11. Wetland and Habitat

CRITICAL AREAS REPORT

July 3, 2024

Camas Parcel 178140000

Camas, Washington

Clark County

Prepared for

HSR Capital, LLC
19120 SE 34th St. # 103
Vancouver, WA 98683
(360) 513-6516

Prepared by

Ecological Land Services, Inc.

1157 3rd Avenue, Suite 220A • Longview, WA 98632

(360) 578-1371 • Project Number 3341.11

SIGNATURE PAGE

The information in this report was prepared under the supervision and direction of the undersigned:

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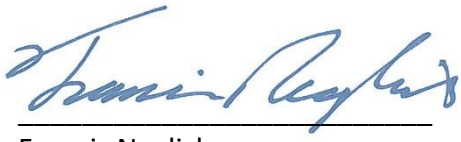

Francis Naglich
Sr. Wetland Biologist/Principal

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INTRODUCTION

This critical areas report has been prepared by Ecological Land Services, Inc. (ELS) on behalf of HSR Capital, LLC for the assessment of Clark County Parcel Number 178140000. The approximately 26.1-acre site is located just north of Camas High School in the City of Camas in Clark County, Washington. The site falls within the northeast quarter of Section 35, Township 2 North, Range 3 East of the Willamette Meridian (Figure 1). This report summarizes the findings of critical areas onsite in accordance with the *City of Camas Municipal Code (CMC) Title 16 – Environment* (December 2023).

SITE DESCRIPTION

The site is located just east of SE 271st Avenue and just north of Camas High School (Figures 1 and 2). A powerline easement intersects the site from the northwest boundary to the central eastern boundary with vegetation primarily comprised of occasionally mowed pasture grasses and scattered shrubs. The site is fenced, with an approximately 15-foot-wide unimproved path that follows the entire boundary of the site for site and fence maintenance, and vegetation within this path consists of regularly mowed pasture grasses. Vegetation in the interior of the site is forested with deciduous and coniferous trees forming the canopy, and understory consisting of shrubs and herbaceous species. Topography onsite gradually slopes downward in elevation from the center of the site to a depression in the northeast corner of the site where Wetland A is located, and slopes gently downward in elevation toward the southwest corner of the site. The site is vacant and undeveloped. Surrounding land use is primarily low-density residential and is forested to the north, east, and west, and Camas High School is located directly to the south. Oregon white oak (*Quercus garryana*) trees were observed in the northeastern and central portions of the site, and a snag was observed in the western central portion of the site (Figure 2).

METHODOLOGY

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

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

"Waters of the United States" by the Corps, as "Waters of the State" by the Washington Department of Ecology (Ecology), and locally by the City of Camas.

ELS biologists conducted a site visit on August 26, 2022 to collect vegetation, soils, and hydrology data, and to make determinations about the presence or absence of critical areas onsite. ELS identified and delineated one wetland onsite, identified in this report as Wetland A (Figure 2). Wetland boundaries were flagged with consecutively numbered pink tape flagging labeled "WETLAND BOUNDARY." Vegetation, hydrology, and soil data were collected from four test plots (TPs) to determine presence or absence of wetland indicators (Appendix A). Test plot locations were identified using orange flagging tape. Wetland flags and test plot locations were recorded with a handheld GPS unit and a Global Navigation Satellite System receiver capable of submeter accuracy.

VEGETATION

Below, the plant indicator statuses following each plant scientific name are defined by the National Wetland Plant List Indicator Rating Definitions (Corps 2012) and can be found in Appendix A.

WETLAND

The wetland onsite has diverse vegetation including emergent, scrub-shrub, and forested strata. Dominant wetland vegetation includes **trees:** red alder (*Alnus rubra*, FAC), **shrubs:** Douglas spiraea (*Spiraea douglasii*, FACW), hooker willow (*Salix hookeriana*, FACW), and Sitka willow (*Salix sitchensis*, FACW), and **herbs:** soft stem bulrush (*Schoenoplectus tabernaemontani*, OBL), marsh seedbox (*Ludwigia palustris*, OBL), spotted lady's thumb (*Polygonum persicaria*, OBL), reed canarygrass (*Phalaris arundinacea*, FACW), and spadderdock (*Nuphar lutea*, OBL).

UPLANDS

The uplands onsite have diverse vegetation including emergent, scrub-shrub, forested, and woody vine strata. Dominant upland vegetation includes **trees:** red alder, English hawthorn (*Crataegus monogyna*, FAC), Douglas fir (*Pseudotsuga menziesii*, FACU), and Oregon ash (*Fraxinus latifolia*, FACW), **shrubs:** Douglas spiraea, snowberry (*Symphoricarpos albus*, FACU), salal (*Gaultheria shallon*, FACU), Nootka rose (*Rosa nutkana*, FAC), Pacific crabapple (*Malus fusca*, FACW), cascara buckthorn (*Frangula purshiana*, FAC), and thimbleberry (*Rubus parviflorus*, FACU), **herbs:** reed canarygrass, Oregon willowherb (*Epilobium oregonense*, FACW), bracken fern (*Pteridium aquilinum*, FACU), and trailing blackberry (*Rubus ursinus*, FACU), and evergreen blackberry (*Rubus laciniatus*, FACU), and **woody vines:** Himalayan blackberry (*Rubus armeniacus*, FAC).

SOILS

The National Resources Conservation Service (NRCS 2024a) map depicts three soil units onsite: Hesson clay loam, 0 to 8 percent slopes (HcB), Odne silt loam, 0 to 8 percent slopes (OdB), and

Washougal gravelly loam, 8 to 30 percent slopes (WgE) (Figure 3). Wetland determination data forms are in Appendix A.

HcB is characterized as a well-drained soil with a moderately high capacity for the most limiting layer to transmit water, and an average depth to water table of more than 80 inches below ground surface (BGS). This soil is generally formed on terraces and is formed from alluvium. A typical profile includes clay loam from 0 to 12 inches BGS and clay from 12 to 60 inches BGS. HcB is in Hydrologic Group C[1]. Soils in Group C have a moderately high runoff potential when thoroughly wet; subsurface transmission is somewhat restricted. HcB is not on the National Hydric Soils List (NRCS 2024b).

OdB is characterized as a poorly drained soil with a moderately high capacity for the most limiting layer to transmit water, and an average depth to water table of 0 to 18 inches BGS. This soil is generally found on terraces and drainageways and is formed from alluvium. A typical profile includes ashy silt loam from 0 to 5 inches, silt loam from 5 to 33 inches, and loam from 33 to 60 inches BGS. OdB is in Hydrologic Group D[2]. Soils in Group D have high runoff potential when thoroughly wet and subsurface water movement ranges from restricted to very restricted. OdB is included on the National Hydric Soils List (NRCS 2024b).

WgE is characterized as a somewhat excessively drained soil with a moderately high to high capacity for the most limiting layer to transmit water, and an average depth to water table of more than 80 inches BGS. This soil is generally found on terraces and is formed from gravelly alluvium. A typical profile includes gravelly medial loam from 0 to 20 inches, very gravelly medial loam from 20 to 28 inches, and very cobbly coarse sand from 20 to 60 inches BGS. WgE is in Hydrologic Soil Group B[3]. Soils in Group B have a moderate infiltration rate when thoroughly wet and consist chiefly of moderately deep or deep, moderately well-drained or well-drained soils that have moderately fine texture to moderately coarse texture. WgE is not included on the National Hydric Soils List (NRCS 2024b).

Soil Type Distribution Onsite

NRCS maps depict OdB in the northeast corner where topography forms a natural depression, and, consequently, where Wetland A was delineated (Figure 3). In the northern portion of the site, extending southeast, WgE soils are mapped. The dominant soil type is HcB and it is depicted in the majority of the site. No wetlands were delineated where WgE or HcB soils are mapped. ELS

[1] Hydrologic Group C: soils with moderately high runoff potential when thoroughly wet and water transmission through the soil is somewhat restricted. Group C soils typically have between 20 percent and 40 percent clay, and less than 50 percent sand. Some soils having clay, silty clay, or sandy clay textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35 percent rock fragments.

[2] Hydrologic Group D: soils with high runoff potential when thoroughly wet and water movement through the soil is restricted or very restricted. Group D soils typically have greater than 40 percent clay, less than 50 percent sand, and have clayey textures. In some areas they also have shrink-swell potential. All soils with a depth to a water-permeable layer that is less than 20 inches and all soils with a water table within 24 inches from the surface are in this group, although some have dual classifications if they can be adequately drained.

[3] Hydrologic Group B: soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

biologists' soil observations were consistent with NRCS mapped soil series, as wetlands were delineated in areas where hydric soils are mapped, and uplands were observed in areas where non-hydric soils are mapped. Soils present onsite are summarized in Table 1.

Table 1. Summary of NRCS Soil Survey Data

Soil Series	Unit Symbol	Percent Slope	Hydrologic Soil Group	Drainage Class	Hydric Soil
Hesson clay loam	HcB	0-8	C	Well-drained	No
Odne silt loam	OdB	0-8	D	Poorly drained	Yes
Washougal gravelly loam	WgE	8-30	B	Somewhat excessively drained	No

NRCS soil series data and mapping practices are based on general, regional soil characteristics and may not accurately display variations in the local soil conditions. The presence or absence of hydric soil does not conclude an area as wetland or upland. Along with hydric soils, hydrology and wetland vegetation must also be present to determine an area as jurisdictional wetland. Due to localized, micro-variations in topography and hydrology, wetlands may be found in areas where hydric soils have not been mapped by the soil survey.

HYDROLOGY

Topography onsite gradually slopes downward in elevation from the center of the site to a depression in the northeast corner of the site where Wetland A is located, and slopes gently downward in elevation toward the southwest corner of the site. Wetland A extends offsite to the north, northwest, and southeast, and receives hydrology from seasonally high groundwater, precipitation, and surface runoff from surrounding uplands. The outlet for Wetland A is approximately 0.5 miles northwest of the site, at a culvert that passes under SR-500. Primary wetland hydrology indicators include High Water Table (A2), Saturation (A3), and Hydrogen Sulfide Odor (C1). Indicators of wetland hydrology present during the site visit are recorded on the attached wetland determination data forms (Appendix A).

CRITICAL AREAS INVENTORIES

NATIONAL AND LOCAL WETLANDS INVENTORIES

The United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps a palustrine, emergent, persistent, seasonally flooded (PEM1C) wetland in the northeastern corner of the site (Figure 4). ELS findings are consistent with the NWI mapping, as Wetland A was delineated in the northeastern corner of the site. Clark County's local critical areas inventory (CCCA) shows a wetland in approximately the same location as the ELS-delineated Wetland A (Figure 6). ELS findings are consistent with the position of CCCA mapping. Wetland maps such as NWI and CCCA should be used with discretion, as they are typically used to gather wetland information about a region and, because of the large scale necessary for regional mapping, are limited in accuracy for localized analyses.

Washington Department of Fish and Wildlife, Priority Habitats and Species

The Washington Department of Fish and Wildlife (WDFW) Priority and Habitats and Species (PHS) database depicts freshwater emergent wetland in the northeastern corner of the site (Figure 5). ELS findings are consistent with the PHS online mapping as Wetland A was observed in this location.

Critical Areas Summary

Wetland Categorization

One wetland was mapped onsite. Wetland A was rated according to the *Washington State Wetland Rating System for Western Washington: 2014 Update* (Rating System) (Hruby 2014). The wetland rating form can be found in Appendix B. See Table 2 for a summary of Wetland A. Wetland A is approximately 40 acres, with 0.18 acres onsite. It is a Category III, forested with three out of five vegetative strata, aquatic bed, and emergent, depressional wetland, which lies in the northeastern corner of the site and extends offsite to the north, northwest, and southeast. According to the Rating System, Wetland A scored moderate for improving water quality (6 points), moderate for hydrologic functions (6 points), and moderately high for habitat functions (7 points), for a total of 19 points.

Wetland Buffer Requirements

CMC 16.53.040 uses the following three parameters in determining wetland buffer widths for wetlands:

1) Wetland categorization per the Rating System,
2) Habitat score from the Rating System, and
3) Proposed land use intensity.

Category III wetlands with proposed high land use intensity and habitat scores greater than 4 according to the Rating System, are required to have buffers as designated in *CMC Table 16.53.040-3*. Wetland buffers are summarized in Table 2.

Table 2. Summary of Wetlands Onsite

Wetland Name (size)	**Cowardin Classification[1]/HGM**	**State/Local Classification[2]**	**Habitat Score[2]**	**Proposed Land Use Intensity[3]**	**Standard Buffer Width[4]** (feet)
Wetland A (0.18 acres onsite)	FO, AB, EM/ Depressional	Category III	7	High	150

[1]Cowardin *et al.* 1979, [2]Hruby 2014, [3]*CMC Table 16.53.040-4,* [4]*CMC Table 16.53.040-3*

Fish and Wildlife Habitat Conservation Areas

CMC Chapter 16.61 regulates Fish and Wildlife Habitat Conservation Areas, which include areas with which state or federally designated endangered, threatened, and sensitive species have a primary association, state priority habitats and areas associated with state priority species, habitats of local importance (Oregon white oak and Camas lily), naturally occurring ponds under

20 acres, waters of the state, bodies of water planted with game fish by a governmental or tribal entity, and state natural area preserves and natural resource conservation areas (*CMC 16.61.010(A)*).

In urban or urbanizing areas west of the Cascades, WDFW defines priority oak habitat as single oaks, or stands of pure oak, or oak/conifer associations 1 acre or greater in size. WDFW may also consider individual Oregon white oak trees a priority habitat when found to be particularly valuable to wildlife (i.e., contains many cavities, has a large diameter at breast height (DBH), is used by priority species, or has a large canopy) (Larsen and Morgan 1998). The study area is within an urbanizing area. WDFW recommendation is that in urban and urbanizing areas, single trees should be maintained if they are deemed important to species highly associated with Oregon white oak. Oaks and their associated floras comprise distinct woodland ecosystems with various plant communities providing valuable habitat that contributes to wildlife diversity; Oak woodlands provide a mix of feeding, resting, and breeding habitat for many wildlife species (Larsen and Morgan 1998).

Three Oregon white oak trees (Oaks 1, 2, 3) and a priority snag were observed onsite. Oak 1 was mapped in the northeastern portion of the site and is approximately 40 to 50 feet tall with a DBH of approximately 14.5 inches. Oak 2 was mapped in the central portion of the site and is approximately 15 to 20 feet tall with a DBH of approximately 5 inches. Oak 3 was mapped in the northeastern portion of the site, near Oak 1, and is approximately 40 to 50 feet tall with a DBH of approximately 17 inches. Oak 1 and Oak 2 appear to be in good health while Oak 3 appears to be in poor health. The snag was mapped in the western central portion of the site, southwest of Oak 2. The snag was approximately 40 to 50 feet tall with a DBH of approximately 42 inches.

LIMITATIONS

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

REFERENCES

City of Camas Municipal Code. 2023. *Critical Areas Ordinance Chapter 16.53 – Wetlands* and *16.61 – Fish and Wildlife Habitat Conservation Areas.* December 2023.

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Larsen, Eric M. and Morgan, John T. 1998. *Management Recommendations for Washington's Priority Habitats Oregon White Oak Woodlands*. Washington Department of Fish and Wildlife (WDFW), Olympia. 37pp.

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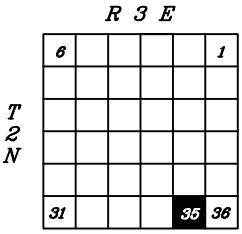
FIGURES AND PHOTOPLATES

WASHINGTON

Latitude: 45.6162°
Longitude: -122.3970°

LOCATION MAP



PROJECT VICINITY MAP

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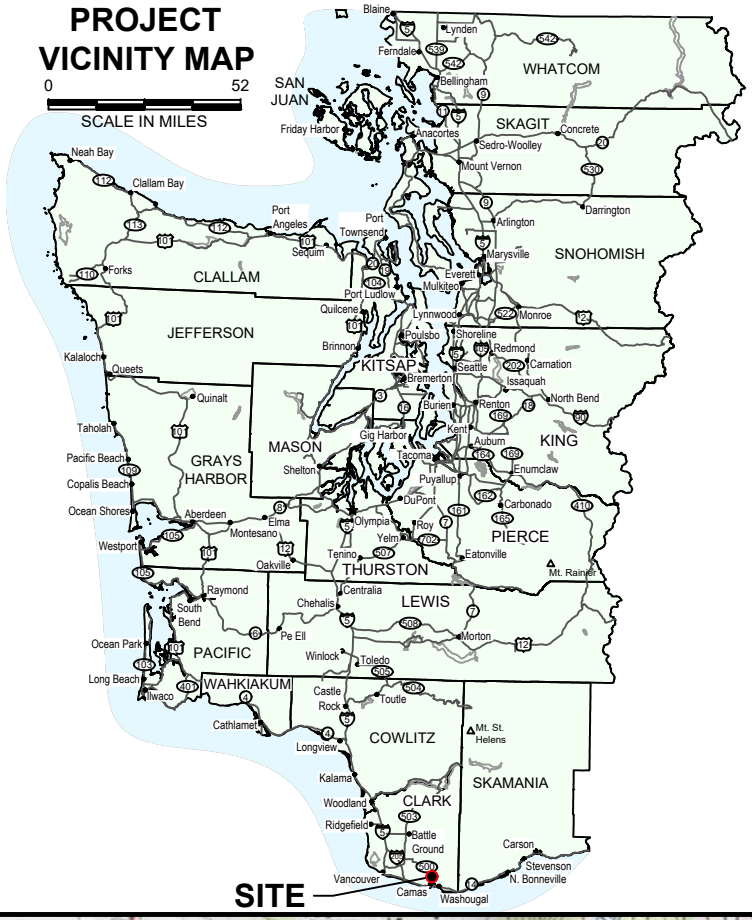


NOTE:
Quadrangle topographic map from USGS.

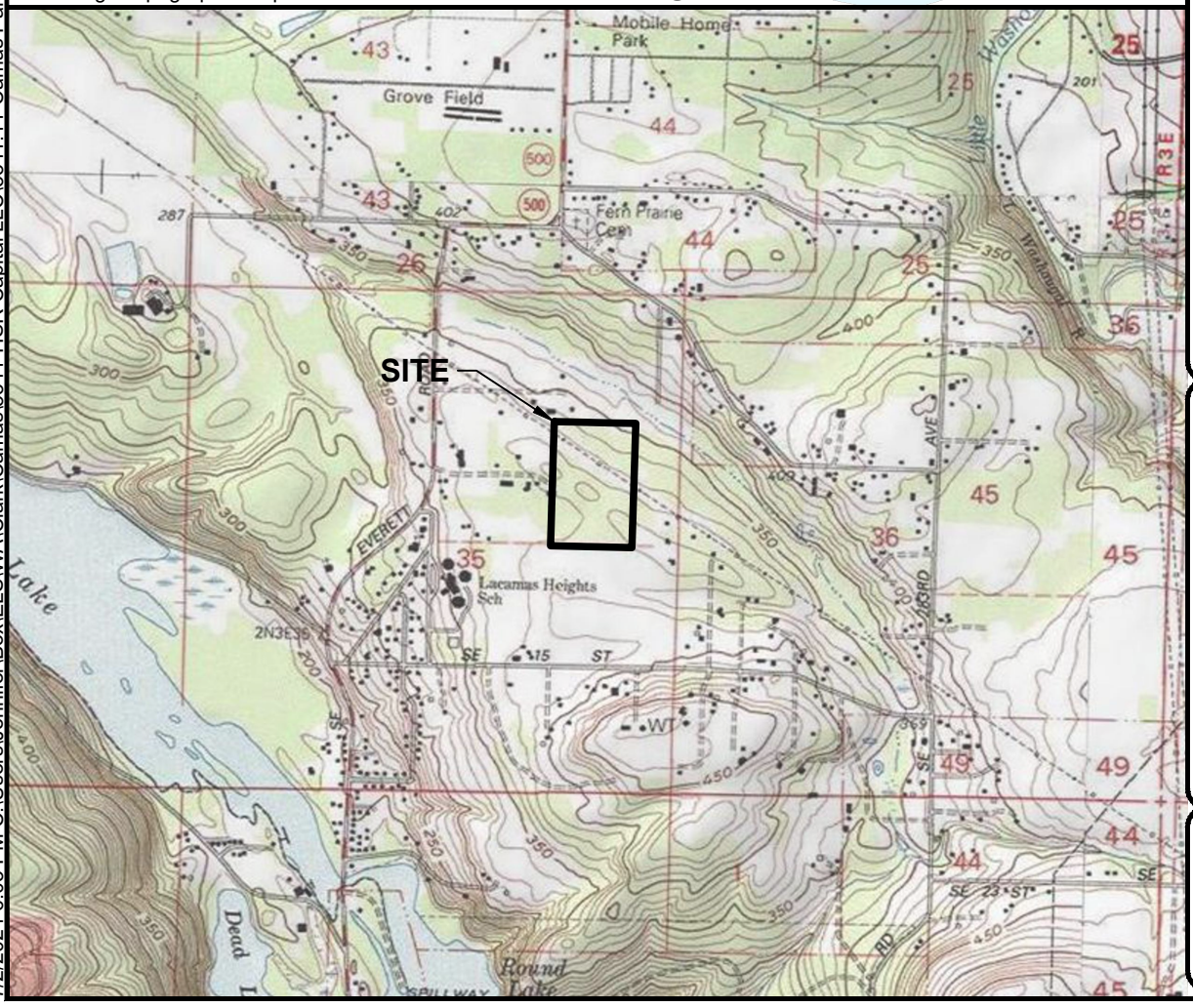
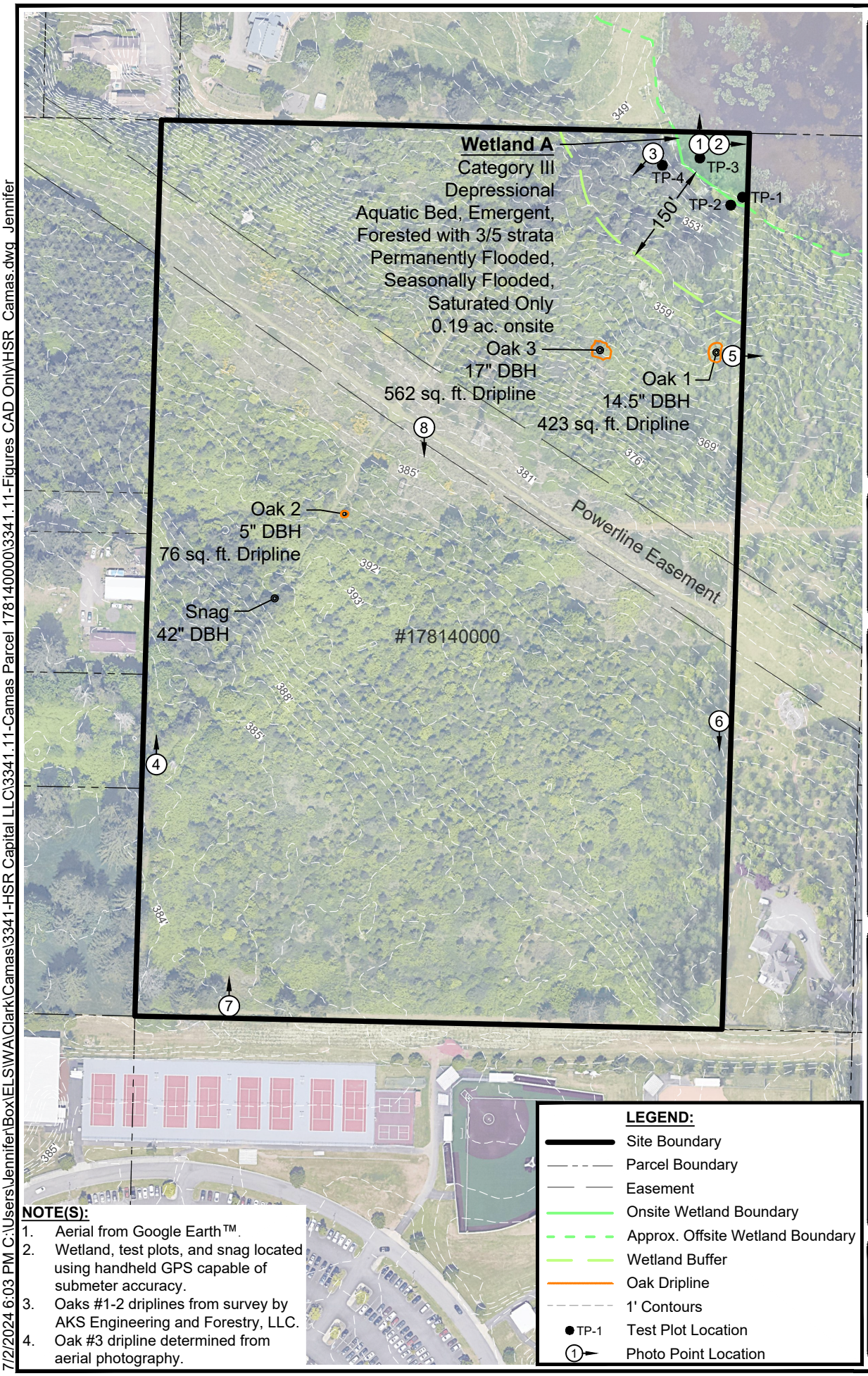


Figure 1
VICINITY MAP
Parcel 178140-000
HSR Capital
City of Camas, Clark County, Washington
Section 35, Township 2N, Range 3E, W.M.

