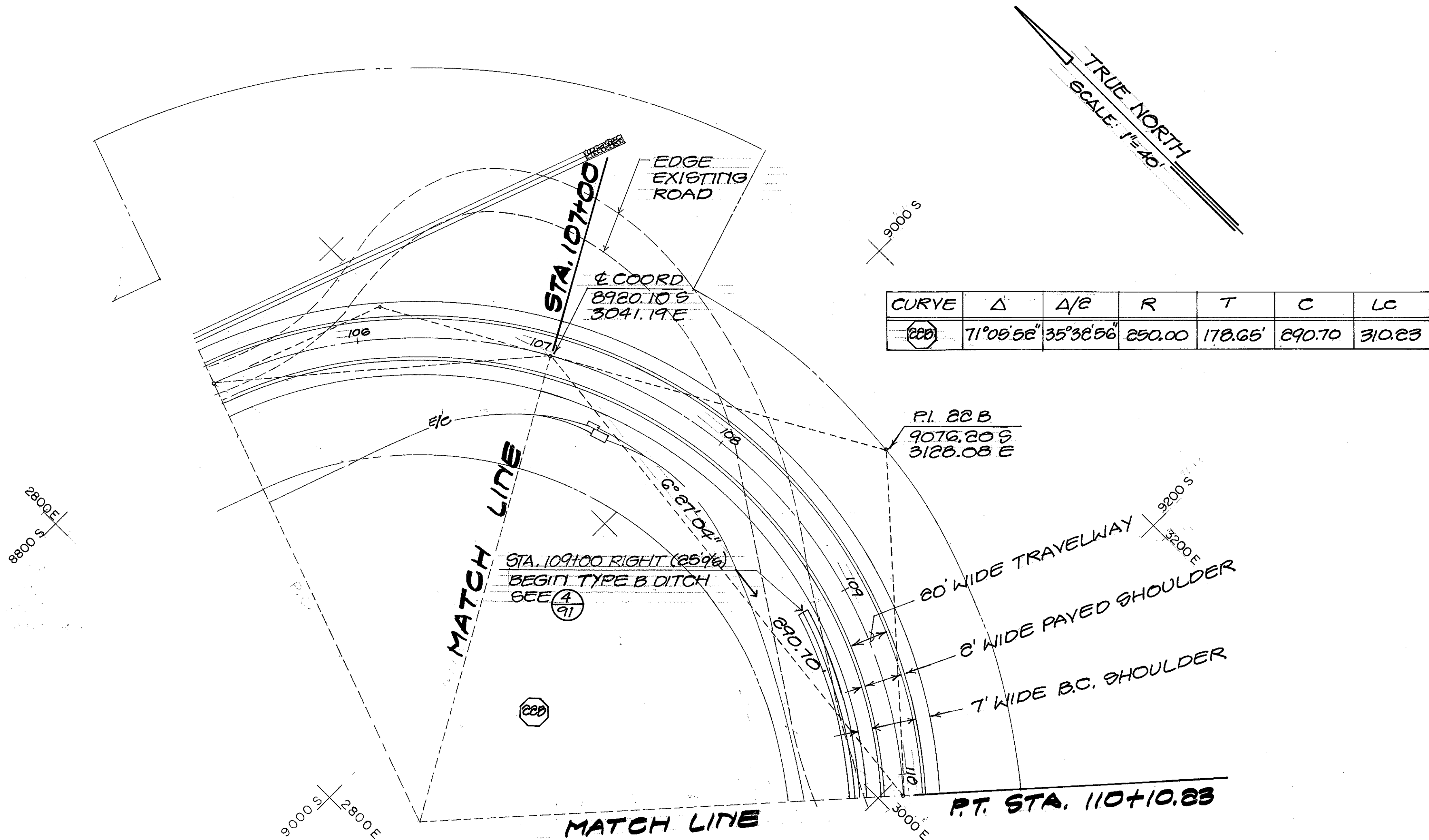


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-H-01-86	1987	C.O. 115S-1	115



SECTION SCHEDULE		
MAIN ACCESS ROAD		
STATION TO STATION	SECTION	
107+00 131+50	C	

TABLE 1			
STATION TO STATION	MAX OUT SLOPE	MAX FILL SLOPE	
107+00 131+50	2H:1V	3H:1V	

NO PASSING ZONES	
BEGIN STA.	END STA.
107+00	118+00

NOTES:
SEE SHEET 88 FOR TYPICAL PAVEMENT MARKING DETAIL.

NOTES:

- SEE SHEET 74 FOR TYPICAL ROAD SECTIONS.
- SEE SHEET 88 FOR TYPICAL PAVEMENT SECTION FOR ROADWAYS.

3/21/88	ROAD IMPROVEMENTS EXTENDED TO STA. 131+50 (C.C.O. 2)
DATE	REVISION

ROYCE S. FUKUNAGA
REGISTERED PROFESSIONAL ENGINEER
No. 2107-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Royce S. Fukunaga
FUKUNAGA & ASSOCIATES

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALIGNMENT PLAN
MAIN ACCESS ROAD
STA. 107+00 TO STA. 110+10.23

MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE II - A
PROJECT NO. HWY. - H - 01 - 86

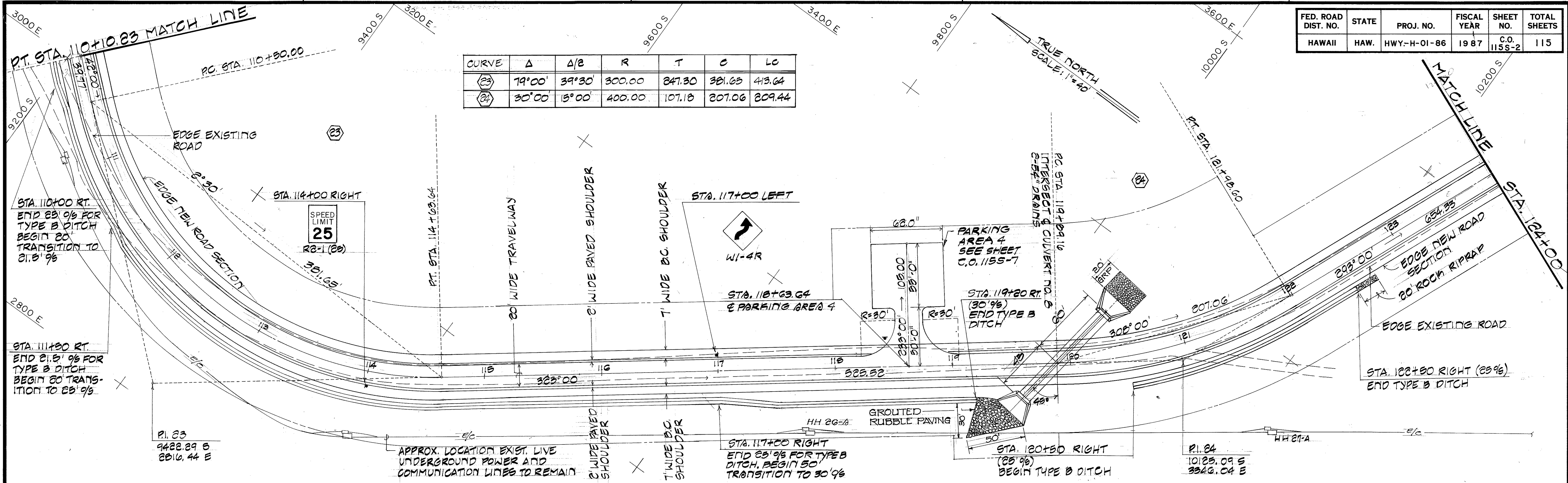
SCALE: 1" = 40'

SHEET NO. OF SHEETS

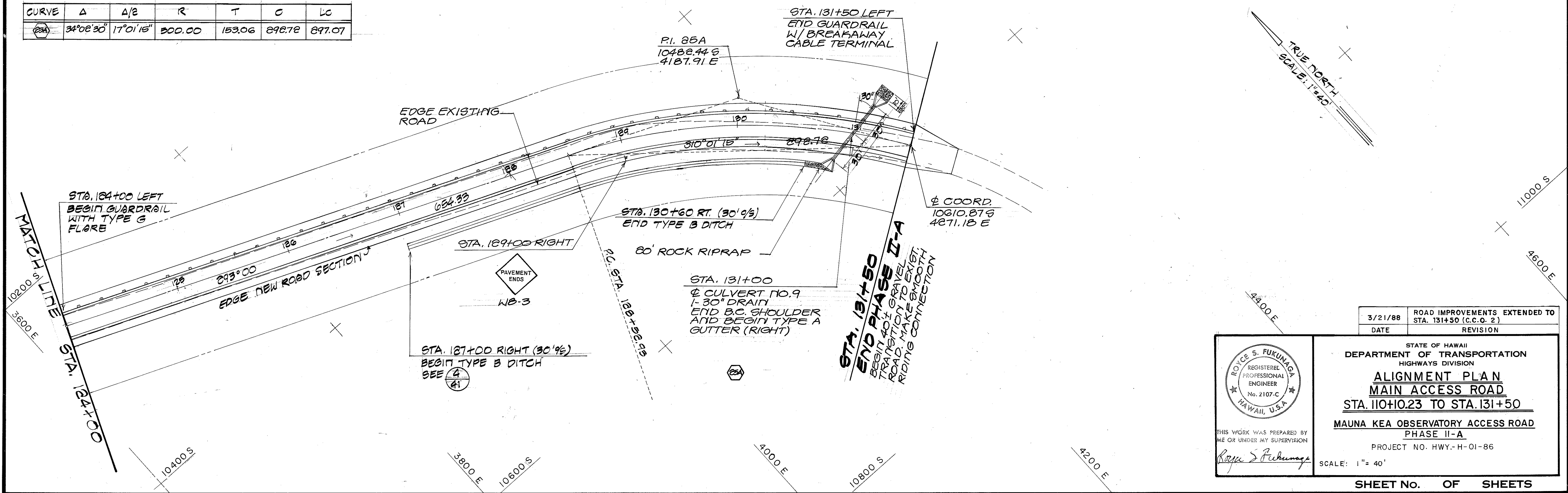
C.O. 115S-1

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

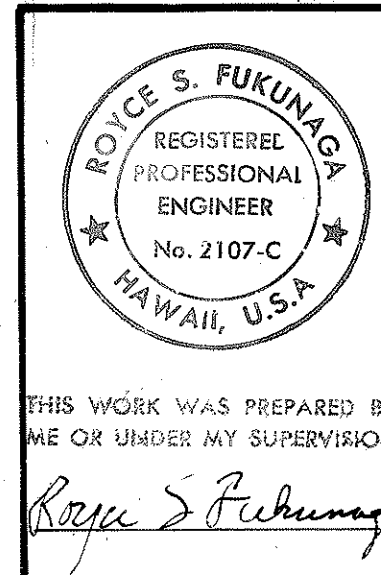
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-H-01-86	1987	C.O. 115S-2	115



CURVE	Δ	Δ/2	R	T	C	LC
(25)	34°06'30"	17°01'15"	500.00	153.06	296.78	297.07



SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALIGNMENT PLAN
MAIN ACCESS ROAD
STA. 110+0.23 TO STA. 131+50
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE II-A
PROJECT NO. HWY-H-01-86

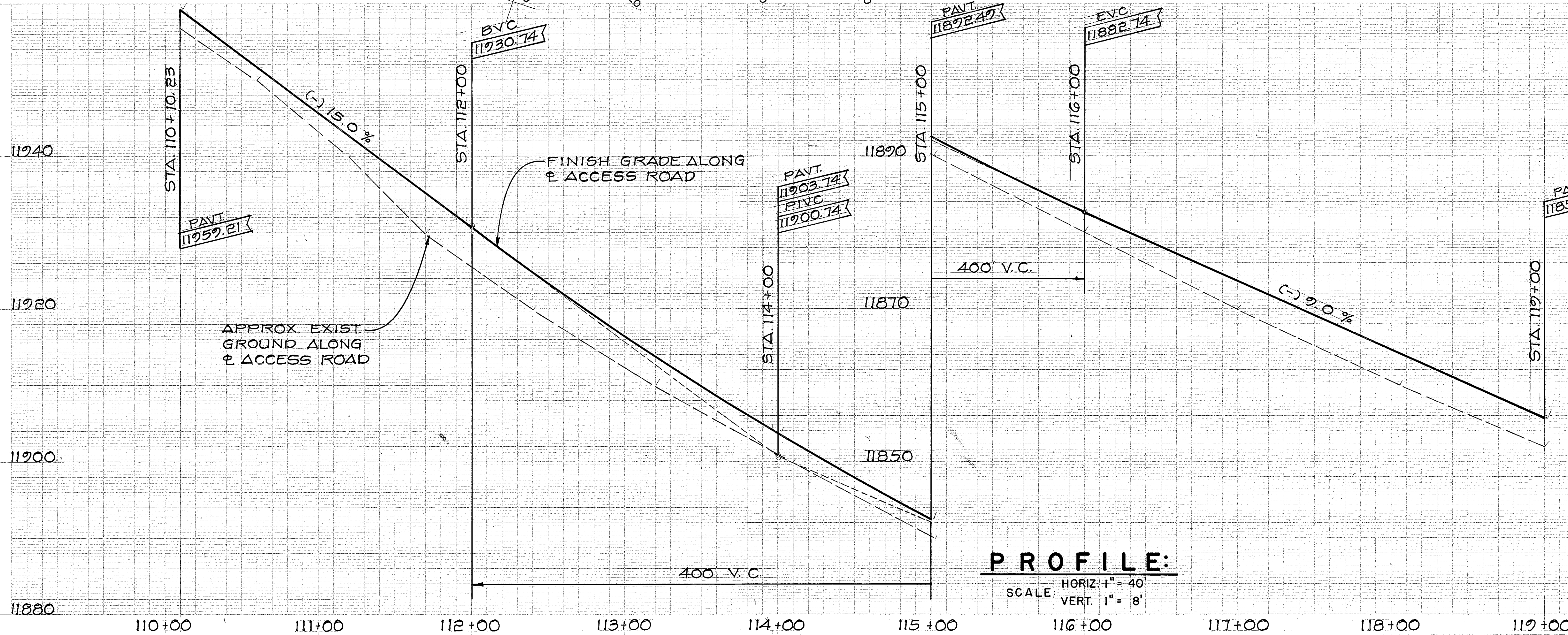
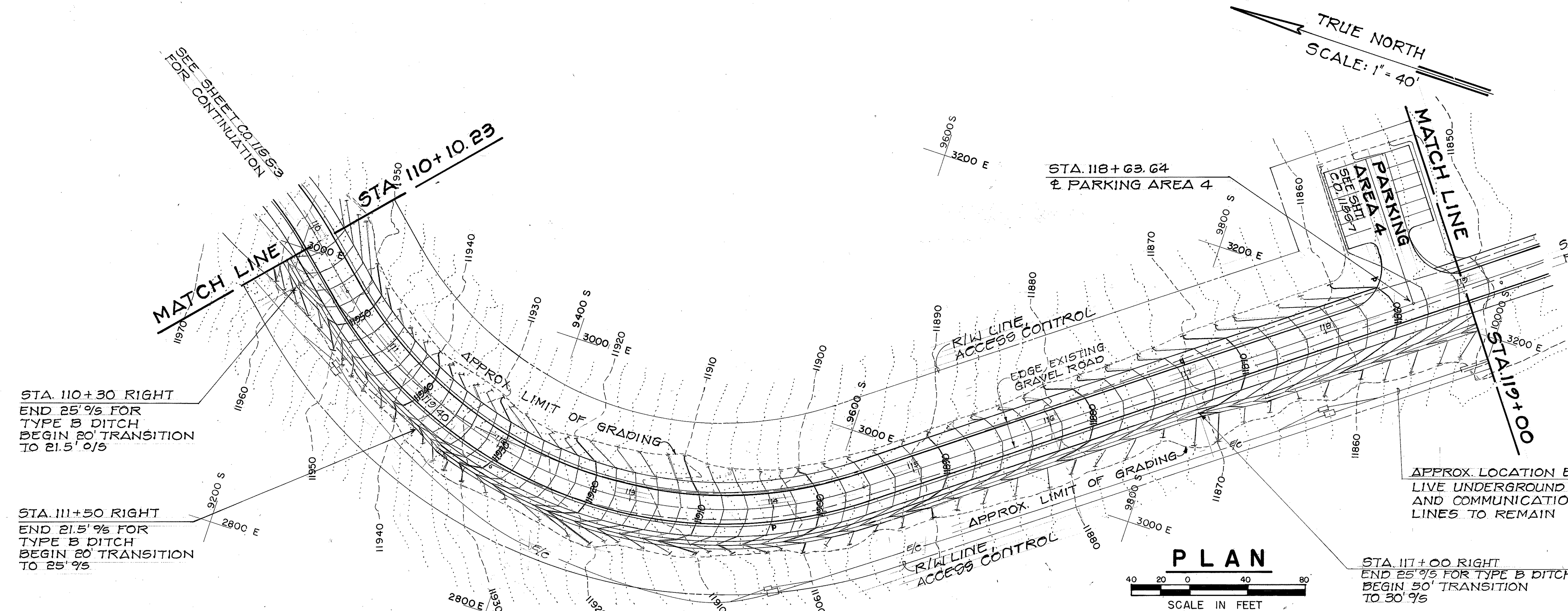
3/21/88 ROAD IMPROVEMENTS EXTENDED TO STA. 131+50 (C.C.O. 2)
DATE REVISION

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Royce S. Fukunaga

SCALE: 1" = 40'

SHEET NO. OF SHEETS
C.O. 115S-2

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-H-01-86	1987	C.O. 115S-4	115



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
DESIGNED BY	DRAWN BY	
CHECKED BY	TRACED BY	
NO.		

