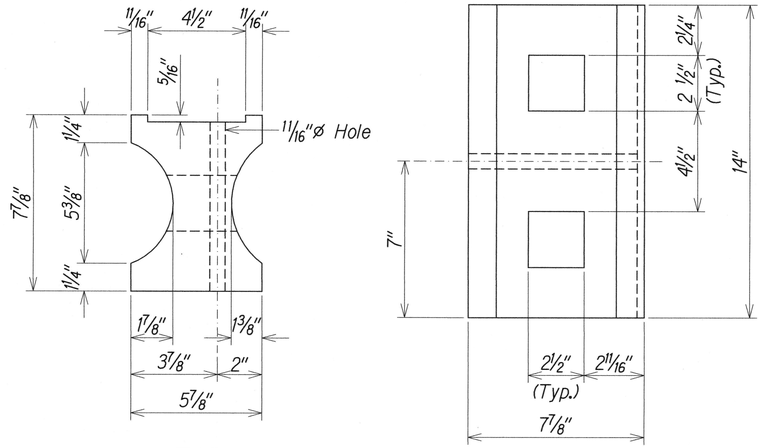
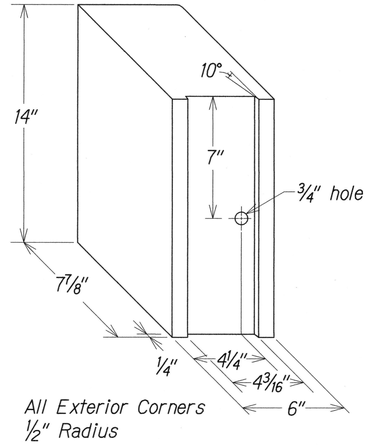
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-16	2016	10	59

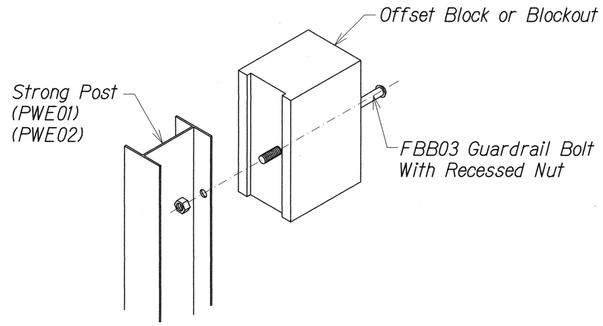


TOP SIDE

RECYCLED PLASTIC BLOCKOUT (TYPE I)



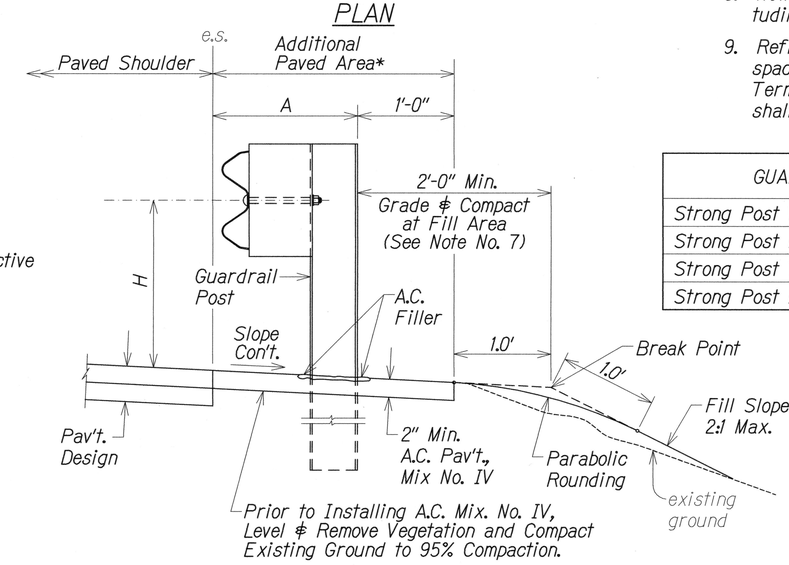
RECYCLED POLYETHYLENE OFFSET BLOCK (TYPE II)



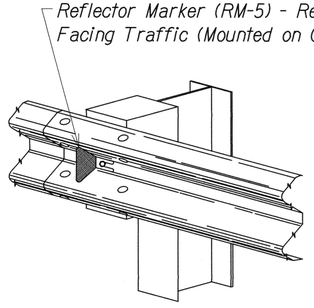
Exploded View
(Rail and Washer Not Shown)

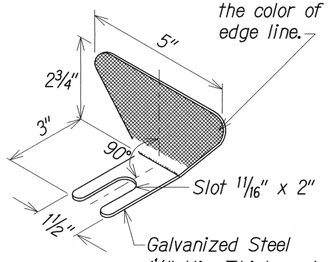
STEEL POST AND BLOCK DETAIL

PLAN



ELEVATION





REFLECTOR MARKER (RM-5) DETAIL AND TYPICAL INSTALLATION TYPICAL GUARDRAIL INSTALLATION

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.
3. 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.
4. The Recycled Plastic Block 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. New A.C. pavement at guardrails shall extend 6 feet longitudinally beyond terminal ends.
9. 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 adjacent guardrail system.

GUARDRAIL TYPE	DIMENSION	
	H	A
Strong Post W-Beam	1'-9⅝"	1'-6"
Strong Post Rubrail (W-Beam)	2'-0"	1'-6"
Strong Post Thrie-Beam	1'-9⅝"	1'-6"
Strong Post Modified Thrie-Beam	2'-0"	2'-0"

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WILSON OKAMOTO CORPORATION — APRIL 30, 2016 LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL DETAILS AND NOTES

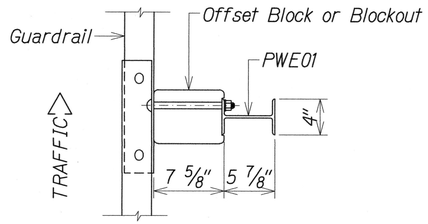
HANA HIGHWAY
IMPROVEMENTS, PHASE 2B
Huelo to Hana
Project No. 360AB-01-16

Scale: None Date: March 2016

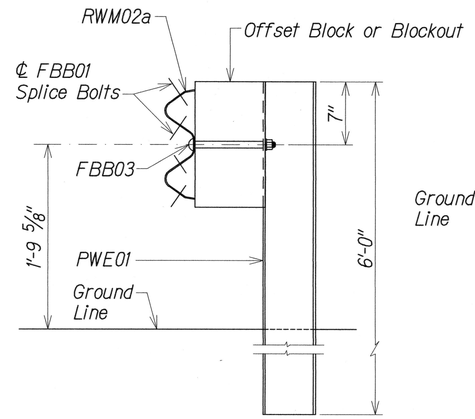
SHEET No. GRD-1 OF 11 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-16	2016	11	59



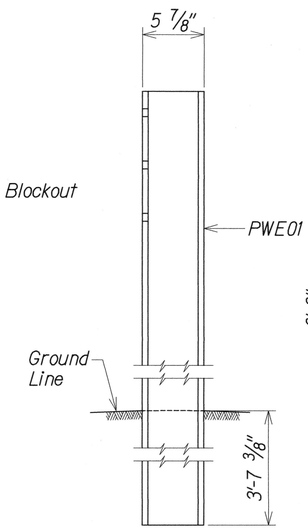
PLAN



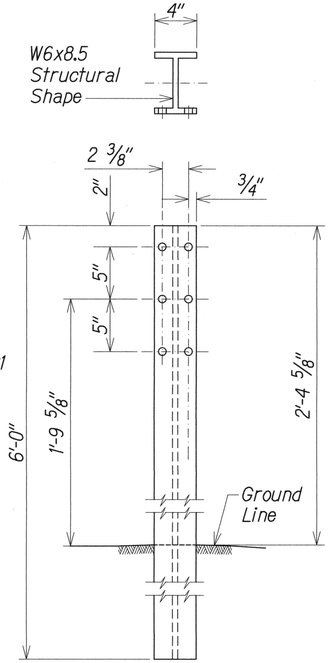
ELEVATION

STRONG POST W-BEAM GUARDRAIL (SGR04a)

NOTE: All Holes are 3/4" Dia.

