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Technical Memorandum

To: **Shelter America Group – Christopher Bric** **File Number: 2617.0001**

From: **Alex Murphy, Soundview Consultants LLC** **Date: September 13, 2023**

Re: **Wetland, Stream and Fish and Wildlife Habitat Assessment and Buffer Modification Plan - 16816 95th Lane Southwest, Vashon, Washington 98070**

Dear Mr. Bric,

Soundview Consultants LLC (SVC) performed a wetland, stream and fish and wildlife habitat assessment on an approximately 7.26-acre site located at 16816 95th Lane Southwest in the Vashon area of unincorporated King County, Washington (Figure 1). The subject property consists of one tax parcel situated in the Southwest ¼ of Section 29, Township 23 North, Range 03 East, W.M. (King County Tax Parcel Numbers 2923039148). This Technical Memorandum contains field investigation results prepared for the purpose of obtaining a critical areas verification from King County to support future residential development of the subject property. The Applicant proposes the use of buffer averaging in order to avoid critical areas impacts while supporting the proposed residential redevelopment. Existing and proposed conditions are depicted in Attachment A.

Figure 1. Subject Property Location

Background Data

Prior to the site investigation, SVC staff conducted background research using King County Geographic Information System (GIS) data, Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) and SalmonScape mapping tools, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI), Washington Department of Natural Resources (DNR) water typing map, and Natural Resource Conservation Service (NRCS) Soil Survey. Onsite determinations were made using observable vegetation, hydrology, and soils in conjunction with the sources listed above, U.S. Geological Survey (USGS) topographic maps, local precipitation data, and various orthophotographic resources.

The King County Streams and Wetlands Inventory (Attachment B1) identifies one potential unclassified stream entering the site from the south and flowing east offsite. USFWS NWI map (Attachment B2) identifies a stream in approximately the same location as King County and identifies a second potential stream entering the site from the west, flowing in an easterly direction, eventually flowing into the first stream. DNR stream typing map (Attachment B3) identifies potential streams in the same locations as NWI. The southern stream is identified as Type F and the western stream is identified as Type N. However, the WDFW PHS (Attachment B4) and WDFW and NWIFC SWIFD Map (Attachment B5) do not identify any potential streams or salmonid presence onsite. No potential wetlands are identified onsite by King County, NWI, or PHS.

The NRCS soil survey map (Attachment B6) identifies two soil series on the subject property: Alderwood gravelly sandy loam, 8 to 15 percent slopes (AgC) and Indianola loamy sand, 5 to 15 percent slopes (InC). According to the survey, Alderwood gravelly sandy loam, 6 to 15 percent slopes are moderately well-drained soil. Alderwood gravelly sandy loam, 6 to 15 percent slopes is listed as non-hydric on the King County Hydric Soils List, however it can contain up to 5 percent inclusions of the hydric soils Norma sandy loam and Shalcar muck (NRCS, n.d). According to the survey, Indianola loamy fine sand, 4 to 15 percent slopes, is an undulating soil with convex slopes near upland terraces. Indianola loamy fine sand, 5 to 15 percent slopes, is listed as non-hydric on the King County Hydric Soils List, but may contain up to 2 percent hydric inclusions of Norma silt loam (NRCS, n.d).

Methods

A formal site investigation was performed by qualified SVC staff on June 28, 2023. SVC investigated and assessed any potentially regulated wetlands, streams, and other fish and wildlife habitat conservation areas on the subject property and publicly accessible areas within 300 feet of the proposed development.

Wetlands, streams, and select fish and wildlife habitats and species are regulated features per King County Code (PCC) *21A.24 - Critical Areas (Formerly Environmentally Sensitive Areas)* and subject to restricted uses/activities under the same title. Wetland presence/absence were determined using the routine approach described in the U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (Environmental Laboratory, 1987) and modified according to the guidelines established in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (USACE, 2010) and *Field Indicators of Hydric Soils in the United States* (NRCS, 2018). Prior precipitation conditions and seasonal timing of site investigations were considered in evaluations for wetland hydrology indicators. Qualified wetland scientists marked boundaries of onsite wetlands with orange surveyor's flagging labeled alpha-numerically and tied to 3-foot lath or vegetation along the wetland boundary. Pink surveyor's flagging was labeled alpha-numerically and tied to 3-foot lath or vegetation at formal sampling locations to mark the points where detailed data was collected (DP-1 –

DP-4). Additional tests pits were excavated inside and outside of the wetland boundary to confirm the delineation.

Ordinary high-water mark (OHW) determinations were made using WSDOE's method detailed in *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson et al., 2016) and definitions established in Revised Code of Washington (RCW) 90.58.030(2)(b) and WAC 173-22-030(11). To mark the banks of potentially regulated waters, blue surveyor's flagging was alpha-numerically labeled and tied to vegetation or lath. Surface water features were evaluated using the DNR water typing system as outlined in Washington Administrative Code (WAC) 222-16-030 and the definitions established in KCC 21A.24.355.

The fish and wildlife habitat assessment was conducted during the same site visits by qualified fish and wildlife biologists. The experienced biologists made visual and auditory observations using stationary and walking survey methods for both aquatic and upland habitats noting any special habitat features and direct and indirect signs of fish and wildlife activity (e.g. nesting, foraging, and migration/movement). Special attention was given to assessing the presence of wildlife habitat areas outlined under KCC 21A.24.382.

Precipitation

Precipitation data was obtained from the National Oceanic and Atmospheric Administration (NOAA) weather station at the Seattle-Tacoma International Airport Station in order to acquire percent of normal precipitation during and preceding the investigations. A summary of data collected is provided in Table 1 below.

Table 1. Precipitation Summary[1].

Site Visit Date	Day Of	Day Before	1 Week Prior	2 Weeks Prior	30 Days Prior (Observed/Normal)	Year to Date (Observed/Normal)[2]	Percent of Normal[3]
06/28/2023	0.00	0.00	0.00	0.80	1.22/1.55	14.02/20.15	79/70

1. Precipitation volume provided in inches. Data obtained from NOAA (http://w2.weather.gov/climate/xmacis.php?wfo=sew) for Sea-Tac Airport.
2. Year-to-date precipitation is for the 2023 calendar year from January 1, 2023, to the onsite date.
3. Percent of normal is shown for the prior 30 days and the 2023 calendar year to date.

Precipitation during the June 2023 site investigation was within the statistical normal range for the prior 30 days (79 percent of normal) and for the 2023 calendar year (70 percent of normal). This precipitation data suggests that hydrologic conditions were normal. These conditions were considered during the site assessments and when making professional wetland boundary determinations.

Results

The 7.26-acre site is in a rural and residential setting and consists of mobile homes in the eastern portion of the site and undeveloped forested/scrub-shrub areas throughout the remainder of the site. The subject property abuts single family residences and undeveloped forest to the east and west, SW Gorsuch Road to the north and single family residences beyond the road, and SW 171st Street to the south and municipal wastewater treatment and park beyond the road. The subject property is located in the Kitsap watershed (Water Resource Inventory Area 15).

Upland Characterization

Vegetation on the subject property is characterized by patches of forest and discrete patches of dense non-native invasive Himalayan blackberry (*Rubus armeniacus).* The forested areas consist of red alder (*Alnus rubra*) and Douglas fir (*Pseudotsuga mensiezii*) with an understory of osoberry (*Oemleria cerasiformis*), salmonberry (*Rubus spectabilis*), stinging nettle (U*rtica dioica)*, trailing blackberry (*Rubus ursinus)*, and western swordfern (*Polystichum munitum*). Non-native English ivy (*Hedera helix)* is prevalent in forested sections to the southeast where shaded conditions prevent Himalayan blackberry from growing. Abandoned orchard trees, including various apple (*Malus spp.*) and cherry (*Prunus spp.*) trees are present in the vicinity of the mobile homes.

Topography onsite slopes towards a low depression in the southeastern portion of the site. Elevations range from approximately 300 feet above mean sea level (amsl) on the northwest and southwest boundary of the subject property to approximately 240 feet amsl in the southeast portion of the subject property (Attachment B7).

The site investigation identified and delineated one wetland (Wetland A), two streams (Streams Y and Z), and three drainages. No other potentially regulated wetlands, aquatic areas, and/or fish and wildlife habitat conservation areas were observed on or within 300 feet of the subject property. The identified critical areas are depicted on the Existing Conditions Exhibit in Attachment A. Data forms are included in Attachment C, wetland rating forms in Attachment D, and wetland rating figures in Attachment E. Photographs of site features and general conditions are included in Attachment F. A summary of the identified critical areas is provided in Table 2 below.

Table 2. Onsite Wetland Summary.

Wetland	Predominant Wetland Classification / Rating			Wetland Size Onsite (square feet)
	Cowardin[1]	HGM	King County[2]	
A	PFO/SS/EMBC	Depressional	III	2,106

Notes:
A. Cowardin et al. (1979) or NWI Class based on vegetation: PFO = Palustrine Forested, PSS = Palustrine Scrub-Shrub PEM = Palustrine Emergent; Modifiers for Water Regime: B = Seasonally Saturated, C = Seasonally Flooded.
B. Per KCC 21A.24.318.B wetland rating designation

Wetland A

Wetland A is 2,106 square feet (0.05 acre) in size and located on the south-central portion of the subject property. Hydrology for Wetland A is provided by surface sheet flow, direct precipitation, a seasonally high groundwater table. Wetland vegetation is dominated by red alder, Sitka willow (*Salix sitchensis*), salmonberry, redosier dogwood (*Cornus alba*), American skunk cabbage (*Lysichiton americanus*), and common ladyfern (*Athyrium cyclosorum*). Wetland A is a Palustrine Forested, Scrub-Shrub, and Emergent, Seasonally Saturated and Seasonally Flooded wetland (PFO/SS/EMBC). Per KCC 21A.24.318.B, Wetland A is a Category III wetland with 7 habitat points.

Stream Z

Stream Z enters the subject property from the southwest, flowing east across the subject property. Stream Z exhibits a defined channel approximately 2 to 4 feet wide, with evidence of sorting, but poor channel complexity lacking riffles and pools and instream structures. While the offsite downgradient portions of Stream Z could not be physically assessed and visual observations were difficult due to

dense vegetation, topography indicates that Stream Z flows east, which eventually drains toward the Puget Sound. Stream Z is classified as a Type F water per KCC 21A.24.355.

Stream Y

Stream Y enters the subject property from the western portion of the subject property, flowing east towards Stream Z. Stream Y exhibits a defined channel approximately 2 to 4 feet wide, with evidence of sorting, but poor channel complexity lacking riffles and pools and instream structures. Stream Y flows into Stream Z to the east, which eventually drains toward the Puget Sound. Stream Y is classified as a Type F water per KCC 21A.24.355.

Unregulated Features

SVC identified three likely unregulated drainages (Drainage Z, W, and X) onsite. All drainages failed to meet the required characteristics to be considered streams under the WAC or aquatic areas under KCC. Drainage X is located upgradient and west of Stream Z and was dry with evidence of ephemeral flows during the wet season or during and immediately following precipitation events. Drainage X shows evidence of overland flows visible through minor sorting but lacks a defined bed and bank. Drainages W and V were identified using LIDAR data, as they were located over 300' away from the proposed development. Drainage W is located west of Wetland A, conveying surface flows into the wetland. SVC observed a clear separation in vegetation at the intersection of the drainage and wetland boundary, supporting the boundary as flagged onsite. Drainage V enters the property from the west, extending southeast before flowing into Stream Y.

In addition to the unregulated drainage features, an artificial and intentionally excavated ditch was identified extending south from the parking lot and eventually flowing into Stream Z. The ditch was a dry, grassy patch cut out of the Himalayan blackberry and did not show any signs of ponding, sorting, or cut banks. One data plot (DP-1) was collected in this location to confirm wetland absence. The feature meets the definition of a ditch per KCC 21A.06.326; additionally, as it does not convey water from a wetland or non-wetland water feature, it should not be regulated as an aquatic feature per KCC 21A.06.072C.B.

Federally and State-Listed Species Analysis

Per KCC 21A.24.382, wildlife habitat conservation areas are those areas identified as being of critical importance to sustain needed habitats and species for the functional integrity of the ecosystem. Species considered for wildlife habitat conservation areas include bald eagle, great blue heron, marbled murrelet, northern goshawk, osprey, peregrine falcon, spotted owl, Townsend's big-eared bat, Vaux's swift, and active breeding sites of any federal or state-listed endangered, threatened, sensitive, and candidate species or King County species of local importance not listed in subsections B through J.

Due to the presence of largely deciduous canopy, lack of cliff faces or caves, the project area does not offer potential nesting or roosting habitat for bald eagle, great blue heron, marbled murrelet, northern goshawk, osprey, peregrine falcon, spotted owl, Townsend's big-eared bat, or Vaux's swift.

According to the USFWS IPaC mapping database, marbled murrelet (*Brachyramphus marmoratus*), yellow-billed cuckoo (*Coccyzus americanus*) and bull trout (*Salvelinus confluentus*) have the potential to occur within 315 feet of the subject property. Additionally, according to National Oceanic and Atmospheric Administration (NOAA) Fisheries, chinook (*Oncorhynchus tshawytscha*) has the potential to occur in the vicinity of the site.

Marbled murrelet are year-round residents on coastal waters that nest in the mature and old growth forests of western Washington (WDFW, 1991). While the site is located relatively close to the shoreline and marbled murrelets have been sighted foraging and flying over the Henderson Bay area (Ebird, N.d), canopy composition onsite is dominated by relatively young deciduous trees that are not preferred roost or nesting trees for marbled murrelet. As such, they are not likely present onsite.

Yellow-billed cuckoo habitat consists of low to mid-level riparian forests dominated by cottonwoods and willow (Wiles and Kalasz, 2017). Twenty sightings have been confirmed in Washington between the 1950s and 2017; none of these sightings were breeding birds. Further, sixteen of these twenty sightings were east of the Cascades, and the sighted birds were likely vagrants or migrants (Wiles & Kalasz, 2017). Although there is a seasonal stream onsite with riparian vegetation, the composition and size do not meet yellow-billed cuckoo preferences. Furthermore, the closest sighting is located approximately 40 miles to the southwest, in Elma, and is from 1996 (Ebird, N.d.). Due to the lack of suitable habitat and lack of recent sightings in the western portion of the state, yellow-billed cuckoo is unlikely to be present in the vicinity of the subject property.