3/21/88

ROAD IMPROVEMENTS EXTENDED TO STA. 131+50 (C.C.O. 2)

DATE

REVISION

ROYCE S. FUKUNAGA

REGISTERED PROFESSIONAL ENGINEER

No. 2107-C

HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Royce S. Fukunaga

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

PLAN, PROFILE AND GRADING

MAIN ACCESS ROAD

STA. 110+10.23 TO STA. 119+00

MAUNA KEA OBSERVATORY ACCESS ROAD

PHASE II-A

PROJECT NO. HWY-H-01-86

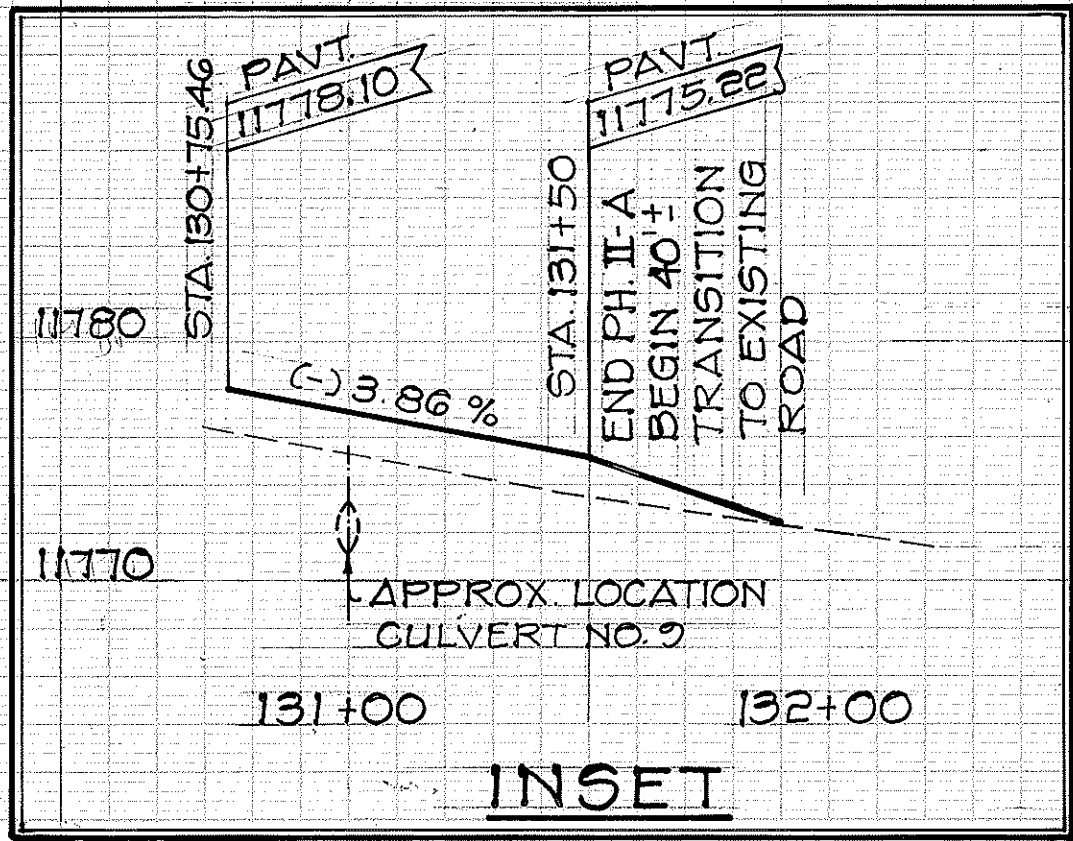
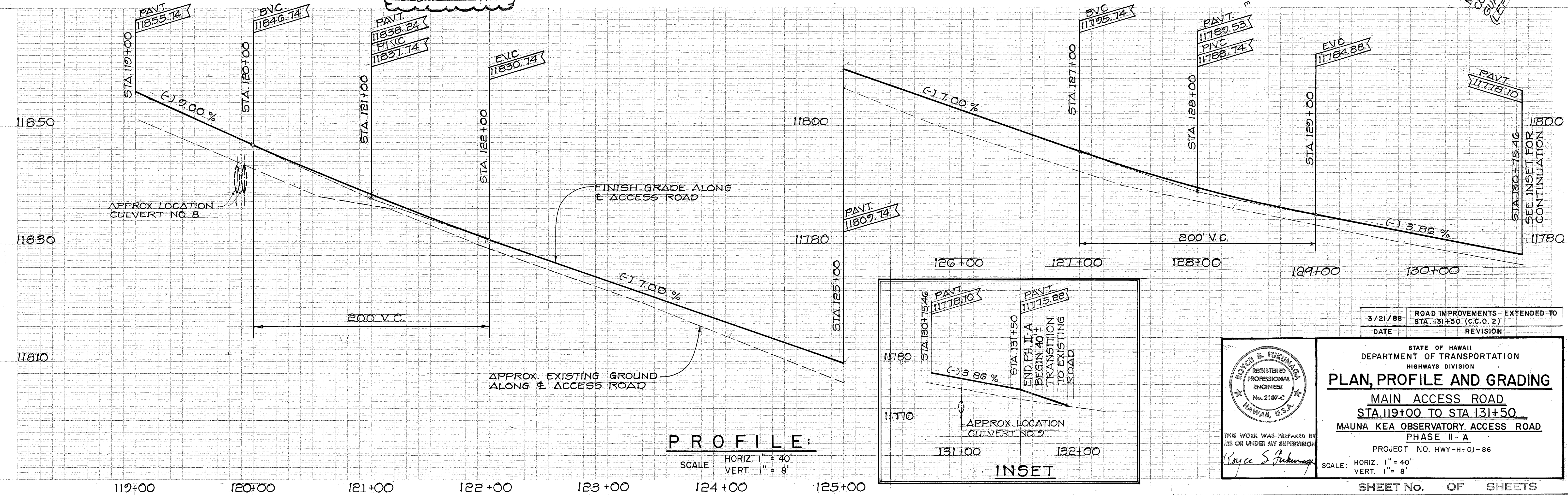
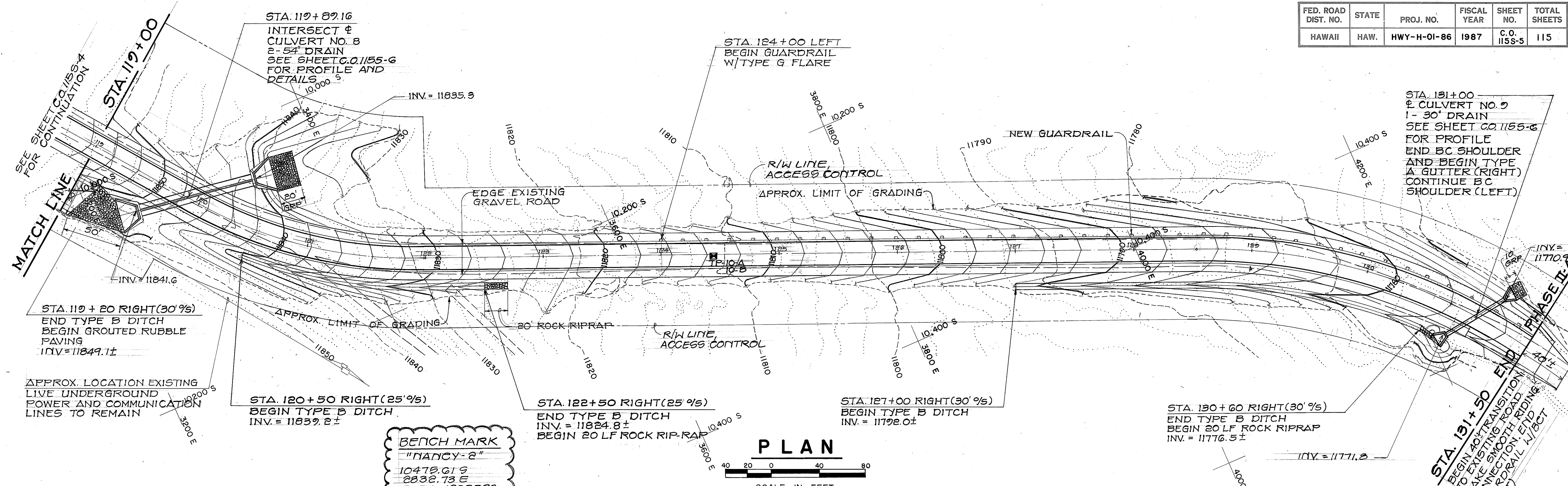
SCALE: HORIZ. 1" = 40'

VERT. 1" = 8'

SHEET NO. OF SHEETS

C.O. 115S-4

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-H-01-86	1987	C.O. 115S-5	115



3/21/88	ROAD IMPROVEMENTS - EXTENDED TO STA. 131+50 (C.C.O. 2)
DATE	REVISION

ROYCE S. FUKUNAGA
REGISTERED PROFESSIONAL ENGINEER
No. 2107-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Royce S. Fukunaga

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

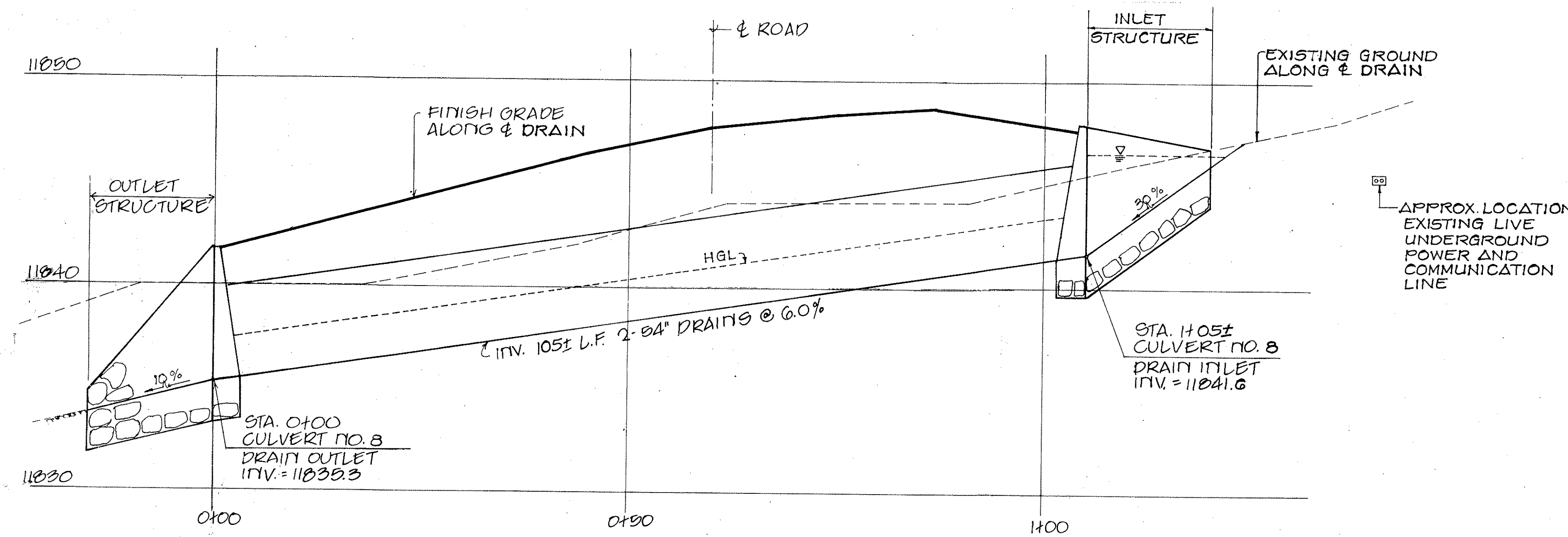
PLAN, PROFILE AND GRADING

MAIN ACCESS ROAD
STA. 119+00 TO STA. 131+50
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE II - A

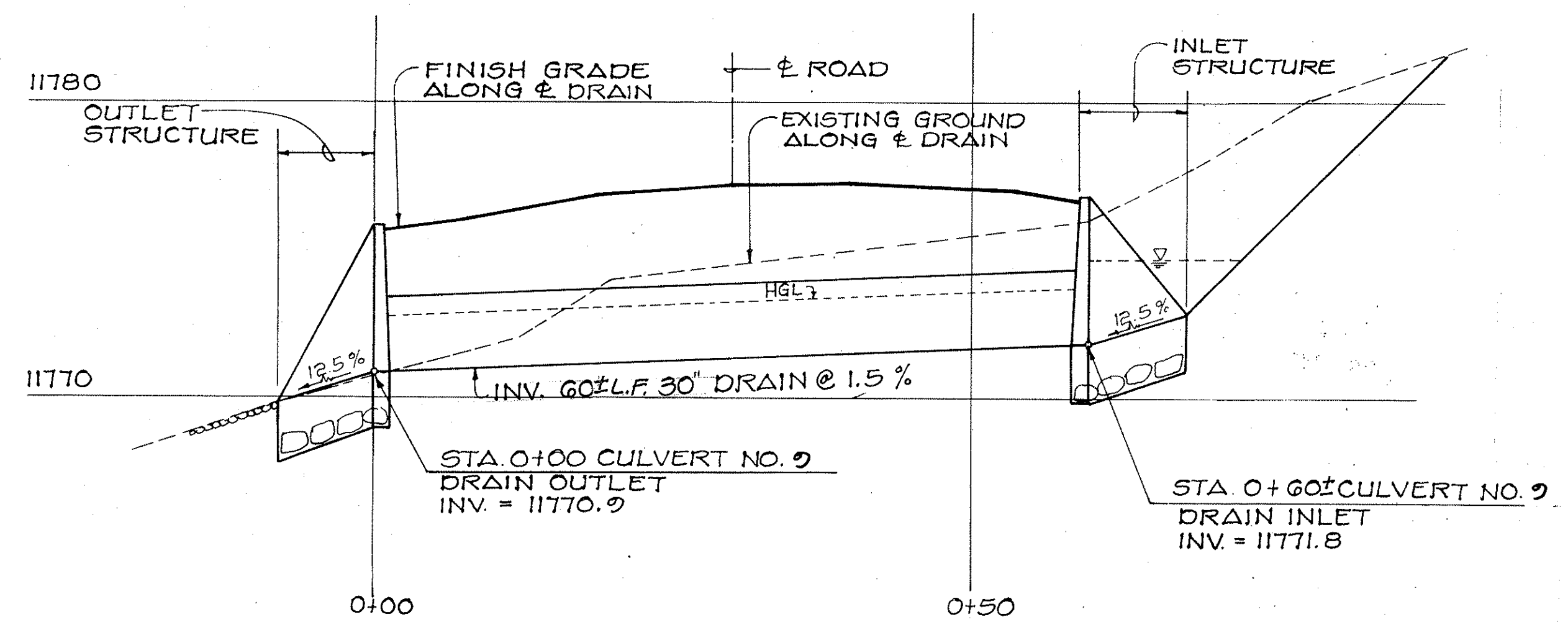
PROJECT NO. HWY-H-01-86

SCALE: HORIZ. 1" = 40' VERT. 1" = 8'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-H-01-86	1987	C.O. 115S-6	115

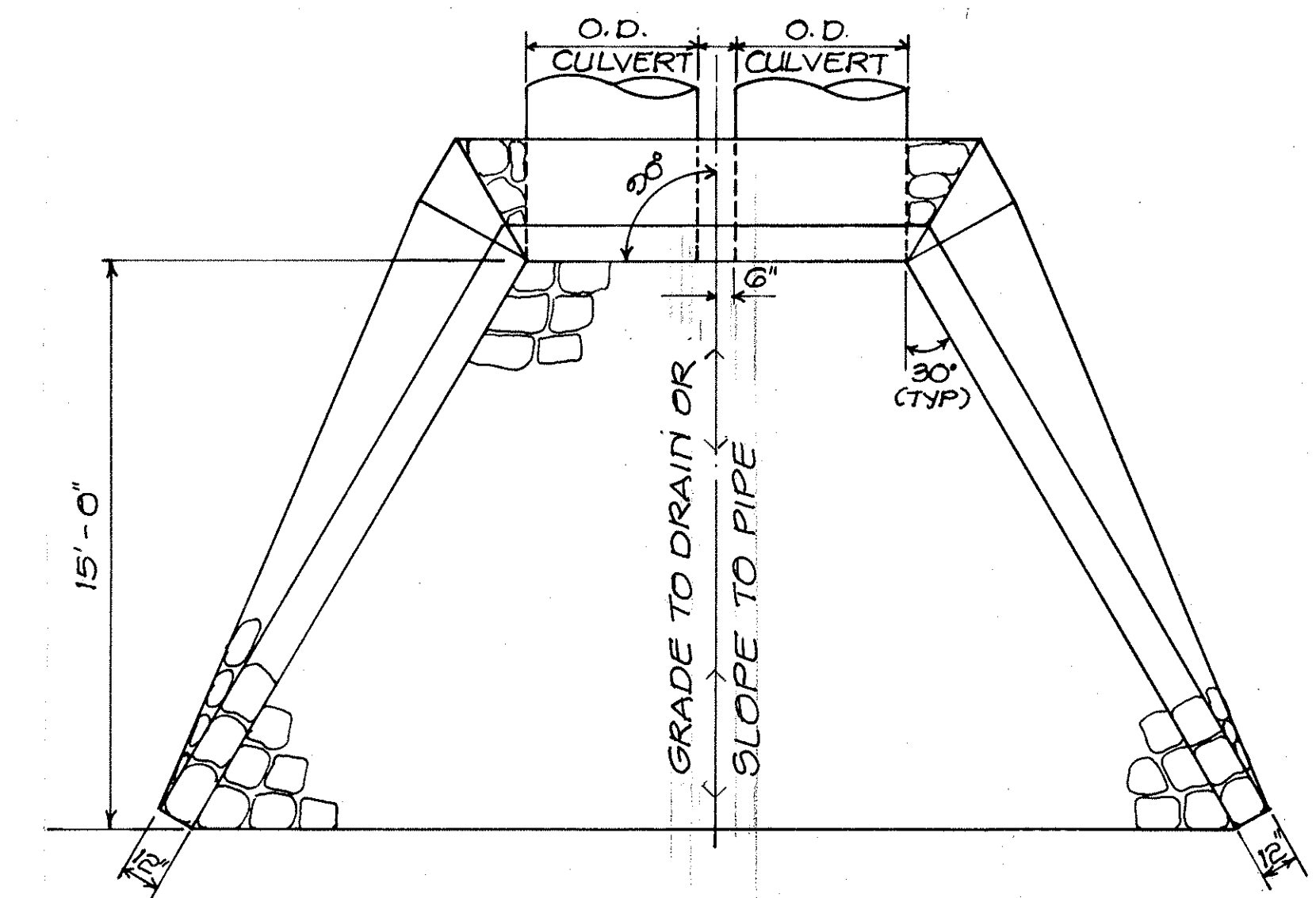


PROFILE ~ CULVERT NO. 8 (¢ ROAD STA. 119+89.16)
 SCALE: HORIZ: 1"=10'-0"
 VERT: 1"=4'-0"

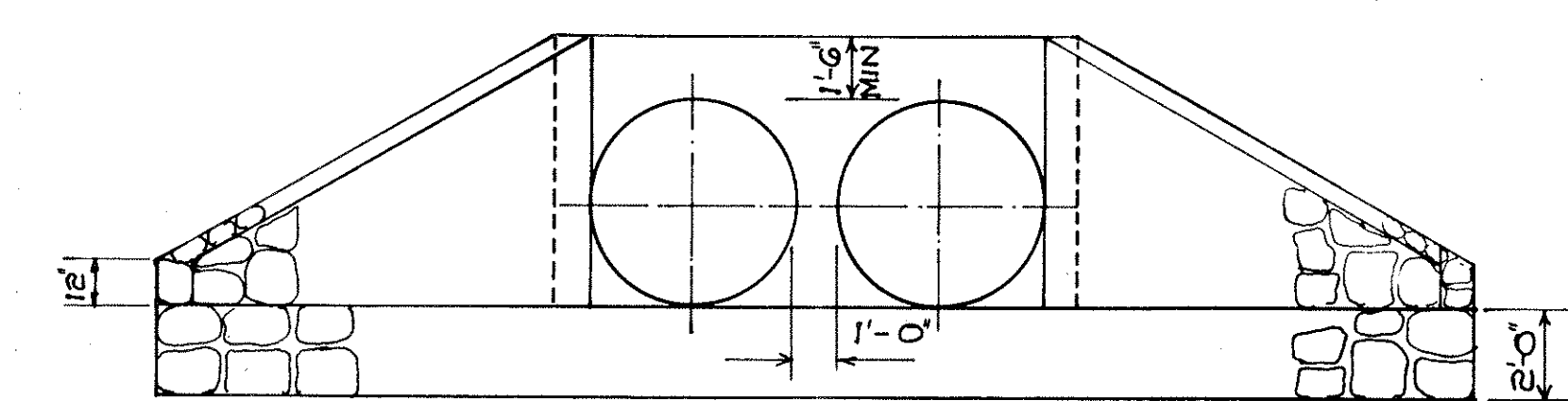


PROFILE ~ CULVERT NO. 9 (¢ ROAD STA. 131+00)
 SCALE: HORIZ: 1"=10'-0"
 VERT: 1"=4'-0"

HYDRAULIC DATA				
CULVERT NO.	SIZE (IN)	Q (CFS)	Dn. (FT.)	Y (FPS)
8	24	217.0	2.0	15.6
9	30	25.2	1.9	6.3



PLAN



FRONT ELEVATION

NOTE: SEE (2) FOR INLET AND OUTLET SECTIONS AND ENERGY DISSIPATOR PLACEMENT.

