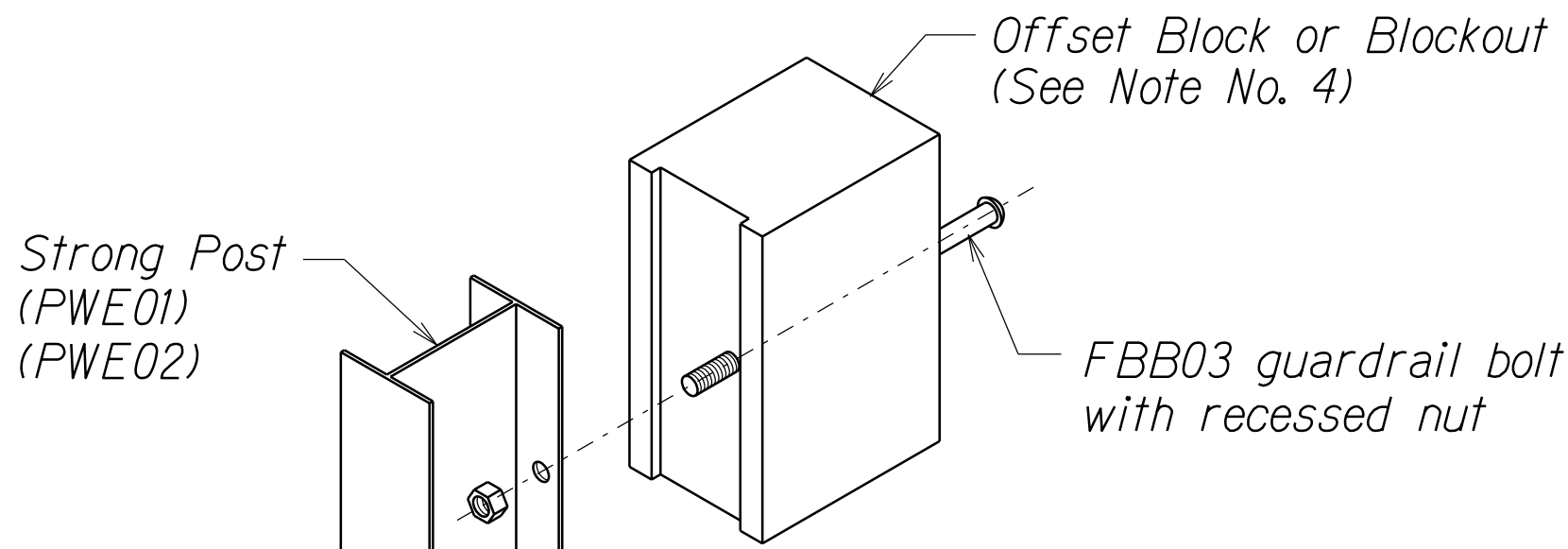


| FED. ROAD DIST. NO. | STATE | PROJ. NO.   | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-01-19 | 2020        | 8         | 23           |

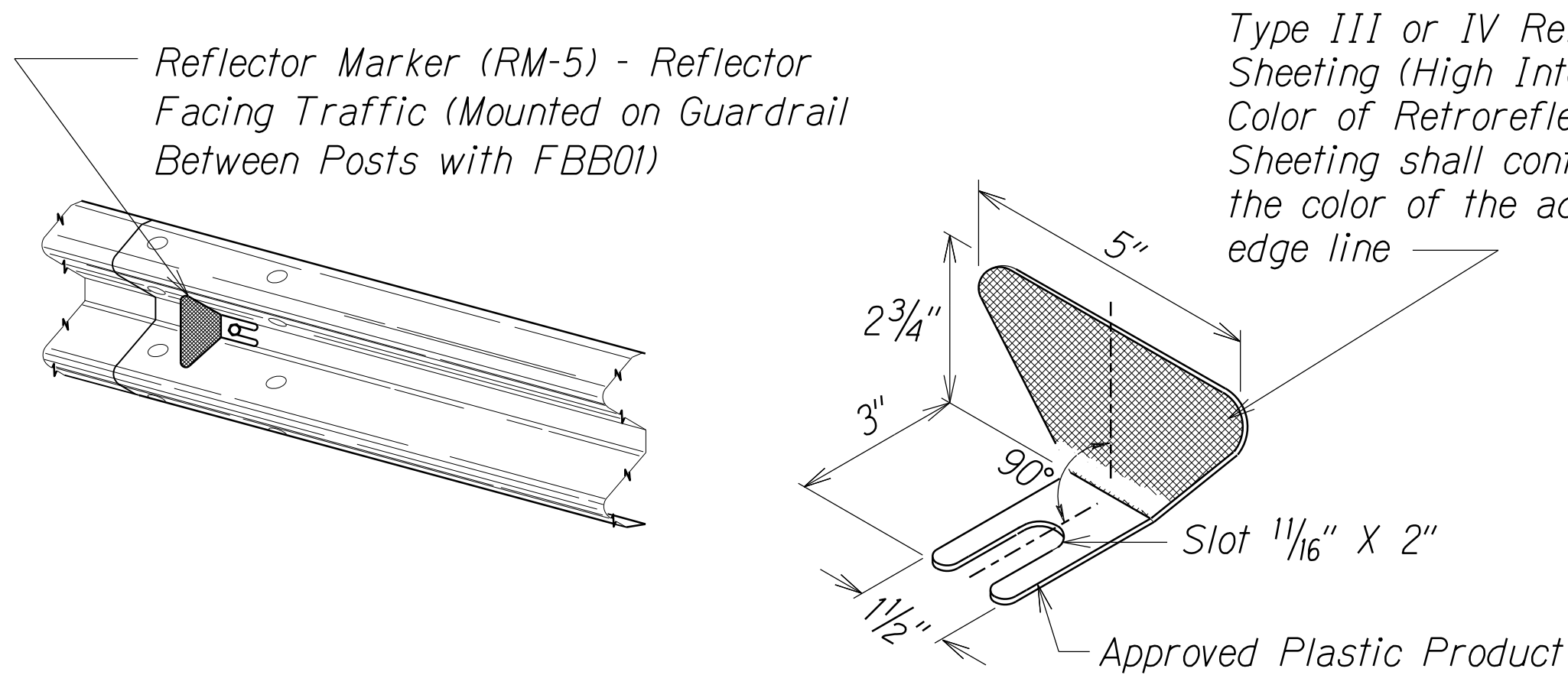
GENERAL NOTES

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.
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.

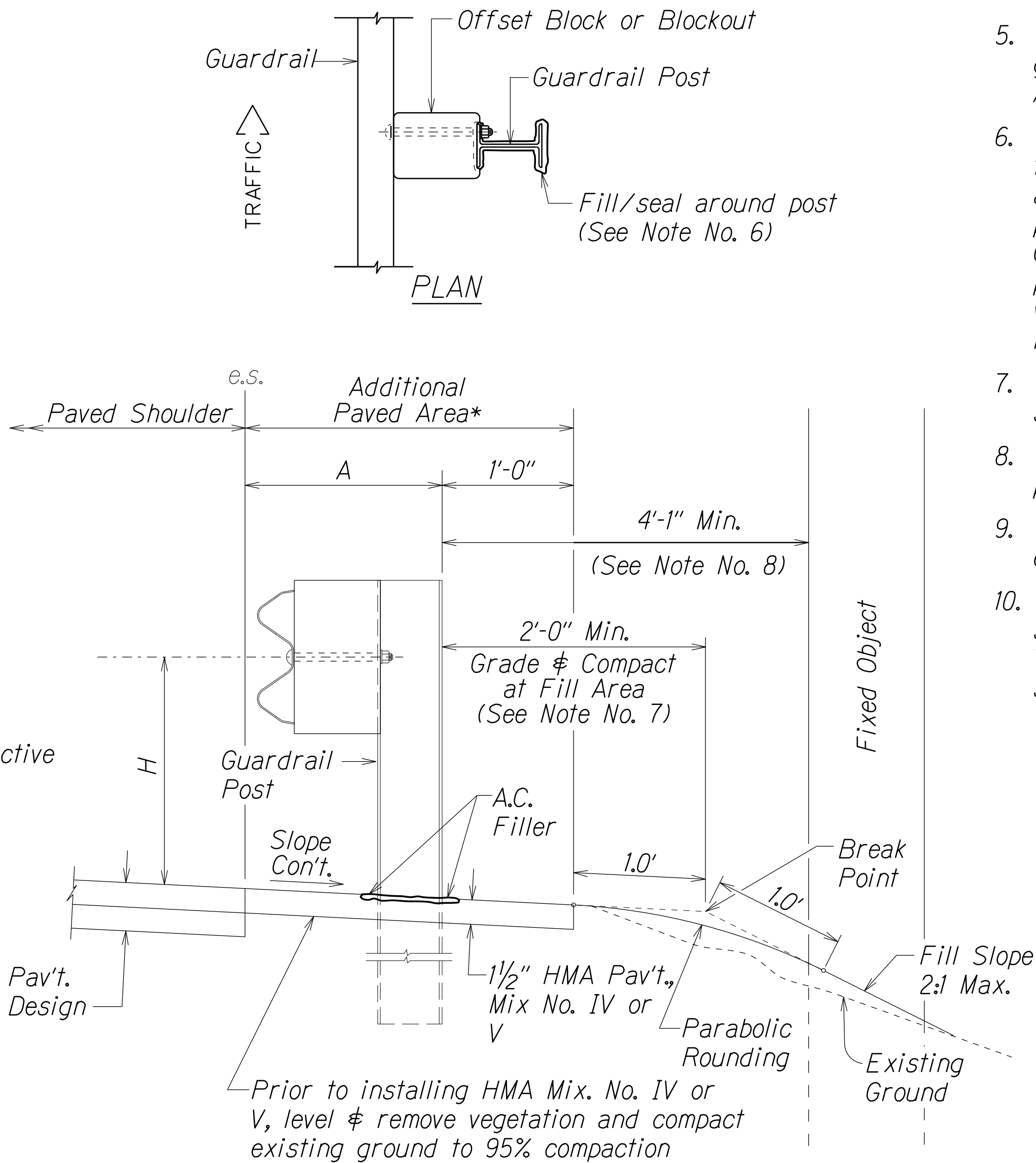
| GUARDRAIL TYPE                  | DIMENSION |        |
|---------------------------------|-----------|--------|
|                                 | H         | A      |
| MGS w/ Standard 8" Offset Block | 2'-1"     | 1'-6"  |
| MGS w/ No Blockout              | 2'-7/8"   | 9 1/4" |



