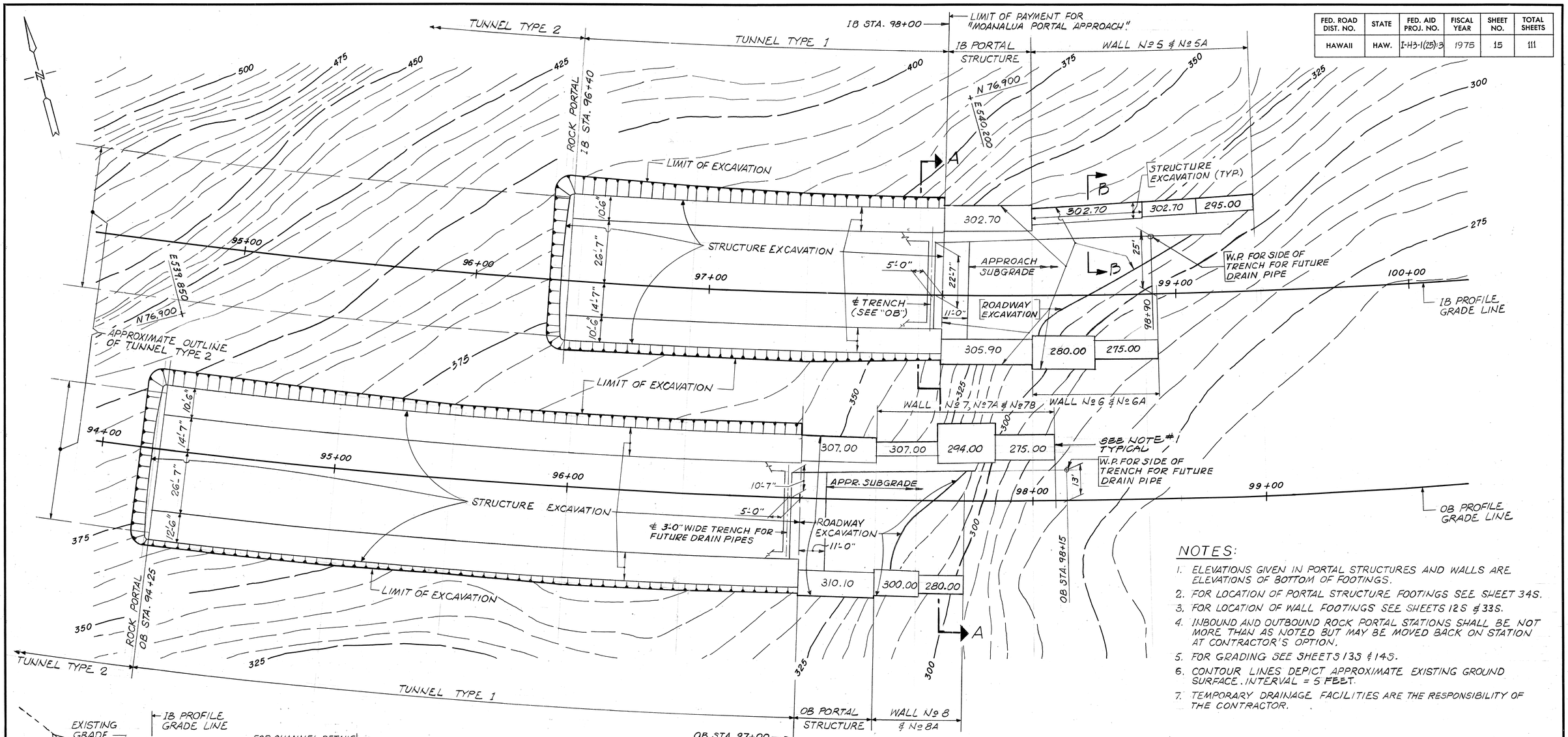
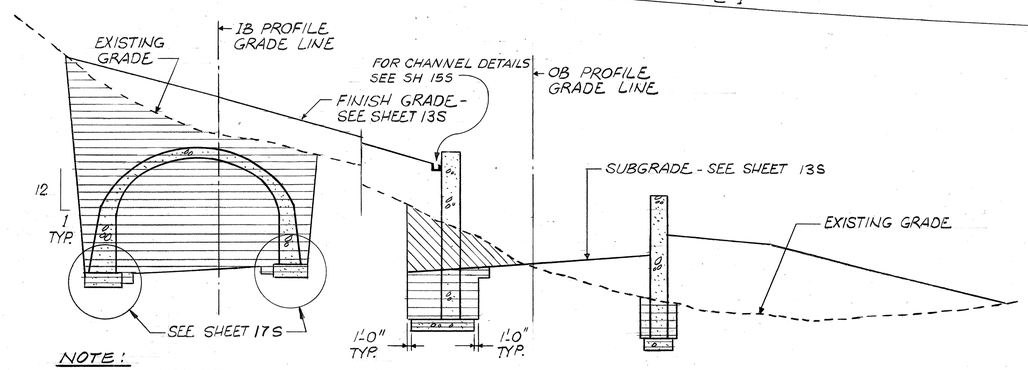
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(25):3	1975	15	111



NOTES:

1. ELEVATIONS GIVEN IN PORTAL STRUCTURES AND WALLS ARE ELEVATIONS OF BOTTOM OF FOOTINGS.
2. FOR LOCATION OF PORTAL STRUCTURE FOOTINGS SEE SHEET 34S.
3. FOR LOCATION OF WALL FOOTINGS SEE SHEETS 12S & 33S.
4. INBOUND AND OUTBOUND ROCK PORTAL STATIONS SHALL BE NOT MORE THAN AS NOTED BUT MAY BE MOVED BACK ON STATION AT CONTRACTOR'S OPTION.
5. FOR GRADING SEE SHEETS 13S & 14S.
6. CONTOUR LINES DEPICT APPROXIMATE EXISTING GROUND SURFACE. INTERVAL = 5 FEET.
7. TEMPORARY DRAINAGE FACILITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR.



