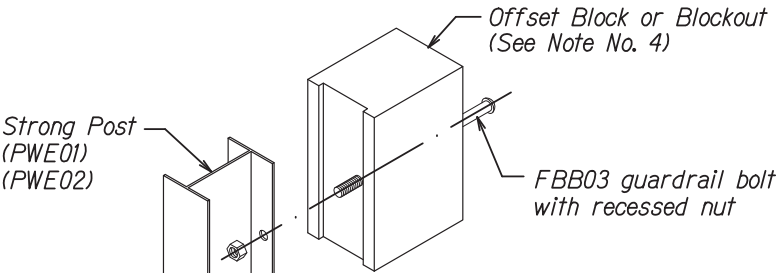


DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	37C-02-23	2024	29	115

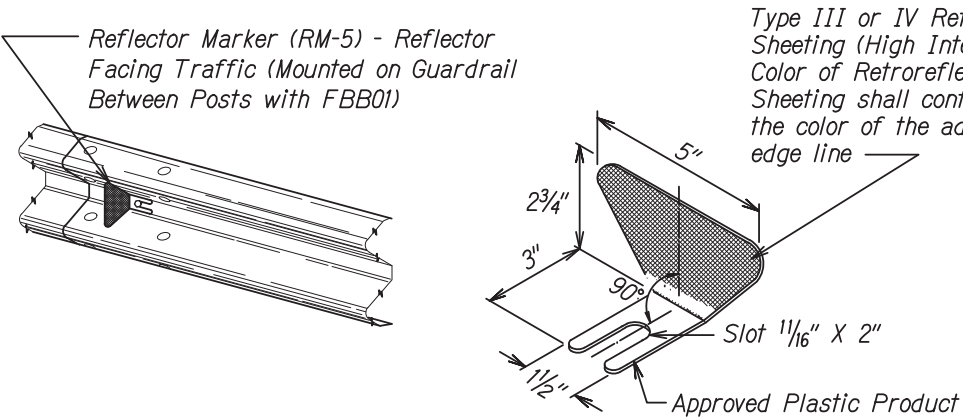
GENERAL NOTES

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 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. Payment shall be considered incidental to the guardrail system.
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.
11. New End Treatment shall be MASH compliant. Contractor will be required to submit shop drawings for approval during construction.

