

# Chapter 26 Hillside Development

**Section 10:26: 1 Purpose**

**Section 10:26: 2 Definitions**

**Section 10:26: 3 Established**

**Section 10:26: 4 Permit Required**

**Section 10:26: 5 Application Reports**

**Section 10:26: 6 Restoration Bond**

**Section 10:26: 7 Density and Disturbance Standards**

**Section 10:26: 8 Slope and Slope Areas; Determination**

**Section 10:26: 9 Street Design**

**Section 10:26:10 Building Setbacks and Additional Design Standards**

**Section 10:26:11 Verification of Compliance**

**Section 10:26:12 Violation: Halt of Construction**

## **Section 10:26:1 Purpose:**

The town finds that the health, safety and the general public welfare of the residents of the town will be promoted by establishing standards for the development and excavation of hillside and slope areas located in the town so as to minimize soil and slope instability and erosion, to minimize the adverse effects of grading, cut and fill operations, to preserve the character of the city's hillsides, and to otherwise supplement and amplify the town subdivision and zoning titles. The provisions herein are designated to accomplish the following:

- A. Prohibit development of uses which would result in a hazardous situation due to slope instability, rock falls or excessive soil erosion.
- B. Provide for safe vehicular circulation and access.
- C. Require that the location, design and development of building sites will minimize the visual scarring and erosion effects of cutting, filling and grading of hillsides.
- D. Require preservation of open space by clustering or other design techniques to preserve the natural terrain.
- E. Where hillside excavation does occur, require that buildings be located in the cut area to minimize the visual effects of scarring.

## **Section 10:26:2 Definitions:**

For the purposes of this article, the following words and phrases shall have the following meanings:

**CUESTA:** A land form that has a steep ascent in one direction and a gentle descent in the opposite direction. The steep slope is the cuesta face, an erosion escarpment, and the gentle one is the back slope of the cuesta. The crest of the cuesta forms a ridgeline.

**CUT:** Land surface which is reshaped by man through the removal of soil, rock or other materials.

**DEVELOPMENT:** The carrying out of any building activity or clearing of land as an adjunct of construction. "Major development" shall be considered to be subdivision platting, including town homes and condominiums, multi-family residential projects, commercial and industrial building.

**DEVELOPMENT PARCEL:** Any quantity of land capable of being described with such definiteness that its location and boundaries may be established, which is designated by its owner or developer as land to be used or developed as a unit or which has been used or developed as a unit.

**EXCAVATION:** Any disturbance to the ground, including, but not limited to, clearing, grubbing, rock removal, cutting, tunneling, drilling or any other activity which alters the natural ground. "Minor" excavation shall mean a vertical cut of four feet (4') or less, or a disturbance of less than one acre of surface area. "Major" excavation shall mean a vertical cut of more than four feet (4'), or disturbance of more than one acre of surface area.

**FILL:** The deposit of soil, rock or other materials placed by man.

**GEOTECHNICAL ENGINEER:** A person with a four (4) year degree in civil engineering or engineering geology from an accredited university who, through training and experience, is able to assure that geological factors affecting engineering works are recognized, adequately interpreted and presented for use in engineering practice and for the protection of the public.

**LEDGE:** The first substantial abrupt change in slope along the top edge of a plateau or ridgeline.

**PLATEAU:** A flat or predominantly flat area of land which is raised sharply above adjacent land on at least one side.

**RIDGELINE:** The junction of a rising steep slope on one side and a descending slope that may either be gentle or steep on the other side.

**SETBACK:** An area in which no structure or building is allowed.

**SLOPE:** A vertical rise in feet measured over a horizontal distance, expressed as a percentage, measured generally at right angles to contour lines.

**TABLELAND:** Land where the slope in any direction is less than ten percent (10%).

**UNDISTURBED:** An area that remains in a natural, pristine condition and not subject to grading, excavation, or other similar disturbance.

### **Section 10:26:3 Established:**

- A. Conflicts; Annexed Areas: A hillside development overlay zone is established, which shall be an overlay zone of the zoning classifications in this title. In the event of conflict between the provisions, these provisions shall apply. Areas hereafter annexed to the town may be affected by the hillside development overlay zone at the time of annexation in the manner then determined by the building official and/or town engineer and reflected in appropriate amendment to the zone map referred to herein.
- B. Conformance Required: Property within the hillside development overlay zone shall conform to the provisions of this article.
- C. Zone Described; Slope: The hillside development overlay zone shall be described as any hillside within the boundaries of the town with a slope of ten percent (10%) or greater.