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



REFLECTOR MARKER (RM-5) DETAIL AND TYPICAL INSTALLATION



ELEVATION  
TYPICAL GUARDRAIL INSTALLATION

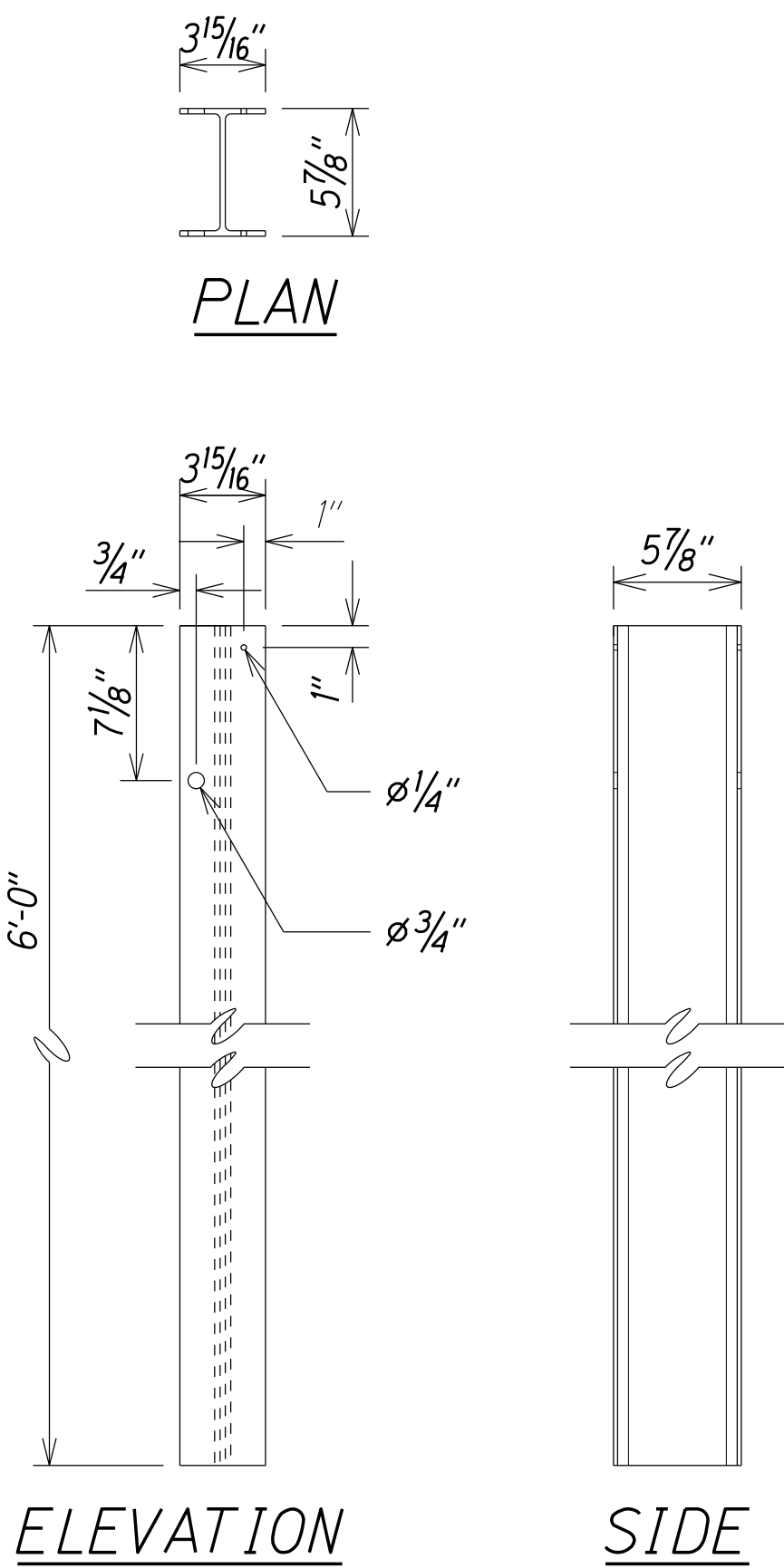
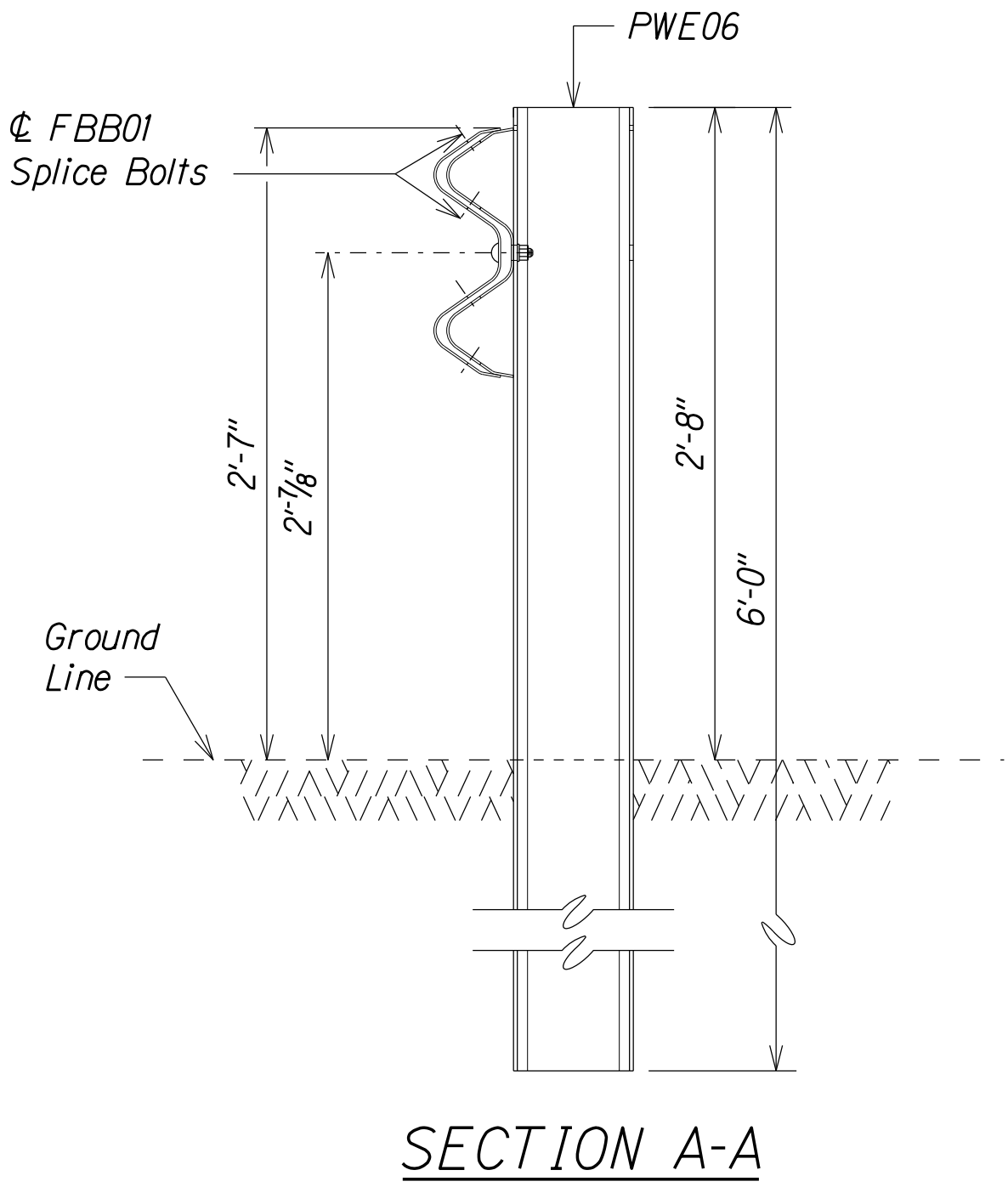
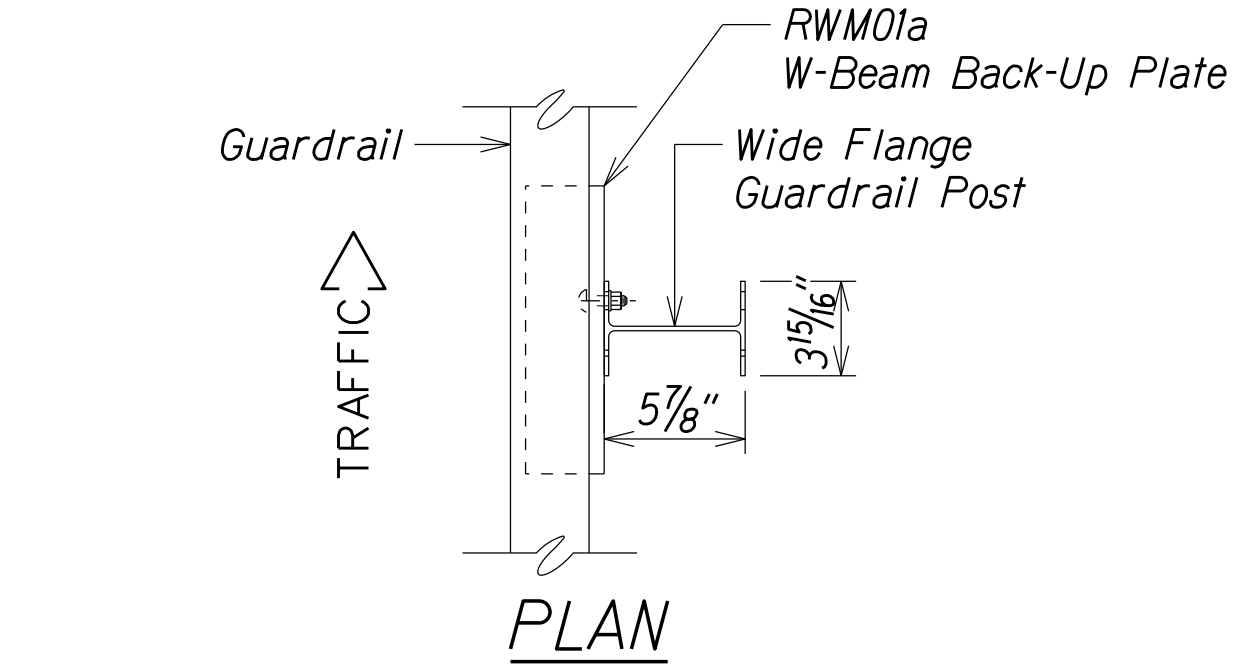
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

