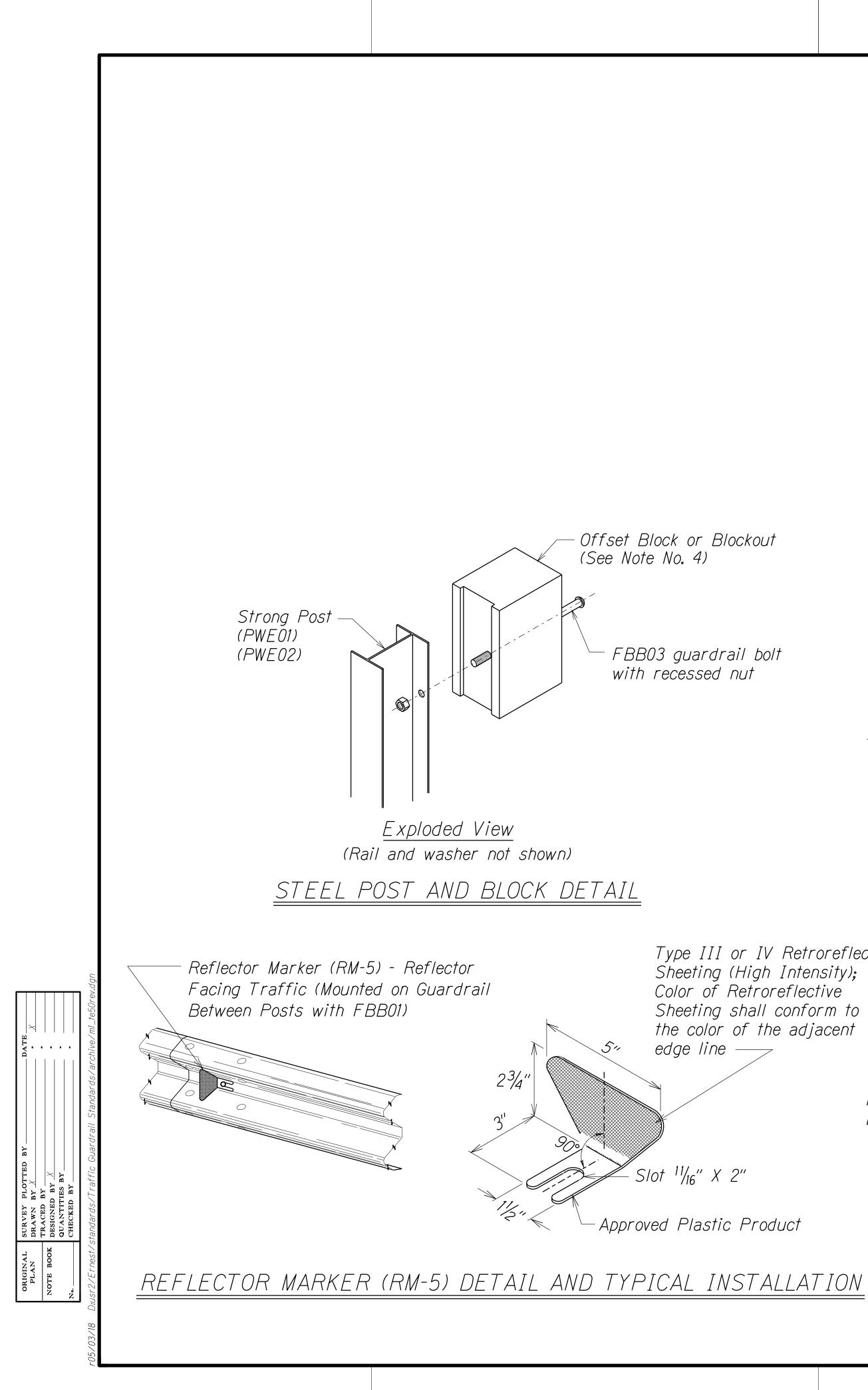


ATE ATE SURVEY PLOTTH DRAWN BY \underline{X} TRACED BY \underline{X} DESIGNED BY \underline{X} QUANTITIES BY CHECKED BY ORIGINAL PLAN VOTE BOO

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(025)	2022	27	60

	27
•	SHEET No. 1 OF 5 SHEETS
	Scale: Not to Scale Date: May, 2022
	Federal Aid Project No. NH-063-1(025)
	<u>Emmeline Place to Kahekili Highway</u>
	SAFETY IMPROVEMENTS
	LIKELIKE HIGHWAY
	STRONG POST W-BEAM GUARDRAIL
W OUANDIAIL (NWWOZA)	DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
M GUARDRAIL (RWMO2a)	STATE OF HAWAII



