



**Geotechnical • Geologic • Coastal • Environmental**

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September 13, 2019

W.O. 6912-A2-SC

**Viri Estates, LLC**

420 N. Twin Oaks Valley Road, Suite 1209  
San Marcos, California 92069

Attention: Mr. Brent Mitchell

Subject: Geotechnical Update Evaluation, Proposed Sandpiper Villa, 1914 Through  
1918 Dixie Street, Oceanside, San Diego County, California 92054,  
ZA19-00005, D19-00011, & CUP19-00011

Dear Mr. Mitchell:

In accordance with your request and authorization, GeoSoils, Inc. (GSI) is providing this summary of our geotechnical update evaluation of the subject site relative to the proposed development thereon. The purpose of our study was to update the geotechnical conclusions and recommendations provided in previous reports prepared by this office (see the Appendix) in light of the currently proposed development shown on Buccola Engineering, Inc. (BEI, 2019), and current building Codes (California Building Standards Commission [CBSC], 2016). The services provided for this update evaluation included a review of BEI (2019) and the preparation of this summary report. Unless specifically superseded herein, the conclusions and recommendations contained in our previous geotechnical reports, referenced in the Appendix, are still considered valid and applicable, and should be appropriately implemented into project planning, design, and construction.

**PROPOSED DEVELOPMENT**

Based on our review of BEI (2019), the currently proposed development includes razing the existing improvements and preparing the site to receive a new assisted care facility with four (4), two-story buildings and associated underground utilities, pavements, and retaining wall improvements. BEI (2019) indicates that cut and fill grading will be necessary to achieve the design grades with maximum planned cuts and fills on the order of 6 feet and 1½ feet, respectively. Grade transitions will be accommodated by the construction of 2:1 (horizontal:vertical [h:v]) cut slopes and retaining walls. The maximum cut slope height will be approximately 3 feet. Whereas, the maximum retaining wall height will be approximately 6 feet. Stormwater runoff will be stored within 42-inch diameter hydromodification storage pipes and treated within two (2) modular wetland basins.

Although building plans have not been provided for GSI review, we anticipate that the proposed structures will consist of wood frames supported by shallow foundations with slab-on-grade floors. Building loads are currently unknown but assumed to be typical of relatively light residential construction.

## CONCLUSIONS

Based on our review, GSI concludes that the proposed development is technically feasible from a geotechnical perspective provided the conclusions and recommendations contained herein and our previous geotechnical reports referenced in the Appendix are incorporated into the proposed development.

## ADDITIONAL RECOMMENDATIONS

The following additional recommendations should be incorporated into the project:

### Updated Seismic Design Parameters

Based on the site conditions, the following table summarizes the site-specific design criteria obtained from the 2016 CBC (CBSC, 2016), Chapter 16 Structural Design, Section 1613, Earthquake Loads. The computer program “OSHPD Seismic Design Maps” (<https://seismicmaps.org/>), provided by the Structural Engineers Association of California (SEAO) and the State of California’s Office of Statewide Health Planning and Development (OSHPD) was utilized for design. The short spectral response utilizes a period of 0.2 seconds.

<b>2016 CBC SEISMIC DESIGN PARAMETERS</b>		
<b>PARAMETER</b>	<b>VALUE</b>	<b>2016 CBC AND/OR REFERENCE</b>
Site Class	D	Section 1613.3.2/ASCE 7-10 (Chapter 20)
Spectral Response - (0.2 sec), $S_s$	1.137 g	Figure 1613.3.1(1)
Spectral Response - (1 sec), $S_1$	0.437 g	Figure 1613.3.1(2)
Site Coefficient, $F_a$	1.045	Table 1613.3.3(1)
Site Coefficient, $F_v$	1.563	Table 1613.3.3(2)
Maximum Considered Earthquake Spectral Response Acceleration (0.2 sec), $S_{MS}$	1.189 g	Section 1613.3.3 (Eqn 16-37)
Maximum Considered Earthquake Spectral Response Acceleration (1 sec), $S_{M1}$	0.683 g	Section 1613.3.3 (Eqn 16-38)

2016 CBC SEISMIC DESIGN PARAMETERS		
PARAMETER	VALUE	2016 CBC AND/OR REFERENCE
5% Damped Design Spectral Response Acceleration (0.2 sec), $S_{DS}$	0.792 g	Section 1613.3.4 (Eqn 16-39)
5% Damped Design Spectral Response Acceleration (1 sec), $S_{D1}$	0.455 g	Section 1613.3.4 (Eqn 16-40)
$PGA_M$	0.469 g	ASCE 7-10 (Eqn 11.8.1)
Seismic Design Category	D	Section 1613.3.5/ASCE 7-10 (Table 11.6-1 or 11.6-2)

### **PLAN REVIEW**

Final project plans (grading, precise grading, foundation, retaining wall, landscaping, etc.), should be reviewed by this office prior to construction, so that construction is in accordance with the conclusions and recommendations in this and previous site-specific reports by GSI (see the Appendix). Based on our review, supplemental recommendations and/or further geotechnical studies may be warranted.

