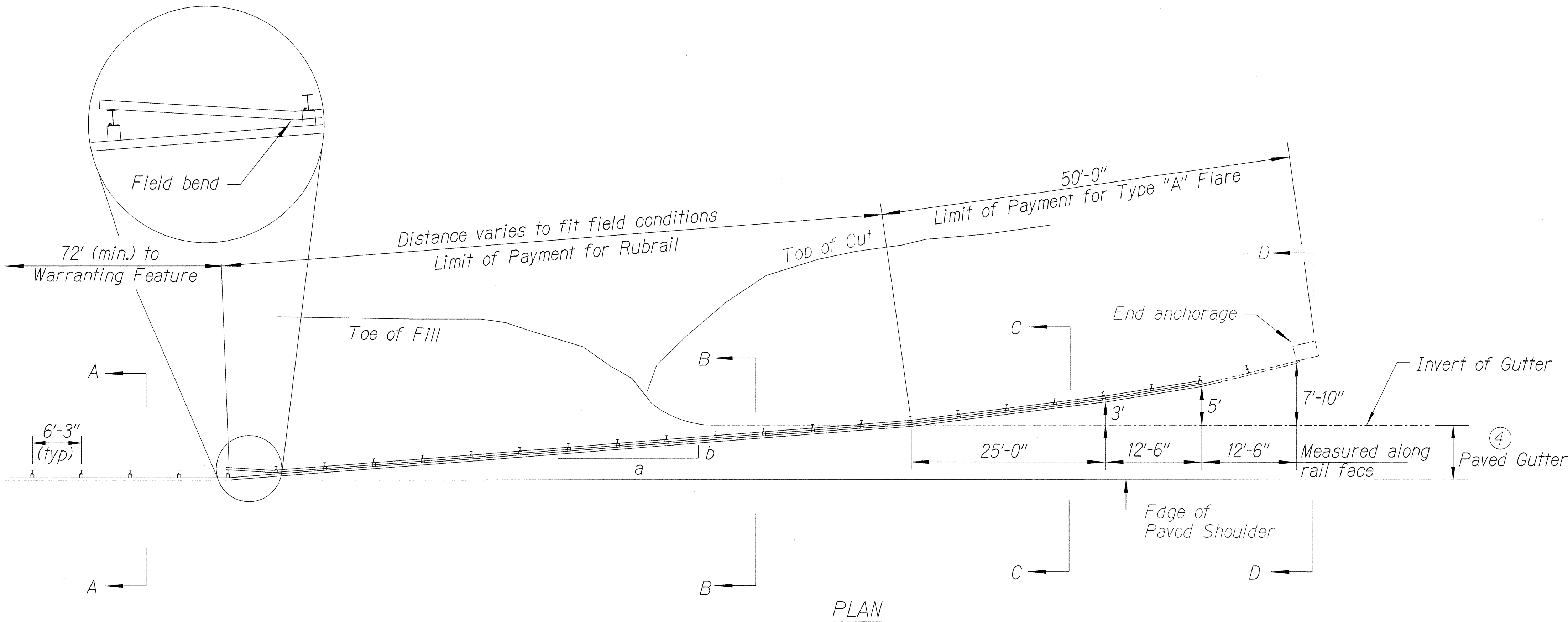


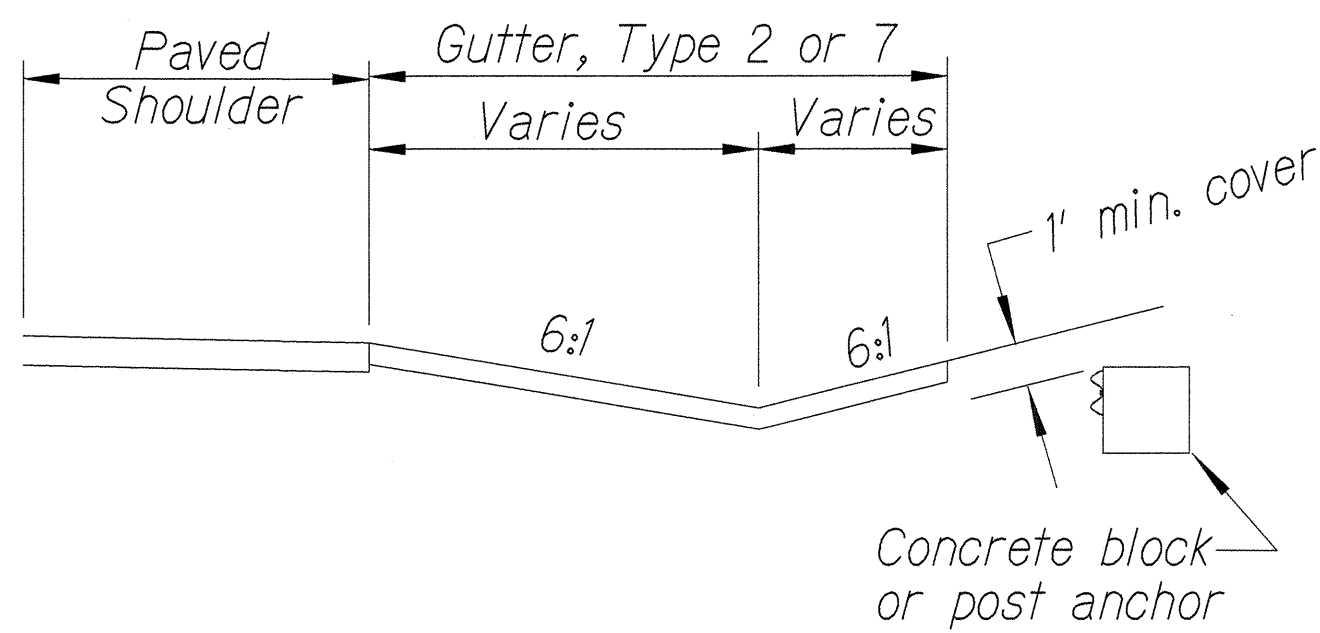
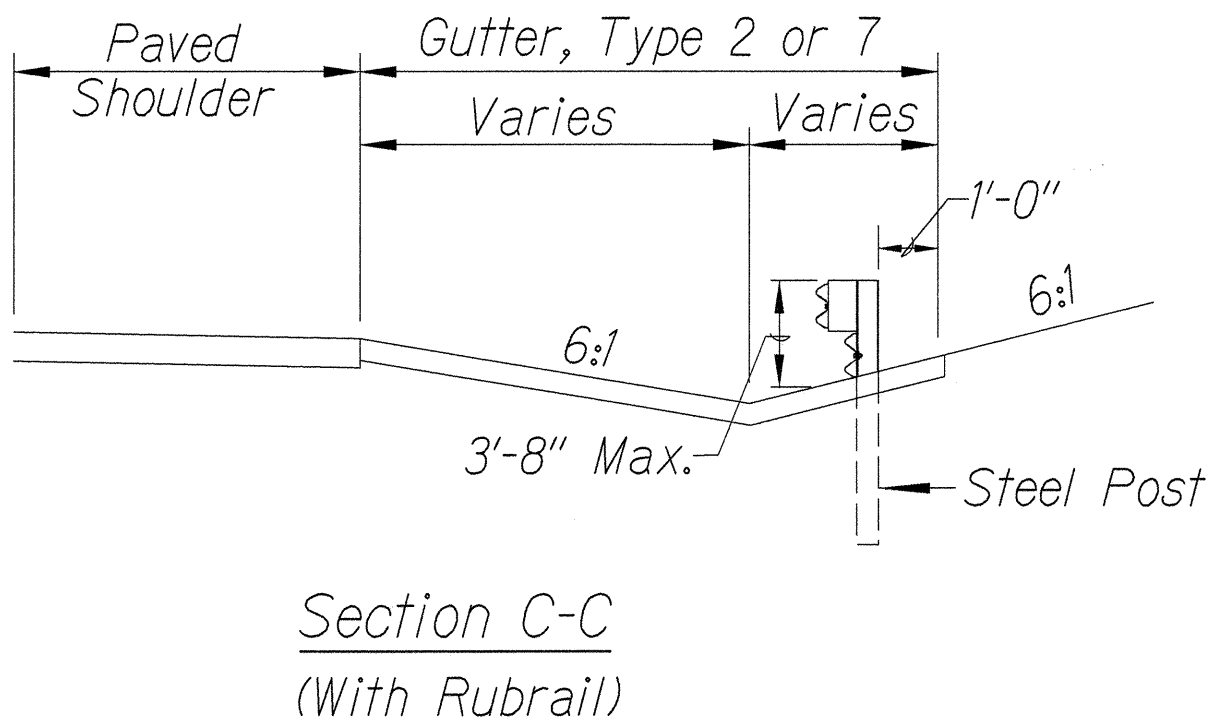
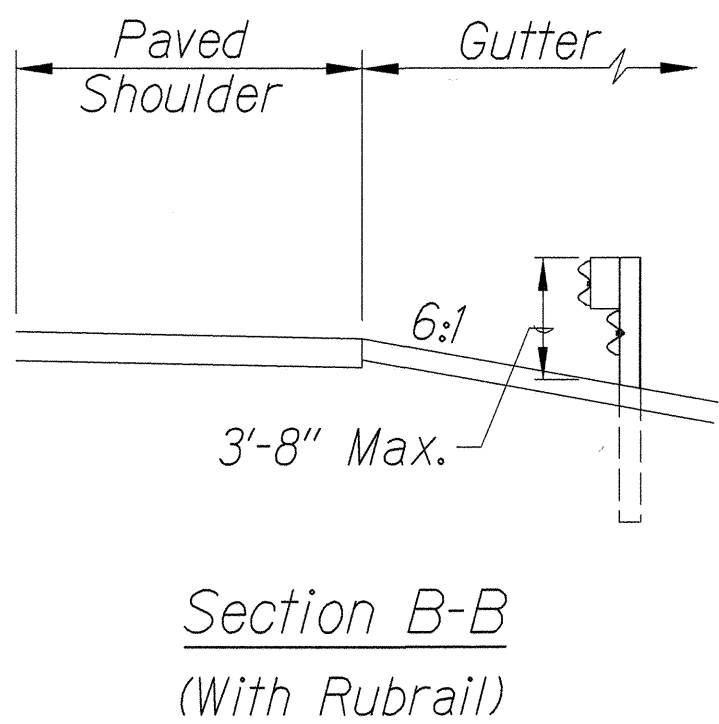
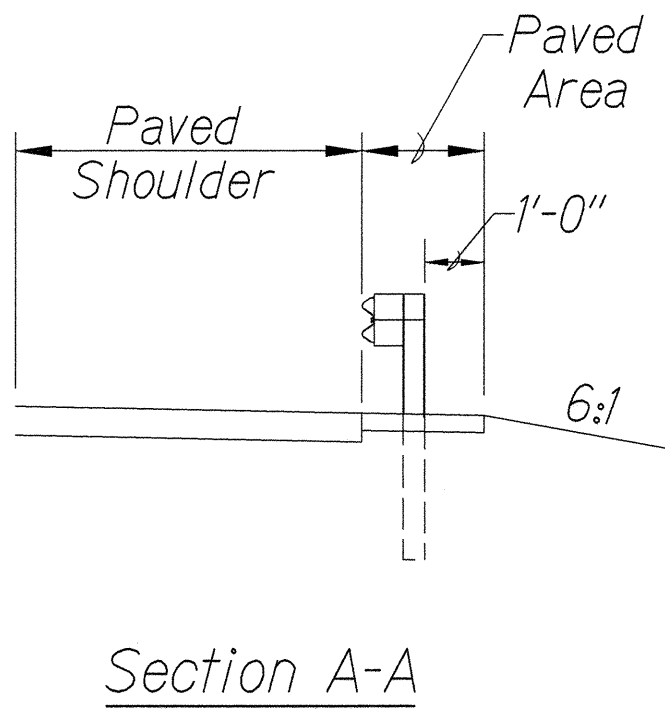
