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

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

August 17, 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
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 11, 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.

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.

3. Drain and sewer lines were installed along the future Kupuna Loop between Roads "F-1" and "N." The utilities were placed below a 2 horizontal to 1 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 Wakahiro
Wallace Wakahiro

WW:vl
cc: Park Engineering, Inc.

TRANSMITTAL FORM

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

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

TO: 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 - PHASES 5 & 6

FIELD DENSITY TEST REPORT

We Are Sending You Herewith [X] Under Separate Cover [ ]

____ Prints	____ Review and comment
_X_ Location Plan	____ Approval
_X_ Field Density Test Results	____ Signature
____ Boring Logs	_X_ Your use and files
_X_ Laboratory Test Results	
____ Soil Report	

No. of Copies
Sets 1
Sheets ____

General Remarks:

For period ending July 31, 1980.

cc: Park Engineering, Inc.
Hood Corporation
Dept. of Housing & Urban Development

Yours truly,

WALTER LUM ASSOCIATES, INC.

By W. Wakahiro

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

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FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 & 6

Field Density Test Results as follows:

Ending JULY 31 19 80 Sheet 1 of 7 Sheets

Date	LOT NO.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
7-2-80	19 (1)	21'±	28.0	103.0	104	99	
"	16 (1)	17'±	23.5	96.5	"	93	
7-7-80	17 (1)	20'±	26.9	93.7	98	96	
"	18 (1)	19'±	29.0	92.3	"	94	
"	19 (2)	18'±	26.3	92.0	"	94	
"	KUPUNA LOOP (1)	8'±	26.0	92.8	"	95	
"	KUPUNA LOOP (2)	7'±	27.9	93.8	"	96	
7-9-80	19 (3)	16'±	29.5	90.1	104	87	TO BE REROLLED & RETESTED
"	17 (2)	15'±	29.3	94.2	"	91	
"	SLOPE (1)	17'±	26.3	96.7	"	93	
"	KUPUNA LOOP (3)	6'±	22.1	100.9	"	97	
7-10-80	19 (RETEST) (4)	16'±	26.1	101.9	104	98	
"	5 (1)	13'±	27.7	101.6	"	98	
"	7 (1)	12'±	27.1	99.8	"	96	
"	KUPUNA LOOP (4)	4'±	28.2	95.4	"	92	

* 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 #1 taken in the LOT shown.

BY M. Kikuchi

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

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FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 & 6

Field Density Test Results as follows:

Ending JULY 31 1980 Sheet 2 of 7 Sheets

Date	LOT NO.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
7-10-80	KUPUNA LOOP (5)	4'±	26.1	96.9	104	93
7-11-80	1 (1)	18'±	26.6	90.4	98	92
"	2 (1)	16'±	23.2	97.0	"	99
"	3 (1)	14'±	28.3	93.1	"	95
"	6 (1)	11'±	27.2	92.1	"	94
"	KUPUNA LOOP (6)	3'±	19.5	101.3	"	> 100
"	KUPUNA LOOP (7)	3'±	28.4	91.9	"	94
7-14-80	1 (2)	15'±	23.7	96.0	98	98
"	2 (2)	13'±	29.4	93.5	"	95
"	4 (1)	12'±	21.5	92.0	"	94
"	KUPUNA LOOP (8)	2'±	23.6	91.4	"	93
"	KUPUNA LOOP (9)	4'±	25.5	91.6	"	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.

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

BY M. Kikuchi

WALTER LUM ASSOCIATES, INC.
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FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 & 6

Field Density Test Results as follows:

Ending JULY 31 19 80 Sheet 3 of 7 Sheets

Date	LOT NO.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
7-15-80	KUPUNA LOOP (10)	2'±	27.4	94.8	98.2	97
"	KUPUNA LOOP (11)	2'±	29.2	94.0	98.2	96
"	55 (1)	17'±	28.1	93.1	98.2	95
"	57 (1)	16'±	27.8	91.6	98.2	93
7-16-80	55 (2)	15'±	27.4	94.7	98.2	96
"	58 (1)	14'±	27.8	92.7	98.2	94
"	KUPUNA LOOP (12)	1'±	29.1	95.9	98.2	98
7-17-80	19 (5)	15'±	29.6	93.2	98.2	95
"	15 (1)	15'±	28.1	88.6	98.2	90
"	10 (1)	9'±	29.1	92.4	98.2	94
"	KUPUNA LOOP (13)	1'±	27.9	97.5	98.2	99
"	KUPUNA LOOP (14)	1'±	26.9	95.1	98.2	97
7-18-80	14 (1)	10'±	25.8	93.6	98.2	95
"	16 (2)	13'±	23.3	93.0	98.2	95
"	13 (1)	6'±	27.0	90.8	98.2	92

* 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.

(10) Indicates Test #ID. taken in the LOT. shown.

BY T. Sugihara

1-675

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

WALTER LUM
EDWARD WATANABE
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FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 & 6

Field Density Test Results as follows:

Ending JULY 31 1980 Sheet 4 of 7 Sheets

Date	LOT NO.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
7-18-80	55 ③	13'±	23.4	94.3	98.2	96	
7-21-80	57 ②	12'±	25.9	93.0	98.2	95	
"	59 ①	10'±	33.3	89.1	98.2	91	
"	18 ②	13'±	26.4	97.2	98.2	99	
"	11 ①	6'±	31.4	91.3	98.2	93	
"	8 ①	10'±	22.9	94.9	98.2	97	
"	24 ①	7'±	31.2	90.2	98.2	92	
"	9 ①	7'±	30.6	81.9	98.2	84	TO BE RECOMPACTED & RETESTED
"	RETEST OF 9 ②	7'±	29.5	91.0	98.2	93	
"	7 ②	8'±	31.1	89.4	98.2	91	
"	17 ③	11'±	27.2	95.0	98.2	97	
7-22-80	29 ①	11'±	27.3	92.9	98.2	95	
"	26 ①	10'±	22.3	97.0	98.2	99	
"	56 ①	11'±	27.0	95.6	98.2	97	
"	19 ⑥	11'±	28.0	91.5	98.2	93	
"	1 ③	11'±	27.8	92.6	98.2	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.

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

BY J. Sugihara

1-675

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

WALTER LUM
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FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 & 6

Field Density Test Results as follows:

Ending JULY 31 19 80 Sheet 5 of 7 Sheets

Date	LOT NO.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
7-22-80	3 ②	10'±	24.8	95.4	98	97
"	5 ②	9'±	21.9	101.1	98	>100
7-23-80	2 ③	9'±	27.0	92.7	98	94
"	4 ②	8'±	25.3	100.3	"	>100
"	1 ④	7'±	25.7	95.0	"	97
"	6 ②	6'±	30.1	89.5	"	91
"	8 ②	5'±	26.0	96.3	"	98
"	10 ②	4'±	29.0	92.3	"	94
"	18 ③	9'±	25.8	98.7	"	100
"	16 ③	8'±	26.2	94.6	"	96
"	19 ⑦	7'±	28.5	92.1	"	94
"	17 ④	7'±	24.2	96.6	"	98
"	15 ②	5'±	29.3	93.9	"	96
"	18 ④	5'±	24.0	96.8	"	99
"	16 ④	4'±	25.1	94.4	"	96
"	14 ②	3'±	29.0	94.3	"	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.

(2) Indicates Test #2 taken in the LOT shown.

BY J. Sugihara

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

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FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5&6

Field Density Test Results as follows:

Ending JULY 31 1980 Sheet 6 of 7 Sheets

Date	LOT NO.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
7-24-80	5 (3)	4'±	24.6	94.6	104	91	
"	7 (3)	3'±	24.2	95.5	"	92	
"	9 (3)	2'±	23.2	97.9	"	94	
"	19 (8)	3'±	22.6	97.1	"	93	
"	18 (5)	1'±	22.2	96.1	"	92	
"	17 (5)	2'±	22.3	103.2	"	99	
"	15 (3)	1'±	22.4	99.5	"	96	
"	13 (2)	2'±	22.6	95.2	"	92	
"	12 (1)	1'±	24.0	95.7	"	92	
"	17 (6)	0'±	24.0	98.8	"	95	
"	12 (2)	0'±	25.2	96.9	"	93	
7-25-80	3 (3)	5'±	23.2	94.0	98	95	
"	14 (3)	0'±	25.3	97.0	104	93	
"	28 (1)	9'±	29.8	86	"	83	TO BE REROLLED & RETESTED
"	28 (RETEST) (2)	9'±	26.5	104	"	100	
"	26 (2)	8'±	26.0	99	"	95	
"	25 (1)	7'±	25.4	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.

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

BY M. Kikuchi

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

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FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 & 6

Field Density Test Results as follows:

Ending JULY 31 1980 Sheet 7 of 7 Sheets

Date	LOT NO.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
7-25-80	27 (1)	6'±	26.0	101.0	104	97
"	24 (2)	5'±	24.3	95.0	98	95
7-30-80	29 (2)	4'±	21.8	99.0	104	95
"	33 (1)	4'±	22.2	101.2	"	97
"	27 (2)	3'±	20.8	100.4	"	96
"	32 (1)	3'±	22.0	102.7	"	99
"	28 (3)	2'±	20.8	100.0	"	96
"	30 (1)	2'±	21.7	98.6	"	95
"	24 (3)	1'±	25.7	94.7	"	91
"	27 (3)	1'±	27.3	104.5	"	>100
7-31-80	11 (2)	0'±	26.0	97.7	104	94
"	29 (3)	1'±	26.2	100.7	"	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.

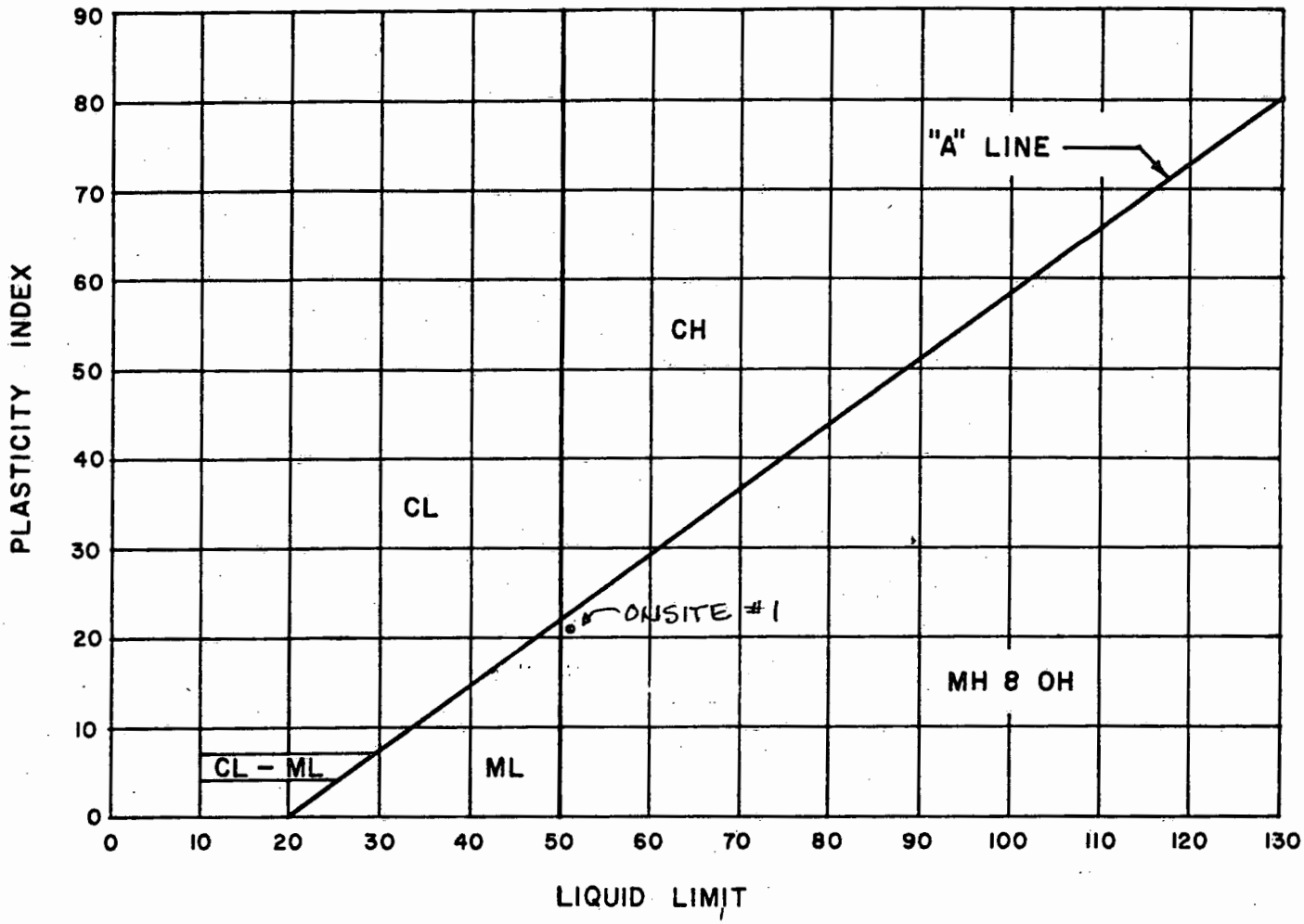
(1) Indicates Test #1.. taken in the LOT. shown.

