



WETLAND DELINEATION REPORT AND BUFFER MITIGATION PLAN

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Manitou Beach Drive Property
Bainbridge Island, Washington

Prepared for

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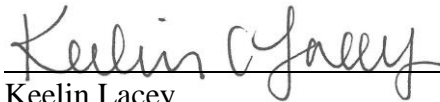
Western Washington Wetland Rating Form

SIGNATURE PAGE

The information and data in this report were compiled and prepared under the supervision and direction of the undersigned.



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INTRODUCTION

Ecological Land Services, Inc. (ELS) was contracted by Bill Broughton to conduct a wetland delineation for a lot in Bainbridge Island near Manitou Beach Drive, Kitsap County Tax Parcel Number 142502-304-02-005. This lot is located within a portion of Section 14, Township 25 North, Range 2 East of the Willamette Meridian, in Bainbridge Island, Washington (Figure 1). This first half of the report summarizes findings of the wetland delineation according to the *City of Bainbridge Island Municipal Code (BIMC), Chapter 16.20.140* (2018) for delineation methodology, wetland categorization, and required buffer widths. The latter half of this report discusses the site development proposal and mitigation plan required for the Reasonable Use Exception (RUE). A RUE is required to provide buildable space on this property because the entire property is encumbered by the wetland and 110-foot wetland buffer.

METHODOLOGY

The wetland delineation followed the Routine Determination Method according to the U.S. Army Corps of Engineers, *Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region, Version 2.0* (U.S. Army Engineer Research and Development Center 2010).

The Routine Determination Method examines three parameters—vegetation, soils, and hydrology—to determine if wetlands exist in a given area. Hydrology is critical in determining what is wetland but is often difficult to assess because hydrologic conditions can change periodically (hourly, daily, or seasonally). Consequently, it is necessary to determine if hydrophytic vegetation and hydric soils are present, which would indicate that water is present for long enough duration to support a wetland plant community. By definition, wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands are regulated as “Waters of the United States” by the U.S. Army Corps of Engineers (USACE), as “Waters of the State” by the Washington Department of Ecology (Ecology), and locally by the City of Bainbridge Island.

To verify the wetland boundaries on the lot, ELS biologists collected data on vegetation, soils, and hydrology. The delineation site visit was conducted on June 17, 2019, during which, one wetland was delineated. The wetland boundary was delineated using consecutively numbered fluorescent flagging labeled “WETLAND BOUNDARY”. The wetland boundary was determined through breaks in topography, changes in vegetation, and evidence of surface hydrology. Vegetation, soil, and hydrology data was collected at three test plots to verify the wetland boundary (Appendix A). The wetland boundary and test plots were mapped using a handheld GPS unit to show the extent of the wetland and data collection on the site map (Figure 2).

SITE DESCRIPTION

The site consists of a 0.63-acre rectangular lot accessed from Manitou Beach Drive in Bainbridge Island, Washington (Figure 2). A gravel driveway runs north from Manitou Beach Drive and provides access to the western side of the lot. The lot lies on the east side of Bainbridge island in the Murden Cove area. This and the surrounding residential lots are zoned R-2, which allows 2

units per acre of land. The lots to the west, north, and east are developed with single-family homes and the lot to the south is undeveloped. Topography throughout the lot slopes gradually from northwest to southeast and is vegetated by mixed coniferous and deciduous forest. Invasive English ivy was dominant throughout the lot. Water drains downslope toward the east into a depression where one wetland, Wetland A, was identified (Photoplate 1). Wetland A is a Category III forested depressional system with a saturated only hydroperiod onsite. Offsite, the wetland has emergent and seasonally flooded areas. The wetland continues offsite to the east and south (Figure 6).

VEGETATION

Wetland Vegetation

The onsite portion of Wetland A is a forested system with a canopy dominated by western red cedar (*Thuja plicata*, FAC) and a shrub layer dominated by salmonberry (*Rubus spectabilis*, FAC). The herbaceous layer onsite was dominated by lady fern (*Athyrium cyclosorum*, FACU), skunk cabbage (*Lysichiton americanum*, OBL), and horsetail (*Equisetum arvense*, FAC). English ivy (*Hedera helix*, FACU) was also prevalent throughout the wetland and upland.

Upland Vegetation

The upland forest canopy consisted of western red cedar and Douglas fir (*Pseudotsuga menziesii*, FACU) with moderate coverage in the shrub layer by salmonberry, red elderberry (*Sambucus racemosa*, FACU), English laurel (*Prunus laurocerasus*, FACU) and English holly (*Ilex aquifolium*, FACU). There was low to moderate cover in the herbaceous layer by sword fern (*Polystichum munitum*, FACU), and trailing blackberry (*Rubus ursinus*, FACU).

The dominant vegetation found onsite is recorded on the attached wetland determination data forms (Appendix A). The indicator status, following the common and scientific names, indicates how likely a species is to be found in wetlands. Listed from most likely to least likely to be found in wetlands, the indicator status categories are:

- **OBL** (obligate wetland) – Almost always occur in wetlands.
- **FACW** (facultative wetland) – Usually occur in wetlands but may occur in non-wetlands.
- **FAC** (facultative) – Occur in wetlands and non-wetlands.
- **FACU** (facultative upland) – Usually occur in non-wetlands but may occur in wetlands.
- **UPL** (obligate upland) – Almost never occur in wetlands.
- **NI** (no indicator) – Status not yet determined.

SOILS

As referenced on the U.S.D.A. Natural Resources Conservation Service (NRCS 2019) website, Harstine gravelly ashy sandy loam, 16 to 15 percent slopes (15) is the primary soil unit mapped on the lot (Figure 3). Harstine soils are moderately well drained, formed from sandy glacial till, and is usually found in uplands. Areas mapped as hydric or non-hydric do not necessarily mean an area is or is not wetland—hydrology, hydrophytic vegetation, and hydric soils must all be present to classify an area as a wetland.

Wetland Soils

The evaluated wetland soil at Test Plot 1 was composed of a top layer of 8 inches of black (10YR 2/1) muck underlain by two inches of dark brown (10YR 3/1) silt loam and a third layer of medium brown (10YR 4/3) sandy silt loam. This soil profile met hydric soil indicator A2: Histic Epipedon, because of the presence of a muck layer above the mineral soil layers.

Upland Soils

The evaluated upland soil at Test Plot 2 consisted of a thick layer (12 inches) of duff underlain by a mixed layer (50 percent 10YR 3/2 and 50 percent 10YR 3/6) of gravelly sandy loam. The soil profile at Test Plot 3 consisted of a top layer of dark brown (10YR 2/2) sandy silt loam underlain by ten inches of mixed (50 percent 10YR 4/4 and 50 percent 10YR 4/6) gravelly sandy loam. The mixed soils did not meet any hydric soil indicators because their matrix chromas were too high, they lacked redoximorphic features, and organic soils were not present.

HYDROLOGY

Hydrology was observed in Wetland A as saturation to the soil surface and a high-water table at 12 inches depth. Offsite, the wetland also has a small seasonally flooded area (Figure 6). Wetland A receives water from groundwater discharge and from upslope runoff. Water leaves the wetland primarily through evapotranspiration and a highly constricted permanently flowing outlet at the south end of the offsite portion of the wetland. The upland did not display any evidence of hydrology. No saturation, water table, oxidized rhizospheres, water marks, or other primary indicators were present at upland Test Plots 2 and 3.

NATIONAL WETLAND INVENTORY

The National Wetlands Inventory (NWI) does not map any wetlands on or within the vicinity of the lot (USFWS 2019). The closest wetland areas mapped by the NWI is a freshwater emergent wetland over 400 feet southwest of the lot and estuarine and marine wetlands in Murden Cove. The NWI maps should be used with discretion because they are used to gather general wetland information about a regional area and therefore are limited in accuracy for smaller areas because of their large scale.

BAINBRIDGE ISLAND CRITICAL AREAS

The Bainbridge Island Critical Areas map (BI 2019) shows a delineated wetland on the parcel east of the lot, which extends to the south and splits into two lobes around development along Manitou Beach Drive (Figure 5). The city maps also show a delineated wetland southwest of the lot in approximately the same location as the NWI wetland, though it is larger on the BI maps. The wetland mapped to the southeast of this lot is similar in shape to the rest of the offsite portion of Wetland A.

CRITICAL AREAS SUMMARY

WETLAND CATEGORIZATION

Wetland A is a forested depressional system with a saturated only hydroperiod onsite and seasonally flooded areas offsite to the south. Offsite, the wetland also has an emergent portion, but this makes up approximately 9 percent of the total wetland area and does not meet the 10 percent threshold to qualify as one of the wetland's Cowardin classes for rating purposes. The wetland was rated according to *Washington State Wetlands Rating System for Western Washington – 2014 Update* (Rating System) (Hruby 2014). The wetland received its ratings based on functions (Appendix B). The rating is summarized in Table 1.

Table 1. Summary of Wetland Ratings

Wetland	HGM Class	Vegetation Class	Hydroperiods	Habitat Score	Total Score	Category
A	Depressional	Forested Forested with 3 layers	-Saturated only -Seasonally flooded or inundated	6	18	III

Offsite Wetland Determination

The boundary of the offsite portion of the wetland is based on both direct observations and indirect (online) resources. Direct observations include walking public roads nearby the wetland to observe the vegetative communities and geomorphic position of the wetland, as well as previous delineations performed on properties in the area. Online resources, such as critical areas mapping, topographic contours, and aerial photos were used to further reinforce ELS's conclusions of the offsite wetland boundary. Due to property ownership constraints, it is infeasible to delineate the exact boundary of the offsite portions of the wetland, and therefore best professional knowledge and practices must be used to determine offsite wetland boundaries.

CRITICAL AREA REGULATIONS

The *BIMC Chapter 16.20 Critical Areas Ordinance* specifies buffer widths based on the category of the wetland, the intensity of the proposed land use, and scores for habitat functions. Residential development on properties zoned as R-2 is considered moderate intensity land use. The required buffer width for Category III wetlands with moderate habitat scores within moderate land use intensity is 110 feet. A 15-foot building and impervious setback is also required from the buffer edge. Due to the position of the wetland on this small lot, the 110-foot buffer covers the entirety of the western portion of the lot, extending past the lot boundaries (Figure 2).

REASONABLE USE EXCEPTION

The project proposes to build a single-family home, septic system, and driveway on the western third of the lot, outside of Wetland A. The lot is encumbered by the wetland, which covers approximately half of the lot, and the wetland buffer, which covers the remainder of the lot and extends offsite. Therefore, the entire property is composed of the Category III wetland and its required 110-foot buffer. There is no alternative to building the home within a portion of the buffer so there is no potential to avoid buffer impacts. However, the house has been oriented to minimize impacts to the buffer. The BIMC allows a 25 percent buffer reduction, which reduces the buffer to 82.5 feet. The administrative reduction does not create a building site that will

accommodate the home and drainfield. To accommodate a single-family home on this lot, impacts to the buffer are necessary and must proceed through the reasonable use exception (RUE) process outlined in *BIMC Section 16.20.080*. Buffer mitigation is required to compensate for the buffer reduction. As part of the RUE process, the project must demonstrate that it minimizes impacts to the critical area and its buffer. Mitigation for this project includes removal of invasive English ivy, which dominates most of the understory on this property, and planting additional native species within the buffer.

MITIGATION SEQUENCING

Avoid the Impact: The entirety of this property is encumbered by Wetland A and its 110-foot buffer (Figure 2). The project cannot avoid impacts to the buffer but can avoid direct impacts to the wetland itself. The house and septic system have been proposed as far as possible from the wetland boundary (Figure 3). This has been accomplished by reducing the side yard setback to five feet and the front yard setback to ten feet adjacent to the house (Figure 3). The septic system has also been proposed as close to the front of the property as possible and the septic tank location has been rotated to minimize buffer impacts. The house has also been oriented to minimize impacts to the buffer, rather than placing it parallel to the property lines. Prior to construction the wetland boundary and clearing limits will be clearly marked to prevent any intrusion into these areas. Construction staging and stockpiling will also take place outside of these areas.

