

Arborist Report(DRAFT)

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Introduction

Andrea Becker requested an assessment of trees located along the driveway of the subject property in relation to a proposed drainage pipe installation. This report summarizes the anticipated impacts of the proposed construction on the existing trees and provides recommended mitigation measures.

Proposed Construction

A 4-inch PVC drainage pipe is proposed for installation on the south side of Tree #40, as shown in the Tree Plan. The pipe will connect to an existing drain line located within the retaining wall at the northeast corner of the adjacent sport court.

From this connection point, the pipe will be installed at a depth of approximately 4 to 6 inches and surrounded by a layer of river rock within the trench. The pipe will extend across the lawn area at a consistent depth before terminating in a rock pad located near the south side of Tree #41.

The lawn area east of Tree #40 is currently covered with artificial turf over a gravel base. The existing gravel layer beneath the turf, approximately 4 inches deep, will be removed and replaced with topsoil of similar depth.

The proposed work will occur within the tree protection zones of the referenced trees; however, all work will be conducted using hand tools, with no heavy machinery, thereby minimizing potential impacts by using the mitigation methods proposed below.

Tree Impact Summary

Tree #40

The proposed pipe will be installed approximately 4 feet south of the trunk of Tree #40. Excavation within this area will be performed using hand digging or air spading to minimize root disturbance and to identify any significant structural roots.

Given the shallow installation depth (4 to 6 inches), impacts to the root system are expected to be minimal. Upon exposure of roots, minor adjustments to the pipe alignment or depth may be made to avoid cutting or damaging major roots.

The pipe will initially run along the sport court to reduce root conflict under the dripline. At approximately 20 feet from the connection point, the alignment will angle slightly northeast toward the termination location.

Within the lawn area, removal of the existing gravel base and replacement with topsoil is not anticipated to adversely affect the root system. The new soil will be installed following best management practices, avoiding excessive compaction to maintain adequate soil aeration and water infiltration.

Tree protection fencing will be installed at the dripline, extending to a radial distance of approximately 16 feet from the trunk.

Tree #41 and Tree #42

Both trees are located along the eastern boundary of the lawn area. Trenching in the vicinity of Trees #41 and #42 will also be conducted using hand digging or air spading, consistent with the mitigation approach for Tree #40 to minimize impact. The proposed pipe installation is expected to minimally impact the root system specifically of Tree #42.

Tree protection fencing will be installed at each tree's dripline, with an approximate radial distance of 8 feet from each trunk.

Tree #38 and Tree #39

Trees #38 and #39 are not expected to be impacted by the proposed construction activities. They likely share the root space with Tree #40 within the lawn area. The root systems of Tree #38 and Tree #39 should not be impacted by the gravel replacement previously described should the best management practices be followed.

Proposed Tree Protection Plan and Construction Damage Mitigation Methods and Recommendations

To protect the critical root zones, canopy, and trunks of all retained trees, the following mitigation measures and recommendations should be followed:

1. Tree Protection Measures

1.1 Establishment of Critical Root Zones and Tree Protection Zone on Site

- **Critical Root Zone and Tree Protection Zone Delineation:**
 - The Critical Root Zones (CRZ) and Tree Protection Zone (TPZ) shall be clearly recognized at the start of the project and maintained around retained trees to prevent damage to the root system during construction activities. Tree Protection Zones will be recognized as the drip line of each tree identified on the Tree Plan.

1.2 Fencing and Barriers

- **Temporary Barrier Installation:**
 - Temporary rigid barriers, orange High-Density polyethylene fencing with 3.5" x 1.5" openings shall be installed at the recommended distances to protect undisturbed portions of the tree root systems. The fencing shall be a minimum of six (6) feet in height and installed to fully enclose the work area, leaving only designated access points into the subject parcel. Barriers should remain in place for the entire duration of the construction and should not be moved or altered without consulting the project arborist.
 - "Tree Protection Area" signs shall be posted visibly on all sides of the fenced areas. The Director may also require that signs requesting subcontractor cooperation and compliance with tree protection standards be posted at site entrances. (See Photo 8)
- **No Equipment Access:**
 - Equipment, storage containers, and other construction materials should be staged outside of the trees' root zones whenever possible, preferably on paved surfaces whenever possible.