Bull trout have the most specific habitat requirements of salmonids. They require cold water temperatures, clean stream substrates for spawning and rearing, complex habitats including streams with riffles and deep pools, undercut banks and large logs, and they also rely on river, lake, and ocean habitats that connect to headwater streams for annual spawning and feeding migrations (Shellberg, 2002). In Washington, bull trout are typically found in major tributaries from the Cascades that flow into the Puget Sound as well as major tributaries for the Olympic Mountains that flow into the Hood Canal, Strait of Juan de Fuca, and the Pacific Ocean (USFWS, 2015). Two Type F streams are present onsite. However, no bull trout use is documented in any reach of the channels. Additionally, considering the low flow perennial nature and lack of riffle and pool habitat within Stream Z it is unlikely to offer the cold temperatures that bull trout require. Furthermore, the downgradient reach of the stream is identified as a 303(d) water, indicating poor water quality, which likely precludes bull trout use. As such, no suitable habitat for bull trout is likely present on or in the vicinity of the subject property.

NOAA documents Chinook critical habitat in the marine water in Puget Sound and no barriers are present between the mapped habitat and the onsite streams. Pacific salmonids and steelhead require adequate water quantity and quality conditions. Essential features of critical habitat include adequate substrate, water quality, water quantity, water temperature, water velocity, cover, shelter, food, riparian vegetation, space and safe passage conditions. WDFW identifies a water surface drop which is a complete fish passage barrier offsite to the east along SW 171st Street. Therefore, while potential habitat for chinook exists within Stream Y and Stream Z, it is inaccessible. Furthermore, chinook have not been identified in any reach of the stream or within 300 feet of the proposed development or the subject property.

Regulatory Considerations

Local Requirements

Wetland A is rated as Category III wetland with 7 habitat points per KCC 21A.24.318, with a standard 150-foot buffer per KCC 21A.24.325 due to the proposed high impact land use. Stream Z and Y are Type F streams and subject to a 165-foot buffer per KCC 21A.24.358.C.1. In addition, all wetland and stream buffers require a 15-foot building setback per KCC 21A.24.200. While Drainages V, W, and X are not anticipated to be considered regulated features, should they be regulated as typed waters, the

resulting buffers would be entirely encompassed within Stream Y and Z buffers, and therefore would not further encumber the property.

The Applicant proposes residential redevelopment in the northeastern portion of the site. Through careful planning efforts, the proposed project avoids direct impacts to the identified onsite streams. However, the site is highly encumbered by the identified critical areas and associated buffers and building setbacks. As such, stream buffer averaging is necessary for Stream Z as allowed KCC 21A.24.358.E.1 to accommodate the proposed driveway and utilities for the fair housing residences. Mitigation sequencing is provided below to support stream buffer averaging for Stream Z. As all onsite critical areas are being avoided, compensatory mitigation is not required. However, the Applicant is proposing voluntary buffer restoration in the vicinity of the legal non-conforming mobile homes currently present within the stream buffer in the eastern portion of the site.

Mitigation Sequencing

Per KCC 21A.24.520, the project must demonstrate the proposed development within the stream buffer will result in no net loss in stream buffer functions and values. The following discussion addresses specific actions taken to fulfill mitigation sequencing for this project.

1. *Avoiding the impact altogether by not taking a certain action or parts of actions.*

   The proposed project has undergone several variations in site design to minimize impacts to the greatest extent feasible, and direct impacts have been avoided. However, the majority of the subject property is encumbered by the identified critical areas, their associated buffers, and steep slopes and there is a limited area available to access the most viable upland area on the subject property. As such, buffer averaging was determined to be the best solution as it allows for reasonable use of the site while also avoiding impacts to the identified critical areas. The proposed buffer averaging plan will achieve no net loss of buffer onsite.

2. *Minimizing impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to reduce impacts.*

   With the use of buffer averaging, all proposed development will be located outside of the stream buffer areas. All appropriate best management practices (BMPs) and temporary erosion and sediment control (TESC) measures, including construction fencing and silt fencing, will be implemented and maintained during construction on the site to minimize any potential temporary construction impacts. A split-rail fence will also be placed between the proposed residence and reduced stream buffer area to minimize potential future disturbances such as unintended intrusion into the modified buffer area.

3. *Rectify the impact by reestablishing, rehabilitating, or restoring the affected environment.*

   No direct stream impacts are proposed; therefore, no rectification is required. The necessary buffer averaging will result in a 1,068 square foot decrease in the center of the site and a 1,974 square foot increase in the southern portion of the site, for a net increase of 906 square feet of Stream Y and Z buffer area. Additionally, the Applicant proposes buffer restoration in the eastern portion of the site where the mobile homes are currently located, between Stream Z and the proposed development. This area will be replanted with native vegetation in order to restore buffer function following demolition of the existing development.

4. *Reducing or eliminating the impact over time by preservation and maintenance operations.*

No direct streams impacts are proposed; therefore, no further reduction or elimination is necessary. However, the Applicant is proposing buffer averaging as well as buffer restoration which will result in an overall ecological lift onsite. A split-rail fence will also be placed between the proposed residence and buffer area to minimize potential future disturbances such as unintended intrusion into the buffer area.

5. *Compensating for the impact by replacing or providing substitute resources or environments; or*

No direct stream impacts are proposed; therefore, no compensation is required. The Applicant will utilize stream buffer averaging to avoid impacts, and will provide an overall increase in stream buffer area onsite.

6. *Monitoring the impact and compensation and taking appropriate corrective measures.*

The Applicant is committed to compliance with the proposed buffer averaging plan and, as such, will continue to maintain the project, keeping the site free of non-native invasive vegetation, trash, and yard waste.

Stream Buffer Averaging

Per KCC 21A.24.358.B.2, Type F streams are protected by a 165-foot buffer from the OHWM. To accommodate the proposed single-family residence in the east portion of the site, buffer averaging is proposed for Stream Z buffer area in a limited location. Proposed buffer averaging projects must meet the standards set forth in KCC 21A.24.358.E.1.a, which are described below:

1. *the total area of the buffer is not reduced;*

   The proposed buffer averaging will not result in a reduced buffer area onsite. Instead, the proposed buffer averaging plan will result in a net increase in the overall buffer area onsite of 906 square feet. Therefore, the proposed buffer averaging plan is anticipated to provide an ecological lift in functions. The proposed area of buffer increase consists of native forest and understory.

2. *the buffer area is contiguous; and*

   The proposed buffer increase area is contiguous with the existing stream buffer and the area of proposed buffer decrease.

3. *averaging does not result in the reduction of the minimum buffer for the buffer area waterward of the top of the associated steep slopes or for a severe channel migration hazard area;*

   The proposed buffer averaging plan proposes a reduction of approximately 7 percent, from 165 feet to 154 feet, in order to accommodate the proposed development. There are no steep slopes or severe channel migration hazard areas in the vicinity of the proposed buffer reduction.

Buffer Restoration

In addition to the proposed stream buffer averaging, which will result in a net increase in buffer area onsite, the Applicant also proposes the voluntary, non-compensatory restoration of the existing legal, non-conforming mobile homes currently present within the eastern portion of the site and within the northern portion of the Stream Z buffer. The proposed buffer restoration actions will consist of the demolition and removal of structures and impervious surfaces and replanting of these areas with a native riparian forest habitat. Non-native invasive species will be removed, and compacted soils will be tilled to improve infiltration to ensure the success of native plantings. Disturbed areas will then be replanted with a dense suite of native trees, shrubs, and groundcovers. The proposed plantings will provide increased screening for the identified critical areas, minimize dust, light, and physical intrusions, and provide improved habitat conditions onsite.

The proposed buffer restoration and general project minimization actions include the following:

- Pre-treat invasive plants with a Washington Department of Agriculture approved herbicide approved for use in aquatic areas. Pre-treatment of the invasive plants should occur a minimum of two weeks prior to removal.
- Removal of legal non-conforming structures within the stream buffer,
- Till existing compacted soils in the buffer restoration area to a depth of approximately 12-24 inches prior to seeding and plant installation.
- An approved native seed mix will be used to seed the disturbed mitigation areas prior to planting to reduce short-term erosion potential.
- Replant all buffer restoration areas with native trees, shrubs, and/or groundcovers listed in Attachment A, or substitutes approved by the responsible Project Scientist to help retain soils, filter stormwater, and increase biodiversity.
- Maintain and control invasive plants annually, at a minimum, or more frequently if necessary. Maintenance to reduce the growth and spread of invasive plants is not restricted to chemical applications but may include hand removal, if warranted.
- Provide dry-season irrigation as necessary to ensure native plant survival.
- Install critical area signage along the outer boundary of the critical areas buffer facing the proposed development.
- Direct exterior lights away from the wetland and stream areas wherever possible; and
- Place all activities that generate excessive noise (e.g., generators and air conditioning equipment) away from the wetland and stream areas where feasible.

The goals and objectives for the proposed non-compensatory voluntary actions are based on restoring the stream buffer in an area where legal, non-conforming land uses have historically been present in order to provide additional protection for the stream. These non-compensatory mitigation actions are capable of improving water quality and hydrologic functions of the stream. No annual monitoring or reporting should be necessary because the proposed restoration is not a required mitigation action and planting goals will likely be met upon construction completion.

Plant Materials

All plant materials to be used for the mitigation actions will be nursery grown stock from a reputable, local source. Only native species are to be used; no hybrids or cultivars will be allowed. Plant material provided will be typical of their species or variety; if not cuttings they will exhibit normal, densely

developed branches and vigorous, fibrous root systems. Plants will be sound, healthy, vigorous plants free from defects, and all forms of disease and infestation.

Container stock shall have been grown in its delivery container for not less than six months but not more than two years. Plants shall not exhibit rootbound conditions. Under no circumstances shall container stock be handled by their trunks, stems, or tops. Seed mixture used for hand or hydroseeding shall contain fresh, clean, and new crop seed mixed by an approved method. The mixture is specified in the plan set.

Fertilizer will be in the form of Agriform plant tabs or an approved like form. Mulch or coir rings may be installed around woody vegetation as determined to be necessary for plant survivability by the landscape contractor.

Plant Scheduling, Species, Size, and Spacing
Plant installation should occur as close to conclusion of clearing and grading activities as possible to limit erosion and limit the temporal loss of function provided by the onsite habitat. All planting should occur between September 1 and May 1 to ensure plants do not dry out after installation, or temporary irrigation measures may be necessary. All plantings will be installed according to the procedures detailed in the following subsections and as outlined on the site plans in Appendix A.

Quality Control for Planting Plan
All plant material should be inspected by the landscape contractor or Project Scientist upon delivery. Plant material not conforming to the specifications above will be rejected and replaced by the landscape contractor. Rejected plant materials shall be immediately removed from the site.

The landscape contractor should provide the Project Scientist with documentation of plant material that includes the supplying nursery contact information, location of genetic source, plant species, plant quantities, and plant sizes.

Product Handling, Delivery, and Storage
All seed should be delivered in original, unopened, and undamaged containers showing weight, analysis, and name of manufacturer. This material should be stored in a manner to prevent wetting and deterioration. All precautions customary in good trade practice shall be taken in preparing plants for moving. Workmanship that fails to meet industry standards will be rejected. Plants will be packed, transported, and handled with care to ensure protection against injury and from drying out. If plants cannot be planted immediately upon delivery they should be protected with soil, wet peat moss, or in a manner acceptable to the Project Scientist. Plants and mulch not installed immediately upon delivery shall be secured on the site to prevent theft or tampering. No plant shall be bound with rope or wire in a manner that could damage or break the branches. Plants transported on open vehicles should be secured with a protective covering to prevent windburn.

Preparation and Installation of Plant Materials
The landscape contractor shall verify the location of all elements of the mitigation plan with the responsible Project Scientist prior to installation. The responsible Project Scientist reserves the right to adjust the locations of landscape elements during the installation period as appropriate. If obstructions are encountered that are not shown on the drawings, planting operations will cease until alternate plant locations have been selected by and/or approved by the Project Scientist.

Circular plant pits with vertical sides will be excavated for all container stock. The pits should be at least 2 times the width of the rootball, and the depth of the pit should accommodate the entire root system. Please refer to planting details in Appendix A.

Broken roots should be pruned with a sharp instrument and rootballs should be thoroughly soaked prior to installation. Set plant material upright in the planting pit to proper grade and alignment. Water plants thoroughly midway through backfilling and add Agriform tablets or similar. Water pits again upon completion of backfilling. No filling should occur around trunks or stems. Do not use frozen or muddy mixtures for backfilling. Form a ring of soil around the edge of each planting pit to retain water and install a 3- to 4-inch layer of mulch around the base of each container plant if determined to be necessary by the landscape contractor.

Topsoil, mulch, compost, or other amendments may be installed to ensure plant survivability at the discretion of the landscape contractor.

Temporary Irrigation Specifications

While the native species selected for the mitigation actions are hardy and typically thrive in northwest conditions and the proposed actions are planned in areas with sufficient hydroperiods for the species selected, some individual plants might perish due to dry conditions. Therefore, irrigation or regular watering may be provided as necessary for the duration of the first two growing seasons while the native plantings become established. If used, irrigation will be discontinued after two growing seasons. Irrigation is recommended two times per week. Frequency and amount of irrigation will be dependent upon climatic conditions and may require more or less frequency watering than two times per week.

Invasive Plant Control and Removal

Invasive species to be removed include Himalayan blackberry, reed canarygrass, and all listed noxious weeds. To ensure non-native invasive species do not expand following the mitigation actions, non-native invasive plants within the entire mitigation area will be pretreated with a root-killing herbicide approved for use in aquatic sites (e.g. Glyphosate 5.4 containing herbicide) a minimum of two weeks prior to being cleared and grubbed from the mitigation areas. A second application is strongly recommended. The pre-treatment with herbicide should occur prior to all planned mitigation actions, and spot treatment of surviving non-native invasive vegetation should be performed again each fall prior to senescence for a minimum of five years.

Critical Area Protection

Per KCC 21A.24.180, critical areas and their buffers shall remain undeveloped and shall be designated as native growth protection easements and long-term protection of the mitigation sites shall be provided by placement in separate tract in which development is prohibited or by execution of an easement dedicated to King County, a conservation organization, land trust, or similarly preserved through a permanent protective mechanism acceptable to the city. The location and limitations associated with the mitigation areas shall be shown on the face of the deed or plat applicable to the properties and shall be recorded with the King County recording department. In addition, the mitigation areas will have permanent markers and fencing as detailed under KCC 21A.24.160.

Abbreviated State and Federal Considerations

Wetland A, Streams Y and Z are likely regulated under Section 404 of the Clean Water Act (CWA) as tributaries to Puget Sound, which is a traditional navigable water. Additionally, Wetland A, Streams Y and Z are likely regulated by the Washington State Department of Ecology (WSDOE) as natural surface waters under RCW 90.48.

The proposed residential development will utilize stream buffer averaging in order to avoid direct impacts to both streams. As no impacts to the streams are anticipated, state and federal approvals related to aquatic resources are not anticipated.

