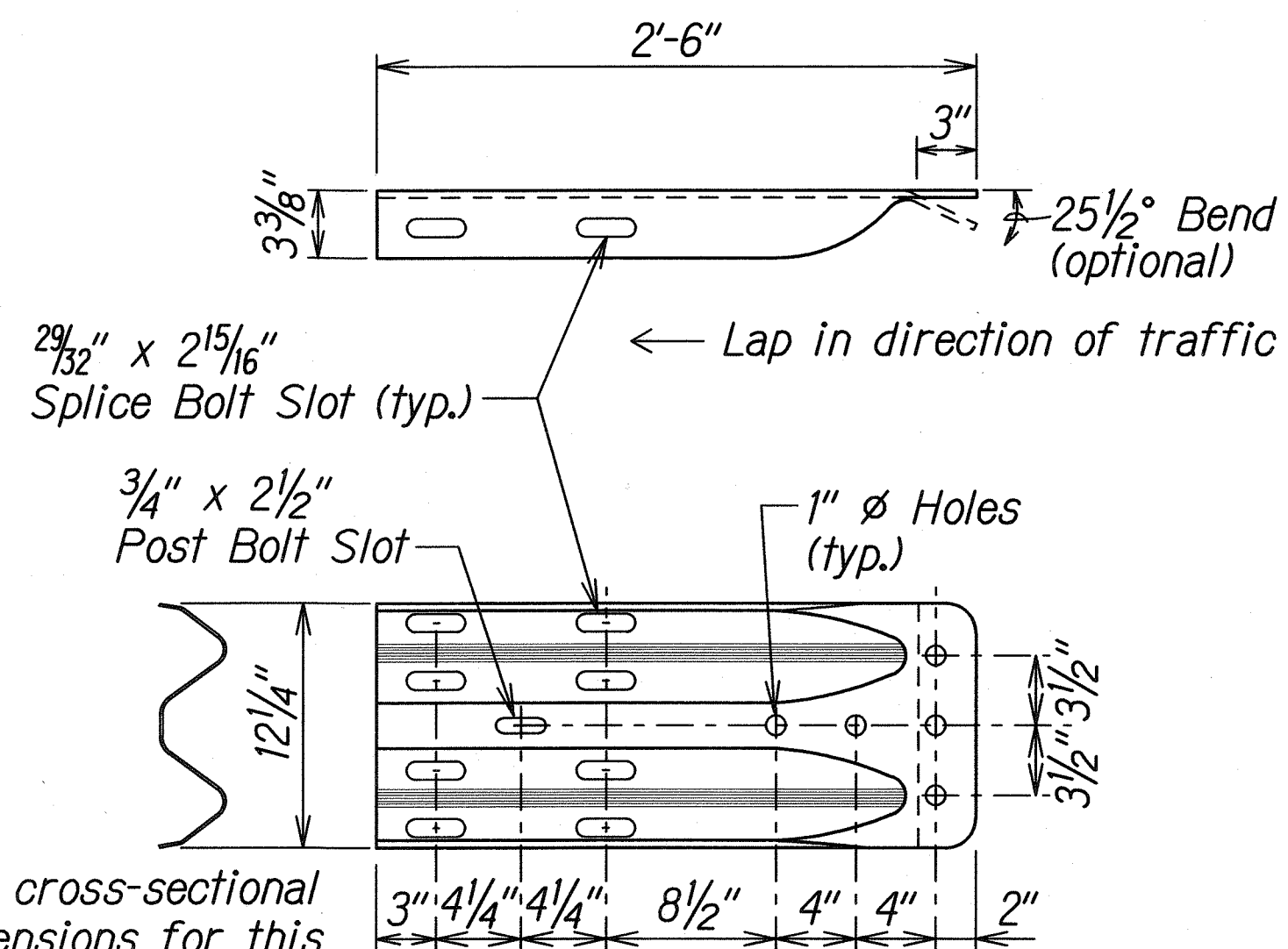


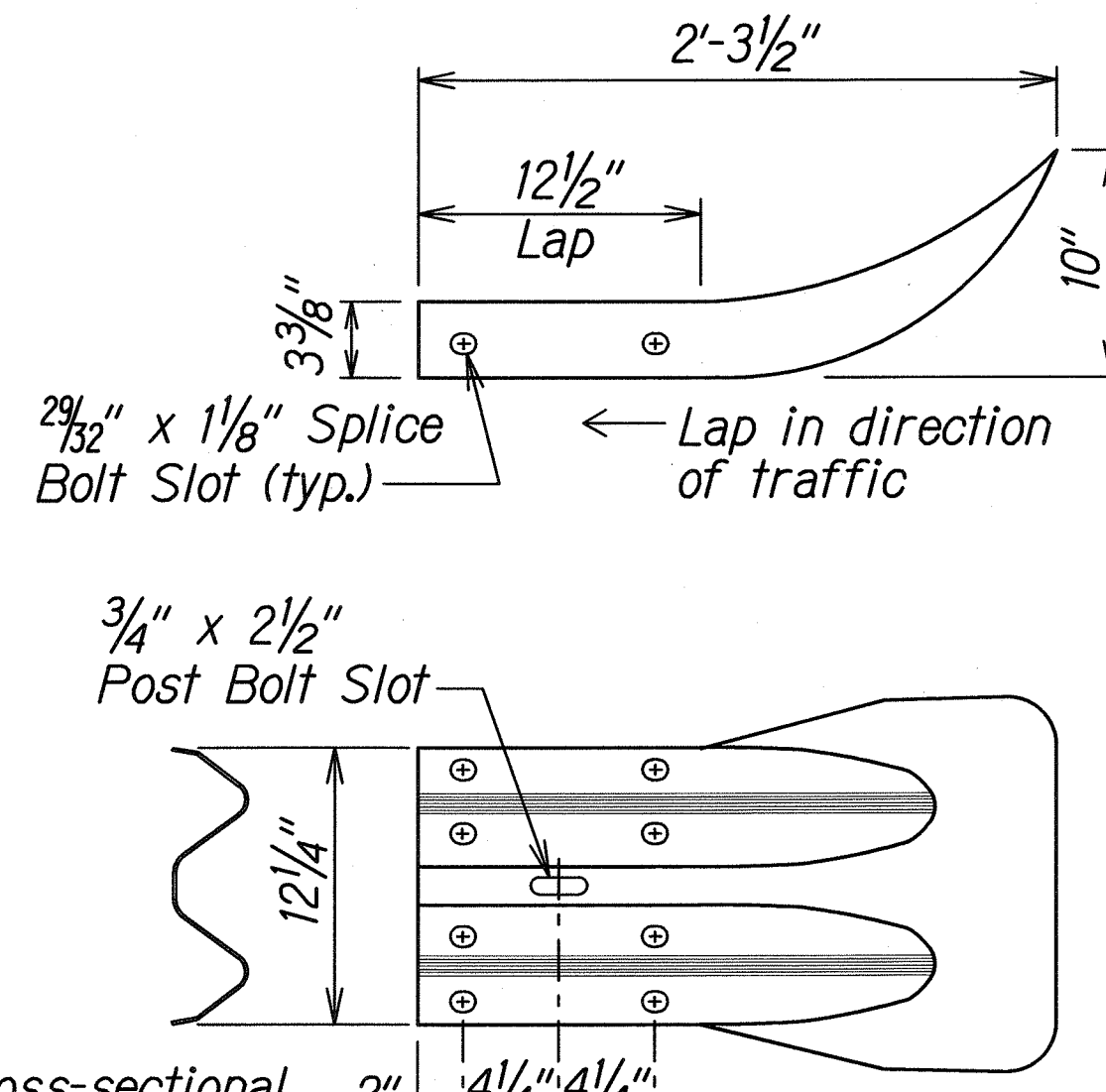
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	37	160



The cross-sectional dimensions for this part are to fit over part RWM02a on the approach end and under part RWM02a on the trailing end.

DESIGNATOR	BASE METAL THICKNESS
RWE02b	10 Gauge

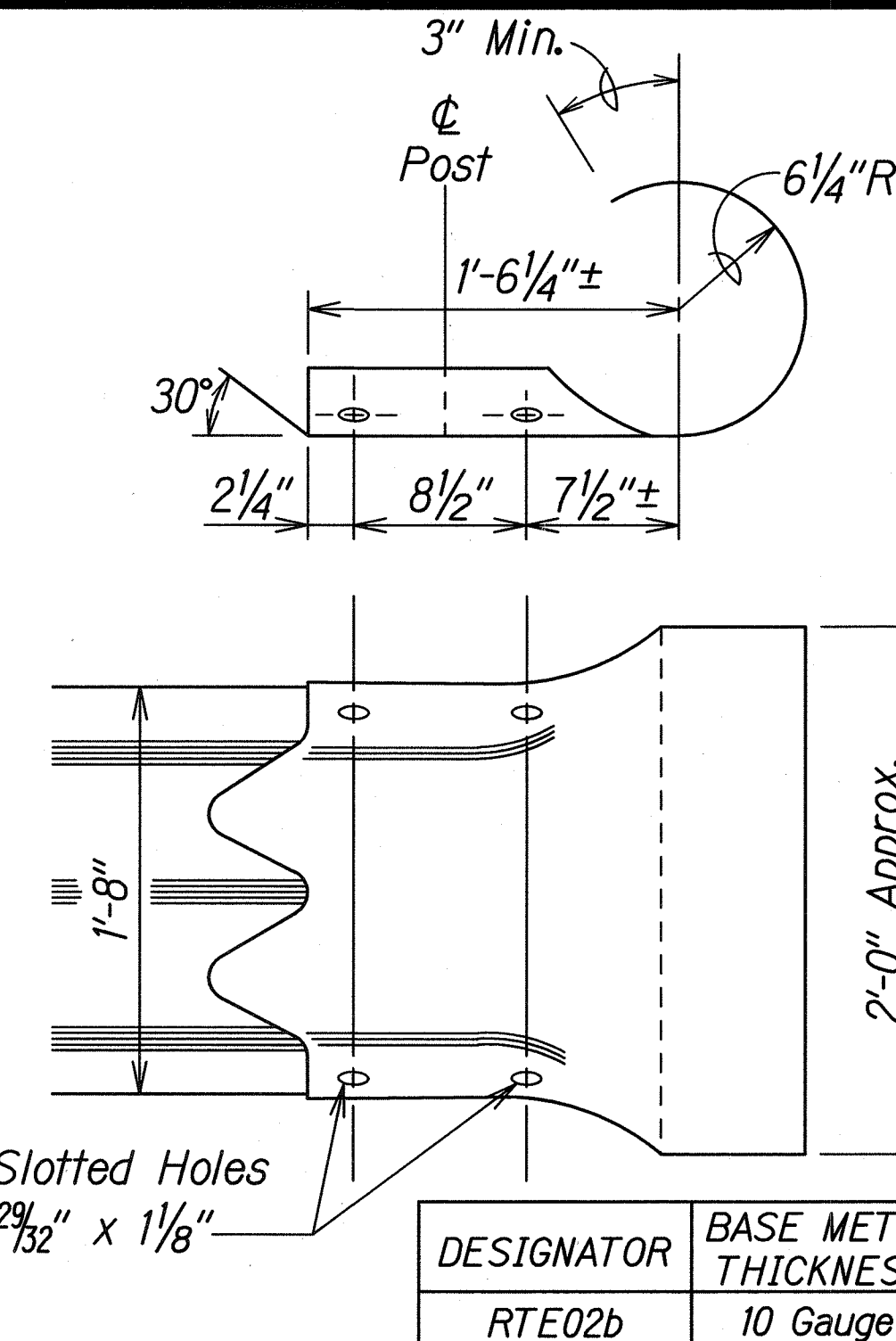
W-BEAM TERMINAL CONNECTOR (RWE02b)