					<u></u>		
		GUARDRAIL TYPE			SION		
				H	A		
		w∕ Standard 8" C	Jffsef Block	2'-1''	1'-6"		
	MGS	w∕ No Blockout		2'-7/8"	9¼″		
or Blockout . 4) vuardrail bolt	(Guardrail->		or Blockd ail Post I/seal ard e Note No	ound post		
-	Paved Should	e.s. Addition					
			 (S	4'-1" Mir See Note N	>		
			<i>2'-0" Min</i> Grade ¢ Con at Fill Ar (See Note N	mpact rea		Fixed Object	
e III or IV Retroreflec eting (High Intensity); or of Retroreflective eting shall conform to color of the adjacent re line ————————————————————————————————————		Guardrail -> Post Slope <u>Con't.</u>	A.C. Filler	1.0'		⊾ Break Point	
	Pav't. Design		1½" HMA F 1½" HMA F Mix No. IV V	<i>—Para</i>	abolic nding		Fill S 2:1 Ma
l/ ₁₆ " X 2" Plastic Product		∠Prior to installi V, level ¢ remov existing ground	ve vegetation a	Vo. IV or nd compac		Exist Grour	
L INSTALLATION		TYPICAL GUA	<u>rdrail in</u>	STALLA	TION		

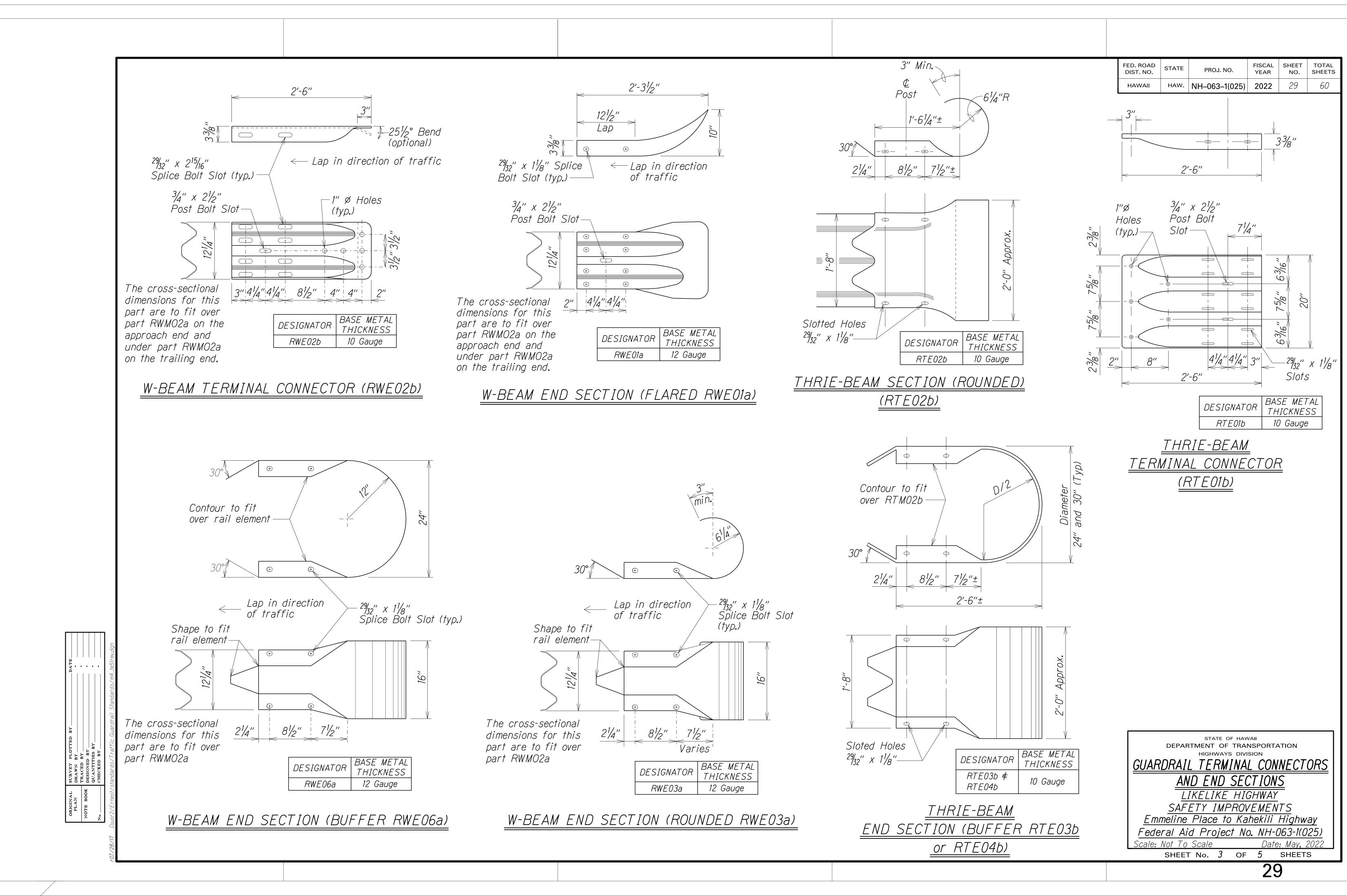
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(025)	2022	28	60

