

19.75.060 Geologic hazard and engineering geology reports.

This section describes requirements for site-specific geologic hazard studies and reports, where required according to Section 19.75.050, the Geologic Hazard maps and Chart 19.75.050:

A. An engineering geology report that includes a geologic hazards investigation and assessment shall be prepared by a qualified engineering geologist, except as provided in Sections 19.75.060 (C) and (F), below. A “qualified engineering geologist” requires 1) an undergraduate or graduate degree in geology, engineering geology, or a related field with a strong emphasis in geologic coursework, from an accredited university; 2) at least three full years of experience in a responsible position in the field of engineering geology; and 3) per State law, after January 1, 2003, geologists practicing before the public must be licensed in Utah. The report shall be site-specific and shall identify all known or suspected potential geologic hazards, originating on-site or off-site, whether previously mapped or unmapped, that may affect the particular property. All reports shall be signed and stamped by the preparer and include the qualifications of the preparer.

B. Fault rupture hazard reports shall contain all requirements as described in the document “Minimum Standards for Surface Fault Rupture Studies” published by Salt Lake County, and incorporated by reference as Appendix A of this ordinance. Fault study reports shall be prepared, signed, and stamped by a qualified engineering geologist as described in Appendix A.

C. The report shall include a detailed site map (scale: one inch equals two hundred feet or larger), showing the location of the hazard(s) with delineation of the recommended setback distances from hazards(s) and the recommended location for structures.

C. Liquefaction analyses shall contain all requirements as stated in the document “Liquefaction: A Guide to Land Use Planning” published by Salt Lake County, and incorporated by reference as Appendix B to this ordinance. Liquefaction analyses shall be prepared by a qualified professional geotechnical engineer licensed in the State of Utah, and shall include the professional engineer’s original stamp and signature.

Chart 19.75.050
Special Study Area Report Requirements
Based on Special Study Area Maps
Is a Site-Specific Geologic Hazards Report Required Prior to Approval?

Land Use (Type of Facility)	Surface Fault Rupture	Liquefaction Potential		Landslide, Debris Flow & Rockfall	Avalanche
		HIGH and MODERATE	LOW and VERY LOW		
Critical and Essential Facilities as defined in Section 19.75.020	Yes	Yes	Yes	Yes	Yes
Industrial and Commercial Bldgs. (1 story and <5,000 sq. ft.)	Yes	No*	No	Yes	Yes
Industrial and Commercial Bldgs. (>5,000 sq. ft.)	Yes	Yes	No	Yes	Yes
Residential-Single Lots/Single Family Homes	Yes	No*	No	Yes	Yes
Residential Subdivisions (>9 Lots), and Residential Multi-	Yes	Yes	No	Yes	Yes

Family Dwellings (4 or more units per acre)					
Residential Subdivisions (<9 Lots), and Residential Multi-Family Dwellings (<4 units per acre)	Yes	No*	No	Yes	Yes

* Although a site-specific investigation is not required, the owner is required to file a disclosure notice prior to land-use approval

D. Debris flow hazard studies and reports shall include test pits or trench logs (scaled 1 inch to 5 feet), include estimates of the number and frequency of past events and their thicknesses, volume and maximum clast sizes; and include estimates of the recurrence, depth, and impact forces anticipated in future events. While debris flow hazard analyses may require contributions from hydrologists and engineers, the debris flow report shall be under the control of, and prepared by, a qualified engineering geologist, and shall include the geologist’s qualifications to perform the study (such as their experience in performing similar studies).

E. Landslide reports shall be prepared in accordance with the Utah Geological Survey’s “Guidelines for Evaluating Landslide Hazards in Utah” (Hylland, 1996). Landslide reports shall be prepared, signed, and stamped by a qualified engineering geologist, and include the qualifications of the preparer. Slope stability or other analyses included in these reports shall include both static and dynamic conditions, and shall be prepared by a qualified professional geotechnical engineer licensed in the State of Utah, and shall include the professional engineer’s original stamp and signature.

F. Snow avalanche hazard reports shall be prepared in accordance with the document “Snow-Avalanche Hazard Analysis for Land Use Planning and Engineering” (Colorado Geological Survey Bulletin 49) or other appropriate references. Avalanche hazard reports must be prepared by an experienced avalanche expert, and shall include the avalanche expert’s qualifications to perform the study (such as their experience in performing similar studies).

G. Other geologic hazard or engineering geology reports shall be prepared in accordance with Utah Geological Survey Miscellaneous Publication M, “Guidelines for Preparing Engineering Geologic Reports in Utah.” All reports shall be signed by the preparer and include the qualifications of the preparer. Generally, these reports must be prepared, signed, and stamped by a qualified engineering geologist licensed in the State of Utah. However, reports co-prepared by a professional engineer must include the professional engineer’s original stamp and signature.

H. All reports shall include, at a minimum:

1. A 1:24,000-scale geologic map (with reference) showing the surface geology, bedrock geology (where exposed), bedding attitudes, faults or other structural features, and the locations of any geologic hazards;
2. A detailed site map of the subject area showing any site-specific mapping performed as part of the geologic investigation, and including boundaries and features related to any geologic hazards, topography, and drainage. The site map must show the location and boundaries of the hazard(s), delineation of any recommended setback distances from hazard(s), and recommended location(s) for structures. Buildable and non-buildable areas shall be clearly identified. Scale shall be one inch equals two hundred feet or smaller.
3. Trench logs and test pit logs (scale: 1 inch equals 5 feet, or smaller), boring logs (scale: 1 inch equals 5 feet, or smaller), aerial photographs, references with citations, and other supporting information, as applicable (Ord. 1074 § 2 (part), 1989).
4. Conclusions that summarize the characteristics of the geologic hazards, and that address the potential effects of the geologic conditions and geologic hazards on the proposed development and occupants

thereof in terms of risk and potential damage.

5. Specific recommendations for additional or more detailed studies, as may be required to understand or quantify the hazard, evaluate whether mitigation measures are required, and evaluate mitigation options.

6. Specific recommendations for avoidance or mitigation of the effects of the hazard(s), consistent with the purposes set forth in Section 19.75.010. Design or performance criteria for engineered mitigation measures and all supporting calculations, analyses, modeling or other methods, and assumptions, shall be included in the report. Final design plans and specifications for engineered mitigation must be signed and stamped by a qualified professional geotechnical or structural engineer, as appropriate.

7. Evidence on which recommendations and conclusions are based shall be clearly stated in the report.

I. Additional or more detailed studies may be required, as recommended by the report or as determined by the County Geologist, to understand or quantify the hazard, or to evaluate whether mitigation measures recommended in the report are adequate. (Ord. 1500 (part), 2002: Ord. 1074 § 2 (part), 1989)