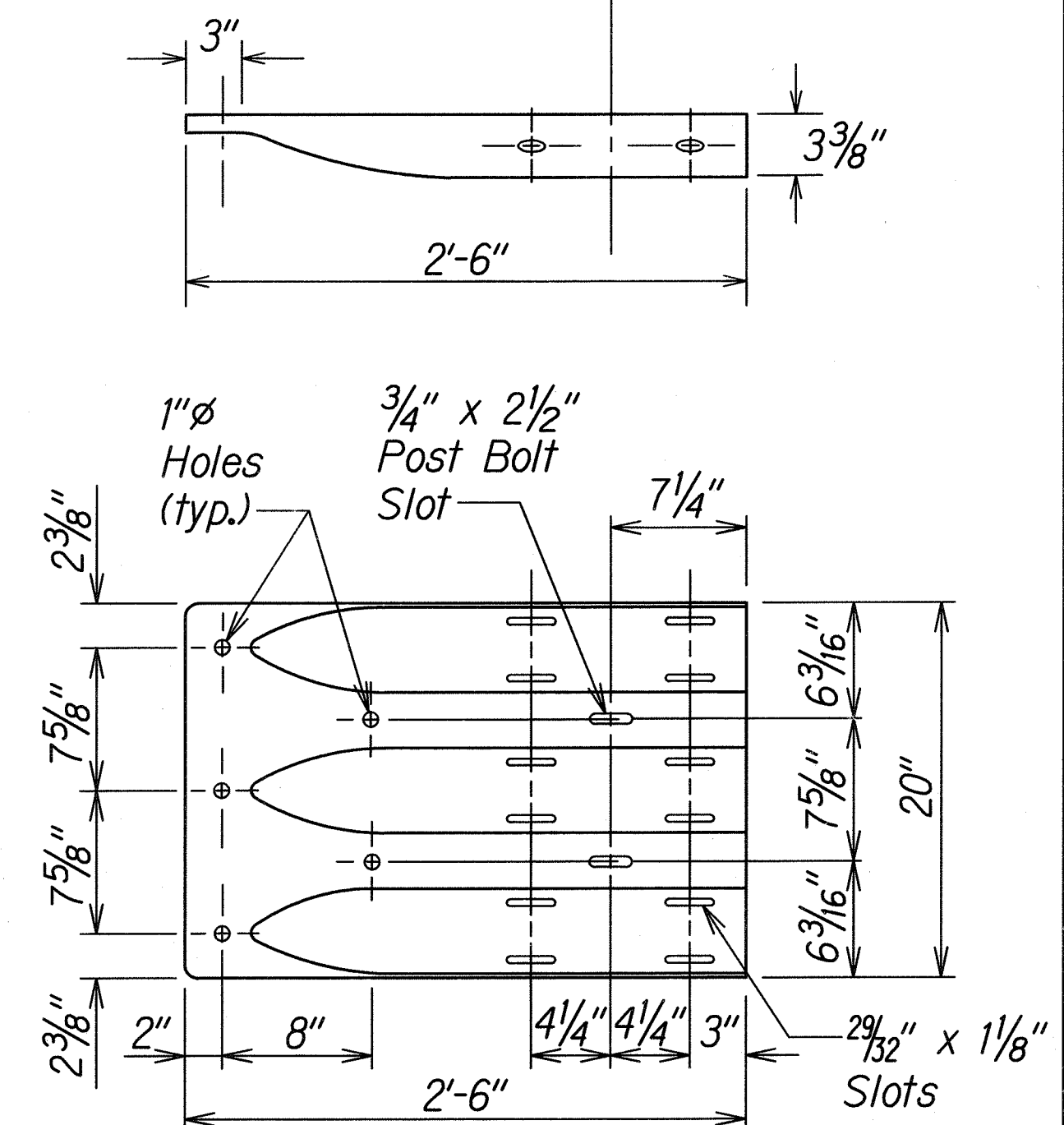
The cross-sectional dimensions for this part are to fit over part RWM02a on the approach end and under part RWM02a on the trailing end.

DESIGNATOR	BASE METAL THICKNESS
RWE01a	12 Gauge

W-BEAM END SECTION (FLARED RWE01a)

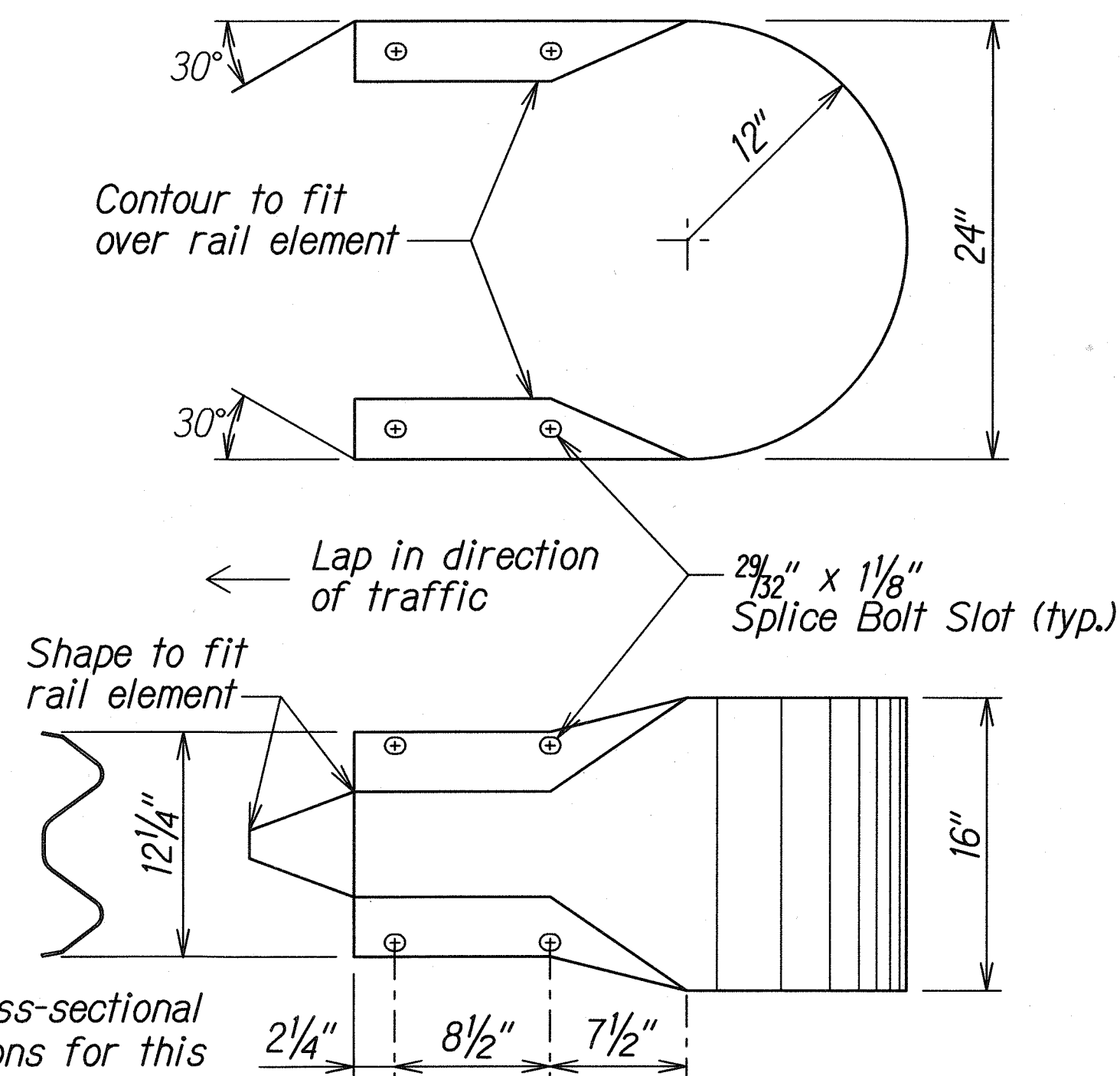


THRIE-BEAM SECTION (ROUNDED) (RTE02b)



DESIGNATOR	BASE METAL THICKNESS
RTE01b	10 Gauge

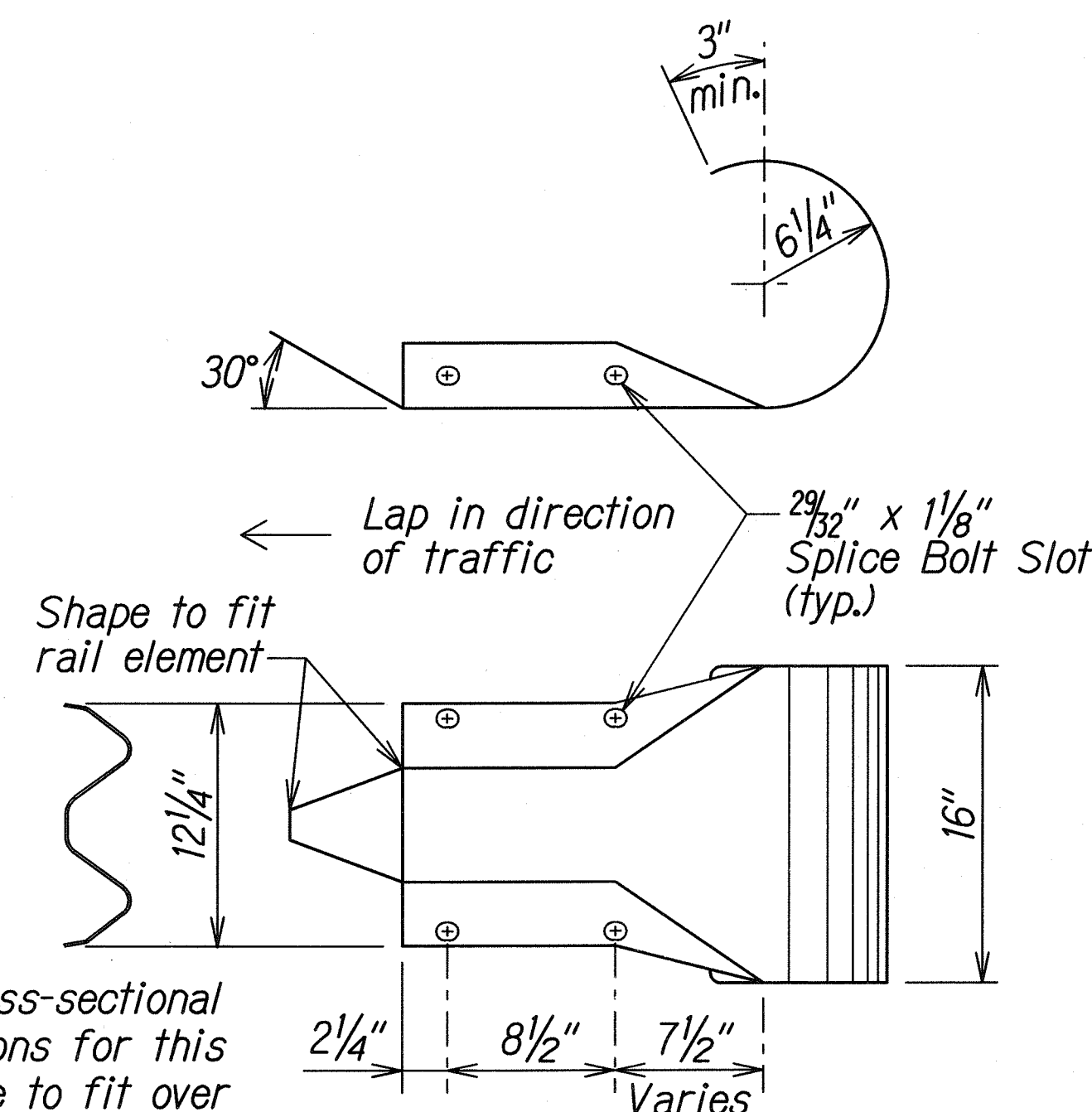
THRIE-BEAM TERMINAL CONNECTOR (RTE01b)



The cross-sectional dimensions for this part are to fit over part RWM02a

DESIGNATOR	BASE METAL THICKNESS
RWE06a	12 Gauge

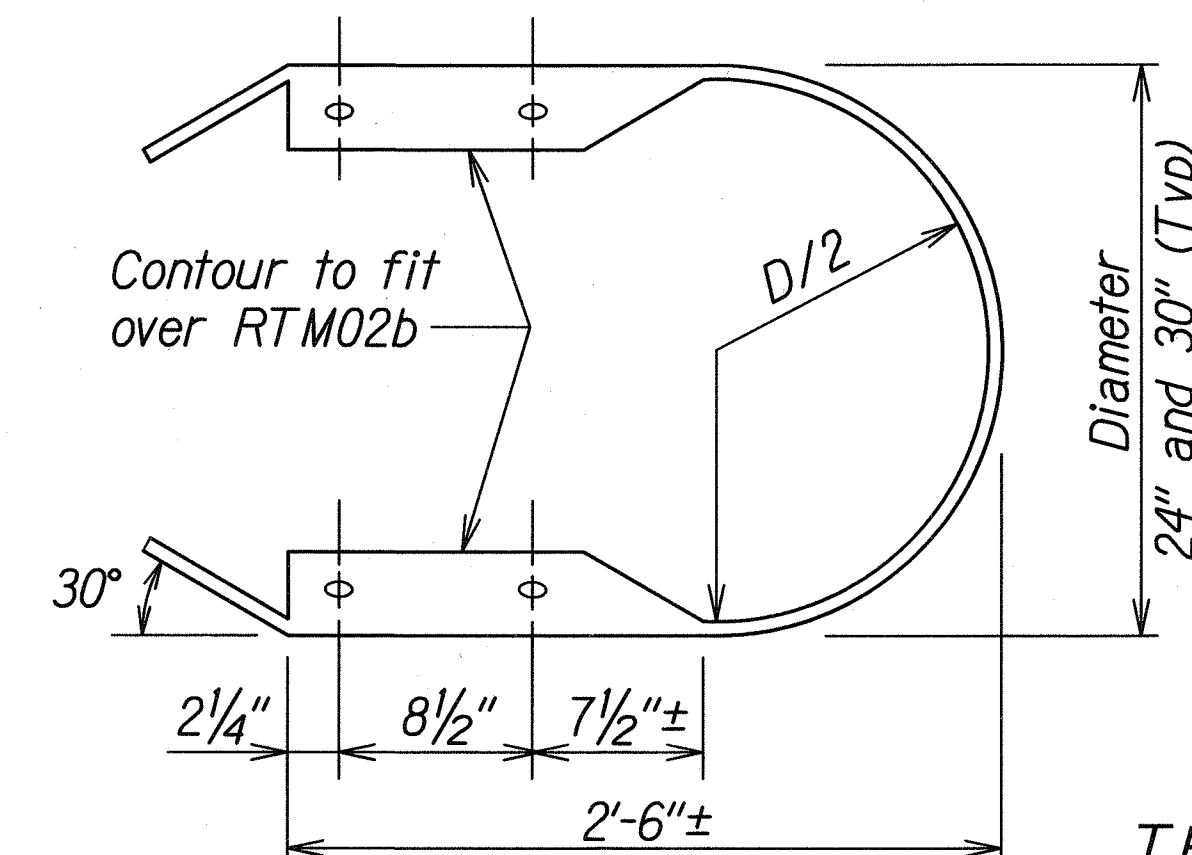
W-BEAM END SECTION (BUFFER RWE06a)