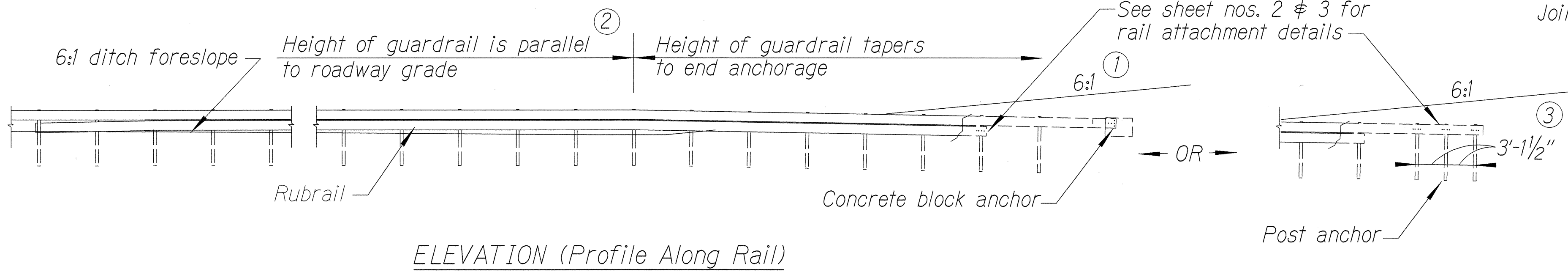
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|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | BR-036-1(14) | 2000 | 29 | 70 |

