

ROOT DOWN CONSULTANTS

LANDSCAPE & ARBORICULTURE SPECIALIST



ARBORIST REPORT



PROPERTY OWNER/APPLICANT: Hui Home LLC
2112 22nd Ave S
Seattle, WA 98144
P: 206-910-1989

PREPARED BY: Root Down Consultants, LLC

PROJECT SITE LOCATION: 30xx 69th Ave SE, Parcel 509330-1316
Mercer Island, WA

DATE: April 10, 2020 - REVISED December 2, 2023

INTRODUCTION

The project plan is to construct a single family home on a vacant lot in Mercer Island, Washington. The project manager has retained Root Down Consultants to:

- Evaluate tree inventory pursuant to the requirements in the Mercer Island City Code (MICC) Chapter 19.10.
- Determine extent of tree preservation and tree health with the existing site plan.
- Provide general recommendations pertaining to tree preservation for the proposed development.

PROJECT SITE

The project site is a single 8,403 square foot parcel (# 509330-1316), zoned R-8.4, has no built structures and is mostly an open grass yard with perimeter trees. The site slopes down from east to west towards 69th Ave SE.

TREE CONDITION & TREE EVALUATION

All trees were measured at a point 4-1/2 feet above the ground, the diameter at breast height (DBH). A total of 18 trees were found between the provided tree survey and my field assessment and assessed according to the Mercer Island City Code (MICC).

Tree species composition is a mix of native and ornamental: Western Red Cedar (*Thuja plicata*), Red Alder (*Alnus rubra*), Bigleaf Maple (*Acer macrophyllum*), Shore Pine (*Pinus contorta* var. *contorta*), Paper Birch (*Betula papyrifera*) and Japanese Maple (*Acer palmatum*). Tree # 1-12 and #15 are outside of the parcel boundary but are in close proximity to the development proposal on adjacent right-of-way and are included in this report.

The majority of the trees on site are in fair to poor health due to multiple significant defects caused by previous topping of central leader or severe crown topping which cannot be corrected. There is risk that these trees will pose a future safety hazard to existing or proposed site improvements. In addition, the site contains heavy stands of invasive weeds including Himalayan Blackberry, English Ivy and Bamboo.

Tree protection zones (TPZ) and critical root zones (CRZ) are a circular area around a tree at a distance calculated as 1 foot of radius for every inch of DBH and is the area that is required to be protected with a fence enclosure. Minimum limits of allowable disturbance (MLOD) is the boundary within the TPZ in which all construction, materials storage and grading shall not encroach. MLOD is calculated by multiplying the trunk diameter by a factor of 6. If the TPZ distance cannot be achieved on all sides of the tree, the protection zone may be reduced to the distance equivalent to the minimum limits of allowable disturbance on one side of the tree on a case-by-case basis and would be coordinated with the project arborist.

TREE RETENTION

Mercer Island City Code (MICC), Chapter 19.10, requires a minimum of 30% of large trees to be retained, prioritizing Large and Exceptional Trees for retention. The project plan impacts 3 trees. Two of the three trees are in poor condition and one is in good condition. The site improvements maximize tree retention given site constraints.

Project impacts be minimized to achieve 83% tree retention, exceeding the 30% requirement per MICC 19.10.010.

Observations:

- Tree # 13 (17" dbh Shore Pine) is in a general poor condition due to structural defects from topping and is not viable for retention due to increased risk of failure and decreased longevity.
- Tree #14 (35" dbh, Bigleaf Maple) is in poor condition and would not be viable for retention due to severe topping of central leader and will have a high risk of failure due to structural defects.
- Tree #15 (27" dbh Red Alder) is in good condition but is not viable for retention due to unavoidable impacts by the new access drive. Species is also not best suited for the site due to weak wooded nature and increased likelihood of becoming a hazardous tree with proximity to structure and road.
- Tree #16 (17" dbh Japanese Maple) as a root zone encroachment of approximately 25% of the overall tree protection zone (TPZ). The encroachment falls within the minimum limits of disturbance (MLOD) and in my professional opinion it will not be significantly impacted by this intrusion that would jeopardize the long-term viability of the tree.

