WALTER LUM ASSOCIATES, INC.

CIVIL, STRUCTURAL, SOILS ENGINEERS

EDWARD WATANAB EZRA KOIK WALLACE WAKAHIR 3030 WAIALAE AVE., HONOLULU, HAWAII 96816 • TEL. 737-793

FOR REFERENCE

not to be taken from this room

5.R* 61

No. 11

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

August 17, 1981

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

Hoaeae, Ewa, Oahu, Hawaii

The above project was generally mass graded with on-site and off-site soils. The soils used for filling the site were from the following sources:

- 1. About August 1979, initial site grading began near the southwest corner of Phase 5 with excess fill material from Village Park - Phases 2 and 4. This work was done during the mass grading for Phases 2 and 4.
- 2. In June 1980, general site work began for Phases 5 and 6 with on-site material used for fill.
- 3. From about August 1980, off-site borrow from Phases 3 and 7 sites was used for fill.

The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

Grading Plans "Village Park - Phase 5 Fill Area (Excess from Phases 2 & 4)" dated August 22, 1979 and "Village Park - Phases 5 & 6" dated March II, 1980 by Park Engineering, Inc. were used as guides for fill depths for soil testing purposes.

A tabulation of the field density test results is attached. Where low tests were noted, the area was rerolled and in most cases retested. The density test results at the time and at the locations taken were, in our opinion, in general conformance with the density requirements of the Revised Ordinances of Honolulu, 1969 As Amended.

MUNICIPAL REFERENCE & BEOORDS CENTER
City & County Street
City Hall Further 558 S. King Street
Hall Further 19813

Even though, in our opinion, the field density tests by our office conform to the density requirements of the City's Ordinance, the passage of time may result in changes in soil conditions and we suggest the following precautions:

- 1. Some creep or settlements may occur near the tops of slopes. Foundations near tops of slopes or over sloping ground should be avoided or designed under the guidance of an Engineer.
- 2. Site regrading by cutting, filling or altering the drainage pattern may cause ground instability in some situations. For this reason, lot regrading should be avoided or made under the guidance of a Soils Engineer.
- Drain and sewer lines were installed along the future Kupuna Loop between Roads "F-I" and "N." The utilities were placed below a 2 horizontal to I vertical slope about 8 ft high. The slope was reconstructed with uncontrolled fill after the utilities were installed. Should localized slumps occur in this area, some maintenances and repair work may be required.

Our work on this project did not include the following:

Swimming pools, finish grading work not observed and tested by our office, backfill of utility trenches, etc.

Accepted engineering and testing procedures were used on this project and our professional opinions and conclusions were made in accordance with generally accepted soil and foundation engineering principles and practices. However, we do not undertake to guarantee the construction nor do we relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans and specifications.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahush
Wallace Wakahiro

WW:VI

cc: Park Engineering, Inc.

WALTER LUM ASSOCIATES, INC.

CIVIL, STRUCTURAL, SOILS ENGINEERS

					EDW	ARI	D W	ATA	MAE	ı
							EZI	lA i	KOIN	ď
					WALL					
30	WAIALAE	AVE.,	HONOLULU,	HAWAII	96816	• 1	TEL.	737	7-793	1

IO: WAITEC DEVELOPMENT, INC.	DATE: August 12, 1980
c/o Herbert K. Horita Realty, Inc.	
2024 North King Street, Room 204	
Honolulu, Hawaii 96819	*.
Gentlemen:	
Re: VILLAGE PARK SUBIDIVSION - F	PHASES 5 & 6
FIELD DENSITY TEST REPORT	· · · · · · · · · · · · · · · · · · ·
FIELD DENSIII IESI REPORT	
<u> </u>	
We Arc Sending You Herewith X	Under Separate Cover
	D
Prints	Review and comment Approval
X Field Density Test Results	Signature
Boring Logs X Laboratory Test Results	X Your use and files
X Laboratory Test Results Soil Report	
No. of Copies Sets 1	
Sheets	
General Remarks:	
General Remarks:	
For period ending July 31, 1980.	
cc: Park Engineering, Inc.	
Hood Corporation	
Dept. of Housing & Urban Development	•
and the second s	Yours truly,
	WALTER LUM ASSOCIATES, INC
	By W. Wakahin

FL 737.7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 4 6

Field Density Test Results as follows:

Ending	JULY	311	9 <i>_8</i> 0	Sheet_	<u> </u>	7_Sheets
Date	LOT	. Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
7-2-80	12.19.	D 21't	28.0	103.0	104	99
н	1/6	D 17't	23.5	96.5	31	93
7-7-80	17 (D 20't	26.9	937	98	96
11	18 (D 194	29.0	92.3	11	94
£1	1	2) 184	26.3	92.0	* * n	94
u (KURINA LOOP	D 8/2	26.0	92.8	1/	95
*1	LOOP (2) 74	27.9	93.8	41	96
7-9-80	19 (3) 16't	29.5	190.1	104	87
l ·	17 6	2) 15'£	29.3	94.2	u .	91
ŧı .	SLOPE (D 174	26.3	96.7	ii .	93
Į l	LOOP (3) 612	22.1	100.9	11	97
	·					
7-10-80	(RETEST) (4) 164	26.1	101.9	104	98
· 0.	1	1) 13'+	27.7	101.6	11	98
11	7 (1211	27.1	99.8	. !!	96
. 11	LOOP (4'1	28.2	95.4	1/	92

^{*} Approximate depth below finish grade.

BY M. Kilingh

[·] Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{***} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test. ... taken in the LOT. shown.

TEL. 737-793

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 6

Ending	JULY '	3119	80	Sheet_	2_of_	1Sheets
Date	LOT NO	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
7-10-80	LOOP 6	44	26.1	96.9	104	93
7-11-80	1 (184	26.6	90.4	98	92
11	2	164	23.2	97.0	ł i	99
11	3 1	144	28.3	93.1	t ₁	95
11	6 (I)	114	27.2	92.1	111	94
11	KUPLIHA LOOP (6)	34	19.5	101.3	16	١٥٥ ح
i)	LOOP (7)	34	28.4	91,9	•)	94
7-14-80	1 @	154	23.7	96.0	98	98
. 11	2 2	134	29.4	93.5	11	95
tı	4 ①	121	21.5	92.0	**	94
,1	LOOP (8)	24	23.6	91.4	11	93
- 31	LOOP (9)	44	255	91.6	ij.	93
			t .			

^{*} Approximate depth below finish grade.

^{-**} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{···} Tests indicate the relative compaction of the soils only at the test locations.

⁵ Indicates Test 45.. taken in the LOT. shown.

TEL 737.7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 & 6

Field Density Test Results as follows:

Ending		19	<u>80</u>	Sheet_	of	7Sheets
Date	LOT	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
7-15-80	KUPUNS LOOP (10)	2'=	27.4	94.8	98.2	97
11 .	KUPUNA LOOP	Z't	29.2	94.0	98.2	96
ji.	55 ()	17'±	28.1	93.1	98.2	95
11	57 O	16'=	27.8	91.6	98.2	93
7-16-80	55 ②	15'±	27.4	94.7	98.2	96
11	58 Û	14'+	27.8	92.7	98.2	94
	Kupuna Loop	1'±	29.1	959	98.2	98
						·
7-17-80	19 9	15'1	29.6	93.2	98.2	95
11	15 D	15'±	28.1	88.6	98.2	90
11	10 ①	9'±	29.1	92.4	98.2	94
. "	KUPUHA LOOP (3)	1'5	27.9	97.5	982	99
**	KUPUNA LOOP	1'±	269	95.1	98.2	97
7-18-80	14 ①	10'1	258	93.6	98.2	95
£1	16 2	13't	23.3	93.0	98.2	95
31	13 ①	62	27.0	90.8	98.2	92

[·] Approximate depth below finish grade.

BY J. Sugehan

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{···} Tests indicate the relative compaction of the soils only at the test locations.

¹⁰ Indicates Test ... ID. taken in the LOT. . shown.

3030 WAIALAE AVE., HONOLULU, HAWAII 96816 . TE

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 \$6

Field Density Test Results as follows:

Ending	JULY	3119	8ට	Sheet_	4of	7Sheets	
Date	LOT HO.	Fili Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
7-18-80	55 3	13't	23.4	94.3	98.2	96]
7-21-80	57 ^②	12'=	25.9	93.0	98.2	95	
11	59 D	10'±	33.3	89.1	18.2	91	
Ü	18 2	13'±	26.4	97.2	98.2	99	
н	: (-)	6'±	31.4	91.3	98.2	93	
11	8 1	10'1	22.9	949	98.2	97	
н	24 ①	7生	31.2	90.2	98.2	92	
11	9 0	フ′±	30.6	81.9	98.2	84	TO BE REPOLUSIO REFESTED
d ·	RETEST OF 2	7'±	29.5	91.0	98.2	93	
	7 ②	8'±	31.1	89.4	98.2	91	
11	17 3	11't	27.2	95.0	98.2	97	
							, ·
7-22-80	29 D	11'1	27.3	92,9	98.2	95	
Ц	26 ①	10'±	22.3	97.0	98.2	99	
24	56 Û	11'±	27.0	95.6	98.2	97	
10	19 @	11'±	28.0	91.5	98.2	93	
	1 3	11'±	2 7.8	92.6	98.2	94	

^{*} Approximate depth below finish grade.

BY J. Sugikara

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{**} Tests indicate the relative compaction of the soils only at the test locations.

³⁾ Indicates Test. #. 3. taken in the 127. shown.

TEL 737-7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 & 6

Ending		114	3 1 19	80	Sheet_	5of	7Sheets
Date	LOT		Fili Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
7-22-80	3	2	10'±	24.8	95.4	98	97
τί	5	0	9'±	21.9	101.]	98.	>100
		•					
7-23-80	2	(3)	94	27.0	92.7	98	94
11	4	2	8'±	25.3	100.3		> 100
li ,	1	(F)	74	25.7	95.0	n	97
и	6	2	6,7	30.1	89.5	11	91
h	8	2	54	26.0	96.3	4	98
	10	2	411	29.0	92.3	lı	94
Į1	18	3	94	25.8	98.7	ķi.	100
v	16	3	84	26.2	94.6		96
1,	19	7	74	28.5	92.1	()	94
· • • • • • • • • • • • • • • • • • • •	17	(4)	74	24.2	96.6	1,	98
{ 1	15	2	54	29.3	93.9	11	96
	18	(4)	54	24.0	96.8	ıï	99
ti.	16	(1)	44_	25.1	94.4	11	96
. 11	14	2	34	29.0	94.3	. 11	96
				_			

^{*} Approximate depth below finish grade.

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{***} Tests indicate the relative compaction of the soils only at the test locations.

 $[\]mathfrak{D}$ Indicates Test $\overset{*}{\sim}\mathcal{V}$. taken in the \mathcal{L} . shown.

TEL. 737-793

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 516

Field Density Test Results as follows:

Ending	Jul	43	19	80	Sheet_	_6of	7Sheets
Date	LOT		Fili Layer* -	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
7-24-80	5	3	44	24.6	94.6	104	91
Ĥ.	7	(3)	34	24.2	95.5	H	92
tı .	9	3	24	23.2	97.9	. 11	94
·	19	(8)	34	22.6	97.1	i ,	93
ų	18	6	14	22.2	96.1	h	92
4	17	6	24	22.3	103.2	h	99
. 11	15	3	14	22.4	99.5		96
И	13	2	2'±	22.6	95.2	,,	92
\$ ₁	12	(1)	14	24.0	95.7	,,	92
н .	17	6	04	24.0	98.8	17	95
Į1	12	2	04	25.2	96.9	1,	93
7-25-80	3	3	54	23.2	94.0	98	95
)ı .	14	3	04	25.3	97.0	104	93
	28	0	94	29.8	86	, it	83
11	(RETEST)	2	9't	26.5	104	i i	100
,,	26	2	84	26.0	99	1.1	95
11	25	(1)	74	25.4	98	11	94

Approximate depth below finish grade.

BY M. Whuch

1-875

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{···} Tests indicate the relative compaction of the soils only at the test locations.

 $[\]mathfrak{Z}$ Indicates Test \mathfrak{Z} . taken in the ω shown.

EL 737.7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5:6

Field Density Test Results as follows:

Ending	July	3119	80	Sheet_	7of	7Sheets
Date	LOT HO.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
7-15-80	27 (1	64	26.0	101.0	104	97
tı .	24 @	54	24.3	95.0	98	95
					:	
7-30-80	29 (2	44	21.8	99.0	104	95
ħ	33 (T		22.2	101.2	п	97
t _i	27 (2		20.8	100.4	11	96
t)	32 (1	34	22.0	102.7	11	99
: 44	28 3	2'±	20.8	100.0	ıt	96
	30 (T		21.7	98.6	11	95
Į)	14 3	14	25.7	94.7	ij	91
u	27 3		27.3	104,5 -	17	2100
						·
7-31-80	11 2	01/2	26.0	97.7	104	94
4.8	29 3	1/1	26.2	100.7	16	97
				····		

^{*} Approximate depth below finish grade.

BY M. Whichi

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

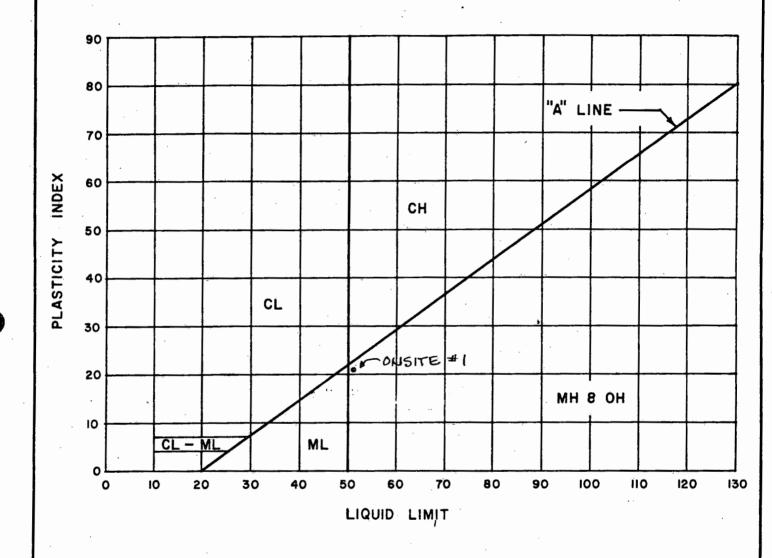
^{***} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test. #1.. taken in the LOT. shown.

PLASTICITY CHART

PROJECT: VILLAGE PARK SUBDIVISION PHASES 5 ! 6

LOCATION: HOAEAE, EWA, DAHU, HAWAII



DATE 7-31-80 BY MIC

WALTER LUM ASSOCIATES, INC.
CIVIL, STRUCTURAL, SOILS ENGINEERS

MOISTURE-DENSITY CURVE (ASTM D-1557-70, METHOD \underline{A})

PROJECT: VILLAGE PARK SUBDIVISION PHASES 5 6

AGGREGATE : 14" MINUS

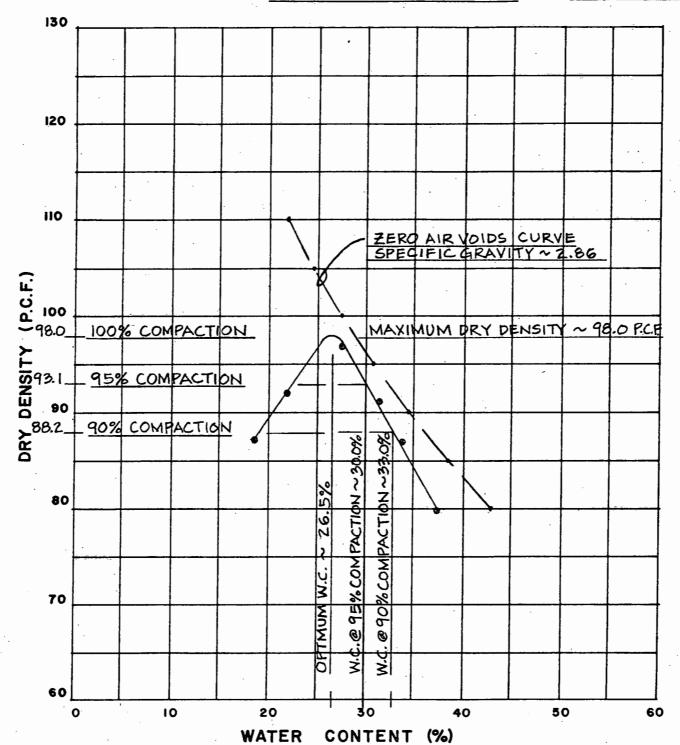
LOCATION: HOAEAE, EWA OAHU, HAWAII MOLD SIZE: 4" \$ X4.584" HT.

