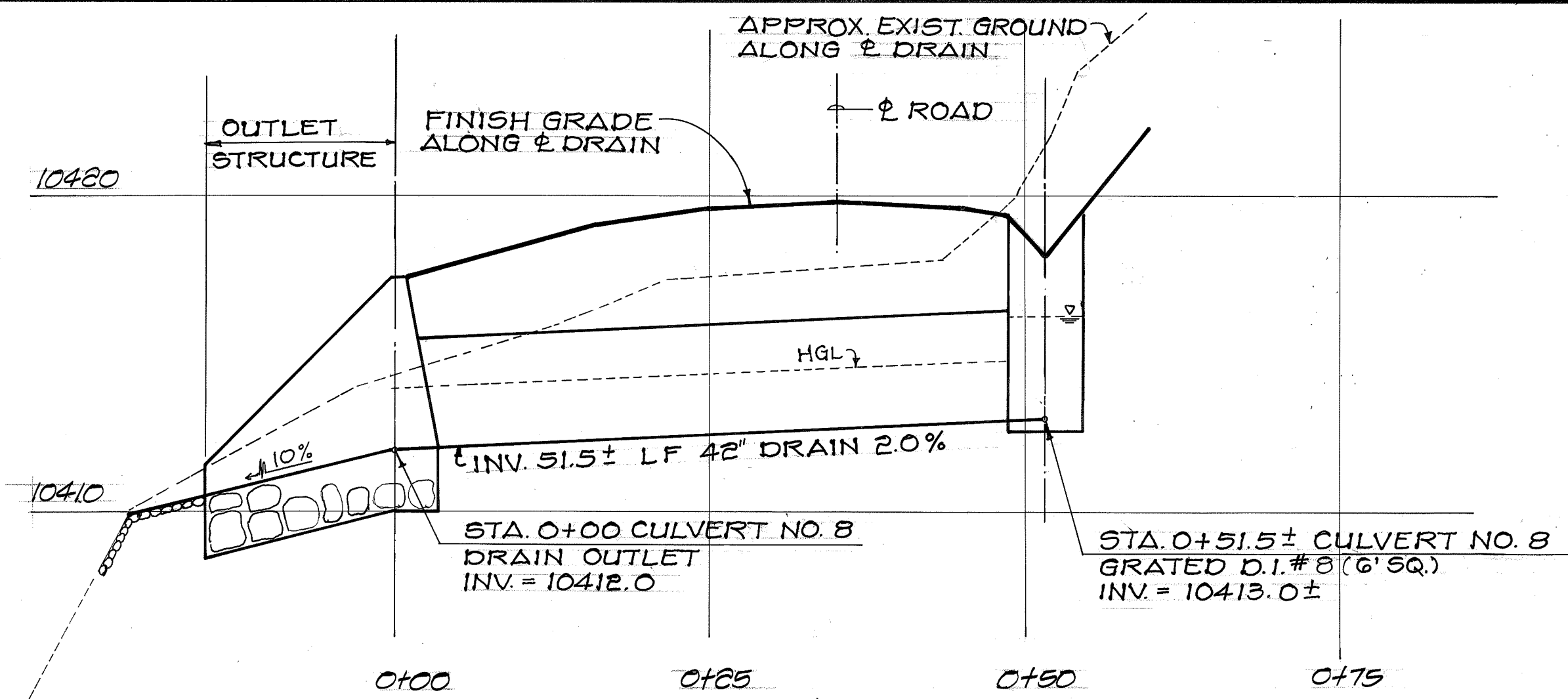
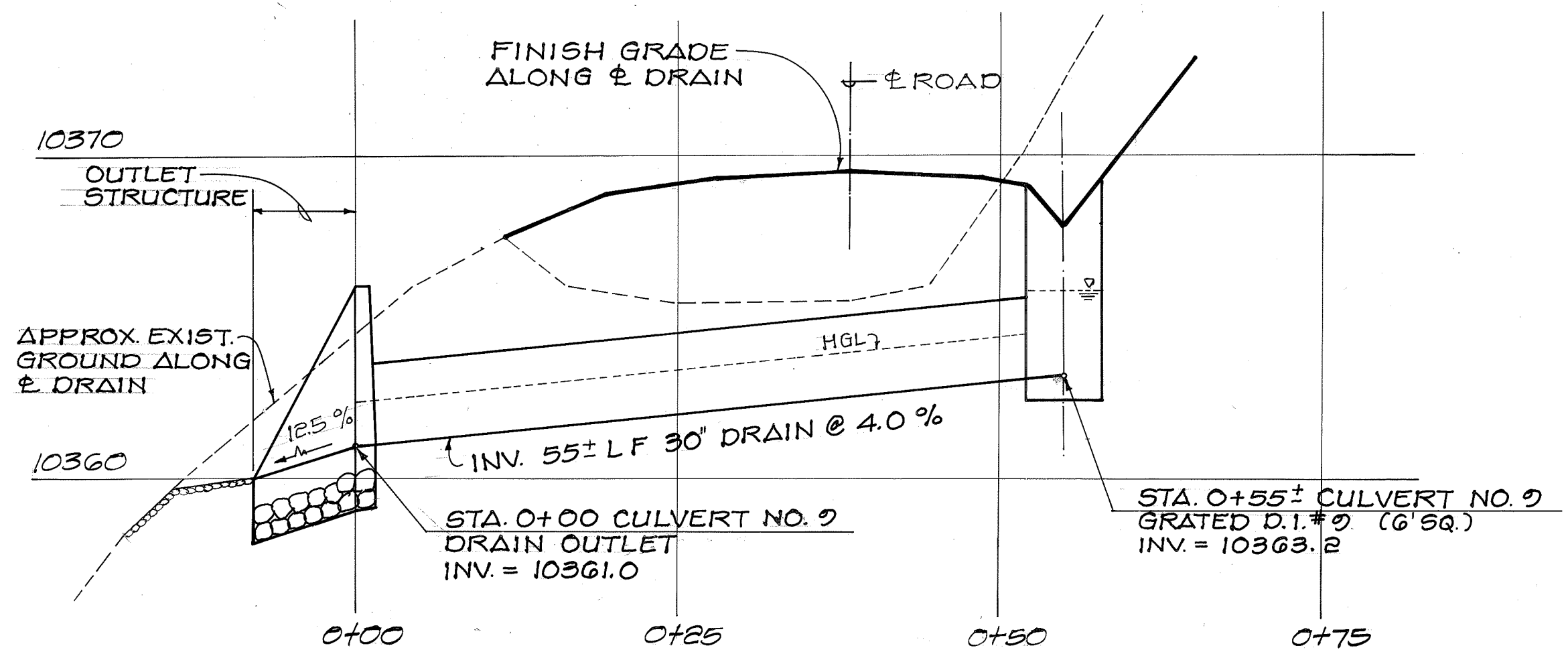


