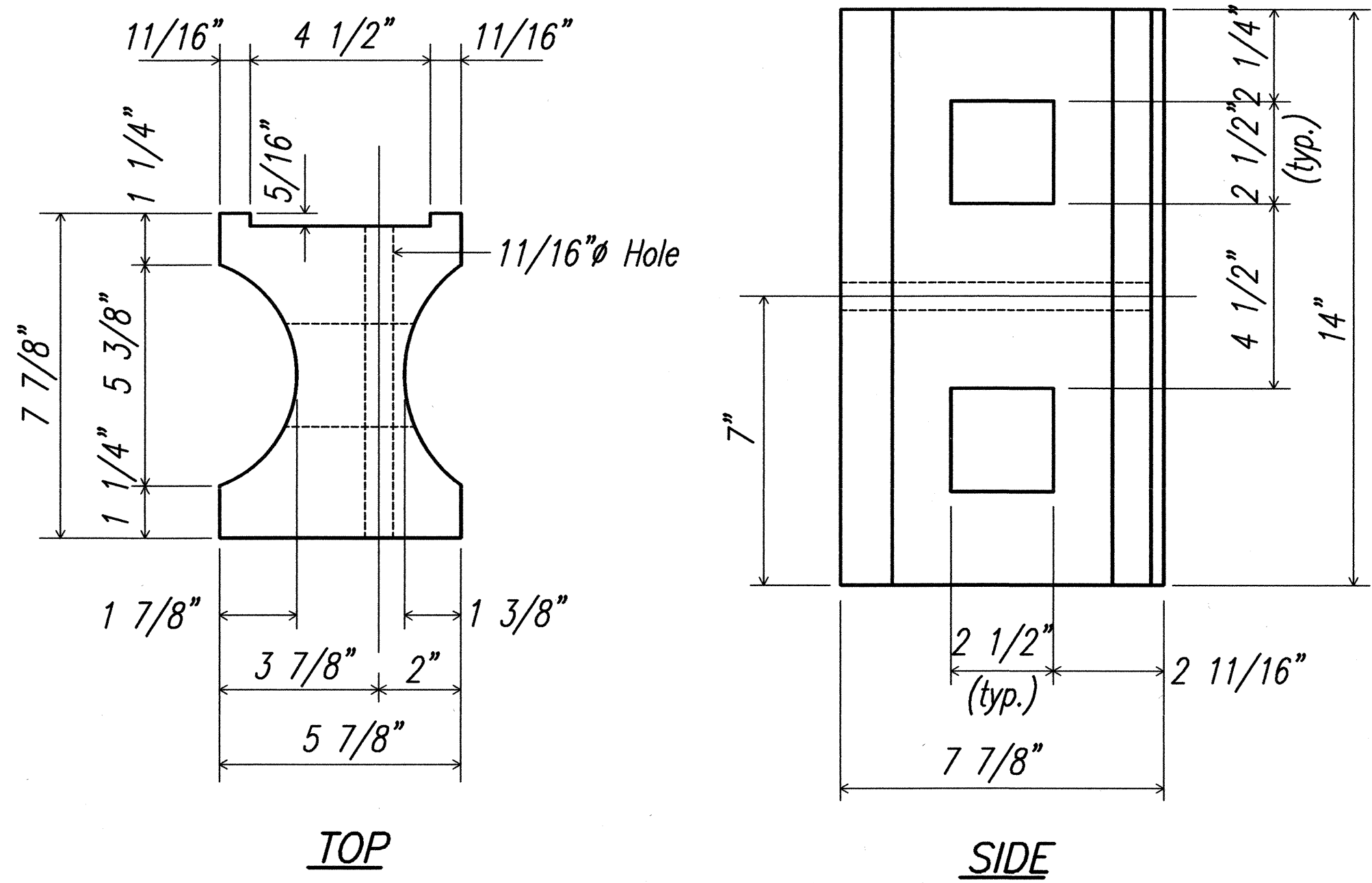


FED. ROAD DIST. NO.	STATE	FEDERAL - AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0311(5)	2003	9	189

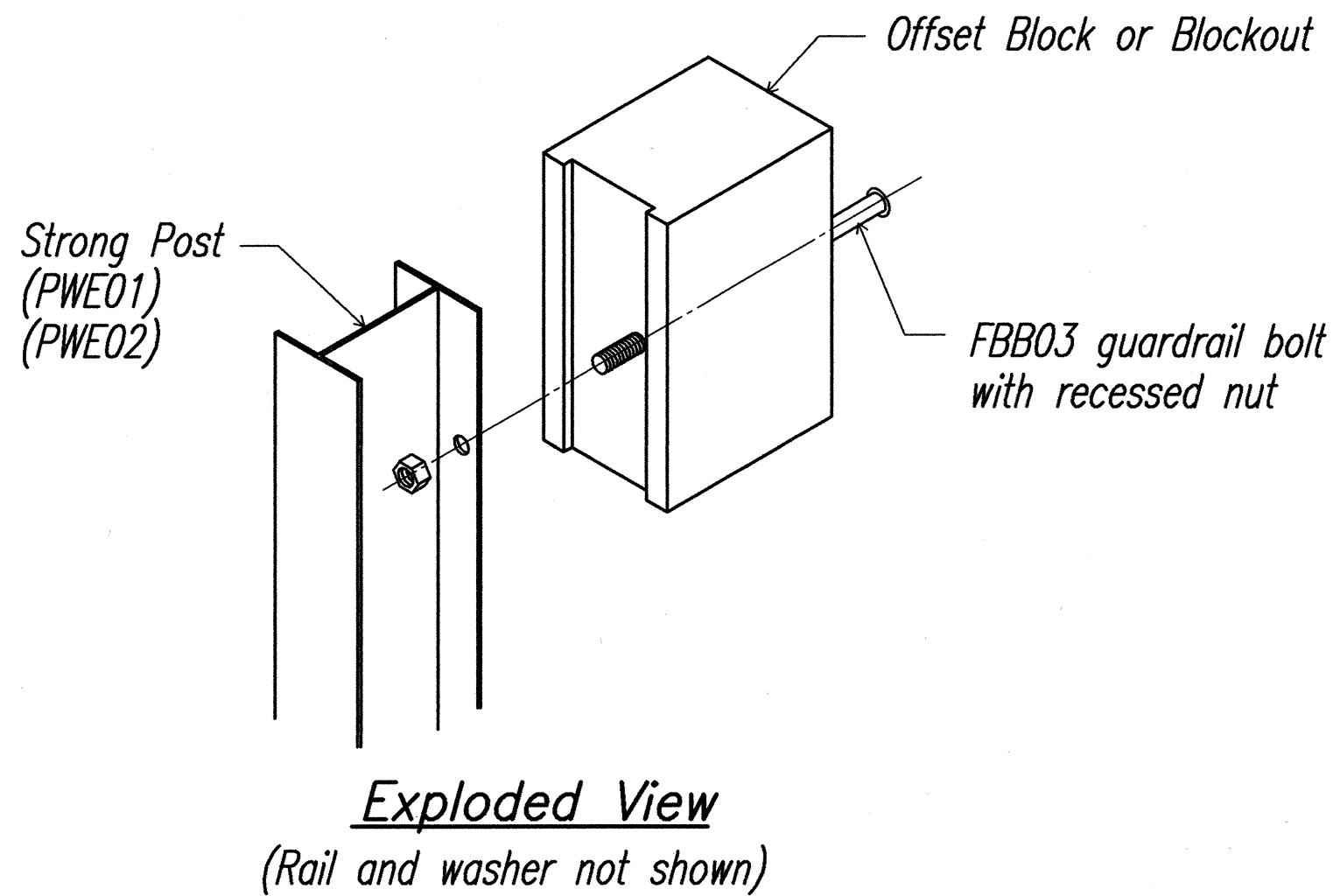
GENERAL NOTES

- All hardware, posts and fasteners shall be hot-dip zinc coated galvanized after fabrication. No punching, drilling or cutting will be permitted after galvanizing.
- Where conditions require, special post lengths in increments of 6 inches may be specified.
- All fasteners, posts, and rail elements (i.e. FBB03, PWE01, RWM02b, 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.
- The Recycled Plastic Block or Offset Block shall be approved by the State.
- All new guardrail systems (system consists of total length of guardrail including both end treatments) shall include the Additional Paved Area.
- 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.
- When standards for the fill slope area cannot be met, a site specific, engineer approved design may be used.
- New A.C. pavement at guardrails shall extend 6 feet longitudinally beyond terminal ends.
- Reflector Markers (RM-5) mounted on guardrails shall be spaced every 100 feet. RM-5's shall not be installed on Terminal Sections. Furnishing and installing of each RM-5 shall be considered incidental to the adjacent guardrail system.