BY M. Kikuchi

PLASTICITY CHART

PROJECT: VILLAGE PARK SUBDIVISION, PHASES 5 & 6

LOCATION: HOAEAE, EWA, OAHU, HAWAII



DATE 7-31-80 BY MK

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

8-872

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

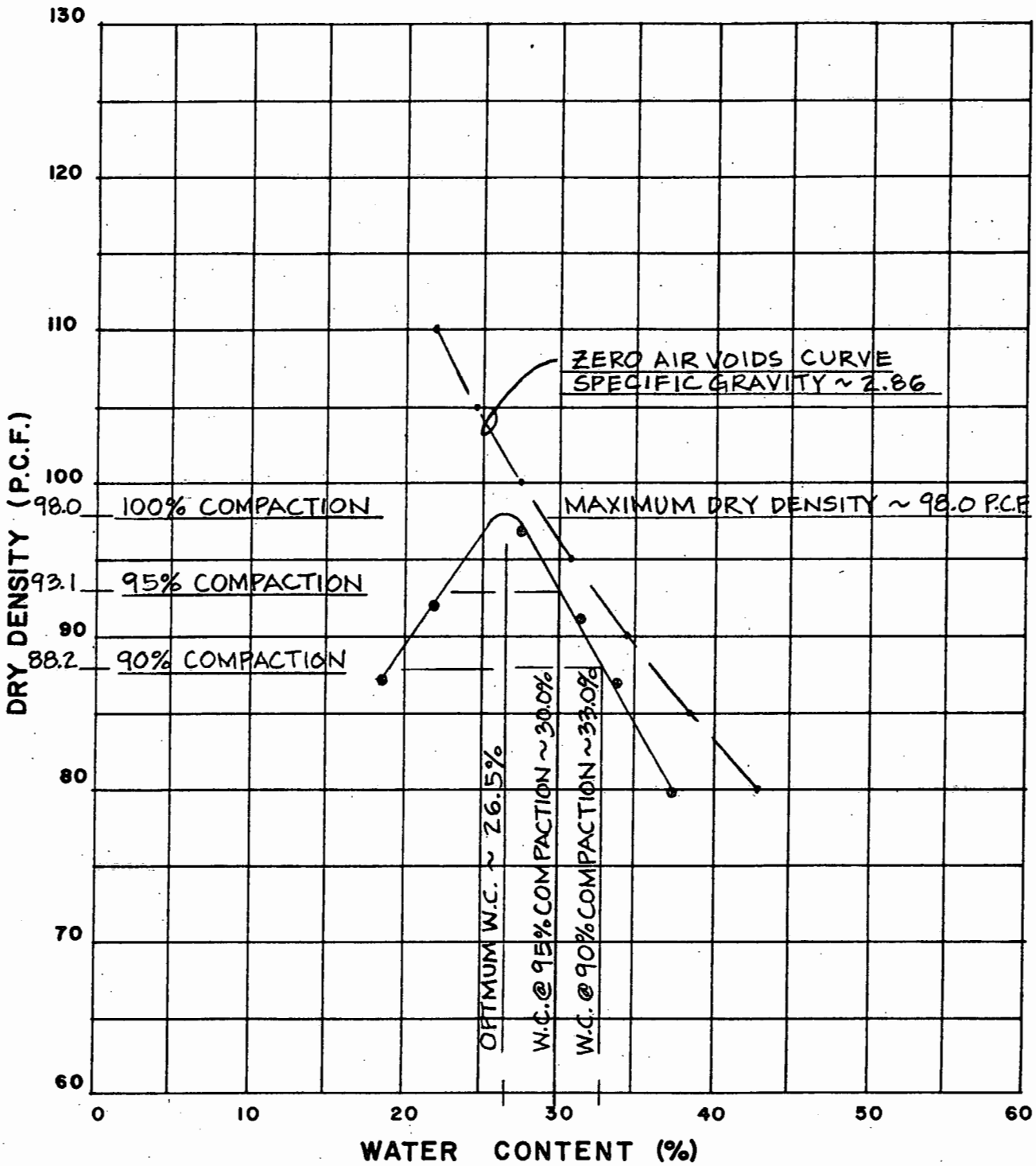
PROJECT: VILLAGE PARK SUBDIVISION PHASES 5 & 6

LOCATION: HOAEAE, EWA, OAHU, HAWAII

SAMPLE NO.: #1

SAMPLE DESCRIPTION: REDDISH BROWN SILTY CLAY

AGGREGATE: 1/4" MINUS
MOLD SIZE: 4" Φ X 4.584" HT.
HAMMER: 10 LB.
LAYERS: 5 LAYERS
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.	1		FROM PHASE	
DEPTH BELOW SURFACE			6	
DESCRIPTION	REDDISH BROWN SILTY CLAY		REDDISH BROWN SILTY CLAY	
GRAIN-SIZE ANALYSIS				
(% Passing)				
Sieve				
1-1/2"				
1"				
1/2"				
4				
10				
20				
40				
100				
200				
ATTERBERG LIMITS				
Air Dried or Natural	NATURAL		NATURAL*	
Liquid Limit	51		41	
Plastic Limit	30		25	
Plasticity Index	21		16	
Dilatancy	RAPID-SLOW		RAPID	
Toughness	MED.-STIFF		MED. STIFF	
Dry Strength	MEDIUM		MEDIUM	
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 0.1" Penetration	27.0		12.3	
MOISTURE-DENSITY RELATIONS OF SOILS				
(ASTM D-1557-70, Method)	A		A *	
Dry to Wet or Wet to Dry	DRY TO WET		DRY TO WET	
Max. Dry Density (P.C.F.)	98.0		104	
Optimum Moisture (%)	26.5		23.0	

REMARKS: * RESULTS PREVIOUSLY SUBMITTED UNDER VILLAGE PARK PHASES 14 & 15 (JUNE 4, 1980).

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

Date 7-31-80 By MIC

TRANSMITTAL FORM

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

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

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 - PHASES 5 & 6

FIELD DENSITY TEST REPORT

We Are Sending You Herewith [X] Under Separate Cover [ ]

____ Prints	____ Review and comment
__X__ Location Plan	____ Approval
__X__ Field Density Test Results	____ Signature
____ Boring Logs	__X__ Your use and files
____ Laboratory Test Results	
____ Soil Report	

No. of Copies
Sets 1
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.

By W. Wakahiro

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

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EDWARD WATANABE
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FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5 & 6

Field Density Test Results as follows:

Ending AUGUST 20, 1980 Sheet 1 of 4 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
8-1-80	25 (1)	0'±	26.6	98.6	104	95	
"	31 (1)	1'±	23.0	98.2	"	94	
"	33 (1)	1'±	29.1	98.8	"	95	
8-4-80	PARKSITE (1)	8'±	27.0	99.9	104	96	
"	PARKSITE (2)	6'±	26.7	87.8	"	84	TO BE REROLLED & RETESTED
"	PARKSITE (RETEST) (3)	6'±	21.9	95.9	"	92	
"	2 (1)	4'±	23.3	76.1	"	73	TO BE REROLLED & RETESTED
"	2 (RETEST) (2)	4'±	22.0	98.9	"	95	
"	4 (1)	3'±	22.1	98.9	"	95	
8-5-80	PARKSITE (4)	4'±	34.8	84.0	104	81	TO BE REROLLED & RETESTED
"	PARKSITE (RETEST) (5)	4'±	26.5	93.6	"	90	
"	1 (1)	3'±	26.0	80.6	"	78	TO BE REROLLED & RETESTED
"	1 (RETEST) (2)	3'±	25.8	96.7	"	93	
"	2 (3)	2'±	28.7	88.8	98	90	
"	6 (1)	2'±	31.6	97.0	104	93	
"	7 (1)	1'±	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.

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

BY DN

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDVISION - PHASES 5 & 6

Field Density Test Results as follows:

Ending AUGUST 20, 1980 Sheet 2 of 4 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
8-5-80	28 (1)	0'±	26.3	80.0	98	81	TO BE REROLLED & RETESTED
8-6-80	PARKSITE (6)	3'±	29.8	91.3	98	93	
8-7-80	PARKSITE (7)	2'±	24.6	81.7	98	83	TO BE REROLLED & RETESTED
"	PARKSITE (RETEST) (8)	2'±	25.4	95.1	"	97	
"	4 (2)	1'±	26.1	96.4	"	98	
"	58 (1)	1'±	23.1	98.1	104	94	
8-8-80	57 (1)	9'±	25.7	93.1	98	95	
"	PARKSITE (9)	1'±	31.3	91.9	"	94	
8-11-80	8 (1)	0'±	27.9	96.0	104	92	
"	28 (RETEST) (2)	0'±	27.2	94.3	"	90	
8-12-80	5 (1)	0'±	31.4	89.0	98	91	
"	31 (2)	0'±	23.4	98.5	104	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.

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

BY DN

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION-PHASES 5 & 6

Field Density Test Results as follows:

Ending AUGUST 20, 1980 Sheet 3 of 4 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
8-13-80	PARKSITE (10)	0'±	26.9	86.8	104	83	TO BE REROLLED
"	34 (1)	0'±	27.8	92.0	98	94	
8-14-80	PARKSITE (RETEST) (11)	0'±	22.3	98.7	104	95	
"	1 (3)	0'±	25.5	96.3	"	93	
"	3 (1)	0'±	26.6	93.4	"	90	
"	55 (1)	8'±	21.7	101.4	"	98	
"	70 (1)	21'±	23.0	96.9	"	93	
"	97 (1)	21'±	23.6	101.7	"	98	
8-15-80	58 (2)	7'±	25.5	99.3	104	95	
"	69 (1)	19'±	23.4	98.1	"	94	
8-18-80	55 (2)	6'±	30.0	93.6	98	96	
"	71 (1)	18'±	30.4	91.5	"	93	
"	68 (1)	17'±	28.1	94.4	"	96	
"	96 (1)	17'±	23.4	93.1	104	90	
"	99 (1)	17'±	21.8	104.5	"	>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.

(10) Indicates Test # 10 taken in the LOT shown.

BY DN

1-675

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5 & 6

Field Density Test Results as follows:

Ending 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 (1)	6'±	25.3	99.0	104	95	
"	72 (1)	17'±	22.4	93.2	104	90	TO BE REROLLED & RETESTED
"	72 (2) (RETEST)	17'±	25.8	94.0	104	90	
"	97 (2)	16'±	22.9	88.9	104	85	TO BE REROLLED & RETESTED
"	97 (3) (RETEST)	16'±	23.2	98.8	104	95	
"	100 (1)	16'±	24.3	90.9	104	87	TO BE REROLLED & RETESTED
"	100 (2) (RETEST)	16'±	23.3	103.9	104	100	
8-20-80	55 (3)	3'±	26.3	92.3	98	94	
"	56 (1)	4'±	25.4	93.4	104	90	
"	57 (2)	5'±	25.6	100.5	104	97	
"	60 (1)	3'±	26.3	92.3	98	94	
"	67 (1)	15'±	22.1	94.9	104	91	
"	70 (2)	16'±	31.9	90.4	98	92	

* 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 #1 taken in the LOT shown.

BY DN

TRANSMITTAL FORM

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

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

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 Are Sending You Herewith [X] **Under Separate Cover** [ ]

____ Prints	____ Review and comment
_X_ Location Plan	____ Approval
_X_ Field Density Test Results	____ Signature
____ Boring Logs	_X_ Your use and files
_X_ Laboratory Test Results	
____ Soil Report	

No. of Copies
Sets 1
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.

By W. Wakahiro

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

WALTER LUM
EDWARD WATANABE
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FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASE 5 & 6

Field Density Test Results as follows:

Ending SEPT. 19 19 80 Sheet 1 of 8 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
8-21-80	57 (1)	1'±	29.7	91.2	98	93	
"	58 (1)	2'±	25.2	97.4	98	99	
"	61 (1)	1'±	29.4	88.5	98	90	
"	62 (1)	4'±	29.3	92.3	98	94	
"	70 (1)	15'±	29.2	91.7	98	94	
8-22-80	65 (1)	12'±	24.3	94.9	98	97	
"	66 (1)	14'±	22.5	73.9	104	71	TO BE REROLLED & RETESTED
"	66 (RETEST) (2)	14'±	24.7	98.7	104	95	
"	68 (1)	13'±	26.3	94.2	98	96	
"	69 (1)	15'±	21.9	86.4	104	83	TO BE REROLLED & RETESTED
"	69 (RETEST) (2)	15'±	22.9	96.8	104	93	
"	72 (1)	13'±	24.2	100.1	104	96	
8-24-80	95 (1)	14'±	24.6	93.2	98	95	
8-25-80	56 (1)	0'±	23.6	94.5	104	91	
"	59 (1)	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.

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

BY SM/DN

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO
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FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASE 5 & 6

Field Density Test Results as follows:

Ending SEPT. 19 19 80 Sheet 2 of 8 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
8-25-80	62 ②	0'±	24.2	99.5	104	96
"	64 ①	11'±	21.3	97.1	104	93
"	65 ②	10'±	25.4	95.7	104	92
"	67 ①	11'±	21.5	98.8	104	95
"	68 ②	10'±	23.0	95.3	104	92
"	70 ②	12'±	21.3	96.7	104	93
"	71 ①	11'±	22.7	98.8	104	95
8-26-80	64 ②	8'±	22.4	91.9	98	94
"	66 ③	9'±	25.3	92.7	98	95
"	67 ②	8'±	28.6	92.8	98	95
"	69 ③	11'±	21.6	97.5	98	99
"	71 ②	9'±	22.0	101.9	104	98
"	78 ①	8'±	28.1	89.6	98	91
"	E ①	23'±	23.2	96.4	98	98
8-27-80	E ②	19'±	28.0	96.0	98	98
"	F ①	20'±	24.5	100.4	98	>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.

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

BY SM/DN

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASE 5&6

Field Density Test Results as follows:

Ending SEPT. 19 19 80 Sheet 3 of 8 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	
"	72 ②	8'±	28.6	93.3	98	95	
"	76 ①	7'±	25.5	96.7	98	99	
"	77 ①	6'±	20.4	96.3	104	93	
8-28-80	E ③	18'±	31.0	93.7	98	96	
"	63 ①	7'±	23.3	96.1	98	98	
"	65 ③	7'±	25.6	93.6	98	96	
"	68 ③	7'±	28.8	95.0	98	97	
"	70 ③	8'±	25.9	89.6	98	91	
"	78 ②	5'±	25.4	93.5	98	95	
"	97 ①	13'±	23.2	89.9	98	92	
8-29-80	71 ③	7' ±	23.5	93.3	98	95	
	74 ①	4' ±	26.6	98.2	104	94	
	76 ②	3' ±	24.2	96.6	98	99	
	77 ②	4' ±	24.9	89.6	98	91	
	79 ①	3' ±	26.3	87.3	98	89	REROLLED

* 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.