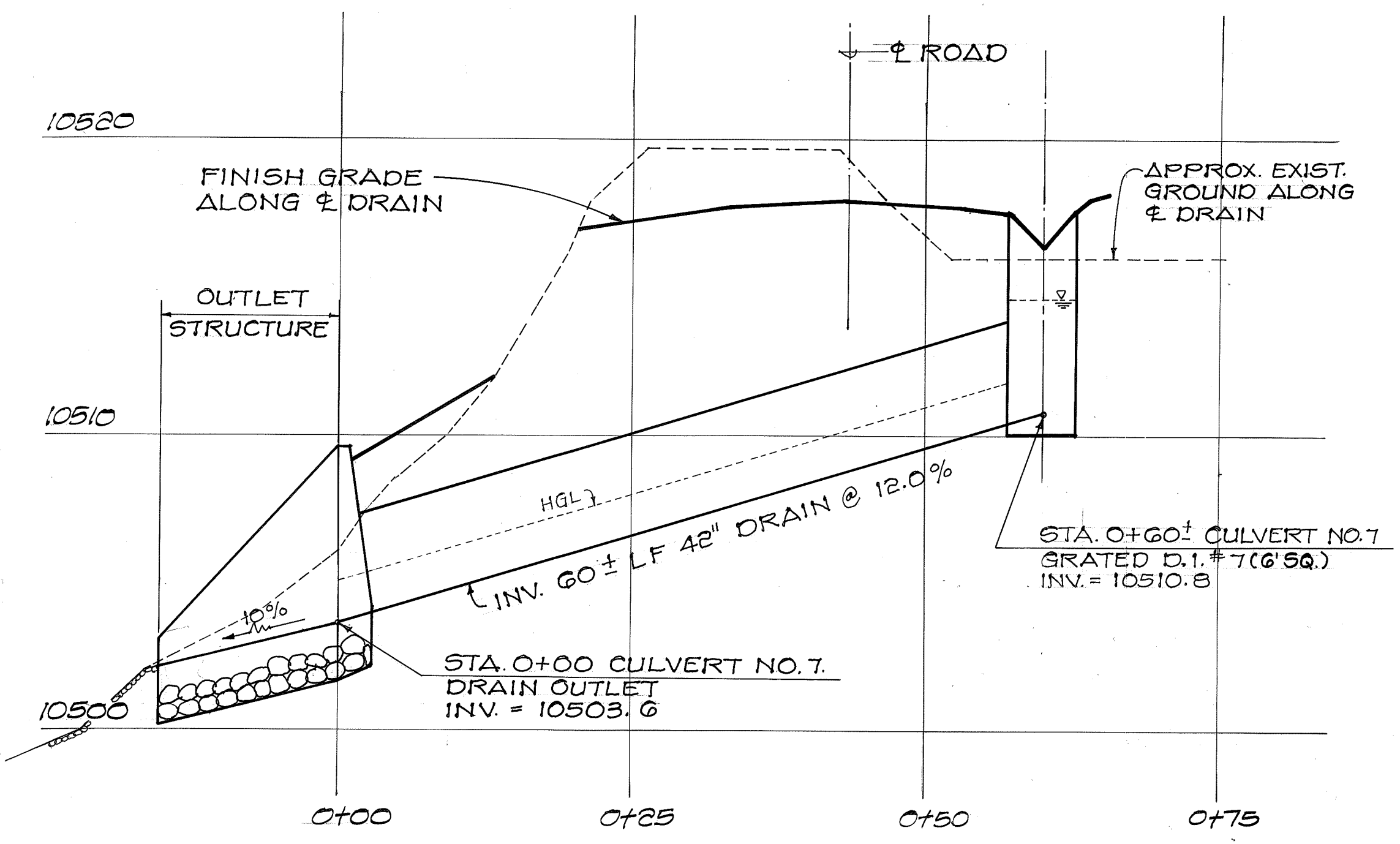
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.			27	53



