

SLOPE STABILITY REQUIREMENTS FOR SINGLE-FAMILY UNITS ON STREAMSIDE PROPERTIES

(Ratified by the Water Resources Protection Collaborative on April 28, 2005)

The Purpose of Slope Stability Requirements

Structures built near streams may negatively affect streams and streamside resources as well as the structure itself. Some potential issues include:

1. Adverse effects on streamside slopes, including effects on slope stability and erosion, and related hazards to structures built on streamside properties
2. Adverse effects on flood control facilities and related infrastructure
3. Adverse effects on local drainage facilities and related infrastructure
4. Adverse effects on riparian corridors and associated vegetation and related erosion impacts
5. Adverse effects to streams, including the effects of down-slope sedimentation and altered stream hydrology, and related impacts to water quality in streams
6. The structure itself can be undermined over time as the streambank erodes due to the dynamic nature of the stream resulting in health and safety hazards

The following Slope Stability Requirements are intended to serve as development standards, that when used, will help enable the location of structures on streamside properties in a manner that avoids or minimizes impacts to streams, streamside natural resources, flood control facilities, local infrastructure and the structure itself.

SLOPE STABILITY REQUIREMENTS AS A 'GEOTECHNICAL TRIGGER' FOR PERMIT REVIEW

If a structure is proposed to be located closer to the Top of Bank than indicated by the following Slope Stability Requirements, this may serve as a trigger for local permitting agencies to require site-specific technical information related to precise slope conditions. If a property owner is proposing to place structures closer to a streamside slope than allowed by the Slope Stability Requirements, the permitting agency should require further study of on-site geotechnical soil and slope stability conditions. The purpose of the study is to determine:

- (1) whether or not the location of a proposed structure may threaten bank stability, and
- (2) whether or not the bank instability may threaten structures and/or potentially cause a health and safety hazard.

For banks of larger streams, or for streams that are deeply incised or have highly erodable banks, a permitting agency may need to require on-site geotechnical analyses even if the Slope Stability Requirement are met.

DESIGN GUIDES FOR GUIDELINES AND STANDARDS

APPENDIX C

SLOPE STABILITY REQUIREMENTS FOR SINGLE-FAMILY UNITS¹ ON STREAMSIDE PROPERTIES

1. Does the Slope Stability Requirement Apply?

	Stream on Property	Stream not on Property
Permit required is ministerial. ²	Yes	Yes
Permit required is discretionary.	Yes	Yes

2. Slope Stability Protection Area (if not exempt)

The "Slope Stability Protection Area" is an area between a structure and the stream². In some cases, a range of numbers is indicated. The assumption is that each local jurisdiction will select one of the numbers based on their existing priorities, permitting processes, and on-site conditions. It is also assumed that the channel depth of most streams in urban Santa Clara County is 10 feet deep or less. For streams, deeper than 10 feet, there should be a 2 to 1 protection area as measured from the toe of the bank.

	Stream with Little or No Hardening	Structurally ³ Engineered System	Ephemeral Stream
Size of Protection Area (as measured from Top of Bank) ⁴	25 – 20 ft.	15 ft.	10 - 15 ft

3. Potential Additions to Slope Stability Protection area

- For a large lot (greater than 10,000 sq. ft), add 5 feet.
- For a large home in which the FAR triggers a discretionary review, work with applicant to ensure that impacts such as drainage are redirected away from a stream and pursue opportunities to increase the slope stability protection area to better protect the stream (and home) from impacts. For example, consider decreasing the required front yard setback in order to accommodate an increased rear yard setback/slope stability area.

¹ Single Family Unit refers to both (a) new single family units on existing lots of record and (b) new single family remodels/rebuilds as defined by local regulations/policy/ guidelines

² In addition to protecting this area, BMP's should be used that are reflective of Guidelines and Standards, for activities adjacent to this areas where discretionary review is used (i.e redirecting drainage away from the stream and no removal of native riparian plants

³ A "structurally engineered system" is designed to provide slope stability. It may be a concrete-lined channel (U-frame or trapezoidal) or a stream substantially modified with riprap, gabions, structurally engineered sacked concrete, etc.

⁴ Area measured for Slope Stability Requirement to be measured based on location of Top of Bank, whether stream is on or off of property.