Tree removal activity is not anticipated to impact remaining trees on site designated for retention. In my field assessment of the 18 trees found on site, 1 is classified as *large* (defined as dbh of 10-24"), and 17 are classified as *exceptional* (defined as dbh 24" or greater or by defined tree species or in a grove) and 0 are classified with a dbh 36" or greater.

TREE PROTECTION DURING CONSTRUCTION

Tree protection shall be installed per City of Mercer Island requirements - see Attachment 5, Tree Protection Zones Layout and Conditions and tree protection standards outlined in MICC 19.10.

Approved work inside the TPZ of any tree will be conducted in accordance with current Best Management Practices (BMP) - Managing Trees During Construction, published by the International Society of Arboriculture for tree retention during construction activities and will aim to minimize root disturbance by use of alternative construction methods as feasible, such as hand-digging, air-spade excavation and selective root pruning.

Tree protection zone shall include the following:

1. Tree Protection Fencing - Tree protection fencing shall be installed prior to demolition or any ground disturbance and be inspected by the project arborist. Fencing will remain in place for the duration of the construction period and may be removed when construction is complete. Fencing shall be 4-6" chain link, solidly anchored into the ground, or if authorized, High-density polyethylene fencing with 3.5" x 1.5" openings; color orange and steel posts installed at 8' o.c. See detail in Attachment 5.
2. Signage - installed every 50' minimum along fence, a laminated 8.5"x11" sign reading "Keep Out! Tree Protection Area (TPZ)" See attachment 5.
3. Mulching - Tree protection areas shall have 5" depth coarse wood chip mulch installed, but not against the tree trunk.
4. Soil Protection - No disturbance or activity is allowed within the TPZ fenced areas, i.e., grading, excavation, parking, materials storage or dumping (including excavated material).
5. Any work in approved TPZ must be with permission of the City Arborist.
6. These requirements may only be modified with the approval of the City Arborist.

Outside of the tree and vegetation protection zones, if large roots of trees designated for retention are exposed by construction operation, they should be wrapped with heavy, moist material, such as burlap or canvas, for protection and to prevent excessive drying. The material should be kept moist and securely fastened until the roots are covered to finish grade. All material and fastening material should be removed from the roots before covering. All roots 1 inch or larger in diameter that are damaged, shall be pruned with a sharp saw or pruning shear. Pruning work is recommended to be performed by a certified ISA arborist.

After completion of construction, trees should be inspected by a qualified arborist to assess tree health. Recommendations to reduce the negative impacts from construction may include, but not limited to, the addition of 3" depth of wood chip mulch, supplemental watering and fertilizing.

TREE RETENTION CALCULATIONS

TABLE 1 - Summary of Tree Evaluation

	CRITICAL AREA	CRITICAL AREA BUFFER	NON-CRITICAL AREA
SMALL TREES	0	0	0
LARGE TREES	0	0	1
EXCEPTIONAL TREES			17
EXCEPTIONAL TREES MORE THAN	0	0	0

36"			
TOTAL	0	0	18

TABLE 2 - Summary of Tree Retention

	PERCENT	QUANTITY
REQUIRED TREE RETENTION OF LARGE TREES	30%	5
PLANNED TREE RETENTION	83%	15

TREE REPLACEMENT

Per MICC tree replacement calculations, a minimum of 8 trees shall be planted as replacement for the 3 trees removed as part of the proposed development.

Replacement tree sizes shall be at least 6 feet in height for coniferous trees and deciduous trees shall be at least 1 ½ inches caliper. Trees shall be planted a minimum of 10' apart and setback a minimum of 10' from structures and utilities. Given site constraints, I recommend the replacement trees be placed along the south side of the property to achieve structure and utility setbacks and provide privacy screening from adjoining property to the south. Recommended replacement tree species are: 1 Eddie's White Wonder Dogwood (Cornus 'Eddies White Wonder') as an entry accent tree; 2 Cascara (Rhamnus purshiana) trees, 2 Vine Maple (Acer circinatum) trees and 3 Vanderwolf's Pyramid Limber Pine (Pinus flexilis 'Vanderwolf's Pyramid') trees to provide a mixed border privacy screen. Half of proposed trees are native and all are primarily drought tolerant species selected also to minimize obstruction of western views to minimize risk of future un-sanctioned tree topping.