DATE: 7/2/24
DWN: JKJ
REQ. BY: JB
PRJ. MGR: JB
CHK:
PROJECT NO: 3341.11

1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305
www.eco-land.com
Ecological Land Services



NOTE(S):

1. Aerial from Google Earth™.
2. Wetland, test plots, and snag located using handheld GPS capable of submeter accuracy.
3. Oaks #1-2 driplines from survey by AKS Engineering and Forestry, LLC.
4. Oak #3 dripline determined from aerial photography.

LEGEND:

- Site Boundary
- Parcel Boundary
- Easement
- Onsite Wetland Boundary
- Approx. Offsite Wetland Boundary
- Wetland Buffer
- Oak Dripline
- 1' Contours
- TP-1 Test Plot Location
- 1 Photo Point Location

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N W E S

Figure 2
EXISTING CONDITIONS
Parcel 178140-000
HSR Capital
City of Camas, Clark County, Washington
Section 35, Township 2N, Range 3E, W.M.

DATE: 7/2/24
DWN: JKJ
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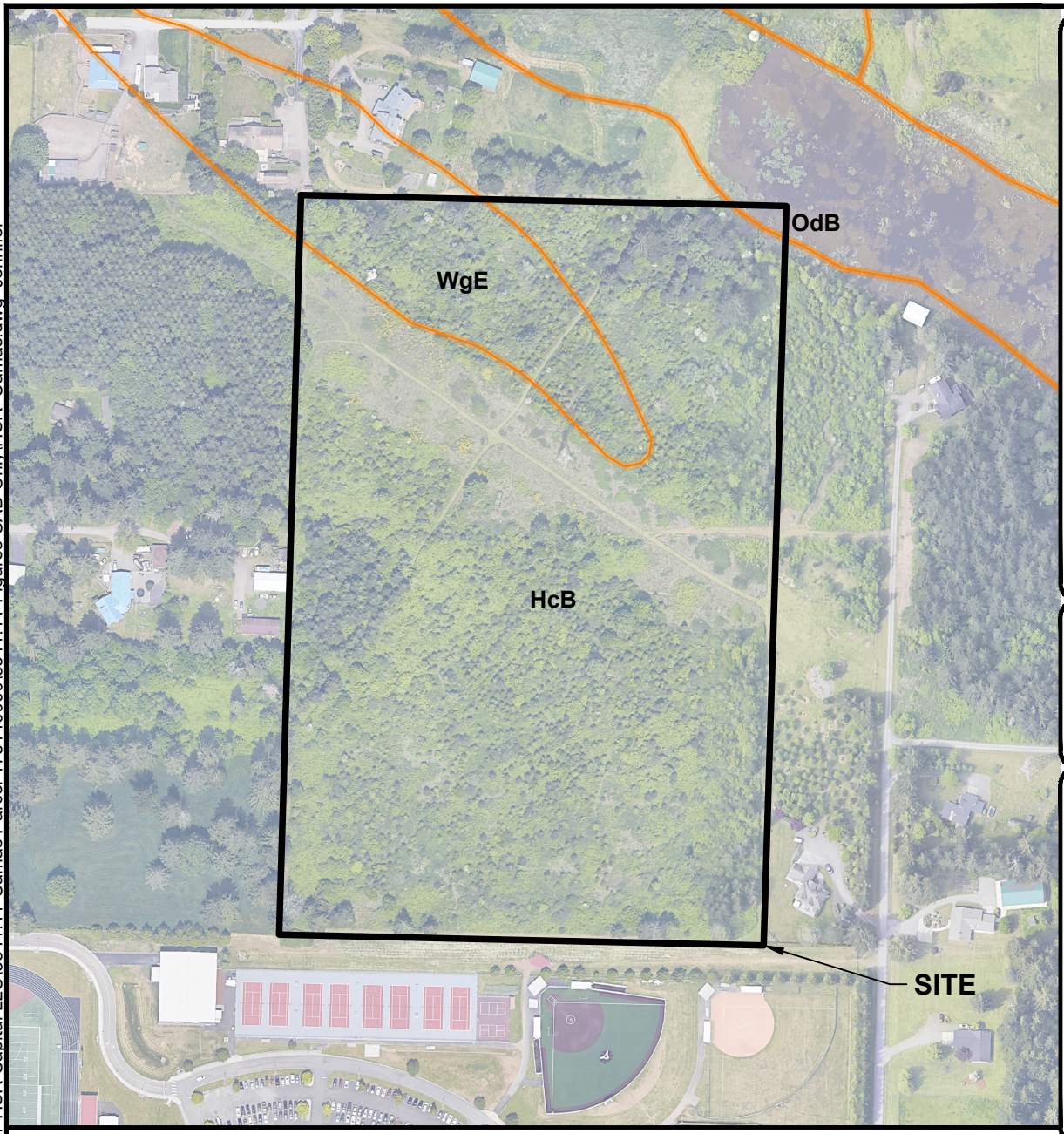

Figure 3
NRCS SOIL SURVEY
Parcel 178140-000
HSR Capital
City of Camas, Clark County, Washington
Section 35, Township 2N, Range 3E, W.M.

DATE: 7/2/24
DWN: JKJ
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LEGEND:

- Site Boundary
- NRCS Soil Boundary
- **HcB** Hesson clay loam, 0 to 8 percent slopes. Not hydric.
- **OdB** Odne silt loam, 0 to 5 percent slopes. **Hydric.**
- **WgE** Washougal gravelly loam, 8 to 30 percent slopes. Not hydric.

NOTE(S):
1. Map provided on-line by NRCS at web address: *http://websoilsurvey.nrcs.usda.gov/app/*

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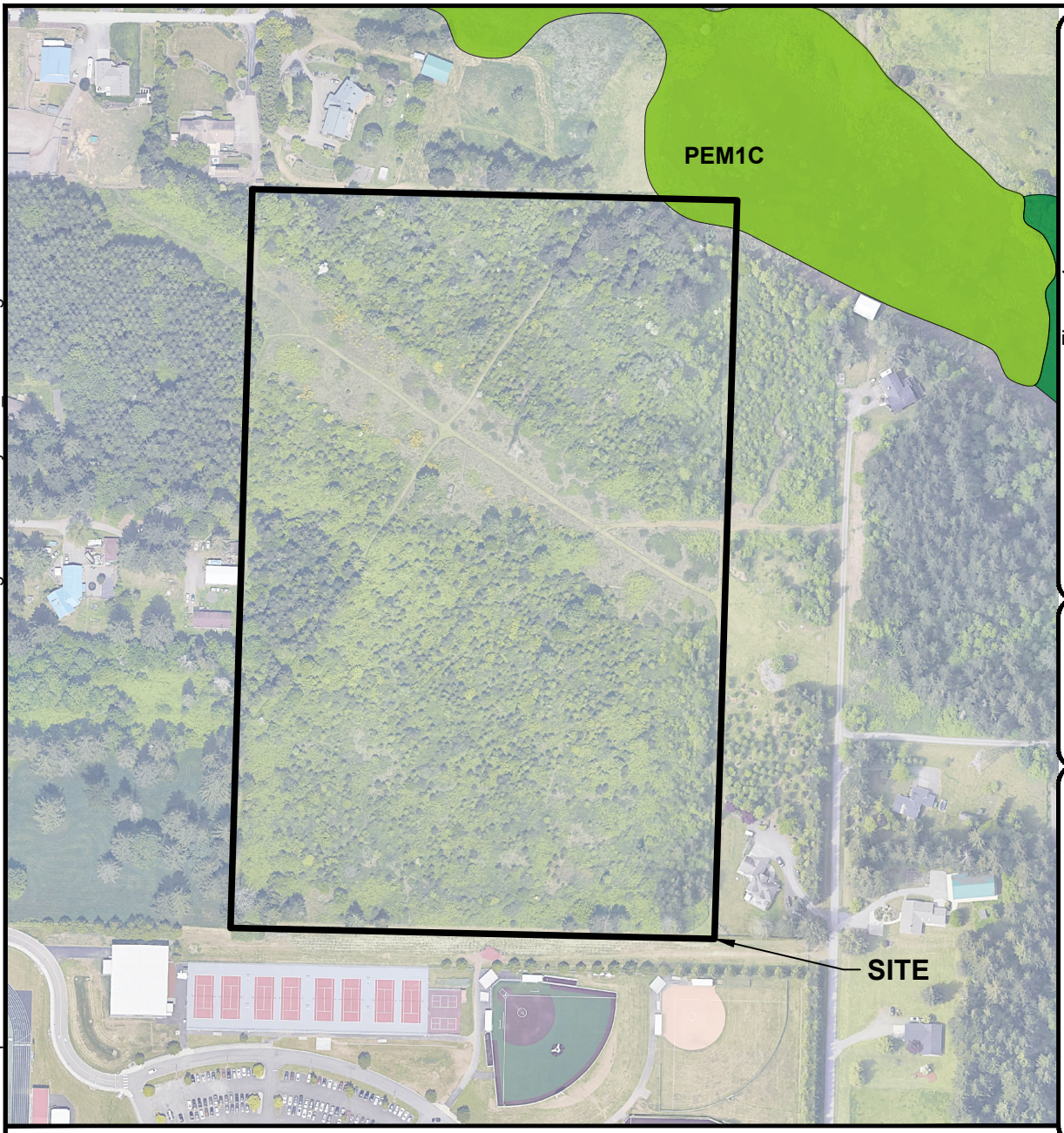

Figure 4
USFWS NATIONAL WETLANDS INVENTORY
Parcel 178140-000
HSR Capital
City of Camas, Clark County, Washington
Section 35, Township 2N, Range 3E, W.M.

DATE: 7/2/24
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LEGEND:

Site Boundary

Wetlands

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

PEM1C Palustrine, emergent, persistent, seasonally flooded.

NOTE(S):

1. Map provided on-line by US Fish & Wildlife Service at web address: *https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper*

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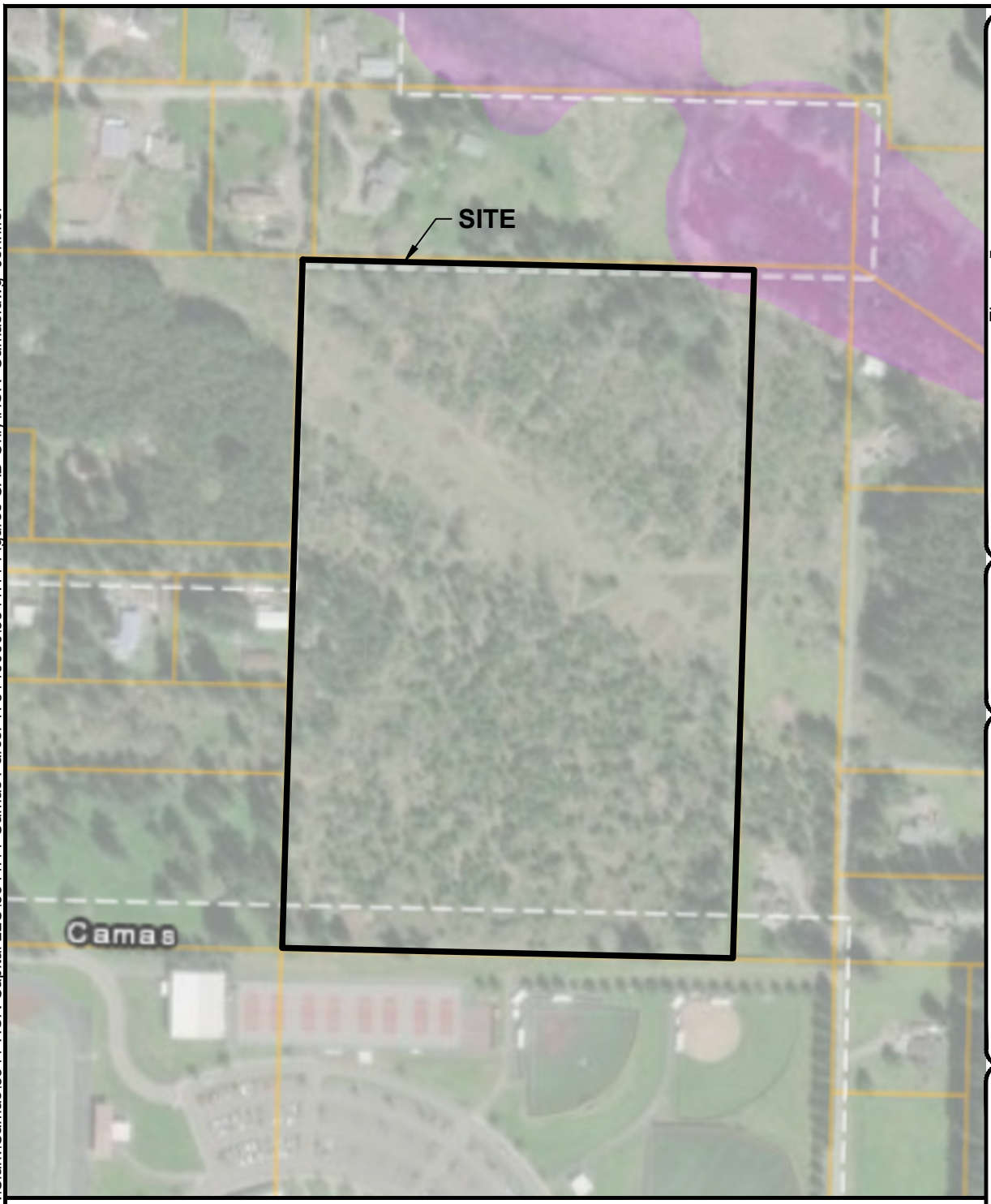

Figure 5
WDFW PRIORITY HABITATS AND SPECIES
Parcel 178140-000
HSR Capital
City of Camas, Clark County, Washington
Section 35, Township 2N, Range 3E, W.M.

DATE: 7/2/24
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SCALE IN FEET

N W E S

LEGEND:

- Site Boundary
- Parcel Boundary
- Freshwater Emergent Wetland

By Township

- Caves or Cave-rich Areas

NOTE: Map provided on-line by Washington State Department of Fish & Wildlife at web address: *http://apps.wdfw.wa.gov/phsontheweb/*

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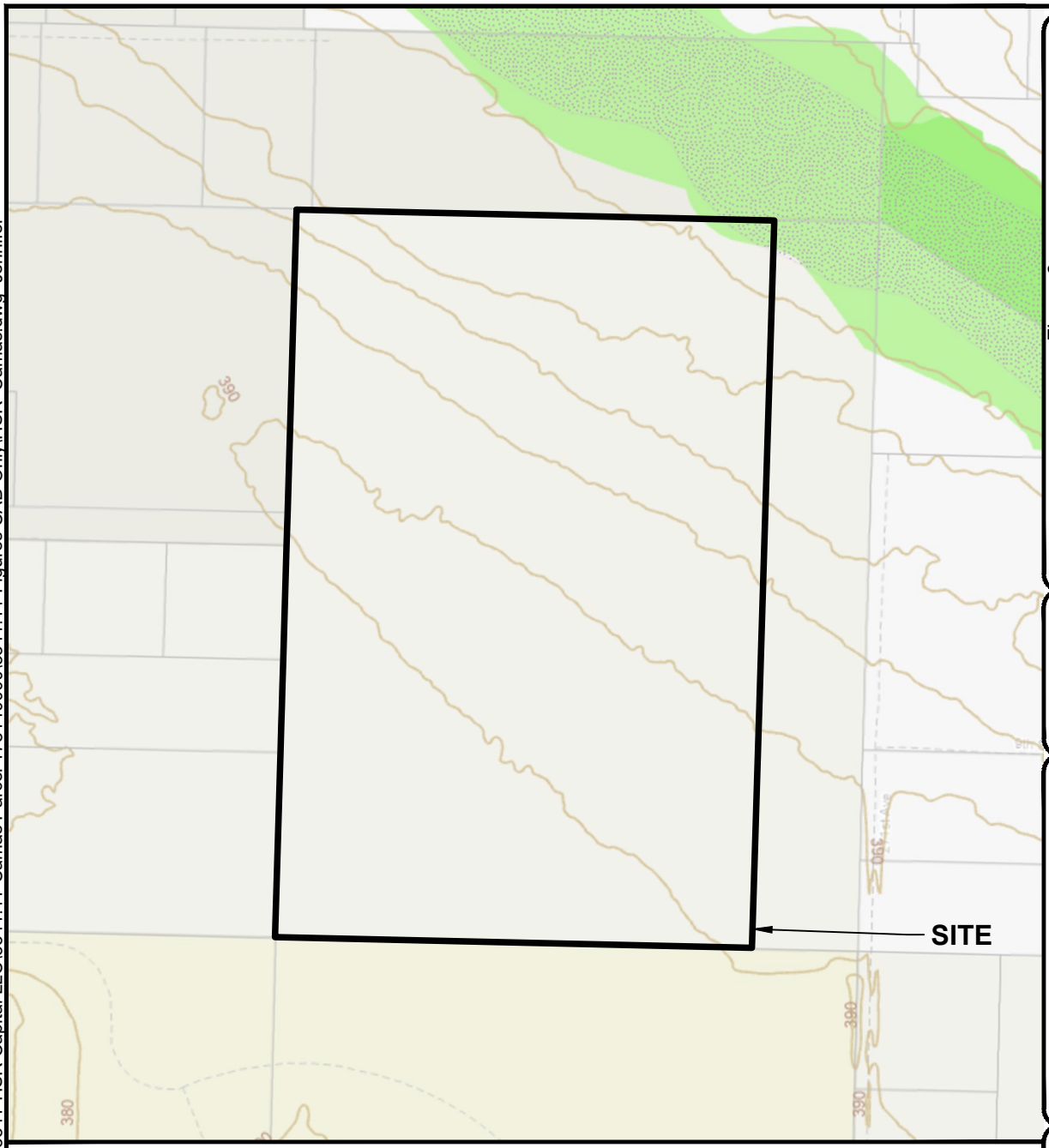

Figure 6
CLARK COUNTY CRITICAL AREAS
Parcel 178140-000
HSR Capital
City of Camas, Clark County, Washington
Section 35, Township 2N, Range 3E, W.M.

DATE: 7/2/24
DWN: JKJ
REQ. BY: JB
PRJ. MGR: JB
CHK:
PROJECT NO: 3341.11

1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305
www.eco-land.com
Ecological Land Services

0 300 600
SCALE IN FEET

N
W E
S

LEGEND:

Site Boundary

Environmental
Slopes and Geologic Hazards Group
Contour Lines
Contour Lines - 10 ft

Soils and Wetlands Inventory
Hydric Soils
Potential Wetlands Presence
Permitted Wetland

NOTE(S):
1. Map provided on-line by Clark County at web address: *https://gis.clark.wa.gov/mapsonline/index.cfm?site=Environmental*

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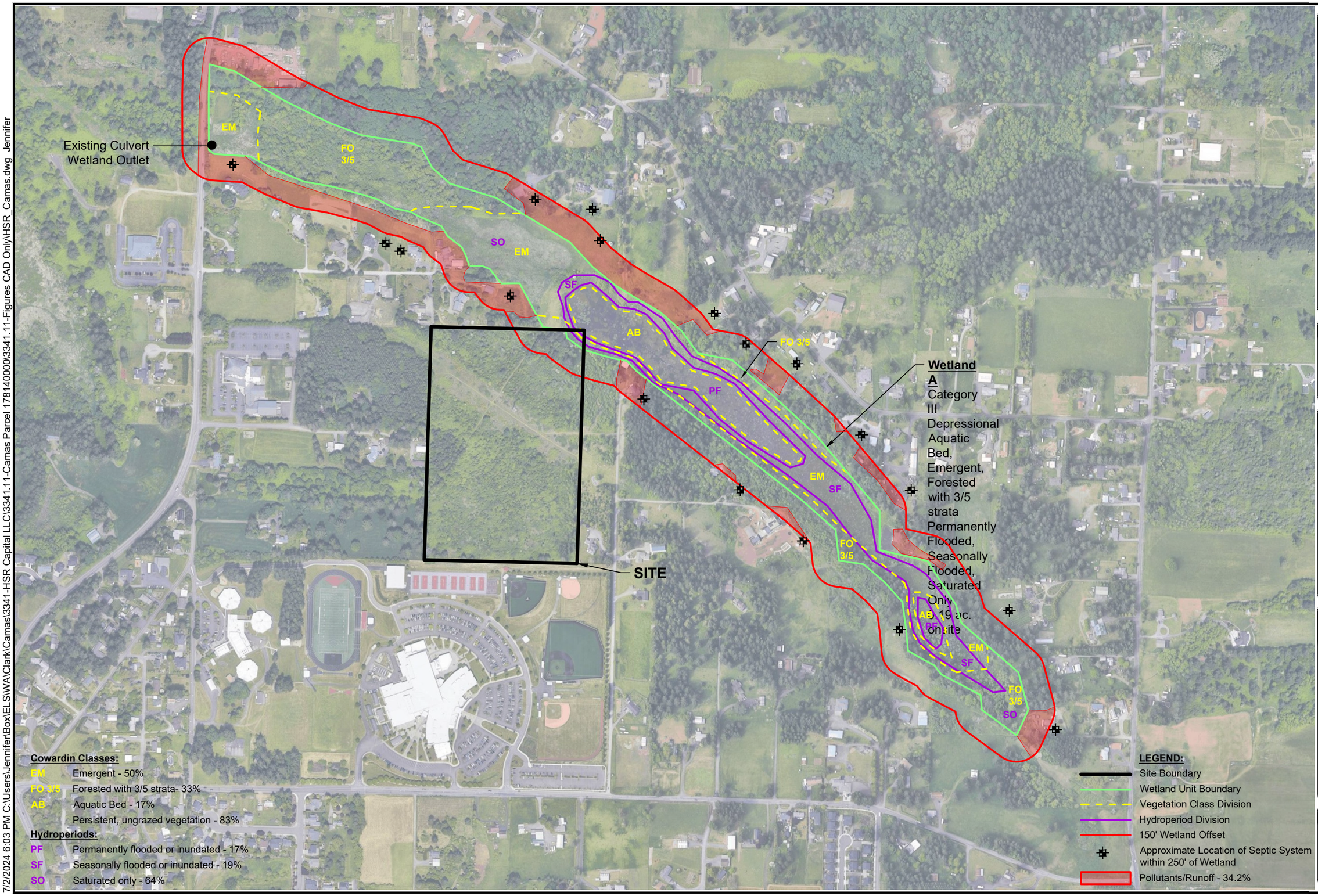

Figure 7
WETLAND RATING FORM-150' OFFSET
Parcel 178140-000
HSR Capital
City of Camas, Clark County, Washington
Section 35, Township 2N, Range 3E, W.M.

