



LAYTON TREE CONSULTING, LLC

ARBORIST REPORT/TREE PLAN

7204 78th Avenue SE
Mercer Island, WA



Report Prepared by:

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March 7, 2022
Updated November 9, 2023

It's all about trees.....

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Tree Summary Tables

Tree Locator/Conditions Map

Tree Plan Map (Site Plan)

Tree #860/#873 Protection Plan

Tree Inventory & Replacement Submittal Information' Worksheet

Assignment

Layton Tree Consulting, LLC was asked to compile an Arborist Report for a property on Mercer Island. The subject property is located at 7204 78th Avenue SE. My assignment is to prepare a written report on present tree conditions, and to provide appropriate recommendations for the protection of retained trees during re-development (demolition of existing structure and the construction of two new single-family residences) of the property.

This report encompasses all of the criteria set forth under the City of Mercer Island's tree regulations, particularly Chapter 19.10 Trees, of the Unified Development Code Title 19. A 'Regulated' tree is any tree with a diameter of more than 10-inches or any tree that meets the definition of an 'Exceptional' tree.

Date of Field Examination: February 15, 2022

Description

28 trees were assessed on the property. Of these, 23 are 'regulated' trees. These are comprised of a mix of native and planted species. They are found scattered around the property.

Subject trees have been identified with a numbered aluminum tag attached to the lower trunk by another party. These same tag numbers were used for this report. These tag numbers correspond with the numbers on the attached Tree Summary Table and map.

An additional 14 off-site trees were also assessed. 13 of these are within the street rights-of-way of 78th Avenue SE and SE 72nd Street. Only one neighboring tree was identified within a proximity of the east and south property lines.

Methodology

Each tree in this report was visited. Tree diameters were measured by tape. The tree heights were measured using a Spiegel Relaskop. Each tree was visually examined for defects and vigor. The tree assessment procedure involves the examination of many factors:

- The crown or canopy of the tree is examined for current vigor/health by examining the foliage for appropriate color and density, the vegetative buds for color and size, and the branches for structural form and annual shoot growth; and the overall presence of limb dieback and/or any disease issues.
- The trunk or main stem of the tree is inspected for decay, which includes cavities, wounds, fruiting bodies of decay (conks or mushrooms), seams, insect pests, bleeding or exudation of sap, callus development, broken or dead tops, structural defects and unnatural leans. Structural defects can include but are not limited to excessive or unnatural leans, crooks, forks with V-shaped crotches, multiple attachments.
- The root collar and exposed surface roots are inspected for the presence of decay, insect damage, as well as if they have been injured or wounded, undermined or exposed, or the original grade has been altered.

Based on these factors a determination of condition is made.

Judging Condition

The three condition categories are described as follows:

Good – free of significant structural defects, no disease concerns, minor pest issues, no significant root issues, good structure/form with uniform crown or canopy, foliage of normal color and density, average or normal vigor, will be wind firm if isolated or left as part of a grouping or grove of trees, suitable for its location

Fair – minor to moderate structural defects not expected to contribute to a failure in near future, no disease concerns, moderate pest issues, no significant root issues, asymmetric or unbalanced crown or canopy, average or normal vigor, foliage of normal color, moderate foliage density, will be wind firm if left as part of a grouping or grove of trees, cannot be isolated, suitable for its location

Poor – major structural defects expected to cause fail in near future, disease or significant pest concerns, decline due to old age, significant root issues, asymmetric or unbalanced crown or canopy, sparse or abnormally small foliage, poor vigor, not suitable for its location

Judging Retention Suitability

Not all trees necessarily warrant retention. The three retention suitability categories as described in ANSI A300 Part 5 (Standard Practices for the Management of Trees During Site Planning, Site Development and Construction) are as follows:

Good – trees are in good health condition and structural stability and have the potential for longevity at the site

Fair – trees are in fair health condition and/or have structural defects that can be mitigated with treatment. These trees may require more intense management and monitoring, and may have shorter life-spans than those in the “good” category.