GUARDRAIL DETAILS & NOTES  
INTERSTATE ROUTE H-2, 84-INCH  
Culvert Restoration at M.P. 2.10  
Project No. HWY-0-01-19

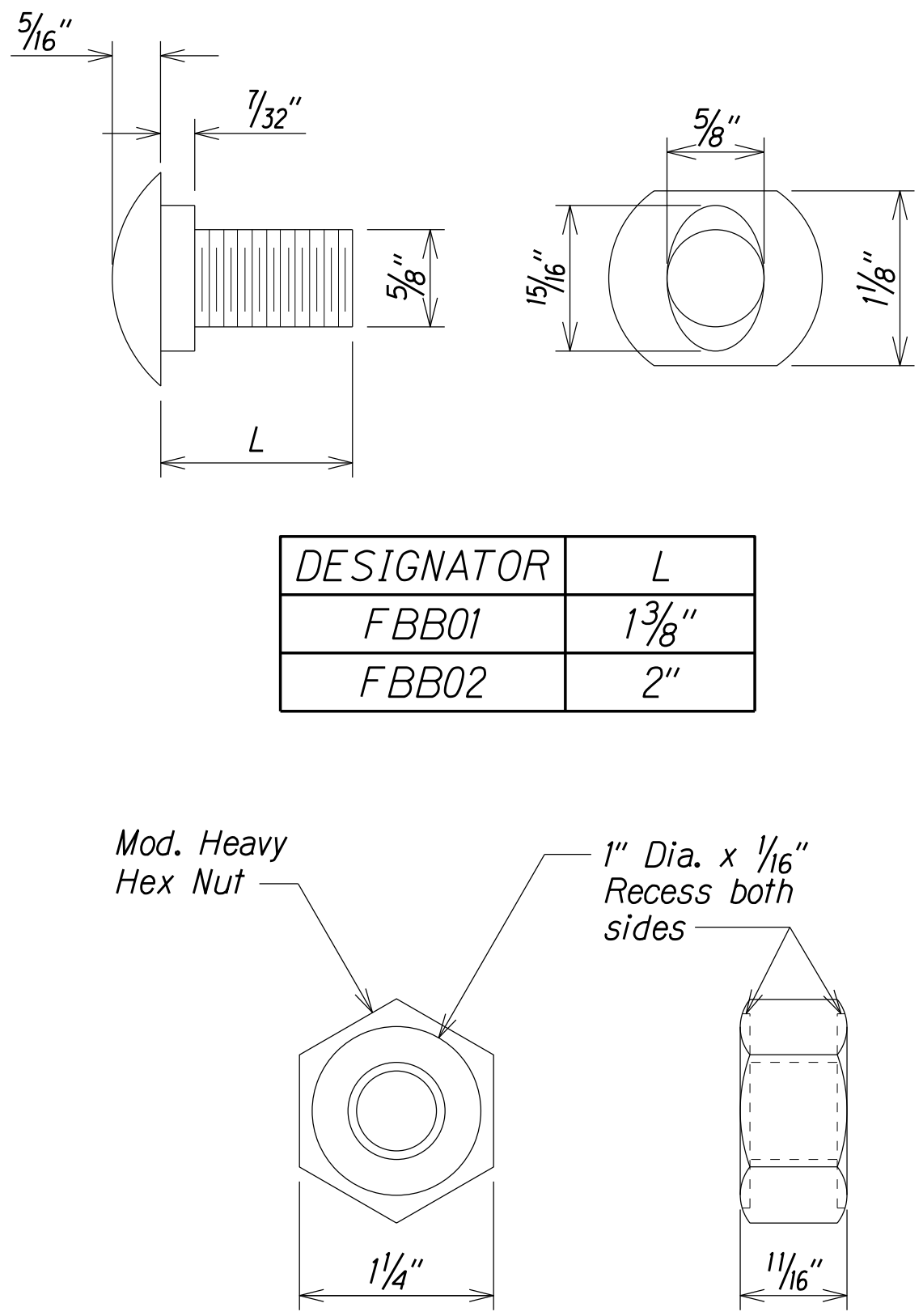
Scale: Not To Scale      Date: May, 2020

SHEET No. 1 OF 5 SHEETS

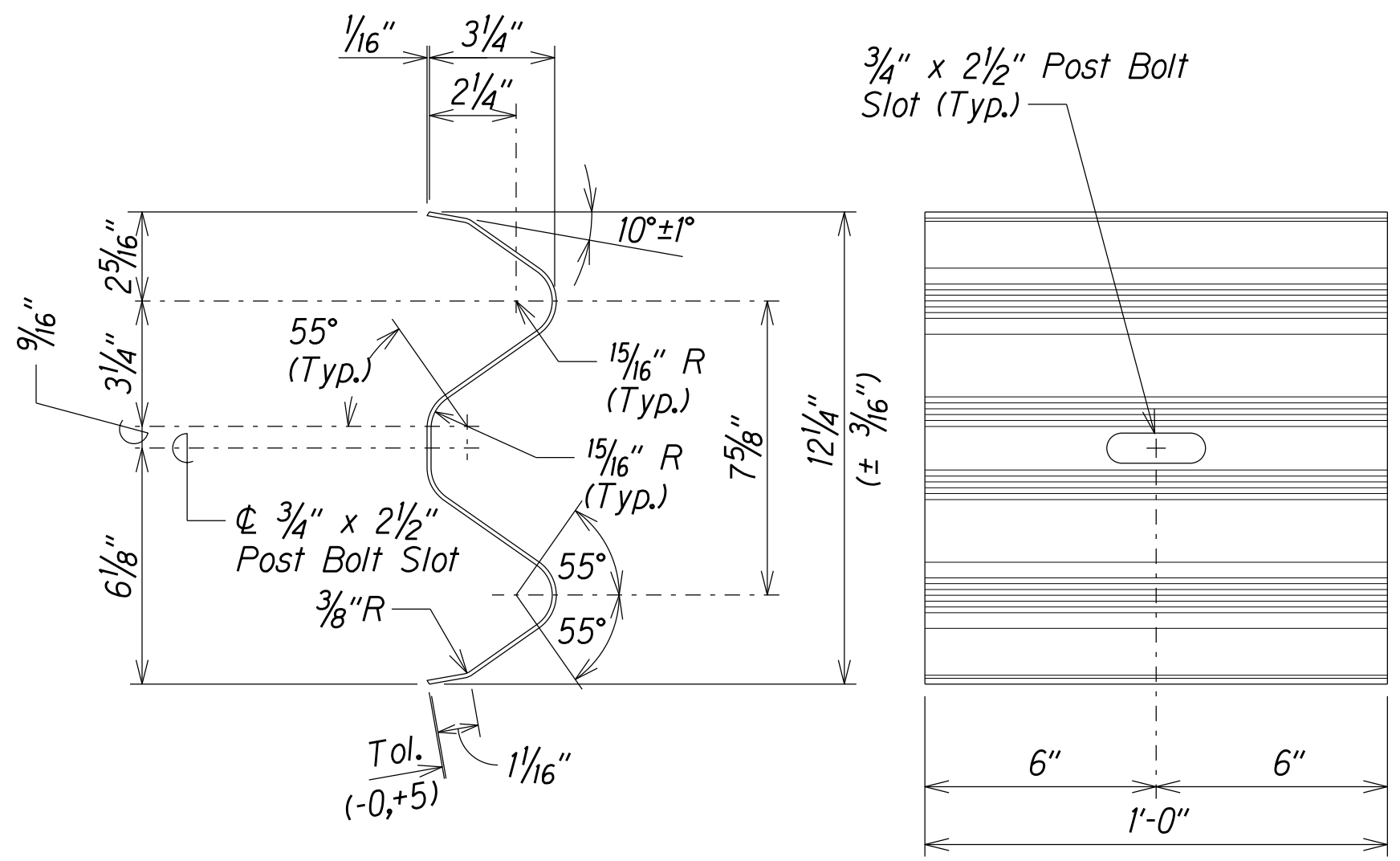
| FED. ROAD DIST. NO. | STATE | PROJ. NO.   | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-01-19 | 2020        | 9         | 23           |