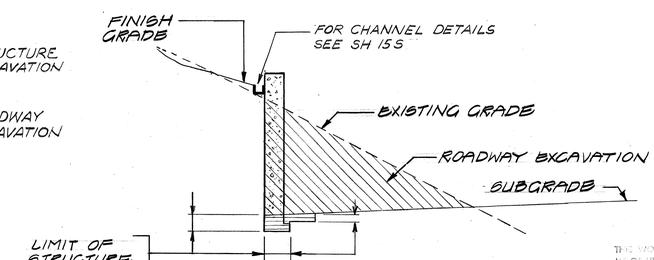
NOTE:
FOR PAY LIMITS OF BACKFILL SEE SHEET 13S

SECTION A
EXCAVATION PAY LIMITS

NOTE:
EXCAVATION PAY LIMITS FOR PORTAL STRUCTURES ARE SHOWN ON SHEET 16S

LEGEND:

- STRUCTURE EXCAVATION
- ROADWAY EXCAVATION



SECTION B
EXCAVATION PAY LIMITS
TYPICAL FOR WALL 5, 5A & 7B

H. A. FOSTER
REGISTERED PROFESSIONAL ENGINEER
2863-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RED HILL TUNNELS

MOANALUA PORTAL EXCAVATION PLAN

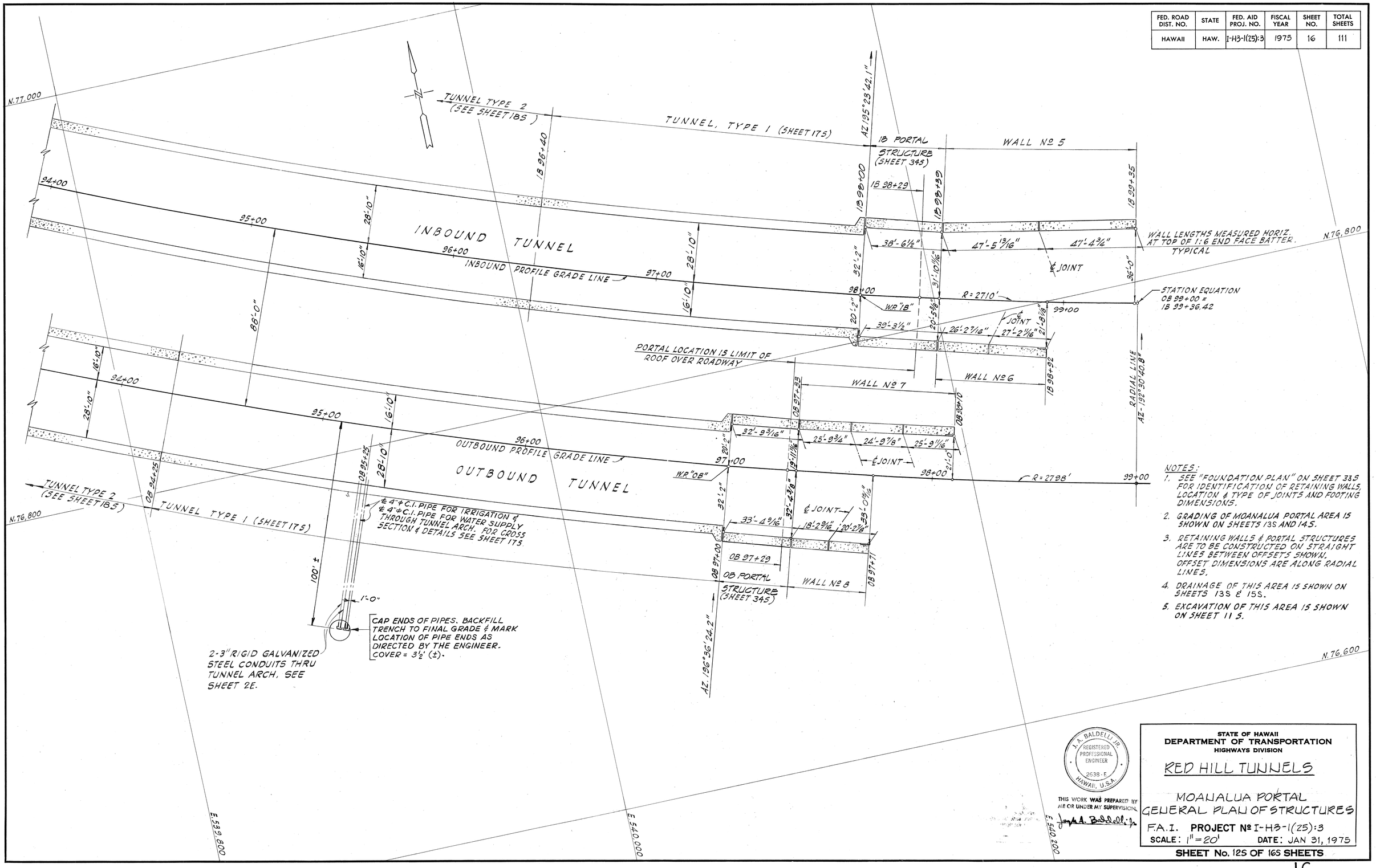
F.A.I. PROJECT Nº I-H3-1 (25):3
SCALE: 1" = 20'
DATE: JAN 31, 1975

SHEET No. 115 OF 166 SHEETS

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	G. VERLEY
	DRAWN BY	" "
	TRACED BY	" "
NOTE BOOK	DESIGNED BY	J. PACOBELLI
	QUANTITIES BY	" "
No.	CHECKED BY	R. MITCHELL

11-17-72
11-17-72
11-17-72
11-17-72
11-17-72

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(25):3	1975	16	111



NOTES:

1. SEE "FOUNDATION PLAN" ON SHEET 33S FOR IDENTIFICATION OF RETAINING WALLS, LOCATION & TYPE OF JOINTS AND FOOTING DIMENSIONS.
2. GRADING OF MOANALUA PORTAL AREA IS SHOWN ON SHEETS 13S AND 14S.
3. RETAINING WALLS & PORTAL STRUCTURES ARE TO BE CONSTRUCTED ON STRAIGHT LINES BETWEEN OFFSETS SHOWN. OFFSET DIMENSIONS ARE ALONG RADIAL LINES.
4. DRAINAGE OF THIS AREA IS SHOWN ON SHEETS 13S & 15S.
5. EXCAVATION OF THIS AREA IS SHOWN ON SHEET 11S.

