

December 11, 2015

Bill Summers
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RE: 5637 Mercer Way – *Revised* Critical Areas Report
SWC Job#14-207

1.0 INTRODUCTION

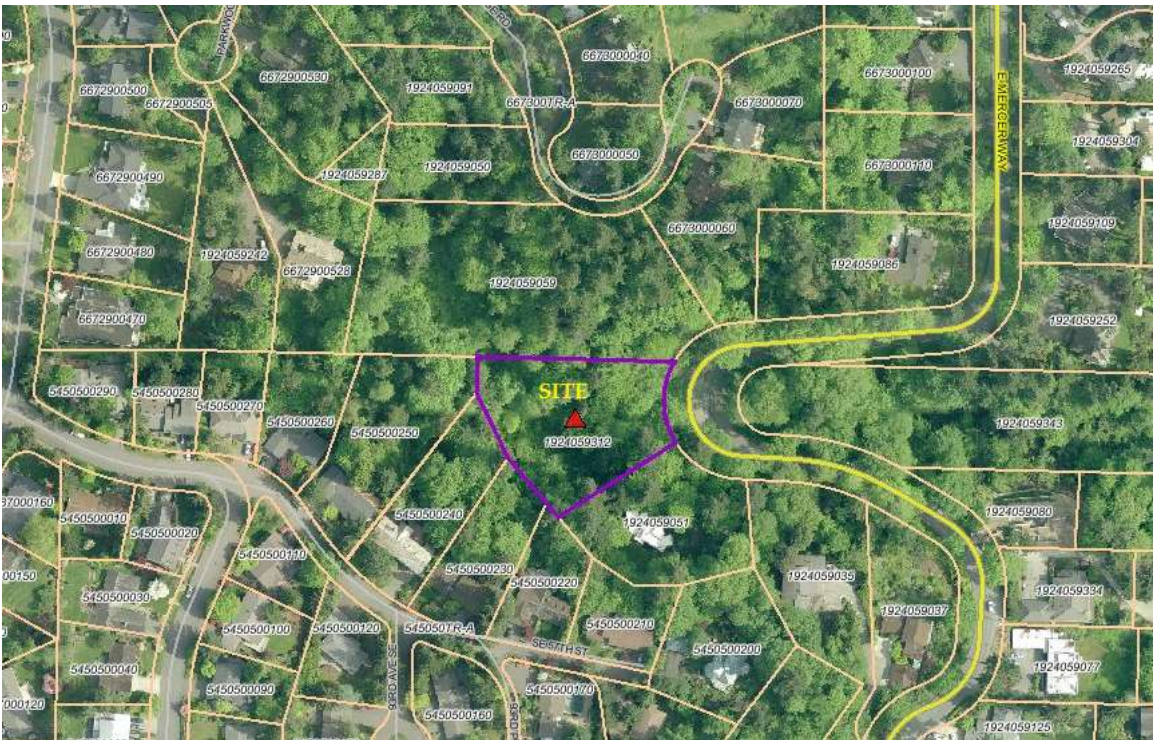
This report describes our observations of any jurisdictional wetlands, streams and buffers on or within 200' of the proposed single family home located at 5637 East Mercer Way in the City of Mercer Island, Washington (the "site").

The site is an irregular shaped 0.88 acre parcel (Parcel #192405-0312) consisting of an east sloping site located within the SE ¼ of Section 19 Township 24 North, Range 5 East of the W.M.

METHODOLOGY

Ed Sewall of Sewall Wetland Consulting, Inc. inspected the site November 6, 2014. The site was reviewed using delineation methodology described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987), and the *Western Mountains, Valleys and Coast region Supplement* (Version 2.0) dated June 24, 2010, as required by the US Army Corps of Engineers.

Wetland Ratings were determined using the *Washington State Wetlands Rating System for Western Washington* Publication #04-06-025 dated August 2004 as well as the associated rating forms revised in 2006 & 2008.



Above and below: Vicinity map of the site.



Soil colors were identified using the 1990 Edited and Revised Edition of the ***Munsell Soil Color Charts*** (Kollmorgen Instruments Corp. 1990).