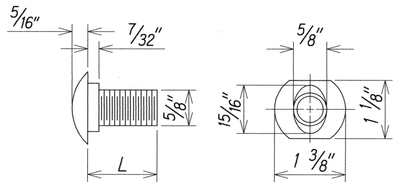


SIDE

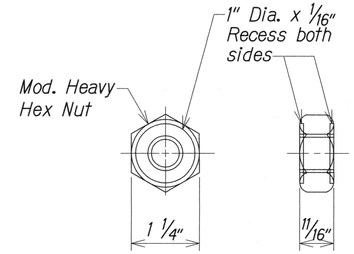


FRONT

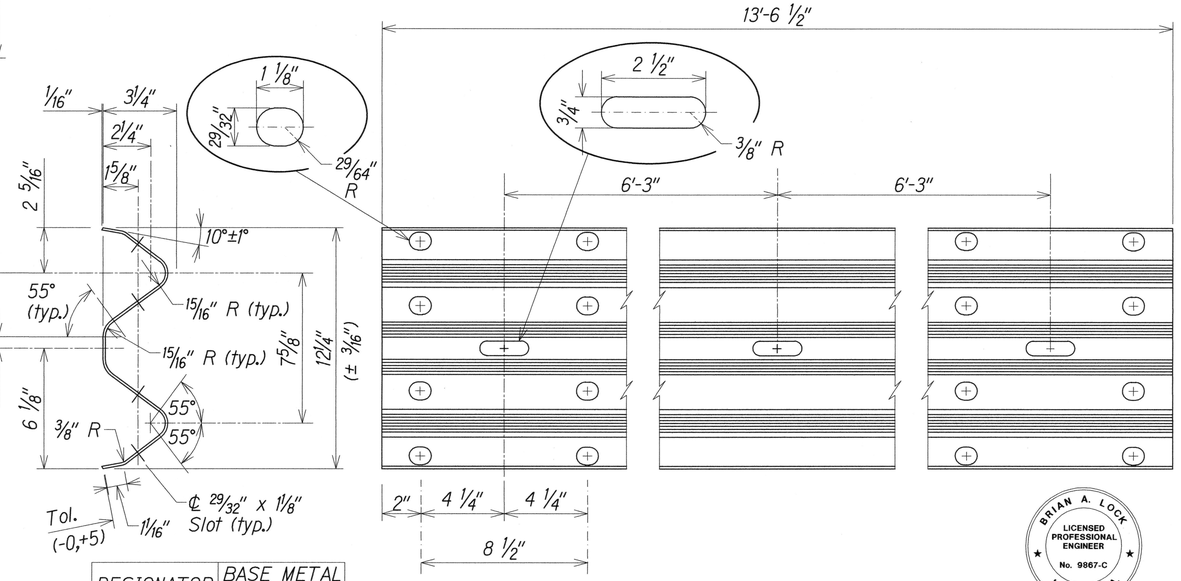
W-BEAM STRONG POST (PWE01)



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

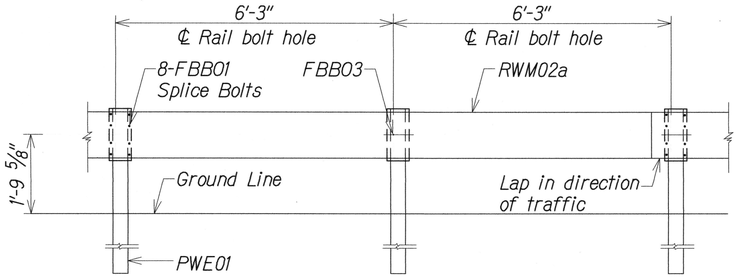


GUARDRAIL BOLTS AND RECESSED NUT



DESIGNATOR	BASE METAL THICKNESS
RWM02a	12 Gauge

2 SPACE W-BEAM GUARDRAIL (RWM02a)



ELEVATION

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

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

BRIAN A. LOCK LICENSED PROFESSIONAL ENGINEER No. 9867-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

APRIL 30, 2016
WILSON OKAMOTO CORPORATION LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

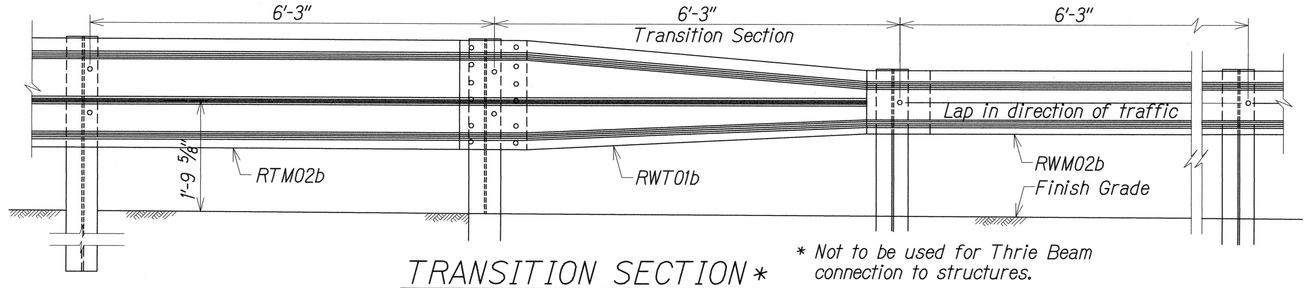
STRONG POST W-BEAM GUARDRAIL DETAILS

HANA HIGHWAY
IMPROVEMENTS, PHASE 2B
Huelo to Hana
Project No. 360AB-01-16

Scale: None Date: March 2016

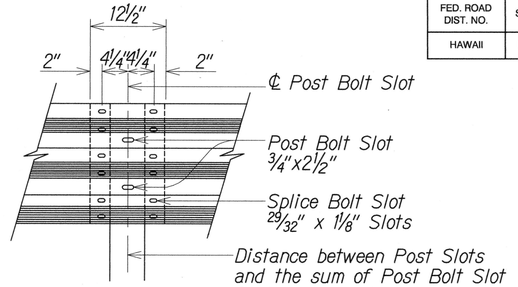
SHEET No. GRD-2 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-16	2016	12	59

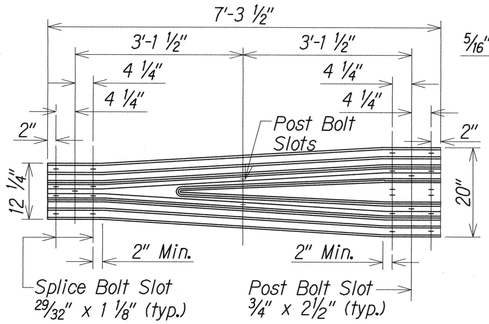


TRANSITION SECTION *

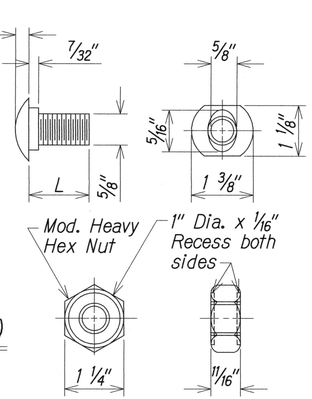
* Not to be used for Thrie Beam connection to structures.



RAIL SPLICE

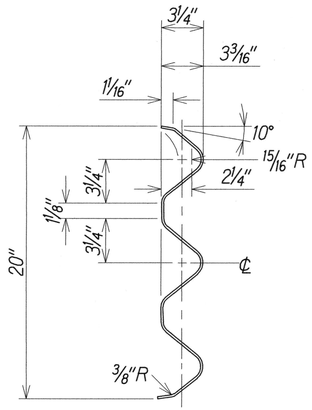


TRANSITION SECTION (RWT01b)

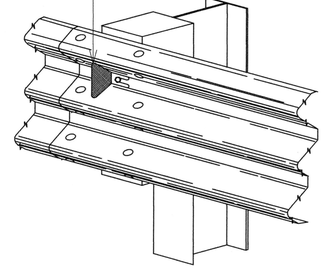


DESIGNATOR	L
FBB01	1 ⅜"
FBB02	2"
FBB03	10"

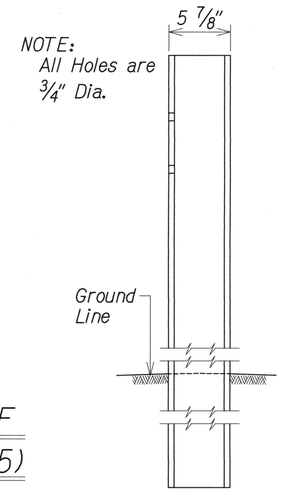
GUARDRAIL BOLTS AND RECESSED NUT



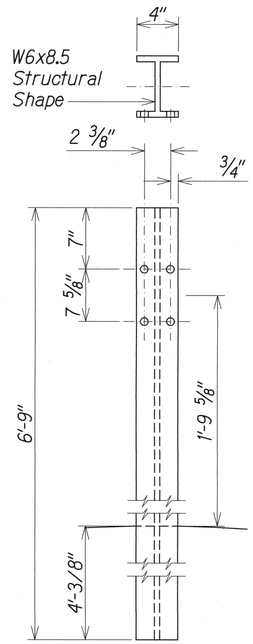
SECTION THRU RAIL ELEMENT (RTM02b)



TYPICAL INSTALLATION OF REFLECTOR MARKER (RM-5)

