

## Chapter 17.44 - US—GEOLOGIC HAZARDS

*Footnotes:*

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**Editor's note**— Ord. No. 08-1014, adopted July 1, 2009, repealed Chapter 17.44 in its entirety and enacted new provisions to read as herein set out. Prior to amendment, Chapter 17.44 pertained to similar subject matter. See Ordinance Disposition List for derivation.

## 17.44.010 - Intent and purpose.

The intent and purpose of the provisions of this chapter are:

- A. To ensure that activities in geologic hazard areas are designed based on detailed knowledge of site conditions in order to reduce the risk of private and public losses;
- B. To establish standards and requirements for the use of lands within geologic hazard areas;
- C. To provide safeguards to prevent undue hazards to property, the environment, and public health, welfare, and safety in connection with use of lands within geologic hazard areas;
- D. To mitigate risk associated with geologic hazard areas, not to act as a guarantee that the hazard risk will be eliminated, nor as a guarantee that there is a higher hazard risk at any location. Unless otherwise provided, the geologic hazards regulations are in addition to generally applicable standards provided elsewhere in the Oregon City Municipal Code.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009; Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010)

## 17.44.025 - When required; regulated activities; permit and approval requirements.

No person shall engage in any of the following regulated activities within the adopted Oregon City Geologic Hazards Overlay Zone as defined in section 17.04.515 of the Oregon City Municipal Code without first obtaining permits or approvals as required by this chapter:

- A. Installation or construction of an accessory structure greater than 500 square feet in area;
- B. Development of land, construction, reconstruction, structural alteration, relocation or enlargement of any building or structure for which permission is required pursuant to the Oregon City Municipal Code;
- C. Tree removal on slopes greater than 25 percent where canopy area removal exceeds 25 percent of the lot.
- D. Excavation which exceeds two feet in depth, or which involves twenty-five or more cubic yards of volume;

The requirements of this chapter are in addition to other provisions of the Oregon City Municipal Code. Where the provisions of this chapter conflict with other provisions of the Oregon City Municipal Code, the provisions that are the more restrictive of regulated development activity shall

govern.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009; Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010)

#### 17.44.030 - Procedures.

No building or site development permit or other authorization for development shall be issued until the plans and other documents required by this chapter have been reviewed and found by the review authority to comply with the requirements of this chapter.

- A. Where the development is part of a land use permit application, review shall occur in the manner established in Chapter 17.50 for review of land use decisions.
- B. Where the development is part of a limited land use permit application, review shall occur in the manner established in Chapter 17.50 for review of limited land use decisions.
- C. Where the development is solely part of a grading permit or building permit, the city engineer may allow review to occur in the manner established in Title 15, Chapters 15.04 and 15.48 if the application meets Section 17.44.060 development standards.
- D. For any other proposed development not otherwise subject to review as a land use or limited land use permit application, review shall occur in the manner established in Chapter 17.50 for limited land use decisions.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009; Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010)

#### 17.44.035 - Exemptions.

The following activities, and persons engaging in same, are EXEMPT from the provisions of this chapter.

- A. An excavation which is less than two feet in depth, or which involves less than twenty-five cubic yards of volume;
- B. A fill which does not exceed two feet in depth or twenty-five cubic yards of volume;
- C. Structural alteration of any structure of less than five hundred square feet that does not involve grading as defined in this chapter;
- D. Installation, construction, reconstruction, or replacement of utility lines in city right-of-way, or public easement, not including electric substations;
- E. The removal or control of noxious vegetation;
- F. Emergency actions which must be undertaken immediately to prevent an imminent threat to public health or safety, or prevent imminent danger to public or private property. The person undertaking emergency action shall notify the building official on all regulated activities associated with any building permit or city engineer/public works director on all others within one working day following the commencement of the emergency activity. If the city

engineer/public works director or building official determine that the action or part of the action taken is beyond the scope of allowed emergency action, enforcement action may be taken.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009; Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010)