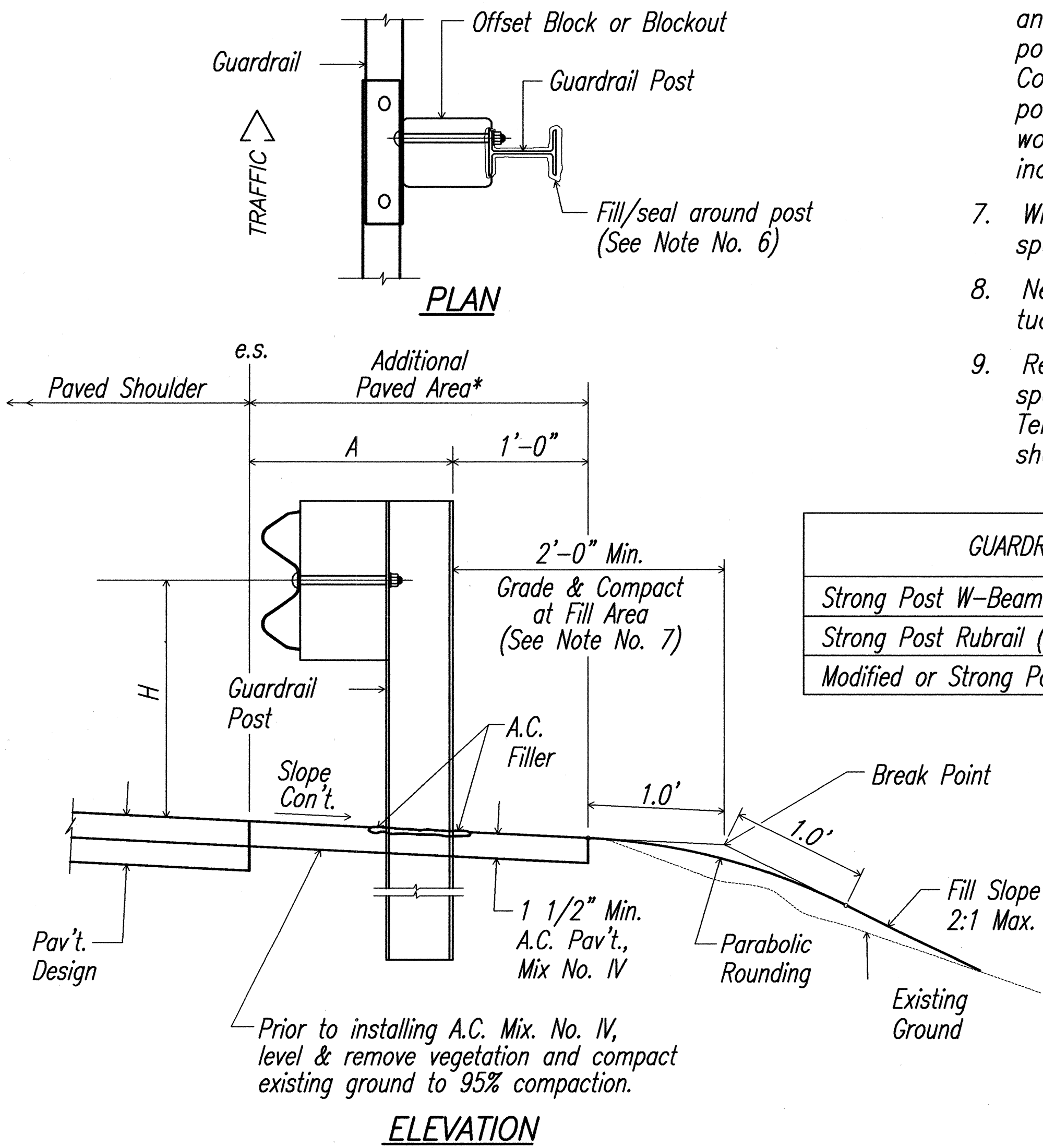
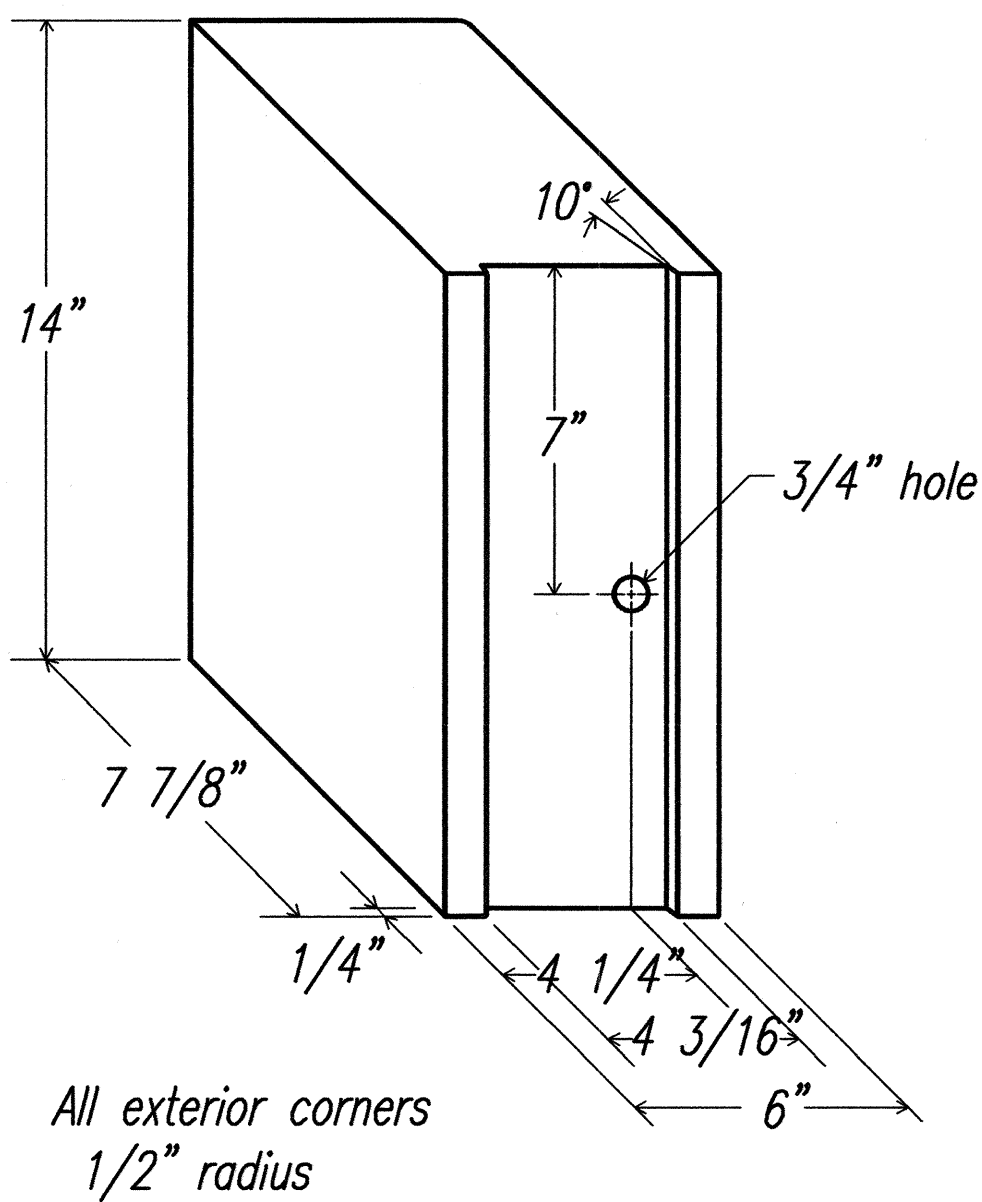
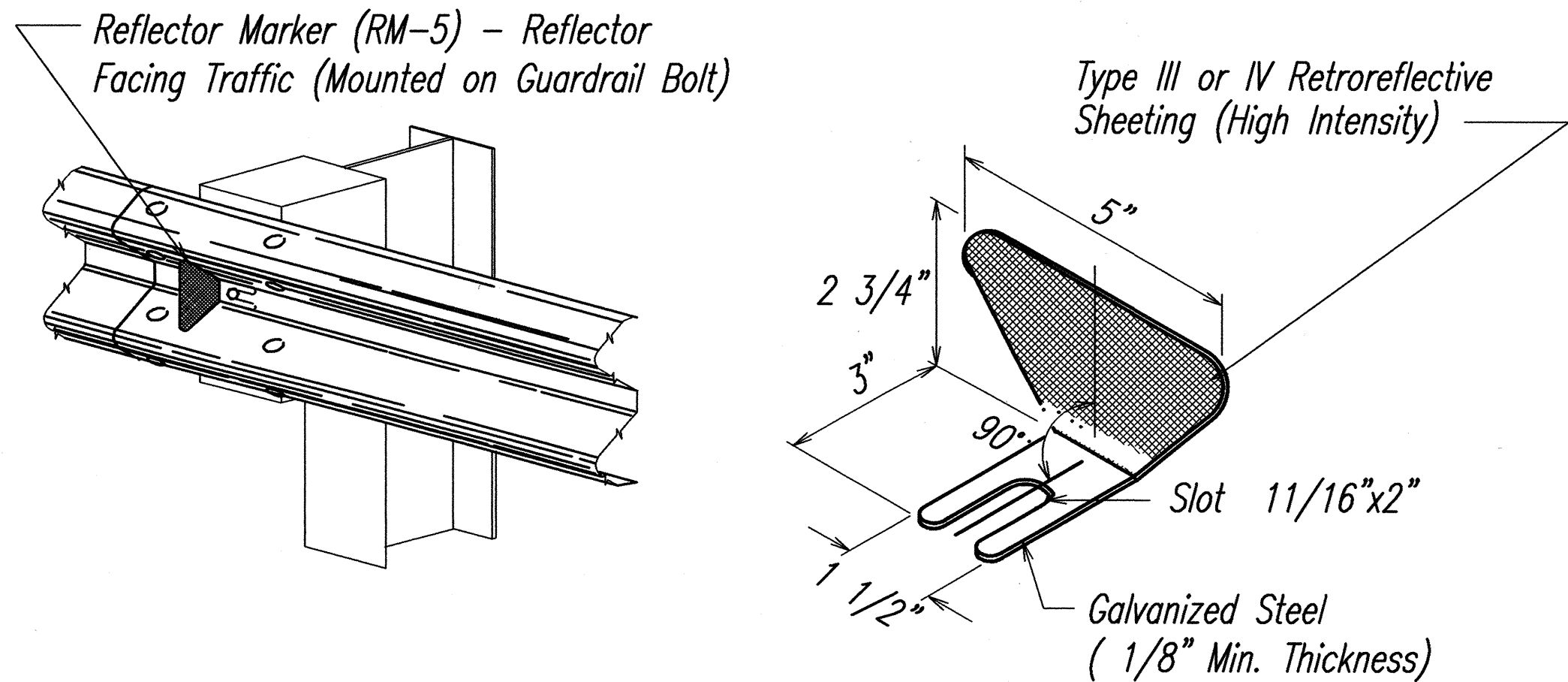
GUARDRAIL TYPE	DIMENSION	
	H	A
Strong Post W-Beam	1'-9 5/8"	1'-6"
Strong Post Rubrail (W-Beam)	2'-0"	1'-6"
Modified or Strong Post Thrie Beam	2'-0"	2'-0"