Poor – trees are in poor health condition and have significant defects in structure that cannot be mitigated with treatment. These trees can be expected to decline regardless of management. The species or individual tree may possess characteristics that are incompatible or undesirable in landscape settings or be unsuited for the intended use of the site.

Observations

Trees #833 and #834 are semi-mature Western red cedar, located close to the existing driveway in the southwest corner of the property. Both are of fairly good vigor. Lower trunks appear sound with no outward indicators of any internal decay issues. #833 is in ‘good’ condition. The trunk of #834 forks into multiple tops. Condition is ‘fair’.

Trees #860, #864 and #873 > #879 comprise a large grouping of Douglas fir in the northeast corner of the property. Conditions range from ‘fair’ to ‘good’. All are of fairly good vigor. Trees #860 and #873 are larger than 30-inches in diameter and therefore considered ‘exceptional’.

Tree #863 is a semi-mature Pacific madrone. It has a major lean and asymmetric canopy to the north. It is heavily diseased with madrone canker. Continued gradual decline is expected. Condition is 'poor'. Because of its size, it is considered low risk and can be retained at the site.

Tree #890 is a young to semi-mature Pacific dogwood that naturally regenerated at the site, very close to the existing structure. The base of the tree is abutting the concrete steps. See picture below. It is not viable due to its location. This is considered an 'exceptional' tree species in the city at 6-inches in diameter or larger.

Trees #880 > #886 are a planted row of Leyland cypress adjacent to the east property line. Two Leyland cypress north of #880 uprooted in the past and failed. The remaining cypress have been significantly pruned back on their east sides by the neighbor and have asymmetric crowns to the west. This is considered a non-regulated hedge by the city.

Three Douglas fir trees have been removed from the site within the last couple of years or so. Two larger specimens were located on the south perimeter and one smaller one was located near the existing house on the north side.

Neighboring Trees

All of the right-of-way (ROW) trees have been repeatedly topped in the past for power line clearance. There are many small, non-regulated trees in the ROW. These make up a dense screening between the subject property and adjacent streets. Species include a mix of native and volunteer species to include bigleaf maple, Douglas fir, Pacific madrone, Western red cedar, English holly, English hawthorn and a few planted coniferous species.

Tree #101 is a semi-mature Western red cedar located directly southwest of #833 and #834. The main trunk forks at 4-feet above ground into multiple small diameter stems/tops. It is in 'fair' condition.

Discussion/Recommendations

The extent of driplines (farthest reaching branches) for the subject trees can be found on the tree summary table at the back of this report. The information in this report can be used by the project architect to create the final tree retention plan sheet for City submittal.

The recommended Limit of Disturbance (LOD) measurements can also be found on the tree summary table for trees that may be potentially impacted by proposed improvements. The LOD measurements are based on species, age, condition, drip-line, prior improvements, proposed impacts and the anticipated cumulative impacts to the entire root zone. This is the maximum allowable encroachment. Encroachment (soil excavations) beyond the LOD is likely to cause decline or compromise long-term structural stability. These measurements shall be referenced when siting structures and utilities and determining tree retention feasibility.

The attached tree plan map shows the extent of driplines for trees to be retained. Tree Protection fencing shall be positioned a few feet beyond the driplines for optimal protection. The existing grades

within the tree protection zones shall be maintained and not altered. Retaining walls can be constructed outside of the tree protection areas to maintain the existing grades if necessary. The building footprint on Lot 2 has been redesigned to retain Trees #860 and #873, both exceptional trees. The proposed impact into the outer dripline of #860 is not expected to have future adverse impacts on tree health or stability. The proposed cut in grade for the new building foundation is 10 to 12-feet from the trunk face. Over-excavation for the foundation shall be reduced to as little as possible to limit the disturbance. The project arborist shall be on-site to oversee the foundation work adjacent to #860 so the necessary precautions can be taken to minimize impacts.

Lot 2 utilities shall be routed west of Tree #860 outside of the dripline and between the driplines of Trees #857 and #861 down the existing gravel driveway, as shown on the attached tree plan map.

