July 13, 2021
Pioneer Aggregates South Parcel Project

ANCHOR QEA

Landmark Tree Inventory Report

Prepared for CalPortland

July 2021
Pioneer Aggregates South Parcel Project

Landmark Tree Inventory Report

Prepared for
CalPortland – DuPont Plant
4301 Pioneer Avenue
DuPont, Washington 98327

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ABBREVIATIONS

City	City of DuPont
dbh	diameter at breast height
DMC	City of DuPont Municipal Code
MRO	Mineral Resource Overlay
Project	South Parcel Expansion Project

1 Introduction

CalPortland operates the Pioneer Aggregates Mine facility in DuPont, Washington (Figure 1). CalPortland is proposing an expansion of the mine to the south, known as the South Parcel Project (Project), within the City of DuPont's (City's) designated Mineral Resource Overlay (MRO) District.

The South Parcel Project includes mining within areas previously undisturbed by mining (termed the "Expansion Area") and mining deeper within a portion of the existing mine, referred to as the "Re-Mine Area." The Expansion Area is approximately 188 acres and is composed of three subareas (see Figure 2). The Kettle Area is a 10.8-acre previously undisturbed area. The 9.2-acre Buffer Strip is a strip of vegetation that was retained along the inside of the originally permitted mine bordering the South Parcel. The South Parcel is 168 acres located southeast of the original mine and inside the Mineral Resource Overlay area in the City of DuPont's adopted Comprehensive Plan. Approximately 126 acres within the 168-acre South Parcel are forested.

All areas to be cleared and mined are within the City's Comprehensive Plan MRO area. The purpose of an MRO designation is to implement the Growth Management Act, the Surface Mining Act, and the DuPont Comprehensive Plan by designating commercially viable mineral resources where they occur and allowing for extraction of resources from those areas (DMC 25.60.010).

This report is prepared to inform decisions made regarding tree retention requirements under DMC 25.120, to the extent DMC 25.120.030 is applicable to land and trees within the City's designated mineral Resource Overlay area.

Typical development projects are required to retain a certain number of trees within the tax parcel being developed. The proposed South Parcel Project includes activity on multiple tax parcels. For this report, landmark trees were inventoried within a study area that included all the tax parcels where work is proposed. For this reason landmark trees are counted that would be removed from the proposed Re-Mine Area and landmark trees in the buffer area adjacent to the Re-Mine Area are counted as retained. Similarly, landmark trees that would be removed from the proposed Expansion Area and landmark trees that would be retained within the buffer adjacent to the Expansion Area are inventoried.

Landmark trees in the Re-mine area and the expansion area are counted separately in this report because City permits for the existing mine authorize removal of trees from the Re-mine area and not the expansion area.

2 Tree Survey Methods

The City of DuPont Municipal Code (DMC) defines a "landmark tree" as "an existing healthy, well-formed tree which poses no safety hazard due to potential collapse," and that is of the following species, trunk type, and minimum diameter measured at breast height (dbh) (Table 1). See DMC 25.10.120.005.

Table 1
Landmark Tree Criteria

Trunk Type	Species	
	Oregon White Oak, Pacific Yew, or Madrone (dbh, inches)	**Douglas Fir, Western Red Cedar, Western Hemlock, or Bigleaf Maple (dbh, inches)**
Single Trunk	24	30
Multi-Trunk (sum of diameters)	30	45

A landmark tree inventory was conducted by a two-person team over 6 days in October 2019 and 1 day in September 2020. The team was led by Anchor QEA Biologist and Certified Arborist Joseph Pursley (International Society of Arboriculture PN-7486A). Trees meeting the species and stem size criteria for landmark trees (Table 1) were evaluated visually to determine if they met the health and form standard defined for landmark trees in the DMC.

Trees that did not exhibit apparent evidence of insect damage, woodpecker damage, rot, dwarf-mistletoe, or other similar tree ailments were considered healthy. Well-formed trees do not have broken leaders, significant wind damage, or exhibit irregular growth, including conifers with multiple stems.

All healthy and well-formed trees meeting the size criteria were marked with high-visibility spray paint, and a numbered aluminum tag was placed on the north side of the tree stem. For multi-trunk and multi-stemmed landmark trees, only one numbered tag was used. The location of each tagged and numbered tree was recorded using a Trimble differential global positioning system. Information collected at each tagged and numbered tree included the dbh of each stem, tag number, and species.

Available maps of Oak Management Units in the city and aerial photographs were also reviewed. Aerial photographs reveal that much of the Study Area was thinned and that many of the larger trees were removed between 1990 and 2002. No Oak Management Units are identified within the Study Area.

3 Health of Trees Observed

Poorly formed and unhealthy trees, including trees with damaged stems, broken leaders, insect damage, woodpecker damage, evidence of rot, dwarf-mistletoe, and other tree ailments, are prevalent in the study area. Most of the trees within the Study Area that met the landmark size criteria could not be deemed landmark trees because they are unhealthy, damaged, or otherwise poorly formed.