TREE PLANTING GUIDELINES

Trees shall be planted during the wet season, October 1 through April 1. Ensure to select good planting stock and inspect properly so selected material is in a healthy condition and has no visual defects such as codominant leaders. Inspect tree roots by pulling back soil to avoid selecting and planting trees with root defects such as severe container bound circling roots.

Dig a shallow hole that is 2-3x wider than the root ball, but only as deep as the root ball. Remove the container or cut away the wire basket. Remove or straighten circling roots and expose the root flare, if necessary. Plant the tree in the hole so root flare is exposed and 2-3 inches above the finished grade. Fill the planting hole with soil, lightly packing around the root ball. Create a 2-3" high berm around the planting hold and water inside the berm thoroughly. Place 2-3" thick layer of bark or wood chip mulch at a min. 2' radius from tree, but pulling back away from tree stem. Provide supplemental support (tree stake and ties) until the tree is established and is not at risk of falling over. Remove stakes after 12 months.

TREE MAINTENANCE

All replacement trees shall be maintained in a healthy condition for a period of five years after planting. Trees shall be provided supplemental watering during the dry months of the maintenance period, from April through October. Irrigation is recommended to be applied with a tree watering bag at each newly planted tree. Watering bags should be filled once a week, or up to twice a week during the height of the summer heat or if the tree is showing signs of drought stress. Do not fill water bags more than twice per week as overwatering can also harm or kill trees. Soil moisture should be checked periodically to ensure proper watering to a depth of 6 to 18 inches of the soil surface.

Any replacement tree that dies, becomes diseased, or is removed during this five-year time period shall be replaced, per MICC 19.10. Additionally, it is recommended that the site be kept weed free. If weeds are not controlled, many trees will be at a higher risk of mortality as invasive weed species compete for resources and will reduce the health and longevity of trees designated to be saved. It is recommended that invasive removal occur mechanically and/or by a Washington State licensed pesticide applicator following state and local laws as may be applicable per the Mercer Island Municipal Code.

CONCLUSION

Monitoring and proper aftercare are essential to the health of any trees affected by construction. Negative impacts on the trees designated for retention should be minimized if the guidelines for tree protection are followed and shared with workers entering the construction site.

Sincerely,



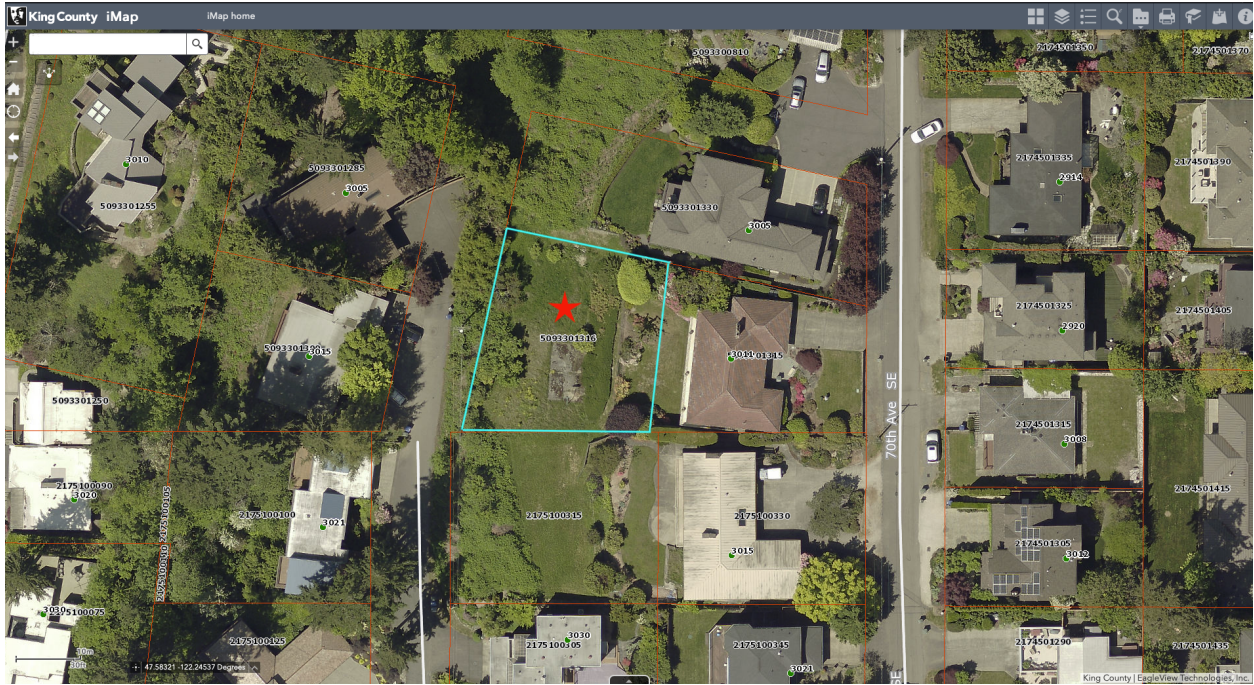
C.N. Floreani, ISA Certified Arborist, PLA

