

County of Santa Clara



GUIDELINES FOR GRADING & HILLSIDE DEVELOPMENT

Adopted by the Board of Supervisors on March 12, 2013

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I. INTRODUCTION

The purpose of the **Guidelines for Grading and Hillside Development Handbook** is to provide greater clarity and guidance regarding the County's applicable policies and findings for hillside development and grading. This document is intended to assist landowners and professionals that are involved in the design of hillside projects including grading, illustrating the design concepts and principals referenced under County Ordinances and policies.

II. INTENT OF THE GUIDELINES

The majority of lands within the County's jurisdiction, outside of cities, are hillside lands with slopes varying from 10% to 75%. Thus a significant number of land use applications for development in the County include grading activity and are subject to review by the County and its referral agencies.

A Grading Approval from the County of Santa Clara is a discretionary land use approval issued by the Department of Planning and Development. The application for grading is reviewed by the Planning Office and other referral agencies and is subject to applicable County Codes, Ordinances and Policies for land use development and State statutes such as the California Environmental Quality Act (CEQA).

Within Santa Clara County, the majority of urban development has occurred within the flat, valley floor areas, leaving the hillside areas much less developed. In contrast with land development on the valley floor, development within hillside areas presents additional challenges due to the need for terrain alteration and the greater likelihood of encountering natural hazards and resources. Areas of environmental concern that are typically encountered in hillside development include the following areas:

- Slope stability, landslide potential
- Greater potential for soil erosion
- Wildland fire hazards
- Sensitive biological habitat
- Higher potential for visual scarring affecting views from valley floor areas.
- Challenges in providing access and emergency response.

In order to address the higher potential to encounter these hazards, the County's codes and policies are intended to discourage development in areas with steep slopes. These include geologic and emergency access and drainage standards intended to ensure that hillside development occurs in a safe manner. County ordinance codes also require that proposed development in hillside areas with slopes over 30% require special approval.

In addition to these codes and ordinances, the General Plan includes several policies that specifically focus on minimizing grading within hillside areas and reducing the potential for visual impacts.

This document is intended as a guide for projects involving grading and hillside development. The intent of the guidelines, in conformance with applicable policies and codes, is to ensure that the project has minimal adverse impacts to the environment

III. GENERAL PLAN POLICIES

The County of Santa Clara's General Plan (GP) is the foundation for implementation of the policies and basic strategies for land management in the urban and rural unincorporated areas.

Many County policies and standards are intended to preserve the natural resources and character of rural lands with minimal impacts to the environment. With respect to hillside development and grading, many of the applicable General Plan policies can be found within the *Growth and Development Chapter* (Book B –K10-15) of the General Plan. Below are the applicable Grading and Hillside Development Policies from the General Plan that specifically focus on minimizing grading and avoiding visual impacts from hillside development.

Policy R-GD 22

The amount, design, location and the nature of any proposed grading may be approved only if determined to be:

- (a) appropriate, justifiable, and reasonably necessary for the establishment of a allowable use;
- (b) the minimum necessary given the various site characteristics, constraints and potential environmental impacts that may be involved;
- (c) that which causes minimum disturbances to the natural environment, slopes, and other natural features of the land.

Policy R-GD 23

Proposals to balance cut and fill amounts where such grading would exceed that which is deemed minimally necessary and reasonable for the site may be considered based on environmental impacts, the ability of the site to accommodate the additional fill without causing additional adverse impacts, the remoteness of the site, the overall amount of material that would otherwise need to be removed from the site, and the impacts of any truck traffic that could be involved, including travel distances, local road impacts, safety, noise, dust and similar issues.

Policy R-GD 24

Where an existing parcel contains multiple possible building or development sites, and where one or more possible site requires less grading, with less overall environmental and visual impacts, greater economy of access roads or other site improvements, and better achieves matters of public health and safety, grading approval may be granted only for the alternative which minimizes grading amounts and is deemed otherwise suitable with respect to other development issues, regulations, and conditions of reviewing agencies. Buildings should also be designed to respect and conform with existing topography of site as much as possible, using stepped designs and multiple levels rather than expansive single story floor plan on only one level.

Policy R-GD 25

Grading associated with roads, bridges, retaining walls, or similar improvements related to access requirements should not create a significant visual scar or impact to the environment.

Grading proposals for driveways and roads should generally follow natural terrain and contours to maximum extent feasible. Requirements and conditions for erosion control, landscaping or plantings, retaining wall design, and other design features may be imposed where necessary to ensure that completed work blends as harmoniously as possible with the natural environment and landscape.

Policy R-GD 26

Where proposed grading is associated with a potential subdivision or single building site approval in hillside areas, that which is deemed excessive, non-essential grading is strongly discouraged and shall not be generally permitted, unless exceptional circumstances warrant further consideration.

Examples may include, but are not limited to excessive grading to create the largest possible building pad, envelopes or yards; to remove hilltops and / or flatten steep ridges; to create multiple driveways serving individual parcels or wider than necessary driveways; and similar proposals.

Policy R-GD 27

Grading and excavation to situate a residence or other structure within a hillside to reduce visual impacts is encouraged, in accordance with due consideration of geologic issues, structural integrity, and other pertinent design features and lot characteristics.

Policy R-GD 31

Ridgelines and ridge areas have special significance for both public policy and private interests. Ridgeline and hillside development that creates a major negative visual impact from the valley floor should be avoided or mitigated, particularly for those areas most immediately visible from the valley floor. Ridgeline development policy should also take into account the need to allow reasonable use and development of private land.

Policy R-GD 32

For subdivision proposals, land should be subdivided in such a way that building sites are not located on ridgelines, if possible, taking into consideration other development constraints and issues. Where ridgeline locations are proposed, alternatives shall be evaluated to determine relative development suitability. If ridgeline or hilltop locations prove to be more suitable and less visually obtrusive than alternatives, reasonable mitigations for significant, adverse visual impacts may include, but are not limited to:

- (a) Careful locations of building sites;
- (b) Tree and vegetation retention, and use of additional landscaping, as appropriate;
- (c) Building height, façade length, and similar dimensional limitations; and,
- (d) Use of natural materials, colors, and design features that blend with the natural surroundings and reduce apparent bulk.