Minimize the Impact: This project minimizes impacts by placing the proposed house and drainfield as close to the western property boundary as is possible and by utilizing pervious surfaces in the driveway and walkways surrounding the home. The house footprint also does not exceed 1,200 square feet. There will be no direct impacts to the wetland. Additionally, the vegetation across reserve drainfield and the side and front-yard setbacks adjacent to the septic system will be retained to minimize vegetative disturbance onsite.

Rectifying the Impacts. The home, driveway, and drainfield represent permanent features within this area of buffer so the impacts cannot be fully rectified.

Reducing or Eliminating the Impacts through Preservation or Maintenance. The project cannot eliminate the impacts by preservation and maintenance.

Compensate for the Impact: The project cannot avoid, rectify, or reduce the impact to the wetland buffer but has minimized the impact to the extent possible by proposing the home, driveway, and septic system as far from the wetland boundary as possible. Because the project cannot avoid all impacts to the wetland buffer, mitigation is proposed to compensate for the 3,716 square feet of permanent impacts from the proposed house, driveway, primary drainfield, and septic tanks (Figure 10). The mitigation plan will include removal of invasive vegetation and planting of native species within the remaining 5,027 square feet of wetland buffer. The primary drainfield will also be planted with native shrubs and herbaceous species and vegetation will be preserved across the reserve drainfield. Removal of English ivy, English laurel, and English holly from the understory within the buffer will allow space for more native species to be planted and create a denser more varied buffer than what currently exists. To ensure that the mitigation area is protected, split rail fencing will be installed along the edge of the designated buffer area to demarcate the critical area and to limit human intrusion. Overall, the mitigated buffer will have

better function onsite than the existing buffer area because invasive plants will be removed, additional planted species will provide different vegetative layers, and there will be an increase in species diversity.

Monitor the Affects of the Impact: The mitigation plan will be monitored for a period of 5 years to ensure that the plan meets the goals, objectives, and performance standards of the mitigation.

WETLAND BUFFER IMPACTS

The proposed buffer intrusion will impact approximately 3,716 square feet of the wetland buffer but is necessary to allow for construction of the house, driveway, and septic system on this small property. The project seeks to place the house, driveway, and septic as far from the critical areas as possible but cannot avoid impacting buffer. The existing wetland buffer is dominated by invasive species which outcompete the native plants growing in the buffer. English ivy is a particularly aggressive Class C weed that prevents understory plants from growing while also killing understory and overstory trees (NWCB 2020). The ivy on this property is prevalent, spreading across the understory and climbing trees so there is little diversity onsite and cover by understory plants is relatively low. The proposed native plantings will be installed where ivy is removed and will increase plant species diversity and provide a lift in habitat function.

The width of buffers necessary to protect a critical area from degradation is related to the functions of the critical area and the buffer itself (Castelle, et al. 1992). Buffers function to protect water quality of critical areas including streams by removing sediment and nutrients from runoff. The function depends on the type of soils, vegetation, and characteristics of the runoff. The function of buffers is also based on width and slope. In some cases, buffers as low as 50 feet are effective in filtering pollutants when there is dense groundcover, no slope or a gradual slope, and the runoff sheet flows across the buffer. The house location has been chosen in the southwestern corner of the property to retain as much buffer as possible between the house and the wetland. By placing the house here, there will be more distance between the house and wetland so the buffer will be able to better filter runoff than if the structure was placed at the north end of the property. The mitigation plantings will also increase the density of the buffer and improve its ability to filter light and noise from the home. Impacts across the property are also minimized by retaining vegetation in the setbacks adjacent to the drainfield and across the reserve drainfield. Additionally, the primary drainfield will be replanted with native vegetation following construction.

BUFFER MITIGATION PLAN

The project proposes to permanently impact 3,716 square feet of wetland buffer to build the single-family house, driveway, and septic drainfield (Figure 3 and Figure 10). Because options for offsite mitigation are not available on Bainbridge Island at this time, mitigation is proposed onsite. Due to the size of this property, mitigation is proposed within the remaining 5,027 square feet of wetland buffer. Mitigation will include removal of invasive species and planting of native species within the forested buffer. The removal of these invasive species will allow the existing native plants to proliferate. The proposed plantings will also enhance the buffer by adding plants of varying heights. At the end of the monitoring period the buffer will be denser, which will provide increased function to block light and noise from residential activity. The resultant buffer will have

more species diversity, which will attract wildlife. Additionally, the plants will slow and filter runoff from impervious surfaces upslope.

STRUCTURES AND FUNCTIONS SOUGHT

The onsite wetland buffer is composed of forest consisting of Douglas fir, western red cedar, English laurel, English holly, salmonberry, red elderberry, English ivy, and sword fern. Currently the onsite buffer provides some screening for the wetland, however the species diversity of the wetland buffer is low because of invasive vegetation. The removal of invasive species will allow for native species to flourish and enhancement plantings will increase diversity of plant species in the buffer. Enhancing the buffer with more trees and shrubs of varying heights will also improve the buffer's ability to screen the wetland from light and noise from the single-family residence. The new trees and shrubs would also create a more diverse vegetation community improving habitat function for the critical area and its buffer (Granger et. Al. 2005). Diversity is a goal of riparian zone management practices because a variety of plants provides a variety of function (Ecology 2018). In addition, planting native trees will allow for additional buffer function by providing sources of downed wood (Hruby 2013).

The onsite development intends to maintain as much of the existing forest as is possible. This is also accomplished by retaining vegetation across the reserved drainfield and replanting the primary drainfield with native species. Once construction is complete, invasive English ivy, holly, and laurel, will be removed from the understory within the remaining buffer. Following removal of the invasive species, trees, shrubs, and ferns will be planted throughout the buffer. These species are shade-tolerant and will thrive in the dark understory of the existing native trees. Trees and shrubs of different heights were selected to increase habitat function and replace the ivy growing in the understory.

BUFFER MITIGATION SUCCESS

The likelihood of success is typically associated with creation or restoration of wetland for direct impacts to the wetland. No direct wetland impacts are proposed for this project, therefore mitigation for direct impacts to the wetland are not required. This property is disturbed and much of the understory is dominated by ivy. This project proposes to enhance the entirety of the remaining buffer by replacing the invasive species with native trees, shrubs, and ferns, which will improve overall habitat function in the buffer. There is little data on the success of buffer mitigation except anecdotally from local wetland professionals, including Ecological Land Services, Inc. (ELS). ELS has conducted many buffer mitigation plans over the years that have successfully improved buffer functions and diversity through installation of native plants.

The success of the mitigation plan depends on the species selected for installation and should include native species that occur in the area. The project biologist is a professional wetland scientist (PWS) certification and with 29 years of experience in Kitsap County and Bainbridge Island and has done hundreds of buffer mitigation plans that have proven successful and provide high quality native buffers. The likelihood of the ability of the enhanced buffer to provide improved buffer functions is high when comparing the condition of the existing buffer, which is dominated by invasive ivy, with the proposed mitigated buffer to increase the function through installation of native trees, shrubs, and ferns. The likelihood of success is also determined by designing a monitoring plan with attainable performance standards, compensation goals, and

follow-up maintenance. There are no changes to the water dynamics of the buffer or the wetland because there are no direct impacts to the wetland.

SPECIFICATIONS FOR SITE PREPARATION

The tasks listed below will achieve the buffer mitigation goals and objectives. These tasks are listed in the order they are anticipated to occur; however, some tasks may occur concurrently or may precede other tasks due to site and procedural constraints.

Mitigation Area

1. Define extent of mitigation area onsite following construction of the home, driveway, and drainfield.
2. Remove invasive English ivy from the buffer (NWCB 2020):
 - a. Plants can be pulled by hand or dug out, preferably in fall through spring before dormant plants start to grow.
 - b. If removing plants in spring and summer, use caution not to damage native plants growing nearby.
 - c. If vines are climbing trees, cut the vines around waist to chest height and pull away the lower part of the stems from the base of the tree. This will kill the upper portions of the vine.
 - d. Dispose of vines away from the site or allow vines to dry out so they do not re-root. Once vines are dry, they cannot re-establish. If ivy stems or roots are left in the soil, they can re-sprout.
 - e. Areas where ivy is pulled can be sheet mulched with layers of wood chips from a clean source.
3. Install plantings according to specifications proposed herein.
4. Place woody mulch or organic compost around plants after installation to minimize regrowth of invasive species and to allow soil moisture retention.

GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS

Project Goal: Improve buffer functions to compensate for construction within the wetland buffer.

Objective 1: Control invasive species.

Performance Standards 1 (a): During monitoring Years 1 through 5, invasive species will be removed and suppressed within the planting areas as often as necessary to meet a performance standard of no greater than 10 percent cover by invasive species. Percent cover will be recorded annually and included in monitoring reports.

Objective 2: Improve native plant cover and buffer function.

Performance Standard 2 (a): The project will maintain 100 percent survival of plants during the entire 5-year monitoring period. Plant species number will be recorded annually and compared with as-built conditions for inclusion with the monitoring reports.

Performance Standard 2 (b)¹: Native installed and volunteer species in the buffer mitigation areas will provide a minimum of 10-percent cover in Year 1, 15-percent cover in Year 2, 20 percent cover in Year 3, 30 percent cover in Year 4, and 40 percent cover within the planted

¹ Performance standards for percent cover will be slightly lower than typical because most of the buffer (approximately 2/3) is already vegetated by mature trees and shrubs.

areas. Plant species and percent cover will be recorded annually and included in monitoring reports.

SPECIFICATIONS FOR PLANTING

The plants specified for installation are intended to enhance the wetland buffer by screening noise and light from the developed upland, increasing species diversity, and by filtering runoff from upslope. The plants will be potted, 1 gallon in size, from local nurseries stocking native plants. Plant installation shall take place following construction and installation of the development features.

Plant Materials

1. Plants will be purchased from local nurseries.
2. Potted plants will be 1 gallon in size.
3. No damaged or desiccated roots or diseased plants will be accepted.

Planting Specifications

Plants will be installed per the attached mitigation plan around existing trees and native shrubs. The plant quantities were calculated based on the square footage of the planting area and the existing space occupied by native trees and shrubs. Table 1 provides a list of plants proposed for installation within the wetland buffer. Plantings will be spaced to allow for access around the planted species for the continual need for removal of invasive plants.

Table 2 summarizes the total plant species, spacing, size, and quantities for the mitigation area and drainfield planting area. The spacing of plants will allow for healthy mature growth of individual species and range from 5 feet on center for lower stratum plants to 25 feet on center for the high stratum tree species. Plants indicated on the planting plan are subject to availability from regional native plant nurseries and may be substituted with similarly performing native plants. The final location of the plants may differ from the planting plan, as site conditions dictate, and any changes will be documented on the as-built drawing prepared after completion of plant installation. The species selection—western red cedar, vine maple, red elderberry, snowberry, sword fern, and deer fern—was based on the existing plants growing on the property and plants that can thrive in shady understory conditions. The drainfield plantings consist of snowberry, sword fern, deer fern, fringe cup, and false Solomon's seal; no trees or large shrubs are proposed so that the integrity of the drainfield is not compromised.