1.3 Soil Protection and Erosion Control

- **Soil Compaction Prevention:**
 - Heavy equipment and foot traffic shall remain on existing paved surfaces when possible. The critical root zones shall be protected with a five (5) inch layer of mulch, and temporary ground protection (e.g., plywood or mats) shall be installed to distribute loads and prevent soil compaction outside of this area, should vehicles or heavy equipment need to be utilized within the yard.

1.4 Pruning and Canopy Protection

- **Canopy Management:**

- If the canopy of any tree is in danger of being damaged during construction (due to proximity of machinery or overhead activities), pruning will be carried out by a certified arborist before work begins.
- Any pruning will follow proper ANSI A300 pruning standards ensuring the overall health of the tree is not compromised.

1.5 Excavation near Trees:

- Excavation will be done carefully to minimize disturbance to the root system using hand digging, vacuum suction methods, and/or airspading when possible.
- Root pruning, if necessary, will be conducted by a qualified arborist using clean cuts and in accordance with tree care best practices. When excavation must occur within or near the critical root zone, any found roots of two (2) inches or greater in diameter shall be cleanly cut to the edge of the trench to avoid ripping of the root.
- Root shaving may be recommended when one third or less of the root diameter is proposed to be shaved. Shaving allows roots to be retained, however, this task must be performed properly in order to prevent excessive damage to the root or decay from entering the wound.

Post Construction Recommendations

After construction is complete, the following mitigation measures were provided to ensure the root systems of all impacted trees remained healthy and overall health of the tree was monitored.

- **Tree Growth Regulator** - When applied to conifer species, a tree growth regulator can stimulate the production of fine feeder roots, which may help offset potential root compaction or damage resulting from nearby construction activities. Increased fine root development can also improve water uptake and assist in mitigating drought stress during the summer months.
- **BioRush Fertilizer Treatments** - BioRush is a soil-applied fertilizer blend containing a diverse mix of beneficial bacteria intended to revitalize the soil biome. The formulation also includes organic compounds such as yucca extract and humic acids, which can improve soil structure and increase water absorption and retention within the root zone, thereby supporting overall tree health.
- **Continued On-Site Monitoring** - An ISA Certified Arborist should be retained to provide ongoing evaluations of the health and condition of the impacted trees. Monitoring can occur yearly or on an agreed upon basis. The on-site arborist shall provide written documentation and updated

photographs following each visit to record any changes in condition or progression of observed issues.

