



CITY of EVERETT
PLANNING and COMMUNITY DEVELOPMENT

GEOLOGICALLY HAZARDOUS AREAS ASSESSMENT Handout

This Handout Addresses: Proposed development activity on or within 200 feet of Geologically Hazardous Areas.

Applicable Code(s): Everett Municipal Code, Title 19 Zoning, Chapter 37 (EMC 19.37.080)
Jump to: 'Zoning Code' at www.everettwa.org

City Staff Assistance: City of Everett Public Works Department
Permit Services Counter
3200 Cedar Street, 2nd Floor
Everett, WA 98201
425.257.8810

Code Synopsis:

If your proposed development or activity is on or within 200 feet of an area mapped as geologically hazardous¹ or the City has reason to believe is near a geologically hazardous area, you may be required to submit a Geotechnical Assessment Letter or a Geotechnical Report from a geologist or geotechnical engineer along with the Land Use, Building and/or Public Works permit application and plans. Any proposed modifications to geologically hazardous areas, such as building a retaining wall on a steep slope or building onto your home near a slope, will likely require a geotechnical assessment and a permit. A geotechnical assessment may also be required to determine a required setback from the top or toe of slope. Geotechnical Covenants may also be required (see attached).

FAQs:

1) *Geotech Letter vs. Geotech Report? Will Covenants and Permits be required?*

Speak with a Planner at the Permit Services Counter or on the phone to determine if a geologic assessment letter or a report is required for your project. They can also help determine if other land use applications, permits and/or geotechnical hold harmless covenants and critical area covenants will be required.

2) *How many copies do I submit?*

¹ <http://www.ci.everett.wa.us/default.aspx?ID=885> - See Critical Areas Maps 1, 2, 3, 4, and 5

It depends on the type of application you are submitting. Most submittals require at least 4 paper copies. Email a PDF to planning@everettwa.gov after we have taken in plans at the Permit Services Counter and you have a permit number. Reference your permit number in the subject line of the email.

3) What is required to be contained in the Letter or Report?

The information below will be helpful for geotechnical professionals in preparing a letter or report for the project.

A **Geotechnical Letter** shall include the following below and be prepared under the responsible charge of a geologist or geotechnical engineer and be signed, sealed and dated.

1. A title which includes "Geologically Hazardous Areas: Geotechnical Letter."
2. The dates when the geological assessment was performed. The date of letter.
3. The parcel number(s), site location and address.
4. A brief description of the project.
5. A brief description of surface and subsurface geology, hydrology, soils, and vegetation of the site and a list of all geologically hazardous areas that were found on or within 200 feet of the site.
6. A paragraph that states the following specific language: "The services described in this letter were prepared under the responsible charge of (Individual's Name). (Individual's Name) is a geologist as defined by EMC 19.4. (Individual's Name) understands the requirements of the current Geologically Hazardous Areas Chapter EMC 19.37.080 and the definitions of the applicable terms contained within EMC 19.4. Individuals under the responsible charge of (Individual's Name) have performed a geological assessment, conducted a field investigation, and researched historic records on or in the vicinity of the above referenced site. In my opinion, the scope of services completed for this project is adequate to meet the requirements of the Department. I have concluded that either:
 - a. A geologically hazardous area does not exist on or within 200 feet of the site, or
 - b. The proposed development will avoid impacts to the geologically hazardous area and no geological hazards will result from the proposed development either on site or on any adjacent properties.
8. The name, mailing address, and telephone number of who performed the geological assessment and prepared the letter.
9. The name, mailing address, and telephone number of the property owner.

At a minimum, a **Geotechnical Report** shall include the following:

1. A title which includes "Geologically Hazardous Area: Geotechnical Report."
2. The dates when the geological assessment was performed. The date of report.
3. The parcel number(s) of the site, site location and address.
4. A detailed description of the project.
5. A description of the surface and subsurface geology, hydrology, soils, and vegetation of the site and a list of all geologically hazardous areas that were found on or within 200 feet of the site.

6. A summary of the results, conclusions, and recommendations resulting from the geological assessment of all geological hazards on or within 200 feet of the site. This summary shall address all of the information required in EMC 19.37.080.F.
7. An accurate site plan drawn at a scale deemed appropriate by the Director is required. The Director may require that the site plan information listed below be based on a field survey by a licensed surveyor. The site plan shall include:
 - a. The limits/location of all geologically hazardous areas set forth in EMC 19.37.080, either on site or within 200 feet of the site. Delineation of the geologically hazardous area limits shall differentiate between areas of historic landslide activity and adjacent unstable areas.
 - b. The limits/location of any required geologically hazardous area buffer based upon the findings and conclusions of the geological assessment and the requirements set forth in EMC 19.37.080.B. (Also note that if streams or wetlands are adjacent to a slope of 25% or greater, a minimum 25' setback from top of slope is required – EMC 19.37.110.B and 19.37.170.B.)
 - c. The location of any existing and proposed structures, utilities, and stormwater management facilities, or any other existing or proposed improvements that may effect any identified geologically hazardous area.
 - d. The full geographical limits of the proposed project area (area to be developed).
 - e. Location and unique identifier of geotechnical borings, CPT soundings, or other surveys or explorations used to characterize subsurface conditions.
 - f. Extent of cross-section(s) used to evaluate the three-dimensional subsurface geologic and groundwater conditions at the site.
 - g. Extent of cross-section(s) used in the evaluation of slope instability or other geological hazards.
 - h. Existing topography on the site presented in two-foot contours.
 - i. Property lines for the site.
 - j. North arrow and plan scale.
8. For all landslide hazard areas, the following information must be provided:
 - a. Subsurface characterization data must be provided. The data shall be based on both existing and new information that may include soil borings (SPT or other appropriate driven sample collection methods), test pits, geophysical surveys, or other appropriate subsurface exploration methods, development of site-specific soil and/or rock stratigraphy, and measurement of groundwater levels including variability resulting from seasonal changes, alterations to the site, etc.
 - b. Soil strength and index properties (i.e., unit weight, cohesion, etc.) shall be provided for each soil unit interpreted from the subsurface characterization of the site, and shall be presented in tabular format. Justification for the presented values of these soil parameters shall be based on one or more of the following approaches:
 - i. Back analysis based on pre-landslide stability conditions.
 - ii. Laboratory measurement of strength or other index properties made on soil samples.
 - iii. Correlation of soil strength index properties to other geotechnical indices (e.g., SPT blow counts, etc.), where the correlation relations