BY SM/DN

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

WALTER LUM
EDWARD WATANABE
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FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 & 6

Field Density Test Results as follows:

Ending SEPT. 19 19 80 Sheet 4 of 8 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-8-80	64 ③	5' ±	24.4	89.1	98	91
"	70 ④	6' ±	25.1	90.0	98	92
"	66 ④	6' ±	23.9	97.7	98	100
9-9-80	68 ④	5' ±	24.1	90.2	98	92
"	72 ③	5' ±	22.6	102.9	104	99
"	73 ①	4' ±	25.3	93.9	98	96
"	69 ⑤	4' ±	24.5	95.0	98	97
"	65 ④	4' ±	24.6	94.8	98	97
9-10-80	63 ②	3' ±	20.8	98.8	104	95
"	67 ③	3' ±	23.3	102.6	104	99
"	71 ④	3' ±	21.7	96.6	104	93
9-11-80	72 ④	2' ±	24.5	96.9	98	99
	75 ①	2' ±	27.2	89.5	98	91
	78 ③	2' ±	26.0	93.7	98	96
	77 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.

(1) Indicates Test #1 taken in the Lot shown.

BY W. W.

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

WALTER LUM
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EZRA KOIKE
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FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5&6

Field Density Test Results as follows:

Ending SEPT. 19 19 80 Sheet 5 of 8 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-11-80	"D" (1)	17'±	27.6	95.3	98	97
"	"F" (2)	16'±	23.7	94.3	98	96
"	73 (2)	1'±	26.2	93.4	98	95
"	77 (4)	0'±	22.2	92.8	98	95
"	95 (2)	12'±	21.5	102.0	104	98
"	99 (1)	12'±	25.0	93.0	98	95
9-12-80	64 (4)	2'±	28.5	92.5	98	94
	68 (5)	2'±	30.2	90.9	98	93
	70 (5)	1'±	29.9	90.8	98	93
	74 (2)	0'±	26.2	96.3	98	98
	80 (1)	0'±	23.2	96.9	98	99
	"E" (4)	15'±	22.7	92.1	98	94
	"C" (1)	15'±	25.6	99.0	98	>100
	"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.

(1) Indicates Test #1 taken in the Lot shown.

BY W. Wakahiro

I-675

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 & 6

Field Density Test Results as follows:

Ending SEPT. 19 1980 Sheet 6 of 8 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
9-15-80	"D" ③	12' ±	25.0	94.7	98	97	
"	"G" ②	12' ±	24.2	96.1	98	98	
"	"C" ②	11' ±	26.0	91.7	98	94	
"	"F" ④	11' ±	23.2	91.2	98	93	
"	"E" ⑤	10' ±	27.0	90.2	98	92	
"	96 ①	11' ±	23.9	93.5	98	95	
"	100 ①	11' ±	25.2	95.2	98	97	
"	66 ⑤	1' ±	23.6	99.6	98	>100	
"	98 ①	10' ±	21.4	97.0	98	99	
"	101 ①	10' ±	28.6	86.2	98	88	AREA REROLLED
"	95 ③	9' ±	26.5	90.1	98	92	
"	99 ②	9' ±	23.8	91.7	98	94	
9-16-80	"D" ④	9' ±	29.9	90.7	98	93	
"	"C" ③	8' ±	25.5	100.0	98	>100	
"	"G" ③	8' ±	27.1	100.3	98	>100	
"	97 ②	8' ±	29.4	90.7	98	93	
"	65 ⑤	0' ±	26.9	92.7	98	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.

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

BY W. W.

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 & 6

Field Density Test Results as follows:

Ending SEPT. 19 19 80 Sheet 7 of 8 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-16-80	68 (6)	0'±	26.5	95.3	98	97
"	71 (5)	0'±	23.7	94.5	98	96
"	96 (2)	7'±	24.0	94.0	98	96
"	100 (2)	7'±	29.5	89.3	98	91
9-17-80	"E" (6)	7'±	24.7	97.7	98	100
"	"B" (1)	6'±	23.8	97.4	98	99
"	97 (3)	6'±	23.9	91.8	98	94
"	95 (4)	5'±	27.6	89.9	98	92
9-18-80	"D" (5)	4'±	22.0	96.0	104	92
"	"C" (4)	3'±	25.2	93.1	104	90
"	96 (3)	4'±	21.3	94.8	104	91
"	94 (1)	3'±	20.9	101.0	104	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.

(1) Indicates Test #1 taken in the Lot 1 shown.

BY W. W.

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

WALTER LUM
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FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5 & 6

Field Density Test Results as follows:

Ending SEPT. 19 19 80 Sheet 8 of 8 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-19-80	"G" ④	3' ±	24.2	96.1	98	98
"	98 ②	3' ±	24.1	93.4	98	95
"	117 ①	30' ±	26.8	90.0	98	92
"	135 ①	19' ±	24.9	92.8	98	95
"	164 ①	27' ±	24.4	93.5	98	95
"	195 ①	16' ±	24.6	98.1	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.

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

BY W.W.

VILLAGE PARK SUBDIVISION PHASE 5&6

TABLE I___ - SUMMARY OF LABORATORY TEST RESULTS

BORING NO.	BORROW FROM			
SAMPLE NO.	PHASE 3			
DEPTH BELOW SURFACE				
DESCRIPTION	REDDISH BROWN CLAYEY-SILT			
GRAIN-SIZE ANALYSIS				
(% Passing)				
Sieve				
1-1/2"				
1"				
1/2"				
#4				
#10				
#20				
#40				
#100				
#200				
ATTERBERG LIMITS				
Air Dried or Natural	NATURAL			
Liquid Limit	51			
Plastic Limit	30			
Plasticity Index	21			
Natural Water Content, %				
Dilatancy	RAPID-SLOW			
Toughness	MED-STIFF			
Dry Strength	MEDIUM			
UNIFIED SOIL CLASSIFICATION	MH			
APPARENT SPECIFIC GRAVITY	2.90			
CBR TEST				
(Surcharge - 51 P.S.F.)				
Molding Moisture, %	27/30*			
Molding Dry Density, P.C.F.	97.7			
Swell upon saturation, %	0.1			
CBR at 0.1" Penetration	17.1			
MOISTURE-DENSITY RELATIONS OF SOILS				
(ASTM D-1557-70, Method)	A			
Dry to Wet or Wet to Dry	DRY-WET			
Max. Dry Density (P.C.F.)	98.0			
Optimum Moisture (%)	25.0			

REMARKS: *MOISTURE CONTENT AFTER 4 DAY SOAK

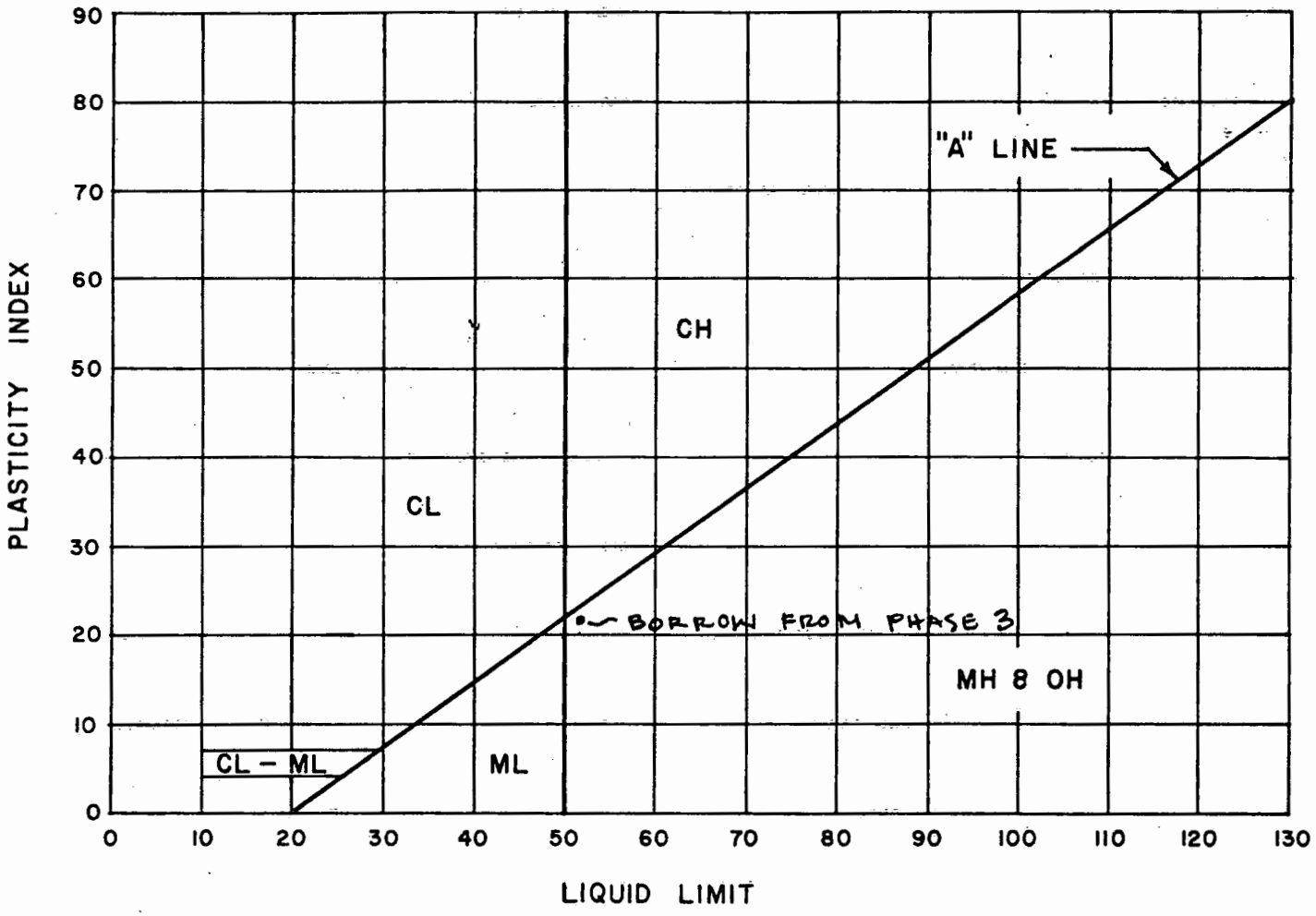
WALTER LUM ASSOCIATES, INC.
STRUCTURAL & SOIL ENGINEERS

Date 8-29-80 By SM

PLASTICITY CHART

PROJECT: VILLAGE PARK SUBDIVISION - PHASES 5 & 6

LOCATION: HOAEAE, OAHU, HAWAII



DATE 9-22-80 BY W.W.

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

3-872

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

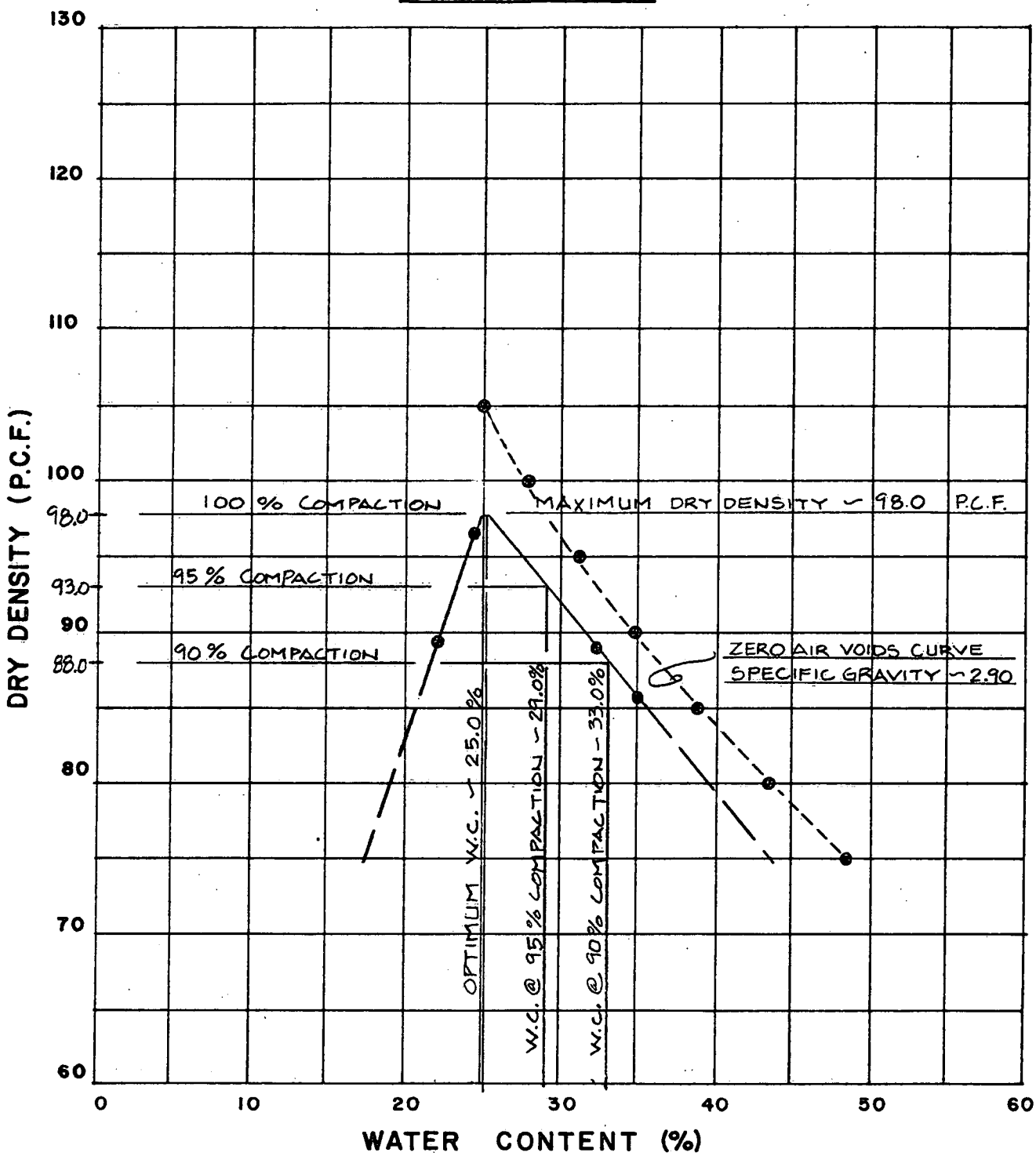
PROJECT: VILLAGE PARK SUBDIVISION PHASE 5 & 6

LOCATION: HOAEAE, EWA, OAHU, HAWAII

SAMPLE NO.: BORROW FROM PHASE 3

SAMPLE DESCRIPTION: REDDISH BROWN CLAYEY-SILT

AGGREGATE: 1/4" MINUS
MOLD SIZE: 4.0"Ø x 4.584" HT.
HAMMER: 10 LBS
LAYERS: 5
BLOWS: 25/LAYER



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

DATE 8-25-80 BY DN

3-775

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:lw
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)

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO
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 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:

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. 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.