RECYCLED PLASTIC BLOCKOUT (TYPE I)



STEEL POST AND BLOCK DETAIL



STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

GUARDRAIL DETAILS AND NOTES

MOKULELE HIGHWAY WIDENING

Vicinity of Cane Haul Road

To

Maui Humane Society

Federal - Aid Project No. NH-0311(5)

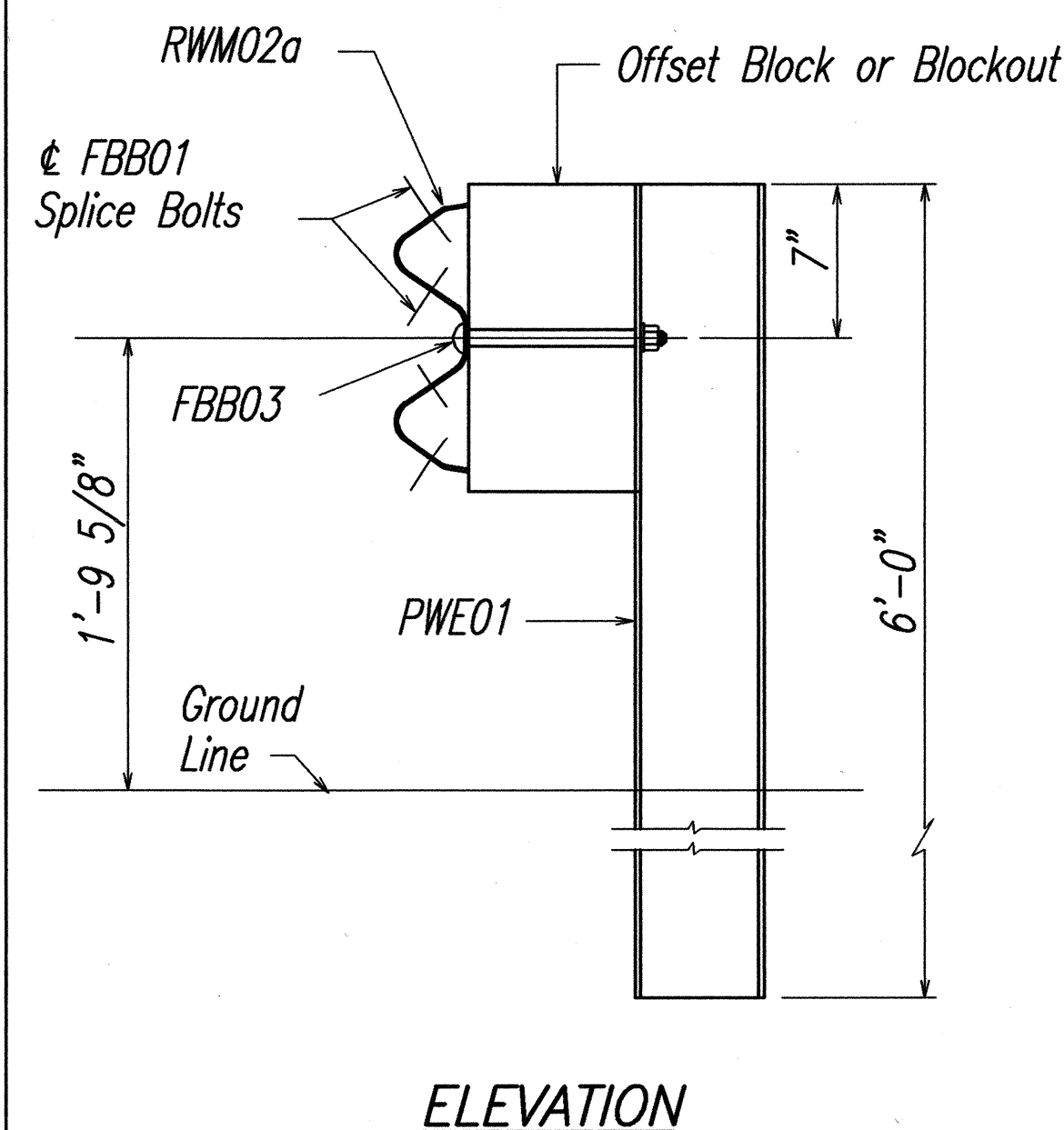
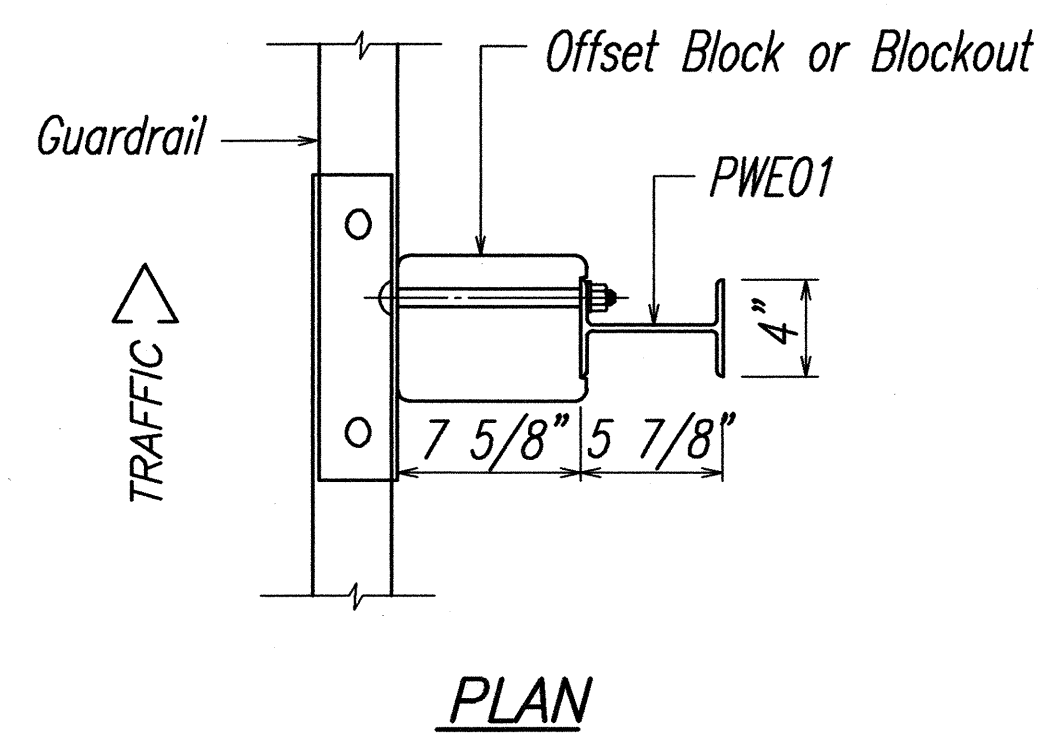
Scale: AS NOTED

