soap box

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Misreading the Love Creek Slide

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The recent article by Mary Barnett on Love Creek and the Zayante Dam (*Express*, Vol. II, No. 17, June 24, 1982) implies that the Love Creek landslide was predictable and that negligent and careless county officials are responsible and liable for the tragic deaths and destruction in the Love Creek area.

Barnett claims that the Love Creek landslide "should have come as no surprise," for it was clearly shown on the Preliminary Map of Landslide Deposits in Santa Cruz County, California prepared in 1973 by Cooper-Clark and Associates. She implies throughout the article that by using the Cooper-Clark map it was possible to predict the Love Creek slide and that the map can be used to determine slope stability and evaluate landslide susceptibility. *None of this is true.*

The drawing captioned "The killer Love Creek slide of 1982 was clearly predicted by 1975 USGS documents" does not show the location of the Love Creek (January 5, 1982) landslide. It shows a landslide deposit mapped off aerial photos by Cooper-Clark. The caption implies that the landslide depicted on the Cooper-Clark map is the slide that moved on January 5. Nothing could be further from the truth. The Love Creek landslide originated *above* the old, stable landslide mapped by Cooper-Clark, on a hillside that apparently had not previously failed. Figure 1 is an accurate map showing the relative positions of the old stable slide mass and the Love Creek slide. The ancient slide mass shown on the Cooper-Clark map did *not* move on January 5. There is no indication whatsoever of reactivation of the old slide mass.

The statements of Barnett regarding landslide prediction and Bruce Van Allen's comment ("I dug out a landslide map and I was amazed to find the Love Creek slide right on the map") are simply not true. These statements indicate Barnett and Van Allen's lack of understanding of the nature of the Cooper-Clark map and their inability to interpret the map. Had they read the explanation on the face of the map they would have found a clear description of the problems of interpretation, the reliability of the map and the Map Use and Limitations. All are clearly spelled out on the map. To quote: "Limitations — This map is intended for regional land use evaluations and decisions. It is not intended for detailed slope stability evaluations of individual sites"; "Use — This map is primarily intended for advance planning purposes."

During the past ten years as a consultant geologist I have prepared numerous geologic reports and reviewed scores of reports as a part-time geologic advisor to County planning. I have used the Cooper-Clark map many times and consider it to be a good preliminary landslide map. However, its usefulness is limited because of how it was prepared (i.e., air photo interpretation). The map is incomplete. It does not show all the landslides that are known to exist, and all areas shown as landslides on the map are *not* necessarily landslides. The map probably has a reliability of only about 60-70%, largely because the thick vegetative cover in the Santa Cruz Mountains makes landslide identification difficult. The map is not intended to be used to evaluate landslide susceptibility. In many areas (Love Creek for example) the existing ancient landslide masses are in actuality more stable than the surrounding areas that have not slid.

To summarize, the map was never intended to be used for landslide prediction, it was prepared to provide preliminary information on the distribution of landslides in the County and cannot be used in the simplistic manner that Barnett and Van Allen have used it.

Barnett's criticisms of the County planning department's work and priorities are also unfounded. They reflect a lack of understanding on her part of the problems involved in distributing geotechnical information to the public and the general apathy of the public in matters geologic. Her comment — "Unprepared and uninformed by careless County officials, Love Creek residents are suing for a total of $57 million for the destruction which might have been prevented" — is not only untrue but irresponsible. She suggests that the County should have notified the Love Creek Heights residents that they lived on what *possibly* was an ancient landslide deposit. Perhaps she can explain how this would have helped, since the slide occurred on an unslid slope above Love Creek Heights. Barnett implies the destruction might have been prevented. *How?* Had she known when the slide was to occur, how would she have prevented the destruction of the homes at Love Creek? True, the residents could have evacuated, but how would she have prevented the slide from moving?

It is important to realize that the issue is not just Love Creek. There are several thousand landslides in the County and possibly as many as 25% of the people living in the mountains are living on old landslide deposits. Possibly another 25% (maybe more) of the population is living adjacent to (above or below) questionably stable slopes and may be in jeopardy.

Theoretically all of these people should be notified of their situation in regard to potential slope failures. Consequently, whom does the County warn? Everyone? What does it tell them? You may be living on a landslide. Not all homes in the Santa Cruz Mountains have the same level of risk in regard to landslides. Therefore, unless the landslide risk at each site can be reasonably evaluated and rated, notification of residents, whether their home lies on or off of a landslide deposit, is useless. This line of reasoning suggests that the County should evaluate the landslide risk of essentially *all* parcels in the Santa Cruz Mountains and notify the residents.

The tasks of informing the public and implementing technical data into government policy are both difficult and thankless. During the past nine years I have put a great deal of effort into trying to educate the public in regard to geologic hazards. As County geologic advisor, I have tried to give away copies of the County landslide map, the seismic safety element and other literature to engineers, developers, contractors, realtors and the public in general. Most responses to these offers have been negative. A small number of people are interested and appreciative, most are either not interested or don't want to know.

It is of interest to note that many people when informed of a potential hazard would rather ignore it. A recent example is the action of some of the residents in the abated area of Love Creek, below the "active landslide." Despite complete destruction of seven homes, the deaths of ten neighbors and the presence of an active landslide (identical to the Love Creek slide) directly above their homes, some of the residents still want to live below the active landslide and accept the risk.

A most informative incident regarding the reaction of the public to government's use of geologic data in controlling construction in landslide-prone areas occurred a few years ago in Portola Valley. That city denied an applicant a building permit because of adverse soil conditions that would probably result in landsliding at the homesite. The applicant sued the city for not allowing him to build on his lot. After lengthy negotiations, warnings, signings of liability waivers, etc., he was given a permit. Halfway through construction a landslide occurred, destroying the unfinished house. The applicant then sued the city for allowing him to build in such a hazardous area and for not adequately warning him as to the nature of the hazard.

A major disaster such as the Love Creek landslide and the January 4 storm kindles a short-lived interest and concern regarding geologic hazards. It also results in the development of 20-20 hindsight in many persons who were apparently unconcerned with slope stability hazards prior to the event. Two years from now, if there are no major storms, the majority of the people living in the Santa Cruz Mountains will have forgotten the historic lesson and lost all interest in geologic hazards. A small handful of people — the Love Creek residents and the others tragically affected by the storm — will not forget, but their numbers will be too small to effect permanent changes in land use policies.

Geologically, the notion of the County being responsible for the Love Creek slide is absurd. It is unfortunate that in the wake of this tragedy people are looking for "someone to blame" for what was an essentially unpredictable, catastrophic "act of God." □