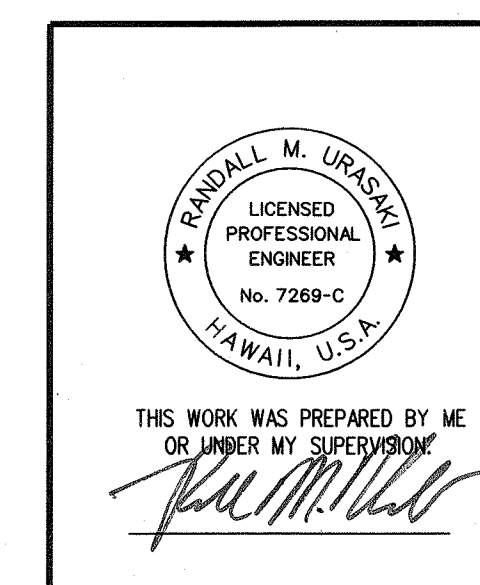
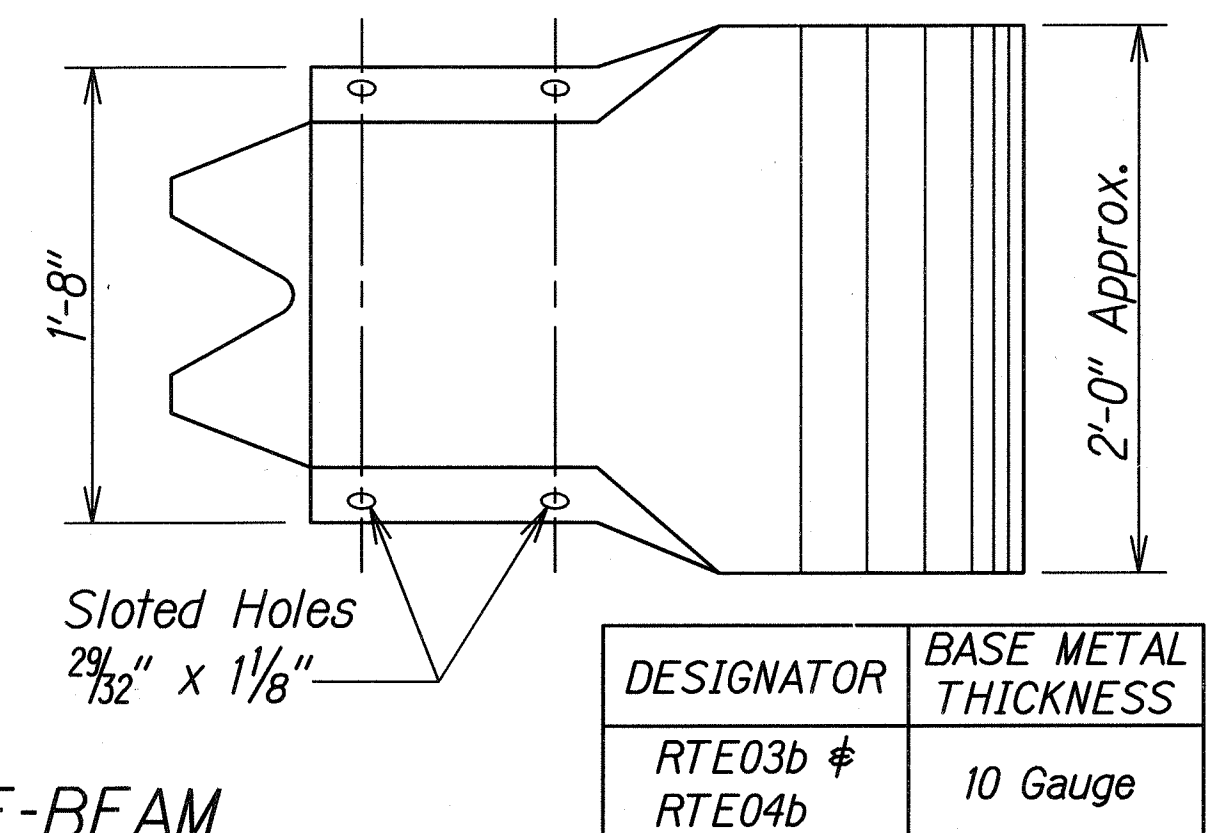
The cross-sectional dimensions for this part are to fit over part RWM02a

DESIGNATOR	BASE METAL THICKNESS
RWE03a	12 Gauge

W-BEAM END SECTION (ROUNDED RWE03a)



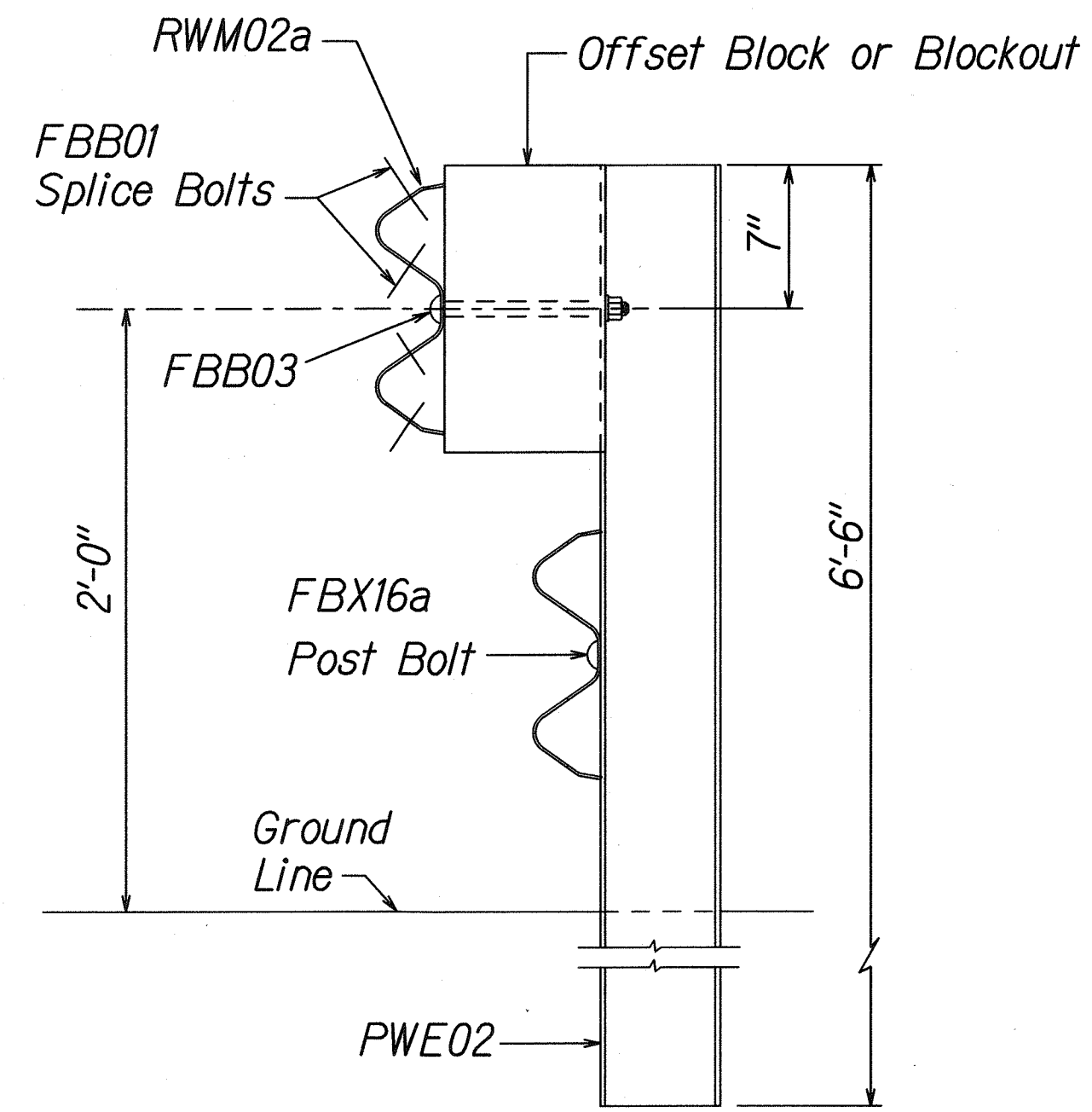
THRIE-BEAM END SECTION (BUFFER RTE03b or RTE04b)



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
GUARDRAIL TERMINAL CONNECTORS AND END SECTIONS
FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