Conclusions

SVC identified two watercourses (Stream Z and Stream Y) on the south and central portion of the subject property extending from west to east, within 300-feet from the proposed development. In addition, Wetland A was identified onsite between the confluence of Stream Z and Stream Y, and three likely non-regulated drainages were identified in the western portion of the site. No other wetlands, streams, or other fish and wildlife habitat conservation areas were identified on or within 300 feet of the subject property. Stream Z and Stream Y are Type F waters that are subject to a standard 165-foot buffer. Wetland A is subject to a 150-foot buffer. An additional 15-foot building setback is required from the edge of the critical area buffers.

The site investigation was conducted to support residential redevelopment of the subject property and associated infrastructure to include parking areas, utilities, and associated infrastructure. Through careful planning efforts, the proposed project avoids direct impacts to all onsite critical areas; however, buffer averaging associated with Stream Z is needed to provide adequate space for the proposed development. The proposed buffer averaging plan proposes a reduction of the buffer by approximately 7 percent, from 165 feet to 154 feet, in order to accommodate the proposed development. The necessary buffer averaging will result in a 1,068 square foot decrease in the center of the site, in the vicinity of the proposed residence, and a 1,974 square foot increase in the western portion of the site, for a net increase of 906 square feet of Stream Y and Z buffer area. Additionally, the Applicant proposes buffer restoration in the eastern portion of the site where the mobile homes currently are located, between Stream Z and the proposed development. This area will be replanted with native vegetation in order to improve buffer function. BMPs and TESC measures including orange construction fencing and silt fencing will be installed in order to prevent temporary impacts to the reduced buffer. These actions will result in a net gain in stream buffer ecological functions onsite.

If you have questions, please contact us at your earliest convenience.

Sincerely,

Alex Murphy, AICP
Project Manager/Senior Environmental Planner

September 13, 2023
Date

References

Anderson, P.S., S. Meyer, P. Olson, and E. Stockdale. 2016. *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State*. Publication No. 16-06-029. Final Review Draft. Shorelands and Environmental Assistance Program, Washington State Department of Ecology. Olympia, Washington.

Brinson, M. M. 1993. *A hydrogeomorphic classification for wetlands*, Technical Report WRP-DE-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Cowardin, L.M., V. Carter, F. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish & Wildlife Service. Washington D.C.

Ebird. N.d. Species Map. Website: https://ebird.org/map. Accessed January 5, 2023.

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual.* Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Federal Geographic Data Committee. 2013. Classification of Wetlands and Deepwater Habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC.

Hitchcock, C.L. & A. Cronquist, Ed. by D. Giblin, B. Ledger, P. Zika, and R. Olmstead. 2018. *Flora of the Pacific Northwest, 2nd Edition.* U.W Press and Burke Museum. Seattle, Washington.

Hruby, T. 2014. *Washington State Wetland Rating System for Western Washington – Revised.* Washington State Department of Ecology Publication #04-06-029

King County Code (KCC). 2022. King County Code Title 21A.24 – Critical Areas Regulations. Website: http://www.kingcounty.gov/council/legislation/kc_code/24_30_Title_21A.aspx. Updated September 9, 2022.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X

Munsell® Color, 2000. *Munsell® soil color charts.* New Windsor, New York.

Natural Resources Conservation Services (NRCS). N.d. *Soil Data Access Hydric Soils List* (Soil Data Access Live). Website: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1316620.html.

NRCS. 2018. *Field Indicators of Hydric Soils in the United States, Version 8.2*. L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

Shellberg, Jeffery. 2002. *Bull trout in western Washington*. January. Seattle, Washington.

Snyder, Dale E., Philip S. Gale, and Russell F. Pringle. 1973. *Soil Survey of King County Area, Washington.* Soil Conservation Service United States Department of Agriculture, Soil Conservation Service, in cooperation with the Washington Agricultural Experiment Station. Natural Resource Conservation Service.

U.S. Army Corps of Engineers (USACE). 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development

U.S. Army Corps of Engineers (USACE). 2008. *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States*. EPA/USACE. December 2, 2008.

USACE and Environmental Protection Agency (EPA). 2012. *Guidance on Identifying Waters Protected by the Clean Water Act*. EPA/USACE. February 17, 2012

USACE. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0*), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center. Vicksburg, Mississippi.

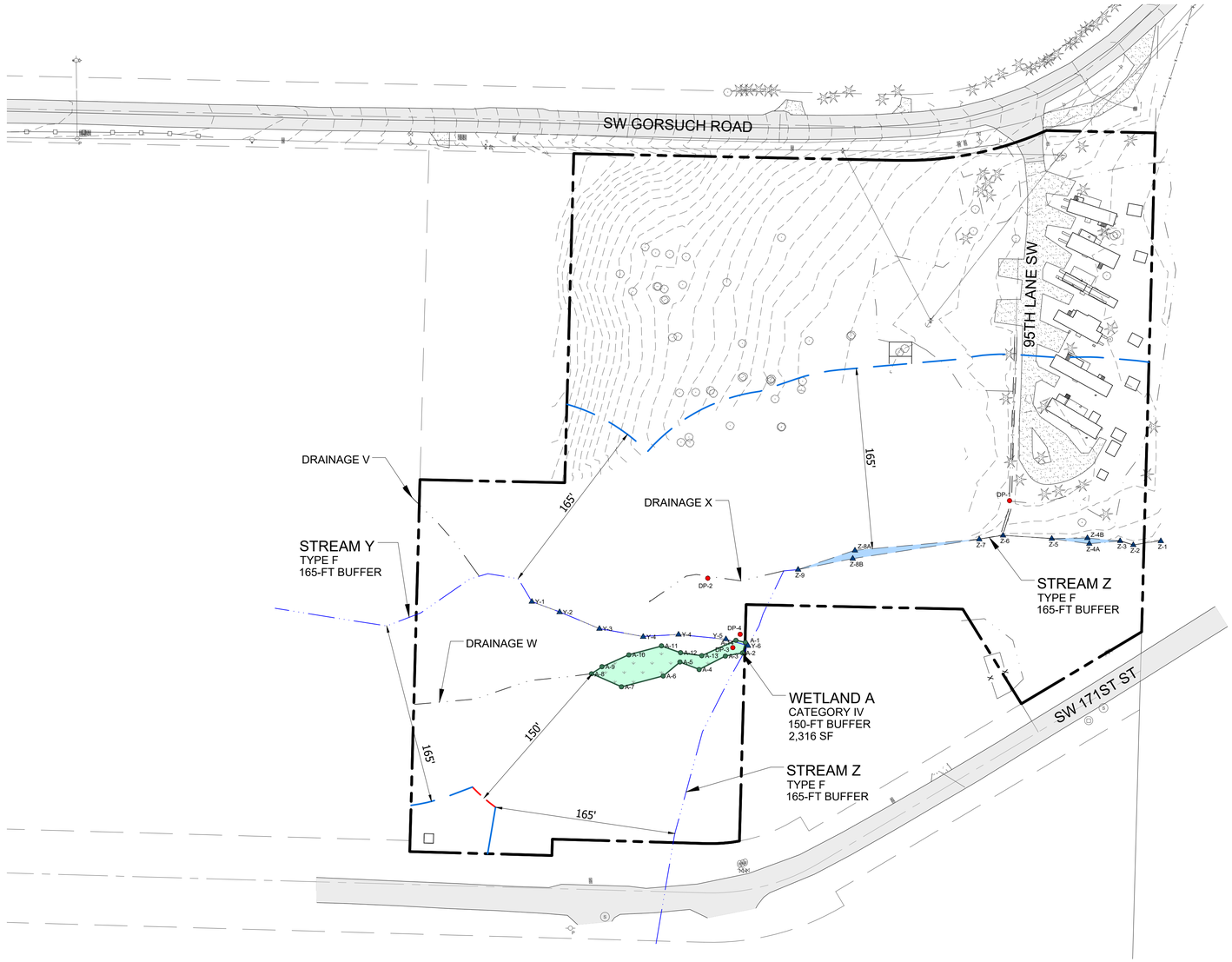
USACE. 2020. *National Wetland Plant List, version 3.5*. http://wetland-plants.usace.army.mil/

USFWS. 2015. *Recovery plan for the coterminous United States population of bull trout* (*Salvelinus confluentus*). Portland, Oregon. xii + 179 pages.

Washington Department of Fish and Wildlife (WDFW). 1991. *Management Recommendations for Washington's Priority Habitats and Species*. May 1991.

Wiles, G.J. and K.S. Kalasz, 2017. *Washington State Status Report for the yellow-billed cuckoo*. Washington Department of Fish and Wildlife. May 2017.

Attachment A – Site Plans



PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLAND BOUNDARY
- WETLAND BUFFER
- W-# WETLAND FLAG LOCATION
- DP-# DATA PLOT LOCATION
- STREAM CENTERLINE
- STREAM ORDINARY HIGH WATER LINE (OHW)
- STREAM ORDINARY HIGH WATER LINE (OHW)
- STREAM BUFFER
- O-# STREAM OHW (ORDINARY HIGH WATER) FLAG LOCATION
- DITCH CENTERLINE
- EXISTING CONTOUR
- T-# CONIFEROUS · T-# DECIDUOUS EXISTING TREES

VICINITY MAP

SOURCE: ESRI (ACCESSED 08/11/2023)

LOCATION

THE SW ¼ OF SECTION 29,

TOWNSHIP 23N, RANGE 3E, WM

APPLICANT/OWNER

NAME: SHELTER AMERICA GROUP
ADDRESS: 9620 SW BANK ROAD
VASHON, WA 98070
CONTACT: CHRISTOPHER BRIC
PHONE: (206) 552-4558
E-MAIL: CHRISTOPHER.BRIC@SHELTERAMERICAGROUP.ORG

ENVIRONMENTAL CONSULTANT

SOUNDVIEW CONSULTANTS LLC
2907 HARBORVIEW DRIVE
GIG HARBOR, WA 98355
(253) 514-8952

SHEET INDEX

PRELIMINARY
INFORMATION ONLY

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SOURCE: JAMESTOWN LAND SURVEY

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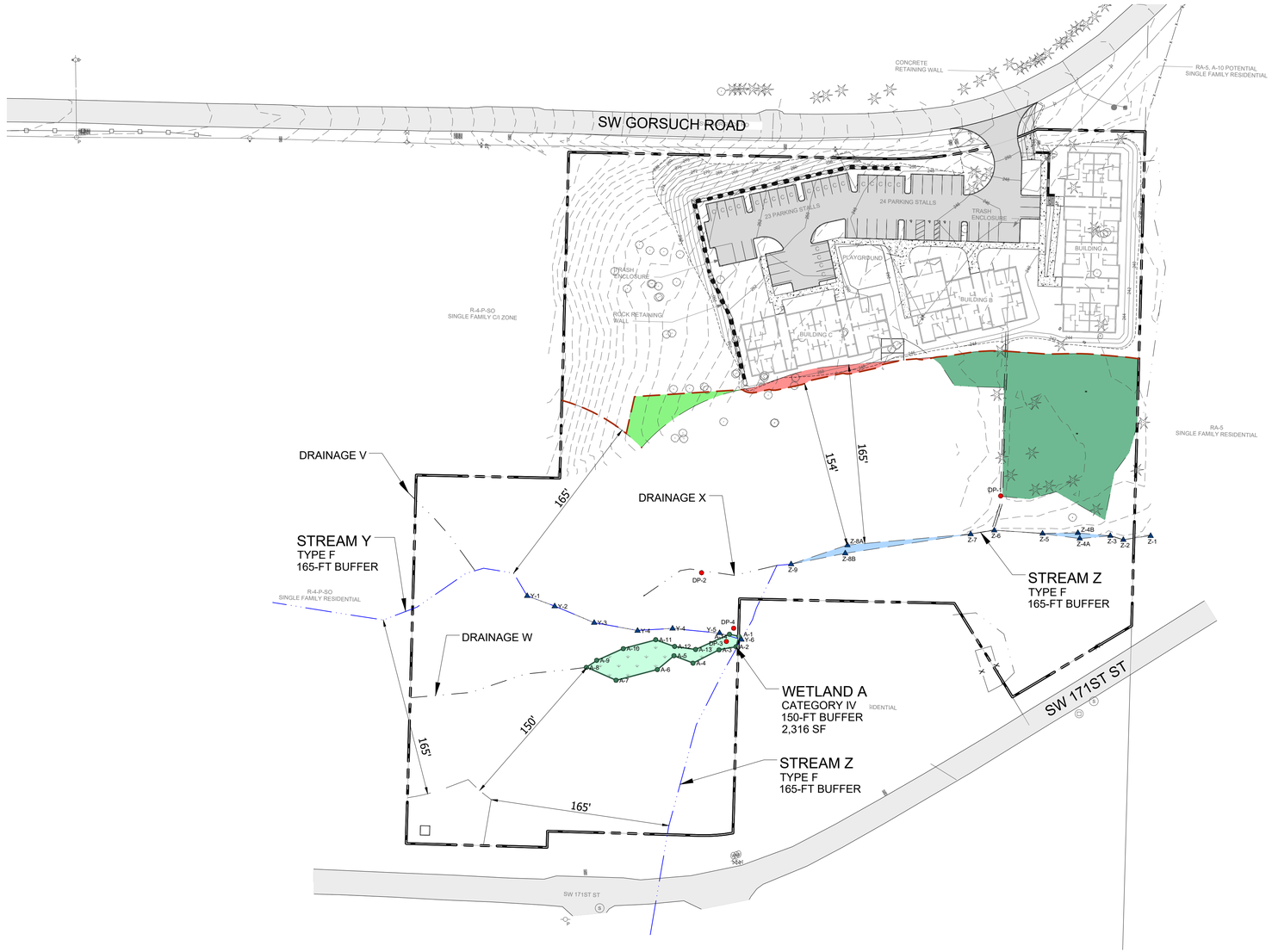
GIG HARBOR, WASHINGTON 98335 F. 253.514.8954
WWW.SOUNDVIEWCONSULTANTS.COM

CREEKSIDE VILLAGE
ON VASHON
16816 95TH LANE SW,
VASHON, WA 98070
KING COUNTY
PARCEL NUMBER(S):
2923039148

DATE: 08/23/2023
JOB: 2617.0001
BY: DS
SCALE: AS SHOWN
SHEET: 1

S:\CURRENT\2617 Shelter America Group\2617.0001 Creekside Village on Vashon\Graphics & Maps\CAD\A - CURRENT SVC PERMITS\A-1 Current Base DWGs\2617.0001 (2023-08) base.dwg
Plotted: August 23, 2023



0 60 120 240

GRAPHIC SCALE
1"= 60'

PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLAND BOUNDARY
- WETLAND BUFFER
- POST CONSTRUCTION BUFFER
- STREAM CENTERLINE
- STREAM ORDINARY HIGH WATER LINE (OHW)
- STREAM ORDINARY HIGH WATER LINE (OHW)
- STREAM BUFFER
- DITCH CENTERLINE
- PROPOSED CONTOUR
- EXISTING TREES (T-# CONIFEROUS - T-# DECIDUOUS)

