Camas Station Project

TREE SURVEY

Prepared for:
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Prepared by:
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January 31, 2022

OLSON ENVIRONMENTAL LLC
ENVIRONMENTAL SERVICES • GIS • HABITAT RESTORATION

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TREE SURVEY

Project: Camas Station Project Subdivision
Applicant: Olson Engineering, Inc
Location: East of 4345 NW 16th Ave, Camas, Washington, Washington
Legal Description: NW 1/4 of Section 09,T01N, R03E, W. M., Clark County
Serial Number(s): 127357000 (2.16 acres)
Study Area Size: 2.16 acres acres
Jurisdiction: City of Camas
Zoning: Community Commercial (CC)
ComPlan: Commercial
Assessment by: Kevin Terlep
Site Visit: January 6, 2022
Report Date: January 31, 2022

1.0 SCOPE OF WORK

This report details the results of a tree survey conducted for Olson Engineering, Inc by Olson Environmental, LLC. (OE). The study area is located east of 4345 NW 16th Ave, Camas, Washington (Fig. 1). The report provides a tree inventory and combined results of a limited visual Level I assessment (for off-site trees) and Level 2 basic risk assessment for all *significant trees*, as defined locally by the City of Camas, under Camas Municipal Code (CMC) 18.13.051.

2.0 SITE DESCRIPTION

The 2.16-acre study area includes the entirety of parcel number 127357000. The study area is located at the northwest corner of NW Brady Road and NW 16th Ave. Four Corners Park and Prune Hill Elementary School (Camas School District #117) are to the south and southwest of the study area, respectively. Residential land occurs east of the study area along NW Brady Road. The adjoining properties to the west and north of the site are currently used for commercial purposes. The Applicant is proposing to sub-divide the parcel for the development of a gas station and other retail facilities (Fig 2.)

Topography within the study area is characterized by 5-10% slopes in most of the property except in the southeast corner where it is relatively flat (Fig. 3). The property is currently vacant and wooded, it has aggressive infestations of both English Ivy *(Hedera helix)* and Himalayan blackberry *(Rubus armeniacus)*. A series of roads/skid trails traverse the property but no buildings or other improvements are present on-site.

3.0 METHODS

OE conducted a site visit on January 6, 2022 and surveyed all significant trees within the study area. According to CMC, significant trees are defined as evergreen trees with a diameter at breast height (4.5’ above the ground, DBH) of 8 inches or greater and deciduous trees with a DBH of

12” or greater. This definition does not include invasive species or hazard trees. Based on guidance from the City of Camas, the DBH for any trees with forked stems at or below DBH were calculated by converting individual tree diameters to area, summing the areas and then converting back to diameter.

The entire site was traversed by foot and all tree locations were recorded with a hand-held GPS. The scientific name, DBH, health, and risk rating was assessed and recorded. On- and off-site trees were both assessed in order to establish tree root protection zones during construction. Risk rating for potentially hazardous trees (on- and off-site) was determined according to the principals of Tree Risk Assessment Best Management Practices (Smiley et al. 2017) and the Tree Risk Assessment Manual (Dunster et al. 2017), both are publications from the International Society of Arboriculture (ISA). This methodology involves analyzing tree defects and site conditions to determine the likelihood of failure weighed against the likelihood and consequences of impacts to high-value targets to determine risk rating. A Level-2 basic assessment was conducted for on-site significant trees. Off-site significant trees that were not behind a fence or otherwise inaccessible were investigated using a Level-1 limited visual assessment. The timeframe of this assessment is assumed to be 1-year.

4.0 RESULTS AND RECOMENDATIONS

The property contained a total of 37 significant trees, as defined by CMC 18.13.051 (Fig. 4). The species composition on-site is a mix of big-leaf maple *(Acer macrophyllum)* and red alder *(Alnus rubra)* (Appendix A). A few additional species including hawthorn (*Crataegus spp.*) and English holly (*Ilex aquifolium)* were also observed but they did not meet the size criteria to be considered significant trees.

A high proportion of the trees on the property are in poor health, dead, and/or structurally un-sound. Because targets *(e.g.*, people or property) are currently not at risk of being impacted by these trees, they were not rated as high risk. The only tree that was rated as a high level of risk to life or property was tree#16 (Fig. 4). Tree# 16 is a large over-mature, multi-stemmed big-leaf maple with multiple defects (Appendix A). In the event of failure, this tree would most likely impact the adjacent property owner’s fence and warehouse building.

