



F.G.E., LTD.

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FOR REFERENCE

not to be taken from this room

File 265-67
January 26, 1984

Gentry-Waipio, Ltd.
94-539 Puahi Street
Waipahu, Hawaii 96797

Attention: Mr. Randolph K. Ouye

Subject: **Final Grading Report**
Oli Loop Extension (Sta. 19+65 to Ukee Street)
Ukee Street Extension (Sta. 23+15 to 24+15)
Gentry-Waipio Development
Waipio, Oahu, Hawaii

Gentlemen:

At your request, we have provided testing and observation services for the Oli Loop and Ukee Street Extensions of the Gentry-Waipio Development. This letter summarizes our observations and test results.

The project site grading essentially consisted of shallow cut and fills along the Oli Loop Extension from Sta. 19+65 to Ukee Street. The grading of the Ukee Street Extension from Sta. 23+15 to 24+15 was completed in 1981. The present construction was limited to the construction of the street improvements along this section.

Work started with the general clearing and stripping of the route to be graded. Soft spots and buried irrigation ditches were cleaned out and compacted prior to the placement of engineered fill.

The grading operations then commenced using Caterpillar 631 scrapers and a D-9 dozer to cut, haul and spread the fill. Compaction was accomplished using a Hyster sheepsfoot compactor and loaded 631 scrapers.

The fill consisted of low plasticity clayey silts classified by ML by the Unified Soil Classification System. The material was generated from the on-site excavations and compacted in uniform lifts of approximately 8 inches in thickness, generally within 3 percent of the optimum moisture content.

Field density tests performed by our firm indicates that adequate compaction was being obtained. These tests, upon which acceptance is based, showed values in excess of 90 percent relative compaction as determined by laboratory compaction test, ASTM D1557. Additionally, the tests showed values in excess of 95 percent relative compaction in the upper 24 inches of the roadway embankment.

MUNICIPAL REFERENCE & RECORDS CENTER
City & County of Honolulu
City Hall Annex, 558 S. King Street
Honolulu, Hawaii 96813

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In summary, our observations and testing indicated that the grading of the Oli Loop and Ukee Street Extensions have been completed in general accordance with the Grading Ordinances of the City and County of Honolulu and the requirements of our September 2, 1980 Subsurface Investigation Report. The slope should be grassed as soon as practicable to minimize erosion.

A Site Plan, Figure 1, is included to indicate the field density test locations. The laboratory and field test results are summarized in Tables I and II and graphically exhibited in Figures 2 and 3.

Should you have any questions regarding this matter, please contact us at your convenience.

Respectfully submitted,

FEWELL GEOTECHNICAL ENGINEERING, LTD.



By Alan J. Shimamoto, P.E.
Project Engineer

AJS/fse

Copies to: Community Planning, Inc.
Attn: Mr. Robert Sarae

Table I

Summary of Laboratory Test Results

<u>Sample</u>	<u>Description</u>	<u>Maximum Dry Density</u>	<u>Optimum Moisture Content</u>
67A	Reddish brown Clayey SILT (ML)	105 pcf	24%
67B	Dark reddish brown Clayey SILT (ML)	96 pcf	29%

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Gentry-Waipio Development
Waipio, Oahu, Hawaii

Table II
Summary of Field Density Test Results

<u>Test No.</u>	<u>Date</u>	<u>Location</u>	<u>Elevation</u>	<u>Field Density (p.c.f.)</u>	<u>Moisture Content (%)</u>	<u>Material Type</u>	<u>Percent Compaction</u>	<u>Remarks</u>
1	9-13-83	Sta. 27+80	Natural	100	21	67-A	95	
2	9-13-83	Sta. 27+85	FSG-1.0'	103	25	67-A	95	
3	9-14-83	Sta. 27+70	FSG	98	24	67-A	94	Accepted w/ additional compaction
9	9-16-83	Sta. 27+65	FG-1.5'	97	24	67-A	92	Accepted w/ additional compaction
10	9-16-83	Sta. 27+65	FG	99	24	67-A	94	Accepted w/ additional compaction
11	9-16-83	Sta. 28+00	FG-2.0'	98	24	67-A	93	Accepted w/ additional compaction
12	9-16-83	Sta. 28+00	FG-0.5'	100	23	67-A	95	
166	11-17-83	Sta. 20+50	FSG	92	28	67-B	96	
167	11-17-83	Sta. 26+00	FSG	92	29	67-B	96	
170	11-17-83	Sta. 30+80	FSG	95	28	67-B	99	

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Gentry-Waipio Development
Waipio, Oahu, Hawaii

KAULANA I

Ukee Street Extension

Oli Loop Extension

170

11

12

3

1

2

9

10

167

166

IHONA

HIKINO

Station 19+65

Ukee Street

Reference: Grading Plan by
Community Planning, Inc.