DETAIL ~ CRM INLET/OUTLET FOR MULTIPLE PIPES
 NOT TO SCALE

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

ROYCE S. FUKUNAGA
REGISTERED PROFESSIONAL ENGINEER
No. 2107-C
HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

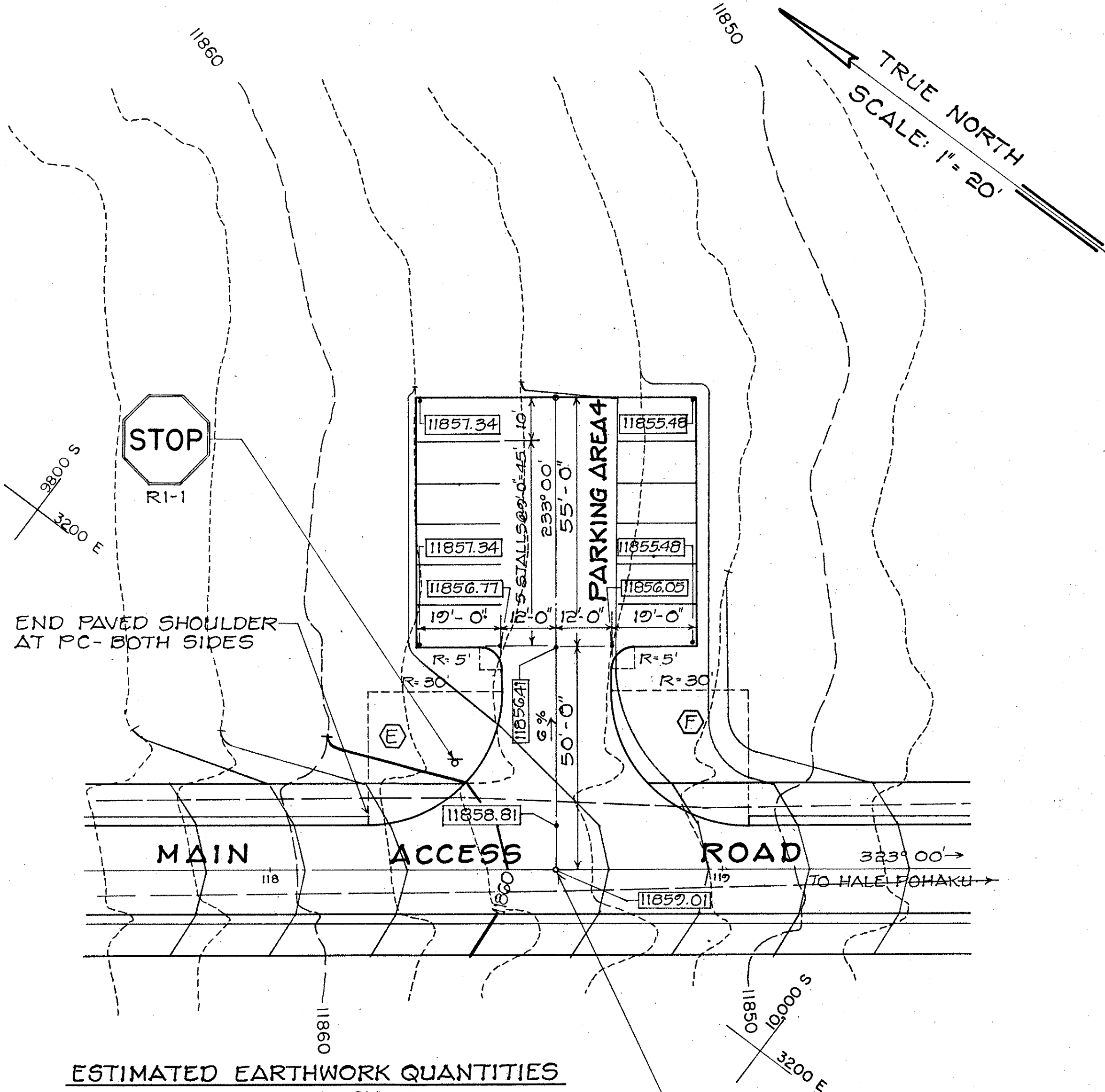
CULVERT PROFILES AND DETAILS

MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE II-A

PROJECT NO. HWY-H-01-86
SCALE: AS SHOWN

3/21/88	ROAD IMPROVEMENTS EXTENDED TO STA. 131+50 (C.C.O. 2)
DATE	REVISION

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-H-01-86	1987	C.O. 115S-7	115



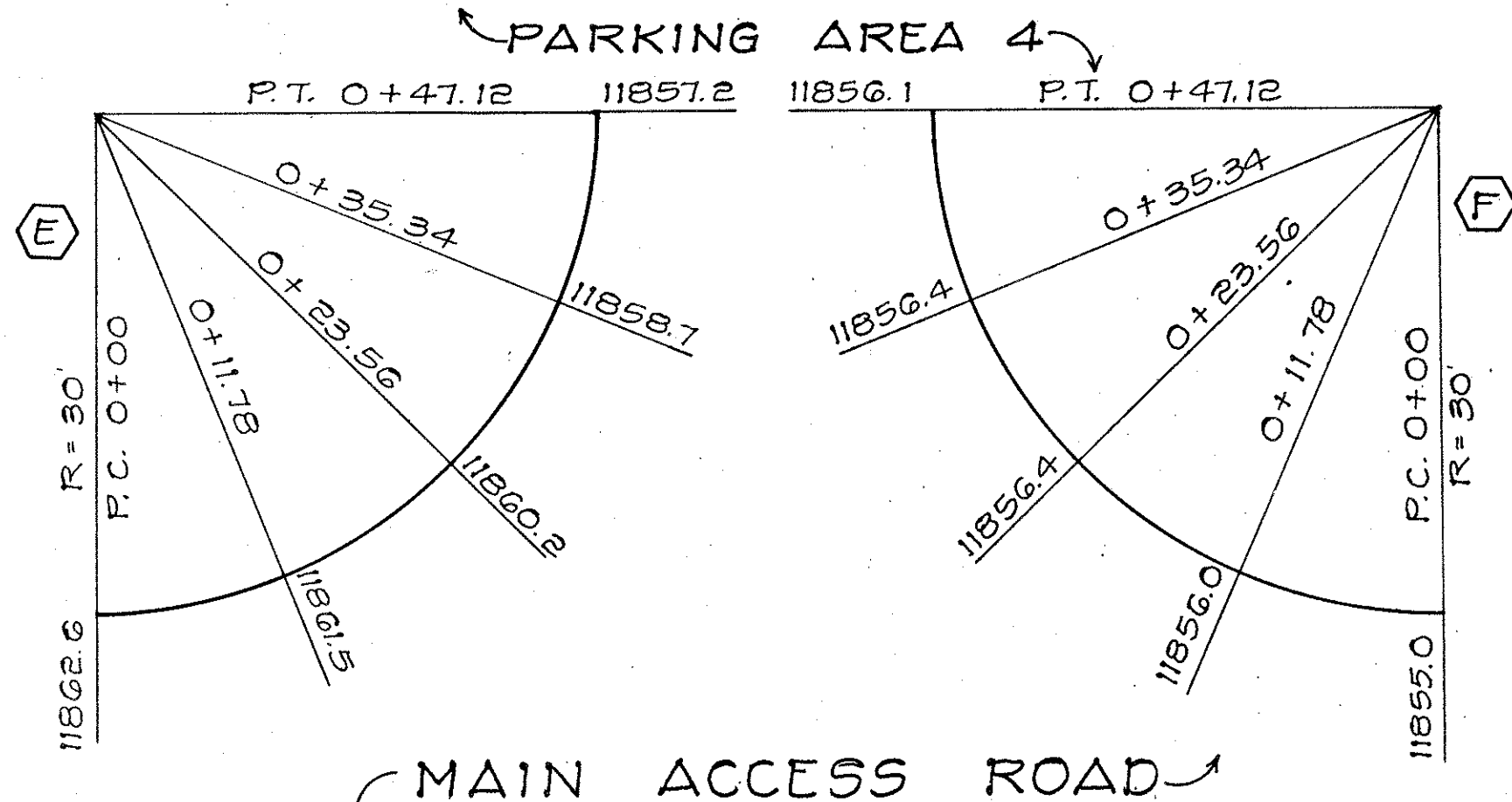
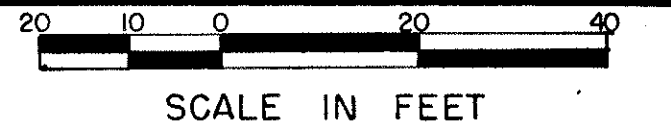
ESTIMATED EARTHWORK QUANTITIES

EXC. = 10 CU. YD.
EMB. = 200 CU. YD.

STA. 118+63.64 MAIN ACCESS ROAD
± PARKING AREA 4

NOTE:
SEE SHEET 88 FOR
TYPICAL PAVEMENT
SECTION FOR PARK-
ING AREAS.

**SITE AND GRADING PLAN
PARKING AREA 4**



CURVE RETURNS

SCALE: 1" = 10'-0"

MOISTURE CONTENT IN %	DRY DENSITY IN PCF	SAMPLES	DEPTH IN FEET	GRAPH SYMBOL	LETTER SYMBOL	DESCRIPTION
		2	GP			REDDISH BROWN SANDY GRAVEL, MEDIUM DENSE, MOIST

TEST PIT TERMINATED UPON REFUSAL
AT 3.2 FEET ON 10-01-84
GROUNDWATER NOT ENCOUNTERED

MOISTURE CONTENT IN %	DRY DENSITY IN PCF	SAMPLES	DEPTH IN FEET	GRAPH SYMBOL	LETTER SYMBOL	DESCRIPTION
		2	SP			REDDISH BROWN SAND, MEDIUM DENSE, MOIST, WITH GRAVEL
		4	GP			REDDISH BROWN GRAVEL, MEDIUM DENSE, MOIST, WEAKLY CEMENTED

TEST PIT TERMINATED UPON REFUSAL
AT 4.5 FEET ON 10-01-84
GROUNDWATER NOT ENCOUNTERED

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NO.	

