August 13, 1981

THE RUSS SMITH CORPORATION
677 Ala Moana Boulevard, Suite 1000
Honolulu, Hawaii 96813

ATTENTION: Mr. Alan Okamoto

Gentlemen:

Subject: Grading Memorandum
Foremost Farms 3.5 M.G. Reservoir
Waimanalo, Oahu, Hawaii
Tax Map Key: 4-1-08: Por. 80

The reservoir embankment was partly constructed in fill with on-site 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 February 12, 1981 by The Russ Smith Corporation 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 reroofed 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 except in localized areas within the utility trench backfill.

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, site regrading should be avoided or made under the guidance of a Soils Engineer.

Our work on this project does not include the following:

Reservoir access road and grading work not observed and tested by our office.

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

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW:vl
cc: Brill, Inc.
Foremost Farms
TO: THE RUSS SMITH CORPORATION
677 Ala Moana Boulevard, Suite 1000
Honolulu, Hawaii 96813
ATTENTION: Mr. Alan Okamoto

Gentlemen:

Re: FOREMOST FARMS 3.5 M.G. RESERVOIR FIELD DENSITY TEST REPORT

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

- Prints
- Location Plan
- Field Density Test Results
- Boring Logs
- Laboratory Test Results
- Soil Report

No. of Copies
Sets 2
Sheets

General Remarks:

For period ending May 26, 1981.

cc: Brill, Inc.
    Foremost Farms

Yours truly,

WALTER LUM ASSOCIATES, INC.

By W. Wakahin
FIELD DENSITY TEST REPORT

FOREMOST FARMS - 3.5 M.G. RESERVOIR

Field Density Test Results as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>TEST NO</th>
<th>Fill Layer*</th>
<th>Moisture Content</th>
<th>Dry Density**</th>
<th>Standard Density**</th>
<th>Relative Compaction***</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-19-81</td>
<td>1</td>
<td>13'±</td>
<td>39</td>
<td>78</td>
<td>91.0</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-14-81</td>
<td>4</td>
<td>10'±</td>
<td>38</td>
<td>84</td>
<td>91.0</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>8'±</td>
<td>39</td>
<td>85</td>
<td>91.0</td>
<td>94</td>
</tr>
<tr>
<td>5-18-81</td>
<td>6</td>
<td>7'±</td>
<td>36</td>
<td>85</td>
<td>91.0</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>6'±</td>
<td>38</td>
<td>83</td>
<td>91.0</td>
<td>94</td>
</tr>
<tr>
<td>5-19-81</td>
<td>8</td>
<td>4'±</td>
<td>34</td>
<td>85</td>
<td>91.0</td>
<td>93</td>
</tr>
<tr>
<td>5-20-81</td>
<td>9</td>
<td>3'±</td>
<td>27</td>
<td>85</td>
<td>91.0</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>2'±</td>
<td>38</td>
<td>83</td>
<td>91.0</td>
<td>91</td>
</tr>
<tr>
<td>5-21-81</td>
<td>11</td>
<td>1'±</td>
<td>35</td>
<td>86</td>
<td>91.0</td>
<td>94</td>
</tr>
<tr>
<td>5-26-81</td>
<td>12</td>
<td>18'±</td>
<td>38</td>
<td>85</td>
<td>91.0</td>
<td>93</td>
</tr>
</tbody>
</table>

* 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 ARSA shown.

BY Ronald N. Hirai
NOTE:
1. INDICATES THE ESTIMATED LOCATION OF TEST NO. 1 TAKEN IN THE LOT SHOWN. FOR TEST RESULTS, SEE SUMMARY.

TEST DATES: FROM 5/13/81 TO 5/26/81

WALTER LUM ASSOCIATES, INC.
3030 WAI'ALAE AVE.

CIVIL ENGINEERS
PHONE 737-7931
May 29, 1981

MEMORANDUM

TO: MR. ALAN OKAMOTO
The Russ Smith Corporation

FROM: Ezra Koike

RE: Foremost Farms 3.5 M.G. Reservoir
Waimanalo, Oahu, Hawaii

Thank you for your memo of May 22, 1981. We are in agreement with you.