WIDE-FLANGE GUARDRAIL POST  
(PWE06)

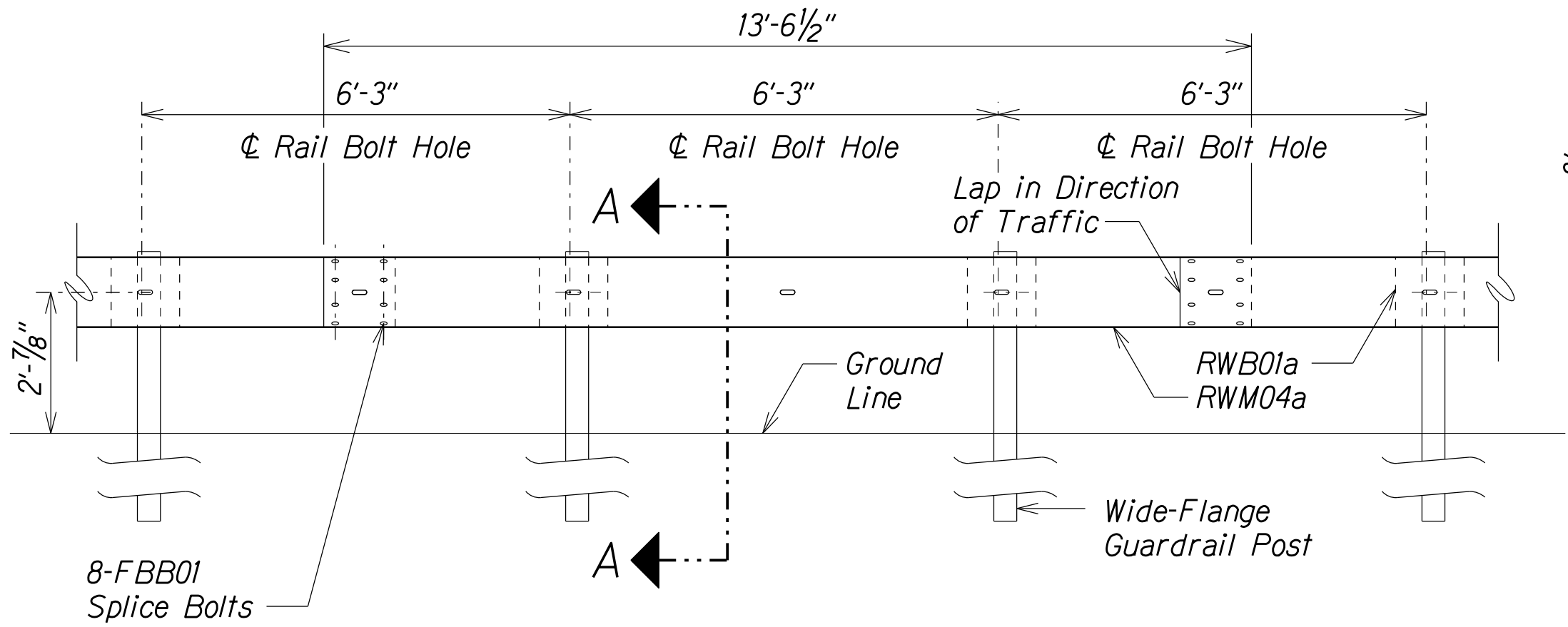


GUARDRAIL BOLTS AND  
RECESSED NUT

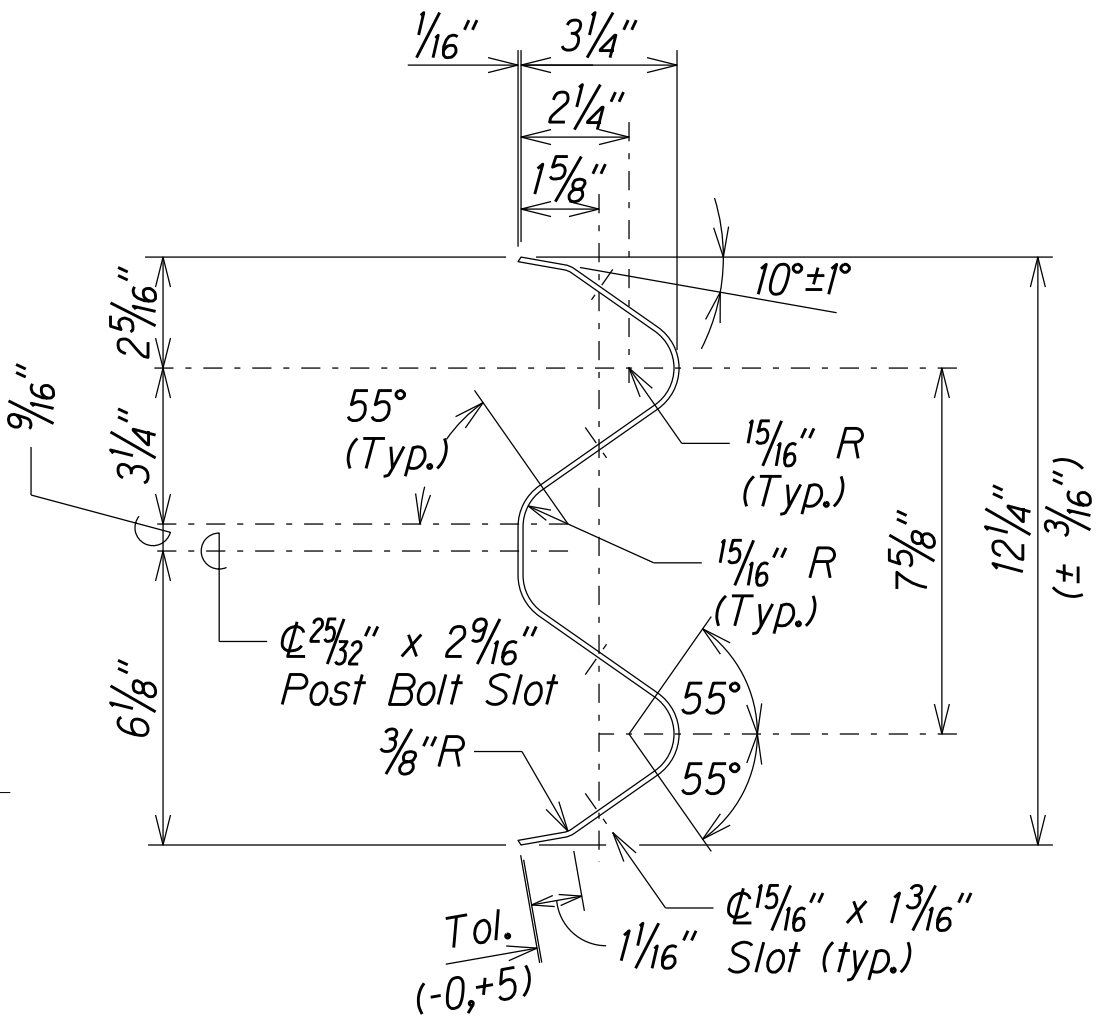


| DESIGNATOR | BASE METAL THICKNESS |
|------------|----------------------|
| RWM01a     | 12 Gauge             |

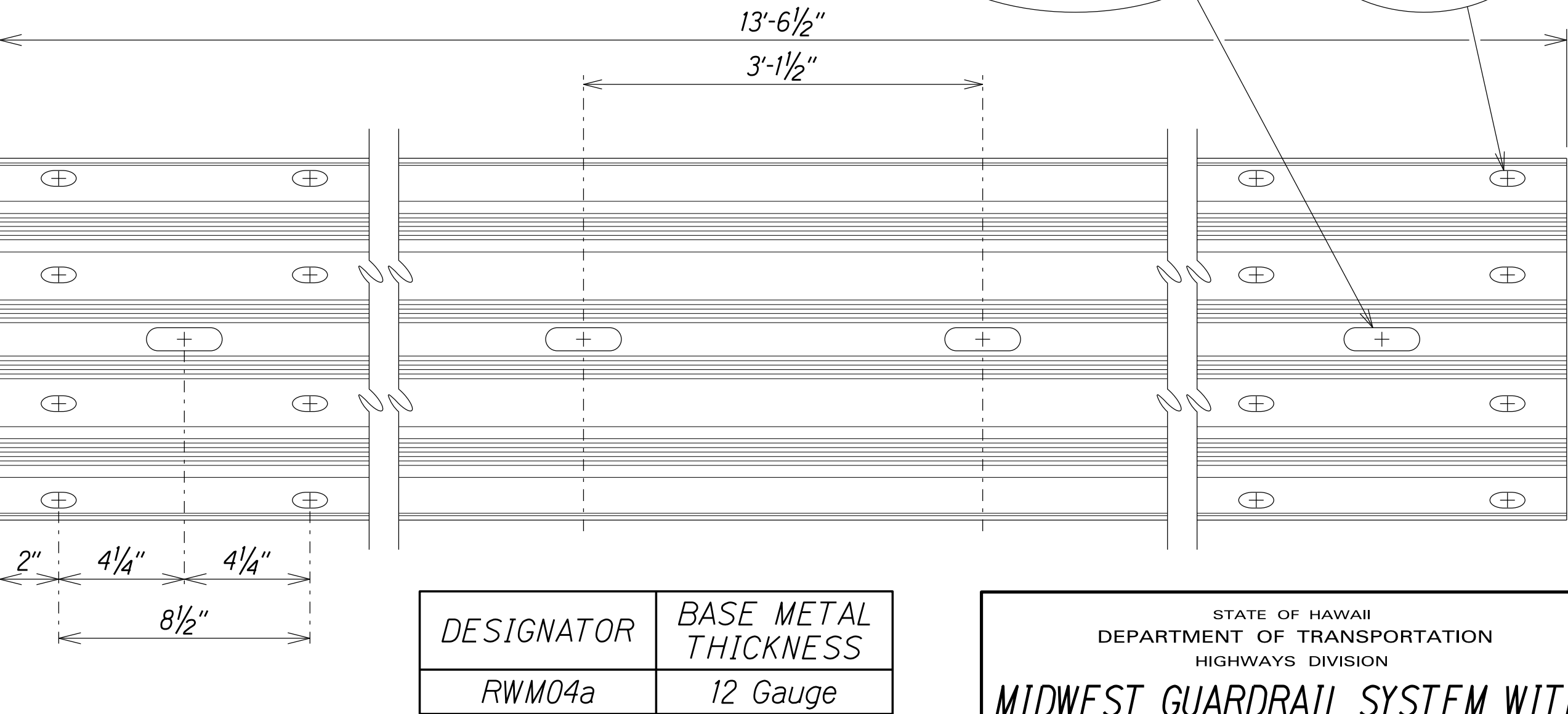
W-BEAM BACK-UP PLATE (RWM01a)



MIDWEST GUARDRAIL SYSTEM WITH  
NO BLOCKOUTS (SGR41)



4 SPACE W-BEAM GUARDRAIL (RWM04a)



| DESIGNATOR | BASE METAL THICKNESS |
|------------|----------------------|
| RWM04a     | 12 Gauge             |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**MIDWEST GUARDRAIL SYSTEM WITH**  
**NO BLOCKOUTS**

INTERSTATE ROUTE H-2, 84-INCH  
Culvert Restoration at M.P. 2.10  
Project No. HWY-0-01-19

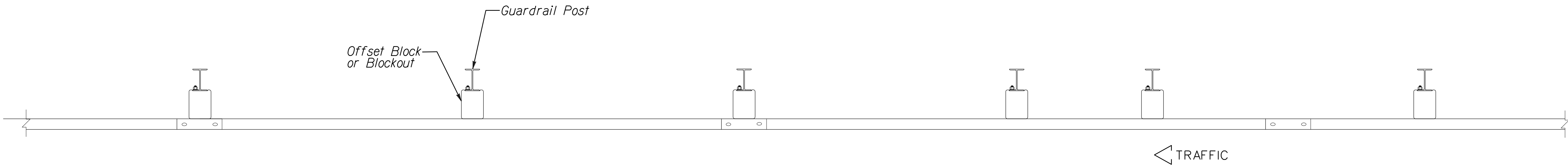
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SHEET No. 2 OF 5 SHEETS

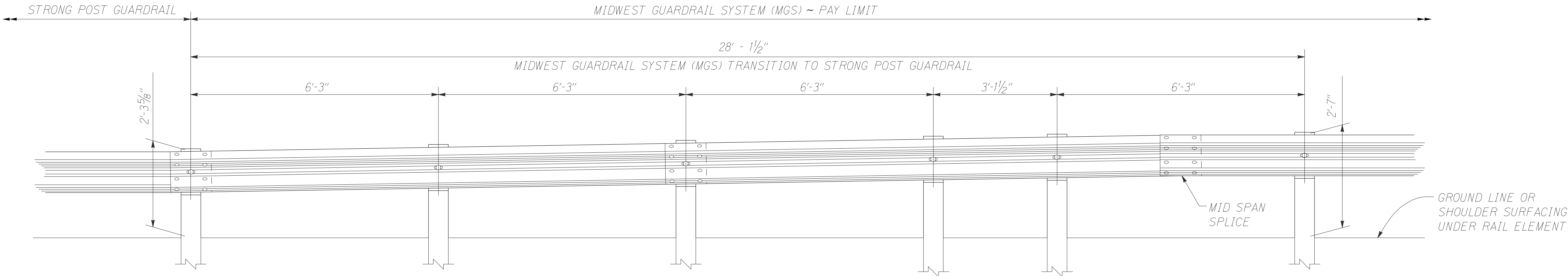
|               |                   |      |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK     | DRAWN BY          |      |
| INTEREST      | DESIGNED BY       |      |
| QUANTITY      | CHECKED BY        |      |
| NO. mgsbeam2  |                   |      |