### **LIMITATIONS**

The materials encountered on the project site and utilized for our analysis are believed representative of the area; however, soil and bedrock materials vary in character between excavations and natural outcrops or conditions exposed during mass grading. Site conditions may vary due to seasonal changes or other factors.

Inasmuch as our study is based upon our review and engineering analyses and laboratory data, the conclusions and recommendations are professional opinions. These opinions have been derived in accordance with current standards of practice, and no warranty, either express or implied, is given. Standards of practice are subject to change with time. GSI assumes no responsibility or liability for work or testing performed by others, or their inaction; or work performed when GSI is not requested to be onsite, to evaluate if our recommendations have been properly implemented. Use of this report constitutes an agreement and consent by the user to all the limitations outlined above, notwithstanding any other agreements that may be in place. In addition, this report may be subject to review by the controlling authorities. Thus, this report brings to completion our scope of services for this portion of the project.

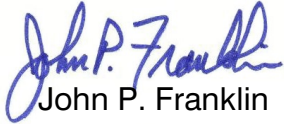
## **LIMITATIONS**

The conclusions and recommendations are professional opinions. These opinions have been derived in accordance with current standards of practice, and no warranty, either express or implied, is given. Standards of practice are subject to change with time. GSI assumes no responsibility or liability for work or testing performed by others, or their inaction; or work performed when GSI is not requested to be onsite, to evaluate if our recommendations have been properly implemented. Use of this report constitutes an agreement and consent by the user to all the limitations outlined above, notwithstanding any other agreements that may be in place. In addition, this report may be subject to review by the controlling authorities. Thus, this report brings to completion our scope of services for this portion of the project.

If you have any questions or comments regarding this letter, please do not hesitate to contact the undersigned.

Respectfully submitted

**GeoSoils, Inc.**



John P. Franklin  
Engineering Geologist, CEG 1340



David W. Skelly  
Civil Engineer, RCE 47857



Ryan B. Boehmer  
Project Geologist

RBB/JPF/DWS/jh

Attachment: Appendix - References

Distribution: (1) Addressee (email)  
(2) Buccola Engineering, Inc., Attn: Mr. Phil Buccola (wet signed and email)

## APPENDIX

### REFERENCES

American Society of Civil Engineers, 2010, Minimum design loads for buildings and other structures, ASCE Standard ASCE/SEI 7-10.

Buccola Engineering, Inc., 2019, Zone change, development plan, and conditional use permit for: Sandpiper Villa, ZA19-00005, D19-00011, CUP19-00011, 3 sheets, various scales, revision dated September 13.

California Building Standards Commission, 2016, California Building Code, California Code of Regulations, Title 24, Part 2, Volume 2 of 2, based on the 2015 International Building Code, 2016 California Historical Building code, Title 24, Part 8, 2016 California Existing Building Code, Title 24, Part 10, and the 2015 International Existing Building Code.

GeoSoils, Inc., 2019, Geotechnical evaluation of stormwater infiltration feasibility, proposed Sandpiper Villa, 1914 Through 1918 Dixie Street, Oceanside, San Diego County, California 92054, ZA15-00007, D15-00014, & CUP16-0005, W.O. 6912-A2-SC, dated August 27.

\_\_\_\_\_, 2016a, Limited geotechnical evaluation, proposed parking lot for Viri Estates development, northeasterly corner of APN 148-271-11, Oceanside, San Diego County, California, W.O. 6912-A1-SC, dated November 30.

\_\_\_\_\_, 2016b, Update geotechnical evaluation, proposed convalescent development, Viri Estates, 1914 Dixie Street, Oceanside, San Diego County, California, APN 148-271-10, W.O. 6912-A-SC, revision dated June 30.

\_\_\_\_\_, 2007, Evaluation of existing pavement section, portions of Dixie and Grace Streets, Dixie Street Project, Oceanside, San Diego County, California, W.O. 4396-E-SC, dated May 2.

\_\_\_\_\_, 2005, Response to review comments, Review memoranda dated January 10 and January 27, 2005, 1914 through 1918 Dixie Street, Oceanside, San Diego County, California, W.O. 4396-A1-SC, dated April 27.

\_\_\_\_\_, 2004a, Phase I environmental site assessment, 1914 through 1918, Oceanside, San Diego County, California 92054, W.O. E4396-SC, dated October 19.

\_\_\_\_\_, 2004b, Preliminary geotechnical evaluation, 1914 through 1918 Dixie Street, Oceanside, San Diego County, California, W.O. 4396-A-SC, dated August 9.