HAMMER: 10 LB.

SAMPLE NO. : # 1

LAYERS: 5 LAYERS

SAMPLE DESCRIPTION: REDDISH BROWN SILTY CLAY BLOWS: 56/LAYER



WALTER LUM ASSOCIATES, INC. CIVIL, STRUCTURAL, SOILS ENGINEERS

DATE 7-11-80 BY GYS

3-775

VILLAGE PARK SUBDIVISION PHASES 5:6

TABLE I A - SUMMARY OF LABORATORY TEST RESULTS

BORING NO.	ONSITE	BORROW
SAMPLE NO.		FROM PHASE
DEPTH BELOW SURFACE		6
	REDDISH BROWN	REDDISH BROWN
	SILTY CLAY	SILTY CLAY
DESCRIPTION		01011-1-0011
GRAIN-SIZE ANALYSIS		
(% Passing)	•	- -
Sieve		
1-1/2"		
in the second	·	
1/2"		
4		
10		
20		
40		
100		· · · · · · · · · · · · · · · · · · ·
200		
. 200		
ATTERBERG LIMITS		
Air Dried or Natural	NATURAL	NATURA L*
Liquid Limit	51	41
Plastic Limit	30	25
Plasticity Index	21	16
ridalicity index		
Dilatancy	RAPID-SLOW	RAPID
Toughness	MED-STIFF	MED STIFF
Dry Strength	MEDIUM	MEDIUM
July Officing.		
UNIFIED SOIL CLASSIFICATION	MH	ML-CL*
APPARENT SPECIFIC GRAVITY	2.86	2.86 *
CBR TEST		
(Surcharge - 51 P.S.F.)		
Molding Moisture, %	27.2	24.1*
Molding Dry Density, P.C.F.	97.9	102.3
Swell upon saturation, %	0.1	0.2
CBR at O.1" Penetration	27.0	12.3
MOISTURE - DENSITY RELATIONS OF SOILS	· · · · · · · · · · · · · · · · · · ·	
(ASTM D-1557-70, Method)	A	_ <u> </u>
Dry to Wet or Wet to Dry	DRY TOWET	DRY TO WET
Max. Dry Density (P.C.F.)	<u> 98.0</u>	104
Optimum Moisture (%)	26.5	23.0
	•	
REMARKS: * RESULTS PREVIOUSLY	SUBMITTED UNDER V	ILLAGE PARK
PHASES 14 \$ 15 (JUNE		WALTER LUM ASSOCIATES, INC.
	<i>y</i>	CIVIL, STRUCTURAL, SOILS ENGINEERS

Date 7-31-80 By MIC

WALTER LUM ASSOCIATES, INC.

CIVIL, STRUCTURAL, SOILS ENGINEERS

WALLACE WAKAHIRO 3030 WAIALAE AVE., HONOLULU, HAWAII 96816 • TEL. 737-7931

By W. Wahnkin

TO: WAITEC DEVELOPMENT, INC.	DATE: August 26, 1980
c/o Herbert K. Horita Realty, Inc.	
2024 North King Street, Room 204 Honolulu, Hawaii 96819	
Gentlemen:	
Re:_VILLAGE PARK SUBDIVISION - PHA	ASES 5 & 6
FIELD DENSITY TEST REPORT	
111110 22110111 11011	
	_
We Are Sending You Herewith X	Under Separate Cover
X Location Plan X Field Density Test Results	Review and comment Approval Signature Your use and files
No. of Copies Sets Sheets	
General Remarks:	
For period ending August 20, 1980.	
cc: Park Engineering, Inc. Hood Corporation Dept. of Housing & Urban Development	
	Yours truly,
	WALTER LUM ASSOCIATES, INC.

TEL 737,7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5 6

Ending	AUGUST 20	19	<u>80</u>	Sheet_	<u> </u>	4Sheets	
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
8-1-80	25 ①	04	26.6	98.6	104	95]
ĻI	31 1	14	23.0	98.2	. 13	94	1
	33 ①	14	29.1	98.8	lq	95	1
				· · · · · · · · · · · · · · · · · · ·			1
8-4-80	PARKSITE (84	27.0	99.9	104	96	
и	PARKSITE 2	6'±	26.7	87.8	r ₁	84	TO B REEL RET
ň .	PARKSITE 3	64	21.9	95,9	11	92	,~.
4	2 0	44	23.3	76.1	/i	13	TO BE
fs	(RETEST) 2	411	22.0	98.9	11,	95	
lı	4 ①	34	22.1	98.9	'n	95	
	·						
3-5-80	PARKSITE 4	44	34.8	84.0	104	-81	TO B RERD 1 REN
ł1	PARKSITE (S)	41-	26.5	93.6	.,	90	
h	1 ()	34	26.0	80.6	11	78	TO B RERO PRET
t ₅	(RETEST) 2	313	25.8	96.7	i,	93	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
11	2 3	24	28.7	88.8	98	90	
4	6 (1)	24	31.6	97.0	104	93	
1) .	7 ()	14	31.1	92.6	98	94	

^{*} Approximate depth below finish grade.

[·] Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{···} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test # ... taken in the LOT. shown.

TEL 717.7011

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDVISION - PHASES 5 & 6

Ending	AUGUS	T 2	<i>O,</i> 19	80	Sheet_	of	4 Sheets	
Date	Lot No		Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
8-5-80	18	①	0,7	26.3	80.0	98	81	TO BE REROLLÓD RETESTE
8-6-80	PARKSITE	6	34	29.8	91.3	98	93	
0 7 0 5	PARKSITE		0.10			100	00	TO BE REPOLED
8-7-80	PARKSITE	0	24	24.6	81.7	98	83	REPOLED
11 .	(RETEST)	8	214_	25.4	95.1	ti	97	
, h	4	2	14	26.1	96.4	tr	98	
ü	58	0	114	23.1	98.1	104	94	
8-8-80	57	()	9'±	25.7	93.1	98	95	
11	PARKSITE	9	14	31.3	91.9	1,	94	
8-11-80	8	①	0'±	27.9	96.0	104	92	
11	(RETEST)	2	04	27.2	94.3	,,	90	
8-12-80	5	①	04	31.4	8 9.0	98	91	
1,	.31	2	04	23.4	98.5	104	45	

^{*} Approximate depth below finish grade.

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70.

^{***} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test. # . I . taken in the LOT. shown.

TEL 737-7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION-PHASES 5 6

Ending	AUGUS	T 2	<i>O,</i> 19	80	Sheet_	3of	4 Sheets	
Date	Lot No		Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
8-13-80	PARKSITE	(b)	O,Ŧ	26.9	86.8	104	83	TO BE REROLLED
К	34	(1)	OiT	27.8	92.0	98	94	
]
8-14-80	PARKSITE (RETEST)	(1)	01.	22.3	98.7	104	95	
Й	١	3	04	25.5	96.3	ч	93	
FI .	3	()	٠ <u>٨</u>	26.6	93.4	11.	90	
H	55	(1)	812	21.7	101,4	tr -	98]
Lį	0.70	①	214	23.0	96.9	l ₄	93	
l _t	97	(1)	214	23.6	101.7	1,	98	
8-15-80	56	2	7'±	25.5	99.3	104	95	
u.	69	<u>()</u>	1912	23.4	98.1	11	94	
							_	
8-18-80	55	2	6'1	30.D	93.6	98	96	
ч	71	①	184	30.4	91.5	н	93	
11	68	①	174	28.1	94.4	l _i	96	
11	96	0	174	23.4	93.1	104	90	
11	99	0	17'	21.8	104.5	la la	>100	

[·] Approximate depth below finish grade.

^{**} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D-1557-70

^{···} Tests indicate the relative compaction of the soils only at the test locations.

DIndicates Test # 10, taken in the LOT, shown.

TE1 737,7031

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5 46

Field Density Test Results as follows:

Ending	nding AUGUST 20 1980				Sheet 4 of 4 Sheets			
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***		
8-19-80	59 (I)	64	25.3	99.0	104	95		
11	72 ①	门生	22.4	93.2	104	90	TO BE REROLLED FRETESTED	
//	72 (2)	17'±	25.8	94.0	104	90 .		
(1	97 ②	16°±	22.9	88,9	104	85	TO BE REPOLLED & RETESTED	
11	97 3	164	23.2	98.8	104	95	1	
11	100 ①	16'±	24.3	90.9	104	87	TO BE REPOLLED & RETESTED	
t į	(RETEST)	16'±	23.3	103.9	104	100	17.212312	
8-20-80	55 3	3'±	26.3	12.3	98	94		
11	56 (1)	4'±	25.4	93.4	104 .	90		
11	57 ②	54	25.6	100.5	104	97		
li .	60 (I)	3'±	26.3	92.3	98	94		
11	67 (1)	15'1	22.1	94.9	104	91		
11	70 ②	16't	31.9	90.4	98	92		

^{*} Approximate depth below finish grade.

Indicates Test # . . . taken in the LOT. shown.

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{*} Tests indicate the relative compaction of the soils only at the test locations.

WALTER LUM ASSOCIATES, INC.

CIVIL, STRUCTURAL, SOILS ENGINEERS



By W. Wahahin

EZRA KOIKE

TO: WAITEC DEVELOPMENT, INC.	DATE: September 30, 1980
c/o Herbert K. Horita Realty, Inc.	
2024 North King Street, Room 204	
Honolulu, Hawaii 96819	•
Gentlemen:	
Re: VILLAGE PARK SUBDIVISION -	PHASES 5 & 6
FIELD DENSITY TEST REPORT	
We Arc Sending You Herewith □ 💢	Under Separate Cover
	Review and comment Approval Signature X Your use and files
No. of Copies Sets Sheets	
General Remarks:	· ·
For period ending September 19, 1980.	
cc: Park Engineering, Inc. Hood Corporation Dept. of Housing & Urban Development	
	Yours truly,
	WALTER LUM ASSOCIATES, INC.

TEL 737,7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASE 5 \$6

Ending	GEPT,	19	19	80	Sheet_	of	8Sheets	
Date	Lot No.		Fili Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
8-21-80	57 (① 1'	1+	29.7	91.2	98	93	
11	58	① 2	生	25.2	97.4	98	99	
	61	1'	ナ	29.4	<i>80.5</i>	98	90	
H	42	① 4	12	29.3	92.3	98	94	
11	70	15	,' <u>+</u>	29.2	91.7	98	94	
]
8-22-80	L5 · (12'	<u> </u>	24.3	94.9	18	97	
11	66	14'	t	22.5	73.9	104	71	TO BE REPOLLED RETESTICO
11	66 (RETEST)	2 14'	t	24.7	98.7	104	95] Leves in
ń	68 (13'	±	26.3	94.2	18	96	
11	69 (15'	±	21.9	86.4	104	83	TO BE REROLLED RETESTED
41	69(RETEST)	2 15	ţ	22.9	96.8	104	93	NE IESIED
11	72 (13'	<u>+</u>	24.2	100.1	104	96	
8-24-80	95 (14'	, <u>+</u>	24.6	93.2	98	95]
8-25-80	56 (D 0'	†	23.6	94.5	104	91	
11	59 (D 0'		24.1	97.6	104	94	

[·] Approximate depth below finish grade.

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{***} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test # ... taken in the LOT. shown.

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASE 5 \$ 6

Field Density Test Results as follows:

Ending 58PT. 19		19	19	9 <u>80</u>	Sheet_	of	8_Sheets
Date	Lot	No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
8-25-80	62	2	0't	24.2	99.5	104	96
ti .	64	1	11'\$	21.3	97.1	104	93
11	65	2	10'1	25.4	95.7	104	92
11	67	1	リセ	21.5	98.8	104	95
11	68	2	10't	23.0	95.3	104	92
11	70	2	124	21.3	96.7	104	93
; †	71	1	11'さ	22.7	18.8	104	95
8-26-80	64	2	8'±	22.4	91.9	98	94
11	66	3	9't	25.3	92.7	98	95
n	67	2	8'±	28.6	92.8	98	95
ñ .	69	3	11'2	21.6	97.5	98	99
11	71	2	9't	22.0	101.9	104	98
ij	78	①	8'±	28.1	89.6	98	91
j i	E	(I)	23'±	23.2	96.4	98	98
8-27-80	E	2	19'±	28.0	96.0	98	98
Ĭ1	F	①	20'±	24.5	100.4	98	7100

^{*} Approximate depth below finish grade.

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test . 2... taken in the LOT. shown.

TEL. 737-7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASE 546

Field Density Test Results as follows:

Ending	SEP	T. 10	19	<u>80</u>	Sheet_		Sheets
Date	Lot	No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
8-27-80	69	4	9'±	21.1	93.8	104	90
11	72	2	8't	28.6	93,3	98	95
: 21	76	①	フ′さ	25.5	96.7	98	99
11	77	0	6't	20.4	96.3	104	93
8-28-80	E	3	18't	31-0	93.7	98	96
	63	1	7'±	23.3	96.1	98	98
11	65	3	フセ	25.6	93.6	98	96
H	68	3	74	288	95.0	98	97
11	70	3	8'7	25.9	89.6	98	91
11	78	2	5'1	25.4	93.5	98	95
11	97	1	13'1	23.2	89.9	98	92
8-29-80	71	3	7' ±	23.5	93.3	98	95
	14	0	4' t	26.6	98,2	104	94

REROLLED

99

91

89

98

98

98

16

11

19

24.2

24.9

26.3

4' ±

3 +

(2)

2

96.6

89.6

87.3

^{*} Approximate depth below finish grade.

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D-1557-70

Tests indicate the relative compaction of the soils only at the test locations.

⁴⁾ Indicates Test . 4 . . taken in the LOT. shown.

TEL 737.793

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 40

Ending	SEPT.	1919	<u>80</u>	Sheet_	4of	8Sheets
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-8-80	64 (3 5' t	24.4	89.1	98	91
LI	70 (4) 6' ±	25.1	90.0	98	92
и	66 (4) 6' ±	23.9	97.7	98	100
·						
9-9-80	68 (4) 5't	24.1	90.2	98	92
tı .		3 5'±	22.6	102.9	104	99
h	13 (D 4' ±	25.3	93.9	98	96
ļi.	69 (5 4'±	24.5	95.0	98	97
i i	<i>6</i> 5 (4' ±	24.6	94.8	98	97
9-10-80	63 (2) 3't	20.8	98.8	104	95
14		3 3'±	23.3	102.6	104	99
lı	71 (1) 3' ±	21.7	96.6	104	93
9-11-80	72 (F) 2't	24,5	96.9	98	99
	75 (D 2'+	27.2	89.5	98	91
	18 (3) 2'±	26.0	93.7	98	96
		3) 1'±	24.5	97.0	98	99

^{*} Approximate depth below finish grade.

^{**} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{···} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test ... taken in the Lot . shown.

3030 WAIALAE AVE , HONOLULU, HAWAII 96816 .

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 506

Ending	SEPT. 1	919	80	Sheet_	5_of_	8 Sheets
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-11-80	, D., (I) 17'+	27.6	95.3	98	97
ţ!	"F" (2	16't	23.7	94.3	98	96
11	13 2) l'±	26.2	93,4	98	95
(I	71 4) 0'±	22.2	92.8	98	95
11	95 2	12'+	21.5	107.0	104	98
Ŋ	99 (I	12'±	25.0	93.0	98	95
9-12-80	64 (2 t	28.5	92.5	98	94
	68 E	2't	30.2	90.9	98	93
	10 E) ['t	29.9	90.8	98	93
	74 2	0't	26.2	96.3	98	98
	80 (I	o' ±	23.2	96.9	98	99
	"E". 4	15't	22.7	92.1	98	94
	"c" (1	15'±	25.6	99.0	98	7100
	"D" ②	14'=	23.5	96.6	98	99
	"G" (1)	14'±	27.9	91.5	98	93
	"F" 3	13'=	25.1	94.2	98	96

^{*} Approximate depth below finish grade.

