

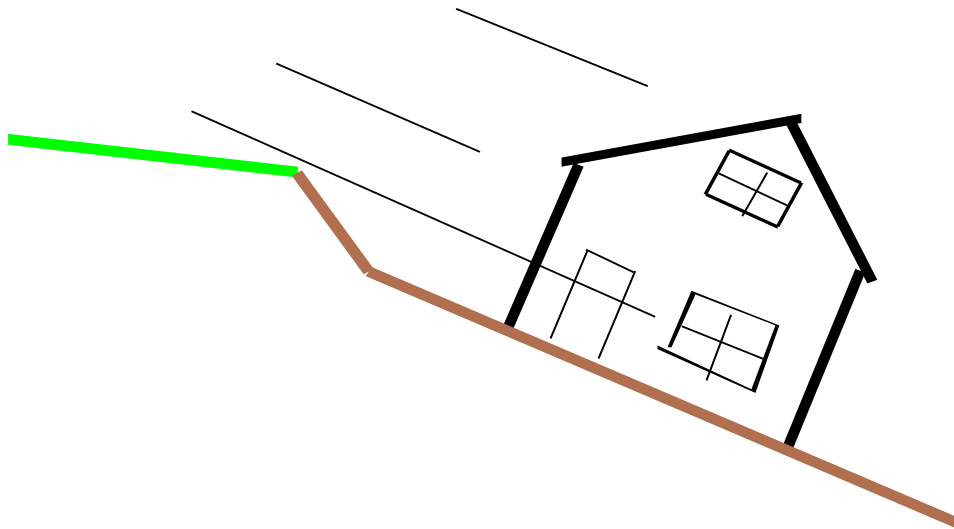


**BUILDING YOUR NEW HOUSE ON A HILLSIDE OR OCEAN BLUFF**  
Chapter 17.100, Hazardous Building Site Protection/Hillside Development Standards,  
Brookings Municipal Code (BMC)

Portions of Chapter 17.100, Hazardous Building Site Protection/Hillside Development Standards, BMC apply to all property within the City. The level of protection required is based on the steepness of slopes, relation to coastal bluffs, and other known or hazardous conditions that may exist.

These are some of the reasons why the City is concerned about building on hillsides:

- Neither you nor the City wants to see your house slide down the hill or into the ocean after a particularly strong rainstorm or an earthquake;
- Concern for the safety of those who have built on property below you;
- Possible erosion caused by the grading that is necessary to build houses on a steep hillside;
- Due to the lack of vegetation, heavy rain storms on bare ground may destabilize the hillside, causing land slumps and slides that threaten your property and the properties downhill from you.



Building on a steep hillside may require a foundation that is substantially different than the ordinary house foundation. These foundations will need to be engineered to ensure that once built, the house will stay in place. If the foundation fails not only will your house be damaged, it could also damage the property below you. Erosion can result in damage to newly graded cut and fill slopes on your property and can wash dirt and other debris downstream, clogging ditches and culverts and eventually affecting the area's fish bearing streams. Many of the hillsides in the area contain unstable soils that tend to slump or slide away when the trees, grasses and shrubs are removed through the grading process. The soils on the ocean bluffs are subject to erosion due to wave action and storm surge as well as slumping or sliding.

## Minimizing the danger

To minimize the danger the City has adopted a set of hillside development standards that can be found in Chapter 17.100, Hazardous Building Site Protection/Hillside Development Standards, BMC.

## Requirements for Property Located in Hazard Areas

Properties that have average slopes on the property of 15% or greater, or are adjacent to the ocean bluff, or other locations where there is an existing or suspected hazard, regardless of the degree of slope have the most requirements. Engineered plans showing grading, drainage, erosion control, and vegetation removal must be submitted along with a site specific geologic report. These materials will be reviewed by Staff or by the City Engineer, depending on complexity.

The geologic report will establish a building setback line, which determines how close to a slope or bluff a structure can be safely placed. See Figure 2. In the case of a newer subdivision or partition this setback line may have been established with a preliminary geological report. If that report was site specific and addressed the setbacks as well as the foundation, you will only be required to provide an addendum to that report. The addendum usually verifies conditions on the property have not changed and considers the specific structure to be constructed on the site.