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro
Wallace Wakahiro

WW:lw
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)

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO
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 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:

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.

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro
Wallace Wakahiro

WW:lw
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)

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO
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 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:

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro
Wallace Wakahiro

WW:lw
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)

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO
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.

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro
Wallace Wakahiro

WW:lw
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)

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO
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 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.

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro
Wallace Wakahiro

WW:lw
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)

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO
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
10

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 Wakahiro
Wallace Wakahiro

WW:lw
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)

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO
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 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.

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro
Wallace Wakahiro

WW:lw
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)

TRANSMITTAL FORM

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

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

TO: WAITEC DEVELOPMENT, INC.

c/o Herbert K. Horita Realty, Inc.

2024 North King Street, Room 204

Honolulu, Hawaii 96819

DATE: October 28, 1980

Gentlemen:

Re: VILLAGE PARK SUBDIVISION - PHASES 5 & 6

FIELD DENSITY TEST REPORT

We Are Sending You Herewith [X] Under Separate Cover [ ]

____ Prints	____ Review and comment
_X_ Location Plan	____ Approval
_X_ Field Density Test Results	____ Signature
____ Boring Logs	_X_ Your use and files
_X_ Laboratory Test Results	
____ Soil Report	

No. of Copies
Sets 1
Sheets ____

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.

By W. Wakahiro

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION
PHASES 5 & 6

Field Density Test Results as follows:

Ending OCTOBER 9 1980 Sheet 1 of 8 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-22-80	116 (1)	29'±	24.9	100.0	101	99
"	118 (1)	28'±	26.1	93.6	"	93
"	117 (1)	26'±	26.3	96.4	"	95
"	191 (1)	1'±	22.7	97.8	98	100
"	97 (1)	2'±	25.8	92.8	"	95
"	96 (1)	0'±	20.8	96.9	"	99
"	93 (1)	0'±	25.1	91.9	"	94
"	A (1)	2'±	22.8	91.9	"	95
9-23-80	165 (1)	25'±	24	97.7	98	100
"	141 (1)	17'±	24	91.1	"	93
"	136 (1)	17'±	23	93.3	"	95
"	116 (2)	25'±	23	95.4	"	97
"	118 (2)	24'±	26.2	91.9	"	94
"	101 (1)	2'±	23	91.3	"	93
"	99 (1)	1'±	24	92.4	"	94
"	102 (1)	0'±	25.4	92.0	"	94
"	100 (1)	0'±	23.1	92.0	"	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.

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

BY Ronald S Smith

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION
PHASES 5 & 6

Field Density Test Results as follows:

Ending OCTOBER 9 1980 Sheet 2 of 8 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-23-80	96 (2)	0'±	24	95.3	98	97
"	E (1)	2'±	25	93.5	"	95
"	B (1)	1'±	24	100.7	"	>100
"	F (1)	1'±	24	89.6	"	91
"	A (2)	0'±	24	97.7	"	100
"	D (1)	0'±	24	97.7	"	100
"	H (1)	0'±	23.3	91.6	"	94
9-24-80	142 (1)	16'±	23.8	92.6	98	94
"	138 (1)	16'±	26.9	96.0	"	98
"	140 (1)	15'±	25.4	99.6	"	>100
"	115 (1)	23'±	26.6	94.8	"	97
"	119 (1)	22'±	28.0	89.5	"	91
"	116 (3)	21'±	22.1	98.3	"	100
"	117 (2)	20'±	28.0	89.8	"	92
9-25-80	118 (3)	19'±	24.5	93.3	98	95
"	115 (2)	18'±	24.0	93.8	"	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.

(2) Indicates Test #2 taken in the LOT shown.

BY Ronald S Hawk

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION
PHASES 5 & 6

Field Density Test Results as follows:

Ending OCTOBER 9 1980 Sheet 3 of 8 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-25-80	119 (2)	17'±	28.5	92.8	98	95
"	116 (4)	16'±	22.4	94.1	"	96
"	120 (1)	16'±	21.9	92.6	"	93
"	135 (1)	15'±	30.4	90.5	"	92
9-26-80	141 (2)	14'±	25.2	93.1	98	95
"	137 (1)	14'±	25.1	92.0	"	94
"	117 (3)	15'±	24.0	91.6	"	93
"	118 (4)	14'±	26.4	96.8	"	99
"	119 (3)	13'±	27.0	91.9	"	94
"	115 (3)	13'±	23.5	93.6	"	96
"	118 (5)	12'±	25.3	98.6	"	>100
"	114 (1)	12'±	23.4	90.5	"	92
"	120 (2)	11'±	26.3	92.2	"	94
"	116 (5)	11'±	28.6	92.8	"	95
9-29-80	118 (6)	10'±	25.0	92.6	98	94
"	115 (4)	9'±	22.2	97.3	"	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.

(2) Indicates Test #2 taken in the LOT shown.

BY Ronald S Hirata

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION
PHASES 5 & 6

Field Density Test Results as follows:

Ending OCTOBER 9 1980 Sheet 4 of 8 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-29-80	121 (1)	9'±	25.4	92.0	98	94
"	117 (4)	8'±	24.0	95.3	"	97
"	120 (3)	7'±	31.6	88.7	"	90
"	122 (1)	5'±	26.3	93.7	"	96
9-30-80	136 (2)	14'±	26.5	93.3	98	95
"	139 (1)	13'±	26.4	90.5	"	92
"	143 (1)	12'±	28.4	90.3	"	92
"	138 (2)	12'±	29.7	93.8	"	96
"	140 (2)	11'±	27.5	91.3	"	93
"	119 (4)	7'±	28.3	92.6	"	94
"	114 (2)	7'±	27.3	90.2	"	92
"	116 (6)	6'±	26.9	98.8	101	98
"	121 (2)	4'±	24.4	92.6	98	94
"	120 (4)	3'±	23.8	92.7	"	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.

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

BY Ronald S Akuna

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION
PHASES 5 & 6

Field Density Test Results as follows:

Ending OCTOBER 9 1980 Sheet 5 of 8 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
10-1-80	123 (1)	2'±	27.8	89.5	98	91
"	122 (2)	1'±	25.0	90.1	"	92
"	118 (7)	5'±	28.4	91.6	"	93
"	119 (5)	4'±	28.4	91.5	"	93
"	115 (5)	4'±	23.9	88.8	"	91
"	116 (7)	3'±	24.6	92.9	"	95
"	110 (1)	3'±	23.9	91.4	"	93
"	118 (8)	2'±	24.2	96.6	"	99
"	114 (3)	2'±	24.7	95.6	"	98
"	109 (1)	2'±	24.0	91.5	"	93
"	110 (2)	1'±	25.2	92.3	"	94
10-2-80	166 (1)	25'±	28.5	89.3	98	91
"	162 (1)	25'±	26.9	94.1	"	96
"	141 (3)	10'±	27.0	90.2	"	92
"	142 (2)	9'±	29.9	90.5	"	92
"	138 (3)	9'±	26.0	89.8	"	92
"	137 (2)	10'±	26.0	91.6	"	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.

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

BY Ronald S Ikeda

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION
PHASES 5 & 6

Field Density Test Results as follows:

Ending OCTOBER 9 1980 Sheet 6 of 8 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
10-2-80	117 (5)	1'±	28.1	92.3	98	94
"	113 (1)	1'±	26.9	91.8	"	94
"	115 (6)	0'±	27.5	90.7	"	93
"	112 (1)	0'±	26.7	91.8	"	94
"	109 (2)	0'±	31.0	90.4	"	92
10-3-80	167 (1)	24'±	22.4	91.4	98	93
"	163 (1)	24'±	25.7	88.6	"	90
"	165 (1)	23'±	24.2	91.0	"	93
"	164 (1)	23'±	23.9	96.2	"	98
"	143 (2)	8'±	22.4	98.0	"	100
"	139 (2)	8'±	24.7	97.7	"	100
"	135 (2)	11'±	26.2	96.0	"	98
"	136 (3)	9'±	26.8	95.8	"	98
"	144 (1)	7'±	22.9	92.6	"	94
"	140 (3)	7'±	26.8	90.3	"	92
"	145 (1)	6'±	25.9	91.3	"	93
"	141 (4)	6'±	26.6	95.8	"	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.

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

BY Ronald S Hanuk

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION
PHASES 5 & 6

Field Density Test Results as follows:

Ending OCTOBER 9 1980 Sheet 7 of 8 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
10-3-80	124 (1)	0'±	28.7	88.4	98	90
"	121 (3)	0'±	26.8	89.1	"	91
"	118 (9)	0'±	25.3	97.2	"	99
10-6-80	165 (2)	22'±	31.5	94.1	98	96
"	162 (2)	22'±	31.5	93.1	"	95
"	166 (2)	21'±	33.8	90.8	"	93
"	163 (2)	21'±	27.0	96.2	"	98
"	135 (3)	7'±	27.3	98.4	"	100
"	137 (3)	6'±	24.8	98.2	"	100
"	136 (4)	6'±	26.3	96.6	"	99
"	142 (3)	5'±	24.0	96.1	"	98
"	138 (4)	5'±	27.2	94.3	"	96
10-7-80	196 (1)	14'±	25.1	91.0	98	93
"	167 (2)	20'±	23.4	94.9	"	97
"	146 (1)	5'±	26.0	92.9	"	95
"	143 (3)	4'±	26.0	92.5	"	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.

(1) Indicates Test #1.. taken in the L.O.T. shown.

BY Ronald S Ikeda

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION
PHASES 5 & 6

Field Density Test Results as follows:

Ending OCTOBER 9 1980 Sheet 8 of 8 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
10-7-80	139 (3)	4'±	23.6	96.1	98	98
"	144 (2)	3'±	22.3	91.2	"	93
"	140 (4)	3'±	28.9	98.8	101	98
"	136 (5)	3'±	24.0	96.8	98	99
"	135 (4)	2'±	25.1	99.3	101	98
"	132 (1)	2'±	22.3	100.3	"	99
10-8-80	141 (5)	2'±	24.4	98.9	101	98
10-9-80	194 (1)	13'±	24.2	91.1	98	93
"	145 (2)	2'±	23.4	95.7	"	98
"	137 (4)	1'±	23.9	92.2	"	94
"	133 (1)	1'±	24.7	91.7	"	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.

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

BY Ronald S Hirai

VILLAGE PARK SUBDIVISION PHASE 5 & 6

TABLE I___ - SUMMARY OF LABORATORY TEST RESULTS

BORING NO.				
SAMPLE NO.	3			
DEPTH BELOW SURFACE				
DESCRIPTION	REDDISH BROWN CLAYEY-SILT			
GRAIN-SIZE ANALYSIS (% Passing) Sieve				
1-1/2"				
1"				
1/2"				
#4				
#10				
#20				
#40				
#100				
#200				
ATTERBERG LIMITS				
Air Dried or Natural	NATURAL			
Liquid Limit	51			
Plastic Limit	30			
Plasticity Index	21			
Natural Water Content, %				
Dilatancy	RAPID-SLOW			
Toughness	MED-STIFF			
Dry Strength	MEDIUM			
UNIFIED SOIL CLASSIFICATION	MH			
APPARENT SPECIFIC GRAVITY				
CBR TEST (Surcharge - 51 P.S.F.)				
Molding Moisture, %	29.7 | 31.6*			
Molding Dry Density, P.C.F.	95.3			
Swell upon saturation, %	NIL			
CBR at 0.1" Penetration	19.0			
MOISTURE-DENSITY RELATIONS OF SOILS (ASTM D-1557-70, Method)	A			
Dry to Wet or Wet to Dry	DRY TO WET			
Max. Dry Density (P.C.F.)	97.0			
Optimum Moisture (%)	28.0			

REMARKS:

* MOISTURE CONTENT AFTER SOAKING

WALTER LUM ASSOCIATES, INC.

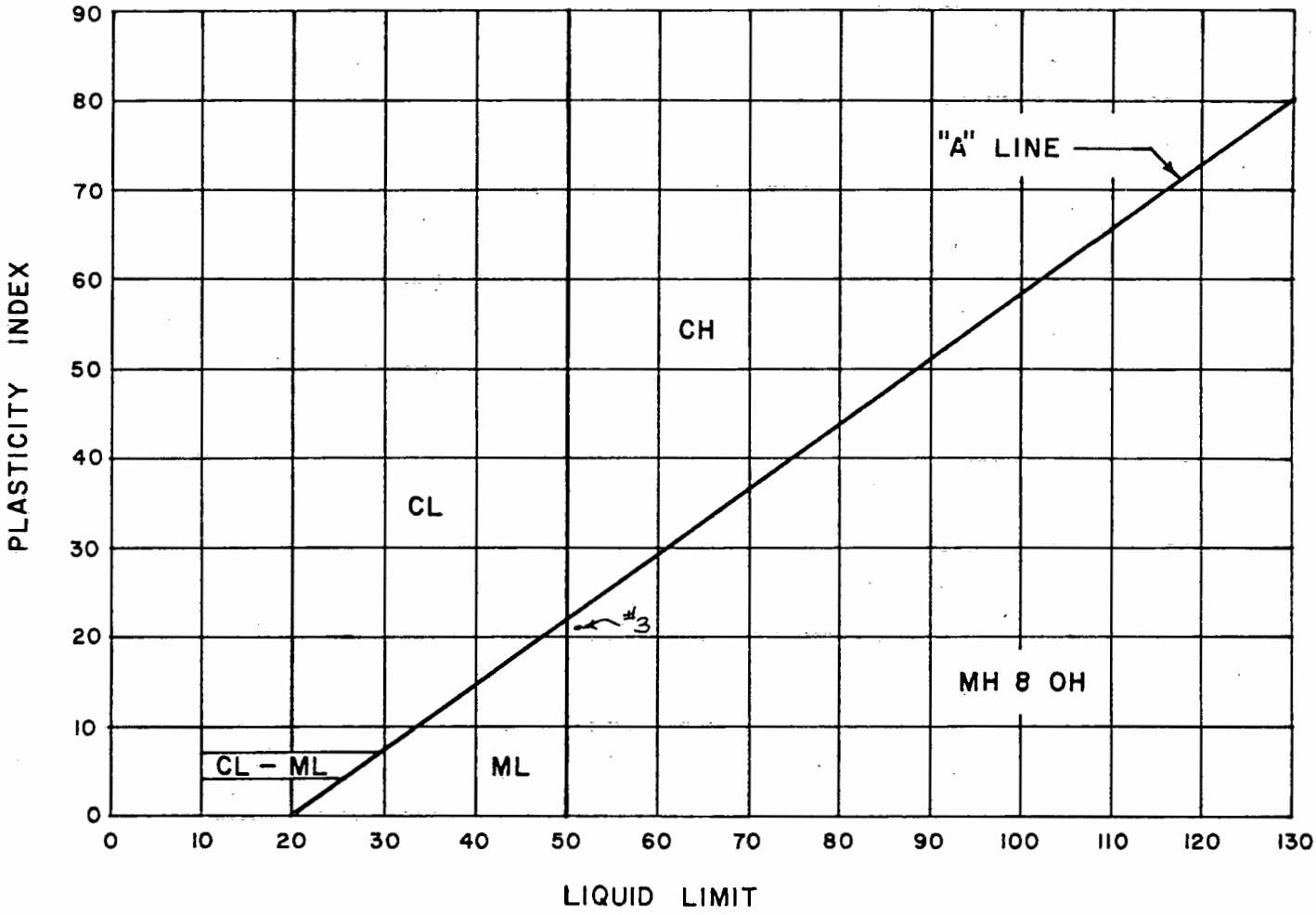
STRUCTURAL & SOIL ENGINEERS

Date 10-27-80 By R.H.