### **Section 10:26:4 Permit Required:**

- A. Review; Recommendation: All major development on slopes of ten percent (10%) or greater within either the hillside development overlay zone or within a geologic hazard area shall require a hillside development permit granted by the town council prior to any excavation or construction activity. The building official and/or town engineer shall first review all proposed major development for compliance with this and other town ordinances and standards, including the uniform building code, and make a recommendation to the planning commission and town council for approval, conditional approval or denial of the proposed development.
- B. Major Development: Major development shall include subdivision platting, including town homes and condominiums, multi-family residential projects, commercial, industrial building, or excavation which involves a vertical cut greater than four feet (4') or involves excavating a surface area larger than one acre.
- C. Minor Excavations: Minor excavation involves vertical cuts of four feet (4') or less and also disturbs less than one acre of surface area.

### **Section 10:26:5 Application Reports**

Any applicant for a major development on slopes ten percent (10%) or greater, or within either the hillside development overlay zone or within a geologic hazard area shall be required to submit to the building official and/or town engineer the following technical information and reports. Minor excavation shall require a grading permit and must conform to requirements of the uniform building code and the applicant shall also submit an earth moving plan in conformity with subsection B of this section, a restoration bond, if necessary, in the discretion of the building official and/or town engineer, and such other information as may be required by the building official or town engineer, if any, prior to issuance of a grading permit. Any applicant for a zone change on slopes ten percent (10%) or greater, shall submit a geotechnical and soils report.

A. Site Development Plans: Site development plans prepared by a licensed engineer, architect or licensed landscape architect containing:

1. Grading, Earth Moving Plan: A grading or earth moving plan showing existing and proposed contours and cross sections. Accurate contours extending at least one hundred feet (100') outside of all boundary lines of the site or sufficient to show off site drainage. The slope of proposed cuts and fills shall be shown on the grading plan. The depth of any cut or fill shall not exceed ten feet (10') when measured vertically from the finished grade to the intersection of the slope with the natural undisturbed ground. The combined height of cuts and fills shall not exceed twenty feet (20'), unless otherwise approved by the building official or town engineer. This approval is subject to incorporating retaining, terracing and landscaping or other approved techniques for stabilizing cuts and fills. All excavation and fills shall conform to the uniform building code.

2. Drainage Systems: Detailed plans of all surface and subsurface drainage systems and facilities, walls, cribbing or other erosion protection devices, to be constructed in connection with or as part of the proposed area and estimated runoff of the area served by any drainage systems or facilities.

3. Streets, Buildings, Structures: The location of any existing and proposed streets, buildings or structures, easements and drainage channels on the property.

4. Structure Location: Detailed site plans and elevation drawings showing location of all structures and how and to what extent hillside cuts will be covered and/or retained by proposed development. An earth moving plan shall be prepared by a licensed civil engineer for all major excavations and an earth moving plan for excavations of a minor nature shall be prepared and submitted for approval by the building official or town engineer.

5. Traffic Study: Traffic study, if deemed necessary by the building official or town engineer.

B. Earth Moving Plan: An earth moving plan prepared by a licensed professional civil engineer, shall include the following:

1. Topography: Property contours shall be shown at two foot (2') intervals for tableland and five foot (5') intervals for slopes thirty percent (30%) or greater.

2. Terrain Details: Special notes and details of the existing terrain shall be noted on the required topographic information.

3. Proposed Earth Moving Details: The dimensions, elevations and contours of any proposed earth moving shall be shown.

4. Material Disposal: A description shall be included of the methods to be employed in disposing of soil and other material removed, including the location of the disposal site.

5. Timetable: A schedule shall be included showing when each stage of the project will be completed, including the estimated starting and completion dates.

C. Drainage Control Plan And Report: A drainage control plan and report prepared by a licensed professional civil engineer registered in the state shall be submitted with each application. The design of the drainage control system shall be based upon the following criteria:

1. All drainage systems shall be separate and independent from the sanitary sewer system.

2. Drainage and flood control shall be designed in conformance with the town flood control master plan where applicable.

3. Property development shall not cause a natural drainage channel to be filled in, obstructed or diverted. When modification to a natural drainage channel is proposed within the development, such changes will be addressed in the drainage study and shown on the improvement plans, and the developer may be required to dedicate right of way or record drainage easements for structures and/or improvements needed to carry storm runoff in the event approval is given for the proposed modification.

4. The point of location where the natural drainage channel enters and leaves the property may not be changed without approval of the public works director or town engineer.

5. All of the drainage basin upstream of the development shall be considered to be fully developed in conformance with the city's current land use master plan. Effects on the downstream property owners relative to increased flood potential and nuisance water shall also be considered in the design, including acquisition of easements or agreements where necessary, or construction or modification of improvements where needed.