Historical aerial photographs suggest this is a naturally recruited, fairly even-aged stand established on previously logged property. The most common causes of poor health observed were insect damage, including bark beetle, and brown cubical rot. Most of the poorly formed trees appeared to have significant wind damage, resulting in loss of significant branches and lost leaders of conifers. Crowding under the closed canopy has also resulted in many specimens that are oddly formed in response to competition for sunlight.

4 Landmark Tree Inventory Results

The Study Area inventoried for landmark trees included the complete tax parcels that will be affected by mining of the Expansion Area and the Re-Mine Area. As summarized in Tables 2A and 2B and depicted in Figure 2, 141 trees within the Study Area met the landmark tree criteria of size, species, health, and form (Appendix B).

Table 2A
Summary of Landmark Trees Within the Expansion Area Tax Parcels

Common Name	Scientific Name	Total Trees	Trees in Expansion Area	Trees in Adjacent Buffer
Bigleaf maple	*Acer macrophyllum*	2	**-**	2
Douglas fir	*Pseudotsuga menziesii*	81	**73**	8
Pacific madrone	*Arbutus menziesii*	1	**1**	-
Pacific yew	*Taxus brevifolia*	1	**1**	-
Western red cedar	*Thuja plicata*	10	**1**	9
Total non-Oak		**95**	**-**	**-**
Oregon white oak	*Quercus garryana*	13	**13**	-
Total		**108**	**89**	**19**

Table 2B
Summary of Landmark Trees Within the Re-Mine Area Tax Parcels

Common Name	Scientific Name	Total Trees	Trees in Re-Mine Area	Trees in Adjacent Buffer
Bigleaf maple	*Acer macrophyllum*	-	-	-
Douglas fir	*Pseudotsuga menziesii*	15	1	14
Pacific madrone	*Arbutus menziesii*	1	-	1
Pacific yew	*Taxus brevifolia*	2	-	2
Western red cedar	*Thuja plicata*	8	1	7
Total non-Oak		**26**	**-**	**-**
Oregon white oak	*Quercus garryana*	7	2	5
Total		**33**	**4**	**29**

5 Landmark Tree Impacts

This evaluation of landmark tree impacts focuses on the landmark trees removed from the Expansion Area parcels because tree removal within the Re-Mine Area is authorized under existing permits. Table 3 lists the total number of landmark trees within the Expansion Area tax parcels that will be retained and the number that will be removed, by species.

Table 3
Summary of Impacts to Landmark Trees within Expansion Area Parcels

	Oregon white oak (*Quercus garryana*)	**Big Leaf Maple (*Acer macrophyllum)***	**Douglas fir (*Pseudotsuga menziesii*)**	**Pacific madrone (*Arbutus menziesii*)**	**Pacific yew (*Taxus brevifolia*)**	**Western red cedar (*Thuja plicata*)**	**Total Trees**
Trees Removed (under this request)	13	0	73	1	1	1	89
Trees Retained	0	2	8	0	0	9	19
Total Landmark Trees	**13**	**2**	**81**	**1**	**1**	**10**	108

Note: No western hemlock (*Tsuga heterophylla*) that meet landmark tree criteria are present on the Expansion Area parcels.

6 Landmark Tree Replacement Plan

The Surface Mine Reclamation Act (RCW 78.44) gives the Washington Department of Natural Resource (DNR) exclusive regulatory authority over surface mine reclamation in the state and requires miners to leave property in a condition suitable for its subsequent use following the completion of mining. The reclamation requirements are intended to address landscape concerns on the scope and scale appropriate for mining operations and are consistent with the purpose or intent of the City's landmark tree ordinance.

CalPortland successfully plants trees on the slopes of the existing mine as part of their ongoing mine reclamation program and in compliance with the Surface Mine Reclamation Act (RCW 78.44). Tree planting success (survival) is one component of the reclamation plan that is reviewed, approved, and inspected for compliance by the DNR. Implementation of the reclamation plan is assured by a financial guarantee provided to the DNR by the CalPortland in the form of a bond.

This practice will continue in the South Parcel and as mining progresses in other areas of the mine consistent with an updated mine reclamation plan reviewed, approved, and inspected by the DNR and required by the Surface Mine Reclamation Act (RCW 78.44).

Soil for future tree planting begins prior to mining when the site is cleared of stumps and debris, slash is ground to chips for later use as a soil amendment, and topsoil is mixed with wood chips and clean clay and silt washed from processed gravel (belt press fines) and stockpiled for later use in reclamation.

As extraction in each mine segment is completed, slopes are cut to final contours. In the South Parcel, slopes (approximately 3 feet horizontal to 1 foot vertical) will border the eastern and southwestern portions of the mine floor and join the existing mine area to the north.

The amended topsoil is then spread across the contoured slopes and cross tracked with a dozer to prevent erosion.