#### 17.44.050 - Development—Application requirements and review procedures and approvals.

Except as provided by subsection B. of this section, the following requirements apply to all development proposals subject to this chapter:

- A. A geological assessment and geotechnical report that specifically includes, but is not limited to:
  1. Comprehensive information and data regarding the nature and distribution of underlying geology, the physical and chemical properties of existing soils and groundwater; an opinion of site geologic stability, and conclusions regarding the effect of geologic conditions on the proposed development. In addition to any field reconnaissance or subsurface investigation performed for the site, the following resources, as a minimum, shall be reviewed to obtain this information and data:
    - a. The State of Oregon Department of Geology and Mineral Industries (DOGAMI) in Bulletin 99, Geology and Geological Hazards of North Clackamas County, Oregon (1979), or in any subsequent DOGAMI mapping for the Oregon City area;
    - b. Portland State University study entitled "Environmental Assessment of Newell Creek Canyon, Oregon City, Oregon" (1992);
    - c. Portland State University study, "Landslides in the Portland, Oregon, Metropolitan Area Resulting from the Storm of February 1996: Inventory Map, Database and Evaluation" (Burns and others, 1998);
    - d. DOGAMI Open File Report O-06-27, "Map of Landslide Geomorphology of Oregon City, Oregon, and Vicinity Interpreted from LIDAR Imagery and Aerial Photographs" (Madin and Burns, 2006);
    - e. "Preliminary Geologic Map of the Oregon City Quadrangle, Clackamas County, Oregon" (Madin, in press);
  2. Information and recommendations regarding existing local drainage, proposed permit activity impacts on local drainage, and mitigation to address adverse impacts;
  3. Comprehensive information about site topography;
  4. Opinion as to the adequacy of the proposed development from an engineering standpoint;
  5. Opinion as to the extent that instability on adjacent properties may adversely affect the project;
  6. Description of the field investigation and findings, including logs of subsurface

conditions and laboratory testing results;

7. Conclusions regarding the effect of geologic conditions on the proposed development, tree removal, or grading activity;
  8. Specific requirements and recommendations for plan modification, corrective grading, and special techniques and systems to facilitate a safe and stable site;
  9. Recommendations and types of considerations as appropriate for the type of proposed development:
    - a. General earthwork considerations, including recommendations for temporary and permanent cut and fill slopes and placement of structural fill;
    - b. Location of residence on lot;
    - c. Building setbacks from slopes;
    - d. Erosion control techniques applicable to the site;
    - e. Surface drainage control to mitigate existing and potential geologic hazards;
    - f. Subdrainage and/or management of groundwater seepage;
    - g. Foundations;
    - h. Embedded/retaining walls;
    - i. Management of surface water and irrigation water; and
    - j. Impact of the development on the slope stability of the lot and the adjacent properties.
  10. Scaled drawings that describe topography and proposed site work, including:
    - a. Natural physical features, topography at two or ten-foot contour intervals locations of all test excavations or borings, watercourses both perennial and intermittent, ravines and all existing and man-made structures or features all fully dimensioned, trees six-inch caliper or greater measured four feet from ground level, rock outcroppings and drainage facilities;
    - b. All of the features and detail required for the site plan above, but reflecting preliminary finished grades and indicating in cubic yards whether and to what extent there will be a net increase or loss of soil.
    - c. A cross-section diagram, indicating depth, extent and approximate volume of all excavation and fills.
- [11.] For properties greater than one acre, a preliminary hydrology report, prepared by a suitably qualified and experienced hydrology expert, addressing the effect upon the watershed in which the proposed development is located; the effect upon the immediate area's stormwater drainage pattern of flow, the impact of the proposed development upon downstream areas and upon wetlands and water resources; and the effect upon the groundwater supply.