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D-1557-70

^{···} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test. #. I. taken in the Lat. shown.

3030 WAIALAE AVE., HONOLULU, HAWAII 96816 . TI

TEL 737-7931

AREA REROLLED

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 6

Field Density Test Results as follows:

Ending	SEPT.	10	719	80	Sheet_	6_of_	8 Sheets
Date	Lot No	o.	Fili Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-15-80	"b"	3	12't	25.0	94.7	98	97
Į!	"G"	2	12'±	24.2	96.1	98	98
N .	"c"	2	11 ±	26.0	91.7	98	94
II .	·' F "	4	\1'±	23.2	91.2	98	93
11	"E"	(5)	10 ¹ ±	27.0	90.2	98	92
ij	96	0]['±	23,9	93.5	98	95
11	100	Θ	IJ'±	25,2	95.2	98	97
lf.	66	6	1' ±	23.6	99.6	98	>100
11	98	(1)	[0'±	21.4	97.0	98	99
f i	101	Θ	(0, 1	28.6	86:2	98	88
D	95	3	9'+	26.5	90.1	98	92
n	99	@	9'±	23.8	91,7	98	94
		·					
9-16-80	"D"	4	9' ±	29.9	90.7	98	93
11	''د <u>''</u>	3	8'±	25.5	100.0	98	2100
11	'G"	3	8'±	27.1	100,3	98	>100
f i	97	2	8'1	29.4	90.7	98	93
11	65	(5)	0'±	26.9	92.7	98	95

^{*} Approximate depth below finish grade.

1-875

BY $\omega.\omega.$

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D-1557-70

Tests indicate the relative compaction of the soils only at the test locations.

^() Indicates Test #. 1. . taken in the .407. shown.

TEL. 737-7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 546

Ending	SEPT.		91	9 <u>80</u>	Sheet_	of	8 Sheets
Date	Lot N	lo,	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-16-80	68	(0 ¹ +	26.5	95.3	98	97
t.	71	⑤	0't	23.7	94.5	98	96
h	96	2	7'±	24.0	94.0	98	96
11	100	2	7'±	29.5	89.3	98	91
9-17-80	"E"	©	7'±	24.7	97.7	98	100
11	"B"	0	6'1	23.8	97.4	98	99
v	97	3	6't	23.9	91.8	98	94
lı .	95	4	5'1	27.6	89.9	98	92
				-			
9-18-80	"p"	5	4't	22.0	96.0	104	92
Į)	٠٠"	(4)	3' ±	25.2	93.1	104	90
ľ	96	3	4' t	21.3	94.8	104	91
V.	94	0	3'±	20.9	101.0	104	97
	,						
	<u></u>						· · · · · · · · · · · · · · · · · · ·
· · · · · · · · · · · · · · · · · · ·							ļ
			.•				

^{*} Approximate depth below finish grade.

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test taken in the Lo.1 . shown.

TE: 737.7031

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 \$ 6

Ending 5	EPT. 19	19	80	Sheet_		8 Sheets
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-19-80	'Ğ' Φ	31 t	24.2	96.1	98	98
1,	98 ②	3' ±	24.1	93.4	98	95
ľ	117 O	30'±	26.8	90.0	. 98	92
le	135 (1)	19'1	24,9	92.8	98	95
Ų	164 (I)	27'±	24.4	93.5	98	95
lį	195 (1)	16't	24.6	98.1	98	94
·						
		o de tros				
					7	
	<u>-</u>					
			· · · · · · · · · · · · · · · · · · ·		<u>, , , , , , , , , , , , , , , , , , , </u>	
		· · · · · · · · · · · · · · · · · · ·				

^{*} Approximate depth below finish grade.

BY	ω, ω ,	

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{***} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test # 1. taken in the LOT shown.

VILLAGE PARK SUBDIVISION PHASE 5:6

TABLE I___ - SUMMARY OF LABORATORY TEST RESULTS

BORING NO. SAMPLE NO. DEPTH BELOW SURFACE	BORROW FROM PHASE 3
DESCRIPTION	REDDISH BROWN CLAYEY-SILT
GRAIN-SIZE ANALYSIS (% Passing) Sieve 1-1/2" 1" 1/2" 444 4410 440 44100	
#200 ATTERBERG LIMITS Air Dried or Natural Liquid Limit Plastic Limit Plasticity Index Natural Water Content,%	NATURAL
Dilatancy Toughness Dry Strength	MED-STIFF MEDIUM
UNIFIED SOIL CLASSIFICATION	<u>MH</u>
APPARENT SPECIFIC GRAVITY	290
CBR TEST (Surcharge - 51 P.S.F.) Molding Moisture, % Molding Dry Density, P.C.F. Swell upon saturation, % CBR at O.1" Penetrotion	27/30* 91.7 01
MOISTURE-DENSITY RELATIONS OF SOILS (ASTM D-1557-70, Method) Dry to Wet or Wet to Dry Max. Dry Density (P.C.F.) Optimum Moisture (%)	A DRY-WET 980 250
REMARKS: * MOISTURE CONTENT AFTER 4	DAY SOAK WALTER LUM ASSOCIATES, INC.

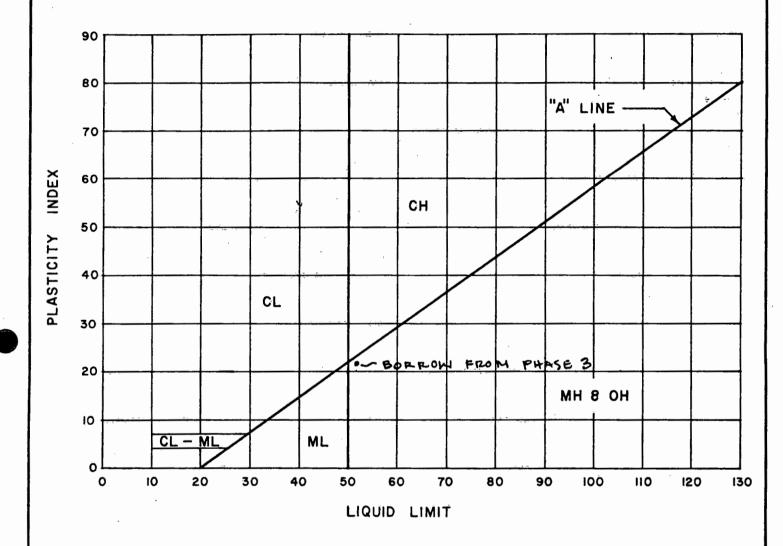
Date 8-29-80 By SM

STRUCTURAL & SOIL ENGINEERS

PLASTICITY CHART

PROJECT: VILLAGE PARK SUBDIVISION PHASES BEG

LOCATION: HOAEAE, OAHU, HAWAII



DATE 9-22-80 BY ω.ω.

WALTER LUM ASSOCIATES, INC.
CIVIL, STRUCTURAL, SOILS ENGINEERS

MOISTURE-DENSITY CURVE (ASTM D-1557-70, METHOD A) PROJECT : VILLAGE PARK SUBDIVISION PHASE 5 46 AGGREGATE : 4 MINUS MOLD SIZE : 4.0 8 × 4.584"HT LOCATION: HOAEAE, EWA, OAHLI, HAWAII 10 LBS HAMMER: SAMPLE NO. : BORROW FROM PHASE 3 5 LAYERS: SAMPLE DESCRIPTION : REDDISH BROWN CLAYEY - SILT 25/LAYER BLOWS:_ 130 120 110 DRY DENSITY (P.C.F.) 100 100 % COMPACTION XIMUM DRY DENSITY - 980 P.C.F. 98.0 95% COMPACTION 930 90 ZEROLAIR VOIDS CURVE 90% COMPACTION 88.0 SPECIFIC GRAVITY - 2.90 80 70 95 9 **B**) @ 60 10 20 30 50 60 WATER CONTENT (%) WALTER LUM ASSOCIATES, INC.

CIVIL, STRUCTURAL, SOILS ENGINEERS

3-775

DATE 8-25-80 BY DN

WAITEC DEVELOPMENT, INC. October 2, 1980 Page 2

2. Lot regrading by cutting, filling or altering the drainage pattern may cause ground instability in some situations. For this reason, lot regrading should be avoided or made under the guidance of a Soils Engineer.

Our work on this project does not include the following:

Swimming pools, retaining walls, finish grading of lots not observed and tested by our office, backfill of utility trenches, etc.

We have employed accepted engineering and testing procedures and our professional opinions and conclusions are made in accordance with generally accepted soil and foundation engineering principles and practices. However, we do not undertake to guarantee the construction nor do we relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans and specifications.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

S. Horita Contracting & Building Supplies, Ltd. (Field Foreman)

October 2, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Cut (F.H.A.: G-3)

Grading Plan Numbers

Group 34: 20, 21, 22, 23

The above lots were generally constructed in cut. Grading Plan dated March 12, 1980 by Park Engineering, Inc. was used as a guide for soil testing purposes.

Bearing values for light residential structures of 3000 p.s.f. may be used on compacted fill or on stiff undisturbed ground.

Even though, in our opinion, the lots were in cut, the passage of time may result in changes in soil conditions and we suggest the following precautions:

- Some creep or settlements may occur near the tops of slopes. Foundations near tops of slopes or over sloping ground should be avoided or designed under the guidance of an Engineer.
- Lot regrading by cutting, filling or altering the drainage pattern may cause ground instability in some situations. For this reason, lot regrading should be avoided or made under the guidance of a Soils Engineer.

Our work on this project does not include the following:

Swimming pools, retaining walls, finish grading of lots not observed and tested by our office, backfill of utility trenches, etc.

WAITEC DEVELOPMENT, INC. October 2, 1980 Page 2

We have employed accepted engineering and testing procedures and our professional opinions and conclusions are made in accordance with generally accepted soil and foundation engineering principles and practices. However, we do not undertake to guarantee the construction nor do we relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans and specifications.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

WW: I w

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

S. Horita Contracting & Building Supplies, Ltd. (Field Foreman)

October 2, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6) Lots in Fill (F.H.A.: G-3)

Grading Plan Numbers

Group 35: 11, 12, 13, 14, 15

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

Grading Plan dated March 12, 1980 by Park Engineering, Inc. was used as a guide for fill depths for soil testing purposes.

The density test results at the time and at the locations taken were, in our opinion, in general conformance with the density requirements of the Revised Ordinances of Honolulu, 1969 As Amended.

Bearing values for light residential structures of 3000 p.s.f. may be used on compacted fill or on stiff undisturbed ground.

Even though, in our opinion, the field density tests by our office conform to the density requirements of the City's Ordinance, the passage of time may result in changes in soil conditions and we suggest the following precautions:

 Some creep or settlements may occur near the tops of slopes. Foundations near tops of slopes or over sloping ground should be avoided or designed under the guidance of an Engineer. WAITEC DEVELOPMENT, INC. October 2, 1980 Page 2

2. Lot regrading by cutting, filling or altering the drainage pattern may cause ground instability in some situations. For this reason, lot regrading should be avoided or made under the guidance of a Soils Engineer.

Our work on this project does not include the following:

Swimming pools, retaining walls, finish grading of lots not observed and tested by our office, backfill of utility trenches, etc.

We have employed accepted engineering and testing procedures and our professional opinions and conclusions are made in accordance with generally accepted soil and foundation engineering principles and practices. However, we do not undertake to guarantee the construction nor do we relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans and specifications.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahir

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

S. Horita Contracting & Building Supplies, Ltd. (Field Foreman)

October 2, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Cut (F.H.A.: G-3

Grading Plan Numbers

Group 35: 35, 36, 37

The above lots were generally constructed in cut. Grading Plan dated March 12, 1980 by Park Engineering, Inc. was used as a guide for soil testing purposes.

Bearing values for light residential structures of 3000 p.s.f. may be used on compacted fill or on stiff undisturbed ground.

Even though, in our opinion, the lots were in cut, the passage of time may result in changes in soil conditions and we suggest the following precautions:

- Some creep or settlements may occur near the tops of slopes. Foundations near tops of slopes or over sloping ground should be avoided or designed under the guidance of an Engineer.
- Lot regrading by cutting, filling or altering the drainage pattern may cause ground instability in some situations. For this reason, lot regrading should be avoided or made under the guidance of a Soils Engineer.

Our work on this project does not include the following:

Swimming pools, retaining walls, finish grading of lots not observed and tested by our office, backfill of utility trenches, etc.

WAITEC DEVELOPMENT, INC. October 2, 1980 Page 2

We have employed accepted engineering and testing procedures and our professional opinions and conclusions are made in accordance with generally accepted soil and foundation engineering principles and practices. However, we do not undertake to guarantee the construction nor do we relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans and specifications.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahir

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

3030 WAIALAE AVE., HONOLULU, HAWAII 96816 • TEL. 737-7931

October 2, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Fill (F.H.A.: G-3)

Grading Plan Numbers

Group 36: 24, 25, 26, 27, 28, 29 30, 31, 32, 33, 34

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

Grading Plan dated March 12, 1980 by Park Engineering, Inc. was used as a guide for fill depths for soil testing purposes.

The density test results at the time and at the locations taken were, in our opinion, in general conformance with the density requirements of the Revised Ordinances of Honolulu, 1969 As Amended.

Bearing values for light residential structures of 3000 p.s.f. may be used on compacted fill or on stiff undisturbed ground.

Even though, in our opinion, the field density tests by our office conform to the density requirements of the City's Ordinance, the passage of time may result in changes in soil conditions and we suggest the following precautions:

 Some creep or settlements may occur near the tops of slopes. Foundations near tops of slopes or over sloping ground should be avoided or designed under the guidance of an Engineer. WAITEC DEVELOPMENT, INC. October 2, 1980 Page 2

2. Lot regrading by cutting, filling or altering the drainage pattern may cause ground instability in some situations. For this reason, lot regrading should be avoided or made under the guidance of a Soils Engineer.

Our work on this project does not include the following:

Swimming pools, retaining walls, finish grading of lots not observed and tested by our office, backfill of utility trenches, etc.

We have employed accepted engineering and testing procedures and our professional opinions and conclusions are made in accordance with generally accepted soil and foundation engineering principles and practices. However, we do not undertake to guarantee the construction nor do we relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans and specifications.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

October 2, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Cut (F.H.A.: G-3)

Grading Plan Numbers

Group 37: 41, 42, 43, 44, 45, 46, 47

The above lots were generally constructed in cut. Grading Plan dated March 12, 1980 by Park Engineering, Inc. was used as a guide for soil testing purposes.

Bearing values for light residential structures of 3000 p.s.f. may be used on compacted fill or on stiff undisturbed ground.

Even though, in our opinion, the lots were in cut, the passage of time may result in changes in soil conditions and we suggest the following precautions:

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Swimming pools, retaining walls, finish grading of lots not observed and tested by our office, backfill of utility trenches. etc.

WAITEC DEVELOPMENT, INC. October 2, 1980 Page 2

We have employed accepted engineering and testing procedures and our professional opinions and conclusions are made in accordance with generally accepted soil and foundation engineering principles and practices. However, we do not undertake to guarantee the construction nor do we relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans and specifications.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

3030 WAIALAE AVE., HONOLULU, HAWAII 96816 • TEL. 737-7931

October 2, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6) Lots in Fill (F.H.A.: G-3)

Grading Plan Numbers

Group 38: 4, 5, 6, 7, 8, 9

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

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Even though, in our opinion, the field density tests by our office conform to the density requirements of the City's Ordinance, the passage of time may result in changes in soil conditions and we suggest the following precautions:

 Some creep or settlements may occur near the tops of slopes. Foundations near tops of slopes or over sloping ground should be avoided or designed under the guidance of an Engineer. WAITEC DEVELOPMENT, INC. October 2, 1980 Page 2

> Lot regrading by cutting, filling or altering the drainage pattern may cause ground instability in some situations. For this reason, lot regrading should be avoided or made under the guidance of a Soils Engineer.