Appendix A Photos



Photo 1: Existing Drainage Pipe Connection Near Tree #40



Photo 2: Tree #40 Viewed Facing Northwest



Photo 3: South Side of Tree #40, Location of Pipe Installation Beginning Point



Photo 4: Tree #40 Viewed Facing Southeast



Photo 5: Yard Space East of Tree #40



Photo 6: Tree #41(Left) and Tree #42(Right) Shown at Eastern Edge of Lawn Space



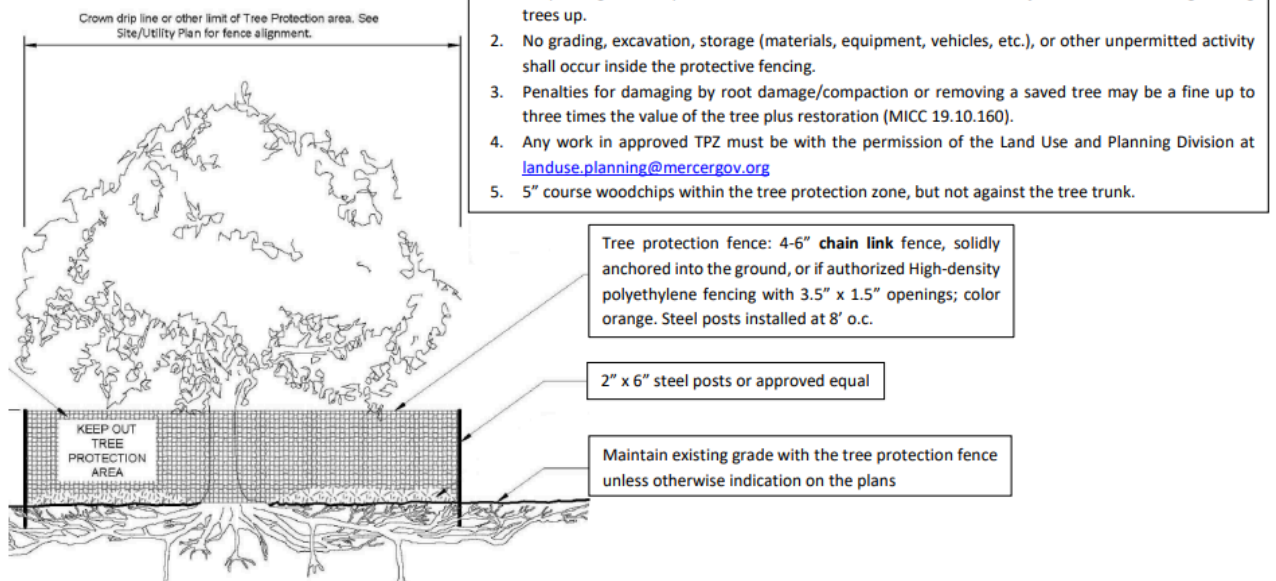
Photo 7: Tree #38 and Tree #39 Viewed Facing Northwest

TREE PROTECTION AREA (TPZ) KEEP OUT!

DO NOT REMOVE OR ADJUST THE APPROVED LOCATION OF THIS TREE PROTECTION AREA

Trees enclosed by this fence are protected and are subject to the conditions of the tree permit. Violation of tree conditions may lead to:

1. Correction Notices or Stop Work Orders until compliance is achieved
2. RE Inspection Fees/financial penalties
3. Arborist reports recommending mitigation



Any Work in the protected area must be with the permission of the Land Use and Planning Division at landuse.planning@mercergov.org

Photo 8: Tree Protection Fence Signage

Appendix B Assumptions & Limiting Conditions

The consultant/arborist has taken reasonable steps to verify the accuracy of the information provided, but cannot guarantee its accuracy. The report covers only the trees that were examined and mentioned in the report. It reflects the condition of the trees at the time of inspection. The inspection was limited to a visual method of the trees in question. There is no

guarantee or warranty, expressed or implied, that any deficiencies or problems of the mentioned trees may not arise in the future.

- The legal description of the property is assumed to be correct.
- The property is assumed to be free and clear of any title or ownership issues, and the client owns the property or is the agent for the owner.
- The consultant/arborist assumes no responsibility for matters of legal character.
- The property is assumed to be in compliance with all applicable codes, ordinances, statutes, and regulations.
- The consultant/arborist has taken reasonable steps to verify the accuracy of the information provided, but cannot guarantee its accuracy.
- The consultant/arborist is not required to give any testimony or attend court for any reason considering this report unless subsequent contractual agreements are made.
- Any alterations made to this report or loss automatically invalidates this report.
- This document is protected by copyright laws. Possession of this report or a copy of this report does not imply right of publication or use for any purpose by anyone other than the person for whom it was created for, without prior expressed written permission of the consulting arborist.
- The report and values/opinions expressed represent the opinion of the consultant/arborist, and the arborist fees are in no way contingent upon reporting any specified values, stipulated results, the occurrence of a subsequent event, nor upon finding to be reported.
- The consultant/arborist retains all intellectual property rights in the report. The client is granted a non-exclusive, non-transferable license to use the report for the sole purpose for which it was intended.
- The report is based on a visual inspection of the trees and does not include any non-destructive testing or invasive procedures.
- The report does not guarantee the future health or stability of the trees.
- The report does not take into account any future changes in the environment that could affect the trees.
- The client should schedule regular inspections of the trees by a qualified arborist.
- The client should consider having the trees pruned or removed if they are in poor health or pose a hazard.