ORIGINAL PLAN		
SURVEY PLOTTED BY		DATE
DRAWN BY	J. WENSINGER	" 7-17-72
TRACED BY		" 7-17-72
DESIGNED BY	J. BALDELLI	" 7-17-72
NOTE BOOK	QUANTITIES BY	" 7-17-72
No.	CHECKED BY J. BALDELLI	" 7-17-72

J. A. BALDELLI JR. REGISTERED PROFESSIONAL ENGINEER 2638-E HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Joseph A. Baldelli, Jr.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RED HILL TUNNELS

MOANALUA PORTAL
GENERAL PLAN OF STRUCTURES

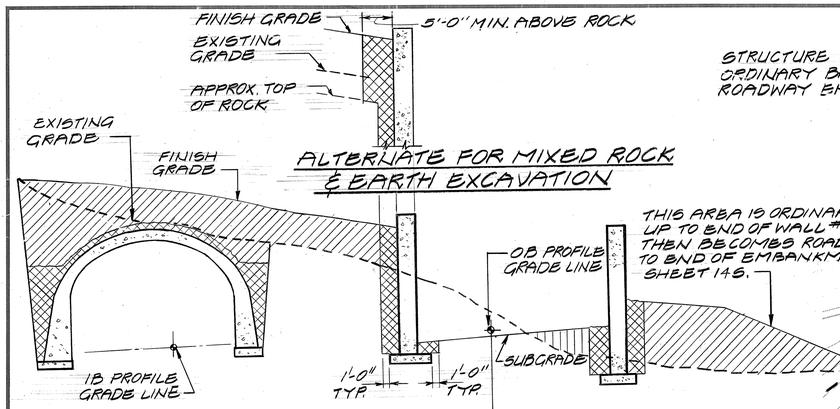
F.A.I. PROJECT Nº I-H3-1(25):3
SCALE: 1" = 20' DATE: JAN 31, 1975

SHEET No. 12S OF 16S SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(25)3	1975	17	111

LEGEND

STRUCTURE BACKFILL —
ORDINARY BACKFILL —
ROADWAY EMBANKMENT —



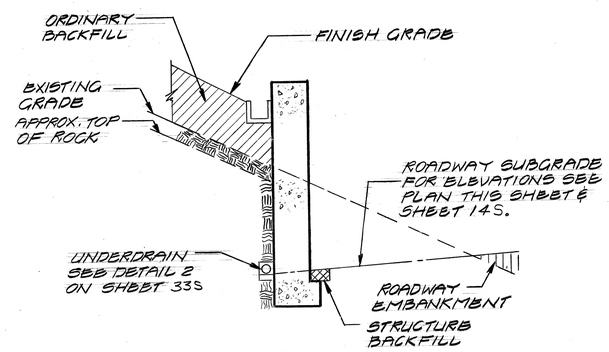
ALTERNATE FOR MIXED ROCK & EARTH EXCAVATION

THIS AREA IS ORDINARY BACKFILL UP TO END OF WALL #8 (STA. OB 97+71) THEN BECOMES ROADWAY EMBANKMENT TO END OF EMBANKMENT SEE SHEET 14S.

NOTE:
BACKFILL PAY LIMITS FOR PORTAL STRUCTURES ARE SHOWN ON SHEET 16S.