The *Washington State Wetlands Identification and Delineation Manual* and the *Corps of Engineers Wetlands Delineation Manual/Regional Supplement* all require the use of the three-parameter approach in identifying and delineating wetlands. A wetland should support a predominance of hydrophytic vegetation, have hydric soils and display wetland hydrology. To be considered hydrophytic vegetation, over 50% of the dominant species in an area must have an indicator status of facultative (FAC), facultative wetland (FACW), or obligate wetland (OBL), according to the National List of Plant Species That Occur in Wetlands: Northwest (Region 9) (Reed, 1988). A hydric soil is "a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part". Anaerobic conditions are indicated in the field by soils with low chromas (2 or less), as determined by using the Munsell Soil Color Charts; iron oxide mottles; hydrogen sulfide odor and other indicators. Generally, wetland hydrology is defined by inundation or saturation to the surface for a consecutive period of 12.5% or greater of the growing season. Areas that contain indicators of wetland hydrology between 5%-12.5% of the growing season may or may not be wetlands depending upon other indicators. Field indicators include visual observation of soil inundation, saturation, oxidized rhizospheres, water marks on trees or other fixed objects, drift lines, etc. Under normal circumstances, indicators of all three parameters will be present in wetland areas.

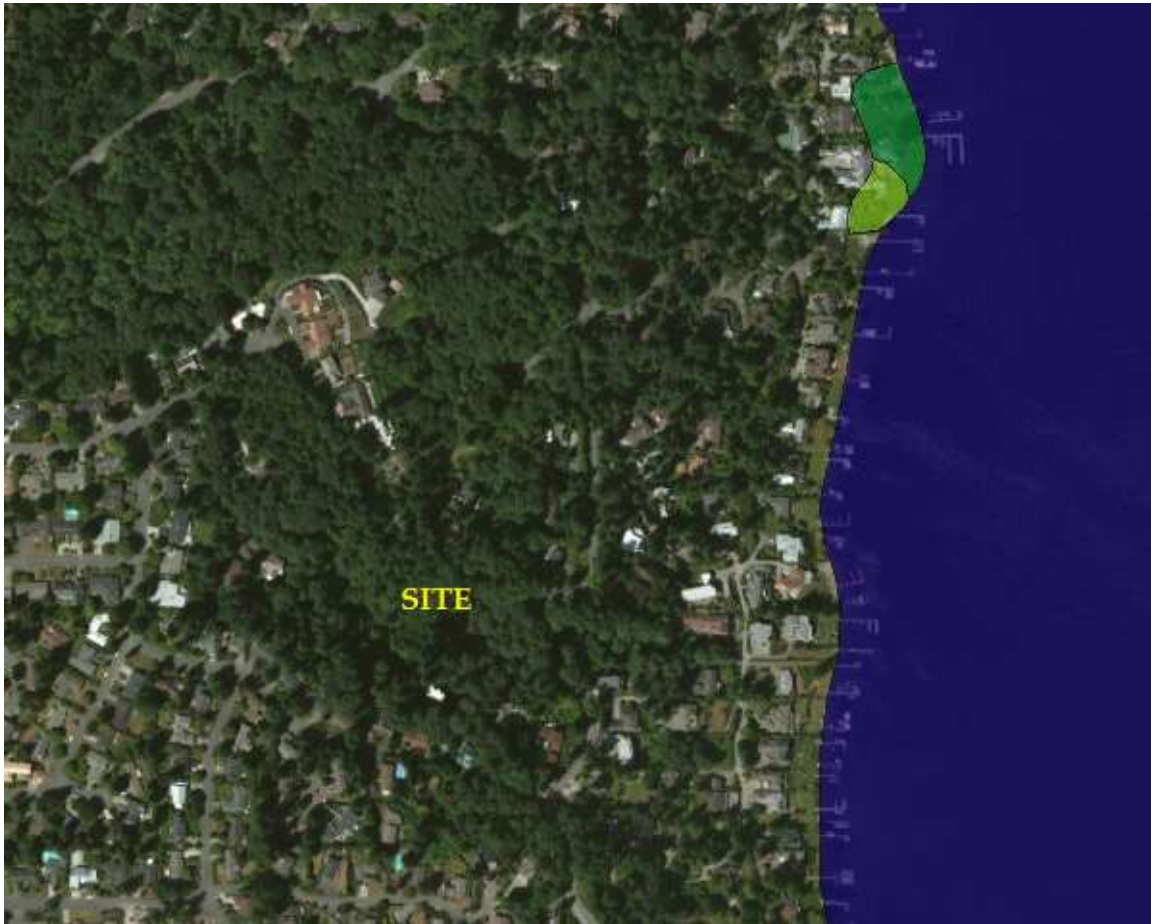
OBSERVATIONS

Existing Site Documentation.