DATE: 7/2/24
DWN: JKJ
REQ. BY: JB
PRJ. MGR: JB
CHK:
PROJECT NO: 3341.11

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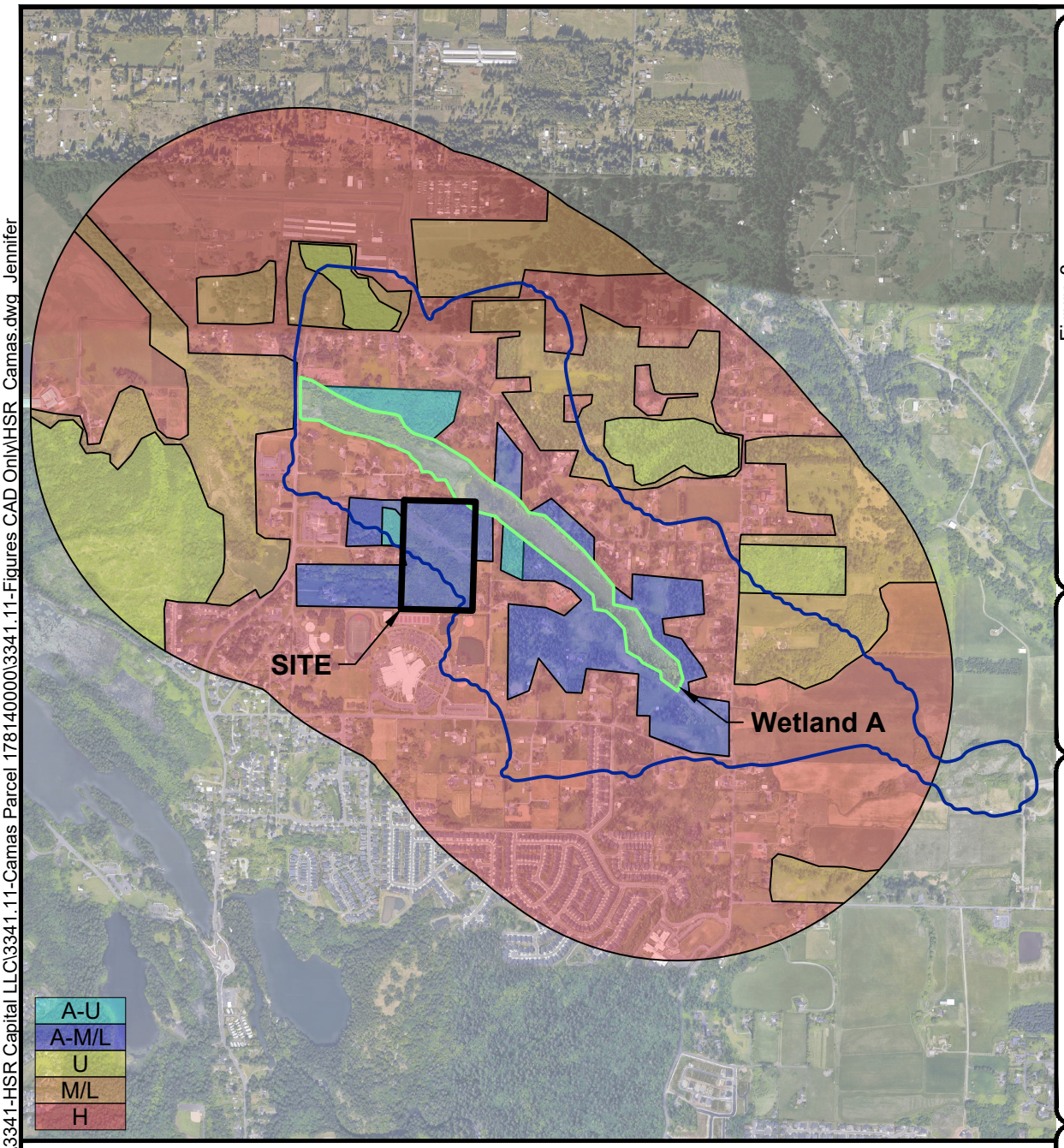

Figure 8
WETLAND RATING FORM-1 km OFFSET
Parcel 178140-000
HSR Capital
City of Camas, Clark County, Washington
Section 35, Township 2N, Range 3E, W.M.

DATE: 7/2/24
DWN: JKJ
REQ. BY: JB
PRJ. MGR: JB
CHK:
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0 2000 4000
SCALE IN FEET

N W E S

LEGEND:

- Site Boundary
- Wetland Unit Boundary
- Contributing Basin
  12x area of Wetland A

H2.1 Accessible Habitat

- A-U: A-U (1.0%)
- A-M/L: A-M/L (7.4%)

H2.2 Undisturbed Habitat

- U: U (8.3%)
- M/L: M/L (20.0%)

H2.3 Land Use Intensity

- H: H (63.2%)

H 2.1. Accessible Habitat Equation

% A-U habitat **1.0%** + [(% A-M/L intensity land uses)/2] **3.7%** = **4.7%**

H 2.2. Total Undisturbed Habitat Equation

% A-U + % U habitat **9.3%** + [(% A-M/L + % M/L land uses)/2] **13.7%** = **23.0%**

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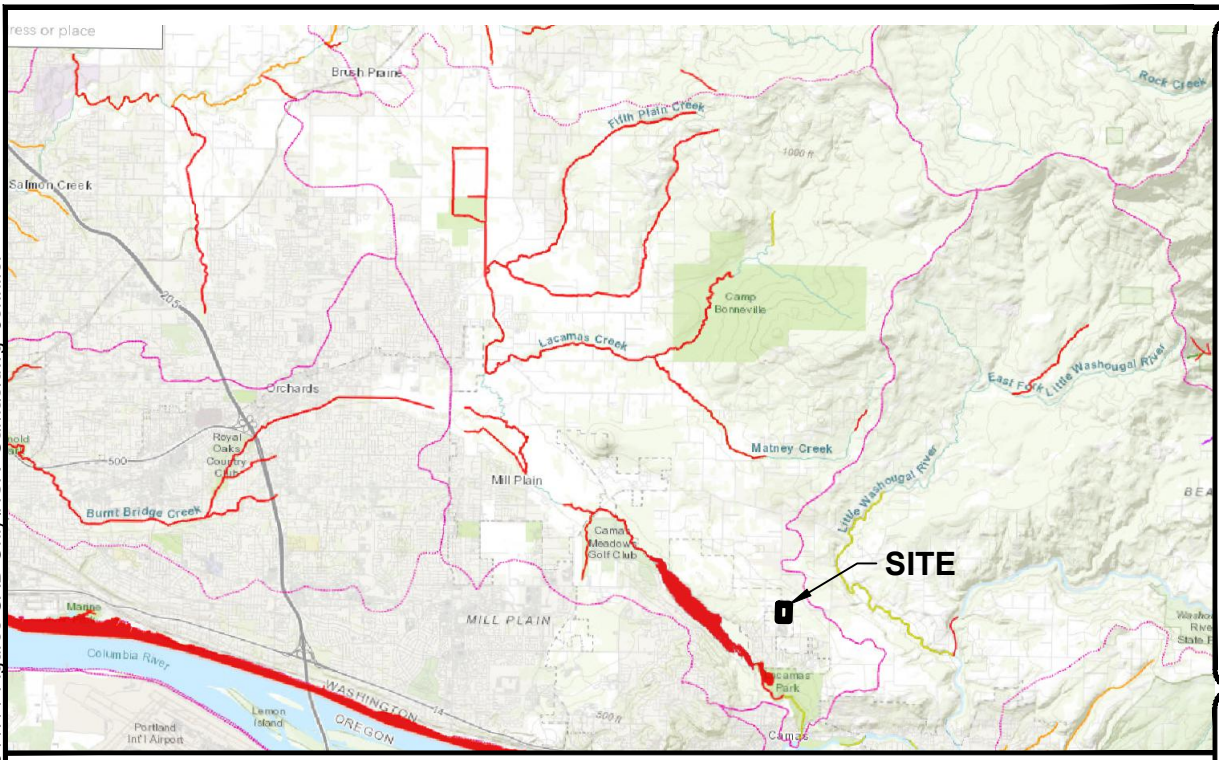

Figure 8
WETLAND RATING FORM-303(d) and TMDLs
Parcel 178140-000
HSR Capital
City of Camas, Clark County, Washington
Section 35, Township 2N, Range 3E, W.M.

DATE: 7/2/24
DWN: JKJ
REQ. BY: JB
PRJ. MGR: JB
CHK:
PROJECT NO: 3341.11

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Fax: (360) 414-9305
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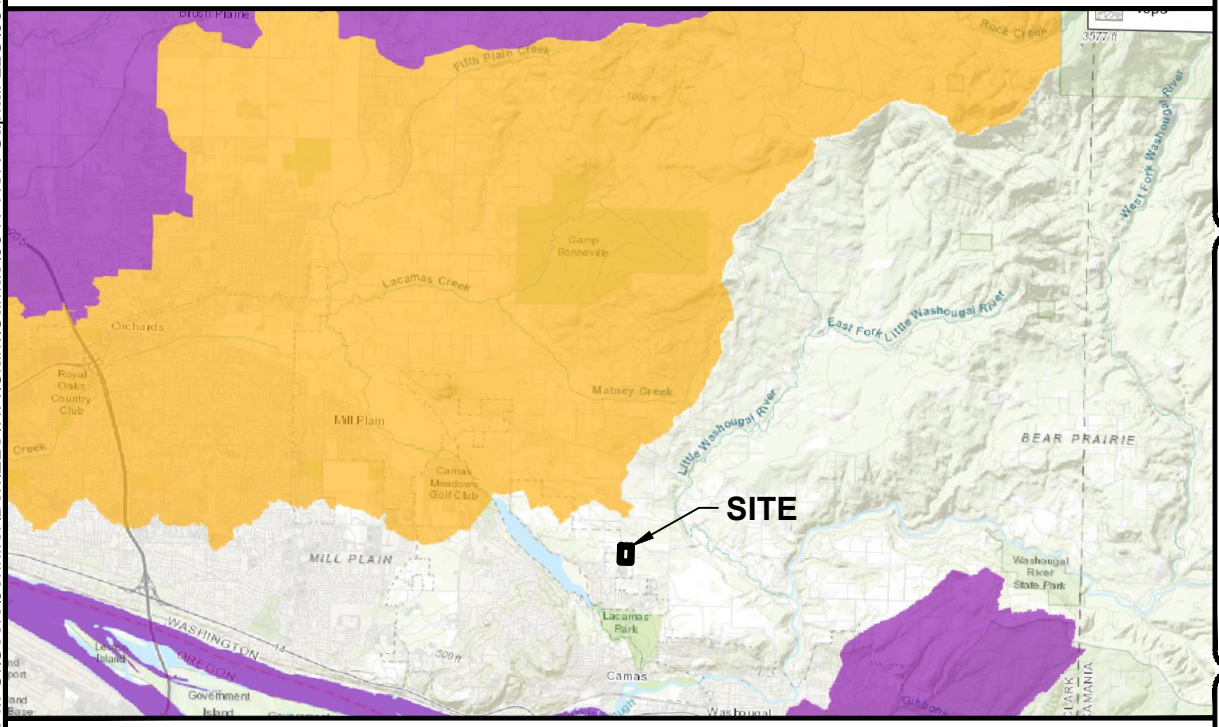
Ecological Land Services

Assessed Waters/Sediment

Water	Sediment	Subbasins
Category 5 - 303d	Category 5 - 303d	12 Digit HUC Boundary
Category 4C	Category 4C	
Category 4B	Category 4B	
Category 4A	Category 4A	
Category 2	Category 2	
Category 1	Category 1	



SCALE IN MILES
0
3
6

N
W
E
S

WQ Improvement Projects

- Approved
- In Development

NOTE(S):

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

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Photo 1 was taken facing north and shows Wetland A, which extends offsite.

Photo 2 was taken facing northeast and shows Wetland A, which extends offsite.

Photo 3 was taken facing southwest and shows upland Test Plot 4.

Photo 4 was taken facing north and shows general site conditions.

Ecological Land Services

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DATE: 8/26/2022
DWN: JB
PRJ. MGR: JB
PROJ.#: 3341.11

Photoplate 1
Site Photos
HSR Camas Parcel 178140000
Clark County, WA
Section 35, Township 2N, Range 3E, W.M.

Photo 5 was taken facing west and shows one of the oaks onsite.

Photo 6 was taken facing south and shows the eastern site boundary to the right.

Photo 7 was taken facing north and shows general site conditions.

Photo 8 was taken facing south and shows general conditions within the powerline easement.

Ecological Land Services

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Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305

DATE: 8/26/2022
DWN: JB
PRJ. MGR: JB
PROJ.#: 3341.11

Photoplate 2
Site Photos
HSR Camas Parcel 178140000
Clark County, WA
Section 35, Township 2N, Range 3E, W.M.

APPENDIX A

ROUTINE DETERMINATION METHOD AND PLANT INDICATOR RATING DEFINITIONS

Routine Determination Method

The Routine Determination Method is defined according to the U.S. Army Corps of Engineers' 1987 *Wetland Delineation Manual* and the *Regional Supplement to the Corps of Engineers' Wetland Delineation Manual* (Environmental Laboratory 1987)*; Western Mountains, Valleys, and Coast Region (Version 2.0)* (Corps 2010). The Routine Determination Method examines three parameters – vegetation, soils, and hydrology – to determine if wetlands exist in a given area. Hydrology is critical in determining what is a wetland, but if often difficult to assess because hydrologic conditions can change periodically (hourly, daily, or seasonally). Consequently, it is necessary to determine if hydrophytic vegetation and hydric soils are present, which would indicate that water is present for a long enough duration to support a wetland plant community. By definition, wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Vegetation Indicator Status

The indicator status, following the scientific names of plant species, indicates the likelihood of the species to be found in wetlands according to the *National Wetland Plant List Indicator Rating Definitions* (Corps 2012). Listed from most likely to least likely to be found in wetlands, the indicator status categories are:

- **OBL** (obligate wetland) - occur almost always under natural conditions in wetlands.
- **FACW** (facultative wetland) - usually occur in wetlands, but occasionally found in non-wetlands.
- **FAC** (facultative) - equally likely to occur in wetlands or non-wetlands.
- **FACU** (facultative upland) - usually occur in non-wetlands, but occasionally found in wetlands.
- **UPL** (obligate upland) - occur almost always under natural conditions in non-wetlands.
- **NI** (no indicator) - insufficient data to assign to an indicator category.

APPENDIX B

WETLAND DETERMINATION DATA FORMS

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

Project/Site: Camas Parcel 178140000 City/County: Camas/Clark Sampling Date: 8/26/2022
Applicant/Owner: HSR Capital, LLC State: WA Sampling Point: TP1
Investigator(s): Francis Naglich, Julianne Blake Section, Township, Range: 35, 2N, 3E
Landform (hillslope, terrace, etc.): Terrace Local relief: (concave, convex, none): Concave Slope (%): 0-5 %
Subregion (LRR): LRRA, MLRA2 Lat: 45.617697 Long: -122.395273 Datum: NAD83
Soil Map Unit Name: Odne silt loam, 0 to 5 percent slopes NWI classification: PEM1C
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain 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 Soils Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?**	**Yes☒ No☐**

Remarks: TP1 is located in the northeastern corner of the site. TP1 meets all three wetland indicators and is therefore considered to be in wetlands.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	20%	yes	FAC
2.	%		
3.	%		
4.	%		
50% = 10 20% = 4	20%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1. *Spiraea douglasii*	30%	yes	FACW
2. *Salix hookeriana*	10%	yes	FACW
3.	%		
4.	%		
5.	%		
50% = 20 20% = 8	40%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundinacea*	30%	yes	FACW
2. *Schoenoplectus tabernaemontani*	20%	yes	OBL
3. *Anthoxanthum odoratum*	5%	no	FACU
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 28 20% = 11	55%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1.	%		
2.	%		
50% = ___ 20% = ___	%	=Total Cover	

% Bare Ground in Herb Stratum 45%

Dominance Test Worksheet

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - 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:

SOIL

Sampling Point: TP1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100%		%			Loam	
2-3	5Y 4/1	70%	7.5YR 5/8	30%	C	M	Clay loam	
3-16	5Y 4/1	95%	7.5YR 5/8	5%	C	M	Clay 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.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (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

- ☐ 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: _____
Depth (inches):_____

Hydric Soil Present? **Yes☒ No☐**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. 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): _____
Water Table Present?	Yes ☒	No ☐	Depth (Inches): 11
Saturation Present? (Includes Capillary fringe)	Yes ☒	No ☐	Depth (Inches): 10

Wetland Hydrology Present? **Yes ☒ No ☐**

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

Remarks:

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

Project/Site: Camas Parcel 178140000 City/County: Camas/Clark Sampling Date: 8/26/2022
Applicant/Owner: HSR Capital, LLC State: WA Sampling Point: TP2
Investigator(s): Francis Naglich, Julianne Blake Section, Township, Range: 35, 2N, 3E
Landform (hillslope, terrace, etc.): Terrace Local relief: (concave, convex, none): Convex Slope (%): 0-8 %
Subregion (LRR): LRRA, MLRA2 Lat: 45.617664 Long: -122.395341 Datum: NAD83
Soil Map Unit Name: Hesson clay loam, 0 to 8 percent slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain 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 Soils Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?**	**Yes☐ No☒**

Remarks: TP2 is located in the northeastern corner of the site. TP2 does not meet all three wetland indicators and is therefore considered to be in uplands.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	30%	yes	FAC
2.	%		
3.	%		
4.	%		
50% = 15 20% = 6	30%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1. *Spiraea douglasii*	2%	yes	FACW
2.	%		
3.	%		
4.	%		
5.	%		
50% = 1 20% = 1	2%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundinacea*	20%	yes	FACW
2. *Pteridium aquilinum*	5%	yes	FACU
3. *Epilobium oregonense*	2%	no	FACW
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 14 20% = 5	27%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1. *Rubus armeniacus*	50%	yes	FAC
2.	%		
50% = 25 20% = 10	50%	=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: 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:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - 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:

SOIL

Sampling Point: TP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100%		%			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.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (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

- ☐ 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: _____
Depth (inches):_____

Hydric Soil Present? **Yes**☐ **No**☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. 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): _____
Water Table Present?	Yes ☐	No ☒	Depth (Inches): _____
Saturation Present? (Includes Capillary fringe)	Yes ☐	No ☒	Depth (Inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks:

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

Project/Site: Camas Parcel 178140000 City/County: Camas/Clark Sampling Date: 8/26/2022
Applicant/Owner: HSR Capital, LLC State: WA Sampling Point: TP3
Investigator(s): Francis Naglich, Julianne Blake Section, Township, Range: 35, 2N, 3E
Landform (hillslope, terrace, etc.): Terrace Local relief: (concave, convex, none): Concave Slope (%): 0-5 %
Subregion (LRR): LRRA, MLRA2 Lat: 45.617852 Long: -122.395525 Datum: NAD83
Soil Map Unit Name: Odne silt loam, 0 to 5 percent slopes NWI classification: PEM1C
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain 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 Soils Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?**	**Yes☒ No☐**

Remarks: TP3 is located in the northeastern corner of the site. TP3 meets all three wetland indicators and is therefore considered to be in wetlands.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.	%		
2.	%		
3.	%		
4.	%		
50% = ___ 20% = ___	%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1. *Salix sitchensis*	10%	yes	FACW
2. *Spiraea douglasii*	10%	yes	FACW
3.	%		
4.	%		
5.	%		
50% = 10 20% = 4	20%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Polygonum persicaria*	60%	yes	OBL
2. *Phalaris arundinacea*	40%	yes	FACW
3. *Ludwigia palustris*	15%	no	OBL
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 58 20% = 23	115%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1.	%		
2.	%		
50% = ___ 20% = ___	%	=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:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - 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:

SOIL

Sampling Point: TP3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100%		%			Loam	
2-8	10YR 3/1	80%	10YR 4/6	20%	C	M	Clay loam	
8-16	5Y 4/1	90%	10YR 6/8	10%	C	M	Clay 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.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (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

- ☐ 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: _____
Depth (inches):_____

Hydric Soil Present? **Yes☒ No☐**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. 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): _____
Water Table Present?	Yes ☒	No ☐	Depth (Inches): 16
Saturation Present? (Includes Capillary fringe)	Yes ☒	No ☐	Depth (Inches): 6

Wetland Hydrology Present? **Yes ☒ No ☐**

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

Remarks: Water table expected to rise if test hole left open for longer period of time.

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

Project/Site: Camas Parcel 178140000 City/County: Camas/Clark Sampling Date: 8/26/2022
Applicant/Owner: HSR Capital, LLC State: WA Sampling Point: TP4
Investigator(s): Francis Naglich, Julianne Blake Section, Township, Range: 35, 2N, 3E
Landform (hillslope, terrace, etc.): Terrace Local relief: (concave, convex, none): Convex Slope (%): 0-8 %
Subregion (LRR): LRRA, MLRA2 Lat: 45.617818 Long: -122.395741 Datum: NAD83
Soil Map Unit Name: Hesson clay loam, 0 to 8 percent slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain 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 Soils Present? Yes☐ No☒ Wetland Hydrology Present? Yes☐ No☒	**Is the Sampled Area within a Wetland?**	**Yes☐ No☒**

Remarks: TP4 is located in the northeastern corner of the site. TP4 does not meet any wetland indicators and is therefore considered to be in uplands.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pseudotsuga menziesii*	35%	yes	FACU
2. *Alnus rubra*	15%	yes	FAC
3. *Crataegus monogyna*	15%	yes	FAC
4.	%		
50% = 33 20% = 13	65%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1. *Symphoricarpos albus*	30%	yes	FACU
2. *Gaultheria shallon*	20%	yes	FACU
3. *Fraxinus latifolia*	5%	no	FACW
4. *Rosa nutkana*	5%	no	FAC
5. *Malus fusca*	5%	no	FACW
6. *Frangula purshiana*	5%	no	FAC
7. *Rubus parviflorus*	5%	no	FACU
50% = 38 20% = 15	75%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Rubus ursinus*	30%	yes	FACU
2. *Pteridium aquilinum*	10%	yes	FACU
3. *Rubus laciniatus*	5%	no	FACU
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 23 20% = 9	45%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1. *Rubus armeniacus*	5%	yes	FAC
2.	%		
50% = 3 20% = 1	5%	=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: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC 38 (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:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - 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:

SOIL

Sampling Point: TP4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100%		%			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.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (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

- ☐ 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: _____
Depth (inches):_____

Hydric Soil Present? **Yes☐ No☒**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. 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): _____
Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
(Includes Capillary fringe)

Wetland Hydrology Present? **Yes ☐ No ☒**

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

Remarks:

APPENDIX C

WETLAND RATING FORM FOR WESTERN WASHINGTON

Wetland A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): A Date of site visit: August 26, 2022

Rated by Julianne Blake Trained by Ecology? Yes Date of training: June 2022

HGM Class used for rating: Depressional Wetland has multiple HGM classes? ___Y_X__N

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

Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY __III__ (based on functions_X_ 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	H	M	(L)	H	(M)	L	(H)	M	L	
Landscape Potential	(H)	M	L	(H)	M	L	H	M	(L)	
Value	H	(M)	L	H	M	(L)	(H)	M	L	**TOTAL**
Score Based on Ratings	**6**			**6**			**7**			**19**

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 A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

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

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(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 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 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 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	**2**
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*. Yes = 4 No = 0	**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	**3**
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	**5**

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

D 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	**1**
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	**1**
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	**3**

Rating of Landscape Potential If score is: __**X**__**3 or 4 = H** ___**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	**0**
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	**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	**1**

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

Wetland A

DEPRESSIONAL AND FLATS WETLANDS

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

D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 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	**2**
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 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	**3**
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 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	**3**
Total for D 4 Add the points in the boxes above	**8**

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

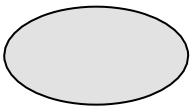
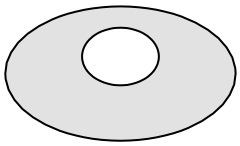
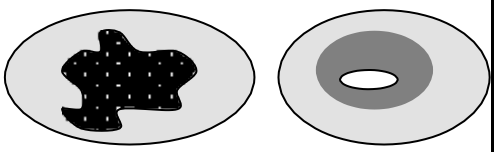
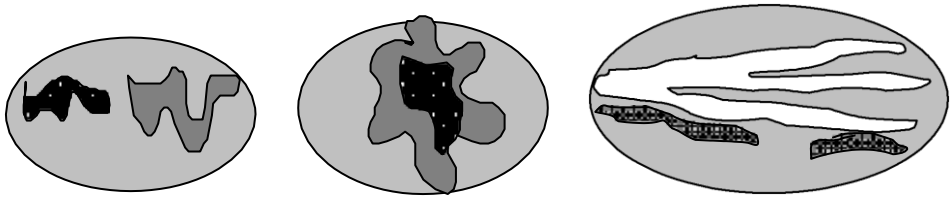
D 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0	**1**
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	**1**
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	**1**
Total for D 5 Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: __X__ **3 = H** ___ **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 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.* __X__Aquatic bed — 4 structures or more: points = 4 __X__Emergent — 3 structures: points = 2 ____Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1 __X__Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if:* __X__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*). __X__Permanently flooded or inundated — 4 or more types present: points = 3 __X__Seasonally flooded or inundated — 3 types present: points = 2 ____Occasionally flooded or inundated — 2 types present: points = 1 __X__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**	**2**
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	**2**
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** = 3 points 	**3**

Wetland 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). __X__ 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) __X__ 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)* __X__ 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)* ____ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	**4**
Total for H 1 Add the points in the boxes above	**15**

Rating of Site Potential If score is: __**X**__ **15-18 = H** ___ **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:* % undisturbed habitat 1.0 **+** [(% moderate and low intensity land uses)7.4/2] 3.7 **= 4.7**% 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:* % undisturbed habitat 9.3 **+** [(% moderate and low intensity land uses)27.4/2] 13.7 **= 23.0**% 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	**1**
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	**-2**
Total for H 2 Add the points in the boxes above	**-1**

Rating of Landscape Potential If score is: ___ **4-6 = H** ___ **1-3 = M** __**X**__ **< 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 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.