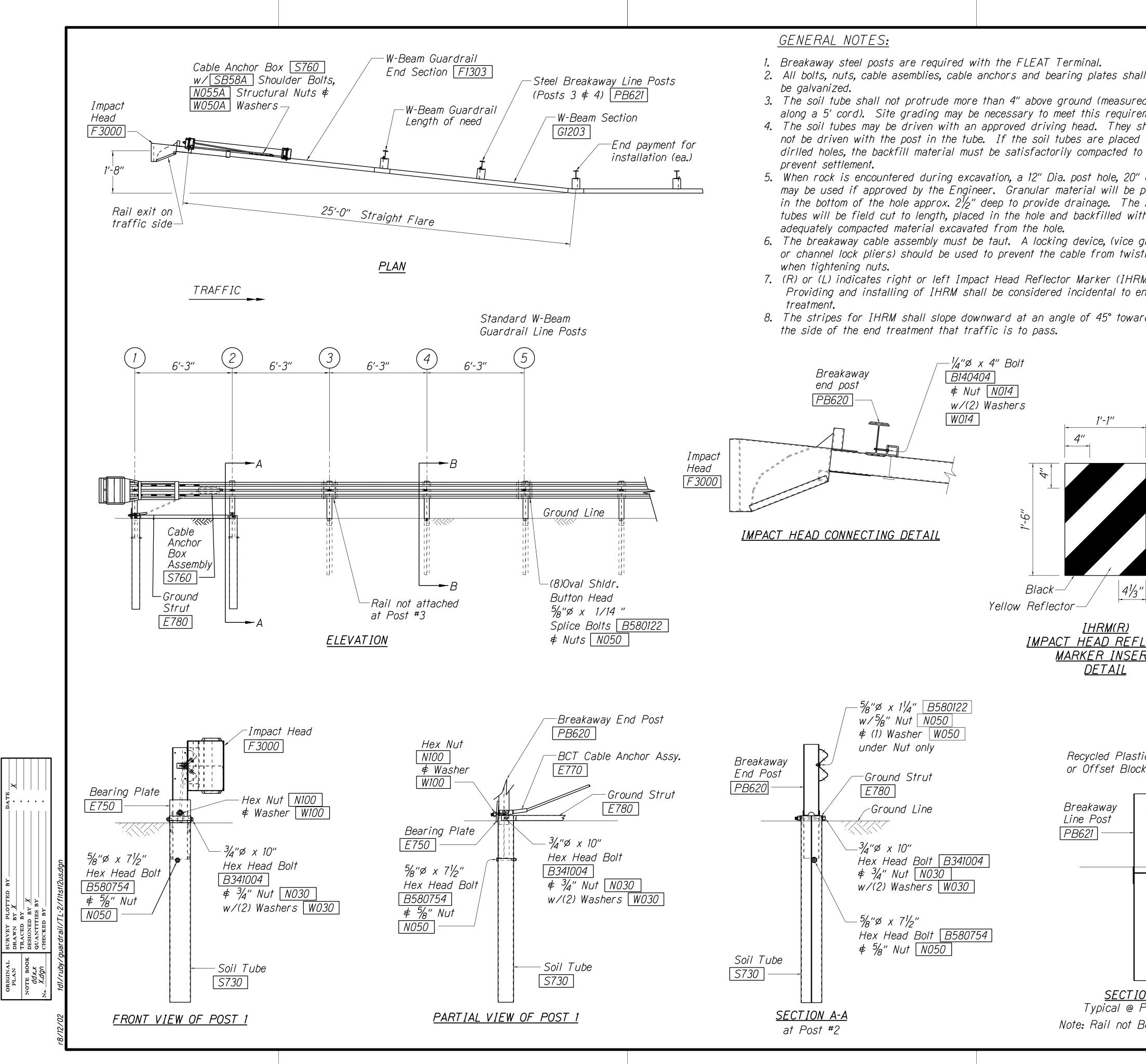
<u>GENERAL NOTES</u>

- 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 by the Engineer.
- 3. All fasteners, posts, and rail elements (i.e. FBB03, PWE01, RWM04b, 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 Blockout or Offset Block shall be approved by the State.
- 5. All new guardrail systems (system consists of total length of guardrail including both end treatments) shall include the Additional Paved Area.
- 6. After the guardrail posts are installed in the paved area, the Contractor shall fill/seal around each guardrail post and all cracks in the paved area 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 filling/sealing. All costs associated with this work shall not be paid for separately, but shall be considered incidental to the various guardrail items.
- 7. When standards for the fill slope area cannot be met, a site specific, engineer approved design may be used.
- 8. Minimum working width (clear distance) between back of MGS post to any fixed object is 4'-1" (49").
- 9. New Hot Mix Asphalt (HMA) pavement at guardrails shall extend 6 feet longitudinally beyond terminal ends.
- 10. Reflector Markers (RM-5) mounted on guardrails shall be spaced every 25 feet. RM-5's shall not be installed on Terminal Sections. Furnishing and installing of each RM-5 shall be considered incidental to the guardrail system.

i//	Slope
1	Max.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
GUARDRAIL DETAILS & NOTES
LIKELIKE HIGHWAY
SAFETY IMPROVEMENTS
<u>Emmeline Place to Kahekili Highway</u>
Federal Aid Project No. NH-063-1(025)
Scale: NTS Date: May, 2022
SHEET No. 2 OF 5 SHEETS
28





				FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
				HAWAII	HAW.	NH-063-1(025)	2022	29a	60
	ITEM NO.	QTY.			BILL	OF MATERIALS	•		I
,	F 3000	1	IMF	IMPACT HEAD					