P: (309) 824-7988 | E: cfloreani@gmail.com

QUALIFICATIONS: ISA Certified Arborist #PN-8534A | Tree Risk Assessment Qualified

Over three years as an ISA certified arborist and ten years as a practicing landscape architect with experience that includes tree protection during construction and assessing tree likelihood of survival after construction.

ATTACHMENT 1 - AERIAL PHOTO



King County iMap 2019 aerial photo showing the landscape character and cover within the parcel boundary.

ATTACHMENT 3 - TREE INVENTORY TABLE

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH (INCHES)	TREE CLASSIFICATION: LARGE (MIN. 10") EXCEPTIONAL (36" OR BY SPECIES)	RETAIN/ REMOVE	CONDITION	TPZ/CRZ (RADIUS - FEET)	MLOD (RADIUS - FEET)	NOTES
1	WESTERN RED CEDAR	THUJA PLICATA	6	GROVE-EXCEPTIONAL	RETAIN	FAIR-POOR	6	3	LEADER TOPPED
2	WESTERN RED CEDAR	THUJA PLICATA	10	GROVE-EXCEPTIONAL	RETAIN	FAIR-POOR	10	5	HEAVY LEANING
3	WESTERN RED CEDAR	THUJA PLICATA	8	GROVE-EXCEPTIONAL	RETAIN	FAIR-POOR	8	4	LEADER TOPPED
4	WESTERN RED CEDAR	THUJA PLICATA	10	GROVE-EXCEPTIONAL	RETAIN	FAIR-POOR	10	5	LEADER TOPPED
5	WESTERN RED CEDAR	THUJA PLICATA	7	GROVE-EXCEPTIONAL	RETAIN	FAIR-POOR	7	3.5	LEADER TOPPED
6	WESTERN RED CEDAR	THUJA PLICATA	10	GROVE-EXCEPTIONAL	RETAIN	FAIR-POOR	10	5	LEADER TOPPED, HEAVY IVY
7	WESTERN RED CEDAR	THUJA PLICATA	11	GROVE-EXCEPTIONAL	RETAIN	FAIR-POOR	11	5.5	LEADER TOPPED
8	WESTERN RED CEDAR	THUJA PLICATA	9	GROVE-EXCEPTIONAL	RETAIN	FAIR-POOR	9	4.5	LEADER TOPPED
9	WESTERN RED CEDAR	THUJA PLICATA	10	GROVE-EXCEPTIONAL	RETAIN	FAIR-POOR	10	5	LEADER TOPPED
10	WESTERN RED CEDAR	THUJA PLICATA	9	GROVE-EXCEPTIONAL	RETAIN	FAIR-POOR	9	4.5	LEADER TOPPED
11	WESTERN RED CEDAR	THUJA PLICATA	8	GROVE-EXCEPTIONAL	RETAIN	FAIR-POOR	8	4	LEADER TOPPED, HEAVY IVY
12	WESTERN RED CEDAR	THUJA PLICATA	14	GROVE-EXCEPTIONAL	RETAIN	FAIR-POOR	20	10	LEADER TOPPED
13	SHORE PINE	PINUS CONTORTA VAR. CONTORTA	17	SPECIES-EXCEPTIONAL	REMOVE	FAIR-POOR	16	8	LEADER TOPPED, HEAVY IVY
14	BIGLEAF MAPLE	ACER MACROPHYLLUM	35	SPECIES-EXCEPTIONAL	REMOVE	POOR	35	17.5	LEADER TOPPED, HEAVY IVY, SUCKERING
15	RED ALDER	ALNUS RUBRA	27	LARGE	REMOVE	GOOD	27	13.5	
16	JAPANESE MAPLE	ACER PALMATUM	17	SPECIES-EXCEPTIONAL	RETAIN	FAIR	14	7	CROWN TOPPING
17	PAPER BIRCH	BETULA PAPYRIFERA	14	LARGE	RETAIN	FAIR-POOR	14	7	CROWN TOPPING
18	JAPANESE MAPLE 'ATROPURPUREUM'	ACER PALMATUM VAR. ATROPURPUREUM	20	SPECIES-EXCEPTIONAL	RETAIN	FAIR	18	9	CROWN TOPPING