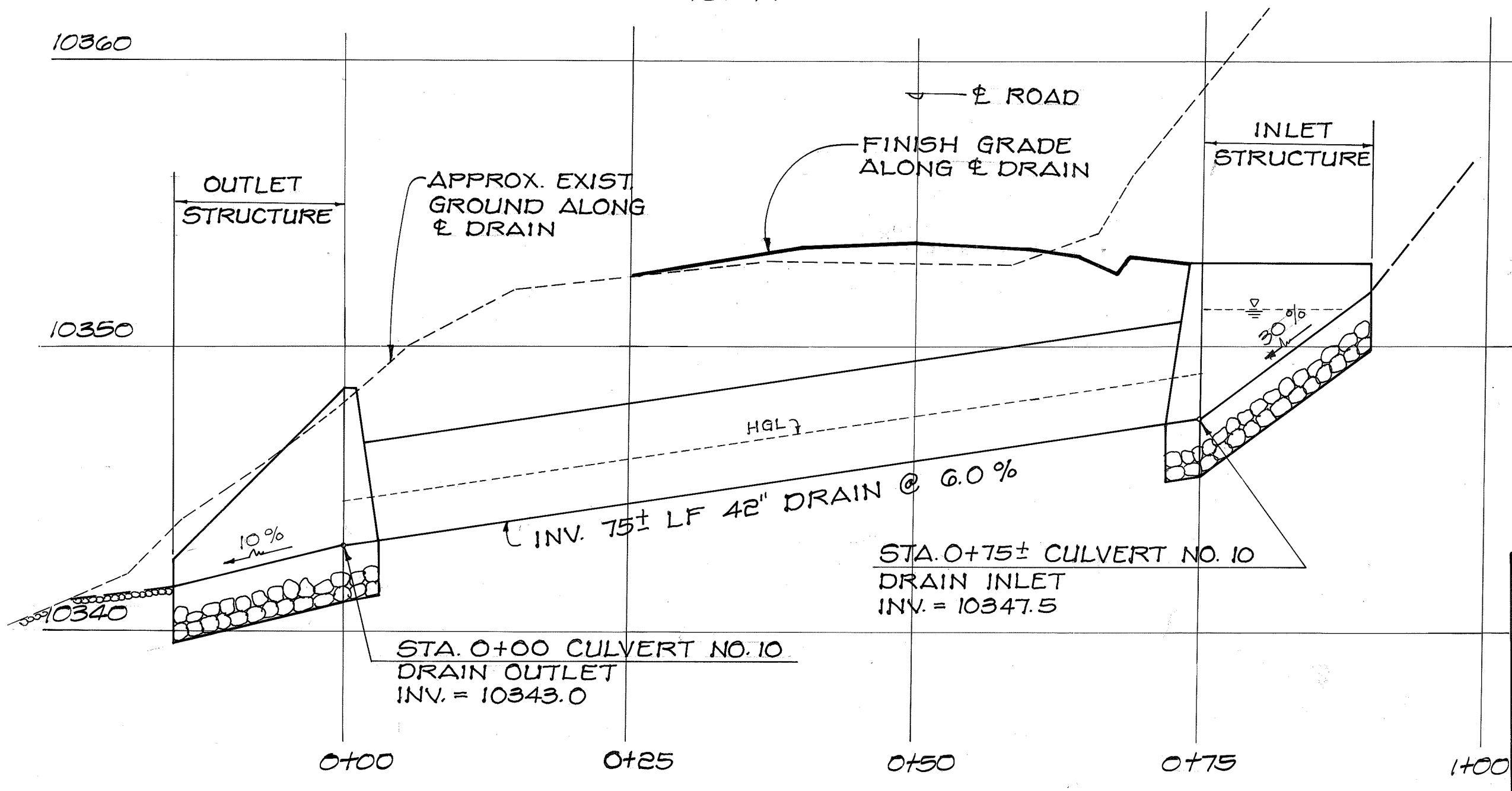
PROFILE ~ CULVERT NO. 8 (¢ ROAD STA. 71+00)
SCALE: HORIZ. 1" = 10'-0"
VERT. 1" = 4'-0"