BUFFER AVERAGING LEGEND

STREAM BUFFER

DECREASED STREAM BUFFER	1,068 SF
INCREASED STREAM BUFFER	1,974 SF
(STREAM BUFFER NET GAIN)	906 SF

MITIGATION LEGEND

BUFFER MITIGATION

BUFFER RESTORATION	17,410 SF

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BY: DS
SCALE: AS SHOWN
SHEET: 2

S:\CURRENT\2617 Shelter America Group\2617.0001 Creekside Village on Vashon\Graphics & Maps\CAD\A - CURRENT SVC PACKAGE\SHEET A Current Base DWGs\2617.0001 (2023-08) base.dwg
Plotted August 23, 2023

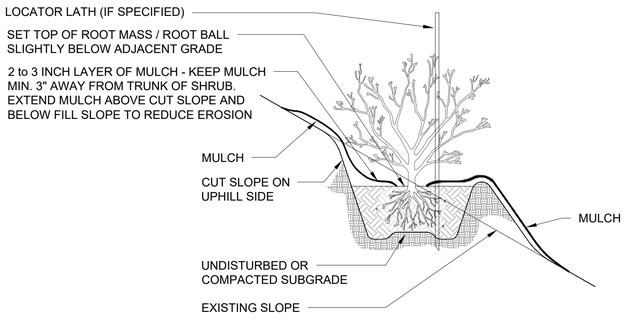
		Area (sf):	17,410				
		Cov'g (%):	100				
		Trees (%):	50				
		Shrubs (%):	50				
Scientific Name	**Common Name**	**WL Status**	**Buffer Restoration**	**Spacing (min.)**	**Height (min.)**	**Size (min.)**	**Planting Area**
TREES			**(Qty)**				
Acer macrophyllum	bigleaf maple	FACU	16	**10 ft**	**3 ft**	**2 gal**	**Dry**
Frangula purshiana (Rhamnus p.)	cascara	FAC	2	**10 ft**	**3 ft**	**1 gal**	**Dry**
Pseudotsuga menziesii	Douglas fir	FACU	35	**10 ft**	**3 ft**	**2 gal**	**Dry**
Thuja plicata	western redcedar	FAC	25	**10 ft**	**3 ft**	**2 gal**	**Moist - on hummock**
Tsuga heterophylla	western hemlock	FACU	24	**10 ft**	**3 ft**	**2 gal**	**Moist - on hummock**
		Total:	**102**				
SHRUBS			**(Qty)**				
Acer circinatum	vine maple	FAC	11	**10 ft**	**4 ft**	**2 gal**	**Dry/Moist**
Corylus cornuta var. californica	western hazlenut	FACU	8	**10 ft**	**2 ft**	**2 gal**	**Moist**
Gaultheria shallon	salal	FACU	183	**4 ft**	**1 ft**	**1 gal**	**Dry**
Holodiscus discolor	oceanspray	FACU	16	**5 ft**	**2 ft**	**1 gal**	**Dry**
Mahonia nervosa	low Oregon grape	FACU	55	**4 ft**	**1 ft**	**1 gal**	**Dry/Moist**
Polystichum munitum	western swordfern	FACU	80	**4 ft**	**1 ft**	**1 gal**	**Dry/Moist**
Rosa gymnocarpa	bald hip rose	FACU	5	**4 ft**	**2 ft**	**1 gal**	**Dry/Moist**
Rubus leucodermis	whitebark raspberry	FACU	10	**5 ft**	**2 ft**	**1 gal**	**Moist**
Rubus spectabilis var. spectabilis	salmonberry	FAC	20	**4 ft**	**2 ft**	**1 gal**	**Moist**
Vaccinium parvifolium	red huckleberry	FACU	20	**4 ft**	**18 in**	**1 gal**	**Dry**
		Total:	**408**				
SEED MIXES (www.riverrefugeseed.com)		**WL Status**	**Buffer Restoration**				
Native Upland Grass Mix #9	**20 lbs/acre**		**(Qty)**				
Elymus glaucus	Blue wildrye	30%					
Bromus carinatus	California brome	25%					
Hordeum brachyantherum	Meadow barley	10%					
Festuca roemeri	Roemer's fescue	10%					
Deschampsia elongata	Slender hairgrass	10%					
Agrostis exarata	Spike bentgrass	5%					
Deschampsia cespitosa	Tufted hairgrass	5%					
Festuca rubra var. rubra	Red fescue	5%					
		Total (lbs):	**8**				

1 - Scientific names and species identification taken from *Flora of the Pacific Northwest, 2nd Edition (Hitchcock and Cronquist, Ed. by Giblin, Ledger, Zika, and Olmstead, 2018).*
2 - Over-sized container plants are suitable for replacement pending Wetland Scientist approval.
3 - Alternate native plant species may be substituted or added with Wetland Scientist approval.
4 - All disturbed and bare soil areas in the buffer to be seeded with a native grass seed mix.
5 - Shrub calculations based upon 5-ft average spacing.
6 - Tree calculations based upon 10-ft average spacing.
7 - *Gaultheria shallon* , *Mahonia nervosa* , & *Polystichum munitum* to be planted in groups of 3 to 5 around the base of new trees and in areas of sparse vegetation

PLANT SCHEDULE

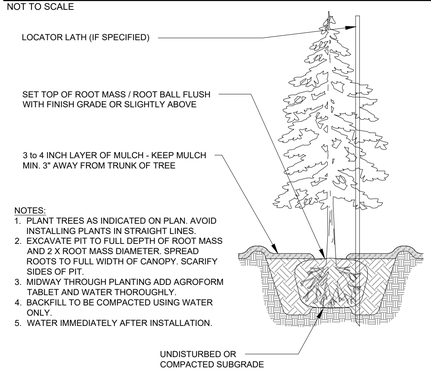
TREE AND SHRUB PLANTING ON STEEP SLOPE

NOT TO SCALE



CONIFEROUS TREE PLANTING DETAIL (TYPICAL)

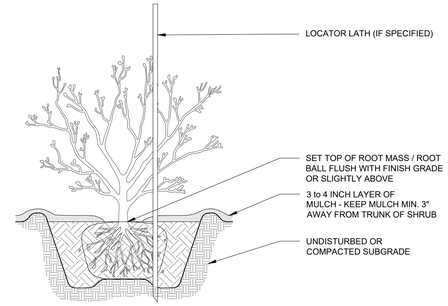
NOT TO SCALE



NOTES:
1. PLANT TREES AS INDICATED ON PLAN. AVOID INSTALLING PLANTS IN STRAIGHT LINES.
2. EXCAVATE PIT TO FULL DEPTH OF ROOT MASS AND 2 X ROOT MASS DIAMETER. SPREAD ROOTS TO FULL WIDTH OF CANOPY. SCARIFY SIDES OF PIT.
3. MIDWAY THROUGH PLANTING ADD AGROFORM TABLET AND WATER THOROUGHLY.
4. BACKFILL TO BE COMPACTED USING WATER ONLY.
5. WATER IMMEDIATELY AFTER INSTALLATION.

TREE AND SHRUB PLANTING DETAIL (TYPICAL)

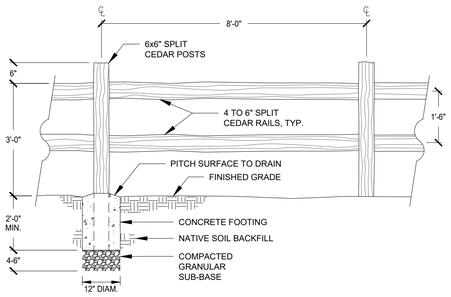
NOT TO SCALE



NOTES:
1. PLANT SHRUBS OF THE SAME SPECIES IN GROUPS OF 3 to 9 AS APPROPRIATE, OR AS SHOWN ON PLAN. AVOID INSTALLING PLANTS IN STRAIGHT LINES TO ACHIEVE A NATURAL-LOOKING LAYOUT.
2. EXCAVATE PIT TO FULL DEPTH OF ROOT MASS AND 2 X ROOT MASS DIAMETER. SPREAD ROOTS TO FULL WIDTH OF CANOPY. SCARIFY SIDES OF PIT.
3. MIDWAY THROUGH PLANTING ADD AGROFORM TABLET AND WATER THOROUGHLY.
4. BACKFILL TO BE COMPACTED USING WATER ONLY.
5. WATER IMMEDIATELY AFTER INSTALLATION.

SPLIT RAIL FENCE DETAIL

NOT TO SCALE

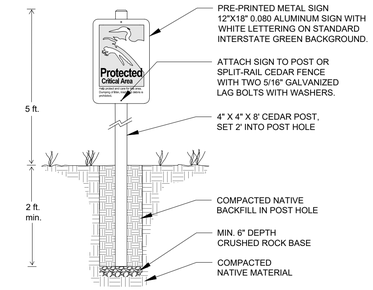


NOTES:

1. POSTS AND RAILINGS PRE-CUT FOR ASSEMBLY.
2. 3-RAIL DESIGNS ARE PERMITTED.
3. FENCE SHALL BE PLACED AT APPROVED BUFFER EDGE.

CRITICAL AREA SIGN DETAIL

NOT TO SCALE



CRITICAL AREA BOUNDARY SIGN NOTES:
1. THE WETLAND/STREAM SIGN SHALL BE POSTED AT THE BOUNDARY BETWEEN THE LOT AND THE CRITICAL AREA.
2. ONE SIGN SHALL BE POSTED PER RESIDENTIAL LOT AND ONE SIGN PER 100 FEET FOR ALL PUBLIC RIGHTS-OF-WAY, TRAILS, PARKING AREAS, PLAYGROUNDS, AND ALL OTHER USES LOCATED ADJACENT TO WETLANDS AND ASSOCIATED BUFFERS.
3. PRE-PRINTED METAL SIGN AVAILABLE THROUGH:
ZUMAR INDUSTRIES
PHONE: 1-800-426-7967,
WEBSITE: WWW.ZUMAR.COM

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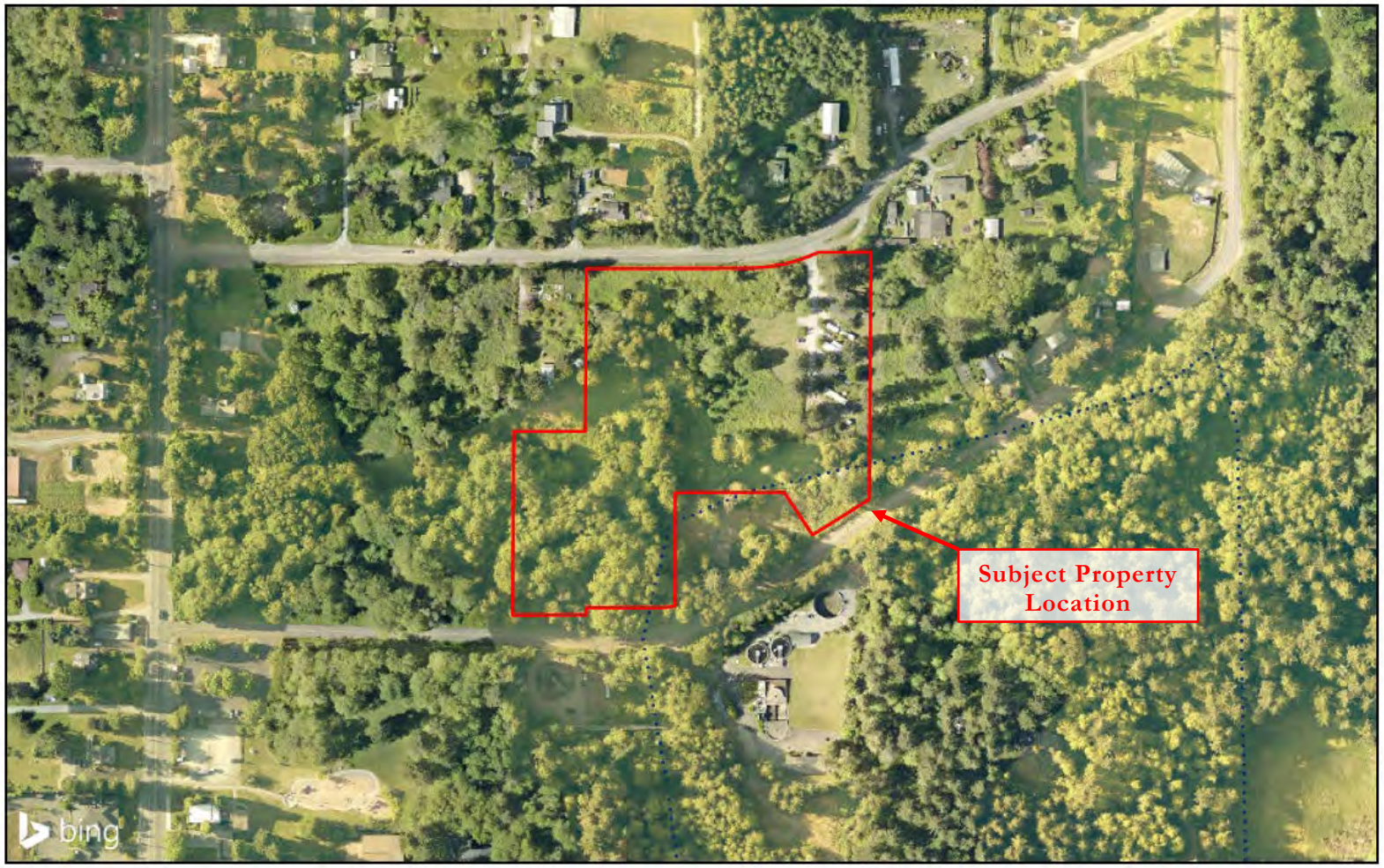
SHEET: 3

S:\CURRENT\2617 Shelter America Group\2617.0001 Creekside Village on Vashon\Graphics & Maps\CAD\A - CURRENT SYC PROPOSAL (Current Base DWGs\2617.0001 (2023-08) basic.dwg
Plotted August 03, 2023