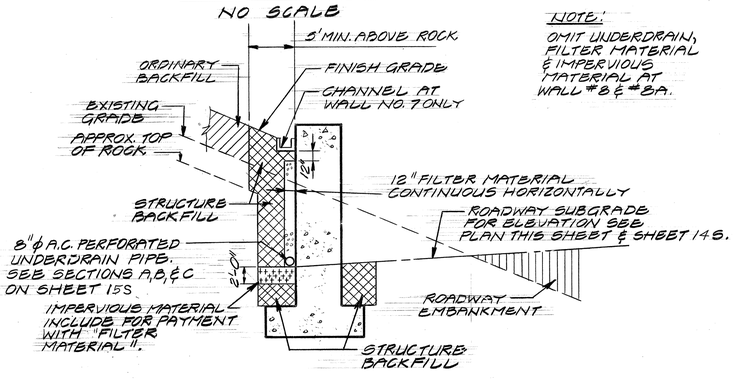
NOTE:
FOR PAY LIMITS FOR EXCAVATION SEE SECTION A ON SHEET 11S

SECTION D
BACKFILL PAY LIMITS
NO SCALE

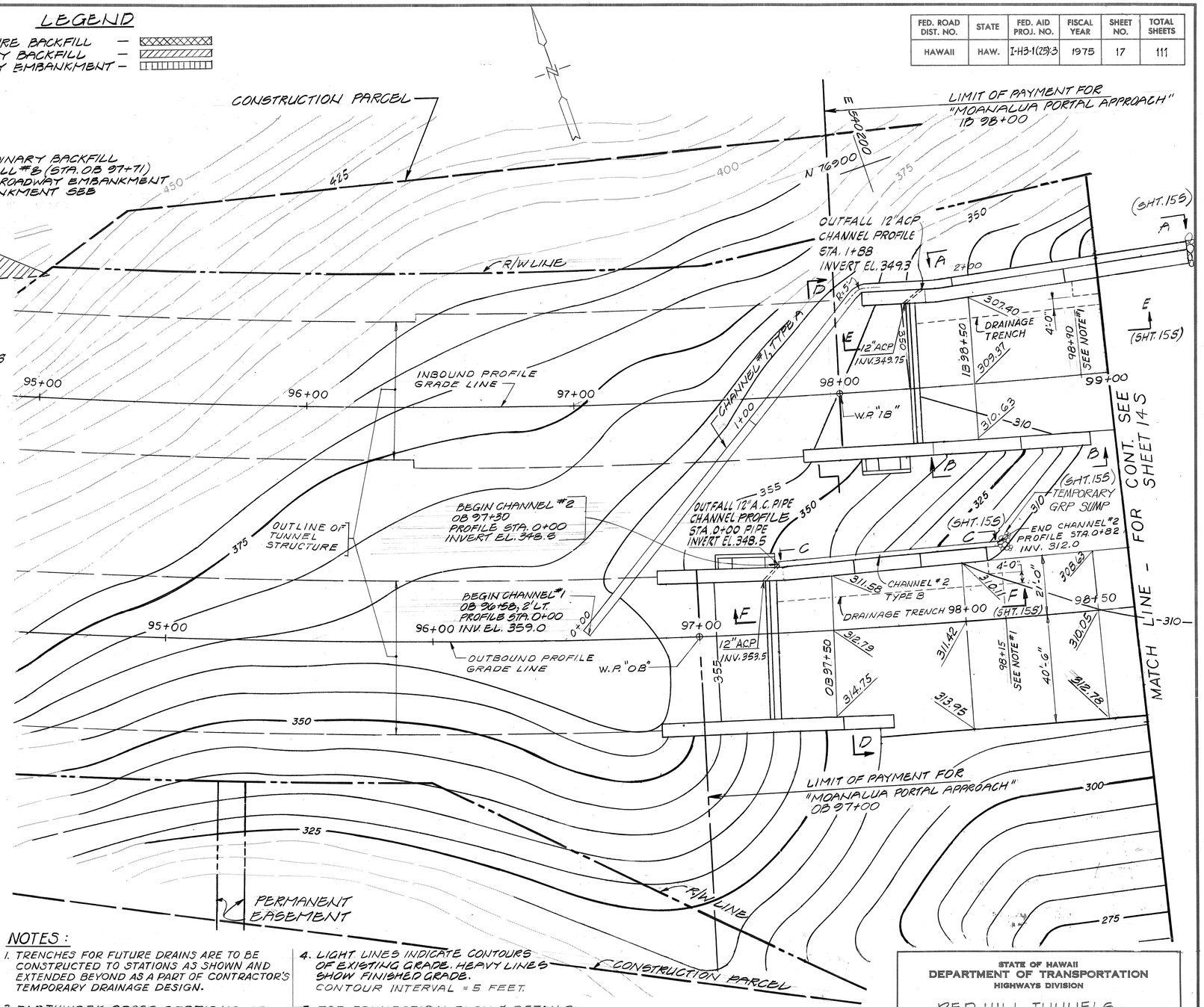


TYPICAL CROSS SECTION
WALL 5, 5A & 7B
NO SCALE

NOTE:
OMIT UNDERDRAIN, FILTER MATERIAL & IMPERVIOUS MATERIAL AT WALL #6 & #6A.



TYPICAL CROSS SECTION
WALLS 6, 6A, 7, 7A, 8, & 8A
NO SCALE



NOTES:

1. TRENCHES FOR FUTURE DRAINS ARE TO BE CONSTRUCTED TO STATIONS AS SHOWN AND EXTENDED BEYOND AS A PART OF CONTRACTOR'S TEMPORARY DRAINAGE DESIGN.
2. EARTHWORK CROSS SECTIONS OF THE INBOUND & OUTBOUND ROADWAYS BETWEEN OB 94+00 & OB 102+00 ARE SHOWN ON SHEETS 68S THRU 77S.
3. SEE SHEET R3 FOR PLAN OF RIGHT-OF-WAY, EASEMENTS, & CONSTRUCTION PARCELS.
4. LIGHT LINES INDICATE CONTOURS OF EXISTING GRADE. HEAVY LINES SHOW FINISHED GRADE. CONTOUR INTERVAL = 5 FEET.
5. FOR FOUNDATION PLAN & DETAILS OF PORTAL RETAINING WALLS, SEE SHEET 33S.
6. FOR DETAILS OF INBOUND & OUTBOUND PORTAL STRUCTURES SEE SHEETS 34S THRU 37S.
7. FOR MOANALUA PORTAL DRAINAGE DETAILS SEE SHEET 15S.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

H. A. FOSTER
REGISTERED PROFESSIONAL ENGINEER
2863-E
HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RED HILL TUNNELS