● FGE Density Test
Location

--- Property Line

Fewell Geotechnical Engineering, Ltd.

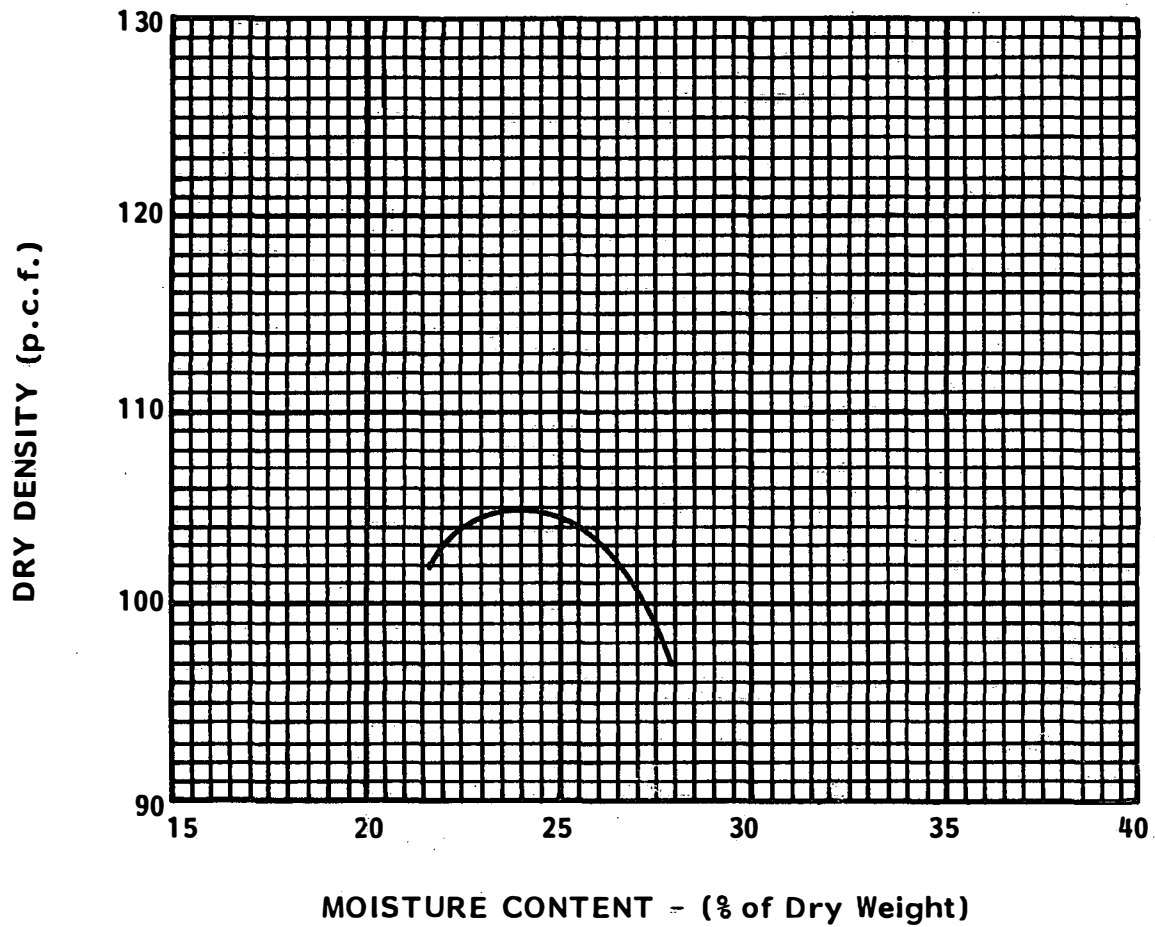
Site and Density Test Location Plan
Oli Loop and Ukee Street Extensions
Gentry-Waipio Development
Waipio, Oahu, Hawaii

