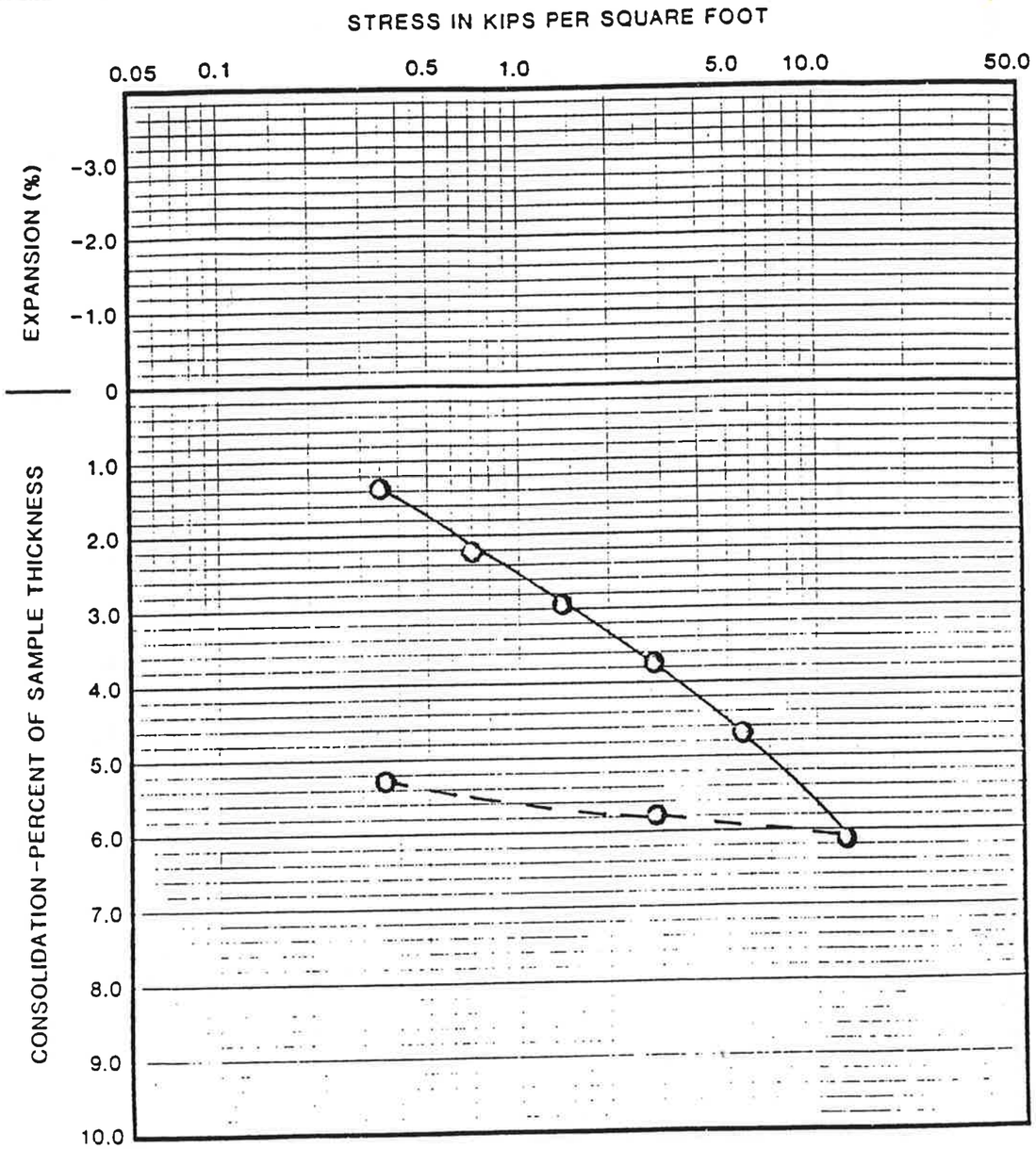


○ FIELD MOISTURE	BORING NO.: B-11	Project No. 4900381-05
● SATURATED	SAMPLE NO.: 2	JACUMBA VALLEY RANCH
—— LOADING	DEPTH (FT): 10-11	CONSOLIDATION TEST RESULTS
– – – REBOUND	SOIL TYPE: SM	

