GEOTECH
CONSULTANTS, INC.

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January 2, 2020

JN 16543

The Ladybug Trust
1420 – 5th Avenue, Suite 4200
Seattle, Washington 98111-9402

Attention: Michael Morgan
via email: morganm@lanepowell.com

Subject: **Geotechnical Considerations for Driveway Retaining Walls**
Proposed Ogden Point Short Plat
3675 West Mercer Way
Mercer Island, Washington

Dear Mr. Morgan:

We have been in discussion with Adam Stricker of David Evans and Associates (DEA) regarding the geotechnical feasibility of constructing a driveway to serve a proposed two-lot short plat of the property. We have been provided with a November 27, 2019 *Driveway Feasibility Exhibit* prepared by DEA. This drawing shows a conceptual driveway extending into the northeastern corner of the property along the general alignment of the existing driveway the serves the current house. Construction of the new driveway would require retained cuts of up to approximately 7 feet along the eastern, uphill, side of the driveway. Along the western, downhill, side of the driveway, a filled retaining wall extending several feet in height above the existing grade could be needed.

Our firm has completed test borings for a previous potential planned development of this property. These explorations typically found 10 to 15 feet of loose soil overlying glacially-compressed silt. Considering the expected retaining wall heights proposed for the driveway, and the expected soil conditions, we recommend that the eastern, uphill wall be constructed as a permanent soldier pile wall. These soldier piles would be drilled into the base of the existing slope. They would serve to provide both temporary shoring for the driveway excavation, and permanent retention of the soil behind the wall. This type of a wall can be constructed without adversely impacting the stability of the steep slope to the east, and would actually improve long-term stability of that slope by properly retaining the slope's toe. Considering the expected height of the eastern driveway retaining wall, it should be possible to avoid the use of tiebacks for the soldier piles.

The loose soils would make the use of a pile-supported retaining wall appropriate for the western, filled driveway retaining wall. These piles could be driven, small-diameter piles or drilled, concrete-filled piles installed into the glacially-compressed silt. The retaining wall would span between these piles to retain the planned backfill. The western wall would be designed to withstand heavy loading from construction equipment and emergency vehicles, including vehicle design loads up to HS20.

Once the conceptual layout for the driveway retaining walls has been finalized, we can provide geotechnical design parameters for the walls. The design of the walls will depend heavily on the final location of the walls, and the heights of the cuts/fills that they will have to retain.

We provide the following "statement of risk" to satisfy City of Mercer Island conditions:

> "If appropriate geotechnical considerations are addressed during the design and construction of the proposed retaining walls, the development will be as safe as if it were not located in a geologic hazard area."

Please contact us if you have any questions regarding this letter.

Respectfully submitted,

GEOTECH CONSULTANTS, INC.

1/2/20

Marc R. McGinnis, P.E.
Principal

cc: **David Evans and Associates** – Adam Stricker
via email: adam.stricker@deainc.com

MRM:kg