ATTACHMENT 4 - SITE PHOTOS



Tree #12 - Western Red Cedar - Topped Leader



Tree #13 - Shore Pine - Topped Leader



Tree #14 - Big Leaf Maple - Topped Leader



Tree #16 - Japanese Maple - Topped Crown

ATTACHMENT 5 - RATING CATEGORY TABLE

Assessment of tree condition considers health, structure and form. Each may be described in rating categories that will be translated into a percent rating.

RATING CATEGORY	CONDITION COMPONENTS			PERCENTAGE RATING
	HEALTH	STRUCTURE	FORM	
EXCELLENT	High vigor and nearly perfect health with little or no twig dieback, discoloration or defoliation.	Nearly ideal and free of defects.	Nearly ideal for the species. Generally symmetric. Consistent with the intended use.	81 - 100%
GOOD	Vigor is normal for species. No significant damage due to diseases or pests. Any twig dieback, defoliation or discoloration is minor.	Well-developed structure. Defects are minor and can be corrected.	Minor asymmetries/deviations from species norm. Mostly consistent with the intended use. Function and aesthetics are not compromised.	61 - 80%
FAIR	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 compromise up to 50% of the crown.	A single defect of a significant nature or multiple moderate defect. Defects are not practical to correct or would require multiple treatments over several years.	Major asymmetries/deviations from species norm and/or intended use. Function and/or aesthetics are compromised.	41 - 60%
POOR	Unhealthy and declining in appearance. Poor vigor. Low foliage density and poor foliage color are present. Potentially fatal pest infestation. Extensive twig and/or branch dieback.	A single serious defect or multiple significant defects. Recent change in tree orientation. Observed structural problems cannot be corrected. Failure may occur at any time.	Largely asymmetric/ abnormal. Detracts from intended use and/or aesthetics to a significant degree.	21 - 40%
DEAD	Poor vigor. Appears dying and in the last stages of life. Little live foliage.	Single or multiple severe defects. Failure is probable or imminent.	Visually unappealing. Provides little or no function in the landscape.	0- 20%

ATTACHMENT 5 - TREE PROTECTION ZONES LAYOUT AND CONDITIONS

TREE PROTECTION AREA (TPZ)

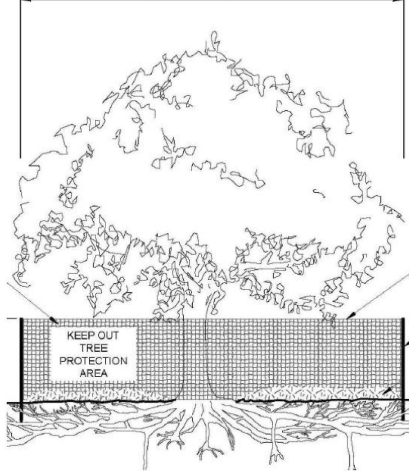
KEEP OUT!

