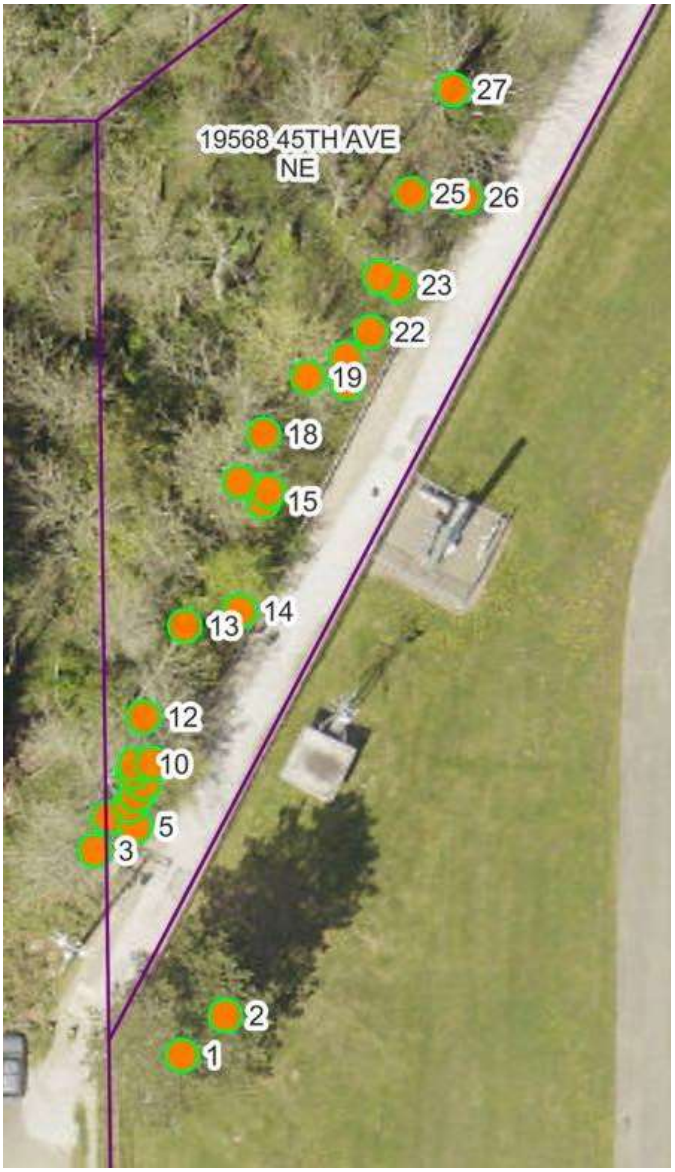
Arborist Report

February 2025



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DAVEY Resource Group

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

The client contracted Davey Resource Group Inc. (DRG) to provide an arborist report on the health, size, and location of the significant trees near the proposed cell tower construction site on Parcel #4027700071 and Parcel #4027700066 in Lake Forest Park, Washington. The subsequent report details all tree protection and retention measures. A significant tree is defined by the City of Lake Forest Park as an existing **live** tree that is not a hazard tree (i.e., a tree that does not have a high probability of failure due to a debilitating disease or structural defect) and that, when measured four and one-half feet above grade, has a minimum DSH (Diameter at Standard Height) of six inches.

The trees were assessed by their location, size, current condition, overall health, and species. This data was used to determine the critical root zones (CRZ) and tree protection zones (TPZ) around each tree which will help guide construction options and mitigate potential impacts to the trees. Ultimately the data can be used to determine which trees would be good candidates for retention and those that could be removed regardless of construction plans.

Using a pen tablet computer, a DRG International Society of Arboriculture (ISA) Certified Arborist surveyed all the trees (≥6" DBH) on the property near the proposed construction. Each tree 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 Critical Root Zone (CRZ), Interior Critical Root Zone (ICRZ), Tree Protection Zone (TPZ), and the measures required to help ensure survivability. The results can be used to fulfill tree protection plan requirements for the city. The data collection and arborist report includes:

- A numbering system of the inspected significant trees on the subject property
- Tree type or species and DBH (Diameter at 4.5' above soil level).
- A complete description of each tree's health, condition and viability.
- Determination of the CRZ, ICRZ, and TPZ of all trees to be preserved and a description of the methods used to establish each.
- A discussion of timing for installation of tree protection measures.
- Any special instructions for tree care when work may be required within the CRZ.
- Map illustrations of tree locations and TPZ.
- Any trees requiring pruning or maintenance to increase tree tolerance to construction, clearance or safety on the site prior to construction.