Policy R-GD 33

For existing legal lots, the County encourages the consideration of alternatives to ridgeline or hilltop locations. Where grading policies and permit findings are involved, building sites may only be approved where consistent with the grading policies of the General Plan and the permit requirements and findings of the Grading Ordinance.

Policy R-GD 34

For existing legal lots, if a ridgeline or hilltop location is a potentially suitable location for development, consistent with grading or other land development policies and regulations, due to the particular geologic circumstances, access needs, or other suitability characteristics of the lot, the following conditions or mitigations to visual impacts of development shall be considered and applied through applicable land use and development approvals, as necessary and appropriate:

- (a) Landscaping and vegetation retention, as appropriate,
- (b) Color and material choices that blend with the natural surroundings, and
- (c) Any other similar requirements or mitigations that reasonably relate to the degree of visual impact. [Note: Where Design Review zoning applies or is required by condition of subdivision or other approval, such requirements will be addressed through the applicable Design Review procedure].

Policy R-GD 35

In applying and implementing Design Review requirements, the County shall also take into account such factors as distance from the valley floor, existing vegetation, intervening slopes and hillsides, and other factors that tend to mitigate visual impact of hillside development.

Policy R-GD 36

Legally constructed homes and other buildings located on a ridgeline or hilltop that is destroyed by casualty, such as fire, earthquake, or other natural disaster, may be rebuilt in their existing location. Applicable provisions of the County's single building site approval regulations regarding exemptions from site approval shall apply.

IV. COUNTY ORDINANCE CODE (Section C12-400 et seq)

The Santa Clara County Grading Ordinance under Chapter III of Division C12, establishes the minimum requirements for all grading and drainage alteration work done within the unincorporated County lands. Proposed development plans are reviewed for compliance with the findings stated in the Ordinance and other applicable code requirements, for the purpose of protecting surface water quality, neighboring properties, the environment, and preventing of soil erosion and the transport of soil sediments.

Sec. C12-433. Findings of the preliminary grading plans.

Grading approval may be granted if all of the following findings are made:

- a) The amount, design, location, and the nature of any proposed grading is necessary to establish or maintain a use presently permitted by law on the property.
- b) The grading will not endanger public and/or private property, endanger public health and safety, will not result in excessive deposition of debris or soil sediments on any public right of way, or impair any spring or existing watercourse.
- c) Grading will minimize impacts to the natural landscape, scenic, biological and aquatic resources, and minimize erosion impacts.
- d) For grading associated with a new building or development site, the subject site shall be one that minimizes grading in comparison with other available development sites, taking into consideration other development constraints and regulations applicable to the project.
- e) Grading and associated improvements will conform with the natural terrain and existing topography of the site as much as possible, and should not create a significant visual scar.
- f) Grading conforms with any applicable general plan or specific plan policies; and
- g) Grading substantially conform with the adopted "Guidelines for Grading and Hillside Development" and other applicable guidelines adopted by the County.

V. GUIDELINES

This handbook provides guidelines with graphics to illustrate the intent of the General Plan policies related to hillside development and grading. These guidelines are intended to be used by property owners and professionals working on land development projects within hillside areas or otherwise require grading.

These guidelines are intended to be interpreted with flexibility by staff and are not intended to be strict standards, such as setbacks found within a zoning ordinance. Not all guidelines will be applicable or appropriate for all projects, based on the circumstances applicable to each property and development proposal. However, all projects are encouraged to meet the objectives of the guidelines to the greatest extent possible.

The following concepts and design guidelines are discussed in the handbook. References to general plan policies are shown in *italics*.

Siting

Proposed development should be sited to avoid construction and grading within hillside areas and areas with natural hazards and sensitive resources, such as riparian corridors and landslides.

Guideline 1: Locate proposed development in areas with level lands or gentler slopes, adjacent to existing infrastructure, minimizing the need for grading and longer driveways into hillside areas. (*GP Policies R-GD-24, R-GD-26 and R-GD-33*)

Guideline 2: Based on the location of existing access roads and site constraints, development in hilltop locations may be preferred if other buildings sites are not available and extensive grading and terrain alteration is avoided. In these instances, buildings should be sited to preserve ridgelines in their natural state and sited to minimize visual impacts. (*GP Policies R-GD-27, R-GD-31 and R-GD-34*)

Guideline 3: Development should be sited to avoid encroachment into areas with sensitive biological and cultural resources, such as riparian corridors, wetlands, oak woodlands, serpentine habitat, and known archeological sites. (*GP Policies R-GD-22(c), R-GD-23 and R-GD-24*)

Guideline 4: When proposed development projects in hillside areas include detached buildings such as garages and secondary dwelling units, these buildings should be sited adjacent to the main house or in areas that avoid new grading and terrain alteration. (*GP Policies R-GD-26, R-GD-32*).

Road Design

New roads and driveways should be sited and designed to minimize terrain alteration, incorporating existing infrastructure where feasible for access to new development. Where new roads and driveways are required in undeveloped hillside areas, the design should minimize the potential for visual scarring of the hillside and grading into sensitive areas.

- Guideline 5: Where feasible, use existing access roads and driveways, instead of creating new and multiple roadways. *(GP Policies R-GD—24, R-GD-25)*
- Guideline 6: Where a subdivision is proposed in hillside areas, use common driveways and shared access roads to minimize the need several separate driveways. *(GP Policies R-GD—24, R-GD-25)*
- Guideline 7: Access roads and driveways should be designed to contour to avoid excessive cuts and fills to the hillside. Avoid road design that results in rigid-line cuts or fills into the hillsides. *(GP Policies R-GD—24, R-GD-25)*
- Guideline 8: Roadways shall meet the minimum emergency access standards established by the County Fire Marshal and Ordinance Code. New roads in hillside areas should not be designed to maximize the flattening and widening of roads beyond these access standards if this results in extensive grading and terrain alteration. Roads should use a road design that both meets emergency access standards and avoids the need for excessive grading. *(GP Policies R-GD—24, R-GD-25)*
- Guideline 9: Retaining walls should be used instead of engineered slopes to avoid impacts to sensitive and protected habitats, including significant trees, major rock outcroppings, and other significant natural features. *(GP Policies R-GD—24, R-GD-25)*

Building form and design

New buildings in hillside areas should be designed to minimize extensive terrain alteration and grading, incorporating design concepts that visually integrate a building into the hillside setting and avoid extensive vertical cuts or fills.

