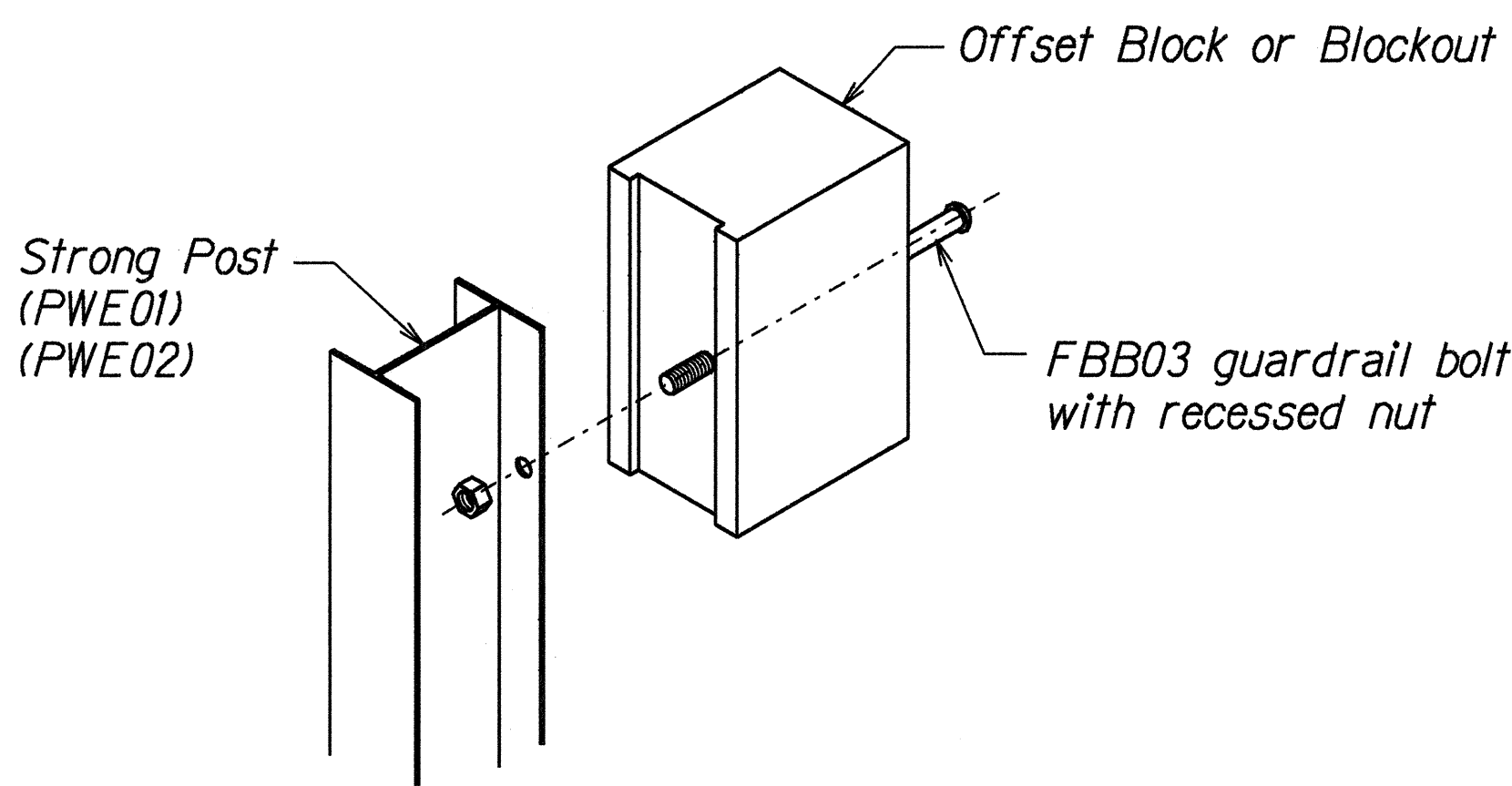


TOP
SIDE
RECYCLED PLASTIC BLOCKOUT (TYPE I)