Date: JUNE 2002

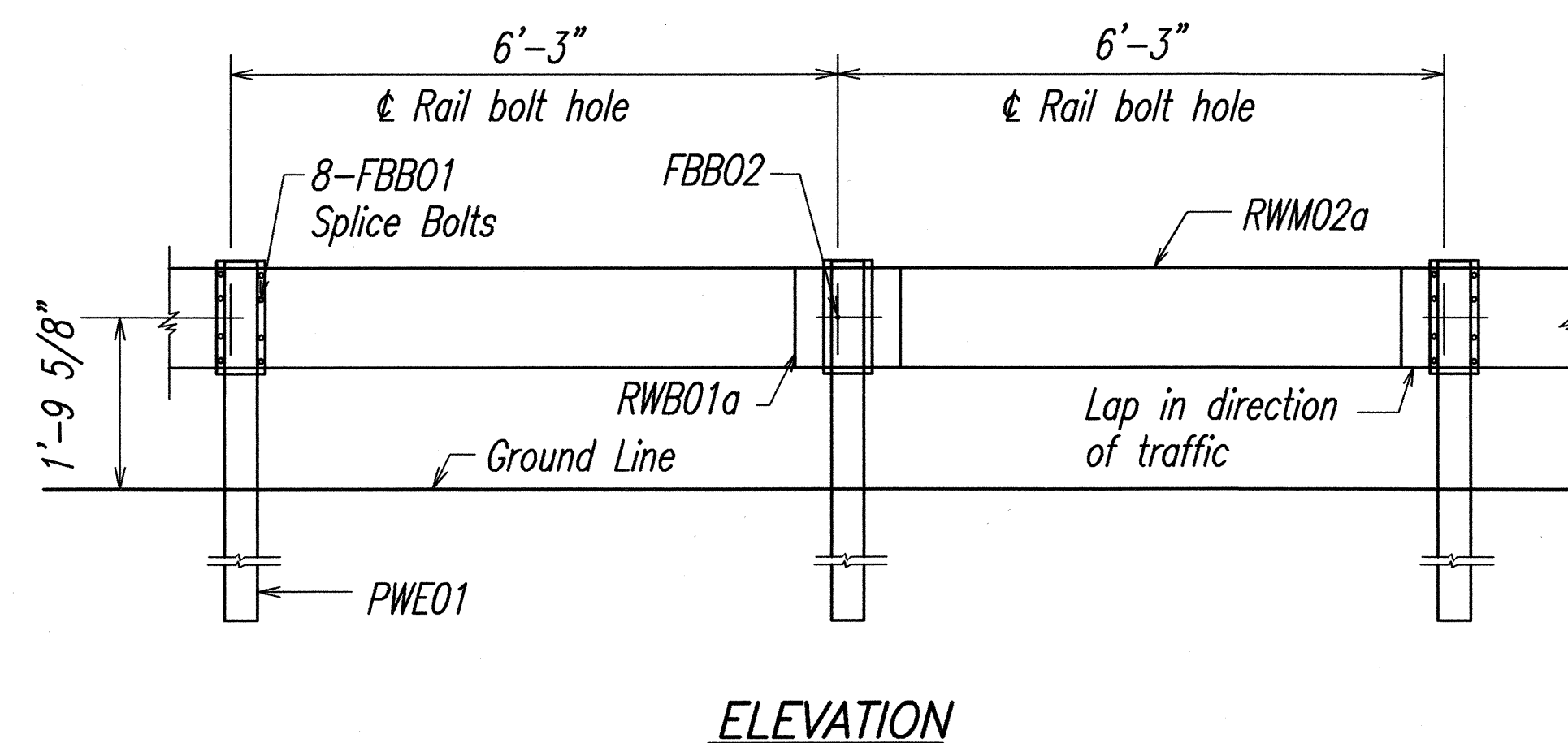
SHEET No. 1 OF 4 SHEETS

9

FED. ROAD DIST. NO.	STATE	FEDERAL - AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0311(5)	2003	10	189

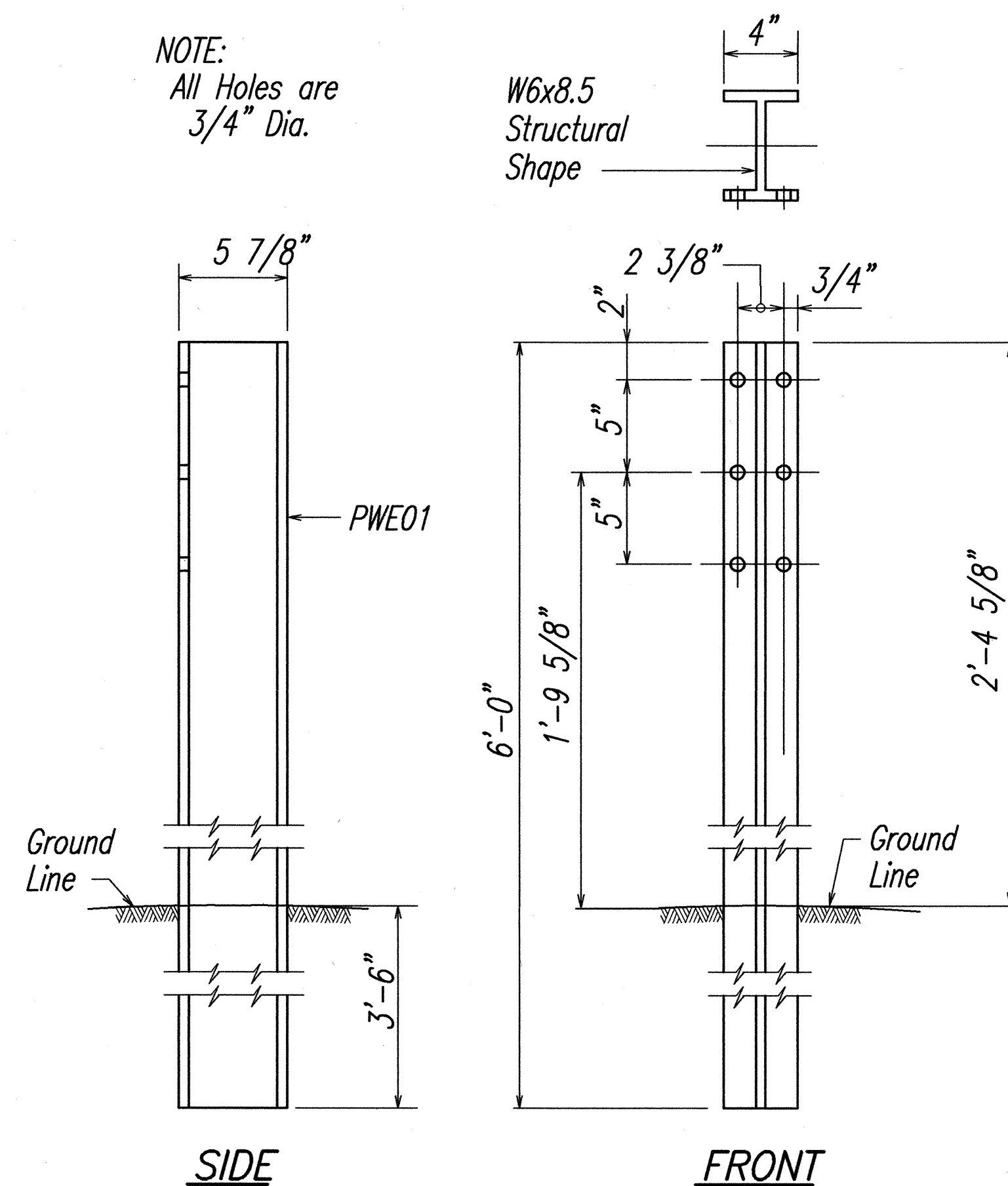


STRONG POST W-BEAM GUARDRAIL (SGR04a)