Our work on this project does not include the following:

Swimming pools, retaining walls, finish grading of lots not observed and tested by our office, backfill of utility trenches, etc.

We have employed accepted engineering and testing procedures and our professional opinions and conclusions are made in accordance with generally accepted soil and foundation engineering principles and practices. However, we do not undertake to guarantee the construction nor do we relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans and specifications.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW: Iw

co: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

October 2, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Grading Memorandum Subject:

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Cut (F.H.A.: G-3)

Grading Plan Numbers

Group 38: 38, 39

40.48

The above lots were generally constructed in cut. Grading Plan dated March 12, 1980 by Park Engineering, Inc. was used as a guide for soil testing purposes.

Bearing values for light residential structures of 3000 p.s.f. may be used on compacted fill or on stiff undisturbed ground.

Even though, in our opinion, the lots were in cut, the passage of time may result in changes in soil conditions and we suggest the following precautions:

- ١. Some creep or settlements may occur near the tops of slopes. Foundations near tops of slopes or over sloping ground should be avoided or designed under the guidance of an Engineer.
- 2. Lot regrading by cutting, filling or altering the drainage pattern may cause ground instability in some situations. For this reason, lot regrading should be avoided or made under the guidance of a Soils Engineer.

Our work on this project does not include the following:

Swimming pools, retaining walls, finish grading of lots not observed and tested by our office, backfill of utility trenches, etc.

WAITEC DEVELOPMENT, INC. October 2, 1980
Page 2

We have employed accepted engineering and testing procedures and our professional opinions and conclusions are made in accordance with generally accepted soil and foundation engineering principles and practices. However, we do not undertake to guarantee the construction nor do we relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans and specifications.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW: Iw

cc: Park Engineering, Inc.

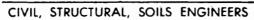
Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

WALTER LUM ASSOCIATES, INC.





EZRA KOIKE
WALLACE WAKAHIRO
3030 WAIALAE AVE., HONOLULU, HAWAII 96816 • TEL. 737-7931

By W. Wakahir

WALTER LUM

EDWARD WATAHABE

· · · · · · · · · · · · · · · · · · ·	
TO: WAITEC DEVELOPMENT, INC.	DATE: October 28, 1980
c/o Herbert K. Horita Realty, Inc.	
2024 North King Street, Room 204	
Honolulu, Hawaii 96819	
Gentlemen:	
Re: VILLAGE PARK SUBDIVISION - P	HASES 5 & 6
FIELD DENSITY TEST REPORT	
	
We Arc Sending You Herewith X	Under Separate Cover
Prints —	Review and comment
X Location Plan	Approval Signature
Boring Logs	X Your use and files
X Laboratory Test Results Soil Report	
	A STATE OF THE STA
No. of Copies	
Sets1Sheets	
General Remarks:	,
For period ending October 9, 1980.	
cc: Park Engineering, Inc. Hood Corporation	·
Dept. of Housing & Urban Development	
	Yours truly,
	WALTER LUM ASSOCIATES, INC.

TEL. 737-793

FIELD DENSITY TEST REPORT

PHASES 5 6

Field Density Test Results as follows:

Ending	OUTOBER !	19	80	Sheet_	of	8_Sheets
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-22-80	116 (1)	294	24.9	100.0	101	99
.,	118	284	26.1	93.6	11	93
	.117 ①	2612	26.3	96.4	11	95
31	191	14	22.7	97.8	98	100
\$1	97 ()	2'±	25.8	92.8	i, s	95
11	96 ①	01	20.8	96.9	Vi	. 99
11	93 (1)	04	25.1	91.9	*:	94
11	A ()	24	22.8	91.9	4	95
9-23-80	165 (1)	25生	24	97.7	98	100
Į1	141 ①	174	24	91.1	",	93
11	136 1	174	23	93.3	h	45
	116 2	254	23	95.4	1,2	47
11	110 2	244	26.2	91.9		94
l e	101	24	23	91.3	11	93
lt .	99 (1)	14	24	92.4		94
11	102	04	25.4	92.0	h	94
Μ .	100 (1)	04	23.1	92.0	11	94

[·] Approximate depth below finish grade.

BY Roseld 5 Stank.

[·] Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{***} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test. #1... taken in the LOT. shown.

TEL 737-7931

FIELD DENSITY TEST REPORT

PHASES 5 6

Field Density Test Results as follows:

Ending	OCTOBER 9 1980			Sheet_	of	8Sheets
Date	Lot No.	Fili Layer*	Moisture - Content	Dry Density**	Standard Density**	Relative Compaction***
9-23-80	96 2	01	24	95.3	98	97
ħ	E ()	7±	25	93.5	+1	95
11	BO	1'±	24	100.7	11	>100
"	F	114.	24	89.6	"	91
11	A 2	O'±	24	97.7	"	100
11	D (1)	04	24	97.7	Lı	100
. 11	н ①	04	23.3	91.6	11	94
*						
9-24-80	142 ①	164	23.8	92.6	98	94
11	138	164	26.9	96.0	''	48
11	140	164	25.4	99.6	<u>t</u> i	>100
łı .	115 ①	23'±	26.6	94.8	11	97
\$1	119	2214	28.0	89.5	11	91
11	116 3	21'±	22.1	98,3	1/	100
ļ t	117 ②	204	28.0	89.8	",	92
9.25-80	118 3	194	24.5	93.3	98	95
11	115 ②	184	24.0	93.8	r,	96

[·] Approximate depth below finish grade.

BY Forld 5 Stant

[·] Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{**} Tests indicate the relative compaction of the soils only at the test locations.

²⁾ Indicates Test . #.7. taken in the LOT, shown.

TEL. 737-793

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION

PHASES 5:6

Field Density Test Results as follows:

Ending	OCTOBER 9	199	30	Sheet_	_3of	8Sheets
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-25-80	119 ②	174	28.5	92.8	98	95
Li ·	116 (4)	16'4	22.4	94.1	1,	96
11	120	164	21.9	92.6	11	93
11	135 1	127	30.4	90,5	19	92
0.41.0	<i>V</i> / <i>V</i> (0)	144	25.2	93.1	98	95
9-26-80	141 2				10	94
f (137 ()	144	25.1	92.0		
J I	117 ③	154	24.0	91.6	11	93
41	118 4	144	26.4	96.8	4	99
ų	119 ③	134	27.0	91.9	1,	94
l ₁	115 ③	134	23.5	93.6	. 11	96
11	118 (5)	124	25.3	98.6	ri .	>100
D	114 ①	124	23.4	90.5	11	92
Ŋ	120 (2)	114	26.3	92.2	t I	94
18	116 (5)	11'4	28.6	92.8	11	95
9-29-80	118 6	104	25.0	92.6	98	94
li '	115 A	94	22.2	97.3	11	99

[·] Approximate depth below finish grade.

BY Rould 5 Hack

[·] Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{***} Tests indicate the relative compaction of the soils only at the test locations.

ZIndicates Test # 2. taken in the LOT. shown.

TE: 737,7031

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 516

Field Density Test Results as follows:

EndingC	OCTOBER 9		1980	Sheet_	4 of	8Sheets
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-29-80	121 (1)	94	25.4	92.0	98	94
11	117 (4)	84	24.0	95.3	11	97
(I	120 3	74	31.6	88.7	11	90
l j	122 D	54	26.3	93.7	**	96
9-30-80	136 2	144	26.5	93.3	98	95
11	139	134	26.4	90.5	Lí	92
1(143 (1)	124	18.4	90.3	i i	92
t ı	138 2	12'±	29.7	93.8	11	96
•,	140 ②	11生	27.5	91.3	11	93
11	119 (4)	刀生	28.3	92.6	11	94
41	114 (2)	74	27.3	90.2	fi	92
tı	116 6	61+	26.9	48.8	101	98
•1	121 (2)	44	24.4	92.6	98	94
*1	120 (4)	34	23.8	92.7	11	95
		<u> </u>				

^{*} Approximate depth below finish grade.

BY Rosald 5 Stank.

[·] Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{···} Tests indicate the relative compaction of the soils only at the test locations.

 $[\]bigcap$ Indicates Test $\stackrel{\text{def}}{=}$ 1... taken in the LQT. shown.

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 516

Field Density Test Results as follows:

Ending	OCTOBER 9 1980			Sheet 5 of 8 Sheets		
Date	Lot No.	Fili Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
10-1-80	123 (1)	24	27.8	89.5	98	91
μ	122 (2)	14	25.0	90.1	11	92
11	118 (7)	2,7	28.4	91.6	1, .	93
"	119 (5)	44	28.4	91.5	'1	93
l i	115 (5)	44	23.9	<i>8</i> 0.8	-11	91
**	116 (7)	34	24.6	92.9	1.	95
1)	110	3生	23.9	91.4	11	93
1.(116 3	214	24.2	96.6	. 1,	99
l i	114 3	2'1	24.7	95.6	H ·	98
tı	109	2生	24.0	91.5		93
1¢	110 ②	1/2	25.2	923	ħ	94
· .						
10-2-80	166	25生	28.5	89.3	98	91
l i	162 1	254	26.9	94.1	3.1	96
11	141.3	104	27.0	90.2	11	92
11	142 ②	94	29.9	90.5	4	92
*1	138 3	914	26.0	89.8	11	92
41	137 2	1014	26.0	91.8	1,	94

Approximate depth below finish grade.

BY Rould & Stank

[·] Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D-1557-70

^{···} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test #.L. taken in the 407. shown.

3030 WAIALAE AVE., HONOLULU, HAWAII 98816 . TEL.

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 & 6

Field Density Test Results as follows:

Ending	OUTOBER 9 1980			Sheet 6 of 8 Sheets		
Date	Lot No.	Fill Läyer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
10-2-80	117 (3)	14	28.1	92.3	98	94
N	113	11+	26.9	91.8	1,	94
ţ:	115 6	0' <u>+</u>	27.5	90,7) 1	-93
11	112 (1)	Oif	26.7	91.8	1)	94
1:	109 ②	0.7	31.0	90.4	11	92
10-3-60	167	2412	22.4	91.4	98	93
1;	163	24'1	25.7	85.6	\$ 1	90
11	168	234	24.2	91.0	ti	93
ţ,	164 D	234	23,9	96.2	F;	98
11	143 2	81.	22.4	98.0	11	100
11	139 2	84	24.7	97.7	(1)	100
Ē:	135 2	114	26.2	96.0	ſı	98
1:	136 3	94	26.8	95.8	11	98
11	144 (1)	74	22.9	92.6	. "	94
11	140 ③	74	26.8	90.3	11	92
11	145 ①	6,7	25.9	91.3	h	93
11	141 4	64	26.6	95.8	11	98

^{*} Approximate depth below finish grade.

BY Rorald S Stown.

^{..} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D-1557-70

^{···} Tests indicate the relative compaction of the soils only at the test locations.

⁵⁾ Indicates Test .#5... taken in the .LOT. shown.

EL 737.7031

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5:6

Field Density Test Results as follows:

Ending	OCTOBER 9	19	80	Sheet_	of	8 Sheets
Date	Lot No.	Fili Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
10-3-80	124 1	0'£	28.7	88.4	98	90
41	121 3	0.4	26.8	89.1	11	91
"	118 9	0'1	25.3	97.2	/1	99
10-6-80	165 (2)	22'5	31.5	94.1	48	96
tı .	162 (2)	22'£	31.5	93.1	1,	95
lı .	166 (2)	214	33.8	90.8	1,	c13
11	163 (2)	214	27.0	96.2	1,	98
11	155 (3)	714	27.3	93.4	ti .	100
l. ·	137 (3)	64	24.3	95.2	*1	100
ti	136 (1)	64	26.3	96.6	, jı	49
ř.	142 (3)	54	24.0	96.1	11	98
11	138 (4)	54	27.2	94.3	11	96
10-7-80	196	144	25.1	91.0	96	93
Ē:	167 (2)	204	23.4	94.9	1.	97
t:	146	51	26.0	92.9	Fs.	95
	143 (3)	44	26.0	92.5	11	94

^{*} Approximate depth below finish grade.

BY Rosally 5 Stark

[·] Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{**} Tests indicate the relative compaction of the soils only at the test locations.

⁾ Indicates Test $^{\sharp}I$. . taken in the LOT shown.

TEL 737.7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5:6

Field Density Test Results as follows:

Ending	OUTOBER	9	19 <u>පිට</u>	Sheet_	8of	${\cal B}$ Sheets
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
10-7-80	139 (3)	44	23.6	96.1	98	98
£1	144 (2)	34	22.3	91.2	1,	93
, II	140 (4)	31	289	988	101	98
14	136 (5)	31	24.0	968	98	99
tí	135 (4)	214	25.1	99.3	101	98
1.	132 (1)	2'!	22.3	100.3	,,	99
10-8-80	141 (5)	215	24.4	98.9	101	98
	·					
10-9-80	194 (1)	134	24.2	91.1	98	93
tı	145 2	2'±	23.4	95.7	. 4	98
11	137 (4)	114	23.9	92.2	11 .	94
· į	133 (1)	14	24.7	91.7	1,5	94

^{*} Approximate depth below finish grade.

BY Rosald 5 Horn.

[·] Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{···} Tests indicate the relative compaction of the soils only at the test locations.

³⁾ Indicates Test #3, taken in the LOT shown.

VILLAGE PARK SUBDIVISION PHASE 5 6

TABLE I___ - SUMMARY OF LABORATORY TEST RESULTS

BORING NO. SAMPLE NO. DEPTH BELOW SURFACE	3			
DESCRIPTION	REDDISH BROWN CLAYEY-SILT			
GRAIN-SIZE ANALYSIS (% Passing) Sieve				
- /2" "				
4≠20 4≠40				
4/≥100 4/≥200				
ATTERBERG LIMITS Air Dried or Natural	NATURAL			
Liquid Limit Plastic Limit	51 30			
Plasticity Index Natural Water Content,%				
Dilatancy Toughness Dry Strength	MED-SLOW MED-STIFF MEDIUM			
UNIFIED SOIL CLASSIFICATION	M H			
APPARENT SPECIFIC GRAVITY				
CBR TEST (Surcharge - 51 P.S.F.) Molding Moisture, % Molding Dry Density, P.C.F. Swell upon saturation, % CBR at O.1" Penetration	29.7 31.6* 95.3 AllL			
MOISTURE-DENSITY RELATIONS OF SOILS (ASTM D-1557-70, Method) Dry to Wet or Wet to Dry Max. Dry Density (P.C.F.) Optimum Moisture (%)	A DRY TOWET 97.0 28.0		· ·	
REMARKS: * MOISTURE CONTENT AFTER SO	AKING	WALTER L	UM ASSOCIA	ATES, INC.

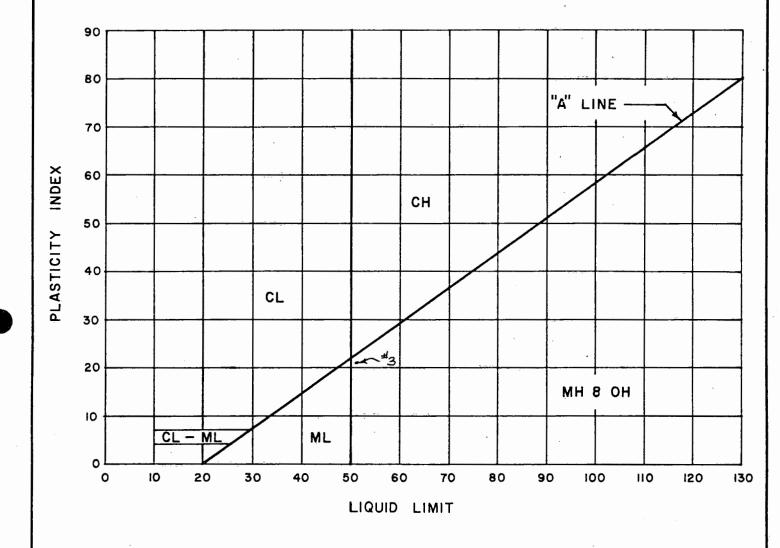
Date 10-27-80 By R.H.