PLASTICITY CHART

PROJECT: VILLAGE PARK SUBDIVISION - PHASE 5 & 6

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 A)

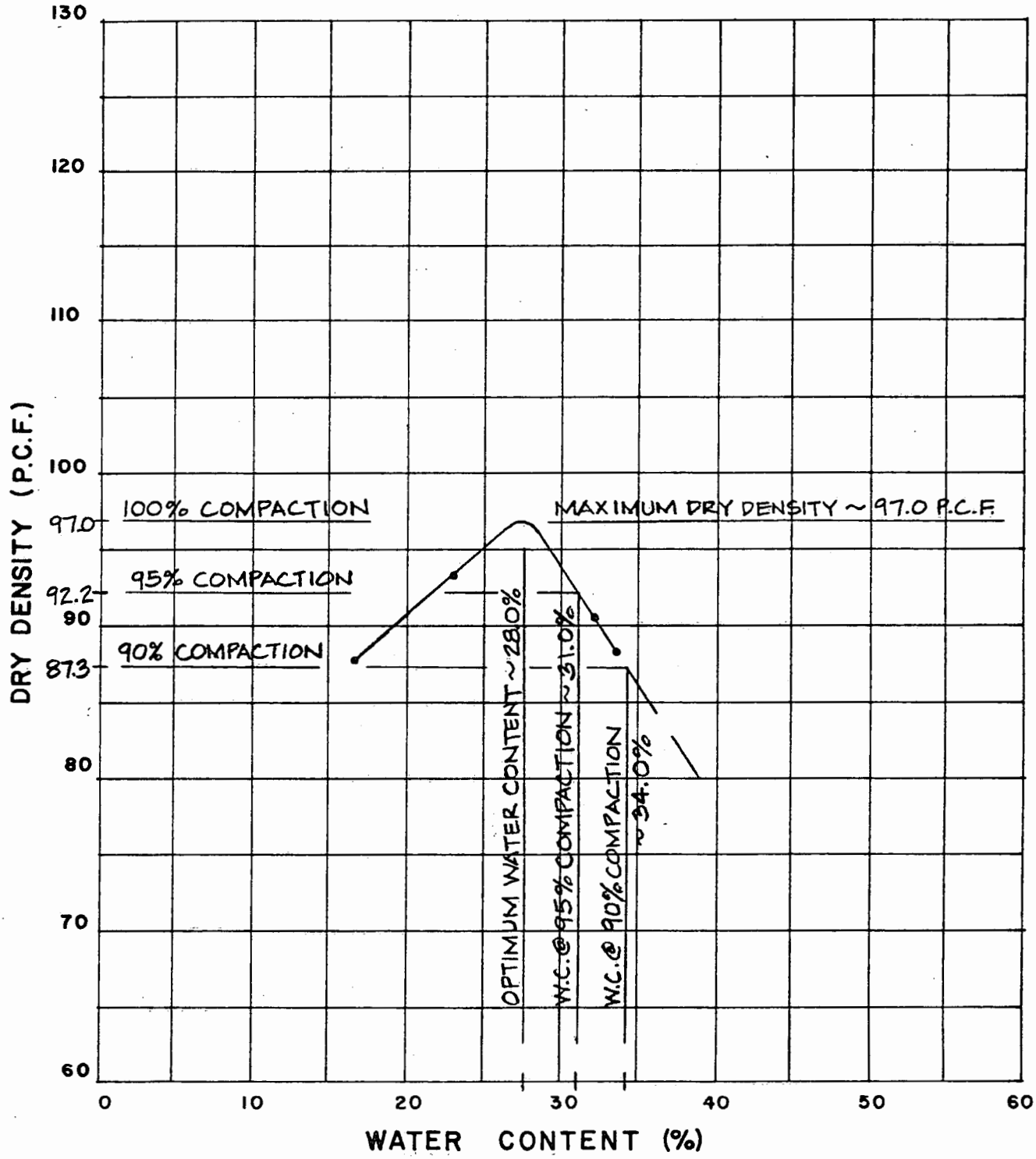
PROJECT: VILLAGE PARK SUBDIVISION - PHASE 5&6

LOCATION: HOAEAE, EWA, OAHU, HAWAII

SAMPLE NO.: #3

SAMPLE DESCRIPTION: REDDISH BROWN CLAYEY SILT

AGGREGATE: 1/4" MINUS
MOLD SIZE: 4.0"ϕ x 4.584" HT.
HAMMER: 10 LBS.
LAYERS: 5 LAYERS
BLOWS: 25/LAYER



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

DATE 10-3-80 BY GYS

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
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 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:

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. 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:lw
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)

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
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 40: 55, 56, 57, 58, 59
60, 61

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:

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. 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:lw
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)

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO
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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 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.

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:

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. 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:lw
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)

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
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 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.

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:

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. 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:lw
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)

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
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.

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:

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. 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:lw
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)

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
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 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.

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:

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. 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:lw
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)

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
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 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.

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:

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. 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:lw
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)

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

WALTER LUM
EDWARD WATANABE
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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

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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WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro
Wallace Wakahiro

WW:lw
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)

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

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

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

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro
Wallace Wakahiro

WW:lw
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)

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

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

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

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.

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WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro
Wallace Wakahiro

WW:lw
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)

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

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

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.

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:

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.

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WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro
Wallace Wakahiro

WW:lw
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)

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

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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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro
Wallace Wakahiro

WW:lw
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)

WALTER LUM ASSOCIATES, INC.
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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

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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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro
Wallace Wakahiro

WW:lw
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)

TRANSMITTAL FORM

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

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

TO: WAITEC DEVELOPMENT, INC.

c/o Herbert K. Horita Realty, Inc.

2024 North King Street, Room 204

Honolulu, Hawaii 96819

DATE: February 12, 1981

Gentlemen:

Re: VILLAGE PARK SUBDIVISION - PHASES 5 & 6

FIELD DENSITY TEST REPORT

We Are Sending You Herewith [X] Under Separate Cover [ ]

___ Prints	___ Review and comment
_X_ Location Plan	___ Approval
_X_ Field Density Test Results	___ Signature
___ Boring Logs	_X_ Your use and files
_X_ Laboratory Test Results	
___ Soil Report	

No. of Copies
Sets 1
Sheets ___

General Remarks:

For period ending February 9, 1981.

cc: Park Engineering, Inc.
Hood Corporation
Dept. of Housing & Urban Development

Yours truly,

WALTER LUM ASSOCIATES, INC.

By M. Wakahiro

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5 + 6

Field Density Test Results as follows:

Ending FEB. 9 1981 Sheet 1 of 4 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
1-28-81	156 ①	4'±	26	92	100	92
"	158 ①	10'±	25	90	"	90
"	196 ①	12'±	25	87	"	87
"	160 ①	17'±	27	90	"	90
"	164 ①	17'±	29	90	"	90
"	168 ①	17'±	21	97	"	97
"	159 ①	15'±	25	98	"	98
"	(BERM) 192 ①	+1'	26	95	"	95
"	(BERM) 187 ①	+1'	25	99	"	99
"	(BERM) 179 ①	+1'	26	96	"	96
1-29-81	161 ①	16'±	26	103	100	>100
"	165 ①	16'±	24	100	"	100
"	169 ①	16'±	25	100	"	100
"	196 ②	12'±	24	95	"	95
"	168 ②	15'±	23	96	"	96
"	165 ②	15'±	24	101	"	>100
"	162 ①	15'±	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.

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

BY W.W.

1-675

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO
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FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5+6

Field Density Test Results as follows:

Ending FEB. 9 1981 Sheet 2 of 4 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
1-29-81	(SLOPE) 179 ②	8'±	25	97	100	97	
"	(SLOPE) 180 ①	8'±	25	101	"	>100	
"	(SLOPE) 187 ②	9'±	23	93	"	93	
1-30-81	160 ②	14'±	26	99	100	99	
"	164 ②	14'±	28	97	"	97	
"	(SLOPE) 179 ③	7'±	26	96	"	96	
"	(SLOPE) 192 ②	4'±	28	94	"	94	
"	(SLOPE) 168 ③	14'±	27	97	"	97	
"	(SLOPE) 195 ①	11'±	25	93	"	93	
"	(SLOPE) 187 ③	8'±	26	96	"	96	
2-2-81	161 ②	13'±	26	93	100	93	
"	165 ③	13'±	29	94	"	94	
"	169 ②	13'±	27	96	"	96	
"	184 ①	5'±	29	87	"	87	TO BE RETESTED
"	191 ①	2'±	24	91	"	91	
"	(SLOPE) 179 ④	5'±	27	99	"	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.

(2) Indicates Test #2 taken in the Lot shown.

BY W.W.

1-675

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5+6

Field Density Test Results as follows:

Ending FEB. 9 19 81 Sheet 3 of 4 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
2-2-81	(SLOPE) 180 ②	5'±	27	95	100	95
"	(SLOPE) 188 ①	6'±	26	98	"	98
2-6-81	155 ②	2'±	26	103	100	>100
"	154 ①	0'±	23	105	"	>100
"	146 ①	0'±	24	103	"	>100
"	143 ①	0'±	25	102	"	>100
"	140 ①	0'±	24	105	"	>100
"	162 ②	12'±	28	95	"	95
"	166 ①	12'±	27	100	"	100
"	170 ①	12'±	28	91	"	91
2-9-82	192 ③	0'±	23	103	100	>100
	188 ②	4'±	25	97	"	97
	180 ③	3'±	23	101	"	101
	159 ②	11'±	25	96	"	96
	163 ①	11'±	25	93	"	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 LOT shown.

BY WW

I-675

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

WALTER LUM
EDWARD WATANABE
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FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5&6

Field Density Test Results as follows:

Ending FEB. 9 19 81 Sheet 4 of 4 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
2-9-81	167 (1)	11'±	26	92	100	92
"	131 (1)	0'±	25	101	"	101
"	134 (1)	0'±	25	99	"	99
"	137 (1)	0'±	25	99	"	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.

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

BY WW

1-875

VILLAGE PARK SUBDIVISION - PHASES 5 & 6

TABLE I A - SUMMARY OF LABORATORY TEST RESULTS

BORROW FROM PHASE 7, INCREMENT 4

BORING NO.	PIT 1 (LOT 58)	PIT 2 (LOT 163)	PIT 1 (LOT 58)	PIT 3 (LOT 171)
SAMPLE NO.	1	2	3	4
DEPTH BELOW SURFACE	4' ±	4' ±	8' ±	5' ±
DESCRIPTION	REDDISH BROWN CLAYEY SILT	REDDISH BROWN CLAYEY SILT	REDDISH BROWN CLAYEY SILT	REDDISH BROWN CLAYEY SILT
GRAIN-SIZE ANALYSIS (% Passing) Sieve				
1-1/2"				
1"				
1/2"				
#4				
#10				
#20				
#40				
#100				
#200				
ATTERBERG LIMITS				
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	ML	MH	MH
APPARENT SPECIFIC GRAVITY				
CBR TEST (Surcharge - 51 P.S.F.)				
Molding Moisture, %	27	27	29	27
Molding Dry Density, P.C.F.	99	98	96	98
Swell upon saturation, %	NIL	NIL	0.1	0.2
CBR at 0.1" Penetration	15.3	23.3	13.3	25.7
MOISTURE-DENSITY RELATIONS OF SOILS (ASTM D-1557-70, Method)	A*		A*	
Dry to Wet or Wet to Dry	—		—	
Max. Dry Density (P.C.F.)	99.5		97	
Optimum Moisture (%)	26.5		27	

REMARKS:
PITS WERE EXCAVATED DOWN TO ABOUT 5' SLIGHTLY ABOVE THE FINISH LOT GRADE.

WALTER LUM ASSOCIATES, INC.
STRUCTURAL & SOIL ENGINEERS

Date 12-15-80 By W.W.