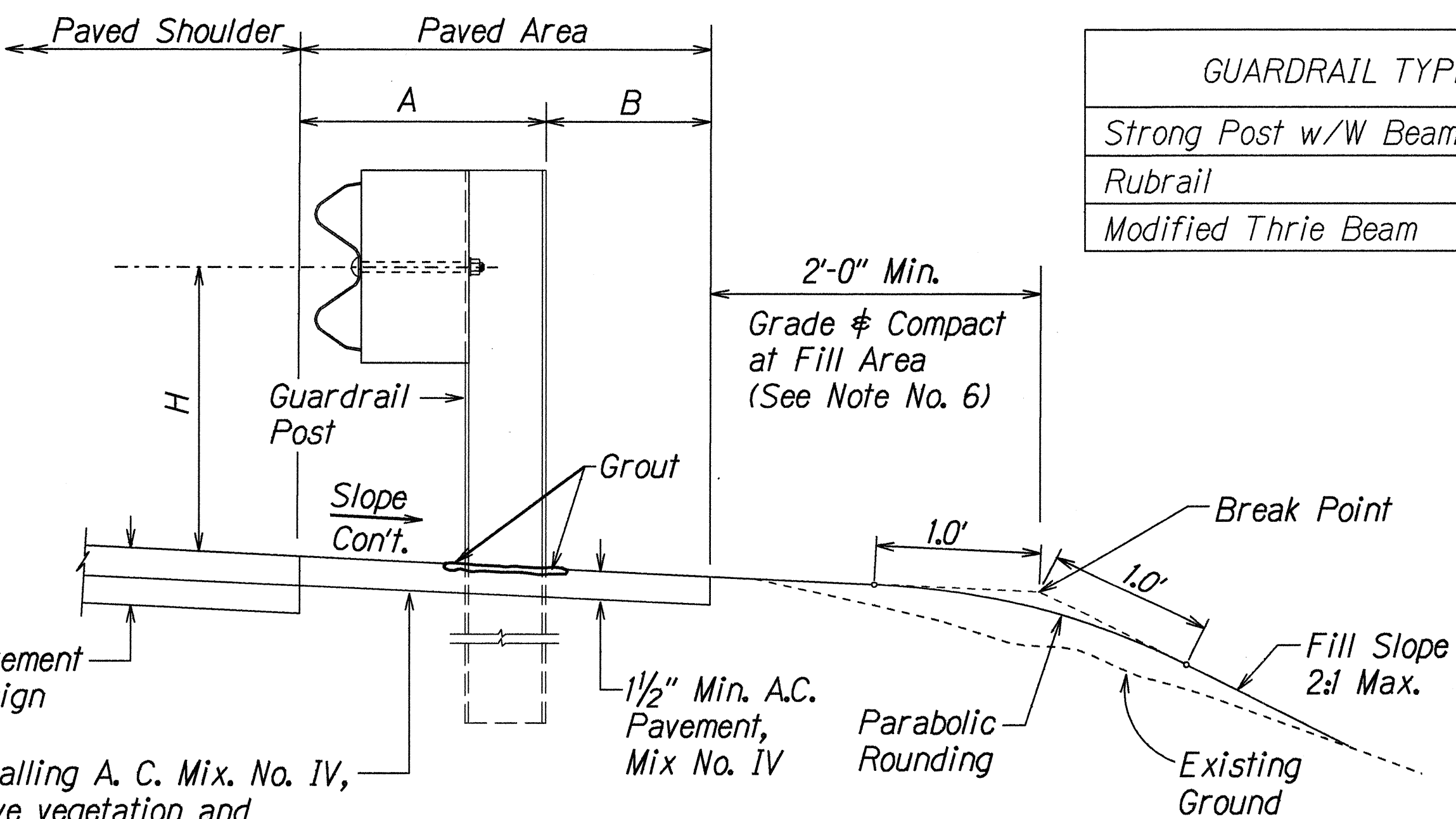
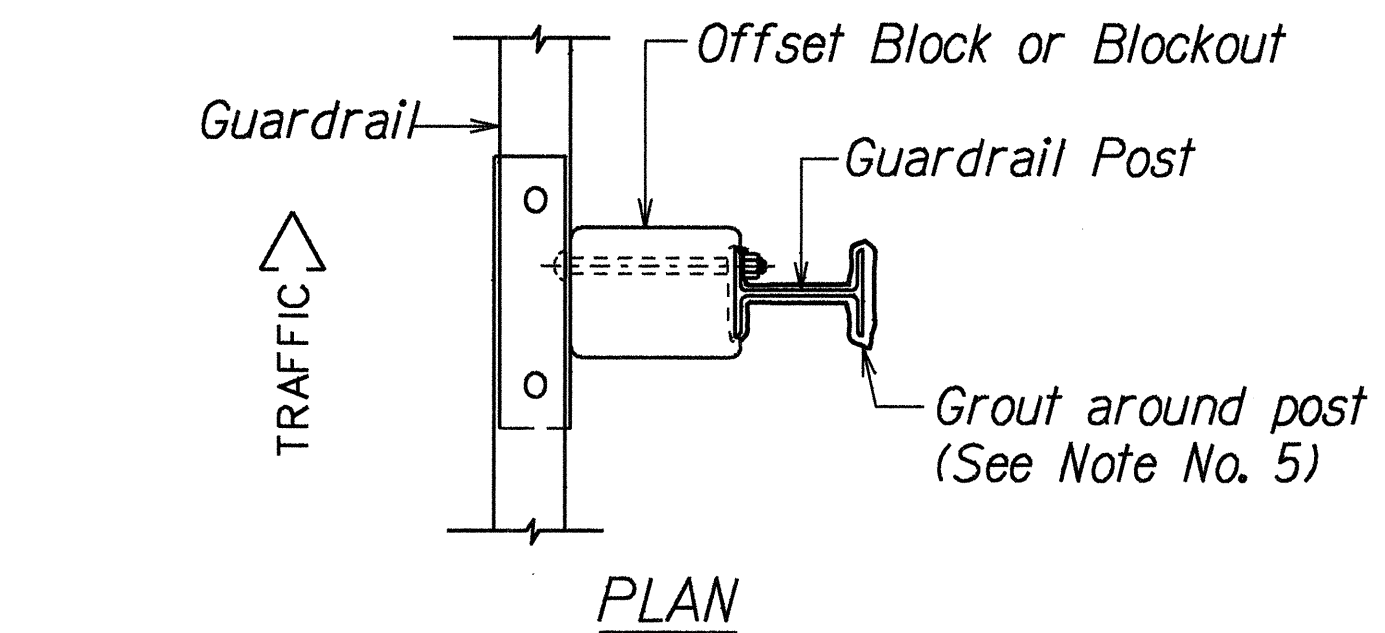


RECYCLED POLYETHYLENE
OFFSET BLOCK (TYPE II)

- 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 fasteners, 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.



