

**Tree Inventory & Tree Protection Plan
For Lot Line Adjustment
Pursuant to
Single Residential Development**

36th St.
Bellingham, WA 98225
Parcels 24545, 24551

Prepared for
Skeers Construction
1249 Birch Falls Dr.
Bellingham, WA 98229



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TRAQ



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Background Information

Skeers Construction is proposing a Lot Line Adjustment to facilitate the development of two single family residences on two existing lots of 0.29 acres and 0.14 acres at the NE corner of the intersection of 36th St. and Lindsay Ave. in Bellingham, WA. This report serves to inventory the existing site trees = > 6" dbh (diameter at breast height) and provide a Tree Protection Plan for the trees to be retained.

Existing Conditions

There are 62 trees 6" dbh and larger inventoried on the subject area of 0.43 acres. The site is more or less completely forested with some small open areas. Trees are all native species from young ages to ~ 80 years old. The trees include 41 Douglas fir (*Pseudotsuga menziesii*), 4 western red cedar (*Thuja plicata*), 8 bigleaf maple (*Acer macrophyllum*), 4 paper birch (*Betula papyrifera*), 1 red alder (*Alnus rubra*), 3 bitter cherry (*Prunus emarginata*) and 1 black cottonwood (*Populus trichocarpa*). Some portions of the stand are overstocked/crowded with suppression and some mortality taking place. Topography is moderately sloping with west facing aspect and elevation increasing going west to east. All the trees are numbered on site and shown on the attached site plan. Table 1 below details the inventory.

Table 1 below provides an inventory of existing site trees 6"+ dbh.

Tree	Species	Dbh	Condition/Comments
2097	Douglas fir	12"	Poor condition. Lean W. Topped @15', crown small but still green. Over util lines.
2096	Douglas fir	40"	Fair condition. Sap flow S base. Ivy, unbal. Crown hvy to SW, wolfy limbs.
2094	Douglas fir	21"	Fair condition. Spindly top, unbal crown hvy to S, ivy, sinuous trunk.
2095	Douglas fir	12"	Poor condition. Topped @ 8', weak crown, only 8' tall.
2167	Douglas fir	25"	Good condition. Unbal crown hvy to W but good, dead limbs over powerline, ivy.
2166	Douglas fir	29"	Good condition. Unbal crown hvy to S but good, dead limbs over powerline, ivy.
2165	Douglas fir	33"	Good condition. Mild sweep, good crown.
2164	Douglas fir	40"	Poor condition. Ganoderma conk SE base but crown still green, powerline rub.
2168	Douglas fir	14"	Poor condition. Suppressed, fast taper, crown still green.
2163	Douglas fir	22"	Fair condition. Mod sap flow S low trunk, oval trunk, unbal crown hvy to S.
2175	Douglas fir	26"	Good condition. Unbal crown hvy to S over neighbor fence.
2159	Douglas fir	28"	Good condition. Unbal crown hvy to S, oval trunk.
2160	Douglas fir	29"	Poor condition. Small conks W & N trunk face 18", 20" up, but crown still good.
2161	Douglas fir	12"	Fair condition. Some suppressed, fast taper, crown still pretty good.
2162	Douglas fir	30"	Good condition. Oval trunk, mild lean N.
2158	Douglas fir	21"	Good condition. Oval trunk, little suppressed, fast taper, crown pretty good.
2157	Douglas fir	27"	Good condition. Oval trunk, mild ivy, mod sweep W.
2156	Douglas fir	8"	Poor condition. Suppressed, top break & regrow 20' up, weak crown, oval trunk.
2155	Douglas fir	23"	Good condition. Oval trunk, good crown.
2154	Douglas fir	33"	Good condition. Oval trunk, mild sweep, unbal crown hvy to S but good.
2152	Douglas fir	23"	Poor condition. Topped & regrow 30' up, unbal crown hvy to S over fence.