VILLAGE PARK SUBDIVISION - PHASES 5 & 6

TABLE I B - SUMMARY OF LABORATORY TEST RESULTS

BORROW FROM PHASE 7, INCREMENT 3

BORING NO.	Pit 4			
SAMPLE NO.	1			
DEPTH BELOW SURFACE	8' ±			
DESCRIPTION	REDDISH BROWN CLAYEY SILT			
GRAIN-SIZE ANALYSIS				
(% Passing)				
Sieve				
1-1/2"				
1"				
1/2"				
#4				
#10				
#20				
#40				
#100				
#200				
ATTERBERG LIMITS				
Air Dried or Natural				
Liquid Limit				
Plastic Limit				
Plasticity Index				
Natural Water Content, %				
Dilatancy				
Toughness				
Dry Strength				
UNIFIED SOIL CLASSIFICATION	(ML)			
APPARENT SPECIFIC GRAVITY				
CBR TEST				
(Surcharge - 51 P.S.F.)				
Molding Moisture, %	25			
Molding Dry Density, P.C.F.	101			
Swell upon saturation, %	0.1			
CBR at 0.1" Penetration	14.4			
MOISTURE-DENSITY RELATIONS OF SOILS				
(ASTM D-1557-70, Method)	A			
Dry to Wet or Wet to Dry	—			
Max. Dry Density (P.C.F.)	101			
Optimum Moisture (%)	25.5			

REMARKS:

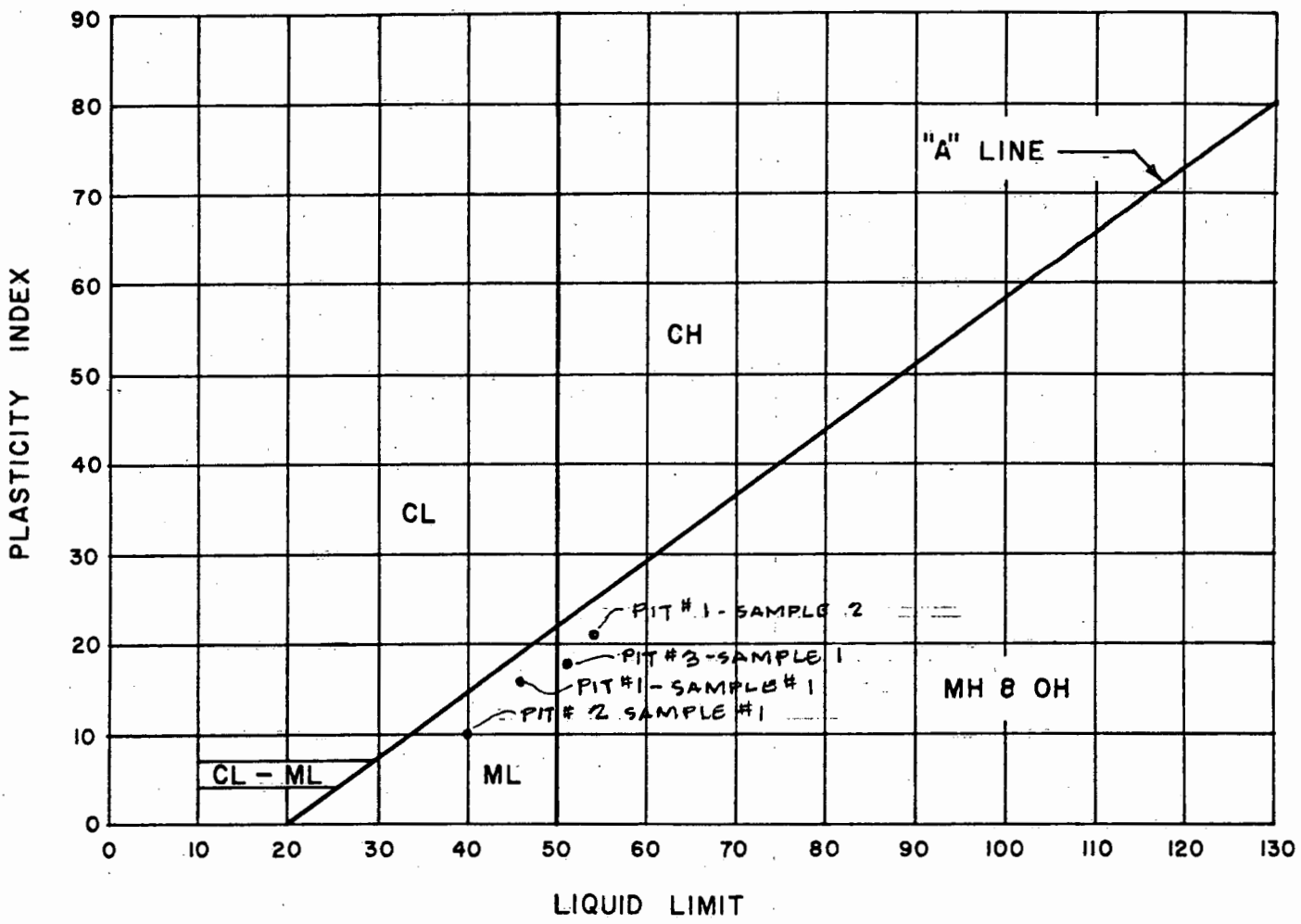
WALTER LUM ASSOCIATES, INC.
STRUCTURAL & SOIL ENGINEERS

Date 1-11-81 By WW

PLASTICITY CHART

PROJECT: VILLAGE PARK - PHASES 5 & 6

LOCATION: KUNIA, OAHU, HAWAII



DATE 12-15-80 BY W.W.

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

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

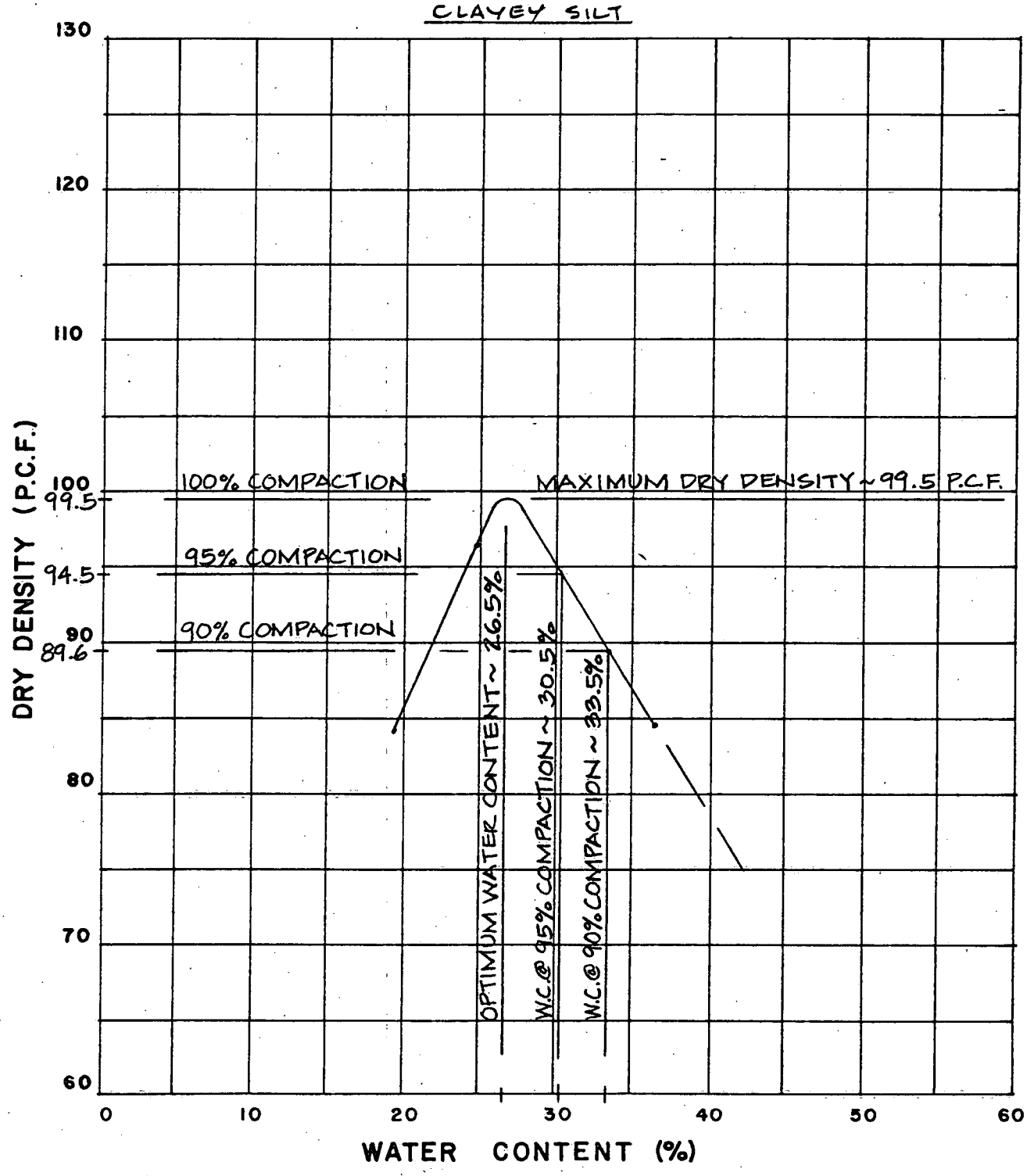
PROJECT: VILLAGE PARK - PHASES 5 & 6

LOCATION: EWA, OAHU, HAWAII

SAMPLE NO.: MIXTURE OF SAMPLES 1 & 2

SAMPLE DESCRIPTION: REDDISH BROWN CLAYEY SILT

AGGREGATE: 1/4" MINUS
MOLD SIZE: 4.0"ϕ x 4.584" HT.
HAMMER: 10 LBS.
LAYERS: 5 LAYERS
BLOWS: 25/LAYER



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

DATE 12-17-80 BY GYS

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

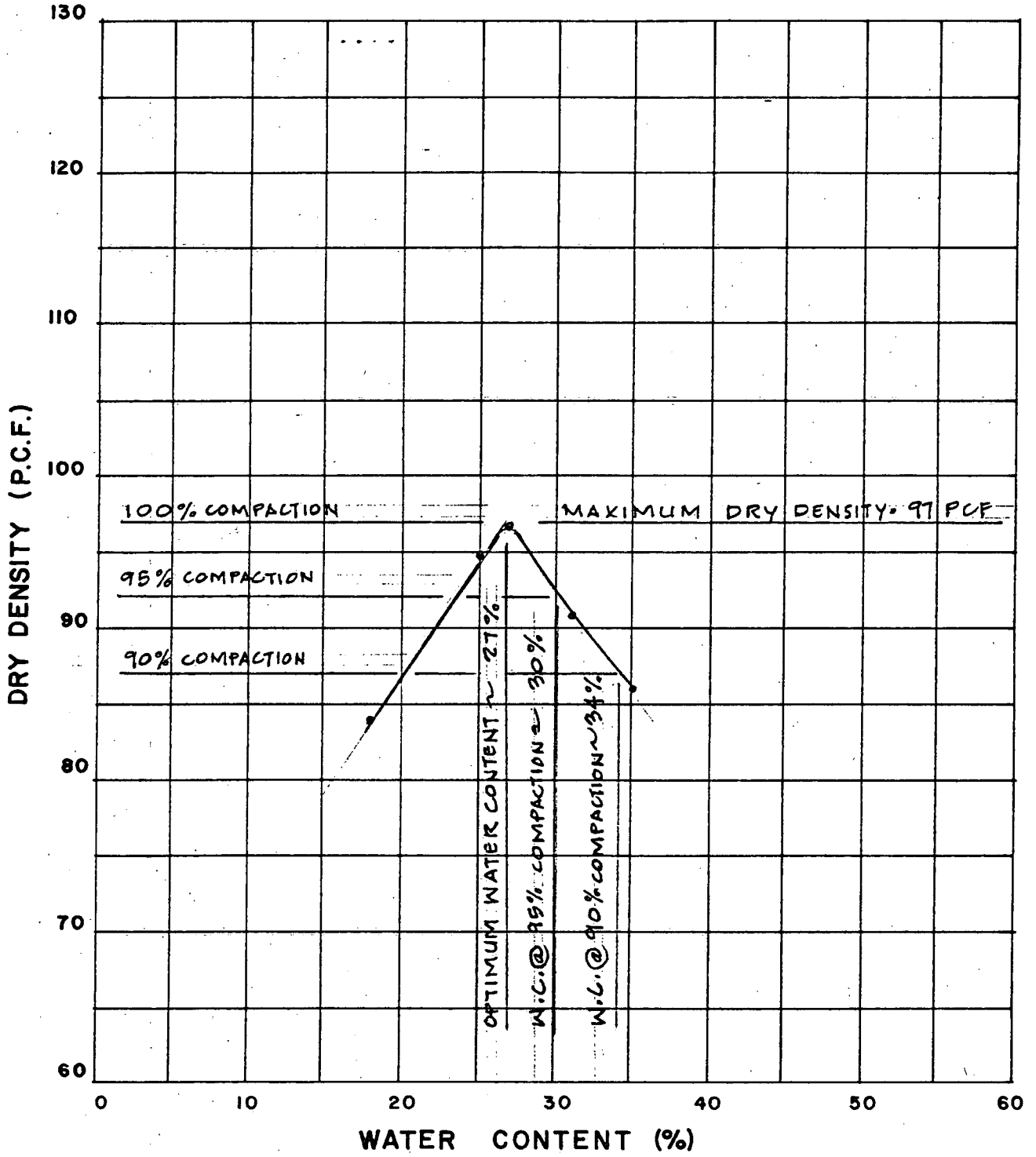
PROJECT: VILLAGE PARK SUBDIVISION-5&6

LOCATION: EWA, OAHU, HAWAII

SAMPLE NO.: MIXTURE OF SAMPLES 3 & 4

SAMPLE DESCRIPTION: REDDISH BROWN CLAYEY SILT

AGGREGATE: 1/4" MINUS
MOLD SIZE: 4"Ø x 4.58" HT.
HAMMER: 10 lbs.
LAYERS: 5 LAYERS
BLOWS: 25/LAYER



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

DATE 12-18-80 BY W.W.