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 on February 13, 2025 by an International Society of Arboriculture (ISA) Certified Arborist (Marina Fleming - PN-10234A). A visual inspection was used to develop the findings, conclusions, and recommendations found in this report.

The following attributes were collected for each site:

Tree Number: Tree ID number was assigned, aluminium tags were **not** affixed.

Stems: The number of stems was recorded.

Location and Unique ID: An X and Y coordinate was generated for each tree site.

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 square root of the sum of the DBH for each individual stem squared.

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

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 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

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

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.

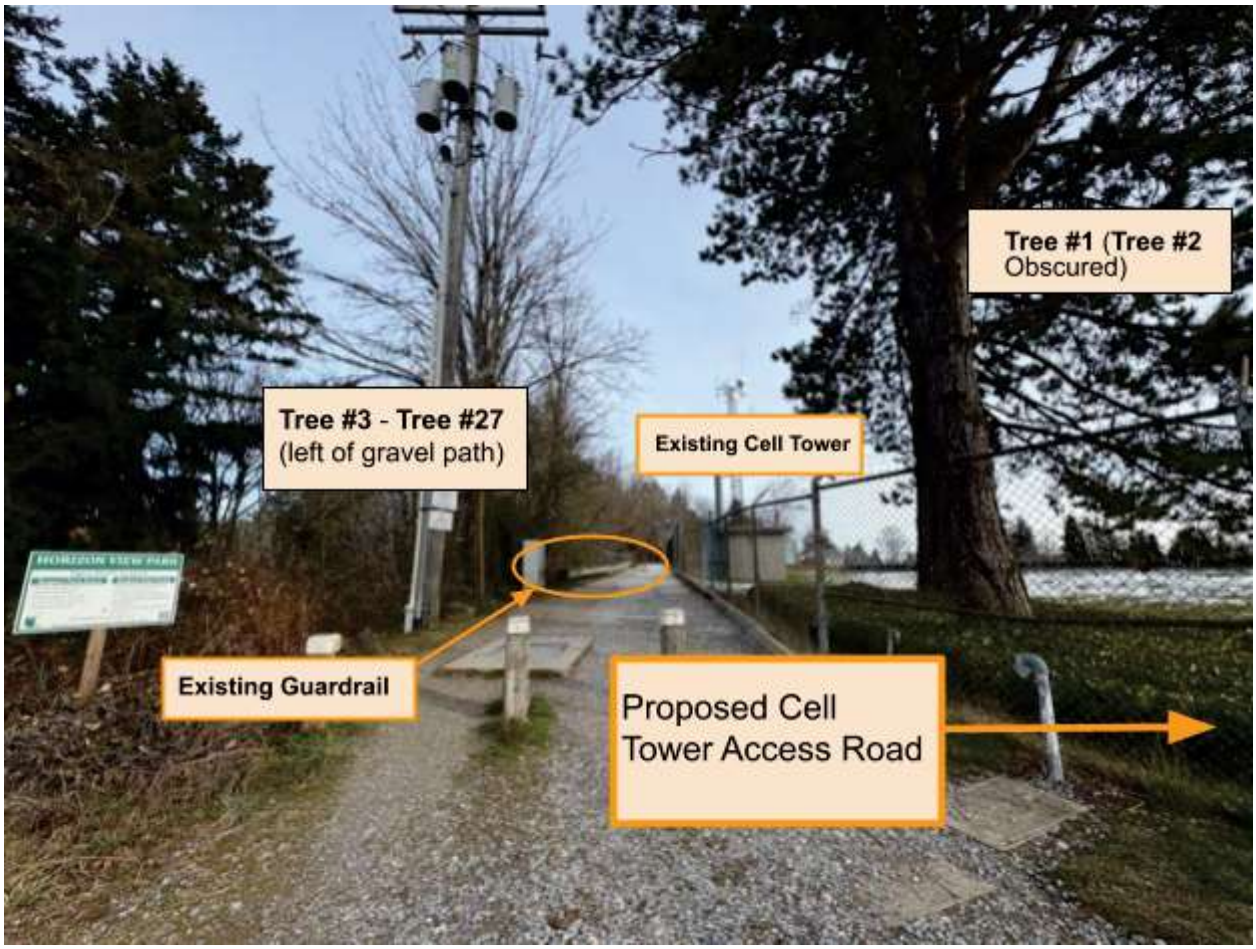
- **Very Poor (6%-20%):** Poor vigor and appears to be dying. Little live foliage. Single or multiple severe structural defects. Visually unappealing and provides little or no function in the landscape.
- **Dead (0%-5%)**