Large areas of the site have been aggressively invaded by English ivy and blackberry; the former is significantly affecting tree health in the areas indicated on Figure 4. Additionally, recent disturbance along a series of skid trails/roads throughout the parcel has caused significant levels of erosion (Photo Sheets 1-3) and visible injury to trees. Extensive root damage in these areas is also likely based on the level of disturbance that was observed. In conclusion, the general condition of the site is very poor based on structural condition of many of the trees, invasive species infestations, and ground disturbance/damage.

Based on the proposed site development, it is OE’s recommendation to remove all significant trees on the property. Due to the topography on-site (Fig. 3), it is necessary for the Applicant to grade the entire study area. It is unlikely that any trees on the property would survive grading and subsequent construction.

5.0 ARBORIST DISCLOSURE

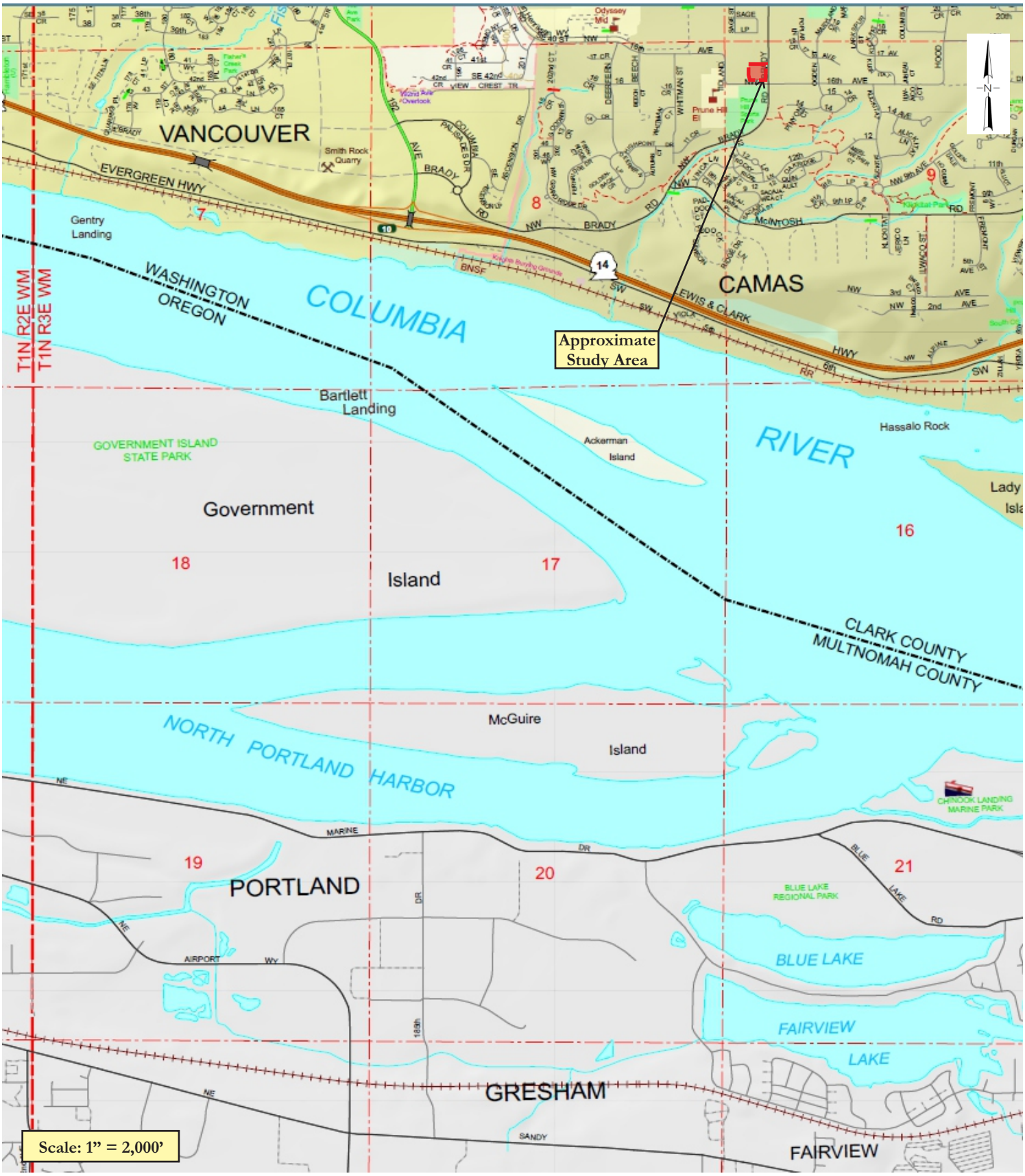
Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the health of trees and attempt to reduce the risk of living near trees. The client and the jurisdiction may choose to accept or disregard the recommendations of the arborist or seek additional expertise.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that may fail in ways that we do not fully comprehend. Conditions are often hidden within the trees and below ground within their root systems. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments are not always a guarantee.

