

January 12, 2018

Mr. John Schmidt
 Green Mountain Land, LLC
 17933 NW Evergreen Parkway, Suite 300
 Beaverton, Oregon 97006

**Re: Geotechnical Setback Summary Discussion
 Green Mountain North - Phase 3
 Camas, Washington
 CWE W.O. No. 17012A**

Mr. Schmidt:

Columbia West Engineering, Inc. is pleased to submit this geotechnical setback summary letter for the Green Mountain Phase 3 subdivision project located east of NE Ingle Road and NE 43rd Circle in Camas, Washington. The purpose of the letter is to summarize Columbia West's recommendations regarding geotechnical setback areas established in our previous report. Columbia West conducted a geotechnical investigation for the Green Mountain North – Phase 3 development consisting of three soil borings, 14 test pits and slope stability analysis. Findings and recommendations were summarized in a report entitled *Geotechnical Critical Areas Report, Green Mountain North, Camas, Washington* dated September 28, 2017. Current site plans produced by Olson Engineering indicate the development will consist of 159 single-family lots.

Site research indicates the presence of a mapped geologic hazard due to potential instability or slopes greater than 15 percent. Additionally, near-vertical cliff areas comprised of the Basaltic Andesite of Green Mountain (Qb_{gm}) also exist adjacent to development areas. Based upon development details, the level of site investigation performed, and slope stability analysis, a geotechnical setback distance of 35 feet from the top of slope break is recommended. The line has been staked in the field and surveyed for inclusion in project documents. The setback is intended to reduce the potential for slope instability by restricting the location of large dynamic or static loads in sensitive areas. Placement of significant bearing loads, structural fills, or stockpiles of heavy materials is prohibited within the setback unless further study is performed on a case-by-case basis when the residential structure layout and foundation locations are known.

However, the geotechnical setback zone is not intended to be a do-not-disturb conservation area. Small disturbances such as minor landscaping or fence building are acceptable. Additionally, as mentioned above, encroachment of residential structures and other site improvements may be feasible if evaluated on a case-by-case basis. Feasibility of such encroachment will depend upon dimensions, locations, and specific design features of the proposed improvement. Encroachment within the geologic slope hazard area should be contingent upon supplemental geotechnical study at the time of individual lot construction. Mitigation for potential impacts to slope stability may be determined from this additional investigation.

Likely mitigation for encroachment of single-family homes within the setback zone is anticipated to consist of deepening footings to comply with the 35-foot horizontal setback or to provide direct foundation contact with shallow, competent bedrock identified in some areas during the initial subsurface investigation. Other geotechnical and/or structural solutions for compliance with the setback area may also be explored once details of structural elements are known.

Columbia West appreciates this opportunity to provide geotechnical engineering services. Please call me at 360- 823-2900 if you have any questions or need additional information.

Sincerely,

COLUMBIA WEST ENGINEERING, Inc.


 Daniel E. Lehto, PE, GE
 Principal

DEL:ASR



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