STRUCTURAL & SOIL ENGINEERS

PLASTICITY CHART

PROJECT: VILLAGE PARK SUBDIVISION - PHASE 5 46

LOCATION: HOAEAE, EWA, OAHU, HAWAII



DATE 10-27-80 BY R.H.

WALTER LUM ASSOCIATES, INC.
CIVIL, STRUCTURAL, SOILS ENGINEERS

MOISTURE - DENSITY CURVE (ASTM D-1557-70, METHOD \triangle)

PROJECT : VILLAGE PARK SUBDIVISION - PHASE 516

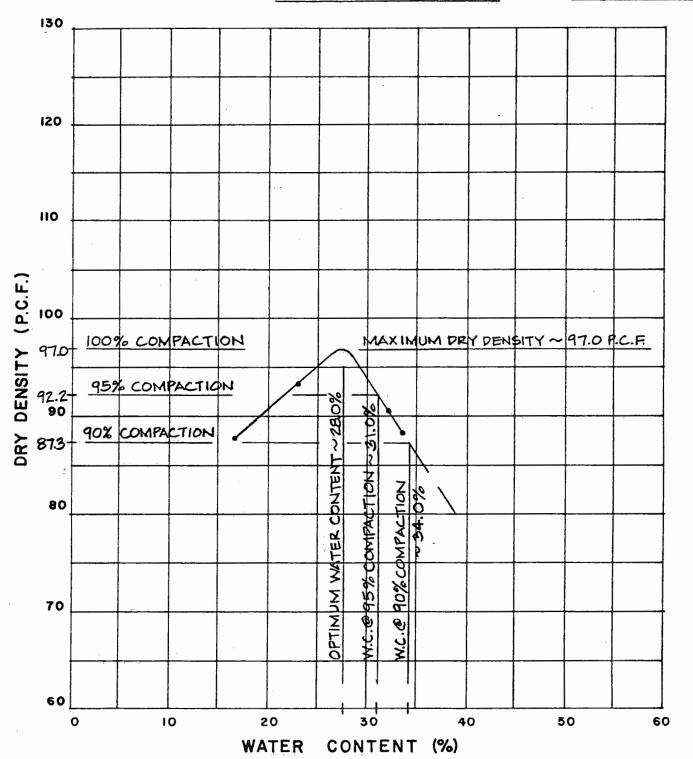
LOCATION : HOAEAE , EWA , OAHU , HAWAH

SAMPLE NO.: #3

SAMPLE DESCRIPTION: REDDISH BROWN CLAVEY SILT BLOWS: 25/LAYER

AGGREGATE : 4" MINUS MOLD SIZE : 4.0 \$ x4.584 HT

HAMMER: _ 10 LBS LAYERS: 5 LAYERS



WALTER LUM ASSOCIATES, INC.

CIVIL STRUCTURAL SOILS ENGINEERS

DATE 10-3-80 BY GYS

October 28, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Fill (F.H.A.: G-3

Grading Plan Numbers

Group 39: 1, 2, 3 52

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

Grading Plan dated March 12, 1980 by Park Engineering, Inc. was used as a guide for fill depths for soil testing purposes.

The density test results at the time and at the locations taken were, in our opinion, in general conformance with the density requirements of the Revised Ordinances of Honolulu, 1969 As Amended.

Bearing values for light residential structures of 3000 p.s.f. may be used on compacted fill or on stiff undisturbed ground.

Even though, in our opinion, the field density tests by our office conform to the density requirements of the City's Ordinance, the passage of time may result in changes in soil conditions and we suggest the following precautions:

Some creep or settlements may occur near the tops of slopes. Foundations near tops of slopes or over sloping ground should be avoided or designed under the guidance of an Engineer. WAITEC DEVELOPMENT, INC. October 28, 1980 Page 2

> Lot regrading by cutting, filling or altering the drainage pattern may cause ground instability in some situations. For this reason, lot regrading should be avoided or made under the guidance of a Soils Engineer.

Our work on this project does not include the following:

Swimming pools, retaining walls, finish grading of lots not observed and tested by our office, backfill of utility trenches, etc.

We have employed accepted engineering and testing procedures and our professional opinions and conclusions are made in accordance with generally accepted soil and foundation engineering principles and practices. However, we do not undertake to guarantee the construction nor do we relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans and specifications.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro
Wallace Wakahiro

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

October 28, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6) Lots in Fill (F.H.A.: G-3)

Grading Plan Numbers

Group 40: 55, 56, 57, 58, 59

60, 61

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

October 28, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Häwaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6) Lots in Fill (F.H.A.: G-3)

Grading Plan Numbers

Group 41: 70, 71, 72, 73, 74, 75, 76, 77

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.



October 28, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Fill (F.H.A.: G-3)

Grading Plan Numbers

Group 42: 66, 67, 68, 69

78, 79 80

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

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WAITEC DEVELOPMENT, INC. October 28, 1980 Page 2

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

WALLACE WAKAHIRO 3030 WAIALAE AVE., HONOLULU, HAWAII 96816 • TEL. 737-7931

October 28, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6) Lots in Fill (F.H.A.: G-3)

Grading Plan Numbers

Group 43: 62, 63, 64, 65

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahur
Wallace Wakahiro

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

October 28, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6) Lots in Cut (F.H.A.: G-3)

Grading Plan Numbers

Group 39: 49

50, 51, 53, 54

The above lots were generally constructed in cut. Grading Plan dated March 12, 1980 by Park Engineering, Inc. was used as a guide for soil testing purposes.

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WAITEC DEVELOPMENT, INC. October 28, 1980 Page 2

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.



October 28, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6) Lots in Cut (F.H.A.: G-3)

Grading Plan Numbers

Group 42: 81, 82

The above lots were generally constructed in cut. Grading Plan dated March 12, 1980 by Park Engineering, Inc. was used as a guide for soil testing purposes.

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WAITEC DEVELOPMENT, INC. October 28, 1980 Page 2

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

October 28, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6) Lots in Cut (F.H.A.: G-3)

Grading Plan Numbers

Group 43: 83, 84, 85, 86, 87

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WAITEC DEVELOPMENT, INC. October 28, 1980 Page 2

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

Wallace Wak

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

November 3, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Cut (F.H.A.: G-3)
Grading Plan Numbers

Group 44: 88, 89

90, 91, 92

104, 105, 106, 107, 108

The above lots were generally constructed in cut. Grading Plan dated March 12, 1980 by Park Engineering, Inc. was used as a guide for soil testing purposes.

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第二次第三

WAITEC DEVELOPMENT, INC. November 3, 1980 Page 2

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By <u>Wallace Wakahiro</u>

WW: Lw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

November 3, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Cut (F.H.A.: G-3)

Grading Plan Numbers

Group 45: 103

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WAITEC DEVELOPMENT, INC. November 3, 1980 Page 2

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

November 3, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Fill (F.H.A.: G-3)

Grading Plan Numbers

Group 45: 93, 94, 95, 96, 97, 98, 99

100, 101, 102

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

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WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

November 21, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6) Lots in Fill (F.H.A.: G-3)

Grading Plan Numbers

Group 46: A, B, C, D, E, F, G, H

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

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WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro
Wallace Wakahiro

WW: Iw

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

November 21, 1980

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Cut (F.H.A.: G-3)

Grading Plan Numbers

Group 46: J, K, L, M

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WAITEC DEVELOPMENT, INC. November 21, 1980 Page 2

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By Wallace Wakahiro

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

WALTER LUM ASSOCIATES, INC.

CIVIL, STRUCTURAL, SOILS ENGINEERS



WALTEC DEVELOPMENT INC		Fall and an	10 1001
TO: WAITEC DEVELOPMENT, INC.	DAT	E: February	12, 1981
c/o Herbert K. Horita Realty, Inc.			•
2024 North King Street, Room 204			•
Honolulu, Hawaii 96819		•	v
Gentlemen:	-		•
Re: VILLAGE PARK SUBDIVISION	- PHASES 5 &	6	
FIELD DENSITY TEST REPORT	-		
· · · · · · · · · · · · · · · · · · ·	·····		
			
	•		
We Arc Sending You Herewith X		Under Separate	Cover
.	Danie		
PrintsX Location Plan	Revie	w and comment val	
X Field Density Test Results	Signa	ture	
Boring Logs X Laboratory Test Results	X Your	use and files	
Soil Report	<u> </u>		
			3
•	· · · · · · · · · · · · · · · · · · ·		
No. of Copies			
SetsSheets			
General Remarks:			
·. ,	,		
For period ending February 9, 1981.			
cc: Park Engineering, Inc.			
Hood Corporation			
Dept. of Housing & Urban Developmen	Yours	truly.	
	WALTI	ER LUM ASSOCI	IATES, INC.
	•	, ,	, .
	Ву	ich Wake	ken

FE 737.7031

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5+6

Ending PEB, 9		19	19 <u>8 </u> Sheet_		of	4_Sheets
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
1- 28-81	156	4' <u>+</u>	26	92	100	92
i	158	10'±	25	90	п	90
"	196	12'±	25	87	el .	87
11	160) 17 <u>'±</u>	27	90	Ü	90
:.	164) 17 <u>'+</u>	29	90	11	90
ч	168) 17'±	21	97	Ü	97
Ü	159) 15'±	25	98	ч	98
łi	(BERM)	+1'	26	95	н	95
. tı	(BERM) 187	+1'	25	. 99	ń ·	99
n	(BERM) 179 (±1'	26	96	11	96
1- 29-81	161	16'±	26	103	100	>100
п	165	16 <u>'</u> ±	(24	1.00	(I	100
. 11	169		25	100	*1	100
. "	196 2		24	95	h	95
ıł	168 ②	15 <u>'</u> ±	23	96	В	96
ń	165 ②) 15'±	24	101	n	>100
11	162		25	97	. "	97

^{*} Approximate depth below finish grade.

[·] Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test ... taken in the 497 shown.

3030 WAIALAE AVE., HONOLULU, HAWAII 96816 .

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5+6

Field Density Test Results as follows:

nding F	ев. 9	19.	81	_ Sheet_	of	4_Sheets	
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
1-29-81	(SLOPE) (2)	814	25	97	100	97	
н	(SLOPE) 180	81,t	25	101	11	>100	
l)	(SLDPE) 187 2	9't	23	93	11	93	
1-30-81	.160 ②	14'±	26	99	100	99	
11	164 ②	14'±	28	. 97	'n	97	
o Á	(SLOPE) (3)	714	26	96	ii	96	
' (1	(SLOPE) (2)	4't	28	94	11 .	94	
(1	(SLOPE) 3	14 <u>'</u> ±	27	97	11	97	
11	(SLOPE) 195	114	25	93	ч	93	
, II	(SLOPE) 3	8't	26	96		96	
		•					
2- 2-81	161 ②	13 <u>'+</u>	26	93	100	93	
ti	165 ③	13'±	29	94	(1	94	
11	169 ②	13 <u>′±</u>	27	96	ч	96	
. "	184 ①	5 <u>′+</u>	29	87	. "		D BE ETEST
11	191 ①	2'±	24	91	Ù	91	
ti	(SLOPE) (4)	-5 ' ‡	27	99	*1	99	

^{*} Approximate depth below finish grade.

BY ______

^{**} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D-1557-70

^{***} Tests indicate the relative compaction of the soils only at the test locations.

²⁾ Indicates Test 12. taken in the Lot, shown.

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5+6

Field Density Test Results as follows:

Ending FE	ling FEB, 9		19 <u>8</u> 1		Sheet3of		
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
2-2-81	(SLOPE) 180 2	*** <u>*5</u> ′±	27	95	100	95	
`n '	(SLDPE) (1	6' ±	26	98	н	98	
1.7. 31				•			
2-6-81	155 2	2'±	26	103	100	7100	
h	154 ①	O't	23	105	11	7100	
Ý	146 1	0'±	24	103	ħ	7100	
n	143 ①	0 ¹ ±	25	102	n	7100	
1)	140	O't	24	105	îı	> 100	
V	162 2	121±	. 28	95	H	95	
h	166	12'+	27	100	11	100	
+1 .	170 D	12't	18	91	u .	91	
	,						
2-9-82	192 3	0'±	23	103	100	7100	
	188 🖸	4'+	25	97	11	91	
•	180 3	3'±	23	101	(1	101	
			1				

163

25

25

出生

11'±

96

93

'n

11

96

93

[·] Approximate depth below finish grade.

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{···} Tests indicate the relative compaction of the soils only at the test locations.

²⁾ Indicates Test # 2. taken in the 401. shown.

TE: 737.7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION-PHASES 586

Ending F	EB, 9	19	81	Sheet_	4of	4_Sheets
- Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
2-9-81	167 ①	11'±	24	92	100	92
a	131 ①	0't	25	101	ţı .	101
U	134 ()	0'1	25	99		99
1)	191 O	O't	25	99	ţ1	99
	:					
				1991		
	·					
,					·	
			. /			
		-				
		,				

Approximate depth below finish grade.

BY	WW		
υ.		 	

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1.557-70

[&]quot;Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test # 1. taken in the .49T. shown.

VILLAGE PARK SUBDIVISION - PHASES 5 & 6

TABLE I A - SUMMARY OF LABORATORY TEST RESULTS

•	BORROW F	ROM PHASE	7, INCREME	NT 4
BORING NO.	PH 1 (LOT 58)	FIT 2 (LOT 163)	PIT 1 (LOT 58)	PIT 5 (LOT 171)
SAMPLE NO.	1	2	3	
DEPTH BELOW SURFACE	4' t	4'±	812	5'±
DEL III DECON COMPACE	REDDISH	REDDISH	REDDISH	REDDISH
	BROWN	BROWN	BROWN	BROWN
DESCRIPTION	CLAYBY SILT	CLAYEY SILT	CLAYEY	CLAYEY SILT
- DECORN FION			SILT	
GRAIN-SIZE ANALYSIS			• • • • • • • • • • • • • • • • • • • •	
(% Passing)				· :
Sieve				
1-1/2"	•	•		
1",72				
1/2"				
# 4				<u> </u>
⊀ ∤10				
# ≥0				
#+ 4 [°] O				
# 100				
4 ⊭200				
ATTERBERG LIMITS				le le
Air Dried or Natural	NATURAL	NATURAL	NATURAL	NATURAL
Liquid Limit	46	40	54	51
Plastic Limit	30	30	33	33
Plasticity Index	16	10	21	18
Natural Water Content,%			•	
Dilatancy	SLOW	SLOW	SLOW	SLOW
Toughness	MEDIUM	MEDIUM	MED STIFF	MED. STIFF
Dry Strength	MEDIUM	MEDIUM	MEDIUM	MEDIUM
UNIFIED SOIL CLASSIFICATION	ML	<u> </u>	<u> </u>	<u>MH</u>
APPARENT SPECIFIC GRAVITY			·	*
CBR TEST				
(Surcharge - 51 P.S.F.)	22		n a	
Molding Moisture, %	27	27 98	96	98
Molding Dry Density, P.C.F. Swell upon saturation, %	99			
CBR at O.1" Penetration	NIL 15.3	NIL 23.3	0.1	25.7
CBR di O.I Penelitation	19.9	20.0	. 1919	
MOISTURE- DENSITY RELATIONS OF SOILS	•	ait.		
		*	٨	*
(ASTM D-1557-70, Method) Dry to Wet or Wet to Dry				· -
Max. Dry Density (P.C.F.)		19.5	9-	1
Optimum Moisture (%)		26.5	n	·
Abrugani Mararara (10)				
	·			

REMARKS:

PITS WERE EXCAVATED DOWN TO ABOUT WALTER LUM ASSOCIATES, INC.

SUIGHTLY ABOVE THE FINISH LOT GRADE, STRUCTURAL & SOIL ENGINEERS

Date 1/2-15-80 By W.W.