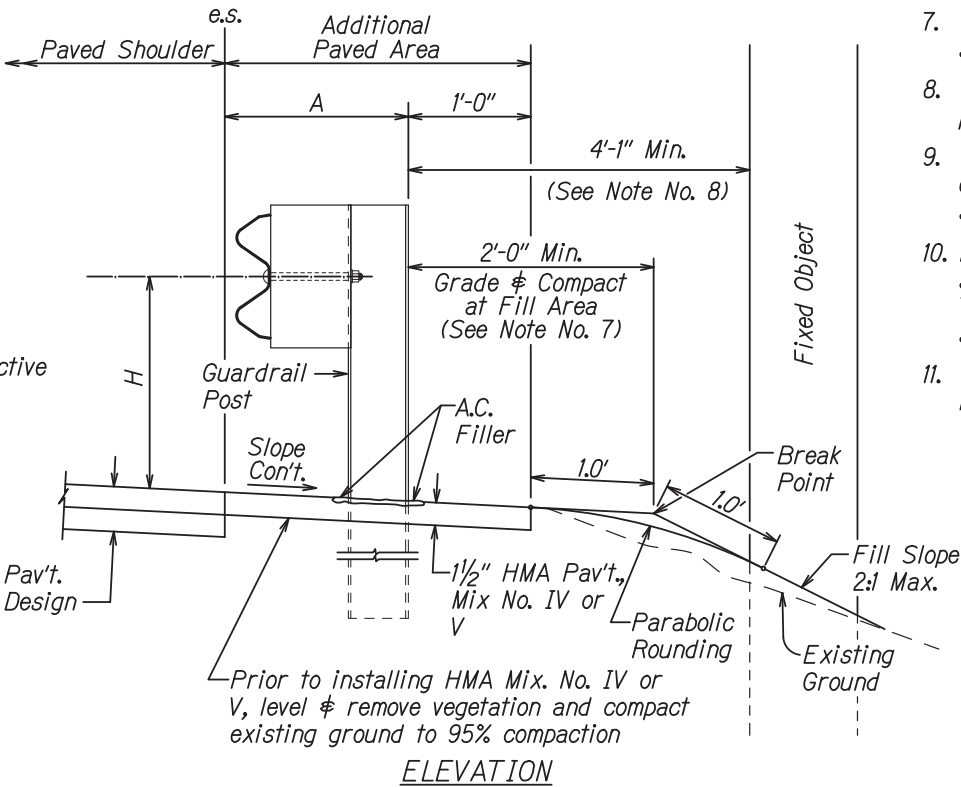
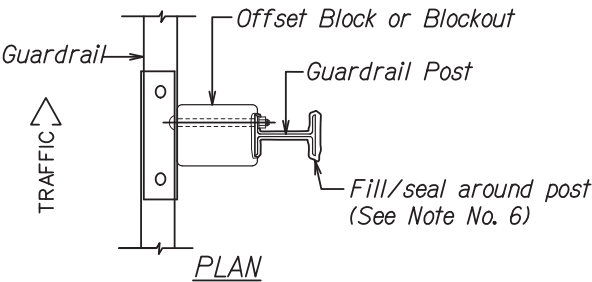
GUARDRAIL TYPE	DIMENSION	
	H	A
MGS w/ Standard 8" Offset Block	2'-1"	1'-6"
MGS w/ No Blockout	2'-7/8"	9/4"



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



REFLECTOR MARKER (RM-5) DETAIL AND TYPICAL INSTALLATION



TYPICAL GUARDRAIL INSTALLATION

DATE	_____
SURVEY PLANNED BY	_____
DRAWN BY	_____
TRACED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____

Signature: *Gerald D. Andrade* 4/30/26
EXPIRATION DATE OF THE LICENSE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

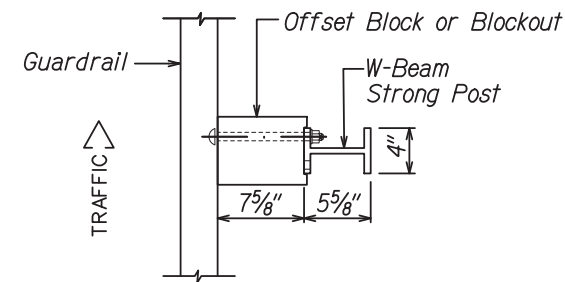
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL DETAIL AND NOTES

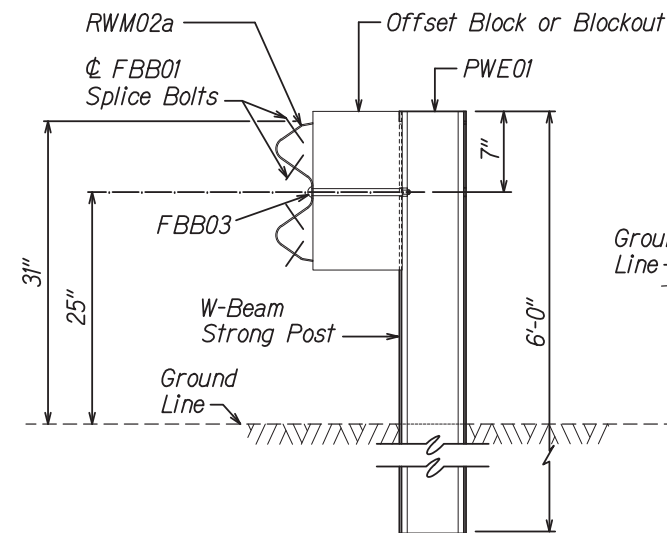
KULA HIGHWAY,
INTERSECTION IMPROVEMENTS
AT OMAOPIO ROAD
Project No. 37C-02-23
Date: April 2024