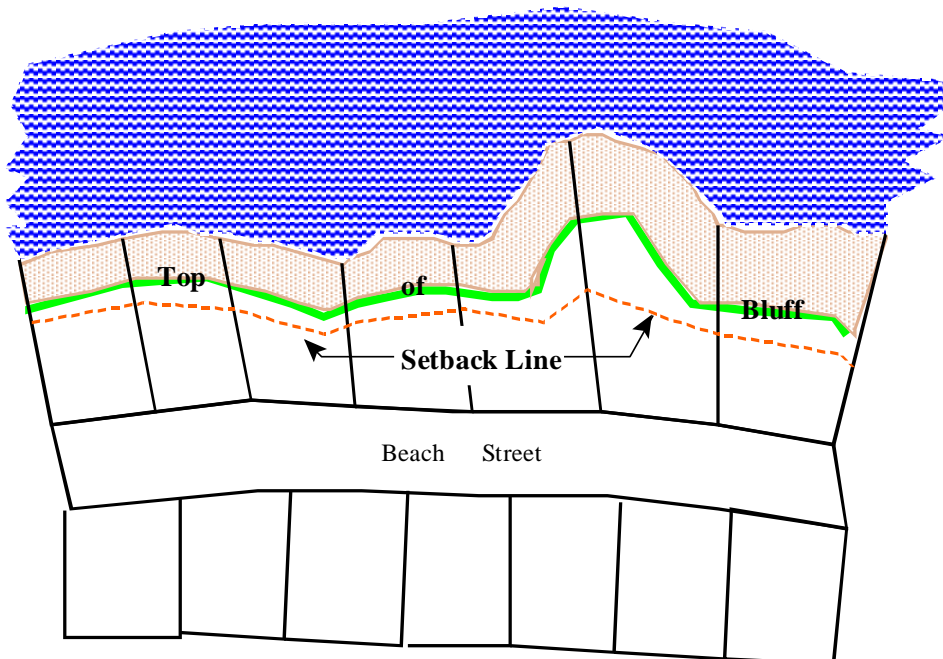


Figure 2

In the case of a subdivision, the preliminary geological report may only show that all of the lots are suitable for development but may require a site-specific geological report to determine what type of foundation is needed for each lot. See Figure 3