LEIGHTON AND ASSOCIATES, INC.
Geotechnical and Environmental Engineering Consultants

MAR 0 7 1991

February 27, 1991

Project No. 4900381-05

To: Jacumba Valley Ranch
2423 Camino del Rio South, Suite 212
San Diego, California 92108

Attention: Mr. Karl Turecek

Subject: Updated Evaluation of Consolidation Potential, Phase 1, Jacumba Valley Ranch Development, San Diego County, California

Reference: Leighton and Associates, Inc., 1991, Limited Evaluation of Liquefaction and Consolidation Potential, Phase 1, Jacumba Valley Ranch Development, San Diego County, California, Project No. 4900381-05, dated January 21

In accordance with your request, we performed an updated evaluation of the consolidation potential at the subject development. We understand that fills in Residential Area A are proposed to be up to approximately 20 feet thick (above existing grades). Our referenced report provided recommendations based on your previous assumption that the thickness of additional fill would be approximately 4 feet. In order to evaluate the consolidation potential due to the weight of the proposed fill soils (up to 20 feet thick), we have performed laboratory time-rate consolidation tests on ring samples collected as part of our previous study. We chose representative samples near the areas of proposed fills as shown on the computer printout prepared by F.J. Willert Contracting Company, Inc. Based on our laboratory data (attached), we recommend the following delays after the completion of grading until the construction of settlement-sensitive structures in order to reduce the total and differential settlement to approximately 1 inch and 1/2 inch, respectively.

Thickness of Proposed Fill Above Existing Grade (feet)	Delay of Construction after Grading (months)
≤ 2	0
≤ 3	1
≤ 4	2
≤ 5	3
≤10	4
≤15	6
≤20	8

Maximum settlement of the existing soils below the areas of thickest proposed fill soils (approximately 20 feet thick) is estimated to range from 4 to 6 inches.

3934 MURPHY CANYON ROAD, SUITE B205, SAN DIEGO, CALIFORNIA 92123
(619) 292-8030 • (800) 447-2626
FAX (619) 292-0771

We recommend that settlement monitoring be performed in areas where fill depths exceed 10 feet. Settlement monitoring should be performed by a civil engineer/licensed surveyor on a monthly basis after completion of fill placement. This data should be reviewed by our office so that the majority of settlement occurs prior to construction of settlement-sensitive structures.

In addition, in order to reduce the potential for hydroconsolidation in areas where proposed fill soils are in excess of 5 feet thick, the existing soils should be removed down to within 2 feet of the existing ground water table and recompacted to a minimum relative compaction of 90 percent relative compaction (based on ASTM D1557-78).

If you have any questions regarding our letter, please do not hesitate to contact this office. We appreciate this opportunity to be of service.

Respectfully submitted,

LEIGHTON AND ASSOCIATES, INC.