- Guideline 10: Buildings proposed to be located in areas with steeper slopes should incorporate a linear design with and be oriented parallel to the hillside. *(GP Policies R-GD—24, R-GD-32)*
- Guideline 11: New buildings located on steeper slopes that are visually prominent should incorporate a tiered design approach in order to reduce building massing and visual bulk. Design methods include steps in the building foundations and varied roof heights and planes. *(GP Policies R-GD—27, R-GD-32)*

Landform Grading

For projects that require mass grading and major recontouring of hillside areas, landform grading should be pursued as an alternative to conventional planar / linear slope design that appear artificial in contrast with natural settings.

Guideline 12: For grading projects that require new large fill slopes, use landform grading to resemble natural features instead of the conventional sharp angles and unnatural uniform slope treatments. *(GP Policy R-GD—25)*

Siting:

Site design must be appropriate to the site and terrain with due consideration of geologic issues, structural integrity and other pertinent design features and lot characteristics.

Guideline 1: Locate proposed development in areas with level lands or gentler slopes, adjacent to existing infrastructure, minimizing the need for grading and longer driveways into hillside areas. (Refer Policies R-GD-24, R-GD-26 and R-GD-33)

Proposed residences, accessory buildings, driveways and other necessary improvements should be located, where possible, on level lands and near existing right of ways instead of ridge top locations. For parcels located in –d (Design Review) zoning areas, the objective is to minimize the visibility of new structures from the valley floor and designated scenic roads.

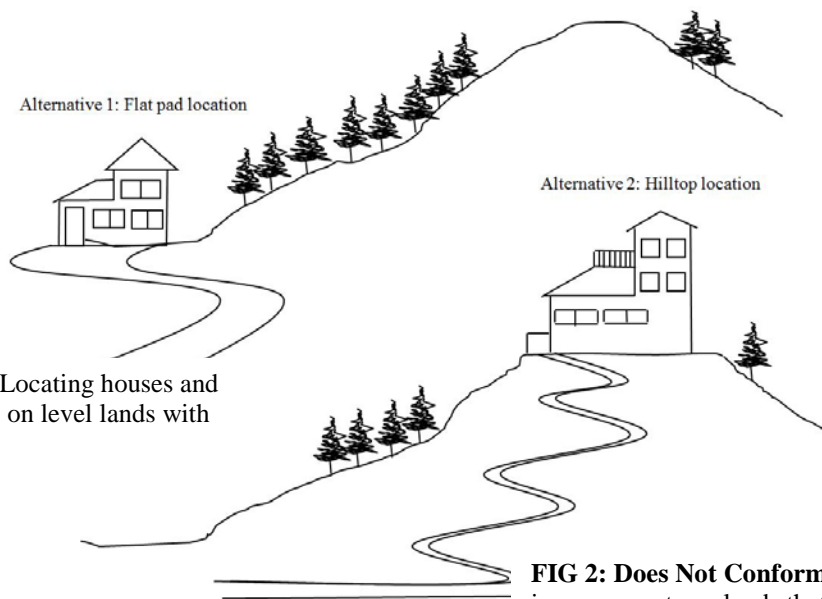


FIG 1: Conforms: Locating houses and other improvements on level lands with minimum grading.

FIG 2: Does Not Conform: Locating house and other improvements on lands that entail more grading.



PHOTO 1: Locate residences and other improvements on level lands and near existing roadways with minimum necessary grading instead of on top of the hill or on steep slopes.

Guideline 2: Based on the location of existing access roads and site constraints, development in hilltop locations may be preferred if other buildings sites are not available and extensive grading and terrain alteration is avoided. In these instances, buildings should be sited to preserve ridgelines in their natural state and sited to minimize visual impacts. (Refer Policies R-GD-27, R-GD-31 and R-GD-34)

Retain as much as feasible existing trees and vegetation and choose the least intrusive location for the building site. Other mitigations may be required to minimize the grading and visual impacts.



FIG 3: Conforms: When locating houses and other improvements on ridgelines, locate on the less visible portion of the lot.



FIG 4: Does Not Conform: Locating houses and other improvements on the most visible portion of the lot.

PHOTO 2: Retain as much as feasible existing trees and vegetation and choose the least intrusive location for the building site



Guideline 3: Development should be sited to avoid encroachment into areas with sensitive biological and cultural resources, such as riparian corridors, wetlands, oak woodlands, serpentine habitat, and known archeological sites. (Refer Policies R-GD-22(c), R-GD-23 and R-GD-24)

Locate improvements away from creeks, riparian habitat, natural features like major rock outcroppings, major trees, ridgelines, natural habitats including plant formations and known archeological sites.

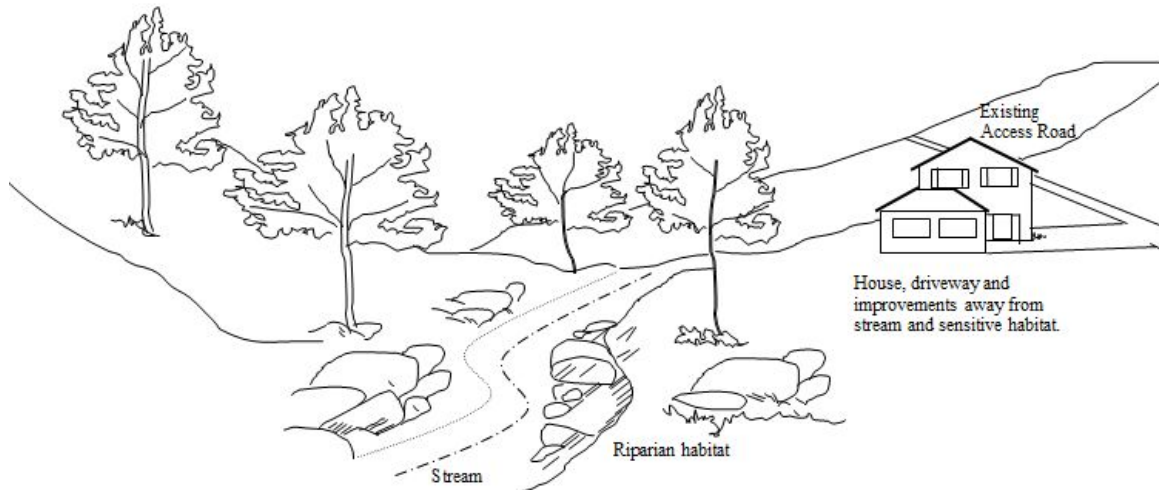


FIG 6: Conforms: Locating improvements away from creeks, riparian habitat and other natural features.

