



January 14, 2020  
Z6010

TO: Nicholas Armour  
Associate Planner  
CITY OF BERKELEY  
1947 Center Street, 2<sup>nd</sup> floor  
Berkeley, California 94704

SUBJECT: **Geotechnical Peer Review - Liquefaction Zone**  
RE: Read Investments, LLC, New Six-Story Mixed-Use Building  
ZP2019-0155  
3000 San Pablo Avenue

At your request, we have completed a geotechnical peer review of the proposed use permit application at the subject property using:

- Geotechnical Investigation (report) prepared by Rockridge Geotechnical, Inc., dated October 11, 2019.

In addition, we have reviewed pertinent technical maps and reports from our office files and completed a recent site reconnaissance.

### **DISCUSSION**

Based on our review of the referenced report, the applicant proposes to demolish the existing two at-grade structures to construct a new six-story mixed use building at the project site. Additional site improvements include landscaping and drainage improvements. The proposed project is located within a liquefaction hazard zone as mapped by the California Geological Survey. According to the State's Seismic Hazards Mapping Act, a qualifying project in this zone must be supported by a site-specific geotechnical investigation (report) addressing the mapped hazard.

The purpose of this geotechnical peer review is to determine whether the referenced 2019 Geotechnical Investigation is consistent with State criteria for project approval with respect to liquefaction hazards. When site seismic hazards are confirmed to exist, the State requires that a minimum level of mitigation for a project be performed to reduce the risk of ground failure during an earthquake to a level that does not cause the collapse of buildings for human occupancy. Our geotechnical peer review does not include evaluation of detailed construction plans and is not intended to address all geotechnical aspects of proposed project design.

## SITE CONDITIONS AND GEOTECHNICAL EVALUATIONS

The Project Geotechnical Consultant (Rockridge Geotechnical) has advanced a subsurface exploration program at the site which included two Cone Penetration Tests (CPT) and one Geotechnical boring to the State recommended depth of 50 feet below the ground surface. Groundwater was measured during subsurface exploration at a depth of approximately 15 feet below the ground surface. The boring log indicated earth materials consistent with USCS group symbols CL, CL-ML, SW and SM. Cone Penetration Tests record soil behaviors consistent with clays and silt mixtures, along with silty sands. The Consultant completed geotechnical laboratory testing including, but not limited to, Atterberg limits testing on two samples of surficial soil (CL) and grain size distribution analysis of four samples (CL, CL, SW, and SM).

The California Geological Survey (CGS) has mapped the historic high groundwater at depths less than 5 feet below the ground surface at the subject site. As previously mentioned, the site is located within a liquefaction hazard zone of required investigation delineated by the CGS. The Project Geotechnical Consultant concludes that the site has a minor potential for liquefaction induced settlement with a total estimated settlement of approximately 1/2 an inch. The Consultant notes that encountered near surface clay on southwestern portions of the site is highly compressible and should be mitigated according to the recommendations provided in the referenced report.

## CONCLUSIONS AND RECOMMENDATIONS

Based on our review of the referenced report dated October 11, 2019, it appears that the potential for liquefaction has been satisfactorily evaluated by the Project Geotechnical Consultant. We conclude that the subsurface investigation has satisfactorily fulfilled State investigation requirements in the mapped potential liquefaction hazard zone. We recommend geotechnical approval of the subject land use permit application with the following conditions attached:

1. **Geotechnical Plan Review** - The applicant's geotechnical consultant should review and approve all geotechnical aspects of the final project building and grading plans (i.e., site preparation and grading including removal and replacement of compressible soils, site drainage improvements including bio-swale layouts, and design parameters for foundation and hardscape) to ensure that their recommendations have been properly incorporated and to ensure that the project concept has not changed significantly.

The results of the plan review should be summarized by the geotechnical consultant in a letter with appropriate laboratory testing

results and evaluations and submitted to the City Engineer for review and approval prior to issuance of building permits.

2. **Geotechnical Construction Inspections** - The geotechnical consultant should inspect, test (as needed), and approve all geotechnical aspects of the project construction. The inspections should include, but not necessarily be limited to: site preparation and grading including the removal and replacement of compressible soils, site surface and subsurface drainage improvements including proposed bio-swales, and excavations for foundations and slabs-on-grade prior to the placement of steel and concrete.

The results of these inspections and the as-built conditions of the project should be described by the geotechnical consultant in a letter and submitted to the City Engineer for review prior to final (granting of occupancy) project approval.

### **LIMITATIONS**

This geotechnical peer review has been performed to provide technical advice to assist the City with its discretionary permit decisions. Our services have been limited to review of the documents previously identified. Our opinions and conclusions are made in accordance with generally accepted principles and practices of the geotechnical profession. This warranty is in lieu of all other warranties, either expressed or implied.

Respectfully submitted,

**COTTON, SHIRES AND ASSOCIATES, INC.**  
**CITY GEOTECHNICAL CONSULTANT**



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