



IGES[®]

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March 17, 2016

Summit Mountain Holding Group
3632 North Wolf Creek Drive
Eden, Utah 84310

c/o Watts Enterprises
5200 South Highland Drive #101
Salt Lake City, Utah 84117
Attn: Mr. Rick Everson

IGES Project No. 01628-012

Subject: Proposed Investigative Approach
Geologic Hazards Assessment
Summit Eden Phases 1E, 1F, and 1G
Summit at Powder Mountain Resort
Weber County, Utah

References: Blake, T.F., Hollingsworth, R.A. and Stewart, J.P., Editors (2002), Recommended Procedures for Implementation of DMG, Special Publication 117, Guidelines for analyzing and mitigating landslide hazards in California: organized by the Southern California Earthquake Center.

IGES, Inc., 2015, Geotechnical Investigation, Summit Eden Phases 1E, 1F, and 1G, Summit at Powder Mountain Resort, Weber County, Utah, IGES Project No. 01628-011, dated September 30, 2015.

Western Geologic, LLC, 2012, Report: Geologic Hazards Reconnaissance, Proposed Area 1 Mixed-Use Development, Powder Mountain Resort, Weber County, Utah, dated August 28, 2012.

Mr. Everson:

IGES has prepared the following letter outlining our investigative approach for the proposed geologic hazards assessment for the approximately 100-acre Summit Eden Phases 1E, 1F, and 1G property residential subdivision, to be a part of the greater Summit Eden development at Powder Mountain Resort in Weber County, Utah. We understand that the property is located in an area currently designated by Weber County as being in a *Landslide Hazard Special Studies Area*, and therefore requires a geologic hazard assessment to be completed and approved by the county prior to development of the property, per the requirements found in Section 38-4 of *Chapter 38: Natural Hazards Overlay Districts* of the Weber County Zoning Ordinance. At the request of the County, the Geotechnical Consultant is required to obtain approval of the proposed subsurface exploration plan by Weber County prior to the commencement of any field work. We understand that the approval process will take the form

a *Scoping Meeting*, which will be scheduled to take place at the Weber County offices in Ogden at a later date. The following letter summarizes our proposed investigative approach with respect to addressing various geologic and geotechnical issues at the site, including landslides and slope stability.

IGES recently completed a geotechnical investigation of the property (IGES, 2015), which summarizes the anticipated geotechnical conditions at the site and noted “chaotic, jumbled soil” in some test pits, which may be associated with landslide deposits. Additionally, the average percent of slope across the property around 25%, necessitating a slope stability analysis. Our proposed investigative approach is based in part on the findings of the referenced geotechnical study. The scope of our field work and analysis will be performed in general accordance with the recommendations presented in Blake et al. (2002) and the requirements found in *Chapter 36B: Hillside Development Review Procedures and Standards* of the Weber County Zoning Ordinance.

Our proposed field work will be conducted in two phases. Initially, a geologic site reconnaissance will be performed to produce a site-specific geologic map of the property and relevant adjacent areas. This will identify any notable geomorphic or geologic features that may be indicative of landslides or other adverse geologic conditions that may be present at the site, and will serve to determine the number and location of test pits or trenches to be excavated as part of the second phase of fieldwork. At this time, based upon our current understanding of the local geology and the results produced from the test pits excavated during the geotechnical investigation, we anticipate that six test pits or trenches will need to be excavated in order to sufficiently address the landslide and slope stability concerns across the property. This number may fluctuate, depending upon the findings of the site reconnaissance and input from County reviewers.

The test pits/trenches will be completed to depths ranging from 10 to 15 feet below existing grade (or practical refusal). IGES field personnel will assess the test pit/trench walls for any potentially adverse geologic structures (evidence of shearing, etc.) and assess whether any currently unknown geologic hazards are present at the site. IGES will notify the Weber County geologic and geotechnical reviewers (Mr. Elliott Lips and Mr. Alan Taylor) three days in advance of our field work so that the reviewers have the option to observe the exposed earth materials (our schedule can be fairly flexible in this regard). In addition to bulk soil samples, relatively “undisturbed” samples will be collected from the test pits using a hand-held tube sampler driven with a 2½ lb hammer (particularly hard, rocky earth materials or the presence of bedrock may preclude the use of the hand sampler). Samples will be carefully packaged and transported to our lab for testing.

The test pits/trenches will be spotted in suspected landslide locations and areas with the highest proposed average slope to address both landslide and slope stability concerns. The easternmost portion of the site, including Lots 9 and 10R, is mapped as *undivided mass-movement deposits*, with the most recent movement having taken place within the Holocene and Pleistocene Epochs (Western Geologic, 2012). Our subsurface exploration program will be primarily focused in this area, although other areas identified during our mapping program as potential geologic hazards will also be explored. It is the preference of IGES to spot the

trench locations after the field mapping is complete, in coordination with Weber County reviewers.

As site conditions warrant, slope stability analysis will be performed in accordance with Weber County Code, guidelines set forth by the Southern California Earthquake Center (SCEC) (Blake et. al, 2002), and the generally accepted standard of care for northern Utah. This will include analysis for potential movement under static and seismic conditions as well as likely groundwater conditions, as per Section 38-2 of *Chapter 38: Natural Hazards Overlay Districts* of the Weber County Zoning Ordinance. Our slope stability models will take into consideration proposed grade (cut and fill slopes). Strength of earth materials will be based on laboratory strength tests performed for this project as well as a review of geotechnical data obtained from our previous work at the site.

We look forward to speaking with you regarding our proposed field exploration program. If you have any questions, please contact the undersigned at your convenience at (801) 748-4044.

Respectfully Submitted,
IGES, Inc.



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