Tree	Species	Dbh	Condition/Comments
2153	Douglas fir	21"	Poor conditon. B.O. top regrow @ 60'. Spindly top, suppressed crown hvy to SW.
2151	Douglas fir	31"	Good condition. Oval trunk, lumber nailed in trunk, unbal crown hvy to S.
2150	Douglas fir	19"	Fair condition. Trunk break/regrow 60' up, lumber nailed in trunk, spike knot.
2149	Bigleaf maple	22"	Poor condition. Some dead top ptns, unbal crown hvy to S, some suppressed.
2147	Douglas fir	28"	Good condition. Mild trunk kink 25', good crown.
2148	Douglas fir	14"	Fair condition. Trunk kink 30' up, some suppressed.
2145	Douglas fir	30"	Poor condition. Crown little sparse, exposed decay NE base.
2146	Douglas fir	34"	Good condition. Crown somewhat sparse but okay, some dead lower-mid limbs.
2147	Douglas fir	29"	Good condition. Mild sap flow W base, trunk kink 20' up. Good crown.
2142	Douglas fir	17"	Fair condition. Fast taper, spindly top, unbal crown hvy to E, some suppressed
2143	Douglas fir	24"	Fair condition. Crown & form good but Phaeolus conk 2' N of base. Conk from 2143 or 2138?
2138	Douglas fir	34"	Fair condition. Crown & form good but Phaeolus conk 2' S of base. Conk from 2143 or 2138?
2141	Bigleaf maple	23, 21"	Good condition. Twin trunks, somewhat suppressed but pretty good crown.
2140	W. red cedar	15"	Poor condition. Exposed decay S base, suppressed but crown still appears good.
2144	Douglas fir	12"	Poor condition. Suppressed, fast taper, old trunk break @ top.
2139	Douglas fir	32"	Fair condition. Crown somewhat sparse & unbal. hvy to W.
2135	Douglas fir	41"	Good condition. Sinuous trunk but crown good.
2136	Douglas fir	33"	Good condition. Good form & crown, connected to 2137 @ base.
2137	Douglas fir	29"	Fair condition. Sloughing lower bark, old break & regrow @ 50', then good crown.
2130	W. red cedar	16"	Good condition. Somewhat suppressed but good crown hvy to N.
2128	Douglas fir	43"	Good condition. Trunk kink @ 50', good crown.
2131	W. red cedar	13"	Fair condition. Somewhat suppressed but green crown unbal. hvy to N.
2129	W. red cedar	21"	Fair condition. Moderate ivy, dbl top @ 20' but good crown.
2133	Douglas fir	26"	Fair condition. Heavy ivy, crown fair & little sparse.
2132	Bigleaf maple	28", 30"	Fair condition. Twin trunks, hvy ivy, some dead mid & upper crown portions.
2134	Black cottonwood	52"	Fair condition. Hvy ivy, broken scaffolds & upper crown ptns. high fall dist. ~ 130'.
2174	Bigleaf maple	20, 11, 11"	Poor condition. K. deusta infection, 11" trunk dead & 2nd broke on ground, hard lean W.
2173	Bigleaf maple	19"	Fair condition. 8' vertical rub seam S base, hard lean W, conn. To 2174 @ base.
2065	Paper birch	15"	Poor condition. B.o. top @ 25', rot @ base, twin trunk sawed off @ base, lean S.
2064	Paper birch	36"x25"	Poor condition. Oval trunk divides @ 6', S trunk high decay, N trunk dead ptns.
2066	Bigleaf maple	26"	Fair cond. Trunk divides @ 12', sharp branch angles, included bark, mild ivy.
2172	Paper birch	9", 9"	Poor condition. Twin trunks, multi dead top ptns, only small branches alive.
2171	Bigleaf maple	16,20,8,7,20"	Poor condition. K. deusta infection, cavity & decay, hvy ivy.
2170	Douglas fir	38"	Fair condition. Hvy sap flow W,N, E base, crown okay but hvy to W.
2068	Bigleaf maple	8"	Poor condition. Suppressed, top b.o. @ 15', weak resprouts.
2067	Douglas fir	38"	Fair condition. Sloughing basal bark, sinuous trunk, crown hvy to W, dead mid trunk limbs.
?	Red alder	23"	Dead tree. Heavy ivy. ~15' N of 2134.
?	Bitter cherry	9, 12, 5"	Poor condition. Multiple cankers, broken top portions, N23W from 2174.
?	Bitter cherry	8", 6"	Poor condition. High decay. Near dead. ~ 15' tall. 22' N52W from 2173.
?	Bitter cherry	10"	Poor condition. Top gone @18' up. Hard lean N, Few small live branches
?	Paper birch	9"	Dead tree. 22' tall dead snag. High decay. 5' NE of 2066.

62 total trees 6"+ dbh

Tree Survival/Structural Stability

Development of this site for two single family residences will require significant site alteration pursuant to access road construction, utilities installation, and building footprint excavations. Likelihoods of survival/structural stability are based upon tree species tolerance to disturbance and percentage/proportion of Critical Root Zone (CRZ) disturbance. The International Society of Arboriculture has defined the Critical Root Zone as a footprint of ground as having 1' of radius from the trunk for every inch of diameter at breast height (dbh). Thus, a 20" dbh tree would have a CRZ with a radius of 20'. CRZ disturbance is defined as significant soil compaction and/or excavation/root damage. In general, trees having > 40% CRZ disturbance are deemed to have a Low likelihood of long-term survival/structural stability. This is due to loss of water and nutrient absorbing roots and loss of mechanical/physical anchorage to the soil.