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



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

ELEVATION
TYPICAL GUARDRAIL INSTALLATION

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"

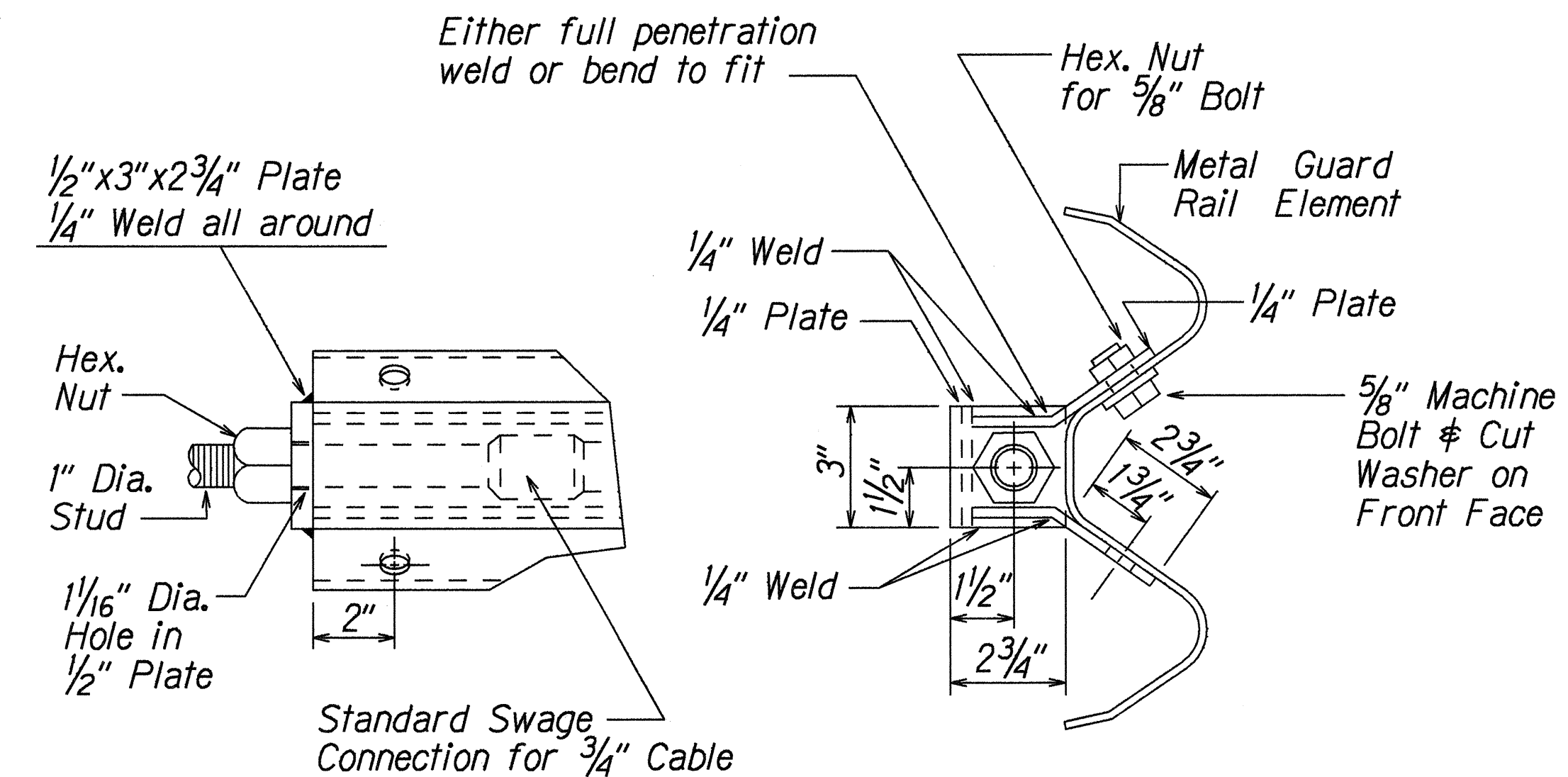
SURVEY PLOTTED BY	DATE
DRAWN BY	4/20/99
TRACED BY	12/12/99
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
DATE	
BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

