

Coast-Valley Testing, Inc.

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April 17, 2007
Order Number: 48764
Reference Number: 02-5041

Roy Harthorn
Consulting Building Official
23 Hitchcock Way Suite #106
Santa Barbara, CA 93105

SUBJECT: Foundation Plan Review
Dye Residence
1801 Sycamore Canyon Road
Santa Barbara, California

Reference Number: Coast Valley Testing, Inc. 02-5041

Dear Sir:

The undersigned has reviewed the foundation plan and foundation details and calculation sheets (Sheets 1 thru 4) prepared by M.L. Grant PE (Project 03-31) and found the plan and details to be in substantial conformance with the intent of the referenced soil report. It is the understanding of this office that field verification of Helical Pier load bearing capacity was verified by M.L. Grant.



TJD/cp

Respectfully,
Coast Valley Testing, Inc.

Timothy J. Dolan, President
RCE 033758 Expires 06-30-2008

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*Coast-Valley
Testing, Inc.*

Order Number

40993

Reference Number

02-5041

Foundation Exploration

For

Linda Dye

911 Tennyson Lane

Ventura, California 93003-7513

Single Family Residence

1801 Sycamore Canyon Road

Santa Barbara, California 93108

September 10, 2002

360 South Fairview Avenue Suite A, Goleta, California 93117
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September 10, 2002

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INTRODUCTION

The single family residence is located at 1801 Sycamore Canyon Road in Santa Barbara, California as shown on Appendix # 1. The site is presently developed with one existing residence and site drainage is to the south/west at slopes of 3 to 5 percent in the building area.

It is the purpose of this investigation to provide sufficient information about the soils in the supporting soil mantle to enable a suitable foundation design for the proposed structure.

➤ This investigation does not include analysis of any geological conditions such as: faults, fractures, potential geological movement, or slope stability. This investigation was conducted in accordance with presently accepted soils engineering procedures consistent with the proposed development and no warranty is implied.

FIELD INVESTIGATION

The subsurface soil conditions were explored by 2 backhoe pits excavated to depths of up to 16.0 feet below present ground surface. Soil samples were obtained during the drilling operations for laboratory testing and analysis and the borings were supplemented by 2-field density tests that were performed by the tube method. The boring and density test locations are shown on Appendix # 1, while the boring data is presented on Appendix # 2 & #3.

LABORATORY TESTING:

Laboratory testing and analysis consisted of soil field moisture content summary, maximum density-optimum moisture content determinations, field density summary, soil grain size analysis (mechanical and hydrometer method), and soil expansion potential tests. The results of our laboratory testing are presented in the Appendix.

FINDINGS

1. No free ground water was encountered in the borings.
2. In general, the top 9.0 to 12.0 feet of existing surface soils were found to be loose to only moderately firm becoming firm below this depth.
3. The existing surface soils were found to be expansive.
4. At the time of this exploration surface vegetation consisted of a low grasses and weeds.

RECOMMENDATIONS:

It is the understanding of this office that the proposed construction will consist of a one and/or two story addition to the existing residence, with raised wood floors, at the location shown on Appendix #1. Based upon the results of our testing, this office recommends the following.

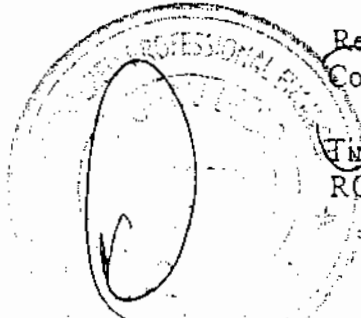
1. The proposed addition shall be supported on a system of grade beams and caissons.
2. Caissons shall be placed at the corners of the structure and at intervals sufficient to support the imposed loads.
3. Caissons shall extend a minimum of 15.0 feet below existing grade and shall be sized and reinforced to properly support the imposed loads
4. Caissons shall be inspected and approved by the soil engineer.
5. Connecting grade beams shall extend a minimum of 27 inches below outside grade, or 12 inches below interior crawl space grade, whichever is deeper.
6. Grade beams shall be sized and reinforced to properly transfer the imposed loads to the caissons.
7. Positive drainage shall be provided away from the proposed structure. (2 percent minimum for 5.0 feet).

