



A Tradition of Stewardship
A Commitment to Service

Planning, Building & Environmental Services

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Attachment F

GUIDELINES FOR PREPARING LANDSLIDE HAZARD EVALUATIONS

The following guidelines for Landslide Hazard Evaluations are intended to help applicants and/or their representatives determine (a) **who** should be considered qualified to conduct such studies, (b) **how** the fieldwork should be conducted, and (c) **what** information should be contained in the survey report. **Napa County will not accept Landslide Hazard Evaluations that are not conducted according to these guidelines.**

BACKGROUND/PURPOSE: Landslide hazard evaluations are conducted in order to determine the effect of slope failures such as landslides on the proposed project and more importantly the effect of the proposed project on slope stability and thus the threat to both existing and proposed on- and off-site improvements. In addition such evaluations provide some of the information needed to determine how the project will affect the total amount of sediment delivered from the subject property to the drainageways involved.

PERSONS QUALIFIED TO PREPARE: California Registered Geologist or Certified Engineering Geologist with experience in recognizing actual slope failures such as landslides and incipient failures such as soil creep, determining their activity, and forecasting the effects of land use changes such as vineyard and road development thereon.

FIELD SURVEY PROTOCOL: Field surveys must be conducted in a manner that will locate all actual and incipient slope failures present and allow the geologist to determine their activity and potential threat to existing and proposed on- and off-site improvements. Specifically, the field survey associated with a landslide hazard evaluation shall:

- a. *Involve a pre-survey, critical review of all available geologic maps and surveys covering the project site AND surrounding lands*
- b. *Involve a pre-survey review of appropriately-scaled, aerial photo, stereo pairs of the project site and surrounding lands*
- c. *Be conducted in the field.*

- d. *Be conducted using systematic field techniques* to ensure the recognition of all slope failures present
- e. *Be well documented.*

REPORT CONTENTS: Landslide Hazard Evaluations submitted to Napa County shall *at a minimum* contain the following information:

- a. *Project description*, including a detailed map of the project location and study area;
- b. A written description of the *geological setting* of the site and surroundings indicating the types of bedrock, surficial materials, and soils present, the location of previously mapped slope failures, and the geomorphic processes taking place (eg, mass wasting, stream down-cutting, gullyng, etc);
- c. Detailed description of *survey methodology* utilized including a map clearly showing the boundaries of the area surveyed. Dates of field survey, total person-hours spent thereon, and the name of the field investigator(s) shall be indicated;
- d. *Results* including detailed maps showing the location in relation to the proposed project of all (1) borings and test pits excavated, (2) on- and off-site improvements including other vineyard that may be effected, (3) springs and seeps identified, and (4) slope failures present. The activity of each slope failure recognized shall be indicated as well as the basis for the activity determination made.
- e. *An assessment of potential impacts* indicating the likely effect of the proposed conversion or road construction on slope stability. The effects of vegetation removal, increased (decreased) infiltration, concentration of runoff, ripping, soil depth modifications, irrigation/drainage system failures, etc shall all be taken into account and discussed. Potential threats to both on and off-site improvements shall be identified. In addition changes in the amount of sediment being delivered by slope failures from the subject property to the drainageways involved shall be specified;
- f. *Discussion of the significance* of the changes in slope stability noted and sediment delivery amounts projected shall be provided. The basis for a conclusion that a projected change is not significant shall be indicated;
- g. *Recommended mitigation measures* to reduce the threat to the vineyard and/or road itself *AND* any other on- and off-site improvements to what would typically be considered an acceptable level and minimize the amount of sediment eroding from the site as a result of slope failure;
- h. *Recommended additional studies* needed to determine the likely impact of the proposed project on slope stability;
- i. *Logs of any borings done or test pits excavated;*
- j. *References* cited and persons contacted; **AND**
- k. *Geologist's Name, License Number, And Stamp*