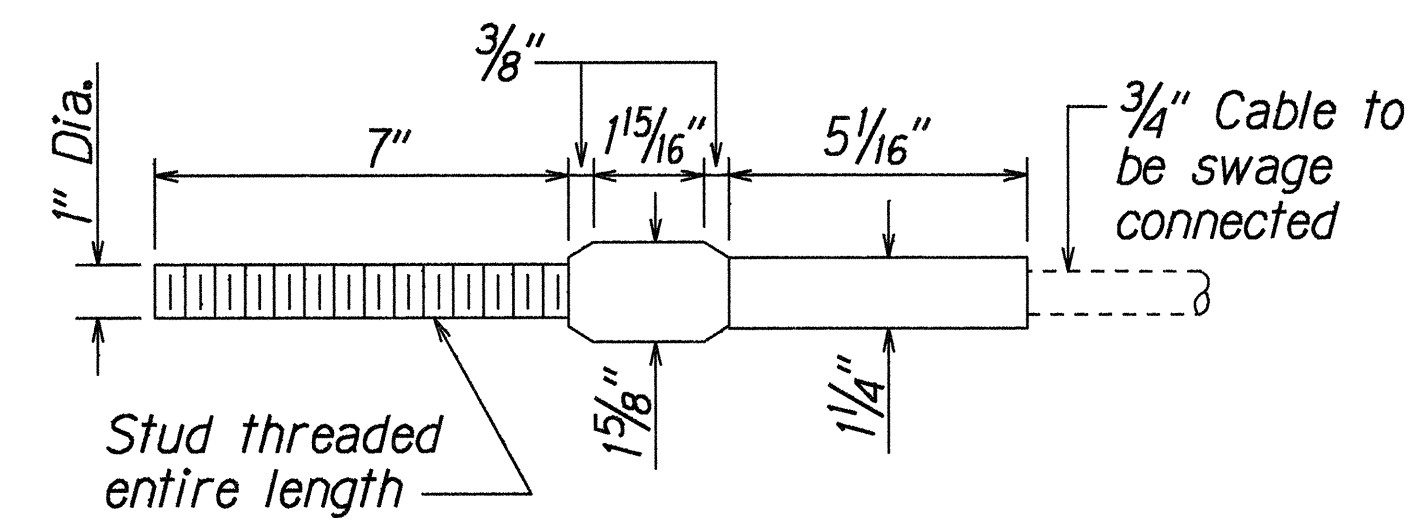
GUARDRAIL DETAILS & NOTES
FARRINGTON HIGHWAY IMPROVEMENTS
Vicinity of Tracks Beach Park
Federal Aid Project No. NH-093-I(19)
Scale: NTS
Date: May, 1999

SHEET No. 1 OF 1 SHEETS

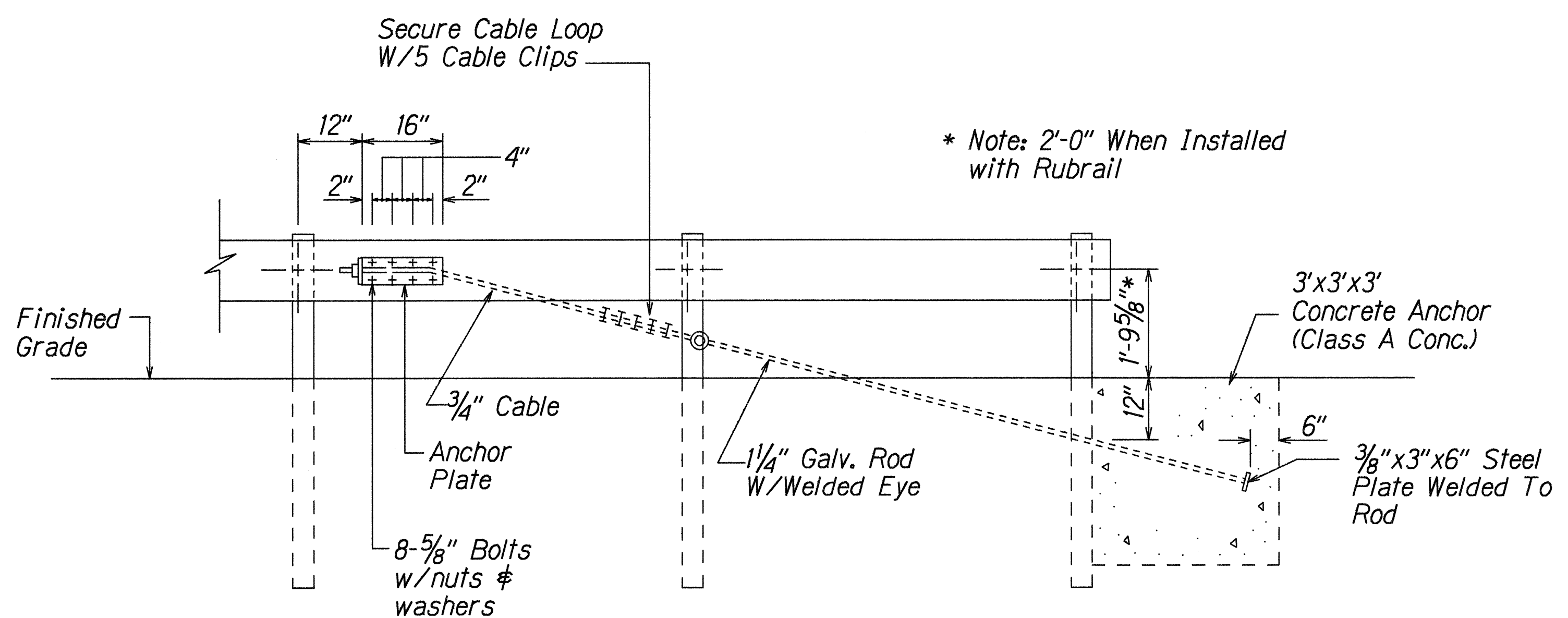
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-093-1(19)	1999	13	49



