

Ted Walstrom
Director of Bind, Facilities & Modernization
East Whittier School District
14535 East Whittier Boulevard,
Whittier, CA 90605

May 27, 2021

Subject: Second Engineering Geology and Seismology Review for Orchard Dale Elementary School– New Classroom Buildings 106625 Cole Road, Whittier, CA 90604 CGS Application No. 03-CGS4673

Dear Mr. Walstrom:

In accordance with your request and transmittal of documents received on November 20, 2020 and February 15, 2021, the California Geological Survey (CGS) has reviewed the engineering geology and seismology aspects of the consulting report prepared for the subject project at Orchard Dale Elementary School in Whittier. It is our understanding that this project involves construction of three new single-story classroom buildings. This review was performed in accordance with Title 24, California Code of Regulations, 2019 California Building Code (CBC) and followed CGS Note 48 guidelines. We reviewed the following report:

Response to California Geological Survey Review Dated February 2, 2021, Orchard Dale Elementary School – New Classroom Buildings, 10625 Cole Road, Whittier, California: Geo-Advantec, Inc., 457 West Allen Avenue, Suite 113, San Dimas, California 91773; company Project No. 20-2137, report dated February 11, 2021, 3 pages, 1 attachment.

In addition, we previously reviewed the following report:

Geotechnical and Geohazard Investigation Report, Orchard Dale Elementary School Modernization Project, 10625 Cole Road, Whittier, California: Geo-Advantec, Inc., 457 West Allen Avenue, Suite 113, San Dimas, California 91773; company Project No. 20-2137, report dated November 12, 2020, 26 pages, 6 appendices.

CGS previously reviewed and submitted our findings regarding this project in a letter dated February 2, 2021, in which the consultants were requested to reconsider the liquefaction potential of a significant silt layer underlying the proposed improvements and consequently revise their estimate of the potential seismic settlement at the project site.

Discussion on the Liquefaction Potential

Based on this second review, the consultants report the silt layer encountered in Boring B-8 from 10 to 30 feet below the ground surface is not considered liquefiable based on the

measured plasticity index (PI) of 8 not meeting the main criterion for liquefaction according to Idriss and Boulanger (2008). This assessment is consistent with the methodology cited by the consultants. CGS notes other methodologies such as Bray and Sancio (2006) found loose soils with a PI under 12 and moisture content over 85% of the liquid limit (LL) are susceptible to liquefaction. While CGS will accept the consultants' conclusion, we would also emphasize **there is significant uncertainty regarding the liquefaction susceptibility of this type of soil.**

Discussion on Seismic Settlement Calculations

The consultants have not revised their liquefaction induced settlement calculations and report the potential for up to 1 inch of seismically-induced settlement to occur at the site with a differential settlement of ½ inch over 30 feet. This assessment appears reasonable, based on the assessment above that the significant silt layer encountered in B-8 is considered not liquefiable.

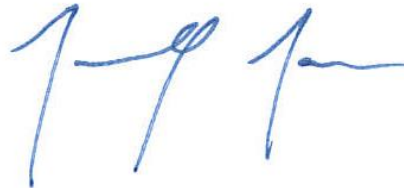
Conclusions

Based on the discussions above, the consultants have addressed our earlier concerns and have now provided a thorough evaluation of engineering geology and seismology issues with respect to the proposed improvements. In summary, the principal concerns identified by the consultants are the potential for strong ground shaking and the presence of moderately expansive and severely corrosive site soils. The consultants recommend design spectral acceleration parameters of **$S_{DS} = 1.272g$** and **$S_{D1} = 1.181g$** , which are considered reasonable. Their evaluation indicates surface fault-rupture and slope instability are not design concerns for the project.

May 27, 2021

In conclusion, ***the engineering geology and seismology issues at this site are adequately assessed in the referenced report, and no further information is requested.*** If you have any further questions about this review letter, please contact the primary reviewer at (650) 350-7308 or maxime.mareschal@conservation.ca.gov.

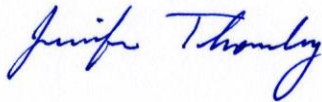
Respectfully submitted,



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Concur:



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Copies to:

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