Observations

Site Observations

The site was located at 19701 47th Ave NE in Lake Forest Park WA, along the gravel path abutting the Lake Forest Reservoir. The path connects 45th Ave NE to Horizon View Park. The path is flat, well maintained and sees moderate foot traffic. There is a guard rail which protects pedestrians from a 5 foot vertical drop in elevation alongside the middle section of the path. The ground adjacent to the path has a moderate slope with a northwest aspect. The slope is forested with primarily *Acer macrophylum* (Bigleaf Maple) and *Alnus rubra* (Red Alder) species, and has a dominant ground cover of *Hedera helix* (English Ivy).

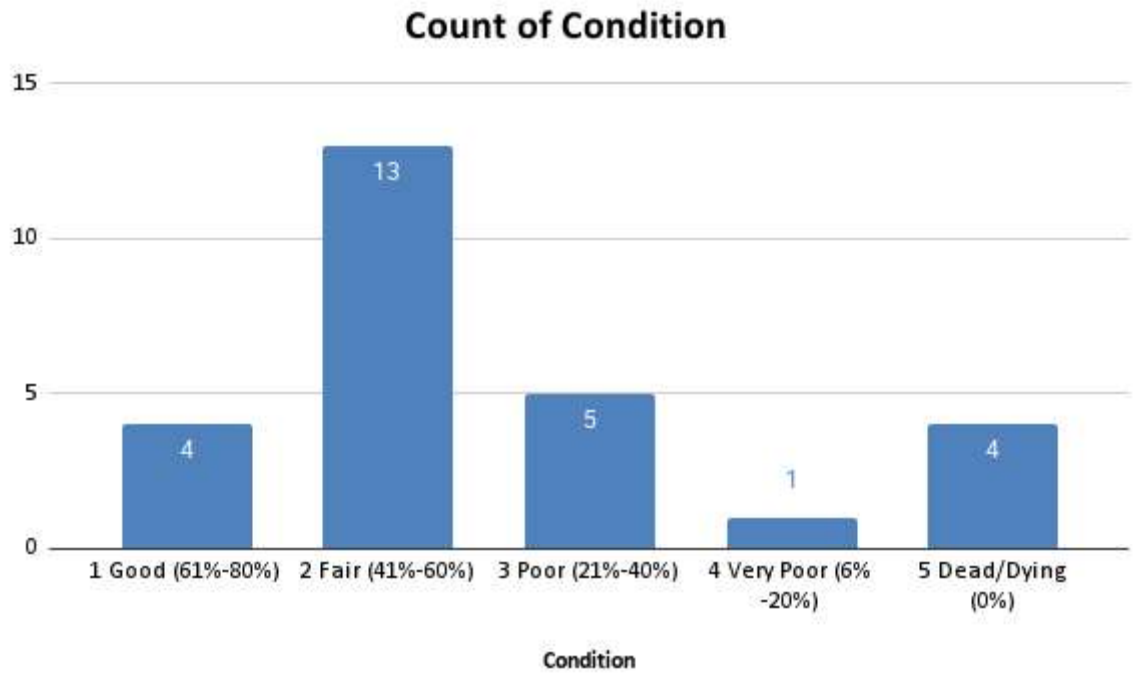
Image 1: Path from 45th Ave NE to Horizon View Park, existing and proposed structures



Tree Observations

Tree condition is important to evaluate prior to construction because healthy trees can better withstand construction impacts and partial root loss. In addition, it may not be of value to try to preserve trees in poor condition through construction when removal is a better option for the aesthetic value and health of the tree population as a whole. Tree condition was determined based on a visual assessment of but not limited to structural defects, tree vigor, and species.

A total of twenty-seven (27) trees were inventoried at the site. None of the trees were considered exceptional (16.14.030 Definitions), and all except one (tree #27) had DSH < 30". Four (4) trees were in good condition, thirteen (13) were in fair condition, five (5) were in poor condition, one (1) was in very poor condition, and four (4) were dead.



Two (2) trees were on the neighboring parcel containing the reservoir to the southeast. Since they were within the fenced reservoir property, their DSH (diameter at standard height) was estimated rather than measured. These trees were in good and fair condition, and both were potential candidates for cabling due to codominant unions with included bark.