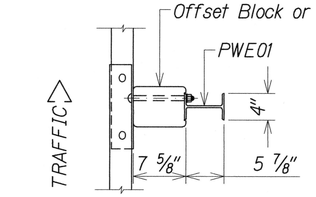


SIDE

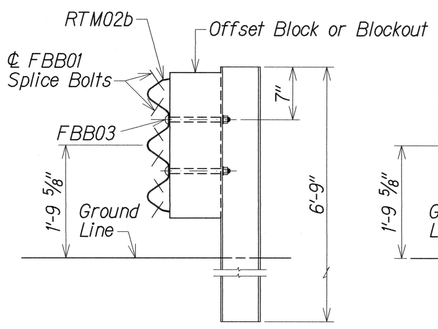


FRONT

THRIE-BEAM STRONG POST FOR PLASTIC SPACER BLOCKS

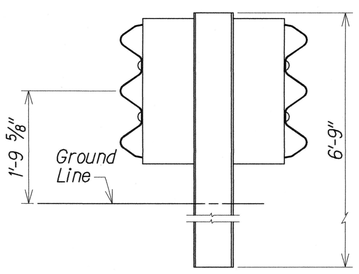


PLAN



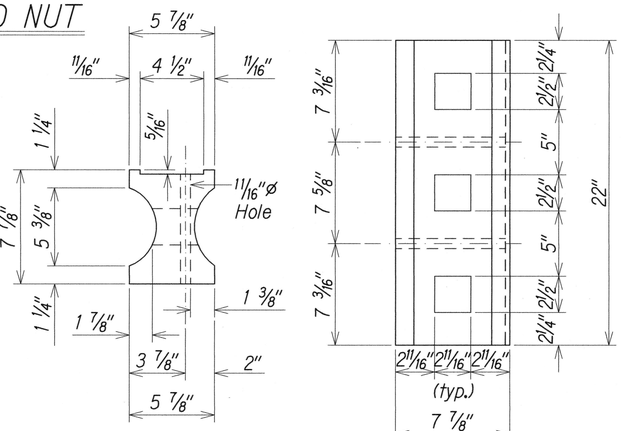
ELEVATION

STRONG POST THRIE-BEAM GUARDRAIL (SGR09a)



ELEVATION

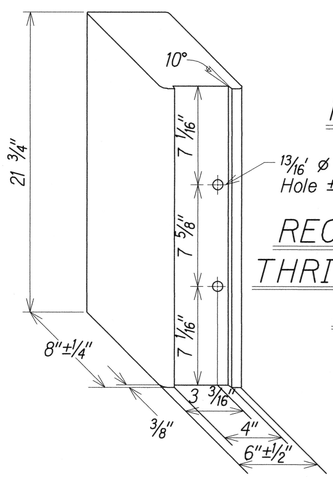
STRONG POST THRIE-BEAM MEDIAN GUARDRAIL (SGM09a)



TOP

SIDE

MODIFIED 6X8X22 PLASTIC BLOCKOUT (TYPE I-THRIE)



RECYCLED POLYETHYLENE THRIE-BEAM OFFSET BLOCK (TYPE II - THRIE)

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APRIL 30, 2016
WILSON OKAMOTO CORPORATION LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRONG POST THRIE-BEAM GUARDRAIL

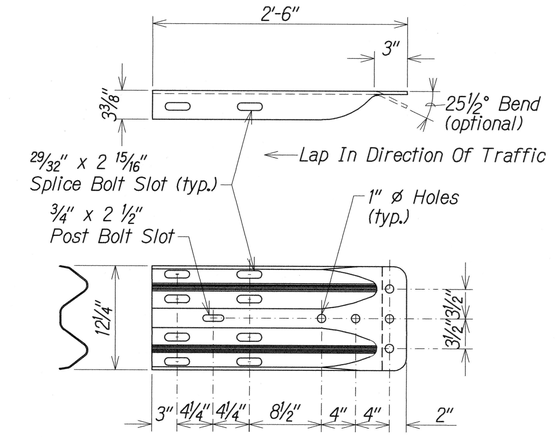
HANA HIGHWAY
IMPROVEMENTS, PHASE 2B
Huelo to Hana
Project No. 360AB-01-16

Scale: Date: March 2016

SHEET No. GRD-3 OF 11 SHEETS

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

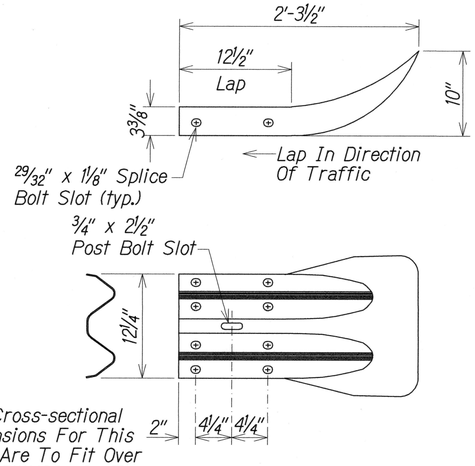
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-16	2016	13	59



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

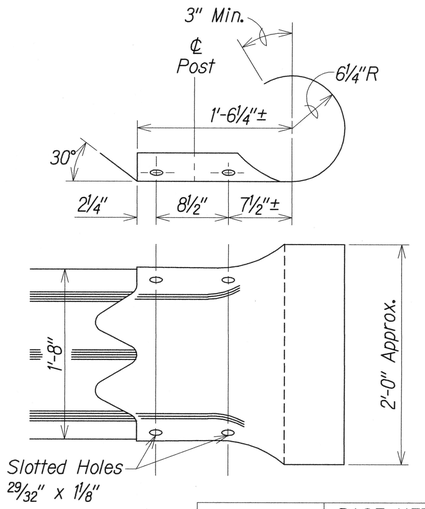
W-BEAM TERMINAL CONNECTOR (RWE02b)



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.

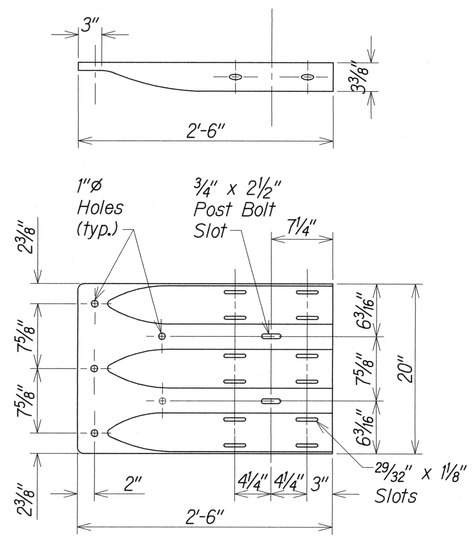
DESIGNATOR	BASE METAL THICKNESS
RWE01a	12 Gauge

W-BEAM END SECTION (FLARED RWE01a)



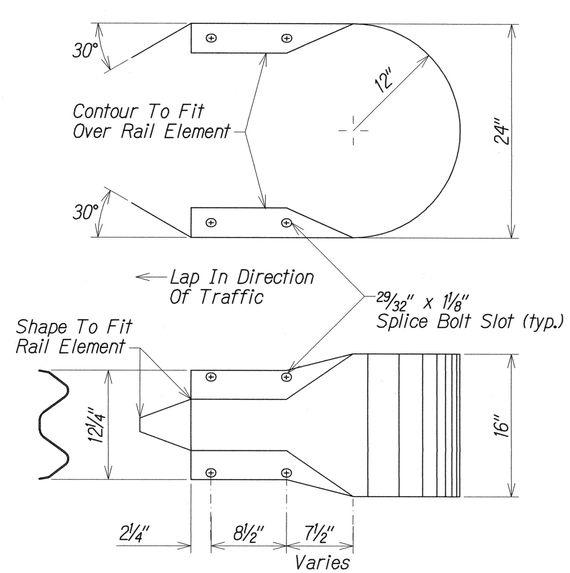
DESIGNATOR	BASE METAL THICKNESS
RTE02b	10 Gauge

THRIE-BEAM SECTION (ROUNDED) (RTE02b)



DESIGNATOR	BASE METAL THICKNESS
RTE01b	10 Gauge

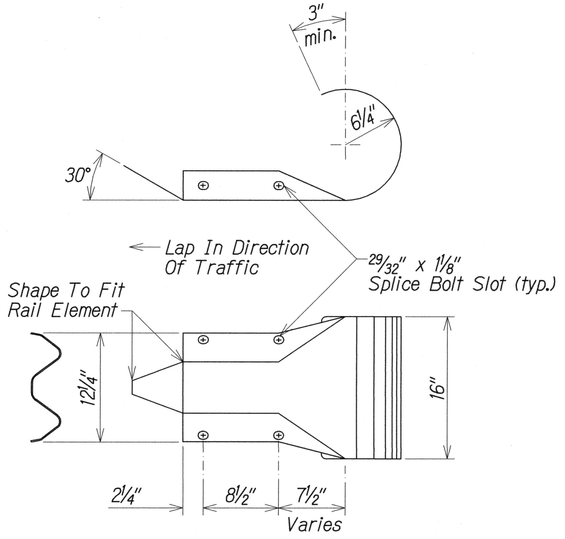
THRIE-BEAM TERMINAL CONNECTOR (RTE01b)