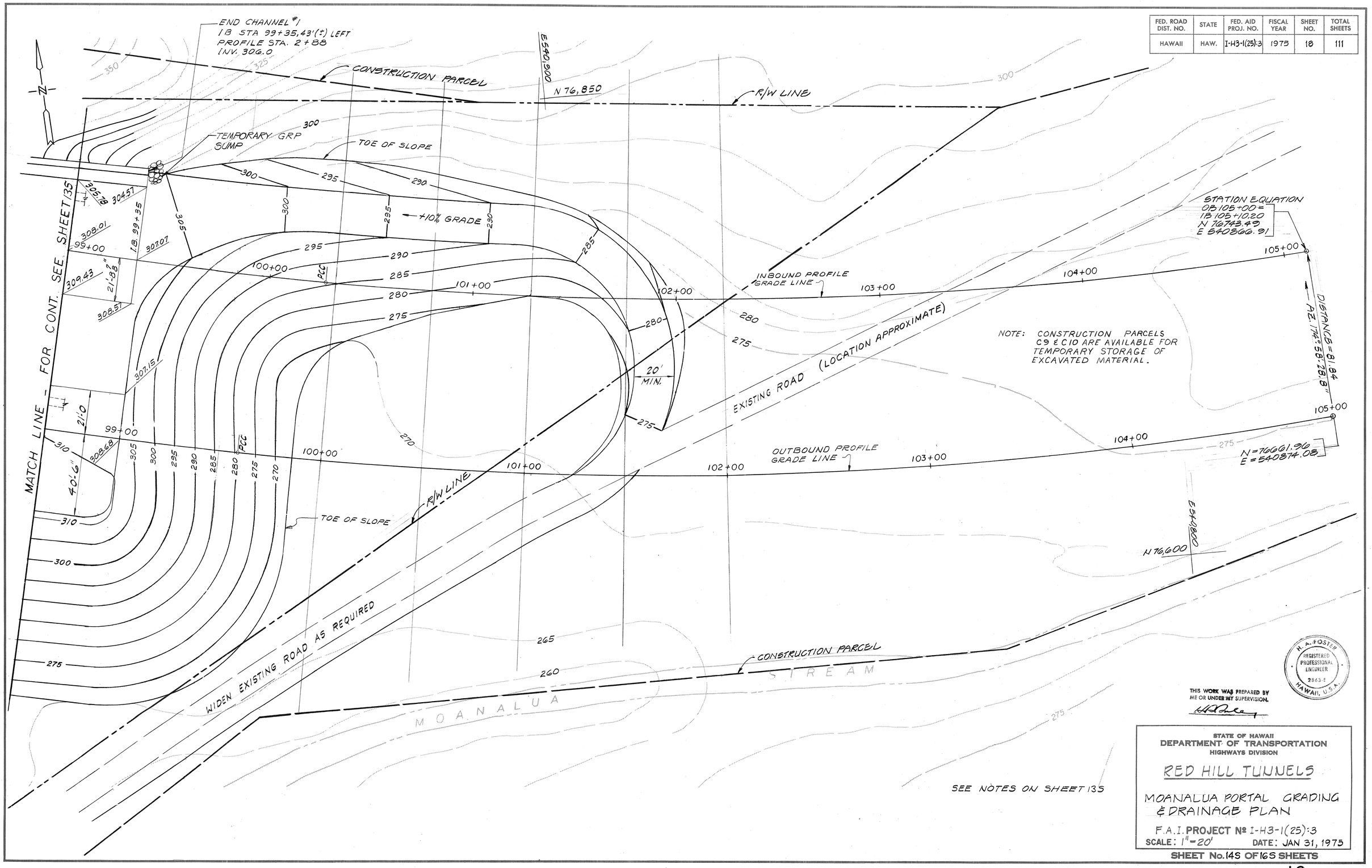
MOANALUA PORTAL
GRADING & DRAINAGE PLAN & PAY LIMITS
F.A.I. PROJECT № I-H3-1(25):3
SCALE: 1" = 20' DATE: JAN 31, 1975

SHEET No. 13S OF 16S SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY: RAJESH JANGE	2-1-11
	TRACED BY	2-1-11
NOTE BOOK	DESIGNED BY: V.C. BUCKLAND	2-1-11
No.	CHECKED BY: JOE BALDELLI	2-1-11

17

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(25):3	1975	18	111



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RED HILL TUNNELS

MOANALUA PORTAL GRADING & DRAINAGE PLAN

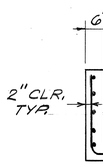
F.A.I. PROJECT Nº I-H3-1(25):3

SCALE: 1"=20' DATE: JAN 31, 1975

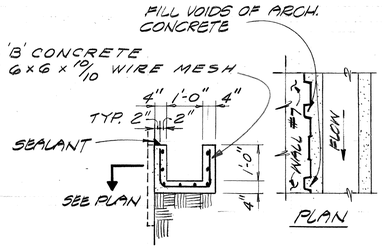
SHEET No. 145 OF 165 SHEETS

		DATE
ORIGINAL PLAN	SURVEY PLOTTED BY	
	DRAWN BY P. VANCE	11/17/72
	TRACED BY	
NOTE BOOK	DESIGNED BY V. ECKLAND	11/17/72
	QUANTITIES BY	
No.	CHECKED BY V. BALDELLI	11/17/72

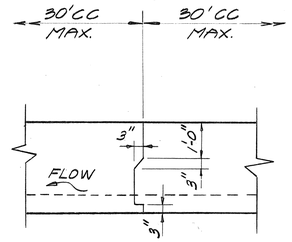
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(25)3	1975	19	111



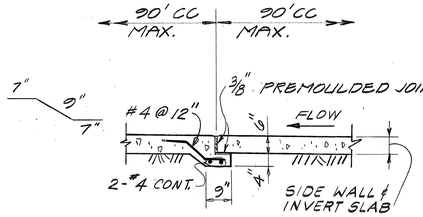
TYPE A CHANNEL
SCALE 1/2" = 1'-0"



TYPE B CHANNEL
SCALE 1/2" = 1'-0"