Analysis & Recommendations

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. Successful tree preservation efforts begin in the planning and design phase. 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. **This analysis recognizes the design intent to protect**

and retain all trees during the project. The tree inventory results and site plans confirm the viability of all retained trees through construction, with the potential exceptions of Tree #1 and Tree #2.

Condition rating helps nominate potential candidates for preservation. Final selections for preservation are largely determined by the percentage of the critical root zone (CRZ) impacted and whether or not the interior critical root zone (ICRZ) will be impacted during site development. Development plans should ensure that minimal impact or root damage occurs within the ICRZ, and plans should take into consideration the significant reduction in the likelihood of tree survival when greater than 25% of the CRZ is impacted.

There are two considerations when evaluating tree root disturbance during construction; the removal of absorption roots and anchoring roots. Removal (or compaction in the area) of the feeder roots can cause immediate water stress and a significant decline in tree health. The ability of a tree to survive root removal 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.

The proposed construction elements (paved driveway, gates, fences, access road, drainage and swale) are unlikely to impact the longevity or viability of the majority of the trees in this site. None of the trees beyond the inventoried trees will be at risk. **Tree #1** and **Tree #2** are at a greater risk of impact due to the proximity of the proposed access road to their CRZs (Critical Root Zones). **Tree #4** and surrounding trees could potentially be impacted depending on their proximity to the proposed paved driveway and the equipment storage area. Tree protection measures should be implemented prior to any construction activities at the site.

Critical Root Zone

The trunk diameter (DBH) of the surveyed trees was used to determine the **potential** Critical Root Zone (CRZ) of each tree. The CRZ is considered the ideal preservation area of the root zone of a tree. It is equal to one (1) foot for every inch of trunk diameter measured at 4.5 feet from grade. For example; a tree with a DBH of 27 inches has a calculated CRZ radius of 27 feet (diameter of 54 feet) from the trunk. measured in feet. The CRZ represents the typical minimum rooting area required for tree health and survival. Minimal impact (25% or less) within this zone is typically acceptable for average to good-condition trees with basic mitigation/stress reduction measures.

Interior critical root zone (ICRZ) means an area encircling the base of a tree equal to one-half the diameter of the critical root zone. Disturbance of this area beneath a tree would cause a significant impact on the tree, potentially life-threatening, and would require maximum post-care treatment to retain the tree.

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. Many factors can limit root growth and expansion such as the degree of slope, present hardscape or heavily compacted areas, and/or tree health. Any disturbance to the interior critical root zone (ICRZ) would cause a significant impact on the tree, potentially life-threatening, and would require maximum post-care treatment to retain the tree. The ICRZ is defined as the area encircling the tree equal to one-half the diameter of the CRZ.

- **All excavation** work within the CRZ of trees to be retained should be done by hand and/or using an air spade under the direct supervision of an ISA Certified Arborist.

- Construction activities should be limited outside the impervious surface near or in the CRZ of any tree to be retained. This includes but is not limited to the storage of materials, parking of vehicles, contaminating soil by washing out equipment, (concrete, paint, etc.), or changing soil grade.
- The soil within the CRZ of each tree should be covered in a 3" layer of bark mulch prior to any construction activity.
- Where vehicular access is required within the CRZ of any preserved tree that is not protected with hardscape, the soil shall be protected with 18" of woodchips and/or plywood or metal sheets to protect from soil compaction and damage to roots of retained trees. Landscape fabric or similar materials will be placed on the existing grade beforehand to protect the condition and confirm the location of the existing grade. Following construction, the woodchips should be spread to a depth of 3 inches.

Pre-Development Tree Care

After individual trees are selected for preservation, the following action steps are recommended prior to development activities:

- **Prune** all selected trees, as necessary, to remove existing deadwood and stubs. This eliminates 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 no more than 25% removal in any one season while allowing for the safe and unimpeded operation of construction activities.
- **Soil inoculations** are recommended within affected Critical Root Zones. Formulations should include all necessary macro and micronutrients and include enzymes to help stimulate microbial activity in the soil and promote plant cell division and new lateral root development.
- **Install Tree Protection Zone** (TPZ) fencing out to the furthest possible radius distance from the tree, encompassing as much of the Critical Root Zone as is allowable by the development plans. Prospects for tree survival diminish when greater than 25% of the CRZ is impacted.
- 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.