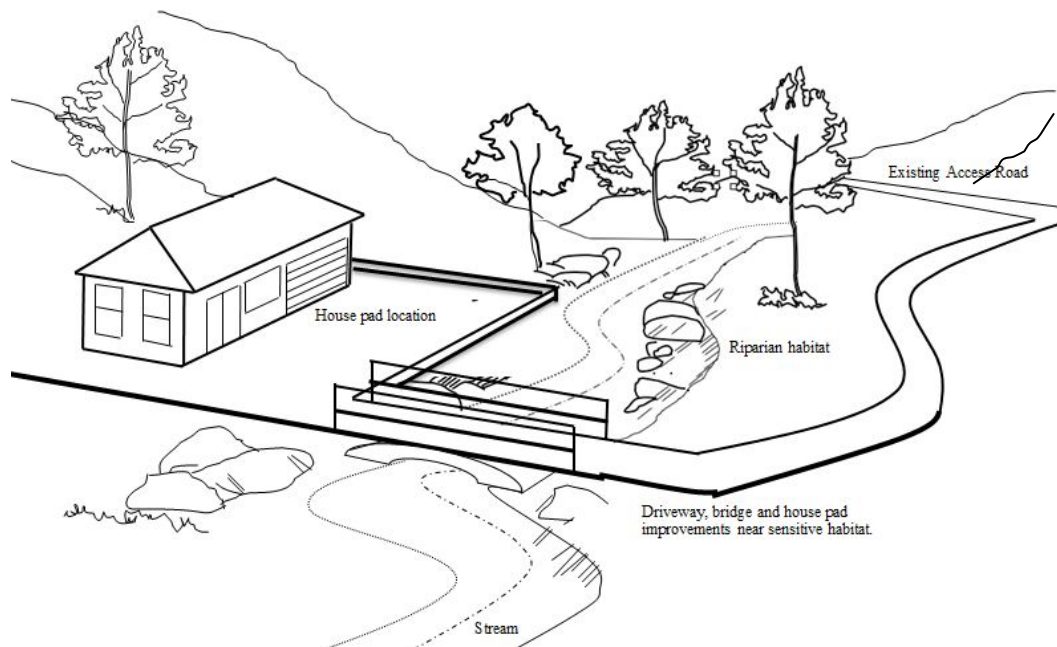


FIG 7: Does Not Conform: Improvements proposed over creeks, riparian habitat and other natural features.

Guideline 4: When proposed development projects in hillside areas include detached buildings such as garages and secondary dwelling units, these buildings should be sited adjacent to the main house or in areas that avoid new grading and terrain alteration. (Refer Policies R-GD-26, R-GD-32).

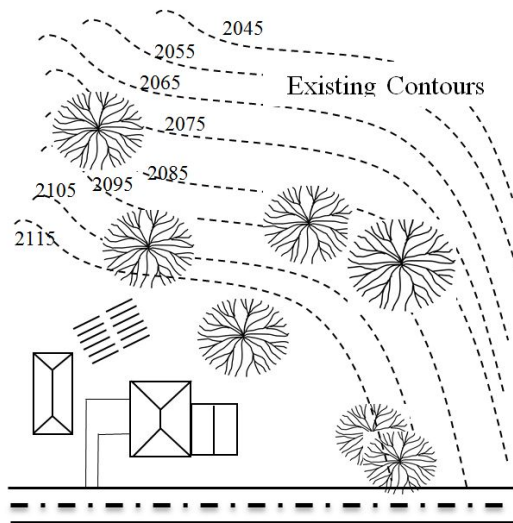


FIG 8: Conform: Locating house and other improvements close and clustered together.

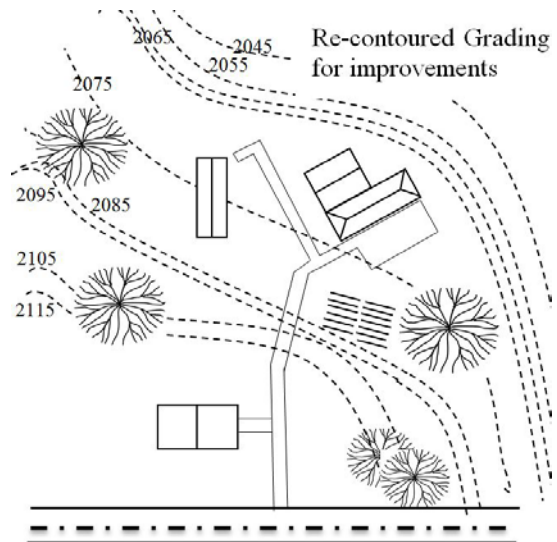


FIG 9: Does Not Conform: Locating house and other improvements far away from one another that entail additional grading.