6.0 Literature Cited

Dunster JA, Edgar Thomas Smiley, Matheny NP, Lilly S, International Society Of Arboriculture. 2017. Tree Risk Assessment Manual. 2nd ed. Champaign, Illinois: International Society of Arboriculture.

Edgar Thomas Smiley, Matheny NP, Lilly S, International Society Of Arboriculture. 2017. Tree Risk Assessment Best Management Practices. 2nd ed. Champaign, Ill.: International Society of Arboriculture



APPLICANT:
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Olson Engineering, Inc
222 E Evergreen Blvd
Vancouver, WA 98660

PURPOSE:
Tree Survey
OE Job# E20369.01

Project Location
Camas Station Project
Camas, Washington

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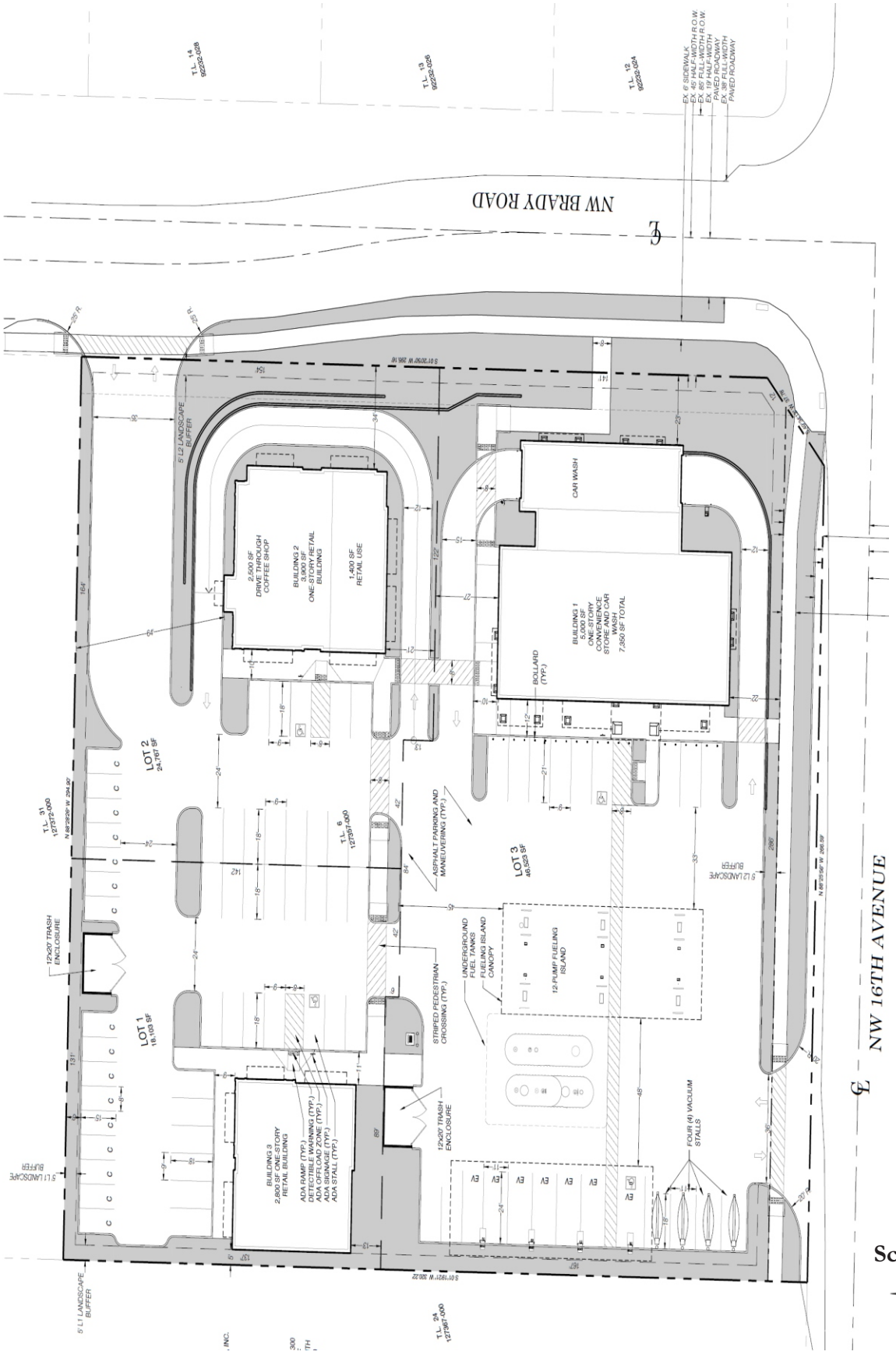
LEGAL: NW 1/4 of Section 09, T01N, R03E, W. M
NEAR: Camas, Washington
COUNTY: Clark County
DATE: 01/31/2022

