

§3-4 HILLSIDE AND RIDGELINE PROTECTION

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[See Commentary]

§3-4-1 TITLE

This ordinance shall be known and may be cited as the Hillside and Ridgeline Protection Ordinance of _____ County [City of _____].

§3-4-2 FINDINGS

Hillsides are inherently unstable. Changes to slopes — through undermining by humans, flowing rivers, heavy rains or the focusing of stormwater runoff by human-built channels or storm drain outlets — can cause erosion or landsliding. Soil slips, which cause avalanche-type failures and slower-moving earthflows can occur on slopes of 30-33 percent and more. Serious erosion can occur on much shallower slopes. Steep slopes are less forgiving of construction errors than are shallow slopes. When steep slopes fail, such failures can have disastrous consequences.

Disturbed surfaces create loose materials which tend to move downhill. The steeper the natural slope, the greater the area is that must be disturbed. Development can result in alteration of land surfaces that can contribute to slope destabilization. Alterations that have the potential for creating unstable slopes include placing fills on top of marginally stable slopes, cutting slopes at too steep an angle or undermining the toe of a slope, redirecting storm runoff in a way that artificially concentrates flows onto portions of the landscape not prepared to receive such flows, removing woody vegetation and adding water by means of hillside septic systems. These factors work together and can cumulatively decrease the stability of slopes and eventually lead to disaster. Landslides and slope failures pose a variety of hazards to human settlements.

Hillside development, if unregulated, can take place at the expense of environmental concerns. Stormwater runoff from slopes is greater in both quantity and velocity than it would be from level ground. Preserving existing vegetation reduces erosion by maintaining roots which increase infiltration and bind soils. Vegetation also reduces the velocity of raindrops and slows the velocity of surface water flow by increasing the roughness of the ground. Constructing hillside roads involves cuts in the upslope side and fills on the down slope side. Such cuts and fills are often much wider than the normal city or county road right-of-way and can be more susceptible to failure.

Hillsides are unique vegetation communities and wildlife habitats. Hillsides in developing areas are often the last remaining natural areas and are the final refuges for many animal species. Development needs to be sensitive to the hillside's function of providing biodiversity.

Hillsides have general aesthetic value to the community and contribute to the community's sense of identity. Prominent peaks and ridges can have significance as identifiable landmarks to area residents. Hillside development, if unregulated, can take place at the expense of aesthetic concerns. Hills are highly visible from surrounding areas. Vegetation clearance and landform grading practices, if unregulated, can upset the natural shape of hills. The bulk, shape, height and color of buildings can contrast with the natural landscape if unregulated and thus intrude on the natural character of the landform. Regulations are needed to ensure that buildings and structures blend in with the natural environment through their shape, materials and colors.

[See Commentary]

§3-4-3 PURPOSE AND INTENT

It is the purpose of this ordinance to provide development regulations applicable to hillsides and ridgelines to ensure that such development occurs in a manner that:

- (a) Protects the natural and topographic character of hillsides;
- (b) Prevents inappropriate development on hillsides, steeply sloping sites and in geologically hazardous areas;
- (c) Protects fragile steep slopes and other environmental resources;
- (d) Preserves the aesthetic and scenic qualities of hillsides and steep slopes;
- (e) Ensures the public health, safety, and general welfare.

The provisions of this ordinance are intended to prevent developments that will erode hillsides, result in sedimentation of lower slopes, cause damage from landslides or create potential for damage from landslides, flood downhill properties or result in the severe cutting of trees or the scarring of the landscape. It is the intent of these development standards to encourage a sensitive form of development and to allow for a reasonable use that complements the natural and visual character of the community. These purposes cannot be met fully with existing development codes, such as soil erosion, grading, tree protection and flood damage prevention. This resolution [ordinance] is considered the minimum necessary to attain these purposes.

These regulations are also intended to encourage the application of principles of civic design, landscape architecture, architecture, planning and civil engineering to preserve the appearance and protect the resources of hillside areas and ridgelines. Guidelines are also provided to encourage imaginative and innovative building techniques and to encourage building designs compatible with natural hillside surroundings.