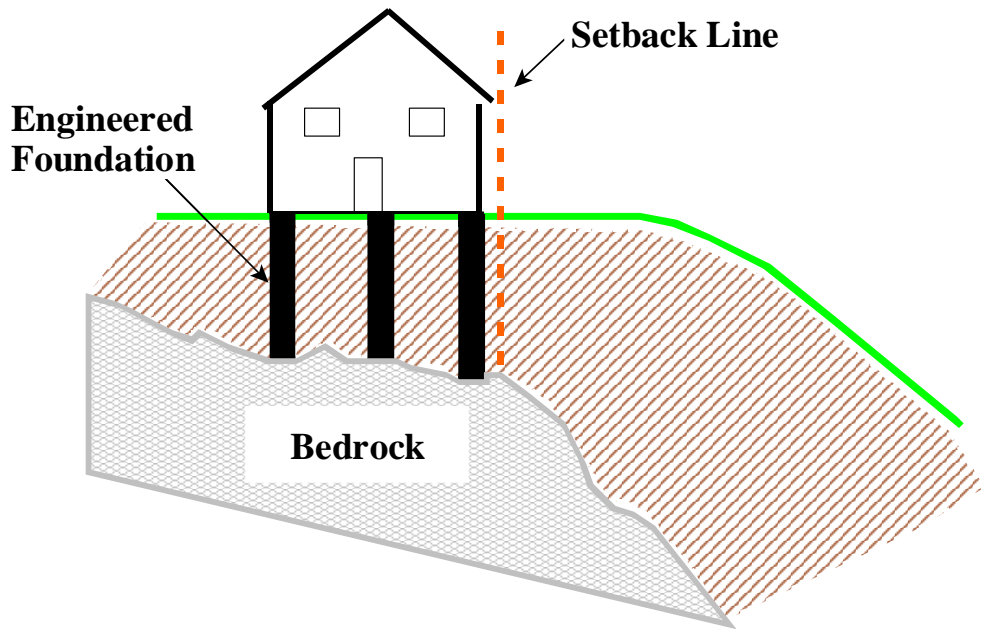


Figure 3

BMC 17.100.070 describes what must be show on the engineered plans. The grading plan must be prepared by an Oregon licensed civil engineer and submitted before any grading or vegetation is removed from the site. If it is necessary to remove some vegetation to survey