PROFILE ~ CULVERT NO. 9 (¢ ROAD STA. 76+00)
SCALE: HORIZ. 1" = 10'-0"
VERT. 1" = 4'-0"



PROFILE ~ CULVERT NO. 7 (¢ ROAD STA. 61+00)
SCALE: HORIZ. 1" = 10'-0"
VERT. 1" = 4'-0"



PROFILE ~ CULVERT NO. 10 (¢ ROAD STA. 79+75)
SCALE: HORIZ. 1" = 10'-0"
VERT. 1" = 4'-0"

HYDRAULIC DATA				
CULVERT NO.	SIZE (IN.)	Q (CFS)	dh (FT.)	V (FPS)
7	42	58.2	1.35	17.0
8	42	45.2	1.90	8.2
9	30	25.4	1.35	9.1
10	42	59.0	1.62	13.7
11	48	75.2	1.72	14.3
12	48	89.9	1.76	13.2
13	30	21.9	0.98	12.5
14	2-48	124.2	1.42	21.0

SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CULVERT PROFILES

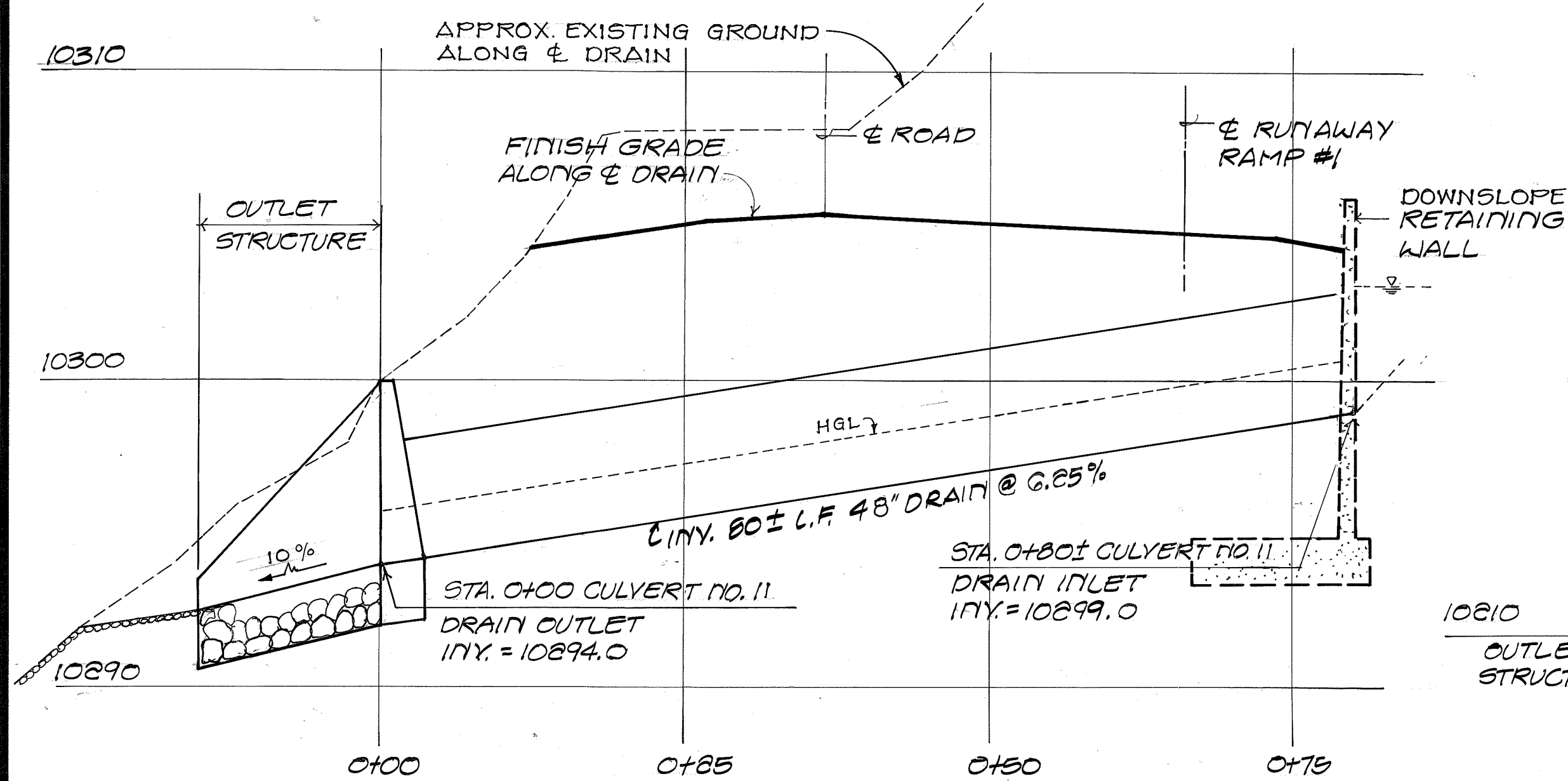
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE III - B