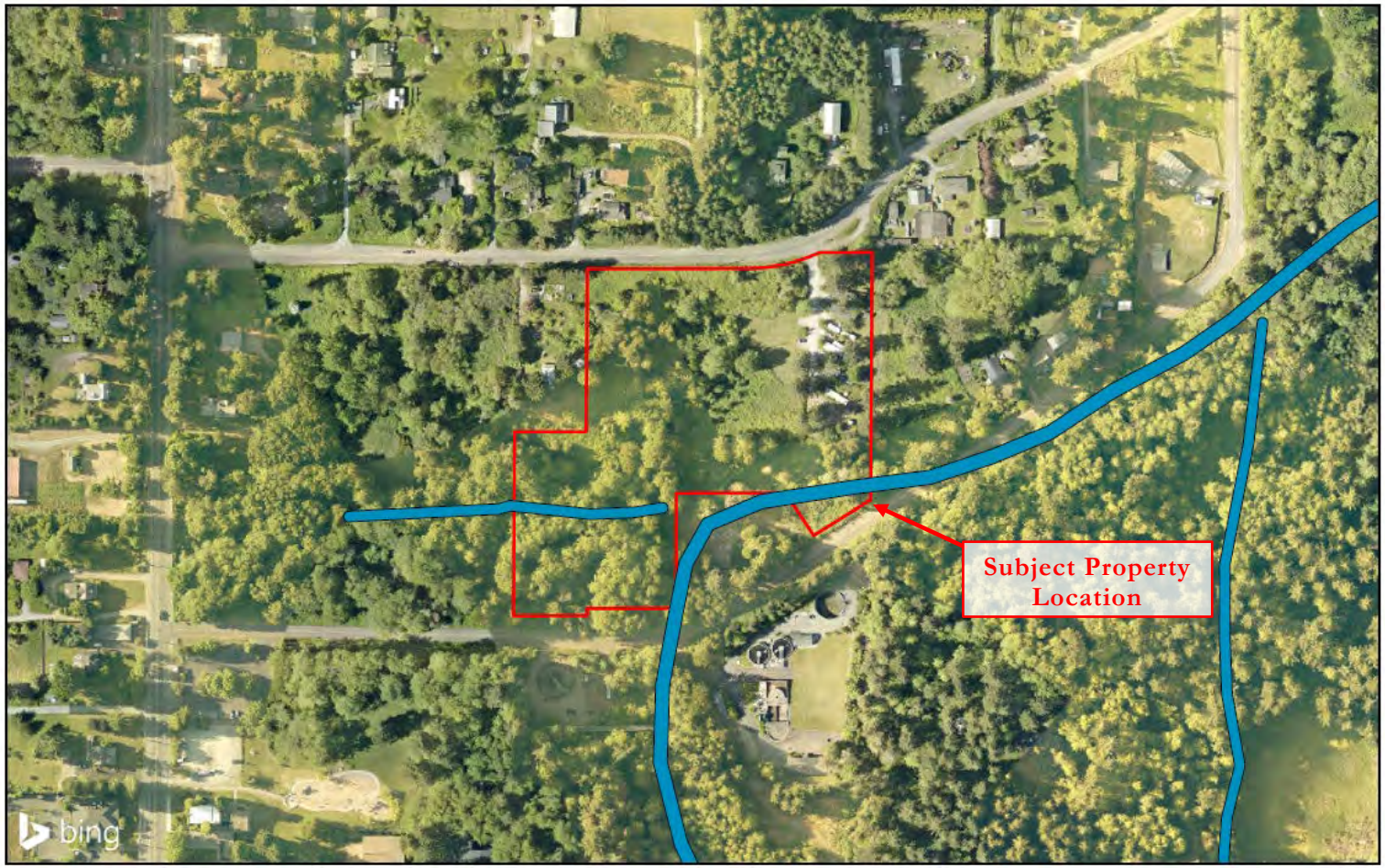
Attachment B – Background Information

This attachment includes: King County Stream and Wetland Inventory (B1); USFWS NWI Map (B2), DNR Stream Typing Map (B3), WDFW PHS Map (B4), WDFW and NWIFC SWIFD Map (B5); NRCS Soil Survey Map (B6); and King County Contours Map (B7).

Attachment B1 – King County Stream and Wetland Inventory



Attachment B2 – USFWS NWI Map



6/23/2023, 9:40:00 AM

National Wetland Inventory (NWI) - Wetlands

King County - Parcels _Query result

Riverine

1:4,514

0 140 280 560 ft

0 40 80 160 m

Pictometry, King County, © 2023 Microsoft Corporation © 2023 Maxar ©CNES (2023) Distribution Airbus DS © 2023 TomTom

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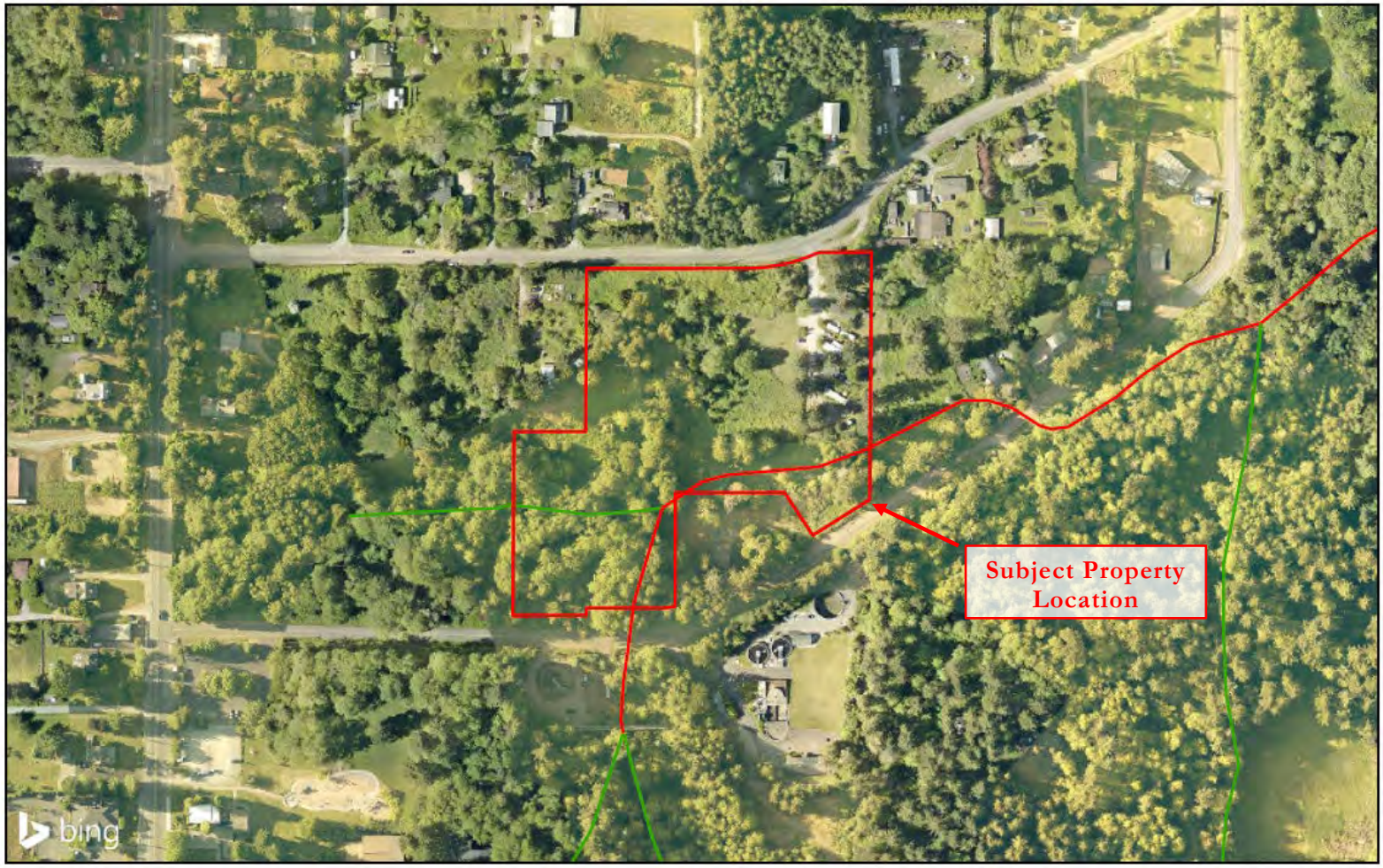
Attachment B3 – DNR Stream Typing Map



6/23/2023, 9:32:51 AM

King County - Parcels _Query result

Type N, Np, Ns

DNR - Stream Typing - Watercourses (DNR)

Type F

1:4,514

0 140 280 560 ft

0 40 80 160 m

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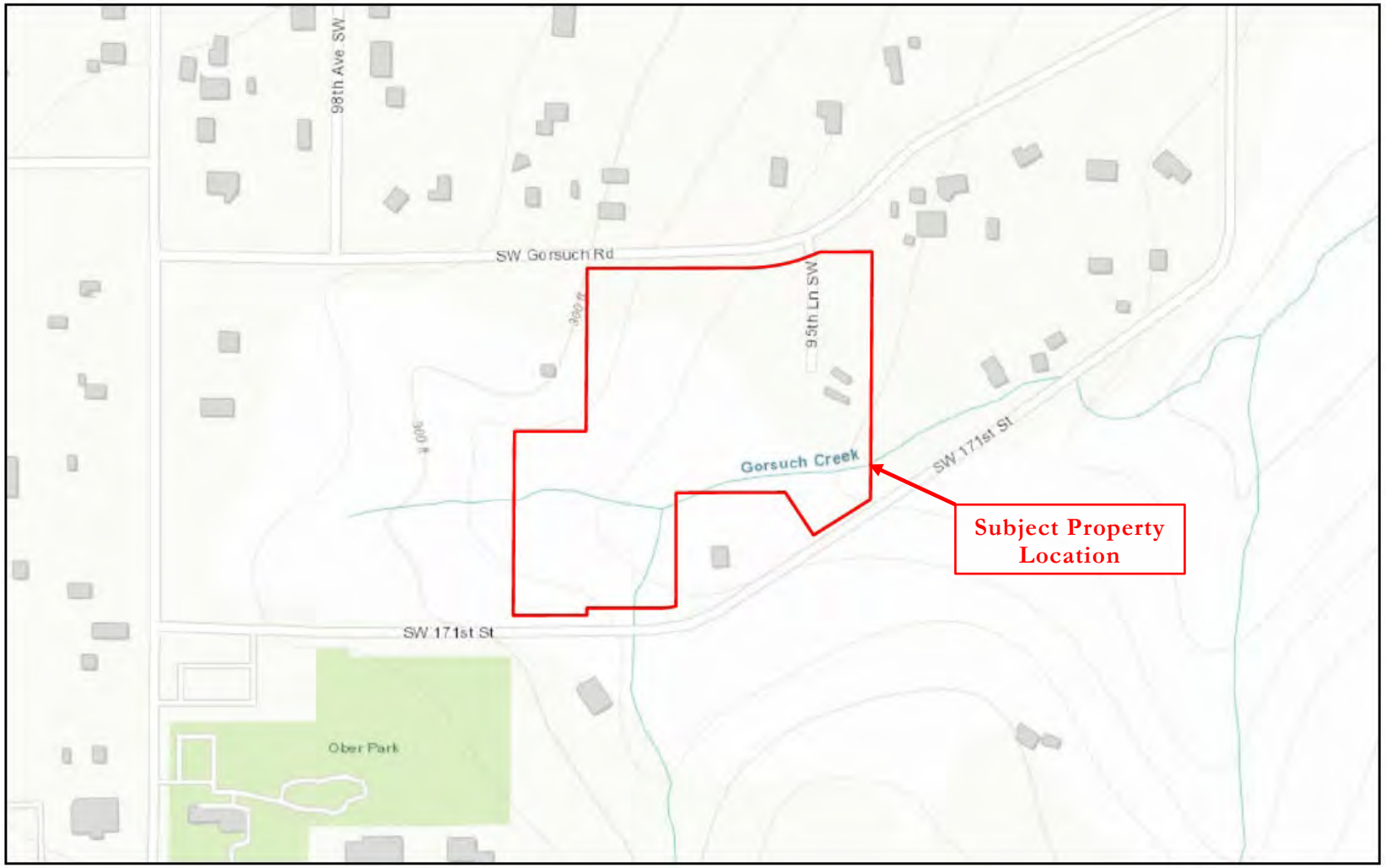
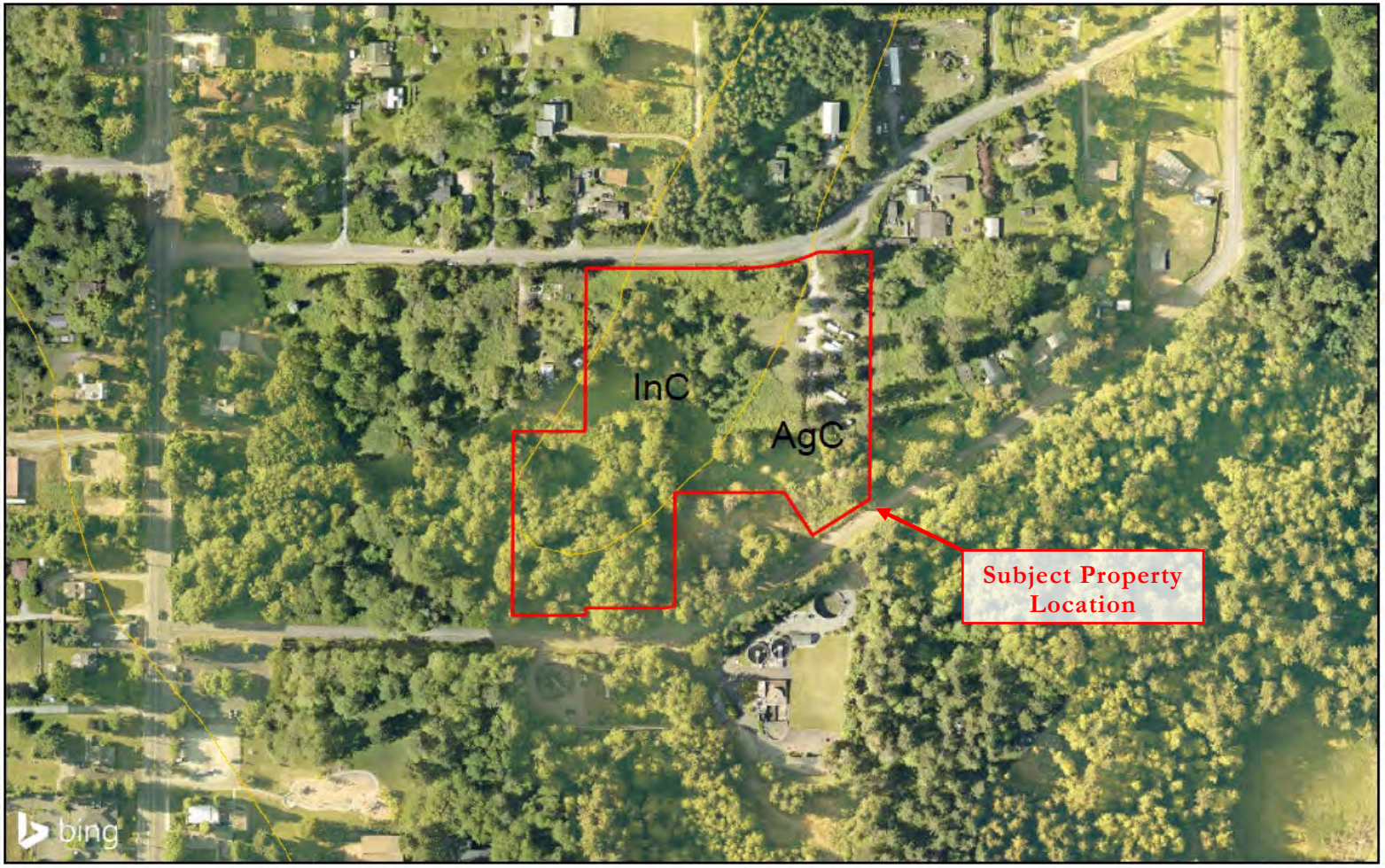
Attachment B4 – WDFW PHS Map