Tree Protection Zone

The tree protection zone (TPZ) is the area of the property where no construction impacts should occur. Special instructions should be followed where any construction is to take place in the TPZ of a preserved tree. Construction practices at the site must adhere to the following standards:

- TPZ fencing shall be installed along the impervious surface, with special consideration of the critical root zone (CRZ) of trees to be preserved.
- Apply three inches (3") of composted wood chips over the TPZ of all preserved trees to retain moisture, increase organic matter, and help to visually establish the TPZ. This will be necessary for **Tree #1**,**Tree #2**, and **Tree #4**, if chosen for retention.
- If chosen for retention, fences should be installed around the CRZ of **Tree #1** and **Tree #2**, adjoining the existing barbed wire fence. Fencing for these trees is not required beyond that fence. Additional fencing is recommended around the CRZ of **Tree #4** due to potential construction and activity equipment storage nearby to the tree. For the rest of the trees, although harmful impacts unlikely and damage is improbable, it is recommended to add tree protection fencing along the gravel path **guard rail** to ensure the risk of ingress into the root zone of trees is limited to the greatest extent possible.

- Any work within the CRZ of a retained tree will require arborist supervision to ensure roots are not torn, and pruning cuts can be made to those roots within the limits of disturbance.
- TPZ fencing may be installed along the edge of the hardscape.
- TPZ should be a minimum of 4 feet high, constructed of chain link, and fastened to concrete blocks or similar material to discourage easy movement. Any deviation in the fencing can only be authorized by the consulting arborist.
- "Tree Protection Area - Keep Out" or similar signs shall accompany the TPZ fencing at regular intervals.
- TPZs shall remain in place for the entirety of the project and only be removed when the City authorizes the removal or issues a final certificate of occupancy, whichever occurs first.

Tree Care During Development

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

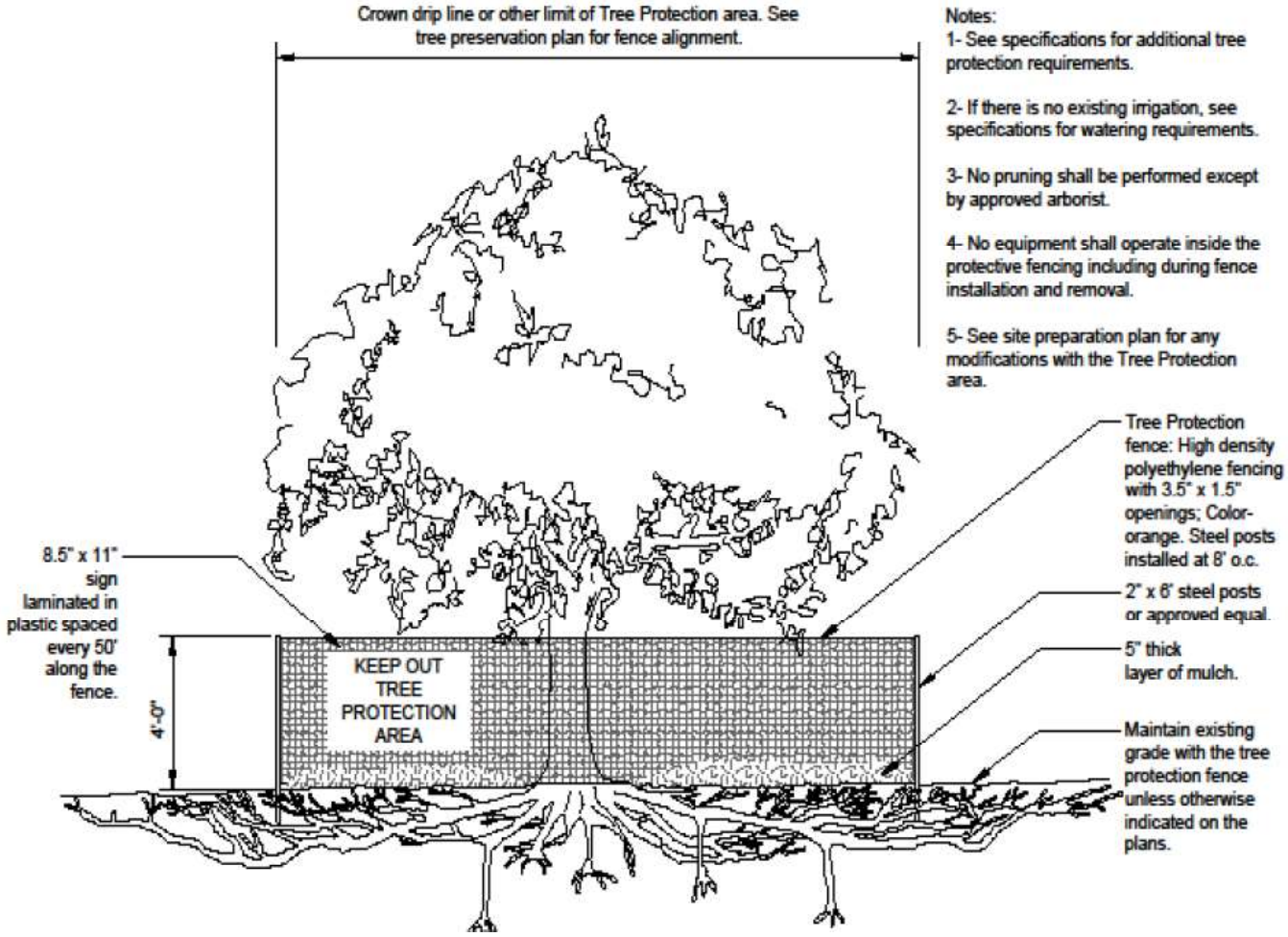
- **Retain a Certified Arborist** on site to monitor activities and assess impacts to trees. The arborist can make as-needed recommendations to improve tree preservation activities throughout the development process. This is particularly important in order to make a timely response when a preserved tree 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.
- Strictly **enforce** the Tree Protection Zones as "No-Go" zones. No activity, human or machinery, should breach the established TPZ unless under arborist supervision.
- **Root prune** where any grading or trenching occurs within a Critical Root Zone.
- Ensure CRZs receive 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.
- Where possible, **do not raise or lower the soil grade within a Critical Root Zone**.Lowering the soil grade, even just a few inches, will sever the feeder roots and compromise tree health. Raising the soil above the 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 Tree Care