Table 2. Plant specifications

Species	Spacing (feet)	Quantity	Size
<i>BUFFER MITIGATION AREA (5,027 FT²)</i>			
Western red cedar (<i>Thuja plicata</i>)	25	8	1 gallon pots
Vine maple (<i>Acer circinatum</i>)	12	9	1 gallon pots
Red elderberry (<i>Sambucus racemosa</i>)	12	8	1 gallon pots
Snowberry (<i>Symphoricarpos albus</i>)	12	10	1 gallon pots
Sword fern (<i>Polystichum munitum</i>)	5	85	1 gallon pots
Deer fern (<i>Blechnum spicant</i>)	5	80	1 gallon pots
Total		200 ²	
<i>DRAINFIELD PLANTINGS (600 FT²)</i>			
Snowberry (<i>Symphoricarpos albus</i>)	5	20	1 gallon pots
Sword fern (<i>Polystichum munitum</i>)	3	30	1 gallon pots
Deer fern (<i>Blechnum spicant</i>)	1	15	3.5" pots
Fringecup (<i>Tellima grandiflora</i>)	1	15	3.5" pots
False Solomon's seal (<i>Smilacina racemosa</i>)	1	15	3.5" pots
Total		95	

Plant Installation Specifications

1. Plant the specified trees and shrubs the winter following construction as listed in Table 2. Space the plants somewhat irregularly and in groups to create eventual dense heterogeneity in the planting area, leaving enough space between each group to allow for access for weed removal. Plant the potted stock with a tree shovel or comparable tool.
2. Place the plants in the planting holes and position the root crowns so that they are at, or slightly below, the level of the surrounding soil. Planting just below the surrounding soil will create a shallow depression around each plant for retention of water.
3. Firmly compact the soil around the planted species to eliminate air spaces.
4. Install anti-herbivory devices, such as seedling protection tubes or mesh protection netting, around the stems of planted species when appropriate, and secure them with stakes.
6. Irrigate all newly installed plants as site and weather conditions warrant.

² The plant quantities and spacing proposed are due to existing native forest vegetation growing in the buffer. Installed plants will be planted around existing native plants. Invasive species, mainly English ivy, will be removed from the entire buffer enhancement area prior to planting.

MAINTENANCE PLAN

Maintenance of the mitigation area will occur for five years and will involve removing invasive plant species, irrigating planted species, and reinstalling failed plantings, as necessary. The maintenance may include the following activities:

1. Remove and control invasive vegetation around all newly installed plants a minimum of two times during the growing season for the first five years.
2. Irrigate planted species as necessary during the dry season, approximately July 1 through October 15. ELS recommends that watering occur at least every two weeks during the dry season for the first three years. The most successful method of watering plants is using a temporary above-ground irrigation system set to a timer to ensure the plants are regularly watered.
3. Replace dead or failed plants as described for the original installation to meet the minimum annual survival rate and percent cover performance standards.

MONITORING PLAN

The buffer mitigation area will be monitored annually for a 5-year period following plant installation. Monitoring is proposed at the end of the growing season in Years 1 through 5. Monitoring reports will be submitted to the Bainbridge Island Department of Community Development (BIDCD) by December 31st of each monitored year. The goal of monitoring is to determine if the previously stated performance standards are being met. The mitigation area will be monitored once during the growing season, preferably during the same two-week period each year to better compare the data. Individual monitoring units may be established within the mitigation area to track the changes occurring over the monitoring period.

Vegetation

Vegetative monitoring will document the developing shrub and tree layers. The following information will be collected in the buffer mitigation area:

- Percent cover and frequency of sapling/shrub species
- Percent cover and frequency of tree species
- Species composition of shrubs and trees, including non-native, invasive species.
- Photo documentation of vegetative changes over time.

Monitoring Report Contents

The annual monitoring reports will contain at least the following:

- Location map and representational drawing.
- Historic description of project, including dates of plant installation, current year of monitoring, and restatement of goals, objectives, and performance standards.
- Description of monitoring methods.
- Documentation of plant cover and overall development of plant communities.
- Assessment of non-native, invasive plant species and recommendations for management.
- Photographs from permanent photo points.

- Summary of maintenance and contingency measures proposed for the next season and completed for the past season.

CONTINGENCY PLAN

If the performance standards are not being met during the 5-year monitoring period, contingency measures will be implemented to achieve the standard by the next monitoring season. The contingency measures utilized will depend on the failure of the plants or maintenance activities and will include but are not limited to replacement of dead plants (with the same or a similar species) when the survival rate standard is not met, addition of plants when the yearly percent cover standard is not met, and more intensive maintenance if the invasive plant cover exceeds 10 percent. All contingency actions will be undertaken only after consulting and gaining approval from the BIDCD. The applicant will be required to complete a contingency plan that describes (1) the causes of failure, (2) proposed corrective actions, (3) a schedule for completing corrective actions, and (4) whether additional maintenance and monitoring are necessary.

CONCLUSIONS

This property is encumbered by a Category III depressional wetland on the eastern half of the lot. Due to the location of the wetland, its buffer extends beyond the western lot line and it is not possible to build on this lot without impacting the buffer. Administrative buffer reductions cannot provide enough buildable space for a modestly sized home, driveway, and septic system on the property and must proceed through the RUE process. Buffer mitigation is required to compensate for the reduced buffer area per the *BIMC*. The mitigation proposes to remove invasive vegetation from the buffer and plant native species in its place. The mitigation will provide a functional lift for the existing buffer and result in no net loss of ecological functions as a result of the project.

LIMITATIONS

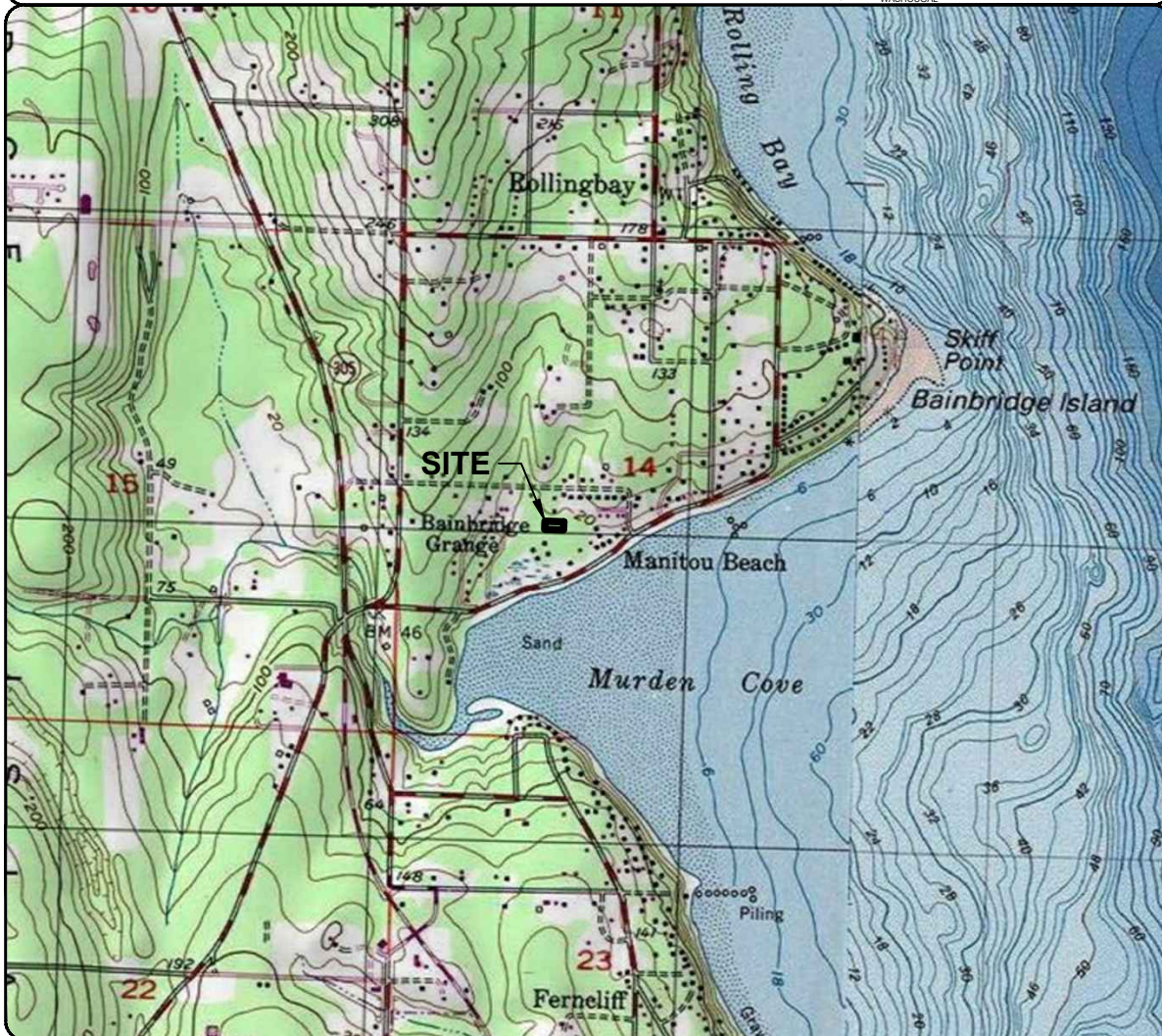
ELS bases this report's determinations on standard scientific methodology and best professional judgment. In our opinion, local, state, and federal regulatory agencies should agree with our determinations. However, the information contained in this report should be considered preliminary and used at your own risk until it has been approved in writing by the appropriate regulatory agencies. ELS is not responsible for the impacts of any changes in environmental standards, practices, or regulations after the date of this report.

