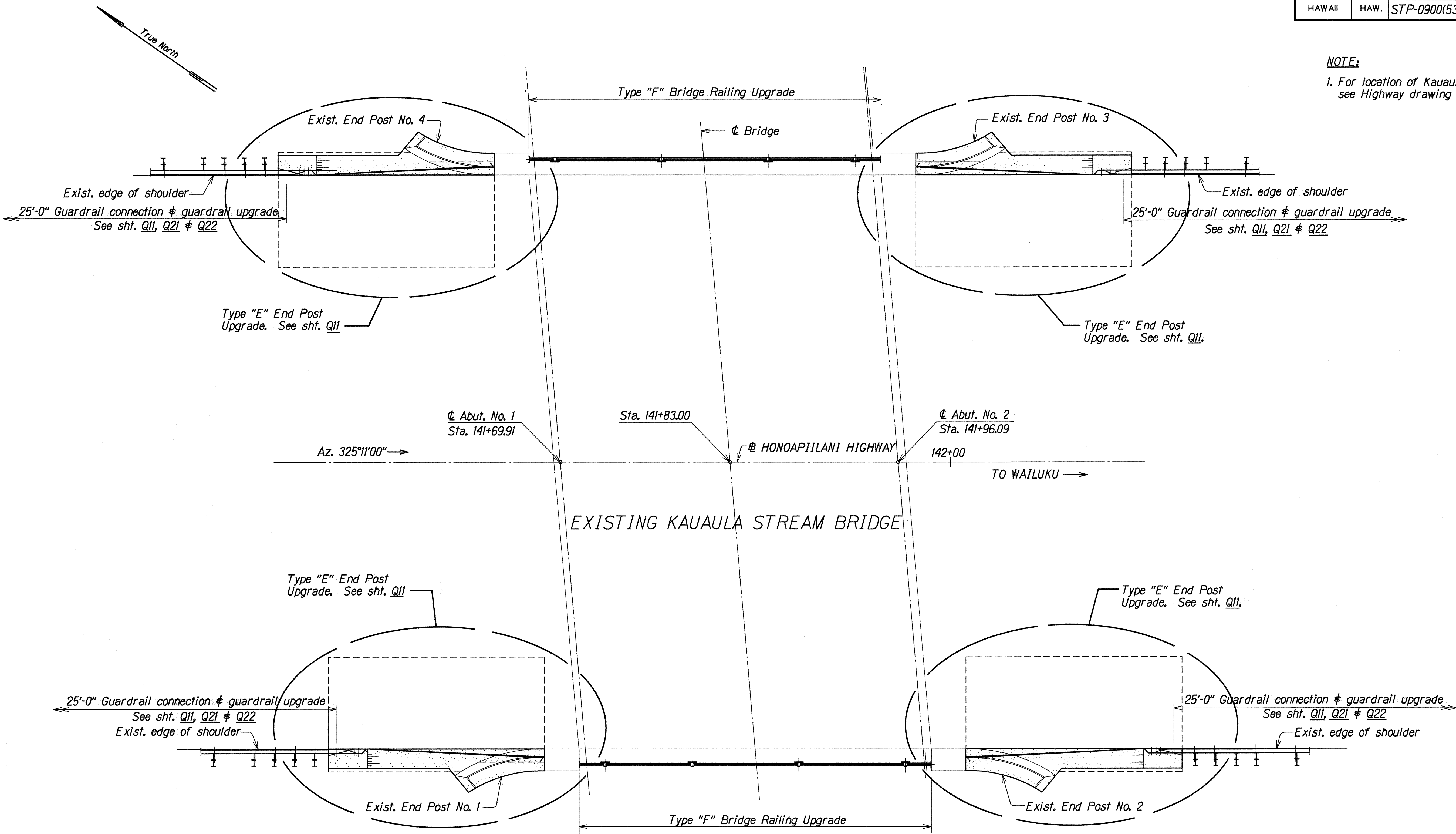


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0900(53)	2000	50	73

NOTE:
1. For location of Kauaula Stream Bridge see Highway drawing sht. No. 33



LAYOUT PLAN
Scale: 1/4" = 1'-0"