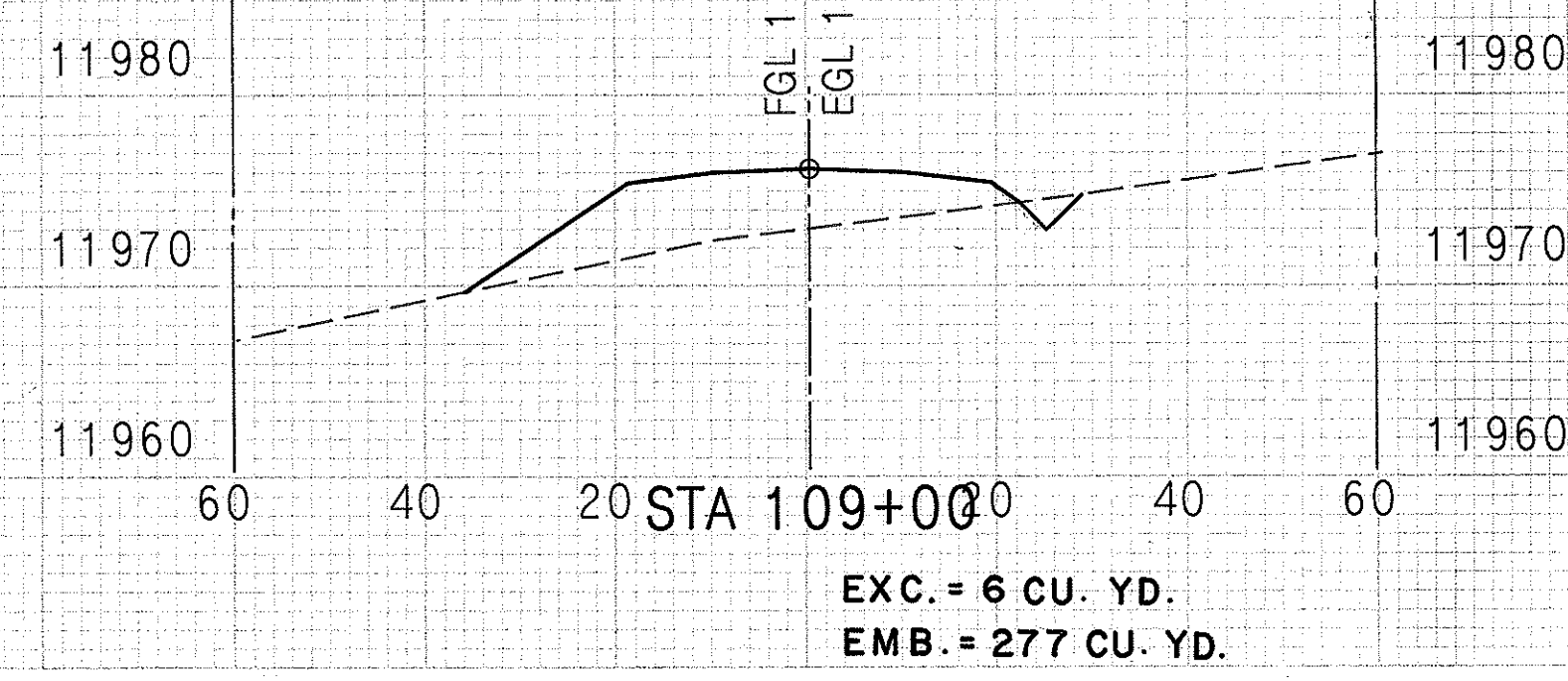
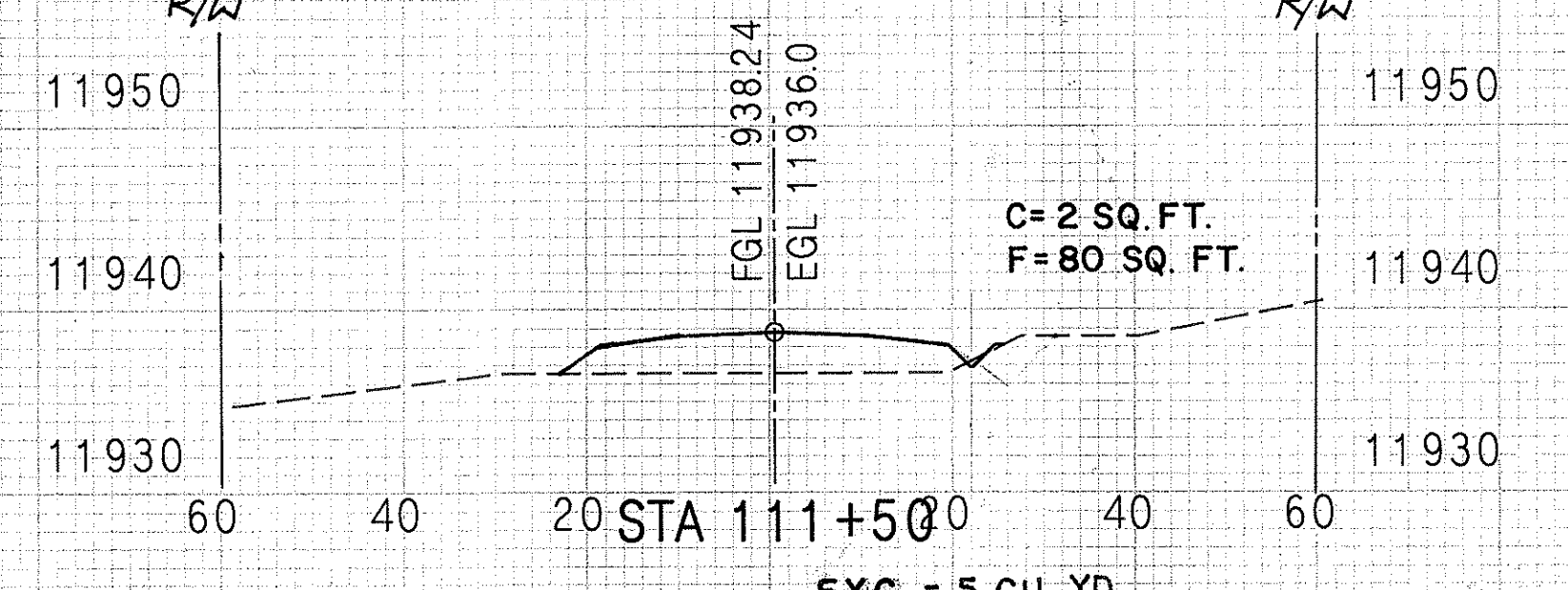
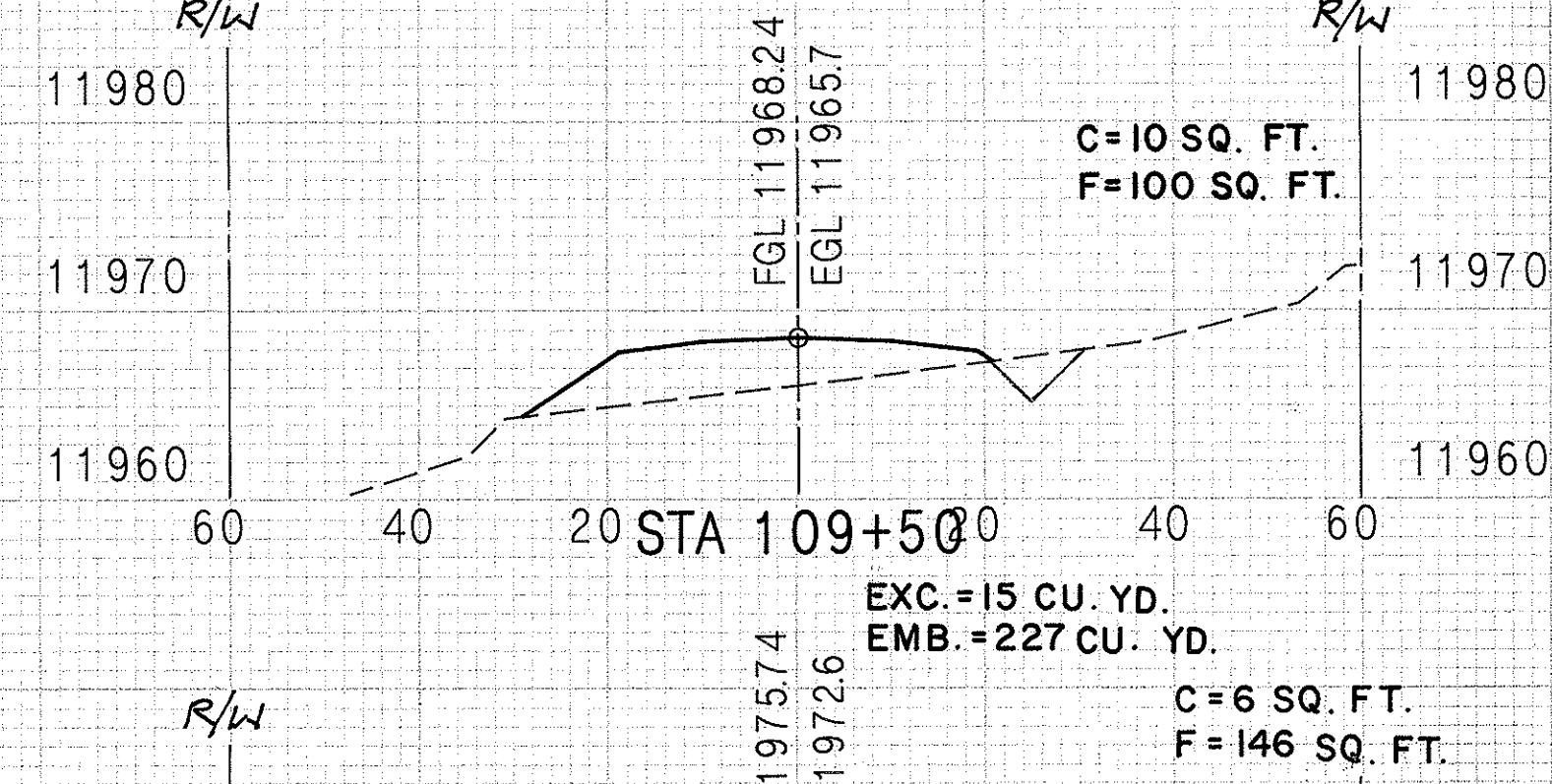
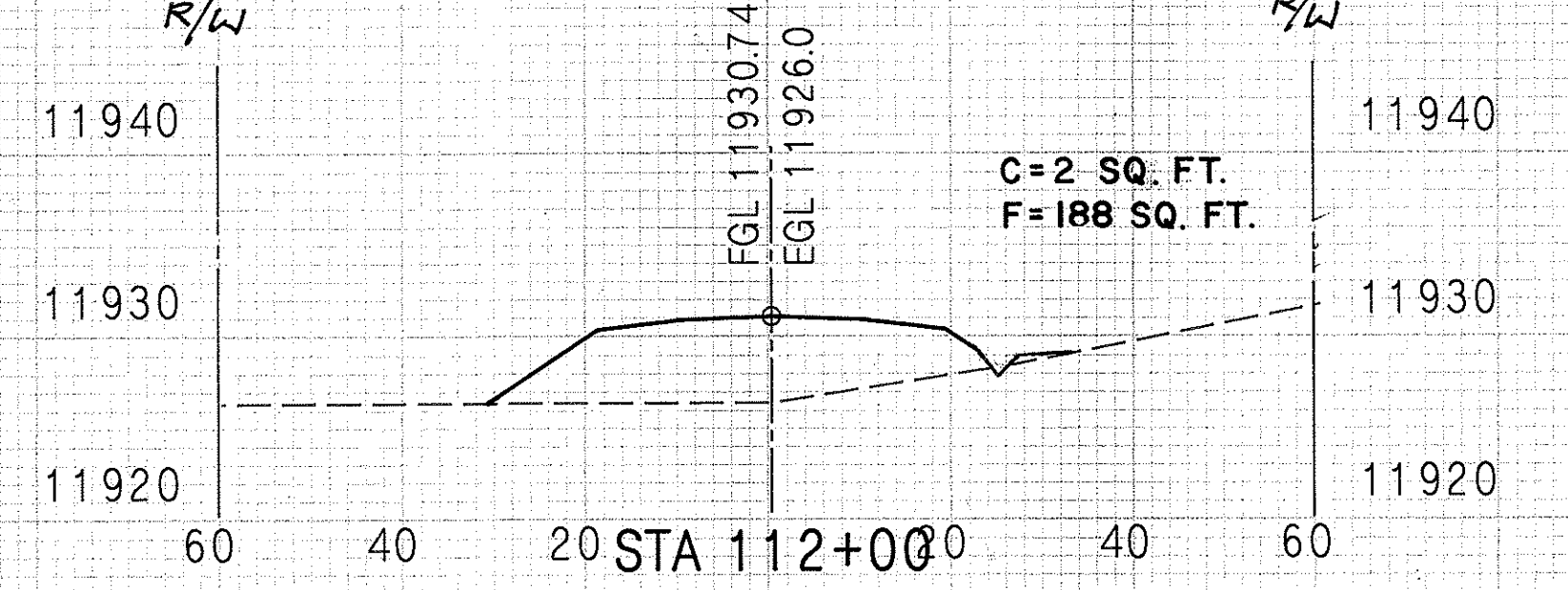
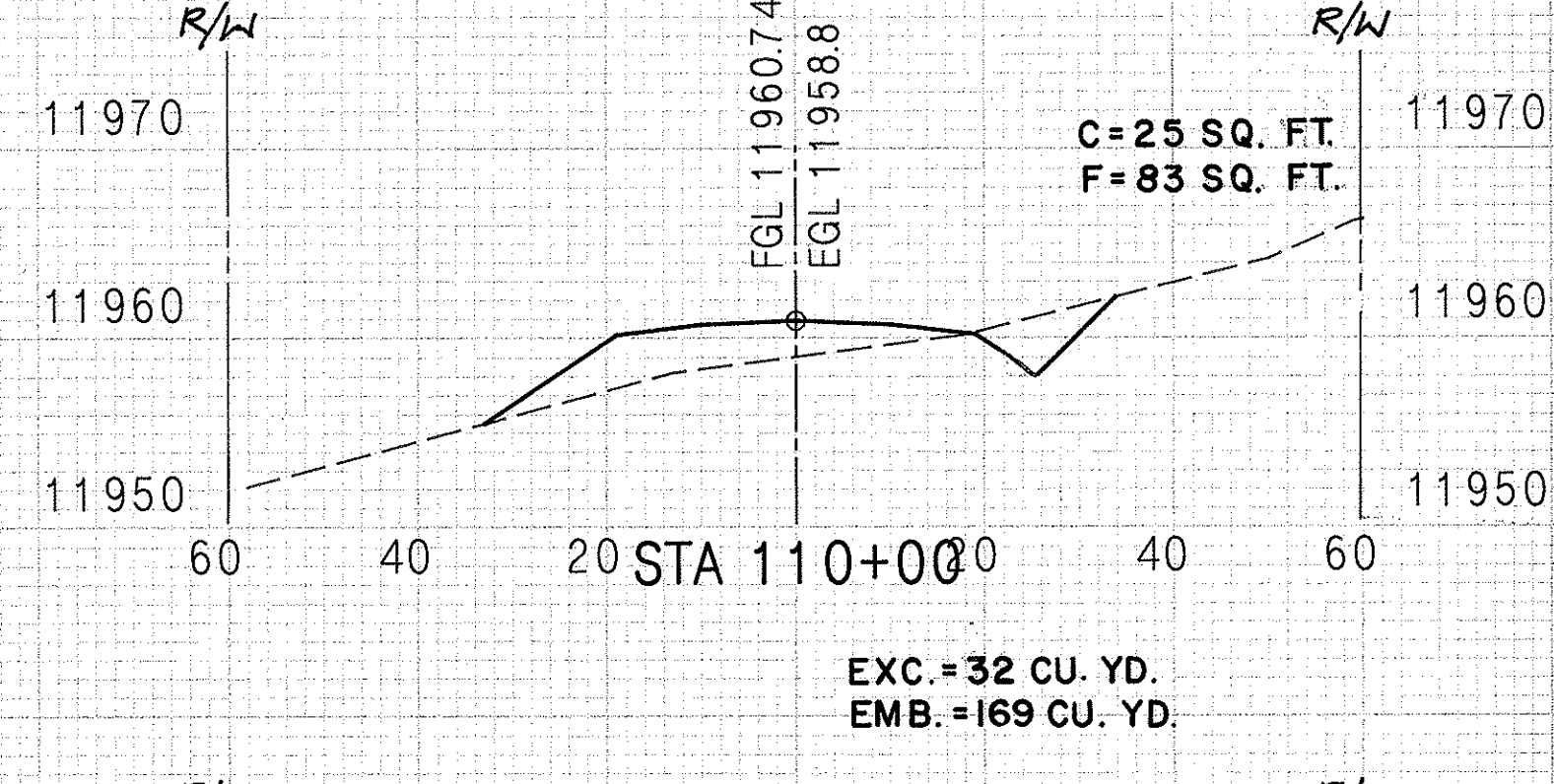
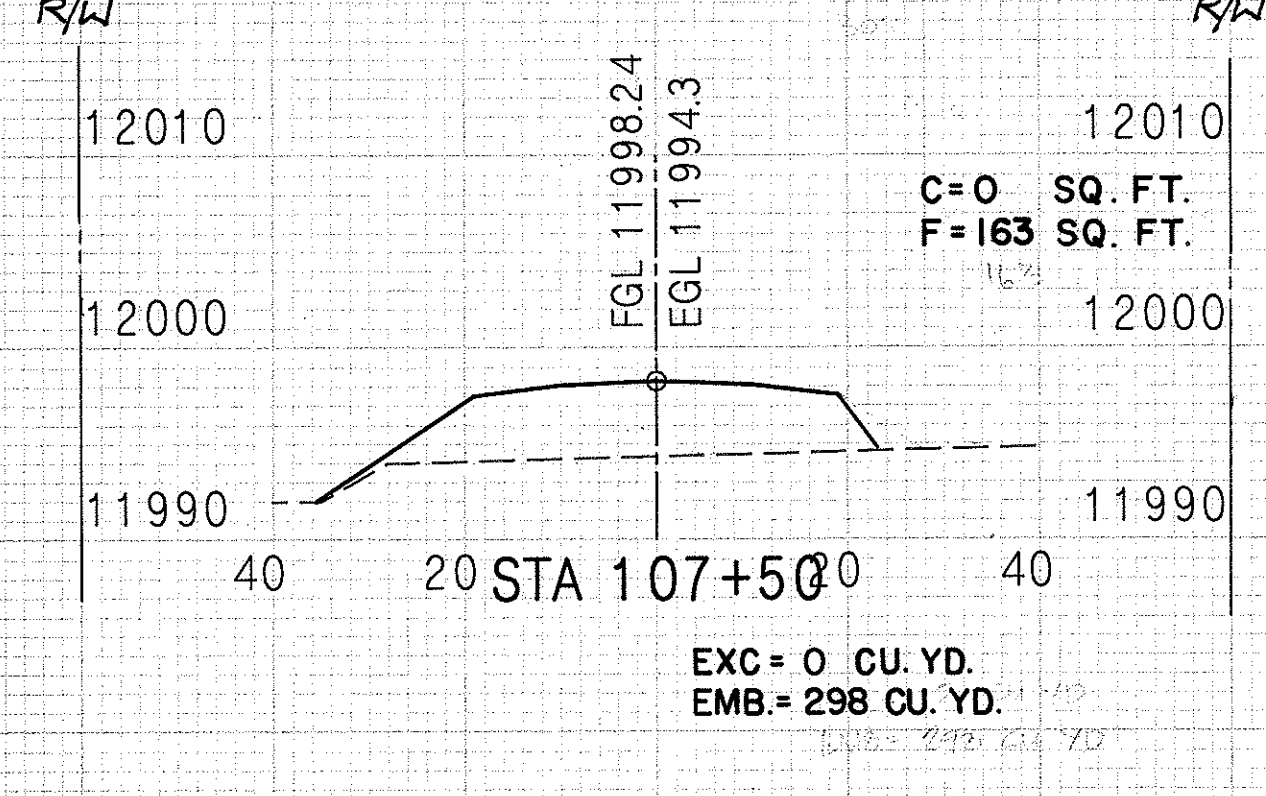
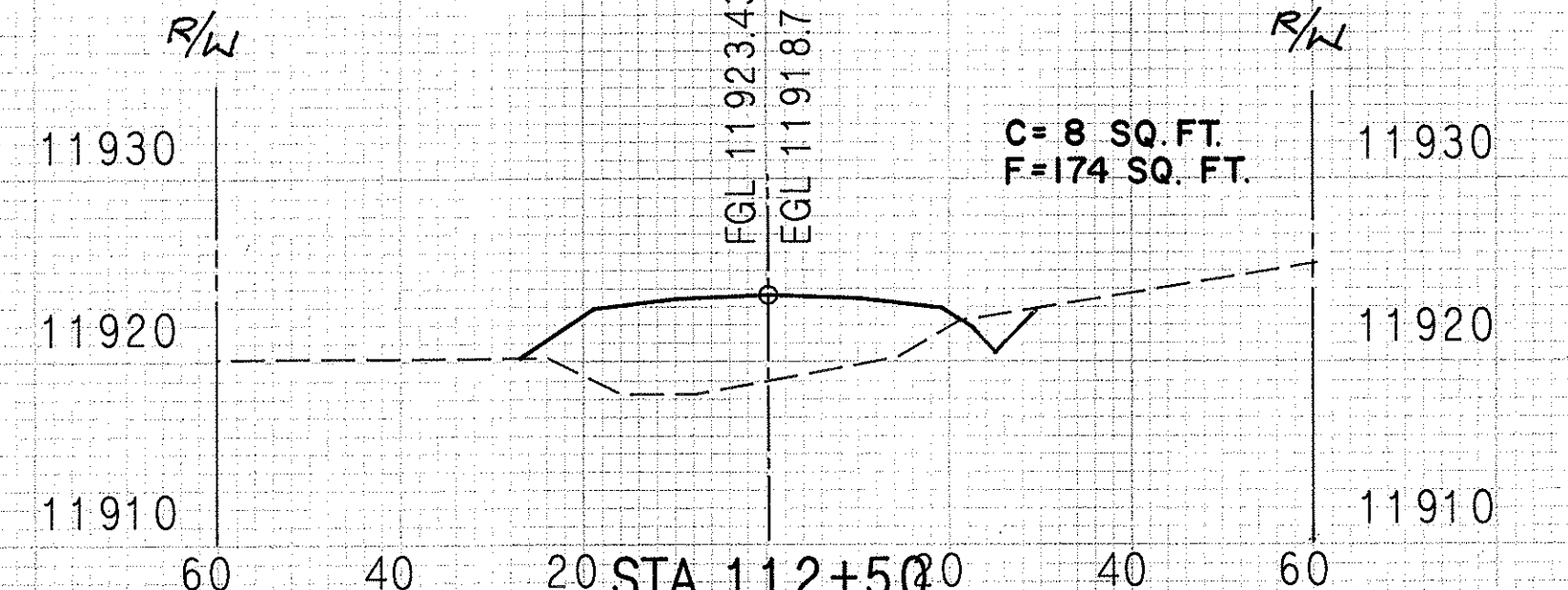