General Notes

1. A 6:1 or flatter slope is desirable. However, a steeper or flatter existing slope may be used.
2. Height of guardrail may be tapered down in elevation to maintain 3'-8" maximum height.
3. All posts are 8'-0" in length from where the guardrail flares away from the shoulder back to the post anchor. Posts for the post anchor are 6'-0" long.
4. Variable Paved Gutter offsets may be used to fit field conditions.
5. The Guardrail Posts shall be located away from the gutter/swale invert.
6. All fasteners, posts, blocks and rail elements 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-AGCARTBA Joint Cooperative Committee.



| Design speed mph | a:b |
|---------------------|------|
| 68 | 15:1 |
| 62 | 13:1 |
| 56 | 12:1 |
| 50 | 11:1 |
| 43 | 10:1 |
| 37 | 9:1 |
| 31 | 7:1 |



BACKSLOPE ANCHOR TERMINAL (WITH 6:1 PAVED GUTTER AND TYPE "A" FLARE)

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

TYPE "A" FLARE

HANA HIGHWAY

REPLACEMENT OF UAOA BRIDGE AND APPROACHES

DISTRICT OF MAKAWAO

Federal-Aid Project No. BR-036-1(14)

Scale: NTS

Date: May, 1999

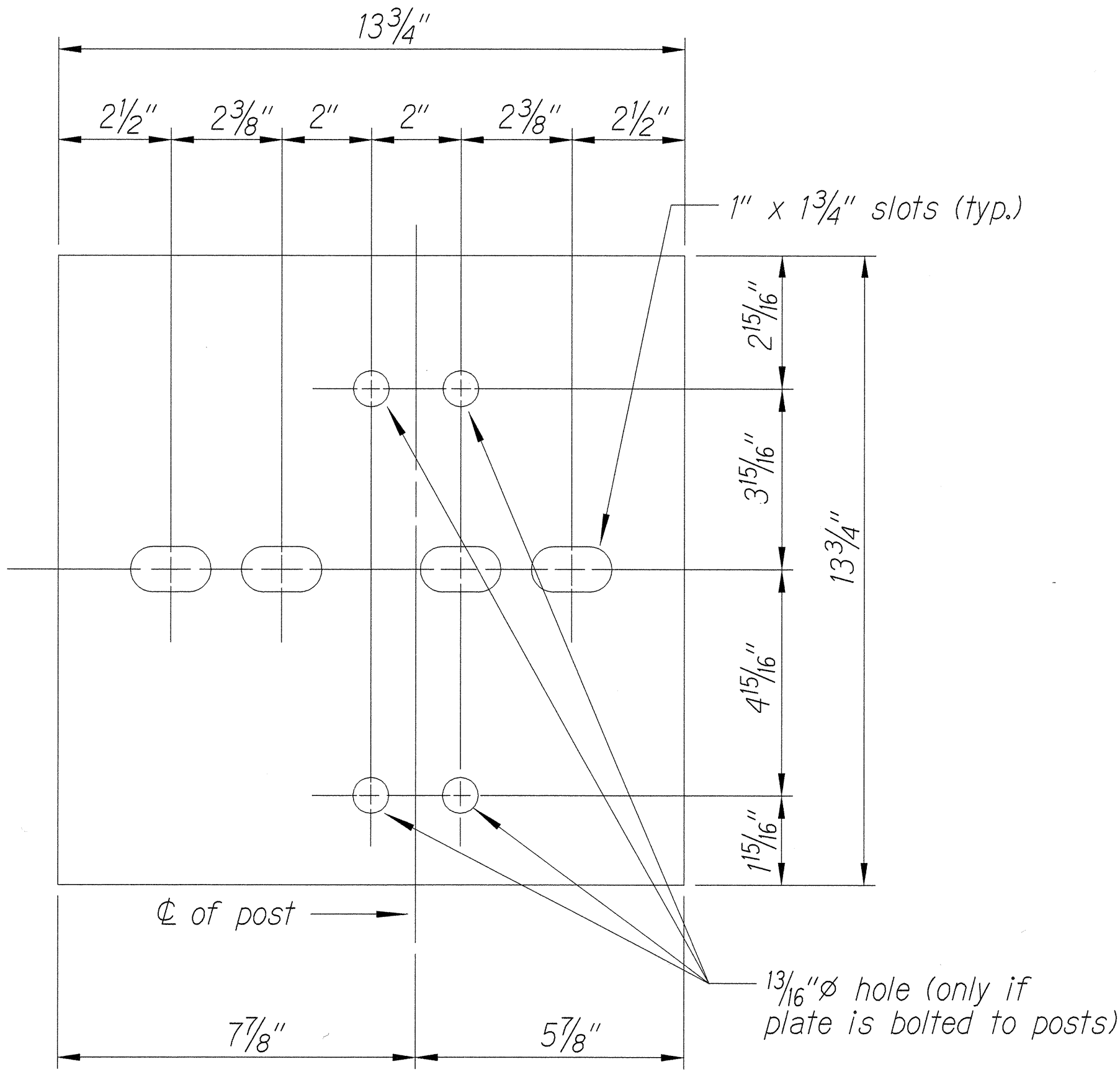
SHEET No. C-27 OF 42 SHEETS

29

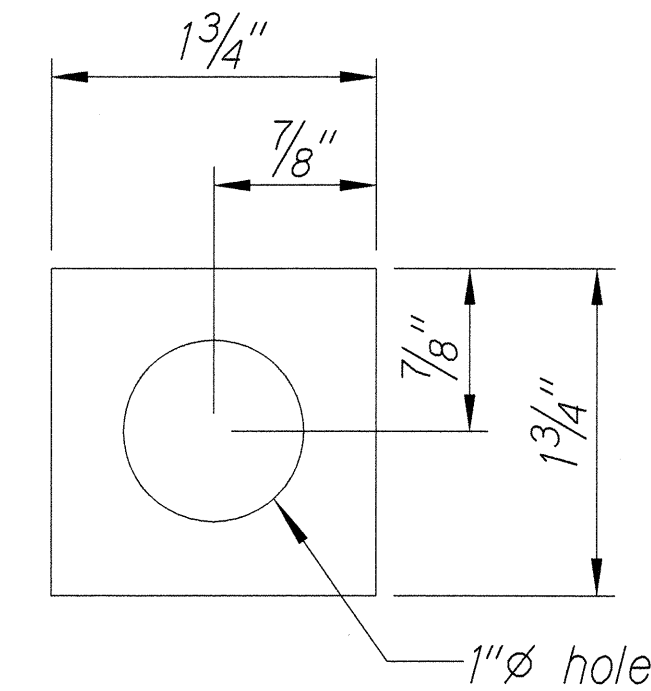
| | |
|---------------------|------|
| ORIGINAL PLAN | DATE |
| QUANTITY PLOTTED BY | |
| DRAWN BY | |
| DESIGNED BY | |
| CHECKED BY | |
| NOTED BY | |
| DATE | |