After topsoil placement, holes are dug in the slopes where trees are planted. Tree planting is proposed where new reclaimed slopes planted with trees and suitable to be designated as open space will remain after mining. Once final reclamation is complete, Sequalitchew Village will have approximately 180 acres of these slopes planted with a variety of trees including Douglas fir, red alder (*Alnus rubra*), and Oregon white oak, ranging in age from seedlings to nearly 40 years old.

Tree seedlings are generally planted during the fall and spring. Douglas fir, white oak, and other species are typically planted at an approximate spacing of 10- by 10-foot, establishing a stocking level of approximately 430 trees per acre on the reclaimed slopes. These plantings are

complemented by naturally recruited red alder, bigleaf maple, and Pacific madrone occurring in the buffers adjacent to the mined slopes.

CalPortland proposes removing 89 landmark trees in the Expansion Area. A typical tree mitigation plan might require a developer to replace removed Landmark trees at a ratio of 50:1 (Table 4). At a stocking ratio of 430 trees per acre, such a plan would require CalPortland to plant trees on only 10.9 acres to achieve a 50:1 replacement ratio for 89 trees. CalPortland expects to plant approximately 180 acres total on the slopes of the mine.

A typical mitigation plan might require a developer to plant trees for mitigation in a single season and monitor their success for 3 to 5 years. CalPortland will have planted a variety of trees on the reclaimed slopes of Sequalitchew Village over a period of at least three decades and will monitor and ensure their success with a reclamation bond held by DNR during that time.

In 2020 CalPortland began testing plantings of Oregon white oak and will continue to include Oregon white oak in the mix of trees planted in the future to ensure that at least 650 (50X13) white oaks are planted.

As the reclaimed areas mature, a native understory of herbaceous and woody species will also propagate from seed and rhizomes naturally occurring in the redistributed topsoil. Reclaimed slopes along the western boundary of the site are designed in a sinuous fashion to mimic and blend with the native topography that parallels Puget Sound.

Deleterious vegetation such as blackberry and Scotch broom will be removed mechanically, to allow tree establishment and release from shading and competition for nutrients and moisture.

Table 4
Tree Replacement Summary for All Trees

Type	Quantity to Be Removed	Mitigation Ratio	Approximate Number of Trees to Be Planted[1]
Landmark Trees	89	50:1	4,450

Note:

1. The total number of trees to be planted is limited by the areas suitable for planting prior to development of Sequalitchew Village, in accordance with the City of DuPont Comprehensive Plan.

Table 5 summarizes the proposed replacement tree planting. Tree seedlings will be planted during the dormant season. Douglas fir, white oak, and other species will be planted at 10- by 10-foot spacings, establishing a stocking level of approximately 430 trees per acre on the reclaimed slopes. These plantings are expected to be complemented by naturally recruited red alder, bigleaf maple, and Pacific madrone. Based on the success of the reforested slopes in the existing mine, Douglas fir

(1+1 seedling stock) and red alder (plug 1 or yearling pull-ups) are recommended. In 2020 CalPortland began testing plantings of Oregon white oak. If initial plantings are successful, then theses species will be added to the mix of trees planted. Based on existing reclamation at the site, volunteer seedlings are expected to propagate on the topsoiled slopes, in addition to the planting described above. The mature forests that buffer the western mine boundary provide an excellent seed source of other native deciduous and conifer species including Pacific madrone, bigleaf maple, western hemlock, and western red cedar.

Table 5
Revegetation Planting Plan

Common Name	Scientific Name	On Center Spacing (feet)	Planting Season
Douglas fir	*Pseudotsuga menziesii*	10	October 15 – March 15
Oregon white oak	*Quercus garryana*	10	October 15 – March 15
Red Alder	*Alnus rubra*	10	October 15 – March 15

Figures

LEGEND:

- Pioneer Aggregates Property (791 ac)
- South Parcel MRO Addition (172 ac)
- Mining Limits (620 ac)
- Sequalitchew Creek
- Kettle Wetland

South Parcel Project

- Expansion Area (188 ac)
- Re-mine Area (125 ac)

NOTES:
Imagery: 2017 USDA NAIP

0 3,000
Feet

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Figure 1
Vicinity Map
Landmark Tree Inventory Report
Pioneer Aggregates South Parcel Project