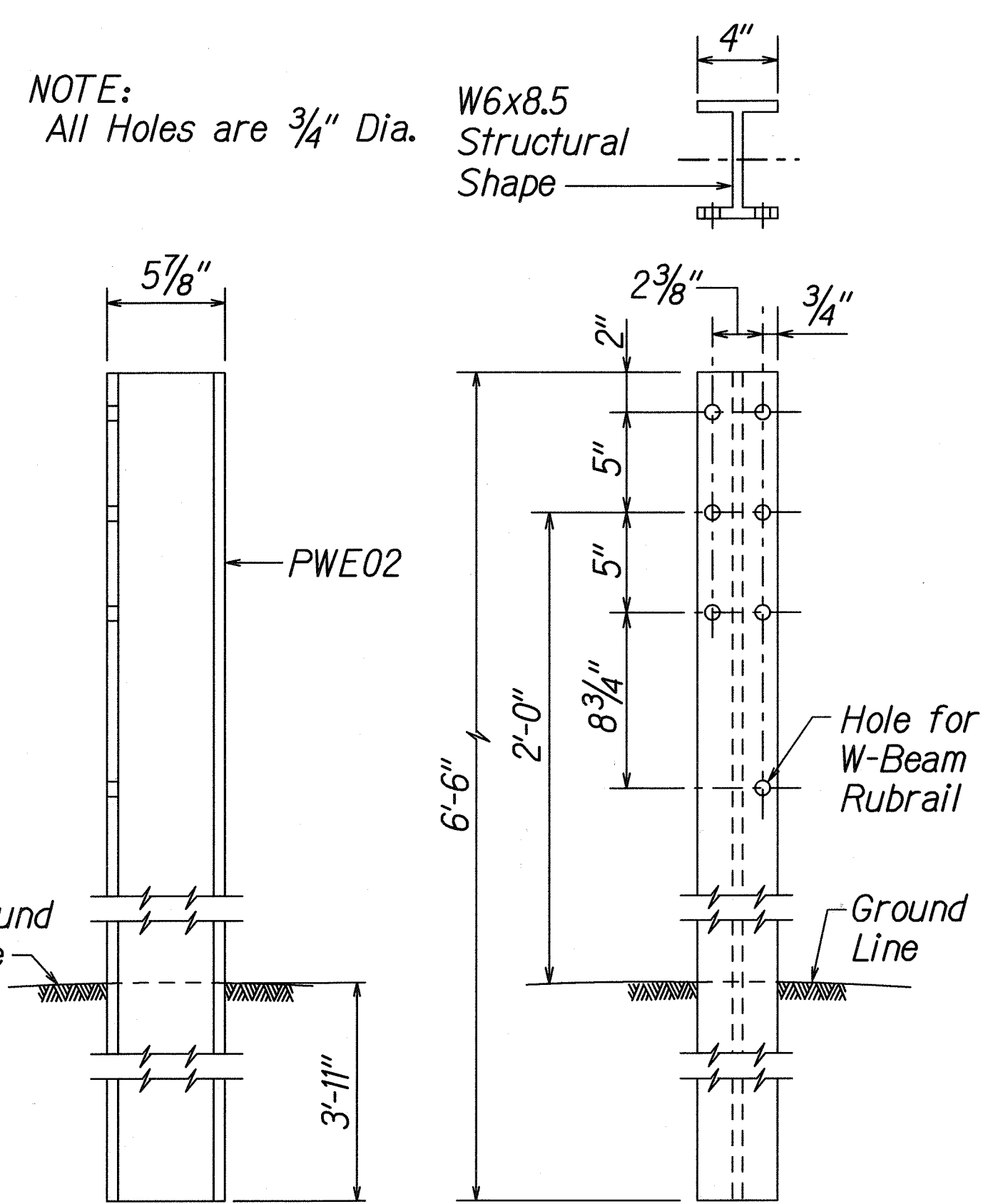
Scale: NTS Date: Sept. 20, 2007

SHEET No. RI-14 OF 39 SHEETS



ELEVATION

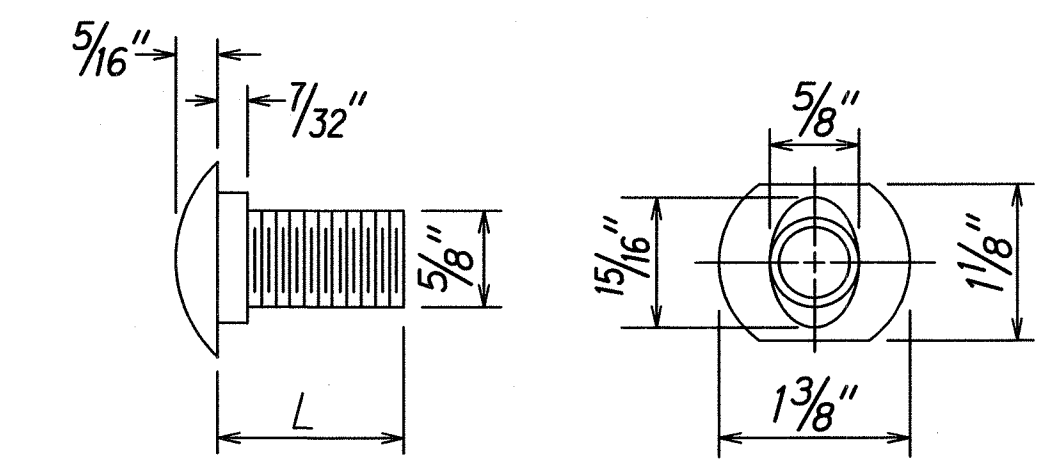
STRONG POST RUBRAIL (W-BEAM) GUARDRAIL



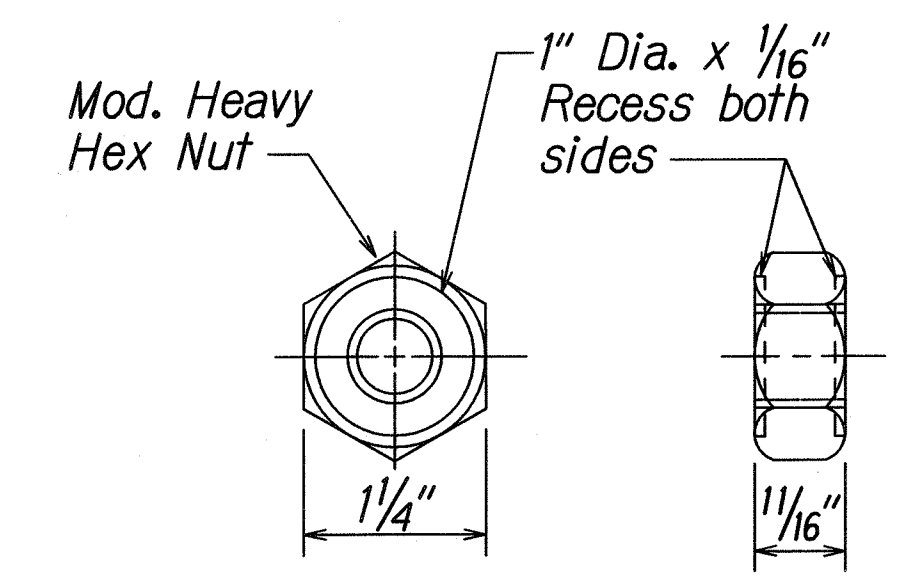
SIDE

FRONT

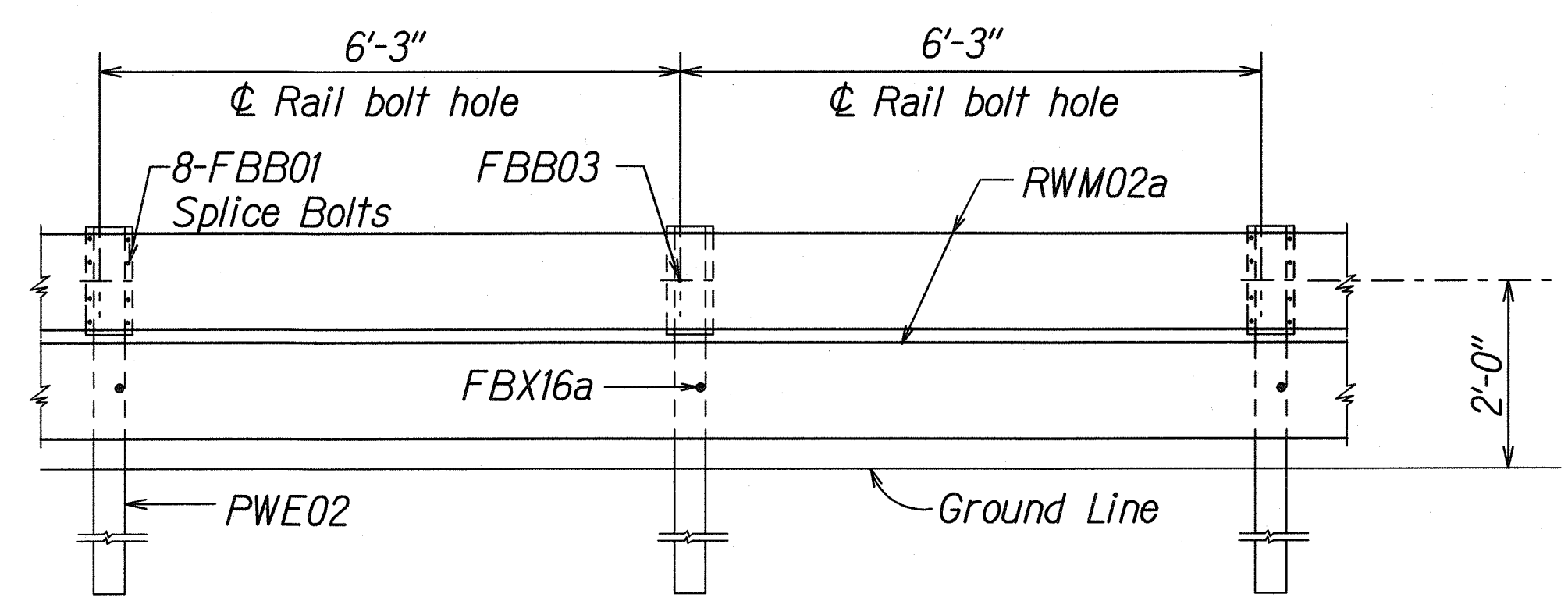
W-BEAM STRONG POST (PWE02)



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

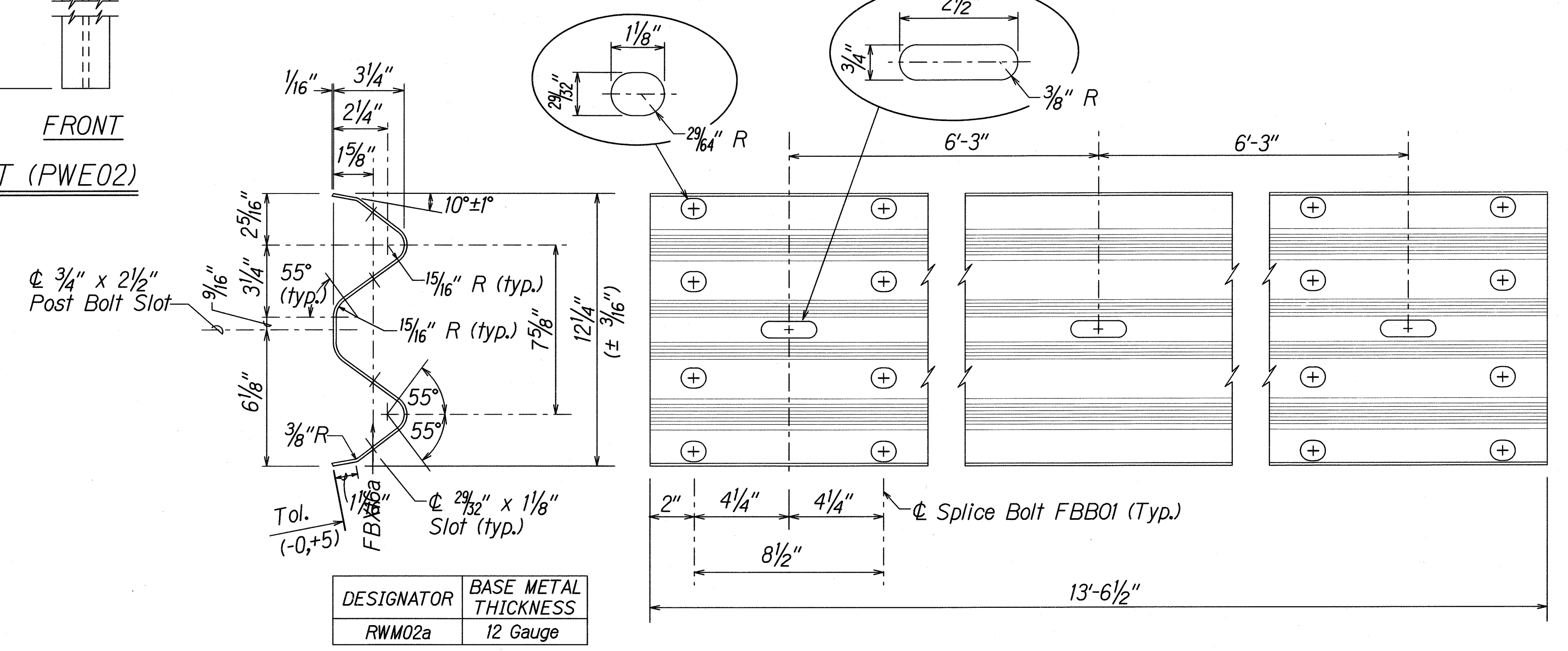


GUARDRAIL BOLTS AND RECESSED NUT



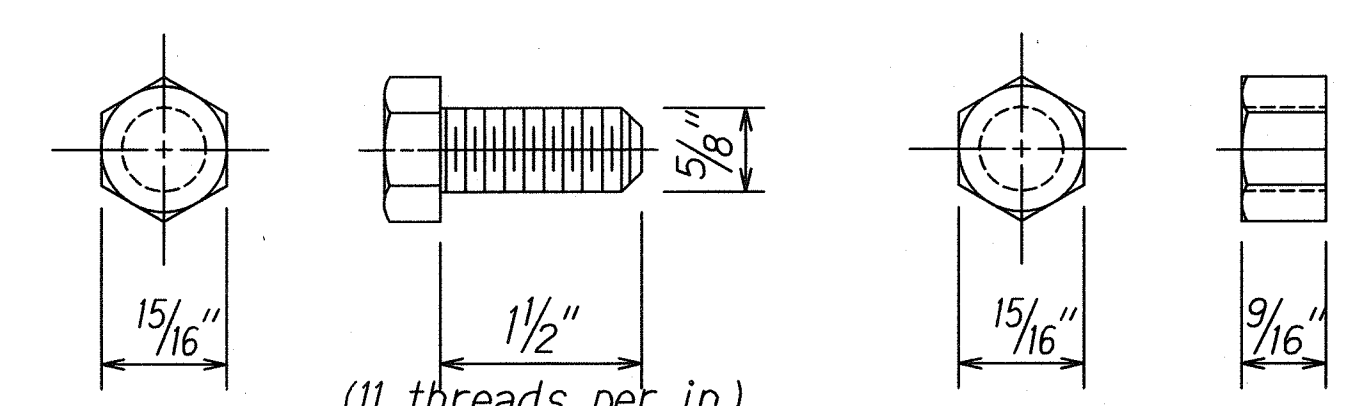
ELEVATION

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



DESIGNATOR	BASE METAL THICKNESS
RWM02a	12 Gauge

2 SPACE W-BEAM GUARDRAIL (RWM02a)



HEX BOLT & NUT (FBX16a)

ORIGINAL PLAN
DATE
DRAWN BY
CHECKED BY
NOTE BOOK
QUANTITIES BY
N.

