OAK MITIGATION PLAN

December 29, 2022

Lockwood Meadows Subdivision

La Center, Washington

Prepared for

Scott Clayton

Cedar Ridge Homes

1906 SW 257th Ave.

Troutdale, OR 97060

(503) 666 4240

Prepared by

Ecological Land Services

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

(360) 578-1371 • Project Number 2245.14

SIGNATURE PAGE

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

Annie Jean Rendleman
Biologist

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INTRODUCTION

Ecological Land Services, Inc. (ELS) has prepared this oak mitigation plan on behalf of the applicant, Cedar Ridge Homes, to address potential impacts to an Oregon white oak tree (*Quercus garryana*) due to road improvements required for the Lockwood Meadows Subdivision development located on NE Lockwood Creek Road in La Center.

ELS biologists visited the site in May and September of 2020 to map onsite critical areas. Two wetlands and one priority habitat Oregon white oak tree were mapped. A wetland boundary verification was issued by the U.S. Army Corps of Engineers on March 31, 2021, and a wetland fill permit was received on April 25, 2022.

This plan addresses 1,178 square feet of potential impacts to oak dripline due to street resurfacing and sidewalk construction. Impacts will be mitigated through (1) understory enhancement of the existing onsite oak and (2) by creating oak habitat within Wetland B's buffer. This plan has been prepared to compensate for potential impacts to oak dripline and ensure no net loss of habitat functions in accordance with the Washington Department of Fish and Wildlife's (WDFW) *Management Recommendations for Washington's Priority Habitats, Oregon White Oak Woodlands* (1998) and the *City of La Center Municipal Code (LCMC) Chapter 18.300 Critical Areas* (2022).

PROJECT DESCRIPTION

Project Location

The site consists of Clark County Tax Parcel 209113-000 located at 2000 NE Lockwood Creek Road in La Center, Washington. NE Lockwood Creek Road abuts the southwestern portion of the site and NE 24th Avenue abuts the site to the east. The site is located in the southeast portion of Section 10, Township 3 North, Range 2 East of the Willamette Meridian (Figure 1).

Proposed Development

The proposed project is for construction of the Lockwood Meadows Subdivision, consisting of 71 residential lots. Construction of the residential development will include grading, lot preparation, utility installation, construction of interior streets, and a stormwater detention facility. Existing buildings within the site will be demolished prior to work. Impacts to Wetland A will be mitigated by purchasing 0.0425 credits at East Fork Lewis Mitigation Bank (EFLMB), per the nationwide permit for wetland fill. The grading plan was designed to avoid impacting the onsite oak; however, circulation and roadway requirements could potentially impact the oak's dripline. Approximately 1,178 square feet of the dripline which extends offsite, primarily over existing impervious surface, will be disturbed from street resurfacing and sidewalk construction. To preemptively mitigate for the potential impacts to the priority oak, a ratio of greater than 6:1 will be implemented, resulting in a total of 7,091 square feet of enhancement to the existing oak dripline and oak woodland installation.

EXISTING CONDITIONS

Existing and Surrounding Land Uses

The 20-acre site is zoned Low Density Residential (LDR-7.5) with an Urban Holding (UH-10) zoning overlay. The site currently contains a single-family residence, barn, and well. The site is surrounded by high-density subdivision lots to the north and west, and low-density single-family parcels to the south. The majority of the site consists of mowed field grasses with scattered trees. The eastern portion of the site is a decommissioned Christmas tree farm. The site contains two Category IV wetlands and one priority habitat Oregon white oak (Figure 2). The property has been used as both a hobby and commercial farm operation for several decades which included agricultural activities such as livestock, hay, and Christmas tree production, as well as rental pasture and barn stalls for horses.

Landscape Position

The project site is located north of East Fork Lewis River, in the western portion of the 12-digit Hydrologic Unit Code (HUC) 170800020507 Lockwood Creek-East Fork Lewis River. The Washington State Department of Ecology's Water Quality Atlas maps the project site within the Watershed Resource Inventory Area (WRIA) 27 Lewis.

Oregon White Oak Habitat

The priority Oregon white oak is on the southwest corner of the site, and its dripline extends slightly offsite to the west and to the south over NE Lockwood Creek Road (Figure 2). The oak has a diameter at breast height (DBH) of 40 inches and a total dripline of 3,559 square feet, approximately 1,991 square feet of which are located within the subject parcel (Figure 5). The oak's understory is dominated by Himalayan blackberry (*Rubus armeniacus*), mowed grasses, or is over the existing roadway or driveway. *LCMC Table 18.300.090(2)(a)* states that non-riparian priority habitats and species require a buffer of 300 feet or a threshold based upon consultation with WDFW. Appendix A shows email correspondence with WDFW Habitat Specialist, Isaac Holowatz, stating that the dripline is adequate to protect the priority oak tree (February 17, 2021). Additionally, fifteen small oaks were observed onsite with DBHs ranging from 2 to 8 inches. These smaller trees are not considered priority habitat due to their size.

AVOIDANCE AND MINIMIZATION OF OAK IMPACTS

The grading plan was designed to avoid impacts to the priority habitat Oregon white oak. However, offsite portions of the oak dripline will be unavoidably disturbed due to road improvement requirements. The following avoidance and minimization measures were considered for the project:

- Proposed roadways, utilities, and lots onsite are outside of the priority oak dripline.
- All grading, aside from that associated with road improvements, will avoid the oak's dripline.
- The entire onsite portion of the oak's dripline will be enhanced through native shrub installation and invasive species removal.

- The only proposed grading within the oak's dripline is required by *LCMC* for sufficient ingress and egress.
- Construction fencing will be placed along the onsite portion of the oak's dripline to protect it from disturbance during construction and site grading.
- Habitat signs will be installed around the existing oak dripline to deter any human or pet activity which may harm the tree.

UNAVOIDABLE IMPACTS

The street resurfacing will require digging beneath the existing subgrade depth by approximately 0.35 feet to meet the base rock and required asphalt thickness. Digging below the existing subgrade will impact 385 square feet of oak dripline. Sidewalk construction on the north side of Lockwood Creek Road will impact 793 square feet of oak dripline.

Table 1. Impact Summary.

Identifier	Cause of Impact	Location	Impact Area (sq. ft.)	Mitigation Ratio	Required Enhancement (sq. ft.)
Oak Dripline	Sidewalk extension	Pervious soil	385	6:1	2,310
	Street resurfacing and excavation	Existing roadway	793	6:1	4,758
Total					**7,068**

IMPACTED FUNCTIONS

Functions provided by the onsite oak tree were assessed during a site visit on September 8, 2020 based on WDFW's *Management Recommendations for Washington's Priority Habitats, Oregon White Oak Woodlands* (Guidance) (Larsen *et al.,* 1998).

Habitat Functions

Oregon white oaks are used by a variety of wildlife species, including multiple insects exclusively associated with this species and many birds which have high breeding densities in Oregon white oaks. Oak and oak woodlands can provide contiguous aerial pathways for small animals. Snags and dead portions of live trees can harbor insect populations and provide nesting, resting, and refuge from inclement weather or predators for birds and small mammals. Oak acorns, leaves, fungi, and insects inhabiting the oaks provide an important food source for birds and mammals. Open-canopy stands of oak generally have more complex plant understories than closed-canopy stands and can support more wildlife species.

According to *LCMC 18.300.090(2)(a)*, Oregon white oaks are considered a priority habitat by WDFW and locally by the City of La Center. 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 DBH, is used by priority species, or has a large canopy) (Larsen and Morgan, 1998). The site boundary is within an urban area, as it is within the City of La Center. The 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).

According to the WDFW, medium-to-large or old oak trees are considered priority habitat (Larsen and Morgan 1998). WDFW considers oak trees with a DBH of greater than 12 inches to be medium and greater than 20 inches to be large. Due to the site being west of the Cascades, in an urban area, and the size of the tree, the oak is considered a priority oak. However, it is not as valuable for habitat functions as a contiguous patch of mature oaks or a mix of oaks and coniferous species. The non-priority oaks proposed for removal have minimal canopy coverage and are too young and small to harbor cavities for small cavity-nesting animals. They also possess no snags or dead portions that may harbor insect populations or perches for birds and mammals and are not part of contiguous forested habitat.

