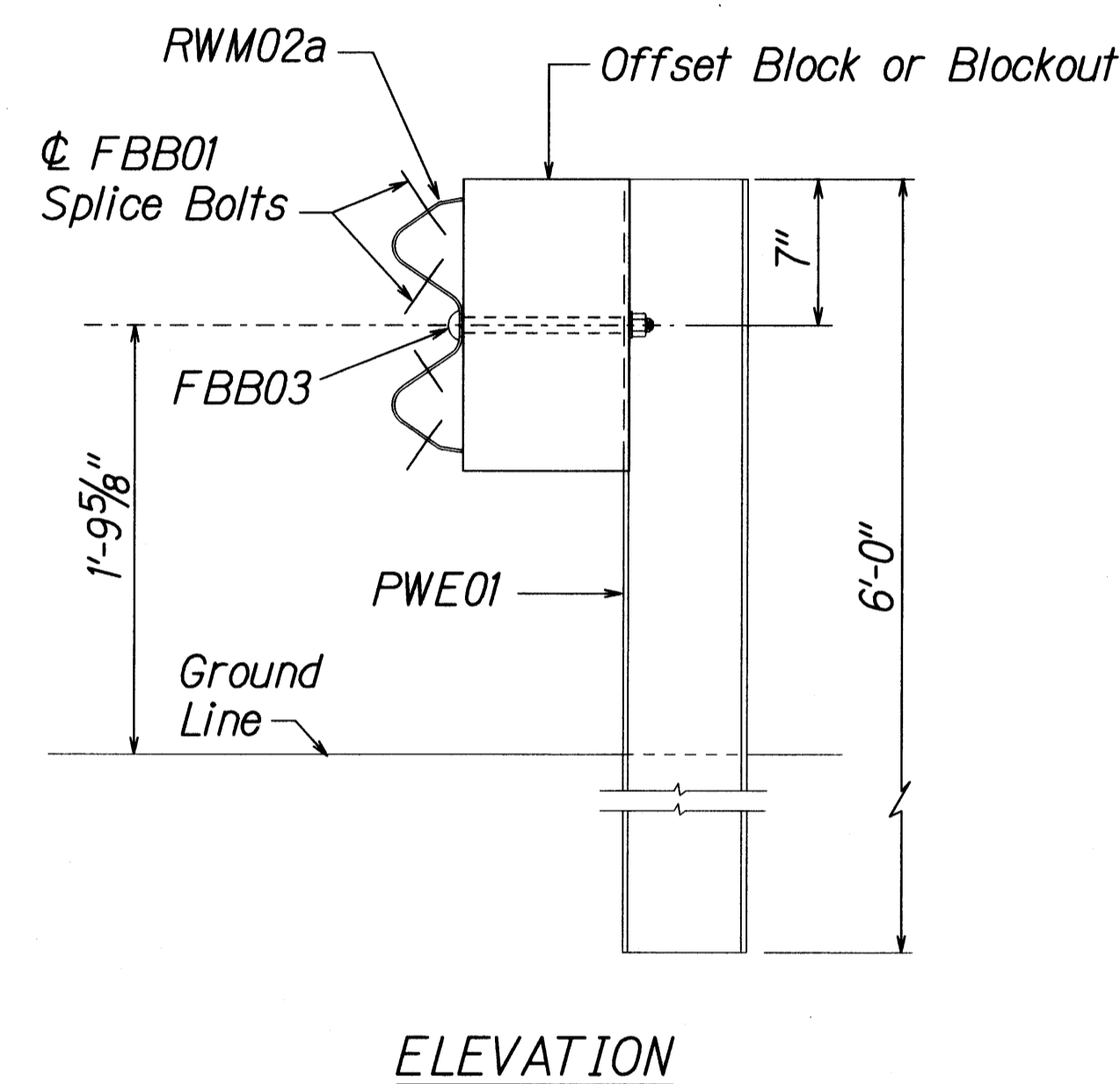
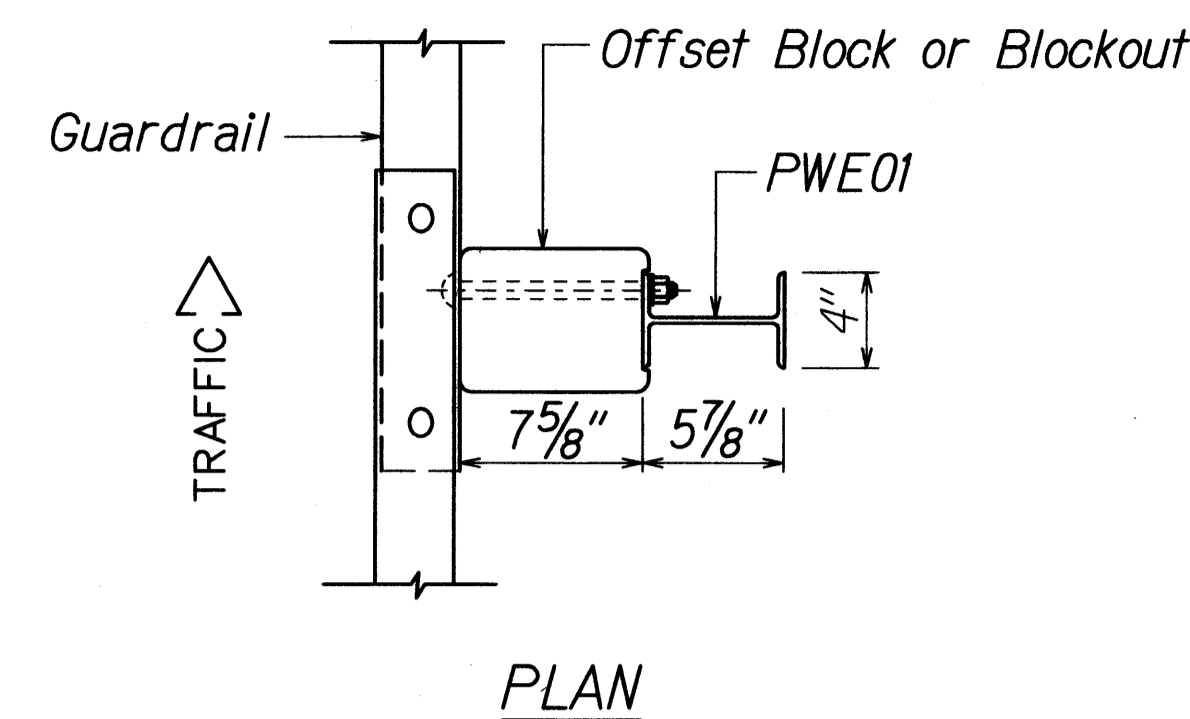
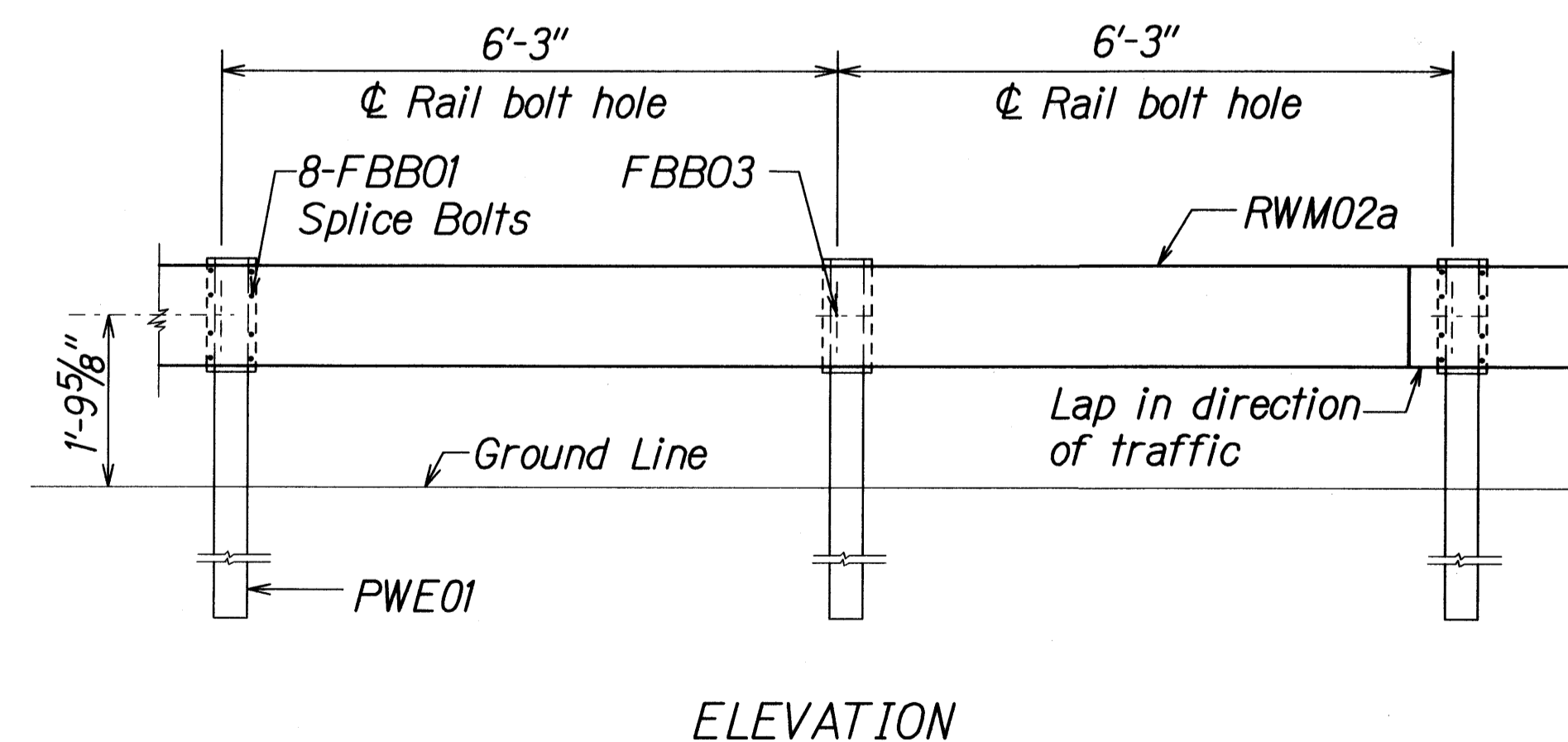


