ESA

5309 Shilshole Avenue, NW
Suite 200
Seattle, WA 98107
206.789.9658 phone
206.789.9684 fax

www.esassoc.com

memorandum

date December 7, 2016

to Lauren Anderson, Assistant Planner; City of Mercer Island
Evan Maxim, Planning Manager; City of Mercer Island

from Aaron Booy, Natural Resources Specialist -ESA

subject Proposed NFH Single Family Residence (CA016-002) – Environmental Review

Environmental Science Associates (ESA) has prepared this memorandum on behalf of the City of Mercer Island. The purpose of the memo is to ensure that the *Critical Areas Study and Mitigation Plan* and associated *Development Plans* for the NFH Single Family Residence are consistent with the requirements of the Mercer Island City Code (MICC), focused on MICC Chapter 19.07 (Environment regulations for critical areas and shorelines). The project proposes replacement of an existing single-family residence with a new single-family residence on a 39,900 square foot site. The site is located at 8000 SE 20th Street along Mercer Island's northern Lake Washington shoreline (Parcel # 545230-2218). The proposed development requires critical areas review (CAO16-002) and compliance with the Mercer Island Shoreline Master Program (MICC 19.07.110) standards due to an existing piped watercourse and location within 200 feet of Lake Washington, a shoreline of the statewide significance.

The focus of this review is to confirm site conditions, and to determine the implications of City environmental regulations on the proposed development. Reviewed documentation included the Cr*itical Areas Study and Mitigation Plan* (Wetland Resources, August 9, 2016) and *Development Plans* (including Site Survey, Site Plan, and Mitigation & Restoration Plan drawings, all prepared by Allworth Design, August 5, 2016). These materials characterize existing conditions within the 25-foot standard buffer area associated with the piped-watercourse, including 4,847 square feet of existing, nonconforming impervious surfaces (roof and tennis court) and other areas made of up lawn and gardens. Under the proposal, this buffer area would be redeveloped (with a new house, driveway, and landscaping all extending into the buffer), but the extent of impervious surface within the 25-foot standard buffer would remain consistent with the existing condition.

The proposal would: 1) reduce the standard 25-foot buffer required for piped watercourses to zero feet, and 2) increase gross floor area / impervious surface (i.e., above levels of the existing development) by 1,000 square feet (SF) within the shoreline zone. Mitigation is proposed for both of these project elements. Within the limitations of our task scope of work, ESA has provided this review in accordance with the requirements of MICC Chapter 19.07.

Review of Site Conditions

ESA scientist Aaron Booy conducted a field visit on November 23, 2016, meeting on-site with Lauren Anderson (City of Mercer Island) and Maria Simon (project architect).

Lake Washington Shoreline – We agree with documentation of the on-site Lake Washington shoreline, the determination and location of the ordinary high water mark (OHWM), and the characterization of existing vegetation and conditions adjacent to the shoreline.

Piped Watercourse - Based on the November field visit, the surveyed locations of the piped watercourse appear to match site conditions. The piped watercourse is conveyed onto the property through a 12-inch pipe crossing SE 20th Street before flowing through a catchbasin that directs flows into a 16-inch pipe that extends along the eastern edge of the property to the Lake Washington shoreline. Approximately 25 feet south of the shoreline, the piped watercourse passes through a second catch-basin (on the subject property). Flows were observed in both catch-basins. Discharge from the pipe outfall at the Lake Washington shoreline was not directly observed (due to the adjacent dock on the neighboring property, a rockery bulkhead, and English ivy vegetation along the shoreline).

ESA also made upstream observations of the watercourse, accessed from unimproved City right-of-way extending between 78th Avenue SE and 80th Avenue SE approximately 700 feet to the south of the project site. At this location, the watercourse flows through a surface channel (3-4 feet wide) at the bottom of a forested ravine that extends through residential backyards. Aerial photos suggest the channel extends through the ravine to the north, before flowing into piped conveyance systems approximately 250 feet to the south of the project site. As documented with the City's 2009 Shoreline Analysis Report[1], this watercourse is typical of small streams on Mercer Island:

> *Many of the smaller tributaries to Lake Washington originate as hillside seeps or springs and flow seasonally or during periods of heavy rains. Many of these smaller systems are piped at some point and discharge directly to Lake Washington via a closed system.*

The Shoreline Analysis Report also highlights a 2005 stream inventory completed by Adolfson Associates, Inc. that "documented 37 perennial streams, three of which have documented fish use and an additional 12 of which may have potential for fish use near their mouths at Lake Washington." The 2016 Critical Areas Study (CAS) Report does not identify or estimate the volume of watercourse flow observed during the Watershed Company's August 2015 site review. That said, based on the observed channel size and flows during our site visit, we believe that the on-site watercourse likely supports perennial flows.

We do not believe that there is any fish use currently associated with the on-site piped watercourse due to the existing, approximately 550-foot long pipe. However, based on observed flows and upstream conditions, there is potential that a restored, open channel stream segment at the convergence with Lake Washington could provide habitat for salmonids and other fish and wildlife near the stream mouth.

Wetland Determination – The CAS details methods and results of investigation for potential wetland areas on the property. Within this section, the CAS concludes that "no wetlands were observed within the subject property." The CAS notes that soils were investigated in the northern portion of the site, near the lake shoreline, and that soils were bright with no evidence of sustained hydrology. It appears that Wetland Resources did not establish any formal data plots to document existing conditions.