It is our understanding that Foremost-McKesson, Inc. has deleted our suggestion of grouting under the corrugated pipe to fill the space between corrugations to minimize erosion and piping potential.

The owners should allow for future repairs and maintenance should sloughing or slippage of the embankment or erosion along or around the drain line occur.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By

Ezra Koike

EK: vl
June 4, 1981

MEMORANDUM

TO: MR. ALAN OKAMOTO
The Russ Smith Corporation

FROM: Walter Lum Associates, Inc.

RE: Foremost Farms 3.5 M.G. Reservoir
Compaction of Trench Backfill - 60-in. CMP

This is a follow-up of our telephone conversation, June 3, 1981, regarding the trench backfill around the 60-in. CMP.

During our site visit, June 3, 1981, the contractor began backfilling the 60-in. CMP trench.

From field observations and hand probings, the backfill near the bottom of the pipe appeared to be soft to medium consistency after being compacted with a "pogo stick" hand tamper adjacent to the pipe and a "jumping jack" mechanical hand tamper in the unrestricted area. Based on a field density test, the contractor was informed that, in our opinion, the compacted backfill did not meet the minimum 90% compaction. In a telephone conversation with Mr. Kurisu of Brill, Inc., we recommended that Mr. Kurisu contact the owner or his field representative to resolve the problem prior to continuing the backfill work.

It was our understanding that the contractor will continue to backfill the trench by compacting the backfill material as much as practicable with the present construction method.

Since the contractor may not be able to compact the trench backfill to the minimum requirement of 90% compaction in localized areas, this matter, especially adjacent to the lower half of the pipe, should be resolved between the owner and the contractor.

Respectfully submitted,

WALTER LUM ASSOCIATES, INC.

By Wallace Wakahiro

WW:vl
cc: Brill, Inc.
    Foremost Farms
TO: THE RUSS SMITH CORPORATION
677 Ala Moana Boulevard, Suite 1000
Honolulu, Hawaii 96813
ATTENTION: Mr. Alan Okamoto

Gentlemen:

Re: FOREMOST FARMS 3.5 M.G. RESERVOIR
FIELD DENSITY TEST REPORT

We Are Sending You Herewith X

Prints
X Location Plan
X Field Density Test Results
Boring Logs
Laboratory Test Results
Soil Report

No. of Copies
Sets 2
Sheets

General Remarks:
For period ending June 18, 1981.

cc: Brill, Inc.
: Foremost Farms

Yours truly,
WALTER LUM ASSOCIATES, INC.

By W. Watchus
FIELD DENSITY TEST REPORT

FOREMOST FARMS - 3.5 M.G. RESERVOIR

Field Density Test Results as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>Test No.</th>
<th>Fill Layer*</th>
<th>Moisture Content</th>
<th>Dry Density**</th>
<th>Standard Density**</th>
<th>Relative Compaction***</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-27-81</td>
<td>1</td>
<td>17&quot;</td>
<td>34</td>
<td>88</td>
<td>91.0</td>
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<td></td>
<td>2</td>
<td>16&quot;</td>
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<td>88</td>
<td>91.0</td>
<td>96</td>
</tr>
<tr>
<td>5-29-81</td>
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<td>14&quot;</td>
<td>37</td>
<td>88</td>
<td>91.0</td>
<td>96</td>
</tr>
<tr>
<td>6-1-81</td>
<td>4</td>
<td>14&quot;</td>
<td>36</td>
<td>80</td>
<td>91.0</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>12&quot;</td>
<td>39</td>
<td>85</td>
<td>91.0</td>
<td>94</td>
</tr>
<tr>
<td>6-2-81</td>
<td>6</td>
<td>12&quot;</td>
<td>37</td>
<td>84</td>
<td>91.0</td>
<td>92</td>
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<tr>
<td>6-3-81</td>
<td>A</td>
<td>4&quot;</td>
<td>44</td>
<td>74</td>
<td>91.0</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>10&quot;</td>
<td>36</td>
<td>88</td>
<td>91.0</td>
<td>96</td>
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<tr>
<td>6-4-81</td>
<td>B</td>
<td>3&quot;</td>
<td>40</td>
<td>83</td>
<td>91.0</td>
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<td></td>
<td>8</td>
<td>9&quot;</td>
<td>37</td>
<td>85</td>
<td>91.0</td>
<td>94</td>
</tr>
<tr>
<td>6-6-81</td>
<td>C</td>
<td>3&quot;</td>
<td>36</td>
<td>84</td>
<td>91.0</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>9&quot;</td>
<td>38</td>
<td>85</td>
<td>91.0</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>8&quot;</td>
<td>37</td>
<td>85</td>
<td>91.0</td>
<td>94</td>
</tr>
</tbody>
</table>