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19J-01-10	2010	23	25

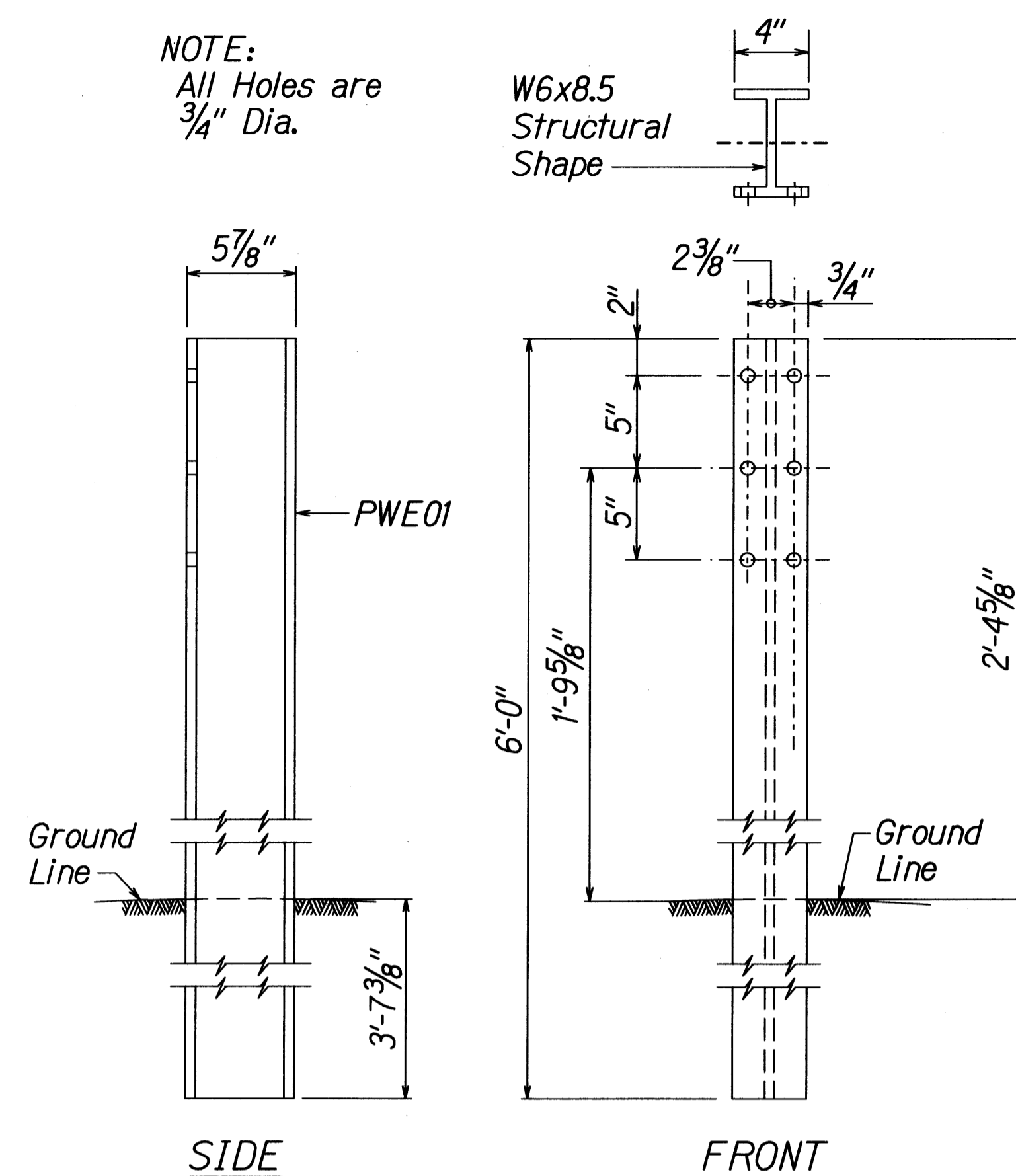


STRONG POST W-BEAM GUARDRAIL
(SGR04a)