The Cross-sectional Dimensions For This Part Are To Fit Over Part RWM02a

DESIGNATOR	BASE METAL THICKNESS
RWE06a	12 Gauge

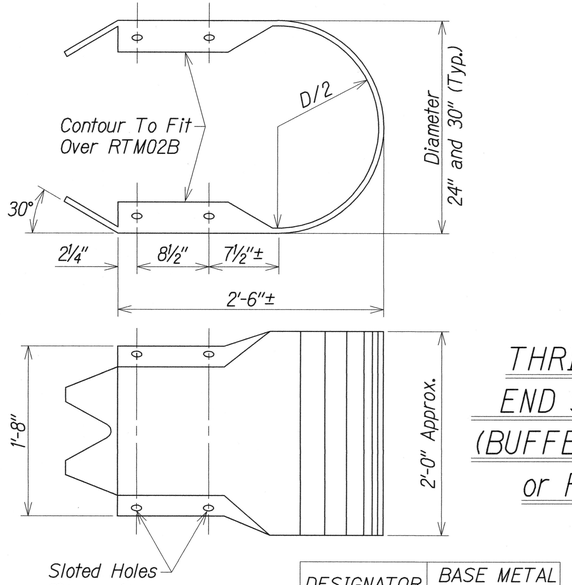
W-BEAM END SECTION (BUFFER RWE06a)



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)



DESIGNATOR	BASE METAL THICKNESS
RTE03b & RTE04b	10 Gauge

THRIE-BEAM END SECTION (BUFFER RTE03b or RTE04b)

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APRIL 30, 2016
WILSON OKAMOTO CORPORATION LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL TERMINAL CONNECTORS AND END SECTIONS

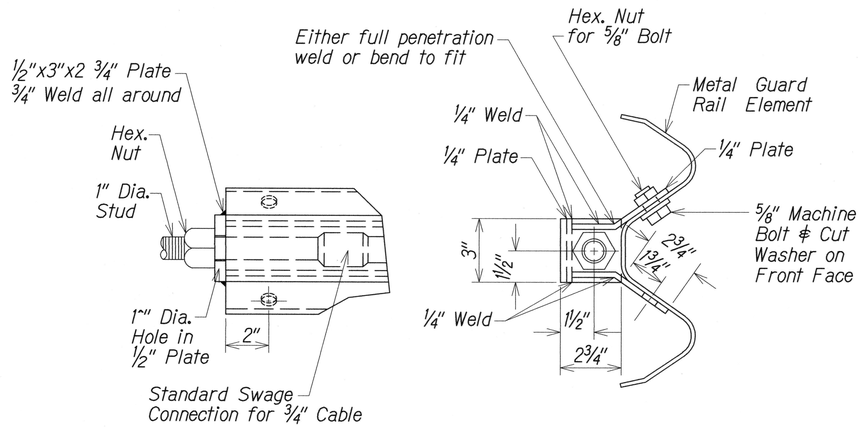
HANA HIGHWAY
IMPROVEMENTS, PHASE 2B
Huelo to Hana
Project No. 360AB-01-16

Scale: Date: March 2016

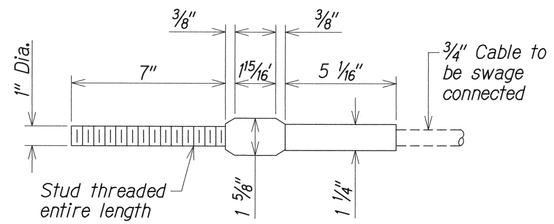
SHEET No. GRD-4 OF 11 SHEETS

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

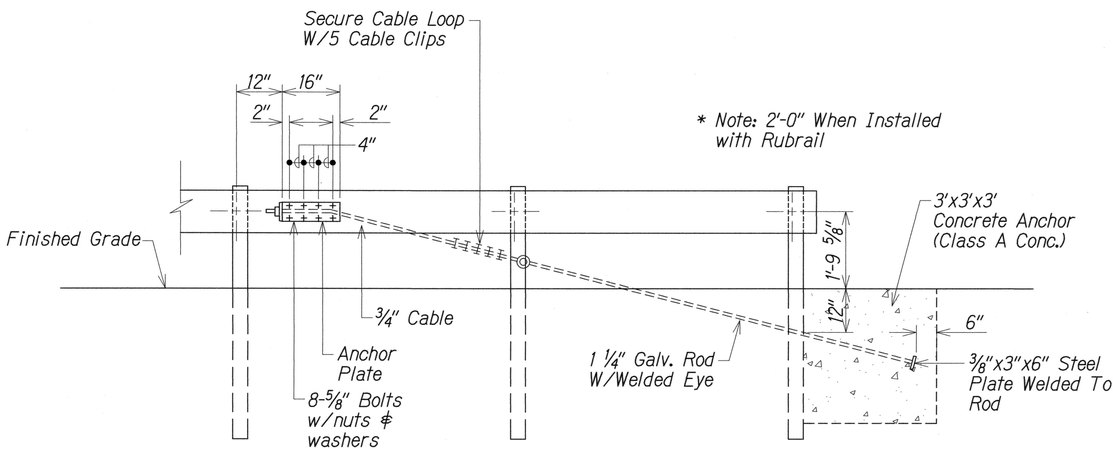
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-16	2016	14	59



ANCHOR PLATE DETAILS

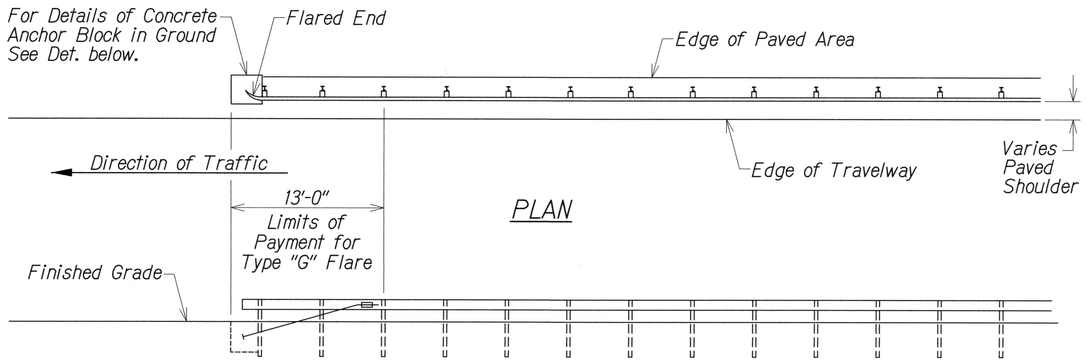


STANDARD SWAGED FITTING AND STUD



ANCHOR BLOCK DETAIL

1. Concrete, G.R.P., excavation, anchor rod and miscellaneous appurtenances necessary to anchor the guardrail ends shall be incidental to metal guardrail.



ELEVATION

TYPE "G" FLARE END TERMINAL

NOTE:

Type "G" Modified End Terminal is a site specific end terminal with a taper and radial termini. A site specific detailed drawing is required for all Type "G" Modified End Terminal and must receive Engineer's approval.

The taper (flare rate) of the guardrail shall follow the latest edition of AASHTO'S Roadside Design Guide (currently, Table 5.6 - Suggested Flare Rate for Barrier Design, page 5-21, Jan. 1996 edition).

The radius of the radial termini is an Engineer's judgement based on the site evaluation. The Engineer shall consider safety (minimize the spearing & blunt end situation); degree and potential seriousness of the hazard; bicycle and pedestrian accessibility; maintenance equipment accessibility; Right-of-Way availability; the smallest radii the metal w-beam/thrie-beam railing can be constructed (check with supplier/contractor); posted speed limit; angle of vehicle impact; and aesthetics when designing the Type "G" Modified End Terminal.

During construction, the Contractor shall layout the proposed Type "G" Modified End Terminal and receive approval from the Construction Engineer prior to installation.

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

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APRIL 30, 2016
WILSON OKAMOTO CORPORATION LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

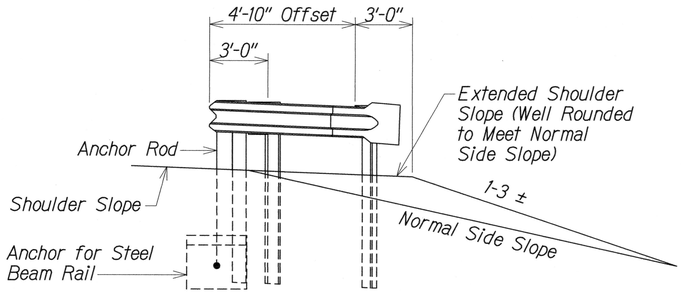
GUARDRAIL DETAILS

HANA HIGHWAY
IMPROVEMENTS, PHASE 2B
Huelo to Hana
Project No. 360AB-01-16

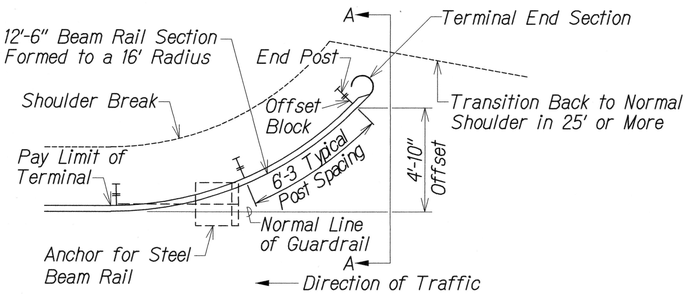
Scale: Date: March 2016

SHEET No. GRD-5 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-16	2016	15	59