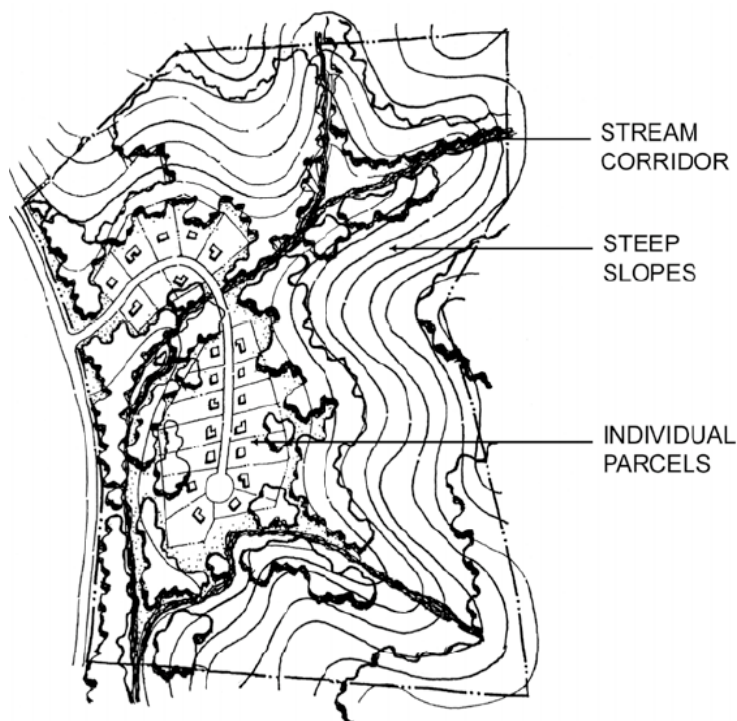


FIG 10: Conforms: Cluster development and infrastructure to minimize the need for grading.

Road Design

New roads and driveways should be sited and designed to minimize terrain alteration, incorporating existing infrastructure where feasible for access to new development. Where new roads and driveways are required in undeveloped hillside areas, the design should minimize the potential for visual scarring of the hillside and grading into sensitive areas. (Refer Policies R-GD—24, R-GD-25)

Guideline 5: Where feasible, use existing access roads and driveways, instead of creating new and multiple roadways. (Refer Policies R-GD—24, R-GD-25)

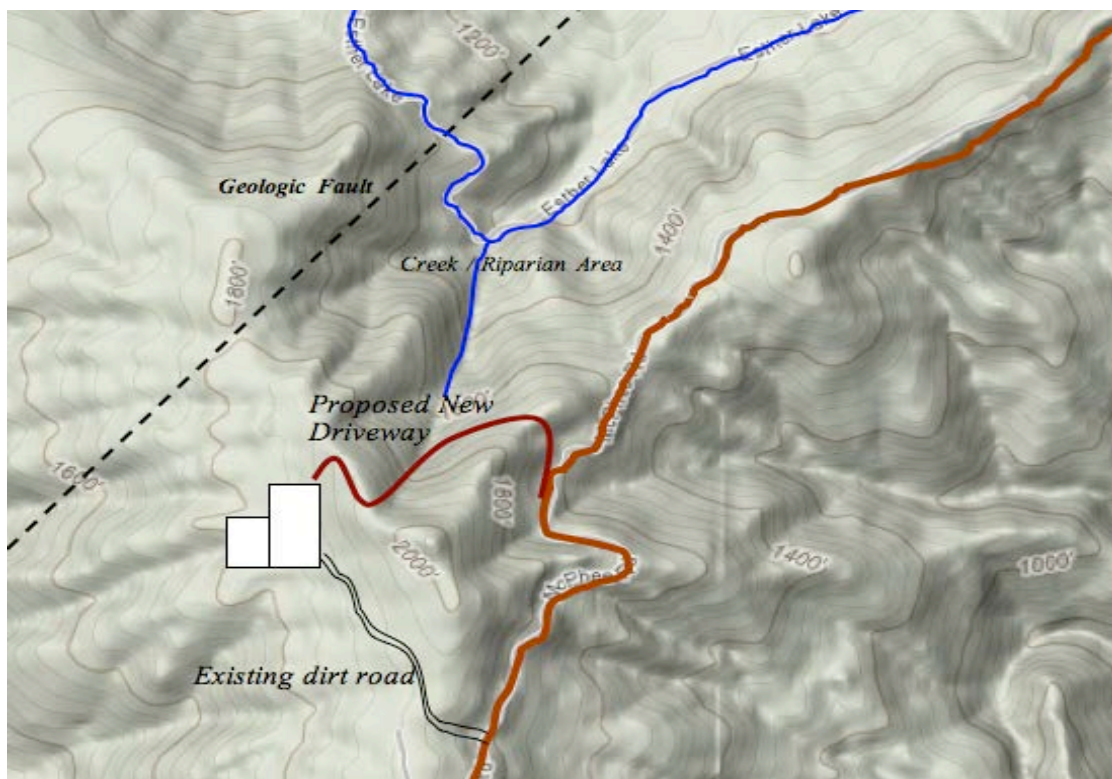


FIG 11: Where feasible, use existing ‘dirt’ road as improvements for access to the property, instead of creating new and additional driveways.

Guideline 6: Where a subdivision is proposed in hillside areas, use common driveways and shared access roads to minimize the need for several separate driveways.
(Refer Policies R-GD—24, R-GD-25)