ent. all	G1203	1	W-E	W-BEAM GUARDRAIL END SECTION, 12 GA.					
n	F1304	1	W-E	EAM GUAR	DRAIL	CENTER SECTI	ON, 12 G	GA.	
	S730	2	*FOU	JNDATION	SOIL T	UBE, 6" x 8" x	6'-0''		
leep	E750	1	BE	BEARING PLATE, 8" x 8" x 5%"					
aced oil	S760	1	CAE	BLE ANCHO	R BOX				
	E770	1	BCT	T CABLE A	NCHOR	ASSEMBLY			
ps	E780	1	GR	OUND STRU	IT				
ng	PB620	2	BRI	EAKAWAY E	ND POS	ST			
•	PB621	3	BR	EAKAWAY L	INE PC	ST			
1		2	RE	CYCLED PL	ASTIC	BLOCKOUT OR (DFFSSE	T BLOC	K
S		1	IMF	PACT HEAD	REFLE	ECTOR MARKER	- IHRN	I(R) OR	(L)
						HARDWARE			
	B580122	17	5/s''	Dia. x 1 1/2	" SPLI	CE BOLT, POST	#2		
	B580754	2	5/s"	Dia. x 7 ½	2" HEX	BOLT			
	B341004	2	3/." /4"	Dia . x 10"	HEX B	OLT			
	B581002	3	5/8"	Dia. x 10"	H.G.R. E	BOLT (POSTS 3	¢ 4)		
	N030	2	3/4"	Dia. HEX	NUT				
9	N050	21	5/s''	Dia. H.G.R.	NUT	(SPLICE 16, S POSTS 2, 1;		•	3)
7	W030	4	¾" I.D. WASHER						
	W050	3	H.G.R. WASHER						
	N100	2	1" ANCHOR CABLE HEX NUT						
	W100	2	1" ANCHOR CABLE WASHER						
41/2	B140404	2	1/4"	x 4" HEX	BOLT				
	N014	2	1/4"	HEX NUT					
	W014	4	4 1/4" WASHER						
	SB58A	8	CAE	BLE ANCHO	R BOX	SHOULDER BOL	. <i>T</i>		
N055A 8 1/2" A325 STRUCTURAL NUT ERT W050A 16 1 1/16" OD X 9/16" ID A325 STR. WASHER									
					25 STR. WASHE	R			
_				*{ *{ *{	5'-0" Spl 5'-0" Sol 5'-0" Fol	Tube Options Fo it Foundation Tu id Foundation Tu Indation Tube S7 Indation Tube E7	be S730 ibe E731 35 W/So	oil Plate	

	29a
	SHEET No. 4 OF 5 SHEETS
Bolted @ Post 3	Scale: NTS Date: May, 2022
Post 3 \$ 4	Federal Aid Project No. NH-063-1(025)
ION B-B	Emmeline Place to Kahekili Highway
	Likelike Highway Safety Improvements
	FLARED ENERGY ABSORBING TERMINAL
	<u>FLEAT TL-2</u>
	HIGHWAYS DIVISION
	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION
under Nut only	
<i>₩ / (1) Washer W050</i>	
<i>B581002</i> <i>∉ 5</i> ⁄8″ Nut N050	
e = = = <u>5/8</u> "ø x 10" H.G.R. Bolt	
wck W-Beam Guardrail	
stic Block	