GEOLOGY AND SOILS REPORT REVIEW LETTER

April 14, 2022

LOG # 121071
SOILS/GEOLOGY FILE - 2
LAN

Black Whale Properties, LLC
956 Miraflores Avenue
San Pedro, CA 90221

TRACT: 5155
LOT: 22
LOCATION: 2360 N. San Marco Drive

CURRENT REFERENCE REPORT/LETTER	REPORT No.	DATE OF DOCUMENT	PREPARED BY
Geology/Soils Report	22-307-22	03/14/2022	Applied Earth Sciences
Oversized Doc(s).	"	"	"

The Grading Division of the Department of Building and Safety has reviewed the referenced report that provides recommendations for the proposed demolition of all existing site improvements; slope stabilization with 3 rows of shear pins designed for a minimum of 45 kips for a 10-foot spacing; and construction of a 3-level single family residence, detached carport, structural deck and retaining walls up to 15 feet in height. According to the project figures, the proposed improvements are located on an approximately 80 foot high southeast facing terraced cut/fill slope with gradients as steep as 80 degrees.

The earth materials at the subsurface exploration locations consist of up to 4.5 feet of uncertified fill underlain by up to 1.5 feet of colluvium and Topanga Formation basalt with bedding that dips 20 to 60 degrees out of slope to the northeast. The consultants recommend to stabilize the site slopes with shear pins and support the proposed structures on drilled-pile foundations bearing on competent bedrock a minimum of 15 feet below the lowest unsupported bedding plane.

The site is located in a designated seismically induced landslide hazard zone as shown on the Seismic Hazard Zones map issued by the State of California.

The review of the subject report cannot be completed because the stability or safety of the proposed development cannot be determined at this time. The review will be continued upon submittal of an addendum to the reports which includes, but need not be limited to, the following:

(Note: Numbers in parenthesis ( ) refer to applicable sections of the 2020 City of LA Building Code. P/BC numbers refer the applicable Information Bulletin. Information Bulletins can be accessed on the internet at LADBS.ORG.)

1. The subject lot appears to be a graded cut/fill slope with multiple non-code conforming conditions. Identify all non-conforming conditions and provide recommendations to bring the entire site into conformance with the current Code standard (7005.9).

   a. How will all fill slopes be graded/retained to no steeper than 2H:1V?

   b. How will all cut slopes be graded/retained to no steeper than 2H:1V?

   c. Clarify if any existing structures are to remain. How will all existing structures to remain be brought to current code conformance?

2. Proposed grades were not shown so it is unclear if the proposed structures have the required toe of slope setback. Provide recommendations and revise the plan(s) and cross section(s) for providing the required building setback from the toe of the ascending slope as specified by Code Section 1808.7.1. Label the required building setbacks for all proposed buildings/carports.

   Notes: Please be informed that the Department does not allow a reduction in building setback, for new buildings. The building clearance from ascending slopes shall be measured perpendicular to slope contours and horizontally from the face of the building to the toe of the slope, or to a retaining wall(s), if any.

3. Proposed grades were not shown on the geologic map. Provide a geologic map that is based upon conceptual grading or site development plans, to illustrate all proposed and existing contours relative to the planned grading and/or construction (7006.3.2).

4. The cross section provided does not appear to cover all critical slopes. Provide additional geological cross sections illustrating existing and proposed grades and structures through the critical highest slopes that descend below the north and south portions of the proposed residence and carport (areas not shadowed by offsite building).

5. The consultants indicate that the site slopes are up to 50 feet in height with an average gradient of 1.6H:1V when the slopes affecting the subject lot are up to approximately 65 feet in height with gradients as steep as 80 degrees per the project figures and vertical failing retaining walls are depicted. Please clarify the maximum slope gradients/heights critical to the site development.

6. For all site slopes steeper than 2H:1V to remain in fill, colluvium, weathered bedrock, etc., provide surficial stability analysis using appropriate shear strengths and soil thickness and indicate the evaluated factor of safety.

7. The computer slope stability analyses were restricted such that the minimum factor of safety was not determined. Please provide additional analyses to determine the minimum factor of safety (P/BC 2020-049). Include the following:

   a. Why was the anisotropic function limited to between 20 to 32 degrees when the consultants state that bedding varies between 20 and 60 degrees?

   b. Provide additional stability analyses for the additional cross sections through the critical slopes.

   c. Provide slopes stability analyses searching the slopes below the lowest row of piles.

d. For the planar analyses, revise the block search areas so that adverse bedding planes can fail at the toe of the lower retaining walls; and, relocate the search boxes to allow the critical surface to develop along the bedding planes.

e. The seismic analysis with an unconstrained search shows FS of 0.948 and 0.939 for Bishop and Janbu simplified methods, respectively. However, the analysis with a constrained search with FS=1.0 shows the critical surface daylighting closer to the top of the slope. Please explain.

8. For rock slopes 1:1 (H:V) or steeper to remain, provide additional geologic mapping and analysis that incorporates, but not limited to, the following:

a. Detailed mapping and description of discontinuities along the existing cut slope; such as bedding planes, lithologic contacts, joints, fractures, and faults, with characteristics such as orientation, spacing, presence of infilling or openness, continuity, etc.

b. Kinematic analysis of discontinuities relative to the slope face, using stereographic methods to assess potential planar, wedge and topple type failures. Show all great circles on the stereonet.

c. Slope stability analysis of the potential failures using appropriate methods for type of failure identified from the kinematic analysis.

9. The consultants recommend to sleeve the project piles **below** the lowest unsupported bedding plane in at least two locations in the text of the report. Please clarify this recommendation as sleeving **below** the lowest unsupported bedding plane will surcharge the existing offsite structures.

10. In order to avoid surcharging the existing offsite structures, the proposed piles shall be sleeved above the 1H:1V line projected upwards from the bottom of the offsite retaining wall or above the lowest unsupported bedding plane, whichever is lower. Revise pile sleeving recommendations accordingly.

11. Provide temporary excavation recommendations for excavations in unsupported bedding.

12. Provide calculations to support the recommendations for temporary excavations in bedrock with depth of cut larger than 10 feet.

The geologist and soils engineer shall prepare a report containing an itemized response to the review items indicated in this letter. If clarification concerning the review letter is necessary, the report review engineer and/or geologist may be contacted. Two copies of the response report, including one unbound wet-signed original for archiving purposes, a pdf-copy of the complete report in a flash drive, and the appropriate fees will be required for submittal.

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