§3-4-4 DEFINITIONS

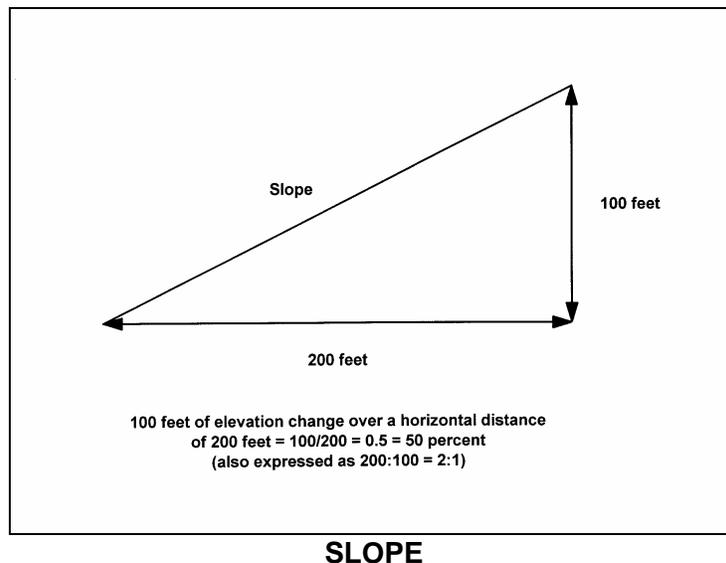
Buildable area: A contiguous area for the placement of a building or structure and which meets the requirements of this ordinance and zoning/land use, subdivision and land development regulations of the locality.

Landslide: Abrupt downslope movement of a mass of soil or rock.

Liquefaction: A process in which soil loses strength and behaves like a liquid.

Quadrangle map: A 1:24,000, 7.5 minute topographic map published by the United States Geological Survey.

Slope: An inclined earth surface, the inclination of which is expressed as the ratio of horizontal distance to vertical distance. In these regulations, slopes are generally expressed as a percentage; percentage of slope refers to a given rise in elevation over a given run in distance. A fifty (50) percent slope, for example, refers to a 100-foot rise in elevation over a distance of 200 feet. A fifty (50) percent slope is expressed in engineering terms as a 2:1 slope.



§3-4-5 APPLICABILITY

This ordinance shall apply to any development proposal for property with a natural slope of twenty-five percent (25%) or more, and including the crests, summits, and ridge tops which lie at elevations higher than any such areas even though the slopes of such crests, summits and ridge tops have a slope of less than 25 percent. For purposes of determining whether this ordinance applies, the natural slope of a given property shall be calculated perpendicular to topographic contours from property line to property line, prior to grading, using quadrangle maps of the United States Geological Survey, other reputable topographic maps of the subject area or, if available, a topographic survey of the subject property.

This ordinance shall apply, and the Land Use Officer shall apply and enforce the provisions of this ordinance, to the earliest application for development or building approval required of the

applicant, whether that is an application for land use permit, application for preliminary subdivision plat, or application for land-disturbing activity.

§3-4-6 EXEMPTIONS

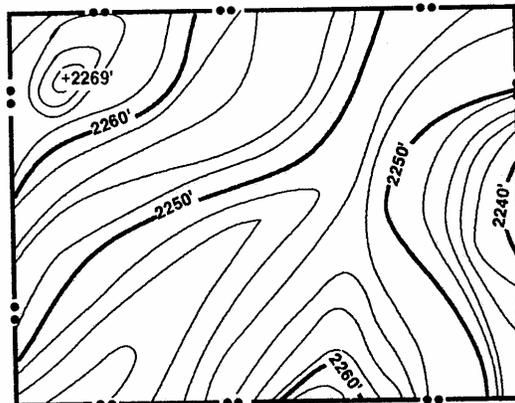
The following land uses or activities are exempt from the requirements of this ordinance:

- (a) Agriculture and forestry. Agriculture and forestry, provided that they are consistent with the best management practices established by the Georgia Forestry Commission or the Georgia Soil and Water Conservation Commission, consistent with all state and federal laws, and all applicable regulations promulgated by the Georgia Department of Agriculture.
- (b) Mining. Mining activity existing on the effective date of this ordinance, if such activity has been lawfully permitted by the Georgia Department of Natural Resources.
- (c) Landscape maintenance. Landscape maintenance activities, including the removal of diseased, dead or damaged trees; provided, however, that such activities shall be carried out in conformance with applicable regulations of this ordinance.
- (d) Prior development plan approval. Any land, or part of any land, which was contained in or subject to any development plan, and which was filed with the Land Use Officer and approved by the County [City] prior to the effective date of this ordinance.
- (e) Additions to single-family residences. On legal lots of record with existing residences that were approved prior to the effective date of this ordinance, said existing residences may be expanded without demonstrating compliance with this ordinance, provided that the height of the building addition does not exceed the existing height of the building, no land disturbance is required to accomplish the building addition, and the building addition is in conformity with the purposes and intent and consistent with regulations and guidelines of this ordinance as determined by the Land Use Officer.