In the interest of preserving the viability of the site trees to be retained, please see Tree Protection Recommendations enumerated below.

Recommendations

The following are recommendations for construction of the necessary infrastructure to preserve the long-term safety of the site and viability of the trees to be retained in the context of the proposed work.

Recommendation 1

Place secure and sturdy construction fencing around the CRZ's of trees to be retained. Secure the fencing with methods that do not damage near surface roots.

Recommendation 2

Avoid any grade changes, placement of fill, vehicle parking, heavy equipment traffic, or underground utility work within the CRZ of each tree to minimize root disturbance and soil compaction. Efforts should be made to go over or under with utility lines when roots larger than 2" diameter are encountered in the utility trench. Hand excavation is recommended around larger roots. Where roots have to be cut they should be severed cleanly using sharp tools at right angles to the root length to minimize surface area damage and exposure and facilitate compartmentalization.

Recommendation 3

Avoid any changes in drainage patterns from excavation, irrigation or otherwise within the root zone.

Recommendation 4

Apply 4" depth of organic mulch to the CRZ of any tree that has activity/soil disturbance within the CRZ.

Recommendation 5

Avoid any above ground tree contact (trunk or limbs) by equipment booms, delivery trucks, or other contact.

Recommendation 6

Prohibit concrete washout, herbicides/pesticides application, heat sources within the root zone and any tree attachments (hardware, rope etc.).

Recommendation 7

Remove any tree with more than 40% of the CRZ impacted by the site activities including root severance, heavy compaction, and grade changes.

Recommendation 8

Provide additional watering to the retained trees that have soil disturbance within the CRZ for the first three years following construction during the dryer summer months (July-September) that is the equivalent to 1" water per week. A slower but deep soaking is more beneficial than a quick heavy application of water. Apply 4" of mulch around the CRZ to preserve soil moisture, suppress weeds, and attenuate temperature extremes.

Recommendation 9

Monitor the trees for 3 years for signs of decline and consideration of remediation steps if necessary.

Tree Removal

Building footprints, access driveway, and utilities locations are in the process of being determined. Tree removal/retention requirements will be determined as this process develops. This Tree Inventory will serve to inform the tree removal/retention decisions by consideration of existing site tree sizes, condition, and site contribution to select better candidates for tree retention.

Tree Replacement

Tree replacement/mitigation will be more fully considered once tree removal requirements have been refined.

Other Observations

While this document is not intended to constitute a Tree Risk Assessment under ISA TRAQ (Tree Risk Assessment Qualification) protocol, there are some dead standing and/or poor condition trees that will likely constitute a High Risk under the proposed development conditions. Removal of the dead and/or poor condition trees as part of the site development process would be prudent to reduce potential hazard and urban wildfire risk.

Additionally, there are some site trees that can have crown-cleaning and/or crown-raising done to reduce hazard risk, tree crowding, and improve urban

forest health. Crown-cleaning would include removal of dead/damaged/decayed crown portions. Crown-raising would include pruning of lower to mid-crown branches to reduce crowding/rubbing/abrading portions while removing no more than ~ 1/3rd live crown. Crown-cleaning and crown-raising should be done by qualified professionals using ISA Best Management Practices.

There is an existing overhead utility line (electric power?) running in a west to east orientation in the southern portion of the property that is rubbing/abrading some of the site trees. This line will need to be considered/managed as this project develops.

Disclaimer

This Tree Inventory and Protection Plan has been prepared exercising a reasonable standard of care using accepted professional standards. These recommendations are in no way a guarantee of tree health and survival in the future due to potential unforeseen circumstances and acts of God/force majeure. However, they do represent responsible steps in promoting the continued viability of the trees. Be advised that this document does not constitute a Tree Risk Assessment. No representations are made or implied whatsoever regarding the relative safety or stability of any site tree on the subject property or adjacent properties. High or Extreme risk trees may exist on or near this site. A separate Tree Risk Assessment per the ISA Tree Risk Assessment Qualification (TRAQ) protocol can be done upon request to assess relative risk of existing site trees.

Respectfully,

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References:

Pacific Northwest ISA Tree Protection Measures

Tree Protection on Construction and Development Sites, Oregon State University, December 2009.

Exhibit A

Critical Root Zone