13/01/99 - fdr/rub/guardrail/4dgrveed/tdgpn (standard plan TE-58 07/01/86, TE-59 rll/03/89 & TE-60 07/01/86)

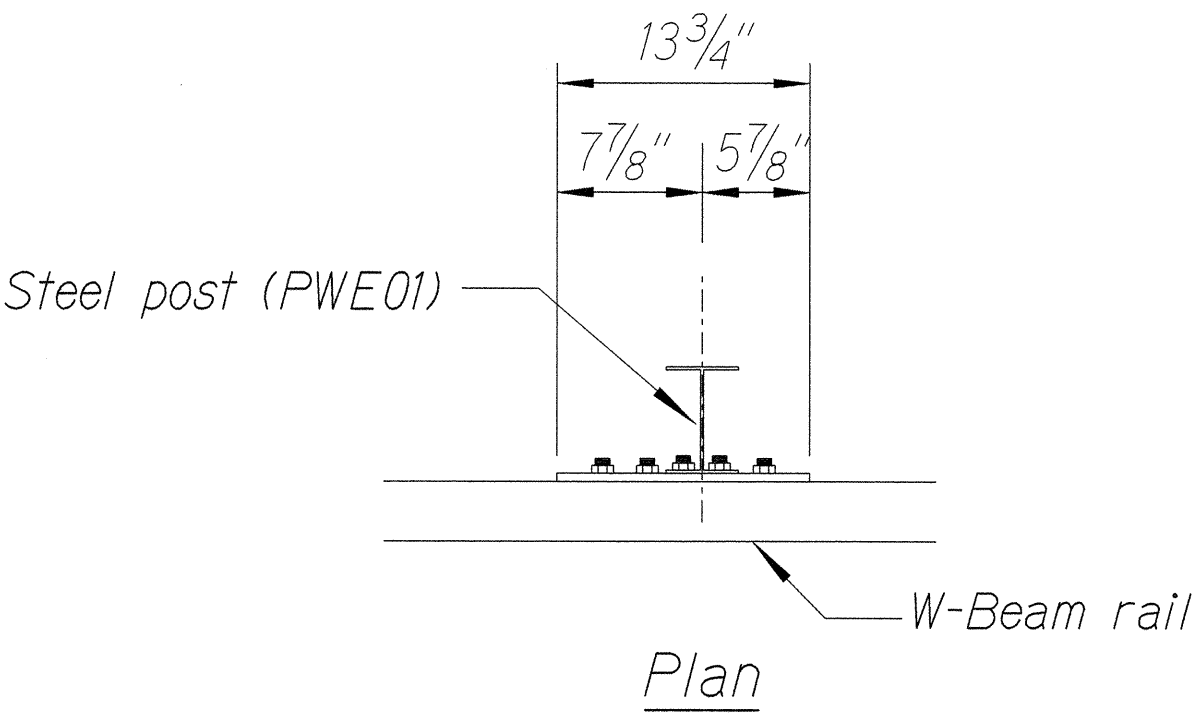
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|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | BR-036-1(14) | 2000 | 30 | 70 |



Steel Plate - 1/2"
(Hot-dip Zinc Coated Galvanized
Welded or Bolted to Post)

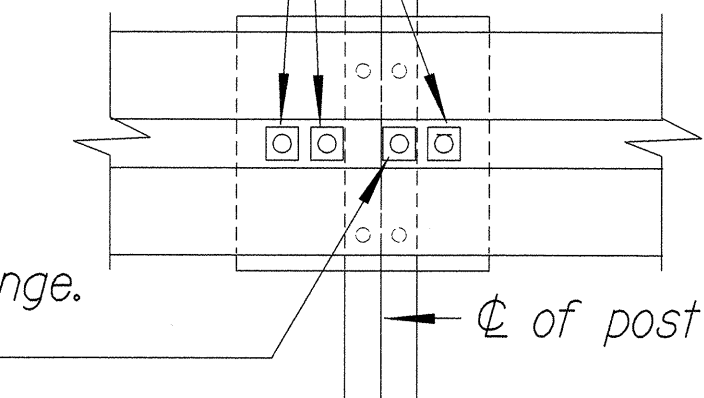


Square Washer
(3/16" Thick - Hot-dip
Zinc Coated Galvanized)