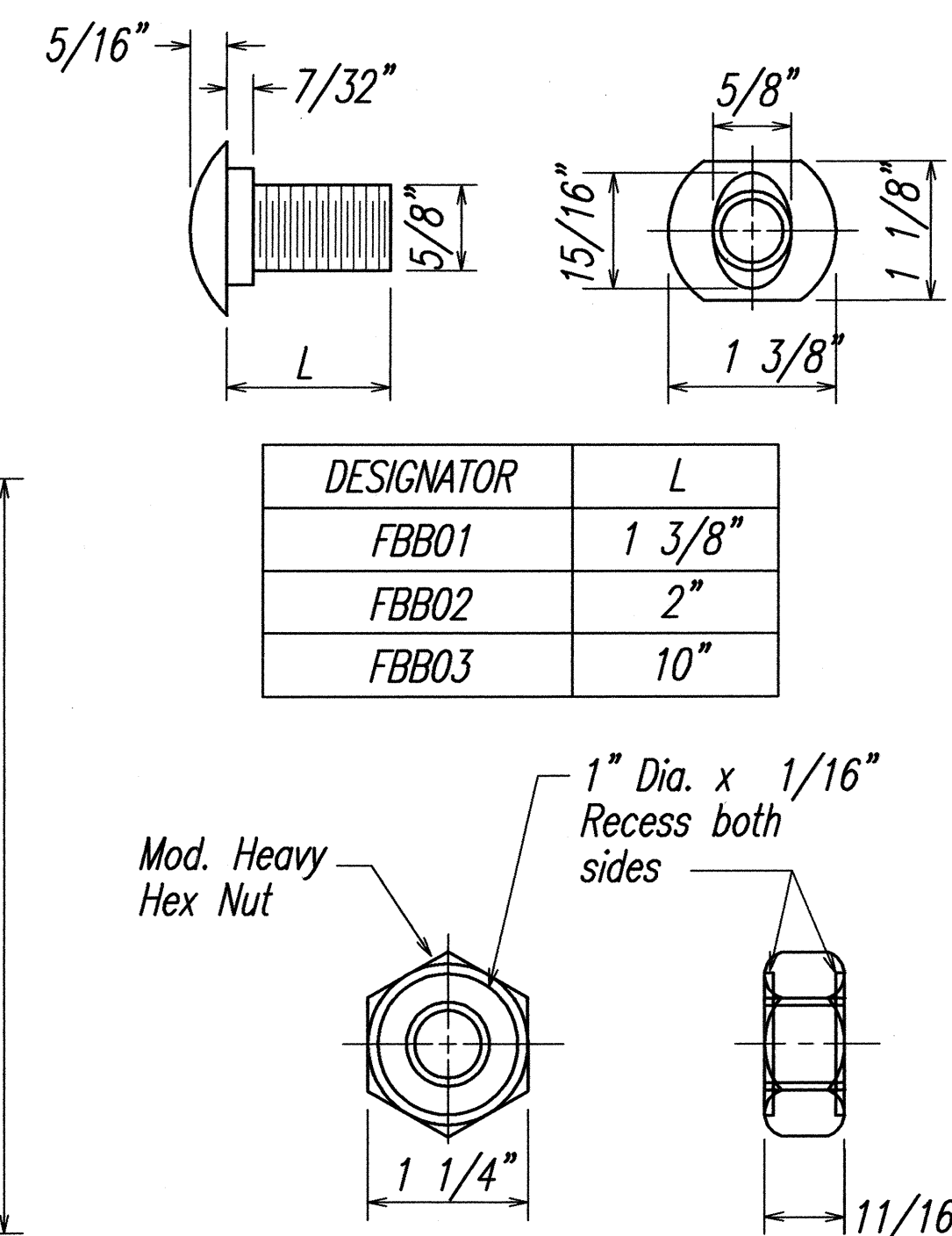


STRONG POST W-BEAM GUARDRAIL WITH RECYCLED OFFSET BLOCK OR PLASTIC BLOCKOUT

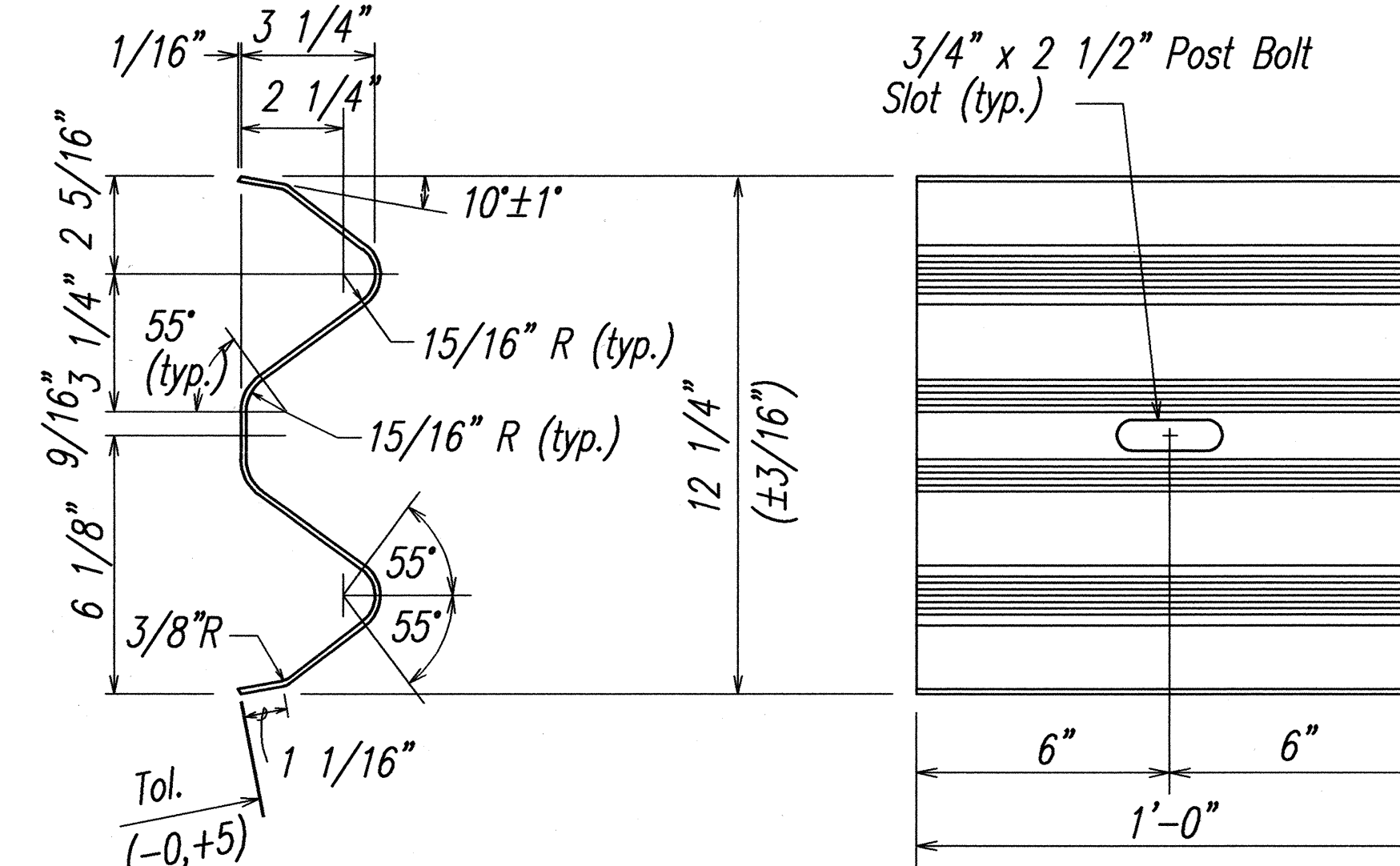
NOTE:
All Holes are 3/4" Dia.



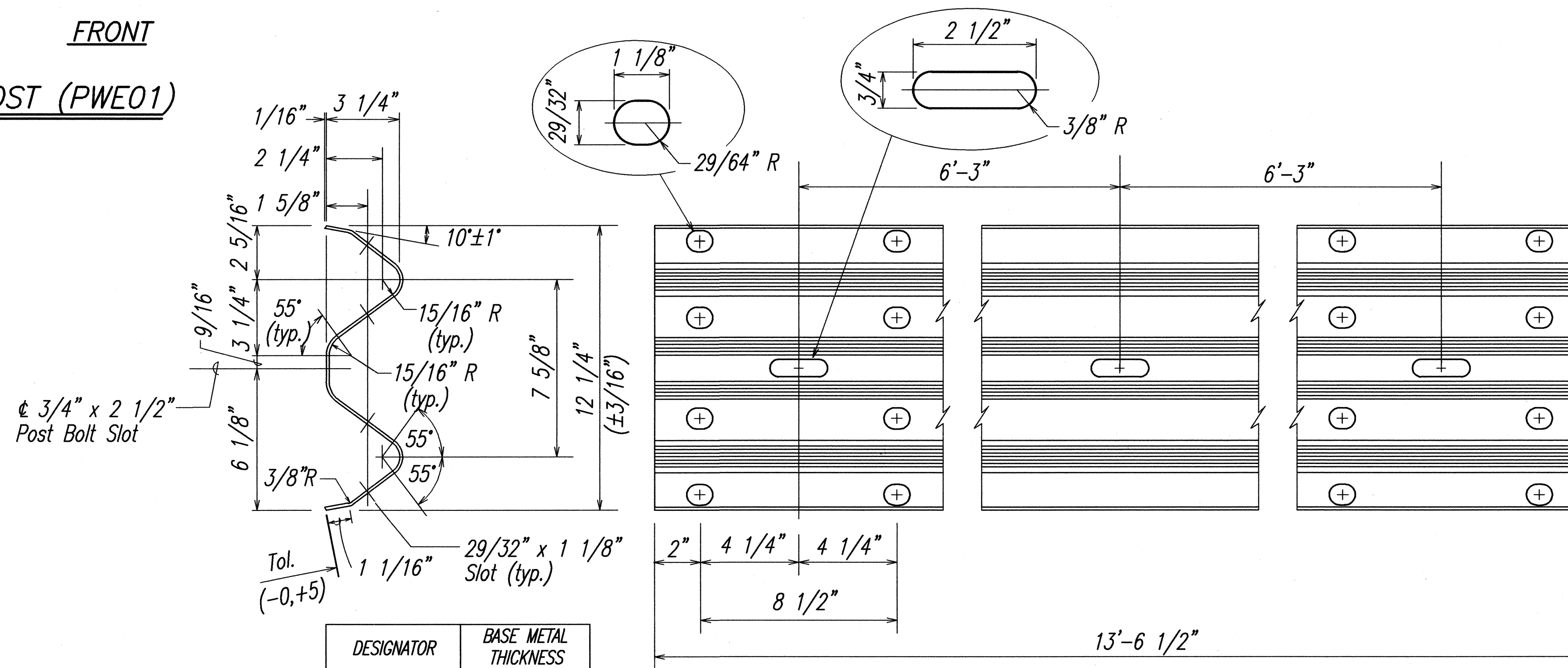
W-BEAM STRONG POST (PWE01)