PROJECT NO.

SCALE: HORIZ. 1" = 10'
VERT. 1" = 4'

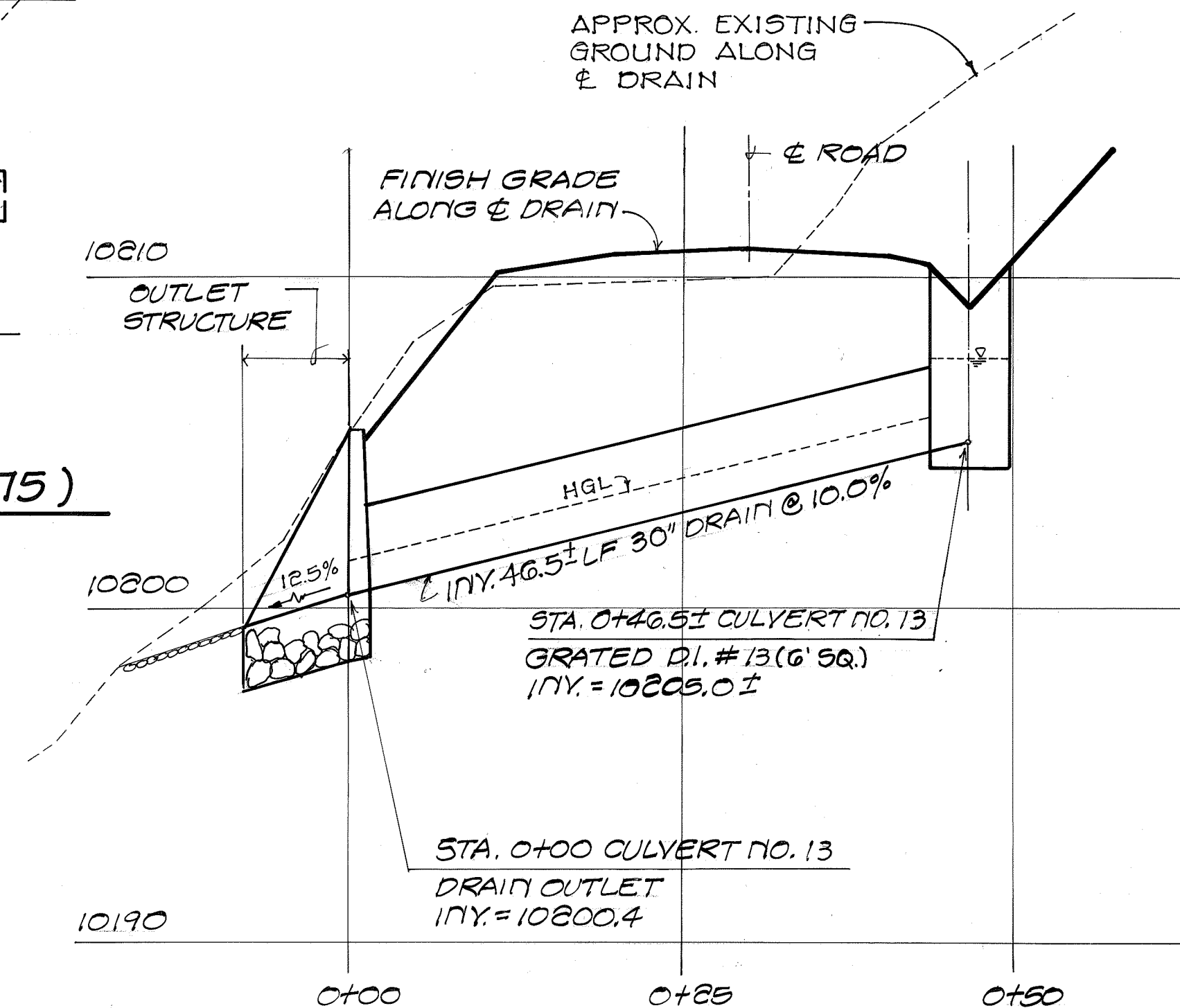
SHEET No. 1 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.			28	53