Attachment B5 – WDFW and NWIFC SWIFD Map



Attachment B6 – NRCS Soil Survey Map



6/23/2023, 9:26:51 AM

King County - Parcels _Query result

USA Soils Map Units

AgC- Alderwood gravelly sandy loam, 8 to 15 percent slopes

InC- Indianola loamy sand, 5 to 15 percent slopes

1:4,514

0 140 280 560 ft

0 40 80 160 m

Pictometry, King County, Source: USDA NRCS, Esri, © 2023 Microsoft Corporation © 2023 Maxar ©CNES (2023) Distribution Airbus DS © 2023

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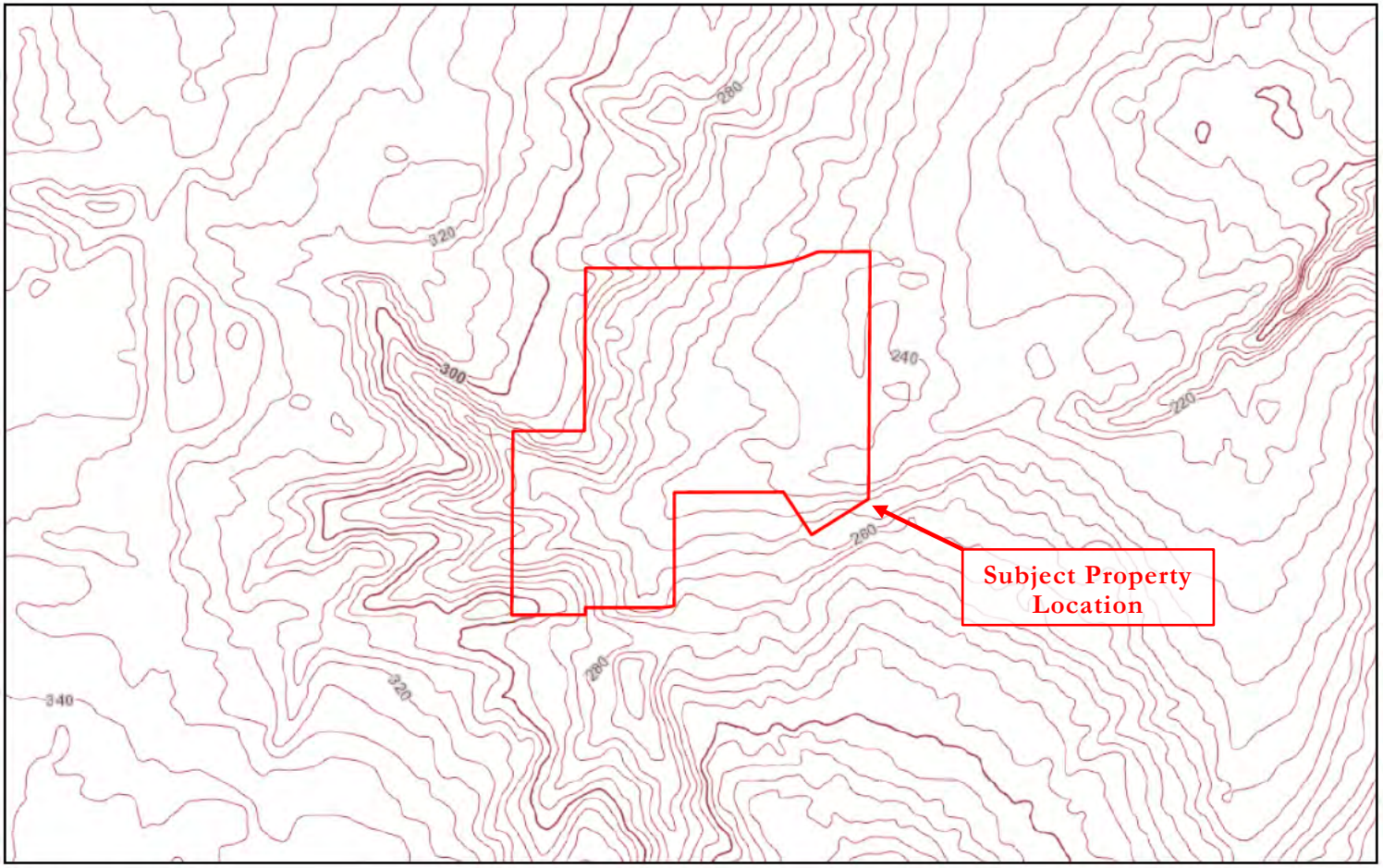
Attachment B7 – King County Contours Map



Attachment C – Data Forms

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

Project/Site: 2617.0001- Creekside Village on Vashon City/County: Vashon Island / King Sampling Date: 6/28/2023

Applicant/Owner: Shelter America Group – Christopher Bric State: WA Sampling Point: DP-1

Investigator(s): Carolina Lizana, Shauna Willet Section, Township, Range: 29/ 23N / 3E

Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): A2 Lat: 47.453332 Long: -122.45560092 Datum: WGS 84

Soil Map Unit Name: Alderwood gravelly sandy loam, 8 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 ☐ No ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks:
No wetland criteria met. Data plot located close to the drainage in the central-east portion of the subject property.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	10	Yes	FACU
2.			
3.			
4.			
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30 ft)			
1. Rubus armeniacus	30	Yes	FAC
2.			
3.			
4.			
5.			
	30	= Total Cover	
Herb Stratum (Plot size: 10 ft)			
1. Polystichum munitum	25	Yes	FACU
2. Hieracium spp.	15	Yes	FACU
3. Tanacetum vulgare	7	No	FACU
4. Poa pratensis	5	No	FAC
5. Digitalis purpurea	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	57	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 43

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:
No hydrophytic vegetation criteria met. Dominance test failed. Prevalence index not warranted due to lack of combined hydric soil and hydrology criteria.

SOIL

Sampling Point: DP-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 12	10YR 3/3	100	-	-	-	-	GrSiLo	Gravelly silt loam
12 - 14	10YR 5/4	100	-	-	-	-	GrSiLo	Gravelly silt loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: N/A

Depth (inches): --

Hydric Soil Present? Yes ☐ No ☒

Remarks:

No hydric soil criteria met.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): None

Water Table Present? Yes ☐ No ☒ Depth (inches): None

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): None

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

No hydrology criteria met.

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

Project/Site: 2617.0001- Creekside Village on Vashon City/County: Vashon Island / King Sampling Date: 6/28/2023

Applicant/Owner: Shelter America Group – Christopher Bric State: WA Sampling Point: DP-2

Investigator(s): Carolina Lizana, Shauna Willet Section, Township, Range: 29/ 23N / 3E

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): A2 Lat: 47.453079 Long: -122.45677182 Datum: WGS 84

Soil Map Unit Name: Indianola loamy sand, 5 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 ☒ No ☐ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks:
Not all three wetland criteria met, only hydrophytic vegetation. Data plot located in the central portion of the subject property.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	60	Yes	FAC
2.			
3.			
4.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30 ft)			
1. Rubus spectabilis	15	Yes	FAC
2. Urtica dioica	10	Yes	FAC
3. Oemleria cerasiformis	5	No	FACU
4.			
5.			
	30	= Total Cover	
Herb Stratum (Plot size: 10 ft)			
1. Polystichum munitum	25	Yes	FACU
2. Tolmiea menziesii	15	Yes	FAC
3. Rubus armeniacus	10	No	FACU
4. Rubus ursinus	5	No	FACU
5. Osmorhiza berteroi	3	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	58	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 42

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:
Hydrophotic vegetation present due to dominance test

SOIL

Sampling Point: DP-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 14	10YR 3/2	100	-	-	-	-	GrSiLo	Gravelly Silt Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: N/A

Depth (inches): --

Hydric Soil Present? Yes ☐ No ☒

Remarks:

No hydric soils criteria met.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): none

Water Table Present? Yes ☐ No ☒ Depth (inches): none

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): none

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

Location meets secondary indicator D2, however, two secondary indicators are required to meet hydrology criteria. Therefore, no wetland hydrology criteria met.

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

Project/Site: 2617.0001- Creekside Village on Vashon City/County: Vashon Island / King Sampling Date: 6/28/2023

Applicant/Owner: Shelter America Group – Christopher Bric State: WA Sampling Point: DP-3

Investigator(s): Carolina Lizana, Shauna Willet Section, Township, Range: 29/ 23N / 3E

Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): A2 Lat: 47.452915 Long: -122.45659917 Datum: WGS 84

Soil Map Unit Name: Alderwood gravelly sandy loam, 8 to 15 percent slopes NWI classification: Riverine

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 ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks:
All three wetland criteria met. Data plot located in Wetland A in the central portion of the subject property.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30 ft)			
1. Rubus spectabilis	10	Yes	FAC
2.			
3.			
4.			
5.			
	10	= Total Cover	
Herb Stratum (Plot size: 10 ft)			
1. Symphytum asperum	35	Yes	FAC
2. Equisetum arvense	20	Yes	FAC
3. Urtica dioica	20	Yes	FAC
4. Athyrium cyclosorum	15	No	FAC
5. Phalaris arundinacea	10	No	FACW
6. Galium aparine	2	No	FACU
7. Stachys chamissonis	2	No	FACW
8.			
9.			
10.			
11.			
	104	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:
Hydrophytic vegetation criteria met through dominance test.

SOIL

Sampling Point: DP-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 14	10YR 2/1	93	10YR 3/6	7	C	M	GrSiLo	Gravelly Silt Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: N/A

Depth (inches): --

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydric soils criteria met through F6 indicator.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): None

Water Table Present? Yes ☒ No ☐ Depth (inches): 7

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): 4

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Hydrology criteria met through primary indicators A2 and A3.

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

Project/Site: 2617.0001- Creekside Village on Vashon City/County: Vashon Island / King Sampling Date: 6/28/2023

Applicant/Owner: Shelter America Group – Christopher Bric State: WA Sampling Point: DP-4

Investigator(s): Carolina Lizana, Shauna Willet Section, Township, Range: 29/ 23N / 3E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): A2 Lat: 47.452953 Long: -122.45659422 Datum: WGS 84

Soil Map Unit Name: Alderwood gravelly sandy loam, 8 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 ☒ No ☐ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks:
Only one wetland criteria met due to the presence of FAC vegetation. Data plot located north of Wetland A in an upland area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	80	Yes	FAC
2. Crataegus douglasii	5	No	FAC
3.			
4.			
	85	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30 ft)			
1. Ilex aquifolium	3	Yes	FACU
2.			
3.			
4.			
5.			
	3	= Total Cover	
Herb Stratum (Plot size: 10 ft)			
1. Urtica dioica	50	Yes	FAC
2. Rubus armeniacus	45	Yes	FAC
3. Stachys chamissonis	4	No	FACW
4. Equisetum arvense	1	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks:
Hydrophotic vegetation present due to dominance test

SOIL

Sampling Point: DP-4

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 14	10YR 3/2	100	-	-	-	-	SaLo	Sandy Loam
14 - 16	10YR 3/2	98	5YR 4/6	2	C	M	SaLo	Sandy Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: N/A

Depth (inches): --

Hydric Soil Present? Yes ☐ No ☒

Remarks:

No hydric soils criteria met. Redox in second layer begins too deep (>8") and is not abundant enough (<5%) to meet F6 requirements.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): None

Water Table Present? Yes ☐ No ☒ Depth (inches): None

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): None

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

No hydrology criteria met.

Attachment D – Wetland Rating Forms

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): A Date of site visit: 6-28-2023

Rated by Shauna Willett Trained by Ecology? ✔ Yes ___No Date of training_____

HGM Class used for rating Depressional Wetland has multiple HGM classes?___Y ✔ N

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

Source of base aerial photo/map ESRI ArcGIS

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	
		Circle the appropriate ratings		
Site Potential	M	L	M	
Landscape Potential	M	M	M	
Value	H	L	H	**TOTAL**
Score Based on Ratings	7	4	7	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	N/A

Wetland name or number 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	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
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)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

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 *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	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 *(can be added to another figure)*	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 (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	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	

Wetland name or number A

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 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 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). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	1
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	0
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 points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0	5
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	0
Total for D 1 Add the points in the boxes above	6

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	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	0
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	1
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? Source_____ Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	1

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	1
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	1
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	0
Total for D 3 Add the points in the boxes above	2

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

NOTES and FIELD OBSERVATIONS:

Wetland name or number 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	0
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 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	0
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	3
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	3

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	0
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	1

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):

- 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

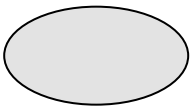
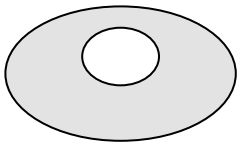
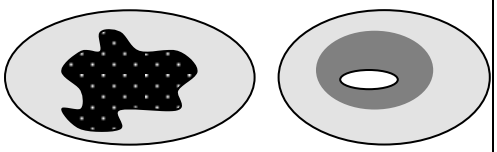
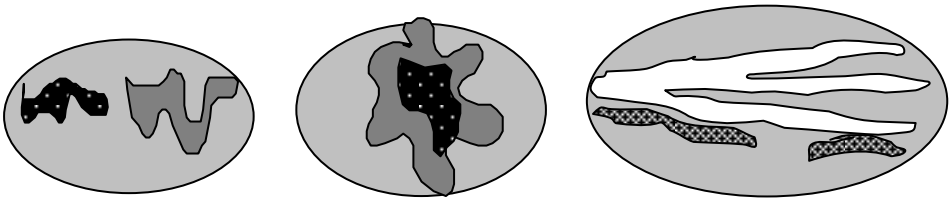
0

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	0

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

Wetland name or number 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	4
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 ft^2. *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 All three diagrams in this row are **HIGH** = 3points 	2

Wetland name or number A

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* __x__Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____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) ____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 *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* __x__Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 Add the points in the boxes above	10

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?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* [1.53] % undisturbed habitat **+** [(% moderate and low intensity land uses) [0.27] /2] **=** 1.665 % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* [32.71] % undisturbed habitat **+** [(% moderate and low intensity land uses) [38.77] /2] **=** 52.095 % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	3

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 __x__ 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	2

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

Wetland name or number 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*).