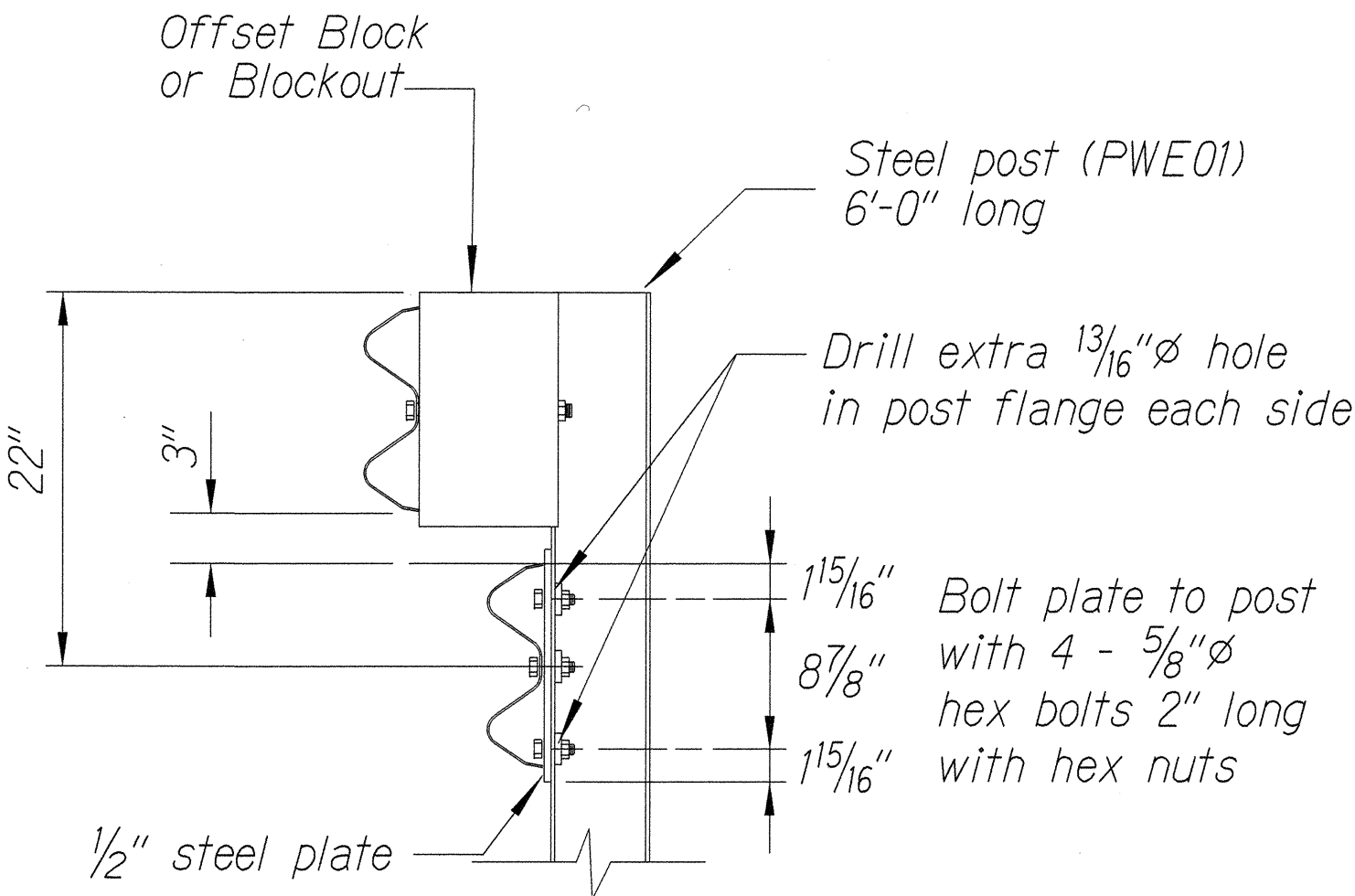


3 - 7/8"Ø holes to be field drilled in rail and attached to steel plate with 7/8"Ø hex bolts 1 5/16" long with square washer

1"Ø holes to be field drilled in rail and through post flange. Attach to steel plate with 7/8"Ø hex bolts 2" long with square washer