r0728/17 Dusr2/Ernest/standards/Traffic Guardrail Standards/m3.mgsbeam2.dgn

| FED. ROAD DIST. NO. | STATE | PROJ. NO.   | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-01-19 | 2020        | 10        | 23           |



PLAN



ELEVATION

|               |                   |          |
|---------------|-------------------|----------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE     |
| NOTE BOOK     | DRAWN BY          | 11/19/16 |
| DESIGNED BY   | DESIGNED BY       |          |
| CHECKED BY    | CHECKED BY        |          |
| NO.           | NO.               |          |

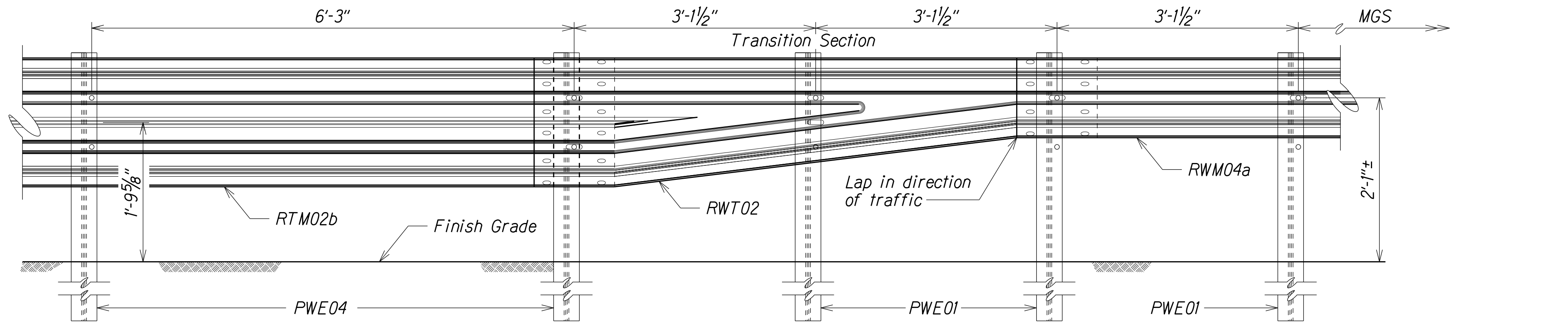
r09/06/16 D:\r09\standards\Traffic Guardrail Standards\ml\_midwest.dgn

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**MGS TRANSITION TO  
STRONG POST GUARDRAIL**  
**INTERSTATE ROUTE H-2, 84-INCH**  
**Culvert Restoration at M.P. 2.10**  
**Project No. HWY-0-01-19**

Scale: Not to Scale Date: May, 2020

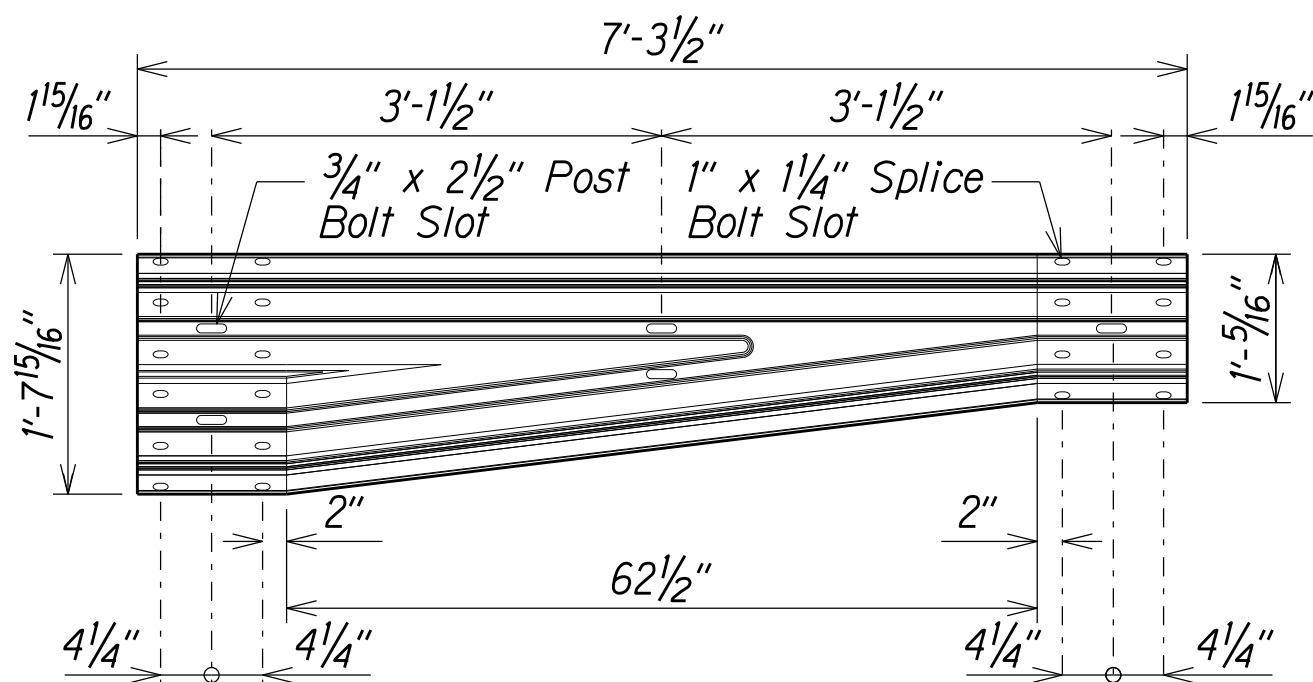
SHEET No. 3 OF 5 SHEETS

| FED. ROAD DIST. NO. | STATE | PROJ. NO.   | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-01-19 | 2020        | 11        | 23           |