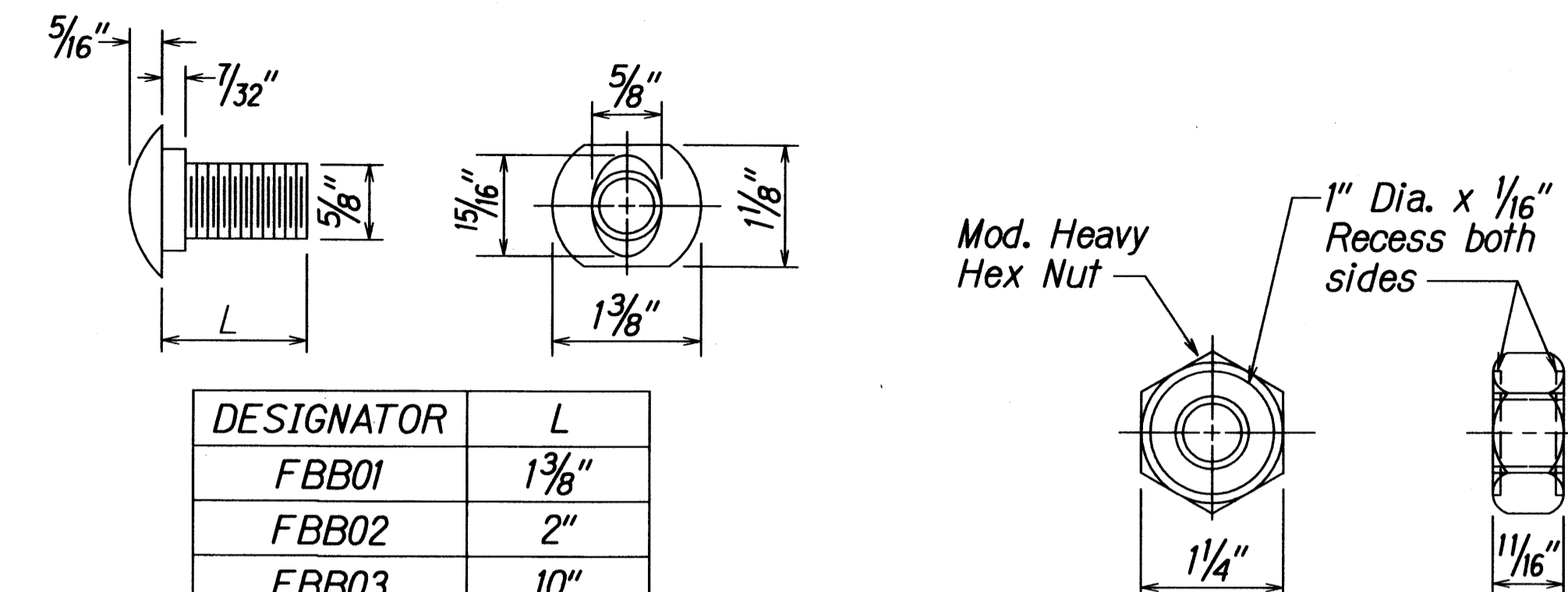


STRONG POST W-BEAM GUARDRAIL WITH
RECYCLED OFFSET BLOCK OR PLASTIC BLOCKOUT

NOTE:
All Holes are
3/4" Dia.

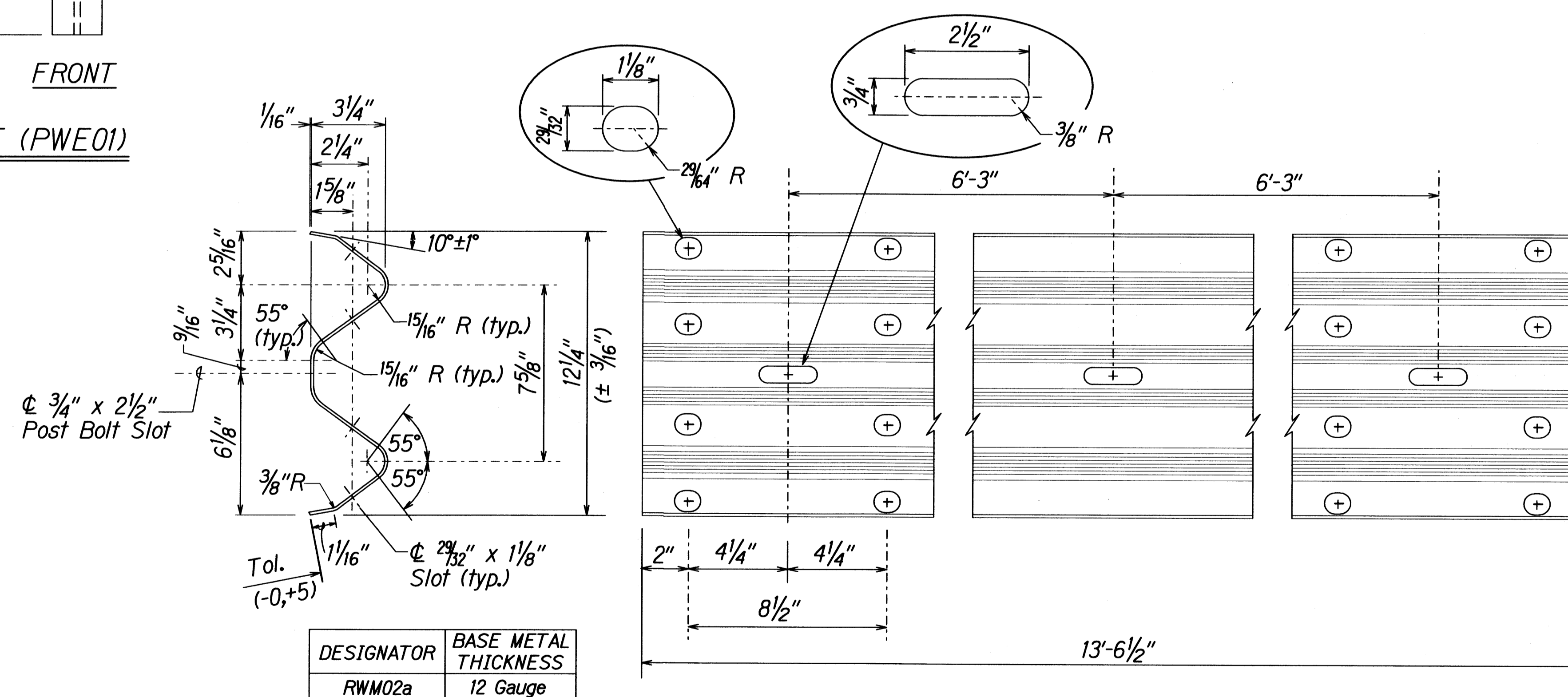


W-BEAM STRONG POST (PWE01)



DESIGNATOR	L
FBB01	1 3/8"
FBB02	2"
FBB03	10"