ANCHOR PLATE DETAILS

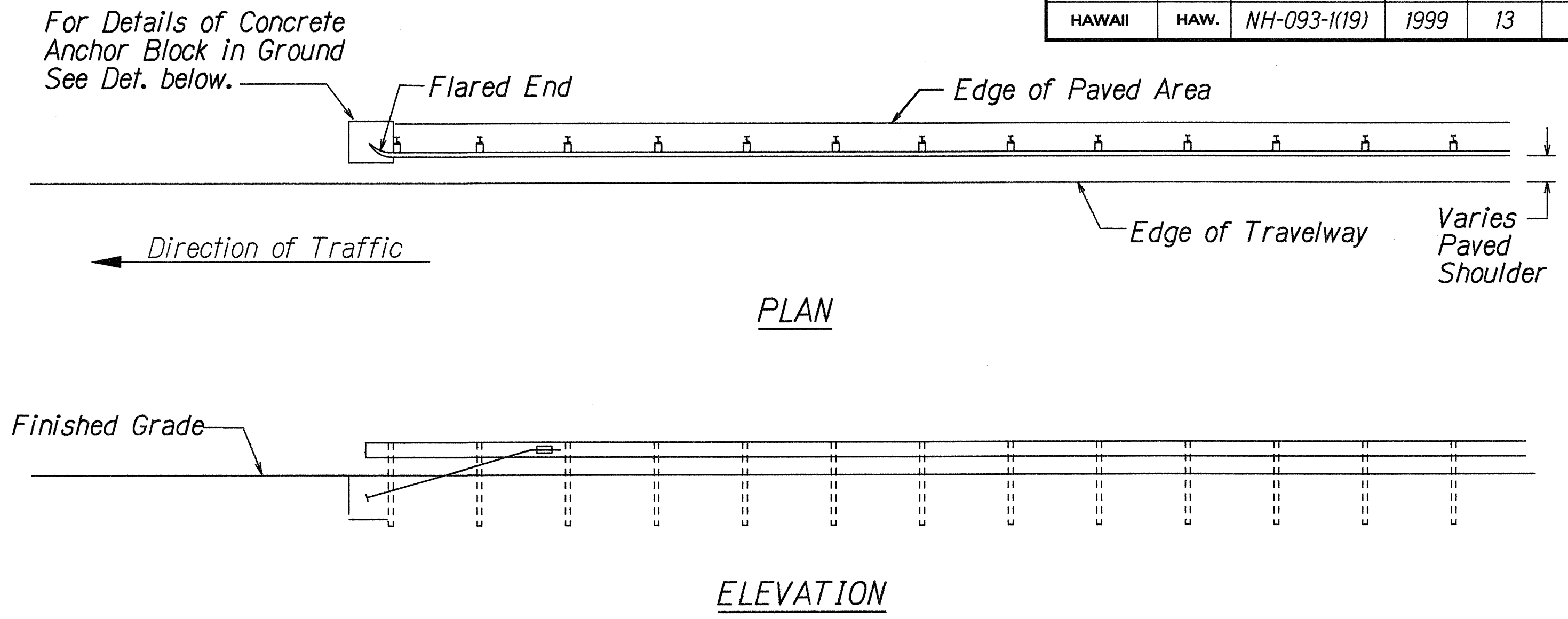


STANDARD SWAGED FITTING AND STUD



ANCHOR BLOCK DETAIL

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



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.