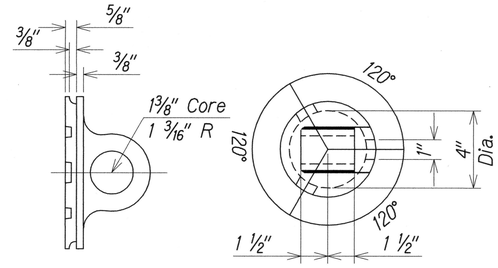


SECTION A-A



APPROACH END DETAIL

(APPROVED FOR USE WHERE V < 45 MPH)



ANCHOR ROD CONNECTOR

(MALLEABLE IRON CASTING OR EQUAL)

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

BRIAN A. LOCK
LICENSED PROFESSIONAL ENGINEER
No. 9867-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

WILSON OKAMOTO CORPORATION — APRIL 30, 2016 LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

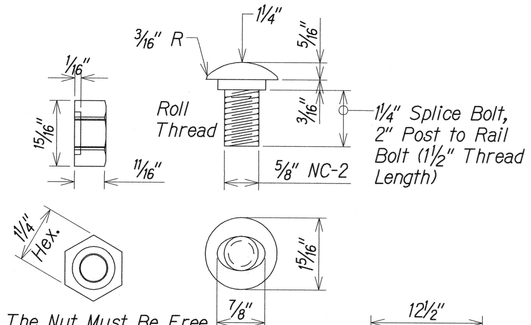
MODIFIED TYPE "G" TERMINAL END

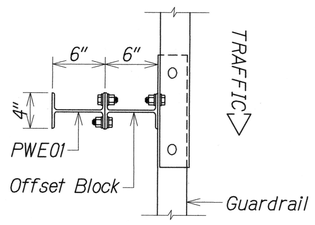
HANA HIGHWAY
IMPROVEMENTS, PHASE 2B
Huelo to Hana
Project No. 360AB-01-16

Scale: Date: March 2016

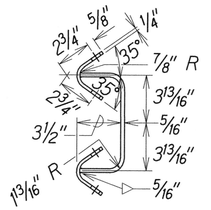
SHEET No. GRD-6 OF 11 SHEETS

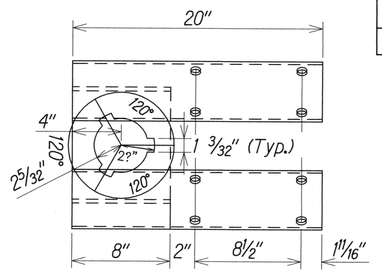
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-16	2016	16	59



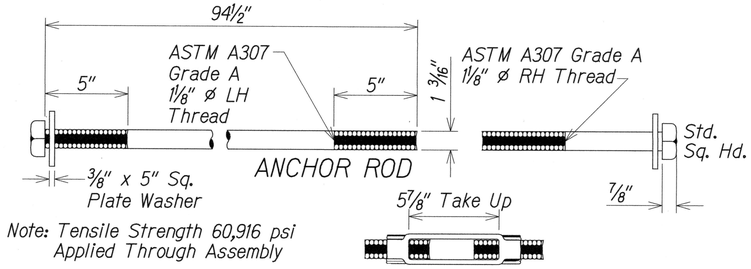


PLAN

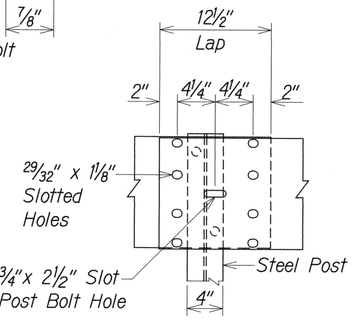




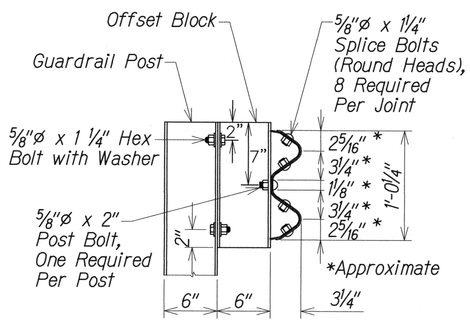
ANCHOR SPIDER
(WELDMENT)



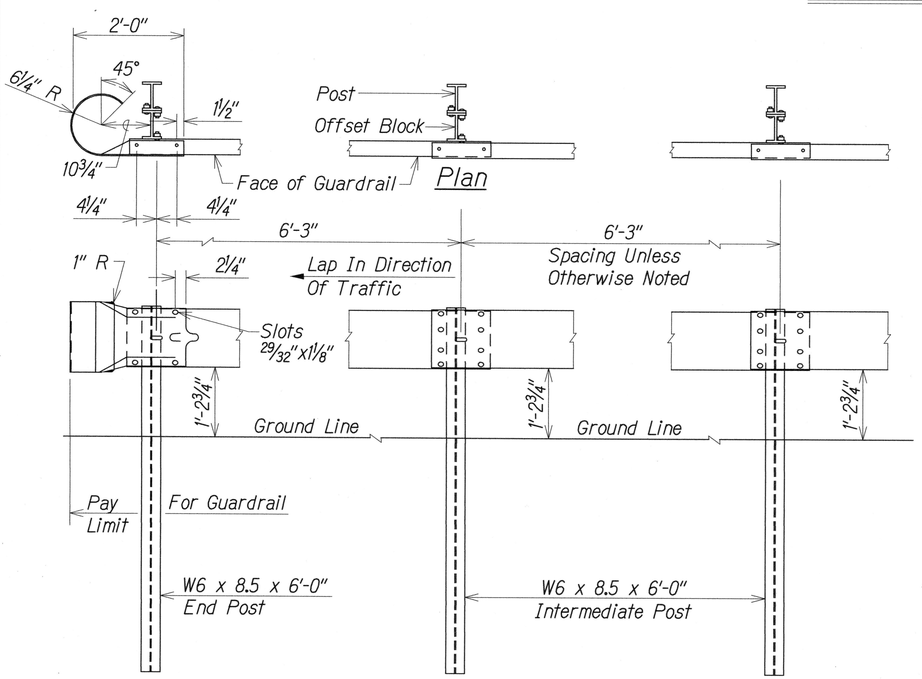
Note: Tensile Strength 60,916 psi Applied Through Assembly



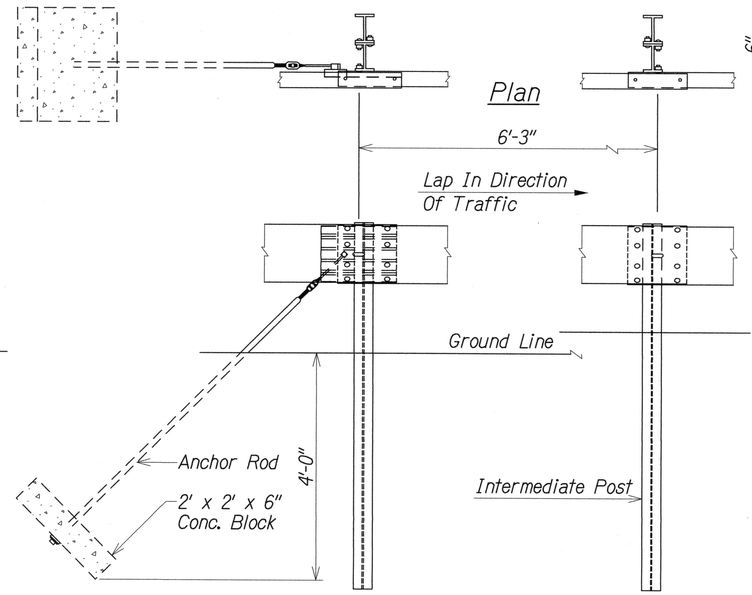
ELEVATION OF GUARDAIL SPLICE AT POST



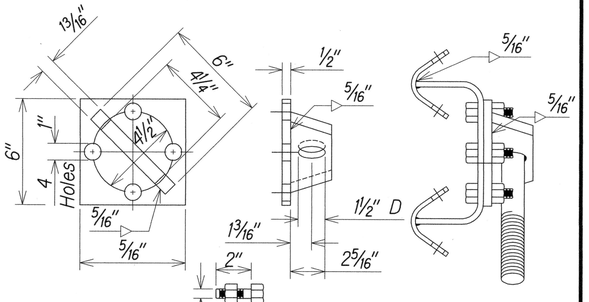
CROSS SECTION
GUARDRAIL SPLICE



ASSEMBLY ELEVATION



ANCHOR FOR STEEL BEAM RAIL



ALTERNATE ANCHOR ROD CONNECTOR

BRIAN A. LOCK
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APRIL 30, 2016
WILSON OKAMOTO CORPORATION LIC. EXP. DATE