ONSITE OAK MITIGATION PLAN

Oak Understory Enhancement

The proposed oak dripline impacts will be mitigated through enhancement of the existing oak understory as well as creating oak habitat within Wetland B's buffer. Although the majority of the dripline impact area currently contains existing road, the disturbance from resurfacing the street could impact the tree. This mitigation plan was designed to compensate for all potential impacts to ensure no net loss of function, using a mitigation ratio greater than 6:1.

The onsite oak understory is heavily dominated by invasive Himalayan blackberry (see photoplates). Removing invasive species and installing native shrubs beneath the oak will increase the habitat functions of the existing understory by improving habitat structure and complexity, increasing soil nutrition from the decomposition of organic material from deciduous species, and providing additional food and refuges sources for wildlife.

Reproductive Potential

Acorn production varies widely among oak and the success of regeneration depends largely on the availability of fruits that mature and escape predation. Oaks that grow in an open environment, such as the onsite oak, generally produce more acorns than trees suppressed by other overstory trees (Olympia Forestry Sciences Laboratory 2004; Beck 1992). Beck (1992) describes oak reproduction as sporadic even under ideal circumstances because of predation, the limited seed viability, the precise germination requirements (≥30% moisture and cool conditions), and the low survival rate of seedlings if they do germinate. Once a mature fruit falls to the ground, it must have

adequate moisture and soil or leaf litter to germinate as a seedling. With the correct environmental conditions, the slow growing seedlings typically emerge in the spring. Enhancing the existing onsite understory will increase the likelihood of oak propagation.

Oak Habitat Creation in Wetland B Buffer

All of the available oak understory is proposed for enhancement (1,991 square feet); however, it will not meet the required 7,068 square feet of mitigation. Therefore, additional onsite enhancement is proposed within Wetland B's buffer (5,100 square feet). Oregon white oak trees will be planted in the northern outer portion of the buffer to establish oak habitat. Native woody shrubs will also be planted amongst the oaks, and invasive species will be removed. The proposed planting area currently contains emergent grasses, with some Himalayan blackberry and thistle species (*Cirsium* sp.). The attached tree survey shows that only the innermost portion of Wetland B's buffer contains trees (Appendix B). This plan utilizes the onsite wetland buffer with degraded functions to create oak woodland and improve the buffer's screening functions and habitat structure.

Table 2. Proposed Mitigation.

Mitigation Location	Mitigation Ratio	Proposed Enhancement (sq. ft.)
Existing Oak Dripline	6:1	1,991
Wetland B Buffer	> 6:1	5,100
Total		**7,091**

IMPLEMENTATION PLAN

Planting Schedule and Equipment

The native trees and shrubs will be installed in the mitigation areas during the late fall or early spring when the plants are dormant, and the soil moisture conditions are favorable for planting. The plant species may be changed, depending on availability. The following equipment may be used to prepare and install plants within the enhancement area: brush hog, weed eater, tractor, rototiller, tree shovel, garden shovel, and power auger. Plant species are listed below in Tables 3 and 4.

Table 3. Oak Enhancement Plant Specifications.

Species	Spacing	Size	Amount
Nootka Rose (*Rosa nutkana*)	6' center	1 gallon	20

Species	Spacing	Size	Amount
Snowberry (*Symphoricarpos albus*)	6' center	1 gallon	20
Oregon grape (*Mahonia aquifolium*)	6' center	1 gallon	20
Salal (*Gaultheria shallon*)	6' center	1 gallon	20
Total			**80**

Table 4. Wetland B Buffer Oak Mitigation Plant Specifications.

Species	Spacing	Size	Amount
Tree Stratum			
Oregon White Oak (*Quercus garryana*)	15’ center	2-inch caliper (if available)	15
Shrub Stratum			
Nootka Rose (*Rosa nutkana*)	6' center	1 gallon	18
Snowberry (*Symphoricarpos albus*)	6' center	1 gallon	18
Oregon Grape (*Mahonia aquifolium*)	6' center	1 gallon	18
Salal (*Gaultheria shallon*)	6' center	1 gallon	18
Total			**87**

Prepare Planting Area

- Install silt fencing where necessary to control runoff.
- Manually remove invasive species, then selectively apply herbicide by hand as necessary to control regrowth of invasive plants.
- Install native woody plants according to plant specifications.
- Install a minimum of 3-inch depth by 4-foot diameter mulch layer around the base of planted species.
- Affix biodegradable protector tubes around tall shrubs to protect from rodent predation and weed eating, as needed.
- Remove silt fencing following construction.

Vegetation Container Stock Specifications

- Dig the receiving hole larger than the root system and the same width at the top and the bottom.
- Roughen the sides of the receiving hole and remove any rocks or debris.
- Backfill the hole with soil about one-half full, lightly tamping to remove any air pockets.
- Water slowly to saturate the soil and remove any remaining air pockets.
- Finish filling the hole with soil. Remove any extra soil rather than mounding it around the base of the plant.

Install Habitat Signs

- The existing oak's dripline and Wetland B's buffer will be demarcated with permanent fencing with signs stating, "*Habitat Buffer – Please Retain in a Natural State*."
- Signs will be posted at an interval of one per lot or every 100 feet, whichever is less.
- Signs will be a minimum size one foot by one foot and posted three and one-half feet above grade.

GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS

The goal of the mitigation plan is to compensate for 1,178 square feet of priority Oregon white oak dripline impacts caused by improvements to NE Lockwood Creek Road. To accomplish this, the following objectives and performance standards are appropriate to ensure no net loss of functions as well as the overall success of onsite mitigation.

Vegetative Structure

Objective 1. Enhance the entire 1,991 square feet of onsite Oregon white oak dripline through the removal of invasive species and native plant installation.

- *Performance Standard 1a.* Planted native shrubs in the understory enhancement area will achieve at least 90 percent survival in Year 1. Dead plants will be replaced if this performance standard is not met.

- *Performance Standard 1b.* Non-native, invasive plant species will not exceed 20 percent aerial cover in the understory enhancement area in Year 1.

- *Performance Standard 1c.* Native shrubs in the understory enhancement area will achieve at least 80 percent survival in Year 2. Dead plants will be replaced if this performance standard is not met.

- *Performance Standard 1d.* Non-native, invasive plant species will not exceed 15 percent aerial cover in the understory enhancement area in Year 2.

- *Performance Standard 1e.* Native shrubs in the understory enhancement area will achieve at least 75 percent survival in Year 3. Dead plants will be replaced if this performance standard is not met.

- *Performance Standard 1f.* Non-native, invasive plant species will not exceed 15 percent aerial cover in the understory enhancement area in Year 3.

- *Performance Standard 1g.* Native shrubs in the understory enhancement area will achieve at least 10 percent native cover in Year 5. Dead plants will be replaced if this performance standard is not met.

- *Performance Standard 1h.* Native shrubs in the understory enhancement area will achieve at least 15 percent native cover in Year 7. Dead plants will be replaced if this performance standard is not met.

- *Performance Standard 1i.* Native shrubs in the understory enhancement area will achieve at least 30 percent native cover in Year 10. Dead plants will be replaced if this performance standard is not met.

- *Performance Standard 1j:* During Years 5, 7, and 10, non-native, invasive plant species will not exceed 10 percent aerial cover in the understory enhancement area.

Objective 2. Create 5,100 square feet of onsite Oregon white oak habitat within Wetland B's buffer.

- *Performance Standard 2a.* Planted native woody species in the mitigation area will achieve at least 90 percent survival in Year 1. Dead plants will be replaced if this performance standard is not met.

- *Performance Standard 1b.* Non-native, invasive plant species will not exceed 20 percent aerial cover in the mitigation area in Year 1.

- *Performance Standard 2c.* Native woody species in the mitigation area will achieve at least 80 percent survival in Year 2. Dead plants will be replaced if this performance standard is not met.

- *Performance Standard 1d.* Non-native, invasive plant species will not exceed 15 percent aerial cover in the mitigation area in Year 2.

- *Performance Standard 2e.* Native woody species in the mitigation area will achieve at least 75 percent survival in Year 3. Dead plants will be replaced if this performance standard is not met.

- *Performance Standard 1f.* Non-native, invasive plant species will not exceed 15 percent aerial cover in the mitigation area in Year 3.