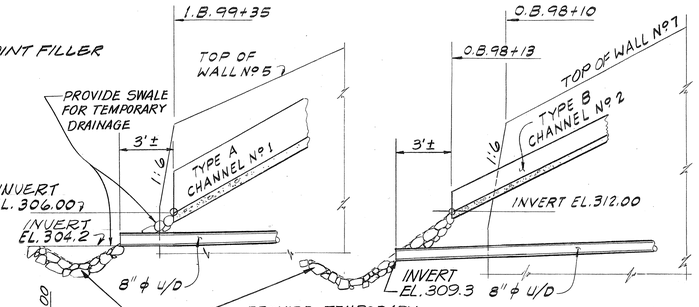


CONSTRUCTION JOINT



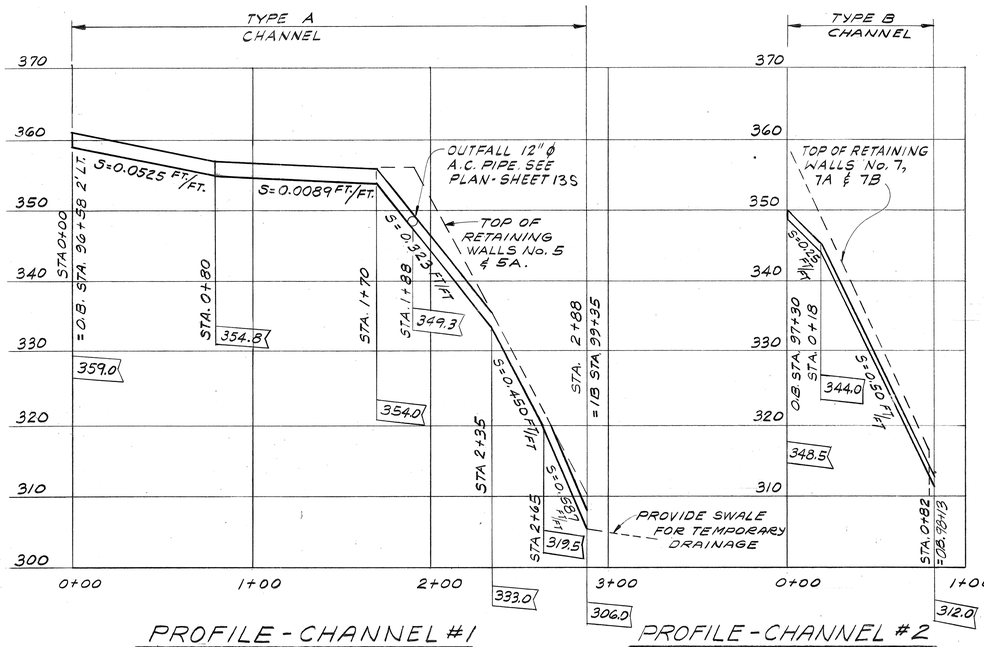
EXPANSION JOINT

TYPE A CHANNEL DETAILS
SCALE: 1/2" = 1'-0"



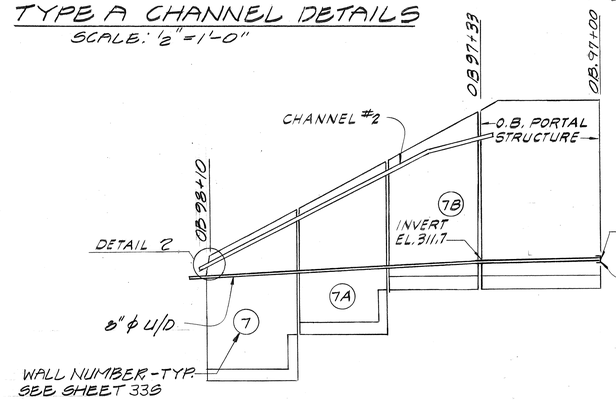
DETAIL 1
1/4" = 1'-0"

DETAIL 2
1/4" = 1'-0"

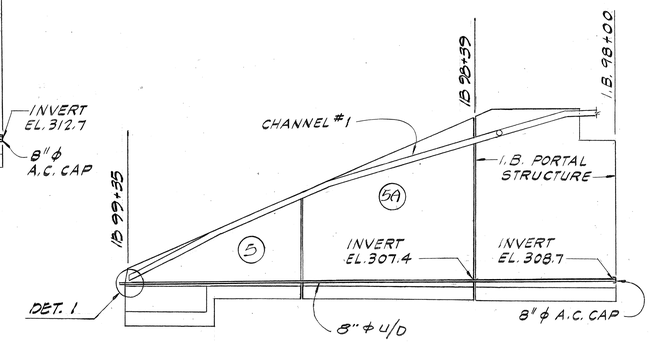


PROFILE - CHANNEL #1
SCALE: HORIZ. 1" = 40'
VERT. 1" = 10'

PROFILE - CHANNEL #2



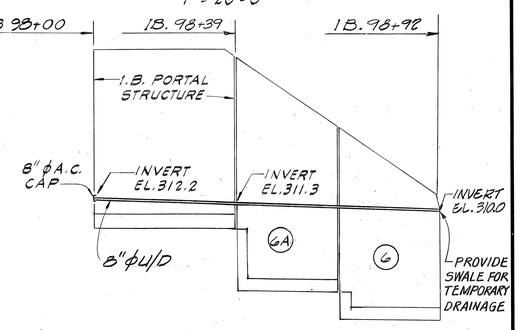
SECTION C (SHT. 13S)
1" = 20'-0"



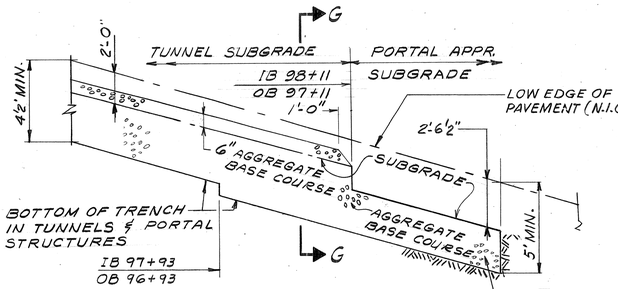
SECTION A (SHT. 13S)
1" = 20'-0"

NOTE:
8" ϕ U/D = 8" ϕ A.C. PERFORATED UNDERDRAIN PIPE

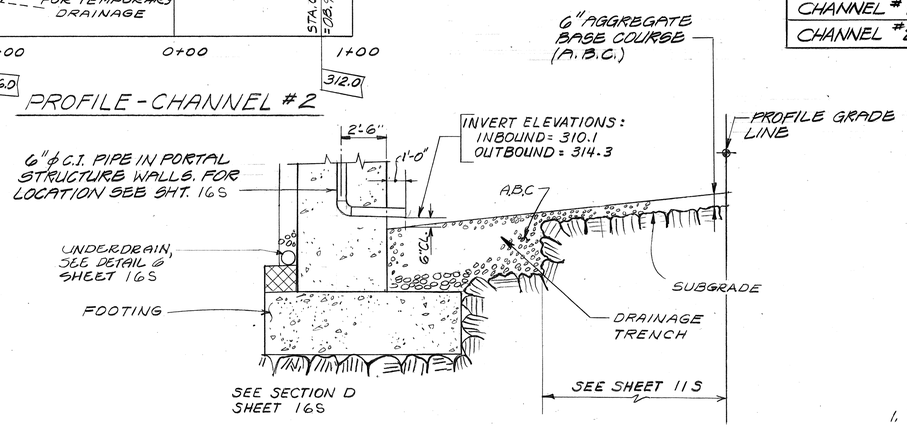
QUANTITY OF ITEMS 503.104 & 602.201	CONC. C.Y.	STEEL LB.
CHANNEL #1	37	370
CHANNEL #2	3	30



SECTION B (SHT. 13S)
1" = 20'-0"



SECTION E - INBOUND
SECTION F - OUTBOUND
(SHEET 13S)



SECTION G
NOT TO SCALE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

H. A. FOSTER
REGISTERED PROFESSIONAL ENGINEER
2863-E
HAWAII, U.S.A.

NOTES:
1. TEMPORARY DRAINAGE FACILITIES ARE INCLUDED FOR PAYMENT WITH "MOANALUA PORTAL APPROACH."

