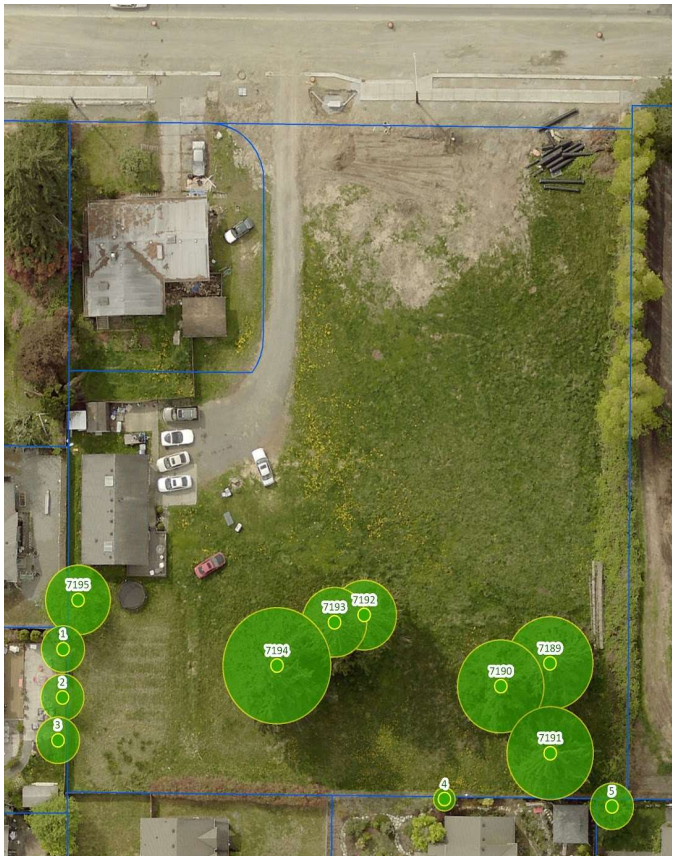
Arborist Report

Tree Protection Plan - July 2022



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Notice of Disclaimer

Assessment data provided by Davey Resource Group is based on visual recording at the time of inspection. Visual records do not include testing or analysis and do not include aerial or subterranean inspection unless indicated. Davey Resource Group is not responsible for discovery or identification of hidden or otherwise non-observable risks. Records may not remain accurate after inspection due to variable deterioration of surveyed material. Risk ratings are based on observable defects and mitigation recommendations do not reduce potential liability to the owner. Davey Resource Group provides no warranty with respect to the fitness of the trees for any use or purpose whatsoever.

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Introduction

Background

Davey Resource Group (DRG) was contracted by Todd Echelbarger of Echelbarger Homes, Inc., to inspect and provide an arborist report and tree protection plan for the property at 17721 36th Ave W, Washington (PIN: 27041000403200). The client intends to develop the 1.51-acre property.

Using a pen tablet computer, the arborist visited each tree on the site which was visually assessed, and the required tree data was collected within a GIS database. Following data collection, specific tree preservation plan elements were calculated that identified each tree's dripline and Tree Protection Zone (TPZ) to better ensure survivability during the planned development. The following details are provided in alignment with the information required by the Lynnwood Municipal Code (Lynnwood Municipal Code Chapter 17.15):

- A description of the methods used to determine the Critical Root Zone (CRZ)
- Trees to be removed and protected (including CRZ)
- Any special instructions for tree care when work may be required within the CRZ.
- Trees in the vicinity of construction or that could be impacted by the proposed development activity
- Recommendations for tree protection fence location including details for tree protection measures that will be implemented to ensure the trees to be retained are protected throughout the construction phase of the project.
- A timeline for tree protection activities,
- A list of protection measures and conditions to be taken during all development activities to ensure code compliance during development activities
- Any trees recommended for removal along with justification

Limits of the Assignment

There are many factors that can limit specific and accurate data when performing evaluations of trees, their conditions, and values. The determinations and recommendations presented here are based on current data and conditions that existed at the time of the evaluation and cannot be a predictor of the ultimate outcomes for the trees. A visual inspection was used to develop the findings, conclusions, and recommendations found in this report. Values were assigned to grade the attributes of the trees, including structure and canopy health, and to obtain an overall condition rating. No physical inspection of the upper canopy, sounding, root crown excavation, and resistograph or other technologies were used in the evaluation of the trees.