44-FORT WEAVER ROAD/RUBRAIL.dgn

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

R. Urashki

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRONG POST RUBRAIL (W-BEAM) GUARDRAIL

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

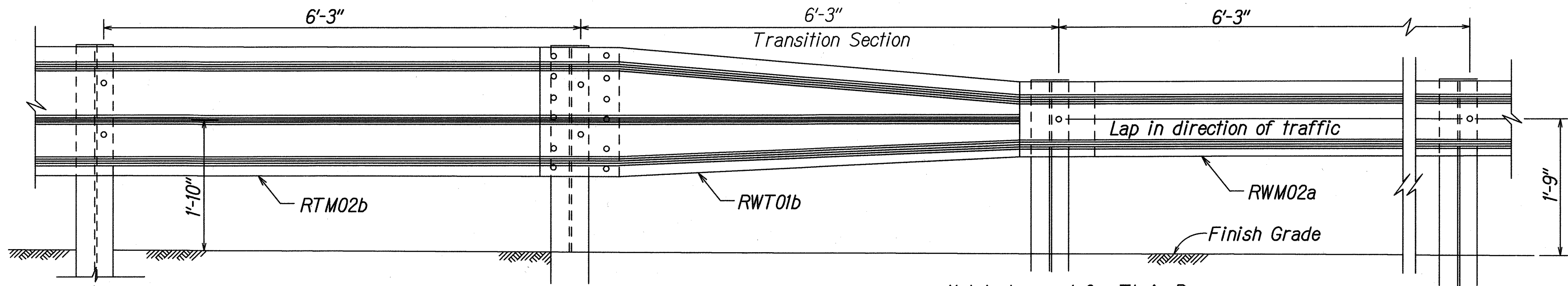
Scale: NTS Date: Sept. 20, 2007

SHEET No. RI-15 OF 39 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	39	160

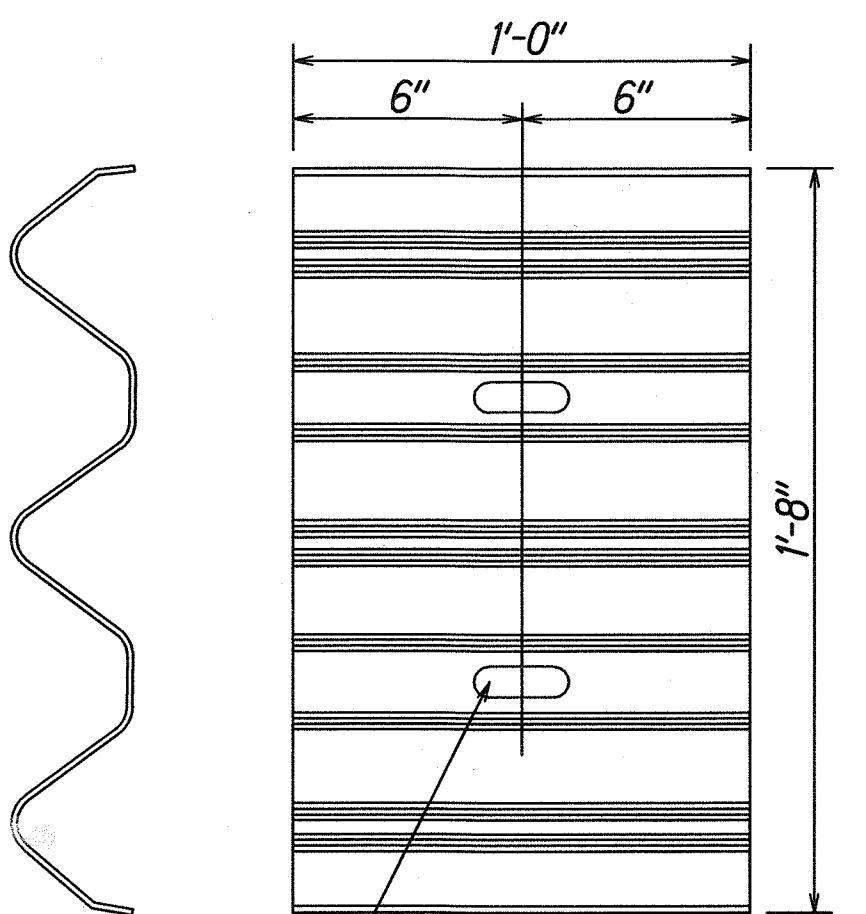
NOTES:

- The work necessary to connect guardrail to concrete end post shall include all labor, materials, tools, equipment and incidentals necessary to complete the work and will not be paid for separately.
- Lap terminal connector and rail element in direction of traffic to prevent snagging.
- All anchor bolts shall be high strength bolts conforming to the requirements of ASTM 325 and Standard Specification, Section 713.04.
- Anchor bolt length shall be such that a snug fit of the elements and full thread engagement plus 1/4" (max) is attained.
- "Terminal Connector", "Transition Section" and thrie beam shall be fabricated from 10 gauge steel conforming to the requirements of AASHTO M 180, Type II, Class B.
- "Terminal Connector" and standard spacer, including all anchor bolts, cap PL, nuts and washers, shall be hot-dip galvanized after fabrication.
- Cap PL shall be fabricated from ASTM A 36.
- First 25'-0" of guardrail adjoining "Terminal Connector" shall be galvanized steel and supports spaced as shown on the detail drawings. This section of rail shall be placed on tangent to end post or parallel to roadway, unless conditions at site renders it impossible to do so. Flare point to be determined in field.
- Double (nest 1st panel) thrie beam elements at all end post connections, except on highways with one-way traffic pattern, use single thrie beam elements at end post on trailing end only.
- Where double (nested) beam occur, 12" "Back-up Plate" not required.
- Heads of through anchor bolts shall be placed on the traffic side of the rail.
- All steel shapes, rails and plates shall conform to ASTM A 36 specifications.
- For Details of Terminal Connector, see Sht. RI-14
- For Details of Hex Bolt & Nut (FBX16a), see Sht. RI-15



TRANSITION SECTION*

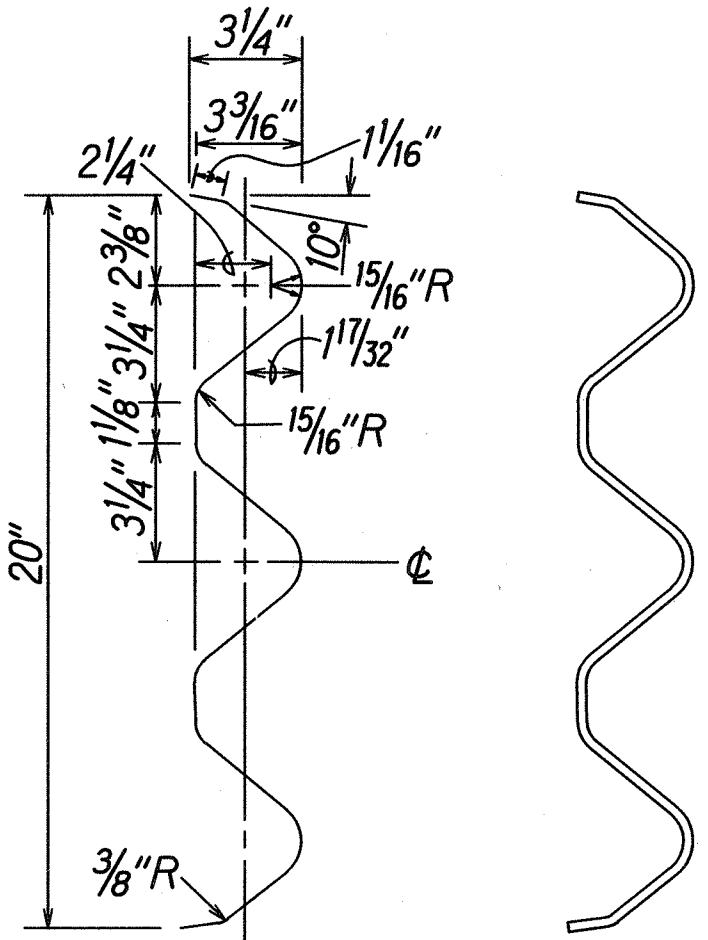
* Not to be used for Thrie Beam connection to structures.



BACKUP PLATE

(RTB01b)

(Use at Posts where Splices do not occur)

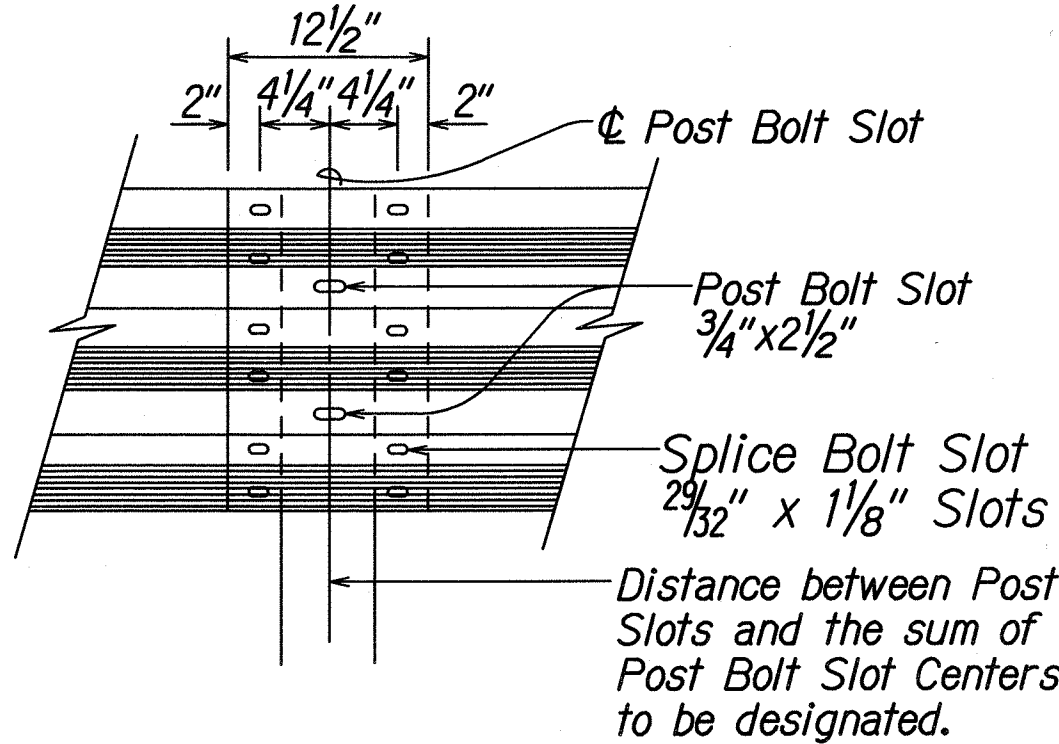


SINGLE

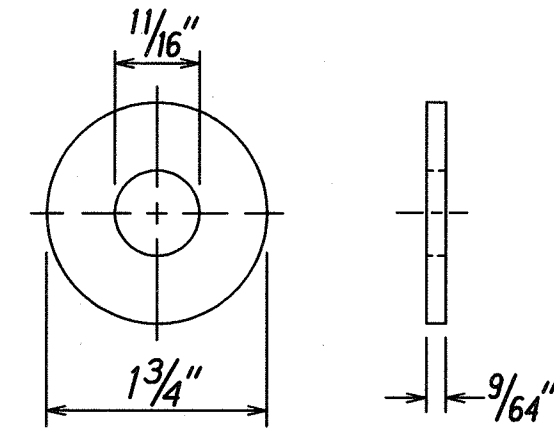
DOUBLE

SECTION THRU RAIL ELEMENT

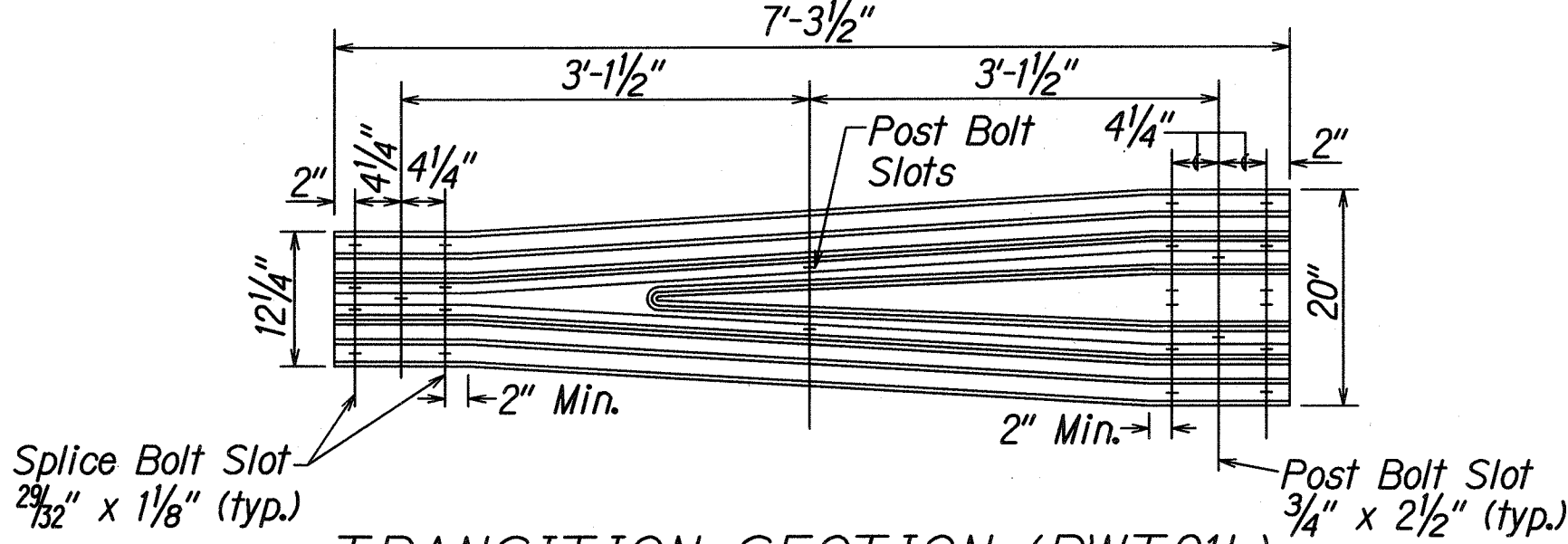
(RTM02b)