B. Review procedures and approvals require the following:

1. Examination to ensure that:

- a. Required application requirements are completed;
  - b. Geologic assessment and geotechnical report procedures and assumptions are generally accepted; and
  - c. All conclusions and recommendations are supported and reasonable.
2. Conclusions and recommendations stated in an approved assessment or report shall then be directly incorporated as permit conditions or provide the basis for conditions of approval for the regulated activity.
  3. All geologic assessments and geotechnical reports shall be reviewed by an engineer certified for expertise in geology or geologic engineering and geotechnical engineering, respectively, as determined by the city. The city will prepare a list of prequalified consultants for this purpose. The cost of review by independent review shall be paid by the applicant.
- C. The city engineer may waive one or more requirements of subsections A and B of this section if the city engineer determines that site conditions, size or type or development of grading requirements do not warrant such detailed information. If one or more requirements are waived, the city engineer shall, in the staff report or decision, identify the waived provision(s), explain the reasons for the waiver, and state that the waiver may be challenged on appeal and may be denied by a subsequent review authority.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009; Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010)

#### 17.44.060 - Development standards.

Notwithstanding any contrary dimensional or density requirements of the underlying zone, the following standards shall apply to the review of any development proposal subject to this chapter. Requirements of this chapter are in addition to other provision of the Oregon City Municipal Code. Where provision of this chapter conflict with other provision of the Oregon City Municipal Code, the provisions that are more restrictive of regulated development activity shall govern.

- A. All developments shall be designed to avoid unnecessary disturbance of natural topography, vegetation and soils. To the maximum extent practicable as determined by the review authority, tree and ground cover removal and fill and grading for residential development on individual lots shall be confined to building footprints and driveways, to areas required for utility easements and for slope easements for road construction, and to areas of geotechnical remediation.
- B. All grading, drainage improvements, or other land disturbances shall only occur from May 1 to October 31. Erosion control measures shall be installed and functional prior to any disturbances. The city engineer may allow grading, drainage improvements or other land disturbances to begin before May 1 (but no earlier than March 16) and end after October 31 (but no later than November 30), based upon weather conditions and in consultation with the project geotechnical engineer. The modification of dates shall be the minimum necessary,

based upon the evidence provided by the applicant, to accomplish the necessary project goals. Temporary protective fencing shall be established around all trees and vegetation designed for protection prior to the commencement of grading or other soil disturbance.

- C. Designs shall minimize the number and size of cuts and fills.
- D. Cut and fill slopes, such as those for a street, driveway accesses, or yard area, greater than seven feet in height (as measured vertically) shall be terraced. Faces on a terraced section shall not exceed five feet. Terrace widths shall be a minimum of three feet and shall be vegetated. Total cut and fill slopes shall not exceed a vertical height of fifteen feet. Except in connection with geotechnical remediation plans approved in accordance with the chapter, cuts shall not remove the toe of any slope that contains a known landslide or is greater than twenty-five percent slope. The top of cut or fill slopes not utilizing structural retaining walls shall be located a minimum of one-half the height of the cut slope from the nearest property line.
- E. Any structural fill shall be designed by a suitably qualified and experienced civil or geotechnical engineer licensed in Oregon in accordance with standard engineering practice. The applicant's engineer shall certify that the fill has been constructed as designed in accordance with the provisions of this chapter.
- F. Retaining walls shall be constructed in accordance with the Oregon Structural Specialty Code adopted by the State of Oregon.
- G. Roads shall be the minimum width necessary to provide safe vehicle and emergency access, minimize cut and fill and provide positive drainage control. The review authority may grant a variance from the city's required road standards upon findings that the variance would provide safe vehicle and emergency access and is necessary to comply with the purpose and policy of this chapter.
- H. Density shall be determined as follows:
  - 1. For those areas with slopes less than twenty-five percent between grade breaks, the allowed density shall be that permitted by the underlying zoning district;
  - 2. For those areas with slopes of twenty-five to thirty-five percent between grade breaks, the density shall not exceed two dwelling units per acre except as otherwise provided in subsection I of this section;
  - 3. For those areas with slopes over thirty-five percent between grade breaks, development shall be prohibited except as otherwise provided in subsection I.4. of this section.
- I. For properties with slopes of twenty-five to thirty-five percent between grade breaks:
  - 1. For those portions of the property with slopes of twenty-five to thirty-five percent, the maximum residential density shall be limited to two dwelling units per acre; provided, however, that where the entire site is less than one-half acre in size, a single dwelling shall be allowed on a lot or parcel existing as of January 1, 1994 and meeting the minimum lot size requirements of the underlying zone;
  - 2. An individual lot or parcel with slopes between twenty-five and thirty-five percent shall

have no more than fifty percent or four thousand square feet of the surface area, whichever is smaller, graded or stripped of vegetation or covered with structures or impermeable surfaces.