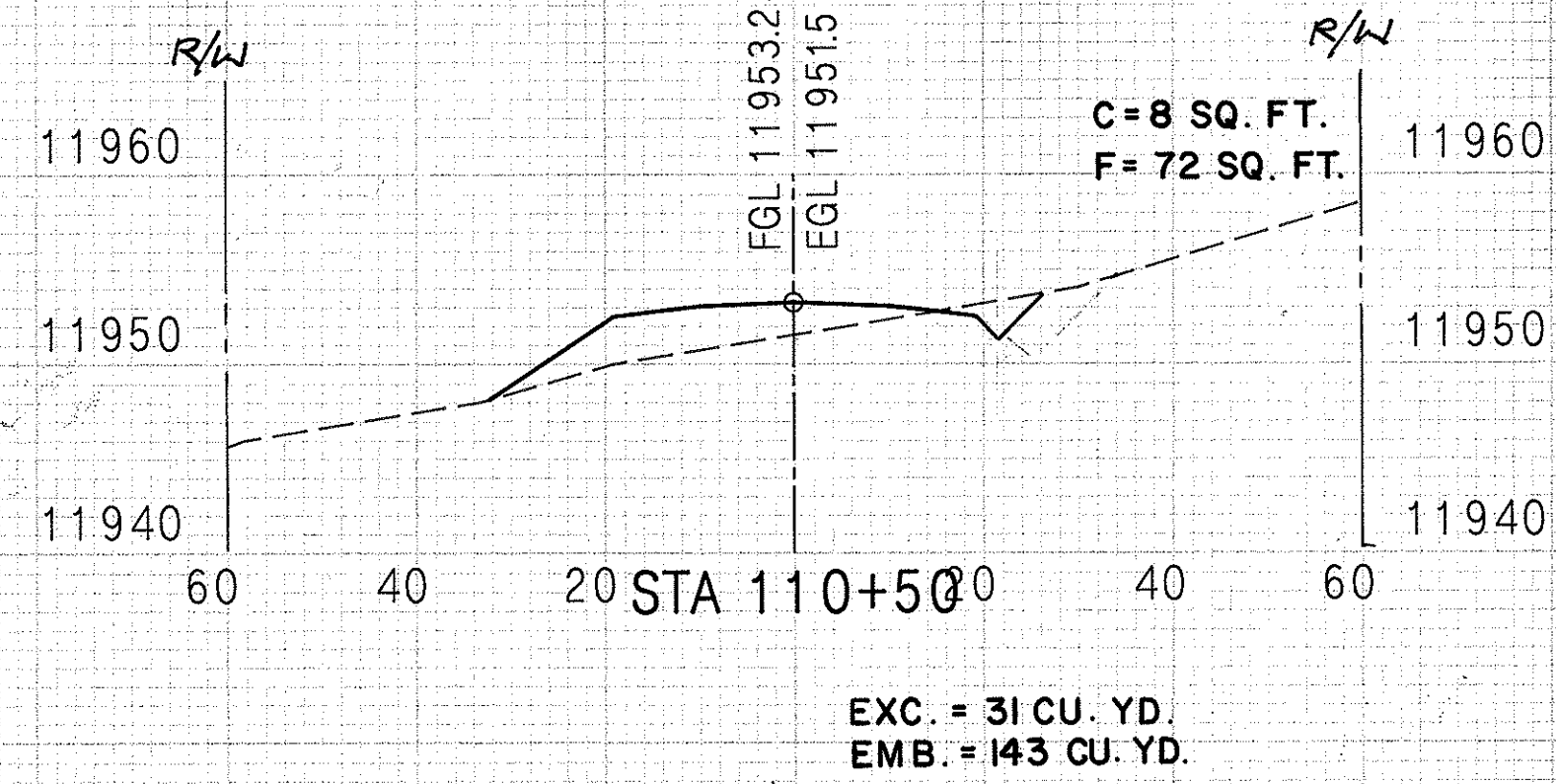
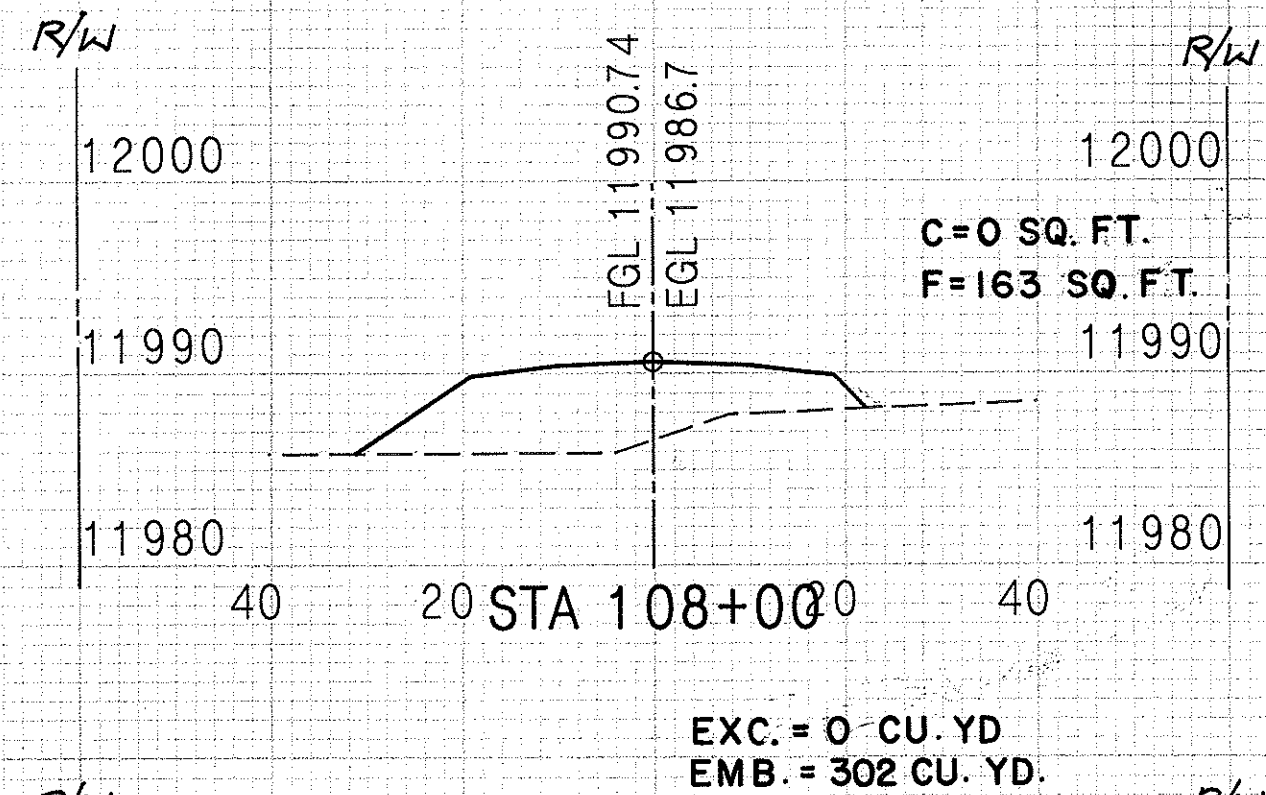
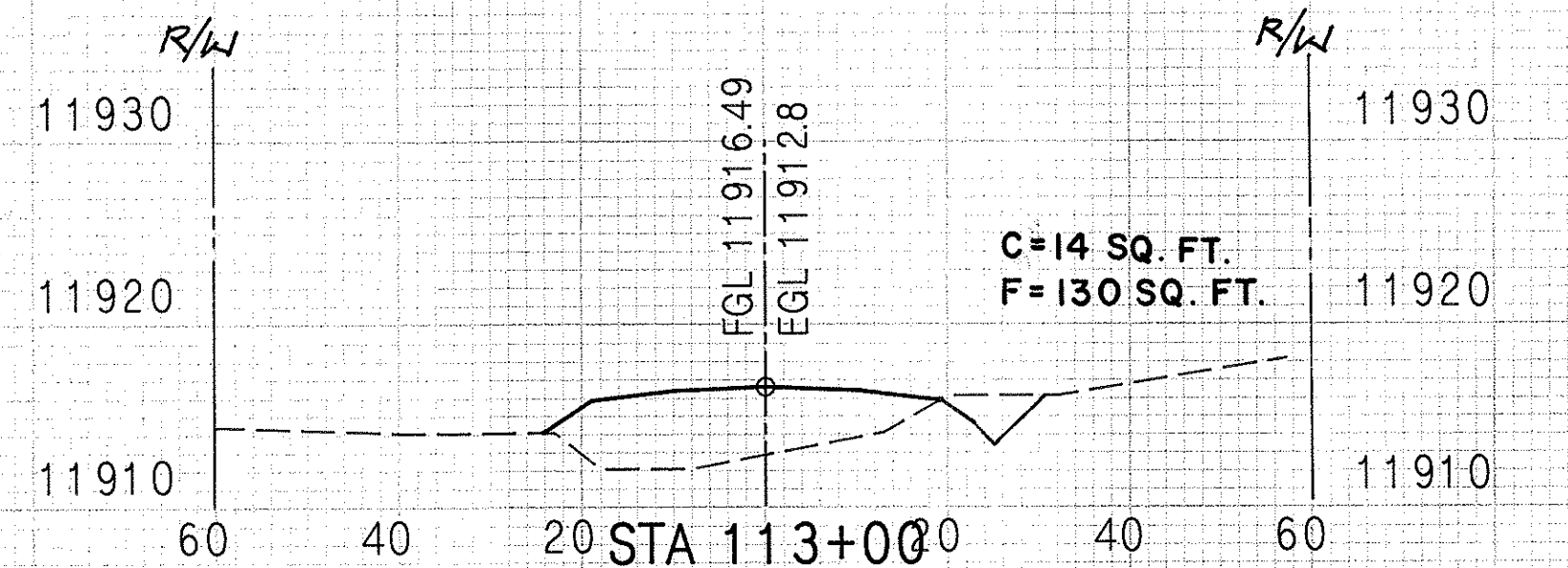
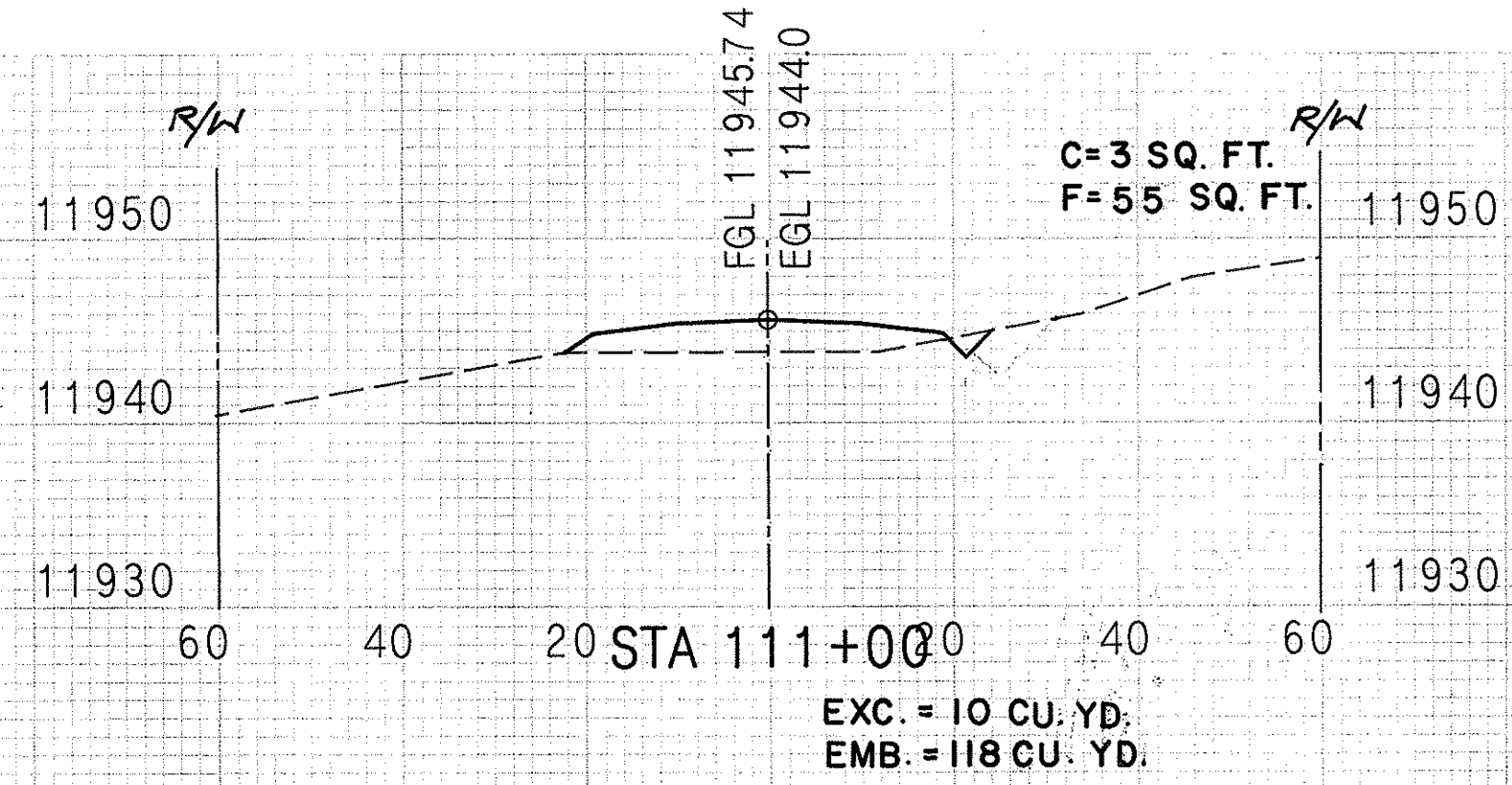
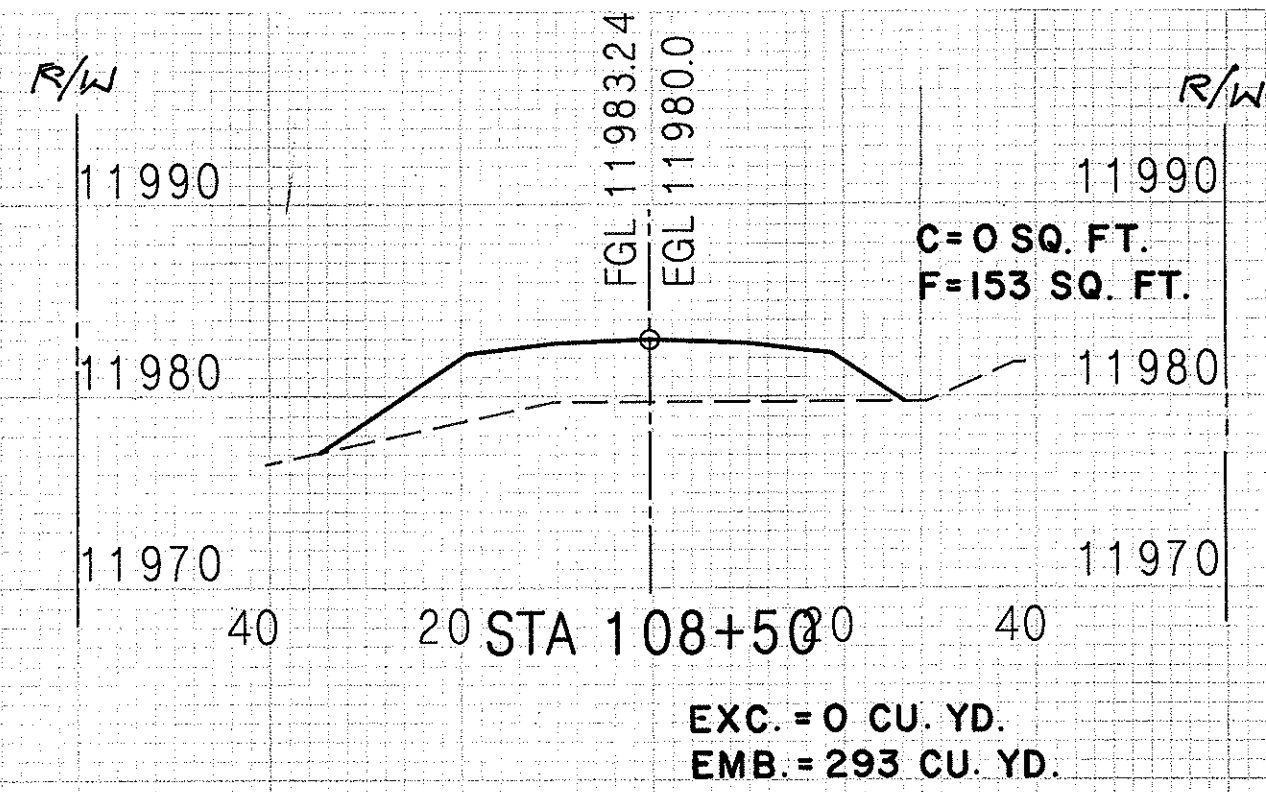
3/21/88	ROAD IMPROVEMENTS EXTENDED TO STA. 131+50 (C.C.O. 2)
DATE	REVISION