X **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*).

X **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.

X **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 A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
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 ☐ Yes –Go to **SC 1.1** ☒ No= **Not an estuarine wetland**	
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? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
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 *Spartina*, 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 un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category 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? ☐ Yes **– Go to SC 2.2** ☒ No **– Go to SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes **= Category I** ☒ No **= Not a WHCV** 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 ☐ Yes **– Contact WNHP/WDNR and go to SC 2.4** ☒ No **= Not a WHCV** 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? ☐ Yes **= Category I** ☒ No **= Not a WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** 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? ☐ Yes – Go to **SC 3.3** ☒ No – Go to **SC 3.2** 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? ☐ Yes – Go to **SC 3.3** ☒ No = **Is not a bog** 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? ☐ Yes = **Is a Category I bog** ☐ No – Go to **SC 3.4** **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? ☐ Yes = **Is a Category I bog** ☐ No **= Is not a bog**	

Wetland name or number A

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

- **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).

☐Yes **= Category I** ☒No **= Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

- 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 *(needs to be measured near the bottom)*

☐Yes – Go to **SC 5.1** ☒No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

- 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 un-mowed grassland.
- The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐Yes = **Category I** ☐No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

- 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

☐Yes – Go to **SC 6.1** ☒No = **not an interdunal wetland for rating**

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**

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**

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**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

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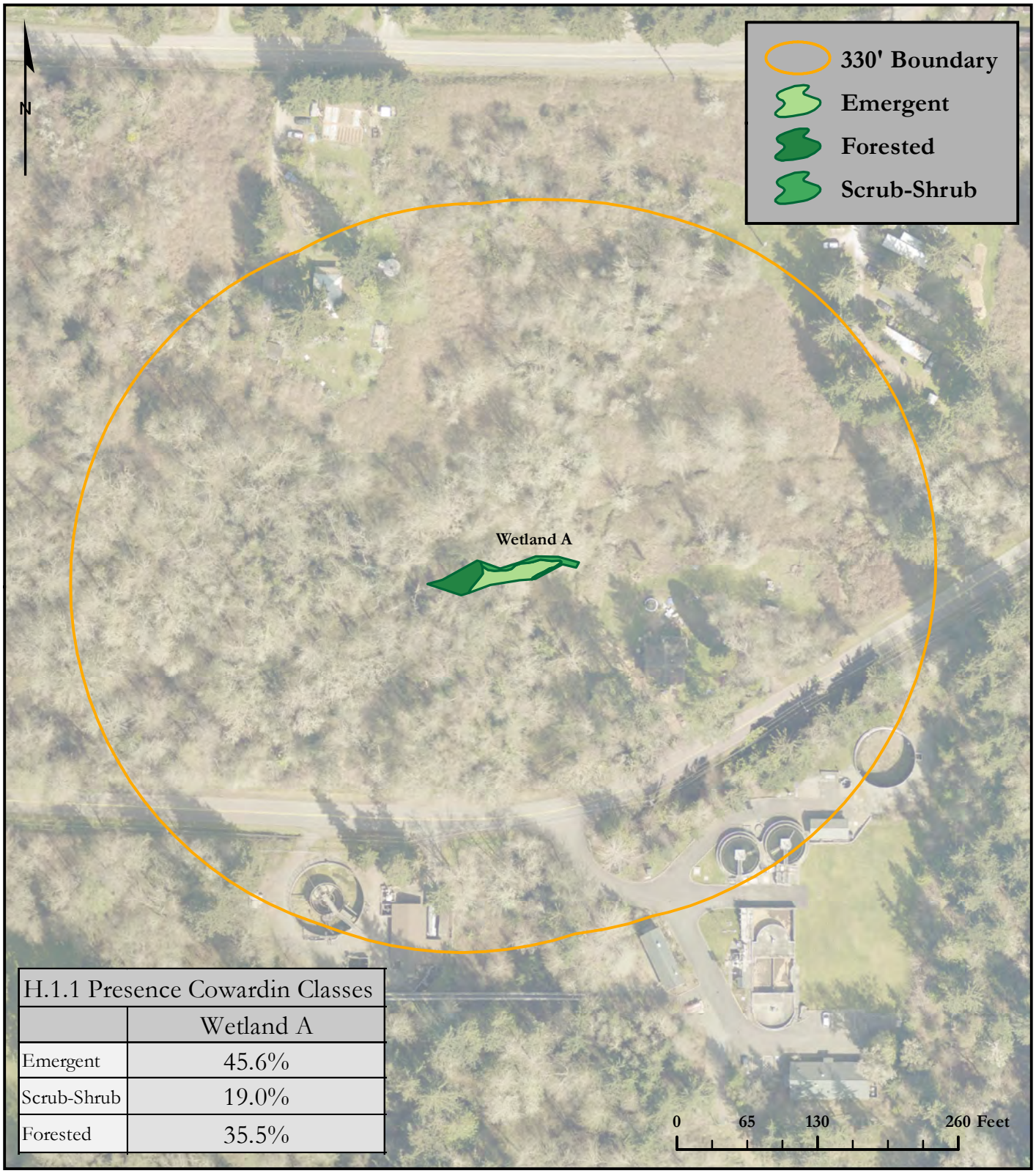
Attachment E – Wetland Rating Figures

COWARDIN MAP



H.1.1 Presence Cowardin Classes	
	Wetland A
Emergent	45.6%
Scrub-Shrub	19.0%
Forested	35.5%

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www.soundviewconsultants.com

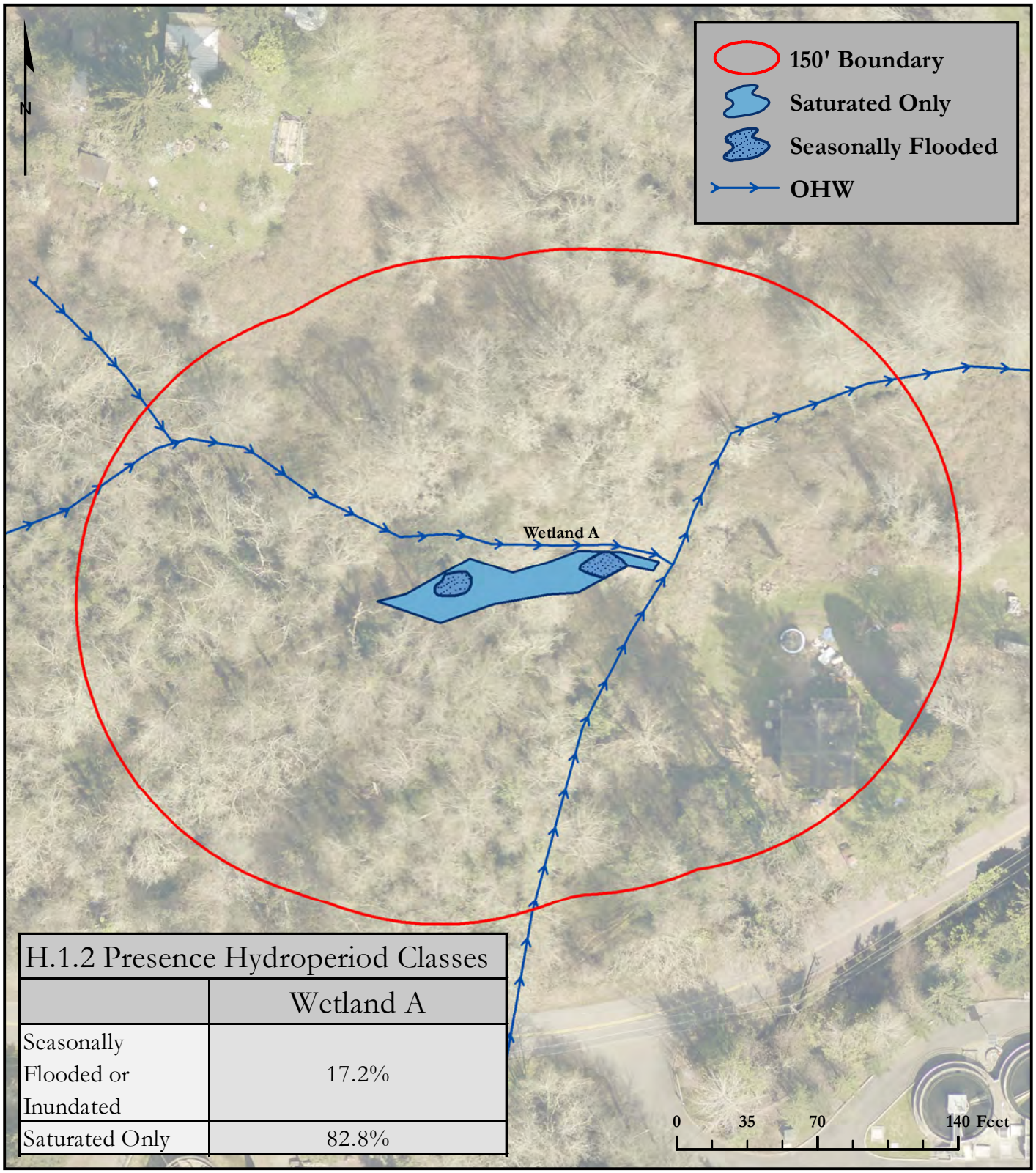
CREEKSIDE VILLAGE ON VASHON

16816 95TH LANE SW
VASHON, WA 98070

KING COUNTY PARCEL NUMBER:
2923039148

DATE: 8/17/2023
JOB: 2617.0001
BY: DDS
SCALE: 1 " = 130 '
FIGURE NO. 1 of 6

HYDROPERIOD MAP



H.1.2 Presence Hydroperiod Classes	
	Wetland A
Seasonally Flooded or Inundated	17.2%
Saturated Only	82.8%

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KING COUNTY PARCEL NUMBER:
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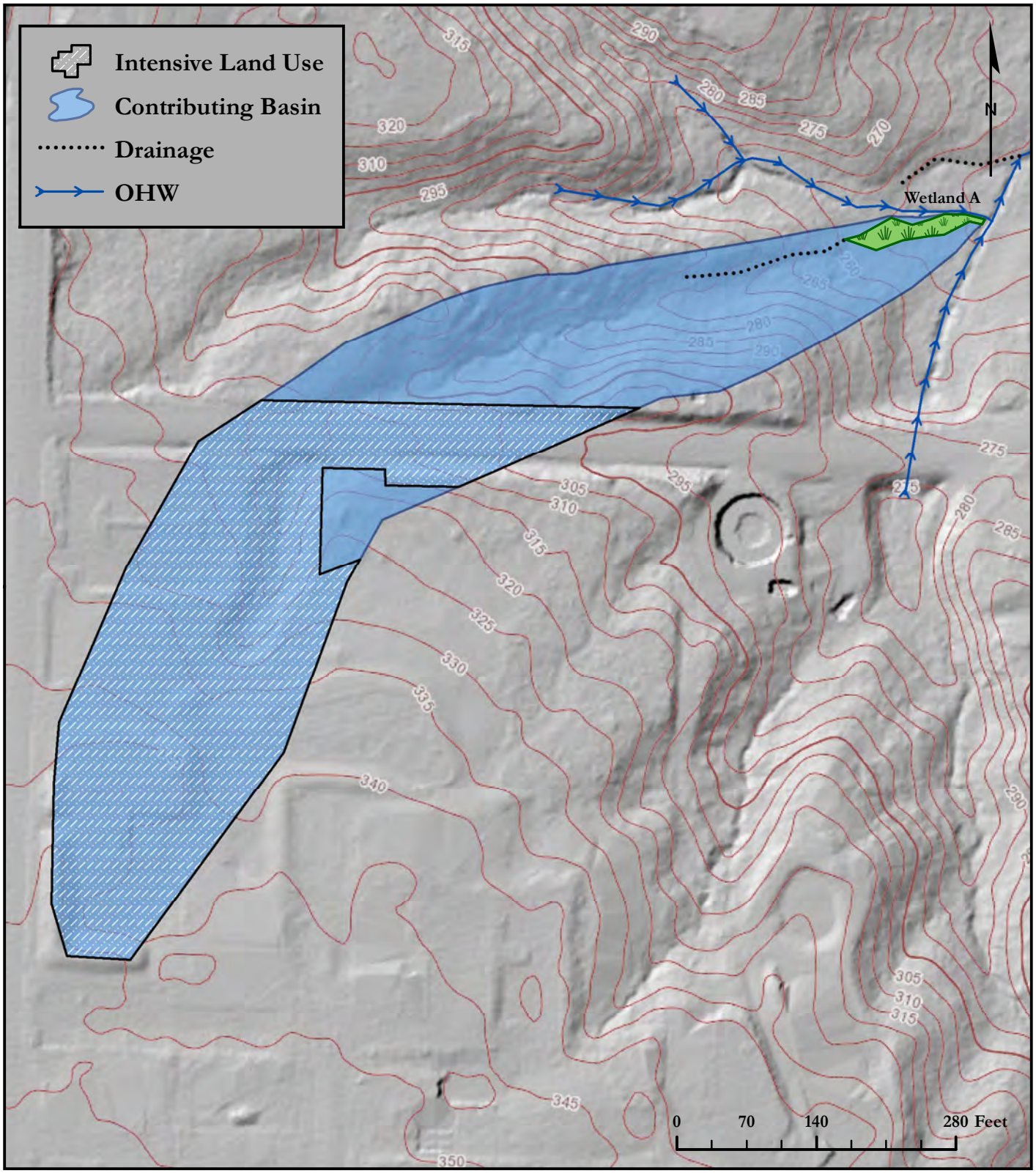
DATE: 8/17/2023
JOB: 2617.0001
BY: DDS
SCALE: 1 " = 70 '
FIGURE NO. 2 of 6

