



Leighton Consulting, Inc.
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April 24, 2012

Project No. 603314-002

Beverly Hills Unified School District
255 South Lasky Drive
Beverly Hills, California 90212-3697

Attention: Dr. Gary W. Woods, E.D., Superintendent

**Subject: Review of West Beverly Hills Lineament
Beverly Hills High School
241 South Moreno Drive
Beverly Hills, California**

Reference: Leighton Consulting Inc., 2012, Fault Hazard Assessment of the West Beverly Hills Lineament, Beverly Hills High School 241 South Moreno Drive, Beverly Hills, California, Project No. 603314-002, dated April 22, 2012.

Parsons Brinckerhoff's team of geological consultants and experts prepared a map (PB, 2011 Plate 3 Fault Exploration Plan) that showed a broad area containing multiple traces of active faults within the West Beverly Hills Lineament (WBHL) fault zone. Several of these faults extended north or south from PB's transect lines and through Beverly Hills High School (BHHS) and adjacent properties. Faced with a serious threat to student safety, the Beverly Hills Unified School District (BHUSD) authorized Leighton Consulting Inc. (Leighton) to undertake an immediate geologic investigation of the BHHS site to locate the faults, confirm their hazard potential, and work with District officials on plans to accommodate or mitigate the fault hazard. Based on fault projections identified on the PB (2011) map, this investigation was later expanded to include El Rodeo School, the results of which are forthcoming. In addition to Leighton, the District also directly retained Kenney GeoSciences and Earth Consultants International (ECI) as expert consultants to assist Leighton, and authorized Leighton to retain other experts to fully document and resolve the technical geological issues that were encountered during the study.



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Early in Leighton's fault trench investigation it was clear that the multitude of faults on the PB maps affecting the BHHS campus were simply not present as shown. None of the faults that PB identified on the campus could be found in the trenches that Leighton had excavated specifically to expose them. As the study progressed, it became obvious from reading PB reports that the sediments underlying the BHHS were significantly older than expected adding even greater concern that there were flaws in the fault interpretations and focusing new attention onto PB's data; the Cone Penetrometer Test (CPT) and boring logs. A review of PB's cores showed inconsistencies from the cores to the printed logs, including depth errors, miss-identified marker horizons, and inaccurately plotted elevations. Alternative interpretations of the data also lead to findings with gently sloping sediments rather than faults. A review of Transect 4 (PB, 2011) revealed a concern that the first seven CPT probes may have been inverted on Transect 4, perhaps leading to the inaccurate interpretation of more faults. The bottom line was concern that many of the PB faults in the WBHL zone through the campus were very conservatively interpreted and perhaps with inaccurate data. The decision was made by the District to totally redo the CPT and drilling that PB had performed along a portion of Transect 4, and to do it with more closely spaced borings and CPT's. The District also chose to drill deeper to encounter a specific marker bed (The San Pedro Sand) to facilitate better boring to boring correlation of key, and obvious, marker layers.

The results of the Leighton study (2012), supported and confirmed by the many experts employed by Leighton and the District, are that the active WBHL faults mapped by PB at BHHS do not exist. Based on the high quality of the boring, CPT and fault trench data, in conjunction with the pedochronologic profiles, Leighton's work has definitively shown that the sediments underlying BHHS and, to a considerable distance to the east, are unaffected by faults cutting through them for hundreds of thousands of years, and possibly one million years. While we do not know the events leading to PB's consultants interpreting so many faults, we believe it is clear they took a very conservative approach and interpreted faults where our data now show there are none. It is also possible that the quality of the data, and potential spatial errors within that data, led to the interpretations that there must be faults to explain why sedimentary layers did not match up. It is unfortunate that PB's consultants did not consider the ages of the sediments in an attempt to better understand



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and quantify the low hazard that the faults may have posed, even if they were present. Our findings refute PB's interpretation of the fault zone along the WBHL through BHHS. While we have not studied PB's work along the Santa Monica Fault Zone in detail, it is possible their interpretation of faults within that zone may contain similar correlation errors.

If you have any questions regarding this letter, please contact Joe Roe at (949) 251-1421. We appreciate this opportunity to be of service.

Respectfully Submitted,

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