Methods

Data was collected by Marc Leonard (WE-11849AU), an ISA Certified Arborist, on July 29, 2022. The results will be used to determine the Tree Protection Zone (TPZ) and any other tree protection measures required during construction. Location and dripline of all trees six inches or greater in diameter at breast height (DBH, 4.5 ft. above grade) were surveyed.

The following attributes were collected for each site:

Tree Number: Tree ID number was assigned and a numbered aluminum tag was affixed to the tree.

Species: Trees were identified by genus and species, cultivar if evident, and by common name.

Diameter at Breast Height (DBH): Trunk diameter was recorded to the nearest inch at 4.5 feet (standard height) above grade except where noted. When limbs or deformities occurred at standard height, measurement was taken below 4.5 ft. The DBH of multi-trunk trees was determined by taking the sum of the DBH for each individual stem divided by the number of stems.

Height: Tree Height estimated to the nearest <5ft.

Avg. Crown Radius: Average dripline distance was measured.

Critical Root Zone (CRZ): Considered to be the ideal preservation area of the root zone of a tree. It is measured as one (1) foot of radius for every inch of trunk diameter measured at 4.5 feet from grade. CRZ measurements are calculated from DBH and may not be an accurate representation of the actual dimensions of the root zone of the trees in the field.

Condition: Condition ratings were based on but not limited to:(1) the condition and environment of the tree's root crown; (2) the condition of the trunk, including decay, injury, callusing, or presence of fungus sporophore; (3) the condition of the limbs, including the strength of crotches, amount of deadwood, hollow areas, and whether there was excessive weight borne by them; (4) the condition and growth rate history of the twigs, including pest damage and diseases; (5) the leaf appearance, including abnormal size and density as well as pest and disease damage.

Using an average of the above factors together with the arborist's best judgment, the general condition of each tree was recorded in one of the following categories adapted from the rating system established by the International Society of Arboriculture and 10th Edition of the Council of Tree & Landscape Appraisers (CTLA) *Guide for Plant Appraisal*[1] :

- **Excellent (81%-100%):** High vigor and near-perfect health with little or no twig dieback, discoloration, or defoliation. Nearly ideal and free of structural defects. Nearly ideal form for the species and generally symmetrical.
- **Good (61%-80%):** Vigor is normal for the species and has no significant damage due to disease or pests. Twig dieback, discoloration, or defoliation is minor. Well-developed structure with minor defects that can be corrected easily. Minor asymmetries/deviations from species norm. Function and aesthetics are not compromised.
- **Fair (41%-60%):** Reduced vigor. Damage due to insects or diseases may be significant and associated with defoliation but is not likely to be fatal. Twig dieback, defoliation, discoloration, and/or dead branches may comprise up to 50% of the canopy. A single structural defect of a

[1] Council of Tree and Landscape Appraisers. (2019). *Guide for Plant Appraisal, 10th Edition, Second Printing.* Atlanta, GA: International Society of Arboriculture.

significant nature or multiple moderate defects. Structural defects are not practical to correct or would require multiple treatments over several years. Major asymmetries/deviations from species norm. Function and aesthetics are compromised.

- **Poor (21%-40%):** Unhealthy and declining in appearance. Poor vigor and low foliage density and poor foliage color are present. Potentially fatal pest infestation. Extensive twig or branch dieback. A single serious structural defect or multiple significant defects. Observed structural problems cannot be corrected. Failure may occur at any time. Largely asymmetrical or abnormal form. Form detracts from aesthetics or intended use to a significant degree.
- **Very Poor (6%-20%):** Poor vigor and appears to be dying. Little live foliage. Single or multiple severe structural defects. Visually unappealing and provides little or no function in the landscape.
- **Dead (0%-5%)**

Observations

On-site - A total of seven (7) trees were inspected at the site.