VILLAGE PARK SUBDIVISION-PHASES 586

TABLE I_B - SUMMARY OF LABORATORY TEST RESULTS

BORROW FROM PHASE 7 INCREMENT 3

, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		01001-1011		
BORING NO.	P114			
SAMPLE NO.				
DEPTH BELOW SURFACE		· · · · · · · · · · · · · · · · · · ·		
	BROWH			
DESCRIPTION	CLAYEY SILT			
	<u></u>			
GRAIN-SIZE ANALYSIS				
SAMPLE NO. DEPTH BELOW SURFACE				
BORING NO. SAMPLE NO. DEPTH BELOW SURFACE DESCRIPTION CLAYEY FILT DESCRIPTION GRAIN - SIZE ANALYSIS (% passing) Sieve 1-1/2" 1" 1/2" #4 #10 #20 #40 #100 #200 ATTERBERS LIMITS Air Dried or Natural Liquid Limit Plastic Limit Plastic Limit Plastic Limit Plasticity Index Natural Water Content, % Dilatancy Toughness Dry Strength UNIFIED SOIL CLASSIFICATION APPARENT SPECIFIC GRAVITY CBR TEST (Surcharge - 51 P.S.F.) Molding Moisture, % Molding Dr Density, P.C.F. Swell upon saturation, % CBR at 0.1" Penetration MOISTURE - DENSITY RELATIONS OF SOILS (ASTM D-1557-70, Method) Dry to West or West to Dry				
1"				
•				
		-	· · · · · · · · · · · · · · · · · · ·	<u> </u>
				·

## 200				
<u> </u>		•		

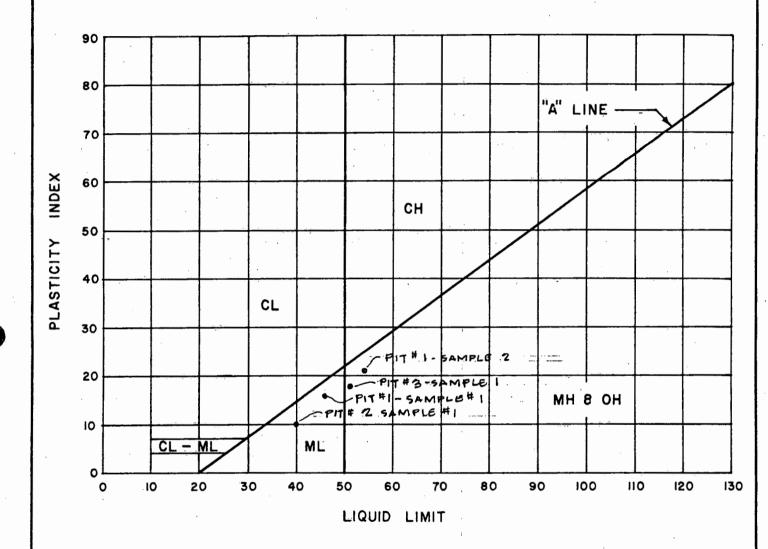
·	·	 		
				
Natural Water Content,%				
,				
_				
_				
-				
UNIFIED SOIL CLASSIFICATION	(ML)	B 1		
APPARENT SPECIFIC GRAVITY				
CBR TEST	•			
		:	÷ .	
	25			
		-	-	
CRR at O.1" Penetration				
out at at the second				
MOISTIDE - DENSITY DELATIONS OF SOILS				
•	· A		•	
				
				-
			·	
Optimum Moisture (%)	2710			
		·		
REMARKS:		WALTER L	UM ASSOCI/	ATES, INC.
		:- <u></u>		
		NIMOR II	IPALE SCHLERO	-IMPERO

Date 1-11-51 By WW

PLASTICITY CHART

PROJECT: VILLAGE PARK - PHASES 5 & 6

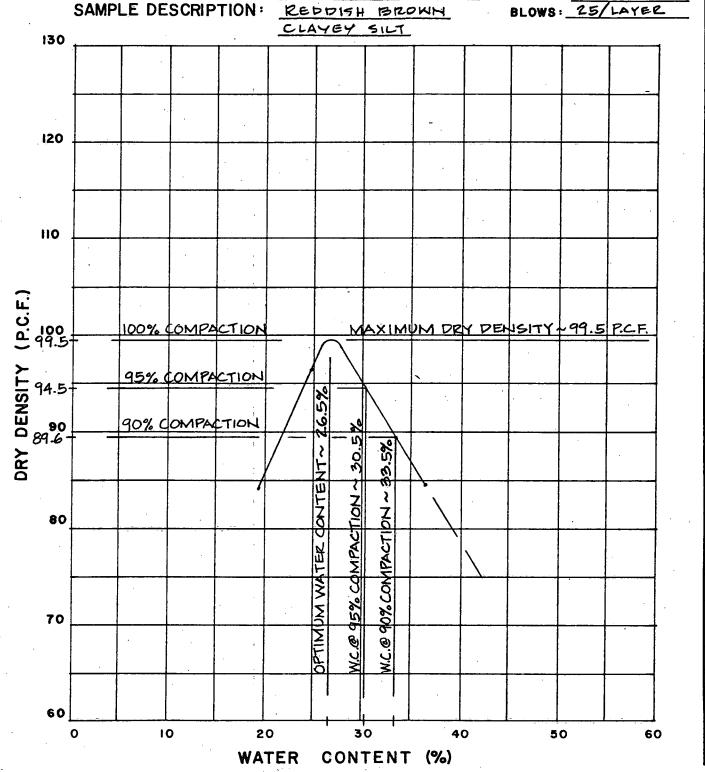
LOCATION: KUNIA, DAHU, HAWAII



DATE 12-15.80 BY

WALTER LUM ASSOCIATES, INC.
CIVIL, STRUCTURAL, SOILS ENGINEERS

MOISTURE - DENSITY CURVE (ASTM D-1557-70, METHOD A) PROJECT: VILLAGE PARK - PHASES 546 LOCATION: EWA, OAHU, HAWAII SAMPLE NO.: MIKTURE OF SAMPLES 142 LAYERS: 5 LAYERS



WALTER LUM ASSOCIATES, INC.
CIVIL, STRUCTURAL, SOILS ENGINEERS

DATE 12-17-80 BY GYS

MOISTURE - DENSITY CURVE (ASTM D-1557-70, METHOD A)

PROJECT: VILLAGE PARK SUBDIVISION- 506

LOCATION: EWA, OAHU, HAWAII

SAMPLE NO. MINTURE OF SAMPLES 364

SAMPLE DESCRIPTION: REDDISH BROWN

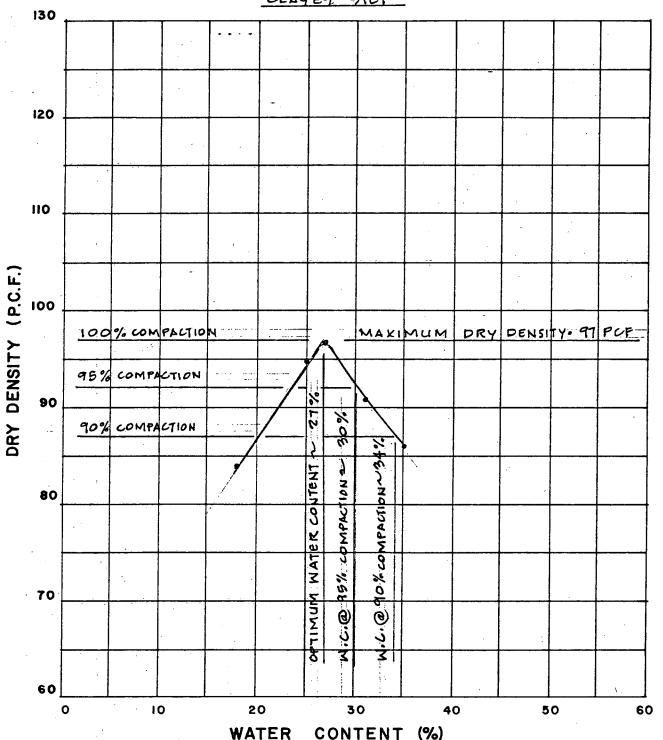
CLAYEY SILT

AGGREGATE : 1/4" MINUS MOLD SIZE : 4"0 ×4.58" HT.

HAMMER: 10 165

LAYERS: 6 LAYERS

BLOWS: 25/LAYER



WALTER LUM ASSOCIATES, INC.
CIVIL, STRUCTURAL, SOILS ENGINEERS

DATE 112-18-80 BY ω.ω.

3-775

MOISTURE-DENSITY CURVE (ASTM D-1557-70, METHOD A) PROJECT: VILLAGE PARK-PHASES 566 AGGREGATE : 4" MINUS MOLD SIZE : 4.0" \$ 4584" HT. LOCATION: KUNIA, OAHU, HAWAII HAMMER: __ 10 LBS SAMPLE NO : PIT #4 - SAMPLE #1 @ 8 2. LAYERS: 5 LAYERS SAMPLE DESCRIPTION: REPDISH BROWN 25/LAYER BLOWS:__ CLAYEY SILT 130 120 ZERO AIR VOIDS CURVE SPECIFIC GRAVITY ~ 2.92 110 100 MAIXIMUM DRY DENSITY ~ 101.0 P.C.F. 100% COMPACTION 95% COMPACTION DENSITY 95.8 90.8 90% COMPACTION DRY 3 80 70

WALTER LUM ASSOCIATES, INC.
CIVIL, STRUCTURAL, SOILS ENGINEERS

50

DATE 1-26-81 BY LL

10

20

WATER

CONTENT (%)

60

0

WALTER LUM ASSOCIATES, INC.

CIVIL, STRUCTURAL, SOILS ENGINEERS



By w. Wakahiri

TO: WAITEC DEVELOPMENT, INC.	DATE: March 23, 1981
c/o Herbert K. Horita Realty, Inc.	
2024 North King Street, Room 204	
Honolulu, Hawaii 96819	
Gentlemen:	
Re: VILLAGE PARK SUBDIVISION - F	PHASES 5 & 6
FIELD DENSITY TEST REPORT	
	
	
We Arc Sending You Herewith X	Under Separate Cover
	Review and comment Approval Signature X Your use and files
Soil Report	
No. of Copies Sets Sheets	
General Remarks:	•
For period ending March 12, 1981.	
cc: Park Engineering, Inc. Hood Corporation Dept. of Housing & Urban Development	
	Yours truly,
	WALTER LUM ASSOCIATES, INC.

TEL. 737-7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION-PHASES 546

Ending	MARCH	1219	81	Sheet_	1of	6Sheet
Date	Lot No.	Fili Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction**
2-10-81	179 (T)	2'+	24	101	100	101
н	KEAR STOPE	31+	25	101	h	101
h	REAR SLOPE	212	25	101	6	101
tı	171 O	¹ ±	25	93	, 11	93
11	112 O	,8'±	28	91		91
		•			·	
2-12-81	184 D	512	23	98	100	95
11	192 2	0'±	24	98	t,	98
'n	REAR SLOPE	2'±	24	96	0	96
41	179 (2)	1't	25	96	u	96
vj .	170 (I)	1012	25	94	¢j	94
1,	194 O	9't	26	99	1)	99
ti	185 ①	3't	24	96	11	96
l,	183 (1)	4'±	23	98	(1	98
(1	193 (1)	10 ¹ ±	24	96	lı .	96
tı .	166 ①	10 ¹ ±	. 24	103	11	103
li .	162 D	10'+	24	100	11	100
					,	

^{*} Approximate depth below finish grade.

^{..} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{**} Tests indicate the relative compaction of the soils only at the test locations.

¹⁾ Indicates Test . L. taken in the . LOT. shown.

TEL. 737-7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 546

Ending	MARCH	12, 19	<u>81</u> .	Sheet_	2of	6 Sheets
Date	Lot No.	Fili Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
1-12-81	159 ①	91±	26	94	100	94
st .	163 (1)	9't	26	94	V	94
11	167 ①	9'±	26	94	<u>n</u>	94
	:	·	:			
2-13-81	171 2	6't	26	99	100	99
Š.	169 D	7't	28	98	"11	98
u ·	165 ①	7't	26	96	n .	96
11	161 ①	7'±	26	99	11	99
11	REAR SLOPE	l't	26	102	. 11	102
Ü ,	REAR SLOPE	1'±	23	98	Ŋ	98
11	REAR SLOPE	i't	26	96	4)	96
	REAR SLOPE	οí	26	96	11	96
			·			1.
2-13-81	168 ()	8'1	24	101	100	101
	164 ①	8'±	26	94	n	94
	160 (1)	8' ±	21	93	j)	93
11	157 ()	1' ±	25	95	ų	95
41	1		·	:	:	

^{*} Approximate depth below finish grade.

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D-1557-70

^{**} Tests indicate the relative compaction of the soils only at the test locations.

¹⁾ Indicates Test *. l.. taken in the LOT. shown.

TEI 737.7031

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION-PHASES 546

nding MA	ARCH	12,19	<u>81</u>	Sheet_	<u>3</u> _of	6 Sheets	_
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***]
2-17-81	158 D	612	22	102	100	102	
	162 ②	6 t	23	101	lı .	101	
, ,,	166 2	6 t	25	97	ñ	97	_
	170 ②	6 t	24	98	. p	98	
"	159 ②	5 ±	22	96	11	96	
VI .	163 ②	5'+	25	99	14	99	
v	167 ②	5'±	27	96	11	96	
۲'	172 ②	5'1	26	92	"	92	
Ŋ.	184 ②	2'±	26	92	ц	92	
•							REPOU
2-20-81	168 ②	4't	24	85	100	85	* K81651
11	164 ②	4' t	25	95	h	95	
. 4	160 2	4't	28	86	11	86	repone 1 retes
W	168 3	4' t	23	92	11	92	
"	160 3	4't	23	96	L1	96	,
. 0	173 ①	4'±	26	92	0	92	
"	195 D	8'±	23	15	. 6	95	
•			, ,				

^{*} Approximate depth below finish grade.

^{··} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{···} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test #1. taken in the 🥦 . shown.

TEL 737.7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES BE G

Field Density Test Results as follows:

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction*
2-23-81	157 ②	31t	27	93	100	93
	161 (2)	3'±	25	96	η.	96
	183 ②	1/2	26	91	"	91
	186 ①	('±	28	95	11	95
2-24-81	193 2	6 ¹ t	24	96	100	96
lı .	192 3	o't	22	101	,	101
	169 ②	3't	23	87	9	87
lı .	165 ②	3,5	24	97	\	97
Į1	162 (3)	2'±	24	102	,	102
Į)	158 ②	2':	27	90	"	90
	169 3	3'±	24	93	n i	93
2-25-81	196 (1)	7't	22	96	100	96
ħ	197 ①	6'±	20	93	\ <i>'</i>	93
	166 3	2't	28	94	n' .	94
1)	162	l't	30	95	u	95
		4		1		

[·] Approximate depth below finish grade.

BY Ronald 5 Hounh.

^{..} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{**} Tests indicate the relative compaction of the soils only at the test locations.

² Indicates Test *7. taken in the LOT. shown.

TEL 717.793

REROLLED

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5 & G

Field Density Test Results as follows:

Ending MA	ARCH I	2 ,19	Sheet 5 of 6 Sheets			
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
2-25.81	156 D	l ['] t	24	95	100	95
и	194 (2)	5'I	24	94	: 11	94
	1 (1)					. :
2-26-81	171 3	3'±	26	96	100	96
AI .	157 3	0'±	22	96	· u	96
4	160 (4)	o't	21	88	n	88
t _I	163 3	O'±	26	92	11	qn.
ij	165 3	1't	24	102	w ·	102
2-27-81	166 1	O'ž	23	92	100	92
11	168 ④	14	23	103	η	7100
11	170 3	2′ <u>t</u>	28	94	,11	94
. ,1	173 ②	24	27	95		95
. 11	182 D	ΟΈ	25	92	1(92
ıl	185 ②	O't	20	83	14	83
,1	190	oʻt	24	91		91
3-2-81	169	O's	25	93	100	93

Approximate depth below finish grade.