§3-4-7 GENERAL PROVISIONS

- (a) Compliance. No land to which this ordinance applies shall hereafter be subdivided, cleared, developed or used, and no building or structure shall be constructed, placed, extended, converted or structurally altered, except in full compliance with the regulations of this ordinance.
- (b) Regulations versus guidelines. This ordinance provides both regulations and guidelines. Regulations are identified by use of the term “shall” and compliance is mandatory. Guidelines are identified by use of the term “should” and compliance is not mandatory but is strongly recommended. Substantial inconsistencies with one or more guidelines in a manner that is clearly counter to the purposes of this ordinance may provide the basis for denial of a development by the Land Use Officer.

- (c) Topographic data. Where the Land Use Officer does not have reliable data on existing topography, or when a quadrangle map of the U.S. Geological Survey or other topographic maps which may be available does not provide sufficient detail to administer the requirements of this ordinance, the Land Use Officer may require, and the development applicant shall provide, a topographic survey of the property proposed to be developed.



Said topographic survey, if required, may exclude areas not proposed for development. The topographic survey shall provide contour intervals of no more than five (5) feet unless otherwise approved by the Land Use Officer.

[See Commentary]

§3-4-8 GENERAL DEVELOPMENT GUIDELINES

- (a) All development proposals subject to the requirements of this ordinance should be designed to meet generally accepted principles of land use planning, soil mechanics, engineering geology, civil engineering, environmental management, civic design, architecture, landscape architecture, landscape ecology and related disciplines. The land use officer should consider whether or not each development proposal is consistent with these general guidelines and may cite any one or more of them in support of a decision to approve or deny each development proposal that is subject to the requirements of this ordinance.
- (b) Planning of the development should take into account the topography, soils, geology, hydrology, vegetation and other features of the proposed site.
- (c) Areas not well suited for development due to soil characteristics, geology, vegetation, existing plant and animal life or hydrology limitations, should not be developed.
- (d) Site designers are encouraged to propose and apply innovative concepts for slope and soil stabilization, grading, landscaping and building placement and design to meet the purposes and objectives of this ordinance.

§3-4-9 GRADING AND LAND DISTURBANCE

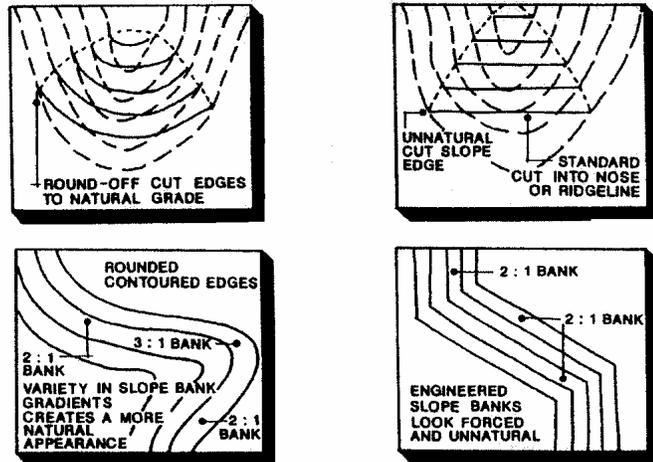
§3-4-9.1 General grading provisions.

- (a) All grading, retaining wall design, drainage and erosion control plans for development subject to this ordinance shall be designed by a civil engineer. In cases where geologically hazardous areas exist, such plans shall be prepared by a qualified professional.
- (b) No grading, filling, clearing or excavation of any kind in excess of fifty (50) cubic yards shall be initiated until a grading plan is approved and a land disturbance permit is obtained from the Land Use Officer.