* 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 Indicating Test #1 taken in the area shown.
Δ APPROXIMATE DEPTH BELOW TOP OF PIPE.

BY W.W.
FIELD DENSITY TEST REPORT

FOREMOST FARMS - 3.6 M.G. RESERVOIR

Field Density Test Results as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>Lot No.</th>
<th>Fill Layer*</th>
<th>Moisture Content</th>
<th>Dry Density**</th>
<th>Standard Density**</th>
<th>Relative Compaction***</th>
</tr>
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<tr>
<td>6-8-81</td>
<td>1</td>
<td>7½</td>
<td>37</td>
<td>85</td>
<td>91.0</td>
<td>94</td>
</tr>
<tr>
<td>6-10-81</td>
<td>2</td>
<td>6½</td>
<td>31</td>
<td>88</td>
<td>91.0</td>
<td>97</td>
</tr>
<tr>
<td>6-12-81</td>
<td>3</td>
<td>5½</td>
<td>39</td>
<td>83</td>
<td>91.0</td>
<td>91</td>
</tr>
<tr>
<td>6-15-81</td>
<td>4</td>
<td>4½</td>
<td>36</td>
<td>86</td>
<td>91.0</td>
<td>94</td>
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<tr>
<td></td>
<td>5</td>
<td>3½</td>
<td>35</td>
<td>87</td>
<td>&quot;</td>
<td>95</td>
</tr>
<tr>
<td>6-16-81</td>
<td>6</td>
<td>2½</td>
<td>30</td>
<td>86</td>
<td>91.0</td>
<td>95</td>
</tr>
<tr>
<td>6-18-81</td>
<td>7</td>
<td>1½</td>
<td>32</td>
<td>85</td>
<td>91.0</td>
<td>93</td>
</tr>
</tbody>
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*** Tests indicate the relative compaction of the soils only at the test locations.

1 Indicates Test #1 taken in the AREA shown.
TO: THE RUSS SMITH CORPORATION

677 Ala Moana Boulevard, Suite 1000
Honolulu, Hawaii 96813

ATTENTION: Mr. Alan Okamoto

Gentlemen:

Re: FOREMOST FARMS 3.5 M.G. RESERVOIR
FIELD DENSITY TEST REPORT

We Are Sending You Herewith

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Location Plan
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Boring Logs
Laboratory Test Results
Soil Report

No. of Copies
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General Remarks:
For period ending July 17, 1981.

cc: Brill, Inc.
Foremost Farms

Yours truly,

WALTER LUM ASSOCIATES, INC.

By W. Wakahara
Field Density Test Results as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>Test Nbr</th>
<th>Fill Layer*</th>
<th>Moisture Content</th>
<th>Dry Density**</th>
<th>Standard Density**</th>
<th>Relative Compaction***</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-25-81</td>
<td>1</td>
<td>2'</td>
<td>39</td>
<td>82</td>
<td>91.0</td>
<td>91</td>
</tr>
<tr>
<td>7-17-81</td>
<td>2</td>
<td>0'</td>
<td>32</td>
<td>86</td>
<td>91.0</td>
<td>95</td>
</tr>
</tbody>
</table>

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** 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.

BY W.J.