- *Performance Standard 2g.* Oregon white oaks will achieve at least 25 percent cover throughout the entire Wetland B buffer enhancement area in Year 5. Native woody shrubs

will achieve at least 10 percent cover based on monitoring plot data in Year 5. Dead plants will be replaced if this performance standard is not met.

- *Performance Standard 2h.* Oregon white oaks will achieve at least 35 percent cover throughout the entire Wetland B buffer enhancement area in Year 5. Native woody shrubs will achieve at least 15 percent cover based on monitoring plot data in Year 7. Dead plants will be replaced if this performance standard is not met.

- *Performance Standard 2i.* Oregon white oaks will achieve at least 50 percent cover throughout the entire Wetland B buffer enhancement area in Year 5. Native woody shrubs will achieve at least 30 percent cover based on monitoring plot data in Year 10. Dead plants will be replaced if this performance standard is not met.

- *Performance Standard 1j:* During Years 5, 7, and 10, non-native, invasive plant species will not exceed 10 percent aerial cover in the understory enhancement area.

Table 5. Performance Standards for Vegetation by Monitored Year.

	Year 1	Year 2	Year 3	Year 5	Year 7	Year 10
Shrubs						
Survival	≥90%	≥80%	≥75%	-	-	-
Cover	-	-	-	≥10%	≥15%	≥30%
Oregon white oaks[1]						
Survival	≥90%	≥80%	≥75%	-	-	-
Cover	-	-	-	≥25%	≥35%	≥50%
Invasive plants						
Cover of non-native, invasive plants	<20%	<15%	<15%	<10%	<10%	<10%

[1] Oregon white oak percent cover will be estimated based on the entire Wetland B buffer enhancement area, rather than per monitoring plot.

Long-term Protection

Objective 3. Provide legally binding protection for the priority Oregon white oak onsite dripline and the Wetland B buffer.

- *Performance Standard 3a.* A conservation covenant or similar legal mechanism will be executed and recorded for the oak understory enhancement area and the entire Wetland B buffer. The covenant, absent amendment by mutual agreement between the grantor and the County, will prohibit development of the area identified in the covenant, but will allow for maintenance and further mitigation opportunities. This performance standard shall be

considered satisfied upon administrative approval of the covenant by the City, execution of the covenant by the grantor, and the covenant's recording in Clark County.

MONITORING, MAINTENANCE, AND CONTINGENCY MEASURES

Monitoring of the oak understory enhancement area and Wetland B oak mitigation area will occur for a 10-year period in Years 1, 2, 3, 5, 7, and 10. Following plant installation, monitoring plots will be established throughout the enhancement areas and a plant count will be taken to determine baseline conditions. Plot locations will be documented in the As-Built (Year 0) report. Additionally, permanent photo stations will be established throughout the mitigation site to photo-document vegetation establishment. Photo station location and the direction in which the picture is taken will also be recorded in the monitoring reports.

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 non-native, invasive plant species and recommendations for management.
- Photographs from established photopoints
- Observations of wildlife, including, amphibians, invertebrates, reptiles, birds, and mammals (photographs will be included if taken)
- Summary of maintenance and contingency measures completed for the past year and proposed for the next year

Vegetation Monitoring

Monitoring will occur each monitoring year during the growing season, preferably during the same two-week period to better compare data. The following information will be gathered within the established monitoring plots:

- Percent survival of woody species
- Percent cover of woody species in Year 5 and subsequent monitoring years
- Percent cover of non-native, invasive species in all monitoring years
- General health of plants, noting specific problems and potential causes
- Photographic documentation of vegetative changes over time from established photopoints
- Overall vegetative conditions outside monitoring plots

Maintenance

Maintenance will occur during the growing season for the duration of monitoring and will include the following:

- If temporary irrigation is not installed, irrigate planting areas every other week or as needed in the dry season of the planting year and Year 1
- If temporary irrigation is not installed, 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 twice yearly within a 3-foot radius of planted trees and shrubs 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 Plan

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 these 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

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

Beck, D.E. 1992. Acorns and Oak Regeneration. *In Oak Regeneration: Serious Problems and Practical Recommendations*. GTR SE-84. Southeastern Forest Experiment Station, U.S. Department of Agriculture, Asheville, North Carolina.

La Center Municipal Code (*LCMC*). 2022. *Chapter 18.300 Critical Areas*. La Center, Washington. September 14, 2022.

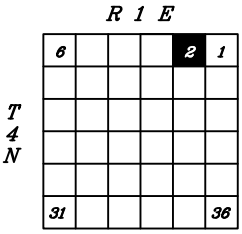
Larsen, E.M. and J.T. Morgan. 1998. *Management recommendations for Washington's priority habitats: Oregon white oak woodlands.* Washington Department of Fish and Wildlife, Olympia, Washington.

Olympia Forestry Sciences Laboratory. 2004. Oak Studies: *Acorn Survey Results*. Online document <https://www.fs.fed.us/pnw/olympia/silv/oak-studies/acorn_survey/survey.shtml>. Accessed November 2022.

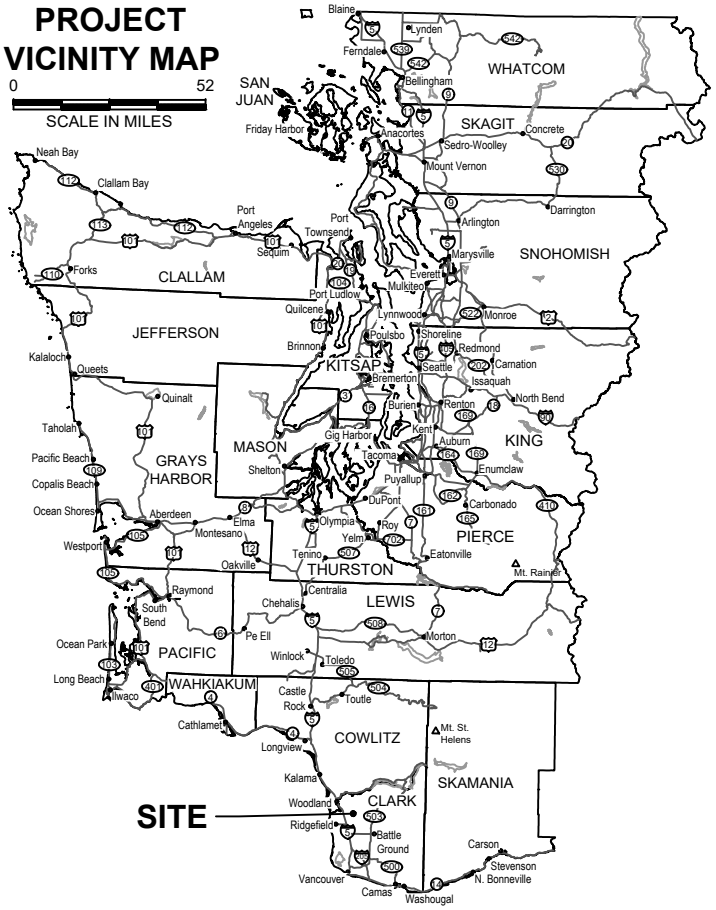
FIGURES & PHOTOPLATES

Latitude: 45.8620°
Longitude: -122.6487°

LOCATION MAP



PROJECT VICINITY MAP



NOTE:
Quadrangle topographic map from USGS.