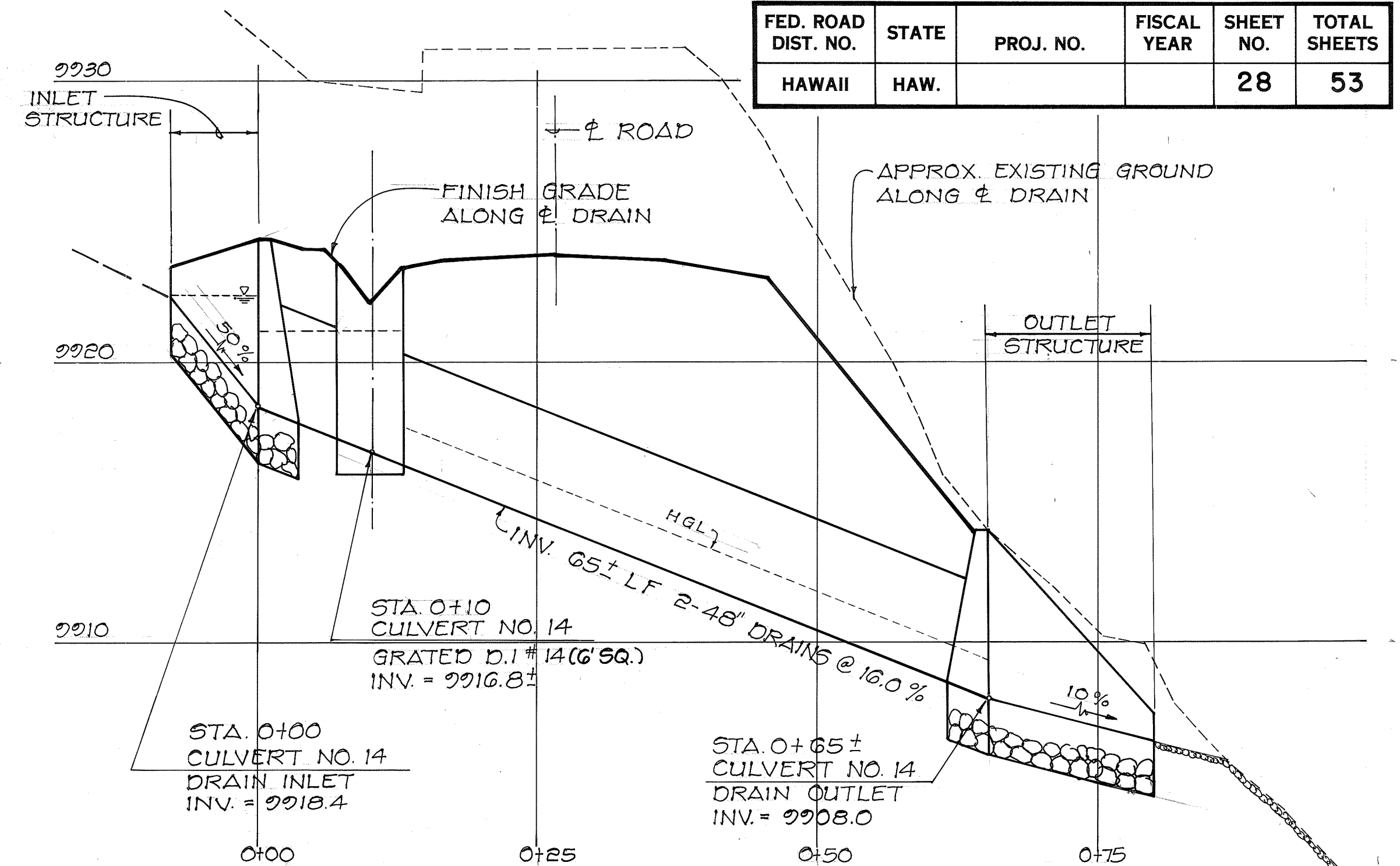
PROFILE ~ CULVERT NO. 11 (ϕ ROAD STA. 87+75)

