

August 12, 2022

JN 21026

Mist LLC
7683 Southeast 27th Street, #418
Mercer Island, Washington 98040

Attention: Feras Alrouk
via email: mist_llc@hotmail.com

Subject: **Project Update/Review of Plans**
Proposed Single-Family Residence
4045 West Mercer Way
Mercer Island, Washington

Greetings:

We have completed a general review of the geotechnical aspects of the plans for the single-family residence to be constructed at 4045 West Mercer Way on Mercer Island. We completed a geotechnical engineering study for this project dated June 18, 2021. The City of Mercer Island has recently prepared comments regarding the geotechnical engineering aspects of this project, and has also asked for us to review the plans. Our response to the comments, as well as our review of the plans, is included in this letter.

Based on Mercer Island review, additional info is needed regarding “catchment walls” that we recommended for the northern, upslope side of the proposed residence. In our study, we recommended the use of catchment walls on the upslope side of the residence if a potential landslide were to occur. We recommended that a catchment height of 7 feet for the garage portion of residence (northwest portion) and 6 feet on the northeast portion. We have recently reevaluated the catchment situation using data from landslides that have occurred frequently in the Alki Beach area of Seattle – this is the only data we know of in the Puget Sound area. and catchment walls are readily needed there. In 1974, landslide debris that included soil, boulders, and vegetation (trees, etc.) amounted to approximately 6.7 cubic yards (about 180 cubic feet) of material/foot of land. However, the slope this occurred on at Alki Beach is 110 feet tall. We analyzed the slope on the subject site, which is about one-half the size of the Alki Beach slope, thus we assumed the amount of landslide debris to be half of the 6.7 cubic yards. Using this amount, and assuming that the final landslide configuration would be approximately 3:1 (H:V), we have determined that the 6 feet of catchment is still suitable, but that the catchment wall at the garage needs to be raised to 8.5 feet. This increase in catchment height is included in the updated plans. We recommended that an active pressure of 80 pcf be used for the catchment wall; we have used this pressure for several years for catchment walls and believe it is adequate for this project.

The City of Mercer Island has also asked us to address some specific sections of MICC 19.07.110. we have included the specific section below, and our comments directly follow (in italics).

6. Provide photographic records of the site before the proposed alteration (project) occurs. *We have attached three photos of the site that we believe well document the condition of the site. As can be seen, the site once had a residence that was removed, and a significant portion of the site is devoid of valued vegetation.*

8. Provide a description of mitigation sequencing implementation described in [section 19.07.100](#) including steps taken to avoid and minimize critical areas impacts to the greatest extent feasible. *The significant critical area on the site is the steep slope on the northern side of the site. However, because excavation shoring is proposed on the northern side of the residence, and thus little excavation is proposed for the steep slope. The shoring is the one of the first sequences in the construction of the residence. The first sequence will be to install erosion control measures as are shown in the project plans. Later in the project, likely near the final portion of construction, new and improved vegetation will be placed on the steep slope, as the slope is now devoid of any valuable vegetation. We believe that construction sequencing using erosion control measures, shoring, and finally new vegetation, is very suitable for this project.*
11. Provide a post-design memorandum prepared by a qualified professional confirming that the proposed improvements comply with the design recommendations. *We have provided information regarding our review of the plans as noted in the two subsequent paragraphs of this letter.*

The project plans have been recently updated, including the increasing of the catchment wall height to 8.5 feet in the garage area as noted previously in this letter. The plans we reviewed prior to the preparation of this letter include: 1) Sheets S1.0 through S4.3, which were prepared by Gary Gill, SE dated July 9, and 2) Sheets A0.1 through A8.1, which were prepared by McClellan Architects dated August 12, 2022 and 3) Sheets C01 through C07, which were prepared by DCG dated August 1, 2022

In our professional opinion, the plans conform to the recommendations in our geotechnical engineering report and geotechnical engineering recommendations we have made. We believe that the shoring and retaining wall design parameters are suitable as given in our report.

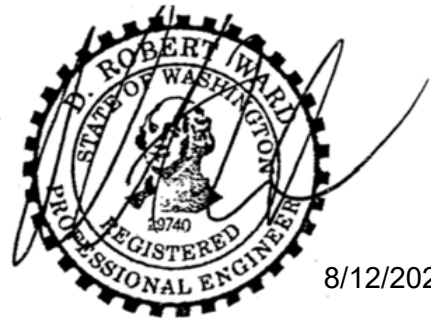
A statement of risk for this project is needed. As such, we provide the following statement:

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.

If there are questions, or if we can be of further service, please contact us.

Respectfully submitted,
GEOTECH CONSULTANTS, INC.

D. Robert Ward, P.E.
Principal



8/12/2022

Attachment: Site photos (per MICC 19.07.110.6)

cc: **McClellan Architects** – Joey Pasquinelli & Regan McClellan
via email: joey@mccarch.com & regan@mccarch.com

ASM:DRW:kg

Site Photos