3-775

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

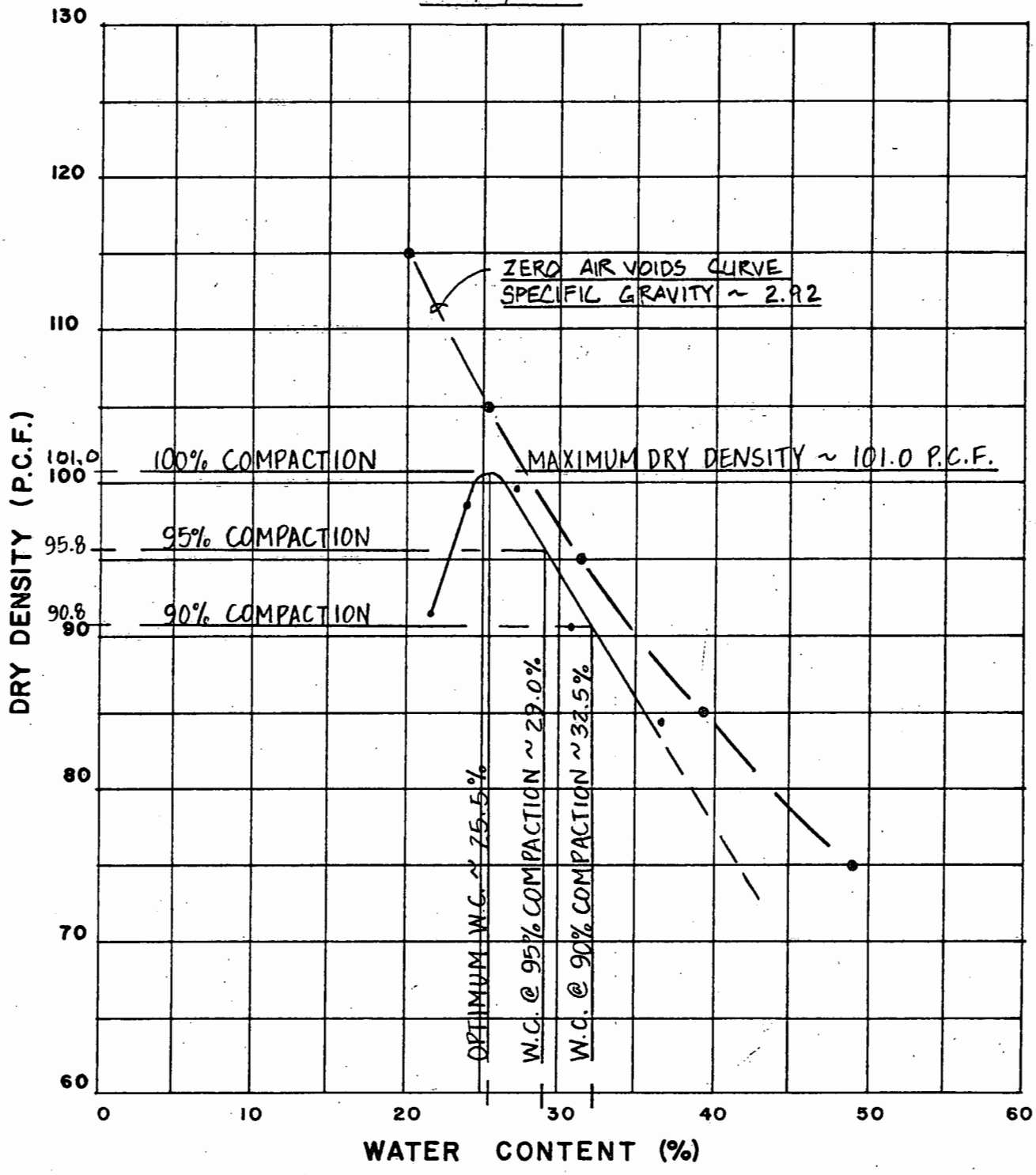
PROJECT: VILLAGE PARK - PHASES 5 & 6

LOCATION: KUNIA, OAHU, HAWAII

SAMPLE NO.: PIT #4 - SAMPLE #1 @ 8'±

SAMPLE DESCRIPTION: REDDISH BROWN CLAYEY SILT

AGGREGATE: 1/4" MINUS
MOLD SIZE: 4.0" ϕ 4.584" HT.
HAMMER: 10 LBS
LAYERS: 5 LAYERS
BLOWS: 25/LAYER



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

DATE 1-26-81 BY LL

TRANSMITTAL FORM

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

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

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 - PHASES 5 & 6

FIELD DENSITY TEST REPORT

We Are Sending You Herewith [X] Under Separate Cover [ ]

____ Prints	____ Review and comment
_X_ Location Plan	____ Approval
_X_ Field Density Test Results	____ Signature
____ Boring Logs	_X_ Your use and files
____ Laboratory Test Results	
____ Soil Report	

No. of Copies
Sets 1
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.

By W. Wakahiro

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5&6

Field Density Test Results as follows:

Ending MARCH 12, 1981 Sheet 1 of 6 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
2-10-81	REAR SLOPE 179 (1)	2'±	24	101	100	101
"	REAR SLOPE 187 (1)	3'±	25	101	"	101
"	REAR SLOPE 192 (1)	2'±	25	101	"	101
"	171 (1)	11'±	25	93	"	93
"	172 (1)	8'±	28	91	"	91
2-12-81	184 (1)	5'±	23	95	100	95
"	REAR SLOPE 192 (2)	0'±	24	98	"	98
"	REAR SLOPE 187 (2)	2'±	24	96	"	96
"	REAR SLOPE 179 (2)	1'±	25	96	"	96
"	170 (1)	10'±	25	94	"	94
"	194 (1)	9'±	26	99	"	99
"	185 (1)	3'±	24	96	"	96
"	183 (1)	4'±	23	98	"	98
"	193 (1)	10'±	24	96	"	96
"	166 (1)	10'±	24	103	"	103
"	162 (1)	10'±	24	100	"	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 #1 .. taken in the LOT . shown.

BY W.W.

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5 & 6

Field Density Test Results as follows:

Ending MARCH 12, 1981. Sheet 2 of 6 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
1-12-81	159 (1)	9'±	26	94	100	94
"	163 (1)	9'±	26	94	"	94
"	167 (1)	9'±	26	94	"	94
2-13-81	171 (2)	6'±	26	99	100	99
"	169 (1)	7'±	28	98	"	98
"	165 (1)	7'±	26	96	"	96
"	161 (1)	7'±	26	99	"	99
"	REAR SLOPE 180 (1)	1'±	26	102	"	102
"	REAR SLOPE 187 (3)	1'±	23	98	"	98
"	REAR SLOPE 188 (1)	1'±	26	96	"	96
"	REAR SLOPE 188 (2)	0'±	26	96	"	96
2-13-81	168 (1)	8'±	24	101	100	101
"	164 (1)	8'±	26	94	"	94
"	160 (1)	8'±	27	93	"	93
"	157 (1)	7'±	25	95	"	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.

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

BY W.W.

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION-PHASES 5&6

Field Density Test Results as follows:

Ending MARCH 12, 1981 Sheet 3 of 6 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
2-17-81	158 ①	6'±	22	102	100	102	
"	162 ②	6'±	23	101	"	101	
"	166 ②	6'±	25	97	"	97	
"	170 ②	6'±	24	98	"	98	
"	159 ②	5'±	22	96	"	96	
"	163 ②	5'±	25	99	"	99	
"	167 ②	5'±	27	96	"	96	
"	172 ②	5'±	26	92	"	92	
"	184 ②	2'±	26	92	"	92	
2-20-81	168 ②	4'±	24	85	100	85	REROLLED & RETESTED
"	164 ②	4'±	25	95	"	95	
"	160 ②	4'±	28	86	"	86	REROLLED & RETESTED
"	RETEST 168 ③	4'±	23	92	"	92	
"	RETEST 160 ③	4'±	23	96	"	96	
"	173 ①	4'±	26	92	"	92	
"	195 ①	8'±	23	95	"	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.

(1) Indicates Test #1.. taken in the Lot.. shown.

BY WW

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5 & 6

Field Density Test Results as follows:

Ending MARCH 12, 1981 Sheet 4 of 6 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
2-23-81	157 (2)	3'±	27	93	100	93	
	161 (2)	3'±	25	96	"	96	
	183 (2)	1'±	26	91	"	91	
	186 (1)	1'±	28	95	"	95	
2-24-81	193 (2)	6'±	24	96	100	96	
"	REAR SLOPE 192 (3)	0'±	22	101	"	101	
"	169 (2)	3'±	23	87	"	87	REROLLED & RETESTED
"	165 (2)	3'±	24	97	"	97	
"	162 (3)	2'±	24	102	"	102	
"	158 (2)	2'±	27	90	"	90	
"	RETEST 169 (3)	3'±	24	93	"	93	
2-25-81	196 (1)	7'±	22	96	100	96	
"	197 (1)	6'±	20	93	"	93	
"	166 (3)	2'±	28	94	"	94	
"	162 (4)	1'±	30	95	"	95	
"	159 (3)	1'±	24	102	"	102	

* 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 Lot shown.

BY Ronald S Ahuna

I-675

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5 & 6

Field Density Test Results as follows:

Ending MARCH 12, 19 81 Sheet 5 of 6 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
2-25-81	156 (1)	1'±	24	95	100	95	
"	194 (2)	5'±	24	94	"	94	
2-26-81	171 (3)	3'±	26	96	100	96	
"	157 (3)	0'±	22	96	"	96	
"	160 (4)	0'±	21	88	"	88	TO BE REROLLED
"	163 (3)	0'±	26	92	"	92	
"	165 (3)	1'±	24	102	"	102	
2-27-81	166 (4)	0'±	23	92	100	92	
"	168 (4)	1'±	23	103	"	>100	
"	170 (3)	2'±	28	94	"	94	
"	173 (2)	2'±	27	95	"	95	
"	182 (1)	0'±	25	92	"	92	
"	185 (2)	0'±	20	83	"	83	
"	190 (1)	0'±	24	91	"	91	
3-2-81	169 (4)	0'±	25	93	100	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.

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

BY Ronald S Lum

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION - PHASES 5 & 6

Field Density Test Results as follows:

Ending MARCH 12, 1981 Sheet 6 of 6 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
3-2-81	172 (3)	0'±	28	93	100	93
"	173 (3)	1'±	24	99	"	99
"	195 (2)	4'±	28	95	"	95
3-6-81	RETEST 160 (5)	0'±	20	96	100	96
3-12-81	175 (1)	0'±	25	99	100	99
"	196 (2)	3'±	22	106	"	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.

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

BY Ronald S Mamiya

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK SUBDIVISION PHASES 5&6

Field Density Test Results as follows:

Ending APRIL 7 19 81 Sheet 1 of 2 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
3-16-81	194 (1)	2'±	23	101	100	101	
"	197 (1)	2'±	27	89	"	89	RE ROLLED & RETESTED
"	192 (1)	1'±	26	96	"	96	
"	195 (1)	1'±	23	93	"	93	
3-17-81	RETEST 197 (2)	2'±	27	94	100	94	
"	193 (1)	0'±	25	94	"	94	
3-18-81	196 (1)	0'±	25	96	100	96	
"	V (1)	6'±	27	93	"	93	
"	T (1)	3'±	26	93	"	93	
"	V (2)	2'±	27	99	"	99	
3-31-81	REAR BERM 195 (1)	8'±	25	100	100	100	
"	REAR BERM 198 (1)	2'±	24	98	"	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.

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

BY W.W.

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

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

FIELD DENSITY TEST REPORT

VILLAGE PARK - PHASES 5&6

Field Density Test Results as follows:

Ending APRIL 7 19 81 Sheet 2 of 2 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
4-2-81	"U" (1)	0'±	22	96	100	96
"	REAR BERM 196 (1)	7'±	27	92	"	92
"	REAR BERM 198 (2)	0'±	25	95	"	95
"	REAR BERM 197 (1)	6'±	23	95	"	94
4-6-81	REAR BERM 195 (2)	4'±	18	98	100	98
	REAR BERM 197 (2)	2'±	20	99	"	99
	185 (1)	0'±	26	93	"	93
4-7-81	REAR BERM 195 (3)	0'±	21	102	100	>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 #1 taken in the LOT shown.

BY W.W.

1-675

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:vl
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)

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

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

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:

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. 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:vl
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)

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

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

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.

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:

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. 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:vl
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)

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

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

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 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.

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:

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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:vl
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)

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

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

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

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

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

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 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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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

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

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

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

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 50: 147, 148, 149
150, 151

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.

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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

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

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

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

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 Fill (F.H.A.: G-3)
Grading Plan 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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WALTER LUM ASSOCIATES, INC.

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

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

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

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 Fill (F.H.A.: G-3)
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
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.
S. Horita Contracting & Building Supplies, Ltd. (Field Foreman)

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

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

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 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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Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

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

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

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

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 54: 187, 188, 189

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.

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WALTER LUM ASSOCIATES, INC.

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

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

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

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

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EDWARD WATANABE
EZRA KOIKE
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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 Fill (F.H.A.: G-3)
Grading Plan Numbers

Group 56: 168, 169
170, 171, 172, 173, 174, 175

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:vl
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)

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

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EDWARD WATANABE
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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 Fill (F.H.A.: G-3)
Grading Plan Numbers

Group 57: 176
181, 182, 183

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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WW:vl
cc: Park Engineering, Inc.
Department of Housing & Urban Development
Hood Corporation
Hood Corporation (Field Foreman)
S. Horita Contracting & Building Supplies, Ltd.
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May 7, 1981

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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

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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:

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. 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:vl
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)

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

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

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 11, 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:

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.

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
Wallace Wakahiro

WW:vl
cc: Park Engineering, Inc. (2)

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

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

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:

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. 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:vl
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)

TRANSMITTAL FORM

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

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

TO: WAITEC DEVELOPMENT, INC.

DATE: September 6, 1979

c/o Herbert K. Horita Realty, Inc.

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 Are Sending You Herewith [X] Under Separate Cover [ ]

____ Prints	____ Review and comment
_X_ Location Plan	____ Approval
_X_ Field Density Test Results	____ Signature
____ Boring Logs	_X_ Your use and files
____ Laboratory Test Results	
____ Soil Report	

No. of Copies
Sets 1
Sheets ____

General Remarks:

For period ending August 15, 1979.

cc: Park Engineering, Inc.
Hood Corporation

Yours truly,

WALTER LUM ASSOCIATES, INC.