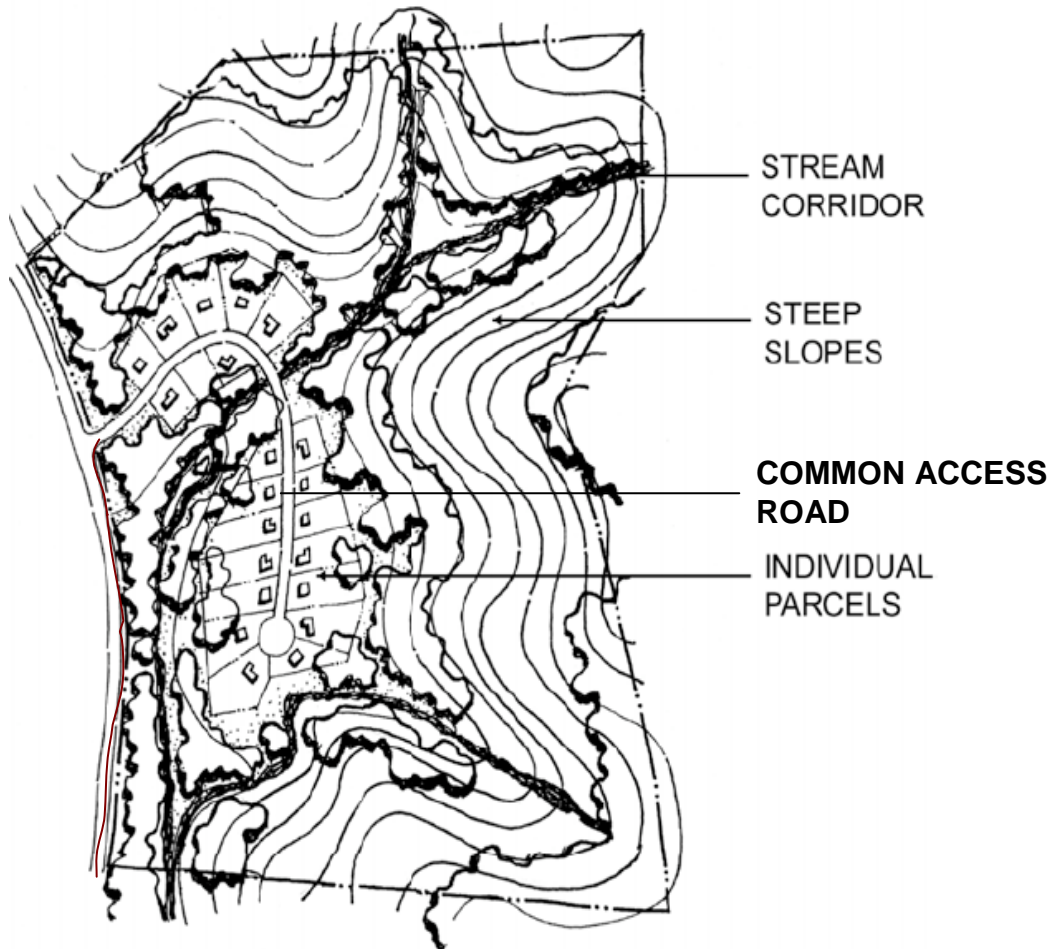


FIG 12: Where a subdivision is proposed, use common driveways and cul-de-sacs to minimize the need for grading for multiple driveways.

Guideline 7: Access roads and driveways should be designed to contour to avoid excessive cuts and fills to the hillside. Avoid road design that results in rigid-line cuts or fills into the hillsides. (Refer Policies R-GD—24, R-GD-25)



FIG 13: Conforms: When developing on steep slopes, design access roads and driveways to follow natural grade and topography.



FIG 14: Does Not Conform: Driveways and access roads that are rigid line cuts into the hillside.



PHOTOS 3, 4: Design access roads and driveways to follow natural grade, contour and topography.

Guideline 8: Roadways shall meet the minimum emergency access standards established by the County Fire Marshal and Ordinance code. New roads in hillside areas should not be designed to maximize the flattening and widening of roads beyond these access standards if this results in extensive grading and terrain alteration. Roads should use a road design that both meets emergency access standards and avoids the need for excessive grading. (Refer Policies R-GD—24, R-GD-25)

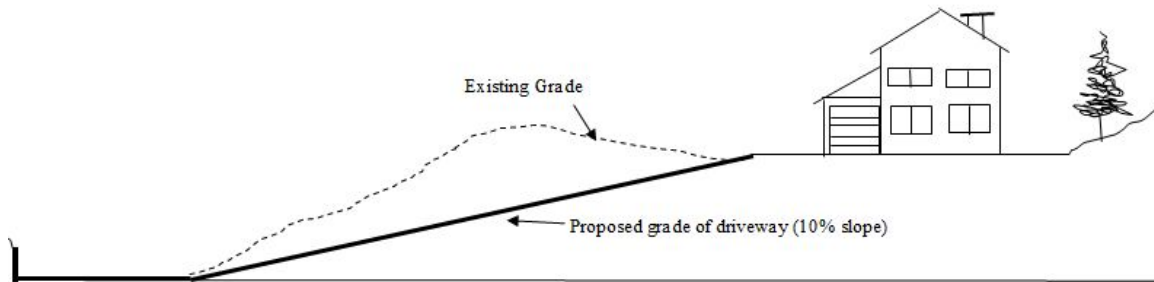


FIG 14: Does Not Conform: Access roads and driveways that do not follow natural grade and topography and are excessive in cut and or fill.

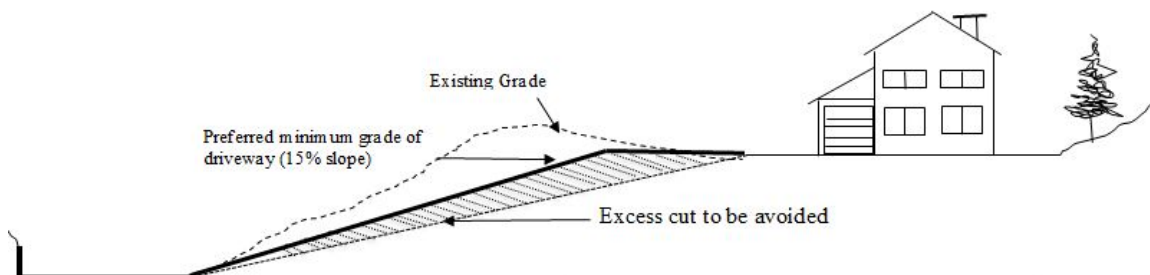


FIG 15: Conforms: When developing on steep slopes, design access roads and driveways that are closest to grade and meet minimum standards for fire safety.

