



January 11, 2013 Project No. 13001

HomeStreet Bank 20700 44th Ave West #300 Lynnwood, WA 98036

Attention:

Lori A. Dahlquist

Subject:

Robin Holt & William Gartz 7703 West Mercer Way Mercer Island, WA 98040

Battermann Geotechnical Consulting, pllc was requested to perform a geological hazards and geotechnical engineering assessment of the single family residence located at 7703 West Mercer way on Mercer Island, Washington. The undersigned was on site on January 7, 2013 to perform the assessment of the property. The results of our assessment are as follows.

The subject property was located on the southwest corner of Mercer Island, Washington. The property was located down a shared driveway between West Mercer Way and Lake Washington. The shared driveway provides access to the upper, east side of the property where the garage and paved driveway/turn around area were located. At the far northeast corner was "three sided box", elevated retaining wall supporting a separate, raised parking area off of the shared driveway. From the garage driveway area and entry into the upper story of the residence, concrete retaining walls provided grade separation on the sides of the lot as the lot sloped down to the west. The residence was set into the hillside and nearly completely covered the center portion of the property. The entire eastern half to 2/3rds of the property was covered with hardscapes, structures or concrete pavement. The western slope between the daylight basement west side of the residence down to the lake was terraced with a series of short landscaping, segmental block and/or a wood cribb retaining walls with a switchback path and planter beds. The property/lake boundary was armored with a 4 to 5 foot high rockery.

Based on a review of the Mercer Island geologic map, sediments exposed on nearby road cuts and in the crawlspace of the residence, and our past experience on Mercer Island, the subject property was underlain by a non-glacial fine grained (silt and clay) sediment that has been subsequently over-run by at least one (likely two or three) glacial advances into the Puget Sound region. The several thousand feet thickness of glacial ice that was once present atop the bearing sediments consolidated the fine grained sediment to a very hard stratum. The consolidated sediment exposed in the residence crawlspace were in a very hard condition.

The residence and surrounding properties were developed in the mid-1980s with support from geotechnical engineering consulting firms at the time of development. Presumably the geotechnical firms addressed the stability of the area and provided foundation recommendation

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suitable for support of the planned residences while maintaining slope stability. The subject residence was founded on augercast piles connected with a pile cap/grade beam all of which was notched into the hard sediments onsite. The augercast piles extend the foundation loads down into the core of the slope and provide an effective setback from the face of the slope.

Based on our assessment and past 25 year performance of the site and the surrounding area, the geologic hazards associated with steep slopes have been suitably mitigated. This does not mean that there are no risks associated with the property — the subject lot and the entire surrounding area are a steep slope hazard and there will always be risks associated regional slope movement due to earthquakes that cannot be mitigated. The localized hazards associated with being on a steep slope such as shallow debris flows, erosion and slope retreat have been suitably mitigated with past development. The retaining and foundation walls around the property were all in very good condition and have performed as intended with nearly no evidence of post construction movement. There was one crack across the face of the eastern most driveway retaining wall but this was located in an expected tension location with no evidence of ongoing movement and does not raise a geotechnical engineering concern. It is our opinion that, provided conditions external to the property remain consistent with the current conditions; the foundation and retaining walls supporting the residence will continue to function as intended with minimal post construction movement.

The landscaping walls on the western portion of the property were nearly all in very good condition. There was no evidence of erosion or slope creep with one notable exception. As with all landscaping feature, periodic maintenance will be required to preserve and maintain the function of these landscape features. Short retaining walls such as these are commonly subjected to long-term soil creep. The oldest wood crib wall located near the toe of the slope is a good example as it is currently leaning over beyond vertical. The wall will continue to function as a landscaping wall but the soil creep will likely continue to slowly rotate the wall outward. At sometime in the future years, this wall will need to be replaced with either a new wall or with a stabilized slope. Due to the deep, pile supported foundation; the condition of the landscaping walls does not structurally impact the residence.

From a geotechnical engineering and geologic hazards standpoint the property is in very good condition. The associated risks with the geologic hazards of the area (regional slope failure and/or earthquake induced landslide) will always be present and cannot be mitigated.

We trust that this information will aid with your project. If you have questions or require additional geotechnical engineering services, please contact BGC, pllc at (425) 273-5062.

Sincerely
Battermann Geotechnical Consulting, pllc
Jamey S. Battermann, PE



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