__X__**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.

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

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

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

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

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

_X_**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 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** (circled) 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**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *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**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes **–** Go to **SC 2.2** (circled) 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** (circled) 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**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *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** (circled) 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** (circled) 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**	**Cat. I**

Wetland 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** (circled) No = **Not a forested wetland for this section**	**Cat. I**
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** (circled) 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**	**Cat. I** **Cat. 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: X 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** (circled) 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**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	**N/A**

Wetland A

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Ecological Land Services

January 4, 2024

HSR Capital, LLC
500 E Broadway Street #120
Vancouver, WA 98660

Subject: Rekdahl Determination | Camas, Washington

To Whom it May Concern,

Ecological Land Services, Inc. (ELS) has assessed Clark County Parcel Numbers 178159000, 178169000, and 178108000 for the future development of the site. The approximately 10-acre site is located at 920 SE Gardner Road in Camas, Washington within the NE 1/4 of Section 35, Township 2 North, Range 3 East of the Willamette Meridian (Figure 1). ELS conducted a site visit on November 7, 2023, to determine the presence or absence of critical areas in accordance with the *City of Camas Code of Ordinances (CCO) Chapter 16 Critical Areas.*

Site Conditions

The approximately 10-acre site is zoned Single Family Residential (R1-6) and currently contains two single-family houses and a barn in the western central portion of the site. Access is provided by Gardner Road which enters the site via NE Garfield Street from the west. The site is bordered to the north by low density single-family residences, to the east by undeveloped forested land, to the south by Camas High School, and to the west by NE Garfield Street and single-family residences (Figure 2). The site is currently used as a private residence and has been in residential land use since 1935. Topography is generally flat with vegetation consisting primarily of regularly mowed lawn grasses and weedy forbs, ornamental landscaped shrubs, and coniferous and deciduous trees. Two Douglas fir (*Pseudotsuga menziesii*) snags, with diameters at breast height (DBH) of 18 and 24 inches, are located in the eastern portion of the site (Figure 2).

Methods

The site was evaluated for the presence or absence of wetlands using the Routine Determination Method according to the U.S. Army Corps of Engineers' *Wetland Delineation Manual* and the *Regional Supplement to the Corps of Engineers' Wetland Delineation Manual; Western Mountains, Valleys, and Coast Region (Version 2.0)* (2010).

The Routine Determination Method examines three parameters – vegetation, soils, and hydrology – to determine if wetlands exist in a given area. Hydrology is critical in determining what is a wetland, but is often difficult to assess because hydrologic conditions can change periodically (hourly, daily, or seasonally). Consequently, it is necessary to determine if hydrophytic vegetation and hydric soils are present, which would indicate that water is present for a long enough duration to support a wetland plant community. By definition, wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that

under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands are regulated as "Waters of the United States" by the U.S. Army Corps of Engineers (Corps), as "Waters of the State" by the Washington Department of Ecology (Ecology), and locally by the City of Camas.

Vegetation, soil, and hydrology information were collected from four test plots on November 7, 2023 to determine if wetlands were present onsite. Test plot locations were mapped with a handheld GPS unit capable of sub-meter accuracy. Wetland determination data forms are attached.

VEGETATION

The indicator categories following the common and scientific names indicate the likelihood of a species to be found in wetlands. Listed from most-likely to least-likely to be found in wetlands, the indicator categories are:

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

General vegetation onsite consists of regularly mowed lawn grasses and weedy forbs, ornamental landscaped shrubs, and coniferous and deciduous trees. Two Douglas fir (FACU) snags, one with a diameter at breast height (DBH) of 24 inches and one with a DBH of 18 inches, are located in the eastern portion of the site. The dominant vegetation found onsite and in test plots consisted of fescue grasses (*Festuca* sp., assumed FAC) and Douglas fir trees were also abundant onsite.

SOILS

The U.S.D.A. Natural Resource Conservation Service (NRCS) Web Soil Survey (2023) lists soils onsite as Hesson clay loam, 0 to 8 percent slopes (HcB) (Figure 3). Hesson clay loam is characterized as well drained and is formed from alluvium and found on terraces. According to the NRCS Hydric Soils List, Hesson clay loam is not listed as "hydric" (NRCS 2023). Mapped hydric soils do not necessarily mean that an area is or is not a wetland—hydrology, hydrophytic wetland vegetation, and hydric soils must all be present to classify an area as a wetland. Evaluated soils consisted of silt loam with a dark brown and very dark grayish brown matrix (10YR 3/3 and 10YR 3/2). Redoximorphic features were not observed in any test plots and no hydric soil indicators were met.

HYDROLOGY

The site is located within Water Resource Inventory Area (WRIA) 28 – Salmon-Washougal and the 12-digit hydrologic unit code (HUC) 170800010605 – Lacamas Creek. Hydrology was not present in any of the test plots during the site visit, nor was there any evidence of wetland hydrology onsite.

Critical Areas Inventories

National and Local Wetlands Inventories

The U.S. Fish and Wildlife Service's (USFWS) webpage National Wetlands Inventory (NWI) does not indicate wetlands onsite (Figure 4). ELS findings are consistent with the NWI map for this site. NWI maps are typically used to gather wetland information about a region and, because of the large scale necessary for regional mapping, are limited in accuracy for localized analyses.

Clark County Critical Areas

The Clark County Critical Areas Inventory (*CCCAI*) webpage indicates no wetlands or other critical areas onsite (Figure 5). The findings from the site visit are consistent with the *CCCAI* for this site as no wetlands or other critical areas were observed onsite.

Washington Department of Fish and Wildlife, Priority Habitats and Species

The Washington Department of Fish and Wildlife (WDFW) Priority and Habitats and Species (PHS) database does not depict any priority habitats or species within 300 feet of the site (Figure 6). ELS findings are consistent with the PHS online mapping for this site.

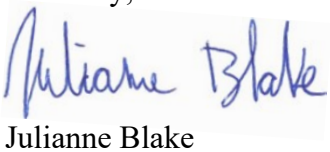
Findings

ELS determined that no wetlands, streams, or Oregon white oaks (*Quercus garryana*) are present onsite. Two Douglas fir snags, one with a DBH of 18 inches and one with a DBH of 24 inches were observed in the eastern portion of the site.

Limitations

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

Sincerely,



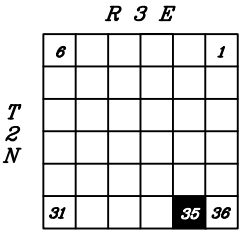
Julianne Blake
Biologist III

Attachments:
Figure 1. Vicinity Map
Figure 2. Existing Conditions
Figure 3. NRCS Soil Survey
Figure 4. USFWS National Wetlands Inventory
Figure 5. Clark County Critical Areas
Figure 6. WDFW Priority Habitats and Species
Photoplates 1 – 3
Wetland Determination Data Forms 1 – 4

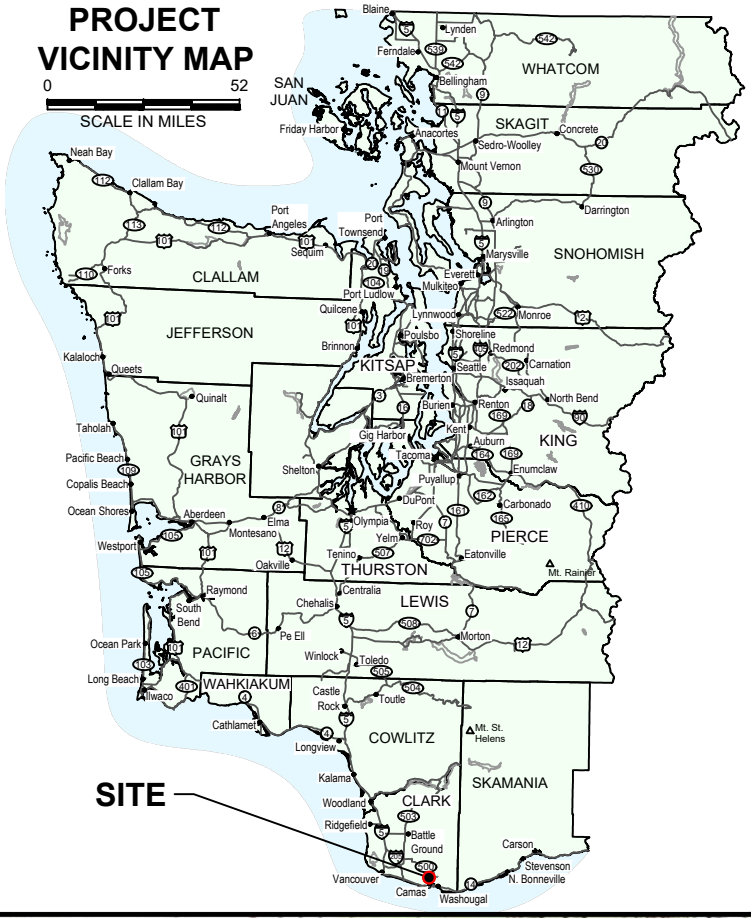
WASHINGTON

45.6148° Latitude
-122.4012° Longitude

LOCATION MAP



PROJECT VICINITY MAP



NOTE:
Quadrangle topographic map from USGS.

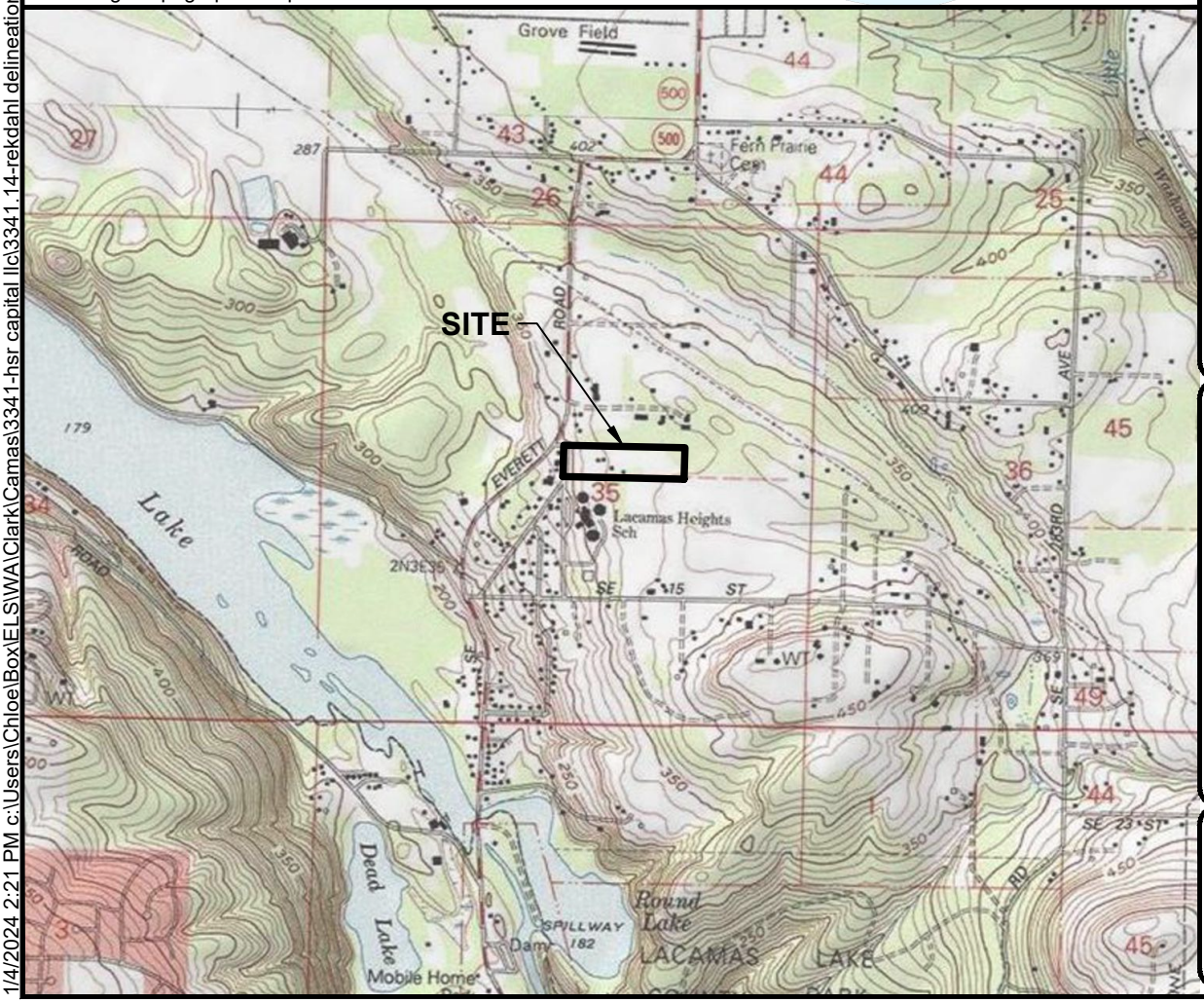


Figure 1
VICINITY MAP
Rekdahl Determination
HSR Capital, LLC.
Camas, Clark County, Washington
Section 35, Township 02N, Range 03E, W.M.

DATE: 1/4/24
DWN: CB
REQ. BY: JB
PRJ. MGR: JB
CHK:
PROJECT NO: 3341.14

1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305
www.eco-land.com
Ecological Land Services

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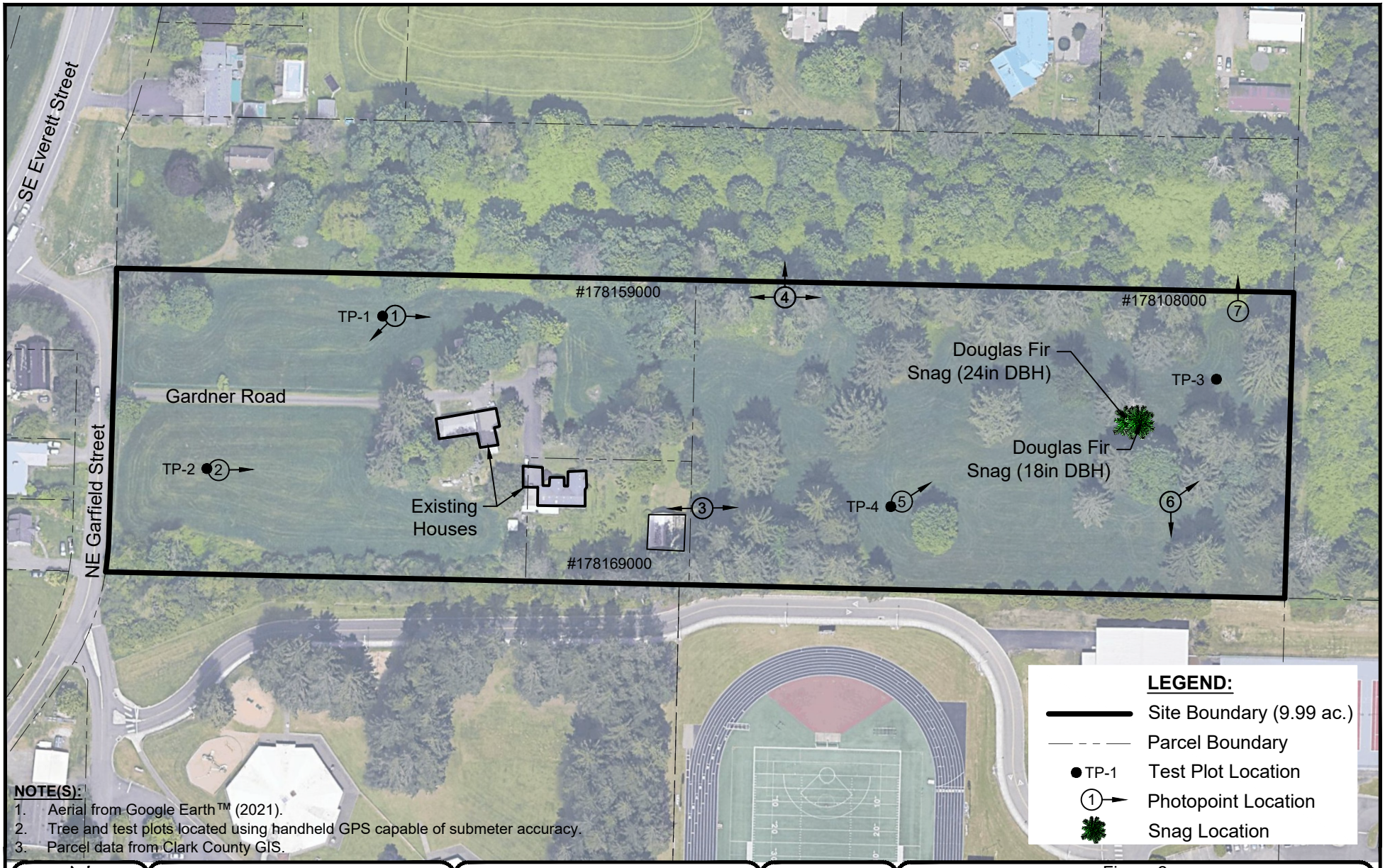

NOTE(S):
1. Aerial from Google Earth™ (2021).
2. Tree and test plots located using handheld GPS capable of submeter accuracy.
3. Parcel data from Clark County GIS.

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SCALE IN FEET

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DATE: 1/4/24
DWN: CB
REQ. BY: JB
PRJ. MGR: JB
CHK:
PROJECT NO: 3341.14

Figure 2
EXISTING CONDITIONS
Rekdahl Determination
HSR Capital, LLC.
Camas, Clark County, Washington
Section 35, Township 02N, Range 03E, W.M.

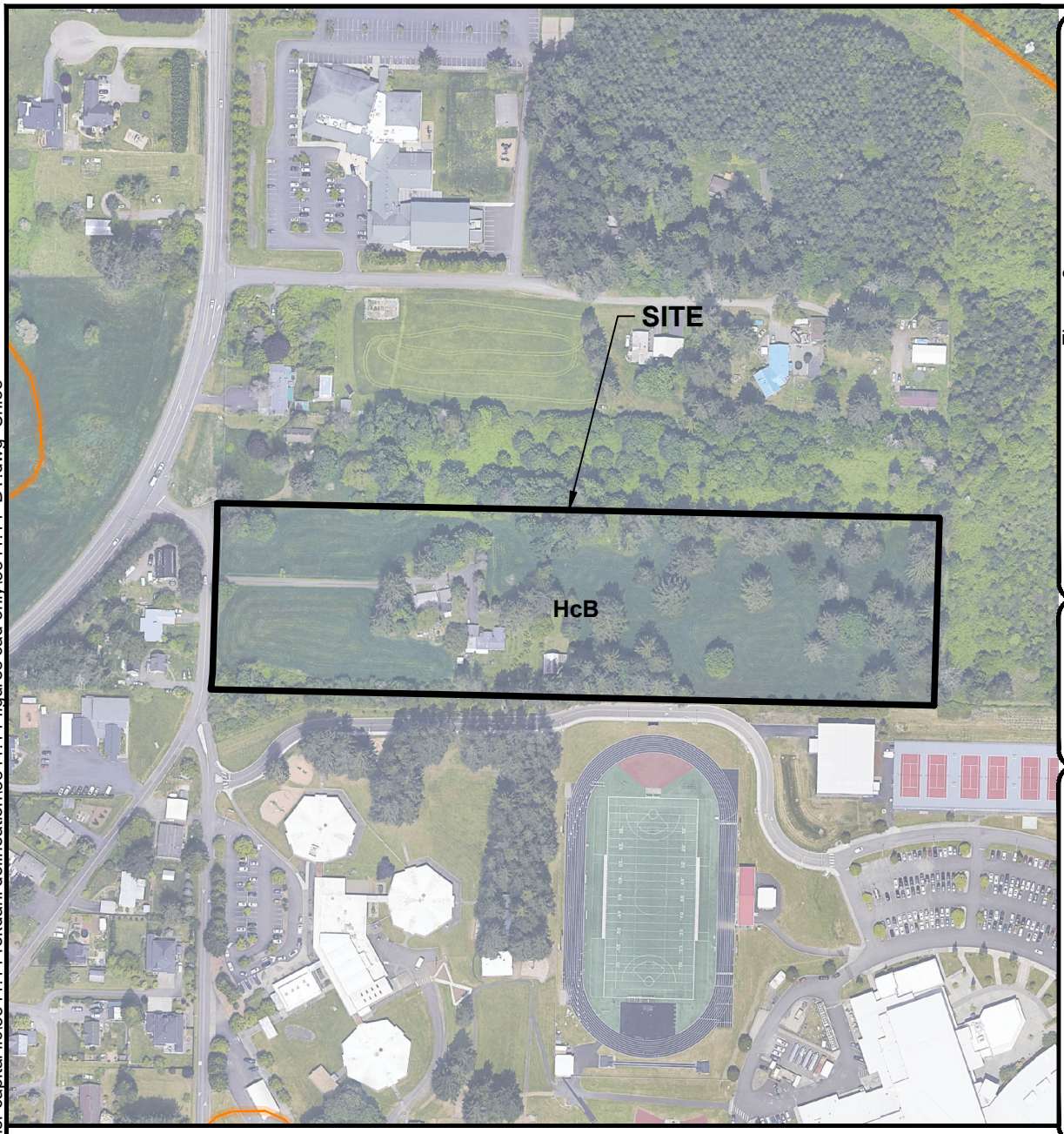

Figure 3
NRCS SOIL SURVEY
Rekdahl Determination
HSR Capital, LLC.
Camas, Clark County, Washington
Section 35, Township 02N, Range 03E, W.M.

DATE: 1/4/24
DWN: CB
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LEGEND:

Site Boundary
NRCS Soil Boundary
HcB Hesson clay loam, 0 to 8 percent slopes. Not hydric.