Guideline 9: Retaining walls should be used instead of engineered slopes to avoid impacts to sensitive and protected habitats, including significant trees, major rock outcroppings, and other significant natural features. (Refer Policies R-GD—24, R-GD-25)

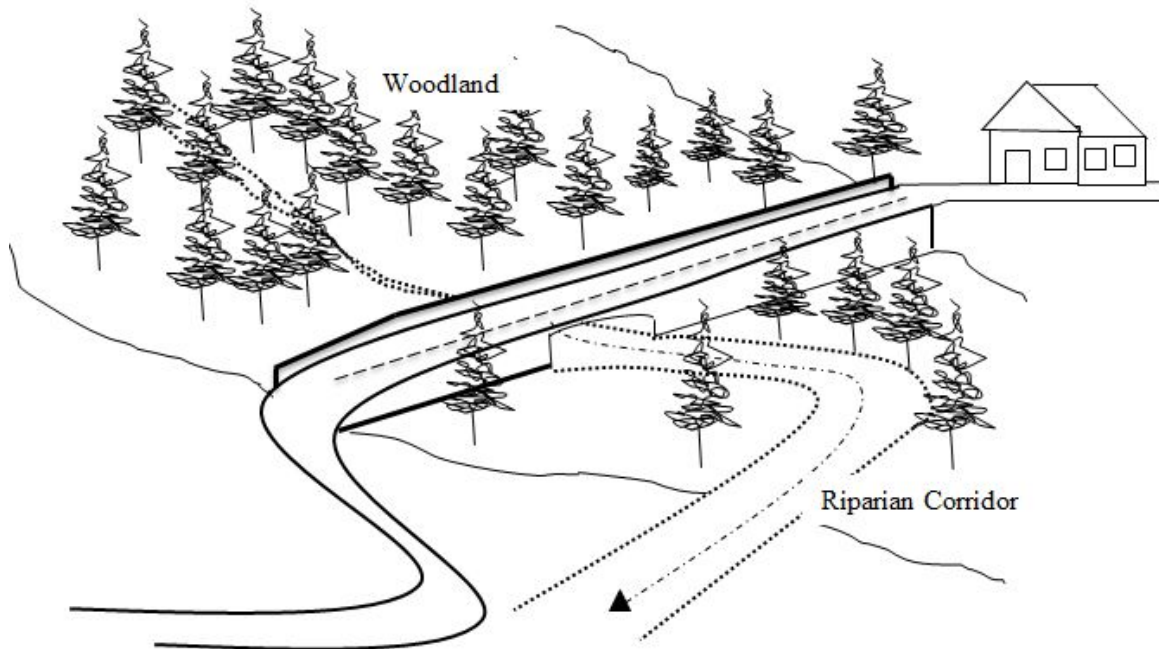


FIG 16: Use retaining walls to preserve natural habitat like oak woodland and riparian corridors.

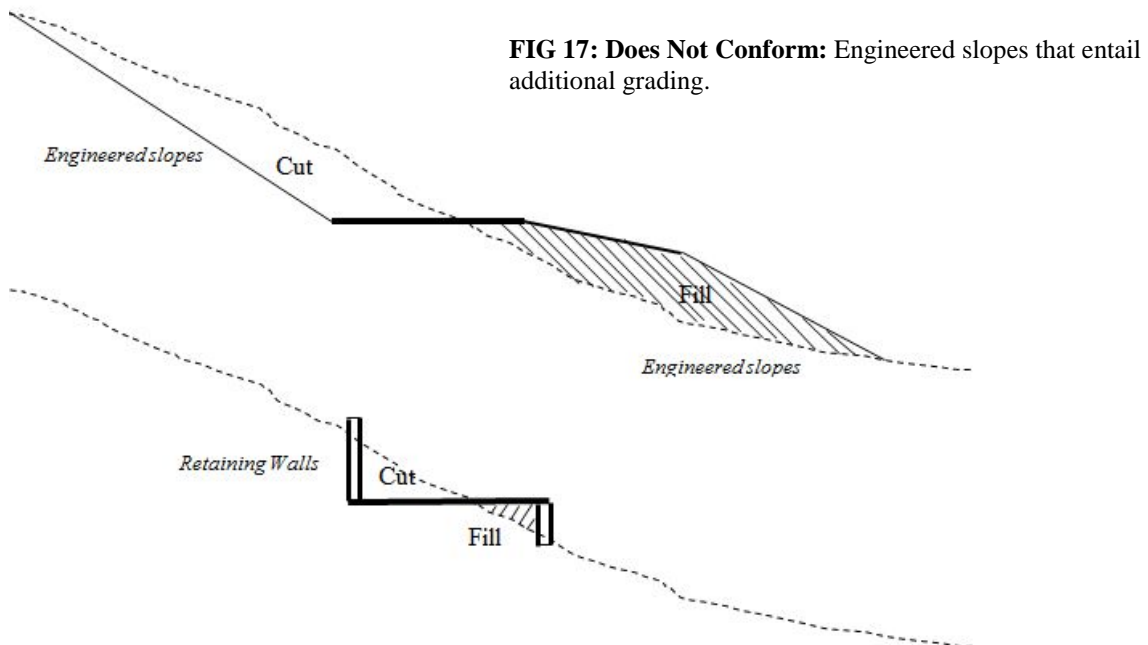


FIG 18: Conforms: When developing on steep slopes use, where appropriate, retaining walls instead of engineered slopes to reduce grading.

Building form and design

New buildings in hillside areas should be designed to minimize extensive terrain alteration and grading, incorporating design concepts that visually integrate a building into the hillside setting and avoid extensive vertical cuts or fills. (Refer Policy R-GD-32)

Guideline 10: Buildings proposed to be located in areas with steeper slopes should incorporate a linear design with and be oriented parallel to the hillside.
(Refer Policy R- GD—24 and Policy R-GD- 32)



FIG 19: Conforms: Locating houses and other improvements designed to contour and to natural terrain.



FIG 20: Does Not Conform: Locating houses and other improvements that are not to contour and natural terrain.

Guideline 11: New buildings located on steeper slopes that are visually prominent should incorporate a tiered design approach in order to reduce building massing and visual bulk. Design methods include steps in the building foundations and varied roof heights and planes. (Refer Policies R-GD—27, R-GD-32)

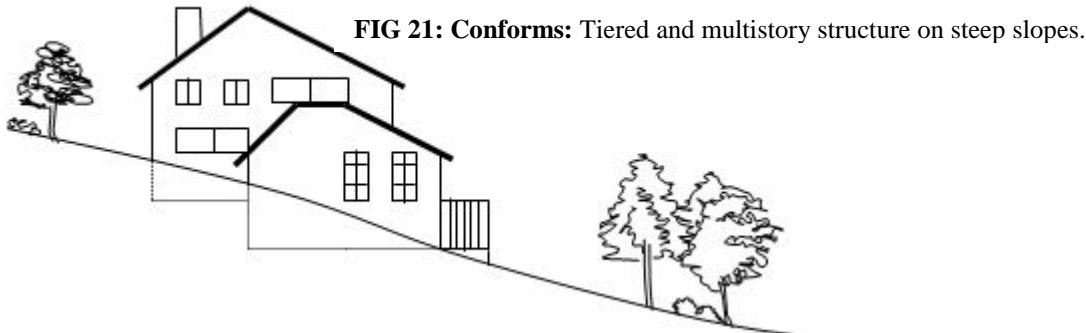


FIG 21: Conforms: Tiered and multistory structure on steep slopes.