SCALE: HORIZ. 1" = 10'-0"
VERT. 1" = 4'-0"



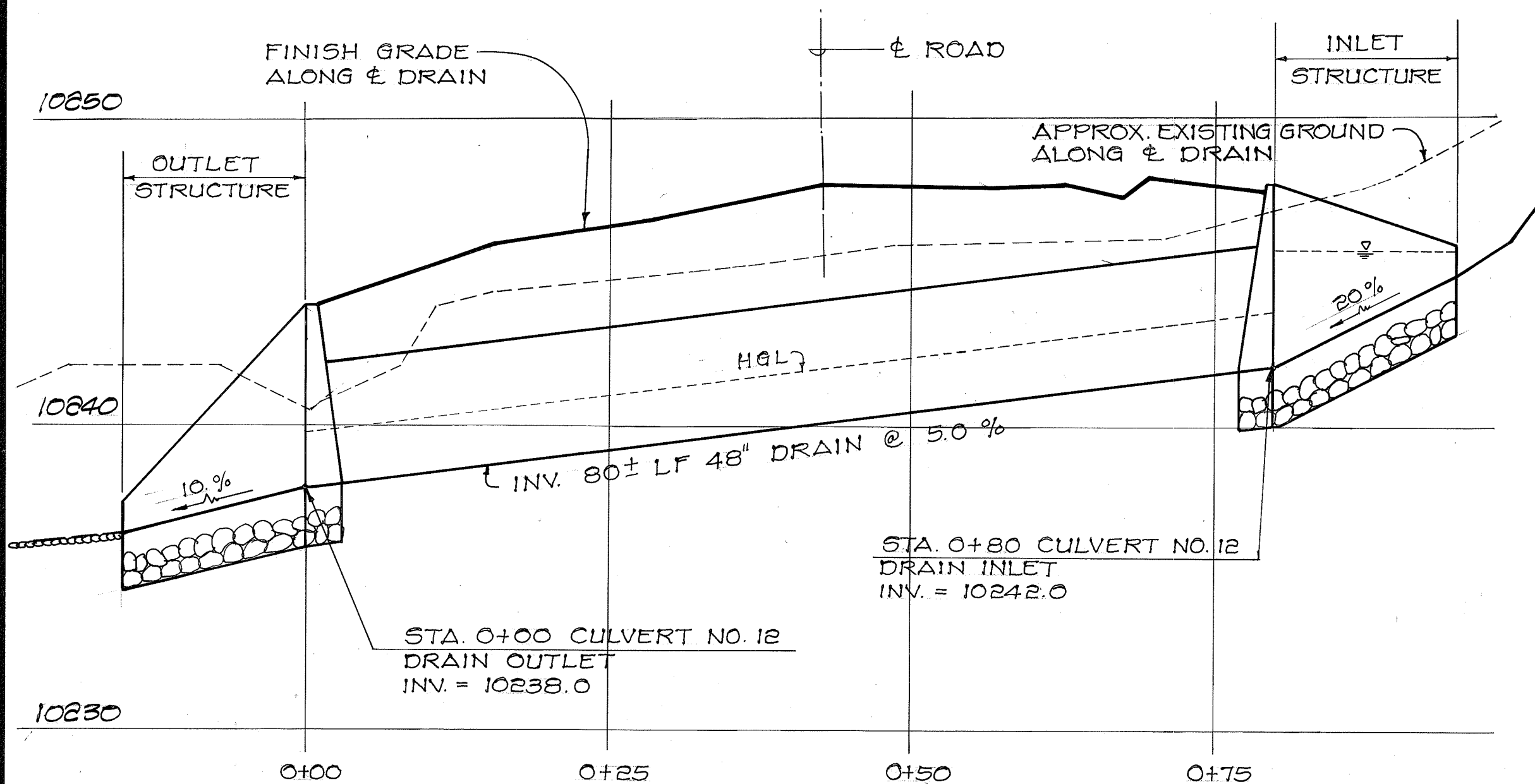
PROFILE ~ CULVERT NO. 13 (ϕ ROAD STA. 102+00)

SCALE: HORIZ. 1" = 10'-0"
VERT. 1" = 4'-0"