NOTE(S):
1. Map provided on-line by NRCS at web address: *http://websoilsurvey.nrcs.usda.gov/app/*

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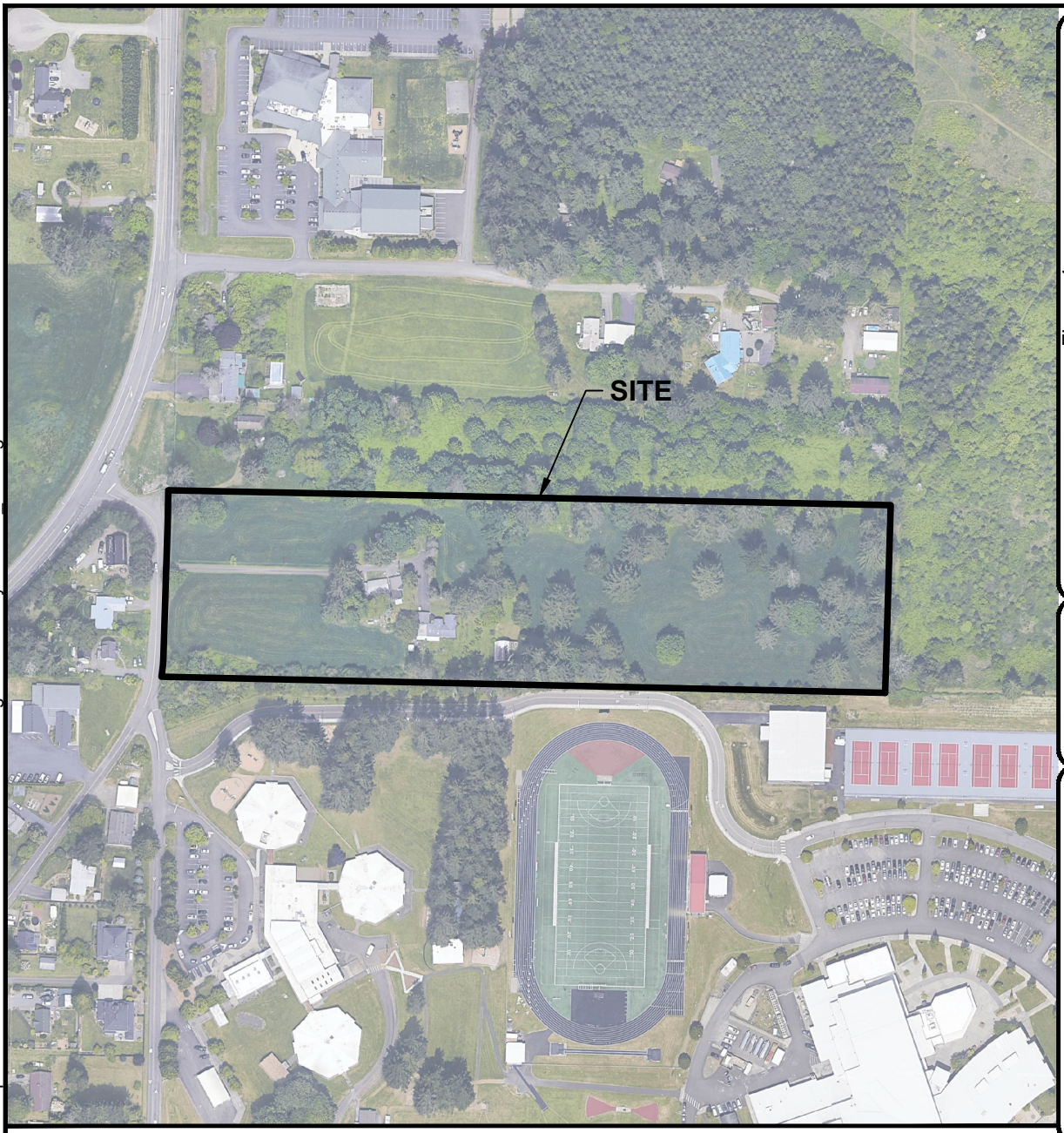

Figure 4
USFWS NATIONAL WETLANDS INVENTORY
Rekdahl Determination
HSR Capital, LLC.
Camas, Clark County, Washington
Section 35, Township 02N, Range 03E, W.M.

DATE: 1/4/24
DWN: CB
REQ. BY: JB
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CHK:
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No mapped wetlands indicated onsite by US Fish & Wildlife Service.

LEGEND:

Site Boundary

0 300 600
SCALE IN FEET

N W E S

NOTE(S):

1. Map provided on-line by US Fish & Wildlife Service at web address: *https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper*

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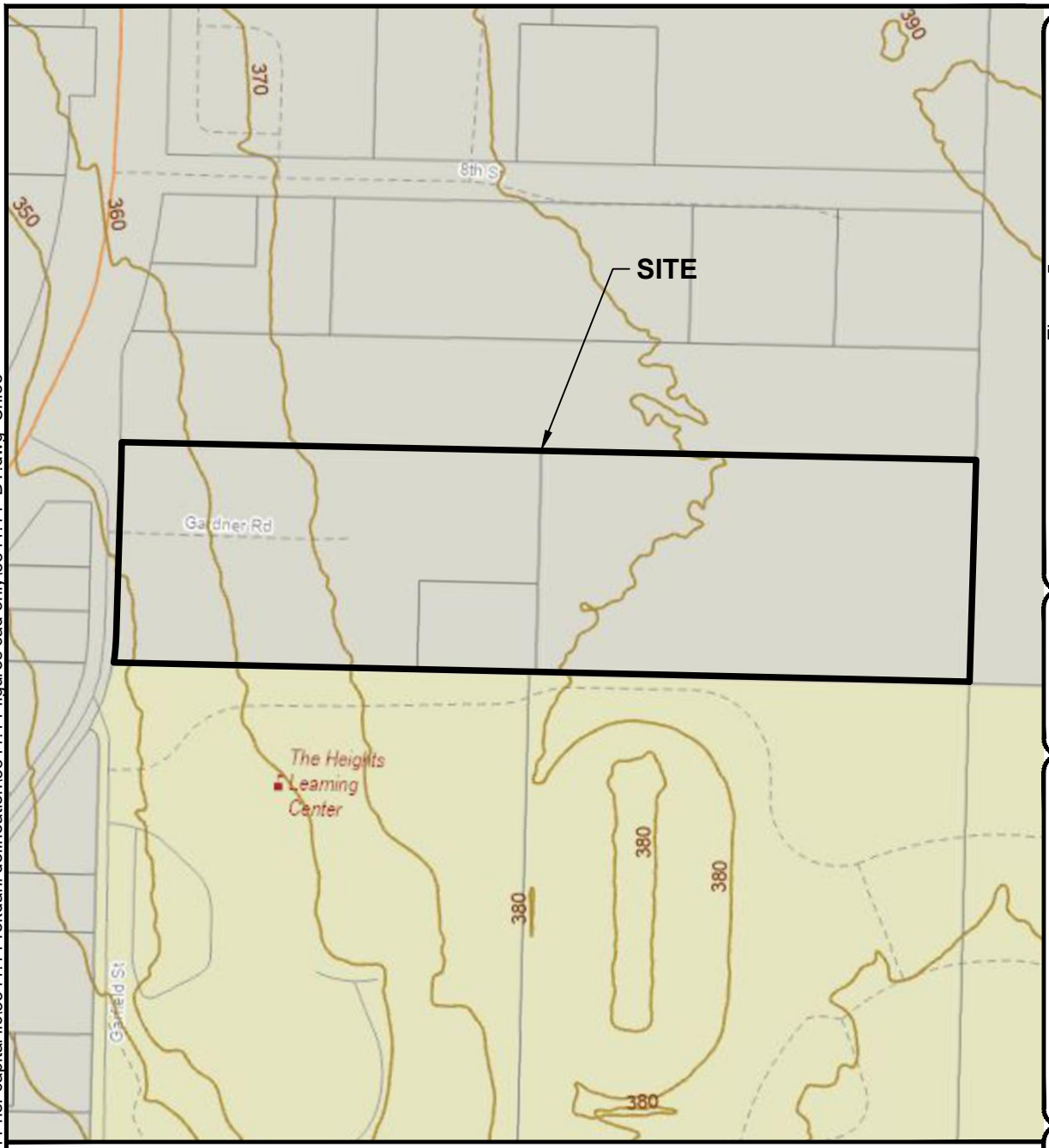

Figure 5
CLARK COUNTY CRITICAL AREAS
Rekdahl Determination
HSR Capital, LLC.
Camas, Clark County, Washington
Section 35, Township 02N, Range 03E, W.M.

DATE: 1/4/24
DWN: CB
REQ. BY: JB
PRJ. MGR: JB
CHK:
PROJECT NO: 3341.14

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SCALE IN FEET
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LEGEND:

Site Boundary

Environmental
Slopes and Geologic Hazards Group
Contour Lines
Contour Lines - 10 ft

NOTE(S):
1. Map provided on-line by Clark County at web address: *https://gis.clark.wa.gov/mapsonline/index.cfm?site=Environmental*

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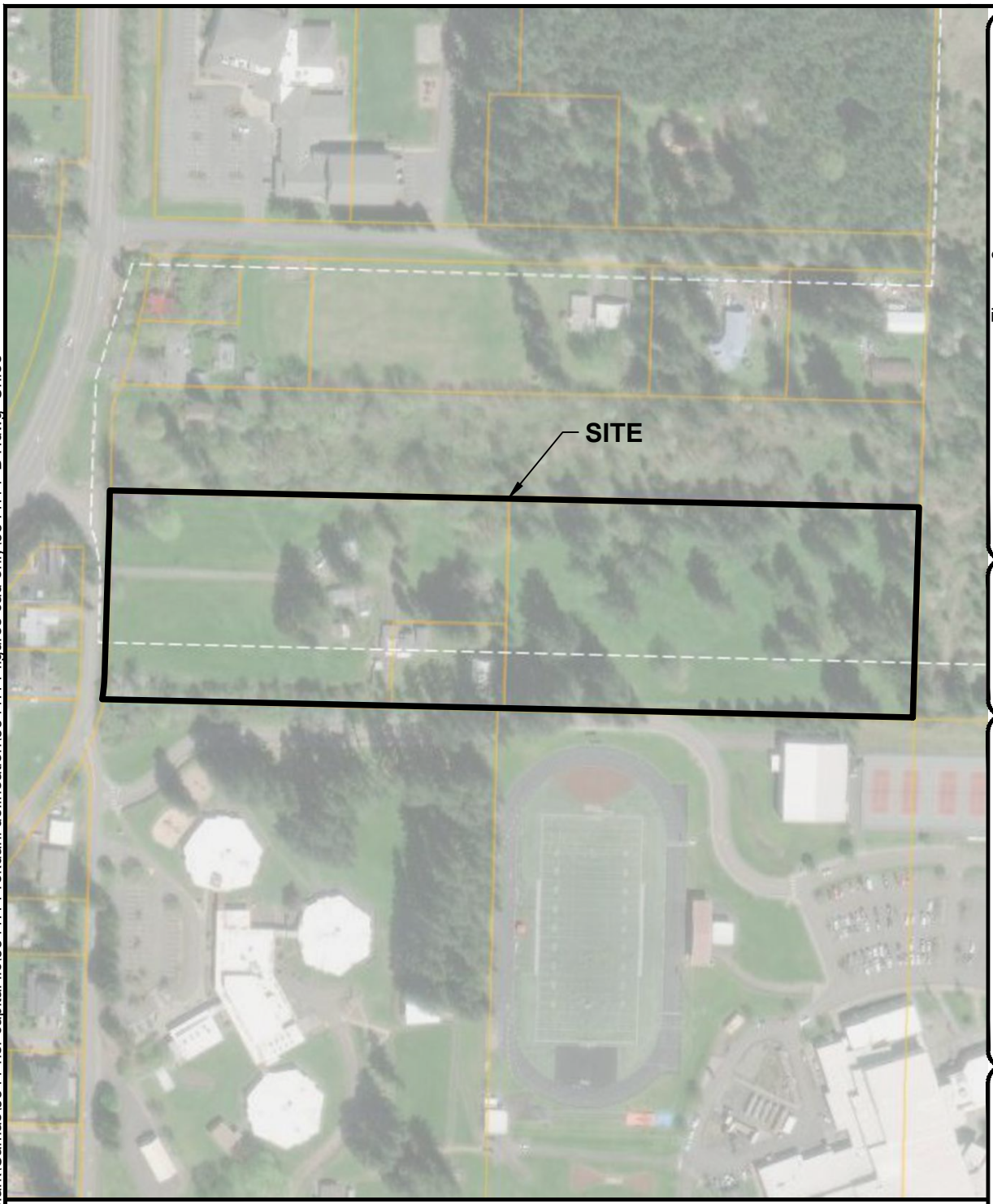

Figure 6
WDFW PRIORITY HABITATS AND SPECIES
Rekdahl Determination
HSR Capital, LLC.
Camas, Clark County, Washington
Section 35, Township 02N, Range 03E, W.M.

DATE: 1/4/24
DWN: CB
REQ. BY: JB
PRJ. MGR: JB
CHK:
PROJECT NO: 3341.14

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SCALE IN FEET

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No mapped priority habitats or species indicated onsite by Washington State Department of Fish & Wildlife.

LEGEND:

Site Boundary
Parcel Boundary

NOTE: Map provided on-line by Washington State Department of Fish & Wildlife at web address: *http://apps.wdfw.wa.gov/phsontheweb/*

1/4/2024 2:21 PM c:\Users\Chloe\Box\ELS\WA\Clark\Camas\3341-hsr capital llc\3341.14-rekdahl delineation\3341.14-figures cad only\3341.14 DT.dwg Chloe

Photo 1. View southwest from TP-1.

Photo 2. View east from TP-1.

Photo 3. View east from TP-2.

Photo 4. View east from Photopoint 3.

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DATE: 11/7/2023
DWN: JB
PRJ. MGR: JB
PROJ.#: 3341.14

Photoplate 1
Rekdahl Determination
Camas, Washington
Section 35, Township 2N, Range 3E, W.M.

Photo 5. View west from Photopoint 3.

Photo 6. View west from Photopoint 4.

Photo 7. View east from Photopoint 4.

Photo 8. View north from Photopoint 4.

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Phone: (360) 578-1371
Fax: (360) 414-9305

DATE: 11/7/2023
DWN: JB
PRJ. MGR: JB
PROJ.#: 3341.14

Photoplate 2
Rekdahl Determination
Camas, Washington
Section 35, Township 2N, Range 3E, W.M.

Photo 9. View northeast from Photopoint 5.

Photo 10. View northeast from Photopoint 6.

Photo 11. View south from Photopoint 6.

Photo 12. View north from Photopoint 7.

Ecological Land Services

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Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305

DATE: 11/7/2023
DWN: JB
PRJ. MGR: JB
PROJ.#: 3341.14

Photoplate 3
Rekdahl Determination
Camas, Washington
Section 35, Township 2N, Range 3E, W.M.

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

Project/Site: Rekdahl Determination City/County: Camas/Clark Sampling Date: 11/7/2023
Applicant/Owner: HSR Capital, LLC State: WA Sampling Point: TP-1
Investigator(s): J. Andrade Section, Township, Range: 35, 2N, 3E
Landform (hillslope, terrace, etc.): Terrace Local relief: (concave, convex, none): None Slope (%): 0-8%
Subregion (LRR): A Lat: 45.6151092 Long: -122.4025968 Datum: NAD83
Soil Map Unit Name: Hesson clay loam, 0 to 8 percent slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain 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 ☐	**Is the Sampled Area within a Wetland?** **Yes☐ No☒**
Hydric Soils Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: TP-1 is located in the northwestern portion of the site. TP-1 does not meet all three wetland indicators and is therefore not in wetlands.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.	%		
2.	%		
3.	%		
4.	%		
50% = ___ 20% = ___	%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1.	%		
2.	%		
3.	%		
4.	%		
5.	%		
50% = ___ 20% = ___	%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Festuca* sp. *	100%	yes	FAC
2.	%		
3.	%		
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 50 20% = 20	100%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1.	%		
2.	%		
50% = ___ 20% = ___	%	=Total Cover	

% Bare Ground in Herb Stratum 0%

Dominance Test Worksheet

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

Total Number of Dominant Species Across All Strata: 1 (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:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - 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: *Festuca* sp.* indicator status assumed FAC.

SOIL

Sampling Point: TP-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
0-10	10YR 3/3	100%		%			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.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (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

- ☐ 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: Gravel
Depth (inches):10

Hydric Soil Present? Yes☐ No☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. 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): _____
Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
(Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

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

Project/Site: Rekdahl Determination City/County: Camas/Clark Sampling Date: 11/7/2023
Applicant/Owner: HSR Capital, LLC State: WA Sampling Point: TP-2
Investigator(s): J. Andrade Section, Township, Range: 35, 2N, 3E
Landform (hillslope, terrace, etc.): Terrace Local relief: (concave, convex, none): None Slope (%): 0-8%
Subregion (LRR): A Lat: 45.614636 Long: -122.4033372 Datum: NAD83
Soil Map Unit Name: Hesson clay loam, 0 to 8 percent slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain 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 ☐	**Is the Sampled Area within a Wetland?** **Yes☐ No☒**
Hydric Soils Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: TP-2 is located in the southwestern portion of the site. TP-2 does not meet all three wetland indicators and is therefore not in wetlands.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.	%		
2.	%		
3.	%		
4.	%		
50% = ___ 20% = ___	%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1.	%		
2.	%		
3.	%		
4.	%		
5.	%		
50% = ___ 20% = ___	%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Festuca* sp.*	90%	yes	FAC
2. *Plantago major*	10%	no	FAC
3.	%		
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 50 20% = 20	100%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1.	%		
2.	%		
50% = ___ 20% = ___	%	=Total Cover	

% Bare Ground in Herb Stratum 0%

Dominance Test Worksheet

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

Total Number of Dominant Species Across All Strata: 1 (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:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - 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: *Festuca* sp.* indicator status assumed FAC.

SOIL

Sampling Point: TP-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/3	100%		%			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.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (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

- ☐ 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: Gravel
Depth (inches):8

Hydric Soil Present? Yes☐ No☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. 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): _____
Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
(Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

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

Project/Site: Rekdahl Determination City/County: Camas/Clark Sampling Date: 11/7/2023
Applicant/Owner: HSR Capital, LLC State: WA Sampling Point: TP-3
Investigator(s): J. Andrade Section, Township, Range: 35, 2N, 3E
Landform (hillslope, terrace, etc.): Terrace Local relief: (concave, convex, none): None Slope (%): 0-8%
Subregion (LRR): A Lat: 45.6149792 Long: -122.399002 Datum: NAD83
Soil Map Unit Name: Hesson clay loam, 0 to 8 percent slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain 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 ☐	**Is the Sampled Area within a Wetland?** **Yes☐ No☒**
Hydric Soils Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: TP-3 is located in the northeastern portion of the site. TP-3 does not meet all three wetland indicators and is therefore not in wetlands.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.	%		
2.	%		
3.	%		
4.	%		
50% = ___ 20% = ___	%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1.	%		
2.	%		
3.	%		
4.	%		
5.	%		
50% = ___ 20% = ___	%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Festuca* sp.	95%	yes	FAC
2. *Cirsium arvense*	5%	no	FAC
3.	%		
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 50 20% = 20	100%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1.	%		
2.	%		
50% = ___ 20% = ___	%	=Total Cover	

% Bare Ground in Herb Stratum 0%

Dominance Test Worksheet

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

Total Number of Dominant Species Across All Strata: 1 (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:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - 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: *Festuca* sp.* indicator status assumed FAC.

SOIL

Sampling Point: TP-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100%		%			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.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (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

- ☐ 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: Rock
Depth (inches):4

Hydric Soil Present? Yes☐ No☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. 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): _____
Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
(Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

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

Project/Site: Rekdahl Determination City/County: Camas/Clark Sampling Date: 11/7/2023
Applicant/Owner: HSR Capital, LLC State: WA Sampling Point: TP-4
Investigator(s): J. Andrade Section, Township, Range: 35, 2N, 3E
Landform (hillslope, terrace, etc.): Terrace Local relief: (concave, convex, none): None Slope (%): 0-8%
Subregion (LRR): A Lat: 45.614571 Long: -122.40039 Datum: NAD83
Soil Map Unit Name: Hesson clay loam, 0 to 8 percent slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes☒ No☐ (If no, explain 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 ☐	**Is the Sampled Area within a Wetland?** **Yes☐ No☒**
Hydric Soils Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks: TP-4 is located in the southeastern portion of the site. TP-4 does not meet all three wetland indicators and is therefore not in wetlands.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1.	%		
2.	%		
3.	%		
4.	%		
50% = ___ 20% = ___	%	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft. radius)			
1.	%		
2.	%		
3.	%		
4.	%		
5.	%		
50% = ___ 20% = ___	%	=Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Festuca* sp.*	95%	yes	FAC
2. *Taraxacum officinale*	5%	no	FACU
3.	%		
4.	%		
5.	%		
6.	%		
7.	%		
8.	%		
9.	%		
10.	%		
11.	%		
50% = 50 20% = 20	100%	=Total Cover	
Woody Vine Stratum (Plot size: 15 ft radius)			
1.	%		
2.	%		
50% = ___ 20% = ___	%	=Total Cover	

% Bare Ground in Herb Stratum 0%

Dominance Test Worksheet

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

Total Number of Dominant Species Across All Strata: 1 (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:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 – Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - 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: *Festuca* sp.* indicator status assumed FAC.

SOIL

Sampling Point: TP-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
0-8	10YR 3/3	100%		%			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.)

- ☐ Histosal (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Minerals (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

- ☐ 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: Gravel
Depth (inches):8

Hydric Soil Present? Yes☐ No☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (min. 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): _____
Water Table Present? Yes ☐ No ☒ Depth (Inches): _____
Saturation Present? Yes ☐ No ☒ Depth (Inches): _____
(Includes Capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

WETLAND BUFFER MODIFICATION & OAK MITIGATION PLAN

October 21, 2024

Camas Woods Subdivision

Camas, Washington

Prepared for

HSR Capital, LLC
19120 SE 34th St. # 103
Vancouver, WA 98683
(360) 513-6516

Prepared by

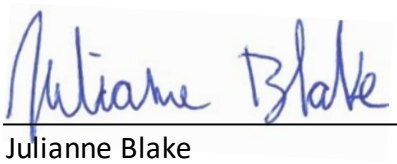
Ecological Land Services, Inc.

1157 3rd Avenue, Suite 220A • Longview, WA 98632

(360) 578-1371 • Project Number 3341.22

SIGNATURE PAGE

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



Julianne Blake
Biologist III

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FIGURES

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APPENDIX

Appendix A – Required Oak Mitigation Calculations

INTRODUCTION

Ecological Land Services, Inc. (ELS) has completed this wetland buffer modification and oak mitigation plan for the applicant, HSR Capital, LLC, to address impacts to Oregon white oaks (*Quercus garryana*) associated with development of the Camas Woods Subdivision. The project will include 206 single-family lots, three multi-family buildings with 72 apartment units, and one mixed-use building with 10,000 square feet of commercial use and 16 apartment units, within Clark County parcel numbers 178140000, 178159000, 178169000, and 178108000. The approximately 36.37-acre site is located just north of Camas High School in Camas, Washington within the NE 1/4 of Section 35, Township 2 North, Range 3 East of the Willamette Meridian (Figure 1). The proposed project will relocate one priority snag, remove two Oregon white oak trees, and relocate one Oregon white oak tree, resulting in a total of 915 square feet of oak canopy impacts. All wetland impacts will be avoided through buffer averaging. Oak mitigation standards require installing oak and oak understory plantings over approximately 0.37 acres onsite. This mitigation plan has been prepared in accordance with the *City of Camas Municipal Code (CMC) Title 16 – Environment* (June 2024) and *Management recommendations for Washington's priority habitats: Best management practices for mitigating impacts to Oregon white oak priority habitat* (Guidance, Nolan and Azerrad 2024).

RESPONSIBLE PARTIES

APPLICANT & PROPERTY OWNER
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PROJECT DESCRIPTION

PROJECT HISTORY

The *Critical Areas Report for Rekdahl Determination* was completed by ELS on July 3rd, 2024 and addresses critical areas on parcels 178159000, 178169000, and 178108000 (ELS 2024a). The *Critical Areas Report for Camas Parcel 178140000* was also completed by ELS on July 3rd, 2024 and addresses critical areas on parcel 178140000 (ELS 2024b).

PROPOSED DEVELOPMENT

The proposed project will include 206 single-family lots, three multi-family buildings with 72 apartment units, and one mixed-use building with 10,000 square feet of commercial use and 16 apartment units, over the approximately 36.37-acre site. The average size of each residential lot ranges from approximately 3,000 to 7,000 square feet. Construction of the subdivision will include clearing, grading, lot preparation, utility installation, construction of local access roads, and construction of stormwater facilities (Figure 3). Access to the subdivision will be provided by extending SE 8th Street easterly and constructing a new road that runs easterly from NE Everett Drive into the eastern site boundary.

Impacts will be avoided and minimized by using best management practices (BMPs), including installing silt fencing along the outer edge of development during construction, applying native grass seed to disturbed areas not being paved when grading is complete, and making a water truck available to prevent dust blowing during construction. Additional BMPs are discussed in the *Avoidance and Minimization* section later in this report. Permanent 42-inch-tall split-rail fencing and large downed logs salvaged from trees onsite will be installed along the outer edge of wetland buffers and oak mitigation areas and maintained in perpetuity with critical area signs posted at 100-foot intervals along the fence line. Staging areas will be located within uplands outside of the driplines of oaks to be retained, as well as outside the wetland buffer. Construction is anticipated to start upon receipt of permits.