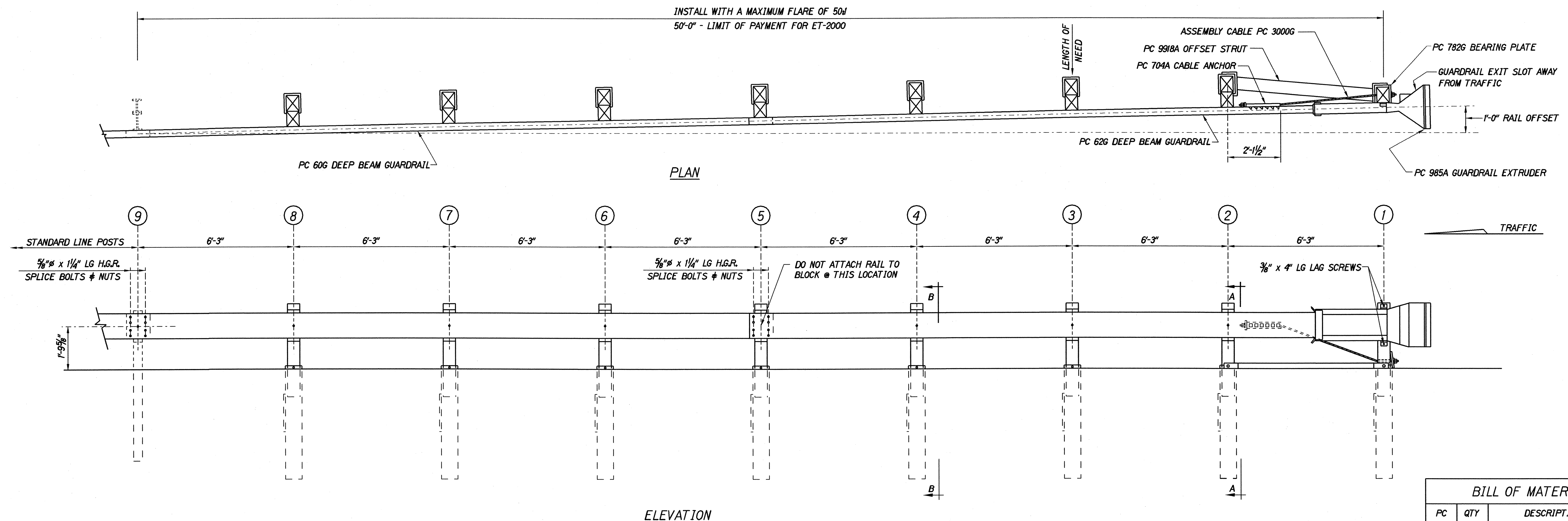
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	4/27/99
DRAWN BY	g.kawano
DESIGNED BY	L. Buranell/L. Fulmer
CHECKED BY	dd2ayen
NOTES	4/29/99

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL DETAILS
FARRINGTON HIGHWAY IMPROVEMENTS
Vicinity of Tracks Beach Park
Federal Aid Project No. NH-093-1(19)
Scale: NTS
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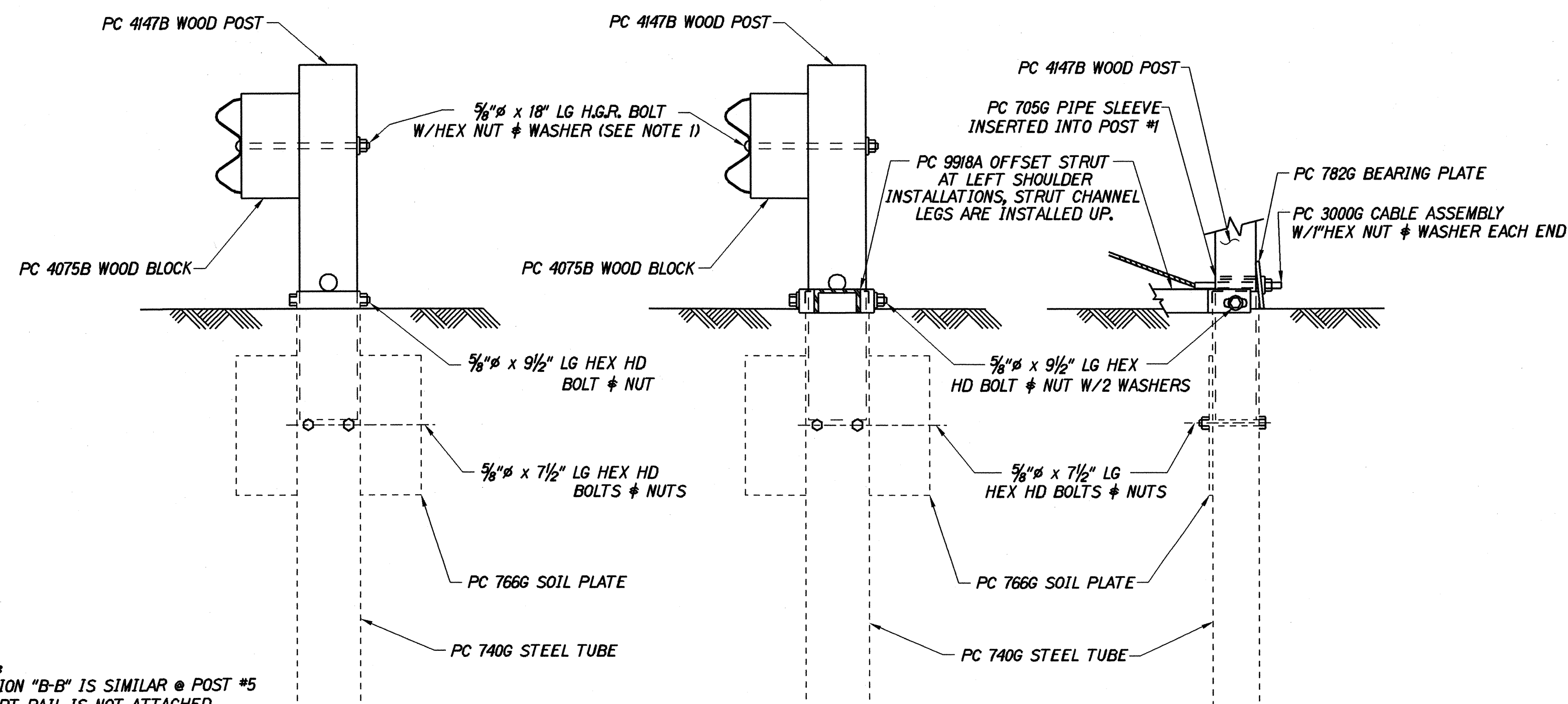
SHEET No. 1 OF 1 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-093-1(19)	1999	14S-1	49