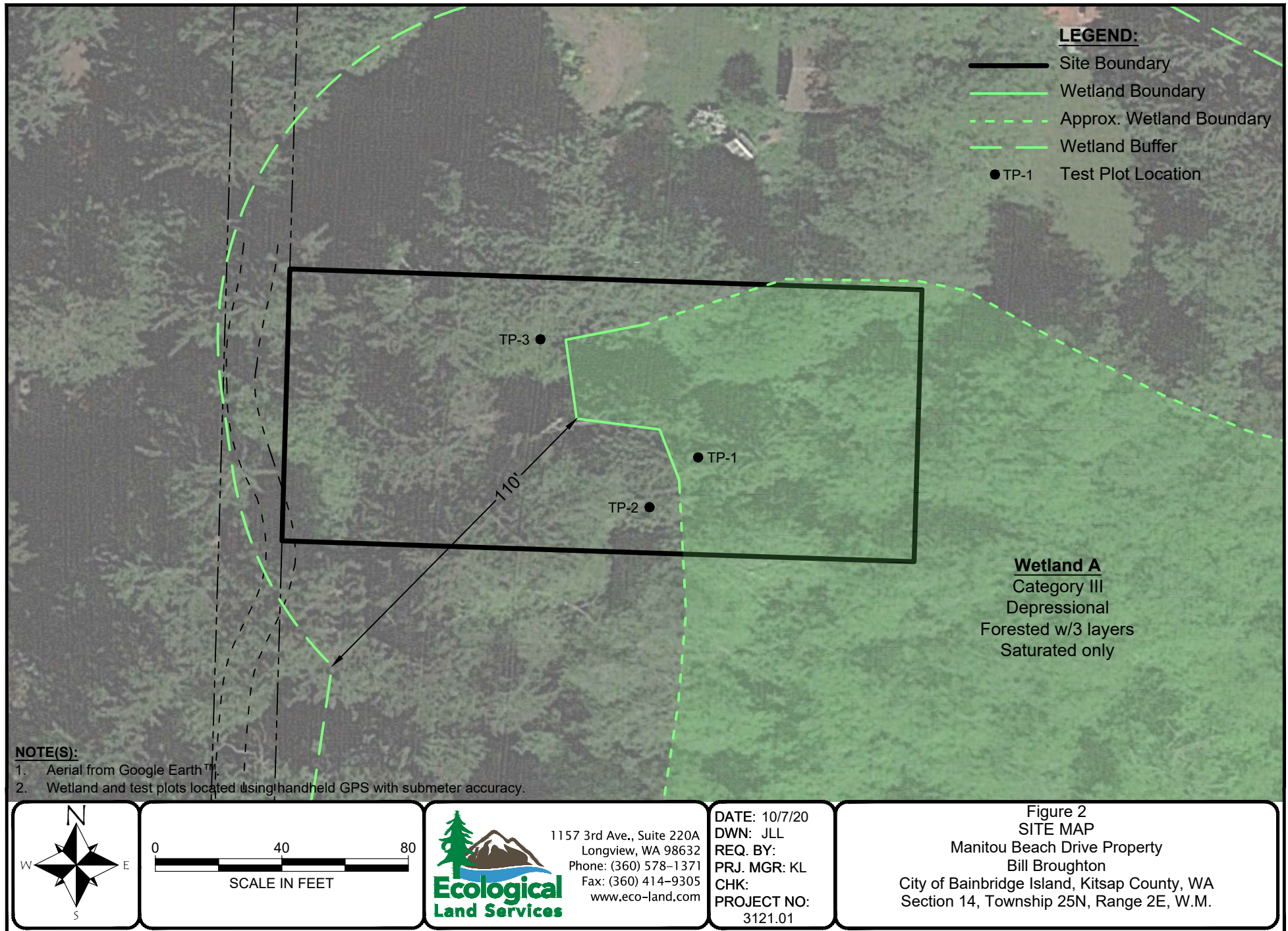
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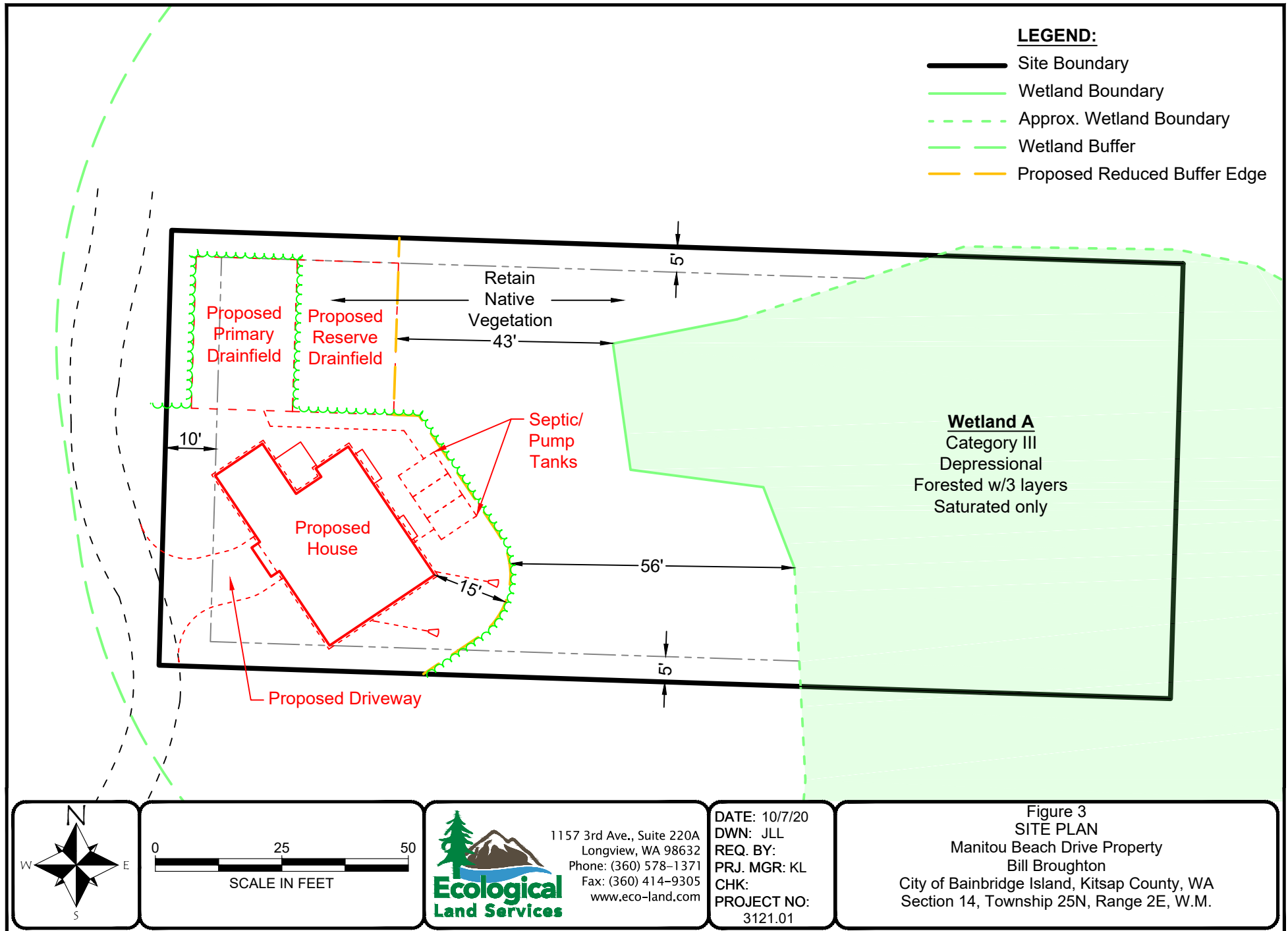
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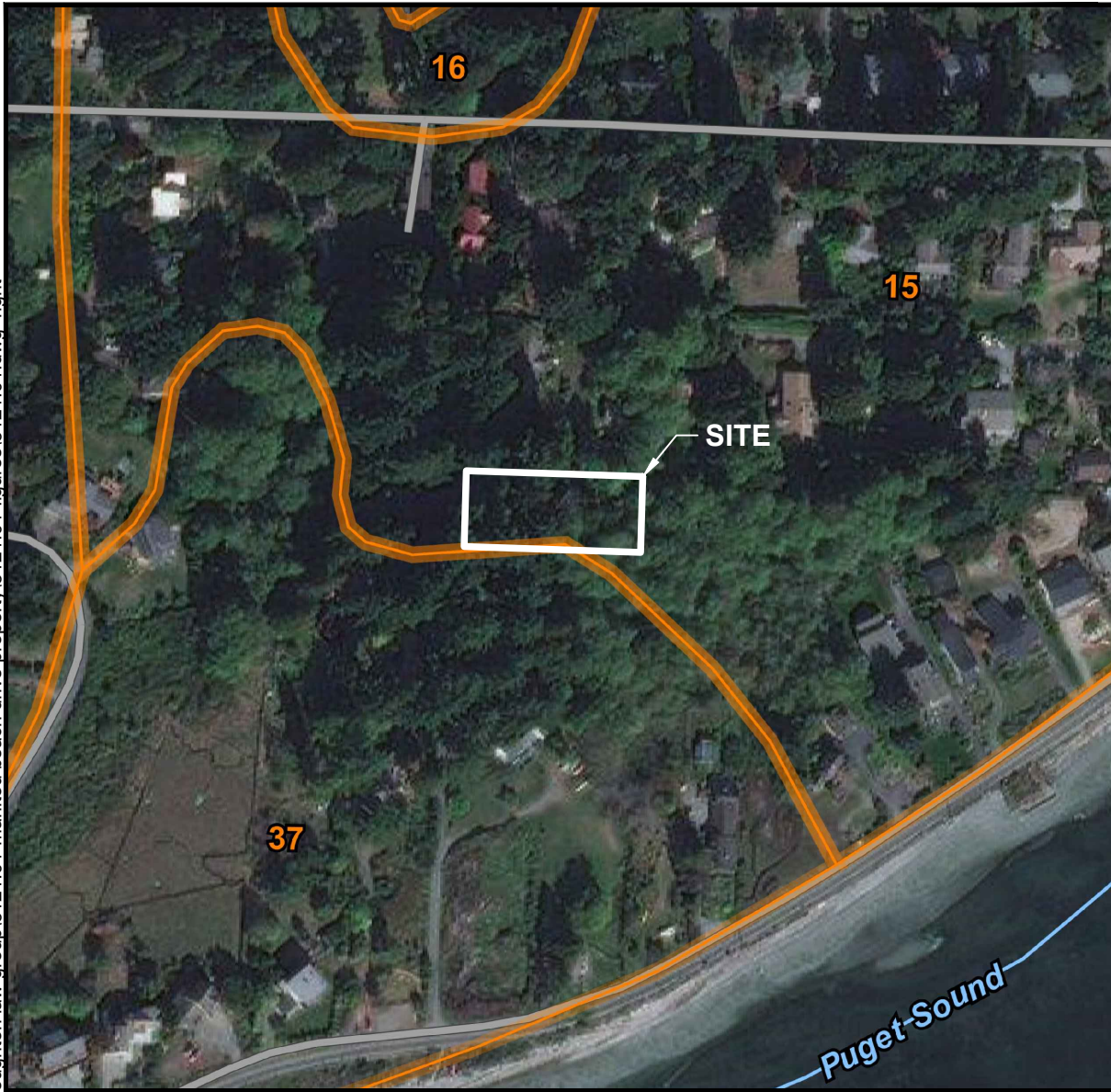
FIGURES & PHOTOPLATES







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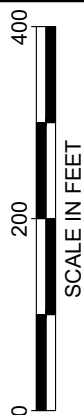
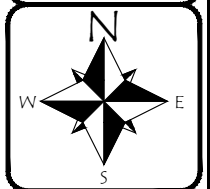


LEGEND:

- 15** Harstine gravelly ashy sandy loam, 6 to 15 percent slopes. Not hydric.

NOTE(S):

1. Map provided on-line by NRCS at web address:
<http://websoilsurvey.nrcs.usda.gov/app/>



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Figure 4
SOIL SURVEY MAP
Manitou Beach Drive Property
Bill Broughton
City of Bainbridge Island, Kitsap County, WA
Section 14, Township 25N, Range 2E, W.M.



No mapped wetlands indicated onsite by US Fish & Wildlife Service.

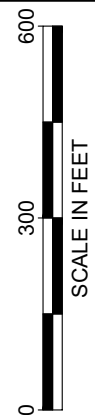
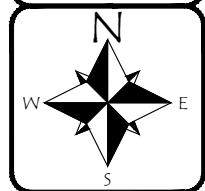
LEGEND:

-  Freshwater Emergent Wetland
-  Estuarine and Marine Wetland

PEM1C Palustrine, emergent, persistent, seasonally flooded.

NOTE(S):

1. Map provided on-line by US Fish & Wildlife Service at web address: <http://www.fws.gov/wetlands/data/index.html>

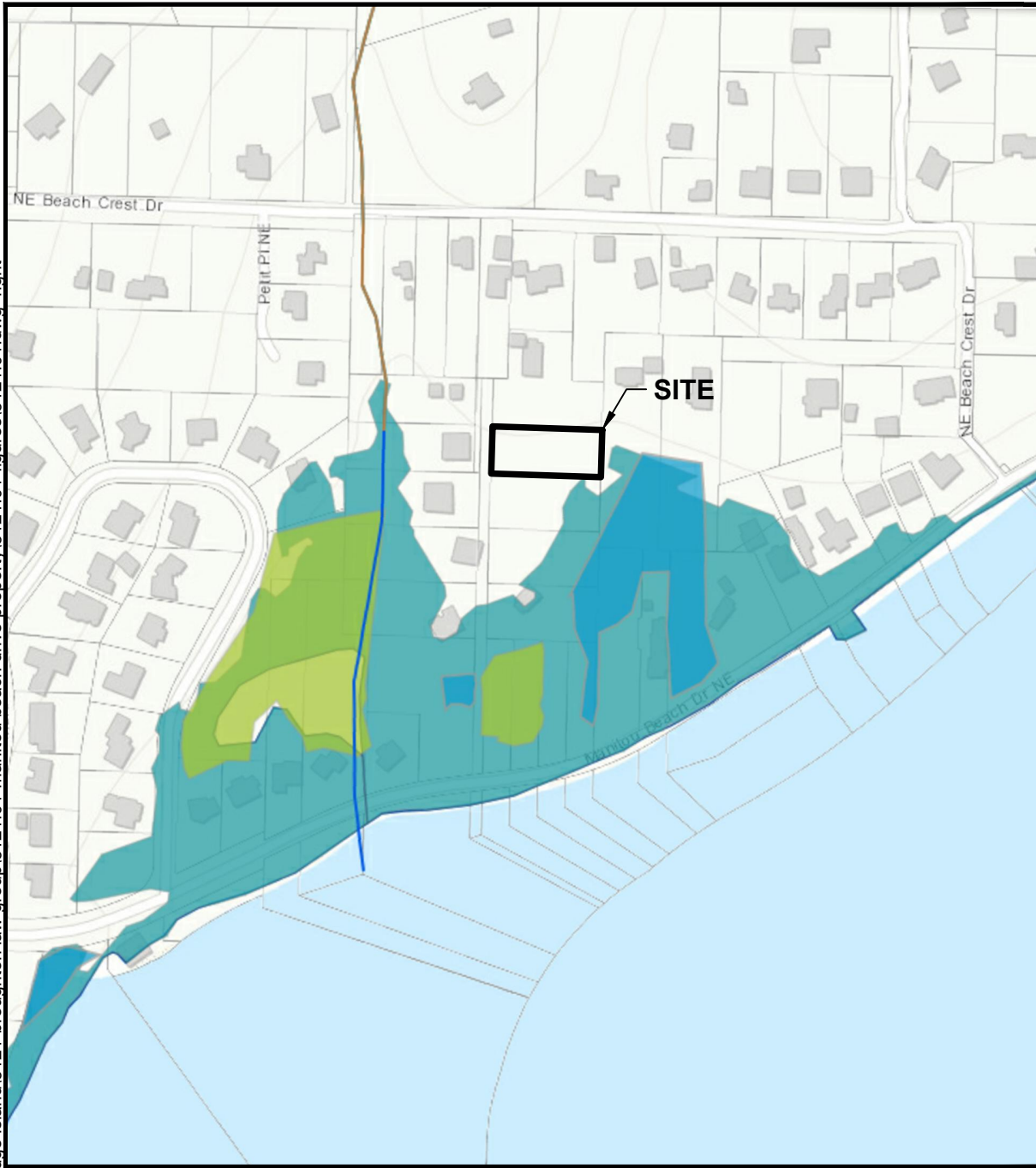


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Figure 5
NATIONAL WETLANDS INVENTORY MAP
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Bill Broughton
City of Bainbridge Island, Kitsap County, WA
Section 14, Township 25N, Range 2E, W.M.