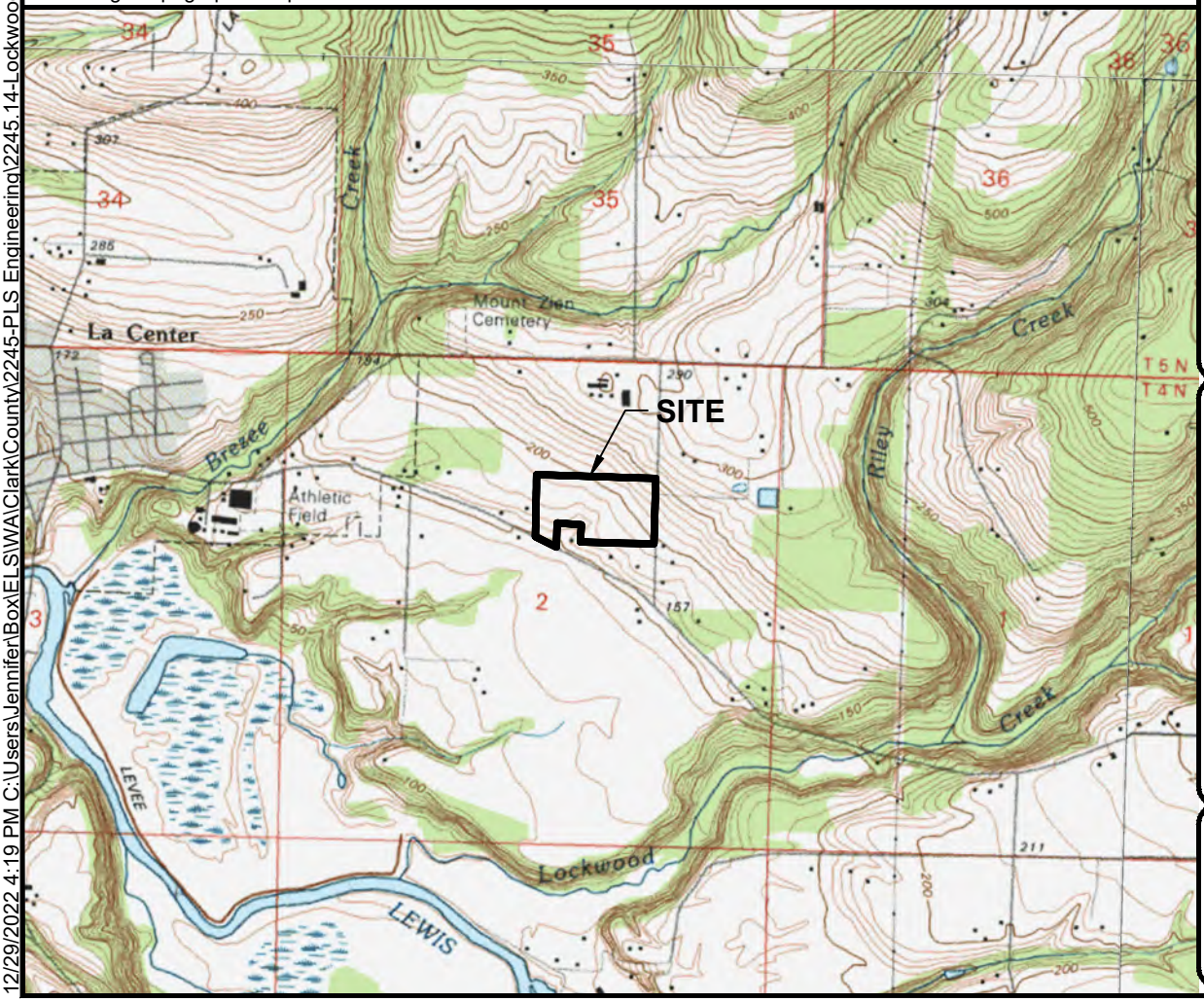


Figure 1
VICINITY MAP
Lockwood Meadows Subdivision Oak Mitigation
Cedar Ridge Homes
Clark County, Washington
Section 2, Township 4N, Range 1E, W.M.

DATE: 12/29/22
DWN: EF
REQ. BY: AJR
PRJ. MGR: AJR
CHK: AJR
PROJECT NO: 2245.14

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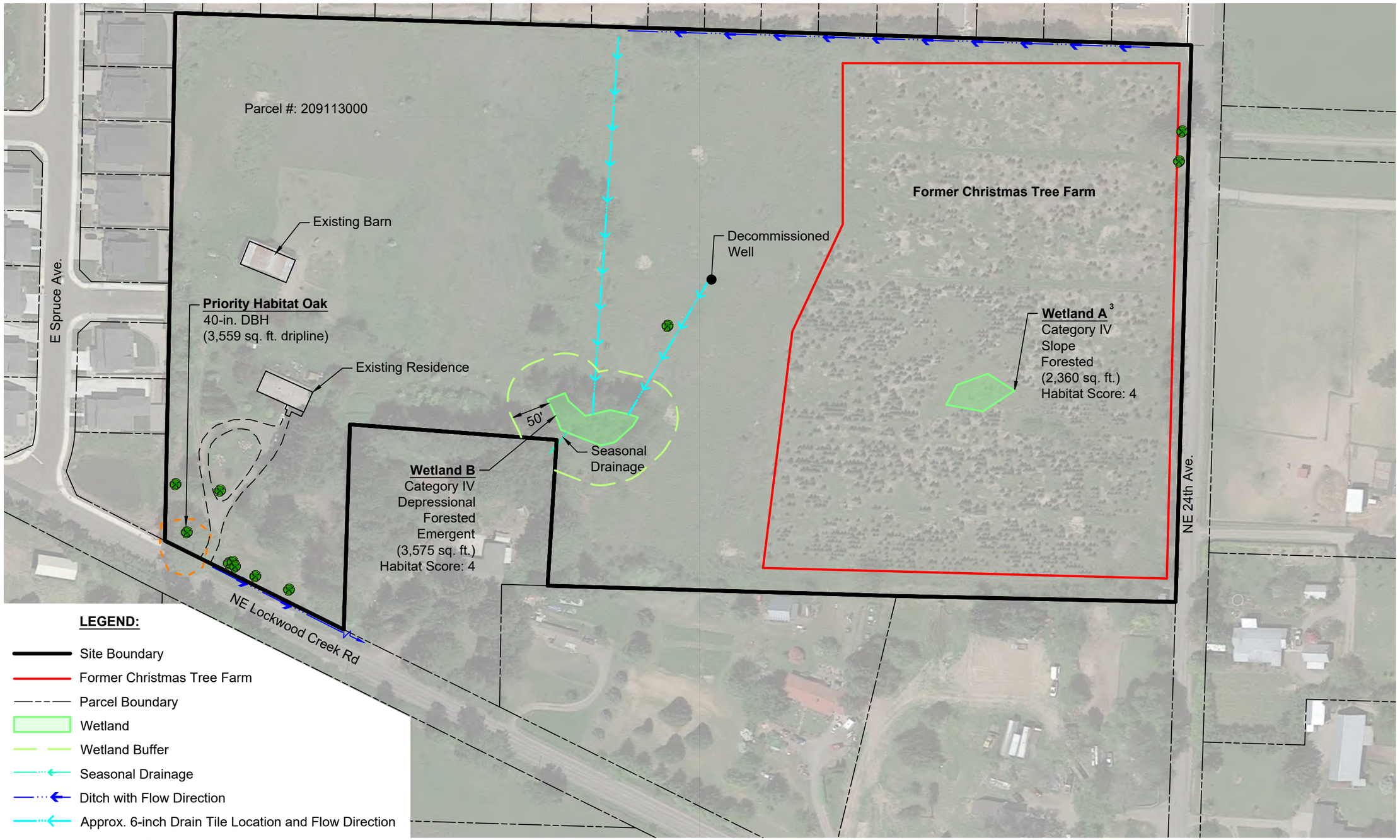

LEGEND:

- Site Boundary
- Former Christmas Tree Farm
- Parcel Boundary
- Wetland
- Wetland Buffer
- Seasonal Drainage
- Ditch with Flow Direction
- Approx. 6-inch Drain Tile Location and Flow Direction
- Pavement/Gravel
- Oak Tree
- Oak Tree Dripline (3,559 sq. ft.)
- TP-1 Test Plot Location
- Continues Offsite

NOTE(S):

1. Aerial from May 2019 Google Earth™.
2. Wetlands, test plots, and oak trees were mapped by an ELS Biologist using a hand-held GPS unit with submeter accuracy.
3. Wetland A is exempted from La Center buffers per LCMC 18.300.090(5)(d) Exempted Wetlands.

Figure 2
Existing Conditions
Lockwood Meadows Subdivision Oak Mitigation
Cedar Ridge Homes
Clark County, Washington
Section 2, Township 4N, Range 1E, W.M.