BILL OF MATERIAL

PC	QTY	DESCRIPTION
60G	1	12/25/63/S (GUARDRAIL)
62G	1	12/25/63/S ANG (GUARDRAIL)
704A	1	CABLE ANCHOR BRACKET
705G	1	2" x 5 1/2" PIPE
740G	8	46 TUBE SLEEVE
766G	8	1/4" x 18" x 24" SOIL PLATE
782G	1	5/8" x 8" x 8" BEARING PLATE
985A	1	ET-2000 EXTRUDER
3000G	1	CABLE 3/4" x 6'
3300G	11	5/8" WASHER
3340G	47	5/8" HEX NUT
3360G	16	5/8" x 1 1/4" SPLICE BOLT
3478G	16	5/8" x 7 1/2" HEX HD BOLT
3497G	8	5/8" x 9 1/2" HEX HD BOLT
3580G	7	5/8" x 18" POST BOLT
3900G	2	1" WASHER
3910G	2	1" HEX NUT
4075B	7	WD BLOCK 12 6" x 8" DR
4147B	8	WD 39 POST 5 1/2" x 7 1/2"
4228G	2	3/8" x 4" LAG SCREW
9918A	1	6'3 STRUT



NOTE: THE 5/8" FLAT WASHER IS USED UNDER THE NUT, BEHIND THE POST ONLY. NO WASHER IS USED AT THE RAIL.

NOTE: SECTION "B-B" IS SIMILAR @ POST #5 EXCEPT RAIL IS NOT ATTACHED.

STATE OF HAWAII
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HIGHWAYS DIVISION

ET-2000 - OPTION "A"