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LEGEND:

- | | | |
|-----------------|-----------------------|--------------------------|
| <u>Wetlands</u> | <u>Streams</u> | <u>FEMA Flood Hazard</u> |
| Delineated | Fish | A = Low Flood Risk |
| No Delineation | Non-Fish Seasonal | AE = High Flood Risk |
| Not a Wetland | Non-Fish Perennial | VE = High Flood Risk |
| Shoreline | Shoreline | |
| | Other | |
| | Kitsap County Parcels | |

NOTE(S):
1. Map provided on-line by the City of Bainbridge Island at web address:
<https://cityofbi.maps.arcgis.com/home/index.html>

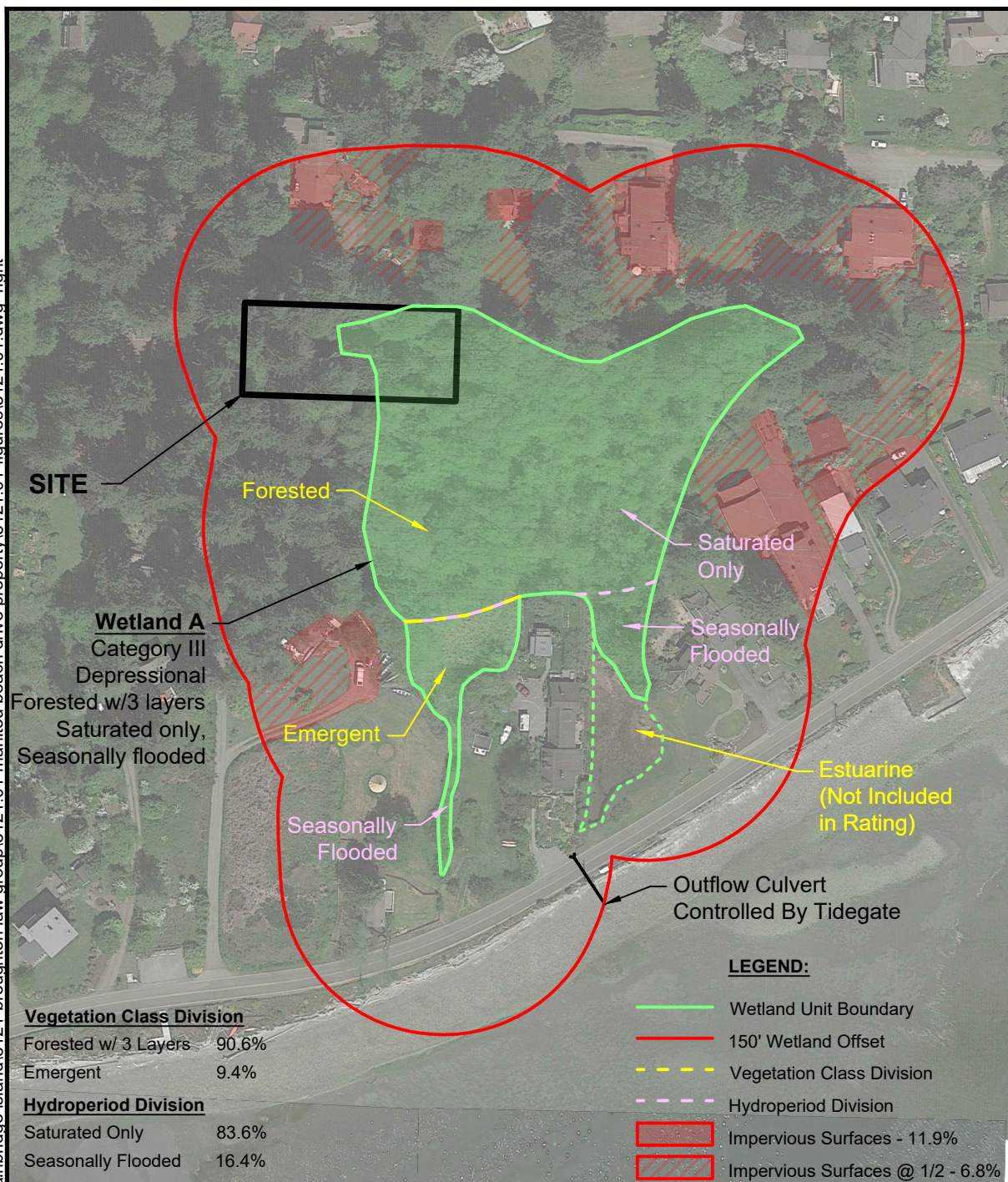
Figure 6
BAINBRIDGE ISLAND CRITICAL AREAS MAP
Manitou Beach Drive Property
Bill Broughton
City of Bainbridge Island, Kitsap County, WA
Section 14, Township 25N, Range 2E, W.M.

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Rating Question	Description	Answer - Wetland A
D 1.1, D 4.1	Location of Outlet	Wetland is a depression with constricted, permanently flowing outlet
D 1.3	Distribution of persistent plants	Wetland has persistent plants >1/2 the area
D. 1.4	Area of seasonally flooded	Area seasonally ponded >1/2 area of the wetland
D 2.2	Boundary of area w/in 150' of the wetland in land uses that generate pollutants	>10% of the area within 150' in land uses that generate pollutants
D 5.2	Boundary of area w/in 150' of the wetland in land uses that generate excess runoff	>10% of the area within 150' in land use that generate excess runoff
D 4.3	Contributing Basin-Contribution of wetland to storage in the watershed	Area of the basin is >100 times the area of the wetland
D 5.3	Contributing Basin covered in intensive land uses	>25% of the area of the basin covered with intensive land uses
H 1.1	Cowardin Plant Classes	Forested, Forested w/ 3 layers
H 1.2	Hydroperiods	Saturated only, Seasonally flooded
H 1.4	Interspersion of habitats	No interspersion of habitats

Figure 7

WETLAND RATING FIGURE-150' OFFSET

Manitou Beach Drive Property

Bill Broughton

City of Bainbridge Island, Kitsap County, WA

Section 14, Township 25N, Range 2E, W.M.

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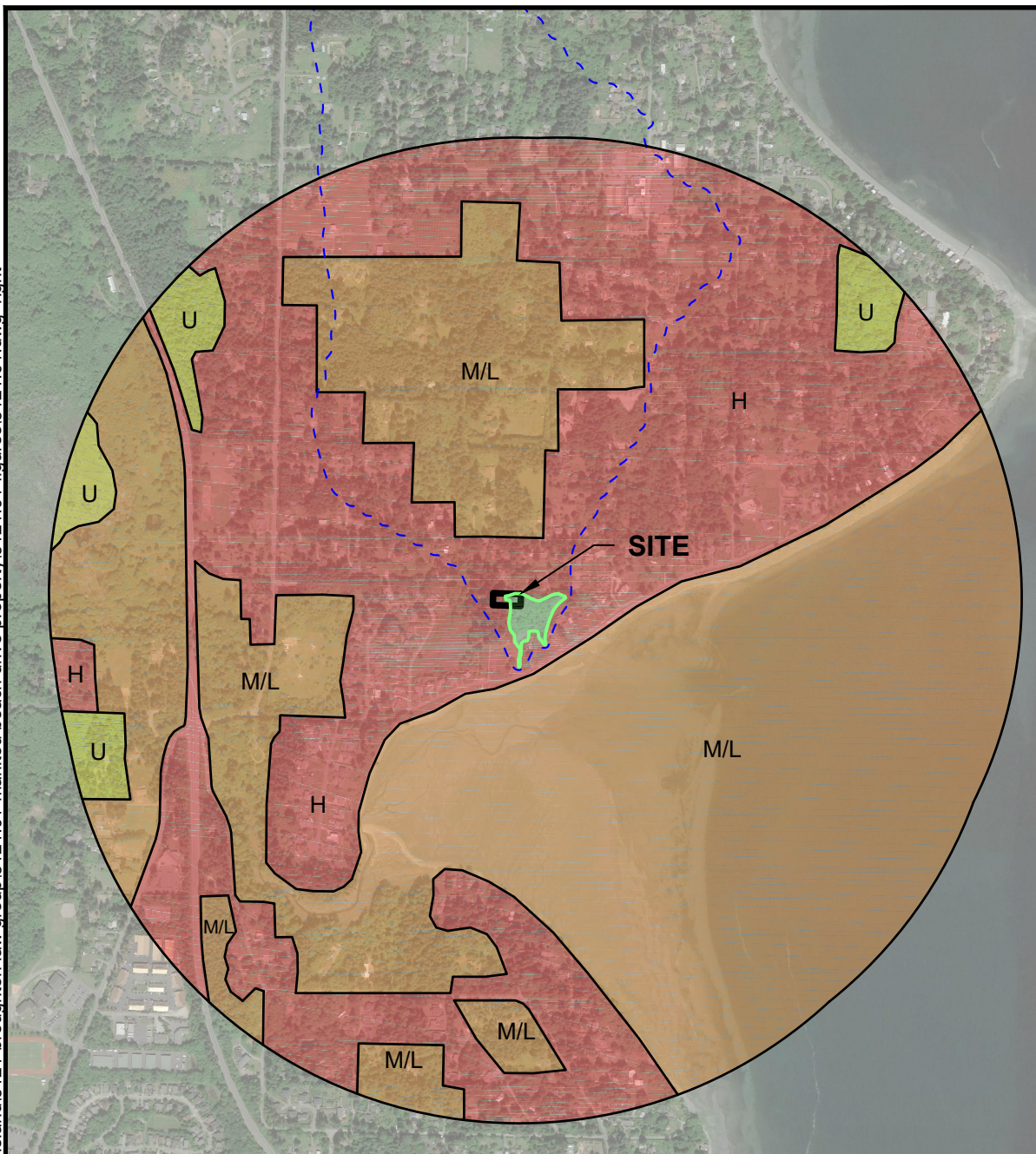
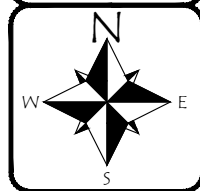
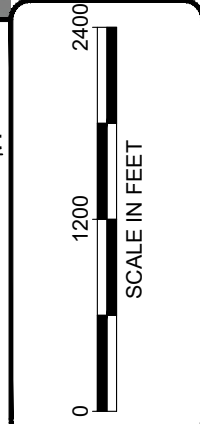


Figure 8
WETLAND RATING FIGURE-1 KM OFFSET
 Manitou Beach Drive Property
 Bill Broughton
 City of Bainbridge Island, Kitsap County, WA
 Section 14, Township 25N, Range 2E, W.M.