Prior to visiting the site, a review of several natural resource inventory maps was conducted. Resources reviewed included the National Wetland Inventory Map and the NRCS Soil Survey online mapping and Data and the King County iMap website with wetland and stream layers activated.

National Wetlands Inventory (NWI)

There are no wetlands mapped on or near the site on the NWI mapping for area of the site.



Above: NWI Map of the study area

Soil Survey

According to data on file with the NRCS Soil Survey, the site as mapped as Kitsap silt loam 15%-30% slopes. Kitsap soils are a moderately well-drained soils formed in lacustrine deposits. Kitsap soils are not considered "hydric" soils according to the publication Hydric Soils of the United States (USDA NTCHS Pub No.1491, 1991).



Above: NRCS Soil map of the study area.

City of Mercer Island Water Inventoried Watercourses

The City of Mercer Island stream inventory shows a perennial flowing non-fish bearing stream also known as a Type 2 watercourse with a 50' buffer.



Above: Mercer Island Stream Inventory of the site

Field observations

The site consists of a bowl shaped parcel sloping to the east with a stream and associated slope type wetlands associated with the stream. The site is generally forested, although a quarry spill driveway accesses the site off an existing paved driveway which passes through the site.

The site has steep slopes to the south as well as an undulating topography in the vicinity of the stream. The site is covered by a mix of red alder, western hemlock and some big leaf maple. Understory species include sword fern, red huckleberry, salmonberry and some stinging nettle.

Soil pits excavated in the upland portion of the site were found to have dry, gravelly loam soils with soil colors of 10YR 3/3-3/4. Soils were found to be dry within the upper 16" during our wet season observations.

Wetlands

As previously mentioned, a slope type wetland covers most of the site outside the steep slopes. Below is a description of these wetlands;

Wetland A

Wetland A consists of a forested slope type wetland that covers most of the site. This wetland was previously flagged by Wetland resources in 2004 and the delineation was found to still be accurate.

This slope-type wetland is vegetated with a mix of red alder, salmonberry, lady fern, skunk cabbage and some creeping buttercup. red-osier dogwood and lady fern.

Soil pits excavated within the wetland revealed a silt loam with a soil color of 2.5Y 2.5/1 with few, fine faint redoximorphic concentrations. Soils within the wetland were saturated at the surface during our wet season observation period.

Using the US Fish and Wildlife Wetland Classification Method (Cowardin et al. 1979), this wetland contains areas that would be classified as PFO1C.

Using the WADOE Wetland Rating system and rating the wetland as a slope wetland, this wetland scored a total of 34 points with 18 for habitat. This indicates a Category III wetland. According to City of Mercer Island Municipal Code (MIMC) Chapter 19.07.080.C.1, Category III wetlands have a 50' standard buffer.

Stream A

As previously mentioned, a small perennial stream flows easterly along the north side of the site. This stream originates in seeps from the bordering slope wetlands and flows somewhat steeply to the east where it cascades over a bank into a catch basin and then a culvert under Mercer Way. The stream flows in a 100' long culvert which is a barrier to any fish migration up through the culvert. As a result, this small channel has been mapped as the City as a Type 2 watercourse. Based upon MIMC Chapter 19.07.070.B.1, Type 2 watercourses have a 50' standard buffer.

Stream B

Stream B is a small perennial stream flows easterly along the south side of the site just north of the existing as well as proposed driveway. This stream originates in seeps from the bordering slope wetlands and flows in a small defined swale. An old pipe lays in the bed of the stream and may have been a drain or waterline, it is of unknown origin. This stream like Stream A flows to the east where it cascades over a bank into a catch basin and then a culvert under Mercer Way. The stream flows in a 100' long culvert which is a barrier to any fish migration up through the culvert. As a result, this small channel has been mapped as the City as a Type 2 watercourse. Based upon MIMC Chapter 19.07.070.B.1, Type 2 watercourses have a 50' standard buffer. This buffer is located entirely within other critical areas and buffers.