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

Crown drip line or other limit of Tree Protection area. See Site/Utility Plan for fence alignment.



Notes

1. No pruning shall be performed unless under the direction of the Project Arborist. Including limbing trees up.
2. No grading, excavation, storage (materials, equipment, vehicles, etc.), or other unpermitted activity shall occur inside the protective fencing.
3. Penalties for damaging by root damage/compaction or removing a saved tree may be a fine up to three times the value of the tree plus restoration (MICC 19.10.160).
4. Any work in approved TPZ must be with the permission of the City Arborist (206) 275-7713, john.kenney@mercergov.org.
5. 5" course woodchips within the tree protection zone, but not against the tree trunk.

Tree protection fence: 4-6" chain link fence, solidly anchored into the ground, or if authorized High-density polyethylene fencing with 3.5" x 1.5" openings; color orange. Steel posts installed at 8' o.c.

2" x 6" steel posts or approved equal

Maintain existing grade with the tree protection fence unless otherwise indication on the plans

Any Work in the protected area must be with the permission of the City Arborist john.kenney@mercergov.org

ATTACHMENT 6 - CONDITIONS

Express conditions of relying upon and accepting this report. Owner client agrees to the following by acceptance of or reliance upon this report.

1. Any legal description provided to Root Down Consultants is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable by the owner. No responsibility is assumed, expressed or implied, for matters legal in character. Any and all property is evaluated as though free and clear, under responsible ownership and competent management.
2. It is assumed that any property evaluated is not in violation of any applicable codes, ordinances, statutes, or other governmental regulations, unless otherwise stated.
3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, Root Down Consultants can neither guarantee nor be responsible for the accuracy of information from any outside sources.

4. Root Down Consultants shall not be required to give testimony or attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services.
5. Loss or alteration of any part of this report invalidates the entire report.
6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other person or entity than the person to whom it is addressed, without the prior express written consent of Root Down Consultants.
7. Neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior express written consent of the consultant; and in particular as to value conclusions, identity of the consultant, or any reference to any professional society or institute or to any initialed designation conferred upon the consultant.
8. This report and values expressed herein represent the opinion of Root Down Consultants, and the consultant's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
9. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
10. Unless expressed otherwise: (1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and (2) the inspection is limited to a visual examination of accessible items without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the tree, plant or property in question may not arise in the future.
11. Any statements, representations, or conclusions offered by Root Down Consultants or its employees are considered the opinion only of Root Down Consultants, and these statements, representations, or conclusions do not constitute an express or implied warranty of any kind. To the fullest extent permitted by law, Root Down Consultants, its officers, employees, and agents shall not be liable for any direct, special, incidental, or consequential damages under any circumstance whatsoever, whether arising in tort, or contract, including without limitation breach of contract, willful misconduct, strict liability, breach of warranty, negligence, error or omission, whether professional or non-professional, nor for any loss, claim, expense, or damage caused by or arising out of Root Down Consultants's observations of any property, or services provided. The sole, only and absolute remedy for this report, including any errors made in any observations, findings, conclusions, recommendations, or actions by Root Down Consultants, its officers, directors or employees shall be the refund of the fee paid for this report. Any damages, including incidental, consequential, special or punitive damages of any kind are expressly waived by the person or entity accepting this report. The prospective owner and/or client further agrees that no suit, legal action or claim of any kind shall be asserted against Root Down Consultants after the earlier of substantial completion of services provided or termination of services of Root Down

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Root Down Consultants further disclaims any liability associated with their efforts for any person or entities other than the parties to this agreement, whether original or as intended or unintended third party beneficiaries.

NOTE: There are many conditions affecting a tree's health and stability, which may be present and cannot be ascertained, such as root rot, previous or unexposed construction damage, internal cracks, stem rot and more which may be hidden or otherwise readily ascertainable. Even healthy trees can fail under normal or storm conditions. The only way to eliminate all risk is to remove all trees within reach of all targets. Annual monitoring by an ISA Certified Arborist will reduce the potential of tree failures. It is impossible to predict with certainty that a tree will stand or fail, or the timing of the failure. It is considered an 'Act of God' when a tree fails, unless it is directly felled or pushed over by a person's actions.