

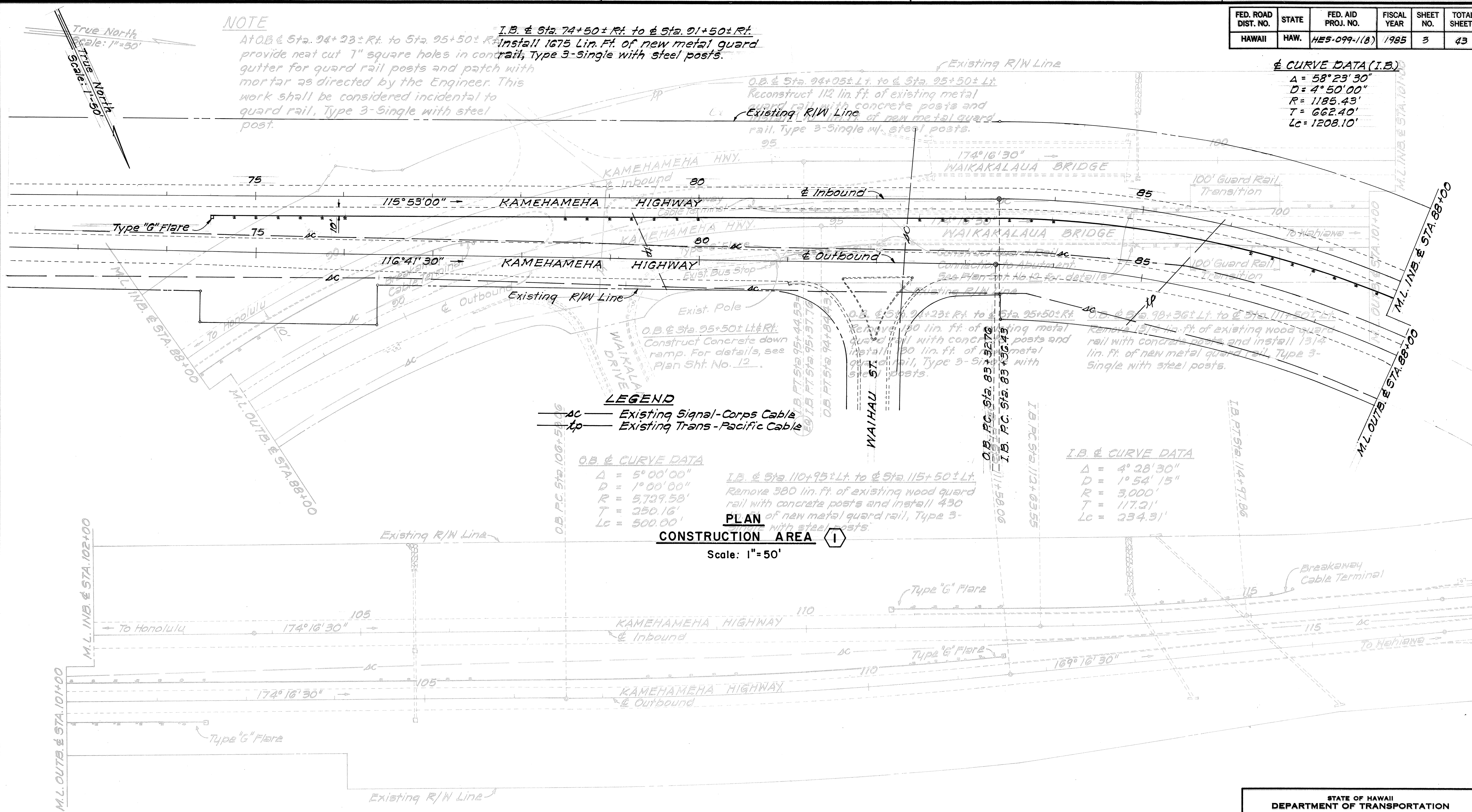
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-1(B)	1985	3	43

NOTE

I.B. @ Sta. 74+50± Rt. to @ Sta. 91+50± Rt.
 At O.B. @ Sta. 94+23± Rt. to Sta. 95+50± Rt. provide neat cut 7" square holes in concrete, install 1675 Lin. Ft. of new metal guard gutter for guard rail posts and patch with mortar as directed by the Engineer. This work shall be considered incidental to guard rail, Type 3-Single with steel post.

Curve Data (I.B.)

$\Delta = 58^{\circ}23'30''$
 $D = 4^{\circ}50'00''$
 $R = 1185.43'$
 $T = 662.40'$
 $Lc = 1208.10'$



LEGEND
 AC — Existing Signal-Corps Cable
 TP — Existing Trans-Pacific Cable

O.B. & CURVE DATA

$\Delta = 5^{\circ}00'00''$
 $D = 1^{\circ}00'00''$
 $R = 5729.58'$
 $T = 250.16'$
 $Lc = 500.00'$

I.B. @ Sta. 110+95± Lt. to @ Sta. 115+50± Lt.
 Remove 380 lin. ft. of existing wood guard rail with concrete posts and install 430 lin. ft. of new metal guard rail, Type 3-Single with steel posts.

I.B. & CURVE DATA

$\Delta = 4^{\circ}28'30''$
 $D = 1^{\circ}54'15''$
 $R = 3,000'$
 $T = 117.31'$
 $Lc = 234.31'$

PLAN CONSTRUCTION AREA 1

Scale: 1"=50'

PLAN CONSTRUCTION AREA 1

Scale: 1"=50'

O.B. @ Sta. 98+36± Rt. to @ Sta. 102+55± Rt.
 Remove 394 lin. ft. of existing wood guard rail with concrete posts and install 419 lin. ft. of new metal guard rail, Type 3-Single with steel posts.

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION

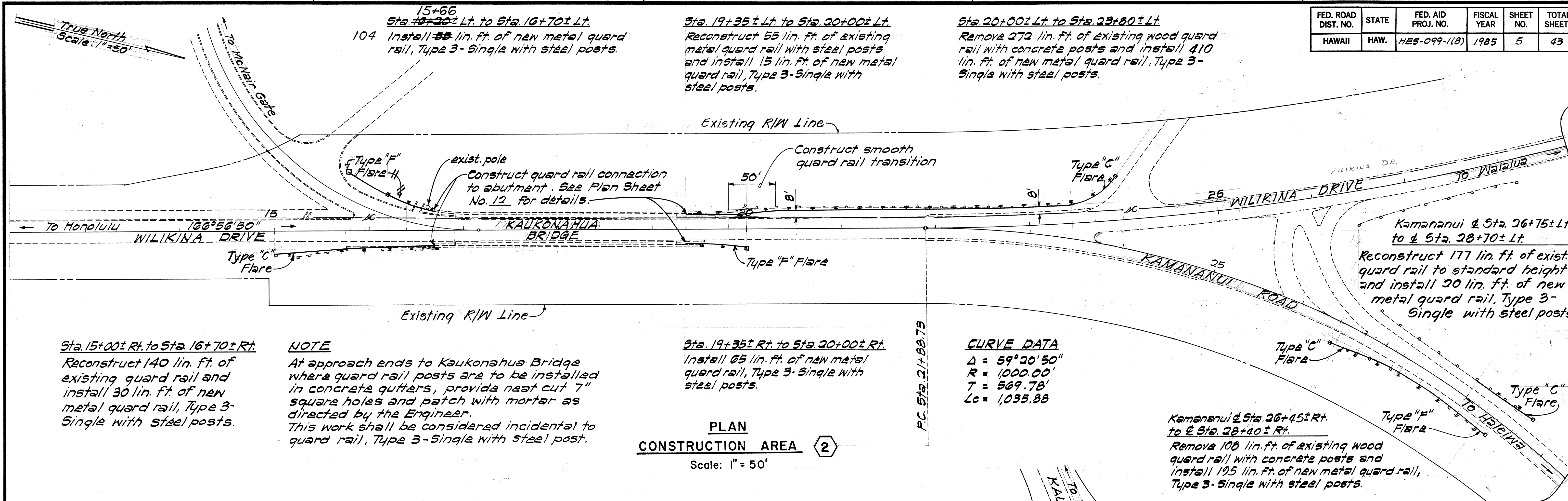
PLAN

GUARD RAIL AND SHOULDER IMPROVEMENTS ON ROUTE 99
 Mililani to Weed Junction
 FA PROJ. NO. HES-099-1(B)
 Scale: 1"=50' Date: Jan., 1985
 SHEET No. 1 OF 2 SHEETS

DATE	DESIGNED BY
DATE	CHECKED BY
DATE	DESIGNED BY
DATE	CHECKED BY
DATE	DESIGNED BY
DATE	CHECKED BY

B-74

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HE5-099-1(8)	1985	5	43



Sta. 15+00± Rt. to Sta. 16+70± Rt.
Reconstruct 140 lin. ft. of existing guard rail and install 30 lin. ft. of new metal guard rail, Type 3-Single with steel posts.

NOTE
At approach ends to Kaukonahua Bridge where guard rail posts are to be installed in concrete gutters, provide neat cut 7" square holes and patch with mortar as directed by the Engineer. This work shall be considered incidental to guard rail, Type 3-Single with steel post.