GUARDRAIL BOLTS AND RECESSED NUT



2 SPACE W-BEAM GUARDRAIL (RWM02a)

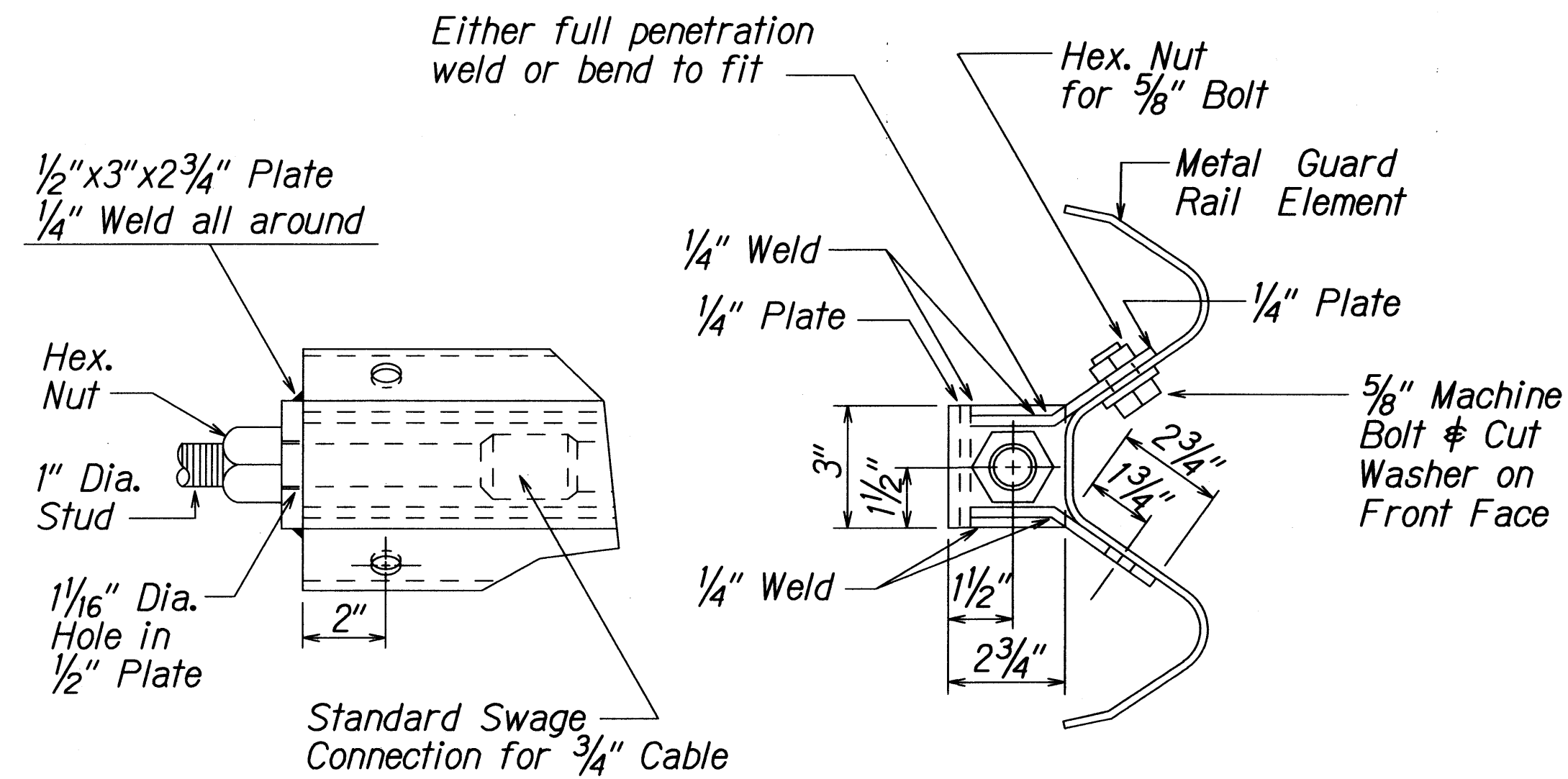
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRONG POST W-BEAM GUARDRAIL
HAWAII BELT ROAD
SAFETY IMPROVEMENTS
In the Vicinity of Papaikou Mill Road
Project No. 19J-01-10

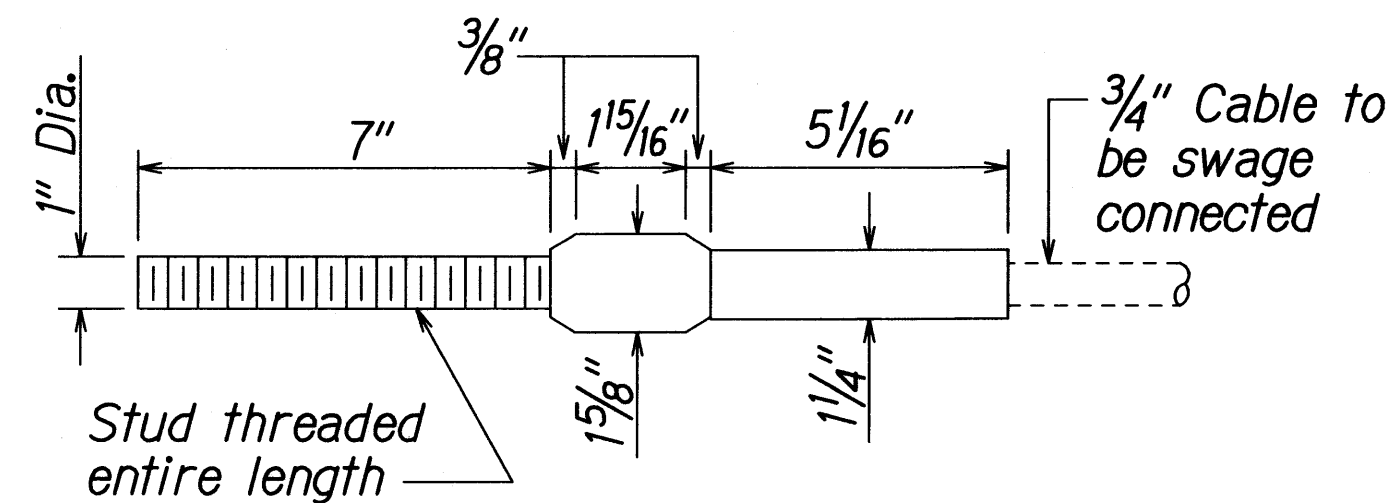
Scale: NTS Date: Nov., 2009

SHEET No. 1 OF 1 SHEETS

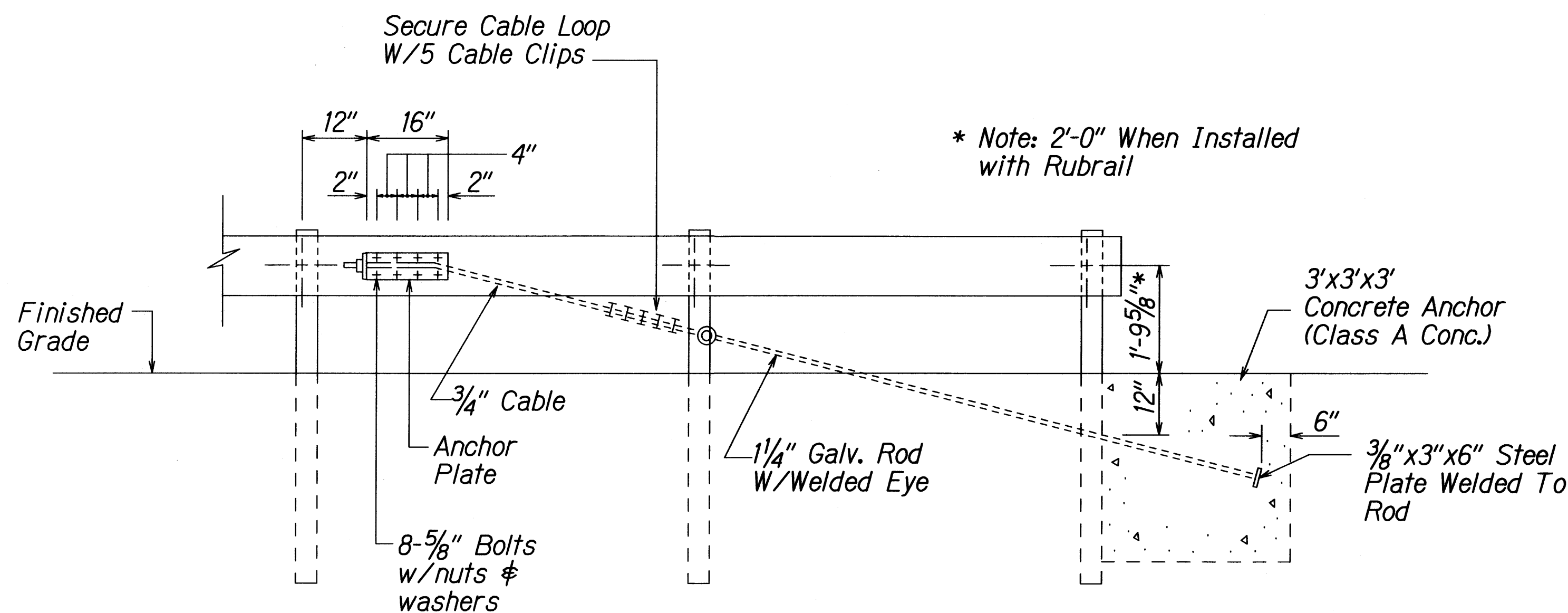
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19J-01-10	2010	24	25