Douglas F. Roff, CEG 1680
Project Geologist

Joseph G. Franzone, RCE 39552
Chief Engineer

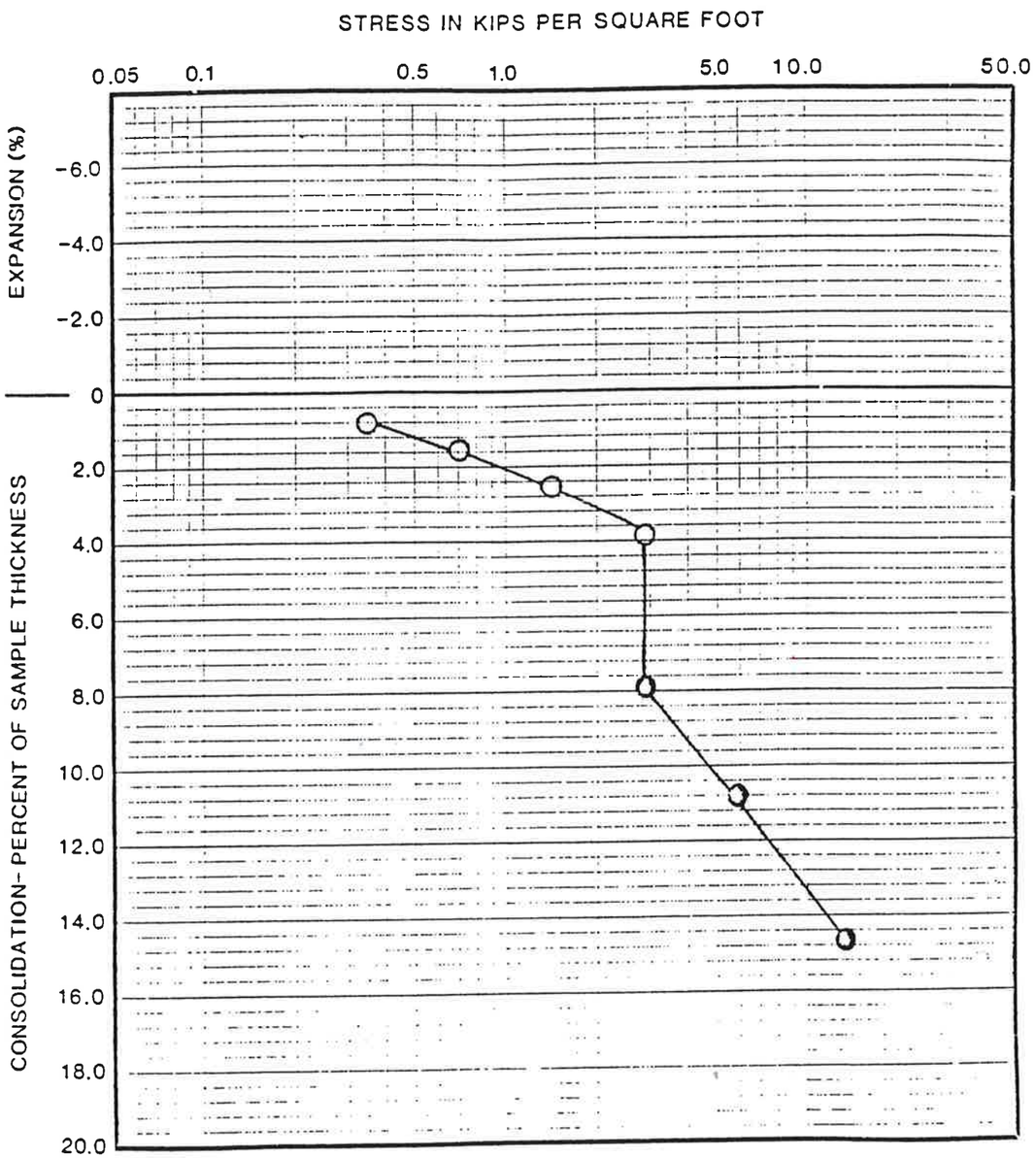
DFR/JGF/jss

Attachment: Laboratory Test Results

Distribution: (6) Addressee

LABORATORY TESTING PROCEDURES

Consolidation Tests: Consolidation tests were performed on selected, relatively undisturbed samples recovered from the sampler. Samples were placed in a consolidometer and loads were applied in geometric progression. The percent consolidation for each load cycle was recorded as the ratio of the amount of vertical compression to the original 1-inch height. The consolidation pressure curves are presented in the test data. Where applicable, time-rates of consolidation were also recorded. A plot of these rates can be used to estimate time of consolidation.