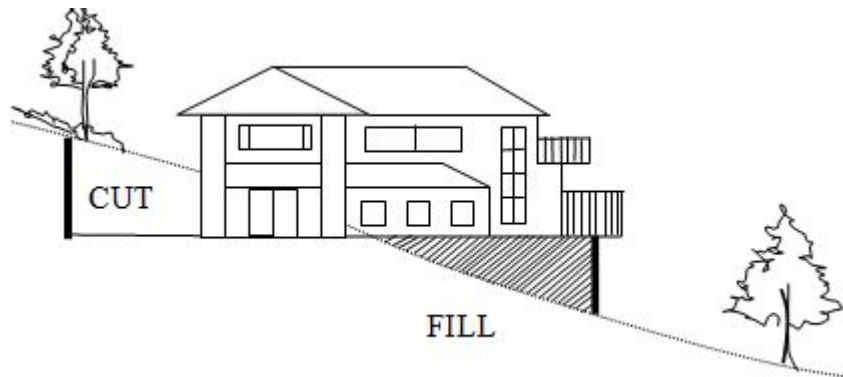


FIG 22: Does not conform: Flatpad designs and massive structures that entail significant cuts and / or fills on hillsides.



PHOTO 5: On sloped lots, design residences that are tiered and are appropriate for the natural setting.

Landform Grading

For projects that require mass grading and major re-contouring of hillside areas, landform grading should be pursued as an alternative to conventional planar / linear slope design that appear artificial in contrast with natural settings.

(Refer Policy R-GD—25)

Guideline 12: For grading projects that require new large fill slopes, use landform grading to resemble natural features instead of the conventional sharp angles and unnatural uniform slope treatments. *(Refer Policy R-GD—25)*

Where natural slopes are disturbed for proposed development, use landform grading to resemble natural features instead of the conventional sharp angles and unnatural uniform slope treatments that appear artificial to the terrain.

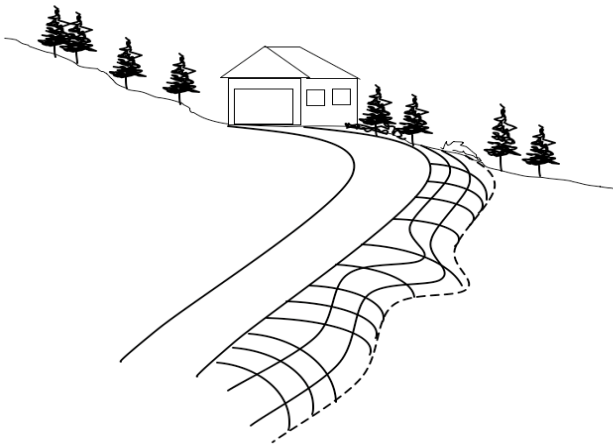


FIG 23: Conforms: Use of landform grading similar to existing site features.

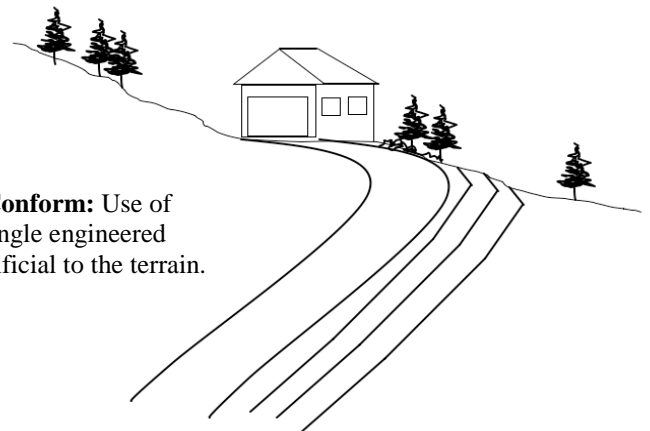


FIG 24: Does Not Conform: Use of conventional sharp angle engineered grade that appear artificial to the terrain.

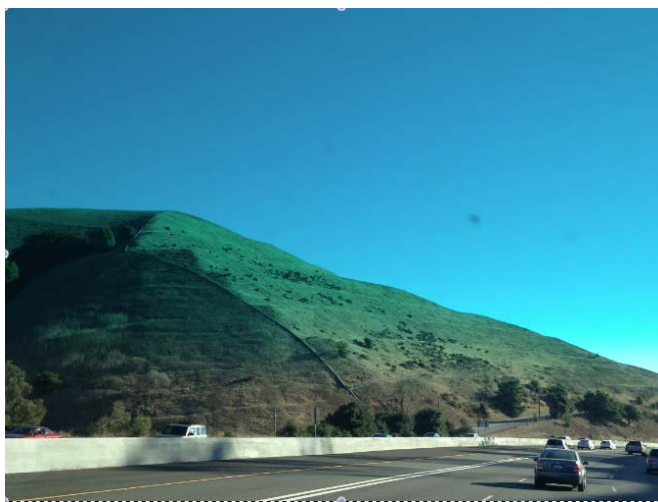


PHOTO 6: Engineered grade that appears artificial to the existing terrain should be avoided.

This *Guidelines for Grading and Hillside Development* (2013) document was produced by the Santa Clara County Planning Office, a division of the Department of Planning and Development.

Kirk Girard, Planning Manager
Rob Eastwood, Principal Planner and
Priya Cherukuru, Author and Graphics Illustrator

We wish to extend our appreciation to other County staff, private parties and organizations that provided assistance, content or both, especially,

Michael Dolan, Planning Office
Ninh Le, LC Engineering, San Jose
Michael Davis, D&Z Design Associates Inc., Morgan Hill

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