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



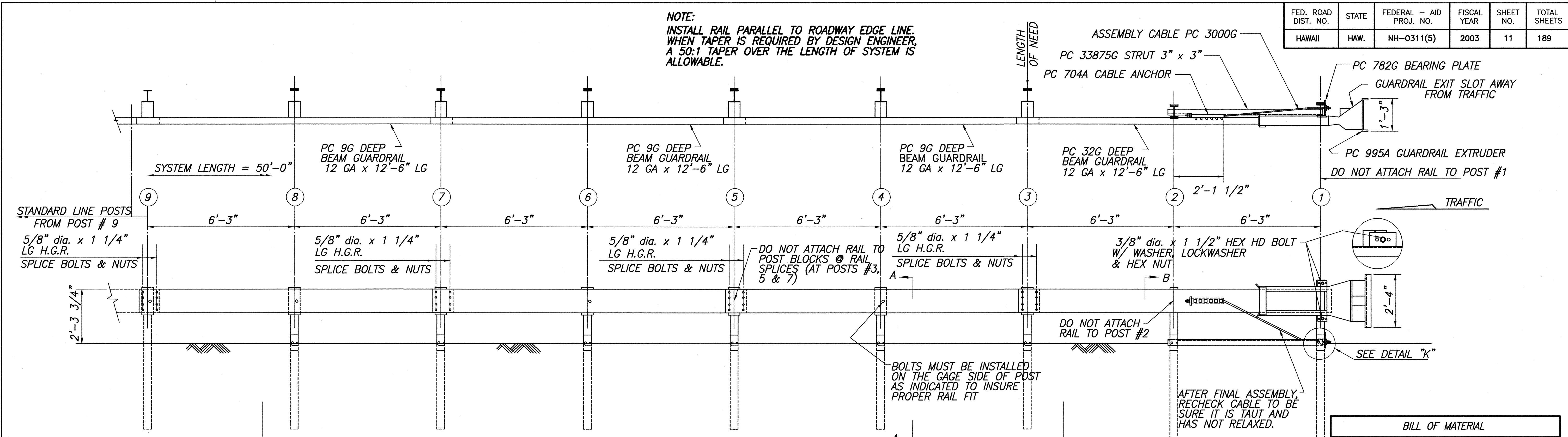
DESIGNATOR	BASE METAL THICKNESS
RWB01a	12 Gauge



DESIGNATOR	BASE METAL THICKNESS
RWM02a	12 Gauge

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STRONG POST W-BEAM GUARDRAIL
MOKULELE HIGHWAY WIDENING
Vicinity of Cane Haul Road
To
Maui Humane Society
Federal - Aid Project No. NH-0311(5)
Scale: AS NOTED Date: JUNE 2002
SHEET No. 2 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL - AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0311(5)	2003	11	189