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Royce S. Fukunaga
 FUKUNAGA & ASSOCIATES

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
**SITE & GRADING PLAN-
PARKING AREA 4 AND
TEST PIT LOGS**
 MAUNA KEA OBSERVATORY ACCESS ROAD,
 PHASE II-A
 PROJECT NO. HWY-H-01-86
 SCALE: AS SHOWN

SHEET No. OF SHEETS

FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY. H-01-86	1987	C.O. 115 S-8	115



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CROSS SECTIONS
MAIN ACCESS ROAD

MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE II-A

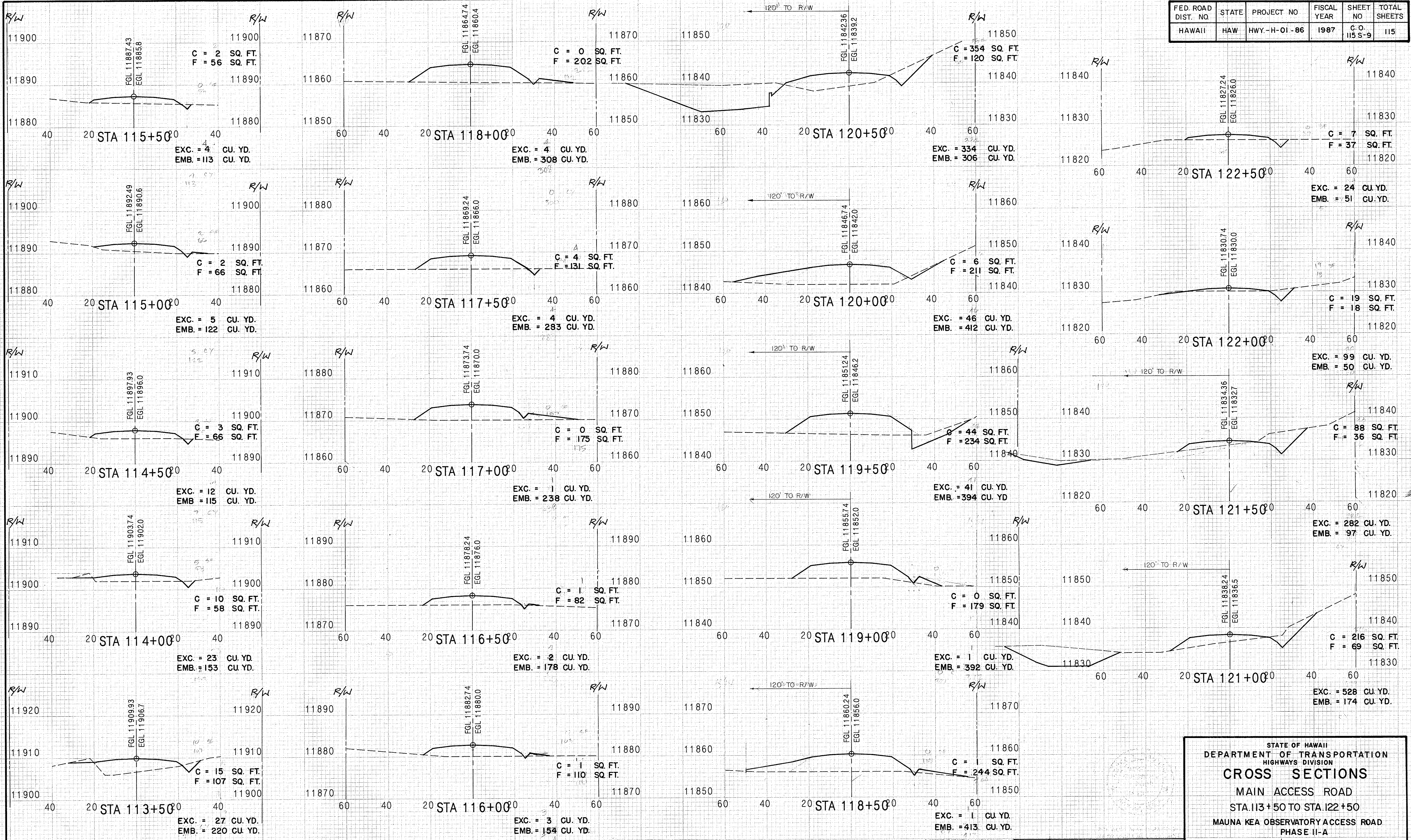
3/21/88 ROAD IMPROVEMENTS EXTENDED TO STA. 131+50 (C.C.O. 2)
DATE REVISION

SCALE: HORIZONTAL 1" = 20'
VERTICAL 1" = 10'

SHEET No. 115 OF 115 SHEETS

C.O. 115 S-8

FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	HWY.-H-01-86	1987	C.O. 115 S-9	115



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
CROSS SECTIONS
MAIN ACCESS ROAD
STA. 113+50 TO STA. 122+50
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE II-A