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	MAY 1999
DRAWN BY	LWA
TRACED BY	IFU
NOTED BY	IFU
QUANTITIES BY	IFU
CHECKED BY	DOO
DATE	MAY 1999

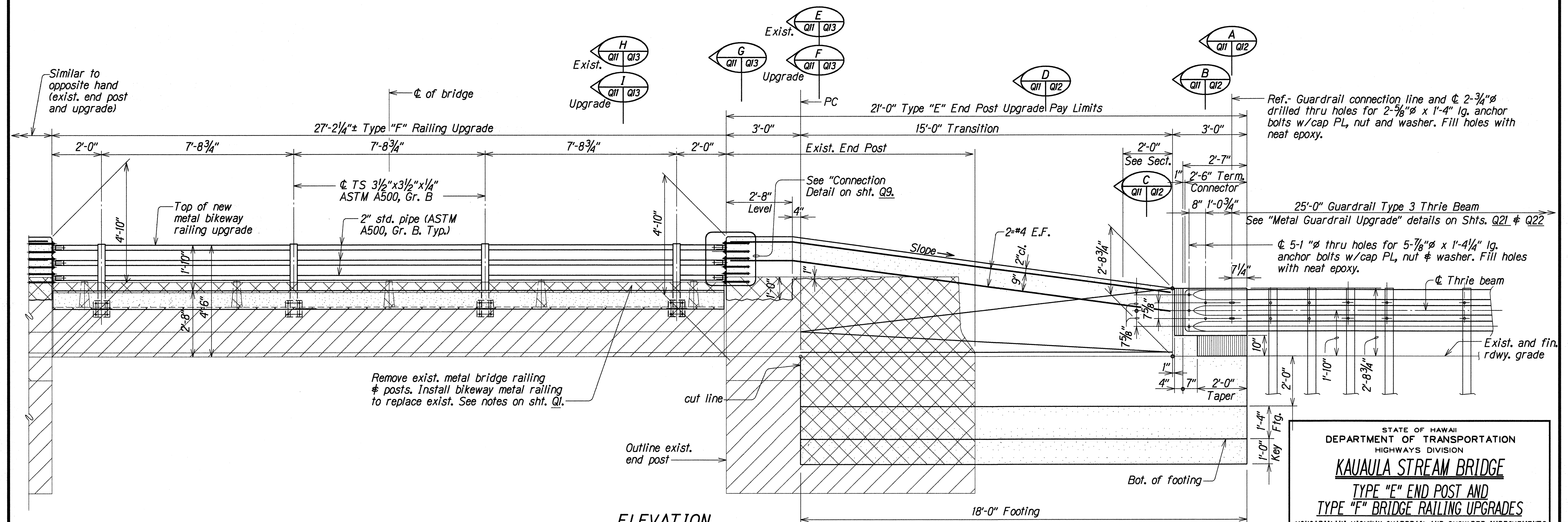
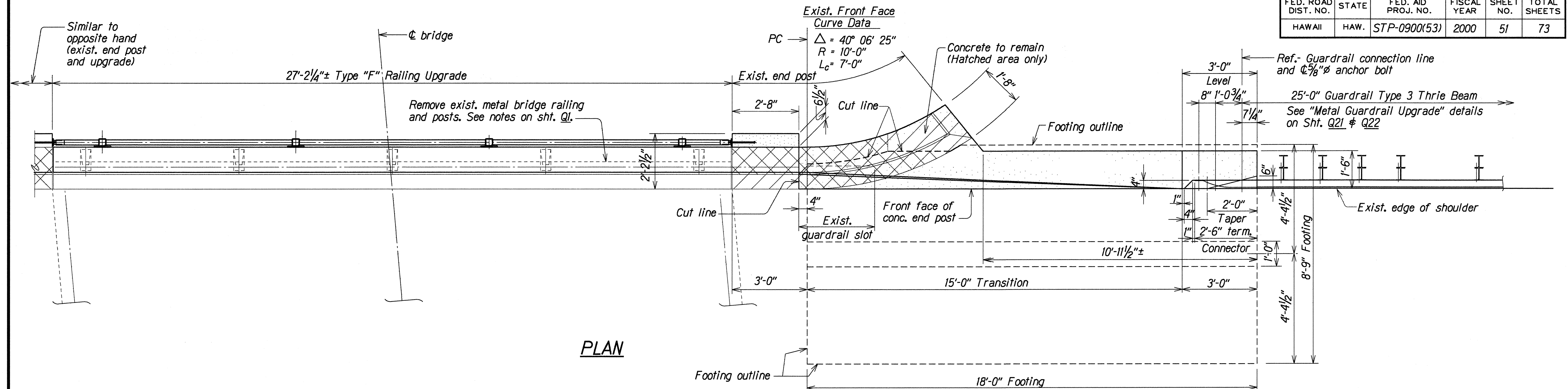
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