Tree ID #	Species	DBH (in)	Height (ft)	Avg. Canopy Radius (ft)	Condition	Observations	CRZ (ft)
7189	Douglas fir (*Pseudotsuga menziesii*)	32	100	20	Excellent	Full Crown, Large Deadwood (+3")	32
7190	Douglas fir (*Pseudotsuga menziesii*)	31	100	20	Good	Full Crown, Mechanical Damage	31
7191	Douglas fir (*Pseudotsuga menziesii*)	30	85	20	Good	Full Crown, Root Damage	30
7192	Western redcedar (*Thuja plicata*)	35	95	15	Good	Stressed, Vines	35
7193	Western redcedar (*Thuja plicata*)	36	95	15	Fair	Stressed, Mechanical Damage, Codominant Stem	36
7194	Douglas fir (*Pseudotsuga menziesii*)	35	100	25	Excellent	Full Crown	35
7195	European mountain ash (*Sorbus aucuparia*)	8	35	15	Fair	Poor Structure, Codominant Stem	8

Off-site - A total of five (5) trees were inspected at the site.

Tree ID #	Species	DBH (in)	Height (ft)	Avg. Canopy Radius (ft)	Condition	Observations	CRZ (ft)
1	Eastern redbud (*Cercis canadensis*)	6	25	10	Good	Poor Structure, Codominant Stem	6
2	Eastern redbud (*Cercis canadensis*)	6	25	10	Good	Poor Structure, Codominant Stem	6
3	Eastern redbud (*Cercis canadensis*)	6	20	10	Good	Poor Structure, Codominant Stem	6
5	Leyland cypress (*Cupressus × leylandii*)	8	20	10	Excellent	Full Crown	8
4	True fir (*Abies procera*)	7	15	5	Excellent	Full Crown	7

A row of several Lombardy poplar (*Populous nigra*) trees are growing on the neighboring property to the north and have driplines overhanging the subject parcel. Data was not collected for these trees. Lynnwood considers the species to be “nonsignificant” and is therefore not included in this report (LMC 17.15.080).

Analysis & Recommendations

As with most tree preservation planning, a critical element is in minimizing root disturbance. When evaluating tree root disturbance during construction there are two considerations; the removal of absorption roots and the removal of anchoring roots. Removal (or compaction in the area) of the absorption roots can cause immediate water stress and a significant decline in tree health. The ability of a tree to survive the loss of absorption roots is dependent on its tolerance of drought, tree health, and the ability to form new roots quickly. Removal of the larger anchoring roots can lead to structural instability. Trees that suffer substantial root loss or damage are seldom good candidates for preservation. Many factors can limit root growth and expansion such as degree of slope, present hardscape or heavily compacted areas, and/or tree health. Final selections for tree preservation are largely determined by the percentage of Critical Root Zone impacted using a commonly accepted method established by Dr. Kim Coder in Construction Damage Assessments: Trees and Sites[2].

No trees on-site are recommended for removal.

Tree Protection Zone & Timing

To ensure the long-term viability of trees and stands identified for protection, construction activities shall comply with the minimum required tree protection through an established Tree Protection Zone (TPZ) for those trees determined to remain on the site.

- TPZ fencing will be installed outside the dripline, at a minimum, of all retained trees. It is recommended that TPZ fencing be installed to encompass as much of the tree's CRZ as is allowable by design plans.
- Preventative measures are recommended in addition to the installation of tree protection barriers for retained trees including mulching over the drip line, supplemental fertilization for stressed trees, supplemental irrigation as necessary, soil amendments and soil aeration, and pruning to remove deadwood or create clearance on trees to be protected.
- Mulch the root zones of all significant trees to be retained during construction with 3" of organic mulch or arborist wood chips to help maintain moisture, avoid soil compaction, and avoid runoff.
- Install tree protection fencing for all remaining significant trees on the site and all those trees with canopies that extend onto the subject property.
- TPZ fencing will follow the edge of building/road/paved paths where necessary and are not required to extend to the dripline where impervious surfaces are determined to be the limiting factor for root development (fence following existing curb does not trigger 'impact' status). Tree protection fencing may be installed at the edge of the impermeable or paved surfaces for those trees whose driplines extend over the edge.
- TPZ fencing shall be a minimum of 4 feet high, constructed of chain link or polyethylene laminar safety fencing or similar material.
- "Tree Protection Area - Keep Out" or similar signs are required to accompany the TPZ fencing at regular intervals and include the contact information of the consulting arborist or entity responsible for enforcing tree protection standards.
- TPZs shall be constructed in such a fashion as to not be easily moved or dismantled.