Scale: None

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	37C-02-23	2024	30	115

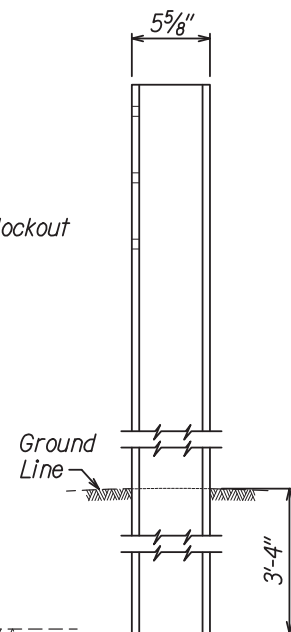


PLAN

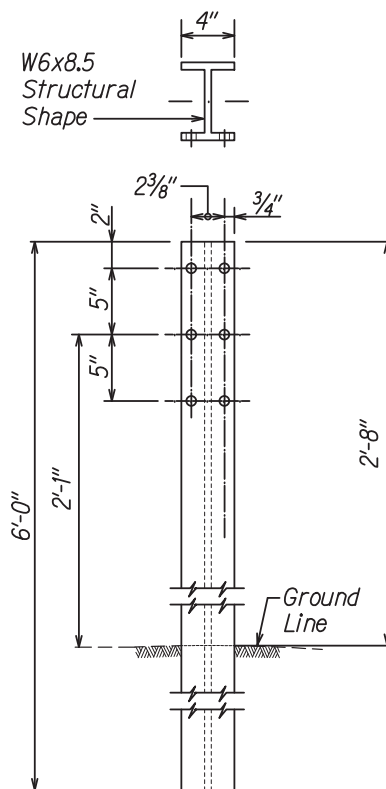


SECTION A-A

NOTE:
All Holes are
3/4" Dia.

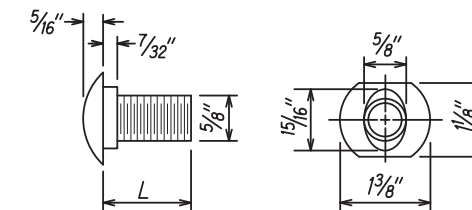


SIDE

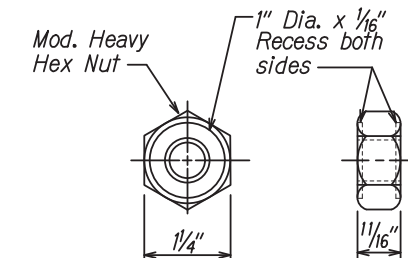


FRONT

W-BEAM STRONG POST
(PWE01)

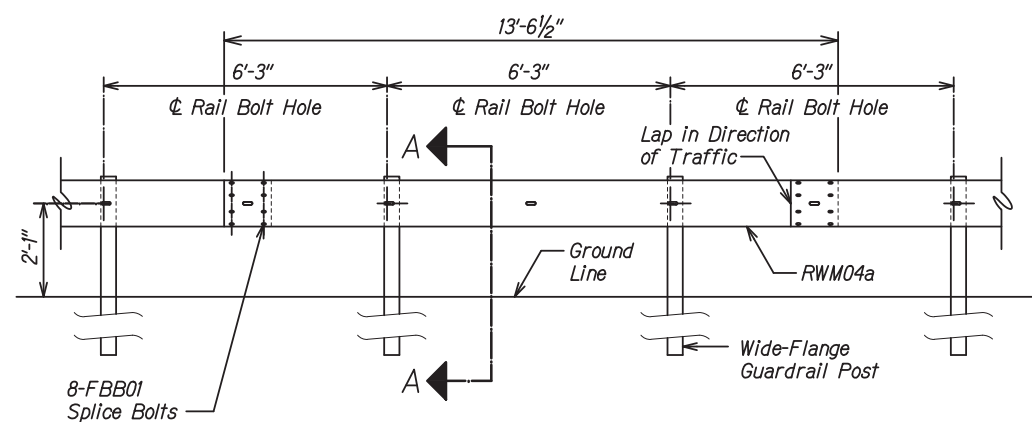
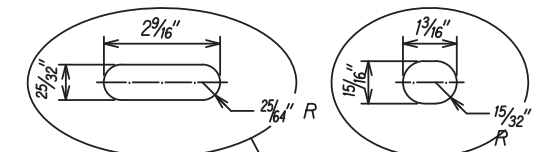