Wildlife Habitat Conservation Areas

A review of the site revealed no state or federally listed species on or near the site. A review of the Washington State Department of Fish and Wildlife Priority Mapping system was conducted for the site. This mapping identifies state listed species as well as areas considered by WDFW to be "priority habitats". The mapping of the area of the site

revealed no listed state or federal species utilizing the site. It does show and area to the north of the site as part of a “biodiversity corridor” (*purple shading*), which is a densely forested area with some steep slopes.

Functions and Values

Wetland A is a forested wetland and as such provides habitat to numerous species that tolerate being within close proximity to humans. The wetland main function is as a groundwater discharge point, which allows groundwater to reach the surface and provide hydrological support to the Type 2 watercourse passing through the site.



Above: WDFW Priority Habitat mapping of the area of the site.

PROPOSED PROJECT

The proposed project is the construction of a single family residence as current zoning allows. As previously described, the site is highly encumbered by critical areas including a stream, associated wetland, buffers and steep slopes. There is no part of the site located outside of these critical areas. As a result, in order to build a home on this site the application of MIMC Chapter 19.07.030.B “*Allowed alterations and reasonable use exception*” must be utilized. As described in this section of Code;

B. Reasonable Use Exception.

1. Application Process. If the application of these regulations deny reasonable use of a subject property, a property owner may apply to the hearing examiner for a reasonable use exception pursuant to permit review, public notice and appeal procedures set forth in Chapter 19.15 MICC.

2. Studies Required. An application for a reasonable use exception shall include a critical area study and any other related project documents, such as permit applications to other agencies, and environmental documents prepared pursuant to the State Environmental Policy Act.

3. Criteria. The hearing examiner will approve the application if it satisfies all of the following criteria:

a. The application of these regulations deny any reasonable use of the property. The hearing examiner will consider the amount and percentage of lost economic value to the property owner;

The application of the standard regulations regarding wetlands, streams, steep slopes and buffers would not allow construction of a home on the site. The only feasible location to build a home will impact some wetland and buffer.

b. No other reasonable use of the property has less impact on critical areas. The hearing examiner may consider alternative reasonable uses in considering the application;

The site is zoned for a single family home use and there is no other alternative reasonable use of the site.

c. Any alteration to critical areas is the minimum necessary to allow for reasonable use of the property;

The following mitigation sequencing was conducted to determine the most appropriate impacts and mitigation;

This sequencing requires addressing the following criteria;

a. Avoid any disturbances to the wetland or buffer;

The entire site is wetland and buffer. There is no way to develop the site under any reasonable scenario without impacting both wetlands and buffers.

b. Minimize any wetland or buffer impacts;

In order to minimize impacts, the site plan has been designed to utilize the existing driveway access point and has pushed the reasonable size home foot print as far away from the stream as is possible. Buffer impacts have been minimized by having no lawn or landscaped areas, and having just the bare essentials, being the driveway and the home structure itself. An area ranging from 5'-10' of temporary disturbance area (total area of 800sf) around the structure has been identified. This area will be restored with a mix of native shrubs following construction of the home. Total area of wetland to be impacted is 2,000sf, and total area of permanent wetland/stream buffer impact is 1377sf.

c. Restore any wetlands or buffer impacted or lost temporarily; and

This is not possible as the construction of a home is a permanent impact.

d. Compensate for any permanent wetland or buffer impacts by one of the following methods:

i. Restoring a former wetland and provide buffers at a site once exhibiting wetland characteristics to compensate for wetlands lost;

This is not possible as there are no "former" wetlands on the site.

ii. Creating new wetlands and buffers for those lost; and

This is not possible as there is no room to create new wetlands, or buffers on the site.

iii. Enhancing wetlands that have reduced function;

The wetlands on-site are proposed to be enhanced with an under planting of native conifers as well as the removal of weedy species and old trash and abandoned pipes in the wetland and stream. This will

restore a conifer dominated component to this wetland and buffer area as well as remove exotic blackberry and English ivy from these critical areas. The addition of a conifer component will restore this wetland to a probable historic condition of being dominated by conifers. Currently the wetland is vegetated primarily with broadleaf species such as red alder which are early successional species. Conifers will provide denser cover and improved habitat for wildlife, as well as more shade to the site keeping surface waters cooler, which ultimately benefit fish species in the receiving water of the Type 2 watercourse. A 5' temporary disturbance area around the structure has been identified. This area will be restored with a mix of native shrubs following construction of the home. Any trees removed during the site work will be placed within buffer areas as habitat features.