ANCHOR PLATE DETAILS

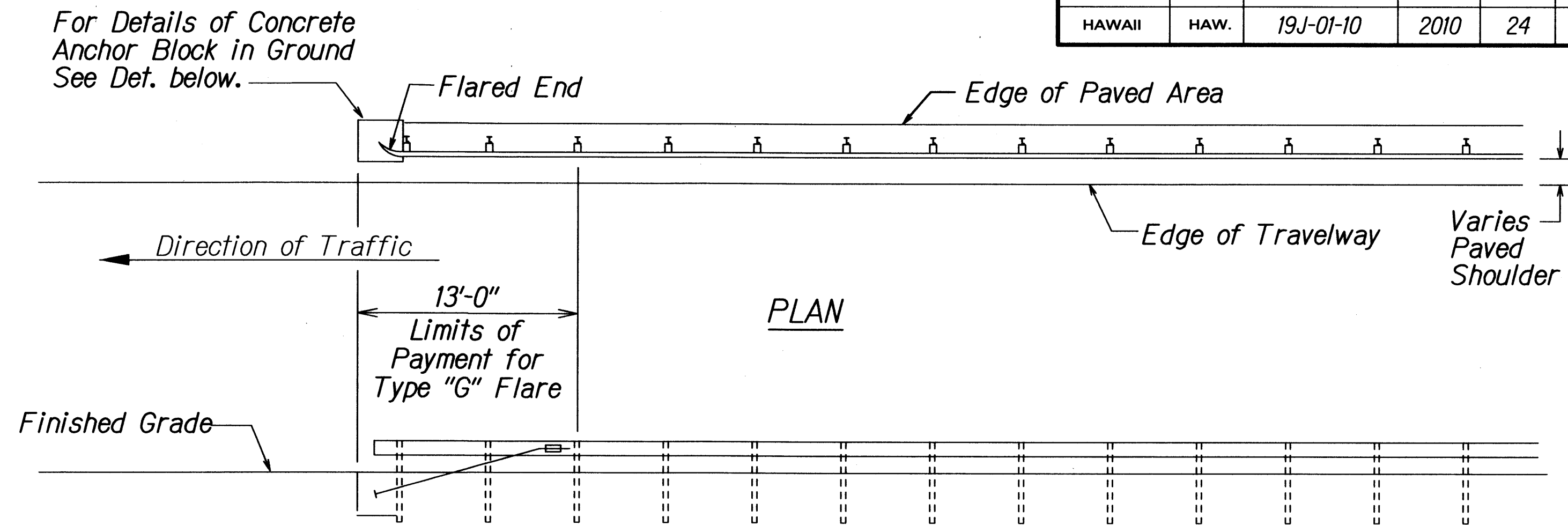


STANDARD SWAGED FITTING
AND STUD



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.



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.