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

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

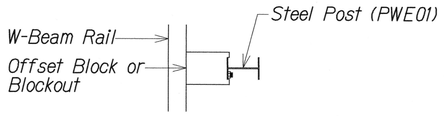
MODIFIED TYPE "G" TERMINAL END

HANA HIGHWAY
IMPROVEMENTS, PHASE 2B
Huelo to Hana
Project No. 360AB-01-16

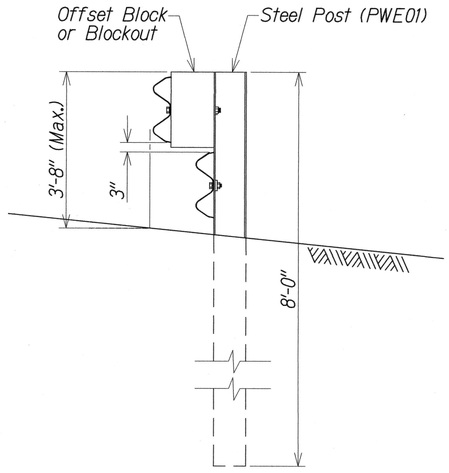
Scale: Date: March 2016

SHEET No. GRD-7 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-16	2016	17	59

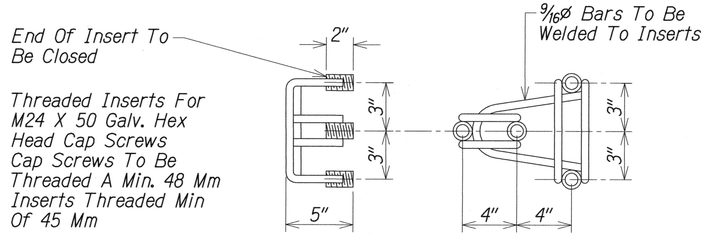


Plan

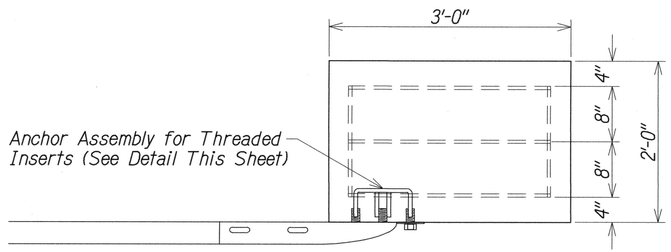


Elevation

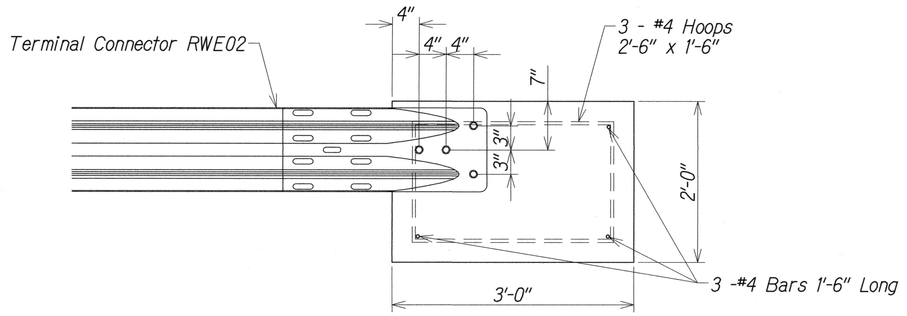
STEEL POST GUARDRAIL WITH RUBRAIL



ANCHOR ASSEMBLY CONCRETE BLOCK ANCHOR



Plan



Elevation

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.

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STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

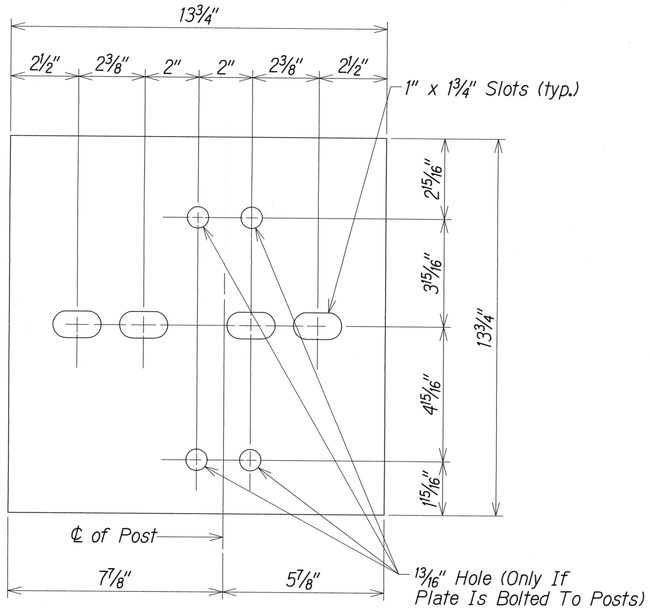
TYPE "A"
GUARDRAIL DETAILS
HANA HIGHWAY
IMPROVEMENTS, PHASE 2B
Huelo to Hana
Project No. 360AB-01-16

Scale: Date: March 2016

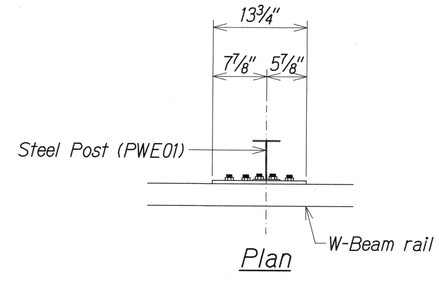
SHEET No. GRD-8 OF 11 SHEETS

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

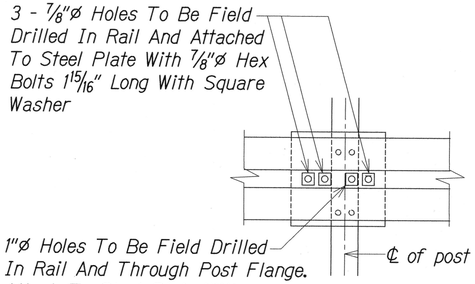
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-16	2016	18	59



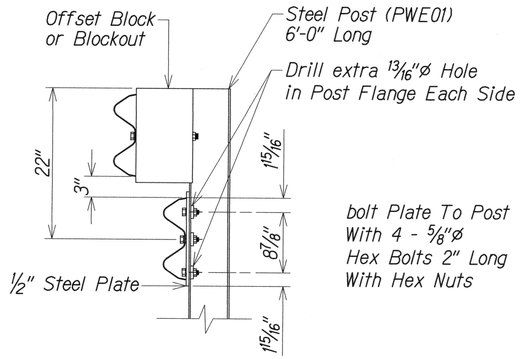
Steel Plate - ½"
(Hot-dip Zinc Coated Galvanized Welded or Bolted to Post)



Plan

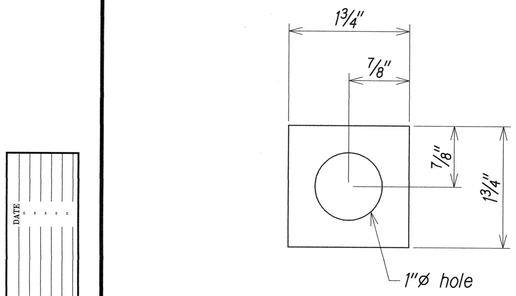


Front View

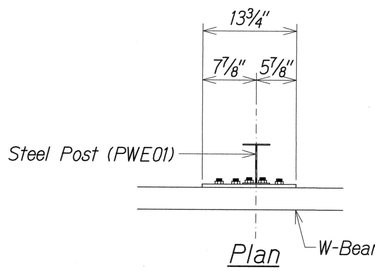


Elevation

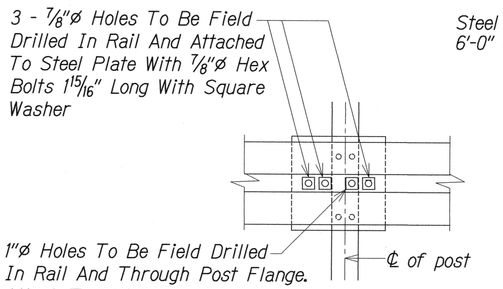
RUBRAIL ANCHOR DETAILS



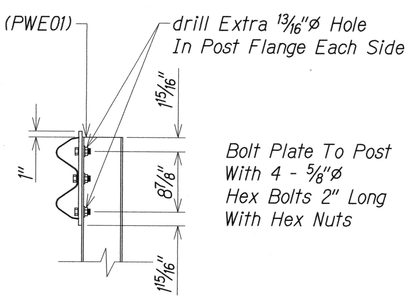
Square Washer
(3⁄16" Thick - Hot-dip Zinc Coated Galvanized)



Plan



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.