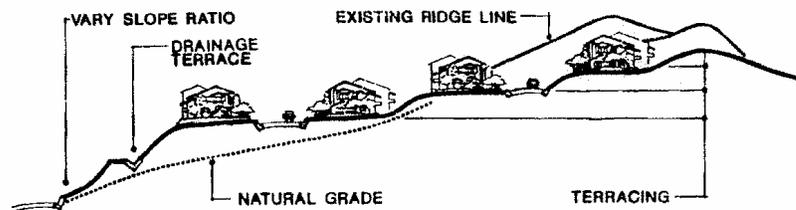
**§3-4 Hillside and Ridgeline Protection
Model Land Use Management Code**

- (c) Borrowing for fill shall be prohibited unless the material is obtained from a cut permitted under an approved grading plan or imported from outside the hillside area.
- (d) Any approved cut or fill slopes shall be no steeper than two (2) horizontal to one (1) vertical unless it can be shown by the project engineer that steeper slopes are feasible and such showing is accepted by the Land Use Officer.
- (e) Development on the site should be located, designed and oriented so that grading and other site preparation are kept to the minimum needed to serve the intended building or use.

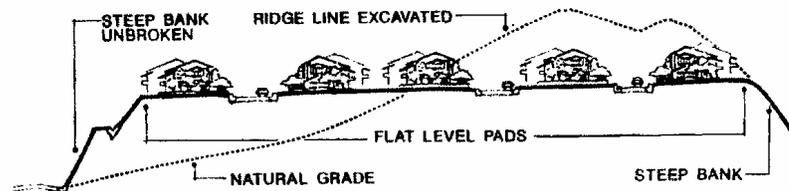
(f) When grading must occur, it should blend with the natural landform as much as possible. Grading to form level pads and building sites is strongly discouraged and when required such grading should be minimized.



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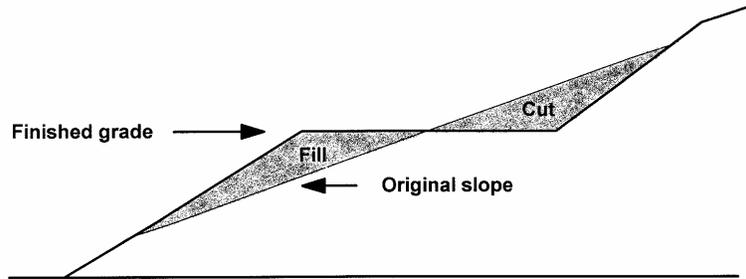
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- (g) Projects involving more than one use or phase should be phased into workable units in a way that minimizes the amount of soil disturbance at any given point in time.

§3-4-9.2 Cut slopes.

- (a) No cuts shall be permitted solely for the purpose of obtaining fill, unless specifically approved in the grading plan.
- (b) Cut slope angles shall be determined in relationship to the type of materials of which they are composed. Steep-cut slopes shall be retained with stacked rock, engineered retaining walls or a functional equivalent, to control erosion and stabilize the slope.
- (c) Cut faces on a terraced section should not exceed a maximum height of five (5) feet, as measured on a vertical plane from the high point of the cut or fill to the bottom-most point.
- (d) Terrace widths should be a minimum of three (3) feet to allow for the introduction of vegetation for erosion control. The total height of a cut slope should not exceed fifteen (15) feet.



CUT AND FILL SLOPES

§3-4-9.3 Fill slopes. Fill slopes should not exceed a total vertical height of twenty (20) feet, as measured on a vertical plane from the high point of the cut or fill to the bottom-most point. The toe of any fill slope area not utilizing an engineered retaining structure should be a minimum of six (6) feet from any property line.

§3-4-10 LOT SIZE MINIMUMS AND CLEARING AND IMPROVEMENT LIMITS

All new lots created by subdivision shall contain a building envelope with a natural slope of 35 percent or less and shall meet the lot size minimum based on slope as provided in this subsection below. Existing parcels without adequate buildable area less than or equal to 35 percent cannot be subdivided but shall be considered buildable for one unit. Subdivision of land, land disturbance, and development of lands that are subject to this ordinance shall meet the requirements shown below:

Average Slope of Lot To Be Developed (%)	Minimum Lot Size of Any New Lot Created (acres)	Minimum Percent of Lot that Must Remain Undisturbed (%)	Maximum Percent of Lot That May Be Disturbed (%)	Maximum Percent of Lot That May Be Impervious Surface (%)
25-29%	1.5	50%	50%	25%
30-34%	2.0	60%	40%	20%
35-39%	2.5	70%	30%	15%
40% or more	3.0	80%	20%	10%

§3-4-11 TREES AND VEGETATION

§3-4-11.1 Removal. Existing deep-rooted vegetation, including trees, bushes and ground covers, should be removed only in cases where necessary for buildings, roads, driveways, parking and minimum required yards. View corridors from the proposed development to surrounding areas may be provided, but the thinning of limbs of individual trees is preferred over tree removal as a means to provide a view corridor.