Sta. 19+35± Rt. to Sta. 20+00± Rt.
Install 65 lin. ft. of new metal guard rail, Type 3-Single with steel posts.

CURVE DATA
Δ = 59°20'50"
R = 1,000.00'
T = 569.78'
Lc = 1,035.88

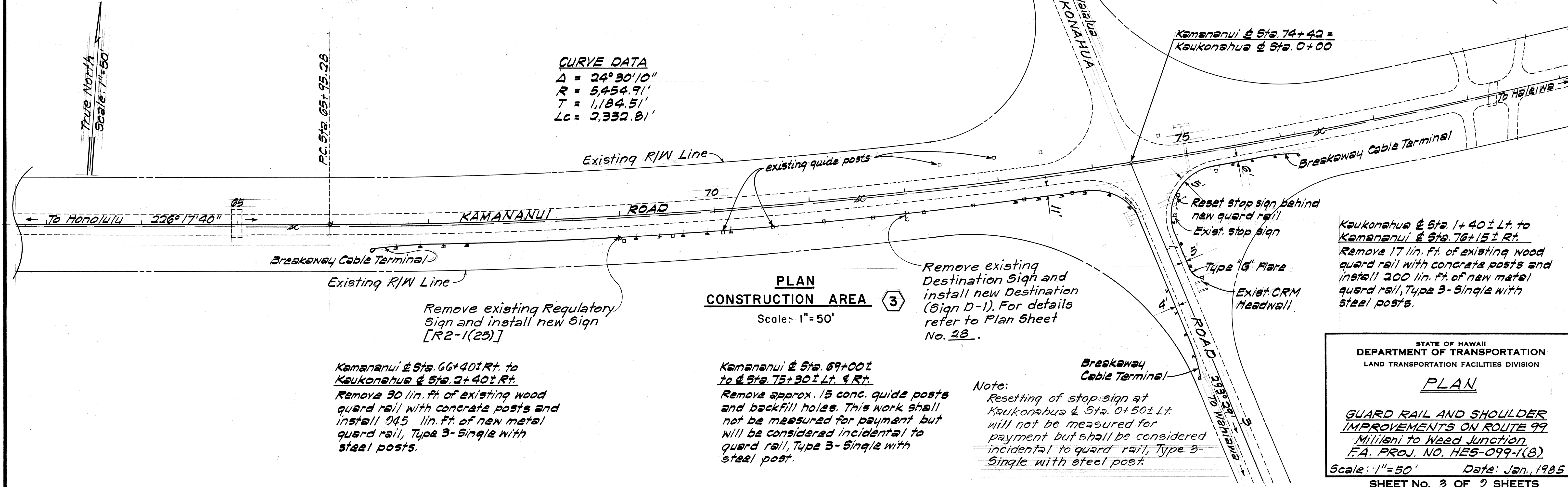
PLAN CONSTRUCTION AREA 2
Scale: 1" = 50'

CURVE DATA
Δ = 24°30'10"
R = 5,454.91'
T = 1,184.51'
Lc = 2,332.81'

Kamananui & Sta. 26+45± Rt. to & Sta. 28+70± Lt.
Remove 108 lin. ft. of existing wood guard rail with concrete posts and install 195 lin. ft. of new metal guard rail, Type 3-Single with steel posts.

Kamananui & Sta. 74+42 =
Kaukonahua & Sta. 0+00

Kaukonahua & Sta. 1+40± Lt. to Kamananui & Sta. 76+15± Rt.
Remove 17 lin. ft. of existing wood guard rail with concrete posts and install 300 lin. ft. of new metal guard rail, Type 3-Single with steel posts.



Kamananui & Sta. 66+40± Rt. to Kaukonahua & Sta. 2+40± Rt.
Remove 30 lin. ft. of existing wood guard rail with concrete posts and install 94.5 lin. ft. of new metal guard rail, Type 3-Single with steel posts.

Kamananui & Sta. 69+00± to & Sta. 75+30± Lt. & Rt.
Remove approx. 15 conc. guide posts and backfill holes. This work shall not be measured for payment but will be considered incidental to guard rail, Type 3-Single with steel post.

Remove existing Destination Sign and install new Destination (Sign D-1). For details refer to Plan Sheet No. 28.

Note:
Resetting of stop sign at Kaukonahua & Sta. 0+50± Lt. will not be measured for payment but shall be considered incidental to guard rail, Type 3-Single with steel post.

PLAN CONSTRUCTION AREA 3
Scale: 1" = 50'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

PLAN

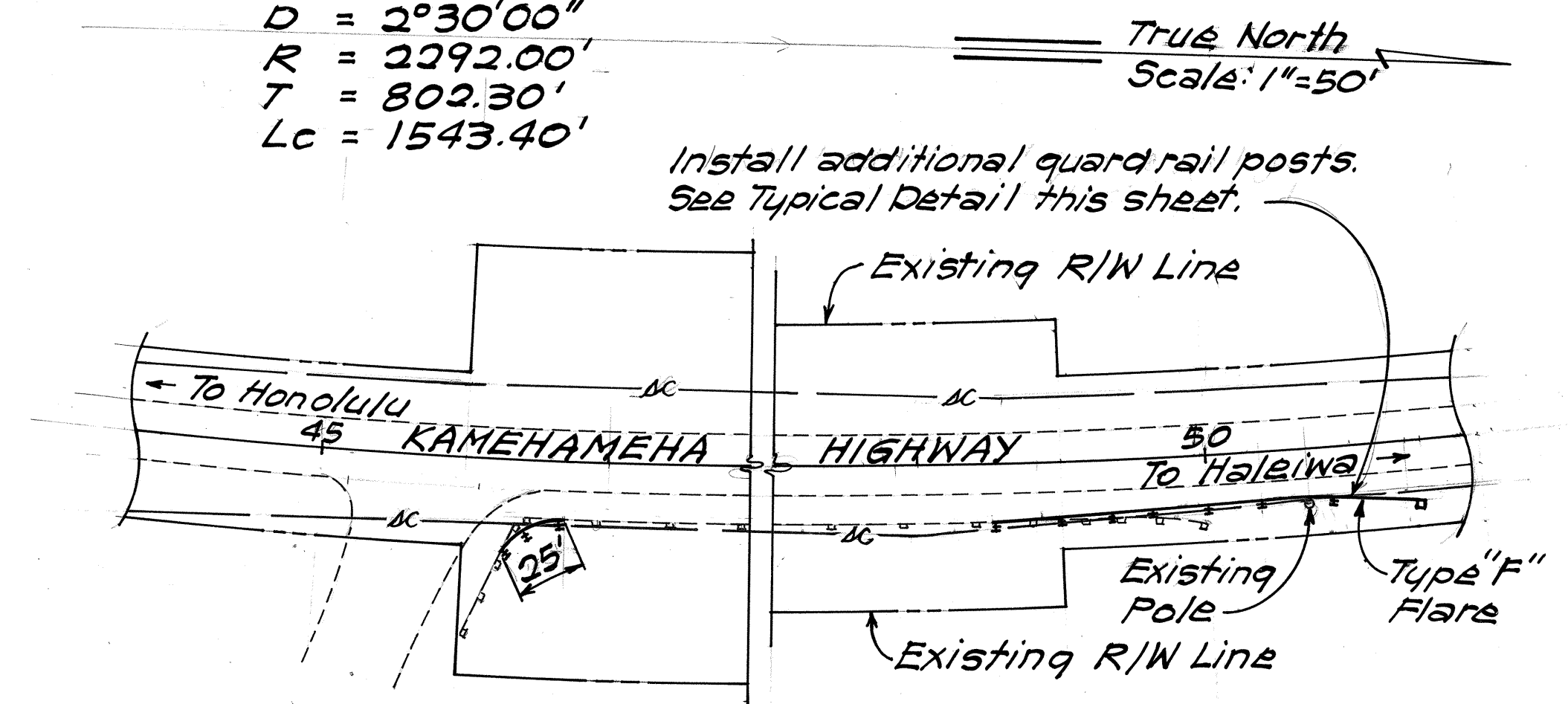
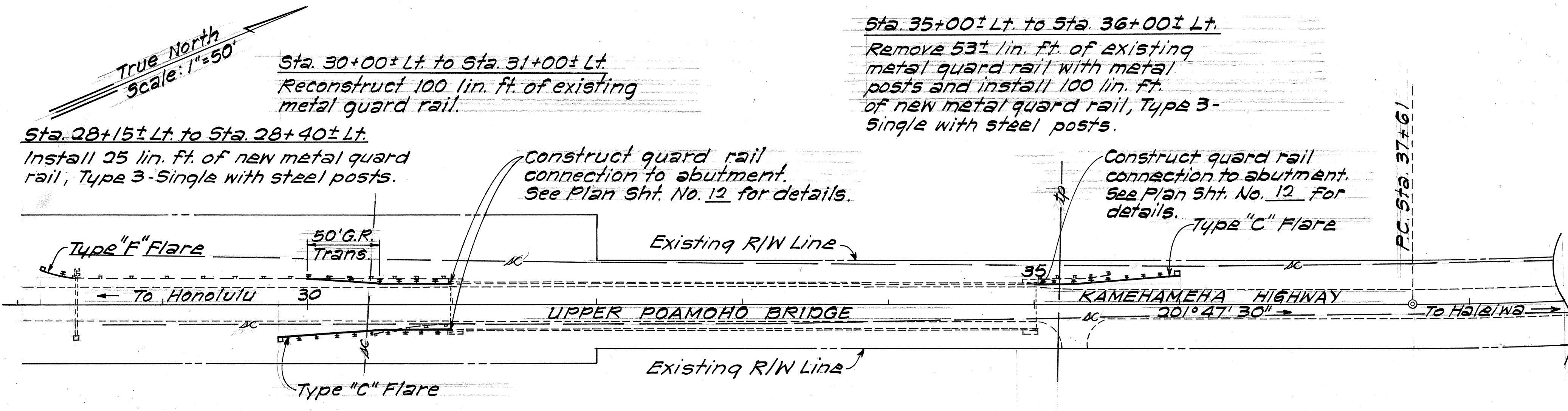
GUARD RAIL AND SHOULDER IMPROVEMENTS ON ROUTE 99 Mililani to Weed Junction, FA. PROJ. NO. HE5-099-1(8)