DESIGNATOR	L
FBB01	1 3/8"
FBB02	2"
FBB03	10"



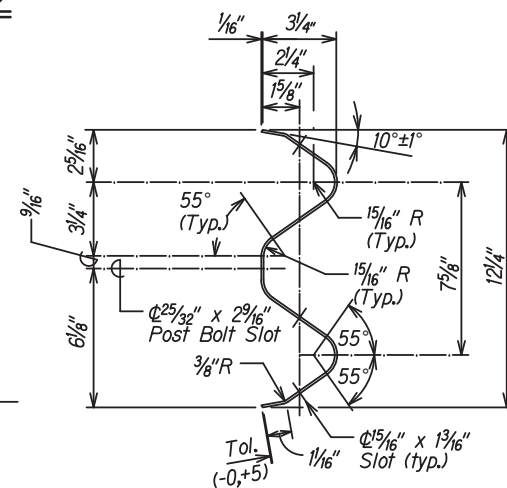
GUARDRAIL BOLTS AND RECESSED NUT

DESIGNATOR	BASE METAL THICKNESS
RWM04a	12 Gauge

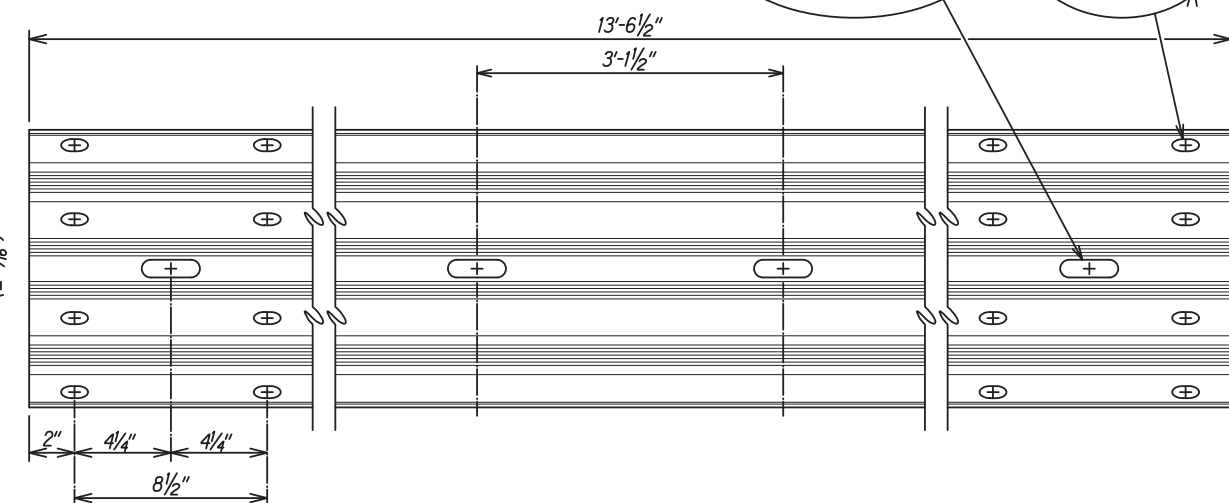


ELEVATION

MIDWEST GUARDRAIL SYSTEM WITH
STANDARD 8" OFFSET BLOCK (SGR47)