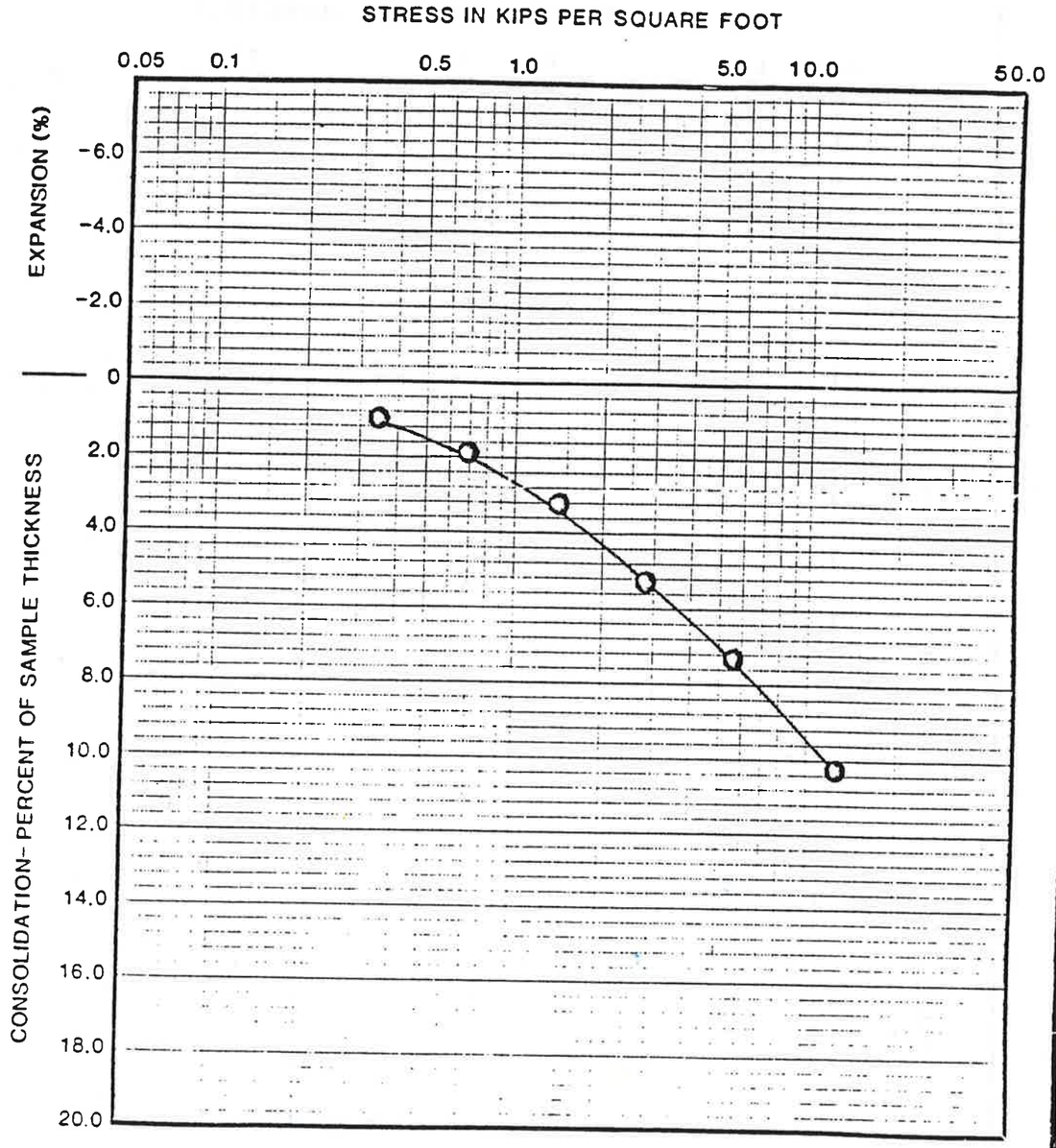
○ FIELD MOISTURE
● SATURATED
—— LOADING
– – – REBOUND