Kauaula Stream Bridge
LAYOUT PLAN

Honoapiilani Highway Guardrail and Shoulder Improvements
High Street to Puamana
Federal Aid Project No. STP-0900(53)
Scale: As Noted Date: May 1999

SHEET No. 010 OF 22 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0900(53)	2000	51	73



TYPE "E" END POST AND TYPE "F" BRIDGE RAILING UPGRADE

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

ORIGINAL PLAN	DATE	NOV. 1999
DRAWN BY	LWA	
NOTED BY	JFU	
CHECKED BY	DKO	
DATE	NOV. 1999	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KAUAAULA STREAM BRIDGE

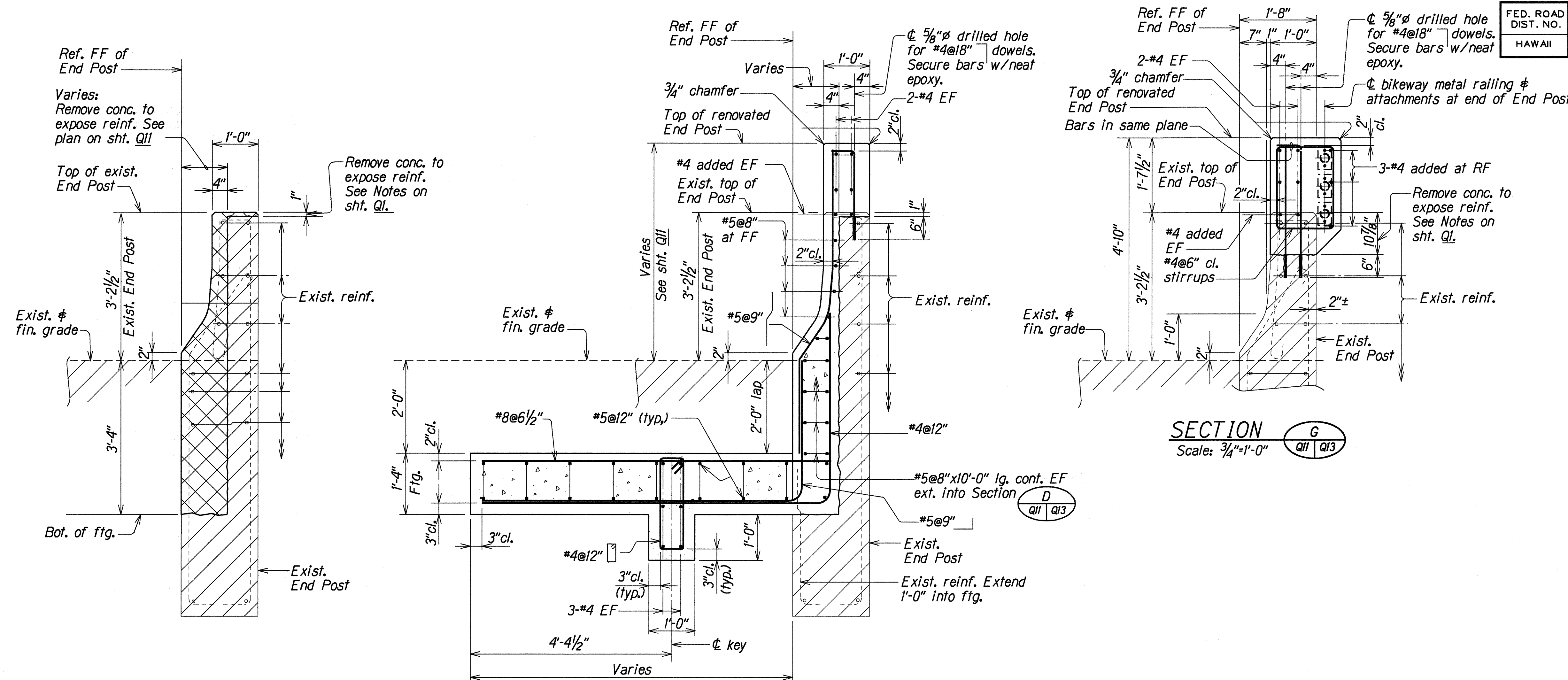
TYPE "E" END POST AND
TYPE "F" BRIDGE RAILING UPGRADES