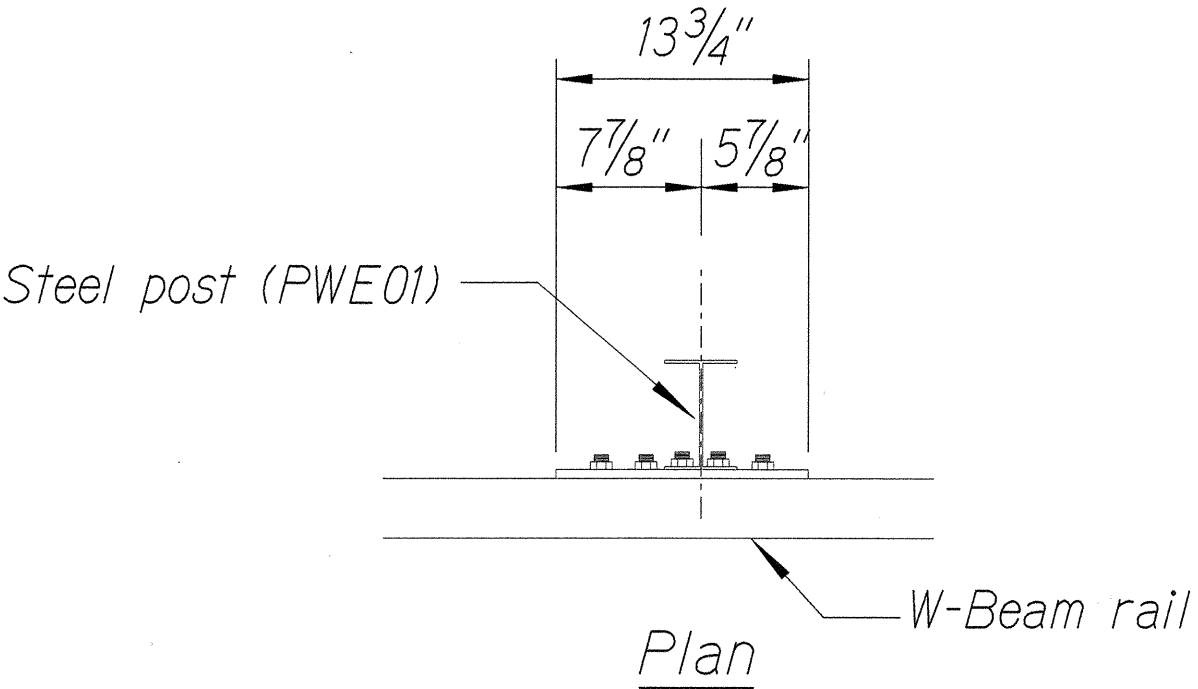


Front View



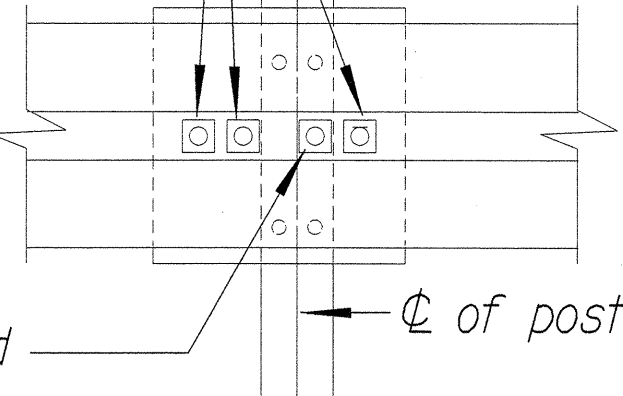
Elevation

RUBRAIL ANCHOR DETAILS

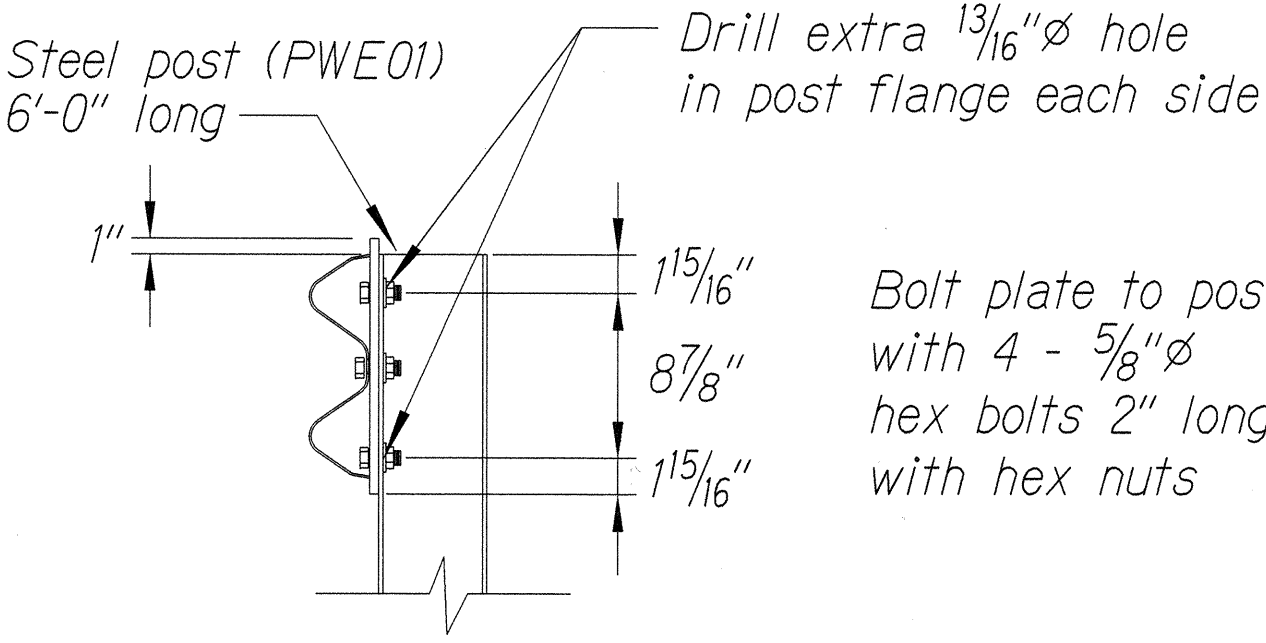


3 - 7/8"Ø holes to be field drilled in rail and attached to steel plate with 7/8"Ø hex bolts 1 5/16" long with square washer

1"Ø holes to be field drilled in rail and through post flange. Attach to steel plate with 7/8"Ø hex bolts 2" long with square washer



Front View



Elevation

POST ANCHOR DETAILS

BACKSLOPE ANCHOR TERMINAL END ANCHORAGE DETAILS TYPE "A" FLARE)

Note:

All fasteners, posts, blocks and rail elements 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-AGCARTBA Joint Cooperative Committee.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPE "A" FLARE

HANA HIGHWAY
REPLACEMENT OF UAOA BRIDGE AND APPROACHES
DISTRICT OF MAKAWAO
Federal-Aid Project No. BR-036-1(14)

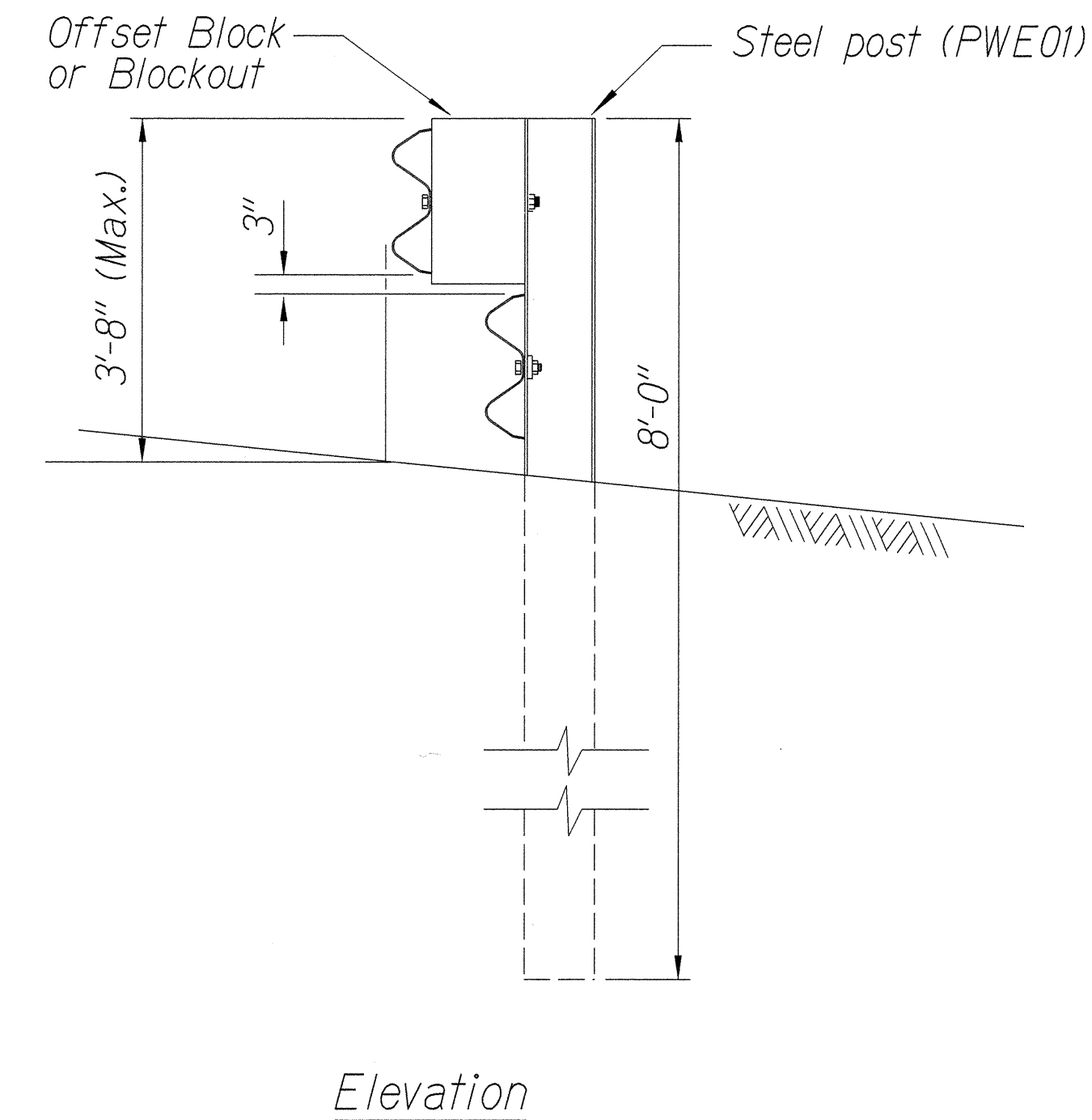
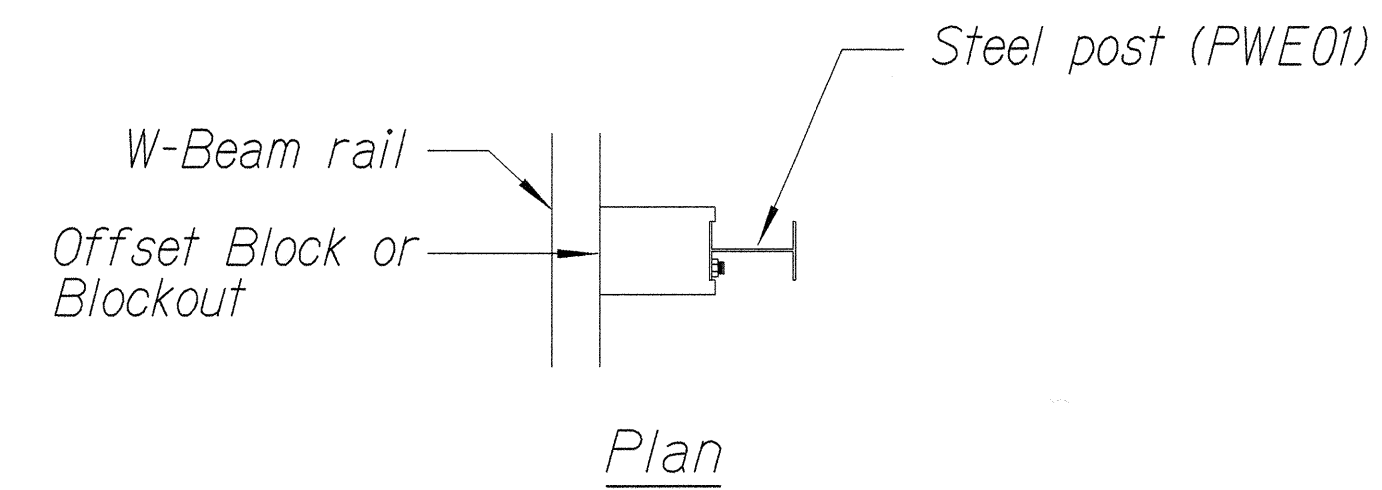
Scale: NTS Date: May, 1999