Scale: 1" = 50' Date: Jan., 1985
SHEET NO. 3 OF 2 SHEETS

DATE	
SURVEY PLOTTED BY	
DRAWN BY	
CHECKED BY	
NOTE BOOK	
NO.	

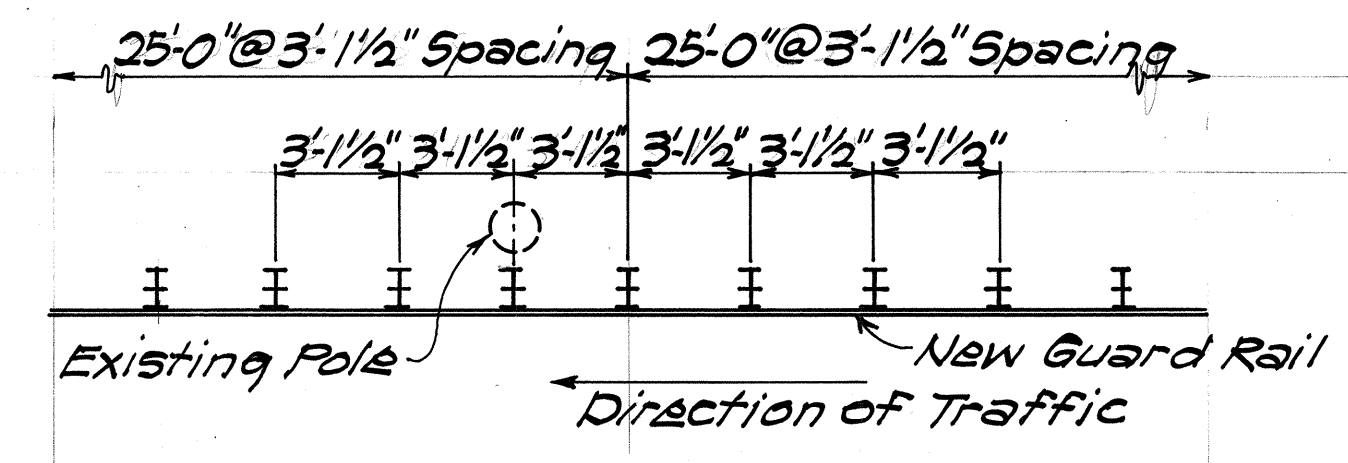
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-1(8)	1985	6	43

CURVE DATA
 $\Delta = 38^{\circ}35'00''$
 $D = 2^{\circ}30'00''$
 $R = 2292.00'$
 $T = 802.30'$
 $Lc = 1543.40'$



Sta. 29+80± Rt. to Sta. 31+00± Rt.
 Remove 52± lin. ft. of existing metal guard rail with metal posts and install 120 lin. ft. of new metal guard rail, Type 3-Single with steel posts.

PLAN CONSTRUCTION AREA 4
 Scale: 1"=50'



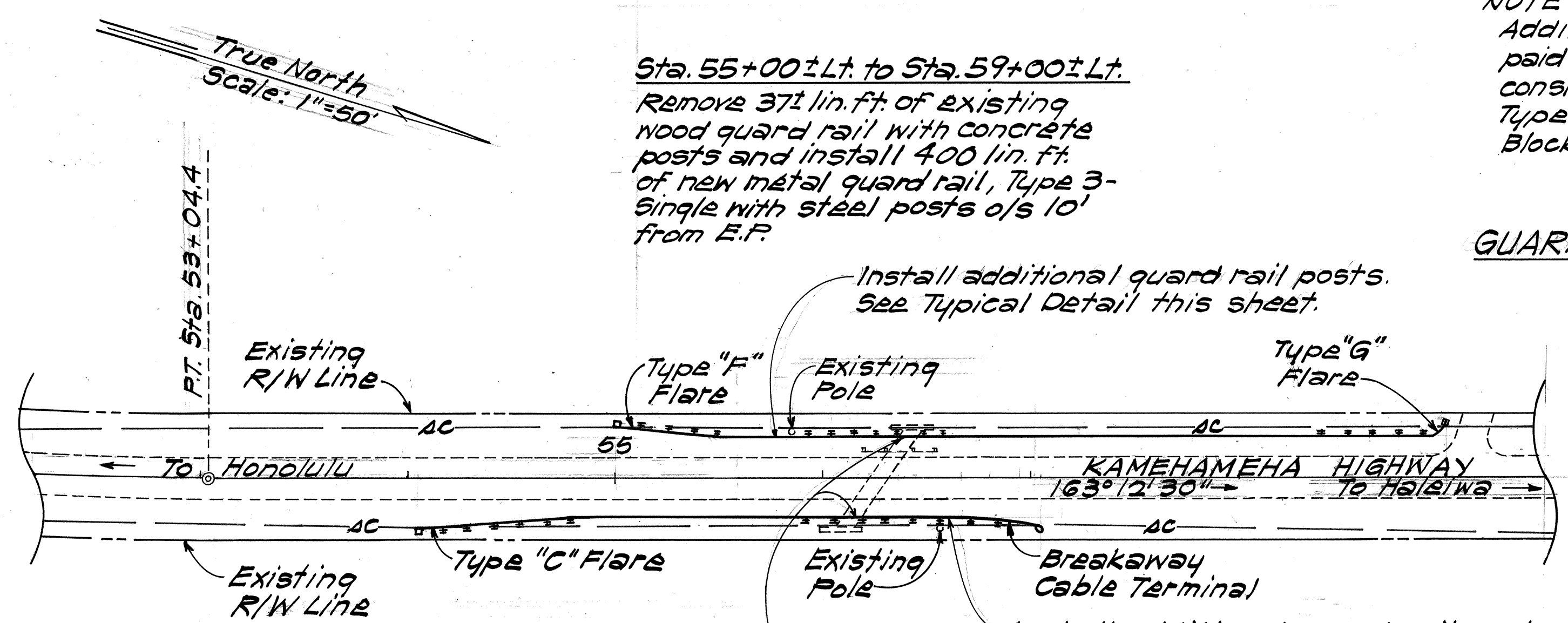
NOTE:
 Additional guard rail posts will not be paid for separately but shall be considered incidental to Guard Rail, Type 3-Single with Adjustable Space Block and Steel Post.

TYPICAL DETAIL GUARD RAIL POST SPACING AT OBSTRUCTION
 Scale: 1"=5'

Sta. 45+60± Rt. to Sta. 45+80± Rt.
 Remove 25 lin. ft. of existing metal guard rail w/ metal posts and install 25 lin. ft. of new metal guard rail, Type 3-Single with steel posts.

Sta. 49+25± Rt. to Sta. 50+75± Rt.
 Reconstruct 75 lin. ft. of existing metal guard rail and install 75 lin. ft. of new metal guard rail, Type 3-Single with steel posts.