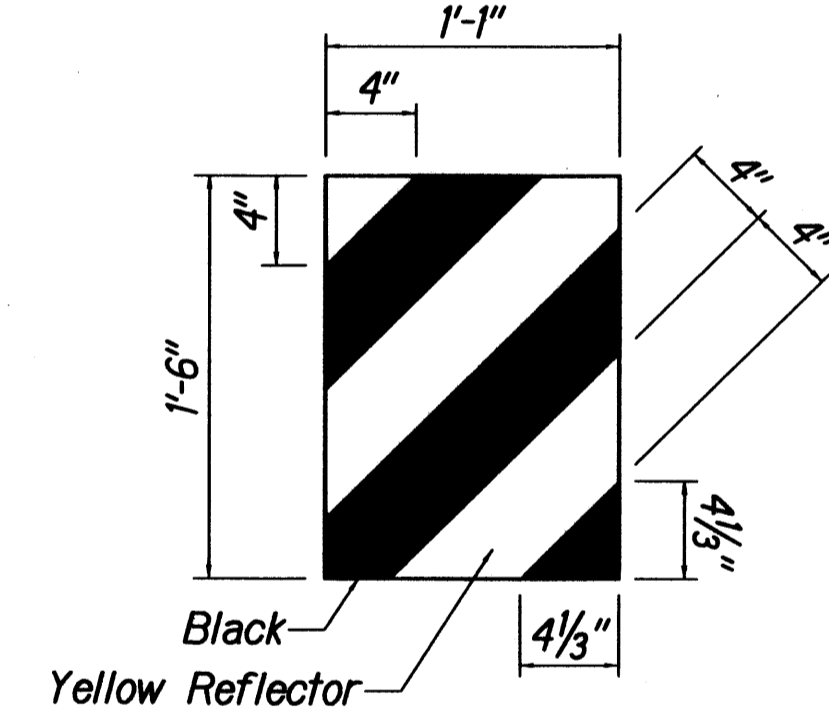
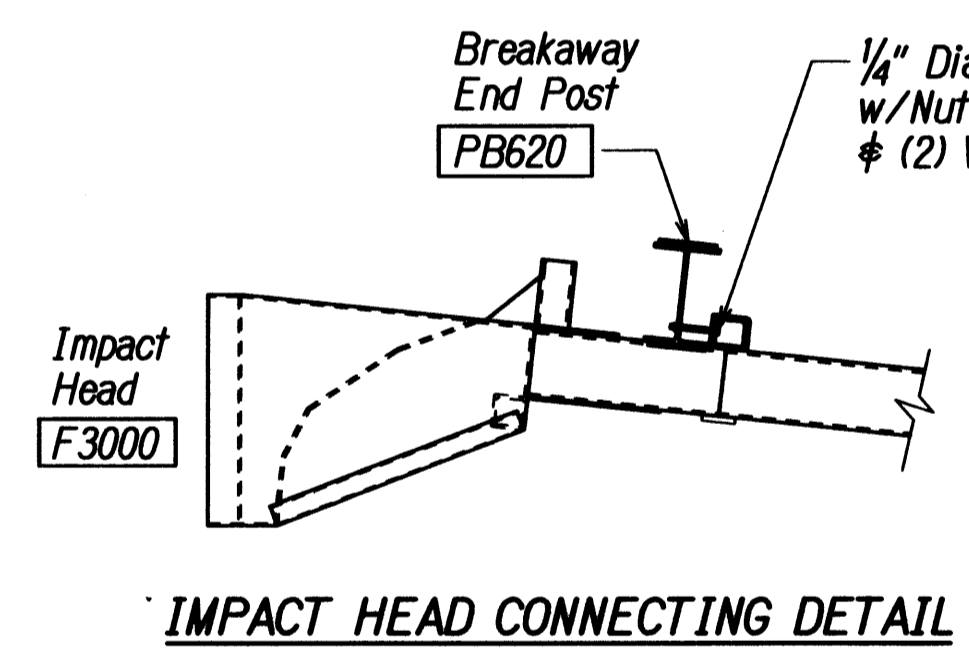
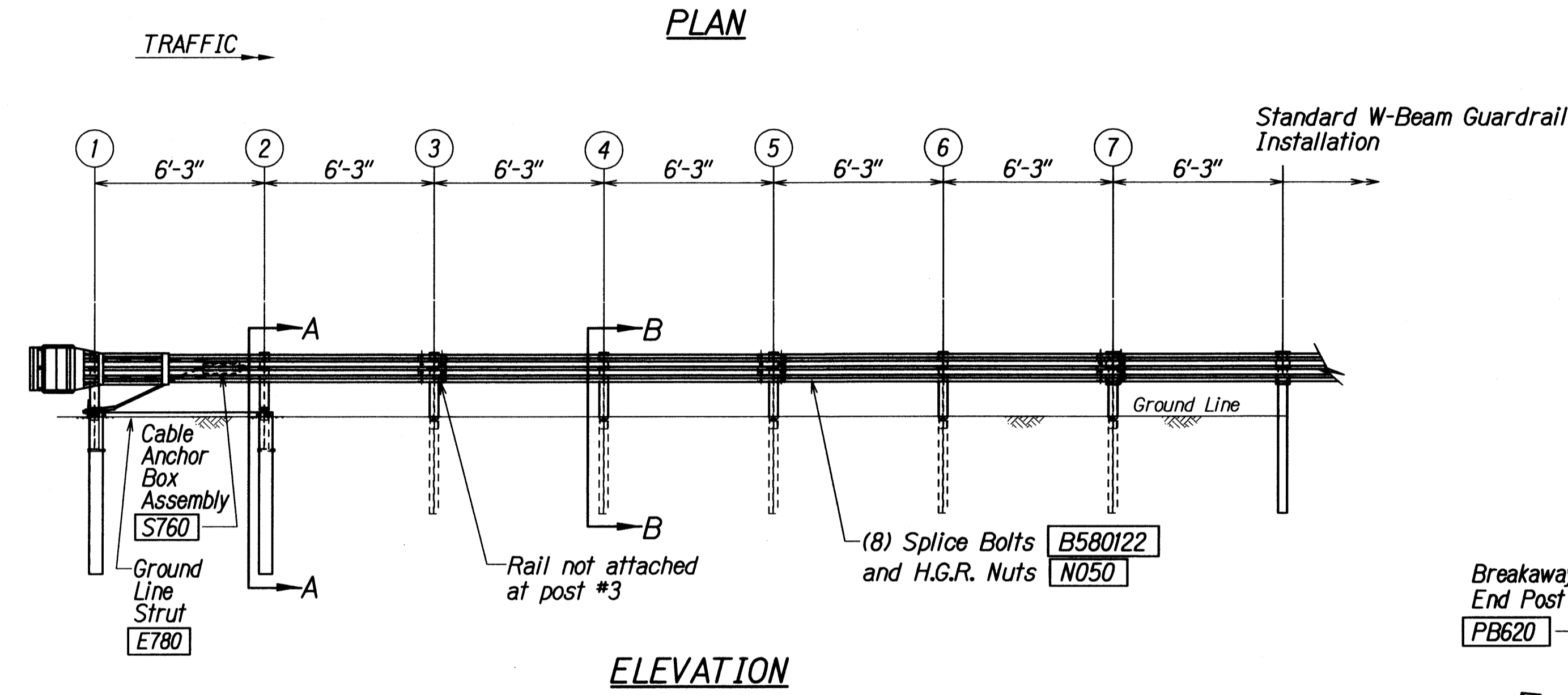
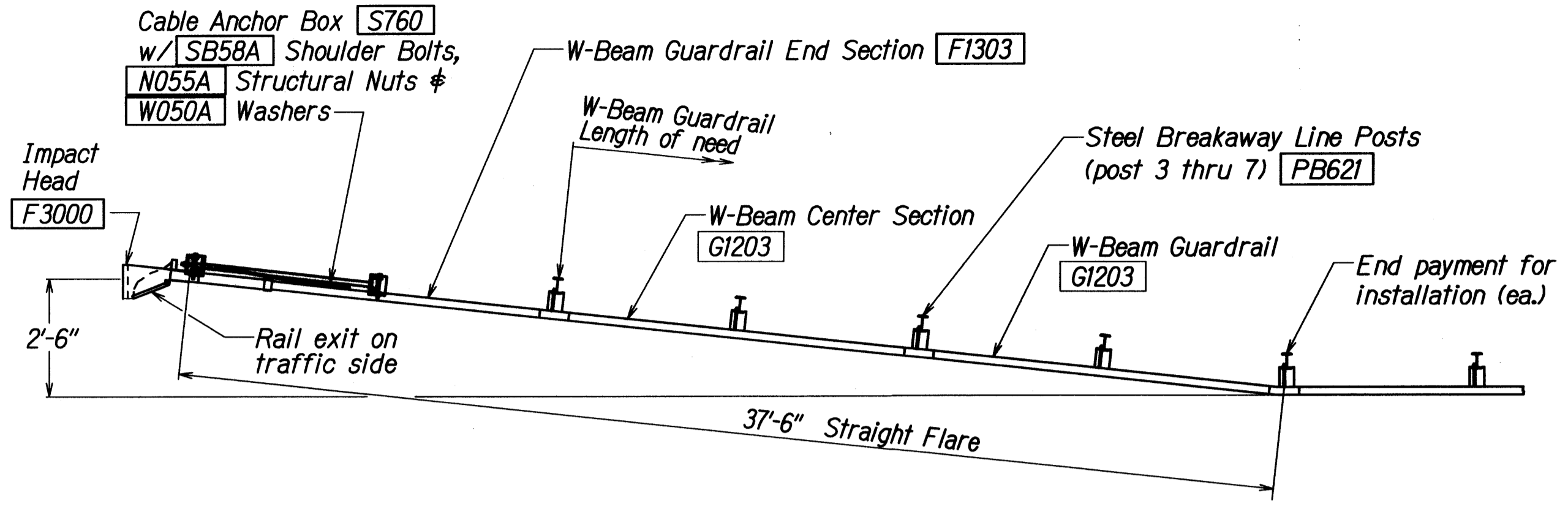
During construction, the Contractor shall layout the proposed Type "G" Modified End Terminal and receive approval from the Construction Engineer prior to installation.

DATE	1/1/10
SURVEY PLOTTED BY	1/1/10
DRAWN BY	1/1/10
DESIGNED BY	1/1/10
CHECKED BY	1/1/10
ORIGINAL PLAN	1/1/10
NOTE BOOK	1/1/10
1/1/10	1/1/10
1/1/10	1/1/10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