Construction of residential lots and the proposed stormwater facilities will result in approximately 915 square feet of oak canopy impacts through the removal of two individual oaks and the relocation of one individual oak. The diameter at breast height (DBH) of the oaks to be removed are 11 inches and 17 inches and the DBH of the oak to be relocated is 5 inches. One priority snag with a DBH of 24 inches will also be relocated. All wetland impacts will be avoided through buffer averaging. Oak mitigation standards require the installation of 183 oak saplings and 332 oak understory plantings over approximately 0.37 acres onsite. The oaks and understory plantings will be installed within protected wetland buffer areas where existing native vegetation will be retained.

EXISTING CONDITIONS

EXISTING LAND USES

The site is zoned for residential and commercial uses and currently contains a powerline easement that intersects the eastern portion of the site from the northwest boundary to the

central eastern boundary. The eastern portion is fenced, with an approximately 15-foot-wide unimproved path that follows the entire boundary for site and fence maintenance, and vegetation within this path consists of regularly mowed pasture grasses. Vegetation in the interior of the western portion of the site is forested with deciduous and coniferous trees forming the canopy and understory consisting of native shrubs and herbaceous species. Topography in the east gradually slopes downward in elevation from the center of the site to a depression in the northeast corner of the site where Wetland A is located, and slopes gently downward in elevation toward the southwest corner of the site. The eastern portion of the site is vacant and undeveloped. Review of historic aerial imagery suggests the eastern portion of the site was logged and cleared sometime in 2005 or 2006.

The western portion of the site is currently used as a private residence and has been in residential land use since 1935. Topography is generally flat with vegetation consisting primarily of regularly mowed lawn grasses and weedy forbs, ornamental landscaped shrubs, and coniferous and deciduous trees.

Surrounding Land Uses

Surrounding land use is primarily low-density residential and Camas High School is located directly to the south. Forested land is located to the north and east.

Existing Critical Areas and Buffers

The site was assessed for critical areas by ELS in 2024 (ELS 2024a and ELS 2024b). One wetland (Wetland A) is located in the northeast corner of the site and four Oregon white oak trees and two snags are located throughout. Two oaks with DBH of 15 inches (Oak 1) and 17 inches (Oak 3) are located in the northeastern portion of the site while a smaller oak with a DBH of 5 inches is centrally located. One snag with a DBH of 42 inches is centrally located. One Oregon white oak (Oak 4) tree with a DBH of 11 inches and two Douglas fir (*Pseudotsuga menziesii*) snags with DBH of 18 and 24 inches, are located in the eastern portion of the site (Figure 2). Oak locations, driplines, wetland flags and test plot locations were mapped using a GPS system capable of submeter accuracy in ideal conditions

Wetland

Wetland A is a Category III, forested, aquatic bed, emergent, wetland totaling approximately 0.19 acres onsite that extends offsite to the northwest and southeast. According to *CMC Table 16.53.040-3*, Wetland A has a standard buffer width of 150 feet. For more information on Wetland A, see *Critical Areas Report for Camas Parcel 178140000* (ELS 2024b).

Oregon White Oak

CMC Chapter 16.61 regulates Fish and Wildlife Habitat Conservation Areas, which include areas with which state or federally designated endangered, threatened, and sensitive species have a primary association, state priority habitats and areas associated with state priority species, habitats of local importance (Oregon white oak and Camas lily), naturally occurring ponds under 20 acres, waters of the state, bodies of water planted with game fish by a governmental or tribal

entity, and state natural area preserves and natural resource conservation areas (*CMC 16.61.010(A)*).

The Washington Department of Fish and Wildlife (WDFW) identifies which oak communities are considered priority habitats through its Priority Habitats and Species (PHS) program. The Washington Natural Heritage Program (WNHP) defines a North Pacific Oak Woodland as a community dominated or co-dominated by oak and associated with dry, low-elevation sites or those with frequent fires pre-settlement (Nolan and Azerrad 2024). Oregon white oak woodlands are associated with eight different plant communities, including a wide diversity of native herbaceous and shrub species. Oak woodlands provide a mix of feeding, resting, and breeding habitat for many wildlife species (Nolan and Azerrad 2024). In addition to oak woodlands, individual oak trees can be considered a priority habitat if they provide considerable value to wildlife. In addition to woodland communities, oaks are also associated with prairies and savannas in Washington. These communities are considered wooded grasslands and are an association of upland grassland and meadows (Rocchio and Crawford 2015). Oaks 1, 2, 3, and 4 have DBH of 15, 5, 17, and 11 inches respectively. Oaks 1, 3, and 4 are regulated as individual oaks, while Oak 2 is not required to adhere to WDFW guidelines due to its small DBH.

Priority Snags

Trees are considered snags by WDFW if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavations and use by wildlife. Priority snags have a DBH of greater than 20 inches and are at least 6.5 feet tall. ELS biologists identified three snags onsite, two of which are considered priority snags with DBH of 24 and 42 inches. The third snag has a DBH of 18 inches and is therefore not considered priority. Critical areas associated with the project site are summarized in Table 1 below.

Table 1. Summary of Critical Areas Onsite

Critical Area Identifier	Size	Type	Buffer Width/ Canopy Coverage
Wetland A	0.18 acres onsite	Category III/ FO, AB, EM/ Depressional	150 feet
Oak 1	15-inch DBH	Priority Habitat	423 sq. ft.
Oak 2	5-inch DBH		76 sq. ft.
Oak 3	17-inch DBH		562 sq. ft.
Oak 4	11-inch DBH		353 sq. ft.
Snags	24 and 42-inch DBH		N/A

Landscape Position

The study area is located within Water Resource Inventory Area (WRIA) 28, Salmon-Washougal, and the 12-digit Hydrologic Unit Code (HUC): 170800010605 – Lacamas Creek.

STANDARD WETLAND BUFFER MODIFICATIONS

WETLAND BUFFER AVERAGING

This project proposes buffer averaging to completely avoid wetland buffer impacts caused by construction of the subdivision. According to *CMC 16.53.050(C)(2)*, wetland buffer widths may be modified by averaging. Below is an excerpt from the code in *italic* font detailing the eligible site design measures with a description in regular font of how this project will meet the criteria.

a. The total area contained in the buffer after averaging is no less than that contained within the buffer prior to averaging.

A total of 6,101 square feet of buffer will be decreased along the southeastern boundary of Wetland A and correspondingly increased immediately to the northwest and southeast (Figure 4). After averaging, the buffer will be equal in size to the area contained within the buffer prior to averaging.

b. Decreases in width are generally located where wetland functions may be less sensitive to adjacent land uses, and increases are generally located where wetland functions may be more sensitive to adjacent land uses, to achieve no net loss or a net gain in functions.

The functions of the buffer area being decreased are equal to the functions of the buffer area being increased as both areas are primarily forested and adjacent to the proposed storm pond. Thus, no net loss is achieved.

c. The averaged buffer width at its narrowest point shall not result in a width less than seventy-five percent of the required width, provided that minimum buffer widths shall never be less than fifty feet for all Category 1, 2, and 3 wetlands and twenty-five feet for all Category IV wetlands.

The averaged buffer width at its narrowest point is approximately 112 feet, which is approximately 75 percent of the required width. Buffer averaging is shown on Figure 4.

d. Effect of Mitigation. If wetland mitigation occurs such that the rating of the wetland changes, the requirements for the category of the wetland after mitigation shall apply.

Not applicable. Wetland mitigation is not required for this project as buffer averaging will avoid all wetland and buffer impacts.

AVOIDANCE AND MINIMIZATION OF PROJECT IMPACTS

The preferred mitigation sequencing of first avoidance, then minimization, and finally compensation for unavoidable impacts was taken into consideration during the project design process. The proposed subdivision has been designed to completely avoid all impacts to Wetland A and to avoid oak impacts to the greatest extent practicable. Wetland buffer averaging, as described above, will result in the avoidance of all wetland and wetland buffer impacts. Impacts

to the 24-inch DBH snag will be minimized and mitigated by relocating it to the wetland buffer area.

The project has also been designed to completely avoid impacts to Oak 1 by locating development outside of the dripline and placing the oak in a separate tract. Oaks could not be completely avoided due to the topographical and environmental constraints onsite, as well as required roadway circulation, density requirements, stormwater paths, and parking lots. As such, impacts have been minimized by retaining as many oaks as possible onsite, including those that are unregulated. Other minimization measures include installing silt fencing around oak driplines, demarcating clearing lines, avoiding excavation within the critical root zone, and avoiding attaching anything to tree. According to WDFW's guidance, oaks with a DBH of less than 6 inches do not require mitigation for removal (Nolan and Azerrad 2024). Oak 2 has a DBH of 5 inches and can therefore be removed without mitigating for impacts. Oak 2 is also isolated and not located near other oaks. The applicant will retain Oak 2 and relocate it to the wetland buffer area to serve as mitigation for impacts to other oaks onsite. This will minimize impacts by retaining the existing functions of the tree and increasing habitat connectivity by being relocated near other oaks.

UNAVOIDABLE OAK IMPACT ACREAGE

The proposed project will remove Oak 3 and Oak 4, which will result in approximately 915 square feet of oak canopy dripline impact resulting from clearing and grading for lot development and construction of interior access streets (Table 2). To compensate for the removal of Oak 3 and Oak 4, a minimum of 0.37 acres (15,925 sq. ft.) of the onsite wetland buffer will be enhanced with oak and oak understory plantings and the installation of downed logs as habitat features (Figure 5). The table below summarizes all unavoidable Oregon white oak impacts.

Table 2. Proposed Impacts to Oregon White Oaks

Name	Size	Impact Type	Impact Amount
Oak 3	17-inch DBH	Individual Oak Removal	562 sq. ft.
Oak 4	11-inch DBH		353 sq. ft.
		Total Oak Impact	**915 sq. ft.**

ONSITE OAK MITIGATION DISCUSSION

This onsite mitigation has been designed according to *Management recommendations for Washington's priority habitats: Best management practices for mitigating impacts to Oregon white oak priority habitat* (Nolan and Azerrad 2024). Compensatory mitigation should ideally take place onsite or as close to the site as possible when options for onsite mitigation are limited. Any plan for compensatory mitigation must address both the physical loss of oak habitat and the temporal loss in ecological function (Nolan and Azerrad 2024). Because oaks are already present onsite, environmental conditions are suitable for oak survival and planted oaks will have a high likelihood of success. This mitigation plan accounts for both the physical and temporal losses resulting from the proposed project. As the planted oaks grow, they will provide increased refuge and forage opportunities as well as an increase in total habitat area onsite which will result in no

net loss in ecological and habitat functions over time. This mitigation plan has been designed to ensure high survival of planted oaks to assure the success of the mitigation area over time.

Oak Woodland Determination

Mitigation for impacts to oak woodlands differs from mitigation for impacts to individual oaks. As such, an assessment must be completed to determine whether the project impacts an oak woodland or individual oaks. Each oak on- and offsite is assigned a habitat area with a 118-foot radius, which produces an area of approximately one acre per oak. If two or more of these habitat areas overlap, further investigation is required to determine if they meet the definition of an oak woodland. To be considered an oak woodland, there must be a minimum density of five large oaks per acre and the oak component must be no less than 25 percent of the total canopy cover. The habitat areas for Oak 1 and Oak 3 overlap. As such, more investigation is required to determine if they are part of an oak woodland. One potential oak is located offsite to the east and was included in this assessment with Oak 1 and Oak 3 due to its proximity. The combined habitat area of Oak 1, Oak 3, and the potential offsite oak is 2.73 acres (118,941 sq. ft) and the combined dripline of the oaks is 0.03 acres (1,350 sq. ft.); therefore, oaks comprise approximately 1.14 percent of the combined habitat area (Figure 2). Because there are only three oaks in this habitat area and the combined dripline is less than 25 percent of the total canopy cover, project impacts will be calculated for individual oaks. The habitat areas for Oak 2 and Oak 4 do not overlap any other oaks and are therefore also considered individual oaks. Table 3 summarizes the completed oak woodland assessment, which is also depicted on Figure 2.

Table 3. Oak Woodland Determination

Oaks	Habitat Area Total	Dripline Total	Oak Canopy Percentage
Oak 1, Oak 3, Potential Offsite Oak	2.73 acres (118,941 sq. ft)	0.03 acres (1,350 sq. ft.)	1.14 percent

Physical Impacts

After it has been determined whether the project will impact oak woodland or individual oaks, mitigation to offset project impacts must be calculated. Physical mitigation is designed to offset the physical losses of an impacted oak and is determined by the DBH of the impacted oak. Table 4 summarizes the mitigation needed to offset physical impacts of the proposed project. No mitigation is required for Oak 2 removal as Oak 2 has a DBH of approximately 5 inches. The applicant will relocate Oak 2 to the wetland buffer area to serve as partial mitigation for Oak 3 and Oak 4 removal. Calculations for Oak 2 are included below to determine how much mitigation is satisfied by relocating the oak to use as mitigation rather than removing the oak.

Table 4. Oak Mitigation to Offset Physical Impacts

Name	DBH	Mitigation Ratio[1]	Oak Quantity
Oak 2	5 inches	25:1[2]	-25
Oak 3	17 inches	100:1	100
Oak 4	11 inches	50:1	50
Total Oaks Needed to Offset Physical Impacts			**125**

[1]Nolan and Azerrad 2024. [2]There is no established mitigation ratio for oaks with a 5-inch DBH. The applicant proposes a mitigation ratio of 25:1 for the relocation of Oak 2 based on the 50:1 ratio for oaks with a 6-inch DBH.

Temporal Impacts

Because oaks are slow-growing trees, temporal mitigation is designed to offset the temporal functional losses of an impacted oak. An assessment must be completed for the functions of each impacted oak prior to and after development and will determine the mitigation ratios to be used. A post-development assessment was not completed for Oak 3 or Oak 4 as the project proposes to remove both oaks. As such, post-development functions shall be considered minimal for both oaks. After mitigation ratios have been established, the dripline of each oak is used to determine how much area and how many oaks are needed to offset temporal impacts. This information is summarized in Table 5. Functional assessments and mitigation calculations are in Appendix A.

Table 5. Oak Mitigation to Offset Temporal Impacts

Name	Baseline Functions	Post-Dev. Functions	Dripline	Mitigation Ratio	Spacing[2, 3]	Area	Quantity
Oak 2	Minimal	Low	76 sq. ft.	2:1[1]	87 sq. ft.	152 sq. ft.	-2
Oak 3	Medium	Minimal	562 sq. ft.	8:1		4,496 sq. ft.	52
Oak 4	Low	Minimal	353 sq. ft.	2:1		706 sq. ft.	8
Total Oaks Needed to Offset Temporal Impacts							**58**

[1]There is no established mitigation ratio for oaks with a 5-inch DBH. The applicant proposes a mitigation ratio of 25:1 for the relocation of Oak 2 based on the 50:1 ratio for oaks with a 6-inch DBH. [2]Nolan and Azerrad 2024. [3]Approximately 9-foot on-center.

Oak Understory

While oaks are often the only tree species present under natural disturbance regimes, they tend to exist with a diverse understory of native species. There are eight distinct associations for Oregon white oak (Rocchio and Crawford 2015), all of which have distinct understory vegetation. Common understory species include shrubs such as oceanspray (*Holodiscus discolor*), serviceberry (*Amelanchier alnifolia*), snowberry (*Symphoricarpus albus*), Oregon grape (*Berberis aquilfolium*), hawthorn (*Crataegus douglasii*), and herbs such as Roemer's fescue (*Festuca roemeri*) and California oatgrass (*Danthonia californica*). A mature oak woodland will likely have <30% cover of native understory plants (Nolan and Azerrad 2024). When mitigating onsite, understory establishment must be included. Table 6 summarizes understory enhancement needs onsite.

Table 6. Oak Understory Mitigation Requirements

Name	Required Understory Area	Spacing[1]	Stock	Quantity[2]
Oak 2	-0.05 acres (2,327 sq. ft.)	6-foot on-center (36 sq. ft.)	One-Gallon	-48
Oak 3	0.30 acres (13,196 sq. ft.)			275
Oak 4	0.12 acres (5,056 sq. ft.)			105
Total Area	**0.37 acres (15,925 sq. ft.)**	**Total Shrubs Needed for Understory**		**332**

[1]Shrubs shall be planted a minimum of five feet away from oak plantings. [2]A planting calculator was used to determine shrub quantity utilizing 75 percent of the required mitigation area.

MITIGATION PLAN

GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS

The goal of this mitigation plan is to compensate for the removal of two Oregon white oak trees by installing oaks and oak understory plantings across 0.37 acres of the 1.00-acre mitigation area. The salvaged oak logs will be placed at the top of the storm pond to serve as habitat and natural fencing to deter pedestrian traffic from the wetland buffer and oak mitigation area. Logs salvaged from other removed trees onsite will also be included in the protective boundary and will connect to split-rail fence (Figure 5). The split-rail fencing will be installed and located along the outer edge of the mitigation area and maintained for the duration of the development with signs posted at 100-foot intervals along the fence line. The oak mitigation area will be enhanced via invasive vegetation control, installation of downed logs and a snag, and by planting 183 Oregon white oak trees with a minimum stem diameter of 1/4 inch and 332 shrubs in one-gallon containers (Table 7). This will result in no net loss of habitat functions onsite, through increased refuge and foraging opportunities over time. If larger stock is used, fewer oaks may be required as larger oaks will have a higher likelihood of success. Large stock equivalency ratios are in Table 8 and corresponding shrub counts are in Table 9.

Oak seedlings must have abundant access to sunlight to succeed. The mitigation area is partly forested with evergreen and deciduous trees comprising the canopy cover. To ensure oak plantings will have adequate sunlight, existing canopy cover was calculated and removed from the total available mitigation area. The total mitigation area is approximately 1.00 acre while areas without canopy coverage comprise approximately 0.63 acres (Figure 4). Oaks and understory plantings will be installed throughout 0.37 acres of the 0.63 acres available onsite. Actual planting locations will be determined in the field, with consideration to the listed spacing and density to produce the most natural appearance possible.

To accomplish this goal, objectives and performance standards have been established to ensure the success of the installed oaks and shrubs. Monitoring and maintenance of the oak mitigation area will occur for a 10-year period with annual monitoring and reporting occurring in Years 1, 2, 3, 5, 7, and 10. Monitoring and maintenance will ensure the mitigation area is meeting the mitigation plan's goals, objectives, and performance standards.

Table 7. Summary of Proposed Mitigation Plantings

Name	Scientific Name	Quantity[1]	Stock	Spacing
Oregon white oak	*Quercus garryana*	183	1/4-inch diameter stem	Approximately 9-foot on-center (87 sq. ft.) [2]
Snowberry	*Symphoricarpos albus*	50	One-Gallon	6-foot on-center (36 sq. ft.)
Nootka rose	*Rosa nutkana*	50		
Oso-berry	*Oemleria cerasiformis*	50		
Tall Oregon grape	*Mahonia aquifolium*	40		
Pacific Oregon grape	*Mahonia nervosa*	40		
Oceanspray	*Holodiscus discolor*	40		
Red-flowering currant	*Ribes sanguineum*	40		
Serviceberry	*Amelanchier alnifolia*	22		
			Total Shrubs	**332**
			Total Oaks	**183**

[1]A planting calculator was used to determine shrub quantity utilizing 75 percent of the required mitigation area. [2]Shrubs shall be planted a minimum of five feet away from oak plantings.

Table 8. Large Stem Equivalency Ratio

Identifier	Impact Amount	Mitigation Required	Oak Size	Large Stem Equivalency Ratios[1]	Quantity	Equivalent Area
Oregon white oak	Oak 3 – 17-inch DBH Oak 4 – 11-inch DBH 0.02 acres (915 sq. ft. Canopy loss)	183 oaks with 1/4-inch diameter stem	Bare Root	N/A	183	0.37 acres (15,925 sq. ft.)
			1” DBH	1:3	61	0.12 acres (5,307 sq. ft.)
			1.5” DBH	1:4	46	0.09 acres (4,002 sq. ft.)
			2” DBH	1:6	31	0.06 acres (2,697 sq. ft.)

[1]The large stem equivalency ratios are from Brent Davis at Clark County. The ratios indicate how many large stem oaks need to be installed in comparison to small stock. For example, the 1:3 ratio for 1-inch DBH oaks translates to one 1-inch DBH oak for every three bare root plantings (2017).

Table 9. Large Stem Equivalency Corresponding Shrub Counts

Oak Size	Area	Spacing[1]	Stock	Quantity[2]
Bare Root	0.37 acres (15,925 sq. ft.)	6-foot on-center (36 sq. ft.)	One-Gallon	332
1” DBH	0.12 acres (5,307 sq. ft.)			111
1.5” DBH	0.09 acres (4,002 sq. ft.)			83
2” DBH	0.06 acres (2,697 sq. ft.)			56

[1]Shrubs shall be planted a minimum of five feet away from oak plantings. [2]A planting calculator was used to determine shrub quantity utilizing 75 percent of the required mitigation area.

VEGETATION

Objective 1. Enhance the oak mitigation area by thoroughly investigating for and removing invasive plant species.

Performance Standard 1a: Remove existing invasive plant species from the oak mitigation area. Document the removal of invasive plants in the as-built report.

Performance Standard 1b: In all years, invasive plant species will not exceed 15 percent aerial cover within the oak mitigation area. Document the percent cover of invasive species in annual monitoring reports.

Objective 2. Create oak woodland habitat by installing Oregon white oak trees and oak understory shrubs within the oak mitigation area.

Performance Standard 2a: Oregon white oak trees will be installed at spacing intervals of 87 square feet (approximately 9-foot on-center). Document the location of planted species in the as-built report and provide total percent cover of installed oaks.

Performance Standard 2b: In Years 1, 2, 3, 5, and 7, planted oaks will achieve 90 percent survival. If dead oaks are replaced, this performance standard will be met. Document in annual monitoring report.

Performance Standard 2c: In Year 7 of the monitoring period, planted oaks will achieve at least 10 percent aerial cover. Document in annual monitoring report.

Performance Standard 2d: In Year 10 of the monitoring period, planted oaks will achieve at least 15 percent aerial cover. Document in annual monitoring report.

Performance Standard 2e: Oak understory shrub plantings will be installed at spacing intervals of 36 square feet (6-foot on-center).

Performance Standard 2f: In Years 1, 2, 3, and 5, shrubs will achieve 90 percent survival. If dead plants are replaced, this performance standard will be met. Document in annual monitoring report.

Performance Standard 2g: In Year 7 of the monitoring period, planted shrubs will achieve a minimum of 25 percent cover. If dead shrubs are replaced, this performance standard will be met. Document in annual monitoring report.

Performance Standard 2h: In Year 10 of the monitoring period, planted shrubs will achieve a minimum of 35 percent cover. If dead shrubs are replaced, this performance standard will be met. Document in annual monitoring report.

HABITAT

Objective 3. Install habitat features to favor small mammals and birds to improve habitat functions.

Performance Standard 3a: Place a minimum of two horizontal logs, at least 12 inches DBH and 20 feet long, within the mitigation area or along mitigation area boundaries. These logs will come from oaks removed onsite and will be installed prior to planting new oaks.

The performance standard is considered met when the horizontal logs are installed and documented in the as-built report. Log specifications are in the *Implementation Plan*.

Performance Standard 3b: Relocate the existing 24-inch DBH priority snag to the mitigation area, leaving at least 15 feet standing above ground.
The performance standard is considered met when the snag is installed and documented in the as-built report. Snag specifications are in the *Implementation Plan*.

PROTECTION

Objective 4. Provide long-term protection for the mitigation area.

Performance Standard 4a: Record a conservation covenant with the City of Camas protecting the oak mitigation area in perpetuity. This performance standard will be met when the conservation covenant is recorded at the City.

Performance Standard 4b: Place downed logs salvaged from Oak 1 and Oak 3 to serve as natural fencing for the oak woodland. Document the log location in the monitoring report.
This performance standard is considered met when the logs are installed and documented in the as-built report.

Performance Standard 1c: Place protective fencing and signage around the remaining boundary of the oak mitigation area. Fencing should be positioned along the outer boundary and extend to connect with the downed logs to ensure continued protection. Document in the as-built report. This performance standard will be considered met when proof of fence and sign installation is provided in the as-built report and submitted to the City.