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.
- Any soil compaction that occurred within a CRZ should be remedied with **aeration**.
- 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.

An example illustration of the location for the tree protection fencing. Fencing should be installed as far away from the tree trunk as allowable. At a minimum, it should be installed outside the CRZ. Any work within the TPZ should be supervised by a certified arborist.



Concluding Remarks

The purpose of this tree inventory is to assess the likelihood of impact from construction activities at the proposed cell tower site on existing trees in order to retain as many existing trees as possible, and to present strategies for tree protection. Tree protection guidelines and strategies should be shared with contractors and employers prior to any disturbance at the site.

According to the results of this inventory, it is unlikely that the majority of trees on the site will be adversely affected and those that are at risk can be managed to promote their health and longevity. Since tree removal may not be necessary for the completion of this project, tree replacement protocols will not be addressed. Although some of the trees on site are recommended for removal due to existing tree health issues, pedestrian safety, and invasive species control, they do not constitute a hazard to the proposed structures or to worker safety.

Most of the trees on this site are on the opposite side of the gravel path from the proposed construction area, and at a lower elevation than the path. The trees closest to the path were assessed, and there were

no trees behind this treeline with a large enough DSH to warrant inclusion in the study. If the treeline is protected, the trees behind them will inherently be protected too. Based on the documents outlining construction plans, there is a negligible risk that these trees will be harmed by any aspect of the construction process. However, for extra security it is recommended that a Tree Protection Fence be placed along the edge of the path on top of the existing guard rail.

Construction of the proposed access road has the potential to injure the roots of Tree ID#s 1 & 2 and compress the surrounding soil, which could lead to tree death. The two trees are situated inside the barbed wire fence and are at the greatest risk of negative impact at the site. In order to preserve these trees, it is recommended to **move the proposed access road** to outside of their CRZs to ensure their survival. During this inventory these trees were not accessible, so it will be necessary to **confirm their DSH** on site to determine the radius of their CRZs. Although retaining these trees is ideal, if this is not feasible it is recommended to remove both trees and replace them according to Lake Forest Park standards for tree replacement (16.14.090 Tree replacement). If damaged by road construction but retained, not only could the trees themselves be harmed, but if they died the dead trees would pose a risk to those that use the access road. Additionally, both trees exhibited included bark in each of their codominant unions, indicating that cabling would help to even better ensure tree survival and site safety if the trees are chosen for retention.