§3-4-11.2 Tree protection areas. All areas required by this ordinance to be maintained in their natural state shall be designated as tree protection areas on the site plan. Development shall avoid disturbing designated tree protection areas. Construction site activities, including material storage, shall be located and arranged so as to prevent disturbances of designated tree protection areas.

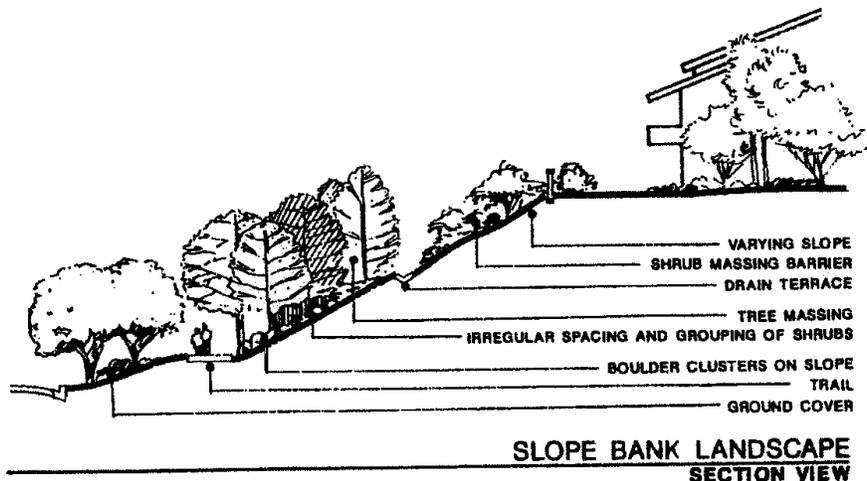
§3-4-11.3 Tree replacement. No trees, other than those located within a building envelope, within a proposed street, driveway or parking area, or within a utility easement, shall be removed except by permit issued by the Land Use Officer. A replacement plan for such trees shall be required to be approved by the Land Use Officer.

§3-4-11.4 Tree survey required. When grading or land disturbance is proposed to occur outside of roadways, utility areas, building pads and minimum required yard areas, a tree survey at the same scale as the project site plan shall be required. Portions of the lot or project area not proposed to be disturbed by development shall not be required to be included in the tree survey. All tree surveys required by this subsection shall show all trees greater than six (6) inches diameter at breast height (dbh), along with their dbh and species. Groups of trees in close proximity (i.e., those within five feet of each other) may be designated and shown as a stand of trees, provided that the predominant species, estimated number and average diameter of trees are indicated on the tree survey. The tree survey shall include the name, address and signature of the professional conducting the tree survey.

§3-4-12 REVEGETATION

§3-4-12.1 Plan required. Revegetation according to a planting plan approved by the Land Use Officer shall be required for all disturbed areas outside of roadways, driveways, building sites and minimal yard areas.

§3-4-12.2 Species selection. Vegetation used to revegetate disturbed areas shall be native species or species similar in resource value as the vegetation removed. Vegetation shall be chosen after consideration of its ability to survive the conditions of soils, climate, temperature, elevation and other natural conditions. Use plant materials that blend with the ridgeline or hillside. Landscape schemes that are rough, natural and/or subdued in character are encouraged. Use of exotic plants and sod are strongly discouraged.



§3-4-12.3 Slope stability. When revegetation is required, it should be installed to assist in providing long-term slope stabilization and help reduce the visual impact of any cut slopes.

§3-4-12.4 Installation. When revegetation is required, all required revegetation shall be installed prior to approval by the Land Use Officer to occupy the activity, development or building.