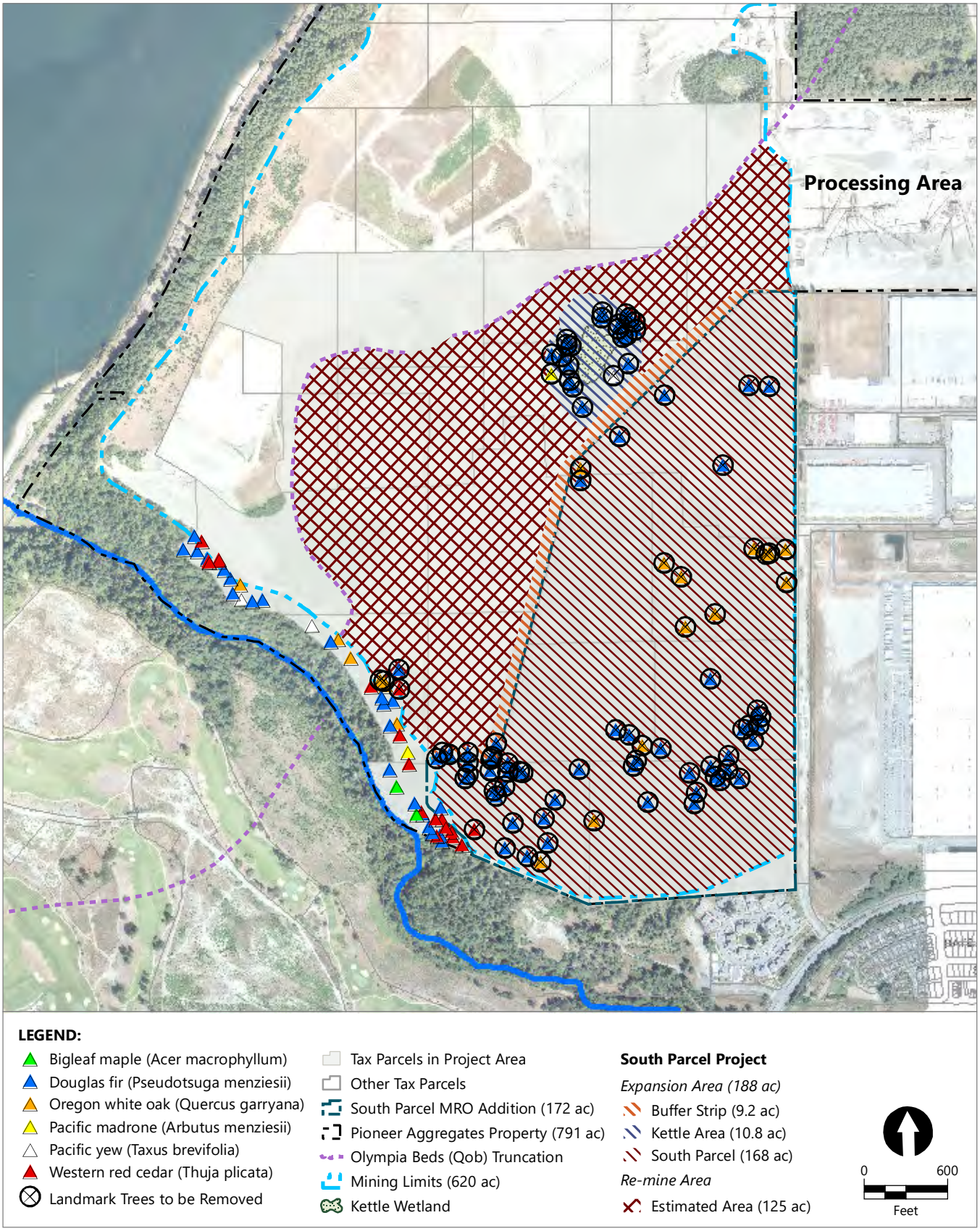

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Figure 2
Landmark Trees Within South Parcel Project Area
Landmark Tree Inventory Report
Pioneer Aggregates South Parcel Project