SHEET No. C-28 OF 42 SHEETS

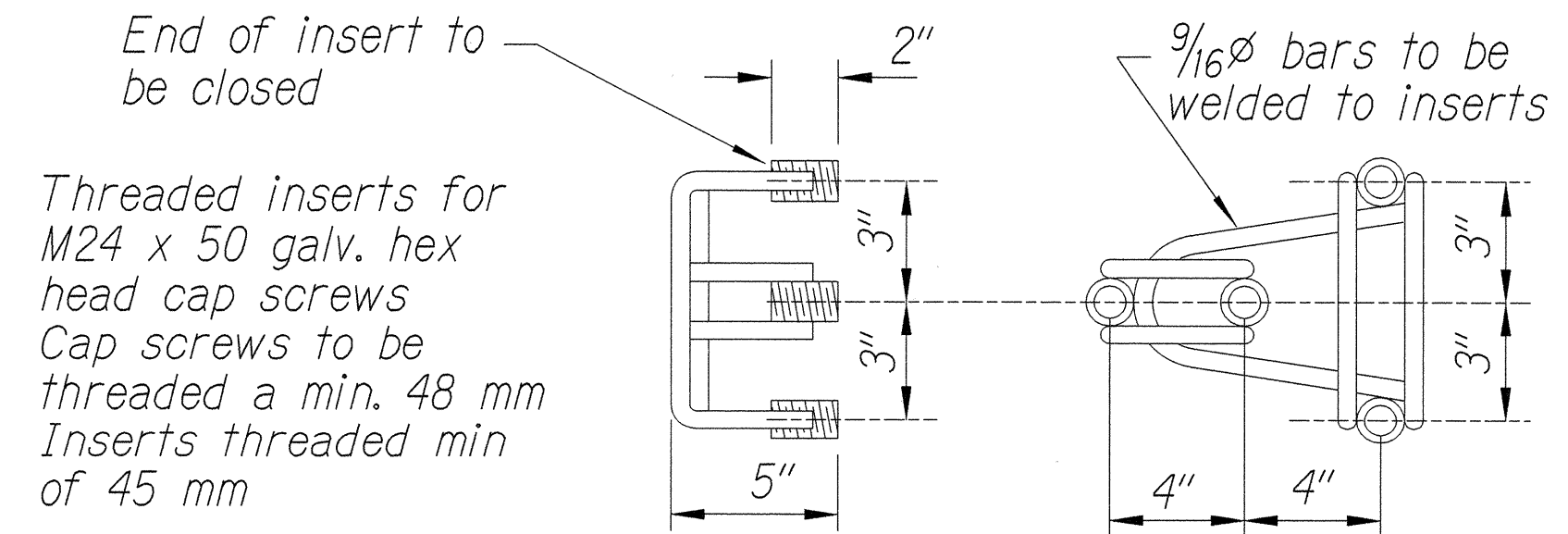
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| ORIGINAL PLAN | DATE | BY |
| NOTED | DATE | BY |
| DESIGNED | DATE | BY |
| CHECKED | DATE | BY |

13/01/99 tdruby/guardrail/gd4del2.dgn (standard plan TE-58 07/01/86, TE-59 RI/03/88 & TE-60 07/01/88)

