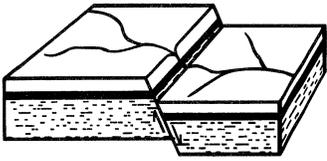


APPENDIX L -
GEOTECHNICAL HAZARDS
EVALUATION



a dba of
R & R Services
Corporation

GEOLABS-WESTLAKE VILLAGE

Foundation and Soils Engineering, Geology

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December 20, 2019

W.O. 9359

Revised April 6, 2020

Cadence Environmental
816 Sausalito Drive
Camarillo, California 93010

Attention: Michael Brown

SUBJECT: Geotechnical Hazards Evaluation and Input for the Environmental Impact Report,
Proposed Golf Course Redevelopment, Portion of Tract No. 3651-01, Camarillo Springs,
City of Camarillo, California

Mr. Brown:

We are pleased to present the following geotechnical hazards evaluation and input for the Environmental Impact Report (EIR) on the subject property. In accordance with your request, our firm has undertaken a desktop study of the geological and geotechnical features on the subject property for the purpose of providing such information for the EIR.

The scope of work performed by our office for this project site included the following:

- a review of both published and unpublished information (including digital media) in both our files and those of the City of Camarillo and other agencies
- geological analysis of the assembled data
- preparation of this report.

PROPOSED PROJECT

We understand that the proposed project will consist of a northern section (Residential Section) composed of pads for condominiums, streets, and walking trails with parking and landscaping. A water storage feature will also be constructed. A southern section (Borrow Site) will supply fill material for the northern section and a reconstructed golf course.

The Residential Section is to be raised about 10-15 feet above the existing golf course; less above the mounds and more above the closed depressions. Proposed earthwork will include fill slopes about the development perimeter ranging from 10-15 feet high, which are anticipated to be constructed at 2:1 (H:V) or flatter gradients.

The Borrow Site will include a cut slope along the easterly side up to about 55 feet high with irregular gradients ranging from 1.5:1 to 7:1.

GEOLOGIC SETTING

Regionally, the site is located in the western portion of the Transverse Ranges geomorphic province of Southern California. The Transverse Ranges are essentially east-west trending elongated mountain ranges and valleys that are geologically complex. Structurally, the province reflects the north-south compressional forces that are the result of a bend in the San Andreas Fault. As the Pacific Plate (westerly side of the fault) and the North American Plate (easterly side) move past one another along the fault, the bend allows for large accumulations of compressional energy. Some of these forces are spent in deforming the crust into roughly east-west trending folds and secondary faults. The most significant of these faults are typically reverse or thrust faults, which help accommodate the crustal shortening taking place regionally.

EARTH MATERIALS

Geolabs-Westlake Villages' (GWV) recent study noted three geologic units on the site: engineered fill, alluvium and bedrock. Detailed descriptions of these units are provided below.

Engineered Fill

Engineered fill presently covers the entire Residential Section. The depth of fill is variable, but probably ranges from three to ten feet. It is important to note that the fill was placed under grading ordinances in force at the time (mid-1980s) and may not meet today's standards. Removal recommendations by GWV should be followed.

Alluvial Deposits

Alluvial deposits occur at depth beneath the artificial fill. These sediments generally consist of admixtures of sand and silt with occasional horizons of sandy clay. These deposits are characteristically in a moderately compact condition, but become more compact with depth.

These earth materials will be satisfactory for the support of the proposed project provided the Geotechnical Engineer's recommendations are followed.

Bedrock

Bedrock will likely be encountered in the Borrow Site portion of the project. It will consist of basalt and basaltic agglomerate assigned to the Miocene-age Conejo Volcanics. These deposits are commonly dense to hard and well-fractured.

GEOLOGIC STRUCTURE

Geologic structure of the on-site alluvial deposits is commonly sub-horizontal, while the Conejo Volcanics bedrock is inclined to the northwest at moderate angles (15°-30°).

GROUNDWATER

Groundwater was encountered in our previous, adjacent geotechnical investigation at an elevation of about 107 feet (GWV, 2019). It is our understanding from conversations with one of the current property owners that two water wells were constructed adjacent to Calleguas Creek along the westerly edge of the Borrow Site.

POTENTIAL HAZARDS

Landsliding

According to SHZR 055 (2002), no landslides are present on or adjacent to the site, neither is the site prone to earthquake induced landsliding (CGS, 2002). No significant landslides were reported by GWV (2019).

Faulting

The subject property is not situated within a State-defined Earthquake Fault Zone assigned by the State Geologist to Active faults. The City of Camarillo, however, has designated a "Fault of Concern" postulated through the extreme southeasterly portion of the Residential Section which is designated as a Recreational Area. A fault study was carried out across this feature by GWV (2003) and no evidence of active faulting was observed. All proposed structures for human habitation are located outside of the "Zone".

The closest State-defined Earthquake Fault Zone is along the Santa Rosa-Camarillo section of the Simi-Santa Rosa fault, approximately 1 1/4 miles to the northwest.

Seismicity

The property is situated within the seismically active Southern California region and strong ground shaking is likely to occur due to earthquakes caused by movement along nearby faults. Construction performed in accordance with the local Building Codes will minimize structural distress from seismic events.

LIQUEFACTION POTENTIAL

Liquefaction is a condition in which relatively weak soil undergoes continued deformation at a constant low residual stress due to the build-up of high porewater pressures. The possibility of liquefaction occurring at a given site is dependent upon the occurrence of a significant earthquake in the vicinity; sufficient groundwater to cause high pore pressures; and on the grain size, relative density, and confining pressures of the soil at the site.

