

October 31, 2025
File No. 25-036

Citizen Design

Attn: Mr. Isaac Greenetz
3800 Woodland Park Avenue, #300
Seattle, WA 98103

**Subject: Geotechnical Addendum & Comment Response (CA025-014)
Proposed Single-Family Residence
6427 East Mercer Way, Mercer Island, Washington**

Dear Mr. Greenetz,

As requested, PanGEO prepared this geotechnical addendum and response letter to provide additional geotechnical recommendations for the proposed project, and respond to the geotechnical aspects of the City of Mercer Island Community Planning and Development letter, dated 7/23/2025.

ADDITIONAL GEOTECHNICAL RECOMMENDATIONS – GRAVITY SHORING WALL

PanGEO provided the project team with additional recommendations for a temporary shoring wall consisting of a concrete block gravity wall. We recommended the following geotechnical considerations for the design and construction of the proposed Ultra-block shoring walls.

Concrete Blocks – Concrete blocks utilized for the gravity shoring wall should consist of blocks constructed out of new concrete (i.e. Ultra-blocks) with dimensions of 2.5 feet by 2.5 feet by 5 feet.

Wall Height, Batter & Backslope – We understand that temporary shoring walls with 2 and 3 rows of blocks are proposed. We recommend the following:

- For wall heights up to 7½ feet, or three levels of ultra-blocks, the blocks may be stacked with their long axis parallel to the cut face, and the block wall constructed with a batter

no steeper than 6V:1H. A 1H:1V backslope must be limited to 3-foot-tall for 7½-foot tall walls;

- For wall heights up to 5 feet high, or two levels of ultra-blocks, the blocks may be stacked with their long axis parallel to the cut face, and the block wall constructed with a batter no steeper than 6V:1H. A 1H:1V backslope up to 20 feet tall is acceptable for a 5-foot-tall wall on the south side of the site, due to the competent, glacially consolidated soils.

Minimum Embedment & Subgrade Conditions – For a 2- or 3-block high wall, the bottom of the block wall need not be embedded, and may be placed directly on the properly prepared subgrade. The blocks should be founded on competent native soils or properly compacted structural fill.

Construction Considerations and Sequence – We recommend the following for the proposed Ultra-block walls at the site:

- Unless a 1H:1V slope cut is made behind the alignment of the block wall, to reduce the potential of instability of the temporary excavation during construction of the temporary block wall, we recommend that no excavation shall be made until the blocks are on site, and the maximum unsupported length of the excavation should be limited to about 15 feet.
- The concrete blocks should be placed against the cut immediately after the excavation has been made to prevent the cut from being unsupported overnight, and voids behind the blocks should be backfilled.
- Because there will likely be limited space between the back of the wall and the cut slope, a backfill material which does not require compaction, such as railroad ballast (2-inch crushed rock), should be utilized.
- If the blocks are not placed against the cut by the end of the work day, the cut shall be buttressed overnight by backfilling.

RESPONSE TO GEOTECHNICAL PEER REVIEW COMMENTS

1. No geotechnical response needed.

2. Geotechnical Plan Review and Statement of Risk (MICC 19.07.160(B)(3))

PanGEO reviewed the geotechnical engineering aspects of the current plans for the above-referenced project. Our review included the following:

- Architectural plan sheets prepared by Citizen Design, with revisions dated 10/28/2025;
- Structural plan sheets prepared by Malsam Tsang Structural Engineering, with revisions dated 10/22/2025; and
- Civil plan sheets prepared by Facet, with revisions dated 10/24/2025.

Based on our review of the plans listed above, it is our opinion that the plans have incorporated all substantial geotechnical recommendations presented in our geotechnical report for the project, dated June 18, 2025, and this letter, and are acceptable from the geotechnical standpoint.

Per the Mercer Island City Code, development within geologic hazard areas requires a statement of risk. The statement of risk shall meet one of the following criteria:

- a. The geologic hazard area will be modified, or the development has been designed so that the risk to the lot and adjacent property is eliminated or mitigated such that the site is determined to be safe;*
- b. Construction practices are proposed for the alteration that would render the development as safe as if it were not located in a geologic hazard area;*
- c. The alteration is so minor as not to pose a threat to the public health, safety and welfare; or*
- d. An evaluation of site-specific subsurface conditions demonstrates that the proposed development is not located in a geologic hazard area.*

Based on our understanding of the proposed project, and our review of the project plans as outlined above, it is our opinion that criteria (a) above can be met for this project, provided that the project is properly constructed per the approved plans.