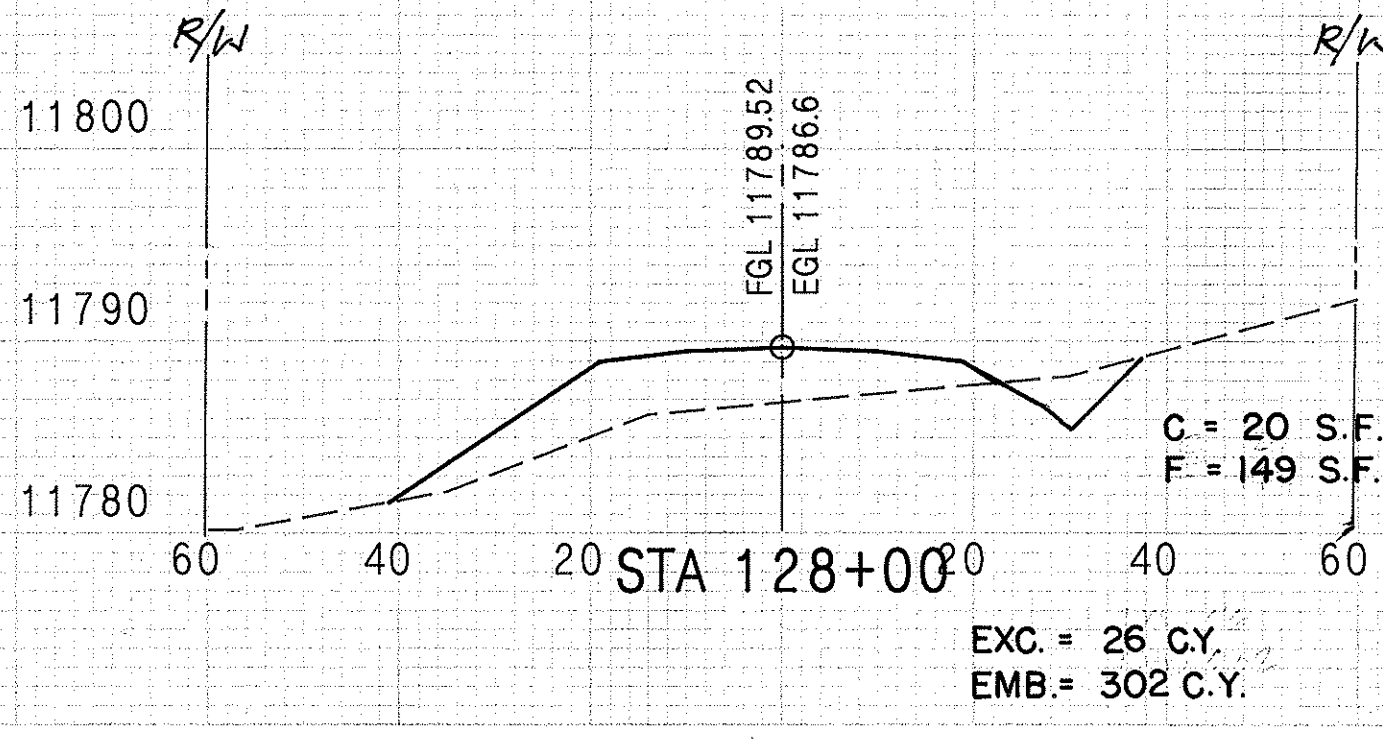
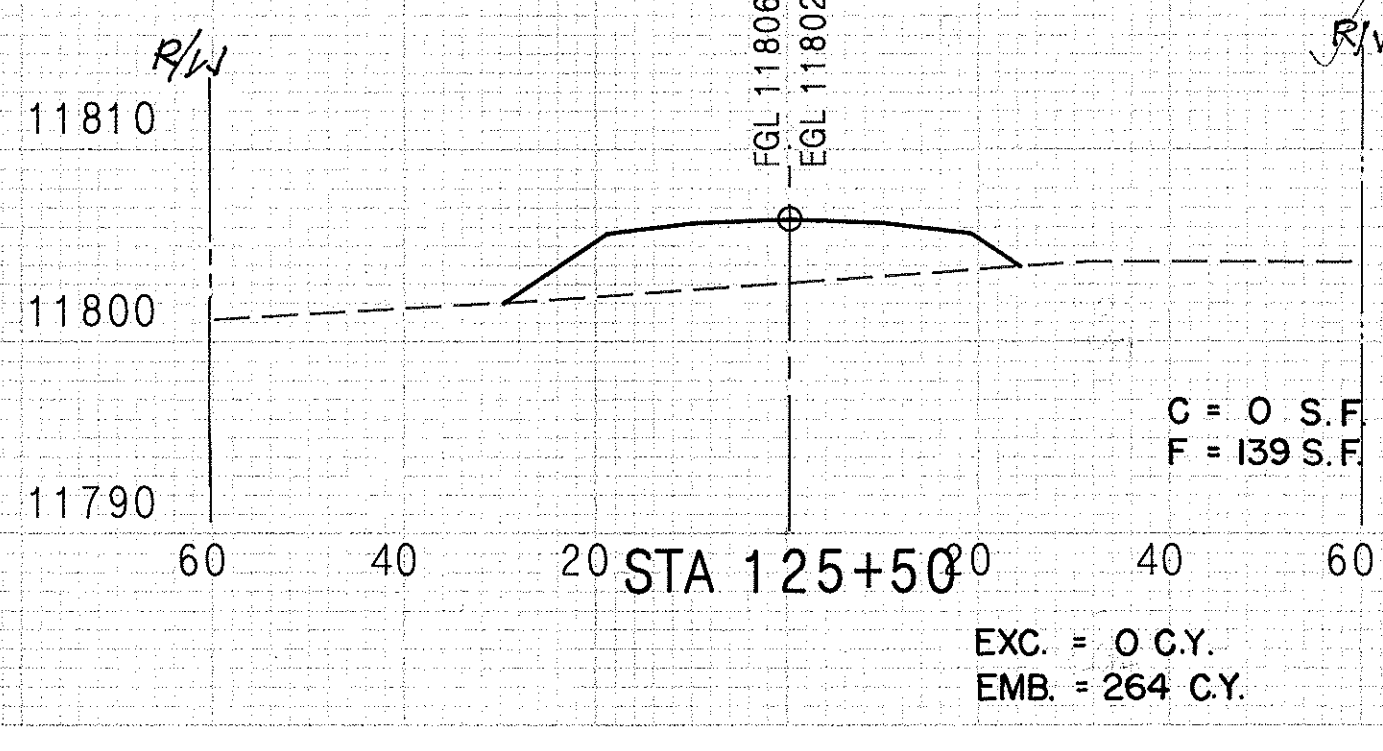
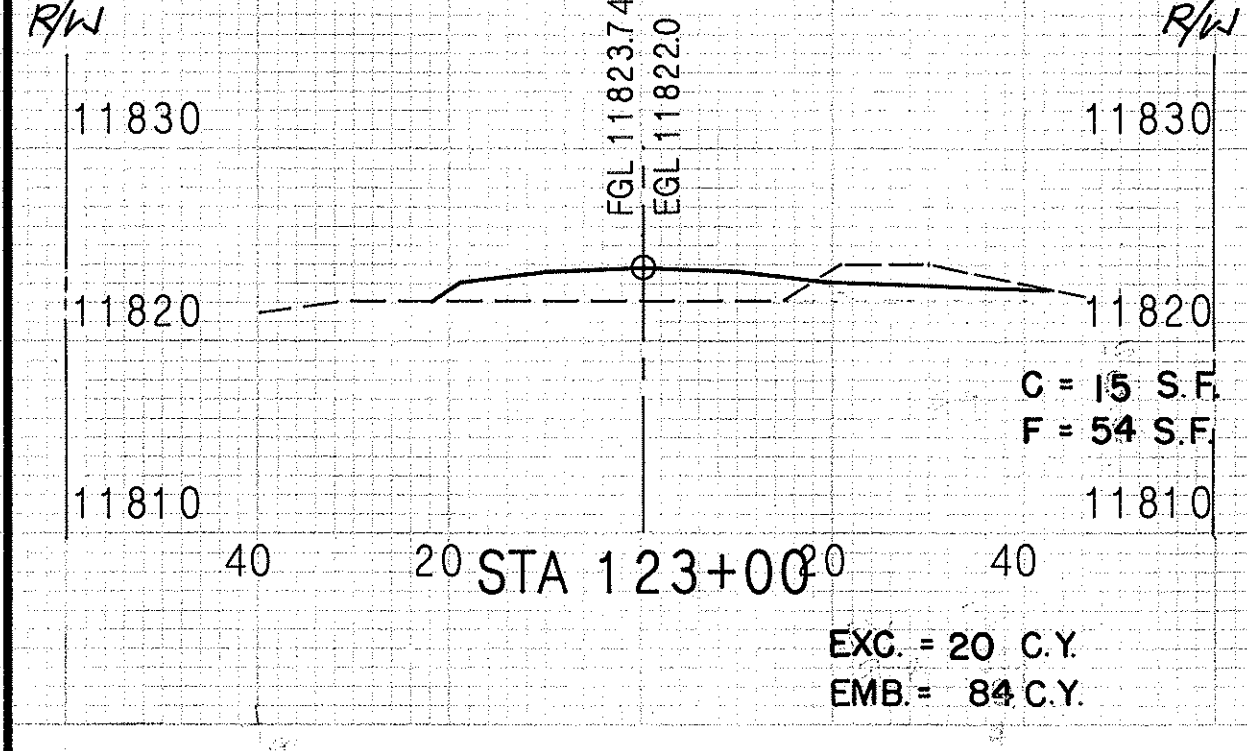
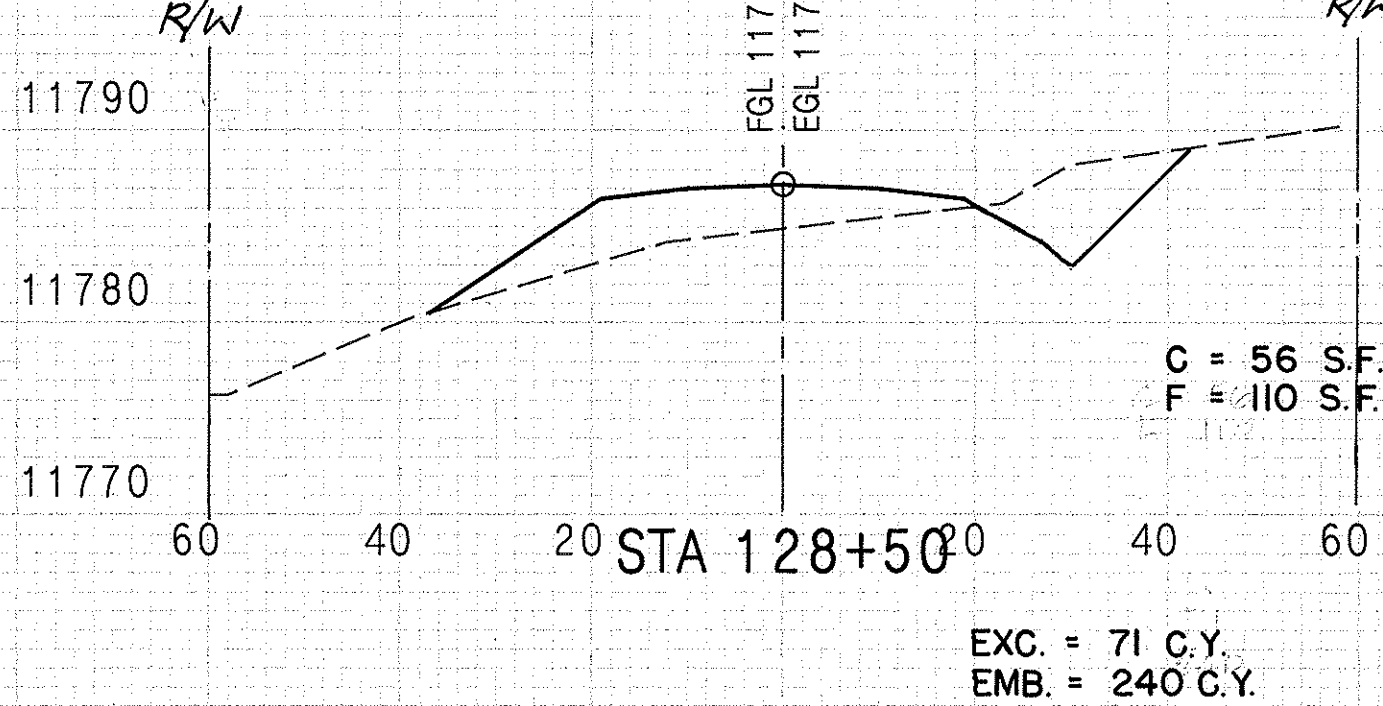
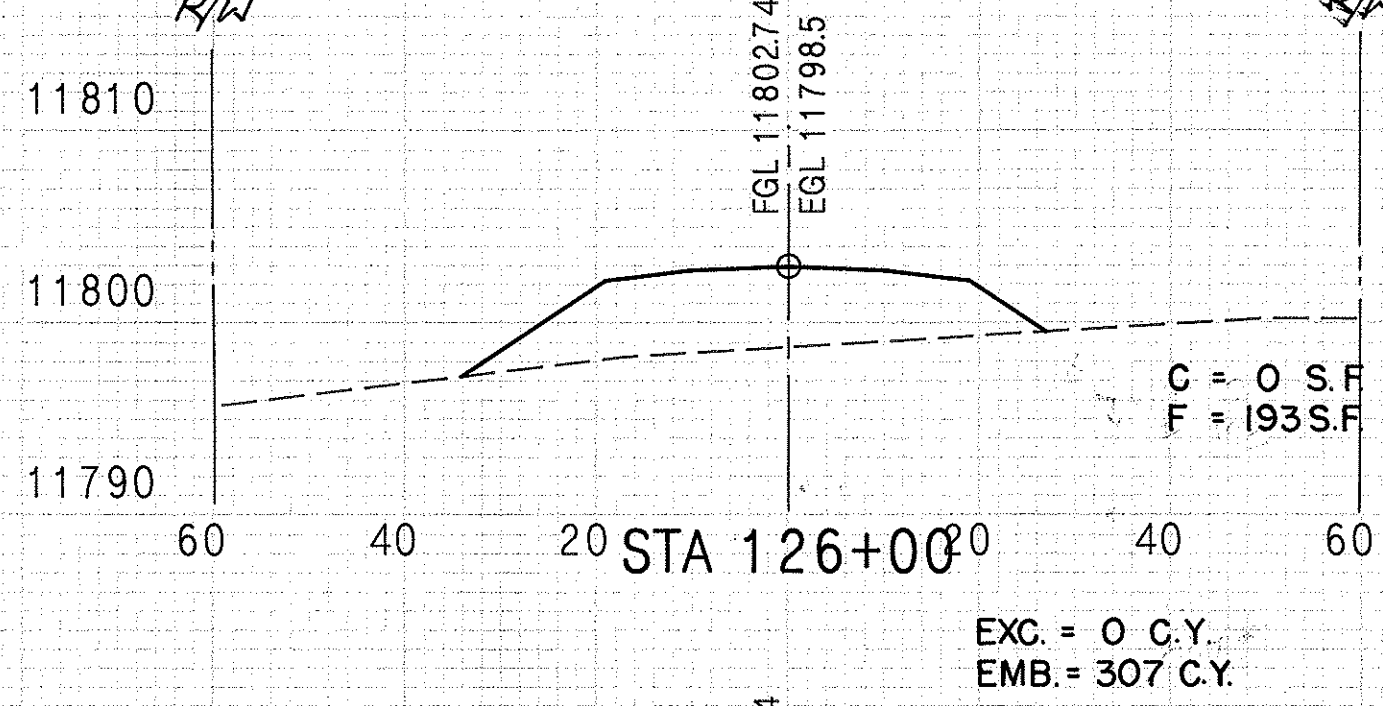
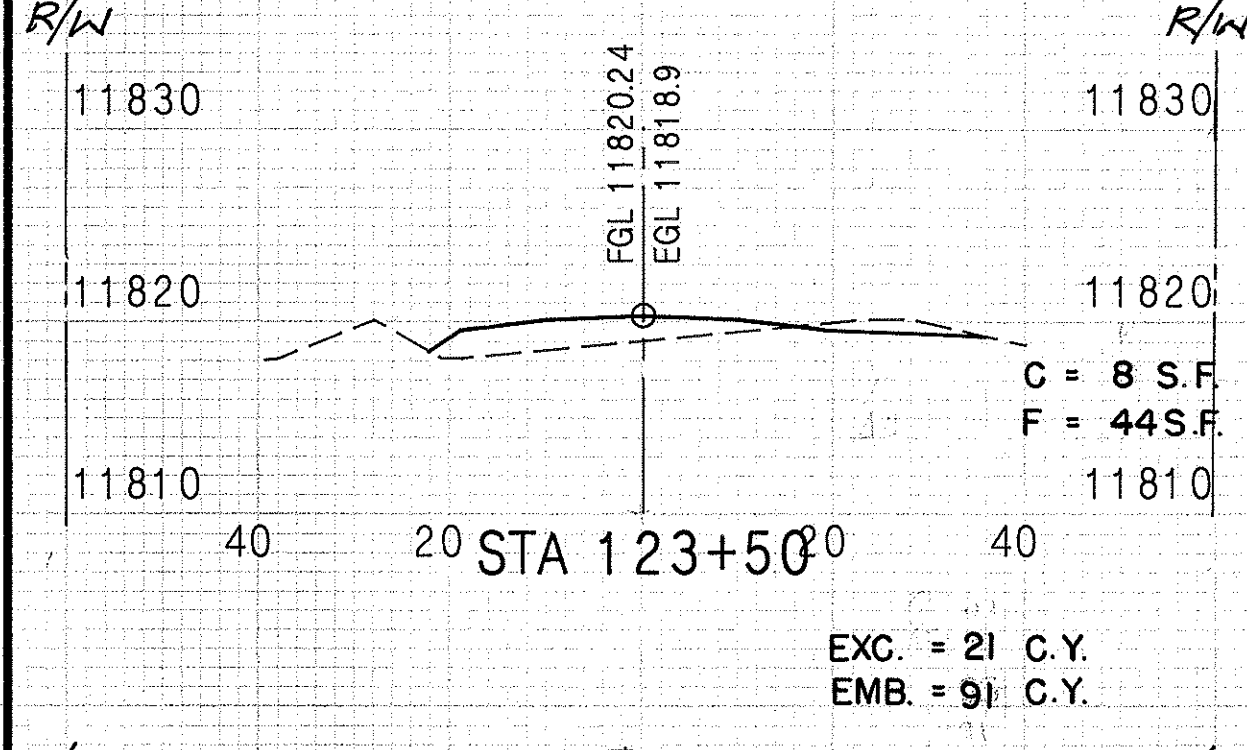
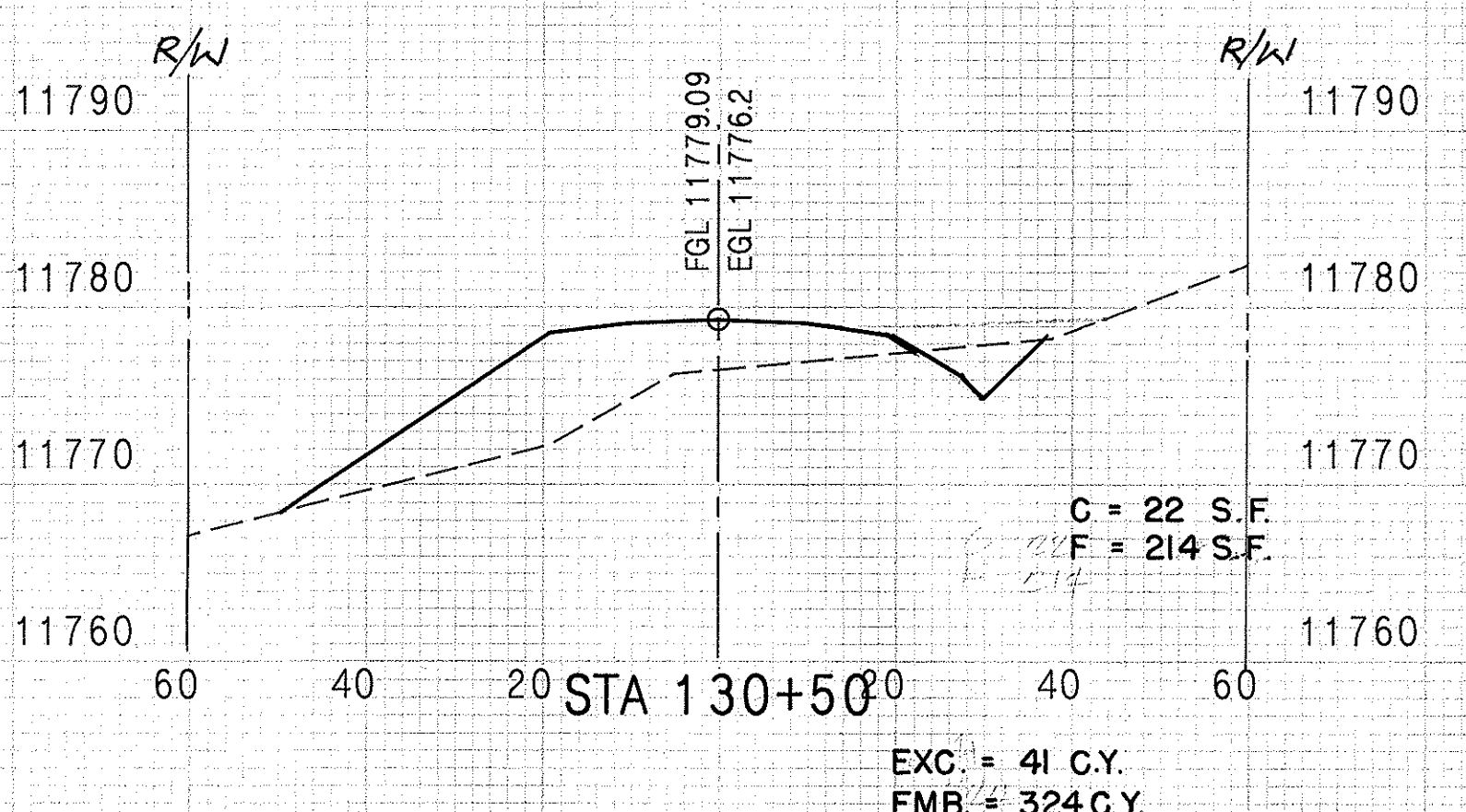
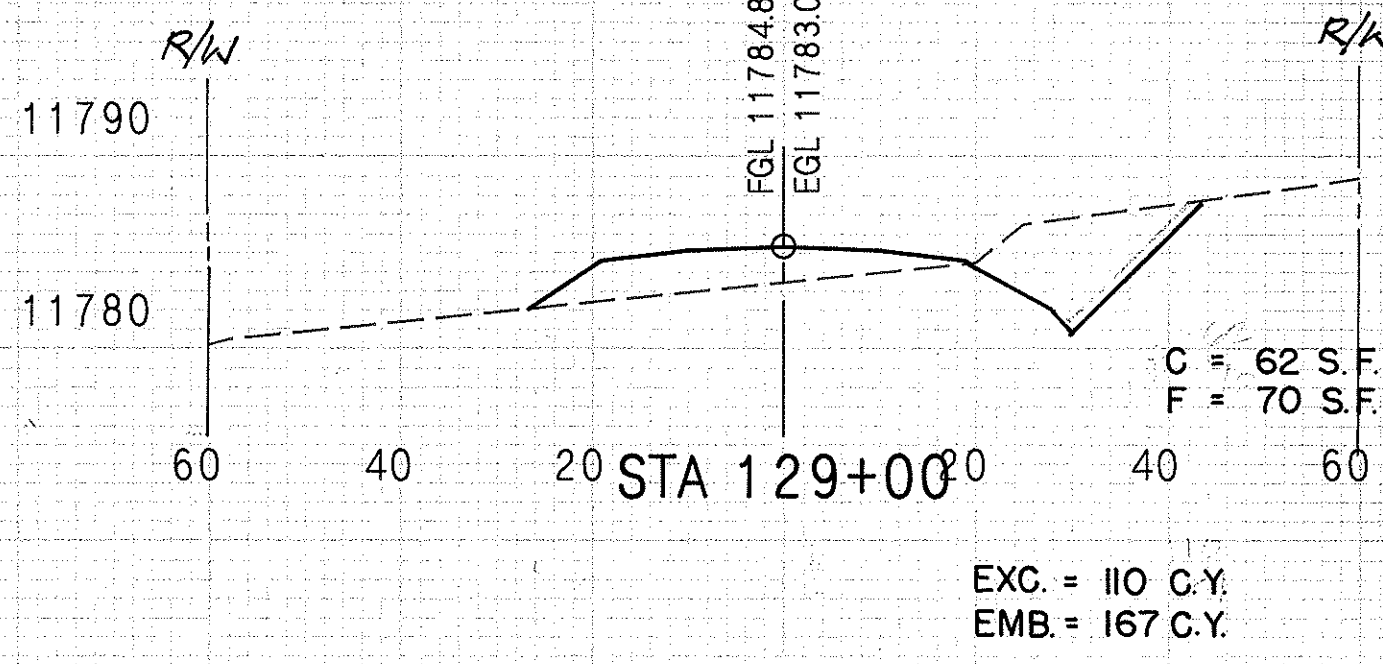
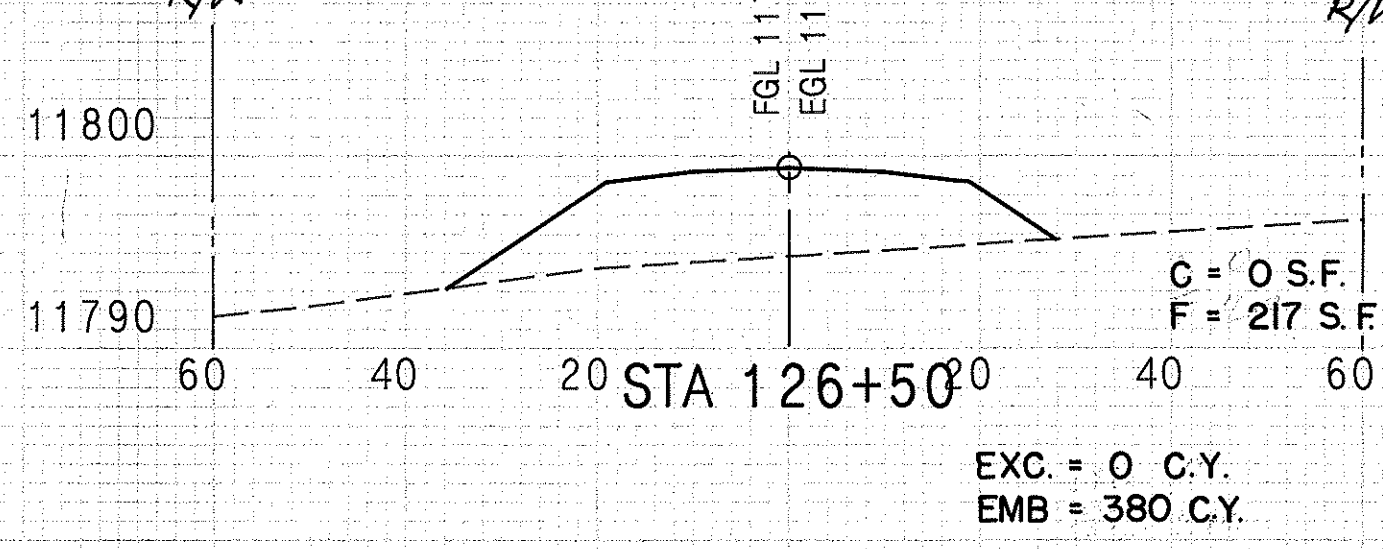
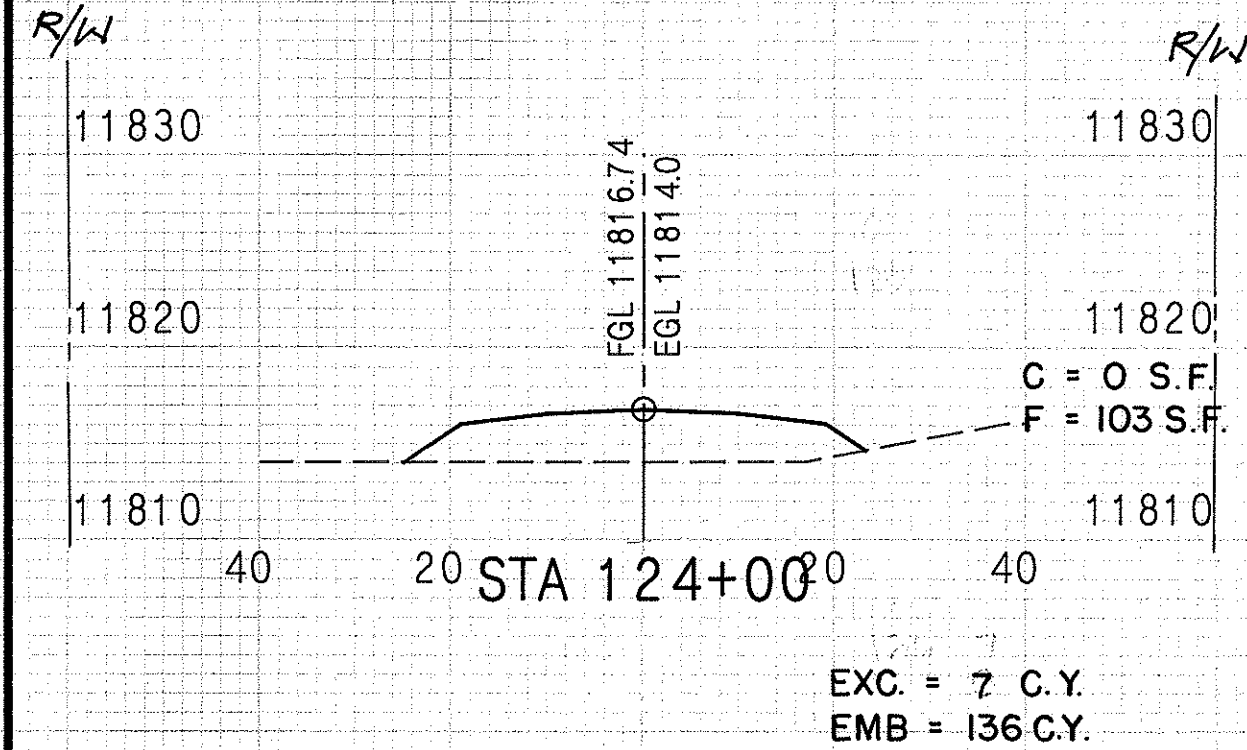
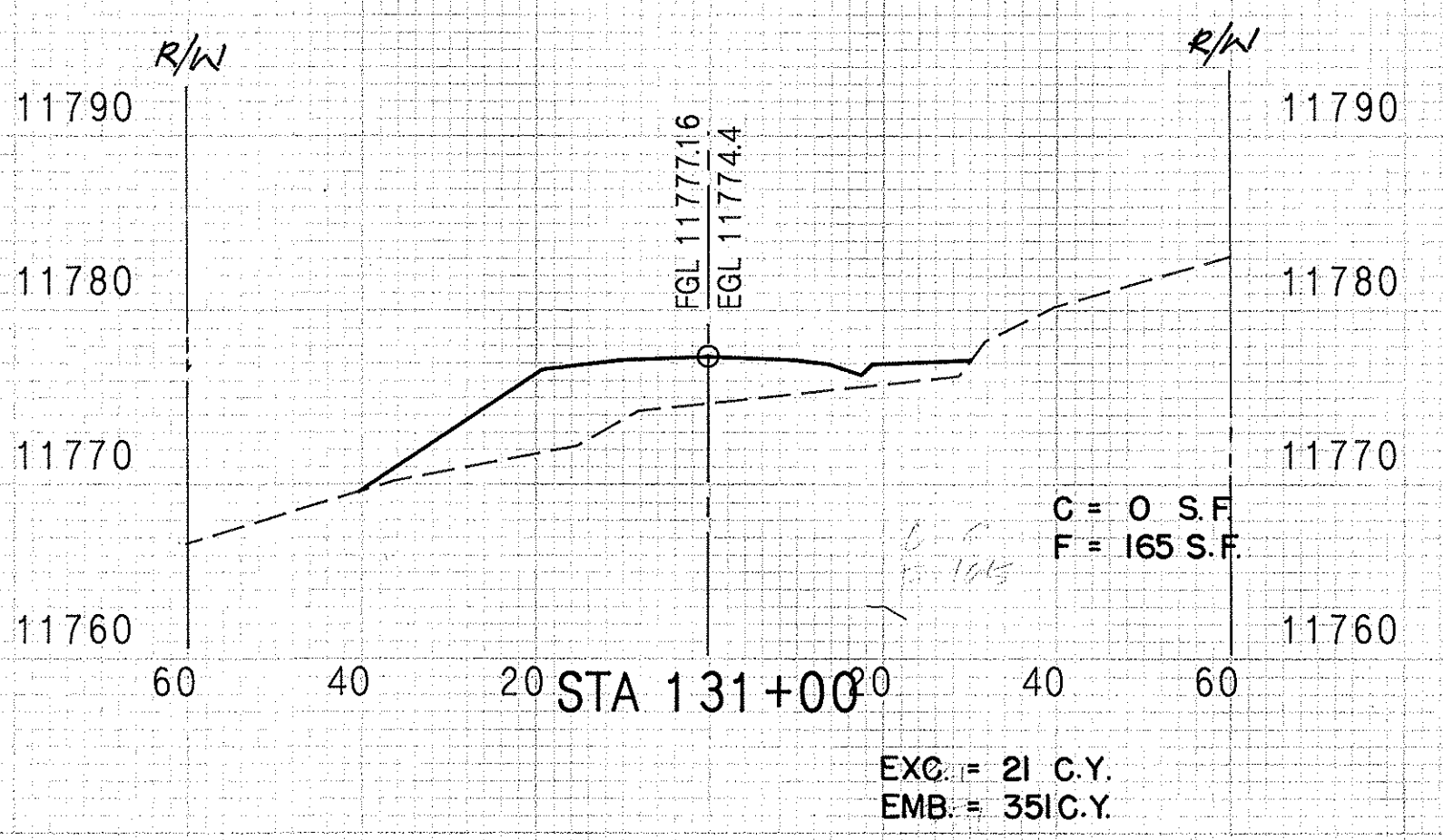
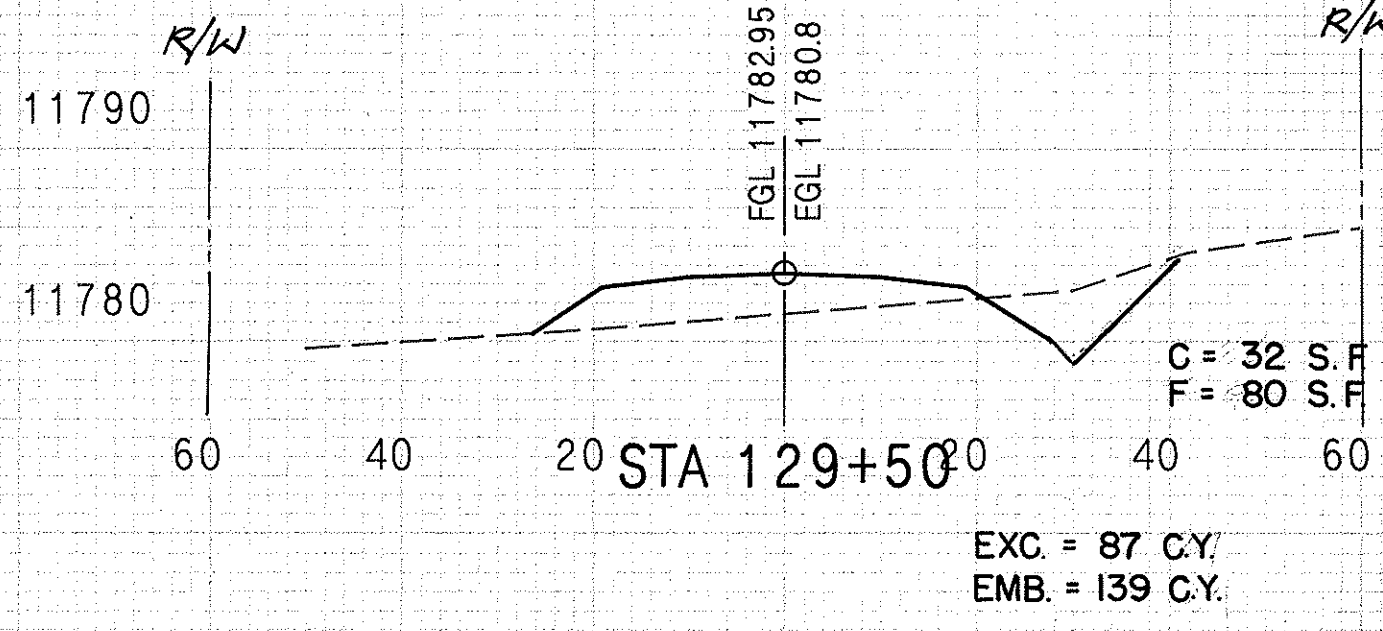
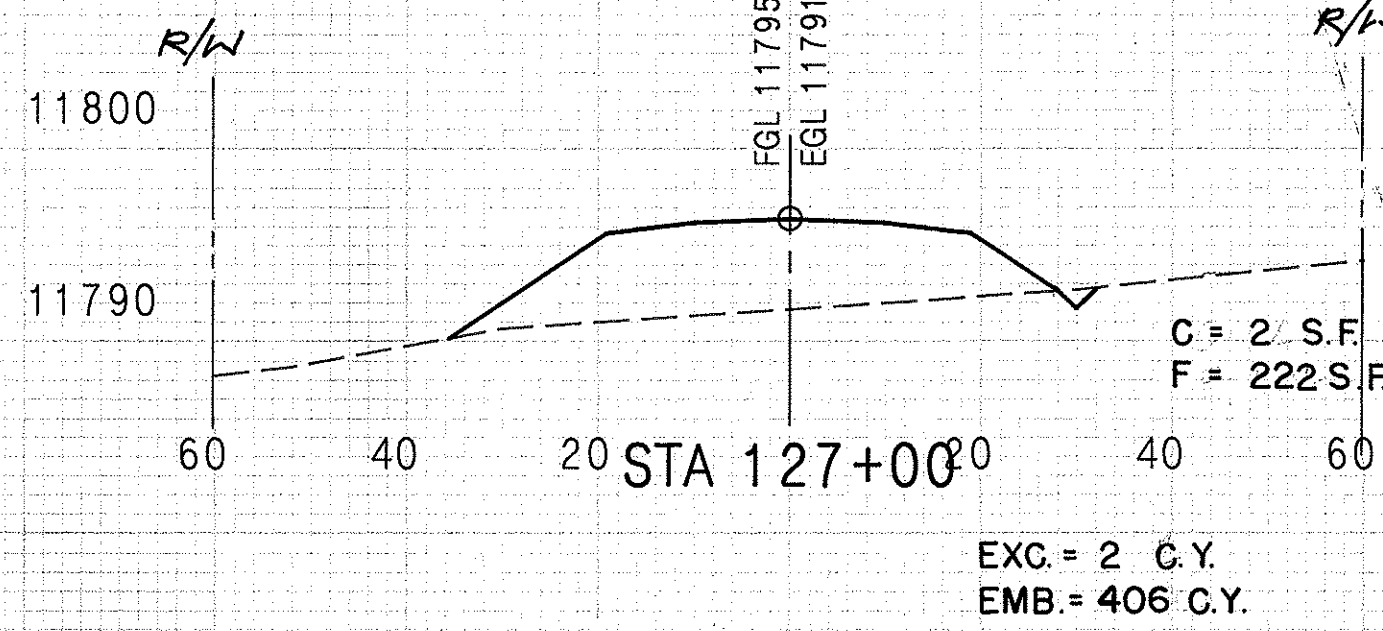
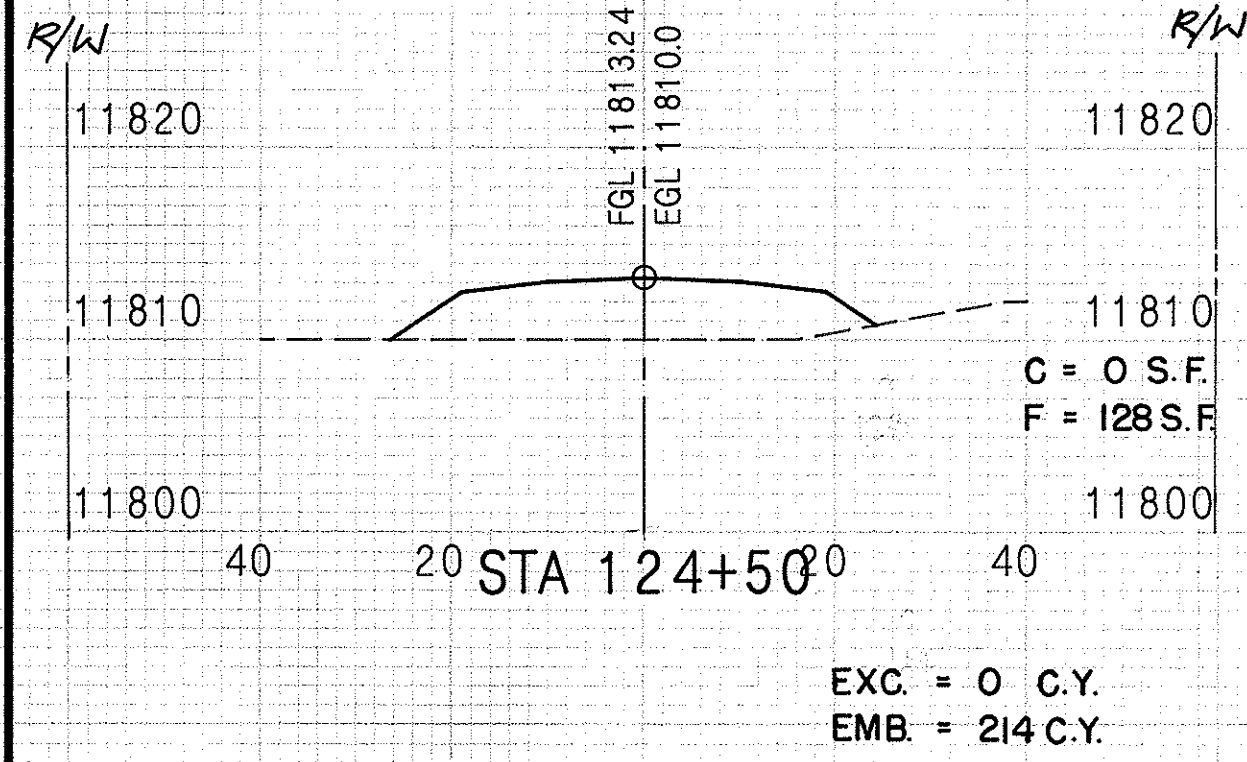
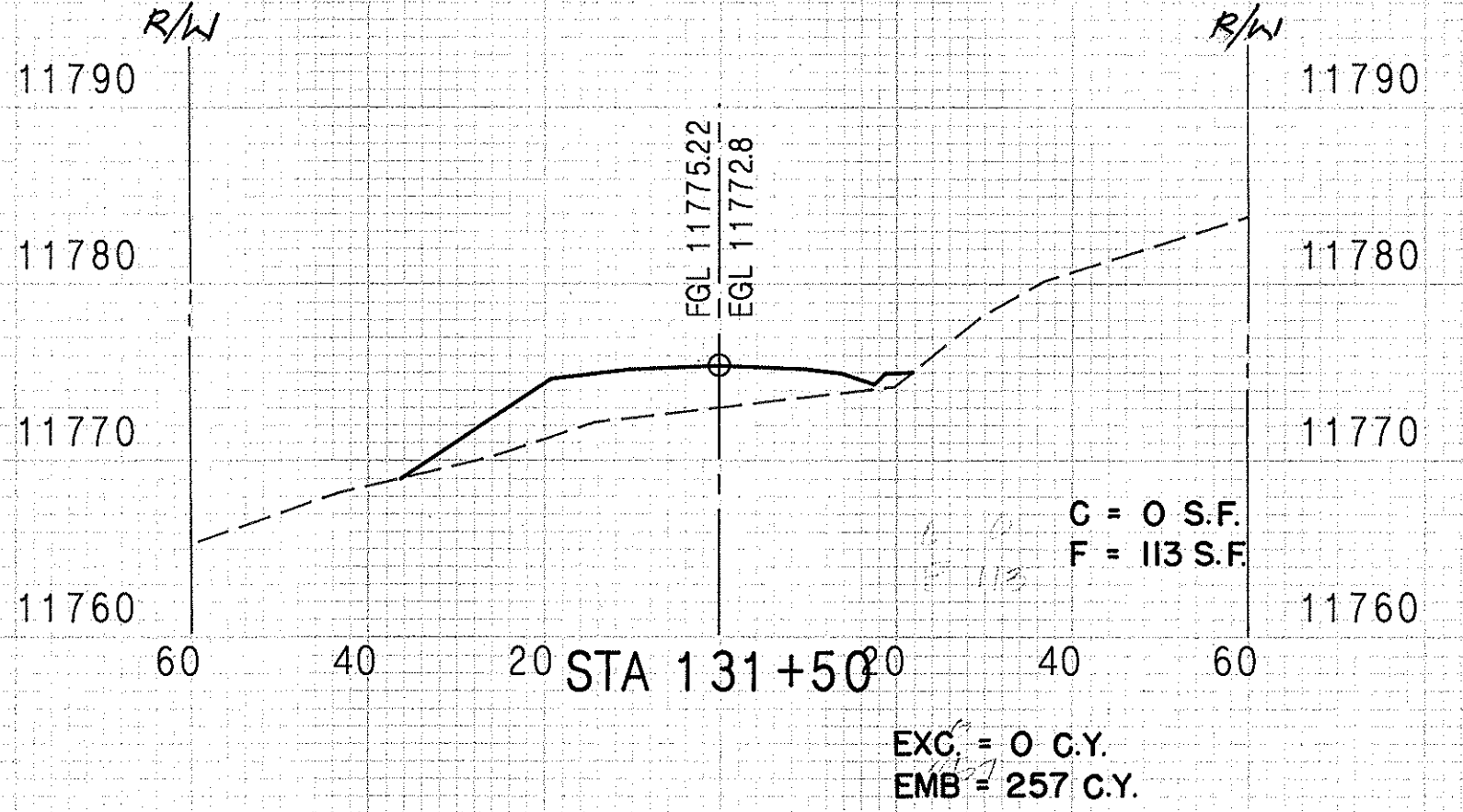
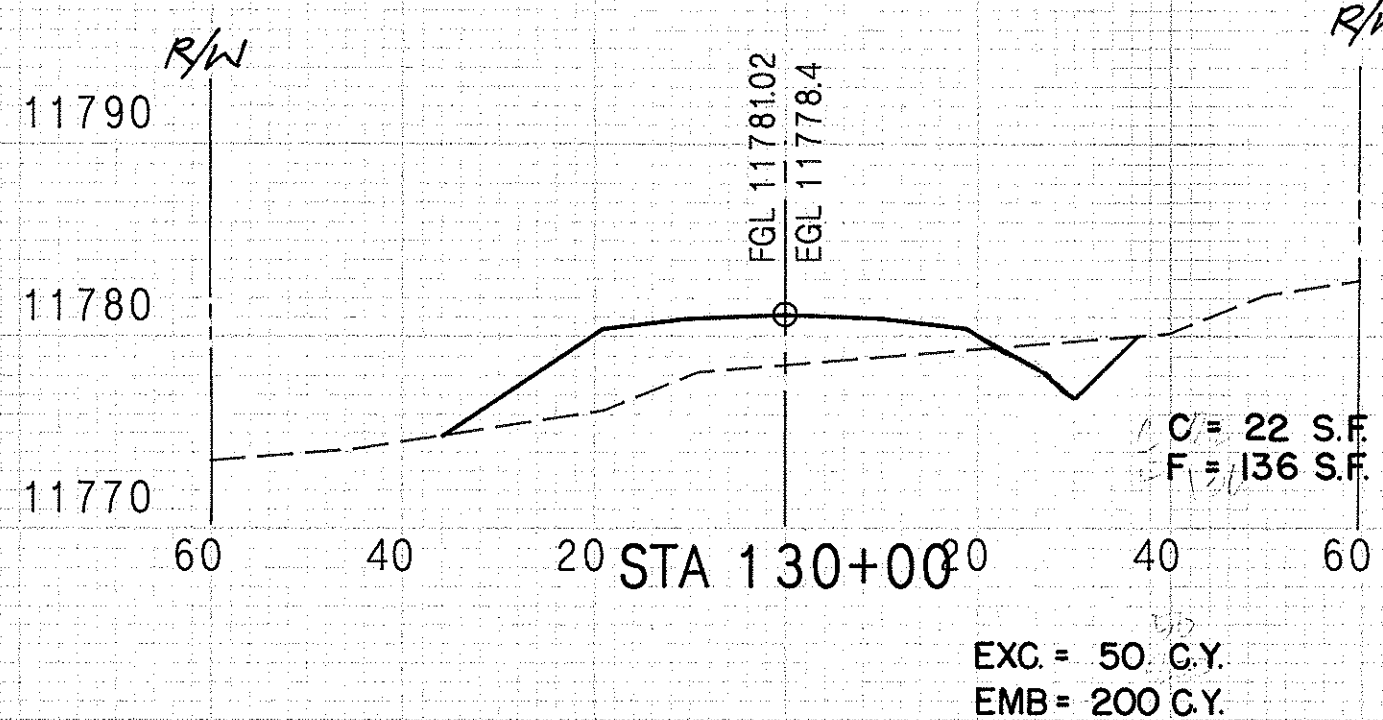