the site or to obtain the needed professional reports/plans, a plot plan showing where the vegetation will be removed must be submitted for approval prior to any disturbance on the property.

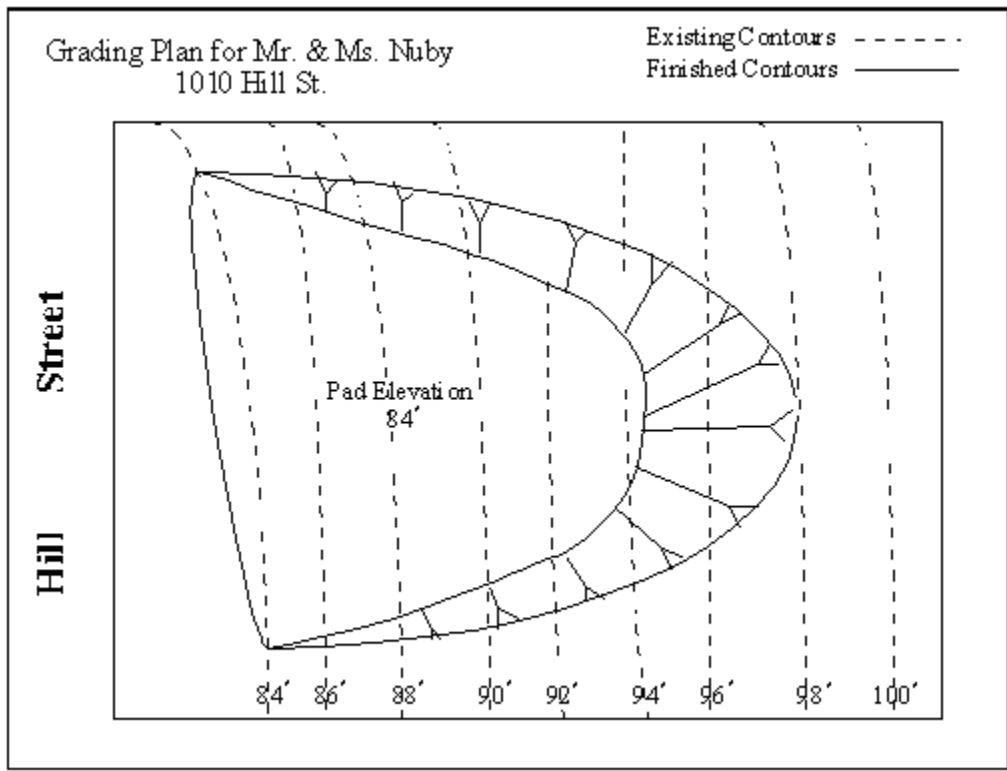
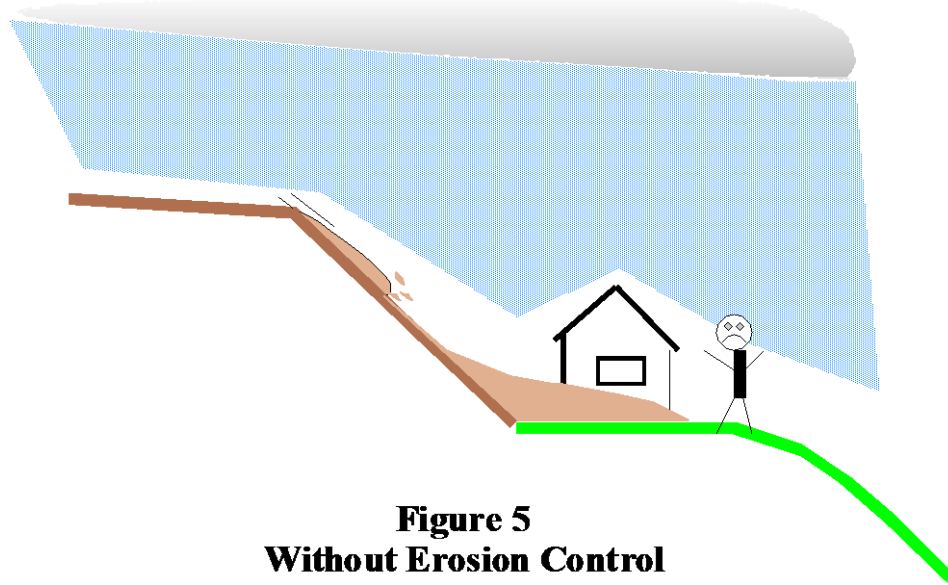
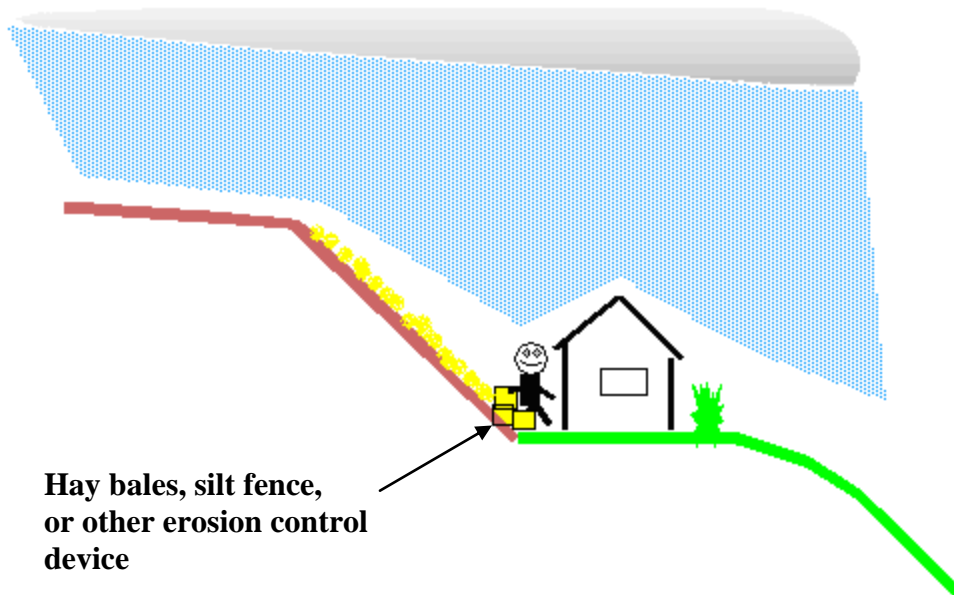