HONAPIILANI HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS
High Street to Puamano
Federal Aid Project No. STP-0900(53)

Scale: As Noted Date: May 1999

SHEET No. Q11 OF 22 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0900(53)	2000	53	73



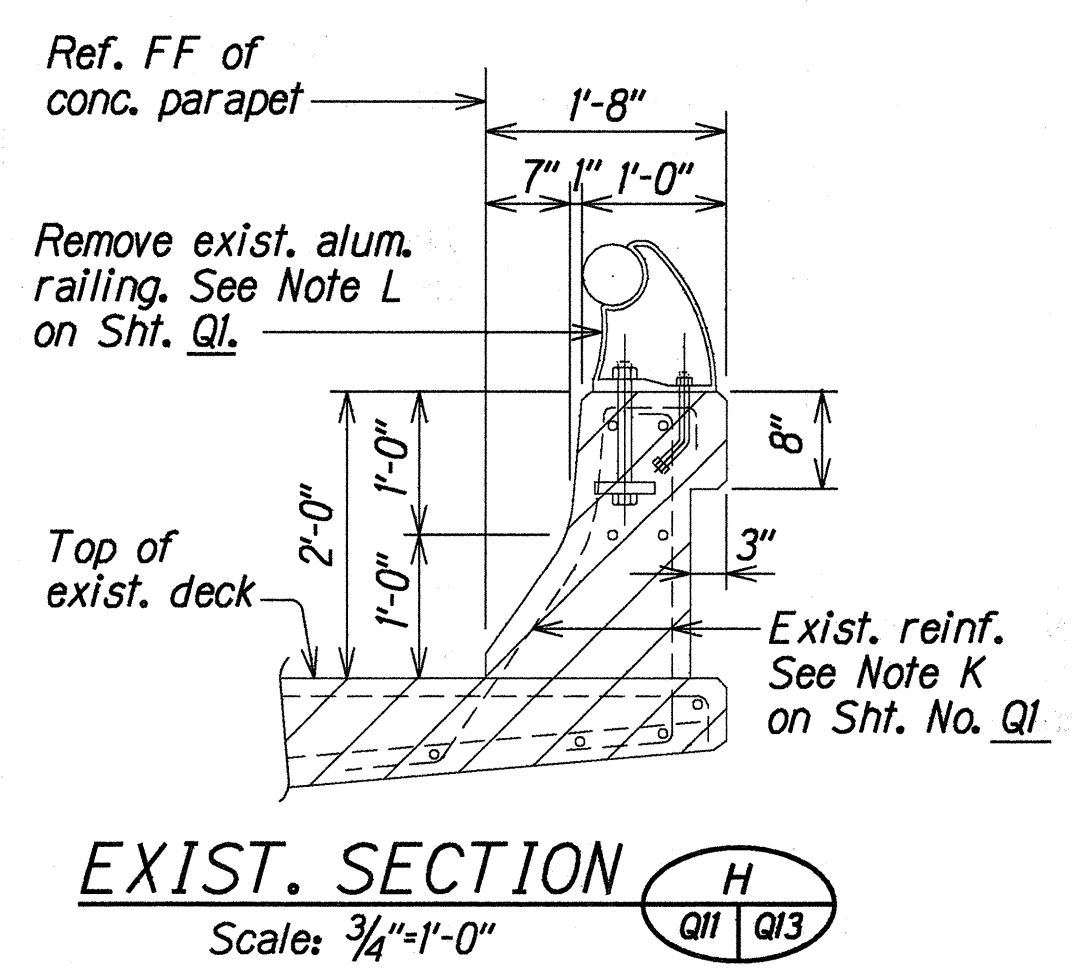
CONCRETE REMOVAL

SECTION E
Scale: 3/4"=1'-0"