While Seismic Hazard Zone Report 055 (CGS, 2002), indicates that the site does not have a significant potential for liquefaction. GWV suggests that the potential for liquefaction is minor (February

12, 2019 -Rev. June 10, 2019). It is our opinion that the potential for liquefaction can be mitigated by appropriate earthmoving procedures such as those recommended by GWV in their aforementioned report.

LATERAL SPREADING, SUBSIDENCE, AND HYDROCOLLAPSE

None of these phenomena have been reported, but they have been addressed by the GWV during the project design (February 12, 2019 [Rev. June 10, 2019]). Mitigation measures could involve appropriate earthmoving procedures and foundation designs such as those discussed in the above GWV report.

SOIL EROSION

Due to the relatively level nature of the existing site and the abundance of non-erodible surfaces associated with the proposed project, soil erosion is expected to be insignificant once landscaping has matured and appropriate drainage structures are in place.

Expansive Soil

Expansive soil is known to occur in the vicinity. The level of expansiveness should be determined by the Geotechnical Engineer after grading. Usual and customary design-level parameters for foundation design will be provided at that time.

PETROLEUM EXPLORATION AND PRODUCTION

An inquiry was made with the Department of Conservation, Division of Oil and Gas regarding known oil wells at the site. There are approximately 35-40 documented oil and/or gas wells in and east of the Residential portion of the project associated with the historic abandoned Conejo Oil Field (pre 1930). One of the wells, drilled by Union Oil Co. (Calleguas #1) in 1892 reached a depth of 961 feet. Most of the wells are reportedly on the order of 150 feet deep (Cal State Mining Bureau, 1921). Other undocumented wells may also be present. The occurrence of mud pits and other petroleum exploration structures and artifacts cannot be discounted and should also be assessed.

We suggest that an assessment be performed to determine the locations and status of the wells before grading commences.

Possible mitigation measures might involve sealing and abandoning any well shafts found within the project bounds in accordance with Division of Oil and Gas requirements. The issue of migrating methane gas and/or Hydrogen Sulfide gas should also be addressed. Installing a collection system consisting of manifolds of perforated pipe encased in gravel, installed below the fill, may be necessary. In some instances the methane can be discharged into the existing municipal service.

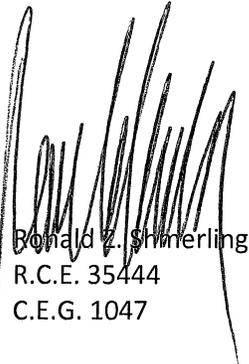
CLOSURE

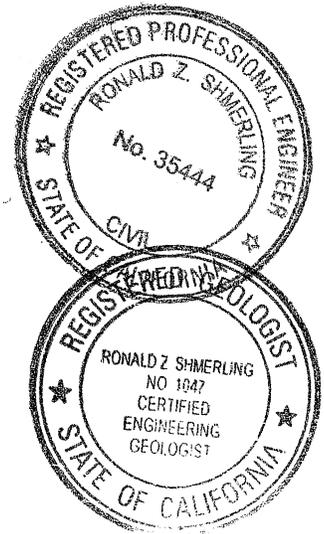
This geotechnical evaluation has been prepared in accordance with generally accepted engineering practices at this time and location. No other warranties, either express or implied, are made as to the professional advice provided under the terms of our agreement and included in this report.

Thank you for this opportunity to be of service. Please do not hesitate to call if you have any questions regarding this report.

Respectfully submitted,
GEOLABS-WESTLAKE VILLAGE


Charles A. Swift
C.E.G. 948


Ronald Z. Shmerling
R.C.E. 35444
C.E.G. 1047



CAS:af

Enclosures: References.....Plate R

XC: (1) Addressee

REFERENCES

California Division of Mines and Geology, May 1, 1999; Special Studies Zone Map, Newbury Park Quadrangle, Ventura County, California

California Geological Survey, 2002; Seismic Hazard Zone Report for the Newbury Park 7.5 Minute Quadrangle, Ventura County, California, SHZR 055

California State Mining Bureau, August 1921; Summary of Operations, Vol. 7, No. 2

Fugro-West, Inc., July 2003; 2003 Guidelines for the Preparation of Geotechnical and Geological Studies Fault-Rupture Hazard Maps.

Geolabs-Westlake Village, June 12, 2003; Preliminary Fault Location and Activity Assessment, Lot 140, Tract 3651-7, Southwest of Ridgeview Street and Camarillo Springs Road, City of Camarillo, California

...February 12, 2019 (Rev. June 10, 2019), Geotechnical Investigation, Proposed Site and Preliminary Grading, Tentative Tract No. 6016, Camarillo Springs Golf Course, City of Camarillo, California

Ventura County, 2019, County View

Weber, F.H. Jr. et al, 1973; Geology and mineral resources study of Southern Ventura County, California: in Calif. Div. of Mines and Geol. Preliminary Report 14, 102p.

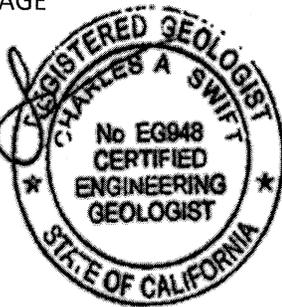
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