DATE: 12/29/22
DWN: EF
REQ. BY: AJR
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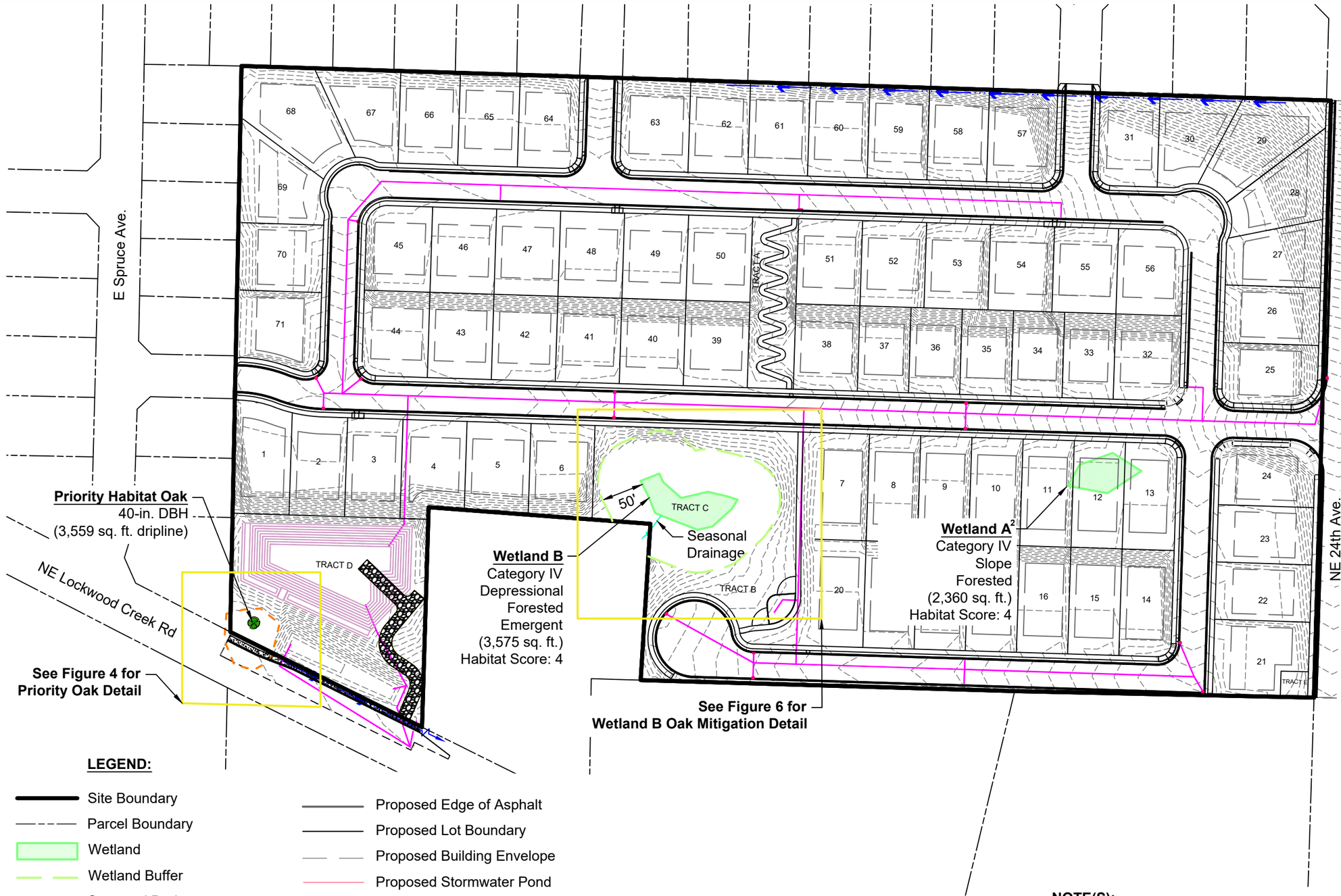

LEGEND:

- Site Boundary
- Parcel Boundary
- Wetland
- Wetland Buffer
- Seasonal Drainage
- Ditch with Flow Direction
- Oak Tree
- Oak Tree Dripline (3,559 sq. ft. dripline)
- Continues Offsite
- Proposed Edge of Asphalt
- Proposed Lot Boundary
- Proposed Building Envelope
- Proposed Stormwater Pond
- Proposed Storm Pipe
- Proposed Gravel Access Road
- Proposed 1' Contours

NOTE(S):

1. Wetlands, test plots, and oak trees were mapped by an ELS Biologist using a hand-held GPS unit with submeter accuracy.
2. Wetland A is exempted from La Center buffers per LCMC 18.300.090(5)(d) Exempted Wetlands.
3. Site plan provided by PLS Engineering.

Figure 3
Proposed Conditions
Lockwood Meadows Subdivision Oak Mitigation
Cedar Ridge Homes
Clark County, Washington
Section 2, Township 4N, Range 1E, W.M.

DATE: 12/29/22
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SCALE IN FEET
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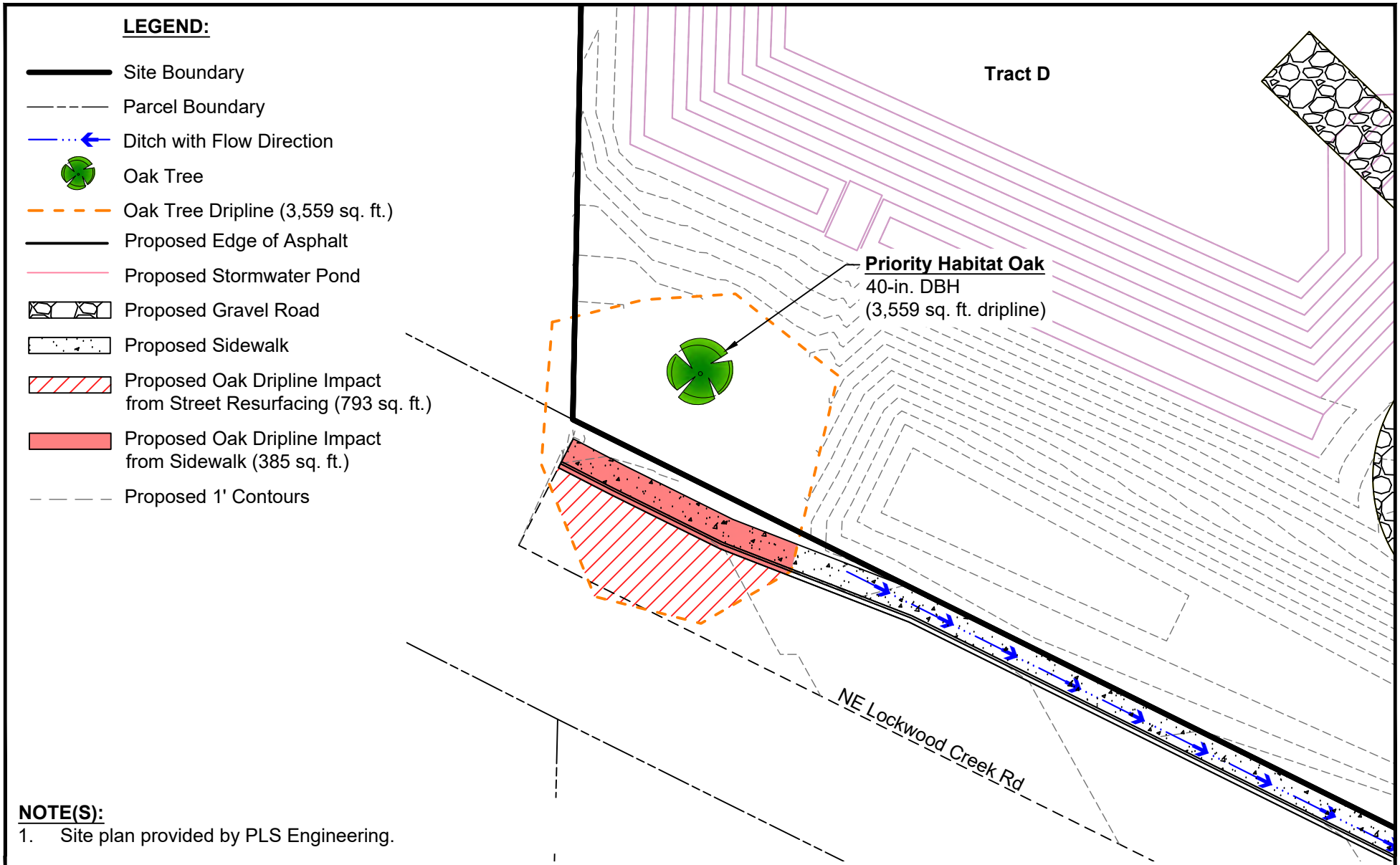