Figure 4

The erosion control plan must show how, after the vegetation has been removed and grading accomplished, water runoff from the property will not allow silt and mud from denuded land to flow off the subject property. This plan must also be prepared by an Oregon licensed civil engineer. The erosion control plan is only for the construction period of your home. Once constructed the landscaping will provide erosion control. For example the bank in Figure 4 would ultimately be planted with some sort of ground cover to prevent erosion.



**Figure 5**  
**Without Erosion Control**



**Figure 6**  
**With Erosion Control**

**Chapter 17.100.070 Engineered Plans Required, BMC states as follows:**

**A.** No property shall be disturbed, graded, excavated, filled, storm water drainage redirected or developed within the City so as to cause slides of mud, soil, rock, vegetative material or any eroded or depositional material to be deposited on the property of another.

**B.** The applicant shall submit plans prepared by an Oregon licensed civil engineer prior to any site preparation, including vegetation removal, except as allowed for survey purposes in subsection 100.060 \*Note, on a lot or parcel with hazardous conditions as defined in subsection 100.020(F), and on any proposed partition or subdivision. At the discretion of the Site Plan Committee, this requirement may be waived or modified on lots or parcels greater than one acre in size. The plans must be approved by the City and shall include the following information:

**1.** An erosion control plan showing the area to be denuded of vegetation, erosion control measures and implementation time table. Erosion and sedimentation caused by storm water runoff shall be minimized by employing the following measures, or substitute measures deemed acceptable by the City Manager or his or her qualified designee:

**a.** Only the minimal removal of vegetation cover, particularly tree cover, necessary for building placement or access shall be done. Removal of trees and brush for view enhancement can be a part of the grading plan if such an action does not increase the potential hazard and/or mitigation can be applied. The City shall observe this in the development of streets and building pads.

**b.** Measures for controlling runoff, such as silt fencing, hay bales, berms, holding ponds, terraces, ditches, hydro seeding or permanent cover shall be used as required, particularly in areas having slopes of 15% or greater. The applicant shall contact Oregon Department of Environmental Quality (DEQ) concerning the possible need for a 1200C Storm Water General Permit.

**2.** Prior to any grading, a grading plan showing all cut and fill slopes associated with new or improved roads, driveways, building pads, and all utility grading including water, sewer, electrical, telephone, and television cables. The grading plan shall include associated erosion control measures and implementation time table for the grading operation.

**3.** A drainage plan to control groundwater and storm water runoff.

**a.** All storm drainage shall be designed by a Civil Engineer and approved by the City. The storm drain facilities shall be designed for storms having a 25-year recurrence frequency. Storm water shall be directed into drainage with capacity to be calculated in accordance with the City's Comprehensive Plan for Storm Drainage Development and Chapter 8.10 of the Brookings Municipal Code, and address on-site and off-site impacts, so as not to flood adjacent or downstream property.

**b.** In all areas of the city, the City Manager or his or her designee may require culverts or other drainage facilities, designed in accordance with the City's Comprehensive Plan for Storm Drainage Development and Chapter 8.10 of the Brookings Municipal Code, be installed as a condition of construction.

**c.** Plan must include a determination of seasonal high water table level impact on development of the property, and a groundwater drainage mitigation design if necessary.

**C.** Developments which abut the coastal bluffs or coastal shoreland boundary, or direct surface water runoff over the bluffs or boundary shall require any special impact mitigation measures as recommended in the geologic hazard report.

**D.** Filling of lowlands shall be done only where it is determined that the fill shall not cause flooding or damage to adjacent properties and where adequate drainage facilities are installed. This provision may be superseded when lowlands contain jurisdictional wetlands, where State wetland removal/fill permits would be required, or areas regulated by the City Flood Damage Prevention Ordinance.

**E.** No work shall commence until the applicant has received written approval from the City and required permits have been issued.

### **Requirements for Property not Located in Hazard areas**

All lots and parcels with slopes of less than 15%, and not located within a special hazard area must still provide an erosion control plan pursuant to Chapter 17.100.030(B) BMC. It does not need to be prepared by an engineer. This plan shall be submitted prior to any site preparation.

### **Application for a Building Permit**

When you submit your application for a building permit, land use application, or site preparation you should also submit the required materials discussed above with your application. If your property is located in a steep slope/hazard area, your engineer must submit four (4) copies of the grading and erosion control plan to the City. Your plans must be reviewed and approved by Staff or the City Engineer. If the plans are sent to the City Engineer, Staff will be notified by letter that your Chapter 17.100 materials have been accepted or the Engineer will request changes or additional materials. Once accepted, the City Engineer will return two copies of the approved plan to the City and one will be provided to you or your contractor and the building permit will be issued. If reviewed by Staff, you will be notified if additional materials are required. Once accepted and approved one copy of the plan will be provided to you or your contractor and the building permit will be issued.

If an application for a building permit is submitted without the required materials, you will be notified of the deficiency and your application will be held until the materials are received and if need be, accepted by the City Engineer.

Hopefully this pamphlet has answered your questions as to what is required for development on hillsides and why it is required. A copy of the City of Brookings Land Development Code can be found at the City's web site at [www.brookings.or.us](http://www.brookings.or.us) . If you have any questions or need more information please call the Brookings Planning Department at (541) 469-1137.