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September 15, 2022

Project 2079

**ACKLAND INTERNATIONAL, INC.**

333 Hegenberger Road, Suite 206

Oakland, CA 94621

Attention: Dayo

Gentlemen:

Roadway Slope Assessment  
Proposed Residential Development  
16501 Sanborn Road  
Saratoga, California

**Introduction**

As requested, we are submitting this letter to provide geotechnical assessment of the slope configurations at the site for the roadway to the proposed residence at the subject property. The property is located east of Sanborn Road in Santa Clara County near the town of Saratoga, California. This report addresses the slope configuration and provides recommendations and guidelines to be used in the design and construction of cut slopes during the proposed residential development.

**Documents Review**

In preparing this report, we reviewed the documents pertaining to the proposed development. In addition, we made a site reconnaissance visit to the property on Thursday, September 8, 2022, to get acquainted with the current site conditions. The documents we reviewed included the original geotechnical investigation report dated February 11, 2005 and prepared by E<sub>2</sub>C, Inc. We also reviewed the civil drawings showing the proposed roadway to the proposed building site. The civil drawings consist of the proposed roadway alignment showing areas of cut and fill slopes.

**Findings**

The proposed roadway alignment traverses through areas with differing topography requiring the use of soil retaining walls. In some areas, free standing slopes will be used to minimize the cost of construction. In some areas along the proposed roadway alignment, rock outcrops are exposed.

## **Recommendations**

### Roadway Slopes

The recommendations provided in the E<sub>2</sub>C, Inc., report state that cut and fill slopes should be constructed no steeper than 2horizontal:1vertical. However, in areas where rock outcrop is exposed or the depth to bedrock is shallow, cut slopes may be constructed between 1.75horizontal:1vertical (1.75h:1v) and 1.5horizontal:1vertical (1.5h:1v), depending on the soundness of the rock exposed. Where the existing gradients are steeper than 1.5h:1v and the slopes are stable, cut slopes may be constructed to match the existing slopes. To minimize the potential for erosion, slope surfaces should be covered with erosion resistant plants. The plants should be maintained until the roots have become firm.

### Site Drainage

As with all hillside development, slope stability should be of major concern. Slope instability is the result of movement within colluvial soils, creep and shallow landsliding within the surficial soils over bedrock. The other cause of slope instability is the uncontrolled flow of surface water (sheet flow) on the surface of the slope and subsurface water (seepage) within the slope. Therefore, the risk of future slope instability can be reduced by controlling both surface and subsurface water during and after construction by providing well designed and properly constructed surface and subsurface drainage system together with good grading practices during excavations and earthwork construction. The lack of adequate drainage to collect both surface and subsurface water to suitable collection and discharge facilities can adversely affect slope stability in general. Therefore, proper and adequate drainage (surface and subsurface) system should be incorporated into the planned development. Runoff collected from roof drains and area drains as well as discharge from subdrains (when needed) should be released to appropriate locations away from the proposed building site and to appropriate drainage facilities located at the property.

Due to site topography and the relatively steep gradients at this property, it will be prudent to keep site grading to a minimum except where excavations will be required. Temporary excavations five feet and deeper should be supported by adequately designed shoring system; the top four feet of excavations 10 feet or deeper should be laid back at an inclination of 1horizontal:1vertical. No excavations should be done during a period of sustained precipitation.

## **Limitations**

The recommendations contained in this report are based on certain information and data that have been made available to us. Any change in that information and data will render our

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recommendations invalid unless we are commissioned to review the change and to make any necessary modifications and/or additions to our recommendations.

Our recommendations have been made in accordance with the principles and practices generally employed by the geotechnical engineering profession. This is in lieu of all other warranties, express or implied.

Sincerely,

**FRIAR ASSOCIATES, INCORPORATED**



John H Friar  
CE 52281