NOTE(S):

1. Site plan provided by PLS Engineering.

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SCALE IN FEET

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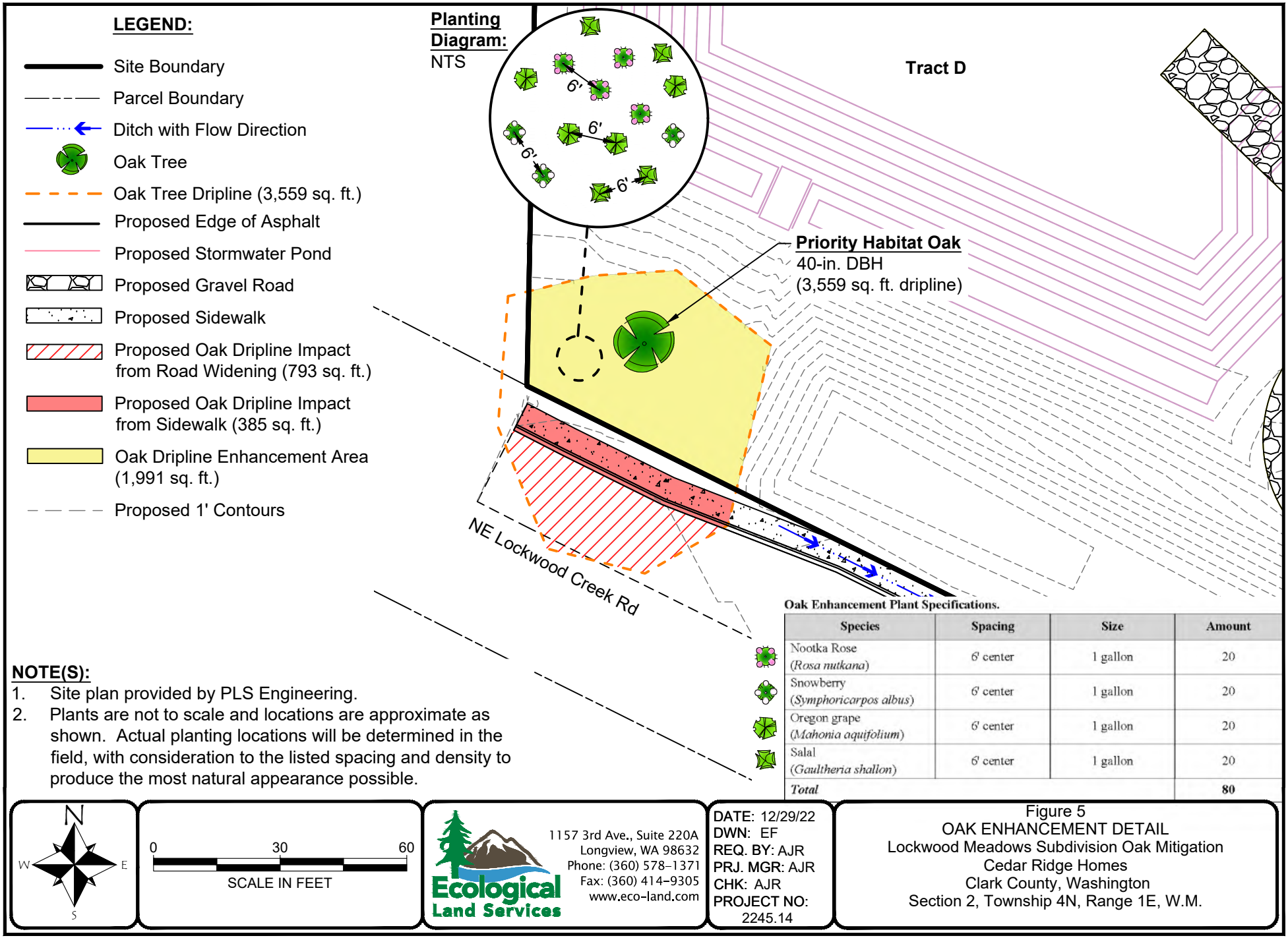
Figure 4
OAK IMPACT DETAIL
Lockwood Meadows Subdivision Oak Mitigation
Cedar Ridge Homes
Clark County, Washington
Section 2, Township 4N, Range 1E, W.M.



Oak Enhancement Plant Specifications.

Species	Spacing	Size	Amount
Nootka Rose (*Rosa nutkana*)	6' center	1 gallon	20
Snowberry (*Symphoricarpos albus*)	6' center	1 gallon	20
Oregon grape (*Mahonia aquifolium*)	6' center	1 gallon	20
Salal (*Gaultheria shallon*)	6' center	1 gallon	20
Total			**80**

NOTE(S):

1. Site plan provided by PLS Engineering.
2. 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.

N W E S

0 30 60
SCALE IN FEET

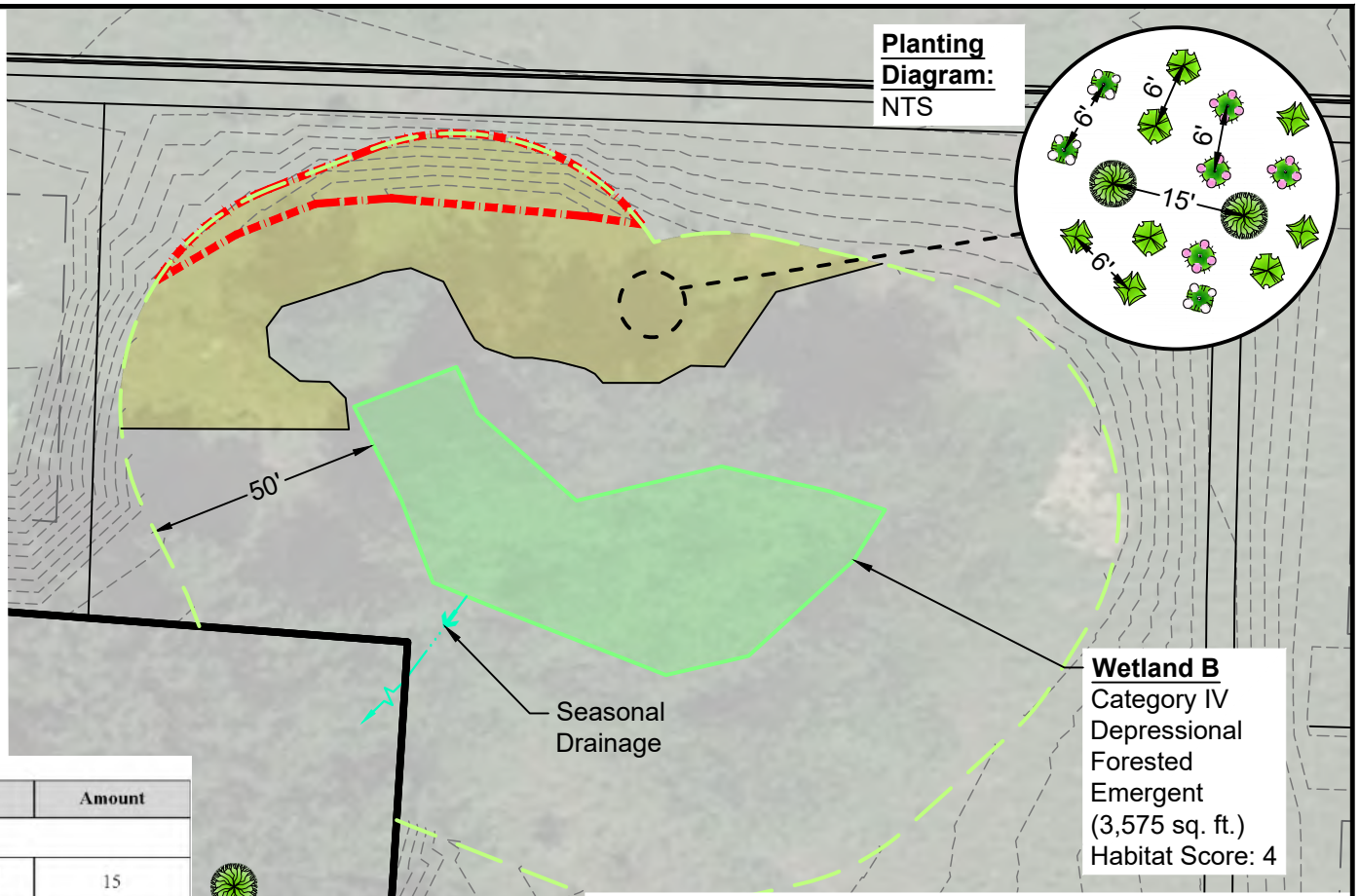
Ecological Land Services
1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305
www.eco-land.com