§3-4-13 DRAINAGE

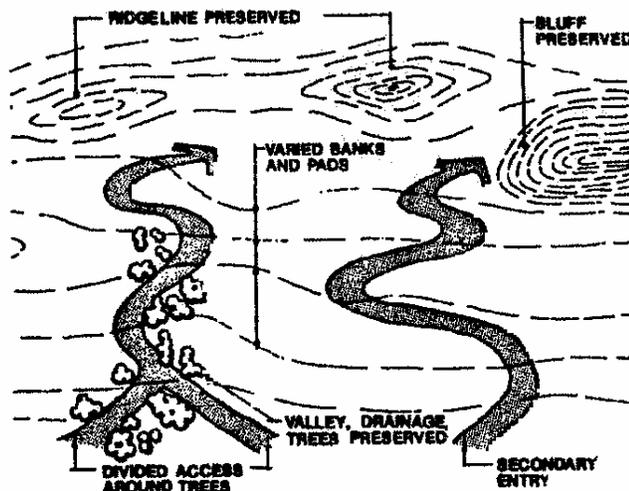
- (a) Stormwater management facilities shall be provided for all developments subject to this ordinance. Storm drain systems shall be designed to capture stormwater from streets, driveways, parking areas, building roofs and other impervious surfaces. Unless otherwise required by the Land Use Officer, the drainage for the site shall be directed to flow to streets or other approved collector systems.
- (b) The overall drainage system shall be completed and made operational at the earliest possible time during construction.
- (c) Stormwater facilities shall be designed to divert surface water away from cut faces or sloping surfaces of a fill. When this is not possible, interceptor ditches shall be installed above all cut/fill slopes and the intercepted water conveyed to a stable channel or natural drainage way with adequate capacity. Alternatively, berms at the top of slopes may be used to screen developments, vary the profile and ensure drainage will be directed away from slopes.
- (d) Existing natural drainage systems should be utilized, as much as possible, in their natural state. Alterations of major natural drainageways shall be prohibited except for approved road crossings and drainage structures. Natural drainageways shall be ripped or otherwise stabilized below drainage and culvert discharge points for a distance sufficient to convey the discharge without channel erosion.
- (e) Flow-retarding devices and detention ponds shall be used where required to minimize increases in runoff volume and peak flow rate due to development.

§3-4-14 EROSION CONTROL

Erosion control measures shall be required for all developments as specified in the county's [city's] soil erosion and sedimentation control ordinance.

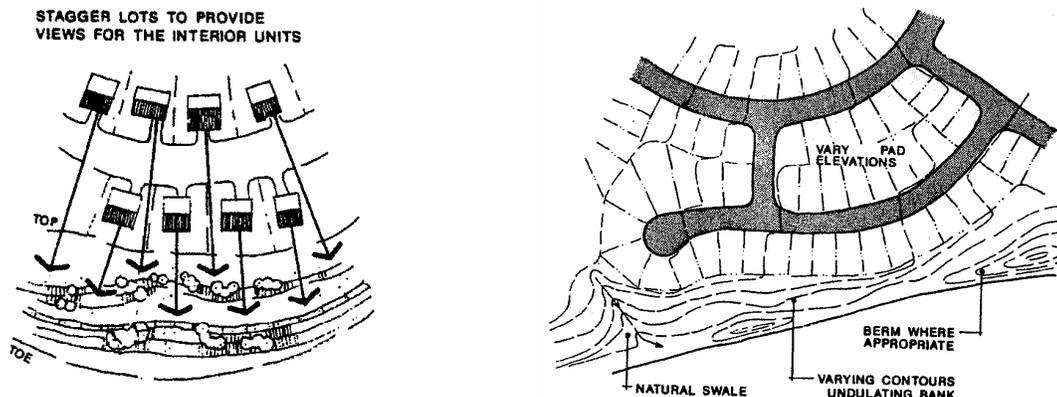
§3-4-15 ROADS, DRIVEWAYS AND PARKING AREAS