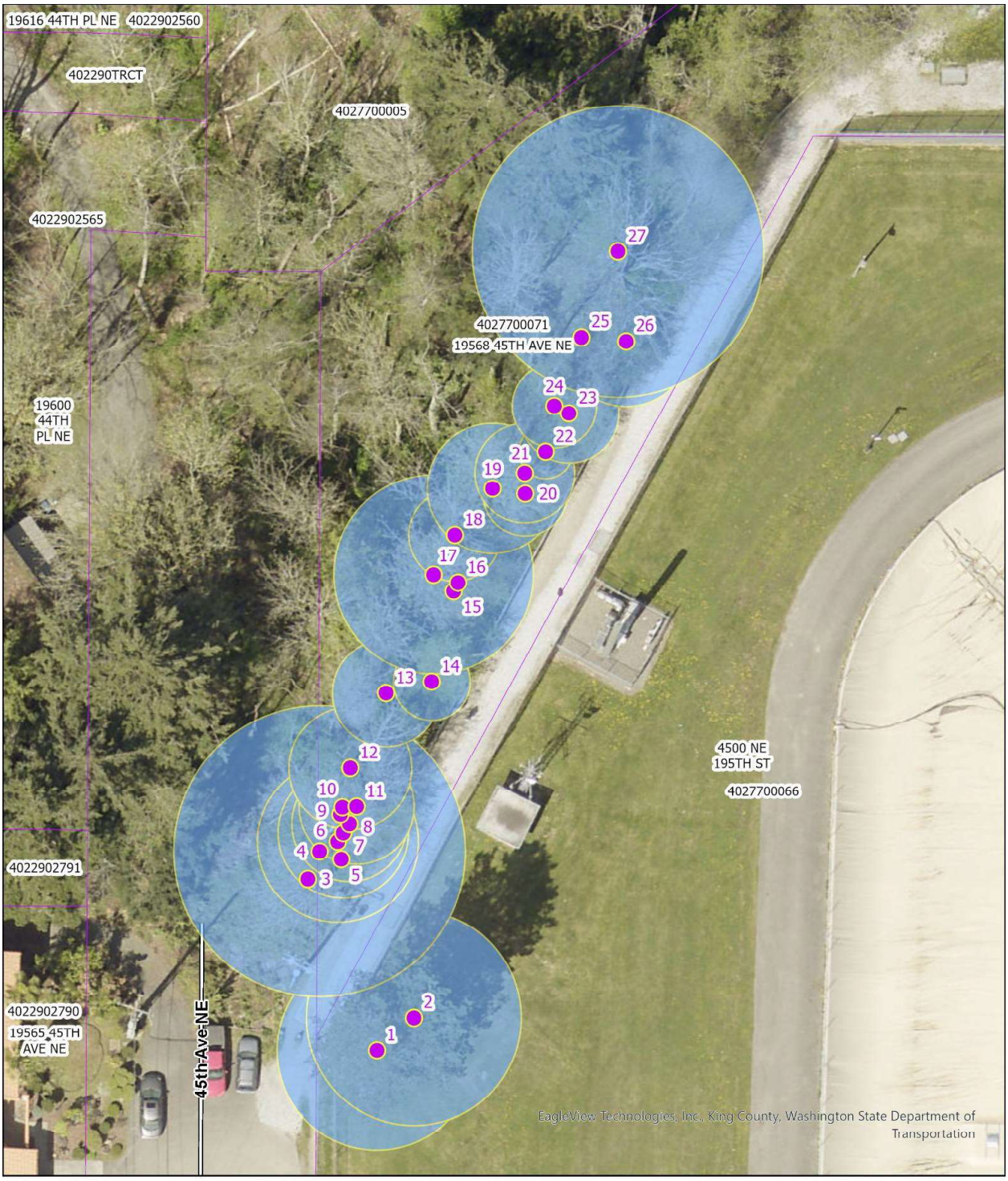
Tree #4 and its adjacent trees are less likely to be impacted by construction activity, but it is still possible due to the proposed paving area, and/or if equipment is stored nearby. Tree #3 is the closest tree to the construction area but since Tree #4 has the greatest DSH and CRZ of the surrounding trees, protecting this tree will protect the ones in its vicinity. Tree Protection Fencing placed in an arc around the CRZ of Tree #4 and flattening at the edge of the gravel path will be sufficient to protect Tree #4 and all the trees behind it.

If retained, Tree #1 and Tree #2 will require mulching in order to protect the surrounding soil and support their health and resistance to stressors. Tree #3, Tree #4 and Tree #5 will also need mulching if construction or equipment storage will occur nearby. None of the other trees on this site will require mulching. Adequate mulching consists of a 3” layer of mulch or arborist chips.