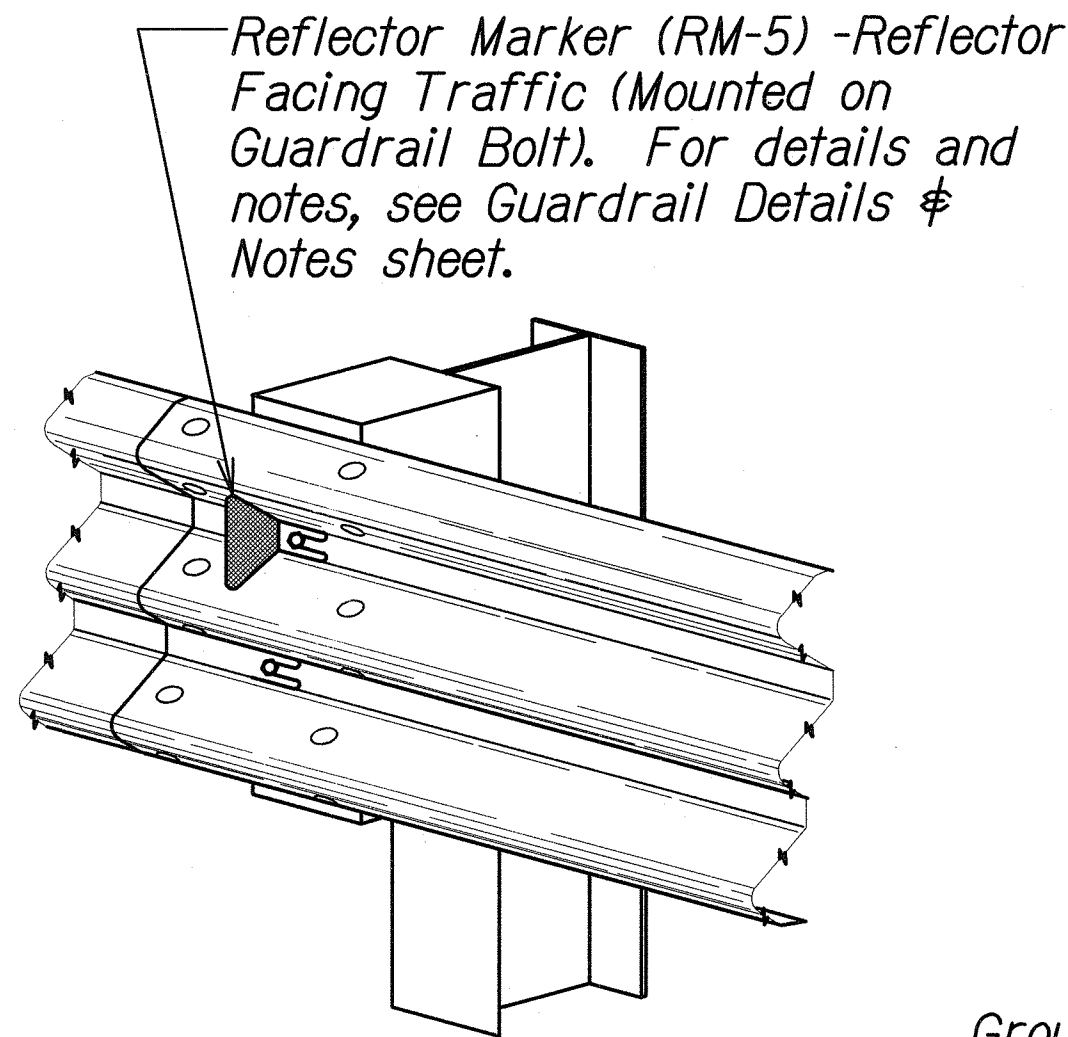
RAIL SPLICE



STEEL WASHER FOR 5/8" BOLT



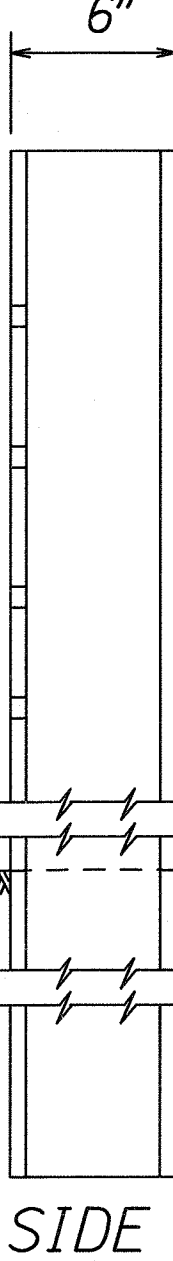
TRANSITION SECTION (RWT01b)



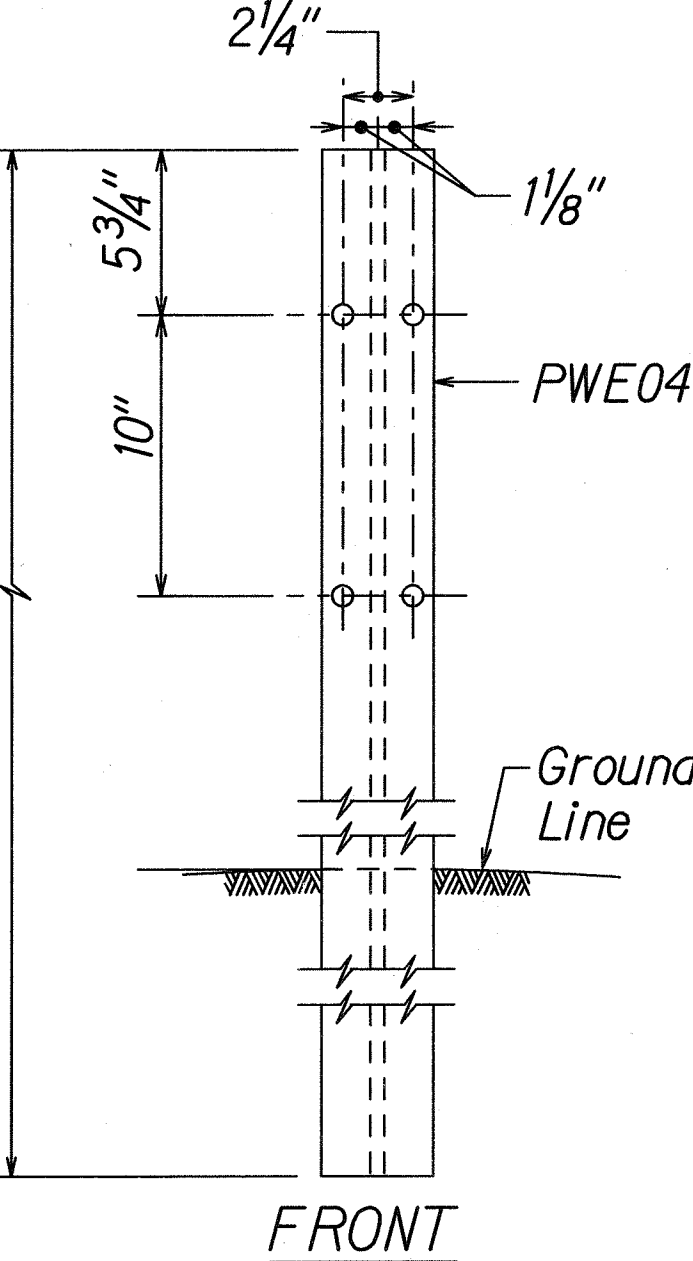
TYPICAL INSTALLATION OF REFLECTOR MARKER (RM-5)

NOTE: All Holes are 3/4" Dia.

W6x15 Structural Shape

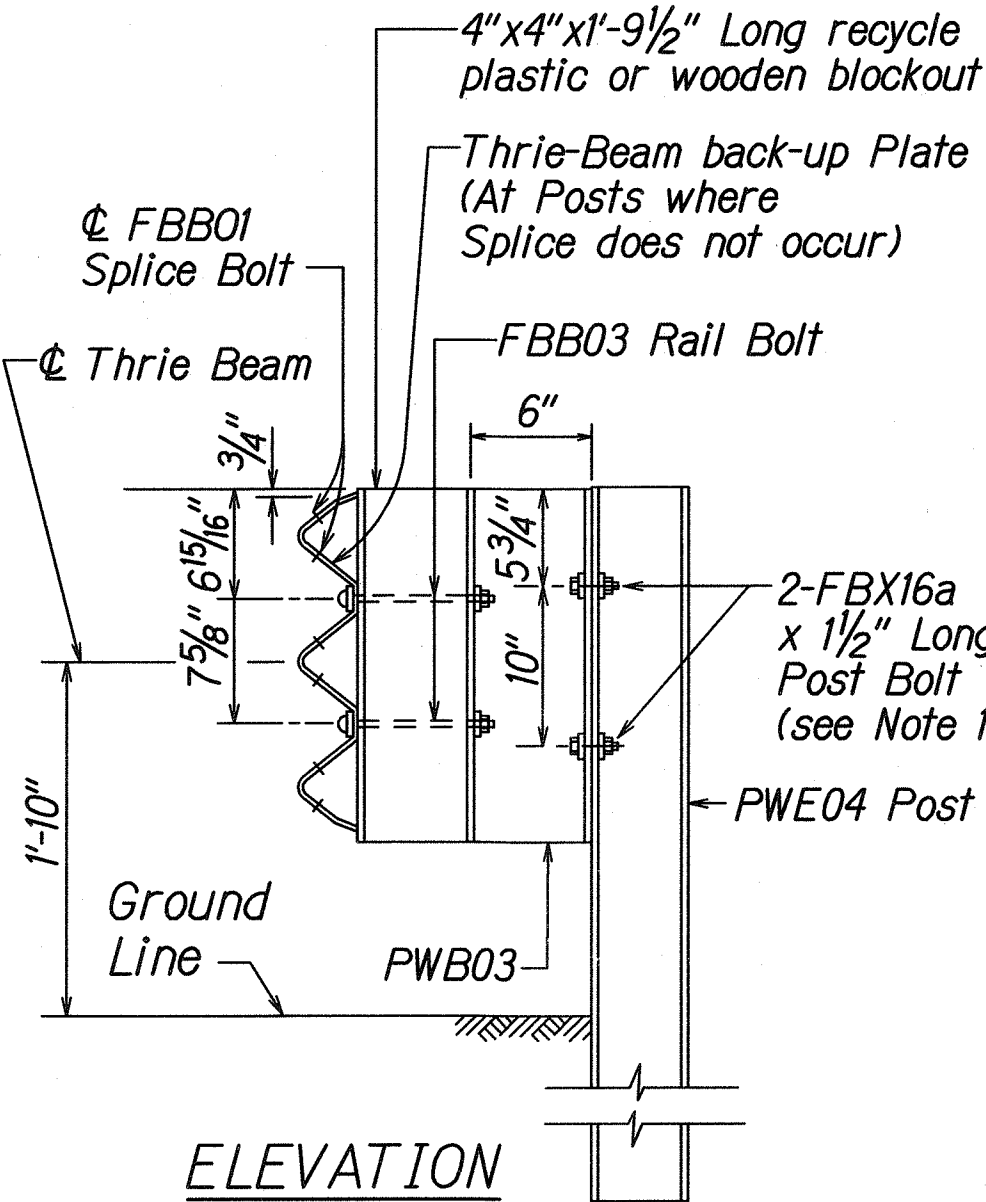


SIDE



FRONT

W-BEAM STRONG POST (PWE04)

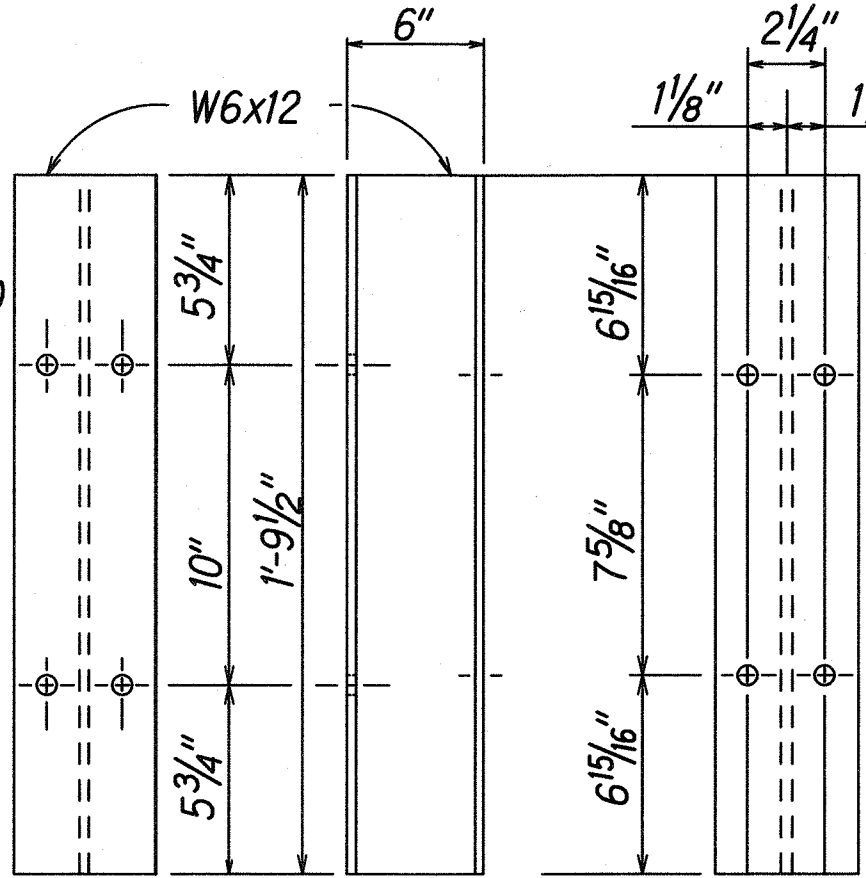


ELEVATION

STRONG POST

THRIE-BEAM GUARDRAIL

(SGR09b)