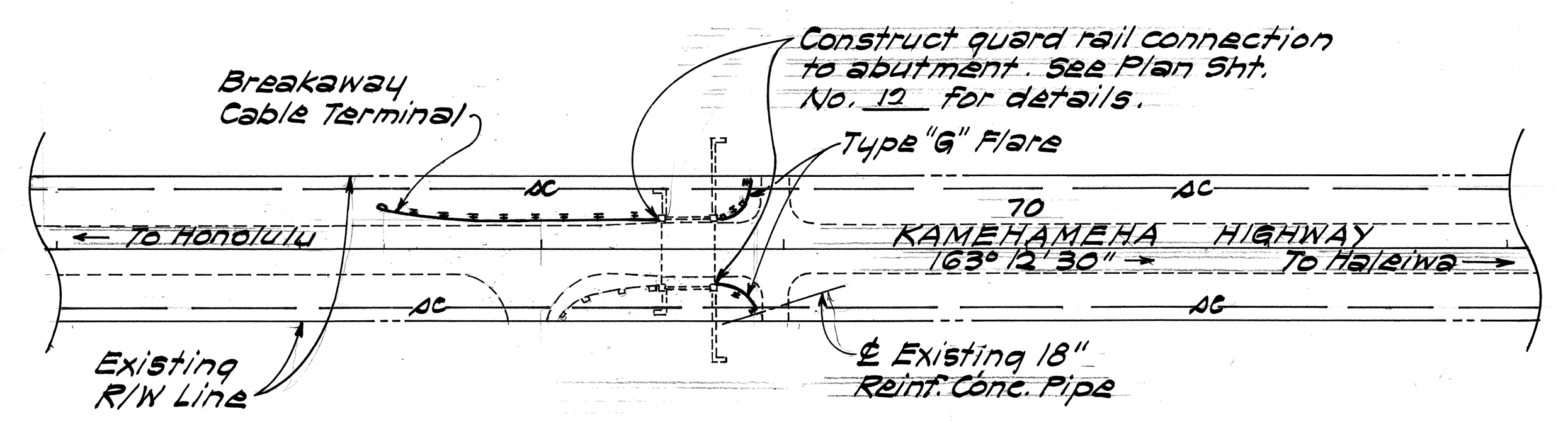
PLAN CONSTRUCTION AREA 5
 Scale: 1"=50'



Sta. 54+05± Rt. to Sta. 57+05± Rt.
 Install 265 lin. ft. of new metal guard rail, Type 3-Single with steel posts o/s 8' from E.P.

Install additional guard rail posts. See Typical Detail this sheet.
 Construct guard rail connection to abutment. See Plan Sht. No. 11 for details.

PLAN CONSTRUCTION AREA 6
 Scale: 1"=50'



Sta. 67+35± Lt. to Sta. 68+50± Lt.
 Install 90 lin. ft. of new metal guard rail, Type 3-Single with steel posts.

Sta. 68+72± Lt. to Sta. 68+89± Lt.
 Install 20 lin. ft. of new metal guard rail, Type 3-Single with steel posts.

NOTE:
 Contractor shall use caution during installation of guard rail posts in the vicinity of existing 18" RCP. All costs incurred for repairing of any damage to the pipe shall be borne by the Contractor.

PLAN CONSTRUCTION AREA 7
 Scale: 1"=50'

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION

PLAN

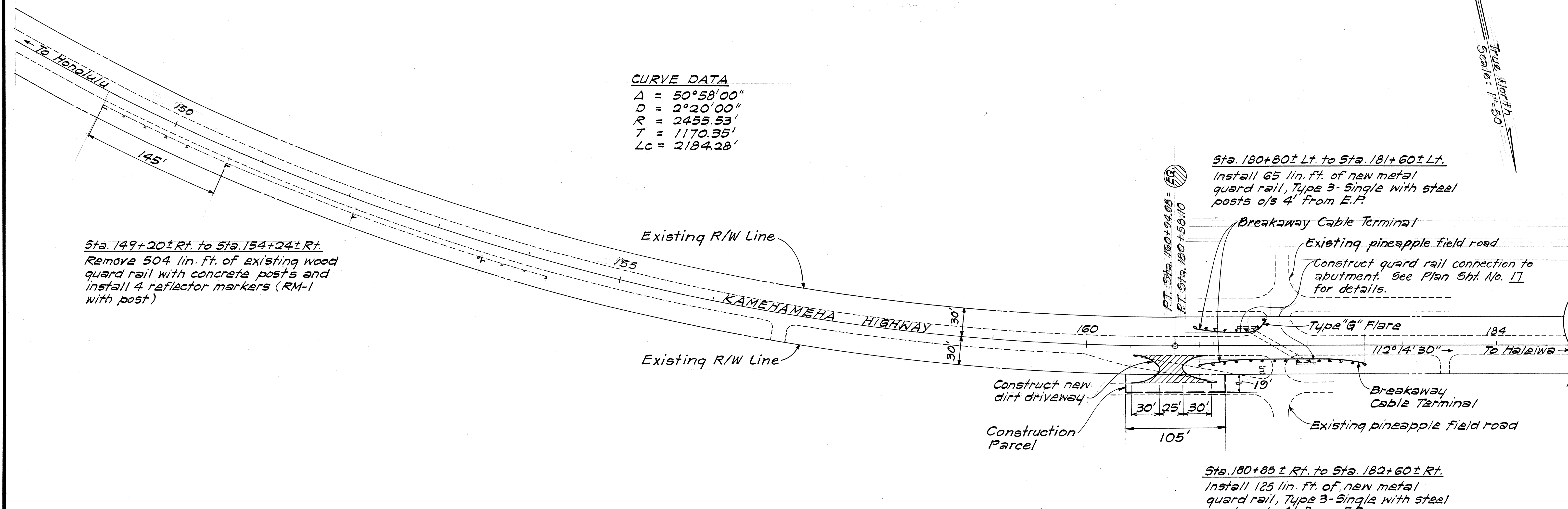
GUARD RAIL AND SHOULDER IMPROVEMENTS ON ROUTE 99 Mililani to Weed Junction
 F.A. PROJ. NO. HES-099-1(8)
 Scale: 1"=50' Date: Jan., 1985
 SHEET NO. 4 OF 9 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-1(8)	1985	7	43

True North
Scale: 1"=50'

CURVE DATA
 $\Delta = 50^{\circ}58'00''$
 $D = 2^{\circ}20'00''$
 $R = 2455.53'$
 $T = 1170.35'$
 $Lc = 2184.28'$



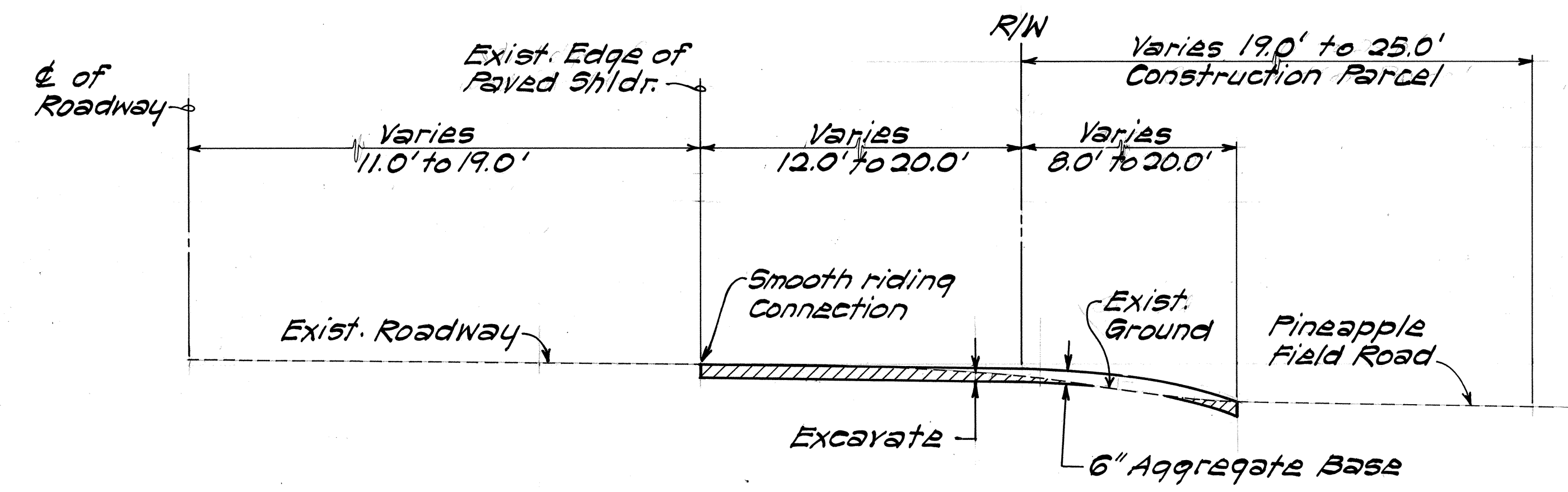
Sta. 149+20± Rt. to Sta. 154+24± Rt.
 Remove 504 lin. ft. of existing wood guard rail with concrete posts and install 4 reflector markers (RM-1 with post)

Sta. 180+80± Lt. to Sta. 181+60± Lt.
 Install 65 lin. ft. of new metal guard rail, Type 3- Single with steel posts o/s 4' from E.P.