6. The developer shall provide the necessary means to assure drainage within the property being developed by making use of existing facilities or natural washes or channels.

7. It shall be required that each new development handle the storm water runoff in such manner that no net increase in storm runoff above the natural state will occur on the downstream properties. In other words, the preproject flows must not be exceeded by the postproject flows.

8. Streets are significant and important in urban drainage and full use shall be made of streets for storm runoff up to reasonable limits, recognizing that the primary purpose of streets is for traffic. Reasonable limits of the use of streets for transportation of storm runoff shall be governed by the below listed design criteria:

Street Classification	Maximum Encroachment
Hillside access/hillside local	No curb overtopping. Flow may spread to crown.
Local road	No curb overtopping. Flow spread must leave at least one lane free of water.
Minor collector	No curb overtopping. Flow spread must leave one lane free of water in each direction.

When the above encroachment is exceeded, an independent storm water system shall be designed and constructed based on a 50-year frequency storm.

9. The storm water from a 100-year frequency storm shall be adequately conveyed either within the limits of the street right of way or in storm drain easements without creating flood hazards to dwellings.

10. When an underground pipe system is required, it shall be designed to carry a 50-year frequency storm. Major hydraulic structures shall be designed to carry a 50-year frequency storm, the minimum storm drain size shall be eighteen inches (18").

11. Detention shall be allowed where it is compatible with all required reports. Detention basins shall be used for the purpose of eliminating the effects of the peak runoff of storms and releasing water flow at the preproject or approved rate.

12. Cross gutter drains on streets shall be avoided wherever possible. They shall not be allowed on collector and higher order streets.

13. Drainage plans must be consistent with all other reports, i.e., geotechnical, soils, landscaping, etc.

14. When springs or other ground water sources are found on the developer's property, the construction of an underground pipe system to eliminate the nuisance of this water will be required. Minimum pipe size shall be eighteen inches (18"). Overland flow will not be allowed for water that is continuously present.

15. Necessary measures shall be taken to prevent erosion and scour at all points throughout the development. It shall be mitigated at all points of discharge and at the face of any cut or fill slope throughout the development.

16. During grading or construction on any property (including off site construction), the developer shall control both water used for construction and storm runoff in such a manner as to not affect any adjoining properties, nor add silt or debris to any existing storm drain, wash, channel or roadway.

D. Drainage Control Plan Approval: The drainage plan shall be approved by the public works director or city engineer prior to final plan approval and issuance of a building permit. The plan shall be prepared in conformance with guidelines available in the town office.

E. Geology And Soils Report: A geology and soils report shall be prepared by a licensed professional engineer trained and experienced in the practice of geotechnical engineering, and shall contain at least the following information:

1. Slope stability analysis; conclusions and recommendations concerning the effects of material removal, introduction of water, ground shaking and erosion on slope stability.
2. Foundation investigation; conclusions and recommendations concerning the effects of soil conditions on foundation and structural stability, including bearing capacity, shear strength and shrink/swell potential of soils.
3. The location and yield of springs and seeps which shall be shown on the site plan.
4. Structural features, including any geological limitations.
5. Existence of surface hazards, including potential for rock falls and toppling failures to cliffs, slopes and overhangs above the subject property.
6. Conclusions and recommendations regarding the effect of geologic conditions on the proposed development, together with recommendations identifying the means proposed to minimize any hazard to life or property, or adverse impact on the natural environment.

F. Landscape And Vegetation Plan: Prior to final plat or site plan approval of a project, a landscape plan, prepared by a licensed landscape contractor or a landscape architect, in conjunction with the overall site plan, must be submitted for approval. The plan shall outline areas being excavated and filled and describe in detail how the developer will restore or replant these areas. The plan shall specify types of retention being used, together with sprinkler plans and water usage methods suitable to the soils of the project.

## Section 10:26:6 Restoration Bond

A surety bond or letter of credit to assure hillside restoration shall be provided prior to issuance of a hillside development permit for projects disturbing one acre or more, or where determined necessary by the building official or town engineer on projects involving less than one acre. Such financial guarantee shall be provided in an amount sufficient to ensure necessary soil stabilization, including grading, planting and maintenance, in the event the developer fails to complete the hillside restoration in accordance with the approved plan within one year from the issuance of the permit; provided, that the town council may grant such additional time extension as may be necessary to allow completion of the restoration work in the event significant progress toward completion of the project is underway. The surety bond or letter of credit shall cover the cost, as estimated by an approved landscape architect or qualified contractor, or a geotechnical engineer and approved by the town council, to restore the hillside to an acceptable level of appearance and stability. In the case of a dispute over what constitutes an acceptable level of restoration, the decision of the mayor shall be determinative.