During our site visit, we generally observed that most areas included bright and drier soils that did not suggest wetland conditions. However, in lawn areas extending to the west, northwest, and north of the existing residence, we observed an area with soils saturated to the surface. Upon investigation, the water table was noted near the surface. Soils investigated with an auger at several locations were noted as dark (10YR 3/2 or 3/3) loam and 10YR 5/2 gravely sandy loam with 5% or more of redoximorphic features (7.5YR 5/8). These areas all occurred

[1] Prepared by The Watershed Company; available: http://www.mercergov.org/files/MIShorelineAnalysisReport-Finalv2CLEANCOPY.pdf

within existing lawn, with vegetation dominated by *Agrostis sp.* and *Poa sp.* grasses typical of seeded and maintained northwest lawns.

Based on observations from the site visit, we recommend that the applicant's consultant provide additional information to document existing conditions in lawn areas surrounding the western, northwestern, and northern portions of the existing residence. This investigation should include formal data plots. We recommend that an updated CAS be provided that includes all data plot and wetland/upland determination forms, as well as a map that indicates data plot locations. If a wetland area is identified on the project site, then project materials should be updated to reflect conditions and associated development requirements for wetlands (MICC 19.07.080).

Review of Proposed Development and Mitigation Plan

ESA reviewed with the proposed approach to enhance the Lake Washington riparian buffer area with native plants. The approach appears to be generally consistent with MICC 19.07.110(E)(9)(d)(i), which requires a development to provide 75 percent native vegetation coverage within the 20-foot vegetation area whenever new development proposes over 1,000 square feet of additional gross floor area or impervious surface (as is the case with this development). ESA has not reviewed the Landscape Plan for the project, so review of Plan details for proposed enhancement plantings and specifications is not provided.

The project proponent additionally requests a 100 percent reduction of the standard 25-foot buffer required for piped watercourses. According to MICC 19.07.070.B, the decision for determining the minimum buffer reduction allowed on piped watercourses is made by the code official. This decision is made based upon a determination that the proposal will result in no net loss of watercourse and buffer functions.

The CAS and Mitigation Plan document existing nonconforming conditions (including areas of impervious tennis court, existing residence, lawn, and garden) within the standard 25-foot buffer extending west (onto the property) from the piped watercourse corridor. The CAS states "The ground surface within 25 feet of the pipe's location provides no ecological benefit to the pipe." We agree that the existing piped condition of the on-site watercourse precludes the associated 25-foot buffer area from providing ecological functions for the feature. The Mitigation Plan details the approach to include pervious driveway and green roof areas within the redeveloped property, implementing identified options (from MICC 19.070.070.B.2.b.) that may warrant buffer reduction.

While the proposed pervious driveway and green roof may provide limited water quality benefit to Lake Washington, we do not believe that these proposed actions will improve functions for the piped watercourse itself. Our understanding is that the City's critical areas requirements provide a buffer around piped watercourses in order to allow for future restoration of the stream channel and removal of the piped condition (daylighting). Consistent with this intent, it is our interpretation that reduction in the standard 25-foot buffer for piped watercourses may only be allowed where the mitigation provided enhances the piped watercourse (or potentially, other off-site watercourses within the City), such as potential upstream restoration or actual daylighting, consistent with options provided by MICC 19.070.070.B.2.b.viii and x:

> *viii. Restoration of off-site area if no on-site area is possible.*
>
> *x. Opening of previously channelized and culverted watercourses on-site or off-site.*

Off-site restoration could explore options for enhancement upstream of the subject property, or along a different watercourse within the City where restoration may be more readily feasible. Daylighting the piped watercourse could occur for the reach immediately at and upstream of the convergence with Lake Washington (approximately 40 – 50 linear feet of stream). Daylighting and restoring this lowest watercourse segment could be integrated with the proposed Landscape Plan and enhancement of the Lake Washington 20-foot riparian area, and could be coordinated with the adjoining property owner to the east consistent with MICC 19.07.070.B.4. If this approach is

determined feasible and reasonable, we believe that watercourse daylighting and restoration would result in a significant increase in ecological functions and could warrant buffer reduction (in other portions of the project site to the south, where the watercourse would remain piped).

ESA does not believe that the proposed green roof and pervious pavement would provide adequate mitigation for proposed site development within the standard 25-foot buffer of the piped watercourse, as these features would not specifically enhance the ecological functions of the piped watercourse.

In addition, we note that page 8 of the CAS & Mitigation Plan summarizes PSMFC StreamNet mapped fish use within the Stillaguamish River (along with summary of other fish use inventory data sources referencing Lake Washington). This is likely a simple typo; however, we recommend that the CAS be updated to summarize StreamNet mapped fish use within Lake Washington. This section could also be augmented to identify fish use associated with other tributary streams along Mercer Island's shorelines (as documented within the City's 2009 Shoreline Analysis Report and the referenced 2005 stream inventory).

Conclusions and Recommendations

ESA recommends that the City require that the applicant provide the following additional information to the City to support the review of this development proposal:

1. An updated CAS and Mitigation Plan presenting results of additional wetland investigation focused on the lawn areas to the west, northwest, and north of the existing residence; including data plots / wetland determination forms and a map depicting data plot locations;

2. Updates to the proposed Project Plans, including the Mitigation & Restoration Plan, to reflect additional site analysis focused on wetlands and potential additional mitigation (if wetlands are identified); and

3. Revision to the proposed mitigation approach to justify piped watercourse buffer reduction. Proposed mitigation should be focused on restoring the specific functions of the piped watercourse, such as considering opportunities for off-site restoration of a watercourse within the City or daylighting a section of the stream channel at and immediately upstream of the Lake Washington convergence. See review discussion and detailed recommendations on page 3 of this memo.

If you have any questions, please call me at (206) 789-9658.