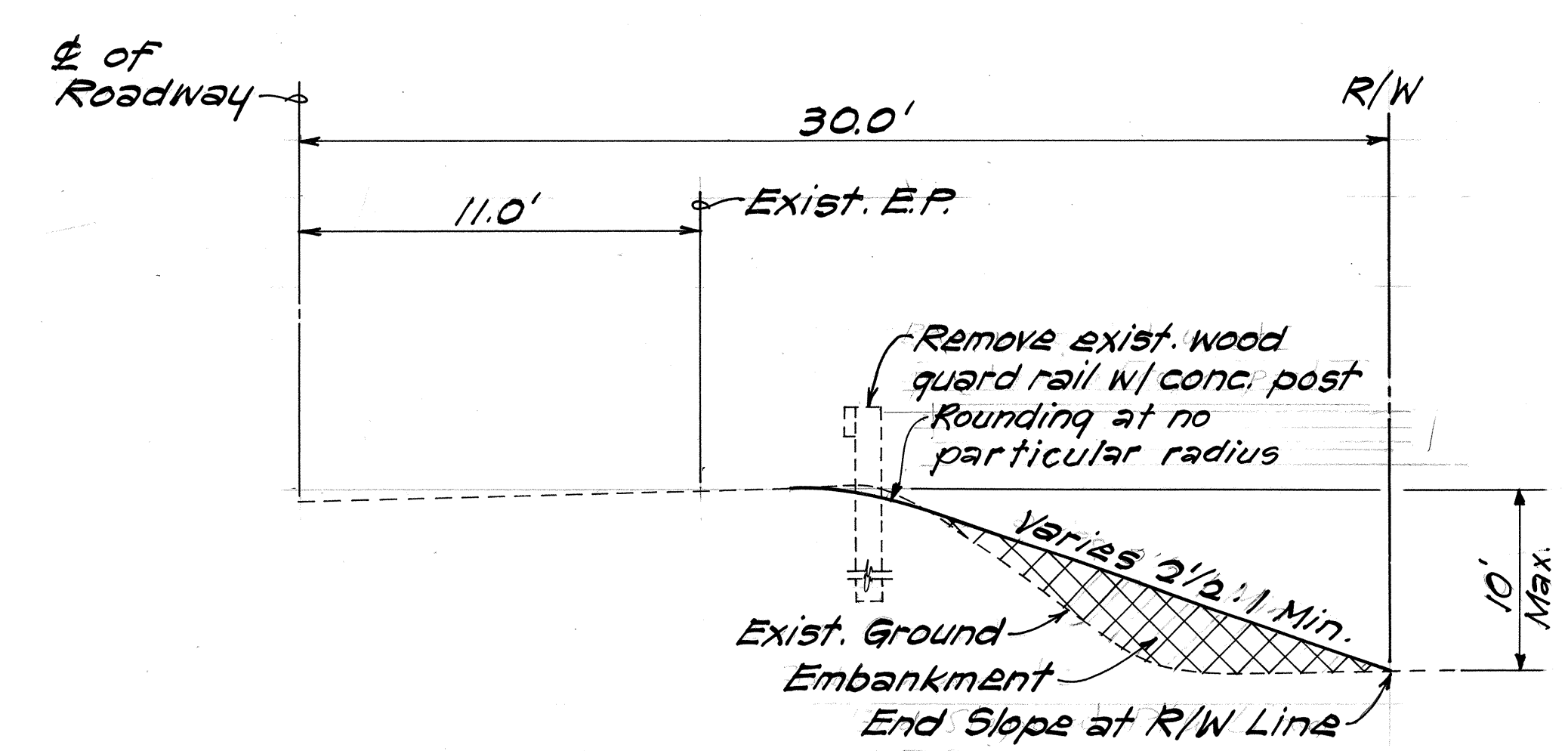
Sta. 180+85± Rt. to Sta. 182+60± Rt.
 Install 125 lin. ft. of new metal guard rail, Type 3- Single with steel posts o/s 4' from E.P.

PLAN CONSTRUCTION AREA 8
 Scale: 1"=50'

DATE	
SURVEY PLOTTED BY	
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
NO.	



TYPICAL SECTION OF NEW DRIVEWAY
 CONSTRUCTION AREAS 8 & 9
 Scale: 1/4"=1'-0"

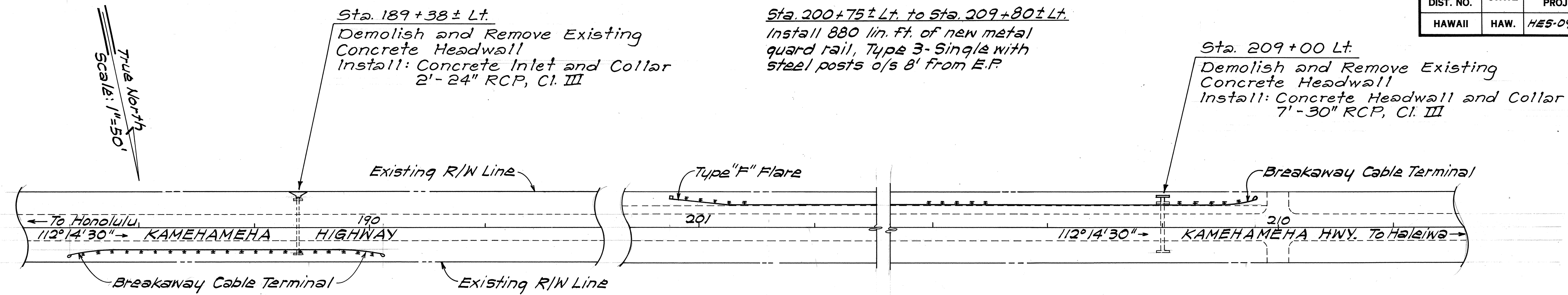


TYPICAL SECTION
 STA. 149+00± RT. TO STA. 154+00± RT. ~ CONSTR. AREA 8
 STA. 128+00± RT. TO STA. 138+00± RT. ~ CONSTR. AREA 10
 Scale: 1/4"=1'-0"

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION

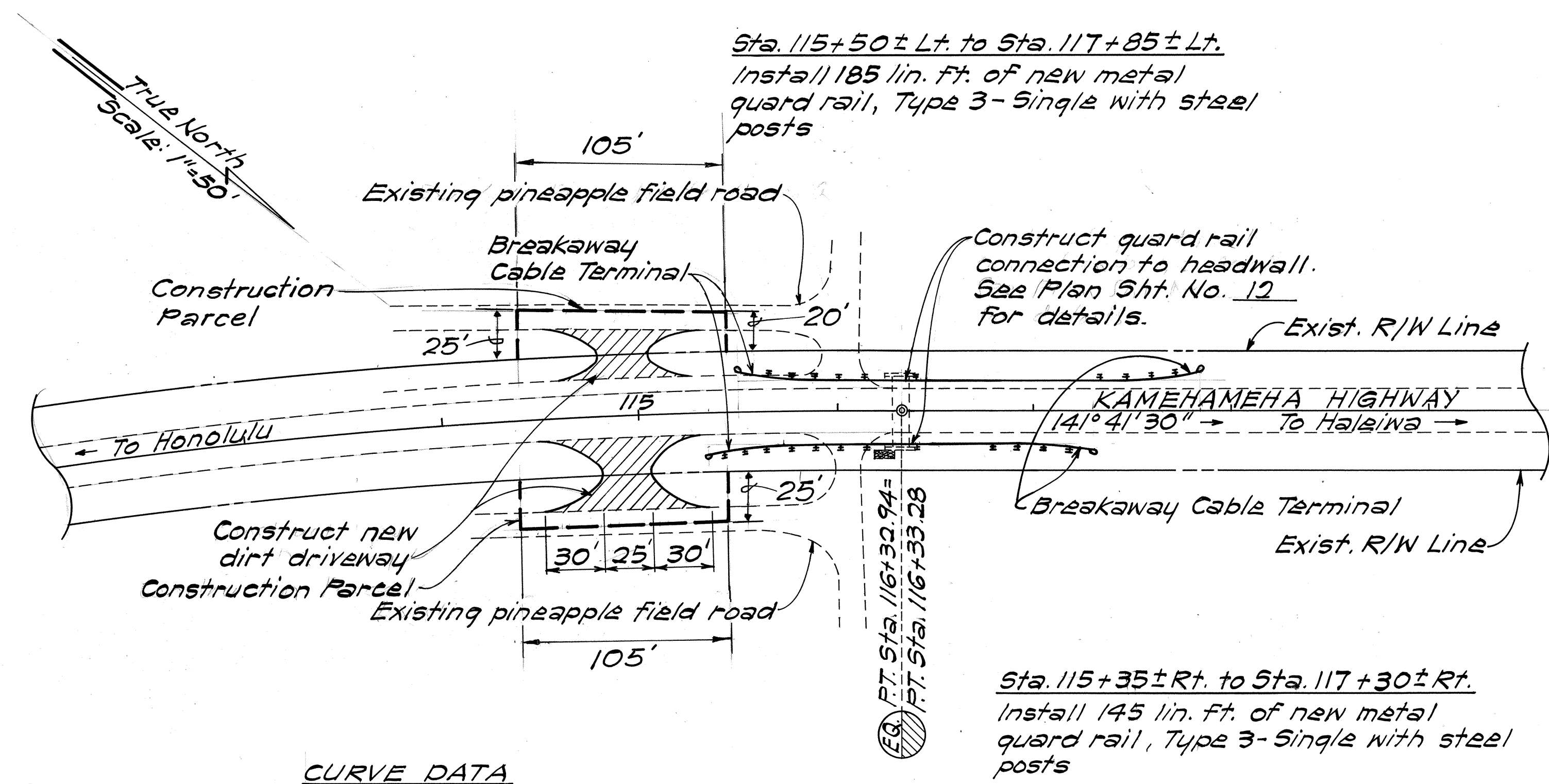
PLAN AND TYPICAL SECTIONS
 GUARD RAIL AND SHOULDER IMPROVEMENTS ON ROUTE 99
 Milliani to Weed Junction
 F.A. PROJ. NO. HES-099-1(8)
 Scale: As Shown Date: Jan., 1985
 SHEET NO. 5 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-1(B)	1985	8	43



Sta. 187+40± Rt. to Sta. 190+12± Rt.
 Install 222 lin. ft. of new metal guard rail, Type 3-Single with steel posts o/s 8' from E.P.

