

July 27, 2023

Mr. Charles Kissick  
Sigma Prime Geosciences, Inc.  
332 Princeton Avenue  
Half Moon Bay, CA 94019

Subject: Geologic Review Letter: Cypress Avenue, Moss Beach.  
(APN's: 037-221-020,030); PLN2020-00070

Dear Mr. Kissick:

We have reviewed the soils report by Sigma Prime Geosciences (SPG) dated June 24, 2020, the peer review letters by Cotton Shires & Associates, Inc. (CSA) and the responses to the reviews by SPG. The final two issues came down to a disagreement regarding the location of the main active trace of the San Gregorio fault and the appropriate setback distance from the fault trace identified on the subject property.

CSA is of the opinion that the fault trace identified in the trench on the subject property is the main active trace of the San Gregorio fault, and that a 50-foot setback should be applied. CSA came to this conclusion by inferring the location of the fault based on the location of a topographic high point to the north, combined with the identification of the main trace of the fault in trenches for other projects to the north and south. However, SPG concluded that the main trace is farther to the west, based on a different interpretation of the same data. We agree with SPG's interpretation.

In our opinion, the best evidence to suggest that the trace found in the trench on the subject property is not the main trace, is the fact that the fault trace is very narrow, wedge-shaped and wider at the top, has no slickensides, no vertical offset, and no change in the geology from one side to the other. It has the distinct appearance of a minor secondary fault trace or simple pull-apart structure.

Trenches to the north and south, (as mentioned above) showed the main fault trace to be several feet wide, slickensided, with vertical offsets, and distinctly different geology from one side to the other. It is very clear that the trace found on the subject property is not the main trace.

We understand that CSA has stated in phone conversations and emails on this and other projects in the neighborhood, that a 50-foot setback should be applied not only for the main trace, but for all secondary fault traces, no matter how minor. However, our review of SPG's documentation of past soils reports in the neighborhood shows that a 10-foot setback has been the norm since 1980, with 10-foot setbacks recommended in 13 out of 14 reports. The other report

recommended a 25-foot setback. The 10-foot setback has been approved by the County as recently as 2020.

We also looked at email correspondence with the County's geologist, Jean de Mouthe, in which it is made clear that she inspected the trench. She did not put into writing that a 10-foot setback would be acceptable, but we're told that she stated this verbally during her site visit. That is why a 10-foot setback was applied when the house was designed.

It appears that the main trace of the fault is about 40 feet or more west of the secondary trace. A 50-foot setback from the main trace corresponds to a 10-foot setback from the secondary trace.

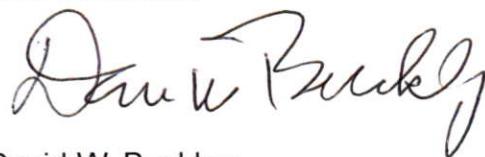
The fault trench showed that the soil east of the secondary trace, and across the entire property, was completely undisturbed, down to the marine terrace deposits, which are likely more than 10,000 years old. Therefore, the likelihood that the property will experience significant ground deformation in future seismic events is low. Even so, SPG recommends a rigid mat slab foundation, as there always remains a possibility for ground deformation anywhere in the area. The recommended foundation design will minimize the impact of ground deformation of the proposed structure and keep the occupants safe from catastrophic failure. CSA has stated that an engineering solution to potential seismically induced ground failure is not an option. However, one of the most common objectives of a civil, structural, or soils engineer is to arrive at engineering solutions to potential hazards, from earthquakes, to fires, to hurricanes.

Given the conservative foundation recommendations, the low likelihood of ground failure beyond 10 feet from the secondary fault trace, and the 40 plus year history of approved projects with 10-foot setbacks, it is unreasonable at this time for CSA to arbitrarily require a 50-foot setback. The project should be allowed to proceed with a 10-foot setback.

If you have any questions regarding this letter, please contact our office.

Very truly yours,

EcoGeoBuild



David W. Buckley  
President