By W. Wakahiro

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

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

FIELD DENSITY TEST REPORT

FILL AREA FROM VILLAGE PARK PHASE 5
EXCESS FROM PHASES 2 & 4

Field Density Test Results as follows:

Ending AUGUST 15 1979 Sheet 1 of 3 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
8-1-79	① ☐	31'±	28.2	96.8	100.5	96	
"	② ☐	30'±	29.1	95.3	"	95	
"	③ ☐	29'±	28.5	99.3	"	99	
"	④ ☐	28'±	31.1	91.5	"	91	
"	⑤ ☐	27'±	23.1	94.3	"	94	
"	⑥ ☐	26'±	26.2	90.7	"	90	
"	⑦ ☐	25'±	24.3	93.7	"	93	
"	⑧ ☐	25'±	28.5	96.5	"	96	
8-2-79	⑨ ☐	28'±	32.2	90.7	100.5	90	
"	⑩ ☐	27'±	31.2	91.5	"	91	
"	⑪ ☐	26'±	33.9	89.3	"	89	HARD
"	⑫ ☐	26'±	24.5	94.8	"	94	
8-3-79	⑬ ☐	25'±	23.9	94.0	100.5	94	
"	⑭ ☐	23'±	30.1	93.0	"	93	
"	⑮ ☐	22'±	29.2	92.5	"	92	
"	⑯ ☐	20'±	30.1	93.8	"	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.

(1) Indicates Test #1.. taken in the AREA shown ON TEST LOCATION SKETCH
☐ TEST DATA FROM TROXLER NUCLEAR GAUGE

BY M. Kikuchi

I-675

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

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

FIELD DENSITY TEST REPORT

FILL AREA FROM VILLAGE PARK PHASE 5
EXCESS FROM PHASES 2 & 4

Field Density Test Results as follows:

Ending AUGUST 15 1979 Sheet 2 of 3 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
8-4-79	(17) ☐	18'±	26.0	97.3	100.5	97
8-6-79	(18) ☐	16'±	25.5	99.0	100.5	99
"	(19) ☐	14'±	25.7	91.5	"	91
"	(20) ☐	12'±	29.7	95.3	"	95
"	(21) ☐	10'±	27.4	93.0	"	93
8-7-79	(22) ☐	8'±	30.5	93.5	100.5	93
"	(23) ☐	7'±	26.5	94.5	"	94
"	(24) ☐	6'±	24.7	97.0	"	97
"	(25) ☐	6'±	24.0	100.0	"	100
8-8-79	(26) ☐	5'±	30.9	94.0	100.5	94
"	(27) ☐	4'±	27.5	90.7	"	90
"	(28) ☐	4'±	29.3	92.0	"	92
"	(29) ☐	4'±	25.2	98.3	"	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.

(17) Indicates Test #17. taken in the AREA shown ON TEST LOCATION SKETCH

☐ TEST DATA FROM TROXLER NUCLEAR GAUGE

BY M. Kikuchi

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

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

FIELD DENSITY TEST REPORT

FILL AREA FROM VILLAGE PARK PHASE 5
EXCESS FROM PHASES 2 & 4.

Field Density Test Results as follows:

Ending AUGUST 15 1979 Sheet 3 of 3 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
8-13-79	(30)	30'±	22.6	97.3	100.5	97
"	(31)	28'±	26.8	95.6	"	95
"	(32)	27½±	24.6	95.3	"	95
"	(33)	27'±	23.1	96.1	"	96
"	(34)	26'±	29.3	90.2	"	90
"	(35)	26'±	28.6	93.3	"	93
8-14-79	(36)	23'±	25.7	95.0	100.5	95
"	(37)	22'±	27.4	93.7	"	93
"	(38)	21'±	26.1	97.0	"	97
"	(39)	20'±	26.5	93.7	"	93
"	(40)	20'±	27.2	92.9	"	92
8-15-79	(41)	20'±	24.9	94.9	100.5	94
"	(42)	20'±	23.3	95.2	"	95
"	(43)	19'±	26.3	94.0	"	94
"	(44)	18'±	21.5	98.8	"	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

BY M. Kikuchi

TRANSMITTAL FORM

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

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

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

DATE: September 28, 1979

Gentlemen:

Re: FILL AREA FOR VILLAGE PARK - PHASE 5
(EXCESS FROM PHASES 2 & 4)
FIELD DENSITY TEST REPORT

We Are Sending You Herewith [X] Under Separate Cover [ ]

____ Prints	____ Review and comment
_X_ Location Plan	____ Approval
_X_ Field Density Test Results	____ Signature
____ Boring Logs	_X_ Your use and files
____ Laboratory Test Results	
____ Soil Report	

No. of Copies
Sets 1
Sheets ____

General Remarks:

For period ending September 20, 1979.

cc: Park Engineering, Inc.
Hood Corporation

Yours truly,

WALTER LUM ASSOCIATES, INC.

By W. A. Wakahiro

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

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

FIELD DENSITY TEST REPORT

FILL AREA FOR VILLAGE PARK - PHASE 5

Field Density Test Results as follows:

Ending SEPTEMBER 20 19 79 Sheet 1 of 6 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	
"	(2)	16'±	27.0	93.9	"	93	
"	(3)	19'±	29.5	91.2	"	91	
"	(4)	18'±	27.8	89.0	"	89	HARD
"	(5)	18'±	27.8	93.4	"	93	
"	(6)	17'±	29.6	92.6	"	92	
8-17-79	(7)	16'±	25.4	93.5	100.5	93	
"	(8)	15'±	30.1	93.5	"	93	
"	(9)	15'±	24.0	95.8	"	95	
"	(10)	14'±	18.5	98.5	"	98	W.C. LOW TO BE RETESTED
"	(11)	14'±	24.6	95.2	"	95	RETEST
8-20-79	(12)	14'±	29.5	92.7	100.5	92	
"	(13)	14'±	29.5	90.5	"	90	
"	(14)	13'±	29.8	90.8	"	90	
"	(15)	13'±	29.6	91.6	"	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.

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

BY M. Kikuchi

1-675

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO

3030 WAIALAE AVE., HONOLULU, HAWAII 96816 • 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:

Ending SEPTEMBER 20 19 79 Sheet 2 of 6 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
8-21-79	(16)	14'±	30.9	89.2	100.5	89	HARD O.K.
"	(17)	14'±	29.3	92.3	"	92	
"	(18)	13'±	28.7	90.5	"	90	
"	(19)	13'±	29.9	93.3	"	93	
8-22-79	(20)	13'±	29.6	85.4	100.5	85	TO BE REROLLED & RETESTED
"	(21) RETEST	13'±	26.0	93.8	"	93	
"	(22)	12'±	27.8	91.7	"	91	
"	(23)	12'±	26.3	94.5	"	94	
"	(24)	12'±	25.9	94.3	"	94	
8-24-79	(25)	12'±	31.3	89.8	100.5	89	HARD O.K.
"	(26)	11'±	31.4	89.1	"	89	HARD O.K.
"	(27)	11'±	32.6	89.5	"	89	HARD O.K.
"	(28)	11'±	33.2	88.5	"	88	TO BE REROLLED & RETESTED
8-25-79	(29)	10'±	26.5	85.3	100.5	85	TO BE REROLLED & RETESTED

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

BY R. T. Russell

1-675

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

WALTER LJM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO

3030 WAIALAE AVE., HONOLULU, HAWAII 96816 • 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:

Ending SEPTEMBER 20 19 79 Sheet 3 of 6 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
8-27-79	(30) RETEST	11'±	29.9	91.7	100.5	91	
"	(31) RETEST	10'±	25.5	96.7	"	96	
"	(32)	10'±	30.9	90.0	"	90	
"	(33)	10'±	29.2	90.9	"	90	
8-28-79	(34)	10'±	27.6	93.5	100.5	93	
"	(35)	9'±	23.3	96.1	"	96	
"	(36)	9'±	26.8	98.5	"	98	
"	(37)	9'±	25.1	95.4	"	95	
"	(38)	8'±	25.3	96.3	"	96	
8-29-79	(39)	9'±	26.8	94.1	100.5	94	
"	(40)	8'±	27.1	92.6	"	92	
"	(41)	8'±	21.2	100.6	"	100	TO BE RETESTED
"	(42) RETEST	8'±	25.2	95.3	"	95	
8-30-79	(43)	8'±	27.7	94.5	100.5	94	
"	(44)	8'±	27.8	93.4	"	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.

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

BY _____

1-675

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO

3030 WAIALAE AVE., HONOLULU, HAWAII 96816 • 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:

Ending SEPTEMBER 20 1979 Sheet 4 of 6 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
8-30-79	(45)	7'±	28.3	91.4	100.5	91
"	(46)	7'±	28.8	92.7	"	92
"	(47)	7'±	28.7	92.7	"	92
8-31-79	(48)	6'±	26.8	93.5	100.5	93
"	(49)	6'±	27.2	93.2	"	93
"	(50)	6'±	24.5	94.9	"	94
"	(51)	5'±	25.4	98.2	"	98
"	(52)	5'±	22.5	98.0	"	98
9-4-79	(53)	5'±	25.9	93.4	100.5	93
"	(54)	5'±	24.5	93.7	"	93
"	(55)	5'±	25.7	96.1	"	96
9-5-79	(56)	5'±	33.3	90.0	100.5	90
"	(57)	5'±	25.8	92.1	"	92
"	(58)	5'±	28.1	92.7	"	92

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

BY P. J. Ricard

I-675

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO

3030 WAIALAE AVE., HONOLULU, HAWAII 96816 • 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:

Ending SEPTEMBER 20 19 79 Sheet 5 of 6 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***	
9-6-79	(59)	5'±	28.2	94.5	100.5	94	
"	(60)	5'±	23.3	94.4	"	94	
"	(61)	4'±	31.7	89.9	"	89	HARD O.K.
9-7-79	(62)	4'±	24.3	88.6	100.5	88	TO BE REROLLED & RETESTED
"	(63) RETEST	4'±	27.0	97.9	"	97	
"	(64)	4'±	27.6	92.7	"	92	
9-10-79	(65)	4'±	24.6	95.6	100.5	95	
"	(66)	4'±	25.6	95.0	"	94	
9-12-79	(67)	6'±	27.9	91.0	100.5	91	
"	(68)	5'±	29.7	95.8	"	95	
"	(69)	4'±	28.8	92.5	"	92	
9-16-79	(70)	4'±	29.8	91.9	100.5	91	
"	(71)	4'±	27.2	95.3	"	95	
"	(72)	4'±	27.0	91.7	"	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.

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

BY P. Lum

1-675

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO

3030 WAIALAE AVE., HONOLULU, HAWAII 96816 • 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:

Ending SEPTEMBER 20 19 79 Sheet 6 of 6 Sheets

Date	Lot No.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
9-20-79	(73)	4'±	28.6	96.3	100.5	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.

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

BY P. Lum

1-675

TRANSMITTAL FORM

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

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

TO: WAITEC DEVELOPMENT, INC.

c/o Herbert K. Horita Realty, Inc.

2024 North King Street

Honolulu, Hawaii 96819

DATE: November 28, 1979

Gentlemen:

Re: FILL AREA FOR VILLAGE PARK - Phase 5

(EXCESS FROM PHASES 2 & 4)

FIELD DENSITY TEST REPORT

We Are Sending You Herewith [X] Under Separate Cover [ ]

____ Prints	____ Review and comment
_X_ Location Plan	____ Approval
_X_ Field Density Test Results	____ Signature
____ Boring Logs	_X_ Your use and files
____ Laboratory Test Results	
____ Soil Report	

No. of Copies
Sets 1
Sheets ____

General Remarks:

For October 9, 1979.

cc: Park Engineering, Inc.
Hood Corporation

Yours truly,

WALTER LUM ASSOCIATES, INC.

By W. Wakahiro

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO
3030 WAIALAE AVE., HONOLULU, HAWAII 96816 • 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 1 of 1 Sheets

Date	TEST NO.	Fill Layer*	Moisture Content	Dry Density**	Standard Density**	Relative Compaction***
10-9-79	(1)	2'±	22.2	97.6	100.5	97
"	(2)	0'±	23.0	95.1	"	95
"	(3)	2'±	23.0	94.9	"	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.

(1) Indicates Test #1 taken in the ~~AREA~~ shown ON LOCATION SKETCH

BY M. Kikuchi

TRANSMITTAL FORM

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

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

TO: WAITEC DEVELOPMENT, INC. **DATE:** December 26, 1979

c/o Herbert K. Horita Realty, Inc.

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 Are Sending You Herewith [X] **Under Separate Cover** [ ]

____ Prints	____ Review and comment
_X_ Location Plan	____ Approval
_X_ Field Density Test Results	____ Signature
____ Boring Logs	_X_ Your use and files
____ Laboratory Test Results	
____ Soil Report	

No. of Copies
Sets 1
Sheets ____

General Remarks:

For period ending December 13, 1979.

cc: Park Engineering, Inc.
Hood Corporation

Yours truly,

WALTER LUM ASSOCIATES, INC.

By W. Watanabe

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

WALTER LUM
EDWARD WATANABE
EZRA KOIKE
WALLACE WAKAHIRO
3030 WAIALAE AVE., HONOLULU, HAWAII 96816 • 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 DECEMBER 13 1979 Sheet 1 of 1 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	
"	(2)	3'±	28.7	96.7	"	96	
"	(3)	2'±	22.2	86.7	"	86	TO BE REROLLED & RETESTED
12-7-79	(4)	2'±	28.0	94.4	100.5	94	RETEST
12-11-79	(5)	2'±	26.1	94.1	100.5	94	
"	(6)	2'±	23.4	94.9	"	95	
12-12-79	(7)	1'±	28.8	90.4	100.5	90	
"	(8)	1'±	30.7	91.8	"	91	
"	(9)	1'±	30.3	88.5	"	88	TO BE REROLLED & RETESTED
12-13-79	(10)	1'±	34.0	90.1	100.5	90	RETEST

* 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 #1 taken in the AREA shown. ON THE LOCATION SKETCH

BY M Ishiuchi

8104241

park engineering, inc.
Suite 2085, Pacific Trade Center ☐ 190 S. King Street, Honolulu, Hawaii 96813 ☐ Telephone (808) 531-1676

RECEIVED
DEPT. OF PUBLIC WORKS
JUN 12 2 06 PM '81

Engrg

TO _____

GP9839

June 9, 1981

RECEIVED
DIV. OF ENGINEERING
JUN 12 3 51 PM '81

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.

ROBERT S. TORIGOE
REGISTERED
LAND
SURVEYOR
No. 1361
HAWAII, U. S. A.

Robert S. Torigoe
Registered Professional Surveyor
Certificate No. 1361-S

ma

cc: Waitec Development, Inc.
Hood Corporation

park engineering, inc.

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

GP9839

October 7, 1981

SR-61

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,

Park Engineering, Inc.

Edwin Maruyama
Associate

EM:ao

Encl.