Performance Standard 4c: Restrictive signage reading, "*The area beyond this sign is a critical area. Alteration or disturbance is prohibited by law. No dumping allowed. Please call the City of Camas for more information*" will be posted every 100 feet along the fencing and will remain in legible condition. They will be replaced if they become missing or illegible. This performance standard will be met when signs are reported to be in place in the final monitoring report.

SITE PREPARATION SPECIFICATIONS

Prior to ground disturbing activities, silt fencing will be installed around the dripline of all oaks and oak understory in the project vicinity. The logs will be installed during site construction grading activities while heavy equipment is onsite.

PLANTING PLAN

Site Specifications

1. Stake or flag the oak mitigation area.
2. Remove invasive plant species.
3. Install downed logs.
4. Install native plantings according to plant specifications.
5. Install tree protection tubes and mulch around new plantings. Install support stakes around larger DBH oaks.
6. Install fencing and signage.

Planting Implementation

1. Plant the specified trees and shrubs in the fall (October-November) or early spring (Feb-March) at the intervals listed in Table 7. Space the plants somewhat irregularly. Plant the potted stock with a tree shovel or comparable tool. Larger caliper oaks may need heavy equipment such as a mini excavator to dig holes large enough for the roots.
2. Remove the plant from the pot and work the roots free from majority of potted soil.
3. Place the potted plant species in the planting holes so that their roots can extend down entirely and do not bend upward or circle inside the hole (no "J" or "U" roots).
4. Position the root crowns so that they are at or slightly above the level of the surrounding soil.
5. Compact the soil around the planted species to eliminate air spaces.
6. Install tree protection tubes and mulch around new plantings to discourage herbivory.
7. Install support stakes around larger DBH oaks.
8. Irrigate all newly installed plants as site and weather conditions warrant.

Potted Stock

1. Potted species will be purchased from a native plant nursery.
2. Potted plants will be in a minimum size container of one-gallon. Refer to Table 8 for alternate oak sizes.
3. Potted stock will be kept cool and moist prior to being planted.
4. Potted stock will have well-developed roots and sturdy stems, with an appropriate root-to-shoot ratio.
5. Unplanted potted stock will be properly stored at the end of each day.
6. The planting technician will be responsible for inspecting potted plant stock prior to and during planting, culling unacceptable plant materials.

Bare-Root Stock

1. If larger stock is unavailable, bare-root species will be purchased from a native plant nursery.
2. Plants will be protected until installation by being refrigerated, covered with damp burlap, and placed in moist sand, peat, or other method of keeping the roots cool and moist.
3. Plants will have well-developed roots and sturdy stems, with an appropriate root-to-shoot ratio.
4. No damaged or desiccated roots or diseased plants will be accepted. In particular, bare-root trees must not have damaged or "J-rooted" taproots.
5. All bare-root stock must be kept cool and moist prior to installation.
6. Unused bare-root stock must be properly stored at the end of each planting day to prevent the roots from desiccating.
7. The planting technician will be responsible for inspecting the bare root stock prior to and during planting; unacceptable plant materials will not be planted.

Large Woody Material

<u>Horizontal Log Specifications</u>

1. Preferably logs from downed Oregon white oaks onsite.
2. At least 12-inches DBH for at least 20 feet in length.
3. With at least 1/3 of lateral branches retained.

4. Of hard to medium decay.
5. Root wads attached or ends rough cut, mashed, or ripped.
6. Preferably located along critical area and development boundaries to deter human entrance to the mitigation site.

Standing Snag Specifications

1. Snag will be buried 1/3 of its length and will be a minimum diameter of 20 inches with height above ground of at least 15 feet.
2. At least 1/3 of the lateral branches will be retained to the extent feasible. Due to the large amount of existing living branches, some trimming is expected.
    - Trim branches to within 3 to 4 feet from trunk.

MONITORING, MAINTENANCE, AND CONTINGENCY MEASURES

Monitoring and maintenance of the oak mitigation area will occur for a 10-year period with annual monitoring and reporting occurring in Years 1, 2, 3, 5, 7, and 10. Monitoring will be conducted by the applicant unless otherwise assigned. Following oak installation, monitoring will consist of individual oak counts to assess survival. Oaks will be individually counted and assessed for health during each monitoring visit in Years 1, 2, 3, and 5. Percent aerial cover will be assessed in Year 7 and Year 10. Additionally, at least three photostations will be established throughout the oak mitigation areas to photo-document vegetation establishment. Photostation locations and the direction in which the picture is taken will also be recorded in the as-built report. At least three monitoring plots will be established to document invasive species cover and native oak understory cover.

The goal of monitoring will be to determine if the previously stated performance standards are met. Monitoring reports will be submitted to the City by December 31st of each monitoring year. At minimum, the following items will be included in the report:

- Location map and as-built drawing, including any changes.
- Historic description of project, including dates of plant installation, current year of monitoring, and remedial actions taken (if any).
- Description of monitoring methods.
- Documentation of vegetative performance standards and overall development of plant communities.
- Assessment of invasive plant species and recommendations for management.
- Photographs from established photostations.
- Observations of wildlife, including amphibians, invertebrates, reptiles, birds, and mammals. If photographs are taken, they will be included.
- Summary of maintenance and contingency measures completed for the past year and proposed for the next year.

Monitoring

Monitoring will occur annually during the growing season, preferably during the same two-week period to better compare data. The following information will be gathered within the established oak mitigation area:

- Percent survival of oaks in all monitoring years.
- Percent cover of non-native, invasive species in all monitoring years.
- General health of planted oaks noting specific problems and potential causes.
- Photographic documentation of vegetative changes over time from established photostations.

Overall vegetative conditions will also be observed and discussed in the monitoring reports.

Maintenance

Maintenance will include the following:

- Irrigating planting areas every other week or as needed in the dry season for the first three years. Taper watering in Years 2 and 3, watering approximately every 3 to 4 weeks in the dry season, or as needed.
- Remove competing herbaceous species at least three times yearly within a 3-foot radius of planted trees and re-apply mulch as needed.
- Weed-eat, spray, or mow invasive species as needed during the growing season.
- Replace dead or failed plants as described for the original installation to meet the minimum performance standards.

Contingency Measures

If the performance criteria are not met, steps will be taken to correct the situation in a timely manner. The following steps will be implemented when an area is identified as failing or potentially failing:

- Identify the cause(s) of the failure or potential failure.
- Identify the extent of the failure or potential failure.
- Implement corrective actions such as irrigating, fertilizing, and replanting.
- Document the activities and include this data in the monitoring reports.
- If a routine corrective action will not correct the problem, immediately consult with the appropriate agencies.
- Evaluate recommendations from resource agency staff and implement recommendations in a timely manner.

Funding for corrective actions will be the responsibility of the applicant.

LIMITATIONS

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

REFERENCES

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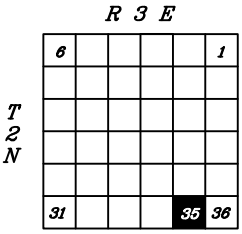
FIGURES

WASHINGTON

Latitude: 45.6162°
Longitude: -122.3970°

LOCATION MAP



PROJECT VICINITY MAP

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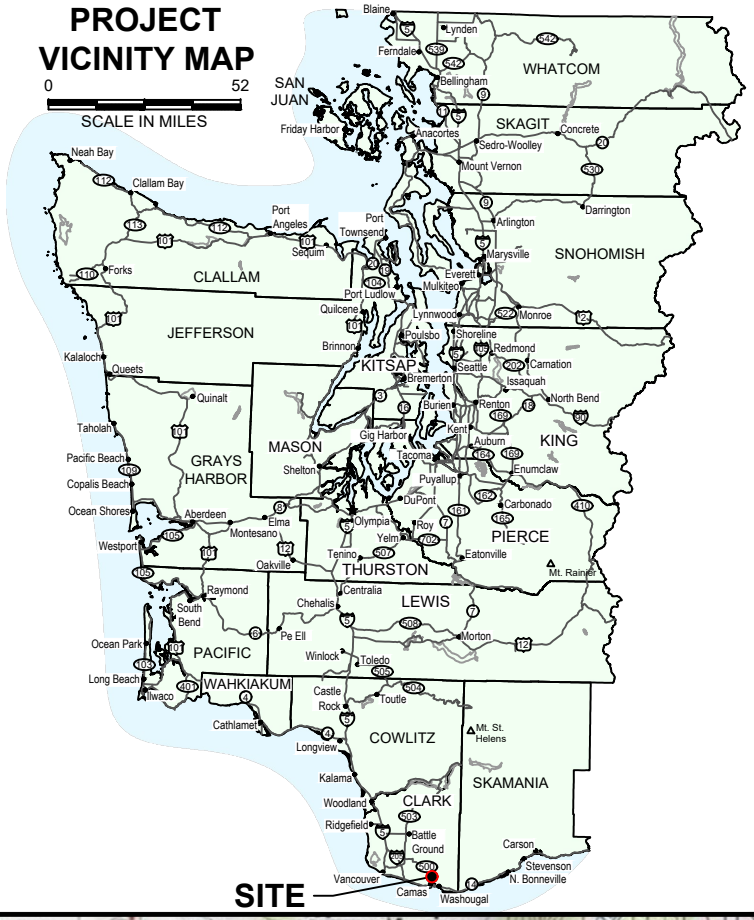
SCALE IN MILES



NOTE:
Quadrangle topographic map from USGS.

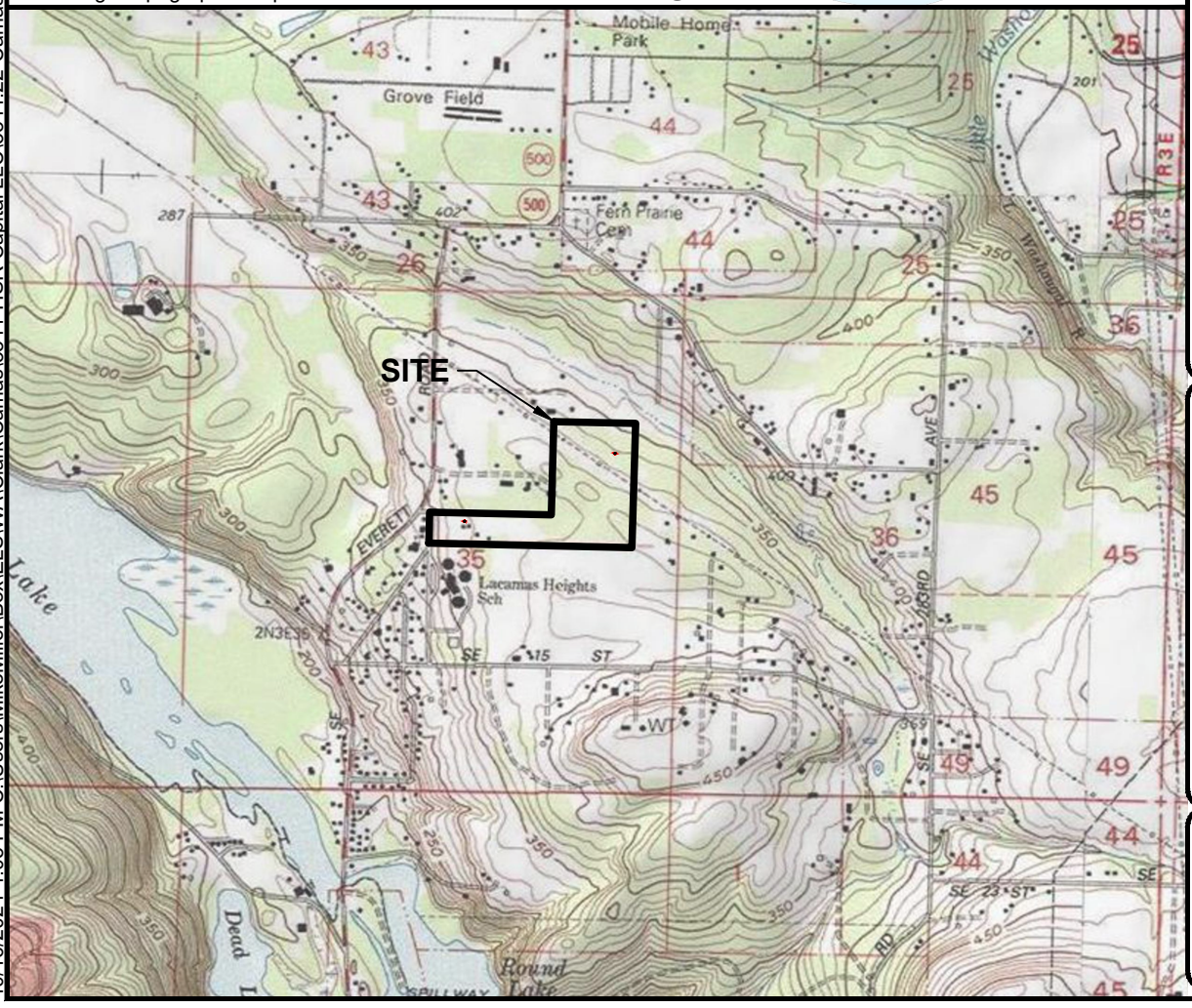


Figure 1
VICINITY MAP
Camas Woods
HSR Capital
City of Camas, Clark County, Washington
Section 35, Township 2N, Range 3E, W.M.

DATE: 10/16/24
DWN: JKJ
REQ. BY: JB
PRJ. MGR: JB
CHK:
PROJECT NO: 3341.11

1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305
www.eco-land.com
Ecological Land Services

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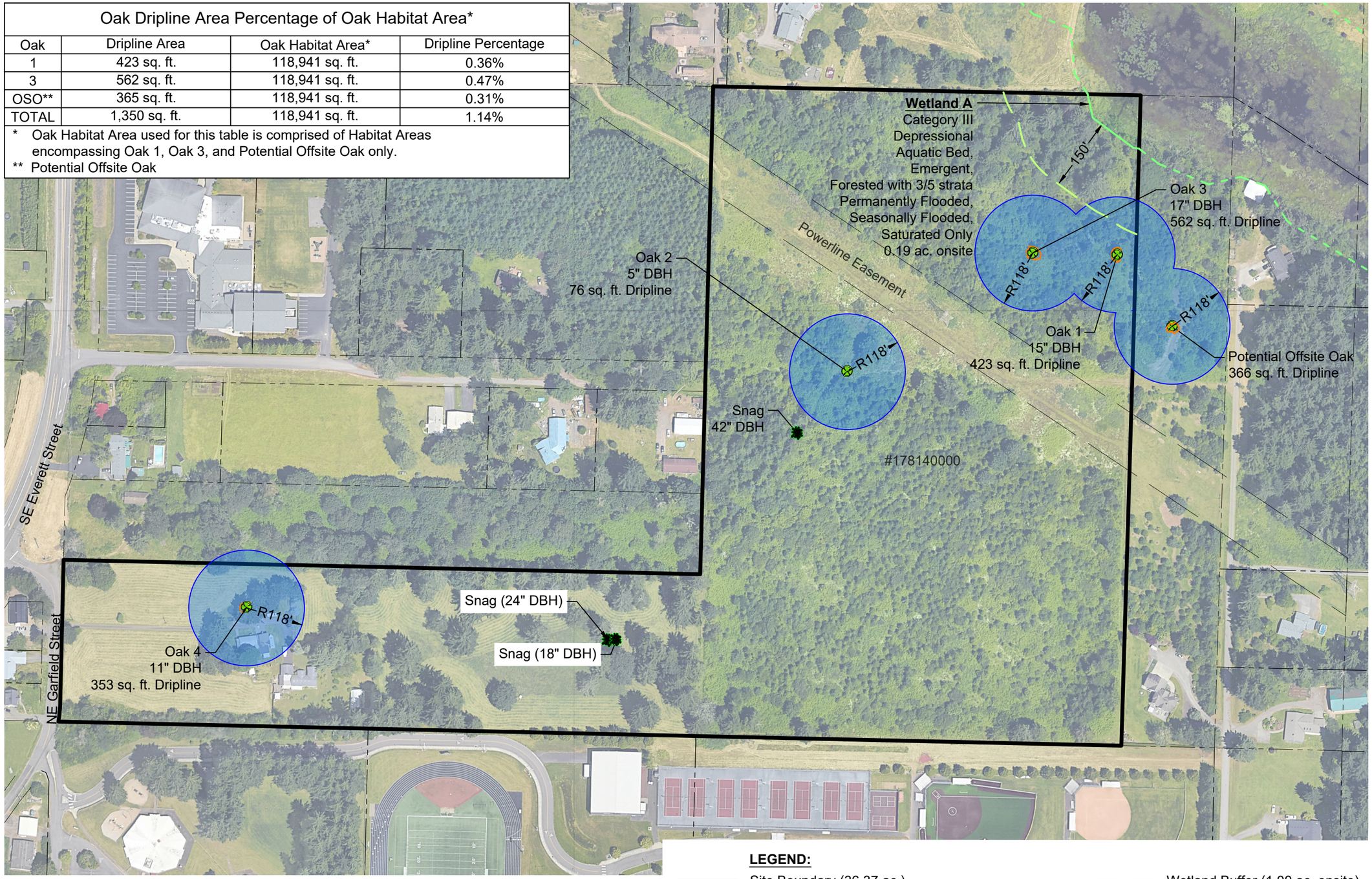
Oak Dripline Area Percentage of Oak Habitat Area*			
Oak	Dripline Area	Oak Habitat Area*	Dripline Percentage
1	423 sq. ft.	118,941 sq. ft.	0.36%
3	562 sq. ft.	118,941 sq. ft.	0.47%
OSO**	365 sq. ft.	118,941 sq. ft.	0.31%
TOTAL	1,350 sq. ft.	118,941 sq. ft.	1.14%

* Oak Habitat Area used for this table is comprised of Habitat Areas encompassing Oak 1, Oak 3, and Potential Offsite Oak only.
** Potential Offsite Oak



NOTE(S):
1. SIte plan from AKS Engineering and Forestry, LLC.
2. Per *Best management practices for mitigating impacts to Oregon white oak priority habitat* (WDFW 2024b), the oaks onsite are not considered part of an oak woodland and shall be assessed as individual trees.
3. Potential offsite oak dripline estimated using aerial imagery from Google Earth.

LEGEND:
- Site Boundary (36.37 ac.)
- Parcel Boundary
- Easement
- Onsite Wetland Boundary
- Approx. Offsite Wetland Boundary
- Wetland Buffer (1.00 ac. onsite)
- Oak Tree Location
- Oak Dripline
- Oak Habitat Area
- Snag Location

Figure 2
EXISTING CONDITIONS
Camas Woods
HSR Capital
City of Camas, Clark County, Washington
Section 35, Township 2N, Range 3E, W.M.

DATE: 10/16/24
DWN: JKJ
REQ. BY: JB
PRJ. MGR: JB
CHK:
PROJECT NO: 3341.22

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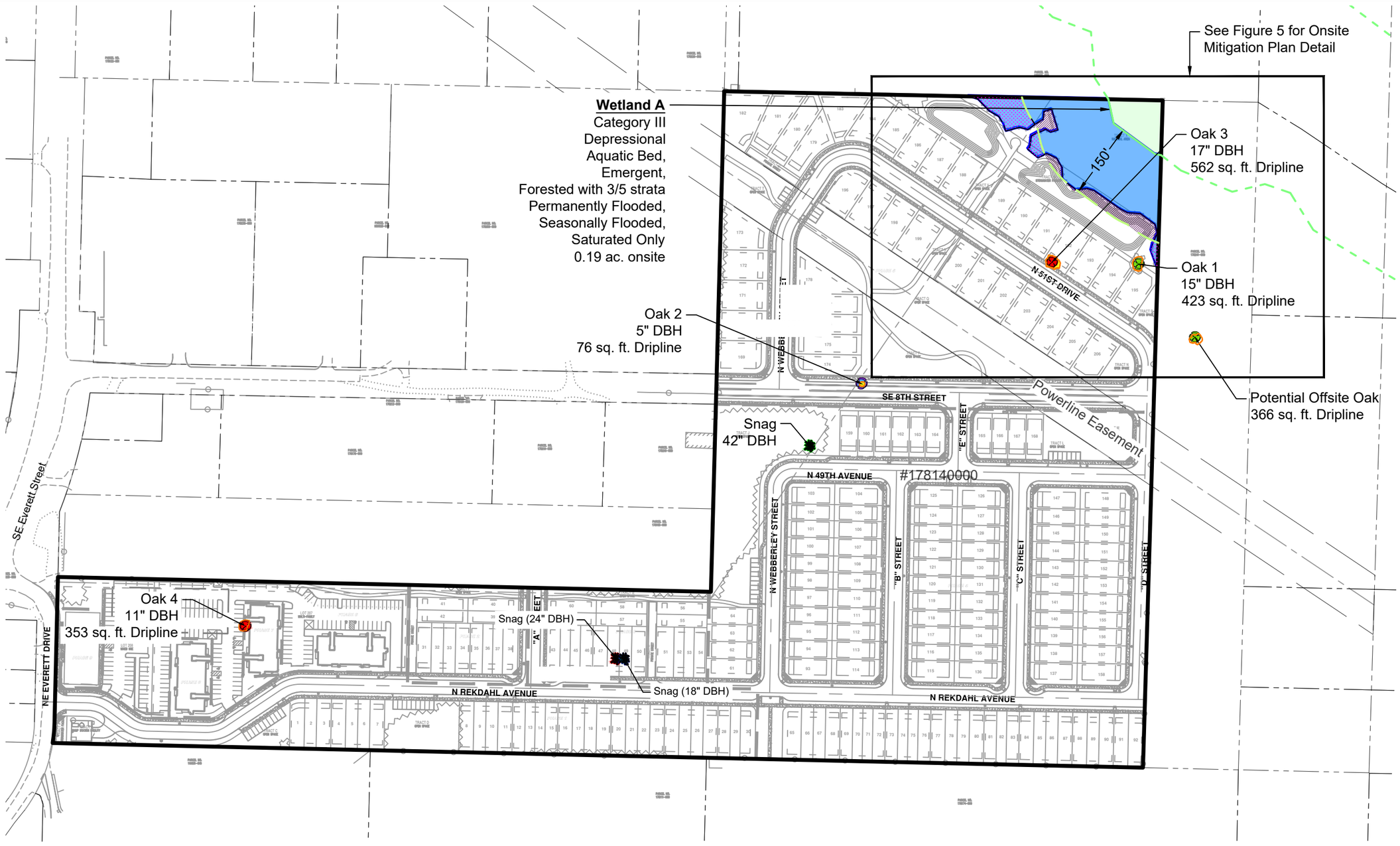

LEGEND:

- Site Boundary (36.37 ac.)
- Parcel Boundary
- Easement
- Wetland Boundary
- Approx. Offsite Wetland Boundary
- Wetland Buffer (1.00 ac. onsite)
- Oak Tree
- Oak to be Relocated
- Oak to be Removed
- Oak Dripline
- Snag to be Relocated
- Snag to be Removed
- Tree Protection/Silt Fencing
- Oak Canopy Impact (915 sq. ft.)
- Buffer Average Out (6,101 sq. ft.)
- Buffer Average In (6,101 sq. ft.)

NOTE(S):

1. SIte plan from AKS Engineering and Forestry, LLC.

Figure 3
PROPOSED CONDITIONS
Camas Woods
HSR Capital
City of Camas, Clark County, Washington
Section 35, Township 2N, Range 3E, W.M.