Right-of-way Trees #835, #836 and #837 are very close to the proposed new driveway and will be significantly impacted and compromised by new construction. The existing grade in this area needs to be lowered.

Trees #833, #834 and #101 next to the existing concrete driveway are not expected to be significantly impacted. The new driveway will be constructed at the same or slightly higher elevation as the existing. If the existing concrete is to be removed, it shall be broken up using a manual jack-hammer and removed from within the driplines by hand-labor only. Care shall be taken not to disturb roots that can be expected to exist just below the existing concrete. Once concrete is removed, immediately cover with gravel to create subbase for the new driveway. Use a tracked mini-excavator for this work to reduce the risk of unnecessary damage to roots and soil compaction.

Any roots damaged during site work outside of the tree protection area shall be pruned clean at sound tissue prior to backfilling or finishing areas. Sound tissue is where the root is undamaged and the bark is completely intact with the root. This will help roots to seal off potential decay and allow them to sprout new growth. Any disturbed areas adjacent to tree protection zones shall be watered weekly during the dry season of June through September. This will help to create a favorable environment for new root growth and reduce the overall stress associated with root loss and disturbance. Cover areas outside of the protection zone with a +/- 6-inch layer of wood chips or hog fuel to protect soils from compaction and damage to surface roots.

Care shall be taken to continue to protect trees during finish landscape work. Any landscape work within the protection areas shall be accomplished using hand-labor only. Keep irrigation trenches, large plantings or other improvements outside of the tree protection areas.

Discussion Update

The house has been moved 8 ½-feet south away from Tree #860 to provide a 14-foot protection zone from the trunk face and 5-feet of clearance for access and construction. See the attached protection plan map. The re-design of the house will minorly impact the outer dripline area of Tree #873. To protect soils and feeder roots, cover the area with a +/- 6-inch layer of coarse arborist wood chip mulch or hog fuel. Tree protection fencing shall be phased to provide better protection during house construction. When deck is ready to be constructed, move protection fencing as shown on the attached

map. This minor impact is not expected to have any adverse effects on the tree so long as the tree protection guidelines and measures discussed in this report are adhered to.

Tree Protection Measures

The following guidelines are recommended to ensure that the designated space set aside for the preserved trees are protected and construction impacts are kept to a minimum. Standards have been set forth under MICC 19.10.080. Please review these standards prior to any development activity.

- Tree protection fencing shall be erected per attached tree plan prior to moving any heavy equipment on site. Doing this will set clearing limits and avoid compaction of soils within root zones of retained trees.
- Excavation limits shall be laid out in paint on the ground to avoid over excavating.
- Excavations within the driplines shall be monitored by a qualified tree professional so necessary precautions can be taken to decrease impacts to tree parts. A qualified tree professional shall monitor excavations when work has been authorized or approved within the dripline or critical root zone.
- To establish sub grade for foundations, curbs and pavement sections near the trees, soil shall be removed parallel to the roots and not at 90-degree angles to avoid breaking and tearing roots that lead back to the trunk within the dripline. Any roots damaged during these excavations shall be hand-excavated and exposed to sound tissue and cut cleanly with a saw prior to backfilling or finishing areas.
- Areas excavated within the dripline of retained trees shall be thoroughly irrigated weekly during dry periods.
- Preparations for final landscaping shall be accomplished by hand within the driplines of retained trees. Large equipment shall be kept outside of the tree protection zones at all times.

Tree Retention/Replacement

Of the 26 large regulated trees existing on the property, which includes the three prior removed trees, seven trees are proposed for removal. These include the four trees within the proposed access drive and Lot 2 building footprint, and the three prior removed trees. Retention of large regulated trees is 63%.

Replacement trees will be required per 19.10.070 Tree Replacement. A total of 25 replacement trees are required. See the attached Tree Inventory & Replacement Submittal Information' worksheet. The property is not large enough to sustain all of the required tree replacement. The proposal is plant half of the required replacement trees on-site and pay the fee-in-lieu of replacement for the other half. See the landscape plan prepared for the project.