## Section 10:26:7 Density and Disturbance Standards

A. Schedule: In furtherance of the purposes set forth above, density and site disturbance within the hillside development overlay zone shall comply with the following schedule. Any portion of a development parcel having a slope greater than thirty percent (30%) shall not be included in the calculation of the area of such parcel for the purposes of determining conformity with the density requirements below:

<b>Percent Natural Slope</b>	
--------------------------------------	--

Dwelling Units (DU)/Acre

**0 – 10**

See underlying zone.

**11 – 19**

1 DU/acre, provided the units are clustered on 30 percent or less of the land area within this slope category. 70 percent of this slope category shall remain undisturbed. The 70 percent area is based upon the overall area/development rather than per lot. Also see subsections A1, A2, and A3 of this section.

**20 – 29**

1 DU/10 acres, provided no more than 5 percent of the site is disturbed, and 95 percent of the site remains undisturbed. If the cumulative area is at least 1 acre but less than 10 acres, the cumulative area shall be allowed 1 DU.

**30**

Development is not permitted.

1. A "steep slope protection bonus" provides that each dwelling unit (DU) transferred from the eleven percent (11%) to twenty nine percent (29%) slope area to areas with ten percent (10%) or less slope, either within the same parcel or to an adjacent parcel under the same ownership is entitled to a transfer bonus of 1.0 DU for each DU transferred from the eleven percent (11%) to the nineteen

percent (19%) slope area, and a density transfer bonus of 2.0 DU for each DU transferred from the twenty percent (20%) to twenty nine percent (29%) slope area. The density transfer shall be indicated on a preliminary plat. Density transfers may occur without a zone change to the receiving parcel even though the resulting lot sizes or density exceed the limits of the underlying zone, provided the use in the receiving parcel is consistent with the receiving parcel's zoning. Lot sizes may vary, but single-family zoning districts only allow single-family detached dwellings.

2. Dwelling units constructed within the eleven percent (11%) to twenty nine percent (29%) slope area shall be subject to design review by the planning commission and town council. Site development standards (excluding density and disturbance standards) are generally flexible in order to provide design options which will blend the DU with the natural setting. The design plan, including grading plan, site plan and elevation drawings approved by the town council, shall be the development standards for the project.

3. Nonresidential construction within the eleven percent (11%) to twenty nine percent (29%) slope area shall be subject to design review by the planning commission and town council. Only thirty percent (30%) of the eleven (11) to nineteen percent (19%) slope category area may be disturbed. Seventy percent (70%) of this slope category is to remain undisturbed. Only ten percent (10%) of the twenty (20) to twenty nine percent (29%) slope area may be disturbed.

B. Single-Family Lots: Where more than two-thirds (2/3) of a single-family lot is within a particular slope category, the entire lot shall be considered as being within that particular slope category for the purpose of determining minimum lot size.

C. Preparation Of Reports By Professional: The contour intervals, maps and calculations required by section 26-8 of this article shall be prepared in a report by a professional civil engineer which shall be submitted with applications for permits or subdivision approvals. Each report shall bear said engineer's certification as to the accuracy of the report.

## **Section 10:26:8 Slope and Slope Areas; Determination**

A. Density Limitations: Slope shall be determined on an individual development parcel basis as an average percent natural slope for purposes of density limitations. All property with a slope greater than thirty percent (30%) shall be excluded from the calculation of the development parcel area for purposes of determining density limitations.

B. Procedure For Determining: The location of the natural ten percent (10%), twenty percent (20%) and thirty percent (30%) slopes for the purposes of this article shall be determined using the following procedure:

1. Preparation Of Contour Maps: Current contour maps shall be prepared by a licensed engineer or surveyor showing contours at intervals no greater than five feet

(5') or as required by the building official and/or city engineer, drawn at one inch equals two hundred feet (1" = 200') scale maximum.

2. Verification Through Field Surveys: Field surveys shall be required of the applicant by the building official and/or city engineer to verify the accuracy of the contour lines shown on the contour map. The contour map shall identify profile lines which shall be used for performing the field survey. Profile lines shall be perpendicular to contour lines and in no case occur at intervals greater than one hundred fifty feet (150') apart or seventy five feet (75') from a property line.