4 SPACE W-BEAM GUARDRAIL (RWM04a)

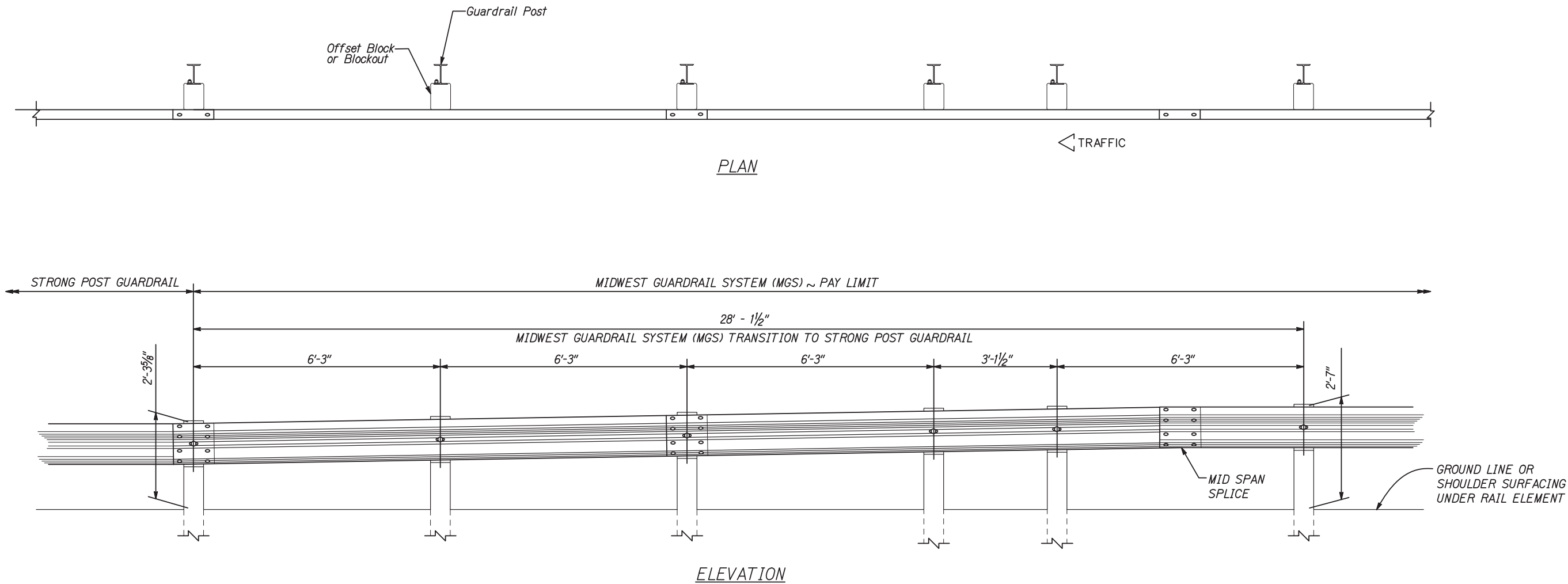


SIGNATURE: *Gerald D. Andrade* 4/30/26
EXPIRATION DATE OF THE LICENSE
THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**31" W-BEAM GUARDRAIL WITH
STANDARD 8" OFFSET BLOCK**
KULA HIGHWAY,
INTERSECTION IMPROVEMENTS
AT OMAPIO ROAD
Project No. 37C-02-23
Scale: None Date: April 2024

SHEET No. R-8 OF 16 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	37C-02-23	2024	31	115



ORIGINAL PLAN	SURVEY PLATTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	TRACED BY	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

★

GERALD D. ANDRADE

★

LICENSED PROFESSIONAL ENGINEER
No. 10377-C
HAWAII, U.S.A.