PLAN
CONSTRUCTION AREA 8
 Scale: 1"=50'



CURVE DATA
 $\Delta = 29^{\circ}27'00''$
 $D = 2^{\circ}00'00''$
 $R = 2864.79'$
 $T = 752.89'$
 $Lc = 1472.50'$

PLAN
CONSTRUCTION AREA 9
 Scale: 1"=50'

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

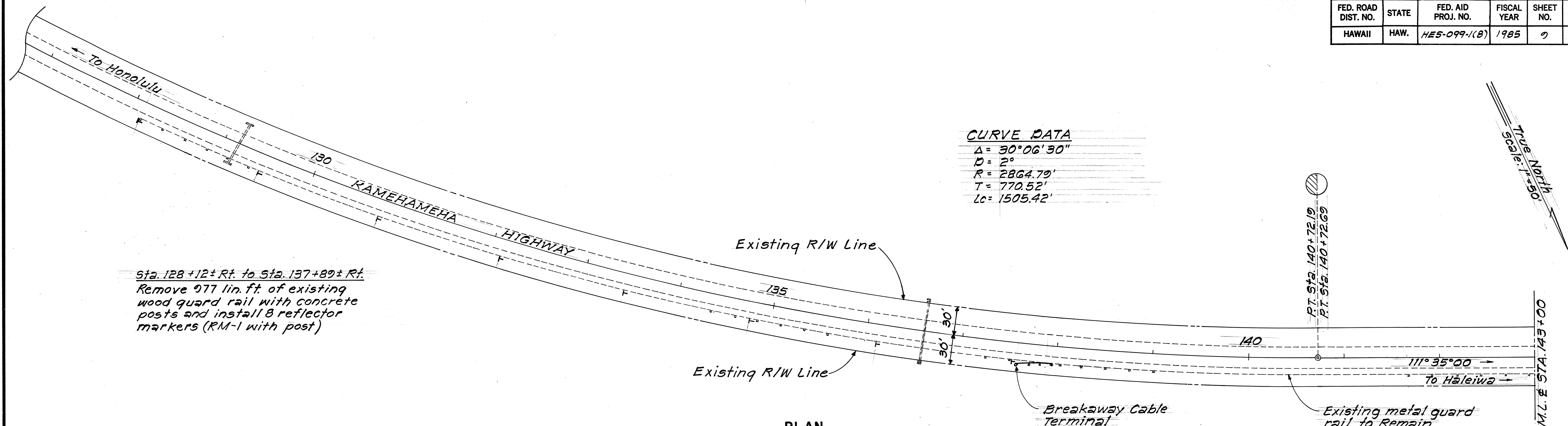
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

PLAN

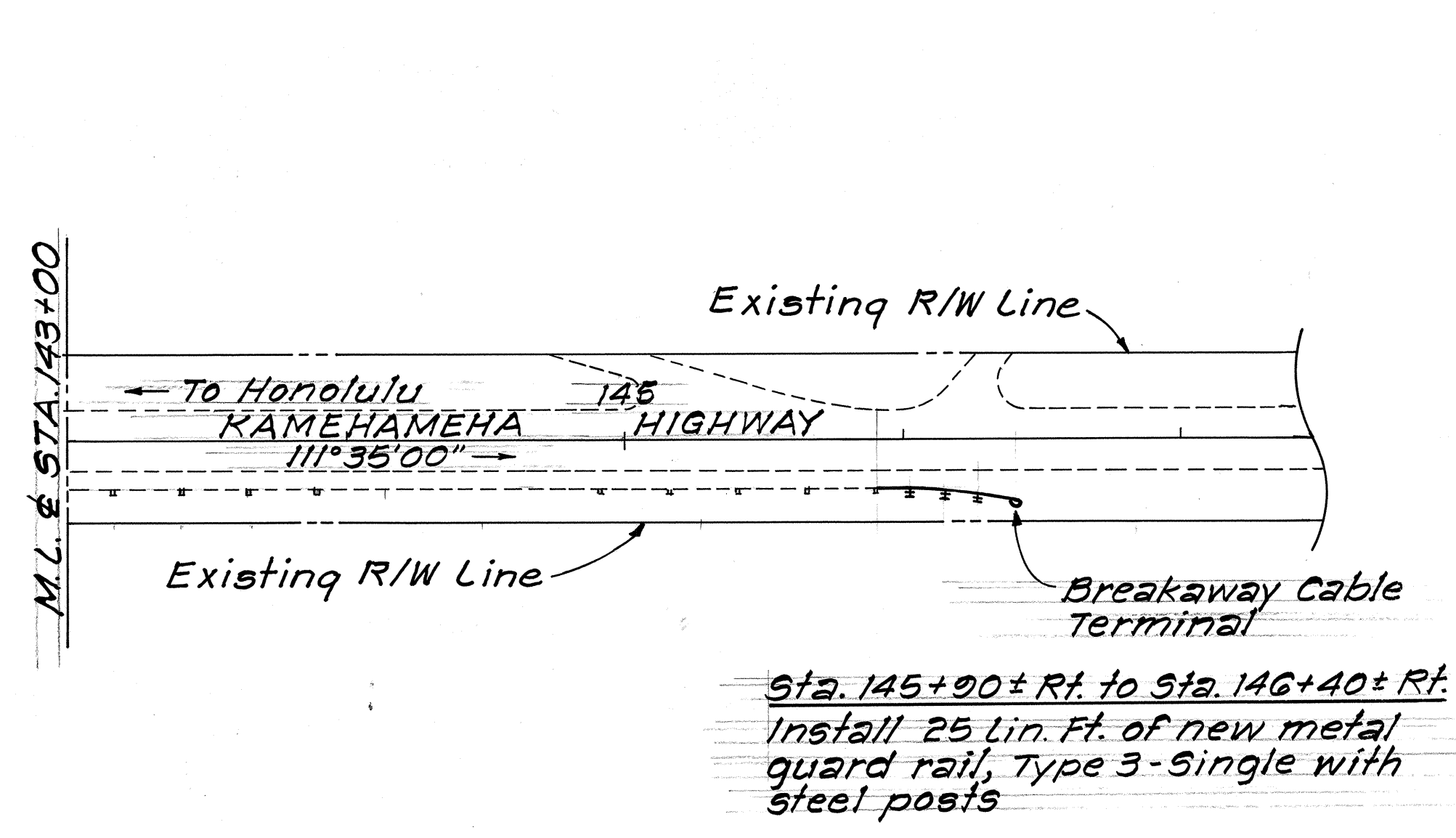
GUARD RAIL AND SHOULDER IMPROVEMENTS ON ROUTE 99 Milliani to Weed Junction
 F.A. PROJ. NO. HES-099-1(B)
 Scale: 1"=50' Date: Jan., 1985

SHEET No. 6 OF 7 SHEETS

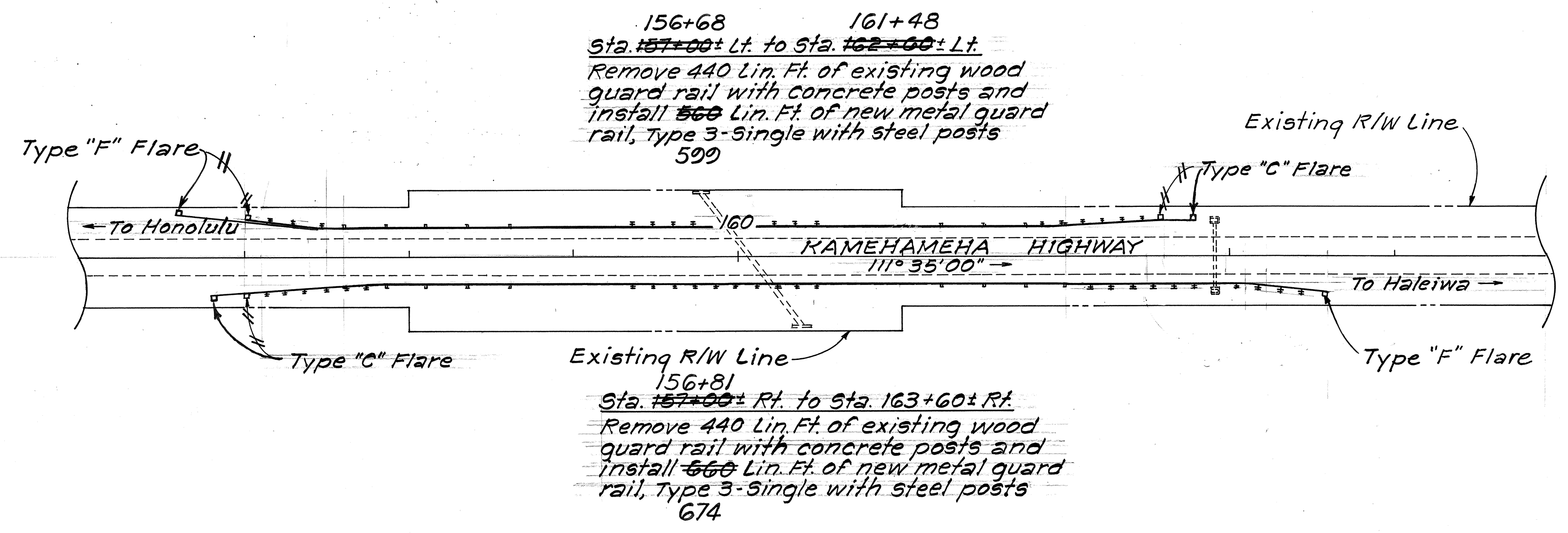
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-1(B)	1985	7	43