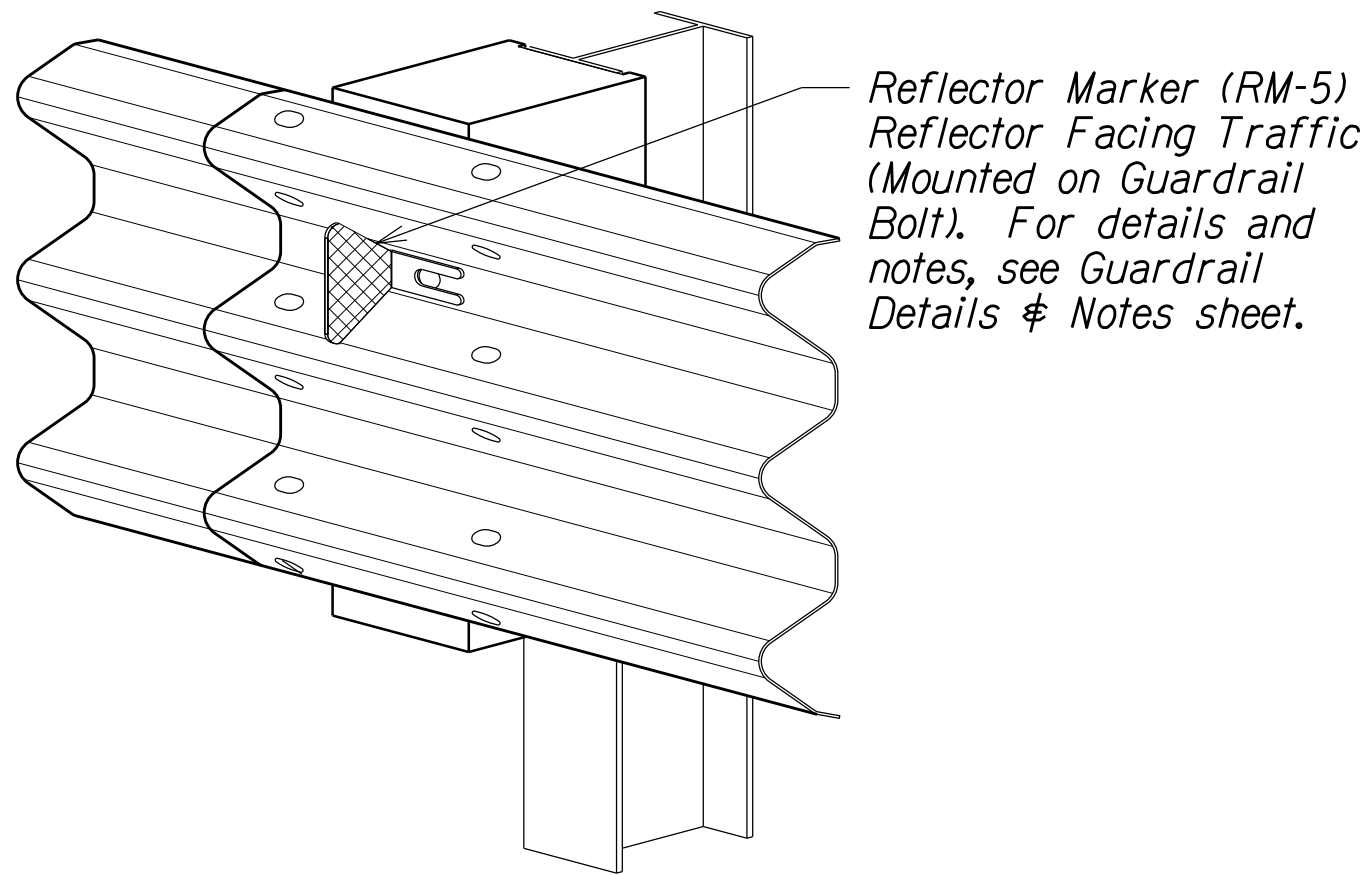


\* Not to be used for Thrie Beam connection to structures.