SIGNATURE
Gerald D. Andrade
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

EXPIRATION DATE OF THE LICENSE
4/30/26

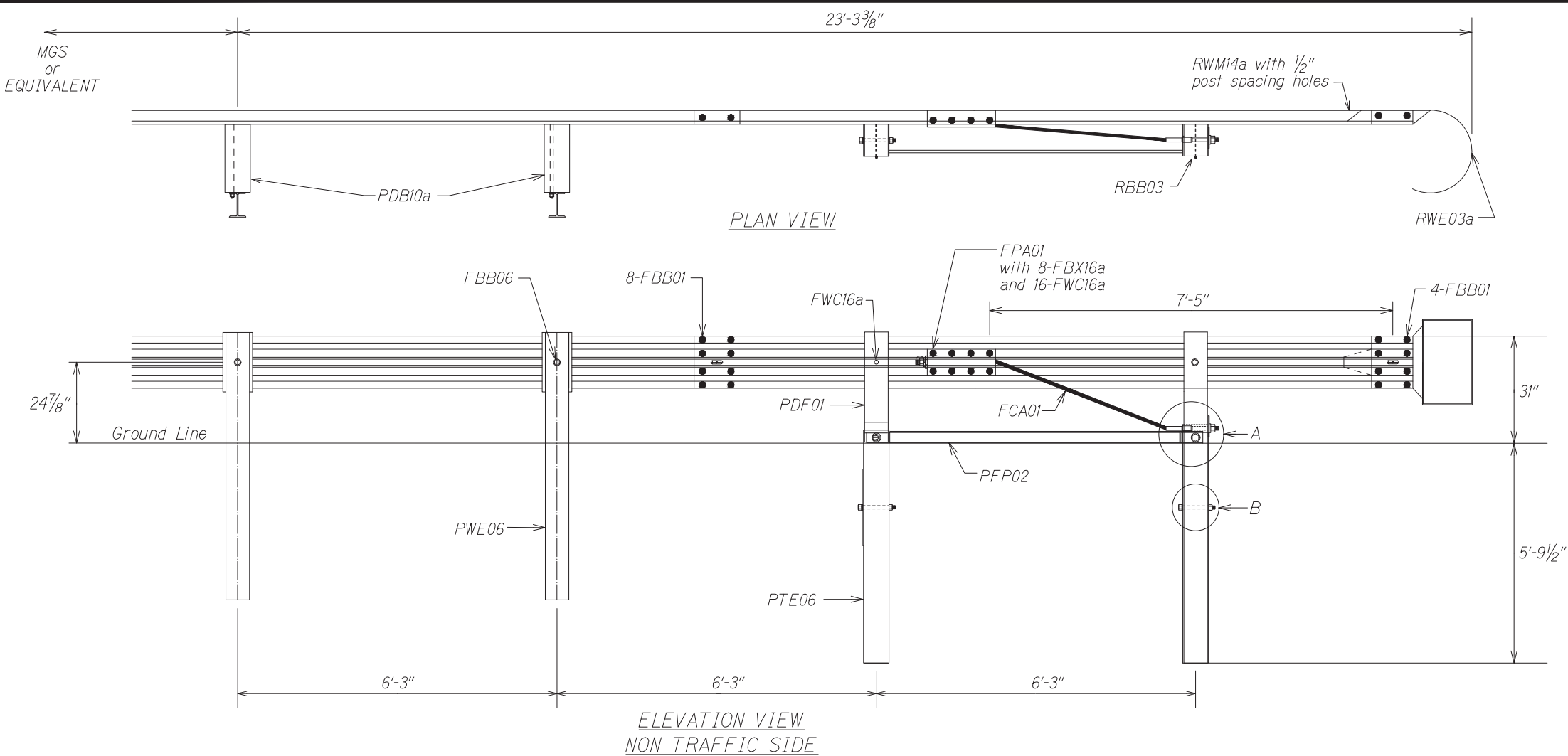
MGS TRANSITION TO STRONG POST GUARDRAIL
KULA HIGHWAY,
INTERSECTION IMPROVEMENTS
AT OMAOPIO ROAD
Project No. 37C-02-23