3. No cut into a slope of twenty-five to thirty-five percent for the placement of a housing unit shall exceed a maximum vertical height of fifteen feet for the individual lot or parcel.
4. For those portions of the property with slopes over thirty-five percent between grade breaks:
  - a. Notwithstanding any other city land use regulation, development other than roads, utilities, public facilities and geotechnical remediation shall be prohibited; provided, however, that the review authority may allow development upon such portions of land upon demonstration by an applicant that failure to permit development would deprive the property owner of all economically beneficial use of the property. This determination shall be made considering the entire parcel in question and contiguous parcels in common ownership on or after January 1, 1994, not just the portion where development is otherwise prohibited by this chapter. Where this showing can be made on residentially zoned land, development shall be allowed and limited to one single-family residence. Any development approved under this chapter shall be subject to compliance with all other applicable city requirements as well as any applicable state, federal or other requirements;
  - b. To the maximum extent practicable as determined by the review authority, the applicant shall avoid locating roads, utilities, and public facilities on or across slopes exceeding thirty-five percent.
- J. The geotechnical engineer of record shall review final grading, drainage, and foundation plans and specifications and confirm in writing that they are in conformance with the recommendations provided in their report.
- K. At the city's discretion, peer review shall be required for the geotechnical evaluation/investigation report submitted for the development and/or lot plans. The peer reviewer shall be selected by the city. The applicant's geotechnical engineer shall respond to written comments provided by the city's peer reviewer prior to issuance of building permit.
- L. The review authority shall determine whether the proposed methods of rendering a known or potential hazard site safe for construction, including proposed geotechnical remediation methods, are feasible and adequate to prevent landslides or damage to property and safety. The review authority shall consult with the city's geotechnical engineer in making this determination. Costs for such consultation shall be paid by the applicant. The review authority may allow development in a known or potential hazard area as provided in this chapter if specific findings are made that the specific provisions in the design of the proposed development will prevent landslides or damage. The review authority may impose any conditions, including limits on type or intensity of land use, which it determines are necessary to assure that landslides or property damage will not occur.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009; Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010)

#### 17.44.070 - Access to property.

- A. Shared private driveways may be required if the city engineer or principal planner determines that their use will result in safer location of the driveway and lesser amounts of land coverage than would result if separate private driveways are used.
- B. Innovations in driveway design and road construction shall be permitted in order to keep grading and cuts or fills to a minimum and to achieve the purpose and policy of this chapter.
- C. Points of access to arterials and collectors shall be minimized.
- D. The city engineer or principal planner shall verify that adequate emergency services can be provided to the site.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009; Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010)

#### 17.44.080 - Utilities.

All new service utilities, both on-site and off-site, shall be placed underground and under roadbeds where practicable. Every effort shall be made to minimize the impact of utility construction. Underground utilities require the geologic hazards permitting and review prescribed herein.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009; Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010)

#### 17.44.090 - Stormwater drainage.

The applicant shall submit a permanent and complete stormwater control plan. The program shall include, but not be limited to the following items as appropriate: curbs, gutters, inlets, catch basins, detention facilities and stabilized outfalls. Detention facilities shall be designed to city standards as set out in the city's drainage master plan and design standards. The review authority may impose conditions to ensure that waters are drained from the development so as to limit degradation of water quality consistent with Oregon City's Title III section of the Oregon City Municipal Code Chapter 17.49 and the Oregon City Public Works Stormwater Management Design Manual and Standards Plan or other adopted standards subsequently adopted by the city commission. Drainage design shall be approved by the city engineer before construction, including grading or other soil disturbance, has begun.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009; Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010)