- This report provides an overview of the condition of the trees on the property. The client should use this information to make informed decisions about the management of the trees.
- The consultant/arborist cannot be held responsible for any hidden or undetected conditions that may affect the health or stability of the trees.
- The consultant/arborist cannot be held responsible for any damage caused to the trees or property by acts of nature, such as storms, floods, or earthquakes.

Appendix C Methods

Measuring: We measured the diameter of each tree at 4.5' above ground level, also known as diameter at standard height (DSH). If a tree had multiple stems, we measured each stem individually at standard height and calculated a single-stem equivalent diameter. This value is used as the most basic measurement to regulate trees. When limbs or deformities occurred at standard height, measurement was taken below 4.5 ft.

Evaluating: We evaluated tree health and structure using visual tree assessment (VTA) methods. VTA is a process of identifying symptoms that a tree produces in reaction to a weak spot or area of mechanical stress. A tree reacts to mechanical and physiological stresses by growing more vigorously to reinforce weak areas, while depriving less stressed parts. This understanding of the uniform stress allows the arborist to make informed judgments about the condition of a tree.

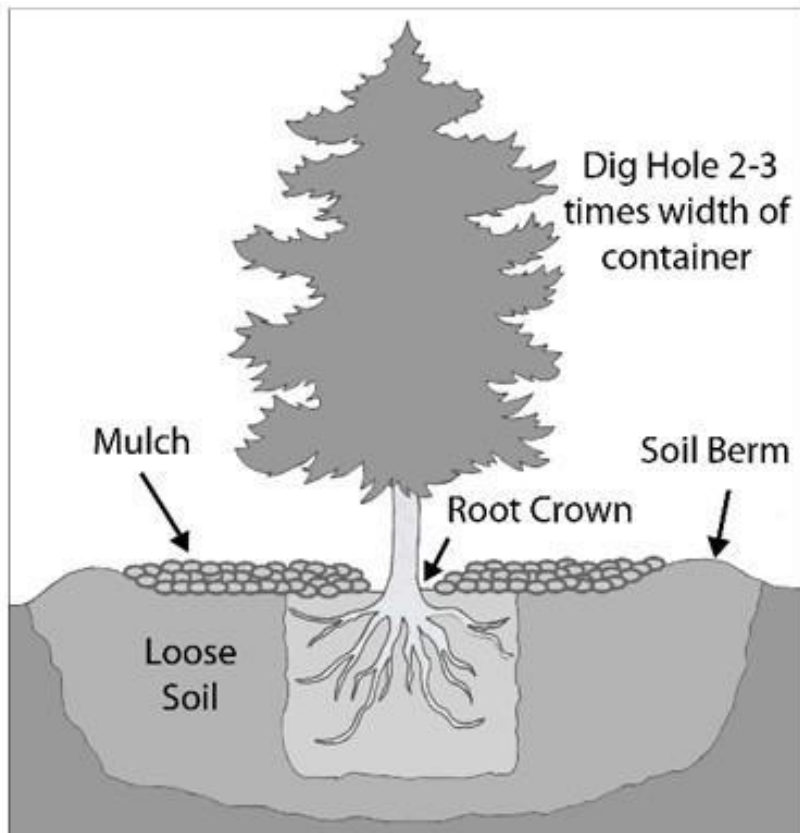
Rating: We rated tree health and structure based on a number of factors, including crown indicators such as foliar density, size, color, stem, and shoot extensions. We also evaluated the tree for form and structural defects, including past damage and decay.

Condition Rating: The condition of each tree was rated using the following categories:

- **Excellent:** The tree is healthy and vigorous, with little or no twig dieback, discoloration, or defoliation. The tree has a nearly ideal form and is generally symmetrical.
- **Good:** The tree is healthy and has no significant damage due to disease or pests. There is some minor twig dieback, discoloration, or defoliation, but the tree is still structurally sound.
- **Fair:** The tree has some damage due to disease or pests, but it is not likely to be fatal. There is some twig dieback, defoliation, discoloration, and/or dead branches, but the tree still has a significant amount of live foliage.
- **Poor:** The tree is unhealthy and declining in appearance. There is significant damage due to disease or pests, and the tree may have structural defects.
- **Dead:** The tree appears to be completely dead, likely with no functioning vascular tissue.