FARRINGTON HIGHWAY IMPROVEMENTS

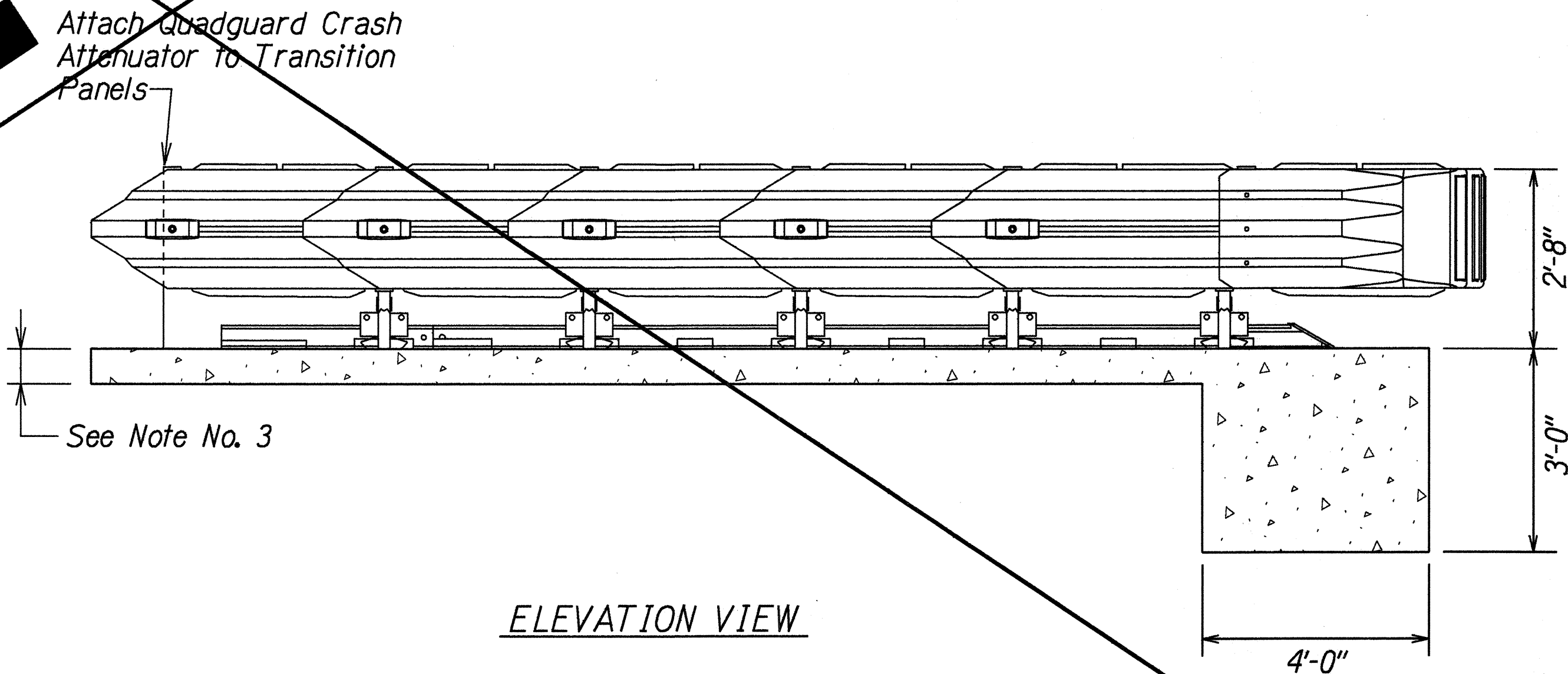
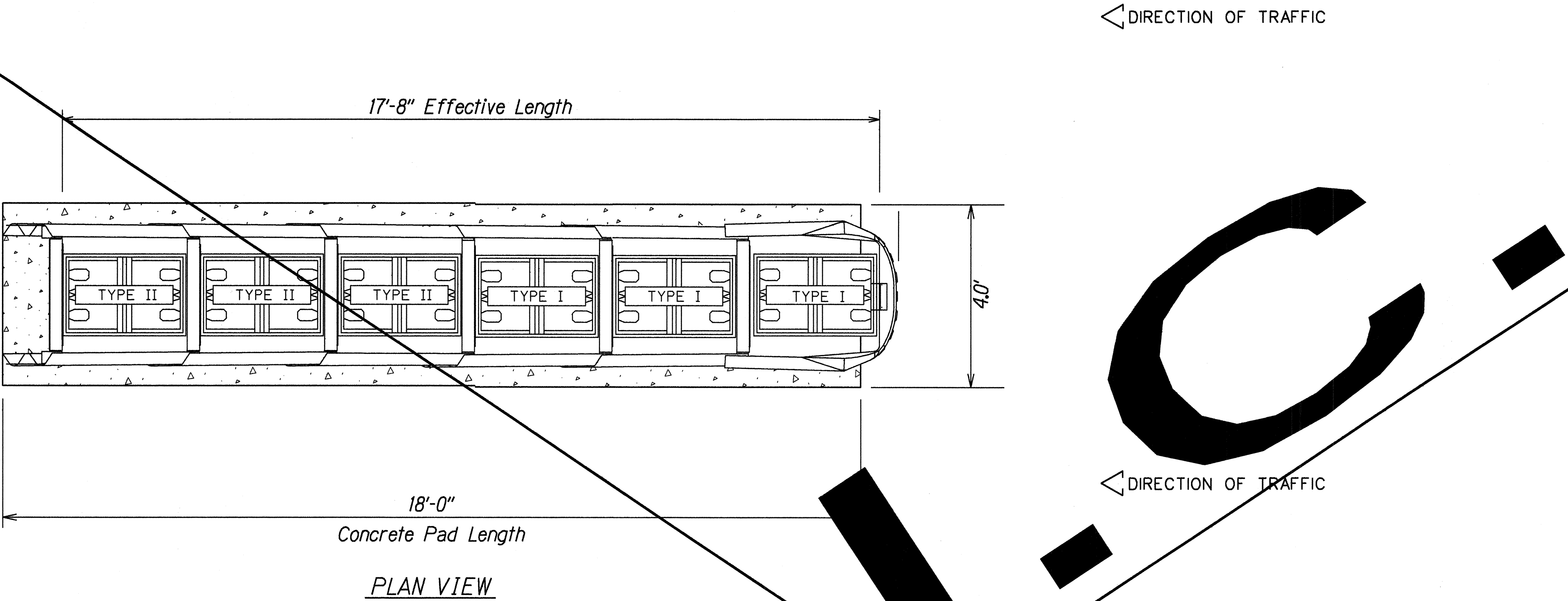
Vicinity of Tracks Beach Park

Federal Aid Project No. NH-093-1(19)

Not to Scale Date:

SHEET No. 1 OF 1 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-093-1(19)	1999	ADD. 15	49



- Note:**
1. Refer to Quadguard System Terminal attenuator for installation details
 2. Refer to Guardrail Plan at Milepost 21.9 for location of Quadguard System Terminal Attenuator
 3. 6" Minimum Reinforced 4000 psi P.C.C. Concrete Pad or 8" Minimum Non-Reinforced 4000 psi P.C.C. Roadway

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	6/24/99
addgwen	DESIGNED BY	6/24/99
addgwen	CHECKED BY	

QUADGUARD CRASH ATTENUATOR WITH CONCRETE PAD DETAILS
5-BAY SYSTEM - MODEL QS3005Y
 Not To Scale

6/21/99	Deleted from Contract Plans
DATE	REVISION

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

QUADGUARD DETAILS

FARRINGTON HIGHWAY IMPROVEMENTS
Vicinity of Tracks Beach Park
Federal Aid Project No. NH-093-1(19)

Scale: As Shown Date: May, 1999

SHEET No. 1 OF 1 SHEETS