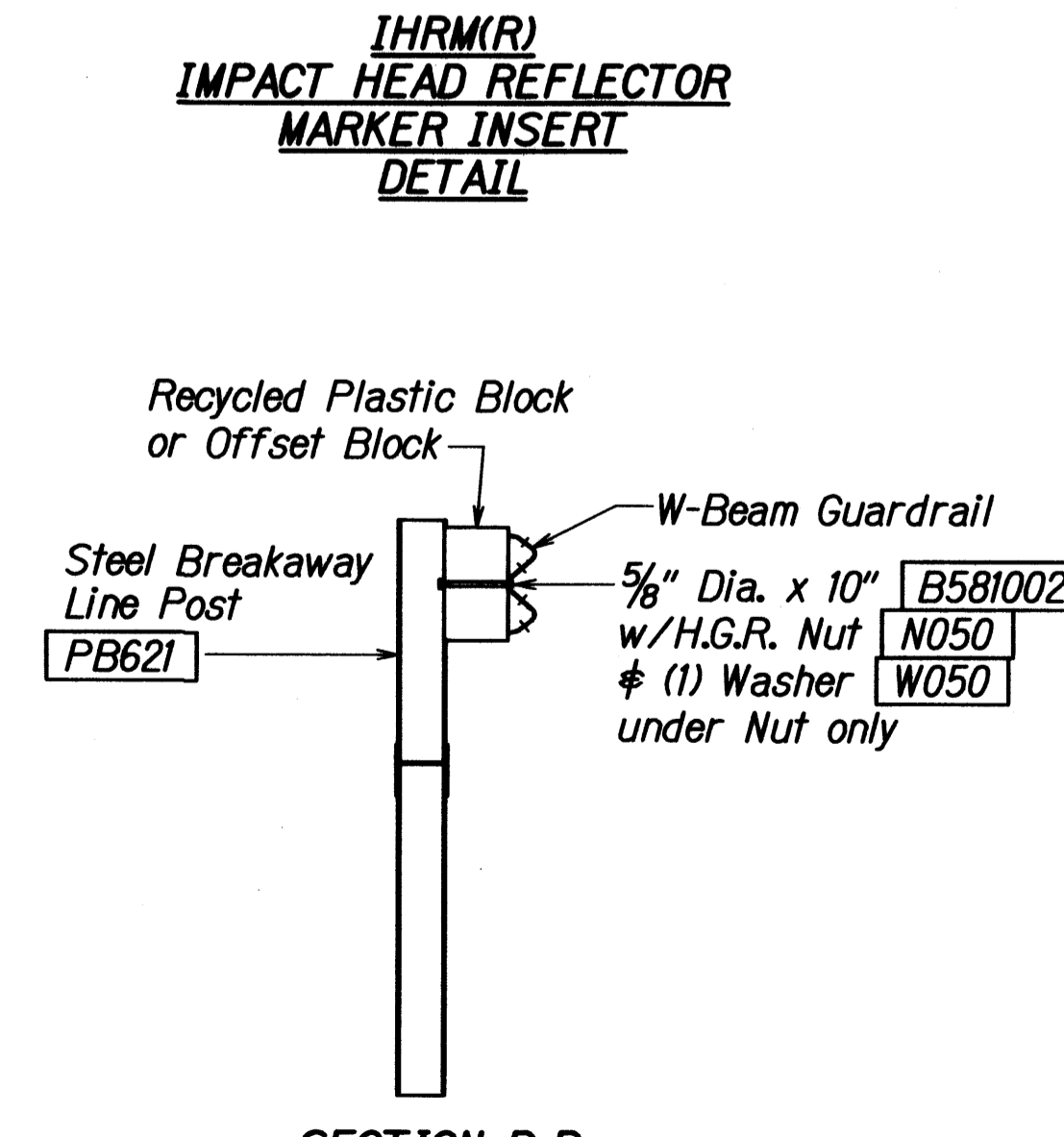
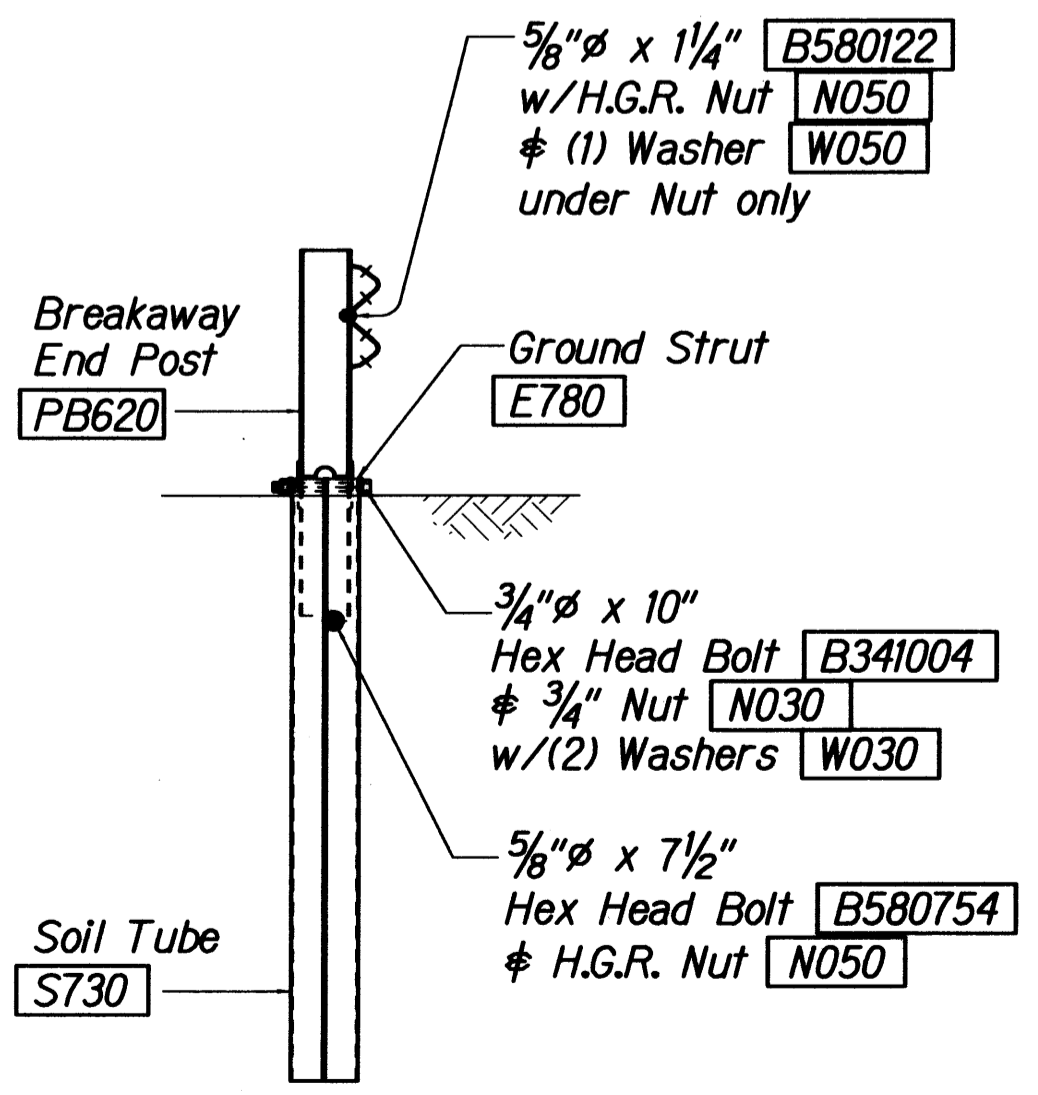
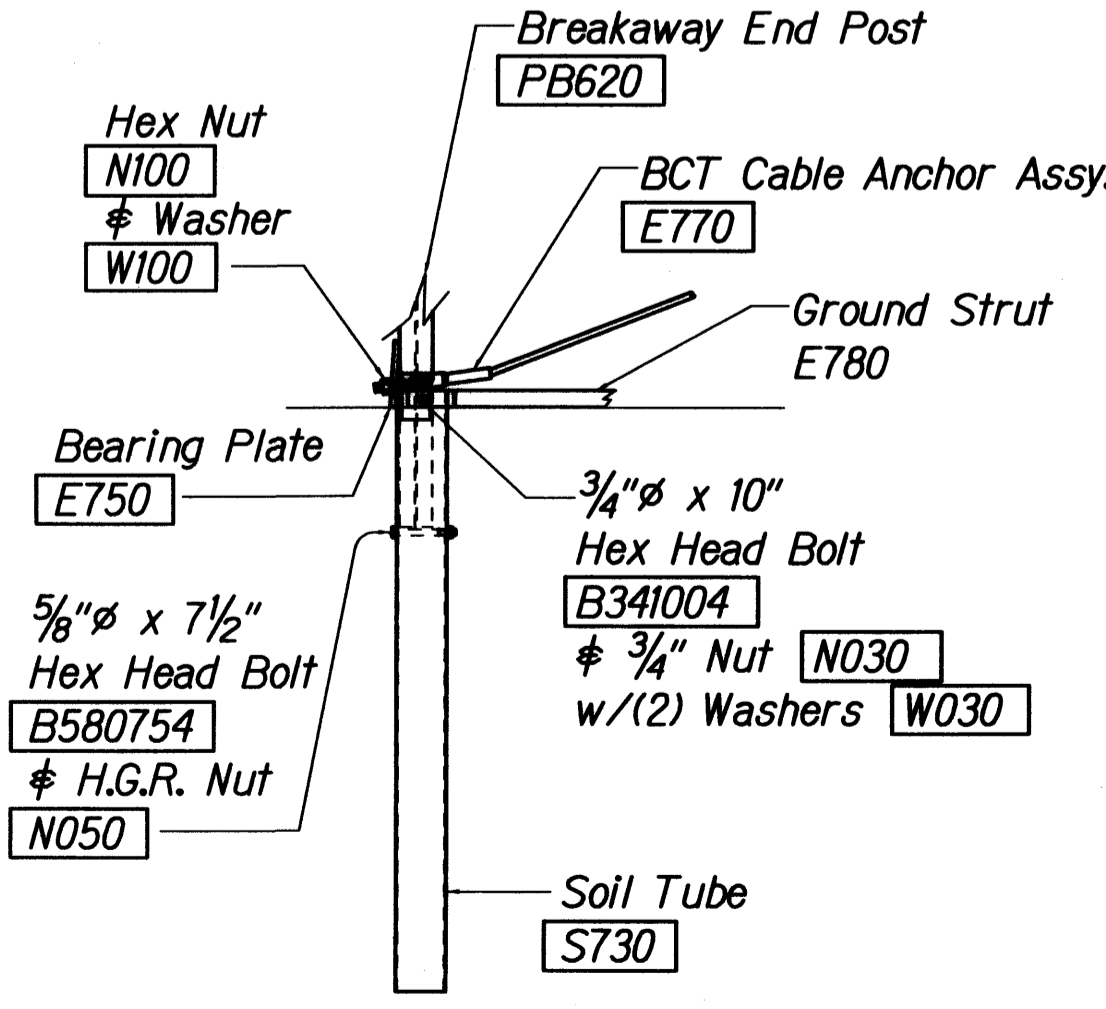
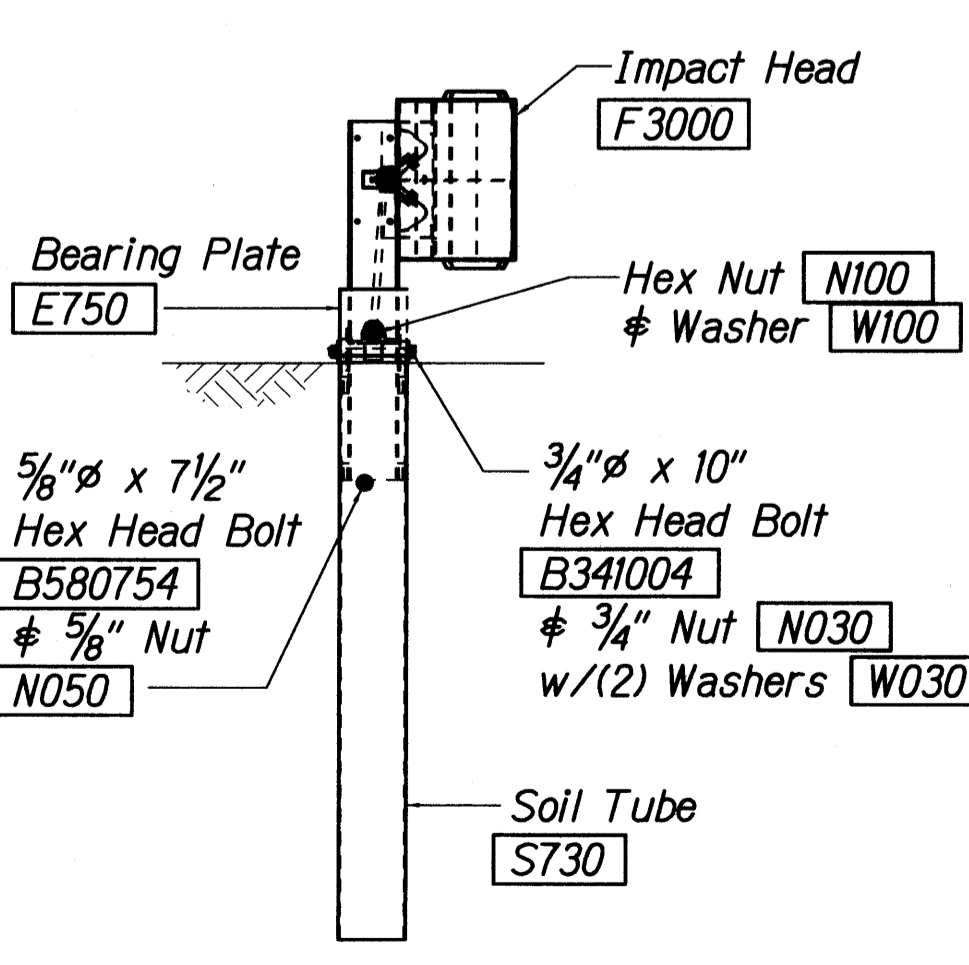
GUARDRAIL DETAILS
HAWAII BELT ROAD
SAFETY IMPROVEMENTS
In the Vicinity of Papaikou Mill Road
Project No. 19J-01-10
Scale: NTS Date: Nov., 2009
SHEET No. 1 OF 1 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19J-01-10	2010	25	25



