



ECTYPOS

ARCHITECTURE

February 14, 2022

Community Planning and Development Department
City of Mercer Island

Memo: Critical Area Review 2 for 8435 SE 47th Pl. (PRE21-009)

Dear City of Mercer Island CPDD staff,

In February of 2021 Susan and Dan Steinborn purchased the above referenced vacant lot with the intention of building a new single family residence. The design has, in large part, been determined by the nature of the site and the Steinborn's desire to preserve its natural qualities to the greatest extent possible.

The steep slopes that cover much of the site require a Critical Area Review 2. This memo provides the narrative of the project for this review. We are submitting this CAR2 along with a building permit application and all attendant development documents. We request a concurrent review.

Prior to beginning design work, a topographic survey and geotechnical study were executed. These have dictated many of the decisions that were made during development of the design.

The site has been identified by the City as Geologically Hazardous with erosion, potential slide, seismic risk and steep slopes. It is covered with a mix of blackberry and other weeds but also many trees, a few of which are considered exceptional because of their size. Some minor grading many years ago yielded a ramp to a bench, probably intended for a single family residence.

Grading: The proposed project utilizes these graded elements to the best of its ability. The geotechnical report identified fill and loose native soil overlaying dense glacial till. Removing the material overlaying the glacial till for bearing is recommended. At the garage and driving surfaces, additional excavation may be needed to achieve the required 20% driveway slope.

Shoring: The Geotechnical report recommends soldier pile shoring. During discussions, however, the General Contractor expressed a concern about getting trucks to the site with the necessary steel beams required for the shoring via the narrow neighborhood road. The Geotechnical Engineer recommended nail shoring as an alternative. The nail shoring is being designed by a firm that specializes in this technique. It will be executed along the line indicated in the site plan and referred to throughout the project drawings, and at the driveway uphill side.

Storm water management on the site will be extremely important. The civil design reflects the recommendations of the geotechnical report for managing both ground water that may be encountered, and run-off from impervious surfaces. It breaks the detention tanks into two separate units to collect water from the house and uphill development and at the base of the driveway to collect that runoff. Impervious surfaces planned for the site have been minimized to the greatest extent possible.

A Fire Code Alternate is required for this project. Typically a 20' wide driveway would be required by the MIFD for trucks to access the house. We have asked to reduce the driveway width to 14' in order to reduce impact to the uphill trees and provide planting space at the base of the shoring. This reduces the impervious surface of the driveway and consequential run-off,



improving the stability of the hillside by protecting trees and providing additional planted material.

In late fall of 2021, the new owner of the parcels above the site contacted the Steinborns expressing a desire for a stormwater easement from the 3 new houses (where currently there is one) could be piped via a gravity fed system to the City's storm-sewer in the street below the Steinborn's property. The owners' are negotiating, in good faith, an easement with the developer. Regardless the outcome of these negotiations, we request the City require **watertight** detention tanks be installed on the uphill site as is being specified for this site, due to the location at the top of steep slopes and concerns that leakage could impact slope stability.

Trees are an important part of slope stabilization. To that end we have attempted to design the house and related site work to minimize impacts to these trees through siting and a more compact footprint. The Steinborns have engaged a Landscape Architect who will design the site to be densely vegetated with native and non-invasive species.

The house design has been developed to take advantage of existing grades and minimize impact to onsite trees. While the actual square footage is not small, it is compact, stacked over three stories. The garage is located at elevation 264 due to the driveway slope requirement. The entry and ADU are located at elevation 270 taking advantage of that natural grade. The main level is stacked on top of the garage/entry/adu. The master suite stacks over the main living area and bridges to upper natural grades beyond the nail shoring line. Ample outdoor space has been included with roof decks and one patio off the back. This minimizes the necessity for additional structured outdoor space. The landscaping is intended to mimic a natural wooded hillside. A building pad, slightly larger than the proposed building footprint, has been proposed to accommodate any unforeseen additions. It too has been sited to minimize impact to the site.

Included documents to support this application for a Critical Area Review

- Geotechnical Report, a stand alone document and supplemental memo.
- Arborist Report also a stand alone document.
- Permit set of drawings: Includes the following directly pertinent to this application
 - ◊ Site Survey
 - ◊ A1.0 Critical Area Site Plan
 - ◊ A1.1 and A1.2 additional site design detail
 - ◊ C series Civil Design
 - ◊ A2. series Architectural floor plans
 - ◊ A3 series, A4.1 and A5.1 demonstrate the elevational/sectional relationship to the site
 - ◊ S series Structural Design

This project has been designed to reflect our best knowledge and understanding of the site through field visits, mapping, surveying and geotechnical study. It is our intention to build a project that is respectful of the site. We believe that the design improves the overall stability of the steep hillside and enhances its natural qualities through the elimination of damaging invasive species, structured improvements, tree preservation and post construction planting.

Sincerely,

Lucia Pirzio-Biroli, AIA
Ectypos Architecture