DATE: 12/29/22
DWN: EF
REQ. BY: AJR
PRJ. MGR: AJR
CHK: AJR
PROJECT NO: 2245.14

Figure 5
OAK ENHANCEMENT DETAIL
Lockwood Meadows Subdivision Oak Mitigation
Cedar Ridge Homes
Clark County, Washington
Section 2, Township 4N, Range 1E, W.M.

LEGEND:

- Site Boundary
- Ditch with Flow Direction
- Wetland Boundary
- Wetland Buffer
- Proposed Edge of Asphalt
- Proposed Lot Boundary
- Proposed Building Envelope
- Proposed 1' Contours
- Proposed 5' Contours
- Oak Dripline Enhancement Area (5,100 sq. ft.)
- Proposed Grading within Enhancement Area (978 sf.)



Wetland B Oak Mitigation Plant Specifications.

Species	Spacing	Size	Amount
Tree Stratum			
Oregon white oak (*Quercus garryana*)	15' center	2-inch caliper (if available)	15
Shrub Stratum			
Nootka Rose (*Rosa nutkana*)	6' center	1 gallon	18
Snowberry (*Symphoricarpos albus*)	6' center	1 gallon	18
Oregon grape (*Mahonia aquifolium*)	6' center	1 gallon	18
Salal (*Gaultheria shallon*)	6' center	1 gallon	18
Total			**87**

NOTE(S):

1. Wetland mapped by an ELS Biologist using a hand-held GPS unit with submeter accuracy.
2. Site plan provided by PLS Engineering.
3. 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.
4. Aerial fromGoogle Earth™ (May 2019).

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0 40 80
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Figure 6
WETLAND B OAK MITIGATION DETAIL
Lockwood Meadows Subdivision Oak Mitigation
Cedar Ridge Homes
Clark County, Washington
Section 2, Township 4N, Range 1E, W.M.

Photo 1. Priority Oregon white oak from NE Lockwood Creek Rd. View facing east. Photo was taken Feb 2021.

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

DATE: 12/28/22
DWN: AJR
PRJ. MGR: AJR

Photoplate 1
Site Photos
Lockwood Meadows Subdivision
Oak Mitigation Plan
La Center, Washington

Photo 2. View of priority Oregon white oak from onsite, facing southwest. Himalayan blackberry dominates the oak's understory. Photo was taken Sept 2020.

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

DATE: 12/28/22
DWN: AJR
PRJ. MGR: AJR

Photoplate 2
Site Photos
Lockwood Meadows Subdivision
Oak Mitigation Plan
La Center, Washington

Photo 3. Current Google Street View image from NE Lockwood Creek Rd facing east. The oak's dripline extends over existing road.

Ecological Land Services	1157 3rd Ave., Suite 220A Longview, WA 98632 Phone: (360) 578-1371 Fax: (360) 414-9305	DATE: 12/28/22 DWN: AJR PRJ. MGR: AJR	**Photoplate 3** **Site Photos** Lockwood Meadows Subdivision Oak Mitigation Plan La Center, Washington

Photo 4. Current Google Street View image from NE Lockwood Creek Rd facing east. The oak's dripline extends over existing road.

Ecological Land Services

1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305

DATE: 12/28/22
DWN: AJR
PRJ. MGR: AJR

Photoplate 4
Site Photos
Lockwood Meadows Subdivision
Oak Mitigation Plan
La Center, Washington

Photo 5. Current Google Street View image from NE Lockwood Creek Rd facing west/northwest. The oak's dripline extends over existing road and Himalayan blackberry dominates the tree's understory onsite.

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

DATE: 12/28/22
DWN: AJR
PRJ. MGR: AJR

Photoplate 5
Site Photos
Lockwood Meadows Subdivision
Oak Mitigation Plan
La Center, Washington

APPENDIX A: WDFW CORRESPONDENCE

Annie Jean Rendleman

From: Holowatz, Isaac T (DFW) <Isaac.Holowatz@dfw.wa.gov>
Sent: Wednesday, February 17, 2021 5:03 PM
To: Annie Jean Rendleman
Subject: RE: Oregon white oak protection- La Center

Annie Jean,
It was great talking with you earlier today. Thank you for the Picture … what a beautiful Oak tree.
Yes, I think that dripline would cover the adequate amount of space to protect the Oak Tree.
If you have any further questions please let me know.
Thank you,

Isaac Holowatz
Habitat Biologist
Washington Department of Fish and Wildlife
Cell: 360.773.8943

From: Annie Jean Rendleman <AnnieJean@eco-land.com>
Sent: Tuesday, February 16, 2021 5:00 PM
To: Holowatz, Isaac T (DFW) <Isaac.Holowatz@dfw.wa.gov>
Subject: Oregon white oak protection- La Center

External Email

Hi Isaac,

I'm working on a project in the City of La Center on Clark County parcel 209113000 with a large white oak tree (40-inch DBH). The City code says to consult with WDFW on an appropriate buffer for priority oaks. I have never dealt with a buffer off of an oak, other than the dripline. Is this something you would need to make a site visit for? I plan to go out next week and could take more photos for you, if that's preferable.

Feel free to forward this on if I should be reaching out to someone else!

Thanks,

Please note: I am no longer working on Fridays. Please call our office at the number below if you need immediate assistance.

Annie-Jean Rendleman | Biologist
Port of Camas/Washougal Satellite Office
3805 Truman Road, Suite 2, Washougal, WA 98671
P: 360-835-9082 ext 1104
Longview Office
1157 3rd Avenue, Suite 220A Longview, WA 98632
P: 360-578-1371 ext 1104 | F: 360-414-9305
www.eco-land.com | AnnieJean@eco-land.com

From: Spoo, Ethan <ethan.spoo@wsp.com>
Sent: Tuesday, February 16, 2021 11:21 AM
To: Annie Jean Rendleman <AnnieJean@eco-land.com>; Sarah Dollar <sdollar@ci.lacenter.wa.us>
Cc: Anthony Cooper <acooper@ci.lacenter.wa.us>; Matt Jenkins <mjenkins@ci.lacenter.wa.us>
Subject: RE: Hung Annexation - ELS - Wetland Boundary

Hi Annie,

Please take a look at Table 18.300.090(2)(a) which requires a standard buffer of 300 feet around non-riparian PHS point sites *or as recommended in consultation with WDFW.* Assuming this is priority oak habitat we are talking about, please reach out to WDFW and come to concurrence with them about what buffer would protect the oak since I'm assuming you won't want to use 300 feet. In the past WDFW requires priority oak habitat be protected to the driplines. Once you come to an agreement with WDFW, please submit a letter or email from them stating what they require the buffer to be.

Let me know if you have any other questions.

Thanks,
Ethan

From: Annie Jean Rendleman <AnnieJean@eco-land.com>
Sent: Tuesday, February 16, 2021 9:27 AM
To: Sarah Dollar <sdollar@ci.lacenter.wa.us>
Cc: Anthony Cooper <acooper@ci.lacenter.wa.us>; Matt Jenkins <mjenkins@ci.lacenter.wa.us>; Spoo, Ethan <ethan.spoo@wsp.com>
Subject: RE: Hung Annexation - ELS - Wetland Boundary

Good morning,

I'm working on the critical areas report for the Hung parcel. In looking at the La Center code (18.300.090(2) Fish and Wildlife Conservation Areas), I noticed it mentions a buffer non-riparian priority habitat and species. I've completed many permitting projects with priority oaks, but never seen a buffer for them. I looked through the WDFW Management

Recommendations and didn't see anything regarding setbacks or buffers. Could you clarify what the City requires for oak buffers?