ITEM NO.	QTY.	BILL OF MATERIALS
F3000	1	IMPACT HEAD
F1303	1	W-BEAM GUARDRAIL END SECTION, 12 GA.
G1203	2	W-BEAM GUARDRAIL, 12 GA.
S730	2	*FOUNDATION SOIL TUBE, 6" x 8" x 72"
E750	1	BEARING PLATE
S760	1	CABLE ANCHOR BOX
E770	1	BCT CABLE ANCHOR ASSEMBLY
E780	1	GROUND STRUT
PB620	2	STEEL BREAKAWAY END POST
PB621	5	STEEL BREAKAWAY LINE POST
	5	RECYCLED PLASTIC BLOCKOUT OR OFFSET BLOCK
	1	IMPACT HEAD REFLECTOR MARKER - IHRM(R) OR (L)
HARDWARE		
B580122	25	5/8" Dia. x 1 1/4" SPLICE BOLT, POST #2
B580754	2	5/8" Dia. x 7 1/2" HEX BOLT
B341004	2	3/4" Dia. x 10" HEX BOLT
B581002	5	5/8" Dia. x 10" H.G.R. BOLT (POST 3 THRU 7)
N050	32	5/8" Dia. H.G.R. NUT (SPLICE 24, SOIL TUBES 2, POST 2 THRU 7, 6)
N030	2	3/4" Dia. HEX NUT
W050	6	H.G.R. WASHER
W030	4	3/4" ID WASHER
N100	2	1" ANCHOR CABLE HEX NUT
W100	2	1" ANCHOR CABLE WASHER
B140404	2	1/4" x 4" HEX BOLT
N014	2	1/4" HEX NUT
W014	4	1/4" WASHER
SB58A	8	CABLE ANCHOR BOX SHOULDER BOLT
N055A	8	1/2" A325 STRUCTURAL NUT
W050A	16	1 1/16" OD x 3/16" ID A325 STR. WASHER

Foundation Tube Options For Posts 1 & 2
 *6'-0" Split Foundation Tubes S730
 *6'-0" Solid Foundation Tubes E731
 *5'-0" Foundation Tubes S735 W/Soil Plates SP600
 *4'-6" Foundation Tubes E735 W/Soil Plates SP600



NOTE: RAIL NOT BOLTED @ POST #3

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
FLEAT-350
FLARED ENERGY ABSORBING TERMINAL
HAWAII BELT ROAD
SAFETY IMPROVEMENTS
In the Vicinity of Papaikou Mill Road
Project No. 19J-01-10
 Not to Scale Date: Nov., 2009
 SHEET No. 1 OF 1 SHEETS