All replacement trees are to be planted on site. Replacement trees shall be at a minimum – 1 ½ inch caliper for deciduous species and 6 feet in height for coniferous species. Appropriate locations for replacement trees would be on the south and west perimeters and between the proposed lots.

Arborist Disclosure Statement

Arborists are tree specialists who use their education, knowledge, training and experience to examine and assess trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risks associated with living near trees. Clients may choose to accept or disregard the recommendations of the arborist, or to seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that grow, respond to their environment, mature, decline and sometimes fail in ways we do not fully understand. Conditions are often hidden within trees and below ground.

Arborists cannot guarantee that a tree will be healthy and/or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine, cannot be guaranteed. Treatment, pruning and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, and other issues. Arborists cannot take such considerations into account unless complete and accurate information is disclosed to the arborist. An arborist should then be expected to reasonably rely upon the completeness and accuracy of the information provided.

Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees.

Photo Documentation

Trees #833 > #836 close to existing driveway



Trees #833 > #836 close to existing driveway



Trees #890 and #891 close to existing house



Base of Tree #890 growing up against concrete wall/steps



Tree #858 in middle of site



Trees #888 and #889 in middle of site



Trees #880 > #886 on east property line, non-regulated hedge



Trees #880 > #886 on east property line, previously uprooted cypress trees in foreground