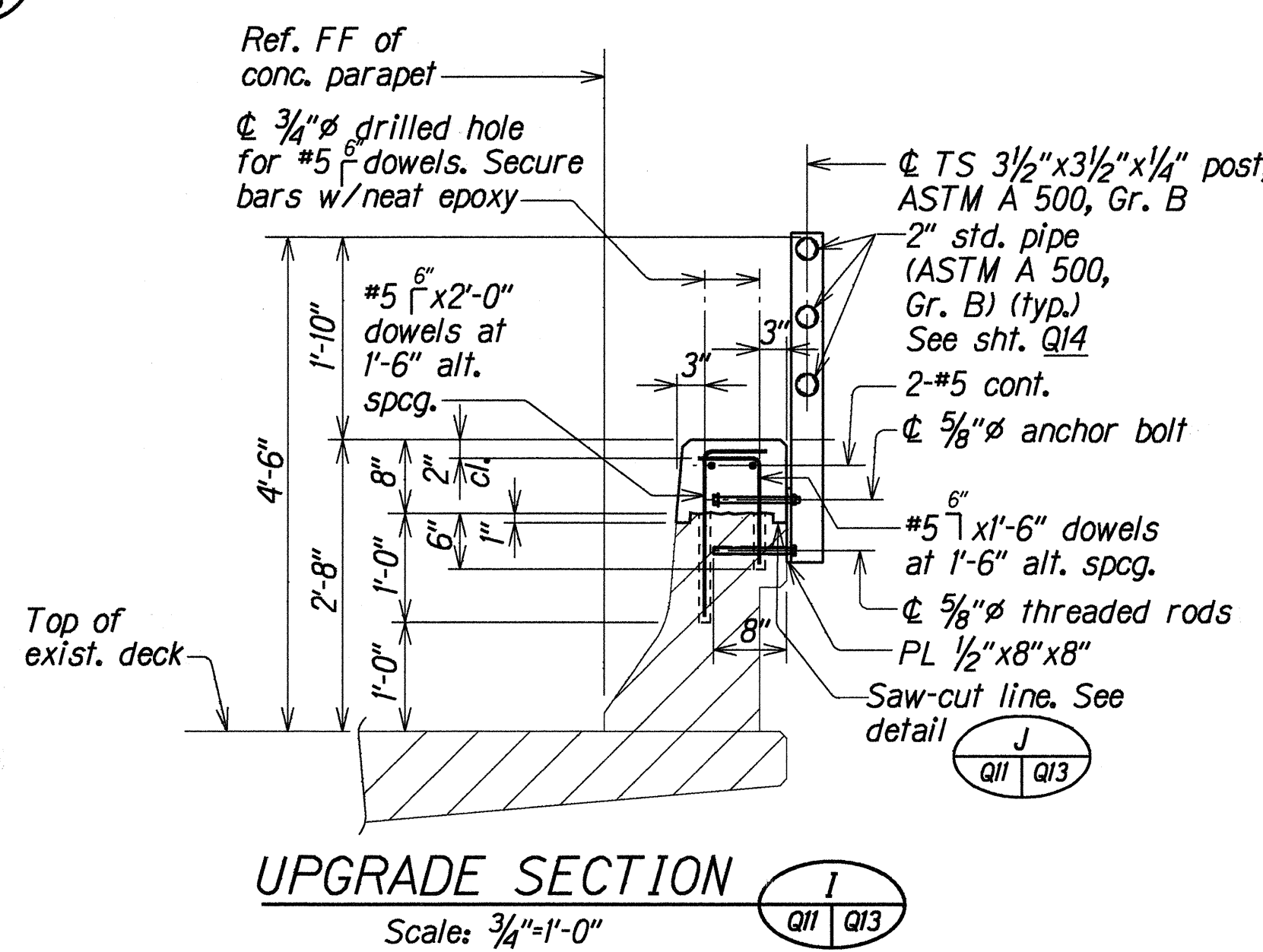
NEW CONCRETE

SECTION F
Scale: 3/4"=1'-0"