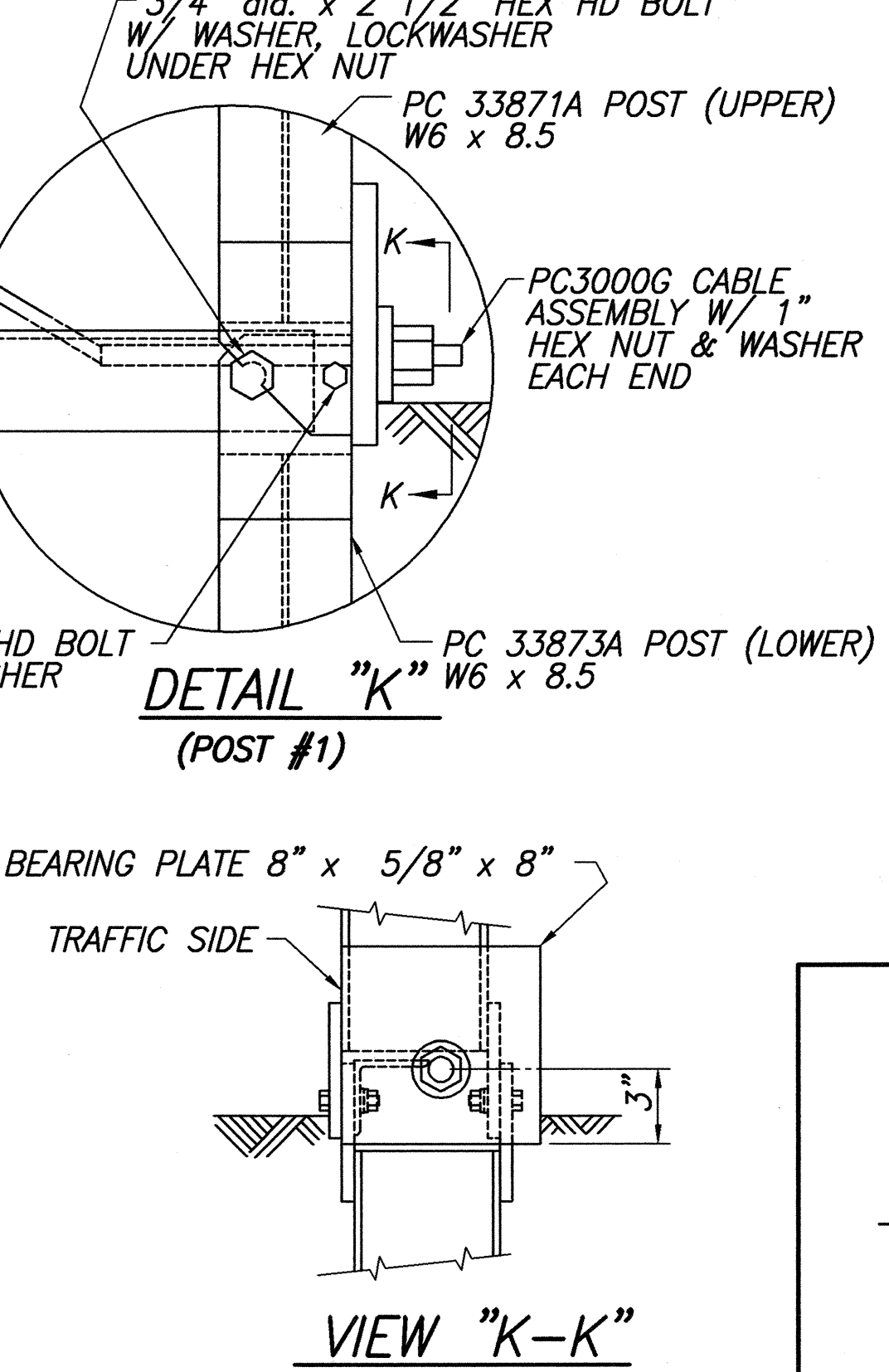
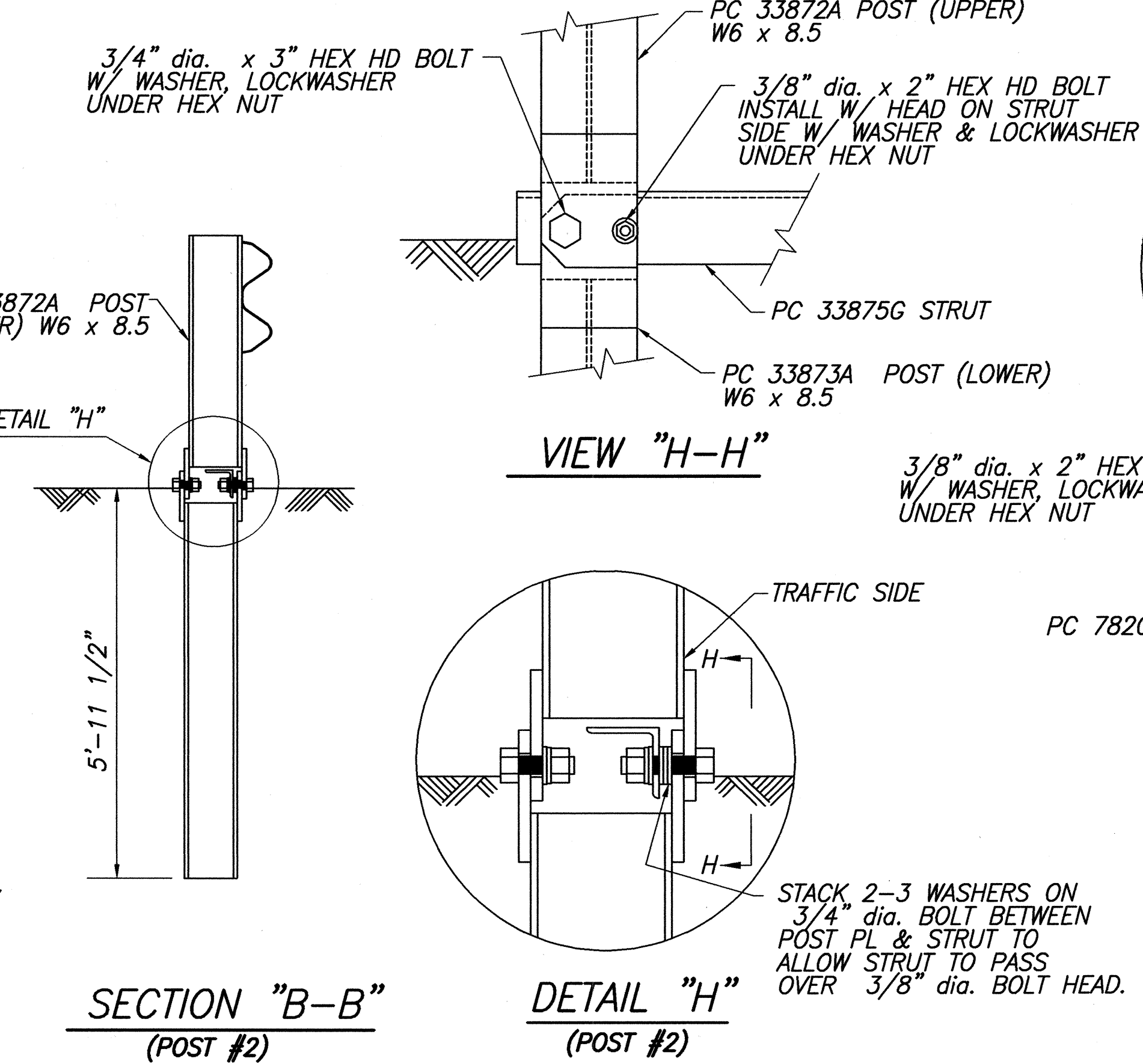
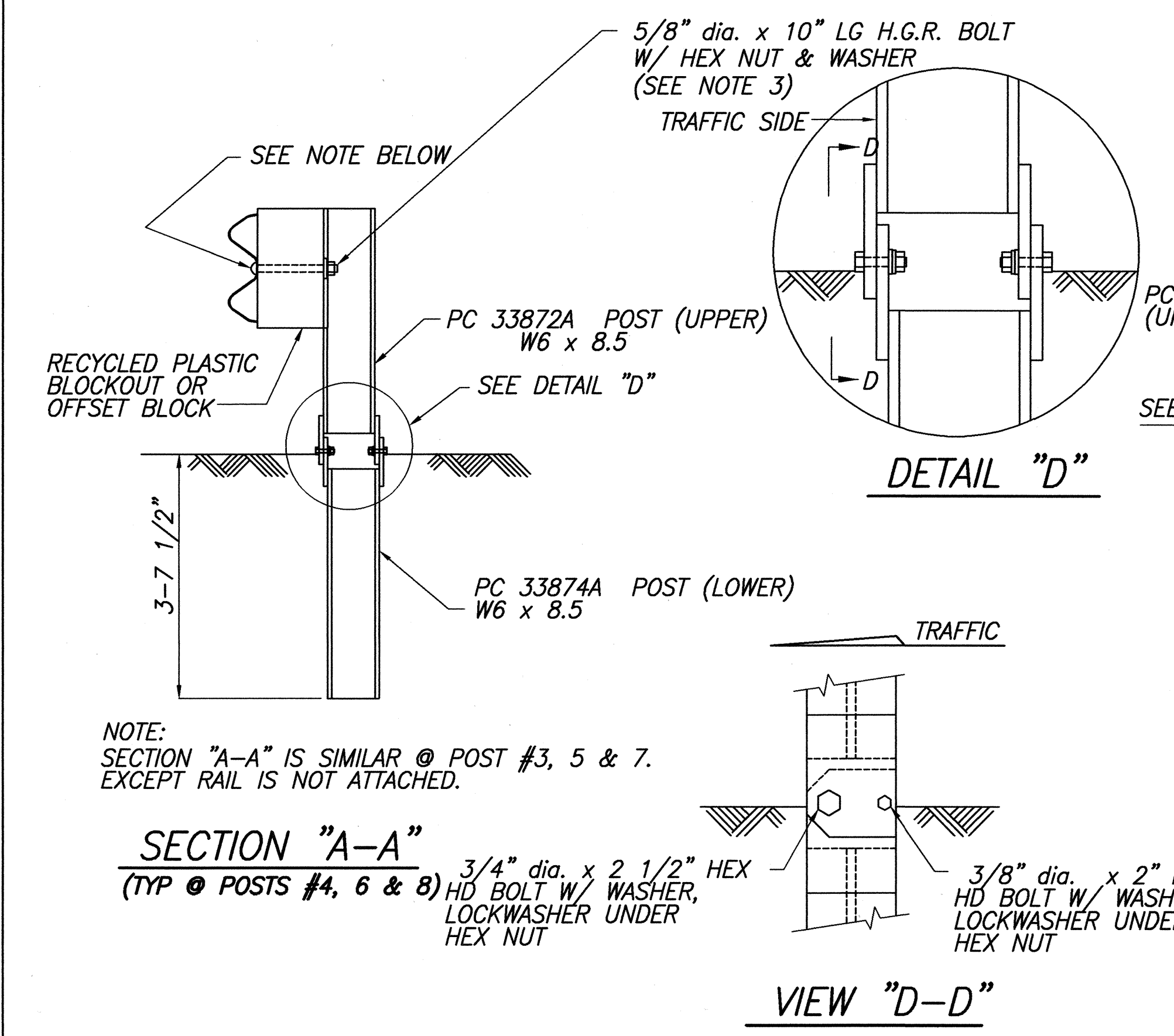


NOTES:

- 1.) DO NOT ATTACH GUARDRAIL TO POST # 1.
- 2.) DO NOT ATTACH GUARDRAIL TO POST BLOCKS AT GUARDRAIL LAP SPLICES. (AT POSTS #3, 5 & 7)
- 3.) THE 5/8" FLAT WASHER IS USED UNDER THE NUT, BEHIND THE POST ONLY. NO WASHER IS USED AT THE RAIL.
- 4.) MANUFACTURER SUGGESTS CUSTOMER TO PROVIDE REFLECTORIZATION OF TERMINAL.

PC 33872A POSTS (UPPER)
PC 33874A POSTS (LOWER)

BILL OF MATERIAL		
PC	QTY	DESCRIPTION
9G	3	12 GA./12'6"/6'3"/S (GUARDRAIL)
32G	1	12 GA./12'6"/6'3"/S ANC (GRDRAIL)
704A	1	CABLE ANCHOR BRACKET
782G	1	5/8" x 8" x 8" BEARING PLATE
995A	1	ET-2000 PLUS EXTRUDER
3000G	1	CABLE 3/4" x 6'6"
3300G	6	5/8" WASHER
3340G	38	5/8" HEX NUT
3360G	32	5/8" dia. x 1 1/4" SPLICE BOLT
3500G	6	5/8" dia. x 10" POST BOLT
3701G	19	3/4" WASHER
3704G	16	3/4" HEX NUT
3717G	15	3/4" dia. x 2 1/2" HEX HD BOLT
3718G	1	3/4" dia. x 3" HEX HD BOLT
3900G	2	1" WASHER
3910G	2	1" HEX NUT
5326B	6	RECYCLED PLASTIC BLOCKOUT OR OFFSET BLOCK
4254G	18	3/8" WASHER
4255G	2	3/8" FENDER WASHERS
4258G	16	3/8" LOCKWASHER
4261G	2	3/8" dia. x 1 1/2" HEX HD BOLT
4699G	16	3/4" LOCKWASHER
6321G	16	3/8" dia. x 2" HEX HD BOLT
6405G	18	3/8" HEX NUT
33871A	1	ET2000 HBA POST #1 TOP
33872A	7	ET2000 HBA POST #2-#8 TOP
33873A	2	ET2000 HBA POST #1-#2 BOTTOM
33874A	6	ET2000 HBA POST #3-#8 BOTTOM
33875G	1	6'-6" ANGLE STRUT ET HBA



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ET-2000 PLUS

MOKULELE HIGHWAY WIDENING
Vicinity of Cane Haul Road

To
Maui Humane Society
Federal - Aid Project No. NH-0311(5)