BRIAN A. LOCK
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APRIL 30, 2016
WILSON OKAMOTO CORPORATION LIC. EXP. DATE

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

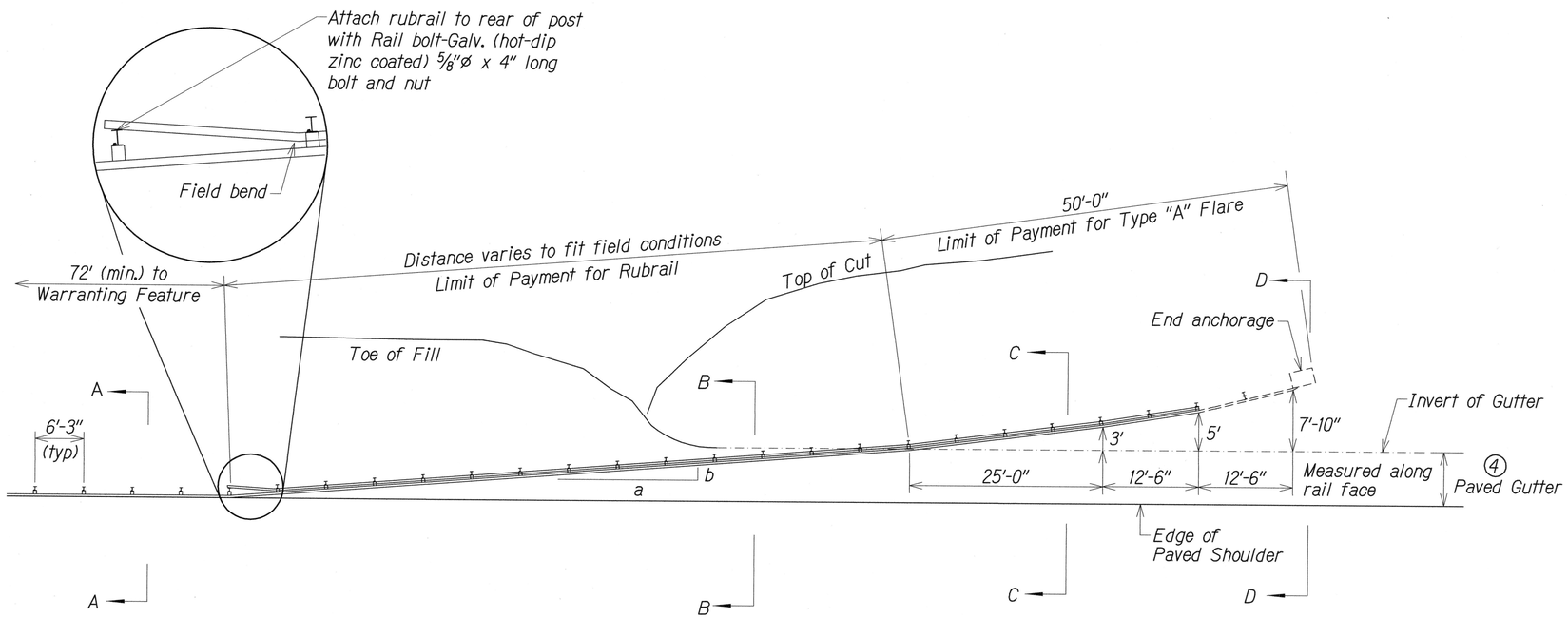
STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPE "A"
GUARDRAIL DETAILS
HANA HIGHWAY
IMPROVEMENTS, PHASE 2B
Huelo to Hana
Project No. 360AB-01-16

Scale: Date: March 2016

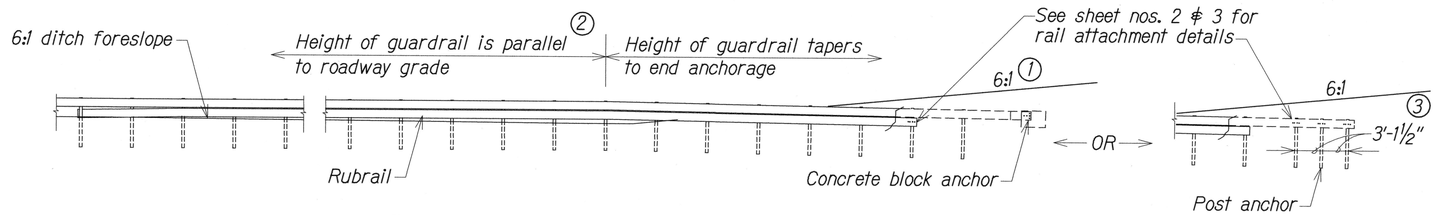
SHEET No. GRD-9 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-16	2016	19	59

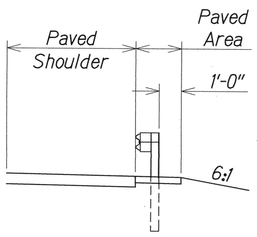


PLAN

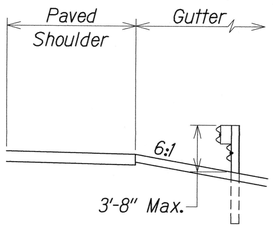
Design speed mph	a:b
68	15:1
62	13:1
56	12:1
50	11:1
43	10:1
37	9:1
31	7:1



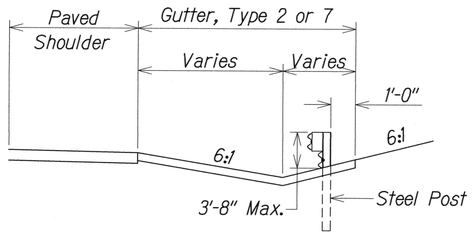
ELEVATION (Profile Along Rail)



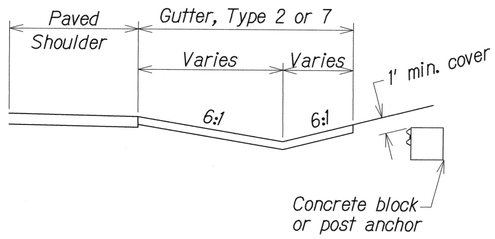
Section A-A



Section B-B
(With Rubrail)



Section C-C
(With Rubrail)



General Notes

1. A 6:1 or flatter slope is desireable. 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.

BRIAN A. LOCK LICENSED PROFESSIONAL ENGINEER No. 9867-C HAWAII, U.S.A.

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APRIL 30, 2016
WILSON OKAMOTO CORPORATION LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPE "A" GUARDRAIL DETAILS

HANA HIGHWAY IMPROVEMENTS, PHASE 2B
Huelo to Hana
Project No. 360AB-01-16

Scale: Date: March 2016

SHEET No. GRD-10 OF 11 SHEETS

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

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-16	2016	20	59

Notes

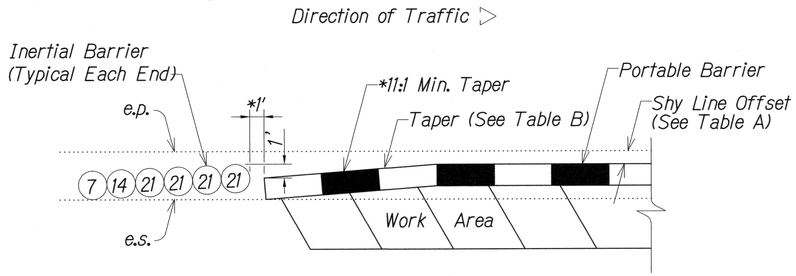
1. Typical layout will vary based on speed and manufacturer of system used. Installation shall conform to Manufacturer's recommendations..
2. Physical barriers shall be required whenever guardrails have been removed and will not be reinstalled at the end of the work day. See General Note No. 31 on Sht. N-1.
3. Physical barriers shall be portable concrete barriers.
4. Providing, transporting, placing, maintaining, relocating and removing portable concrete barriers shall be considered incidental to the various items of work. See Section 645, WORK ZONE TRAFFIC CONTROL of the Special Provisions. Upon project completion, remove and deliver portable concrete barriers to the Maui District baseyard or as instructed by the Engineer.
5. Ends of portable concrete barriers shall be hereon protected with Inertial Barriers as shown in the detail. The lead (first) inertial barrier shall have a retroreflective object marker attached to it. Furnishing and installing inertial barriers including retroreflective object markers, shall be considered incidental to the various contract items.
6. Furnishing and installing reflector markers (RM-3) over the portable barriers shall be considered incidental to the various contract items.

TABLE A
SHY LINE OFFSETS*

DESIGN SPEED (mph)	SHY LINE OFFSETS
30	3.5'
≤25	2.0'

TABLE B
MAXIMUM TAPERS FOR CONCRETE BARRIER*

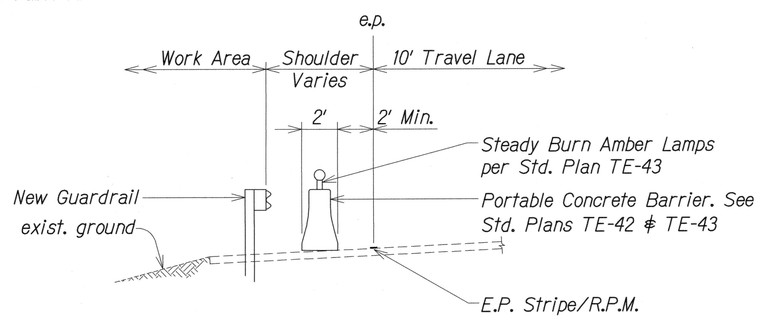
DESIGN SPEED (mph)	TAPER	
	INSIDE SHY LINE	BEYOND SHY LINE
35	15:1	9:1
≤30	13:1	8:1



Note:

The numbers inside the circle indicate weight of sand in 100 lb unit. Installation shall conform to manufacturer's recommendation.

