

STATE OF COLORADO

COLORADO GEOLOGICAL SURVEY
Division of Minerals and Geology

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To	Robin Kidder	From	Tom White		
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DEPARTMENT OF
NATURAL
RESOURCES

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December 23, 1996

Mr. James R. Mayerl
City of Colorado Springs
Development Services and Comprehensive Planning Division
P.O. Box 1575, Mail Code 310
Colorado Springs, CO 80901-1575

RE: **Barons Ridge at the Broadmoor Subdivision Geologic Hazard Review.**

Dear James;

At your request this office has reviewed the materials submitted by your office for the development that is currently being proposed. These materials consisted of a Geotechnical Hazards Risk Evaluation and Mitigation Report by CTL/Thompson, Inc. dated October 23, 1996, and a Drainage Report by Flo Engineering, Inc. for the Broadmoor Residential Resort Community, Phase 1, which includes the Baron's Ridge site. We also received, from the geotechnical consultant, additional water level measurement data from boring SB-3 that has now been destroyed by site excavation and grading this last summer. The site lies entirely within a historic landslide complex. Though no earth movements have been seen within the site, there has been substantial recent slide activity downslope, at the golf course, and signs of continual earth creep upslope, within the head scarp area of the historic landslide. The site lies within the immediate proximity of fault traces mapped by Scott and Wobus, 1974. Springs and wetlands exist south of the site. Substantial grading and infrastructure construction has already occurred on this site.

The CGS has previously recommended that development within the historic landslide not occur until sufficient data is collected to determine the seasonal variation of water levels in the area and whether earth movements are indeed occurring. Most of the concerns that we had given for our recommendation of disapproval in our review letter for lot #9 remain the same for this site. We find no reason to change that recommendation. In fact, the additional water level data submitted to this office reinforces our concerns. Clear understanding of the ground water sources, flow directions, and seasonal variations is necessary before slope stability can be analyzed, structures designed for the specific site conditions, and whether remedial slope stabilization work is required.

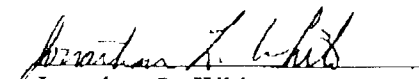
To illustrate our concern, ground water levels in boring SB-3 were stated to be as shallow as 12 feet in the report. The consultant stated that they used a 10-foot water level in their analysis.

The Figure 2, Summary of Slope Stability Analysis, does not reflect this and instead shows a slope geometry with a water level of almost 20 feet from G.L. at boring SB-3. The water level data graph shows that during the wet spring (June 1995) the free ground water level was only 4 feet below G.L. See enclosed copy of the submitted water levels.

In conclusion we reiterate, *A prudent approach to development in this area within the historic landslide boundary is a global, long term instrumentation and monitoring program of the ground conditions. Such monitoring must be of sufficient time to characterize correctly seasonal variations. The developer must realize that such investigations cannot reach reliable conclusions in only a few months of monitoring that does not include the wetter spring seasons. It is our preference, a preference we recommend to the City of Colorado Springs, that this work be done before and not concurrent with any development within the large landslide boundary. Now we recommend that the city not approve this site for development. We would be willing to revisit this recommendation in the future provided a landslide-wide monitoring program is initiated as discussed that includes data from at least two spring seasons of normal precipitation rates.*

If you or Robin have any questions or the Survey can be of additional assistance please call this office at (303) 866-2611.

Sincerely,


Jonathan L. White
Engineering Geologist

Enclosure

cc: Robin Kidder, Stormwater and Subdivision Section

John -

Attached is a plot of water levels for the test hole that was at Baron's Ridge. The plots for 1994, and the "wet" spring of 1995 are good data.

My analysis of Baron's ridge used a water table at 10 feet for this location.

Call me if you have any questions.

Bill Hoffmann

THE BROADMOOR

COLORADO SPRINGS, COLORADO 80901



SB-3
Broadmoor South Golf Course Water Level Data