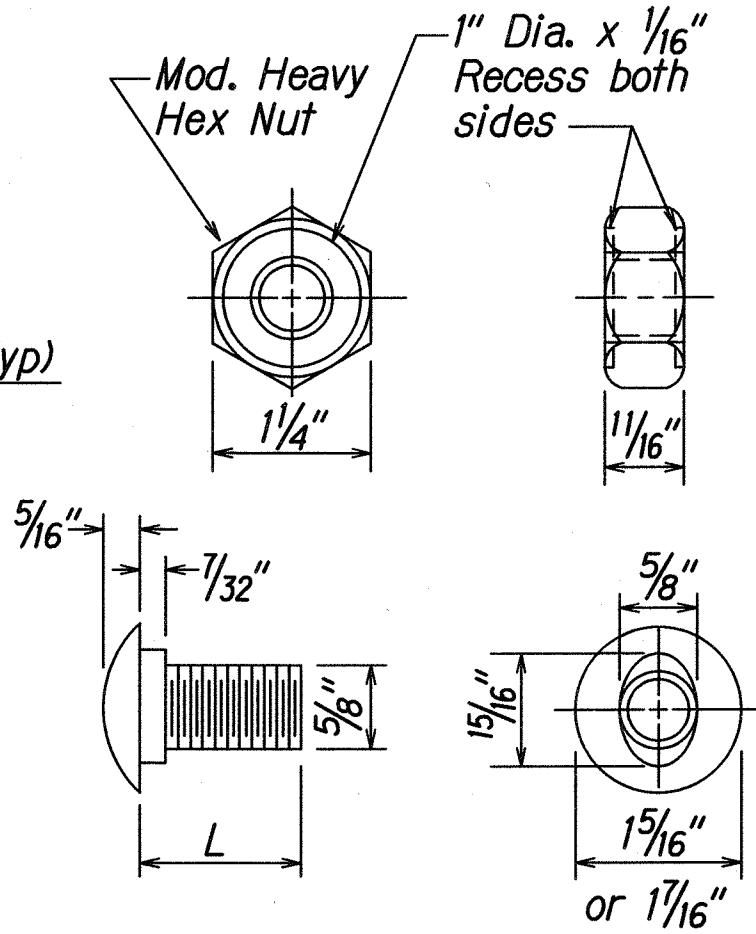


BACK

SIDE

FRONT

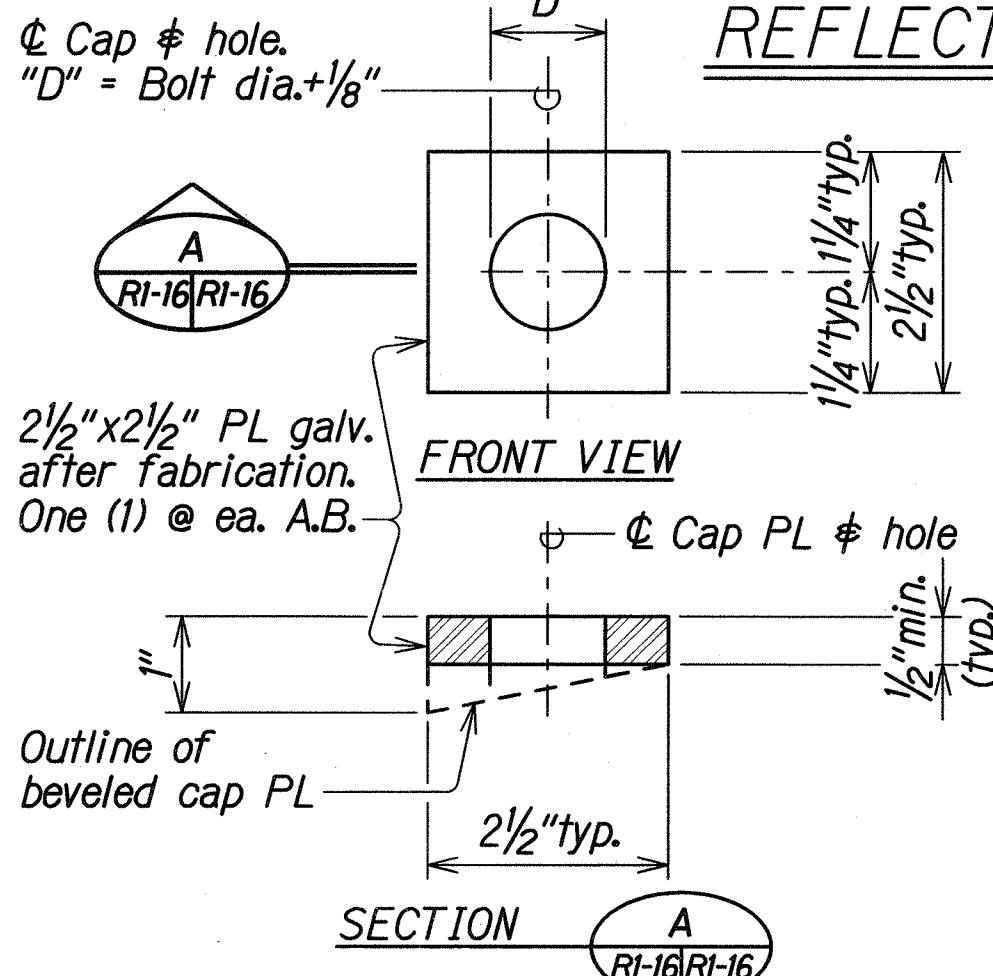
SPACER BLOCK PWB03



DESIGNATOR	L
FBB01	1 1/4"
FBB02	2"
FBB03	6"

GUARDRAIL HEAD BOLTS

AND RECESSED NUT



CAP (BEARING) PLATE DETAIL

Scale: 6" = 1'-0"

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
NO.	_____

\\FORT.WEAVER.ROAD\ROAD\MODTHRIE.dgn

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

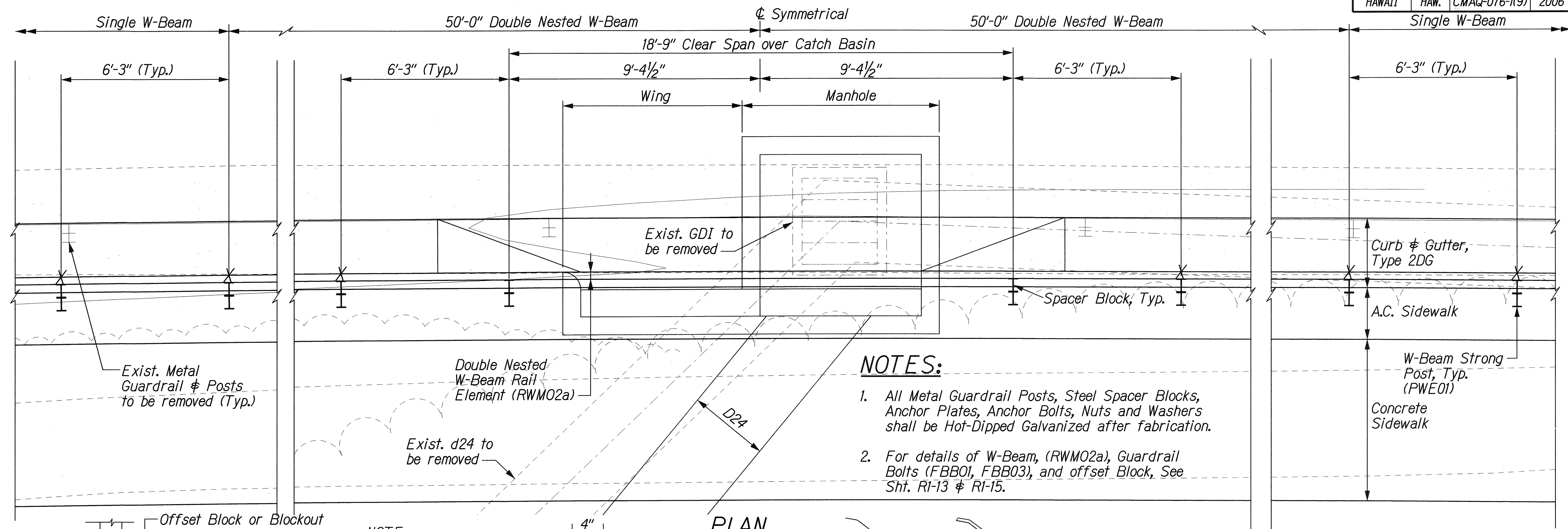
**STRONG POST
THRIE-BEAM GUARDRAIL**

FORT WEAVER ROAD WIDENING
VICINITY OF AWA DRIVE TO GEIGER ROAD

Scale: NTS Date: Sept. 20, 2007

SHEET No RI-16 OF 39 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-076-1(9)	2006	42	160

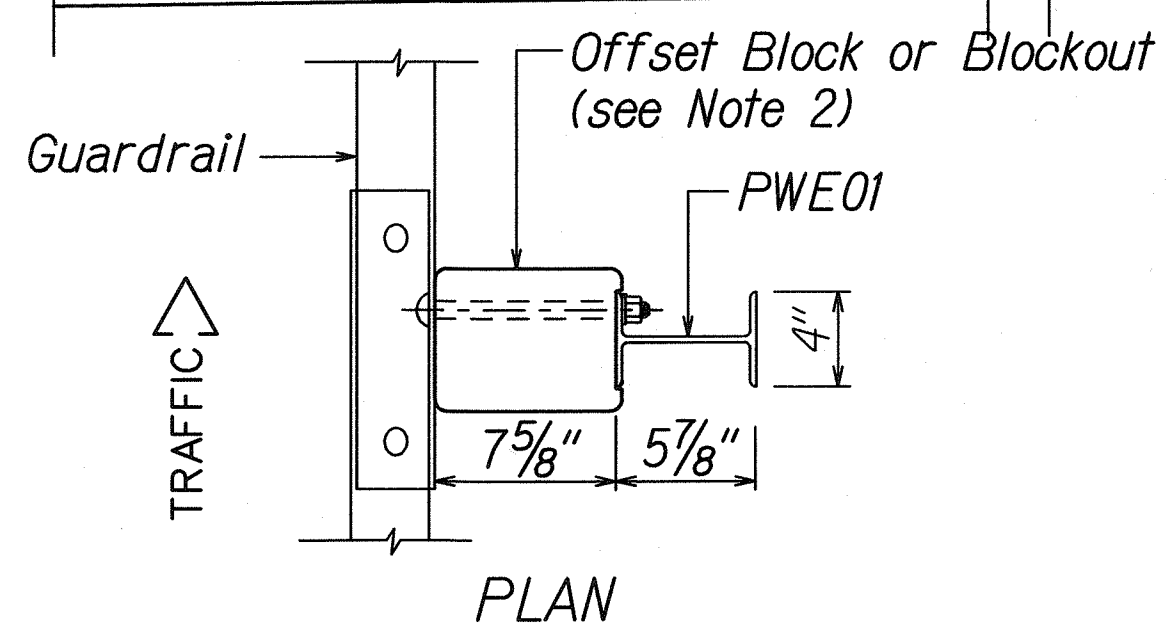


NOTES:

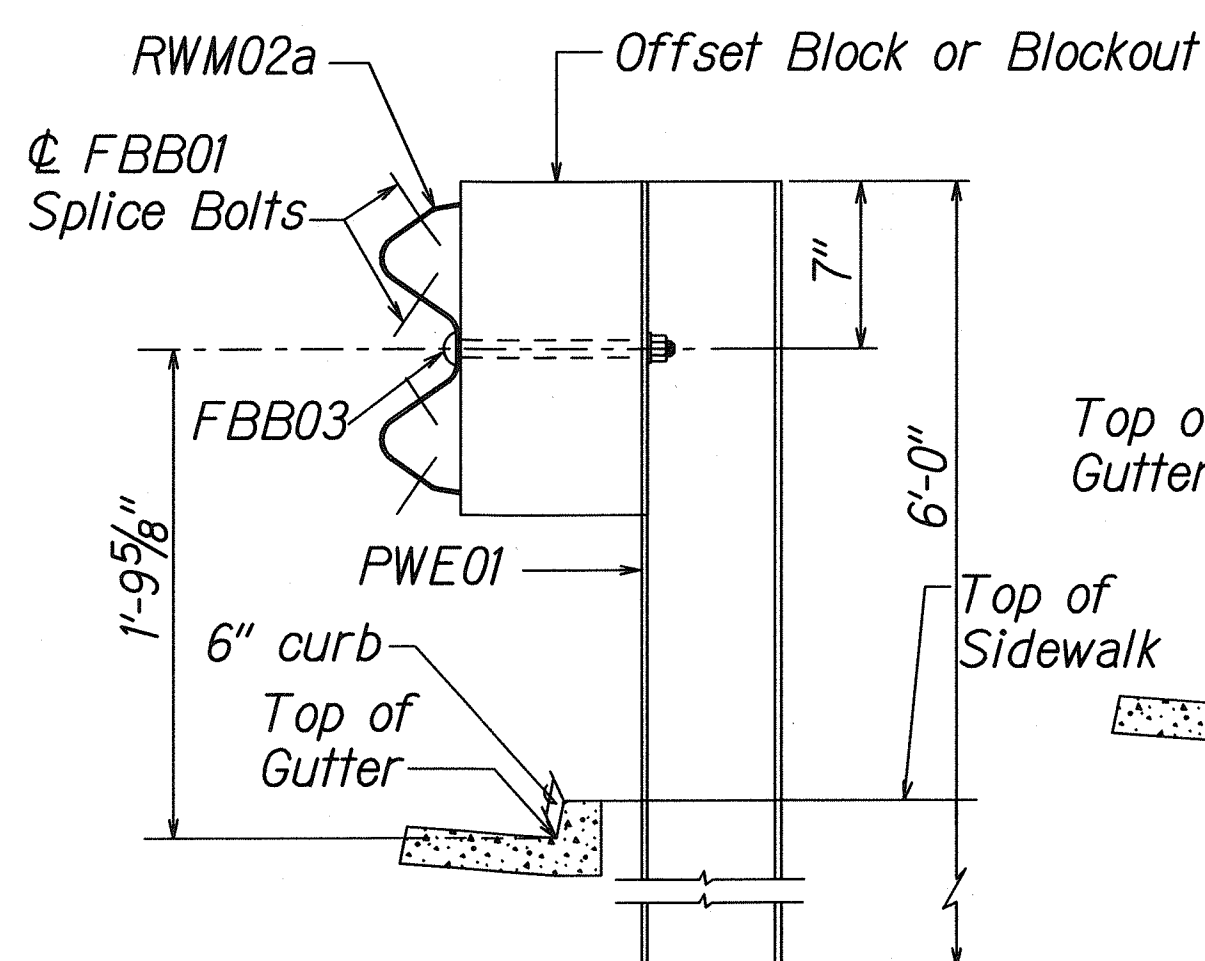
- All Metal Guardrail Posts, Steel Spacer Blocks, Anchor Plates, Anchor Bolts, Nuts and Washers shall be Hot-Dipped Galvanized after fabrication.
- For details of W-Beam, (RWM02a), Guardrail Bolts (FBB01, FBB03), and offset Block, See Sht. R1-13 & R1-15.