Figure 1



Scale: 1" = 5'

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Proposed Site Plan
Camas Station Project
Camas, Washington

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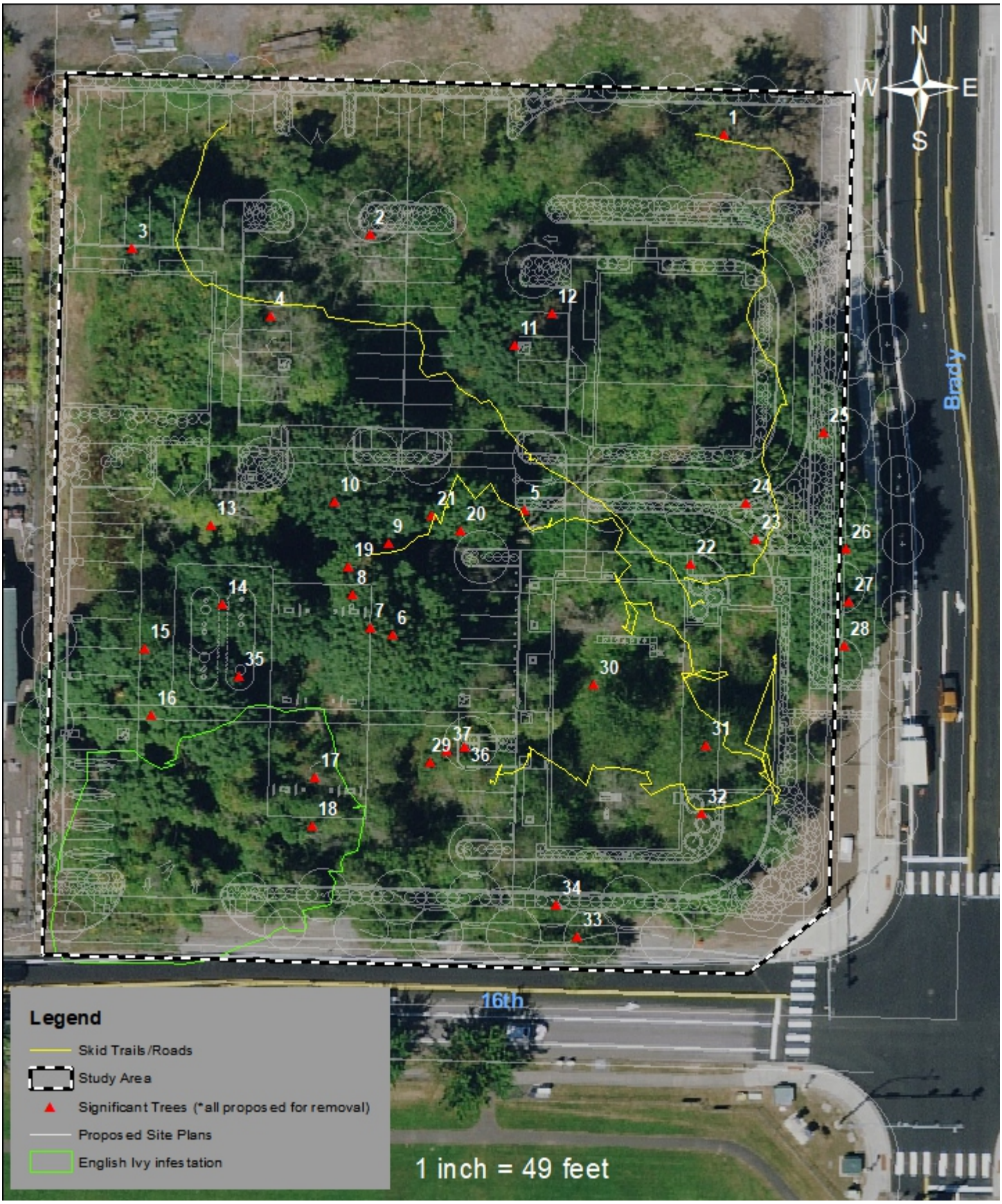
Figure 2