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LEGEND:

- Site Boundary
- Wetland Unit Boundary
- Contributing Basin
(129.4x area of wetland)

H2.1 Accessible Habitat

A-U	A-U (00.0%)
A-M/L	A-M/L (00.0%)

H2.2 Undisturbed Habitat

U	U (02.7%)
M/L	M/L (53.7%)

H2.3 Land Use Intensity

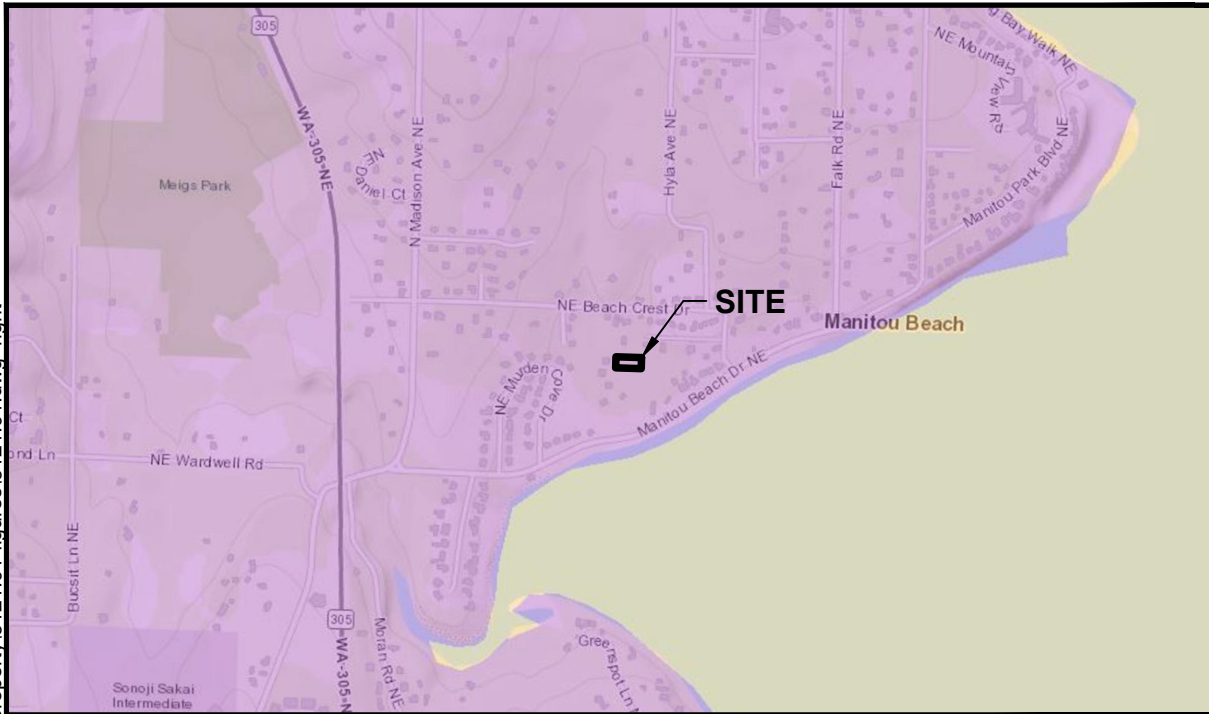
H	H (43.6%)
---	-----------

H 2.1. Accessible Habitat Equation

$$\% \text{ [A-U] habitat } \underline{00.0\%} + [(\% \text{ [A-M/L] intensity land uses})/2] \underline{00.0\%} = \underline{00.0\%}$$

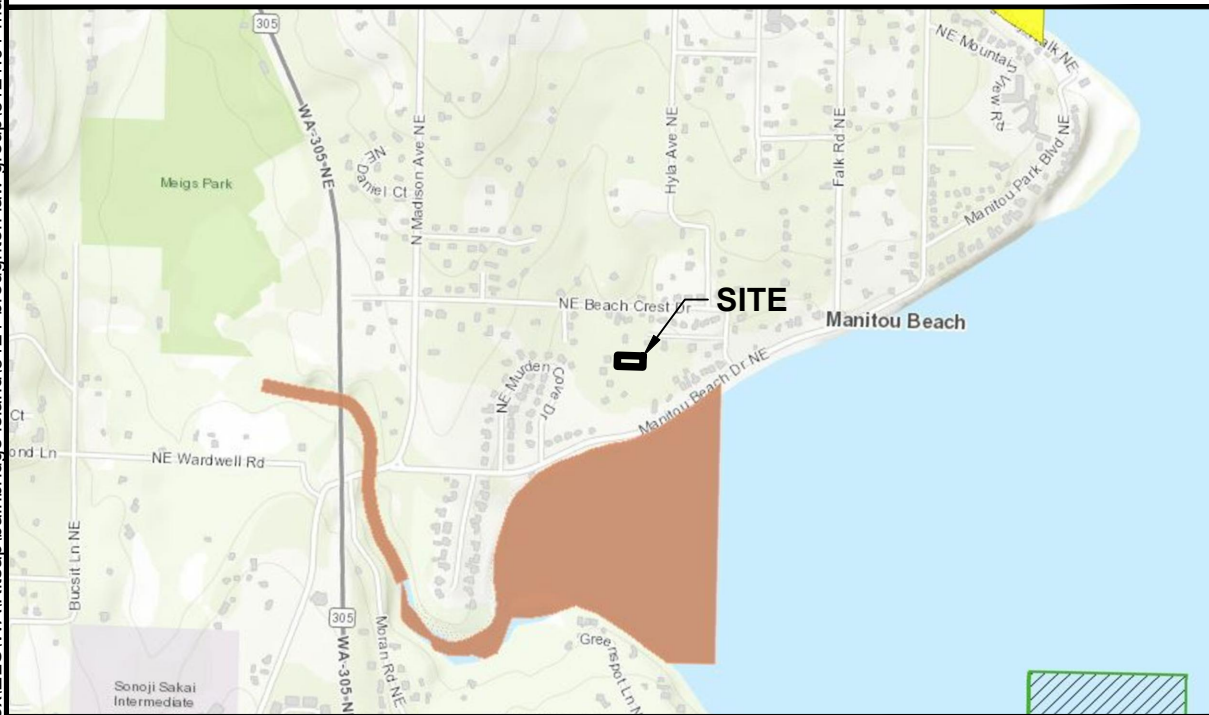
H 2.2. Total Undisturbed Habitat Equation

$$\% \text{ [A-U] } + \% \text{ [U] habitat } \underline{02.7\%} + [(\% \text{ [A-M/L] } + \% \text{ [M/L] land uses})/2] \underline{26.85\%} = \underline{29.55\%}$$



WQ Improvement Projects

- Approved
- In Development



Assessed Waters/Sediment

Water

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment

- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

NOTE(S):

- Map provided on-line by Washington State Department of Ecology at web address: <https://fortress.wa.gov/ecy/waterqualityatlas/map.aspx?>

Figure 9

WETLAND RATING FIGURE-303(D) AND TMDL MAPS

Manitou Beach Drive Property

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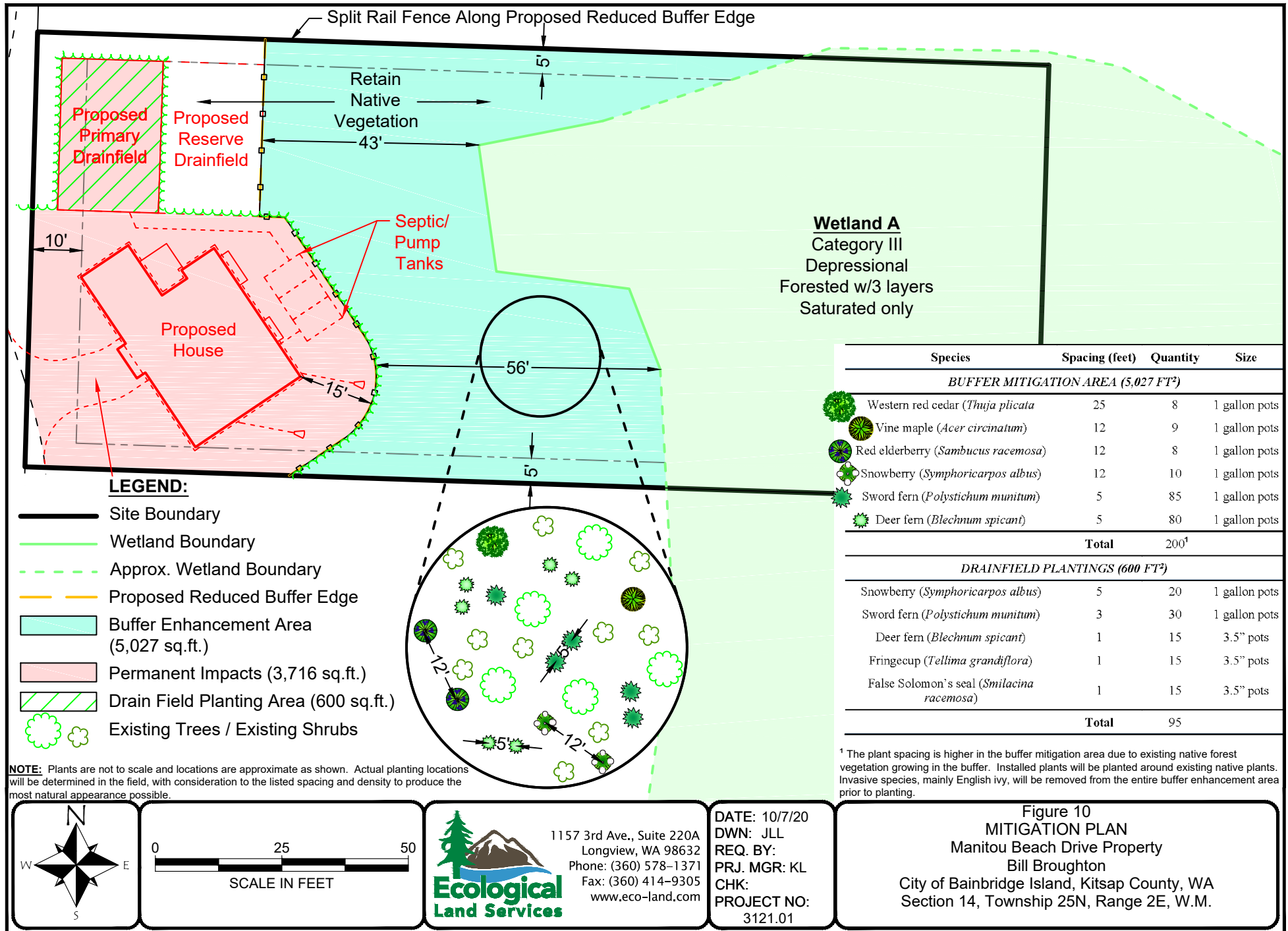




Photo 1 was taken from Wetland A looking north toward the wetland boundary. The flags for test plot 1 (in the foreground) and test plot 2 (in the background) can be seen in this photo.



Photo 2 was taken at Test Plot 1 and shows the soils. The soil profile met indicator A2: Histic Epipedon, because there was a top layer of organic soils underlain by mineral soils with a chroma less than one.



Photo 3 was taken from the same location as Photo 1 looking south into the wetland. This portion of Wetland A was dominated by Western red cedar and salmonberry.



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Photoplate 1 Site Photos

Project Name: Manitou Beach Drive Property
Client: Broughton Law Group
Bainbridge Island, Washington



Photo 4 was taken at Test Plot 2 and looks south toward the wetland from the upland.



Photo 5 shows the soils at Test Plot 2. These soils were medium brown and did not meet any hydric soil indicators.



Photo 6 shows vegetation in the upland consisting of English laurel, salmon-berry, and bracken fern. Douglas fir, western red cedar, sword fern, and red elderberry were also present throughout the upland.