Thanks so much,
Annie Jean

Please note: I am no longer working on Fridays. Please call our office at the number below if you need immediate assistance.

Annie-Jean Rendleman | Biologist

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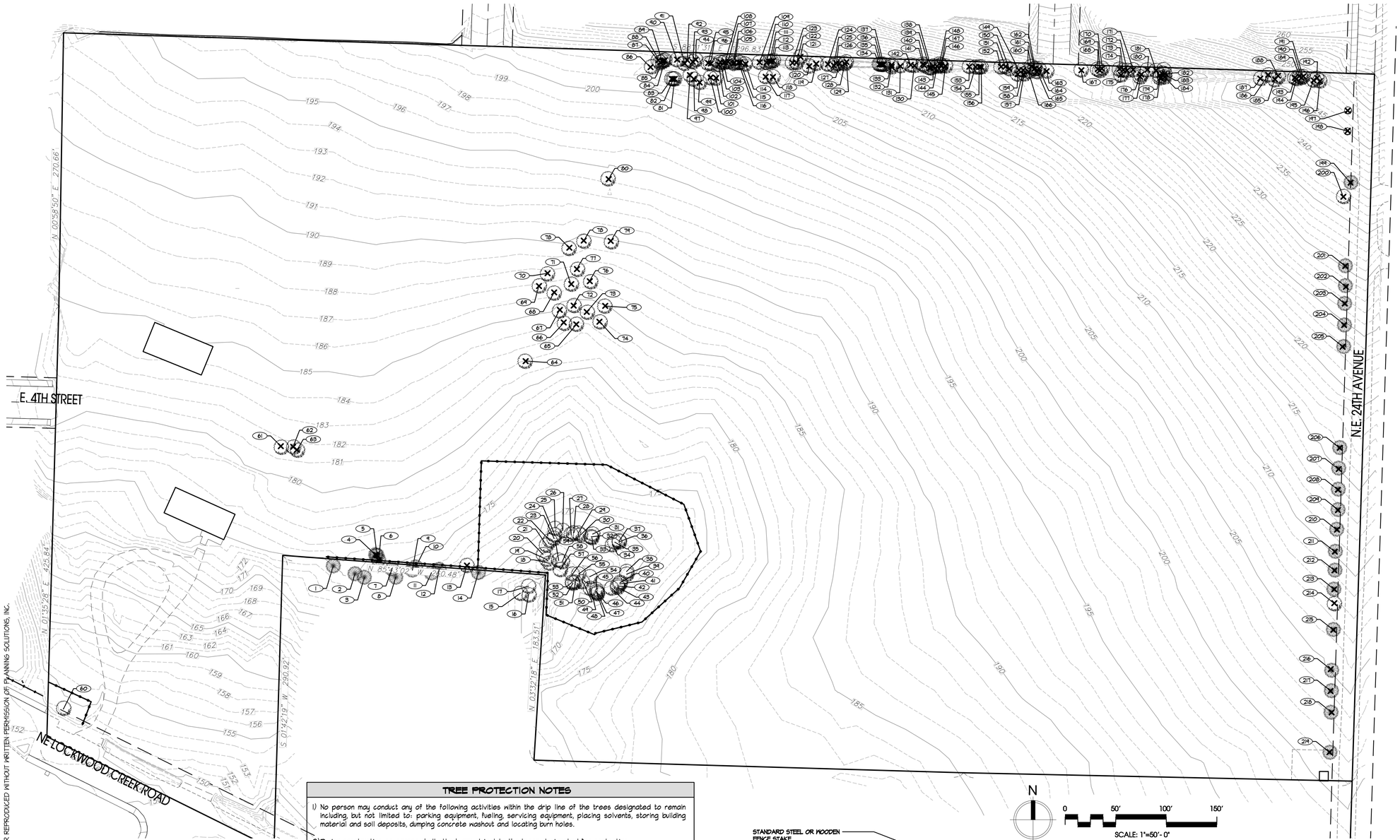
APPENDIX B: TREE SURVEY (PLANNING SOLUTIONS, INC.)



TREE PROTECTION NOTES

1) No person may conduct any of the following activities within the drip line of the trees designated to remain including, but not limited to: parking equipment, fueling, servicing equipment, placing solvents, storing building material and soil deposits, dumping concrete washout and locating burn holes.

2) During construction, no person shall attach any object to the trees designated for protection.

3) The contractor shall follow the grading plan provided by the project civil engineer. Grading activities shall be conducted in a manner to minimize the impacts to the trees marked for preservation.

4) The excavator shall keep a sharp pair of loppers and a sharp 12" pruning saw accessible on-site during grading operations. Any roots larger than 1½" shall be pruned to the face of the cut (using a sharp pair of loppers or a sharp 12" pruning saw) and shall not be torn from the ground by mechanical excavation.

5) Special care shall be exercised in working within 20 feet of the trees to be retained. This includes hand excavating the roots at the edge of the excavation and cutting roots with a lopper or pruning saw. Pruning the roots at the edge of excavation will minimize breakage of healthy roots beyond the edge of the proposed excavation.

6) Except for the proposed improvements shown within the drip lines of the trees noted to be retained the grade shall not be elevated or reduced from existing grade.

7) If the grade adjacent to a preserved tree is raised such that it could slough or erode into the tree's drip line, it shall be permanently stabilized.

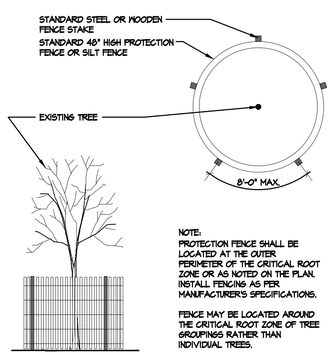
8) The trees noted to retained shall be protected from erosion and sedimentation. Clearing operations shall be conducted so as to expose the smallest practical area of soil to erosion for the least possible time. Refer to the project's erosion control plan for more information.

9) The project shall not install an impervious surface other than those specifically shown on the plans within the drip line of the trees to be retained.

10) Utility trenches shall be located outside of the drip line of the trees to be retained.

11) Ongoing Tree Maintenance shall be the responsibility of the land owner. Trees shall be maintained in accordance with ANSI American National Standards Institute's as well as other applicable Federal, State and Local standards pertaining to Tree Care Operations.

- ANSI Z133 Arboricultural Operations: Safety Requirements
- ANSI A300 Part 1 Pruning



A Tree Protection Fencing Detail
Not To Scale — SECTION / PLAN VIEW

SITE STATISTICS	
20+/- AC	SITE AREA
161	NUMBER OF JURISDICTIONAL TREES TO BE REMOVED
204	NUMBER OF JURISDICTIONAL TREES ON SITE

SYMBOL LEGEND	
SYMBOL	DESCRIPTION
	EXISTING TREE REFER TO SHEET T2 FOR EXISTING TREE MATRIX
×	EXISTING TREE TO BE REMOVED
	TREE PROTECTION FENCE LOCATION (4' CHAIN LINK, ORANGE PVC FENCE OR SILT FENCE) (ALSO DENOTES AREA WHERE NO IMPACTS TO CRITICAL ROOT ZONE SHALL OCCUR)

Planning Solutions, Inc
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VANCOUVER, WA 9866
VOICE: 360-750-9000 FAX: 360-713-61
www.planningsolutionsinc.co

STATE OF WASHINGTON
CHRISTOPHER A BAUMANN
NO. 635 EXP. 02-20-2023
LICENSED LANDSCAPE ARCHITECT

LOCKWOOD MEADOWS SUBDIVISION

2000 NE Lockwood Creek Road
La Center, Washington

DRAWN: CB	CHECKED: CB
SCALE: 1" = 50'-0"	DATE: 08.11.22
JOB #: 21-1683	
ISSUED FOR: FLR	
REVISIONS:	
1	
2	
3	
4	
5	
6	

SHEET NAME:
TREE PROTECTIO PLAN

SHEET #:
T1
SHEET 1 OF 2