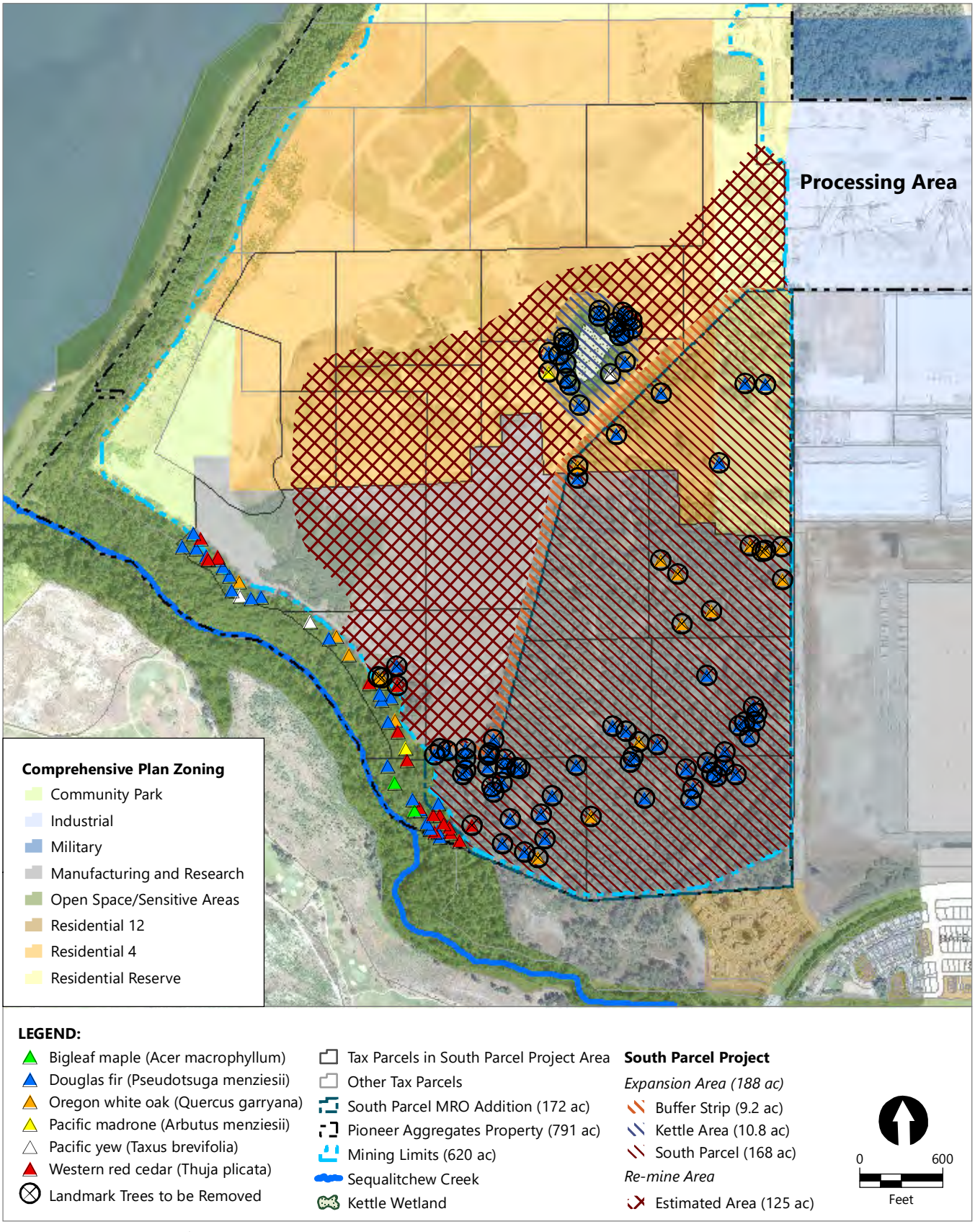

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Figure 3
Landmark Trees and Comprehensive Plan Zoning
Landmark Tree Inventory Report
Pioneer Aggregates South Parcel Project

Appendix A
Weyerhaeuser Pathologist Report

Location • Weyerhaeuser Research
505 N Pearl St
Centralia, WA 98531

8/16/2019

Subject: Weyerhaeuser Dupont Mine Site “Landmark Trees” Recognizance

Author: John Browning (Weyerhaeuser Forest Pathologist)

Weyerhaeuser has a forested area adjacent to the Dupont CalPortland gravel mine. We are interested in removing these trees so the area can be mined for gravel. Most of the trees on this land are Douglas-fir. The city of Dupont has a “Landmark tree” statute as shown in Table 1. On 8/26/2019, Mary Castle (Weyerhaeuser Manager of Western Minerals) and myself walked this land to examine these trees and see if we thought they would qualify as “Landmark trees.”

Table 1. Dupont Landmark tree statute.

25.10.120.005 Landmark tree.

“Landmark tree” means an existing healthy, well formed tree which poses no safety hazard due to potential collapse and that is of the following species, trunk type, and minimum diameter measured at breast height:

	Species	
Trunk type	Oregon white oak, Pacific yew, or madrona	Douglas fir, western red cedar, western hemlock, or big leaf maple
Single trunk	24 inches	30 inches
Multi-trunk (sum of diameters)	30 inches	45 inches

(Ord. 18-1045 § 2 (Exh. A))

Stand Composition:

This stand is primarily Douglas-fir mixed with some Oregon white oak. We also found a small amount of big leaf maple. The majority of the Douglas-fir is probably smaller than the 30" DBH requirement for Landmark Trees but there are still many big trees larger than 30". These are mostly open grown Douglas-fir with very large branches down to the ground. Photos 1-3 show examples of these "Woofy" Douglas-fir.

Damage and Hazards:

Mary and I thought most of the large Douglas-fir would be rejected from the Landmark Tree status due to form and possibly safety concerns. Most of these trees have major damage approximately 30 to 40 feet up the truck were the top had died or been broken out and side branches had taken over. Jim Tweedy (mine manager for Glacier NW) stated that this damage was likely due to a major ice storm back in the 50s. Many of these trees also have forked tops. In addition, quite of few of these trees also have considerable sweep at the base. Photos 4 through 12 show examples of the form issues with these Douglas-fir.

From a hazard tree standpoint there is always concern in large Douglas-fir when the top dies and laterals take over because this will develop a weak area and likely entry point for decay.