This tree inventory and tree protection plan will ensure that all trees on site have been protected to the maximum extent practicable. This is the first step in the process of 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. 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: Map

Map A1 - Site Overview



Tree Inventory

19701 47th Ave NE
Lake Forest Park, WA
February 18, 2025

Tree Sites
CRZ

10 Feet

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DAVEY Resource Group

Appendix B: Inventory Table

Table B1. Complete Tree Inventory Table

Tree ID	Botanical Name	Common Name	DSH (in)	DSH (stem2, stem3, ...)	CRZ (radial ft)	Condition	Height (ft)	Avg. Dripline Radius (ft)	Preservation Priority	Comments
1	*Pinus nigra*	Austrian Pine	26		26	Good (61%-80%)	50	12	2	Estimated DSH, inside fence; included bark in codominant union 20ft up trunk
2	*Pinus nigra*	Austrian Pine	28		28	Fair (41%-60%)	55	14	2	Estimated DSH, inside fence; serious included bark at codominant union 20 ft up trunk
3	*Acer macrophyllum*	Bigleaf Maple	18		18	Fair (41%-60%)	45	10	2	Mild included bark, unbalanced crown
4	*Acer macrophyllum*	Bigleaf Maple	27	17, 21	27	Poor (21%-40%)	45	15	3	Included bark at union 3ft up trunk, ivy 10ft up trunk, deadwood, small cavity
5	*Crataegus spp.*	Hawthorn	7		7	Fair (41%-60%)	15	6	2	Ivy on trunk, poor structure
6	*Crataegus spp.*	Hawthorn	12	7, 3, 9, 2	12	Poor (21%-40%)	15	5	3	Poor structure, ivy
7	*Acer macrophyllum*	Bigleaf Maple	12	9, 8	12	Dead/Dying (0%)	35	3	4	
8	*Acer macrophyllum*	Bigleaf Maple	15		15	Fair (41%-60%)	45	12	2	
9	*Acer macrophyllum*	Bigleaf Maple	6		6	Dead/Dying (0%)	15	2	4	Leaning away from path

10	*Acer macrophyllum*	Bigleaf Maple	11		11	Poor (21%-40%)	40	18	3	Wounds, poor structure, leaning towards trail, ivy
11	*Ilex spp.*	Holly	8	4, 4, 4, 3	8	Fair (41%-60%)	15	10	4	Invasive species
12	*Acer macrophyllum*	Bigleaf Maple	16		16	Fair (41%-60%)	40	7	2	Live and dead ivy on trunk
13	*Acer macrophyllum*	Bigleaf Maple	14		14	Fair (41%-60%)	50	10	2	Detritus in union 5ft up trunk, dead ivy
14	*Crataegus spp.*	Hawthorn	10		10	Fair (41%-60%)	35	10	2	Leaning towards trail, ivy on trunk
15	*Alnus spp.*	Alder	11		11	Dead/Dying (0%)	30	0	4	Leaning away from path
16	*Acer macrophyllum*	Bigleaf Maple	4	3, 3	4	Good (61%-80%)	25	5	2	Young, codominant starting at base of tree
17	*Acer macrophyllum*	Bigleaf Maple	22	21, 5	22	Fair (41%-60%)	55	20	2	Large stem in good condition, small stem in poor condition
18	*Acer macrophyllum*	Bigleaf Maple	12		12	Fair (41%-60%)	55	10	2	Dead ivy on trunk
19	*Acer macrophyllum*	Bigleaf Maple	17		17	Good (61%-80%)	60	18	2	
20	*Acer macrophyllum*	Bigleaf Maple	11		11	Good (61%-80%)	50	10	2	
21	*Acer macrophyllum*	Bigleaf Maple	13		13	Fair (41%-60%)	50	18	2	Leaning towards path, unbalanced crown
22	*Alnus rubra*	Red Alder	7		7	Poor (21%-40%)	45	7	3	Spindly, injured lead
23	*Alnus rubra*	Red Alder	13		13	Poor (21%-40%)	60	12	3	Broken leader
25	*Acer macrophyllum*	Bigleaf Maple	6		6	Fair (41%-60%)	20	10	2	Cavity at base

24	*Alnus rubra*	Red Alder	11		11	Very Poor (6%-20%)	50	7	3	Broken leader, leaning away from path
26	*Ilex spp.*	Holly	9	4, 4, 2, 7	9	Fair (41%-60%)	25	8	4	Invasive species
27	*Acer macrophyllum*	Bigleaf Maple	38		38	Dead/Dying (0%)	50	25	4	