#### 17.44.100 - Construction standards.

During construction on land subject to this chapter, the following standards shall be implemented by the developer:

- A. All development activity shall minimize vegetation removal and soil disturbance and shall provide positive erosion prevention measures in conformance with OCMC Chapter 17.47—



## Erosion and Sediment Control.

- B. No grading, clearing or excavation of any land shall be initiated prior to approval of the grading plan, except that the city engineer shall authorize the site access, brush to be cleared and the location of the test pit digging prior to approval of such plan to the extent needed to complete preliminary and final engineering and surveying. The grading plan shall be approved by the city engineer as part of the city's review under this chapter. The developer shall be responsible for the proper execution of the approved grading plan.
- C. Measures shall be taken to protect against landslides, mudflows, soil slump and erosion. Such measures shall include sediment fences, straw bales, erosion blankets, temporary sedimentation ponds, interceptor dikes and swales, undisturbed buffers, grooving and stair stepping, check dams, etc. The applicant shall comply with the measures described in the Oregon City Public Works Standards for Erosion and Sedimentation Control (Ordinance 99-1013).
- D. All disturbed vegetation shall be replanted with suitable vegetation upon completion of the grading of the steep slope area.
- E. Existing vegetative cover shall be maintained to the maximum extent practicable. No grading, compaction or change in ground elevation, soil hydrology and/or site drainage shall be permitted within the drip line of trees designated for protection, unless approved by the city.
- F. Existing perennial and intermittent watercourses shall not be disturbed unless specifically authorized by the review authority. This includes physical impacts to the stream course as well as siltation and erosion impacts.
- G. All soil erosion and sediment control measures shall be maintained during construction and for one year after development is completed, or until soils are stabilized by revegetation or other measures to the satisfaction of the city engineer. Such maintenance shall be the responsibility of the developer. If erosion or sediment control measures are not being properly maintained or are not functioning properly due to faulty installation or neglect, the City may order work to be stopped. (Ord. 03-1014, Att. B3 (part), 2003; Ord. 94-1001 §2(part), 1994)
- H. All newly created lots, either by subdivision or partition, shall contain building envelopes with a slope of thirty-five percent or less.
- I. The applicant's geotechnical engineer shall provide special inspection during construction to confirm that the subsurface conditions and assumptions made as part of their geotechnical evaluation/investigation are appropriate. This will allow for timely design changes if site conditions are encountered that are different from those anticipated.
- J. Prior to issuing an occupancy permit, the geotechnical engineer shall prepare a summary letter stating that the soils- and foundation-related project elements were accomplished in substantial conformance with their recommendations.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009; Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010)

## 17.44.110 - Approval of development.

The city engineer shall review the application and verify, based on the applicant's materials and the land use record, whether the proposed development constitutes a hazard to life, property, natural resources or public facilities. If, in the city engineer's opinion, a particular development poses such a hazard, the city engineer shall recommend to the review authority permit conditions designed to reduce or eliminate the hazard. These conditions may include, but are not limited to, prohibitions on construction activities between November 1st and March 31st.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009; Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010)

## 17.44.120 - Liability.

Approval of an application for development on land subject to this chapter shall not imply any liability on the part of the city for any subsequent damage due to earth slides. Prior to the issuance of a building permit, a waiver of damages and an indemnity and hold harmless agreement shall be required which releases the city from all liability for any damages resulting from the development approved by the city's decision.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009; Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010)

## 17.44.130 - Compliance.

Nothing contained in this chapter shall relieve the developer of the duty to comply with any other provision of law. In the case of a conflict, the more restrictive regulation shall apply.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009; Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010)

## 17.44.140 - Appeal.

The review authority's decision may be appealed in the manner set forth in Chapter 17.50.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009; Ord. No. 10-1003, § 1(Exh. 1), 7-7-2010)