We looked for root disease and decay and found some evidence of brown cubical rot (possibly *Schweinitzii* although we did not find any fruiting bodies) decaying smaller Douglas-fir to the point that they were falling over (Photos 13 to 16). While I suspect that there is major decay is some of the larger Douglas-fir I did not find any that had fallen over. There are some with evidence of wounds near the base which could be entry points for decay (Photos 17 to 19). Weyerhaeuser Research does have a Resistograph drill which could be used to test these trees for decay without majorly damaging the trees.

There were Douglas-fir with evidence of woodpecker activity which usually indicates insect infestation (Photo 20). Photos 21 to 23 show large hole evidence of boring activity near the base of the trees. Some trees had lots of sap flow which probably indicates a bark beetle infestation (Photo 24).

Hardwoods.

Most of the hardwoods on this site were Oregon white oaks. We did not find any of these trees large enough to meet the Landmark tree definition of 24" (30" for multiple trunks). We did examine one large bigleaf maple which had lots of decay within 6' of the base (Photo 25).

Trees with good form.

We did find a few Douglas-fir large enough to be classified as "Landmark trees" with good form. Overall, we saw maybe six trees that would meet the "Landmark tree" definition as we interpreted it.

General Form Photos:

Photo 1. Open grown Douglas-fir with large branches down to the ground.

Photos 2 & 3. Open grown Douglas-fir with large branches.

Damage and hazards photos:

Photo 4. Trunk deformed 30’ up.

Photo 5. Douglas-fir with poor form

Photo 6. Douglas-fir with poor form

Photo 7. Douglas-fir with poor form

Photo 8. Douglas-fir with poor form

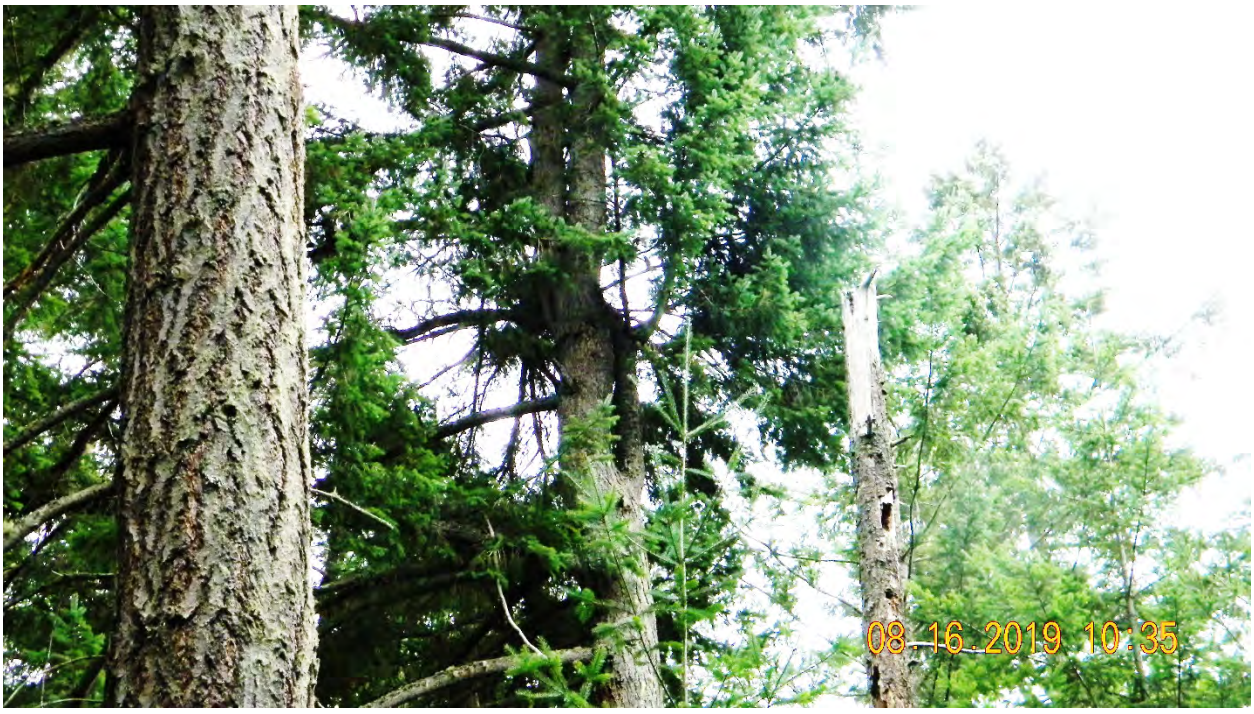

Photo 9. Douglas-fir with poor form

Photo 10. Douglas-fir with poor form

Photo 11. Douglas-fir with poor form

Photo 12. Douglas-fir with poor form

Fallen trees with decay photos:

Photos 13 and 14. Fallen tree with brown cubical rot, possibly *Schweinitzii*.