BORING NO.: B-7
SAMPLE NO.: 1
DEPTH (FT): 5-6'
SOIL TYPE: SM

LEIGHTON and ASSOCIATES I&A

Project No. 4900381-05
JACUMBA VALLEY RANCH

CONSOLIDATION TEST RESULTS



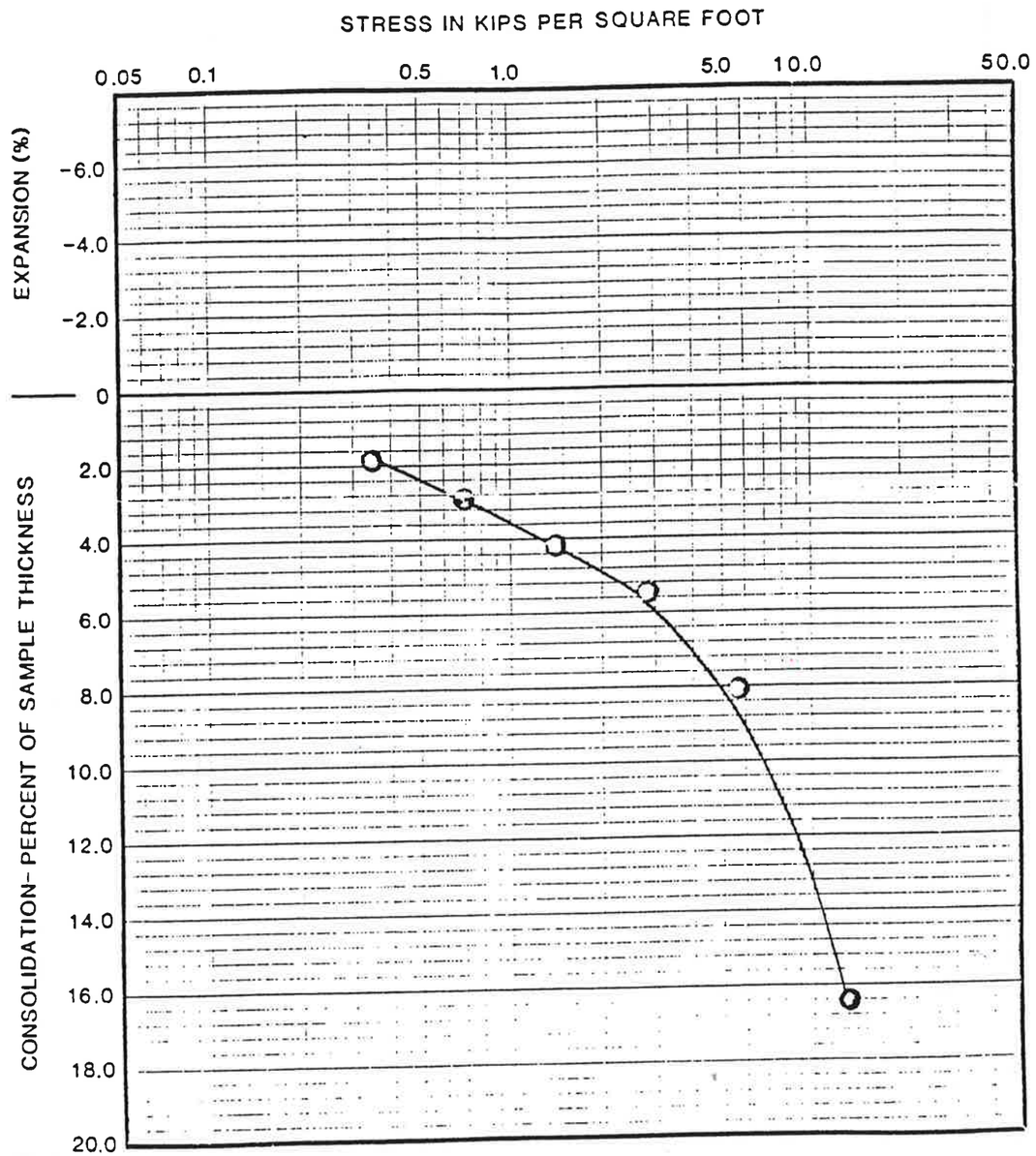
○ FIELD MOISTURE
● SATURATED
—— LOADING
– – – REBOUND