CONTRIBUTING BASIN MAP



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KING COUNTY PARCEL NUMBER:
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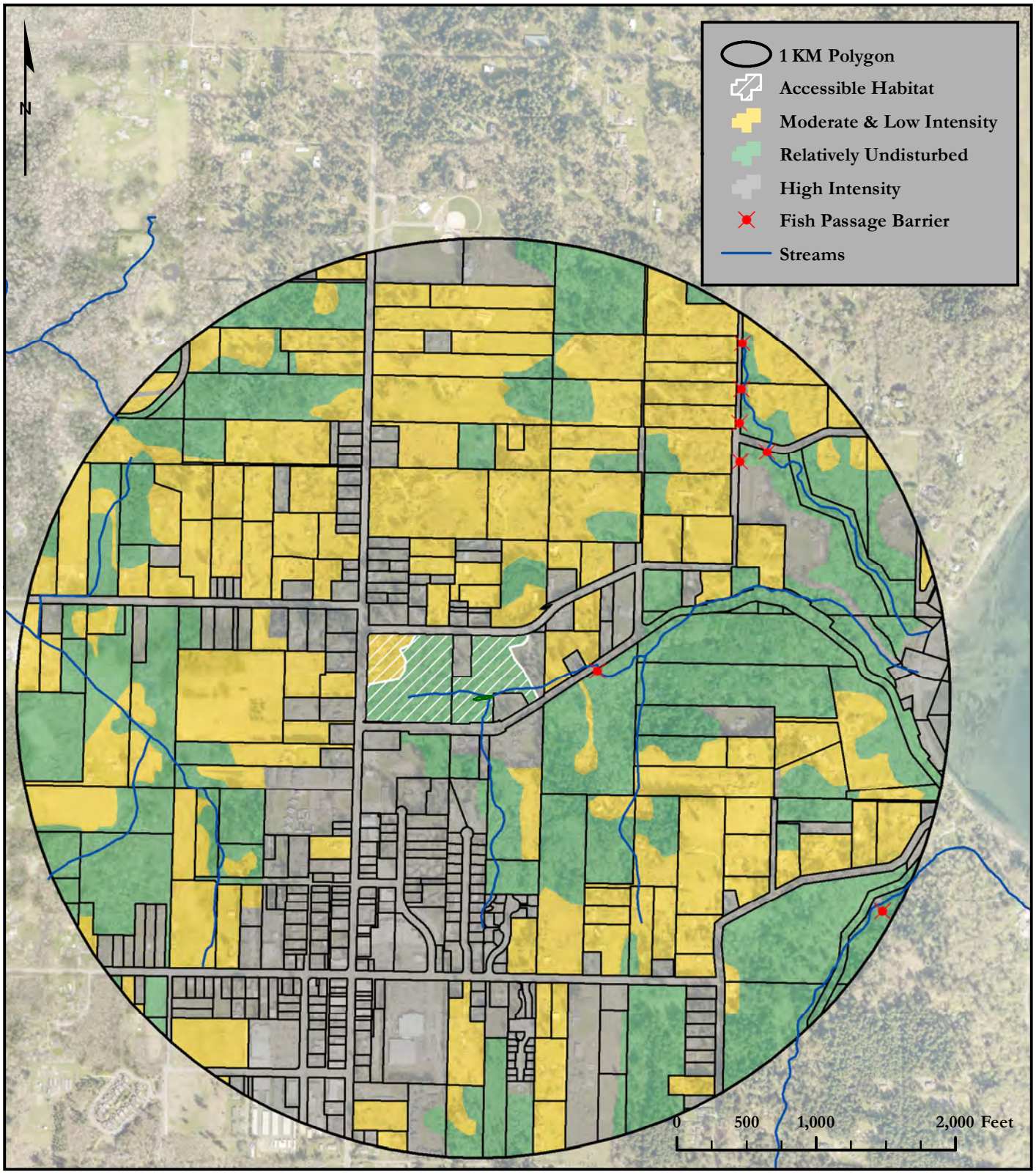
DATE:	8/17/2023
JOB:	2617.0001
BY:	DDS
SCALE:	1 " = 141 '
FIGURE NO.	3 of 6

HABITAT MAP



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KING COUNTY PARCEL NUMBER:
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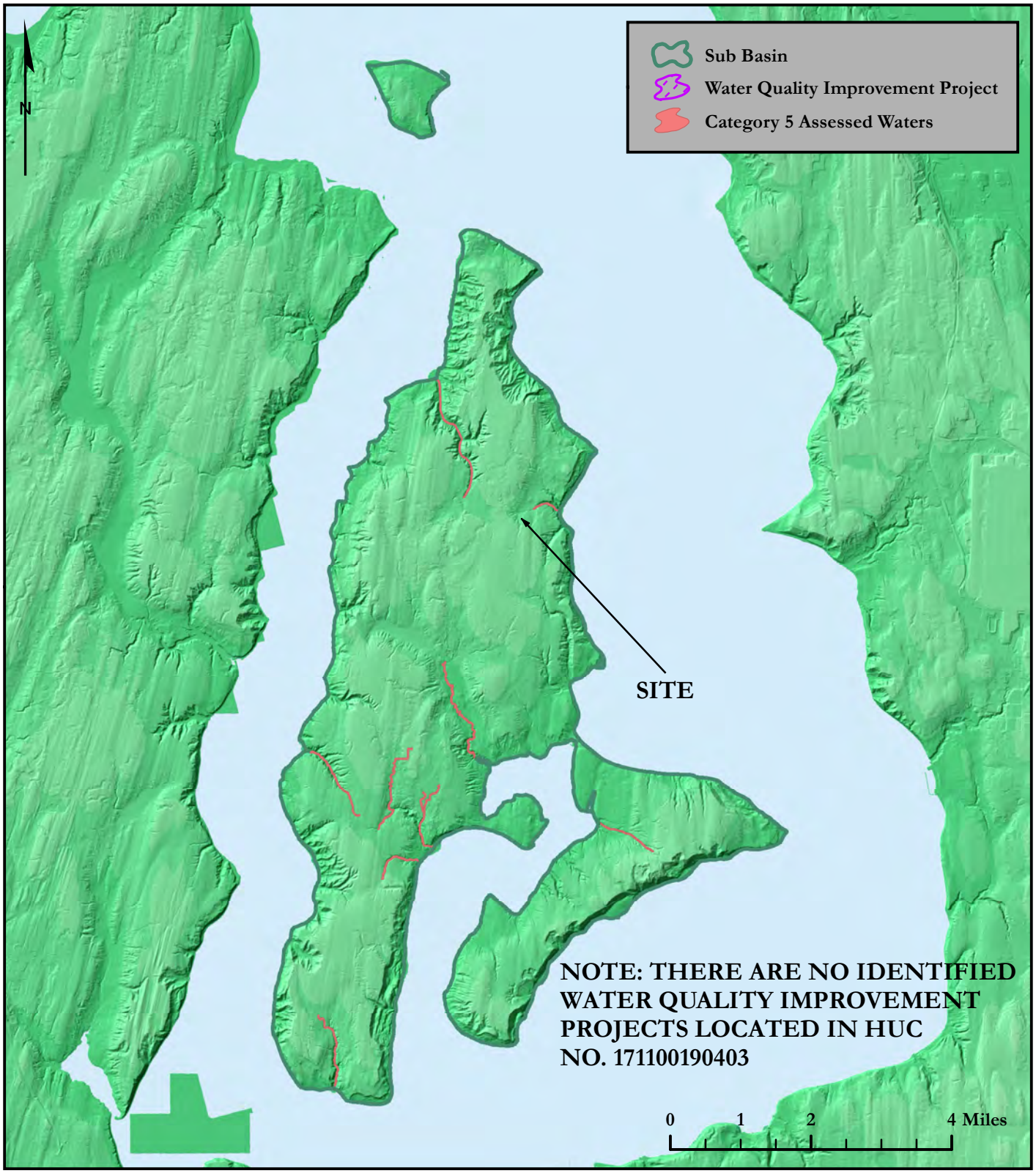
DATE:	8/17/2023
JOB:	2617.0001
BY:	DDS
SCALE:	1 " = 1,010 '
FIGURE NO.	4 of 6

303(D) MAP



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KING COUNTY PARCEL NUMBER:
2923039148

DATE:	8/17/2023
JOB:	2617.0001
BY:	DDS
SCALE:	1 " = 2 mi
FIGURE NO.	5 of 6

CONTRIBUTING BASIN DATA:

D.4		
D.4.3		
	Area of Contributing Basin (SF)	195,584
	Area of Wetland A (SF)	2,106
	Percent of Wetland A within Contributing Basin	**1.077%**
D.5.0		
D.5.3		
	Area of Contributing Basin	195,584
	Area of Intensive Human Land Uses	116,739
	Percent of Intensive Human Land Use within Contributing Basin	**60%**

HABITAT DATA:

H.2		
H.2.1	Wetland A	
	Abutting Undisturbed Habitat	1.53%
	Abutting Moderate & Low Intensity Land Uses	0.27%
	Accessible Habitat	**1.67%**
H.2.2		
	Undisturbed Habitat	32.71%
	Moderate & Low Intensity Land Uses	38.77%
	Undisturbed Habitat in 1 KM Polygon	**52.09%**
H.2.3		
	High Intensity Land Use in 1 KM Polygon	**28.53%**

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16816 95TH LANE SW
VASHON, WA 98070

KING COUNTY PARCEL NUMBER:
2923039148

DATE: 8/17/2023
JOB: 2617.0001
BY: DDS
SCALE: NONE
FIGURE NO. 6 of 6

Attachment F – Site Photographs

Drainage feature along DP-1

General Upland Conditions

Confluence between Stream Z and Stream Y

Confluence between Stream Z and Stream Y

Stream Z

General Upland conditions along DP-4

Attachment G – Qualifications

All field inspections, jurisdictional wetland determinations, habitat assessments, and supporting documentation, including this ***Wetland and Fish and Wildlife Habitat Assessment and Buffer Modification Plan*** prepared for the ***Creekside Village on Vashon*** site were prepared by, or under the direction of, Alex Murphy of SVC. In addition, site inspections were performed by Carolina Lizana and Shauna Willett, and report preparation was completed by Carolina Lizana. Final quality assurance was completed by Rachael Hyland.

Alex Murphy, AICP

Project Manager / Senior Environmental Planner
Professional Experience: 8 years

Alex Murphy is a Planner and Project Manager with a background in land use planning, site planning & design, permitting, and project management. He has over 7 years of experience working for local jurisdictions in the Intermountain West and Pacific Northwest with an emphasis on maximizing opportunities for culturally and environmentally sensitive projects.
Alex earned a Bachelor of Landscape Architecture degree from Utah State University. He is a Certified Planner through the American Institute of Certified Planners and has received formal training in climate adaptation planning for coastal communities from NOAA. Mr. Murphy currently assists in wetland, stream, and shoreline delineations and fish and wildlife habitat assessments; conducts environmental code analysis; and prepares environmental assessment and mitigation reports. He also manages development projects, supporting clients through the regulatory and planning process for various land use proposals.

Rachael Hyland, PWS, Certified Ecologist

Senior Environmental Scientist
Professional Experience: 10 years

Rachael Hyland is a Senior Environmental Scientist with extensive wetland and stream delineation and regulatory coordination experience. Rachael has a background in wetland and ecological habitat assessments in various states, most notably Washington, Connecticut, Massachusetts, Rhode Island, and Ohio. She has experience in assessing wetland, stream, riparian, and tidal systems, as well as complicated agricultural and disturbed sites. She currently performs wetland, stream, and shoreline delineations and fish and wildlife habitat assessments; conducts environmental code analysis; and prepares environmental assessment and mitigation reports, biological evaluations, and permit applications to support clients through the regulatory and planning process for various land use projects. She also has extensive knowledge of bats and their associated habitats and white nose syndrome (*Pseudogymnoascus destructans*), a fungal disease affecting bats which was recently documented in Washington.

Rachael earned a Bachelor of Science degree in Ecology and Evolutionary Biology from the University of Connecticut, with additional ecology studies at the graduate level. Rachael is a Professional Wetland Scientist (PWS #3480) through the Society of Wetland Scientists as well as a Certified Ecologist through the Ecological Society of America. She has completed 40-hour wetland delineation training for Western Mountains, Valleys, & Coast and Arid West Regional Supplement, in addition to formal training for the Northcentral and Northeast supplement, and experience with the Midwest, Eastern Mountains and Piedmont, and Atlantic and Gulf Coast supplements. She has also received formal

training from the Washington State Department of Ecology in the Using the Revised 2014 Wetland Rating System for Western Washington, How to Determine the Ordinary High Water Mark, Navigating SEPA, Selecting Wetland Mitigation Sites Using a Watershed Approach, and Wetland Classification. Rachael has also received training from the Washington State Department of Transportation in Biological Assessment Preparation for Transportation Projects and is listed by WSDOT as a junior author for preparing Biological Assessments.

Carolina Lizana, MS, WPIT

Environmental Scientist
Professional Experience: 5 years

Carolina Lizana is a Wetland Scientist with a background in Natural Resources Engineering in Chile and Washington State. Carolina earned her Bachelor of Science degree in Engineering with Environmental specialization from Universidad De Chile. She successfully completed the Certificate in Wetland Science and Management from the University of Washington. In addition, she has a Master of Science degree in Civil and Environmental Engineering at the University of Washington, Seattle. In Chile, she worked in a research lab, studying restoration processes in an old growth forest region and socio-ecological factors. She has published research articles in local and international peer-reviewed journals, with a focus on landscape ecology.

Her education and experience have provided her with extensive knowledge on watershed ecology, remote sensing, GIS, water quality modeling, fluvial geomorphology and wetland monitoring. Currently, Carolina assists in wetland, stream and shoreline delineations and fish and wildlife habitat assessments; conducts environmental code analysis; and prepares environmental assessment and mitigation reports, biological evaluations, and permit applications. Carolina has been formally trained through the Washington State Department of Ecology, Coastal Training Program, Using the Washington State Wetland Rating System, and she is also a Wetland Professional In-Training (WPIT) through the Society of Wetland Scientists.

Shauna Willett

Certified Arborist and Environmental Scientist
Professional Experience: 16 years

Shauna Willett is an Environmental Scientist and ISA Certified Arborist. She has performed individual tree assessments, tree inventories and environmental assessments of many habitats including oak woodlands, forests, riparian corridors, and wetlands of the Puget Sound region and throughout California. She has worked as a consulting arborist in the residential, commercial, and utility sectors of arboriculture where she conducted preventative maintenance inspections of distribution and high voltage transmission lines for Puget Sound Energy. This assessment work has involved field identification of tree and plant species, pest and disease diagnosis, and data collection and analysis in public and private sectors. Her research background is highly varied, spanning the fields of agriculture, horticulture, nutrition - domestically and internationally, aquatic toxicology and urban forestry. Shauna earned a Bachelor of Science degree in Landscape Architecture from the University of California, Davis, with a focus on the relationship between communities and their urban forest ecosystems. She received her master's degree in geography with a dual emphasis in urban forestry and landscape architecture at the University of California, Davis. Her research focused on the validity of tree inventory data collected by volunteers using the iTree forestry analysis and benefits assessment tools developed by USDA Forest Service. Shauna is a Tree Risk Assessment Qualified (ISA) arborist. She has extensive knowledge on local plant taxonomy and ecological vegetative indicators.

Shauna currently performs tree assessments, wetland and stream delineations, fish, and wildlife habitat assessments; conducts environmental code analysis; creates and modifies maps and tree surveys using AutoCAD, prepares environmental assessment and mitigation reports, biological evaluations, and permit applications to support clients through the regulatory and planning process for various land use projects. She has been formally trained by the Washington State Department of Ecology in the use of the Washington State Wetland Rating System.