Photo 15. Fallen tree with brown cubical rot

Photo 16. Falling tree with brown cubical rot

Wound Photos:

Photo 17. Wound on Douglas-fir. Probably allowing decay to enter truck.

Photo 18. Wound on Douglas-fir. Probably allowing decay to enter truck.

Photo 19. Wound on Douglas-fir. Probably allowing decay to enter truck.

Woodpecker activity photos:

Photo 20. Woodpecker activity. Usually indicating tree infested with insects.

Photo 21. Holes near the base of the tree.

Photo 22. Holes near the base of the tree.

Photo 23. Holes near the base of the tree.

Sap flow photo:

Photo 24. Sap flow from truck. Indicating either insect attacks or fungal infections.

Hardwood with decay photo:

Photo 25. Large big leaf maple with evidence of considerable decay

Photos of large Douglas-fir with good form:

Photo 26. Large straight tree, possible “Landmark tree”

Photo 27. Large straight tree, possible “Landmark tree”

Photo 28. Possible “Landmark tree”

Appendix B
Tree Survey Data

Appendix B
Tree Survey Data

Common Name	Scientific Name	Tag Number	Number of Stems	Total dbh (inches)	Within Clearing Limits	City of Dupont Land Use
Douglas fir	*Pseudotsuga menziesii*	1104	1	43	Yes	Residential Reserve
Douglas fir	*Pseudotsuga menziesii*	1135	1	29	Yes	Residential Reserve
Douglas fir	*Pseudotsuga menziesii*	1155	1	29	Yes	Residential 4
Douglas fir	*Pseudotsuga menziesii*	1165	1	37	Yes	Residential 4
Douglas fir	*Pseudotsuga menziesii*	1176	1	29	Yes	Residential Reserve
Oregon white oak	*Quercus garryana*	1190	3	39	Yes	Residential 4
Douglas fir	*Pseudotsuga menziesii*	1192	1	34	Yes	Manufacturing and Research
Oregon white oak	*Quercus garryana*	1006	1	28	Yes	Manufacturing and Research
Oregon white oak	*Quercus garryana*	1007	1	22	Yes	Manufacturing and Research
Oregon white oak	*Quercus garryana*	1008	2	48	Yes	Manufacturing and Research
Oregon white oak	*Quercus garryana*	1014	2	30	Yes	Manufacturing and Research
Oregon white oak	*Quercus garryana*	1015	1	24	Yes	Manufacturing and Research
Oregon white oak	*Quercus garryana*	1041	3	31	Yes	Manufacturing and Research
Oregon white oak	*Quercus garryana*	1043	3	34	Yes	Manufacturing and Research
Oregon white oak	*Quercus garryana*	1052	4	48	Yes	Manufacturing and Research
Oregon white oak	*Quercus garryana*	1098	3	34	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1217	1	37	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1226	1	32	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1227	1	33	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1228	1	30	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1237	1	31	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1238	1	32	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1240	1	34	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1246	1	30	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1250	1	30	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1263	1	30	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1266	1	30	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1275	1	30	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1276	1	30	Yes	Manufacturing and Research
Oregon white oak	*Quercus garryana*	1278	3	39	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1279	1	33	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1280	1	30	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1285	1	32	Yes	Manufacturing and Research
Oregon white oak	*Quercus garryana*	1292	4	47	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1413	1	30	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1415	1	33	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1419	1	36	Yes	Manufacturing and Research

Appendix B
Tree Survey Data

Common Name	Scientific Name	Tag Number	Number of Stems	Total dbh (inches)	Within Clearing Limits	City of Dupont Land Use
Douglas fir	*Pseudotsuga menziesii*	1420	1	40	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1421	1	46	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1422	1	31	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1436	1	40	Yes	Manufacturing and Research
Oregon white oak	*Quercus garryana*	1493	1	30	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1496	1	31	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1301	1	33	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1304	1	30	Yes	Manufacturing and Research
Western red cedar	*Thuja plicata*	1309	1	41	Yes	Open Space/Sensitive Areas
Western red cedar	*Thuja plicata*	1317	1	33	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1323	1	31	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1329	1	32	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1341	1	38	Yes	Manufacturing and Research
Western red cedar	*Thuja plicata*	1356	1	38	No	Open Space/Sensitive Areas
Western red cedar	*Thuja plicata*	1357	1	32	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1359	1	30	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1360	1	30	No	Open Space/Sensitive Areas
Western red cedar	*Thuja plicata*	1393	1	35	No	Open Space/Sensitive Areas
Western red cedar	*Thuja plicata*	1394	1	33	No	Open Space/Sensitive Areas
Western red cedar	*Thuja plicata*	1395	1	32	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1501	1	30	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1502	1	31	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1503	1	36	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1505	1	30	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1506	1	34	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1511	1	30	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1512	1	31	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1513	1	31	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1515	1	31	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1516	1	30	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1521	1	30	No	Open Space/Sensitive Areas
Western red cedar	*Thuja plicata*	1529	1	40	No	Open Space/Sensitive Areas
Pacific madrone	*Arbutus menziesii*	1532	1	24	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1535	1	31	Yes	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1536	1	38	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1537	1	30	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1538	1	37	Yes	Manufacturing and Research