[2] Dr. Kim Coder, University of Georgia June 1996

- TPZs shall remain in place for the entirety of the project and only removed, temporarily or otherwise, with authorization by an ISA-certified arborist after submission and approval of intent.
- Any entry or work within the TPZ of retained trees is prohibited.This includes but is not limited to the storage of materials, parking, or contaminating soil by washing out equipment.
- Retain a site arborist for the duration of the project that may conduct periodic site visits to investigate tree protection compliance any changes to tree condition.

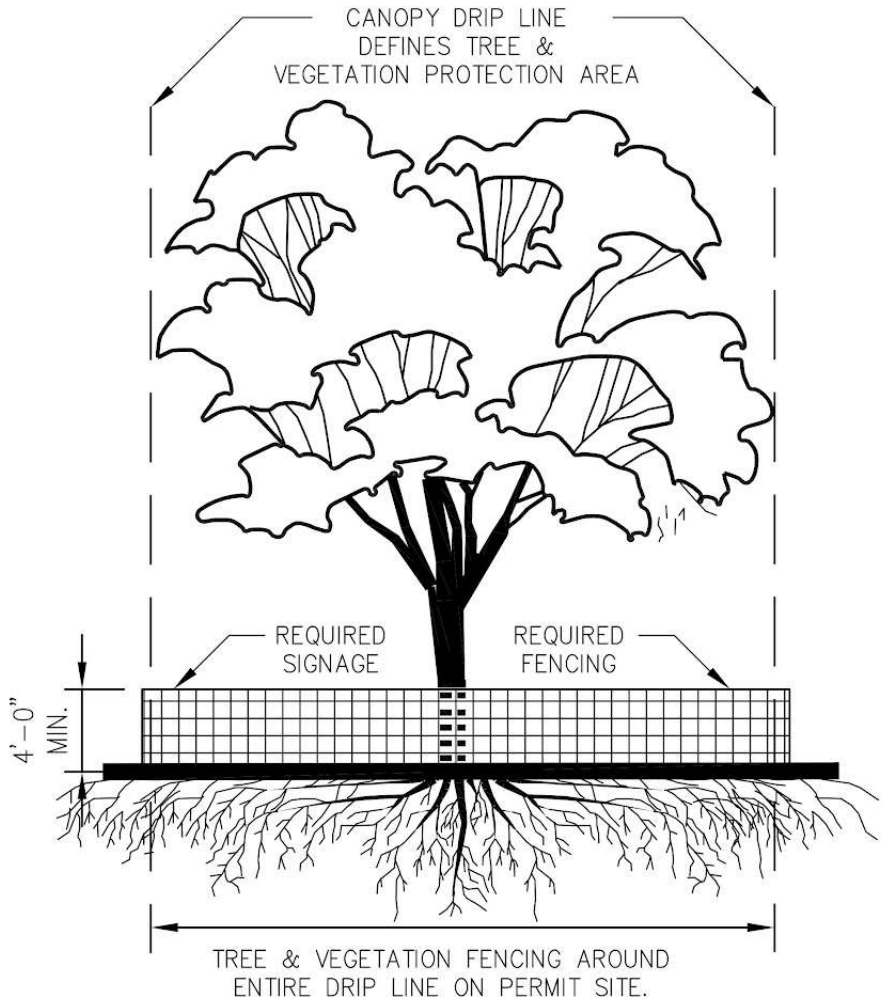

Image 1. An example of a Tree Protection Zone barrier. Contact information of the site manager or consulting arborist should also be included on the sign.

Pre-Development Tree Care

Successful tree preservation efforts begin in the planning and design phase. In order to select the appropriate trees for preservation and then incorporate those trees into future development plans, site managers and designers need detailed information on the health and status of the existing trees. This report satisfies the conditions of the critical first step in the preservation process: a tree inventory, assessment, and analysis conducted by a qualified professional. The resulting findings guide the beginning stages of the preservation process.