3. Determination of Slope Areas for Density Calculations: Using the contour maps, slopes shall be calculated in intervals no greater than forty feet (40') along profile lines. Points identified as slopes of ten percent (10%), twenty percent (20%) and thirty percent (30%) shall be located on the contour map and connected by a continuous line. That area bounded by said lines and intersecting property lines shall be used for determining dwelling unit density. Small washes or rock outcrops which have slopes distinctly different from surrounding property and not part of the contiguous topography may be excluded from slope determination if, in the opinion of the hillside review board, the exclusion of such small areas from slope determination will not be contrary to the overall purpose of this article. For the purpose of determining developable areas and allowable densities, previously disturbed hillside areas shall be considered on a predisturbance natural slope basis, where feasible, as proposed by the applicant's engineer and approved by the hillside review board. Where a property owner restores a previously disturbed area to a natural or near natural condition, the area may be included within a required no disturbance area.

## **Section 10:26:9 Street Design**

The following standards apply to public and private streets:

- A. Street Grades: All street grades shall be a maximum of ten percent (10%); however, when conditions can be made more desirable by exceeding ten percent (10%) and produce less disturbance to the existing terrain, along with improvement in safety features, the town engineer may allow grades to a maximum twelve percent (12%) based on the merits of each case.
- B. Intersections: All intersections shall be ninety degree (90°) angles. In the event an acute angle intersection is required, it can be mitigated by realigning to achieve a ninety degree (90°) intersection using a fifty foot (50') section prior to the point of curvature of the curve or a landing area design in which a vehicle is brought ninety degrees (90°) to the intersecting road. Acute angle intersections will only be allowed at T-intersections.

C. Intersection Spacing: Intersections should be spaced far enough apart so that the traffic stopped to make left turns at one intersection does not interfere with traffic movements at the adjacent intersections. On low volume streets such as access roads to sub-collectors or sub-collectors to sub-collectors, the minimum distance should be one hundred twenty five feet (125'); for the sub-collectors to collectors, the minimum distance should be two hundred fifty feet (250').

**General Note: Street and construction standards and pavement and component thickness shall conform to current town standards.**

## **Section 10:26:10 Building Setbacks and Additional Design Standards**

A. Front Setback along Public Streets: The front setback along public streets where the slope of the adjacent property to the street is over ten percent (10%) a minimum setback of forty feet (40') from property line is allowed.

B. Setbacks:

1. Ridgelines & Plateaus: All ridgelines shall be subject to the setback provisions contained herein. On mesa plateaus or ridgelines, the setback from the ridgeline shall be a minimum of seventy five feet (75') or greater as recommended in the geotechnical report. Ridgelines shall remain undisturbed.

2. Cuesta: Where a ridgeline occurs on a cuesta, the minimum setback shall be one hundred feet (100') measured normal (perpendicular) to the closest point of the ridge, unless a greater setback is recommended in the geotechnical report)

C. Additional Design Standards:

1. Retaining walls shall be colored to match the surrounding natural landscaping. Retaining wall height shall be limited to the heights set forth in section 16 of the Apple Valley Land Use Ordinance.

2. Building exterior colors shall be earth tone and blend with the surrounding natural landscape.

3. In residential zones, "no disturbance" areas shall not be included within lots (unless approved by the planning commission and town council) but should be part of the "common area" of a project. Common areas shall be owned and maintained by the project's homeowners' association or may be deeded to the city when accepted by the city.

In nonresidential zones, the "no disturbance" area shall be identified on the final site plan or final plat, whichever is applicable.

Any required no disturbance area shall be identified on the ground with temporary fencing or other approved means to prevent accidental disturbance of the area during construction and such fencing shall be installed prior to issuance of a grading permit.

4. The building site shall be located on the flattest portion of the parcel unless otherwise approved by the town council.

### **Section 10:26:11 Verification of Compliance**

For developments on a development parcel of one acre or more, containing slopes of ten percent (10%) or greater, certification by a Utah registered engineer that the development has been completed in compliance with the approved hillside development permit, including satisfaction of any conditions contained in the permit, shall be required. Restoration bonds shall not be released and certificates of occupancy shall be withheld for such a development, until such certification has been received by the building official and/or town engineer.

In the event that the town engineer or building official makes requirements which are not acceptable to the developer, the developer may request a hearing of the matter by the town council. The applicant shall make a request in writing to the town council. The town council shall then hear and make final determination of the issue, subject in any event to an appeal to the board of adjustment as permitted by Utah Code Annotated.

### **Section 10:26:12 Violation: Halt of Construction**

The building official or town engineer shall have the right to order a halt to construction of any improvements within a hillside development overlay zone where, in his discretion, there exists a condition which violates or threatens to violate any of the provisions of this article. Such suspension of construction activities shall continue until the building official or town engineer is satisfied that measures have been implemented for substantial compliance with this article.