APPLICANT:
Attn: Mr. Mike Odren
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PURPOSE:
Tree Survey
OE Job# E20369.01

Tree Survey and Proposed Removals
Camas Station Project
Camas, Washington

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LEGAL: NW 1/4 of Section 09, T01N, R03E, W. M
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Figure 3






APPLICANT:
Attn: Mr. Mike Odren
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PURPOSE:
Tree Survey
OE Job# E20369.01

Study Area Photographs
Camas Station Project
Camas, Washington

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Photo-Sheet 1

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Study Area Photographs
Camas Station Project
Camas, Washington

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Photo-Sheet 2






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OE Job# E20369.01

Study Area Photographs
Camas Station Project
Camas, Washington

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Photo-Sheet 3

APPENDIX A

TREE INVENTORY

Tree#	Common Name	Scientific Name	DBH__inche	Tree Units	Hazard_Tree Rating	Remove/Retain	Condition
1	big-leaf maple	*Acer macrophyllum*	27, 6, 7 = 29	11	2	Remove	Fair
2	red alder	*Alnus rubra*	22	7	1	Remove	Dead
3	big-leaf maple	*Acer macrophyllum*	24	8	3	Remove	Poor
4	red alder	*Alnus rubra*	22, 17, 21, 19, 8 =41	17	3	Remove	Poor
5	red alder	*Alnus rubra*	17, 22 = 28	10	1	Remove	Dead
6	big-leaf maple	*Acer macrophyllum*	25	9	1	Remove	Good
7	big-leaf maple	*Acer macrophyllum*	27	10	2	Remove	Fair
8	big-leaf maple	*Acer macrophyllum*	24	8	2	Remove	Fair
9	big-leaf maple	*Acer macrophyllum*	25	9	3	Remove	Poor
10	big-leaf maple	*Acer macrophyllum*	17, 29 = 32	12	1	Remove	Poor
11	big-leaf maple	*Acer macrophyllum*	30	11	1	Remove	Good
12	big-leaf maple	*Acer macrophyllum*	13	3	1	Remove	Fair
13	big-leaf maple	*Acer macrophyllum*	28	10	2	Remove	Poor
14	big-leaf maple	*Acer macrophyllum*	34	13	3	Remove	Fair
15	big-leaf maple	*Acer macrophyllum*	15	4	1	Remove	Poor
16	big-leaf maple	*Acer macrophyllum*	57	24.5	4	Remove	Poor
17	big-leaf maple	*Acer macrophyllum*	16	4	1	Remove	Poor
18	big-leaf maple	*Acer macrophyllum*	13	3	1	Remove	Poor
19	big-leaf maple	*Acer macrophyllum*	27	10	1	Remove	Poor
20	red alder	*Alnus rubra*	14	4	1	Remove	Good
21	big-leaf maple	*Acer macrophyllum*	16	4	1	Remove	Good
22	big-leaf maple	*Acer macrophyllum*	20	6	1	Remove	Good
23	big-leaf maple	*Acer macrophyllum*	25	9	1	Remove	Good
24	big-leaf maple	*Acer macrophyllum*	26	9	1	Remove	Good
25	big-leaf maple	*Acer macrophyllum*	24	8	1	Remove	Good
26	big-leaf maple	*Acer macrophyllum*	24	8	1	Remove	Good
27	big-leaf maple	*Acer macrophyllum*	16	4	3	Remove	Fair
28	big-leaf maple	*Acer macrophyllum*	28	10	1	Remove	Good
29	red alder	*Alnus rubra*	14	3	1	Remove	Poor
30	red alder	*Alnus rubra*	13	3	1	Remove	Fair
31	red alder	*Alnus rubra*	14	3	1	Remove	Good
32	red alder	*Alnus rubra*	14	3	1	Remove	Poor
33	red alder	*Alnus rubra*	14, 18 = 23	8	2	Remove	Poor
34	red alder	*Alnus rubra*	14	3	1	Remove	Poor