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Photoplate 2 Site Photos

Project Name: Manitou Beach Drive Property
Client: Broughton Law Group
Bainbridge Island, Washington



Photo 7 shows the dominance by English ivy throughout the property. There is potential for enhancement within the buffer by removing this invasive species.



Photo 8 shows the soils at Test Plot 3. The soils in this area had a dark top layer underlain by medium brown mixed soils and was not hydric.



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**Photoplate 3
Site Photos**

Project Name: Manitou Beach Drive Property
Client: Broughton Law Group
Bainbridge Island, Washington

APPENDIX A

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Manitou Beach Drive City/County: Bainbridge Island/Kitsap Sampling Date: 06-17-19
 Applicant/Owner: Broughton Law Group State: WA Sampling Point: TP-1
 Investigator(s): K. Lacey & J. Bartlett Section, Township, Range: S14, T25, R2E
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0-3
 Subregion (LRR): MLRA2 Lat: 47.656258 Long: -122.514082° Datum: NAD83
 Soil Map Unit Name: 15 Harstine gravelly ashy sandy loam, 6 to 15 percent slopes NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks: This 0.63-acre property is undeveloped and forested throughout. The topography slopes gradually from northwest to southeast. One wetland, Wetland A was identified on the eastern half of the property continuing offsite to the east and south. Test Plot 1 was conducted within the wetland near the southern property boundary along the wetland boundary.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 ft diameter)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. <u>Thuja plicata</u>	<u>25</u>	<u>yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
4. _____	_____	_____	_____	
50% = <u>12.5</u> , 20% = <u>5</u>	<u>25</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: 20 ft diameter)				Prevalence Index worksheet:
1. <u>Rubus spectabilis</u>	<u>5</u>	<u>yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	OBL species _____ x1 = _____
3. _____	_____	_____	_____	FACW species _____ x2 = _____
4. _____	_____	_____	_____	FAC species _____ x3 = _____
5. _____	_____	_____	_____	FACU species _____ x4 = _____
50% = <u>2.5</u> , 20% = <u>1</u>	<u>5</u>	= Total Cover		UPL species _____ x5 = _____
Herb Stratum (Plot size: 10 ft diameter)				Column Totals: _____ (A) _____ (B)
1. <u>Athyrium cyclosorum</u>	<u>10</u>	<u>yes</u>	<u>FAC</u>	Prevalence Index = B/A = _____
2. <u>Rubus ursinus</u>	<u>5</u>	<u>yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% = <u>7.5</u> , 20% = <u>3</u>	<u>15</u>	= Total Cover		
Woody Vine Stratum (Plot size: 10 ft diameter)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. <u>Hedera helix</u>	<u>35</u>	<u>yes</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
50% = <u>17.5</u> , 20% = <u>7</u>	<u>35</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>85</u>				

Remarks: Hydrophytic vegetation criteria is met because there is greater than 50 percent dominance by FAC species.

SOILSampling Point: TP-1**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
<u>0-8</u>	<u>10YR 2/1</u>	<u>100</u>	_____	_____	_____	_____	<u>muck</u>	_____
<u>8-10</u>	<u>10YR 3/1</u>	<u>100</u>	_____	_____	_____	_____	<u>silt loam</u>	_____
<u>10-16</u>	<u>10YR 4/3</u>	<u>100</u>	_____	_____	_____	_____	<u>sa si loam</u>	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix, RC=Root Channel**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input checked="" type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- | |
|---|
| <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

Hydric Soils Present?Yes ☒ No ☐

Remarks: The soil profile meets hydric soil criteria for indicator A2: Histic Epipedon due to 8 inches of muck at the surface underlain by a layer of mineral soil with a chroma of 2 or less.

HYDROLOGY**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) |
| <input checked="" type="checkbox"/> High Water Table (A2) | (except MLRA 1, 2, 4A, and 4B) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Stunted or Stresses Plants (D1) (LRR A) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- | |
|--|
| <input type="checkbox"/> Water-Stained Leaves (B9) |
| (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) |
| <input type="checkbox"/> Frost-Heave Hummocks (D7) |

Field Observations:Surface Water Present? Yes ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☒ No ☐ Depth (inches): 12Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): surface**Wetland Hydrology Present?** Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Wetland hydrology criteria is met because there was saturation to the soil surface and a high water table present at 12 inches depth.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Manitou Beach Drive City/County: Bainbridge Island/Kitsap Sampling Date: 06-17-19
 Applicant/Owner: Broughton Law Group State: WA Sampling Point: TP-2
 Investigator(s): K. Lacey & J. Bartlett Section, Township, Range: S14, T25, R2E
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 0-3
 Subregion (LRR): MLRA2 Lat: 47.656229 Long: -122.514111 Datum: NAD83
 Soil Map Unit Name: 15 Harstine gravelly ashy sandy loam, 6 to 15 percent slopes NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: This 0.63-acre property is undeveloped and forested throughout. The topography slopes gradually from northwest to southeast. One wetland, Wetland A was identified on the eastern half of the property continuing offsite to the east and south. Test Plot 2 was conducted adjacent to Test Plot 1 just outside of the wetland boundary. This area was determined to be upland because wetland soils and hydrology were absent.		

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 ft diameter)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. <u>Thuja plicata</u>	<u>25</u>	<u>yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>57</u> (A/B)
4. _____	_____	_____	_____	
50% = <u>12.5</u> , 20% = <u>5</u>	<u>25</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: 20 ft diameter)				Prevalence Index worksheet:
1. <u>Gaultheria shallon</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Prunus laurocerasus</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	OBL species _____ x1 = _____
3. <u>Rubus spectabilis</u>	<u>5</u>	<u>yes</u>	<u>FAC</u>	FACW species _____ x2 = _____
4. _____	_____	_____	_____	FAC species _____ x3 = _____
5. _____	_____	_____	_____	FACU species _____ x4 = _____
50% = <u>12.5</u> , 20% = <u>5</u>	<u>25</u>	= Total Cover		UPL species _____ x5 = _____
Herb Stratum (Plot size: 10 ft diameter)				Column Totals: _____ (A) _____ (B)
1. <u>Athyrium cyclosorum</u>	<u>10</u>	<u>yes</u>	<u>FAC</u>	Prevalence Index = B/A = _____
2. <u>Dryopteris expansa</u>	<u>5</u>	<u>yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% = <u>7.5</u> , 20% = <u>3</u>	<u>15</u>	= Total Cover		
Woody Vine Stratum (Plot size: 10 ft diameter)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. <u>Hedera helix</u>	<u>5</u>	<u>yes</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
50% = <u>2.5</u> , 20% = <u>1</u>	<u>5</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>85</u>				

Remarks: Hydrophytic vegetation criteria is met because there is greater than 50 percent dominance by FAC species.

Project Site: Manitou Beach Drive

SOIL

Sampling Point: TP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	duff	100	_____	_____	_____	_____	duff	_____
10-16	10YR 4/3	50	_____	_____	_____	_____	silt loam	_____
_____	10YR 3/6	50	_____	_____	_____	_____	sa si loam	mixed matrix from 10 to 16 inches depth
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	sa - sandy	_____
_____	_____	_____	_____	_____	_____	_____	si - silt	_____

¹Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix, RC=Root Channel

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input checked="" type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- | |
|---|
| <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present?

Yes ☐ No ☒

Remarks: The soils in this profile do not meet the definition of a depleted matrix or contain redoximorphic features and does not meet any of the hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) |
| <input type="checkbox"/> High Water Table (A2) | (except MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Stunted or Stresses Plants (D1) (LRR A) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- | |
|--|
| <input type="checkbox"/> Water-Stained Leaves (B9) |
| (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) |
| <input type="checkbox"/> Frost-Heave Hummocks (D7) |

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present?

Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Wetland hydrology criteria is not met because there was no water or evidence of water present in this location.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Manitou Beach Drive City/County: Bainbridge Island/Kitsap Sampling Date: 06-17-19
 Applicant/Owner: Broughton Law Group State: WA Sampling Point: TP-3
 Investigator(s): K. Lacey & J. Bartlett Section, Township, Range: S14, T25, R2E
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 0-3
 Subregion (LRR): MLRA2 Lat: 47.656363 Long: -122.514281 Datum: NAD83
 Soil Map Unit Name: 15 Harstine gravelly ashy sandy loam, 6 to 15 percent slopes NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: This 0.63-acre property is undeveloped and forested throughout. The topography slopes gradually from northwest to southeast. One wetland, Wetland A was identified on the eastern half of the property continuing offsite to the east and south. Test Plot 3 was conducted near the northern property boundary outside of Wetland A. This area was determined to be upland because the area lacked hydrophytic vegetation, hydric soils, and hydrology.		

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30 ft diameter)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. <u>Prunus emarginata</u>	<u>25</u>	<u>yes</u>	<u>FACU</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>17</u> (A/B)
4. _____	_____	_____	_____	
50% = <u>12.5</u> , 20% = <u>5</u>	<u>25</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: 20 ft diameter)				Prevalence Index worksheet:
1. <u>Rubus spectabilis</u>	<u>35</u>	<u>yes</u>	<u>FAC</u>	
2. <u>Rubus armeniacus</u>	<u>15</u>	<u>yes</u>	<u>FAC</u>	OBL species _____ x1 = _____
3. _____	_____	_____	_____	FACW species _____ x2 = _____
4. _____	_____	_____	_____	FAC species _____ x3 = _____
5. _____	_____	_____	_____	FACU species _____ x4 = _____
50% = <u>25</u> , 20% = <u>10</u>	<u>50</u>	= Total Cover		UPL species _____ x5 = _____
Herb Stratum (Plot size: 10 ft diameter)				Column Totals: _____ (A) _____ (B)
1. <u>Polystichum munitum</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	Prevalence Index = B/A = _____
2. <u>Rubus ursinus</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
50% = <u>7.5</u> , 20% = <u>3</u>	<u>20</u>	= Total Cover		
Woody Vine Stratum (Plot size: 10 ft diameter)				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. <u>Hedera helix</u>	<u>50</u>	<u>yes</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
50% = <u>25</u> , 20% = <u>10</u>	<u>50</u>	= Total Cover		
% Bare Ground in Herb Stratum <u>80</u>				

Remarks: Hydrophytic vegetation criteria is not met because there is less than 50 percent dominance by FAC species.

SOIL

Sampling Point: TP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/2	100	_____	_____	_____	_____	sa silt loam	_____
6-16	10YR 4/4	50	_____	_____	_____	_____	gr sa loam	_____
_____	10YR 4/6	50	_____	_____	_____	_____	gr sa loam	mixed matrix from 6-16 inches depth
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	sa - sandy
_____	_____	_____	_____	_____	_____	_____	_____	gr - gravelly
_____	_____	_____	_____	_____	_____	_____	_____	_____

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, M=Matrix, RC=Root Channel**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input checked="" type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- | |
|---|
| <input type="checkbox"/> 2 cm Muck (A10) |
| <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

Hydric Soils Present?Yes ☐ No ☒

Remarks: The soils in this profile do not meet the definition of a depleted matrix or contain redoximorphic features and does not meet any of the hydric soil indicators.

HYDROLOGY**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) |
| <input type="checkbox"/> High Water Table (A2) | (except MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Stunted or Stresses Plants (D1) (LRR A) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- | |
|--|
| <input type="checkbox"/> Water-Stained Leaves (B9) |
| (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) |
| <input type="checkbox"/> Frost-Heave Hummocks (D7) |

Field Observations:Surface Water Present? Yes ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☒ Depth (inches): _____Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____**Wetland Hydrology Present?**Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Wetland hydrology criteria is not met because there was no water or evidence of water present in this location.

APPENDIX B

Wetland name or number: Wetland A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: June 17, 2019

Rated by J. Bartlett & K. Lacey Trained by Ecology? Yes X No Date of training 11/14 & 03/19

HGM Class used for rating Depressional Wetland has multiple HGM classes? Y X N

NOTE: Form is not complete without the figures requested (figures can be combined).