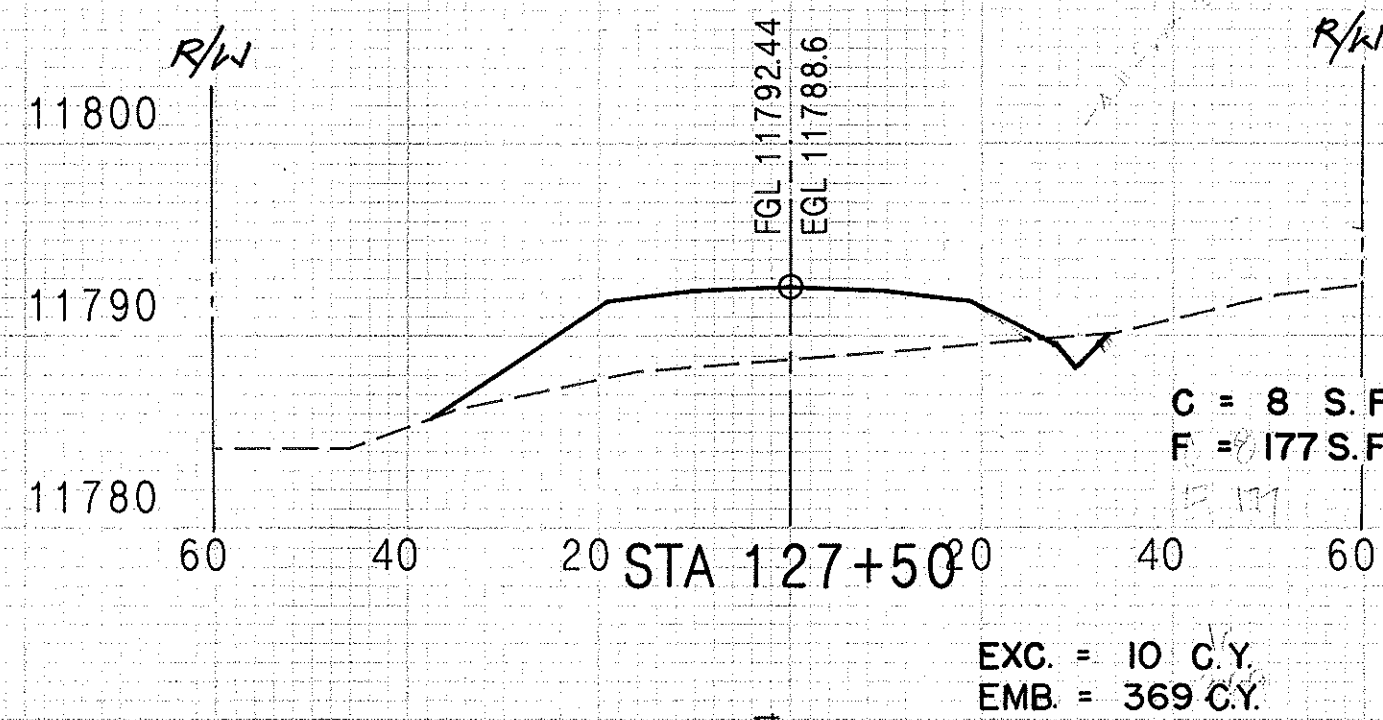
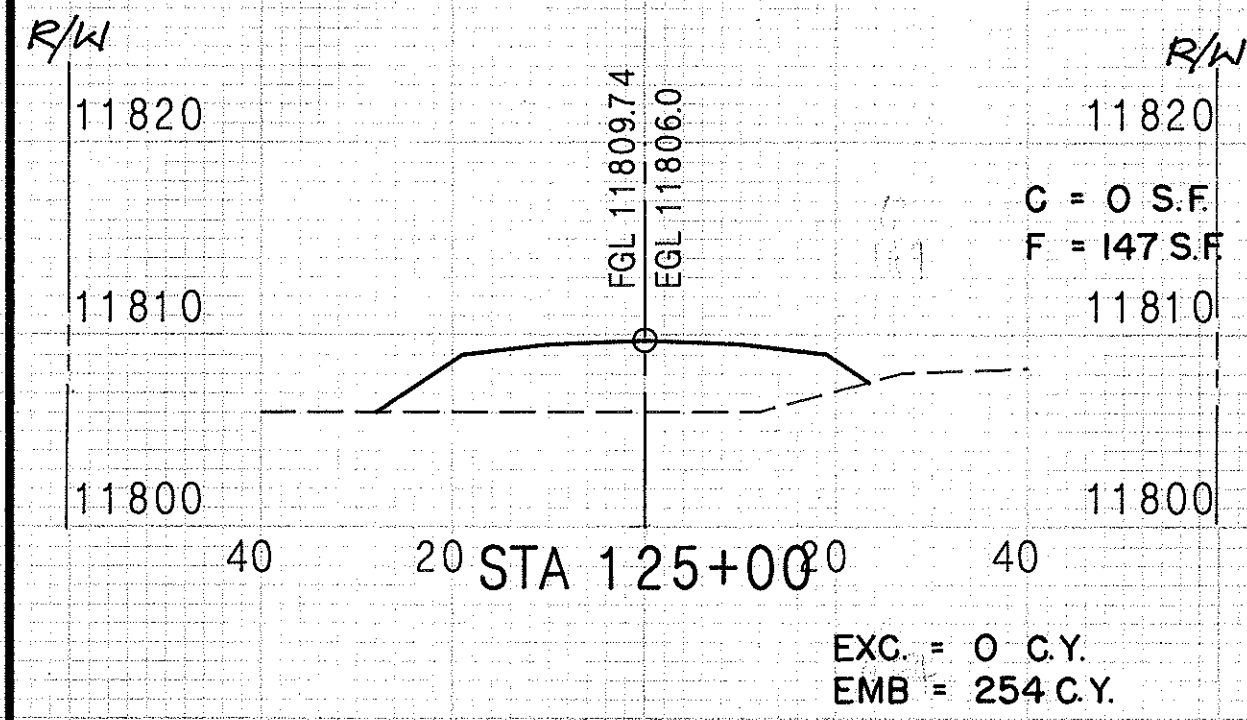
SCALE: HORIZONTAL 1" = 20'
VERTICAL 1" = 10'

SHEET NO. OF SHEETS

C.O. 115 S-9

3/21/88	ROAD IMPROVEMENTS EXTENDED TO STA. 131+50 (C.C.O. 2)
DATE	REVISION

FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY.-H-01-86	1987	C.O. 115 S-10	115



DATE	REVISION
3/21/88	ROAD IMPROVEMENTS EXTENDED TO STA 131+50 (C.C.O. 2)

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
 CROSS SECTIONS
 MAIN ACCESS ROAD
 STA 123+00 TO STA 131+50
 MAUNA KEA OBSERVATORY ACCESS ROAD
 PHASE II-A
 SCALE : HORIZONTAL 1" = 20'
 VERTICAL 1" = 10'
 SHEET No. OF SHEETS