Tree#	Crown Defects	Trunk Defects	Root Defects
1	CD MBm	CD IB MBm	ERm
2			
3	DB CD		Moderate rot at root collar, possible root rot
4	CD IB DMWm DMBs	CD IB DMBs	
5			
6	CD		
7	CD IB Large cavity at base of upper branch union		
8	CD IB DT DB		
9	CD IB DW	Cavity at 4.5', Seam/crack from cavity to 15'	
10	CD IB DW	IB and 4' seam from rootcollar, 6' long crack	
11	CD		
12		CD IB	
13	DT DWs DB.30% MB.30%	CD IB	
14	CD IB	CD IB	
15			
16	CD IB C PBF -Severe vine infestation		
17	Cd IB		
18	CD IB		
19	CD IB DB PBF		
20	CD IB DW.10%		
21		MB <10%, Signs of sapwwod rot, minor	
22	CD IB DW<10%		
23	CD IB DW <10%		
24	CD IB UC		
25		CD IB, Corected lean	
26	CD Previous trimming cuts facing road		
27		Previous trimming facing road	Bulge at root collar on west side, possible rootrot, buried root collar
28	CD IB, Previous trimming cuts facing road		
29	CD IB MB	MB <50%	
30			Damaged from excavation
31	CD IB		
32		Damaged by excavation equipment, large cavity and missing bark	
33	CD IB		
34	CD IB	DMB	Rot and missing bark at root collar

Tree#	Site_Notes	Comments_
1	Disturbance/excavation likely affecting roots	
2		
3		Possible failure towards fence/road.
4	Along skidtrail/road, severely eroded	
5	Along skidtrail	
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		Entire tree covered in ivy, low vigor, poor health, deformed
16	Tree is overmature and covered in ivy vines, poor health and vigor	
17		
18		
19		Overmature.
20		
21	Tree damaged during excavation, likely unsable. No targets to impact.	
22		
23		
24		Along skidtrail/road, disturbed area
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		

Tree#	Common Name	Scientific Name	DBH__inche	Tree Units	Hazard_Tree Rating	Remove/Retain	Condition
35	big-leaf maple	*Acer macrophyllum*	16	4	1	Remove	Good
36	English hawthorn	*Crataegus monogyna*	12	2	1	Remove	Poor
37	English hawthorn	*Crataegus monogyna*	12	2	1	Remove	Poor

Tree#	Crown Defects	Trunk Defects	Root Defects
35		IB CD	
36	DT DW(25%)	SR DMB IB	
37	DT DW(25%)	SR DMB IB	

Tree#	Site_Notes	Comments_
35		
36		
37		

Total Tree Units:	272.5
Units/acre (total):	126.2
Units Proposed for Removal:	272.5
Units/acre after removal:	0

™

Kevin Terlep
Cartified Arborist# WE-10893A
Tree Risk Assessment Certified (TRAQ)

APPENDIX B

TREE DAMAGE APPREVIATIONS/CODES

Canopy and Branches	
Damage Description	**Abbreviation**
Broken branches/hangers	BH
Cavity	CA
Co-dominant Branches	CD
Crack	CR
Dead/Missing Bark	DMB
Dead Top	DT
Dead wood	DW
Included bark	IB
Lightning Damage	LD
Over-extended Branches	OB
Sapwood Decay	SD
Unbalanced Crown	UC
Weak Branch Attachments	WA

Trunk	
Damage Description	**Abbreviation**
Canker	C1
Cavity	CA
Co-dominant Stems	CD
Crack	CR
Dead/Missing Bark	DMB
Epicormic Sprouts	ES
Heartwood Decay	HD
Included Bark	IB
Lean	L
Resin or Sap Flow	RF
Sapwood Decay/Damage	SD
Seam	S
Weak Branch Attachments	WA

Roots	
Damage Description	**Abbreviation**
Buried Root Collar	BRC
Compacted Soil	CS
Conks/Mushrooms	CM
Decay	D
Exposed Roots	ER
Limited Soil Volume	LSV
Pavement Over Roots	POR
Lean	L
Mounding	M

Modifiers (all categories)	
Minor	mi
Moderate	mo
Severe	s
Extreme	e