Source of base aerial photo/map: Google Earth

OVERALL WETLAND CATEGORY III (based on functions or special characteristics)

1. Category of wetland based on FUNCTIONS

 Category I – Total score = 23 – 27

 Category II – Total score = 20 – 22

X Category III – Total score = 16 – 19

 Category IV – Total score = 9 – 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
<i>Circle the appropriate ratings</i>				
Site Potential	H M L	H M L	H M L	
Landscape Potential	H M L	H M L	H M L	
Value	H M L	H M L	H M L	TOTAL
Score Based on Ratings	7	5	6	18

**Score for each
function based
on three
ratings
(order of ratings
is not
important)**

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	X

Wetland name or number: Wetland A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	7
Hydroperiods	D 1.4, H 1.2	7
Location of outlet (<i>can be added to map of hydroperiods</i>)	D 1.1, D 4.1	7
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	D 2.2, D 5.2	7
Map of the contributing basin	D 4.3, D 5.3	8
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	8
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	9
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	9

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (<i>can be added to another figure</i>)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (<i>can be added to another figure</i>)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants (<i>can be added to figure above</i>)	S 4.1	
Boundary of 150 ft buffer (<i>can be added to another figure</i>)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☒ **NO** - go to 2

YES - the wetland class is **Tidal Fringe** - go to 1.1

- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO - Saltwater Tidal Fringe (Estuarine)

YES - Freshwater Tidal Fringe

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☒ **NO** - go to 3

YES - The wetland class is **Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

___ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

___ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☒ **NO** - go to 4

YES - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?

___ The wetland is on a slope (*slope can be very gradual*),

___ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,

___ The water leaves the wetland **without being impounded**.

☒ **NO** - go to 5

YES - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

___ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

___ The overbank flooding occurs at least once every 2 years.

Wetland name or number: Wetland A

NO – go to 6

YES – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number: Wetland A

DEPRESSIONAL AND FLATS WETLANDS	
Water Quality Functions - Indicators that the site functions to improve water quality	
D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). <div style="text-align: right;">points = 3</div> Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. <div style="text-align: right;">points = 2</div> Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing. <div style="text-align: right;">points = 1</div> Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. <div style="text-align: right;">points = 1</div>	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Yes = 4 No = 0	4
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area <div style="text-align: right;">points = 5</div> Wetland has persistent, ungrazed, plants > ½ of area <div style="text-align: right;">points = 3</div> Wetland has persistent, ungrazed plants > 1/10 of area <div style="text-align: right;">points = 1</div> Wetland has persistent, ungrazed plants < 1/10 of area <div style="text-align: right;">points = 0</div>	3
D 1.4. Characteristics of seasonal ponding or inundation: <i>This is the area that is ponded for at least 2 months. See description in manual.</i> Area seasonally ponded is > ½ total area of wetland <div style="text-align: right;">points = 4</div> Area seasonally ponded is > ¼ total area of wetland <div style="text-align: right;">points = 2</div> Area seasonally ponded is < ¼ total area of wetland <div style="text-align: right;">points = 0</div>	0*
Total for D 1	9

Rating of Site Potential If score is: 12-16 = H X 6-11 = M 0-5 = L Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?	Yes = 1 No = 0
Source	Yes = 1 No = 0
Total for D 2	2

Rating of Landscape Potential If score is: 3 or 4 = H X 1 or 2 = M 0 = L Record the rating on the first page

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?	Yes = 2 No = 0
Total for D 3	3

Rating of Value If score is: X 2-4 = H 1 = M 0 = L Record the rating on the first page

**the only seasonally flooded area is within the narrow emergent area at the south end of the depressional unit and in the southeastern portion both of which make up about 7.2% or 0.13 acres of the wetland unit. This emergent area is regularly mowed.*

Wetland name or number: Wetland A

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:

- | | | |
|---|------------|----------|
| Wetland is a depression or flat depression with no surface water leaving it (no outlet) | points = 4 | |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet | points = 2 | 2 |
| Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch | points = 1 | |
| Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing | points = 0 | |

D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.

- | | | |
|--|------------|----------|
| Marks of ponding are 3 ft or more above the surface or bottom of outlet | points = 7 | 3 |
| Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet | points = 5 | |
| Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet | points = 3 | |
| The wetland is a "headwater" wetland | points = 3 | |
| Wetland is flat but has small depressions on the surface that trap water | points = 1 | |
| Marks of ponding less than 0.5 ft (6 in) | points = 0 | |

D 4.3. Contribution of the wetland to storage in the watershed: Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.

- | | | |
|---|------------|----------|
| The area of the basin is less than 10 times the area of the unit | points = 5 | 0 |
| The area of the basin is 10 to 100 times the area of the unit | points = 3 | |
| The area of the basin is more than 100 times the area of the unit | points = 0 | |
| Entire wetland is in the Flats class | points = 5 | |

Total for D 4 Add the points in the boxes above

5

Rating of Site Potential If score is: 12-16 = H 6-11 = M X 0-5 = L

Record the rating on the first page

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0

0

D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0

1

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0

1

Total for D 5 Add the points in the boxes above

2

Rating of Landscape Potential If score is: 3 = H X 1 or 2 = M 0 = L

Record the rating on the first page

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The unit is in a landscape that has flooding problems. Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.

- | | | |
|---|------------|----------|
| The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): | | 1 |
| • Flooding occurs in a sub-basin that is immediately down-gradient of unit. | points = 2 | |
| • Surface flooding problems are in a sub-basin farther down-gradient. | points = 1 | |
| Flooding from groundwater is an issue in the sub-basin. | points = 1 | |
| The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why _____ | points = 0 | |
| There are no problems with flooding downstream of the wetland. | points = 0 | |

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?

Yes = 2 No = 0

0

Total for D 6 Add the points in the boxes above

1

Rating of Value If score is: 2-4 = H X 1 = M 0 = L

Record the rating on the first page

Wetland name or number: Wetland A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

☐ Aquatic bed 4 structures or more: points = 4
☐ Emergent 3 structures: points = 2
☐ Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1
☒ Forested (areas where trees have > 30% cover) 1 structure: points = 0

If the unit has a Forested class, check if:

☒ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1
Emergent
9%

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

☐ Permanently flooded or inundated 4 or more types present: points = 3
☒ Seasonally flooded or inundated 3 types present: points = 2
☐ Occasionally flooded or inundated 2 types present: points = 1
☒ Saturated only 1 type present: points = 0

☐ Permanently flowing stream or river in, or adjacent to, the wetland

☐ Seasonally flowing stream in, or adjacent to, the wetland

☐ **Lake Fringe wetland**

2 points

☐ **Freshwater tidal wetland**

2 points

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft².

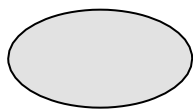
*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. **Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species points = 2
 5 - 19 species points = 1
 < 5 species points = 0

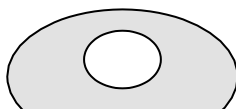
1

H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



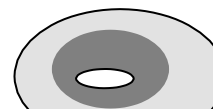
None = 0 points



Low = 1 point

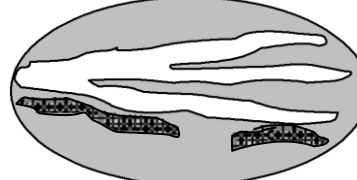
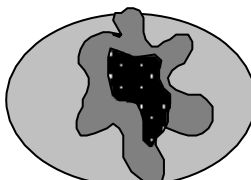
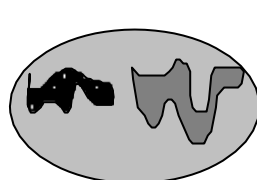


Moderate = 2 points



0

All three diagrams in this row are **HIGH** = 3 points



Wetland name or number: Wetland A

<p>H 1.5. Special habitat features:</p> <p>Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i></p> <p><u>X</u> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).</p> <p><u>X</u> Standing snags (dbh > 4 in) within the wetland</p> <p><u> </u> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)</p> <p><u> </u> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>)</p> <p><u>X</u> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>)</p> <p><u>X</u> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)</p>		4
Total for H 1	Add the points in the boxes above	7

Rating of Site Potential If score is: 15-18 = H X 7-14 = M 0-6 = L *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?

<p>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</p> <p><i>Calculate:</i> % undisturbed habitat <u>0</u> + [(% moderate and low intensity land uses)/2] <u>0</u> = <u>0</u> % If total accessible habitat is:</p> <p>> 1/3 (33.3%) of 1 km Polygon points = 3</p> <p>20-33% of 1 km Polygon points = 2</p> <p>10-19% of 1 km Polygon points = 1</p> <p>< 10% of 1 km Polygon points = 0</p>		0
<p>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</p> <p><i>Calculate:</i> % undisturbed habitat <u>2.5</u> + [(% moderate and low intensity land uses)/2] <u>27.2</u> = <u>29.7</u> %</p> <p>Undisturbed habitat > 50% of Polygon points = 3</p> <p>Undisturbed habitat 10-50% and in 1-3 patches points = 2</p> <p>Undisturbed habitat 10-50% and > 3 patches points = 1</p> <p>Undisturbed habitat < 10% of 1 km Polygon points = 0</p>		1
<p>H 2.3. Land use intensity in 1 km Polygon: If</p> <p>> 50% of 1 km Polygon is high intensity land use points = (- 2)</p> <p>≤ 50% of 1 km Polygon is high intensity points = 0</p>		0
Total for H 2	Add the points in the boxes above	1

Rating of Landscape Potential If score is: 4-6 = H X 1-3 = M < 1 = L *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

- Site meets ANY of the following criteria: points = 2
- It has 3 or more priority habitats within 100 m (see next page)
 - It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)
 - It is mapped as a location for an individual WDFW priority species
 - It is a Wetland of High Conservation Value as determined by the Department of Natural Resources
 - It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan
- Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1
- Site does not meet any of the criteria above points = 0

Rating of Value If score is: 2 = H X 1 = M 0 = L *Record the rating on the first page*

Wetland name or number: Wetland A

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

___ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

___ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

___ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

___ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

___ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

___ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

___ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

___ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

___ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).

___ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

___ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

___ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

___ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number: Wetland A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt <div style="text-align: right;"> Yes – Go to SC 1.1 No = Not an estuarine wetland </div>	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <div style="text-align: right;"> Yes = Category I No - Go to SC 1.2 </div>	Cat. I
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <div style="text-align: right;"> Yes = Category I No = Category II </div>	Cat. I Cat. II
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <div style="text-align: right;"> Yes – Go to SC 2.2 No – Go to SC 2.3 </div> SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? <div style="text-align: right;"> Yes = Category I No = Not a WHCV </div> SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf <div style="text-align: right;"> Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV </div> SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <div style="text-align: right;"> Yes = Category I No = Not a WHCV </div>	Cat. I
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <div style="text-align: right;"> Yes – Go to SC 3.3 No – Go to SC 3.2 </div> SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <div style="text-align: right;"> Yes – Go to SC 3.3 No = Is not a bog </div> SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <div style="text-align: right;"> Yes = Is a Category I bog No – Go to SC 3.4 </div> NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <div style="text-align: right;"> Yes = Is a Category I bog No = Is not a bog </div>	Cat. I

Wetland name or number: Wetland A

<p>SC 4.0. Forested Wetlands</p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> — Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). <p>Yes = Category I No = Not a forested wetland for this section</p>	<p>Cat. I</p>
<p>SC 5.0. Wetlands in Coastal Lagoons</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>) <p>Yes – Go to SC 5.1 No = Not a wetland in a coastal lagoon</p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland is larger than 1/10 ac (4350 ft²) <p>Yes = Category I No = Category II</p>	<p>Cat. I</p> <p>Cat. II</p>
<p>SC 6.0. Interdunal Wetlands</p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 <p>Yes – Go to SC 6.1 No = not an interdunal wetland for rating</p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = Category I No – Go to SC 6.2</p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = Category II No – Go to SC 6.3</p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = Category III No = Category IV</p>	<p>Cat I</p> <p>Cat. II</p> <p>Cat. III</p> <p>Cat. IV</p>
<p>Category of wetland based on Special Characteristics</p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	<p>N/A</p>

Wetland name or number: Wetland A