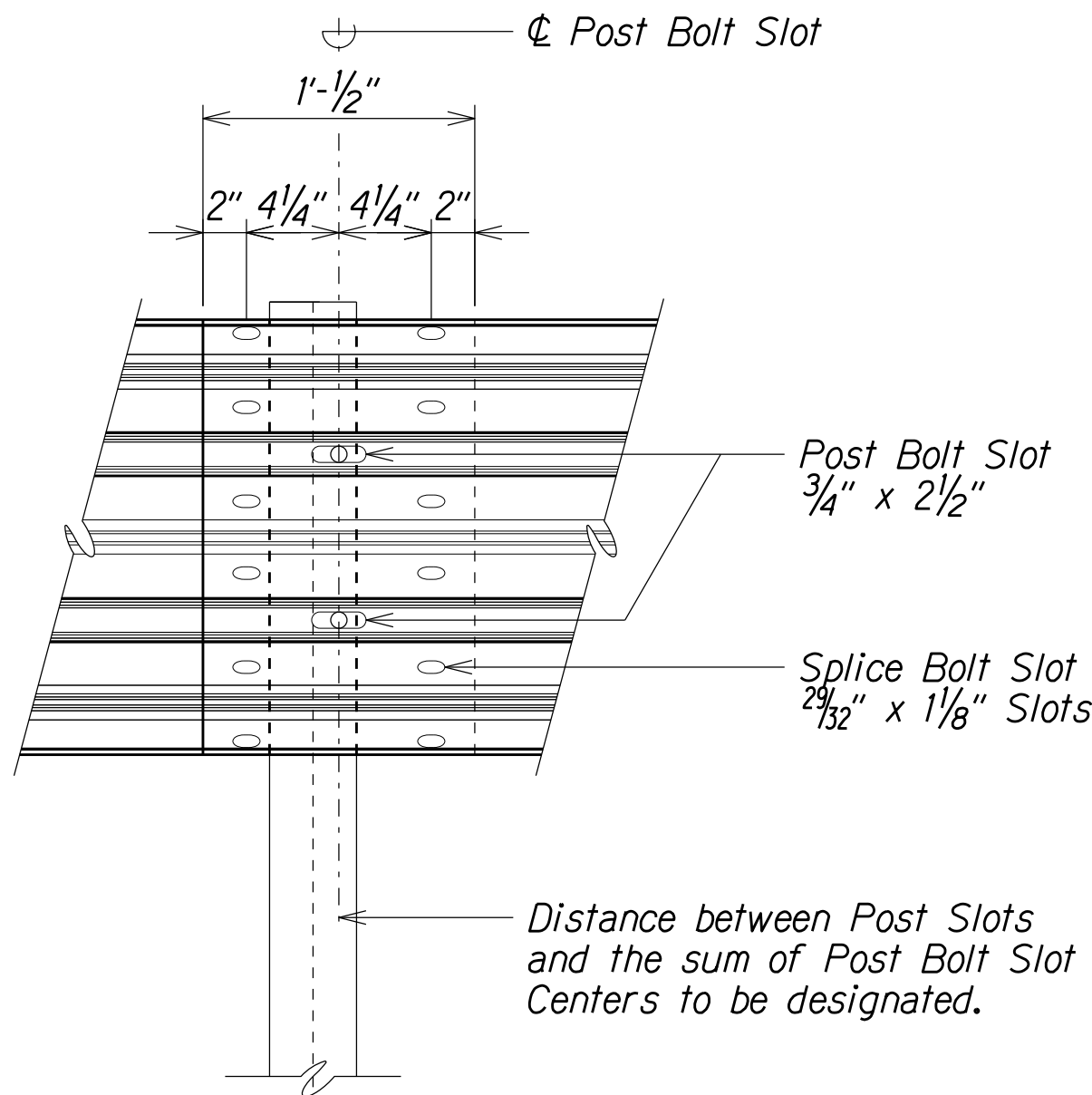
### TRANSITION SECTION\*



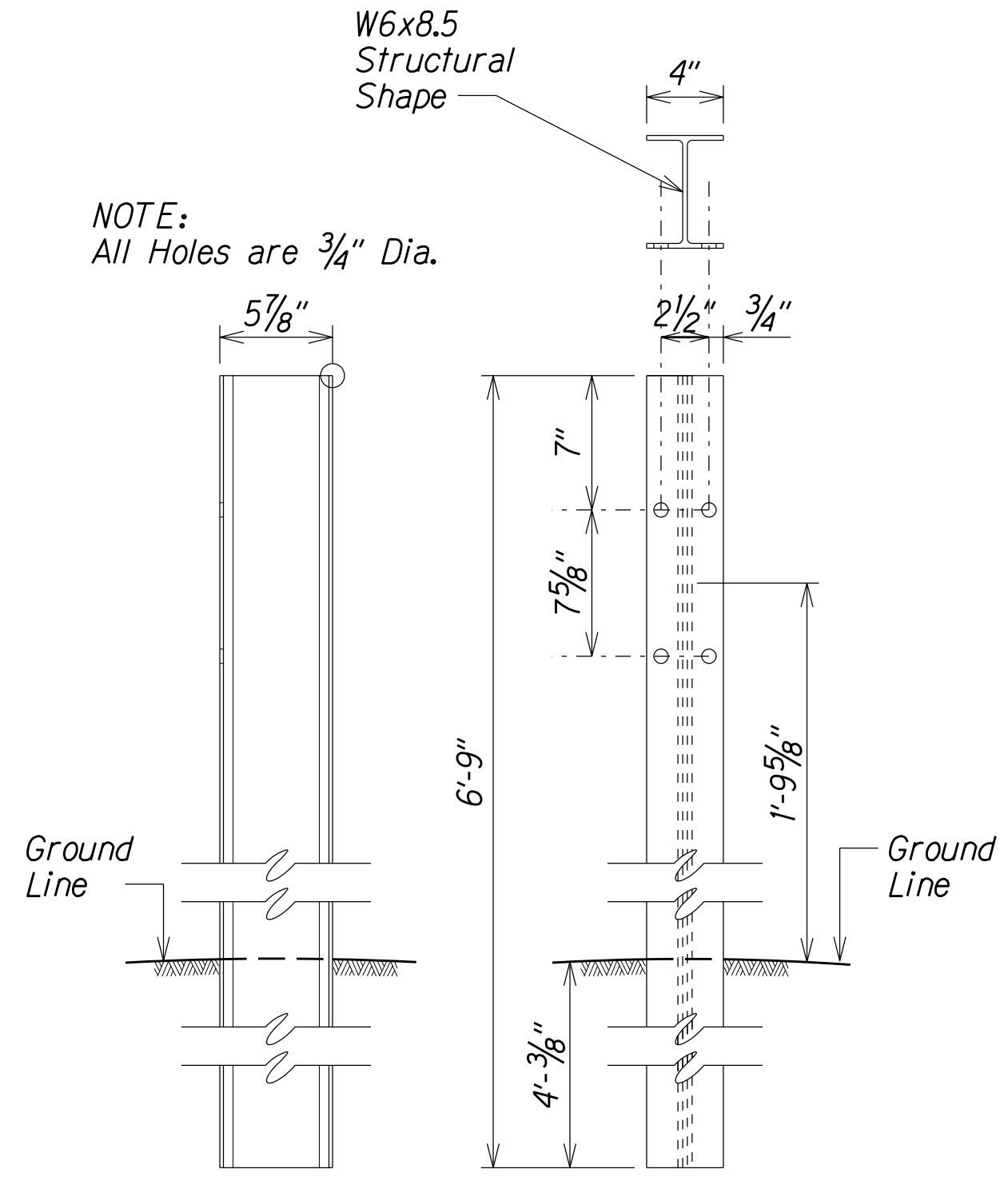
### TRANSITION SECTION (RWT02)



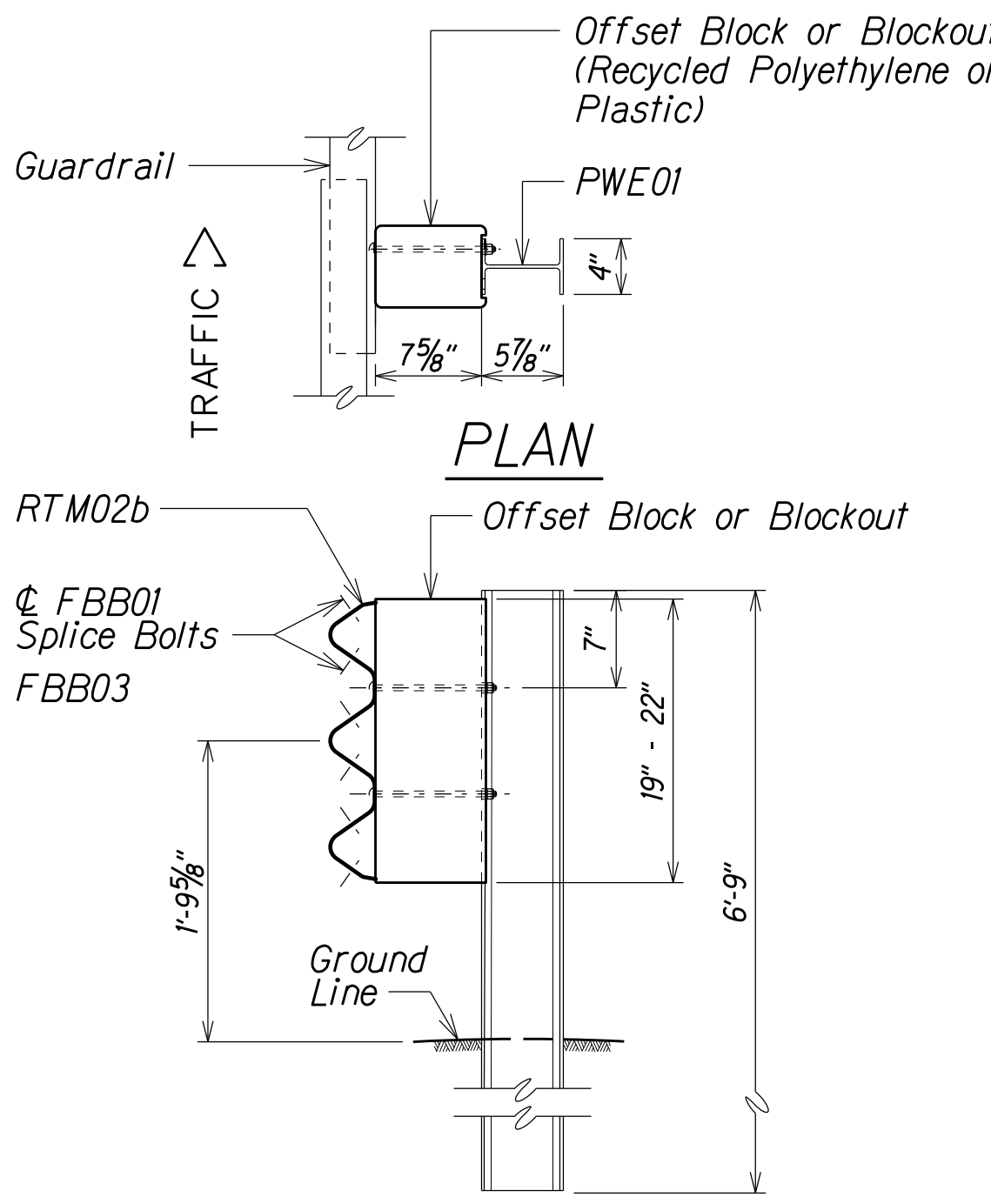
### TYPICAL INSTALLATION OF REFLECTOR MARKER (RM-5)