Scale: AS NOTED Date: JUNE 2002

SHEET No. 3 OF 4 SHEETS

NOTES:

- [illegible]

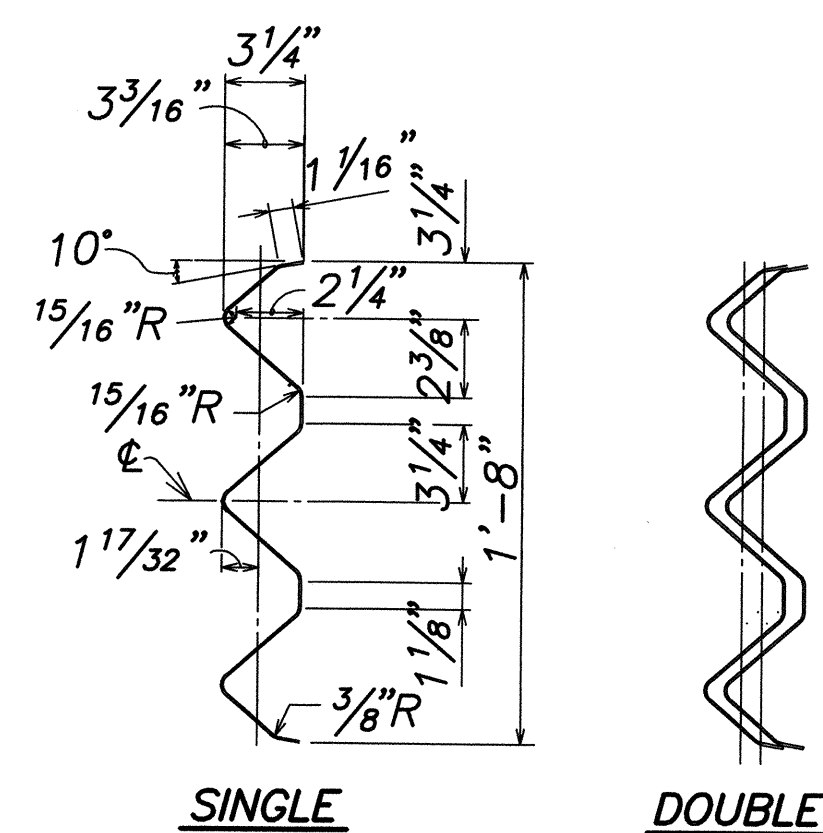
The image contains two technical drawings of a bridge deck.

The left drawing is a cross-section of the deck, showing a total width of 12 3/4 feet. It includes a 2-foot wide shoulder on each side. The main deck width is 8 feet. The deck is composed of several layers, including a 3/4 x 2 1/2 inch post bolt slot and a 29/32 x 1 1/8 inch splice bolt slot. The deck is supported by a 2-foot wide base.

The right drawing is a plan view of the deck, showing a total length of 7'-3 1/2". It includes a 3'-1 1/2" section on each side of a central 7'-3 1/2" section. The deck is composed of several layers, including a 3/4 x 2 1/2 inch post bolt slot and a 29/32 x 1 1/8 inch splice bolt slot. The deck is supported by a 2-foot wide base. The plan view also shows the spacing of the post bolt slots and splice bolt slots.

5/8"Ø x1 1/4 "long
splice bolts
w/nuts

TRANSITION SECTION
Scale: 1"=1'-0"



SPLICE
 $1''=1'-0''$

5/8"Ø x 1 1/4 "long
splice bolts
w/nuts

TRANSITION SECTION
Scale: 1"=1'-0"

5/8"Øx2"long
rail bolts w/nuts
& washers

5/8"Øx1 1/2" long
post
bolts w/nuts
& washers

W6x15
Metal
guardrail
post

Metal spacer
block W6x12

2-#5 cont.

Ground line, shoulder,
gutter @ curb or top
of sidewalk line

Concrete Curb @
Bridge Transition

Thrie
bm.

Radius

6' - 9"

10"

6' - 9"

9 1/2"
Curb

6"

6"

1' - 10"

1' 7 5/8"

6 3/16" 3/4"

8 1/2"

2 1/4"

1 1/8"

1 1/8"

5 3/4"

4"

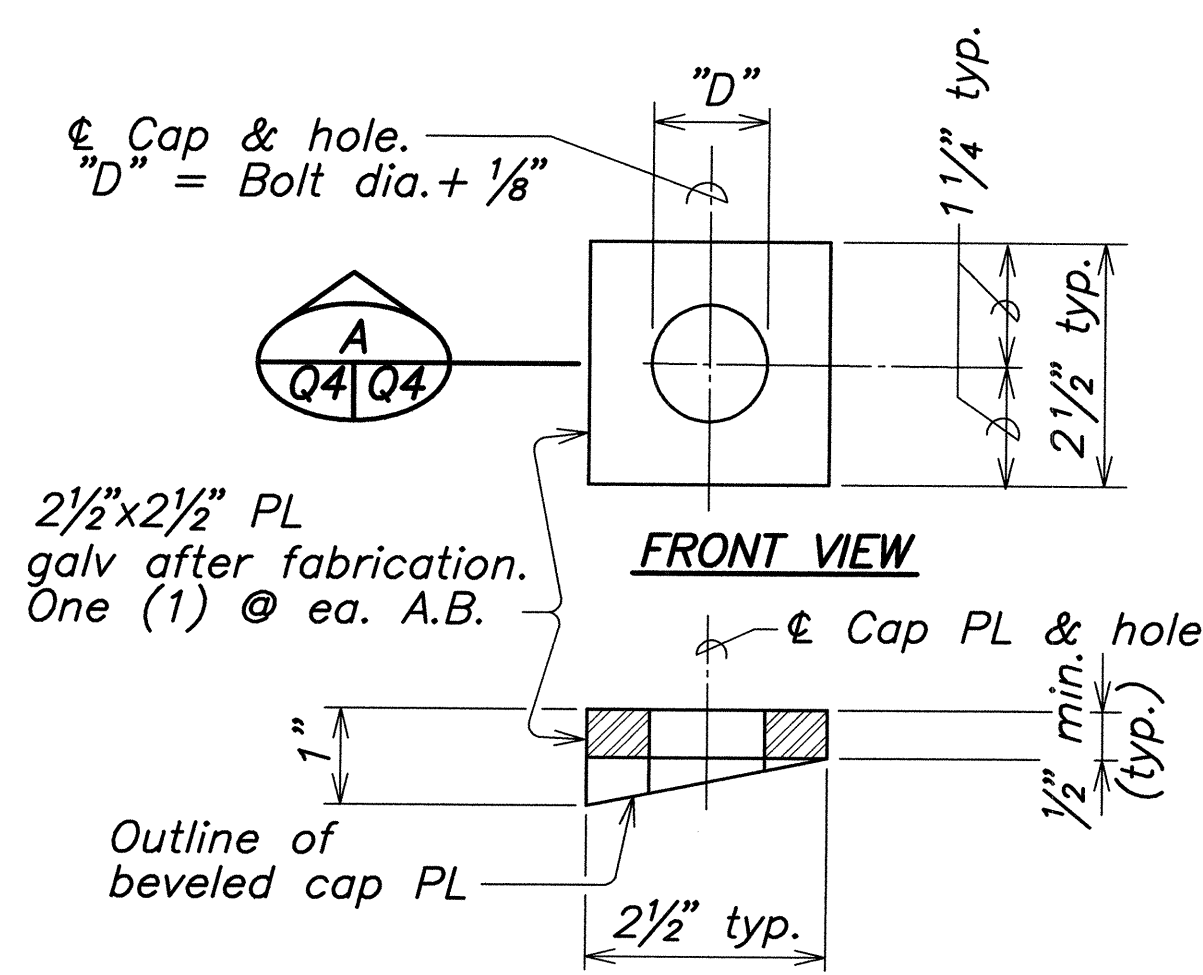
0.28"

0.23"

5"

FRONT SIDE

POST DETAILS
Scale: 1"=1'-0"



<i>L</i>	<i>Thread Length</i>
$1\frac{1}{4}"$	<i>Full thread</i>
$2"$	$1\frac{1}{2}"$ min. thread length

1 1/4"

1 1/16"

1" dia. x 1/16" deep recess on one or both sides

Diagram of an I-beam cross-section with dimensions: total height 6 inches, flange thickness 0.28 inches, web thickness 0.23 inches, and flange width 4 inches.

W6x12

Diagram of a C-channel section with dimensions: total height 6 inches, flange thickness 0.26 inches, web thickness 0.23 inches, and flange width 6 inches.

W6x15

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
METAL GUARDRAIL TYPE 3 THRIE BEAM
TRANSITION AND APPURTENANCES DETAILS
MOKULELE HIGHWAY WIDENING
Vicinity of Cane Haul Road
To
Maui Humane Society
Federal - Aid Project No. NH-0311(5)
Scale: AS NOTED Date: JUNE 2002