Scale: None
Date: April 2024

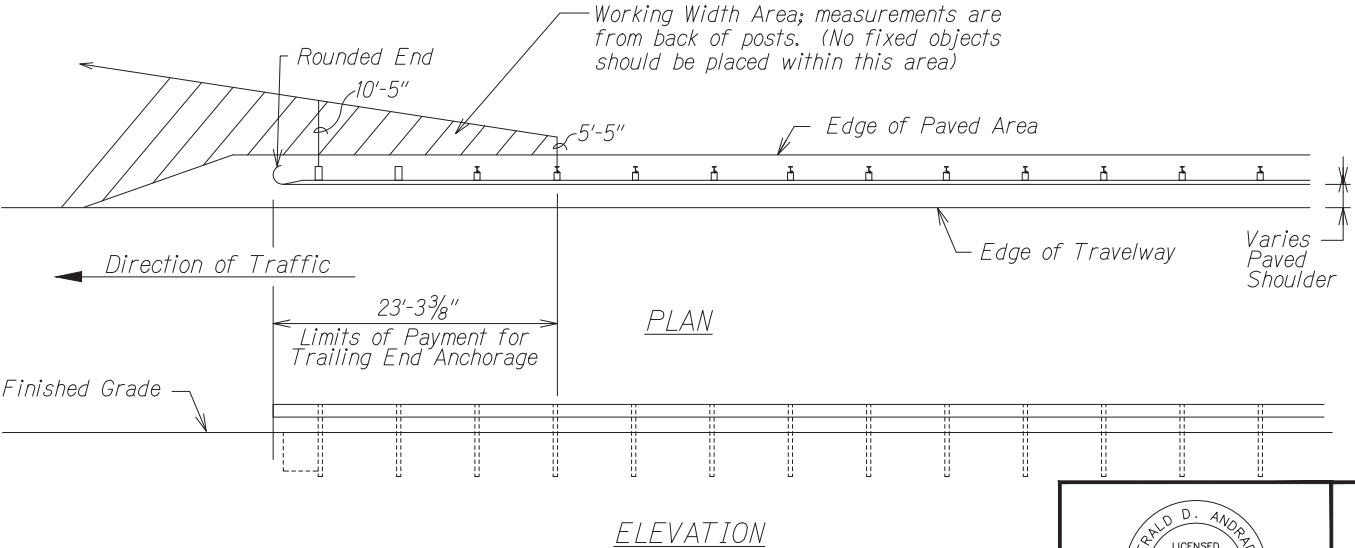
SHEET No. R-9 OF 16 SHEETS

31

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	37C-02-23	2024	32	115



ITEM NO.	QTY	COMPONENTS
FBB01	12	Guardrail Bolt and Nut
FBB03	2	Guardrail Bolt and Nut
FBB06	1	Guardrail Bolt and Nut
FBX16a	2	Hex Head Bolt (10") and Nut
FBX16a	8	Hex Head Bolt (1 1/2") and Nut
FBX22a	2	Hex Head Bolt (7 1/2") and Nut
FCA01	1	BCT Anchor Cable Assembly
PDB10a	2	MGS Timber Blockout
PFP02	1	Strut and Yoke Assembly
PWE06	1	Wide-Flange Guardrail Post
FMM02	1	BCT Post Sleeve
FPA01	1	Anchor Bracket Assembly
FPB01	1	BCT Bearing Plate
FWC16a	22	Circular Washer
FWC22a	4	Circular Washer
PDF01	2	BCT Timber Post
PTE06	2	Foundation Tube
RWE03a	1	W-Beam Rounded End Section
RWM14a	1	W-Beam MGS End Section



SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

SIGNATURE: *Gerald D. Andrade*
 EXPIRATION DATE: 4/30/26
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TRAILING-END ANCHORAGE SYSTEM
 KULA HIGHWAY,
 INTERSECTION IMPROVEMENTS
 AT OMAOPIO ROAD
 Project No. 37C-02-23
 Scale: None Date: April 2024