- (a) No new street shall be constructed on lands equal to or greater than 35 percent slope; provided, however, that a portion of a street on land equal to or greater than 35 percent slope may be constructed if it does not exceed a length of 100 feet.
- (b) Streets, driveways, buildings, utilities, parking areas and other site disturbances shall be located such that the maximum number of existing trees on the site is preserved.
- (c) Roads, driveways and parking areas shall be designed to create the minimum feasible amounts of land coverage and the minimum feasible disturbance of the soil. Variations in road design and road construction specified by the county [city] in its subdivision and land development regulations shall be permitted, as may be approved by the Land Use Officer, to prevent the dedication of unnecessarily large amounts of land.
- (d) Road alignments should follow the natural terrain unless the project engineer can justify additional cuts or fills. Roads, walkways and parking areas should be designed to parallel the natural contours of the site.
- (e) One-way streets shall be permitted and encouraged where appropriate for the terrain and where public safety would not be jeopardized. For instance, a two-way street may have the directions of flow split into one-way pairs that differ in elevation, circumnavigate difficult terrain or avoid tree clearance.
- (f) Combinations of collective private driveways, shared parking areas and on-street parallel parking bays should be used where possible to minimize land and soil disturbance, minimize impervious surface coverage and achieve excellence of design and aesthetic sensitivity.

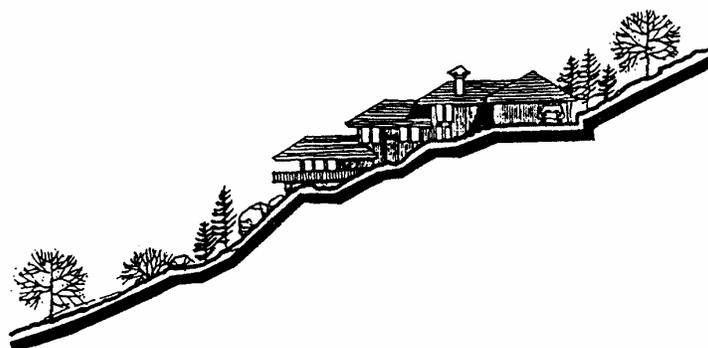


§3-4-16 BUILDING REQUIREMENTS AND GUIDELINES

§3-4-16.1 Building pads. Building pads should be of minimum size to accommodate the structure and a minimal amount of yard space. Pads for tennis courts, swimming pools and large lawns are discouraged. Building envelopes should be located and sized to preserve the maximum number of trees on site. Building pads should be varied in elevation above street level to avoid the appearance of monotonous, flat, level pads.



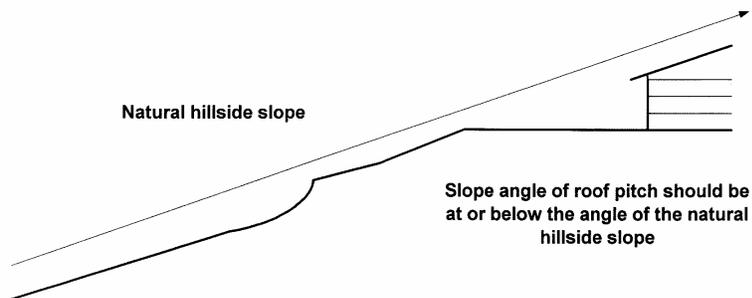
§3-4-16.2 Foundations. All buildings and structures on lands with slopes of 25 percent or greater shall have foundations which have been designed by a civil engineer or other qualified professional. Large building pads and footings should be split into more than one (i.e., split-level homes that step down the hillside), where possible, to allow the building pad and structure to more closely follow the existing slope of the land. Building footprint coverage should be minimized where possible by using multiple-level (two or more story) buildings.



Residence that “Steps Down” the Hillside

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§3-4-16.3 Roofs. Buildings and structures with roofs must be designed such that the roofline of the building does not project above a ridgeline more than two (2) feet. Roof forms and roof lines for new structures should be broken into a series of smaller building components to reflect the irregular forms of the surrounding hillside. Long, linear unbroken roof lines are discouraged. Flat roofs are discouraged. The slope angle of roof pitch should be at or below the angle of the natural hillside slope.



§3-4-16.4 Height. The height of all buildings and structures shall not exceed 35 feet measured vertically from the highest point of the natural grade.

§3-4-16.5 Setbacks. When appropriate, buildings and structures should be located as close to the street as possible to preserve the natural terrain and to minimize disturbance and the length of driveways.

§3-4-16.6 Mass. The visible mass of larger buildings and structures should be reduced by utilizing below-grade rooms cut into the natural slope.

§3-4-16.7 Location. Buildings and structures should be clustered where possible to reduce disturbance and removal of vegetation.