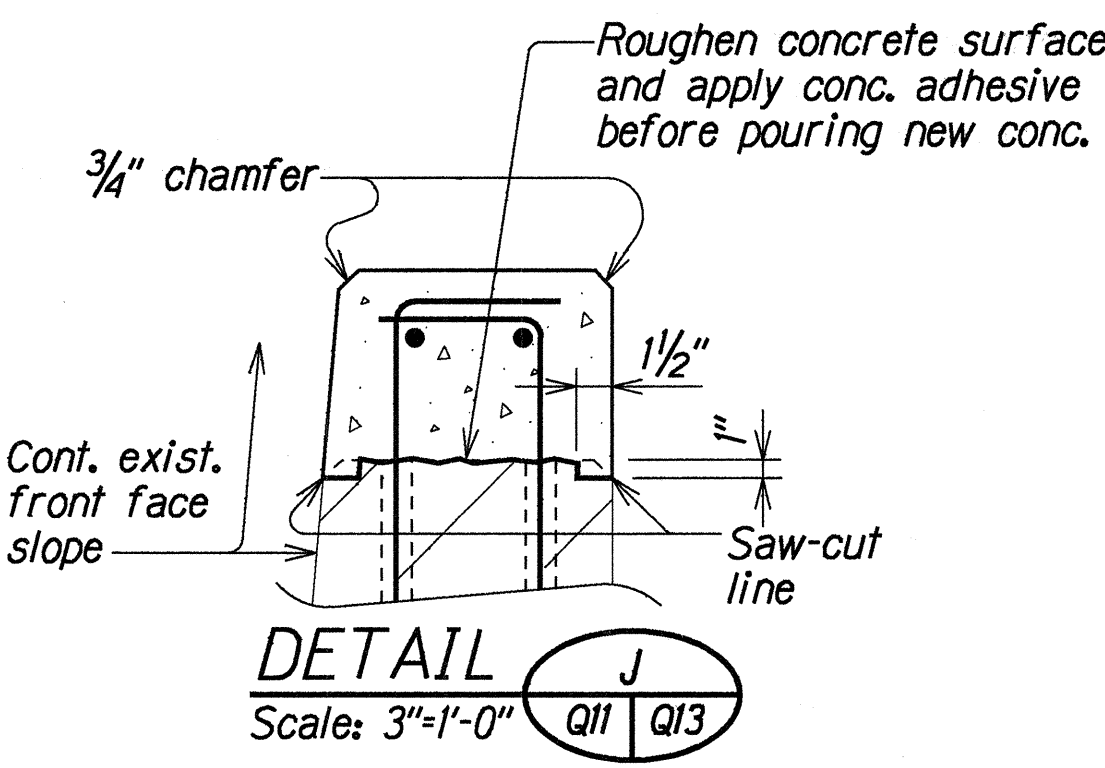
SECTION G
Scale: 3/4"=1'-0"



EXIST. SECTION H
Scale: 3/4"=1'-0"



UPGRADE SECTION I
Scale: 3/4"=1'-0"



DETAIL J
Scale: 3"=1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KAUOLA STREAM BRIDGE
TYPE "E" END POST AND
TYPE "F" BRIDGE RAILING UPGRADES
HONOAPIILANI HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS
High Street to Puamano
Federal Aid Project No. STP-0900(53)
Scale: As Noted Date: May 1999

The image contains two technical drawings of a railing system, labeled SECTION A and ELEVATION A.