Continued-

8. The finished structure shall be fitted with rain gutters and down spouts that effectively collect and discharge all roof rain water run-off a minimum of 10.0 feet away from the proposed structure.
9. Based upon compliance with the above recommendations a maximum safe soil bearing value of 3000 psf may be assumed for caissons embedded 15.0 feet below existing grade. A one third increase, when considering wind or seismic movement, may be assumed. In addition, a skin friction development value of 300 psf per square foot of bounding area is applicable.
Disregard the top 5.0 feet of surface soils when considering skin friction development.

TJD/cp

Respectfully,
Coast Valley Testing, Inc.
Timothy J. Dolan, President
RCE 33758 Expires 06-30-2006



APPENDIX

I. MAXIMUM DENSITY-OPTIMUM MOISTURE DETERMINATIONS

Maximum Density-Optimum Moisture data was determined in the laboratory using the ASTM D-1557-91 Method of Compaction. The results are as follows:

SOIL TYPE	SOIL DESCRIPTION	DRY DENSITY (LBS/CU.FT)	MOISTURE (%)
I	yellow/brown silty clay with shale	117.0	14.0
	(110.0 @ 10.0) (114.7 @ 13.4) (116.2 @ 14.6)		
II	black silty clay	110.0	18.0
	(105.5 @ 15.2) (109.4 @ 17.9) (106.1 @ 19.5)		

II

TEST NUMBER	DEPTH (ft)	<u>FIELD DENSITY SUMMARY</u>		DRY DENSITY (lbs/cu. ft)	% OF MAXIMUM DRY DENSITY
		SOIL TYPE	FIELD MOISTURE (%)		
1	2.0	I	10.2	93.1	79.6
2	1.5	II	18.7	84.4	76.7

III

SOIL PARTICLE SIZE ANALYSIS

MECHANICAL ANALYSIS (Values in percent passing)

SIEVE SIZE	B-1 @ 1.0	B-1 @ 4.0	B-1 @ 6.0	B-1 @ 9.0	B-1 @ 13.0	B-1 @ 16.0
3/8	100	100	100	100	100	100
No. 4	97	99	98	96	100	100
No. 8	96	98	93	92	100	100
No. 16	94	96	91	90	100	100
No. 30	91	94	87	86	100	100
No. 50	83	84	79	78	100	100
No. 100	73	61	67	64	100	100
No. 200	69	52	61	60	99	99

IV

SOIL PARTICLE SIZE ANALYSIS

MECHANICAL ANALYSIS (Values in percent passing)

SIEVE SIZE	B-2 @ 1.0	B-2 @ 3.0	B-2 @ 5.0	B-2 @ 7.0	B-2 @ 11.0	B-2 @ 15.0
3/8	100	100	100	100	100	100
No. 4	100	100	100	100	99	84
No. 8	100	100	100	99	92	64
No. 16	100	99	100	98	84	56
No. 30	98	97	97	96	71	51
No. 50	93	91	92	91	64	49
No. 100	84	81	84	88	59	47
No. 200	78	76	78	83	56	46

V BY HYDROMETER

BORING NO.	DEPTH (FT)	SAND (%)	SILT (%)	CLAY (%)	SOIL DESCRIPTION
1	1.0	46	18	36	sandy clay
1	4.0	60	14	26	clayey sand
1	6.0	36	18	46	sandy silty clay
1	9.0	50	6	44	sandy clay
1	13.0	12	17	71	clay
1	16.0	6	32	62	clay
2	1.0	26	18	56	clay
2	3.0	32	17	51	clay
2	5.0	30	19	51	clay
2	7.0	24	18	58	clay
2	11.0	38	24	38	sandy silty clay
2	15.0	22	36	42	sandy silty clay