PLAN
CONSTRUCTION AREA 10
Scale: 1"=50'



PLAN
CONSTRUCTION AREA 10
Scale: 1"=50'



PLAN
CONSTRUCTION AREA 11
Scale: 1"=50'

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

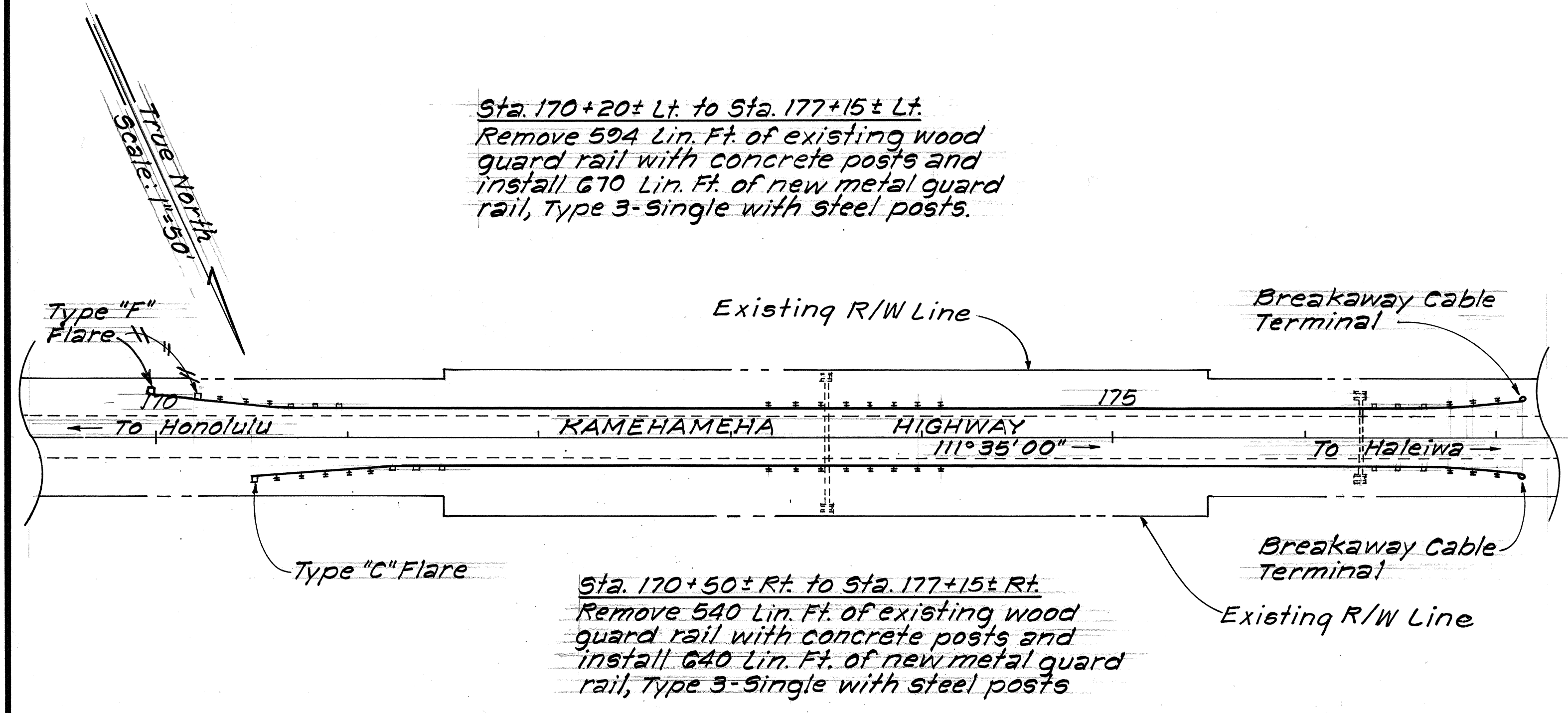
PLAN

GUARD RAIL AND SHOULDER IMPROVEMENTS ON ROUTE 99
Mililani to Weed Junction
F.A. PROJ. NO. HES-099-1(B)