Appendix D Basic Replanting Instructions

Preparation of the site: Noxious and invasive vegetation must be removed prior to planting and properly disposed of off-site. Removing these weeds is crucial to the success of the restoration as even a small number of individuals can out-compete native plants. The King County Noxious Weed Control Board provides excellent resources on noxious weed control. Use of pesticides or machines to remove vegetation is often prohibited unless authorized under a permit. On steep slopes and stream banks, care should be taken to avoid exposure of bare soils for extended periods. Exposed soil is likely to erode quickly, harming aquatic habitat if it washes into a waterway. A layer of 4" deep mulch will provide basic erosion protection; however, on steeper slopes, the mulch should be covered with straw or jute matting and barriers such as silt fencing may also be necessary to prevent erosion and run-off.



Container Planting

Planting: When possible, planting should be done between mid-October and mid-December as plants grow roots during cool weather, even when the top of the plant is dormant. Additionally, less watering is required. Planting between mid-December and mid-April may also be appropriate, but more attention to supplemental watering may be required. Make sure to read and follow any nursery instructions that come with the

plants. Spacing requirements, in particular, may vary from the estimates used in your planting plan. Before planting, set out the plants where they will be planted to make sure the arrangement works well.

Instructions for Container Plants:

1. Dig bowl-shaped planting holes at least twice the width and just slightly deeper than the potted plant's container. Remove any existing roots or loose materials such as leaves, rocks or branches from the hole.
2. Roughen the sides and bottom of the hole with a pick or shovel.
3. Remove the plant from its container and gently loosen bound roots on the outer inch of the soil and cut roots that encircle the root ball.
4. Set the plant in the hole so that the top of the soil remains level with the surrounding soil. Fill the surrounding space with loose native soil.
5. Cover any exposed roots, but do not pile dirt on the stem as this will kill most plants. For trees and shrubs, the top of the root crown (where the plant flares as the trunk ends and the roots begin) should be exposed.
6. Gently press the filled soil to collapse air pockets, but allow the soil to remain loose.
7. Form a temporary water basin around the base of the plant to encourage water penetration and water thoroughly (approximately 2" of water over the site).
8. Mulch should be added to a 3" thickness over the entire planting area. Wood chips, leaves, grass clippings, compost and manure are common mulches. Coarse wood chips are preferable in areas where noxious or invasive species may be a problem. Placing cardboard under the mulch may also help prevent weeds from growing up and will biodegrade over time.
9. Staking of trees or shrubs should not be necessary unless high winds exist or the tree is tall and has little roots. If it is necessary, use thick rope or padding around the tree to prevent damage to the bark and use the minimum amount of tension necessary to achieve balance.

10. If the area is heavily trafficked, it may also be necessary to add a barrier to protect the planting area. For Bare Root Plants, follow instructions given by the nursery or plant salvage group.

Monitoring and Maintenance per SMC 25.09:

The following monitoring and maintenance is required for a period of 5 years from date of plant installation. Self-monitoring is sufficient. No documentation is required to be submitted to SDCI unless requested.

- 80 percent survival of new trees and vegetation planted at the end of five years;
- Annual inspections of the plants;
- Replacement of failed plants;
- Removal of exotic invasive species that have become established;
- Photographic documentation of planting success retained for the five-year period; and
- No permanent irrigation is allowed on erosion hazard areas or their buffers.

Below are additional guidelines for maintenance of your restoration project:

During the first two years, it is critical to properly water, weed and monitor the site while the plants establish themselves. Plants should be watered when dry from May 1 to Oct. 15. Deep, infrequent watering is best. Weeding around the plants should be done at least twice a year particularly in the early and late spring. Hand pull noxious and invasive plants, removing the roots to prevent re-growth. Removal of noxious weeds may require additional weeding and monitoring. Maintaining a healthy cover of mulch will help reduce both weeding and watering. In the long term, these areas should maintain themselves similar to any natural ecosystem. Leaves, woody debris, and dead trees provide food and habitat for wildlife on land and in the water and should remain undisturbed. Similarly, pruning can damage many plants and should be minimized.