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RED HILL TUNNELS

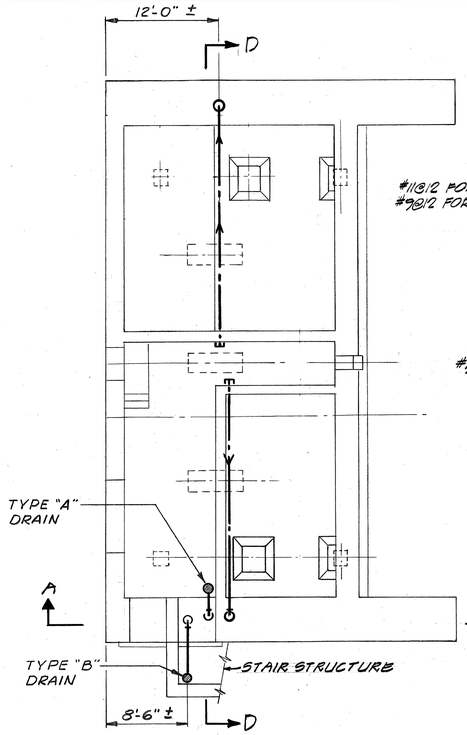
MOANALUA PORTAL
DRAINAGE DETAILS &
DRAINAGE PROFILES

F.A.I. PROJECT No I-H3(25):3
SCALE: AS SHOWN DATE: JAN 31, 1975

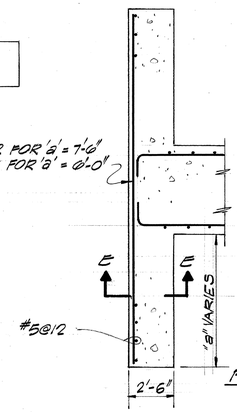
SHEET No. 15S OF 16S SHEETS

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	
	DRAWN BY BARBARA VANCE	11-13-72
	TRACED BY	11-13-72
NOTE BOOK	DESIGNED BY	11-13-72
	QUANTITIES BY VIC EGELAND	
No.	CHECKED BY JOE BALDELLI	11-13-72

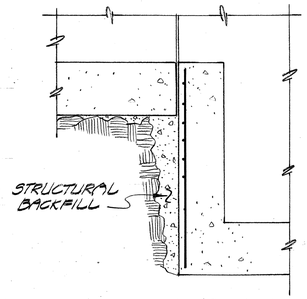
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(25):3	1975	20	111



PORTAL STRUCTURE DRAINAGE PLAN
IB SHOWN; OB OPP. HAND & SIMILAR
SCALE: 1/8" = 1'-0"

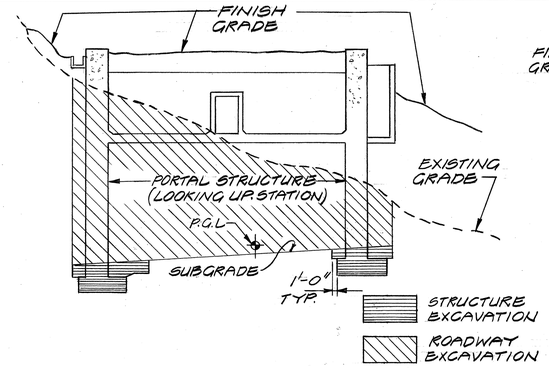


PLAN



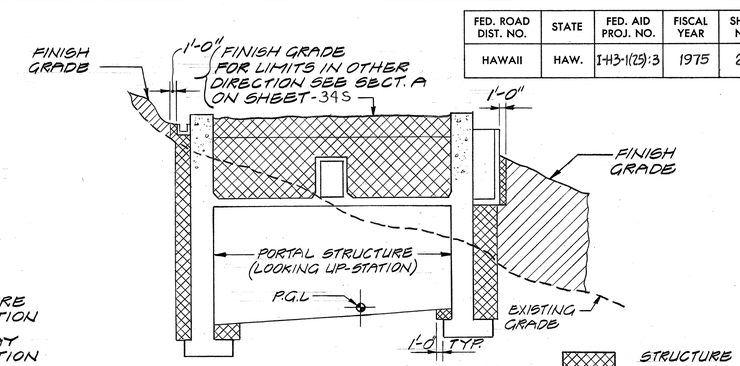
SECTION E

DETAIL 1 (SHT. 33S)
4" = 1'-0"