SECTION A: This is a cross-sectional view of the railing. It shows a vertical post with a 1/2" X pipe (ASTM A 500 Gr. B, typ.) attached to a concrete wall. The post has a 3/4" chamfer (typ.) at the top. The wall has a 1/8" gap between the post and the concrete. The post is anchored with 2-1/2" x 1'-0" lg. anchor bolts (typ.) into the wall. The wall has a 3/4" chamfer (typ.) at the top. The post is attached to the wall with a PL 3/8" x 6" x 3 1/2" (typ.) plate. The post has vent holes for galvanization as required (typ.). The wall has a 1/8" gap between the post and the concrete. The post is anchored with 2-1/2" x 1'-0" lg. anchor bolts (typ.) into the wall. The wall has a 3/4" chamfer (typ.) at the top. The post is attached to the wall with a PL 3/8" x 6" x 3 1/2" (typ.) plate. The post has vent holes for galvanization as required (typ.).

ELEVATION A: This is a side view of the railing. It shows a vertical post with a 1/2" X pipe (ASTM A 500 Gr. B) attached to a concrete wall. The post has a 3/4" chamfer (typ.) at the top. The wall has a 1/8" gap between the post and the concrete. The post is anchored with 2-1/2" x 1'-0" lg. anchor bolts (typ.) into the wall. The wall has a 3/4" chamfer (typ.) at the top. The post is attached to the wall with a PL 3/8" x 6" x 3 1/2" (typ.) plate. The post has vent holes for galvanization as required (typ.). The wall has a 1/8" gap between the post and the concrete. The post is anchored with 2-1/2" x 1'-0" lg. anchor bolts (typ.) into the wall. The wall has a 3/4" chamfer (typ.) at the top. The post is attached to the wall with a PL 3/8" x 6" x 3 1/2" (typ.) plate. The post has vent holes for galvanization as required (typ.).

[illegible]

Technical drawing showing three views of a deck repair structure:

- Side Elevation (Left):**
 - Vertical dimensions: 4'-6" (to top of exist. deck), 1'-10" (to top of exist. deck), 1'-10" (to top of exist. deck), 2'-11 1/4" (to top of exist. deck).
 - Horizontal dimensions: 2 1/4" (hole diameter), 1'-7" (plate length).
 - Labels: (Typ.) 1/8" (fillet), $\varnothing$ TS 3 1/2" x 3 1/2" x 1/4" post ASTM A 500, Gr. B, $\varnothing$ 5/8" $\varnothing$ anchor bolts, $\varnothing$ PL, 5 1/2" (plate thickness), 1 1/4" (hole spacing), $\varnothing$ 5/8" $\varnothing$ threaded rods.
- Front Elevation (Right):**
 - Vertical dimensions: 1 3/4" (hole spacing), 7 1/4" (hole spacing), 7 1/4" (hole spacing), 2'-11 1/4" (to top of exist. deck).
 - Labels: $\varnothing$ 2" std. pipe (ASTM A 500, Gr. B, typ.), $\varnothing$ TS 3 1/2" x 3 1/2" x 1/4" post ASTM A 500, Gr. B.
- Detail View (Bottom Right):**
 - Horizontal dimensions: 4" (plate width), 2 3/4" (hole spacing), 2 3/4" (hole spacing), 1 1/4" (typ.) (hole spacing).
 - Vertical dimensions: 1 1/4" (typ.) (hole spacing), 2 3/4" (hole spacing), 2 3/4" (hole spacing), 4" (hole spacing), 8" (total height), 1 1/4" (typ.) (hole spacing).
 - Labels: $\varnothing$ PL 1/2" x 8" x 8", $\varnothing$ 5/8" $\varnothing$ anchor bolts, 3/16" (fillet), Bot. of PL $\neq$ post, $\varnothing$ 5/8" $\varnothing$ threaded rods.

TYPICAL SECTION
BIKEWAY METAL RAILING

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KAUAAULA STREAM BRIDGE
TYPE "F" BRIDGE RAILING UPGRADE
SECTION AND DETAILS

HONOAPIILANI HIGHWAY GUARDRAIL AND SHOULDER IMPROVEMENTS
High Street to Puamana
Federal Aid Project No. STP-0900(53)

Scale: As Noted Date: May 1999