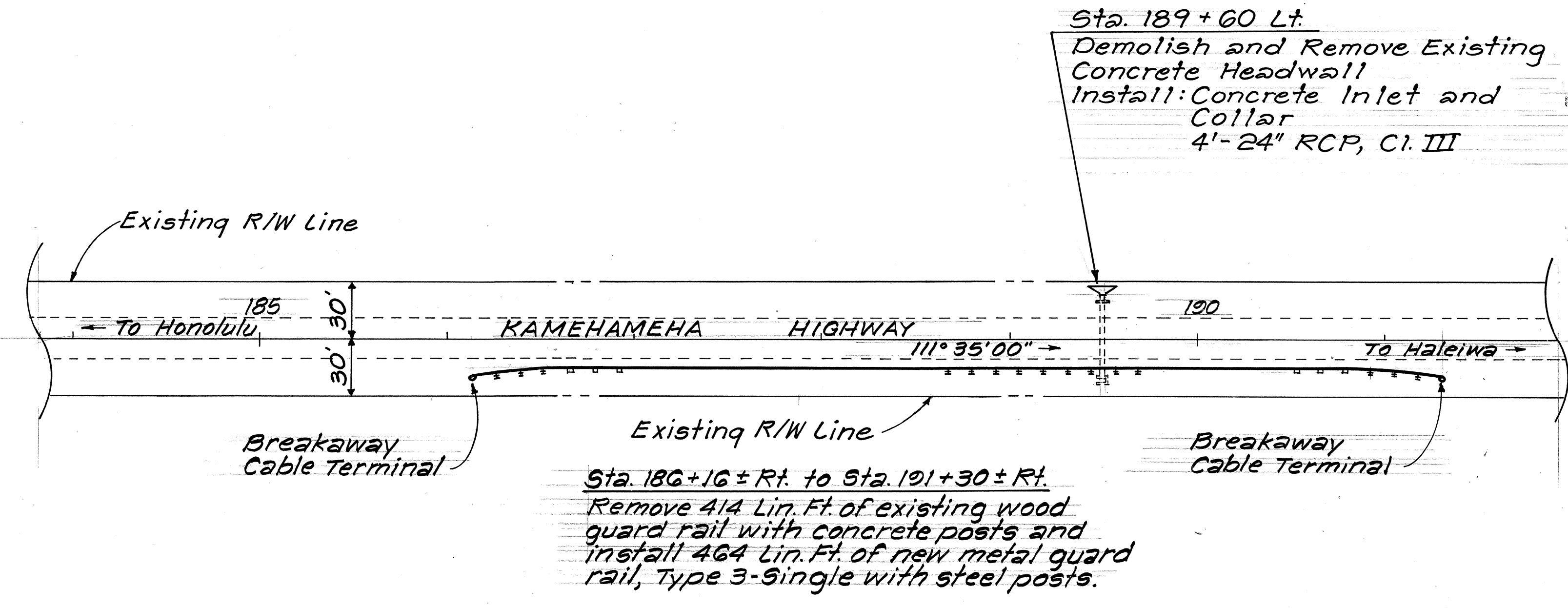
Scale: 1"=50' Date: Jan., 1985

SHEET No. 7 OF 9 SHEETS

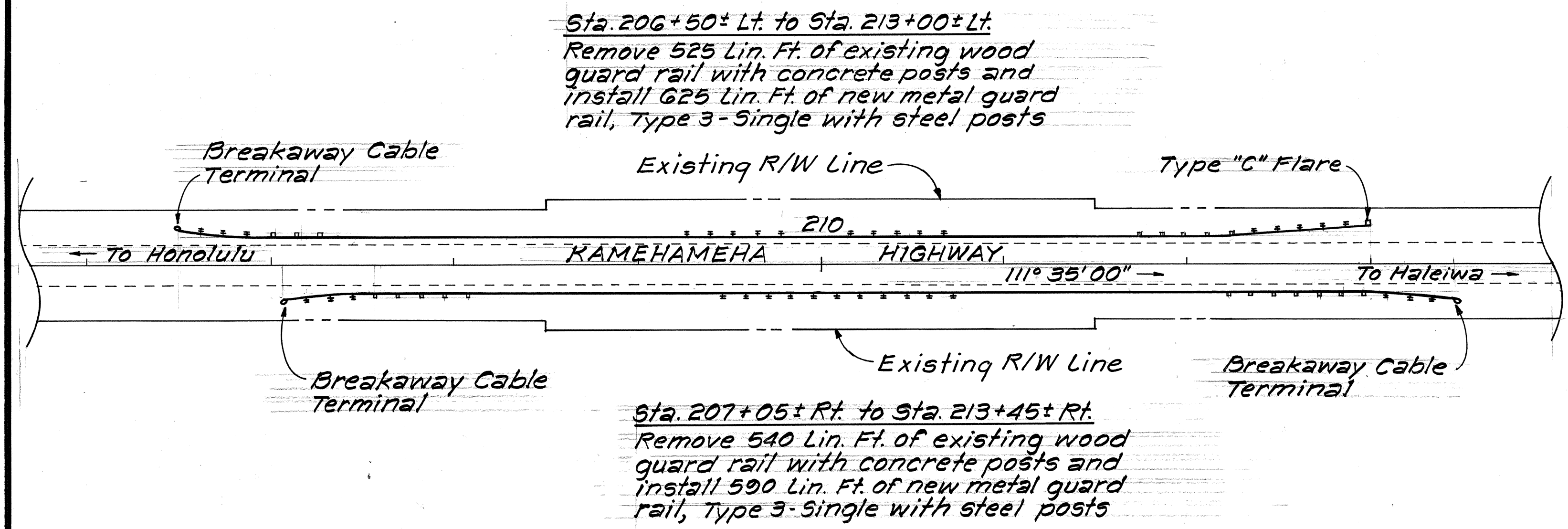
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-1(B)	1985	10	43



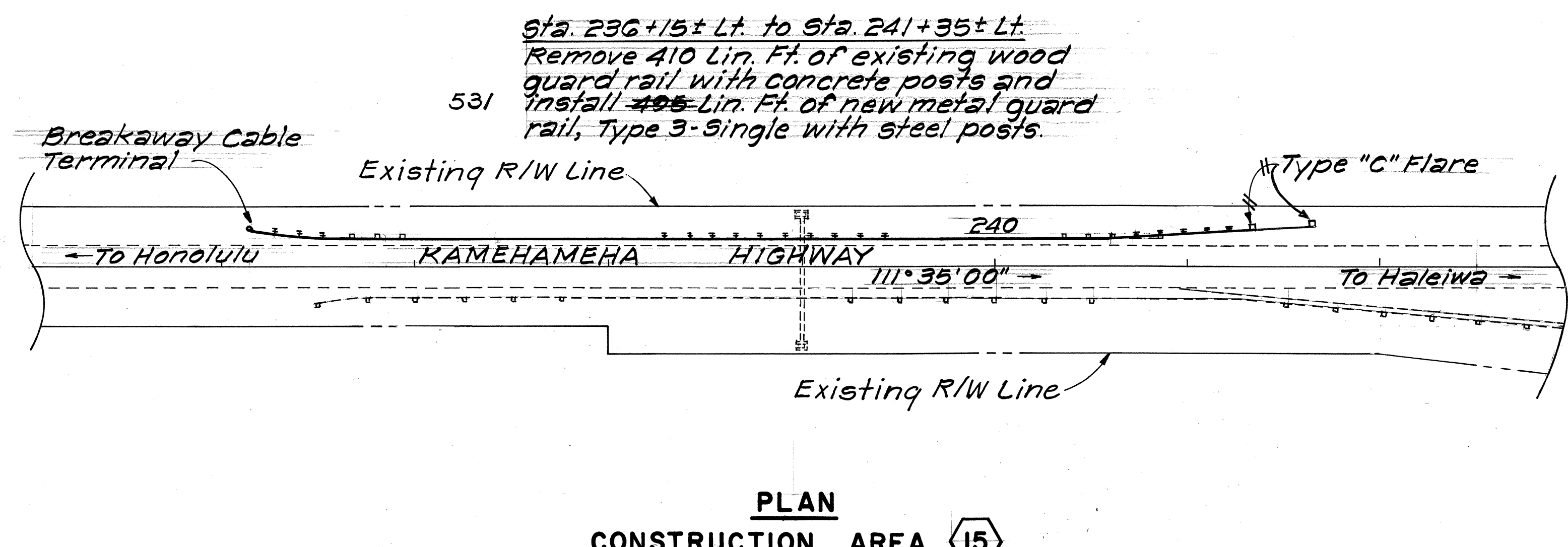
PLAN
CONSTRUCTION AREA 12
Scale: 1"=50'



PLAN
CONSTRUCTION AREA 13
Scale: 1"=50'



PLAN
CONSTRUCTION AREA 14
Scale: 1"=50'



PLAN
CONSTRUCTION AREA 15
Scale: 1"=50'

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
QUANTITIES BY	_____
NOTE BOOK	_____
CHECKED BY	_____
No.	_____

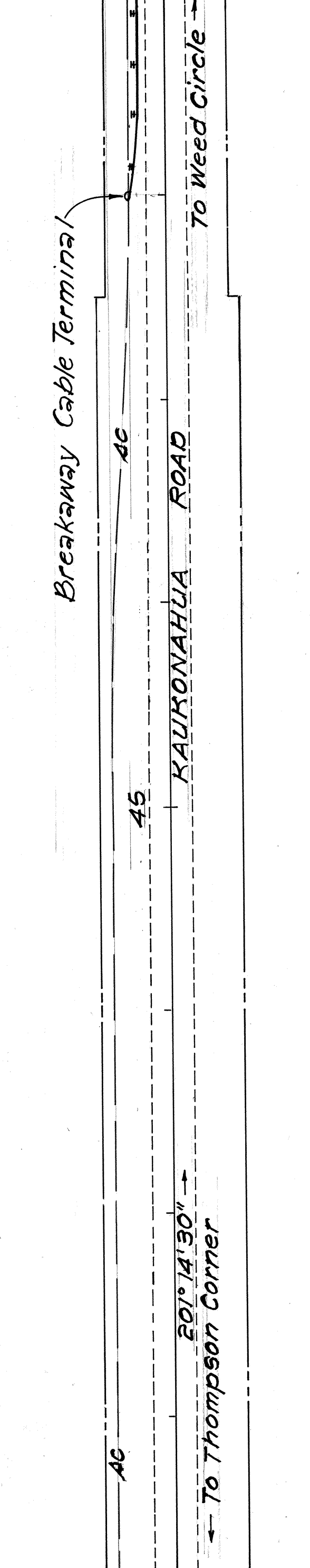
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

PLAN

GUARD RAIL AND SHOULDER IMPROVEMENTS ON ROUTE 99
Milliani to Weed Junction
F.A. PROJ. NO. HES-099-1(B)
Scale: 1"=50' Date: Jan., 1985
SHEET NO. 8 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-1(B)	1985	11	43

M.L. & STA. 49+00



Kaukonahua Road
Sta. 48+00 Lt. to Sta. 5+50 Lt.
Remove 72 Lin. Ft. of existing wood guard with concrete posts and install 666 Lin. Ft. of new metal guard rail, Type 3-Single with steel posts.

CURVE DATA
Δ = 100° 56' 17"
D = 29° 13' 57.2"
R = 196.00'
T = 237.51'
Lc = 345.29'

PC & Sta. 0+00
PC & Sta. 49+65.76

M.L. & STA. 49+00

Type "G" Flare
Exist. Poles
Breakaway Cable Terminal

CURVE DATA
Δ = 78° 36'
D = 50'
R = 1145.92
T = 937.92
Lc = 1572.01
SE = 0.05

CURVE DATA
Δ = 46° 41' 54"
D = 13° 40' 27.9"
R = 419.00'
T = 180.88'
Lc = 341.50'

Relocate Exist. Pole
See Plan Sht. No. 21 for details

O.B. Sta. 265+40± Lt. to Sta. 266+20± Lt.
Remove 70 Lin. Ft. of existing wood guard rail with concrete posts and install 90 Lin. Ft. of new metal guard rail, Type 3-Single with steel posts.

WEED CIRCLE

O.B. Sta. 259+00± Lt. to Sta. 262+20± Lt.
Remove 320 Lin. Ft. of existing wood guard rail with concrete posts.

Relocate Exist. Pole
See Plan Sht. No. 21 for details

I.B. Sta. 259+05± Rt. to Sta. 262+15± Rt.
Remove 310 Lin. Ft. of existing wood guard rail with concrete posts.

CURVE DATA
Δ = 58° 50' 30"
D = 3° 26' 42"
R = 1663.13'
T = 937.92'
Lc = 1708.00'
SE = 0.05

PLAN
CONSTRUCTION AREA 16

Scale: 1" = 50'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

PLAN

GUARD RAIL AND SHOULDER IMPROVEMENTS ON ROUTE 99
Milliani to Weed Junction
F.A. PROJ. NO. HES-099-1(B)

Scale: 1" = 50' Date: Jan. 1985
SHEET No. 9 OF 9 SHEETS

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