DATE: 10/16/24
DWN: JKJ
REQ. BY: JB
PRJ. MGR: JB
CHK:
PROJECT NO: 3341.22

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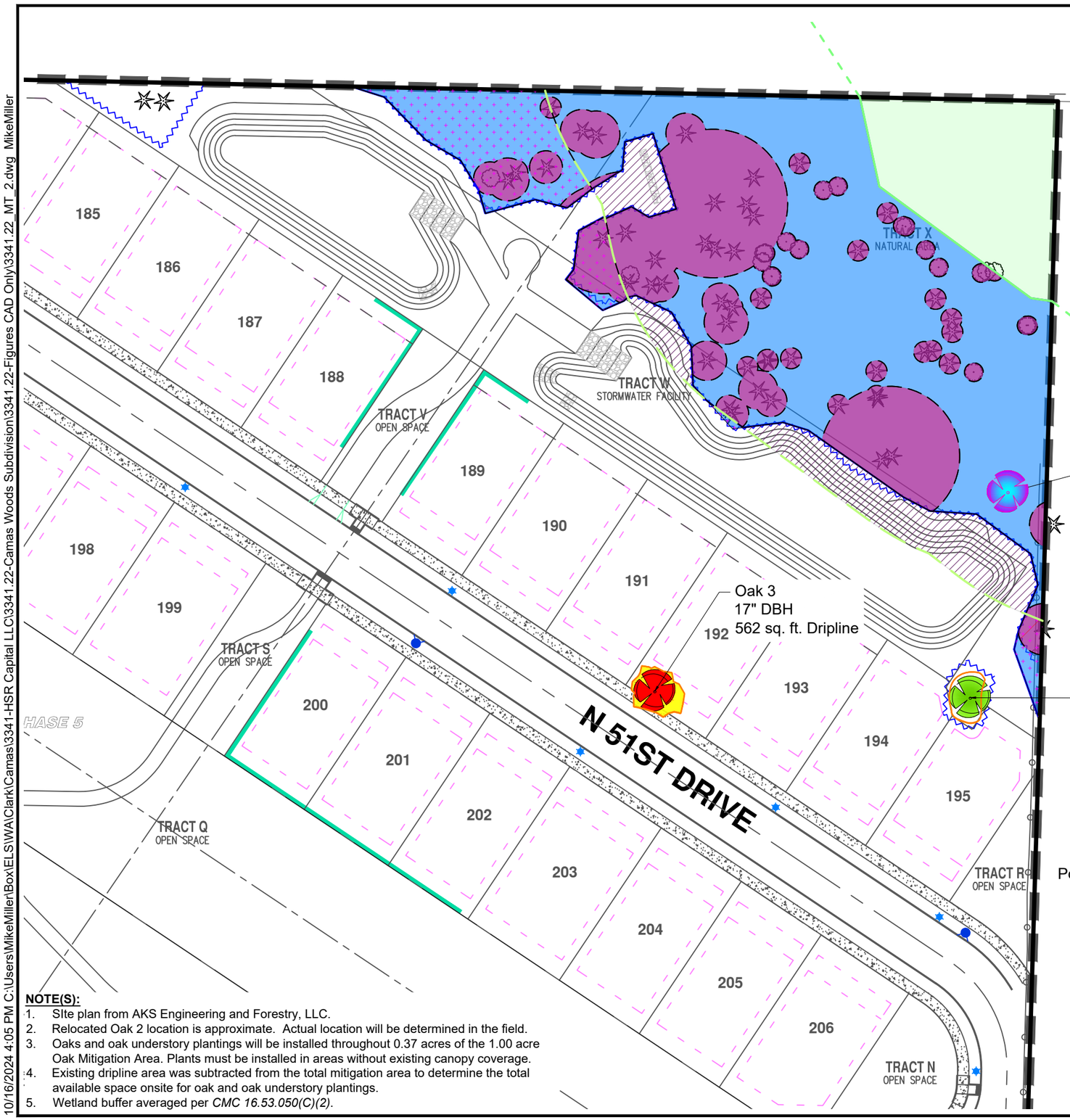

LEGEND:

- Site Boundary (36.37 ac.)
- Parcel Boundary
- Easement
- Wetland Boundary
- Approx. Offsite Wetland Boundary
- Wetland Buffer (1.00 ac. onsite)
- Oak Tree
- Oak Dripline
- Oak to be Removed
- Tree Protection/Silt Fencing
- Oak Canopy Impact (0.021 ac./915.648 sq. ft.)
- Buffer Average Out (0.14 ac./6,101 sq. ft.)
- Buffer Average In (0.14 ac./6,101 sq. ft.)
- Relocated Oak Tree
- Oak Mitigation Area[3] (1.00 ac./43,767 sq. ft.)
- Existing Tree Dripline Area within Mitigation Area (0.38 ac./16,530 sq. ft.)

Onsite Oak Mitigation Availability[4] (0.63 ac./27,237 sq. ft.)

NOTE(S):

1. SIte plan from AKS Engineering and Forestry, LLC.
2. Relocated Oak 2 location is approximate. Actual location will be determined in the field.
3. Oaks and oak understory plantings will be installed throughout 0.37 acres of the 1.00 acre Oak Mitigation Area. Plants must be installed in areas without existing canopy coverage.
4. Existing dripline area was subtracted from the total mitigation area to determine the total available space onsite for oak and oak understory plantings.
5. Wetland buffer averaged per *CMC 16.53.050(C)(2)*.

Figure 4
ONSITE OAK MITIGATIONAVAILABILITY
Camas Woods
HSR Capital
City of Camas, Clark County, Washington
Section 35, Township 2N, Range 3E, W.M.

DATE: 10/16/24
DWN: JKJ
REQ. BY: JB
PRJ. MGR: JB
CHK:
PROJECT NO: 3341.22

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Longview, WA 98632
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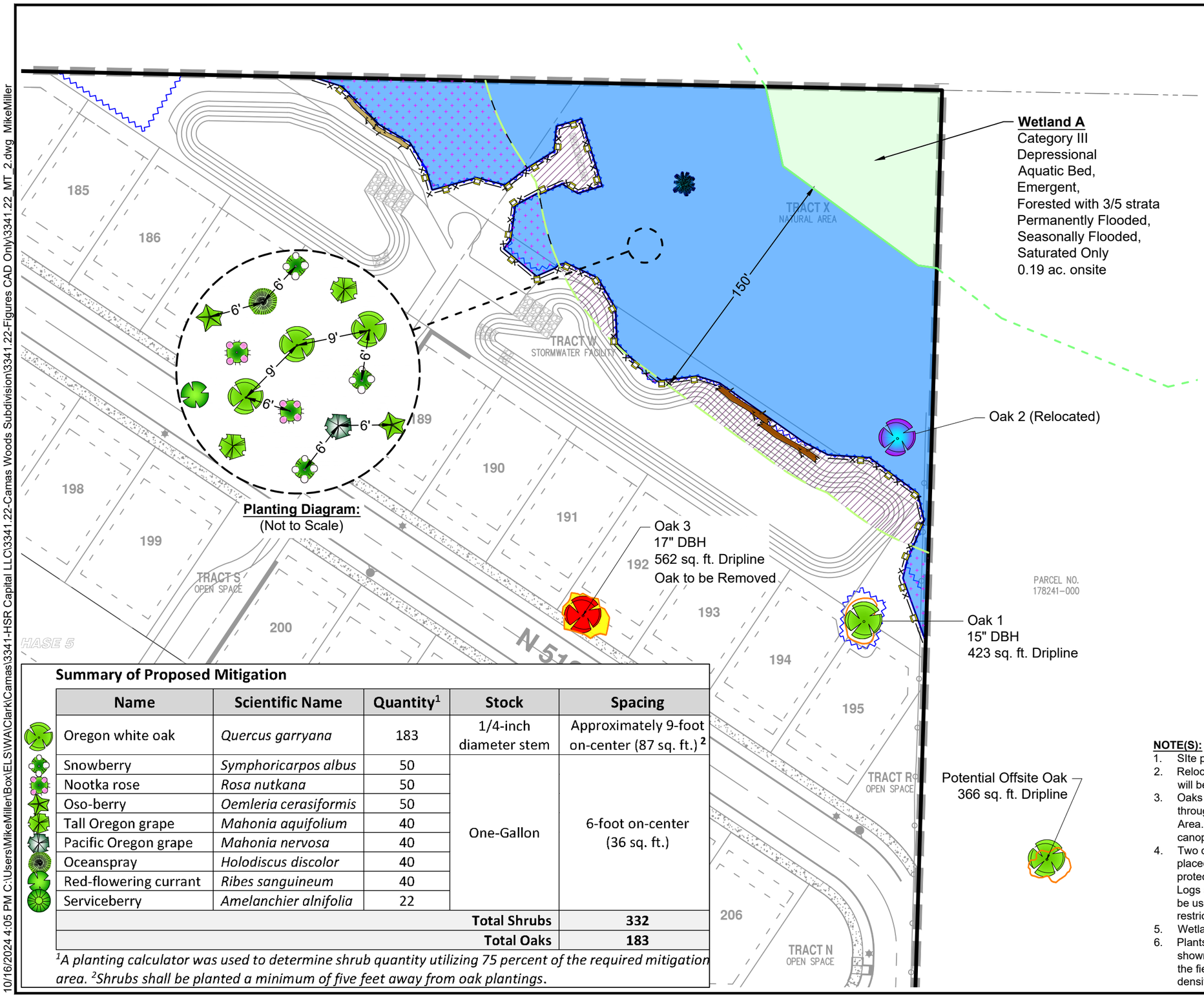

LEGEND:

- Site Boundary (36.37 ac.)
- Parcel Boundary
- Easement
- Wetland Boundary
- Approx. Offsite Wetland Boundary
- Wetland Buffer (1.00 ac. onsite)
- Oak Tree
- Oak Dripline
- Oak to be Removed
- Tree Protection/Silt Fencing
- Oak Canopy Impact (0.021 ac./915.648 sq. ft.)
- Buffer Average Out (0.14 ac./6,101 sq. ft.)
- Buffer Average In (0.14 ac./6,101 sq. ft.)
- Relocated Oak Tree
- Oak Mitigation Area[3] (1.00 ac./43,767 sq. ft.)
- Proposed Buffer Fence with Signage
- Proposed Downed Oak Log[4] (2)
- Proposed Downed Log (TBD)
- Relocated Snag (24" DBH)

Summary of Proposed Mitigation

Name	Scientific Name	Quantity[1]	Stock	Spacing
Oregon white oak	*Quercus garryana*	183	1/4-inch diameter stem	Approximately 9-foot on-center (87 sq. ft.) [2]
Snowberry	*Symphoricarpos albus*	50	One-Gallon	6-foot on-center (36 sq. ft.)
Nootka rose	*Rosa nutkana*	50		
Oso-berry	*Oemleria cerasiformis*	50		
Tall Oregon grape	*Mahonia aquifolium*	40		
Pacific Oregon grape	*Mahonia nervosa*	40		
Oceanspray	*Holodiscus discolor*	40		
Red-flowering currant	*Ribes sanguineum*	40		
Serviceberry	*Amelanchier alnifolia*	22		
			Total Shrubs	**332**
			Total Oaks	**183**

[1]A planting calculator was used to determine shrub quantity utilizing 75 percent of the required mitigation area. [2]Shrubs shall be planted a minimum of five feet away from oak plantings.

NOTE(S):

1. SIte plan from AKS Engineering and Forestry, LLC.
2. Relocated Oak 2 location is approximate. Actual location will be determined in the field.
3. Oaks and oak understory plantings will be installed throughout 0.37 acres of the 1.00 acre Oak Mitigation Area. Plants must be installed in areas without existing canopy coverage.
4. Two downed logs salvaged from Oak 1 and Oak 3 will be placed at the edge of storm pond grading to serve as protection for the wetland buffer and mitigation area. Logs salvaged from other removed trees onsite may also be used in conjunction with split-rail fencing and restrictive signage.
5. Wetland buffer averaged per *CMC 16.53.050(C)(2)*.
6. Plants are not to scale and locations are approximate as shown. Actual planting locations will be determined in the field, with consideration to the listed spacing and density to produce the most natural appearance possible.

Figure 5
ONSITE MITIGATION AND PLANTING PLAN DETAIL
Camas Woods
HSR Capital
City of Camas, Clark County, Washington
Section 35, Township 2N, Range 3E, W.M.

DATE: 10/16/24
DWN: JKJ
REQ. BY: JB
PRJ. MGR: JB
CHK:
PROJECT NO: 3341.22

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APPENDIX A

REQUIRED OAK MITIGATION CALCULATIONS

Oak 2 Mitigation Requirements

No mitigation is required for Oak 2 removal as it has a DBH of approximately 5 inches. The applicant will relocate Oak 2 to the wetland buffer area to serve as mitigation for Oak 3 and Oak 4 removal. The following calculations shall be used to determine how much mitigation area is satisfied by relocating rather than removing Oak 2.

Oak 2 Onsite Physical Mitigation

Oak 2 Summary

Name	Diameter at Breast Height (DBH)	Dripline
Oak 2	5 inches	76 sq. ft.

WDFW Functional Assessment for Oak 2 – Pre-development

Metric	Present?	Multiplier	Section Score
Size of Oak Trees *(Choose one)*			1
>76 cm (30 in) dbh		6	
50-76 cm (20-30 in) dbh		5	
30-50 cm (12-20 in) dbh		3	
<30 cm (12 in) dbh	X	1	
Condition of Crown *(Choose one)*			1
Well-formed/dominant		3	
Suppressed/stunted		2	
Seedling/Sapling	X	1	
Wildlife Value *(Choose all that apply)*			1
Acorn production		2	
Leaves available for wildlife browsing	X	1	
Presence of cavities		2	
Presence of dead branches		1	
Presence of galls or fungi		1	
Presence of heart rot or carpenter ants		1	
Located near other OWO trees (<118ft)		3	
		Total Score[1]	**3**

[1]High Function = Score ≥10; Medium Function = Score of 7-9, Low Function = Score 4-6, **Minimal Function = Score ≤3**

Onsite Mitigation for Oak 2 Physical Impacts (*Ratio x Spacing = Total Area*)

Name	Mitigation Type	Mitigation Ratio[1]	Oak Quantity	Stock	Spacing
Oak 2	Physical	25:1	25	One-gallon	87 sq. ft.[2, 3]
				Total Area for Physical Loss	**0.05 acres (2,175 sq. ft.)**

[1]There is no established mitigation ratio for oaks with a 5-inch DBH. The applicant proposes a mitigation ratio of 25:1 for the relocation of Oak 2 based on the 50:1 ratio for oaks with a 6-inch DBH. [2]Nolan and Azerrad 2024. [3]Approximately 9-foot on-center.

Oak 2 Onsite Temporal Mitigation

WDFW Functional Assessment for Oak 2 – Post-development

Metric	Present?	Multiplier	Section Score
Size of Oak Trees *(Choose one)*			
>76 cm (30 in) dbh		6	1
50-76 cm (20-30 in) dbh		5	
30-50 cm (12-20 in) dbh		3	
<30 cm (12 in) dbh	X	1	
Condition of Crown *(Choose one)*			
Well-formed/dominant		3	1
Suppressed/stunted		2	
Seedling/Sapling	X	1	
Wildlife Value *(Choose all that apply)*			
Acorn production		2	4
Leaves available for wildlife browsing	X	1	
Presence of cavities		2	
Presence of dead branches		1	
Presence of galls or fungi		1	
Presence of heart rot or carpenter ants		1	
Located near other OWO trees (<118ft)	X	3	
		Total Score[1]	6

[1]High Function = Score ≥10; Medium Function= Score of 7-9, **Low Function = Score 4-6**, Minimal Function= Score ≤3

Onsite Mitigation for Oak 2 Temporal Impacts (*Dripline x Ratio = Area Required ÷ Spacing = Oak Quantity*)

Name	Mitigation Type	Baseline Functions	Functions After Development	Mitigation Ratio*	Dripline	Oak Quantity	Stock	Spacing
Oak 2	Temporal	Minimal	Low	2:1	76 sq. ft.	2	1-gallon	87 sq. ft.[1]
						Total Area for Temporal Mitigation		**152 sq. ft.**

**There is no established mitigation ratio for an increase in ecological function from minimal to low after development. As such, the applicant proposes a ratio of 2:1 based on the established mitigation ratio of 2:1 for a decrease in function from low to minimal (Nolan and Azerrad 2024). [1]Approximately 9-foot on-center.*

Onsite Understory Enhancement for Oak 2 Impacts

Impact Type	Area	Quantity[1]	Stock	Spacing[2]
Physical	2,175 sq. ft.	48	One-Gallon	6-foot on-center (36 sq. ft.)
Temporal	152 sq. ft.			
Total	**0.05 acres (2,327 sq. ft.)**			

[1]A planting calculator was used to determine shrub quantity utilizing 75 percent of the required mitigation area. [2]Shrubs shall be planted a minimum of five feet away from oak plantings.

Oak 2 Onsite Mitigation Summary

Type	Spacing	Quantity	Stock	Total Area
Oaks	87 sq. ft.[1]	27	1/4-inch diameter stem	0.05 acres* (2,327 sq. ft.)
Shrubs	6-foot on-center	48	One-Gallon	

*Relocating Oak 2 to the wetland buffer area will serve as 0.05 acres of the required onsite mitigation.
[1]Approximately 9-foot on-center.

Onsite Mitigation for Oak 3 Impacts

Oak 3 Onsite Physical Mitigation

Oak 3 Summary

Name	Diameter at Breast Height	Dripline
Oak 3	17 inches	562 sq. ft.

WDFW Functional Assessment for Oak 3

Metric	Present?	Multiplier	Section Score
Size of Oak Trees *(Choose one)*			3
>76 cm (30 in) dbh		6	
50-76 cm (20-30 in) dbh		5	
30-50 cm (12-20 in) dbh	X	3	
<30 cm (12 in) dbh		1	
Condition of Crown *(Choose one)*			2
Well-formed/dominant		3	
Suppressed/stunted	X	2	
Seedling/Sapling		1	
Wildlife Value *(Choose all that apply)*			4
Acorn production	X	2	
Leaves available for wildlife browsing	X	1	
Presence of cavities		2	
Presence of dead branches	X	1	
Presence of galls or fungi		1	
Presence of heart rot or carpenter ants		1	
Located near other OWO trees (<118ft)		3	
		Total Score[1]	9

[1]High Function = Score ≥10; **Medium Function = Score of 7-9**, Low Function = Score 4-6, Minimal Function = Score ≤3

Onsite Mitigation for Oak 3 Physical Impacts (*Ratio x Spacing = Total Area*)

Name	Mitigation Type	Mitigation Ratio[1]	Oak Quantity	Stock	Spacing
Oak 3	Physical	100:1	100	One-gallon	87 sq. ft.[1, 2]
				Total Area for Physical Mitigation	**0.20 acres (8,700 sq. ft.)**

[1]Nolan and Azerrad 2024. [2]Approximately 9-foot on-center.

Oak 3 Onsite Temporal Mitigation

Onsite Mitigation for Oak 3 Temporal Impacts (*Dripline x Ratio = Area Required ÷ Spacing = Oak Quantity*)

Name	Mitigation Type	Baseline Functions	Functions After Development	Mitigation Ratio[1]	Dripline	Oak Quantity	Stock	Spacing
Oak 3	Temporal	Medium	Minimal	8:1	562 sq. ft.	52	One-Gallon	87 sq. ft.[1, 2]
Total Oak Mitigation Area								**0.10 acres 4,496 sq. ft.**

[1]Nolan and Azerrad 2024. [2]Approximately 9-foot on-center.

Onsite Understory Enhancement for Oak 3 Impacts

Impact Type	Area	Quantity[1]	Stock	Spacing[2]
Physical	0.20 acres (8,700 sq. ft.)	275	One-Gallon	6-foot on-center (36 sq. ft.)
Temporal	0.10 acres 4,496 sq. ft.			
Total	**0.30 acres (13,196 sq. ft.)**			

[1]A planting calculator was used to determine shrub quantity utilizing 75 percent of the required mitigation area. [2]Shrubs shall be planted a minimum of five feet away from oak plantings.

Oak 3 Onsite Mitigation Summary

Type	Spacing	Quantity	Stock	Total Area
Oaks	87 sq. ft.[1, 2]	152	1/4-inch diameter stem	0.30 acres (13,196 sq. ft.)
Shrubs	6-foot on-center	275	One-Gallon	

[1]Nolan and Azerrad 2024. [2]Approximately 9-foot on-center.

Onsite Mitigation for Oak 4 Impacts

Oak 4 Onsite Physical Mitigation

Oak 4 Summary

Name	Diameter at Breast Height	Dripline
Oak 4	11 inches	353 sq. ft.

WDFW Functional Assessment for Oak 4

Metric	Present?	Multiplier	Section Score
Size of Oak Trees *(Choose one)*			1
>76 cm (30 in) dbh		6	
50-76 cm (20-30 in) dbh		5	
30-50 cm (12-20 in) dbh		3	
<30 cm (12 in) dbh	X	1	
Condition of Crown *(Choose one)*			2
Well-formed/dominant		3	
Suppressed/stunted	X	2	
Seedling/Sapling		1	
Wildlife Value *(Choose all that apply)*			1
Acorn production		2	
Leaves available for wildlife browsing	X	1	
Presence of cavities		2	
Presence of dead branches		1	
Presence of galls or fungi		1	
Presence of heart rot or carpenter ants		1	
Located near other OWO trees (<118ft)		3	
		Total Score[1]	4

[1]High Function = Score ≥10; Medium Function = Score of 7-9, **Low Function = Score 4-6**, Minimal Function = Score ≤3

Onsite Mitigation for Oak 4 Physical Impacts (*Ratio x Spacing = Total Area*)

Name	Mitigation Type	Mitigation Ratio[1]	Oak Quantity	Stock	Spacing
Oak 4	Physical	50:1	50	One-Gallon	87 sq. ft.[1, 2]
				Total Area for Physical Mitigation	**0.10 acres (4,350 sq. ft.)**

[1]Nolan and Azerrad 2024. [2]Approximately 9-foot on-center.

Oak 4 Onsite Temporal Mitigation

Onsite Mitigation for Oak 4 Temporal Impacts (*Dripline x Ratio = Area Required ÷ Spacing = Oak Quantity*)

Name	Mitigation Type	Baseline Functions	Functions After Development	Mitigation Ratio[1]	Dripline	Oak Quantity	Stock	Spacing
Oak 4	Temporal	Low	Minimal	2:1	353 sq. ft.	8	One-Gallon	87 sq. ft.[1]
Total Oak Mitigation Area								**0.02 acres (706 sq. ft.)**

[1]Nolan and Azerrad 2024. [2]Approximately 9-foot on-center.

Onsite Understory Enhancement for Oak 4 Impacts

Impact Type	Area	Quantity[1]	Stock	Spacing[2]
Physical	0.10 acres (4,350 sq. ft.)	105	One-Gallon	6-foot on-center (36 sq. ft.)
Temporal	0.02 acres (706 sq. ft.)			
Total	**0.12 acres (5,056 sq. ft.)**			

[1]A planting calculator was used to determine shrub quantity utilizing 75 percent of the required mitigation area. [2]Shrubs shall be planted a minimum of five feet away from oak plantings.

Oak 4 Onsite Mitigation Summary

Type	Spacing	Quantity	Stock	Total Area
Oaks	87 sq. ft.[1, 2]	58	1/4-inch diameter stem	0.12 acres (5,056 sq. ft.)
Shrubs	6-foot on-center	105	One-Gallon	

[1]Nolan and Azerrad 2024. [2]Approximately 9-foot on-center.

Total Onsite Mitigation Required

Onsite Mitigation Summary

Critical Habitat	Impact Type	Oaks	Shrubs	Total Area
Oak 2[1]	Relocation	-27	-48	-0.05 acres
Oak 3	Removal	152	275	0.30 acres
Oak 4	Removal	58	105	0.12 acres
	Total	**183**	**332**	**0.37 acres**

[1]Relocating Oak 2 to the wetland buffer area will serve as 0.05 acres of the required onsite mitigation.

Onsite Oak Mitigation Summary

Common Name	Scientific Name	Quantity	Stock	Spacing[1]
Oregon white oak	*Quercus garryana*	183	1/4-inch diameter stem	Approximately 9-foot on-center (87 sq. ft.)

[1]Nolan and Azerrad 2024.

Onsite Understory Mitigation Summary

Name	Scientific Name	Quantity	Stock	Spacing[1]
Snowberry	*Symphoricarpus albus*	50	One-Gallon	6-foot on-center (36 sq. ft.)
Nootka rose	*Rosa nutkana*	50		
Oso-berry	*Oemleria cerasiformis*	50		
Tall Oregon grape	*Mahonia aquifolium*	40		
Pacific Oregon grape	*Mahonia nervosa*	40		
Oceanspray	*Holodiscus discolor*	40		
Red-flowering currant	*Ribes sanguineum*	40		
Serviceberry	*Amelanchier alnifolia*	22		
			Total Shrubs	**332**

[1]Shrubs shall be planted a minimum of five feet away from oak plantings. [2]A planting calculator was used to determine shrub quantity utilizing 75 percent of the required mitigation area.