AGEC
Applied GeoTech

November 20, 2018

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Subject: Geologic Hazard Evaluation
Proposed Mountain Vista Subdivision
2060 East Ryan Circle
Weber County, Utah
Project No. 1180926

Gentlemen:

Applied Geotechnical Engineering Consultants, Inc. (AGEC) was requested to perform a geologic hazards evaluation for the proposed Mountain Vista Subdivision located at 2060 East Ryan Circle in Weber County, Utah.

1.0 PURPOSE AND SCOPE OF INVESTIGATION

This study was performed to identify potential geologic hazards that may affect the proposed subdivision. The study includes a review of aerial photographs, geologic literature and lidar data for the area and a site reconnaissance. The study was performed in general accordance with our proposal dated November 9, 2018.

2.0 SITE CONDITIONS

At the time of our site visit on November 19, 2018, there was a house, garage and pool on the south side of the property, landscaping around the buildings and a field to the north.

The ground surface at the site slopes gently down toward the south with a slope of less than 7 percent.

Vegetation at the site consists of grass, bushes and trees around the house, and grass and weeds in the field. There are trees along the edges of the field.

Ryan Circle is south and southwest of the property, Sky Line Drive is to the east and Combe Road is to the north. There is a residence to the west.

3.0 PROPOSED CONSTRUCTION

We understand that the property is planned to be subdivided into three new residential building lots. We anticipate the residences will be a one to two-story, wood-frame structures with basements.

4.0 GEOLOGIC SETTING

Aerial photographs used in the geologic review were downloaded from the Utah Geological Survey website and have Photograph Nos. WF2-15_207 and 208 with a date of 1970. The lidar data was obtained from the Utah Geological Survey. Geologic maps reviewed for the study are Yonkee and Lowe (2004), Nelson and Personius (1993), Coogan and King (2001), Elliott and Harty (2010) and the Utah Geological Survey (2017).

The geology map for the area from Yonkee and Lowe (2004) shows geologic units mapped for the area of the proposed subdivision consist of alluvial-fan and delta deposits. The Elliott and Harty (2010) landslide map and other geology maps reviewed show no landslide deposits on the property. Nelson and Personius (1993) and Yonkee and Lowe (2004) show the closest surface trace of an active fault to the site as the Wasatch Fault located approximately 0.3 miles to the northeast. No active faults are mapped to extend through the property.

5.0 GEOLOGIC HAZARDS

Geologic hazards considered for this study are surface fault rupture, seismicity, landslide, debris flow, rockfall and avalanche.

5.1 SURFACE-FAULT-RUPTURE AND SEISMICITY

No active faults are mapped to extend through the property. The closest surface trace of an active fault is approximately 0.3 miles to the northeast of the site. Review of aerial photographs of the property finds no evidence of lineations or other fault-related features extending through the property.

The property is located in the Intermountain seismic zone, which consists of an area of relatively high historical seismic activity. The largest seismic ground shaking is expected to originate from the Wasatch fault zone. The Wasatch fault zone is considered capable of producing earthquakes on the order of 7 to 7.5 magnitude and can result in significant seismic ground shaking at this property. Mapping by the U.S. Geological Survey indicates that a peak ground acceleration of 0.58g would have a 2 percent probability of being exceeded in a 50-year time period (IBC, 2015). In our professional opinion, surface-fault rupture is not a hazard at the site.

5.2 LANDSLIDE

The geologic maps for the site do not show landslide deposits on the property. Review of the aerial photographs and site reconnaissance finds no evidence of landslide deposits on the property. The ground surface in this area is sufficiently flat such that in our professional opinion, landslide is not a hazard at the site.

5.3 DEBRIS FLOW

The site is sufficiently distant from debris flow sources such that debris flow is not a hazard at this site.

5.4 ROCKFALL

There are no sources of rock and no slopes of sufficient gradient to result in rockfall events on this property.

5.5 AVALANCHE

The site is not located in a known avalanche hazard zone. There are no potential sources for avalanche near the site.

6.0 CONCLUSION

The site is suitable for the proposed subdivision from a geologic hazard perspective. Seismic ground shaking is the primary geologic hazard to consider in development of the site. This hazard is mitigated through structural design of the building to lower the risk to human life and damage to property to an acceptable level as set forth in the International Building Code. There is no evidence that landslide, surface-fault-rupture, debris-flow, rockfall and avalanche will affect the proposed residence.

7.0 LIMITATIONS

This report has been prepared in accordance with generally accepted geologic engineering practices in the area for the use of the client. The findings and conclusions included in this report are based on conditions observed at the time of our site visit, review of geologic literature, aerial photographs, lidar data and our experience in the area. Variations in the geologic conditions may not become evident until additional exploration or excavation is conducted. If geologic conditions are found to be significantly different from those described above, we should be notified to reevaluate the recommendations given.

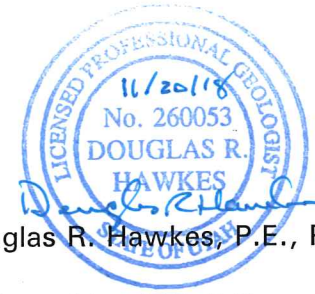
8.0 PREPARER QUALIFICATIONS

The geologist/engineer who prepared this report is a licensed geologist and engineer in the State of Utah and meets the minimum requirements of the Weber County geologic hazards ordinance for performing this study.

If you have questions or if we can be of further service, please call.

Sincerely,

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.



Douglas R. Hawkes, P.E., P.G.

Reviewed by JEN, P.E.
DRH/rs

References:

Coogan, J.C. and King, J.K., 2000; Progress report geologic map of the Ogden 30' X 60' quadrangle, Utah and Wyoming, Utah Geological Survey Open-file Map 380.

Elliott, A.H. and Harty, K.M., 2010; Landslide maps of Utah, Ogden 30' X 60' quadrangle, Utah Geological Survey Map 246DM, Plate 6.

Nelson, A.R. and Personius, S.F., 1993; Surficial Geologic Map of the Weber Segment, Wasatch Fault Zone, Weber and Davis Counties, Utah, U.S. Geological Survey Map I-2199.

Utah Geological Survey, 2018; Utah fault and fold database accessed on September 14, 2018 at geology.utah.gov/resources/data-databases/qfaults/.

Yonkee, A. and Lowe, M, 2004; Geologic map of the Ogden 7.5' quadrangle, Weber and Davis Counties, Utah, Utah Geological Survey Map 200.