§3-4-16.8 Colors. Exterior colors for new buildings and structures should be coordinated with the predominant colors of the surrounding landscape to minimize contrast between the structure and the natural environment. Exterior colors should be selected from among a color palette approved by the Land Use Officer. Exterior colors shall be selected so as to blend with the color of surrounding vegetation and landforms, as approved by the Land Use Officer. This shall normally include shades of brown or green.

[See Commentary]

§3-4-16.9 Designs that reduce clearing and impervious surfaces. Wooden deck areas either on the roof of a garage, or roof of the house, or extending from the house or garage, may be used to reduce the amount of grading and need for yard areas and provide private outdoor spaces. Wooden decks that allow infiltration of stormwater into the ground may be used instead of concrete slabs for patios and, in some cases if structurally sufficient, parking, in order to reduce the amount of impervious surface.

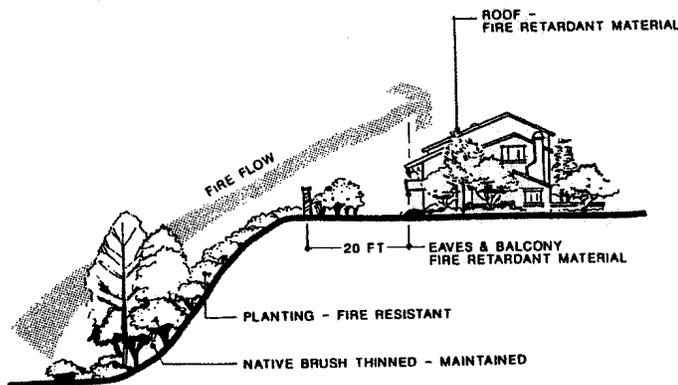
§3-4-16.10 Architectural requirements. An elevation drawing of all principal buildings shall be submitted to the Land Use Officer for review and approval. The architectural drawing shall provide sufficient detail to show the proposed building materials, colors of exterior materials, and roof pitch. Exterior windows, trim, and other exterior building materials shall be non-reflective.

§3-4-16.11 Partial screening. A portion of natural on-site vegetation shall be retained sufficient to partially screen (along fifty percent of the building face, or that achieves fifty percent opacity or more along the building face) the building, structure, use, or activity from views from public roads not serving the building, or landscaping shall be installed and designed to partially screen the building, structure, use, or activity from views from public roads, or other measures shall be included in the project and approved by the Land Use Officer to reduce the visual impacts of such development from views from public roads.

§3-4-17 FIRE PROTECTION

Where adequate access for fire fighting equipment or where water supply for fire fighting are not available, in the opinion of the Land Use Officer as may be informed by the Fire Marshal, an approved automatic fire sprinkler system in compliance with the applicable state plumbing code shall be required and installed for all occupied buildings prior to occupancy of said buildings. This provision shall not apply to gazebos, storage sheds or other detached accessory structures not intended for occupancy.

Adjacent to residences or structures to be occupied, in areas of high risk of forest fires as determined by the Fire Marshal, there shall be required a clear zone of no less than twenty (20) feet on all sides of said residences or structures, or to the property line, whichever is nearer. Within the clear zone, all brush, flammable vegetation or combustible growth shall be removed.



This provision shall not apply to single specimens of trees, ornamental shrubbery or similar plants used as ground cover, provided that they do not form a continuous means of rapidly transmitting fire from the native growth to a residence or structure to be occupied.

In areas of high risk of forest fires as determined by the Fire Marshal, the following provisions may be made a condition of development or permit approval. Roofs shall be covered with noncombustible materials, such as clay or concrete shake or tile. Exterior walls shall be surfaced with noncombustible or fire-resistant materials. Chimneys shall be provided with approved spark arresters.

[See Commentary]

§3-4-18 VARIANCES

If an applicant asserts that application of this ordinance would deny the reasonable use of property, the applicant may apply for a variance. A variance is intended to provide a remedy to address those cases in which the application of this ordinance unreasonably restricts all economic use of a parcel of land and the restriction cannot be remedied by other authorized techniques or conditions. A variance to the provisions of this ordinance may be considered in accordance with Section 1-10 of the Code.

§3-4-19 APPEALS

A developer or other party aggrieved by a decision of the Land Use Officer in the administration, interpretation or enforcement of this ordinance may appeal said decision as provided in Section 1-10 of this Code.