Other factors to consider in this Reasonable Use review are;

1. Although zoned to permit two single family residences, only one is proposed.
2. The square footage of the proposed residence is only 2,200 square feet (approx.), which is 51% of the 4,300 square foot average size of a new single family residence built on Mercer Island in 2013-2014 (See the attached single family permit summary attached hereto as Exhibit "A").
3. The house is sited on the most level portion of the property, This is within the applicable 50 foot watercourse buffer of Stream B.
4. Excavation will be limited to the extent necessary to build the house and related driveway.
5. The property's impervious surfaces have been restricted to a total of Approximately 5,600 square feet, 10% of which are existing.
6. Only 15% of the lot will be covered, which represents less than 42% permitted by code.

In addition to the fill of wetland for the foundation, a minor amount of fill will occur from the proposed driveway. The driveway will be located over the current location of the quarry spall driveway that exists on the site, further reducing impacts.

d. Impacts to critical areas are mitigated to the greatest extent reasonably feasible consistent with best available science;

In order to mitigate for the minimal impacts to the sites wetlands from the project, we are proposing under planting with conifers (sitka spruce and cedar) throughout the wetland in an area equal to the area of coverage by the project within the critical areas, to enhance the plant community within this wetland as well as removal of any blackberry and English ivy in the vicinity of the home.

e. The proposal does not pose an unreasonable threat to the public health, safety, or welfare; and

The proposed construction of a home on the site will not impact public health or safety and will utilize the latest construction techniques to minimize impacts to critical areas.

f. The inability of the applicant to derive reasonable use of the property is not the result of actions by the applicant after the effective date of this chapter.

The ability of the owner to derive reasonable use of the property is not the result of any action at any time by the owner, and solely the fact that the site is covered by critical areas.

Stormwater

Stormwater from the new impervious surfaces on-site will be collected in a stormwater vault under the driveway and discharged to an existing culvert along the east end of the driveway. This water will then drain through the existing roadside ditch tpo the stream. This should mimic existing drainage patterns on the site.

Once approval of the proposed conceptual mitigation is received, a final detailed mitigation plan will be provided to the city for review and approval.

US Army Corps permit

An application for fill of .046 acres of wetlands was submitted to the US Army Corps of Engineers in July of 2015. A comment letter was received

on August 18, 2015 with several requested changes. We are in the process of responding to this letter. One of the requests is that we utilize the King County Mitigation Reserve Program for mitigating the impacts. The Corps requires the use of a bank like this if it is available. As a result we will be purchasing credits from the bank to satisfy the Corps request. As a result the combination of the proposed on-site mitigation as well as purchase of credits from the King County Mitigation reserves program will fully mitigate the proposed impacts on the site.

If you have any questions in regards to this report or need additional information, please feel free to contact me at (253) 859-0515 or at esewall@sewallwc.com .

Sincerely,
Sewall Wetland Consulting, Inc.

A handwritten signature in black ink on a light-colored rectangular background. The signature appears to be 'Ed Sewall' written in a cursive style.

Ed Sewall
Senior Wetlands Ecologist PWS #212

REFERENCES

City of Mercer Island Municipal Code

Cowardin, L., V. Carter, F. Golet, and E. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, FWS/OBS-79-31, Washington, D. C.

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Muller-Dombois, D. and H. Ellenberg. 1974. Aims and Methods of Vegetation Ecology. John Wiley & Sons, Inc. New York, New York.

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Reed, P.B. Jr. 1993. 1993 Supplement to the list of plant species that occur in wetlands: Northwest (Region 9). USFWS supplement to Biol. Rpt. 88(26.9) May 1988.

USDA NRCS & National Technical Committee for Hydric Soils, September 1995. Field Indicators of Hydric Soils in the United States - Version 2.1

Western Mountains, Valleys and Coast Regional Supplement (Version 2.0) dated June 24, 2010. USACOE

Washington State Wetlands Rating System for Western Washington Publication #04-06-025 dated August 2004, Revised 2008.



Above: Site as viewed from Mercer Way

Below: looking north across site near existing driveway entrance





Above: Existing quarry spill access driveway which leads to proposed building site