- are documented (e.g., published literatures, in-house empirical data set, etc.).
 - iv. Soil strength and indices based on generic values must provide a clear justification for their use.
- 9. A detailed description of any prior grading activity, soil instability, slope failure, severe erosion, or any other geological hazard existing on the site or within 200 feet of the site.
- 10. Assessments and conclusions regarding geological hazards, and potential impacts of the proposal on any identified geological hazard area shall be provided. For potential landslide hazard areas, slope stability for both the existing and developed conditions shall be presented and documented. These assessments and conclusions shall include:
 - a. Evaluation of the potential types of geological hazards, including landslide failure mechanisms (e.g., debris flow, rotational slump, translational slip, etc.) that may affect the site.
 - b. Quantitative stability evaluation of geological hazard conditions, including slope conditions of the various failure mechanisms using state-of-the-practice modeling techniques. Limiting equilibrium methods of analysis shall state the stability conditions as a factor of safety. The most unstable failure geometry(ies) shall be presented in the form of a cross-section(s), with the least stable failure geometry for each failure mechanism clearly indicated. The stability evaluation shall also consider dynamic (earthquake) loading, and shall use a minimum horizontal acceleration as established by the current version of the International Building Code.
 - c. An analysis of slope regression rate shall be presented in those cases where stability is impacted or influenced by erosional processes (e.g., wave cutting, stream meandering, etc.) acting on the toe of the slope.
- 11. Mitigation recommendations using engineered measures to protect the proposed structure(s) and site improvements and any adjacent structures, infrastructure, adjacent wetlands, or fish and wildlife habitat conservation areas from damage or destruction as a result of proposed construction activities shall be stamped by a professional engineer. The Geotechnical Report shall contain:
 - a. Design plans and associated design calculations for engineered structures or drainage systems (e.g., structural foundation requirements, retaining wall design, etc.).
 - b. Recommendations and requirements pertaining to the handling of surface and subsurface runoff in the developed condition.
 - c. Identification of necessary geotechnical inspections to assure conformance with the report mitigation and recommendations.
 - d. Proposed angles of cut and fill slopes, site grading requirements, final site topography (shown as 2' contours), and the location of any proposed structures, stormwater management features or facilities or any other improvements associated with the development that could effect any geologically hazardous area detailed within the body of the report and shown on a site map at the scale as required by the Director.
 - e. Soil compaction criteria and compaction inspection requirements.

- f. An analysis that indicates how the proposal will avoid impacting any active geologically hazardous area and required buffers.
 - g. Structural foundation requirements and estimated foundation settlement shall be provided if structures are proposed.
 - h. Lateral earth pressures.
 - i. Suitability of onsite soil for use as fill.
 - j. Mitigation measures for building construction on each lot for proposals that include land division, such that additional geotechnical professional involvement is minimized during building construction.
 - k. Construction sequencing recommendations shall be provided when an applicant proposes construction within an area with a slope of 40% or greater or its required buffer when the slope is not associated with another critical area, or when the geotechnical professional recommends sequencing to mitigate impacts of the proposal on geologically hazardous areas.
12. The Geotechnical Report shall contain a paragraph that states the following specific language: "The services described in this report were prepared under the responsible charge of (Individual's Name). (Individual's Name) meets the qualifications contained in EMC 19.37 and 19.4 to prepare a "Geologically Hazardous Area: Geotechnical Report. (Individual's Name) understands the requirements of the current Geologically Hazardous Areas, EMC 19.37.080 and the definitions of the applicable terms contained within EMC 19.4. Individuals under the responsible charge of (Individual's Name) have performed a geological hazard assessment, conducted a field investigation, and researched historic records on and within 200 feet of the above referenced site. In my opinion, the scope of services completed for this project is adequate to meet the requirements of the City.
- B. The Geotechnical Report shall be prepared under the responsible charge of a geologist and be signed, sealed and dated by the geologist.
 - C. The department may request that the geologist provide additional information in the geotechnical report based upon existing conditions, changed conditions, or unique circumstances occurring on a case by case basis.