PLAN

Scale: 1/2" = 1'-0"



PLAN

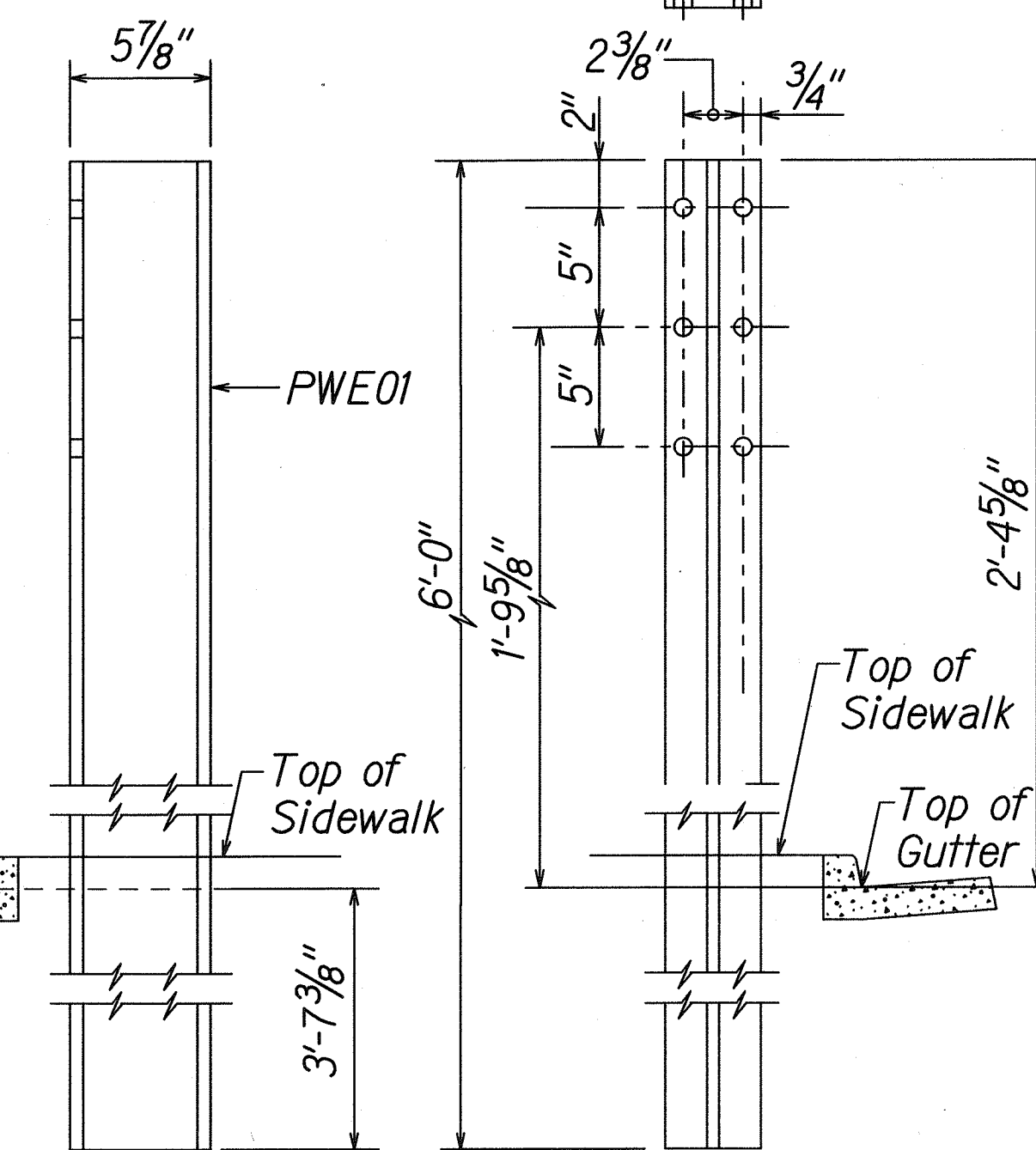


ELEVATION

STRONG POST W-BEAM GUARDRAIL
(SGR04a)

NOTE:
All Holes are
3/4" Dia.

W6x8.5
Structural
Shape



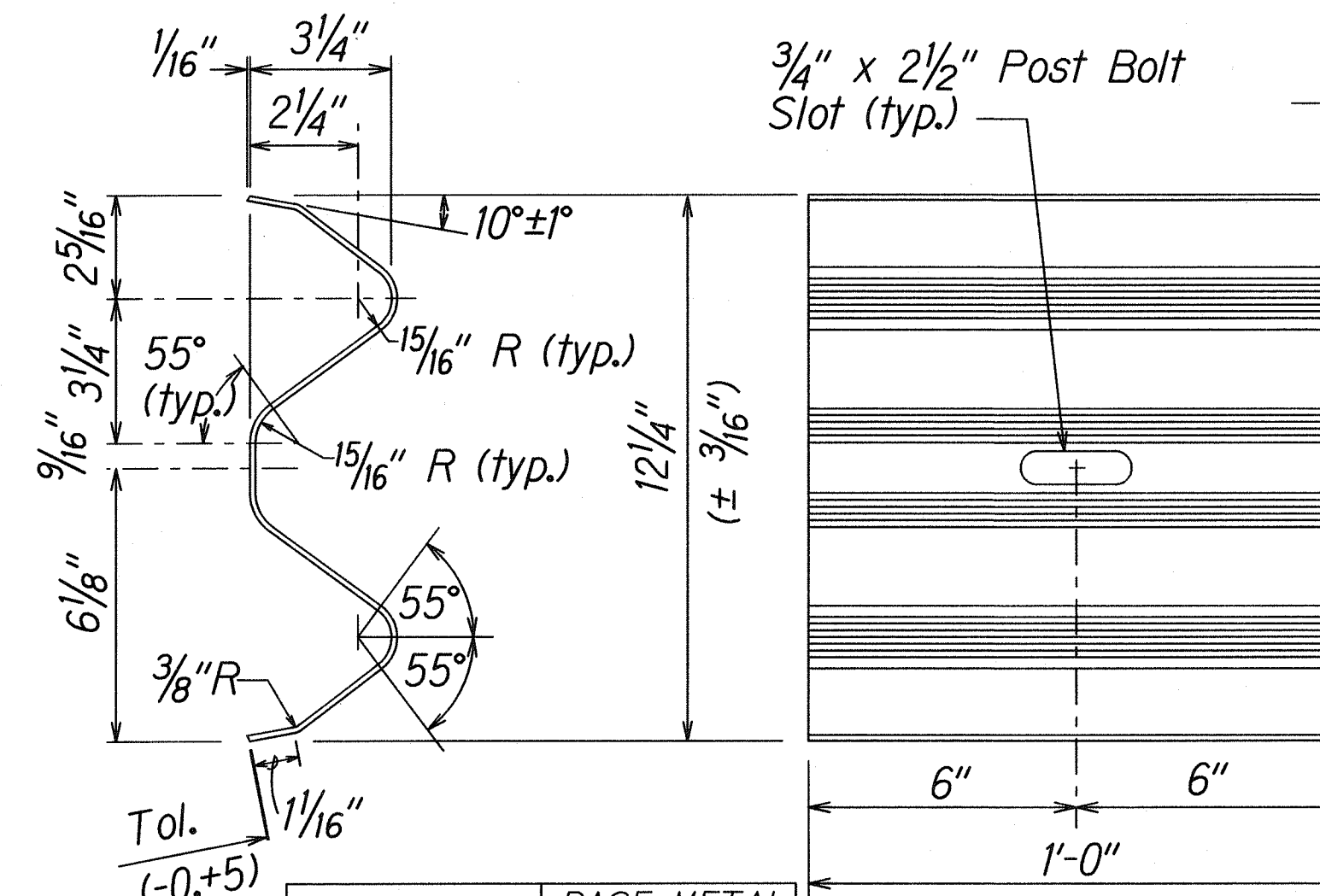
SIDE

FRONT

W-BEAM STRONG POST (PWE01)

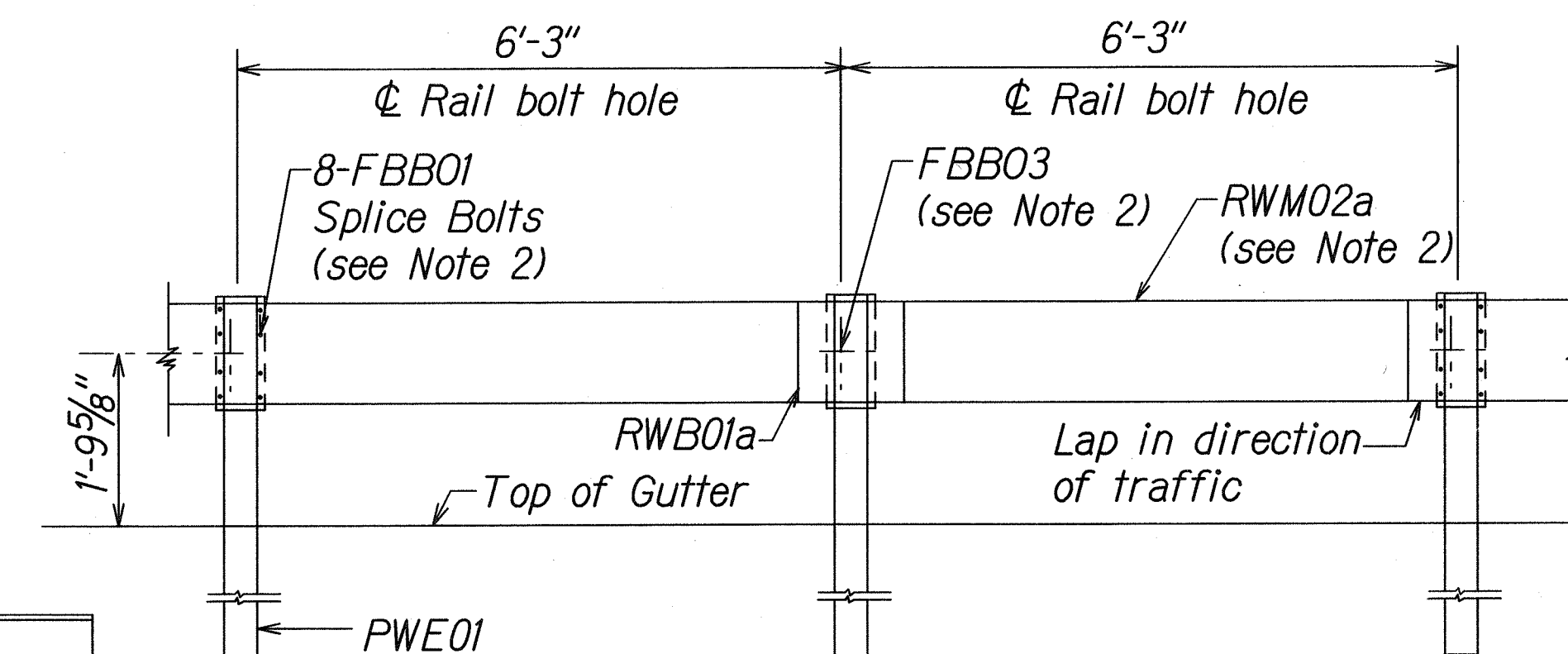
SINGLE

DOUBLE



DESIGNATOR	BASE METAL THICKNESS
RWB01a	12 Gauge

W-BEAM BACK-UP-PLATE (RWB01a)



ELEVATION

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

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OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL POST DETAIL
AT STA. 135+24.2±

FORT WEAVER ROAD WIDENING
VICINITY OF AAWA DRIVE TO GEIGER ROAD

Scale: As Noted Date: Sept. 20, 2007

SHEET No. R1-19 OF 39 SHEETS