BY Rosald S Sfench.

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{···} Tests indicate the relative compaction of the soils only at the test locations.

¹⁾ Indicates Test #1... taken in the 40 T. shown.

TEL. 737-7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 546

Field Density Test Results as follows:

Ending 1	ARCH	12, 19	81	Sheet_	6 of	6_Sheets
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compection***
3-2-81	172 3	01	28	93	100	93
1)	173 3	14	24	99	ц	99
1.1	195 ②	4±	28	95	!	95
3-6-81	RETEST (3)	0'±	20	96	100	96
				, "		
3-12-81	175 ①	04	25	99	100	99
11	196 ②	34	22	106	11	7100
12			·			
						·
			·			
				· · · · · · · · · · · · · · · · · · ·		
						-
Andreas Andreas Andreas Andreas						
-			<u> </u>			

[·] Approximate depth below finish grade.

BY Romald 5 Mornich

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{**} Tests indicate the relative compaction of the soils only at the test locations.

³⁾ Indicates Test #3. taken in the LOT. shown.

Ft 737-7931

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 546

Ending	APEIL 7	19	81	Sheet_	lof	2 Sheets	
Date	Lot No.	Fili Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
3-16-81	194 (1)	2 ¹ t	23	101	100	101	RE ROUED
ıi.	197 U	2'±	27	89	11	89	& KETESTED
lt	192 (1	(¹t	26	96	(1	96	
ч	195 (1)	(1-3	23	93	11	93	
		····			· · · · · · · · · · · · · · · · · · ·		
3-17-81	197 (2)	21+	27	94	100	94	
71	193 (1)	0'4	25	94	u	94	
							<u> </u> -
3-18-81	196 O	01±	25	96	100	96	
ħ	v O	6'±	27	93	11.	93	
и	TO	31	26	93	Ú	93	
l(V 2	2'±	27	99	V	99	
						·	
3-31-81	REAR BERM	81+	25	100	100	100	
- H	REAR BERM	21±	24	98	u	98	

^{*} Approximate depth below finish grade.

DV	ω . ω .		
BY	<u> </u>		

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D-1557-70

^{**} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test #1. taken in the LOT, shown.

CIVIL, STRUCTURAL, SOILS ENGINEERS

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO

3030 WAIALAE AVE., HONOLULU, HAWAII 96816

EL 737,7931

FIELD DENSITY TEST REPORT

VILLAGE PARK - PHASES BEG

Field Density Test Results as follows:

Ending AP	RIL 7	19	81	Sheet_	of	2 Sheets
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
4-2-81	"u" (1)	0,7	22	96	100	96
11	196 () REAR BERM	7'±	27	92	11	92
. ,,	REAR BERM	0'1	25	95	tr-	95
11	RBAR BERM	6 ±	23	95	ų. Vi	94
					:	
4-6-81	195 (2)	4'1	18	98	100	98
	REAR BERM	2't	20	99	11	99
	185 ()	0'1	26	93	11	93
4-7-81	REAR BERM	o't	21	102	100	>100
			,			

^{*} Approximate depth below finish grade.

Indicates Test taken in the LOT. shown.

BY	<i>ω</i> .ω.	
BY	<i>.</i>	

[·] Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{**} Tests indicate the relative compaction of the soils only at the test locations.

WAITEC DEVELOPMENT, INC. May 7, 1981 Page 2

> Lot regrading by cutting, filling or altering the drainage pattern may cause ground instability in some situations. For this reason, lot regrading should be avoided or made under the guidance of a Soils Engineer.

Our work on this project does not include the following:

Swimming pools, retaining walls, finish grading of lots not observed and tested by our office, backfill of utility trenches, etc.

We have employed accepted engineering and testing procedures and our professional opinions and conclusions are made in accordance with generally accepted soil and foundation engineering principles and practices. However, we do not undertake to guarantee the construction nor do we relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans and specifications.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW: vl

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

May 7, 1981

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lot in Cut (F.H.A.: G-3

Grading Plan Number

Group 47: 126

The above lot was generally constructed in cut. Grading Plan dated March 12, 1980 by Park Engineering, Inc. was used as a guide for soil testing purposes.

Bearing values for light residential structures of 3000 p.s.f. may be used on compacted fill or on stiff undistrubed ground.

Even though, in our opinion, the lots were in cut, the passage of time may result in changes in soil conditions and we suggest the following precautions:

- Some creep or settlements may occur near the tops of slopes. Foundations near tops of slopes or over sloping ground should be avoided or designed under the guidance of an Engineer.
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WAITEC DEVELOPMENT, INC. May 7, 1981 Page 2

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW:VI

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

May 7, 1981

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Cut (F.H.A.: G-3)

Grading Plan Numbers

Group 48: 127, 128, 129

130

The above lots were generally constructed in cut. Grading Plan dated March 12, 1980 by Park Engineering, Inc. was used as a guide for soil testing purposes.

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WAITEC DEVELOPMENT, INC. May 7, 1981 Page 2

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By Wallace Wakahiro

WW:vl

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Fill (F.H.A.: G-3)
Grading Plan Numbers

Group 48: 131, 132, 133, 134

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

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By Wallace Wakahiro

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cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

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WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Fill (F.H.A.: G-3)
Grading Plan Numbers

Group 49: 135, 136, 137, 138, 139

140, 141, 142

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

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By Wallace Wakahiro

WW: vI

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6) Lots in Fill (F.H.A.: G-3)

Grading Plan Numbers

Group 50: 143, 144, 145, 146

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

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WALTER LUM ASSOCIATES, INC.

Wallace Wakahiro

WW:VI

Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Cut (F.H.A.: G-3)

Grading Plan Numbers

Group 50: 147, 148, 149

150. 151

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WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW:vl

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6) Lots in Fill (F.H.A.: G-3)

Grading Plan Numbers

Grading Fran Numbers

Group 51: 111, 112, 113, 114, 115

116, 116, 118

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

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By Wallace Wakahiro

WW:vI

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Fill (F.H.A.: Grading Plan Numbers

Group 52: 109, 110

152, 153, 154, 155

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

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WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW: VI

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

"Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6) Lots in Fill (F.H.A.: G-3)

Grading Plan Numbers

Group 54: 184, 185, 186

190, 191, 192

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

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WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW: vI

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Cut (F.H.A.: G-3)

Grading Plan Numbers

Group 54: 187, 188, 189

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Department of Housing & Urban Development

Hood Corporation

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WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6) Lots in Fill (F.H.A.: G-3)

Grading Plan Numbers

Group 55: 160, 161, 162, 163, 164 165, 166, 167

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

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WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW: VI

Park Engineering, Inc. cc:

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

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Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Fill (F.H.A.: G-3) Grading Plan Numbers

. 3

Group 56: 168, 169

170, 171, 172, 173, 174, 175

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Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6) Lots in Fill (F.H.A.: G-3)

Grading Plan Numbers

Group 57: 176

181, 182, 183

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Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Cut (F.H.A.: G-3)

Grading Plan Numbers

Group 57: 177, 178, 179

180

The above lots were generally constructed in cut. Grading Plan dated March 12, 1980 by Park Engineering, Inc. was used as a guide for soil testing purposes.

Bearing values for light residential structures of 3000 p.s.f. may be used on compacted fill or on stiff undistrubed ground.

Even though, in our opinion, the lots were in cut, the passage of time may result in changes in soil conditions and we suggest the following precautions:

- Some creep or settlements may occur near the tops of slopes. Foundations near tops of slopes or over sloping ground should be avoided or designed under the guidance of an Engineer.
- Lot regrading by cutting, filling or altering the drainage pattern may cause ground instability in some situations. For this reason, lot regrading should be avoided or made under the guidance of a Soils Engineer.

Our work on this project does not include the following:

Swimming pools, retaining walls, finish grading of lots not observed and tested by our office, backfill of utility trenches, etc.

We have employed accepted engineering and testing procedures and our professional opinions and conclusions are made in accordance with generally accepted soil and foundation engineering principles and practices. However, we do not undertake to guarantee the construction nor do we relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans and specifications.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

WW: VI

Park Engineering, Inc. cc:

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

June 4, 1981

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Park Site

Village Park Subdivision - Phases 5 & 6

Hoaeae, Ewa, Oahu, Hawaii

The above project was generally mass graded as follows:

About 80% of the site was in cut. Fills were constructed with on-site soils. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

Grading Plan by Park Engineering, Inc. dated March II, 1980 was used as a guide for fill depths for soil testing purposes.

A tabulation of the field density test results is attached. Where low tests were noted, the area was rerolled and in most cases retested. The density test results at the time and at the locations taken were, in our opinion, in general conformance with the density requirements of the Revised Ordinances of Honolulu, 1969 As Amended.

Even though, in our opinion, the field density tests by our office conform to the density requirements of the City's Ordinance, the passage of time may result in changes in soil conditions and we suggest the following precautions:

WAITEC DEVELOPMENT, INC. June 4, 1981 Page 2

- 2. Site regrading by cutting, filling or altering the drainage pattern may cause ground instability in some situations. For this reason, lot regrading should be avoided or made under the quidance of a Soils Engineer.
- 3. The services of a qualified engineer should be retained for the design of foundations for structures or swimming pools that may be constructed on the site.

Our work on this project does not include the following:

Backfill of utility trenches and around lined ditches which are usually done under the observations of the City's inspector or by others.

We have employed accepted engineering and testing procedures and our professional opinions and conclusions are made in accordance with generally accepted soil and foundation engineering principles and practices. However, we do not undertake to guarantee the construction nor do we relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans and specifications.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW:VI

cc: Park Engineering, Inc. (2)

August 6. 1981

WAITEC DEVELOPMENT, INC. c/o Herbert K. Horita Realty, Inc. 2024 North King Street, Room 204 Honolulu, Hawaii 96819

Gentlemen:

Subject: Grading Memorandum

Village Park Subdivision - Phases 5 & 6

HUD File No. 80-3 (Phase 5) HUD File No. 80-4 (Phase 6)

Lots in Fill (F.H.A.: G-3)

Grading Plan Numbers

Group 53: 156, 157, 158, 159

193, 194, 195, 196, 197, 198

The above lots were generally constructed in fill with on-site and borrow material. The fill was placed and compacted in thin layers. A soil technician from our office was present at the site on an intermittent basis to observe grading progress and to take density tests. Whenever fill operations were on a continuous basis, a soil technician usually visited the site daily.

Grading Plan dated March 12, 1980 by Park Engineering, Inc. was used as a guide for fill depths for soil testing purposes.

The density test results at the time and at the locations taken were, in our opinion, in general conformance with the density requirements of the Revised Ordinances of Honolulu, 1969 As Amended.

Bearing values for light residential structures of 3000 p.s.f. may be used on compacted fill or on stiff undisturbed ground.

Even though, in our opinion, the field density tests by our office conform to the density requirements of the City's Ordinance, the passage of time may result in changes in soil conditions and we suggest the following precautions:

WAITEC DEVELOPMENT, INC. August 6, 1981 Page 2

2. Lot regrading by cutting, filling or altering the drainage pattern may cause ground instability in some situations. For this reason, lot regrading should be avoided or made under the guidance of a Soils Engineer.

Our work on this project does not include the following:

Swimming pools, retaining walls, finish grading of lots not observed and tested by our office, backfill of utility trenches, etc.

We have employed accepted engineering and testing procedures and our professional opinions and conclusions are made in accordance with generally accepted soil and foundation engineering principles and practices. However, we do not undertake to guarantee the construction nor do we relieve the contractor of his primary responsibility to produce a completed project conforming to the project plans and specifications.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

Wallace Wakahiro

WW:vl

cc: Park Engineering, Inc.

Department of Housing & Urban Development

Hood Corporation

Hood Corporation (Field Foreman)

S. Horita Contracting & Building Supplies, Ltd.

WALTER LUM ASSOCIATES, INC.

CIVIL, STRUCTURAL, SOILS ENGINEERS

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKMIRO
3030 WAIALAE AVE., HONOLULU, HAWAII 96816 • TEL. 737-7931

By W. Wakakun

TO:	WAITEC DEVELOPMENT, INC.	DATE: September 6, 1979
	c/o Herbert K. Horita Realty, Inc.	
<u> </u>	2024 North King Street	•
	Honolulu, Hawaii 96819	
Gentle	men:	•
	Re: FILL AREA FOR VILLAGE P	ARK - PHASE 5
	(EXCESS FROM PHASES 2 &	4)
	FIELD DENSITY TEST REPO	RT
We Ard	c Sending You Herewith X	Under Separate Cover
		,
v	Prints	Review and comment
	Location Plan Field Density Test Results	Approval Signature
	Boring Logs	
	Laboratory Test Results	Tour use and mes
	Soil Report	
	•	•
NO. 0	f Copies Sets1	
	Sheets	
Gener	ral Remarks:	
For	period ending August 15, 1979.	
cc:	Park Engineering, Inc.	
٠	Hood Corporation	
•	noot corporation	·
•		
		Yours truly,
		WALTER LUM ASSOCIATES, INC
		THE LEAR HOUSE IN LES, INC.
		•

TEL. 737-7931

FIELD DENSITY TEST REPORT

FILL AREA FROM VILLAGE PARK PHASE 5

Field Density Test Results as follows:

Ending	AUGUST	<u>15</u> 19	79	Sheet_	of	3 Sheets	
Date	Lot No.	Fili Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
8-1-79	① □	31生	28.2	96.8	100.5	96	
11	② 🗆	30'±	29.1	95.3	u	95	
A Total	③ □	294	28.5	99.3	, u	99	
U	4 🗆	284	31.1	91.5		- 91	٠,
ú	⑤ □	27'±	23.1	94.3		94	
10.	Ø 0	26'±	26.2	90.7		90	
ń,	⑦ □	25'±	24.3	93.7		43	
ц	⑧ □	25'1	18.5	96.5	7	96	
	1						
8-2-79	⑨ □	284	32.2	90.7	100.5	90	
и	@ 🗆	27'±	31.2	91.5	31	91	
iı	(I)	264	33.9	89.3		89	HO
	@ 	264	24.5	94.8	H	94	
:							
8-3-79	③ □	25'±	23.9	94.0	100.5	94	
i şe rîl er ûre. Till û û û	(H)	234	30.1	93.0	þ	93	
şi	® □	22'£	29.2	92.5	11	92	
11	⊚ □	2012	30.1	93.8	И	93	

^{*} Approximate depth below finish grade.

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D-1557-70

^{**} Tests indicate the relative compaction of the soils only at the test locations.

DINDICATES TEST " Taken in the AREA shown ON TEST LOCATION SKETCH TEST DATA FROM TROXLER NUCLEAR GAUGE

TEL 737-793

FIELD DENSITY TEST REPORT

EXCESS FROM PHASES 244

Field Density Test Results as follows:

Ending	AUGUST	15 19	19_	Sheet_	_2of	3Sheets
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
8-4-79	/ (II) 	184	26.0	97.3	100.5	97
;						
8-6-79	(8) □	16生	25.5	99.0	100.5	. 99
11	(9)	144	25.7	91.5		91
N .	<i>®</i> 🗆	124	29.7	953	, и .	95.
n	(i) 🗆	104	27.4	93.0	и	93
8-7-79	@ 🗆	84	30.5	93.5	100.5	93
	Ø □	7½ ·	26.5	945	ij	94
••	(4) □	6't	24.7	97.0	N. C.	97
И	6 🗅	64	24.0	100.0	11	100
		/				
8-8-19	2	5'±	30.9	94.0	100.5	.94
11 .	1	44	27.5	90.7	Ħ	90
ų	⑧ □	44	29.3	92.0	. 11	92
ù .	4 0	44	25.2	98.3	ıl	98
-						
		-				

[·] Approximate depth below finish grade.

11) Indicates Test \$1.7. taken in the AREA shown ON TEST LOCATION SKETCH

П	TELT	カイイハ	FRAM	TROVICO	HUCLEAR	1-A111-E
ب	1651	VAIA	PROFI	INUNUER	NUCUEAR	GALGE

[·] Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{**} Tests indicate the relative compaction of the soils only at the test locations.