Condition rating and preservation priority rating help nominate potential candidates for preservation. Development plans should ensure that no impact or root damage occurs within the inner root zone and plans should take into consideration the significant reduction in the likelihood of tree survival when the root zone is impacted. After individual trees are selected for preservation, the following action-steps are recommended prior to development activities:

- **Prune** trees, as necessary, to remove existing deadwood and stubs. This strategy controls potential future vectors of decay. Clean cuts made at branch collars allow the tree to undergo its natural process of compartmentalizing wounds, preventing the spread of decay. During the pruning process, remove as minimal amount of live foliage as possible and no more than 25% removal in any one season while allowing for the safe and unimpeded operation of construction activities.
- **Install Tree Protection Zone** (TPZ) fencing out to the furthest possible radius distance from the tree.
- If the soil within the TPZ is compacted, then **aerate the soil** using an air spade to alleviate compaction and promote the flow of oxygen and water to the roots.
- **Add a 3-inch layer of mulch** to the portion of the root zone protected by the TPZ. Be sure not to cover/bury the tree root collar. Mulch aids the soil in water retention and also helps insulate the soil from hot and cold weather extremes.
- Where possible, **add a 12-inch layer of wood chips** over any parts of a root zone not protected by the TPZ. This aids in reducing the impact of soil compaction from heavy equipment during the upcoming construction activities.

Tree Care During Development

Once development begins, several measures are necessary to help ensure optimal outcomes for all trees selected for preservation:

- **Retain a Certified Arborist** on site to monitor activities and assess impacts to trees. The arborist can make as-needed recommendations to improve tree preservation activities throughout the development process. This is particularly important in order to make a timely response when a preserved tree is accidentally damaged or otherwise impacted during development.
- **Signage** instructing site workers not to enter Tree Protection Zones should be posted throughout the job site. Signage should be posted in both English and Spanish as well as any other language as deemed necessary by site managers.

- **Discuss tree protection** regularly at required staff meetings. Reiterate the importance of respecting the Tree Protection Zone as critical to the safety of staff working on site and the success of tree preservation efforts.
- Strictly **enforce** the Tree Protection Zones as “No-Go” zones. No activity, human or machinery, should breach the established TPZ.
- **Root prune** where any grading or trenching occurs within the critical root zone.
- Ensure the area within the TPZ receives the **weekly watering** equivalent to the amount of average natural rainfall for the specific development site. When the amount of natural rainfall received is less than the historical average, manual watering methods should be employed. The on-site Certified Arborist can make the determination when additional manual watering is necessary.
- **Do not raise or lower the soil grade near the TPZ**. A tree relies upon small, non-woody roots called feeder roots for the absorption of water and nutrients. These roots predominantly reside in the upper several inches of soil, just below grade. Lowering the soil grade, even just a few inches, will sever these feeder roots and compromise tree health. Raising the soil above existing grade, such as through the addition of fill soil, buries feeder roots too deep and restricts feeder root access to water and oxygen.

Post-Development

A successful tree preservation effort continues well past the conclusion of development activities:

- The preserved trees should be **re-inspected** for signs of impact that may have gone undetected during construction and mitigation measures assigned accordingly.
- The preserved trees should be placed on a **seasonal care plan** for two years that includes both monitoring and routine soil inoculation treatments designed to stimulate new root growth.
- Annual monitoring should continue for several years, as the effects of construction may take anywhere from 3 to 7 years to become visibly apparent.

Concluding Remarks

This report, along with the tree inventory, is the first step in preserving the health, function, and value of the trees on the site during and after development. Trees and green spaces provide benefits and add value to residential properties. Tree preservation starts with a basic understanding of the health and structure of the trees on the site. With proper care and protection, these trees can continue to thrive. Tree protection guidelines and strategies should be shared with contractors and employers prior to any disturbance at the site.

The suitability of a tree for preservation is a qualitative process based on the interaction of a variety of influencing factors. A tree inventory and arborist report provide a snapshot in time of each individual tree assessed across many of the most important observable factors relative to preservation. Healthy, vigorous trees better tolerate impacts from construction and more readily adapt to the new site conditions that exist after completion of development. Additionally, tolerance to impact from construction activities varies across species and sites. The percentage impact on the tree protection zone also greatly influences the suitability of a particular tree for preservation.

Successful tree preservation requires a team effort to find the right balance and select the appropriate trees. Using the findings of this report as a guiding foundation, planners are equipped to design, prepare, and implement a tree preservation plan tailored to achieving the optimal outcome.

Appendix A: Inventory Site Map

Map 1- Site map showing tree ID number. Aerial photos are only used for reference. Map projections may distort tree canopy size and locations. All trees located on-site and off-site exist on the northwest portion of the subject parcel. All other vegetation is not significant.