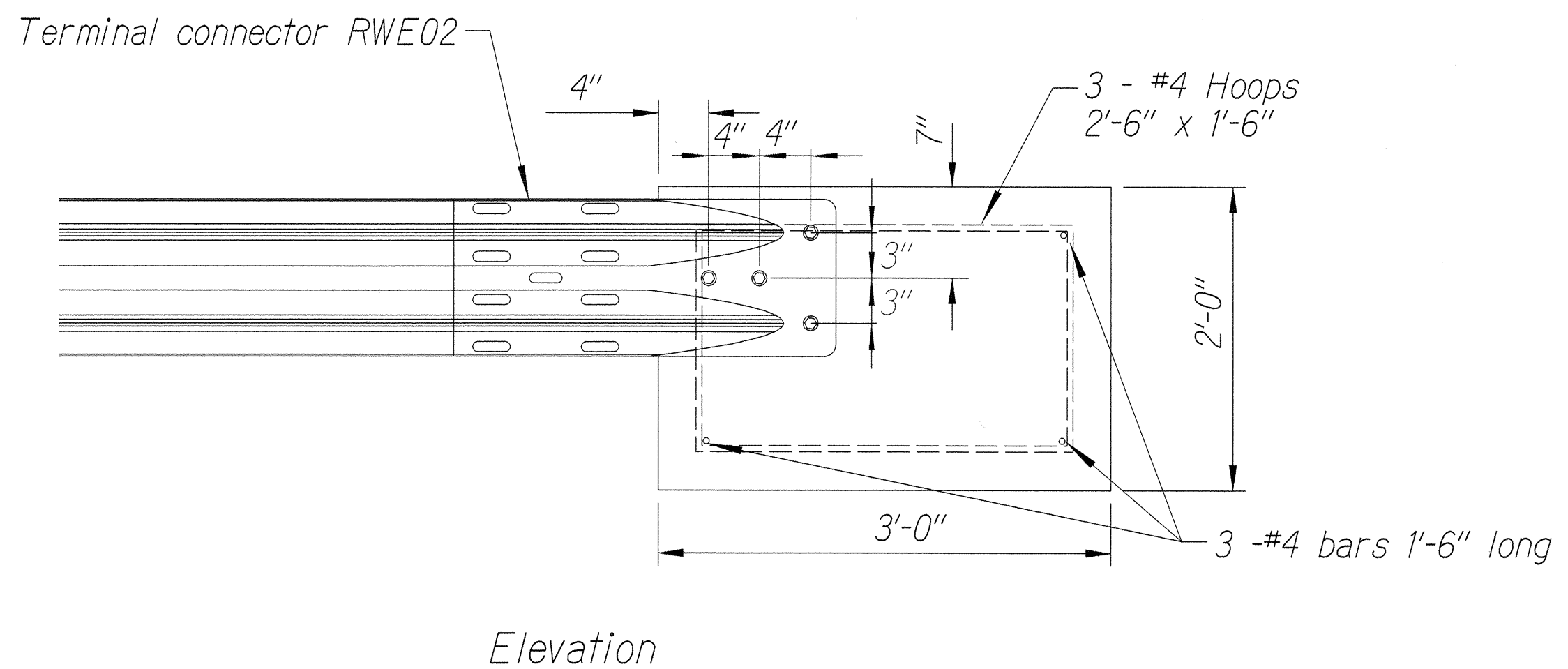
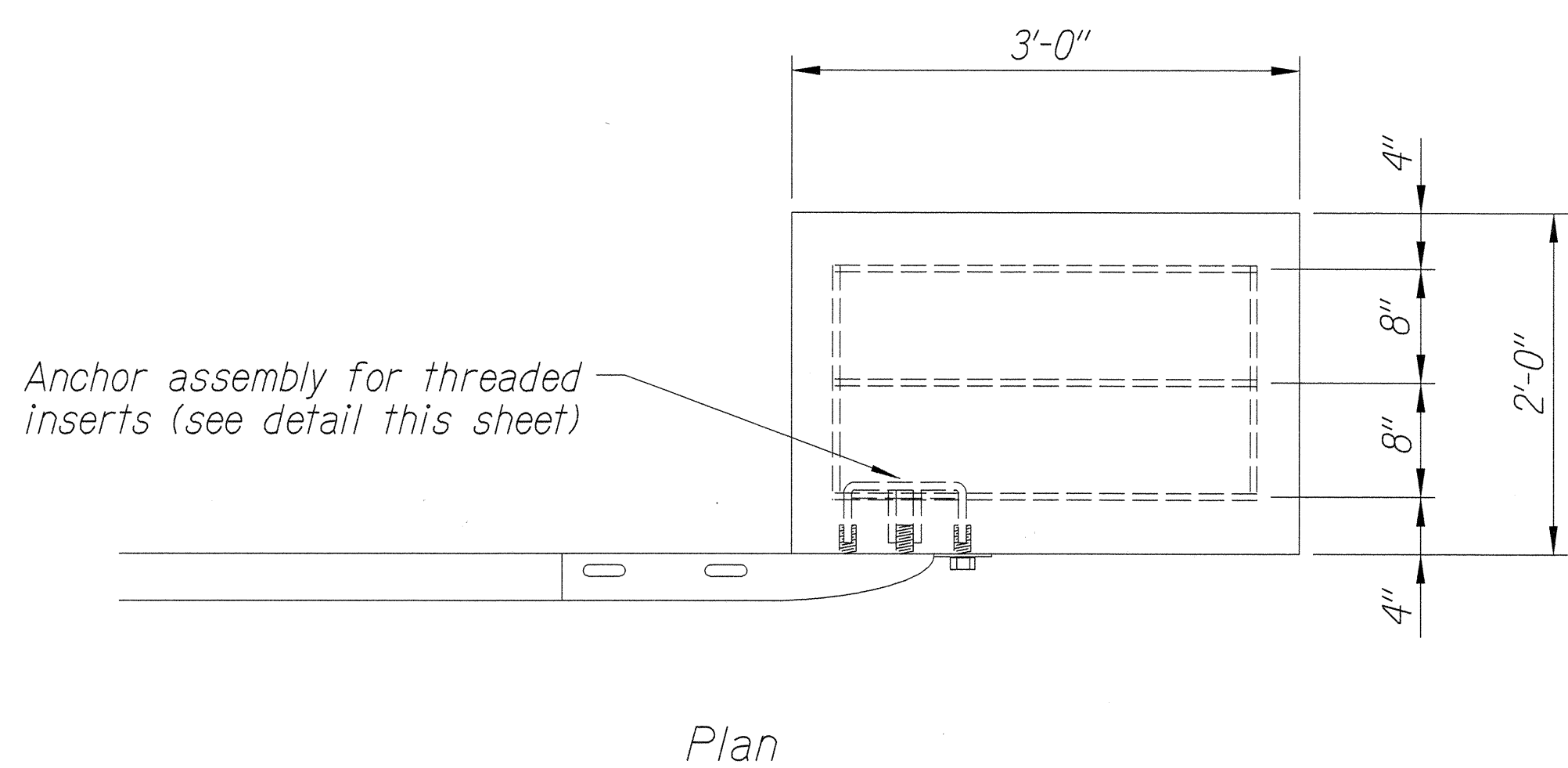
| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | BR-036-1(14) | 2000 | 31 | 70 |



STEEL POST GUARDRAIL
WITH RUBRAIL



ANCHOR ASSEMBLY
CONCRETE BLOCK ANCHOR



CONCRETE BLOCK ANCHOR
(2' X 2' X 3')

BACKSLOPE ANCHOR TERMINAL END ANCHORAGE DETAILS
TYPE "A" FLARE)

Note:

All fasteners, posts, blocks and rail elements 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-AGCARTBA Joint Cooperative Committee.

| | | |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK | DRAWN BY | X |
| DESIGNED BY | TRACED BY | |
| QUANTITIES BY | DESIGNED BY | |
| NO. X/dgn | QUANTITIES BY | |

13/01/99 1d1rubby/guardrail/gddellggn (standard plan TE-58 07/01/86, TE-59 11/03/89, TE-60 07/01/86)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPE "A" FLARE

HANA HIGHWAY
REPLACEMENT OF UAOA BRIDGE AND APPROACHES
DISTRICT OF MAKAWAO
Federal-Aid Project No. BR-036-1(14)

Scale: NTS
Date: May, 1999

SHEET No. C-29 OF 42 SHEETS