TEI 727'7024

FIELD DENSITY TEST REPORT

FILL AREA FROM VILLAGE PARK PLASES EXCESS FROM PHASES 244

Field Density Test Results as follows:

Ending	AUGUST		19_	Sheet_	3of	3Sheets
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
8-13-79	· 30	304 -	22.6	97.3	100,5	97
11	31	28'±	26.8	95.6	. "11" .	95
Н	32	274	24:6	95.3	n	95
#	33	274	23.1	. 96.1	, N	96
и.	⅔	264	29.3	902	ø	90
. ""	33	264	28.6	93.3	'. N "	93
8-14-79	⊗	23'±	25,7	95.0	100.5	95
n	\mathfrak{G}	22/±	27.4	93.7	A1	93
11	98	214.	26.1	97.0	~ ; u	.97
11	39	204	26.5	93.7		93
ч	40	20'±	27.2	92.9	, hr	92
						•
8-15-79	(4)	20'±	24.9	94.9	100.5	94
11	49	20'±	23.3	95.2	11 :	95
ľ	49	19生	763	94.0	Ņ	94
11	4	18'±	21,5	98.8	11	98

^{*} Approximate depth below finish grade.

^{··} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{**} Tests indicate the relative compaction of the soils only at the test locations.

³⁰ Indicates Test \$30, taken in the AREA shown ON TEST LOCATION SKETCH

WALTER LUM ASSOCIATES, INC.

CIVIL, STRUCTURAL, SOILS ENGINEERS



TO: WAITEC DEVELOPMENT, INC.	DATE: September 28, 1979
c/o Herbert K. Horita Realty, Inc.	<u>.</u> .
2024 North King Street Honolulu, Hawaii 96819	
Gentlemen:	
Re: _ FILL AREA FOR VILLAGE PARK -	PHASE 5
(EXCESS FROM PHASES 2 & 4)	
FIELD DENSITY TEST REPORT	
	,
We Arc Sending You Herewith X	Under Separate Cover
X Location Plan	Review and comment
	Signature X Your use and files
Laboratory Test Results Soil Report	
· · · · · · · · · · · · · · · · · · ·	
No. of Copies Sets	
Sheets	
General Remarks:	
For period ending September 20, 1979.	•
cc: Park Engineering, Inc. Hood Corporation	
	Yours truly,
	WALTER LUM ASSOCIATES INC

EL 737.7931

FIELD DENSITY TEST REPORT

FILL AREA FOR VILLAGE PARK - PHOSE 5

Field Density Test Results as follows:

Ending	SEPTEMBER 20	719	79	Sheet_	<u>i·</u> of	Sheets	
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
8-16-79	1	17'±.	23.3	95,1	100.5	95	
ы,	2	164	27.0	93.9	11	93	
14	3	194	29.5	91.2	н	91	
i ₁	1	18'±	27.8	89.0	ń	89	HARD
11	3	18'±	27.8	93.4	<u>, , , , , , , , , , , , , , , , , , , </u>	93	
ii	(6)	174	29.6	92.6	Ŋ	92	
							<u> </u>
8-17-79	7	16'±	25.4	93.5	100.5	93	
, , , , , , , , , , , , , , , , , , ,	8	154	30.1	93.5	,	93	
11	7	15生	24.0	95.8	Ρl	95	ĺ
11	(0)	144	18.5	98.5	3,	98	W.C. LOW TO BE RETESTE
11	(1)	14生	24.6	95.2	· fi	95	RETEST
			:		CAL MORNING TO STATE OF THE STA		
8-20-79	12)	144	29.5	92.7	100.5	92	
n	(3)	144	29.5	90.5	n :	90	
p	(4)	1314	29.8	90.8	<i>)</i> 1	90	٠,
'n .	(15)	134	29.6	91.6	11	91	
					·		

[·] Approximate depth below finish grade.

BY M. Celluchi

1-875

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D-1557-70

^{**} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test ... taken in the AREA shown ON THE TEST LOCATION SKETCH.

TEL. 737-7931

FIELD DENSITY TEST REPORT

FILL AREA FOR VILLAGE PARK - PHASE 5

BORROW FROM PHASES 2+4

Field Density Test Results as follows:

_							
<u> </u>	Relative Compaction***	Standard Density**	Dry Density**	Moisture Content	Fill Layer*	Lot No.	Date
HARP O.K.	89	100.5	89.2	30.9	14'±	(19)	3-21-79
	92	11	92.3	29.3	144	(1)	11
	90	Ti.	90.5	28.7	13'±	(8)	11
]	93	11 ,	93.3	29.9	13'±	(৭)	ıı
TO BE REROUL	85	100.5	85,4	29.6	13°±	(20)	3-22-79
JAC 10-	93	. 11	93.8	26.0	13'±	(21) ETEST	11
	91	11	91.7	27.8	12'+	22	11
	94	11	94,5	26.3	12'=	3	11
]	94	ħ	94.3	25,9	124	24)	11
HARD O.K.	89	100.5	89.8	31,3	12'±	25	3-24-79
HARD	89	***	89.1	31.4	11生	20	ч
HARD ak.	89	,,	89.5	32.6	11 ±	27	lı .
TO BE REPOUT PRETER	88	1)	88.5	33.2	11'±	78)	11
TO BE REROUL	85	100.5	8 <i>5</i> ,3	265	10 <u>′</u> ±	29	1-25-79

^{*} Approximate depth below finish grade...

BY Pofficence

^{★★} Density in pounds per cubic foot. Standard density refers—to density as indicated by the ASTM Method, D-1557-70

^{★★★} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test # 1 taken in the AREA shown ON THE TEST LOCATION SKETCH.

TEL. 737-7931

FIELD DENSITY TEST REPORT

SORROW FROM PHAGES 2 4

Field Density Test Results as follows:

Ending 5	EPTEMBER	20 19	79	Sheet_	of	<u>b</u> Sheets	
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
8-27-79	RETE ST	月生	29,9	91.7	100.5	91	·
N .	RETEST	10'±	25.5	96.7	11	96	
· n	32	10'±	309	90.0	lı .	90	
11	33	10'±	29.2	90.9	11	90	
6-28-79	34)	10'±	27.6	93,5	100.5	93	:
D.	(\$5)	9'±	23,3	96.1	11	96	
1.)	36	,9 <u>'</u> ±	26.8	98.5	11	98	
j)	37	94	25.1	95.4) 1	95	
1]	38)	8'±	25,3	96.3	11	96	
8-29-79	39	9'±	26,8	94.1	100,5	94	
Į1	40	8'±	27.1	92.6	11	92	
11	(4)	8'±	21, 2	10016	-1	100	RETESTED
11	्री (12)	8 <u>'</u> ±	25.2	9 <i>5</i> ,3	11	95	
8-30-79	49	8′±	27.7	94.5	100.5	94	
ìI	44)	8′±	27.8	93,4	l)	93	

^{*} Approximate depth below finish grade.

BY 1 Hiconic

^{★★} Density in pounds per cubic foot. Standard density refers—to density as indicated by the ASTM Method, D-1557-70

^{★★★} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test #1..... taken in the AREA....shown ON THE TEST LOCATION EXETCH.

TEL. 737-7931

FIELD DENSITY TEST REPORT

FILL AREA FOR VILLAGE PARK - PHASE 5

Field Density Test Results as follows:

Ending	EPTEMBER	2.0 19	79	Sheet_	Sheet 4 of 6		
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction**	
8-30-79	45)	71+	28,3	9114	100,5	91 .	
[1	(4b)	7'=	28.8	92.7	ľi	92	
11	(47)	7 '±	28.7	92.7	11	92	
8-31-79	48)	6±	26.8	93.5	100.5	93	
.11	49	6'±	27.2	93.2	11	93	
þ	<i>⊗</i>	6'±	24.5	94.9	1'	94	
11	<u>(51)</u>	5±	25.4	98,2	f t	98	
11	<u>(52)</u>	5'±	22.5	98.0	p	98	
9-4-79	(53)	5½	25.9	93.4	100.5	93	
11	<i>(54)</i>	5'±	245	93.7	11	93	
f i	6	5生	25.7	96.1	H	96	
9-5-79	(Fb)	5'±	33,3	90.0	100.5	90	
Į1	(F)	5'±	25.8	92.1.	1.1	92	
l1	<i>5</i> 5	5'±	26.1	92.7	11	92	

[★] Approximate depth below finish grade.

BY PARicent

^{★★} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D-1.557-70

^{★★★} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test #/ taken in the AREA shown ON THE TEST LOCATION SKETCH.

TEL. 737-7931

FIELD DENSITY TEST REPORT

FILL AREA FOR VILLAGE PARK PHASE 5 BORROW FROM PHASES 264.

Field Density Test Results as follows:

Ending	SEPTEMBER 2	20 19	79	Sheet_	of	6 Sheets	
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
9-6-79	69	5±	28.2	94.5	100.5	94]
v	60	5 <u>′</u> ±	23.3	94.4	11	94]
Ŋ	61	4±	31.7	89.9	11	89	HARD O.K.
9 - 7 - 79	62	4'±	24.3	88.6	100.5	88	TO BE REROLLED (RETESTE)
ŋ	(3)	4'±	27.0	97.9	11	97	
11	(A)	4'±	27.6	92.7	N ₁	92	
		. !	,				Ì
9-10-79	<u>6</u>	4'±	24.6	95.6	100.5	95	
11	66	4' ±	25.0	95.0	1)	94	
9-12-79	Ø	6'±	27.9	91.0	100,5	91	
h	(6)	5'±	29.7	95.8	1)	95	
11	(9)	4'±	28.8	92.5	D.	92	
9 - 16-79	@	4'±	29.8	91.9	100,5	91	
D	1	4′±	27.2	95,3	1,	95	
I)	120	4'±	27.0	91.7	1)	91	

[★] Approximate depth below finish grade.

^{★★} Density in pounds per cubic foot. Standard density refers—to density as indicated by the ASTM Method, D-1557-70

^{★★★} Tests indicate the relative compaction of the soils only at the test locations.

Indicates Test #1 taken in the AREA shown ON THE TEST LOCATION SKETCH.

TEL. 737-7931

FIELD DENSITY TEST REPORT

FILL AREA FOR VILLAGE PARK PHACE 5
BORROW FROM PHACES 259

Field Density Test Results as follows:

ndingSE	PTEMBER	2019	77	Sheet_	6of	_ <u>⊬</u> _Sheet
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction**
9-20-79	73)	4 ¹ ±	28.5	96.3	100.5	96
					1	,
		2:				
		-				
		,			,	
٠						_
					1	
: .						

- ★ Approximate depth below finish grade.
- ★★ Density in pounds per cubic foot. Standard density refers—to density as indicated by the ASTM Method, D-1557-70
- ★★★ Tests indicate the relative compaction of the soils only at the test locations.
- Indicates Test # 1 taken in the AREA shown ON THE TEST LOCATION SKETCH.

BY Heard

WALTER LUM ASSOCIATES, INC.

CIVIL, STRUCTURAL, SOILS ENGINEERS

WALTER LUM ARD WATANABE EZRA KOIKE ACE WAKAHIRO 3030 WAIALAE AVE., HONOLULU, HAWAII 96816 . TEL. 737-7931

O: WAITEC DEVELOPMENT, INC.	DATE: November 28, 197
c/o Herbert K. Horita Realty, Inc.	
2024 North King Street	
Honolulu, Hawaii 96819	
entlemen:	
Re: FILL AREA FOR VILLAGE PARK	- Phase 5
(EXCESS FROM PHASES 2 & 4)	
FIELD DENSITY TEST REPORT	
FIELD BENGIII 1881 IGIONI	· ·
Te Arc Sending You Herewith X	Under Separate Cover
Prints X Location Plan X Field Density Test Results Boring Logs Laboratory Test Results Soil Report	Review and comment Approval Signature X Your use and files
our report	
No. of Copies Sets1 Sheets	
General Remarks:	
For October 9, 1979.	
cc: Park Engineering, Inc.	e e e e e e e e e e e e e e e e e e e
Hood Corporation	
,	
	Yours truly,

By W. Wakahiri

TEL 737.7931

FIELD DENSITY TEST REPORT

FILL AREA FOR VILLAGE PARK-PHASE 5 (EXCESS FROM PHASES 2 & 4)

Field Density Test Results as follows:

Ending	OCTOBER 9, 1979			Sheet_	of	Sheets	
Date	Test No.	FIII Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
10-9-79		2'1	22.2	97.6	100.5	97	
. 11	2	O,ī	23.0	95.1		95	
n'	<u> </u>	24	23.0	949		94	
<u> </u>							
,							
· <u></u>			· .	,			
					<u> </u>		

^{*} Approximate depth below finish grade.

BY	M. Khi	
וט		

^{••} Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{**} Tests indicate the relative compaction of the soils only at the test locations.

¹⁾ Indicates Test ... taken in the AREA shown ON LOCATION SKETCH

WALTER LUM ASSOCIATES, INC.

CIVIL, STRUCTURAL, SOILS ENGINEERS

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO
303D WAIALAE AVE., HONOLULU, HAWAII 96816 • TEL. 737-7931

DATE: December 26, 1979
PARK - PHASE 5
& 4)
ORT
· ·
Under Separate Cover
Review and comment Approval Signature Your use and files
Yours truly,
WALTER LUM ASSOCIATES, INC.

By www. Wakehin

TEL 737,7931

FIELD DENSITY TEST REPORT

FILL AREA FOR VILLAGE PARK-PHASES (EXCESS FROM PHASES 2 (4)

Field Density Test Results as follows:

Ending	DECEMBER	<u>- 1319</u>	19	Sheet_	of	Sheets	
Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***].
12-6-79	1	3±	20.2	95.7	100,5	95	
. u	0	34	28.7	96,7	11	96	
. 4	3	乙生	22.2	86.7	А	86.	TO BE REROLLE RETESTE
	.de e				·		·
12-7-79	4	2/4	28.0	94.4	100.5	94	RETEST
12-11-79	6	ひた	26.1	94.1	100.5	94	
. 11	(6)	2'±	23.4	94.9	>1	95	
12-12-19	1	14	28.8	90.4	100.5	90]
11	6	14	30.7	91.8	11	91	
. n	9	14	30.3	88.5	11	88	10 BC REPOUL FRETEST
		•		-,			
12-13-79	9	14	34.0	90,1	100.5	90	RETEST
	,						

^{*} Approximate depth below finish grade.

BY M Which

[·] Density in pounds per cubic foot. Standard density refers to density as indicated by the ASTM Method, D 1557-70

^{**} Tests indicate the relative compaction of the soils only at the test locations.

¹⁾ Indicates Test . H.I. . taken in the AREA shown, OH THE LOCATION SKETCH



Suite 2085, Pacific Trade Center 🗆 190 S. King Street, Hopolulu, Hawaii 96813 🗆 Telephone (808) 531-1676

DEPT. OF PUBLIC WORKS

JUN 12 2 06 PM '81

TO_

June 9, 1981

GP9839

- Jun 12 3 51 PH '8

Dr. Michael J. Chun Director and Chief Engineer Department of Public Works City and County of Honolulu Honolulu, Hawaii 96813

Attention: Construction Branch

Dear Dr. Chun:

Subject: Village Park Subdivision

Phases 5 & 6

T.M.K.: 9-4-02: 28

This is to certify that grading within the subject subdivision have been completed.

Sincerely yours,

PARK ENGINEERING, INC.

REGISTERED OF LAND
SURVEYOR
No. 1361

Robert S. Torigoe

Registered Professional Surveyor

Certificate No. 1361-S

ma

cc: Waitec Development, Inc.

Hood Corporation



October 7, 1981

Dr. Michael Chun Director and Chief Engineer Department of Public Works City & County of Honolulu Honolulu, Hawaii 96813

Attention: Construction Branch

Subject: Village Park Subdivision

Phases 5 & 6

Tax Map Key: 9-4-02: 28

Submitting herewith for your use and files is Walter Lum Associates, Inc. "Grading Memorandum dated August 17, 1981 for the above-mentioned project.

Sincerely yours,

Edwin Maruyama Associate

Park Engineering, Inc.

EM:ao

Encl.