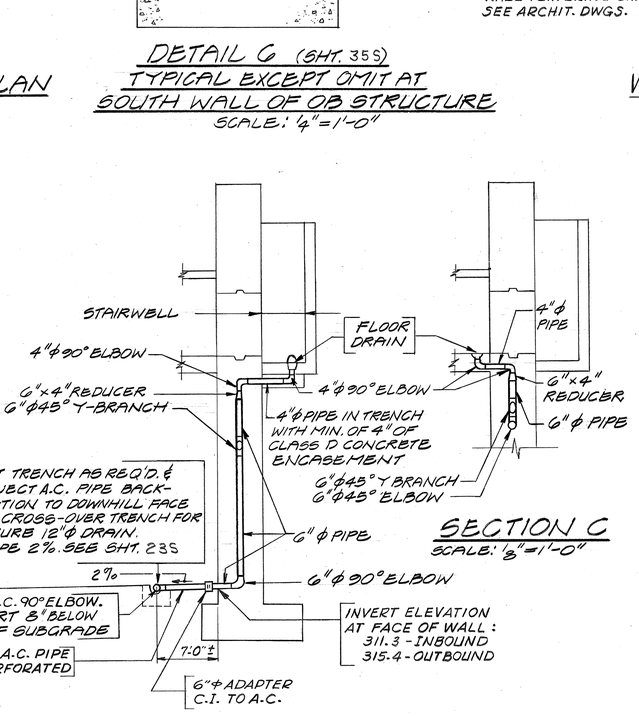
LEGEND

EXCAVATION PAY LIMITS
IB SHOWN; OB SIMILAR

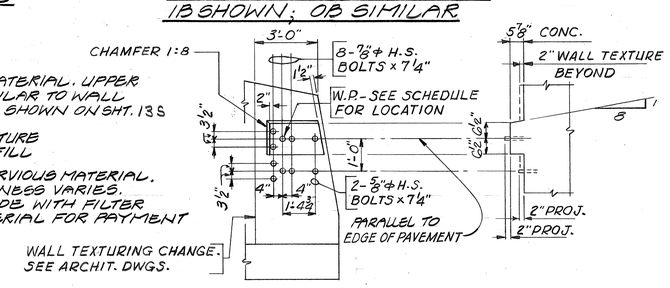


BACKFILL PAY LIMITS
IB SHOWN, OB SIMILAR

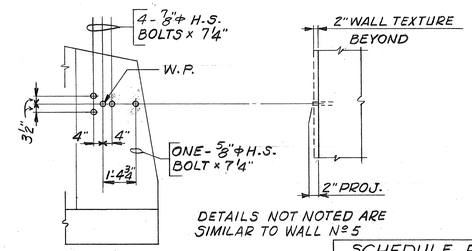
STRUCTURE BACKFILL
ORDINARY BACKFILL



DETAIL 6 (SHT. 35S)
TYPICAL EXCEPT OMIT AT
SOUTH WALL OF OB STRUCTURE
SCALE: 1/4" = 1'-0"



WALL Nº 5 SHOWN
WALL Nº 6 OPP. HAND

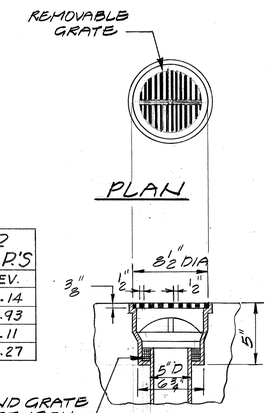


DETAILS NOT NOTED ARE SIMILAR TO WALL Nº 5

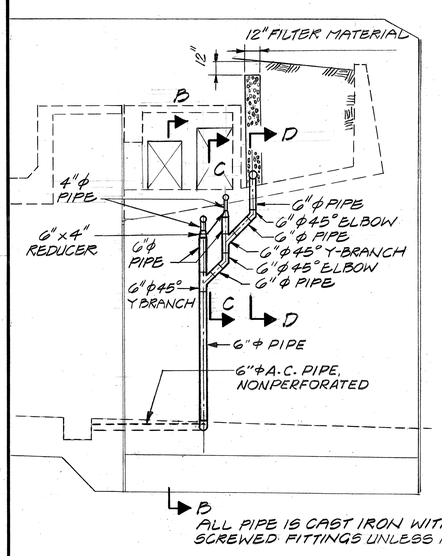
WALL Nº 7 SHOWN
WALL Nº 8 OPP. HAND

CONNECTION FOR FUTURE GUARD RAIL
SCALE: 3/8" = 1'-0"

SCHEDULE FOR GUARD RAIL W.P.'S		
WALL	STA.	ELEV.
5	IB 99+33	310.14
6	IB 98+90	314.93
7	OB 98+08	315.11
8	OB 97+69	319.27



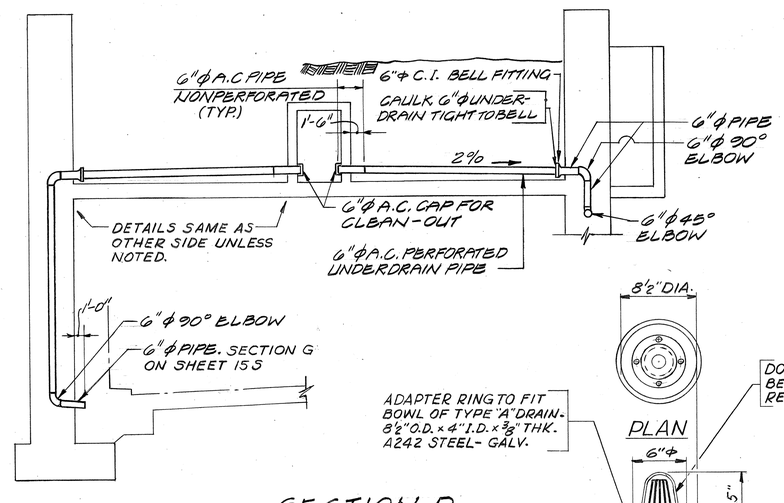
TYPE "A" DRAIN
1/2" = 1'-0"



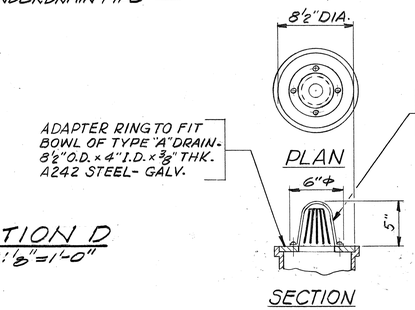
SECTION A
SCALE: 1/8" = 1'-0"

SECTION B
SCALE: 1/8" = 1'-0"

SECTION C
SCALE: 1/8" = 1'-0"



SECTION D
SCALE: 1/8" = 1'-0"



TYPE "B" DRAIN
1/2" = 1'-0"

H. A. FOSTER
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2863-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RED HILL TUNNELS
MOANALUA PORTAL STRUCTURES
DRAINAGE & EARTHWORK PAY LIMITS; MISCELLANEOUS DETAILS

F.A.I. PROJECT Nº I-H3-1(25):3
SCALE: AS NOTED DATE: JAN 31, 1975

SHEET No. 16S OF 16S SHEETS

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	
	DRAWN BY J. VANCE	1-17-72
	TRACED BY	" " "
NOTE BOOK	DESIGNED BY R.E. MITCHELL	1-17-72
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No.	CHECKED BY R.E. MITCHELL	1-17-72