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FIGURE 1

LABORATORY COMPACTION CURVE



Sample: 67-A

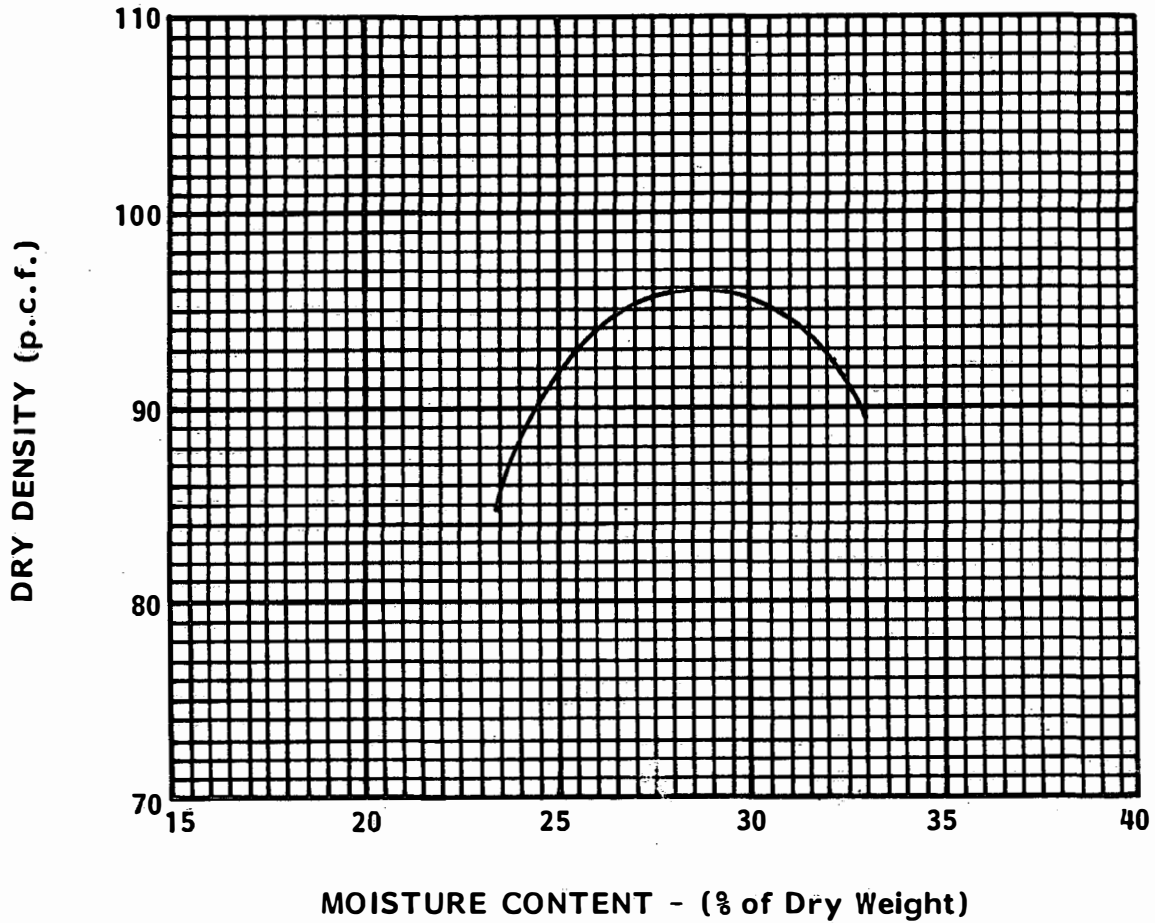
Description: Reddish Brown Clayey SILT

Laboratory Test Procedure: ASTM D1557

Maximum Dry Density: 105 pcf

Optimum Moisture Content: 24%

LABORATORY COMPACTION CURVE



Sample: 67-B

Description: Dark Reddish Brown Clayey SILT

Laboratory Test Procedure: ASTM D1557

Maximum Dry Density: 96 pcf

Optimum Moisture Content: 29%

PAVEMENT REPORT

PROJECT: OL1 LP.- UKEE ST. EXT.

TEST REPORT NO.

RS.

**MATERIALS TESTING LABORATORY
DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU**

LOG BOOK NO. 5-109

TEST REPORT NO.

PAVEMENT REPORT

DATE: 7/29/83

GENTRY-WAIPIO

PROJECT: LUKE ST. EXT.

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