Appendix B
Tree Survey Data

Common Name	Scientific Name	Tag Number	Number of Stems	Total dbh (inches)	Within Clearing Limits	City of Dupont Land Use
Douglas fir	*Pseudotsuga menziesii*	1540	1	32	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1543	1	38	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1544	1	38	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1546	1	30	Yes	Manufacturing and Research
Douglas fir	*Pseudotsuga menziesii*	1573	1	32	Yes	Residential 4
Douglas fir	*Pseudotsuga menziesii*	1577	1	35	Yes	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1578	1	33	Yes	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1580	1	31	Yes	Open Space/Sensitive Areas
Pacific madrone	*Arbutus menziesii*	1583	1	24	Yes	Residential 4
Douglas fir	*Pseudotsuga menziesii*	1584	1	30	Yes	Residential 4
Douglas fir	*Pseudotsuga menziesii*	1585	1	33	Yes	Residential 4
Douglas fir	*Pseudotsuga menziesii*	1587	1	31	Yes	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1558	1	32	Yes	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1589	1	32	Yes	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1603	1	32	Yes	Residential 4
Douglas fir	*Pseudotsuga menziesii*	1604	1	34	Yes	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1609	1	31	Yes	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1610	1	30	Yes	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1612	1	35	Yes	Residential 4
Douglas fir	*Pseudotsuga menziesii*	1613	1	30	Yes	Residential 4
Douglas fir	*Pseudotsuga menziesii*	1615	1	33	Yes	Residential 4
Douglas fir	*Pseudotsuga menziesii*	1617	1	34	Yes	Residential 4
Douglas fir	*Pseudotsuga menziesii*	1621	1	30	Yes	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1622	1	30	Yes	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1625	1	40	Yes	Residential 4
Pacific yew	*Taxus brevifolia*	1627	1	24	Yes	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1636	1	32	Yes	Manufacturing and Research
Western red cedar	*Thuja plicata*	1639	1	42	No	Manufacturing and Research
Oregon white oak	*Quercus garryana*	1643	2	31	No	Open Space/Sensitive Areas
Western red cedar	*Thuja plicata*	1644	1	39	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1649	1	34	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1652	1	32	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1653	1	33	No	Open Space/Sensitive Areas
Oregon white oak	*Quercus garryana*	1654	3	57	No	Open Space/Sensitive Areas
Oregon white oak	*Quercus garryana*	1656	1	25	No	Open Space/Sensitive Areas
Oregon white oak	*Quercus garryana*	1657	1	27	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1659	1	32	No	Open Space/Sensitive Areas

Appendix B
Tree Survey Data

Common Name	Scientific Name	Tag Number	Number of Stems	Total dbh (inches)	Within Clearing Limits	City of Dupont Land Use
Western red cedar	*Thuja plicata*	1662	1	34	No	Open Space/Sensitive Areas
Oregon white oak	*Quercus garryana*	1667	3	34	No	Open Space/Sensitive Areas
Oregon white oak	*Quercus garryana*	1671	1	26	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1672	1	30	No	Open Space/Sensitive Areas
Pacific yew	*Taxus brevifolia*	1676	3	32	No	Open Space/Sensitive Areas
Western red cedar	*Thuja plicata*	1362	1	31	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1363	1	31	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1366	1	30	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1370	1	46	No	Open Space/Sensitive Areas
Western red cedar	*Thuja plicata*	1371	1	38	No	Open Space/Sensitive Areas
Bigleaf maple	*Acer macrophyllum*	1372	1	35	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1381	1	30	No	Open Space/Sensitive Areas
Bigleaf maple	*Acer macrophyllum*	1384	1	31	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1390	1	30	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1680	1	34	No	Open Space/Sensitive Areas
Oregon white oak	*Quercus garryana*	1681	1	28	No	Open Space/Sensitive Areas
Pacific yew	*Taxus brevifolia*	1683	1	24	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1684	1	33	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1685	1	33	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1686	1	30	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1694	1	34	No	Open Space/Sensitive Areas
Western red cedar	*Thuja plicata*	1695	1	45	No	Open Space/Sensitive Areas
Western red cedar	*Thuja plicata*	1696	1	42	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1699	1	38	No	Open Space/Sensitive Areas
Western red cedar	*Thuja plicata*	1700	1	39	No	Open Space/Sensitive Areas
Western red cedar	*Thuja plicata*	1701	1	42	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1705	1	32	No	Open Space/Sensitive Areas
Western red cedar	*Thuja plicata*	1707	1	43	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1708	1	30	No	Open Space/Sensitive Areas
Douglas fir	*Pseudotsuga menziesii*	1713	1	31	No	Open Space/Sensitive Areas