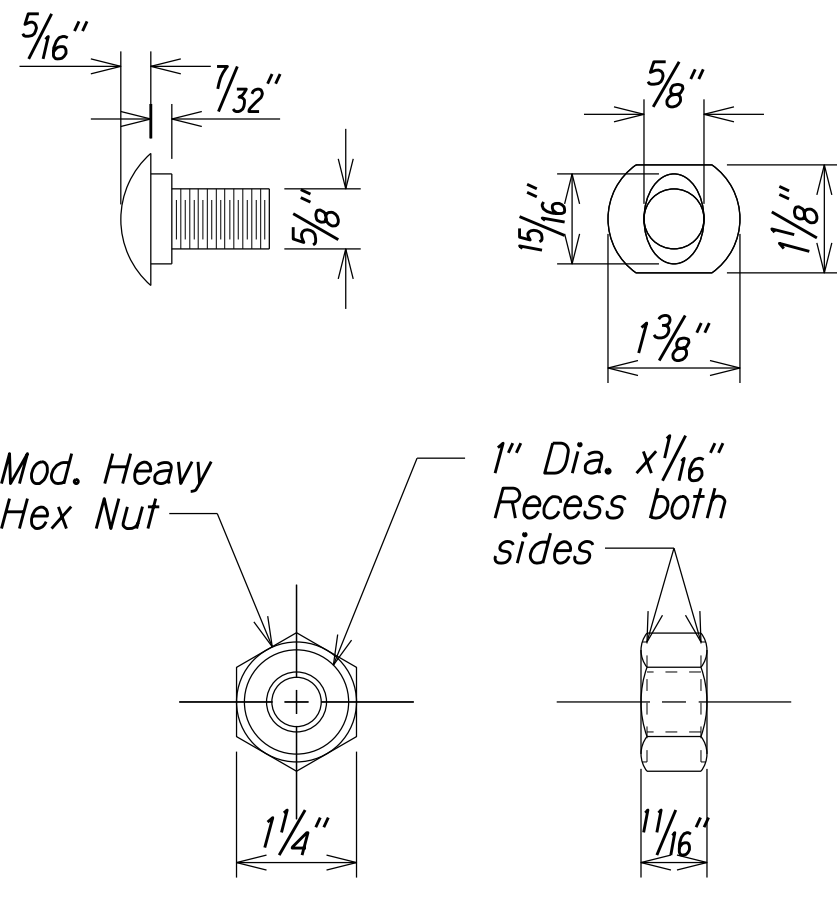
### RAIL SPLICE



### THRIE-BEAM STRONG POST FOR PLASTIC SPACER BLOCKS PWE04

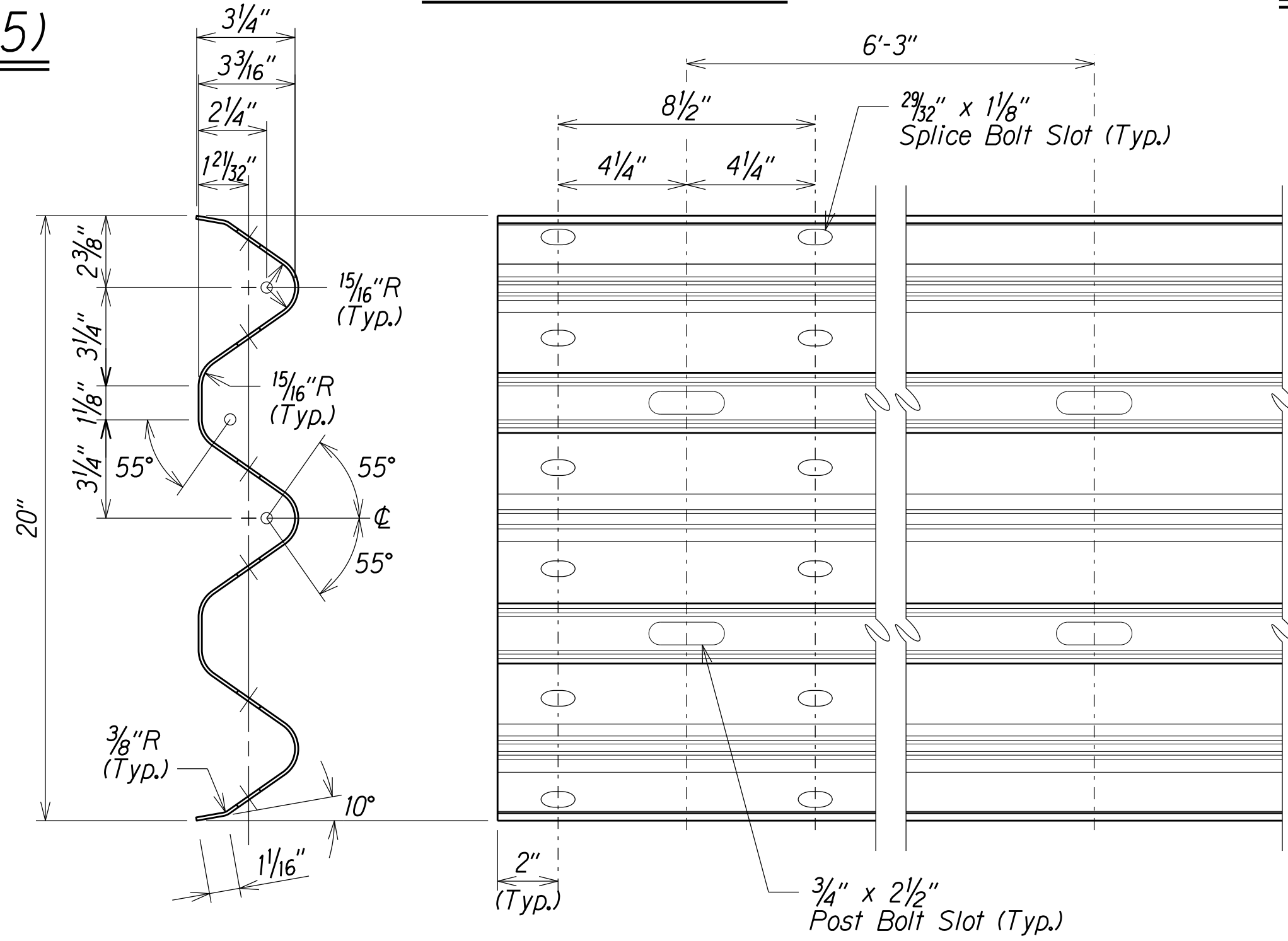


### STRONG POST THRIE-BEAM GUARDRAIL (SGR09a)



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

### GUARDRAIL BOLTS AND RECESSED NUT



### 1 & 2 SPACE THRIE-BEAM GUARDRAIL (RTM02b)

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

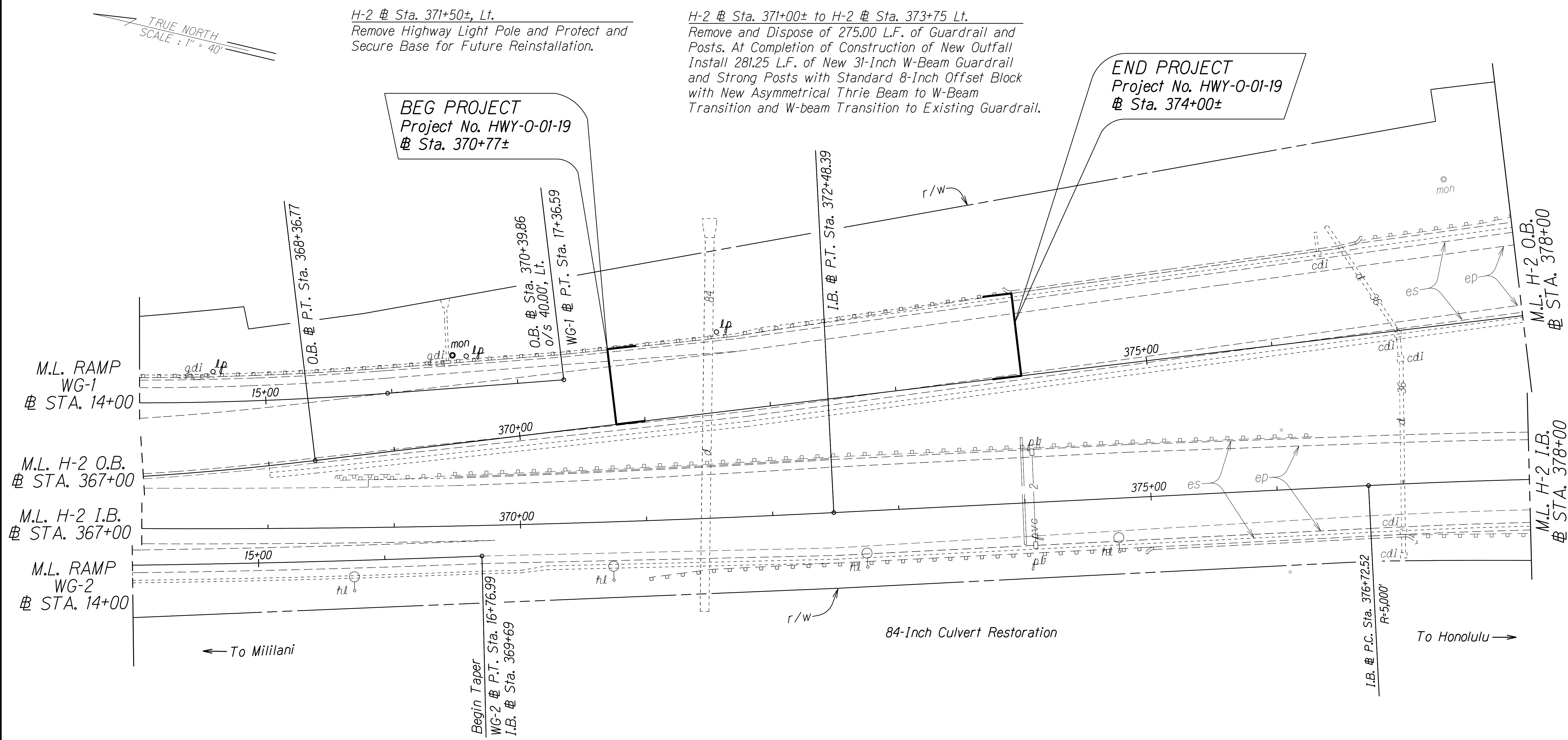
STRONG POST  
THRIE-BEAM GUARDRAIL  
INTERSTATE ROUTE H-2, 84-INCH  
Culvert Restoration at M.P. 2.10  
Project No. HWY-0-01-19  
Scale: Not to Scale Date: May, 2020

SHEET No. 4 OF 5 SHEETS

|               |                   |      |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK     | DRAWN BY          |      |
|               | DESIGNED BY       |      |
|               | CHECKED BY        |      |
|               | DATE              |      |

11/13/01/17 IdLEnest/standards/Traffic/Guardrail Standards/thriebeam-B-5Bdgn

| FED. ROAD DIST. NO. | STATE | PROJ. NO.   | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY-0-01-19 | 2020        | 12        | 23           |



|               |                   |      |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK     | DRAWN BY          |      |
|               | TRACED BY         |      |
|               | DESIGNED BY       |      |
|               | CHECKED BY        |      |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLANS**

**INTERSTATE ROUTE H-2, 84-INCH**  
**Culvert Restoration at M.P. 2.10**  
**Project No. HWY-0-01-19**

Scale: 1" = 40' Date: May, 2020

SHEET No. 5 OF 5 SHEETS