



STRUCTURAL PERMIT CORRECTIONS

November 30, 2022

Michele Lorilla, PE
Geotechnical Peer Reviewer
City of Mercer Island - Community Planning & Development
9611 SE 36th Street
Mercer Island, WA 98040

RE Permit corrections [SUB21-008] for Koneru Residence at 6610 E Mercer Way,
Mercer Island, WA 98040, Permit No. 2112-250

This letter is intended to respond to comments by the City of Mercer Island regarding the structural design as it relates to the potential for collapse of the foundation system during liquefaction and lateral spreading. We have reviewed the June 8, 2021 Geotechnical Engineering Study and the April 12, 2022 Response Letter, both by Geotech Consultants. Based on these documents, we understand that the building site is susceptible to liquefaction during the event of an earthquake. An analysis of the site has further calculated that ground settlement may occur during the Maximum Considered Earthquake (MCE) with a 1-in-2,475-year probability. As a result, the geotechnical reports have recommended that all building structures to be pile supported to mitigate against excessive settlements during an MCE.

We also understand that the potential for lateral spreading is a concern on this site during an MCE. Lateral spreading is an event that occurs with the flow of a liquefied layer of soil toward a free space. As we understand it, the free space in question is Lake Washington. Based on the geography of the site, it is reasonable to assume that this liquefied layer will flow relatively uniformly in the same direction.

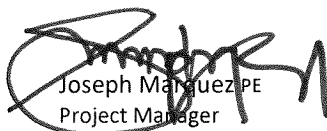
For the design of this project, we have interconnected the pipe/pin piles with concrete grade beams and structural slab-on-grade. We believe this reinforced "raft" system consisting of 6-inch diameter extra-strong pipe piles (in lieu of 4-inch diameter standard weight pipe called out on the approved plans) interconnected with concrete grade beams and structural slab-on-grade will perform adequately to support vertical and lateral deformations in a seismic event.

Based on the review of the geotechnical documents, it is our professional opinion that the pile and grade beam system as presented in our structural drawings dated November 3, 2022 can sustain large displacements and provide adequate support of the residence to prevent building collapse.

We trust that this addresses all the structural concerns. Please let us know if we can be of further assistance.

Sincerely,

**MALSAM TSANG STRUCTURAL
ENGINEERING CORPORATION**


Joseph Marquez PE
Project Manager

