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# ***Critical Area Report Requirements***

## **Appendix B – Critical Areas Ordinance – KMC 18.55**

### **Geologically Hazardous Areas**

A critical areas report for a geologically hazardous area shall be prepared by a geotechnical engineer or geologist, licensed in the state of Washington, with experience analyzing geologic, hydrologic, and ground water flow systems, and who has experience preparing reports for the relevant type of hazard. The following areas shall be addressed in a critical area report for geologically hazardous areas:

1. Name and contact information of the applicant, a description of the proposal;
2. Site and surrounding land use description;
3. The project area of the proposed activity; and
4. All geologically hazardous areas within two hundred (200) feet of the project area or that have potential to be affected by the proposal.

#### **I. Hazards assessment.**

A critical area report for a geologically hazardous area shall contain an assessment of geological hazards including the following site- and proposal-related information at a minimum:

1. **Site and construction plans.** The report shall include a copy of the site plans for the proposal showing:
  - a. The type and extent of geologic hazard areas, and any other critical areas, and buffers on, adjacent to, within two hundred (200) feet of, or that are likely to impact the proposal;
  - b. Proposed development, including the location of existing and proposed structures, fill, storage of materials, and drainage facilities, with dimensions indicating distances to the floodplain; if available;
  - c. The topography, in two-foot contours, of the project area and all hazard areas addressed in the report; and
  - d. Clearing limits, if available.
2. **Assessment of geological characteristics.** The report shall include an assessment of the geologic characteristics of the soils, sediments, and/or rock of the project area and potentially affected adjacent properties, and a review of the site history regarding landslides, erosion, and prior grading. Soils analysis shall be

accomplished in accordance with accepted classification systems in use in the region. The assessment shall include, but not be limited to:

- a. A description of the surface and subsurface geology, hydrology, soils, and vegetation found in the project area and in all hazard areas addressed in the report;
  - b. A detailed overview of the field investigations, published data and references; data and conclusions from past assessments of the site; and site specific measurements, test, investigations, or studies that support the identification of geologically hazardous areas; and
  - c. A description of the vulnerability of the site to seismic and other geologic events.
3. **Analysis of proposal.** The report shall contain a hazards analysis including a detailed description of the project, its relationship to the geologic hazard(s), and its potential impact upon the hazard area, the subject property and affected adjacent properties; and
4. **Minimum buffer and building setback.** The report shall make a recommendation for the minimum no-disturbance buffer and minimum building setback from any geologic hazard based upon the hazards analysis.
5. **Incorporation of previous study.** Where a valid critical areas report has been prepared within the last five (5) years for a specific site, and where the proposed land use activity and surrounding site conditions are unchanged, said report may be incorporated into the required critical area report. The applicant shall submit a hazards assessment detailing any changed environmental conditions associated with the site.
6. **Mitigation of long-term impacts.** When hazard mitigation is required, the mitigation plan shall specifically address how the activity maintains or reduces the pre-existing level of risk to the site and adjacent properties on a long-term basis (equal to or exceeding the projected lifespan of the activity or occupation). Proposed mitigation techniques shall be considered to provide long-term hazard reduction only if they do not require regular maintenance or other actions to maintain their function. Mitigation may also be required to avoid any increase in risk above the pre-existing conditions following abandonment of the activity.

## II. Erosion and landslide hazard areas.

In addition to the basic critical area report requirements, the technical information for an erosion hazard or landslide hazard area shall include the following information at a minimum:

1. **Site plan.** The critical areas report shall include a copy of the site plan for the proposal showing:
  - a. The height of slope, slope gradient, and cross section of the project area;
  - b. The location of springs, seeps, or other surface expressions of ground water on or within two hundred (200) feet of the project area or that have potential to be affected by the proposal; and
  - c. The location and description of surface water runoff features;

2. **Hazards analysis.** The hazards analysis component of the critical areas report shall specifically include:
  - a. A description of the extent and type of vegetative cover;
  - b. A description of subsurface conditions based on data from site-specific explorations;
  - c. Descriptions of surface and ground water conditions, public and private sewage disposal systems, fills and excavations and all structural improvements;
  - d. An estimate of slope stability and the effect construction and placement of structures will have on the slope over the estimated life of the structure;
  - e. An estimate of the bluff retreat rate that recognizes and reflects potential catastrophic events such as seismic activity or a one hundred year storm event;
  - f. Consideration of the run-out hazard of landslide debris and/or the impacts of landslide run-out on down slope properties.
  - g. A study of slope stability including an analysis of proposed cuts, fills and other site grading;
  - h. Recommendations for building siting limitations;
  - i. An analysis of proposed surface and subsurface drainage, and the vulnerability of the site to erosion;
3. **Geotechnical engineering report.** The technical information for a project within a landslide hazard area shall include a geotechnical engineering report prepared by a licensed engineer that presents engineering recommendations for the following:
  - a. Parameters for design of site improvements including appropriate foundations and retaining structures. These should include allowable load and resistance capacities for bearing and lateral loads, installation considerations and estimates of settlement performance;
  - b. Recommendations for drainage and subdrainage improvements;
  - c. Earthwork recommendations including clearing and site preparation criteria, fill placement and compaction criteria, temporary and permanent slope inclinations and protection, and temporary excavation support, if necessary;
  - d. Mitigation of adverse site conditions including slope stabilization measures and seismically unstable soils, if appropriate.
4. **Erosion and sediment control plan.** For any development proposal on a site containing an erosion hazard area, an erosion and sediment control plan shall be required. The erosion and sediment control plan shall be prepared in compliance with requirements set forth in the City's stormwater management requirements;
5. **Drainage plan.** The technical information shall include a drainage plan for the collection, transport, treatment, discharge and/or recycle of water prepared in accordance with the City's surface water management plan. The drainage plan should consider on-site septic system disposal volumes where the additional volume will affect the erosion or landslide hazard area.
6. **Mitigation plans.** Hazard and environmental mitigation plans for erosion and landslide hazard areas shall include the location and methods of drainage, surface water management, locations and methods of erosion control, a vegetation management and/or replanting plan and/or other means for maintaining long term soil stability.

7. **Monitoring surface waters.** If the Director determines that there is a significant risk of damage to downstream receiving waters due to potential erosion from the site, based on the size of the project, the proximity to the receiving waters, or the sensitivity of the receiving waters, the technical information shall include a plan to monitor the surface water discharge from the site. The monitoring plan shall include a recommended schedule for submitting monitoring reports to the City.

### III. Seismic hazard areas.

In addition to the basic report requirements, a critical area report for a seismic hazard area shall also meet the following requirements:

1. The site map shall show all known and mapped faults within two hundred (200) feet of the project area or that have potential to be affected by the proposal.
2. The hazards analysis shall include a complete discussion of the potential impacts of seismic activity on the site (for example, forces generated and fault displacement).
3. The geotechnical engineering report shall evaluate the physical properties of the subsurface soils, especially the thickness of unconsolidated deposits, and their liquefaction potential. If it is determined that the site is subject to liquefaction, mitigation measures appropriate to the scale of the development shall be recommended and implemented.

### IV. Other geologically hazardous areas.

In addition to the basic requirements, the Director may require additional technical information be submitted when determined to be necessary to the review the proposed activity and the subject hazard. Additional technical information that may be required, includes, but is not limited to:

1. **Site plan.** The site plan shall show all hazard areas located within two hundred (200) feet of the project area or that have potential to be affected by the proposal; and
2. **Hazards analysis.** The hazards analysis shall include a complete discussion of the potential impacts of the hazard on the project area and of the proposal on the hazard.