TYPICAL DETAIL
INERTIAL BARRIER SYSTEM
Not to Scale



TYPICAL DETAIL
PORTABLE CONCRETE BARRIER
Not to Scale

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

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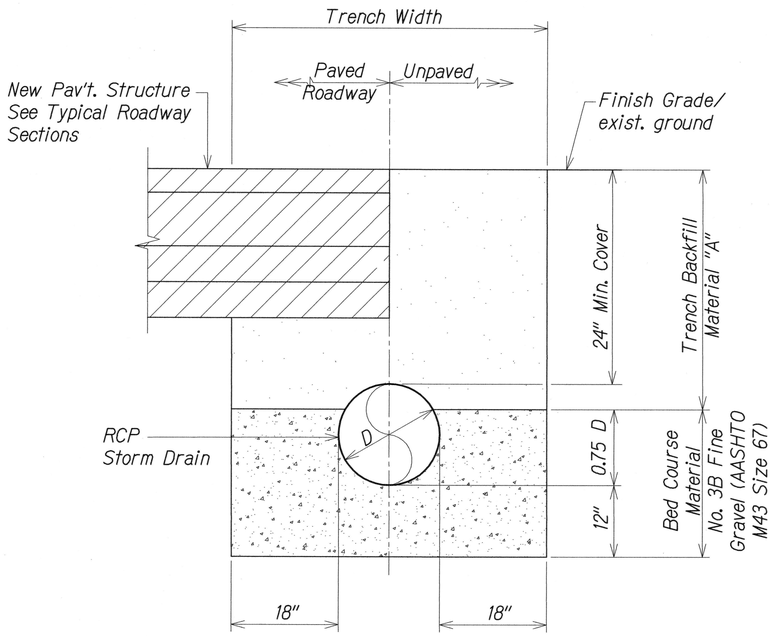
STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PORTABLE
BARRIER DETAILS
HANA HIGHWAY
IMPROVEMENTS, PHASE 2B
Huelo to Hana
Project No. 360AB-01-16
Scale:
Date: March 2016

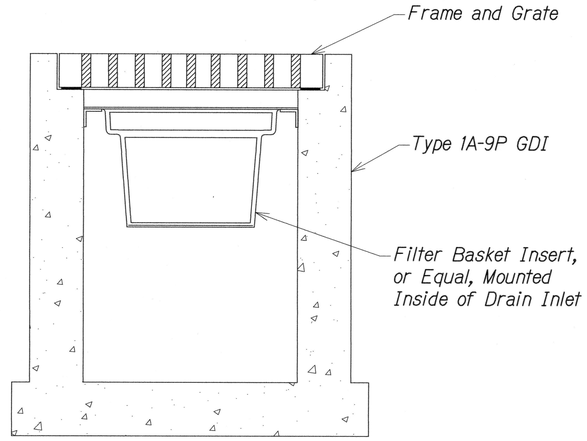
SHEET No. GRD-11 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-16	2016	21	59



TYPICAL STORM DRAIN TRENCH RESTORATION DETAIL

Not to Scale



NOTES:

1. Filter Basket Insert, or Equal, Shall:

   a. Provide Full Coverage of Inlets Such that all Influent, at Rated Flows, is Conveyed to filter.

   b. All Components, Including Mounting Hardware, Fasteners, Support Brackets, Filtration Material, and Support Frame shall be Constructed of Non-Corrosive Materials (316 Stainless Steel or UV/Marine Grade Fiberglass).

   c. Have a Service Life of 10 to 15 years and Warranted for a Minimum of Five (5) Years.

   d. Have Absorbent Media for Removal of Petroleum Hydrocarbons. Absorbent Media Shall be Easily Replaced in the Filter.

   e. Not Inhibit Storm Flows Entering the Inlet, or Obstruct Flow Through the Drain Inlet. Water Shall not Bypass the Filter at Low Flows.

   f. Capture Trash and Litter, Grass and Foliage, Sediments, Hydrocarbons, Grease and Oil.

POLLUTANT	MINIMUM REMOVAL EFFICIENCY
Trash & Litter, Sediments/TSS, Organics	80%
Oil & Grease, Total Nitrogen, Total Phosphorus	60%

   g. Prevent Washout of Debris and Floatables in the Filter.

   h. Be Readily Removable from the Mounting/Support Frame for Maintenance or Replacement. Refer to Manufacturers Recommendations for Maintenance Program.

FILTER BASKET INSERT DETAIL

Not to Scale

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

BRIAN A. LOCK
LICENSED PROFESSIONAL ENGINEER
No. 9867-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

APRIL 30, 2016
WILSON OKAMOTO CORPORATION LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

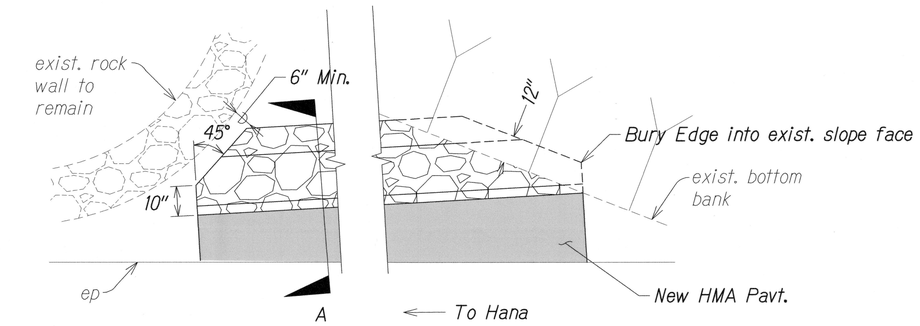
MISCELLANEOUS DETAILS

HANA HIGHWAY
IMPROVEMENTS, PHASE 2B
Huelo to Hana
Project No. 360AB-01-16

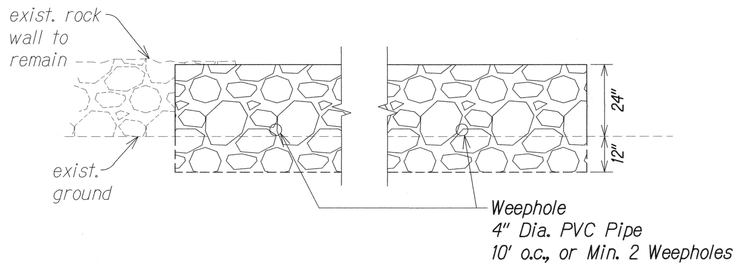
Scale: None Date: March 2016

SHEET No. DET-1 OF 2 SHEETS

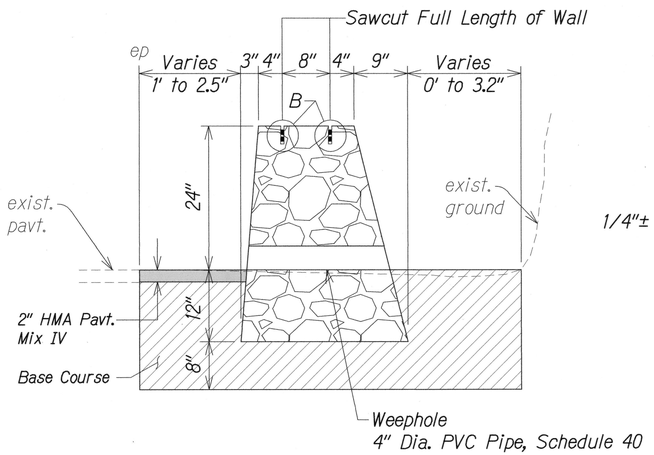
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	360AB-01-16	2016	22	59



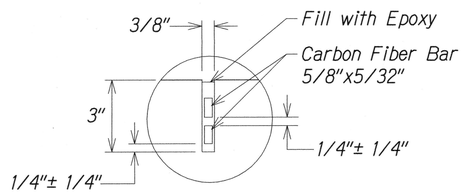
PLAN



ELEVATION



SECTION "A"



"B"

A
RP-5 DET-2

CEMENT RUBBLE MASONRY WALL DETAIL

Not to Scale

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

BRIAN A. LOCK
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APRIL 30, 2016
WILSON OKAMOTO CORPORATION LIC. EXP. DATE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DETAILS

HANA HIGHWAY
IMPROVEMENTS, PHASE 2B
Huelo to Hana
Project No. 360AB-01-16

Scale: None Date: March 2016

SHEET No. DET-2 OF 2 SHEETS