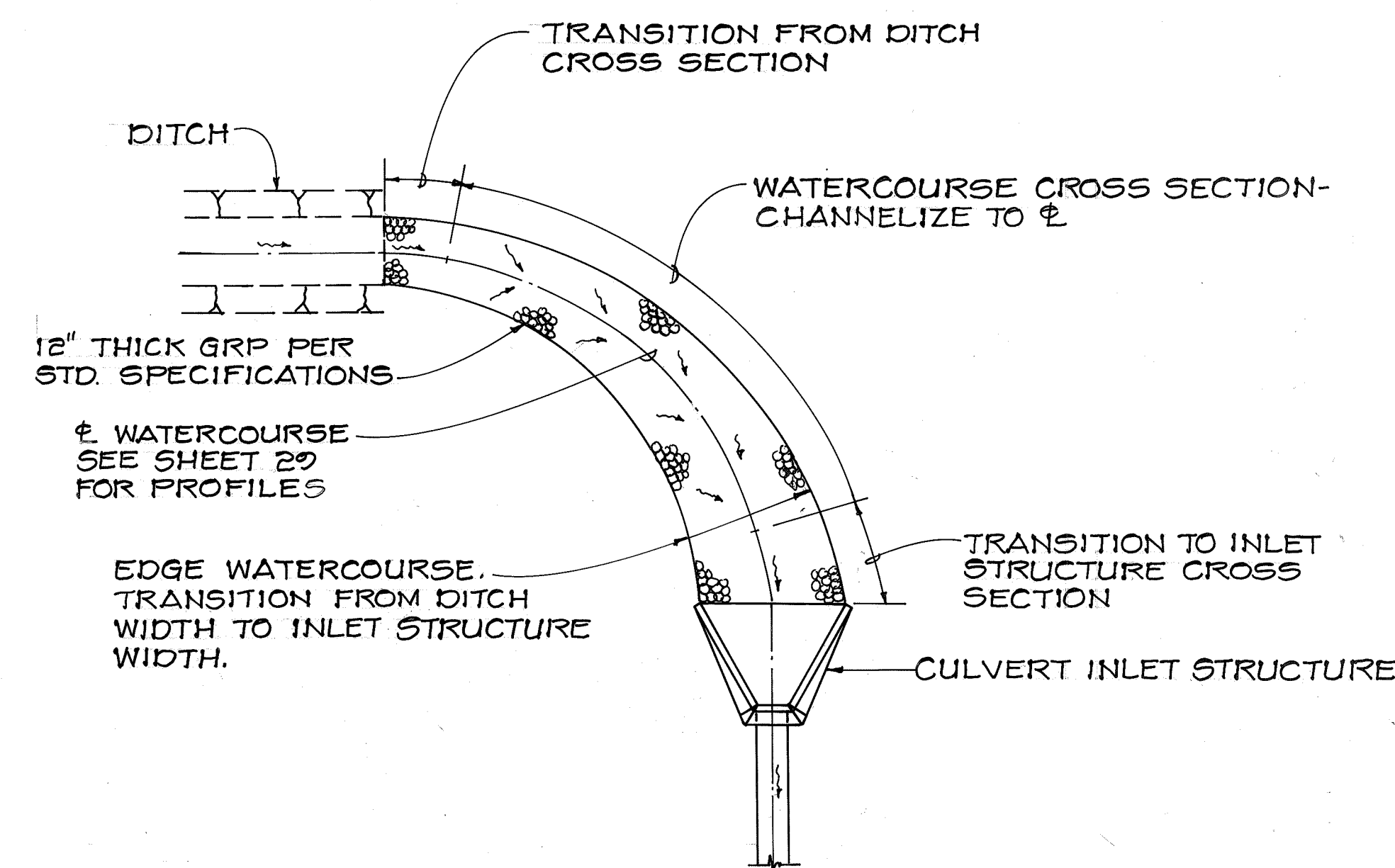
PROFILE ~ CULVERT NO. 14 (ϕ ROAD STA. 129+15)

SCALE: HORIZ. 1" = 10'-0"
VERT. 1" = 4'-0"



PROFILE ~ CULVERT NO. 12 (ϕ ROAD STA. 98+20)

SCALE: HORIZ. 1" = 10'-0"
VERT. 1" = 4'-0"



TYPICAL GRP WATERCOURSE DETAIL
NOT TO SCALE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CULVERT PROFILES

MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE III - B

PROJECT NO.

SCALE: HORIZ. 1" = 10'
VERT. 1" = 4'

SHEET No. 2 OF 2 SHEETS

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

SHEET No. 2 OF 2 SHEETS

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