3. No geotechnical response needed.

4. Temporary Excavation Plan

PanGEO worked with the project team to revise the temporary excavation plan to be in accordance with the recommendations for temporary excavations in our geotechnical report, as well as to be in accordance with the recommendations for temporary gravity block shoring walls presented above. Based on our review of the revised temporary excavation plan, the proposed block wall configurations are in accordance with our recommendations, and the temporary cut slopes are in accordance with our geotechnical report. In our opinion, the temporary excavation plan shown on Sheet A0.6. is acceptable. Per our geotechnical report, PanGEO should monitor the temporary excavations during construction to confirm the subsurface conditions are as expected.

5. No geotechnical response needed.

6. Limits of Foundation Over-Excavation

The project structural engineer has added pin piles to support the portion of the building foundation which may likely be underlain by unsuitable soils. Based on our review of the revised foundation plan, the pin piles were added in areas recommended by PanGEO, and we therefore do not anticipate any footing over-excavations will be needed.

7. Stability of Temporary Excavations

As described in item No. 4 above, the temporary excavation plan has been modified to reduce the overall height of unsupported cut slopes. PanGEO provided recommendations to support the temporary excavations with concrete block gravity walls with varying backslope heights. Based on our analysis, the proposed shoring walls with backslopes shown on Sheet A0.6 will remain stable, and the temporary slope

cuts within the very stiff to hard silt, and dense to very dense glacially consolidated sand will remain globally stable for the temporary condition.

8. Temporary and Final Grading Plans

As described in Item No. 4, the temporary excavation plan has been modified. Based on our review of the temporary excavation plan on Sheet A0.6, the temporary excavation plan has been developed in accordance with our recommendations, and is acceptable. We also reviewed the final grading plan, which also has been modified. In our opinion the final grading plan is acceptable from the geotechnical standpoint, and in accordance with the recommendations presented in our geotechnical report.

9. No geotechnical response needed.

10. No geotechnical response needed.

11. No geotechnical response needed.

12. Temporary Excavation for Detention Tanks

The temporary excavation plan for the detention tanks has been modified to reduce the overall height of unsupported slope cuts. PanGEO provided recommendations to support the temporary excavation using concrete block gravity walls with varying backslope heights. Based on our analyses, the proposed shoring walls with backslopes shown on Sheet A0.6 around the detention tanks are acceptable.

RESPONSE TO PLANNING REVIEW COMMENTS

1. No geotechnical response needed.

2. No geotechnical response needed.

3. MMC Critical Areas Mitigation Sequencing (MICC 19.07.100)

a. The project has been designed to limit the ground disturbance within the critical areas at the site. For example, the house is situated on the flattest portion of the site, and was not extended into the southern, steeply sloping area of the site.

b. Pin piles have been included in the project design to limit the over-excavation depth and backfilling. As a result, the use of pin piles reduces the volume of earthwork and therefore reduces the potential impact to the critical areas at the site. In addition, temporary shoring walls have been added to the project to limit the horizontal extent of temporary excavations. As such, the disturbed area of the site has been reduced, which therefore reduces the impact to critical areas. The temporary shoring walls will also allow for the ground surfaces in the tree protection areas to remain undisturbed.

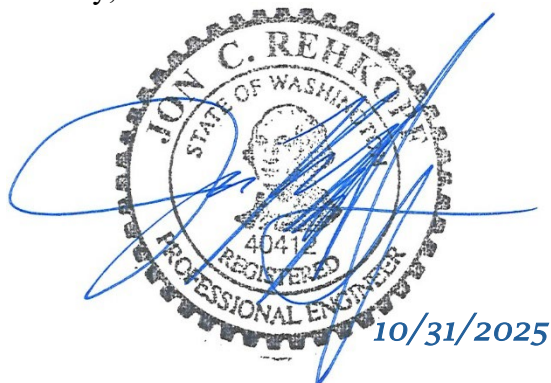
c. The temporary excavations will be backfilled to restore the ground surface to near original grades, or flatter, and all disturbed areas of the site will be stabilized against erosion with permanent landscaping measures.

In summary, in our opinion, proper mitigations have been implemented in the current design such that the potential risk to the mapped geologic hazards is eliminated or mitigated such that the site is determined to be safe.

CLOSURE

We trust that the information presented herein meets your need at this time. Please call if you have any questions.

Sincerely,



The image shows a circular professional engineer seal for Jon C. Rehkopf, State of Washington, Registered Professional Engineer, No. 40412. The seal is stamped in blue ink and is partially obscured by a blue ink signature. To the right of the seal, the date "10/31/2025" is written in blue ink.

Jon C. Rehkopf, P.E.
Principal Geotechnical Engineer
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