BORING NO.: B-7
SAMPLE NO.: 3
DEPTH (FT): 15-16'
SOIL TYPE: SC-SM

LEIGHTON and ASSOCIATES I&A

Project No. 4900381-05
JACUMBA VALLEY RANCH

CONSOLIDATION TEST RESULTS



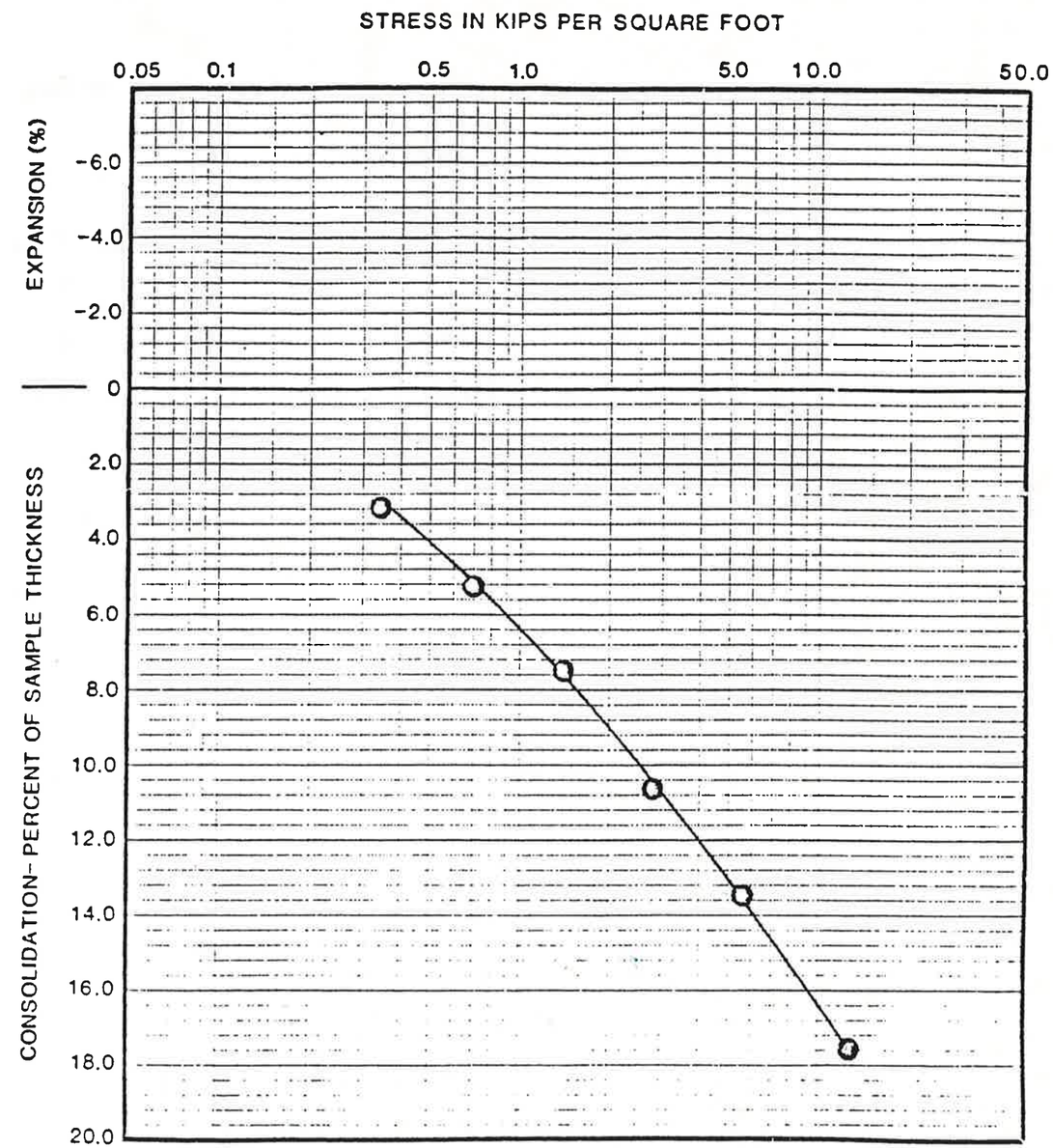
○ FIELD MOISTURE
● SATURATED
—— LOADING
– – – REBOUND

BORING NO.: B-8
SAMPLE NO.: 3
DEPTH (FT): 15-16'
SOIL TYPE: ML-CL

LEIGHTON and ASSOCIATES

Project No. 4900381-05
JACUMBA VALLEY RANCH

CONSOLIDATION TEST RESULTS



○ FIELD MOISTURE
● SATURATED
—— LOADING
– – – REBOUND

BORING NO.: B-9
SAMPLE NO.: 7
DEPTH (FT): 40-41'
SOIL TYPE: ML-CL

LEIGHTON and ASSOCIATES

Project No. 4900381-05
JACUMBA VALLEY RANCH

CONSOLIDATION TEST RESULTS

TIME RATE PARAMETERS

Sample Location	C_v (cm^2/sec)	t_{90} (minutes)
B-7, 15'-16'	0.007	3.2
B-8, 15'-16'	0.008	2.7
B-9, 40'-41'	0.002	9.0

APPENDIX F

CULTURAL RESOURCES
(Bound Separate)