Non-regulated cypress row significantly cut back on east sides



Douglas fir grouping in northeast corner



Douglas fir grouping in northeast corner



Trees #854 > #857 at edge of ROW



ROW trees north of existing house



ROW trees west of existing house



Looking east to SE 72nd Street ROW trees



78th Ave SE ROW trees





Layton Tree Consulting LLC

For: Grace Feng
 Site: 7024 78th Ave SE - Mercer Island

Tree Summary Table

Date: 2/15/2022
 Updated 11-7-2023

Tree/ Tag #	Species Common Name	Species Scientific Name	DBH (inches)	Height (feet)	Drip-Line / Limits of Disturbance (feet)				Condition	Regulated Yes/No	Exceptional Yes/No	Comments	Proposal	Replacement Trees
					N	S	E	W						
833	Western red cedar	<i>Thuja plicata</i>	19	65	12	14	18	10	Good	Yes	No	natural lean east	Save	
834	Western red cedar	<i>Thuja plicata</i>	21	68	16	8	10	12	Fair	Yes	No	forked trunk, multiple tops	Save	
858	flowering cherry cv.	<i>Prunus serrulata</i>	16	30	8	16	12	14	Fair-Poor	Yes	No	mature, moderate trunk decay	Remove	2
888	bigleaf maple	<i>Acer macrophyllum</i>	9,9 (13)	28	x	x	x	x	Poor	Yes	No	Poor form, trunk decay	Remove	2
889	flowering cherry cv.	<i>Prunus serrulata</i>	8,5 (9)	26	3	12	5	10	Fair-Poor	No	No	poor form, covered in ivy	Remove	1
887	plum cv.	<i>Prunus americana</i> Marsh.	9	12	6	4	2	10/8	Fair	No	No	typical, asymmetric crown west	Save	
879	Douglas fir	<i>Pseudotsuga menziesii</i>	18	73	8	8	10	8/12	Fair-Good	Yes	No	used to be crowded out by Leylands	Save	
878	Douglas fir	<i>Pseudotsuga menziesii</i>	10	55	4	6	8	4/8	Fair	Yes	No	crook, somewhat suppressed	Save	
877	Douglas fir	<i>Pseudotsuga menziesii</i>	9	36	2	8/10	10	2	Fair	No	No	suppressed	Save	
876	Douglas fir	<i>Pseudotsuga menziesii</i>	16	68	8	10	12	6	Good	Yes	No	foliage somewhat sparse	Save	
875	Douglas fir	<i>Pseudotsuga menziesii</i>	8	56	6	4	4	8/8	Good	No	No	no concerns	Save	
874	Douglas fir	<i>Pseudotsuga menziesii</i>	16	79	10	8	12	10	Good	Yes	No	trunk covered in ivy	Save	
873	Douglas fir	<i>Pseudotsuga menziesii</i>	31	91	14	16/16	12	14/14	Good	Yes	Yes	minor crook	Save	
864	Douglas fir	<i>Pseudotsuga menziesii</i>	24	73	12	12/12	14	12/12	Good	Yes	No	good form, good vigor	Save	
860	Douglas fir	<i>Pseudotsuga menziesii</i>	33	107	14	14/14	14	16/16	Fair-Good	Yes	Yes	old cambium ruptures, top foliage somewhat sparse	Save	
863	Pacific madrone	<i>Arbutus menziesii</i>	11	38	14	0	0	8	Poor	Yes	No	diseased, asymmetric crown to north, low risk	Save	
857	Western white pine	<i>Pinus monticola</i>	7	45	4	6/8	4/7	4	Fair-Good	No	No	poor stem taper	Save	
856	Alaska cedar cv.	<i>Chamaecyparis nootkatensis</i>	13	53	6	8/10	6	4	Fair-Good	Yes	No	decent form and vigor	Save	
854	ponderosa pine	<i>Pinus ponderosa</i>	14	52	8	8/10	6	8	Good	Yes	No	no concerns	Save	
890	Pacific dogwood	<i>Cornus nuttallii</i>	6	34	6	4	4	10	Fair	Yes	Yes	base growing against concrete steps	Remove	1
891	Norway spruce	<i>Picea abies</i>	10	42	8	8	8	8	Good	Yes	No	close to existing house	Remove	2
Previously Removed Trees														
1	Douglas fir	<i>Pseudotsuga menziesii</i>	10									Has been cut and removed from site		2
2	Douglas fir	<i>Pseudotsuga menziesii</i>	32									Has been cut and removed from site		6
3	Douglas fir	<i>Pseudotsuga menziesii</i>	28									Has been cut and removed from site		3
Right-of-Way/Neighboring Trees														
835	Western red cedar	<i>Thuja plicata</i>	16,11,8,7,7 (23)	32	12	NA	8	8	Fair	Yes	No	topped in past, multiple new tops	Remove	2
836	Western red cedar	<i>Thuja plicata</i>	20	20	14	NA	10	14	Fair	Yes	No	topped	Remove	2
837	Western red cedar	<i>Thuja plicata</i>	11,8 (14)	18	6	6	12	10	Fair	Yes	No	topped for power lines	Remove	2
838	Western red cedar	<i>Thuja plicata</i>	15,11,8,7 (21)	26	12	10/10	12/12	14	Fair	Yes	No	topped multiple times	Save	
101	Western red cedar	<i>Thuja plicata</i>	30	69	8	14	10	12	Fair	Yes	No	forked at dbh, multiple small stems	Save	
862	Pacific madrone	<i>Arbutus menziesii</i>	11	NA	NA	4/8	NA	NA	Fair	Yes	No	leans into right-of-way, mild disease	Save	
861	Lawson cypress	<i>Chamaecyparis lawsoniana</i>	11	NA	NA	6/8	NA	NA	Fair	Yes	No	typical	Save	
855	white fir	<i>Abies concolor</i>	9	NA	NA	6/8	NA	NA	Good	No	No	no concerns	Save	
853	English holly	<i>Ilex aquifolium</i>	13	NA	NA	6/8	NA	NA	Fair	Yes	No	typical	Save	
852	Douglas fir	<i>Pseudotsuga menziesii</i>	13	NA	NA	8/10	NA	NA	Fair	Yes	No	topped	Save	
851	English holly	<i>Ilex aquifolium</i>	7,6	NA	NA	6/6	NA	NA	Fair	No	No	topped	Save	
850	English holly	<i>Ilex aquifolium</i>	8,5	NA	NA	6/6	NA	NA	Fair	No	No	topped	Save	
848	bigleaf maple	<i>Acer macrophyllum</i>	16	NA	NA	8/8	NA	NA	Poor	Yes	No	topped, low risk	Save	
841	Western red cedar	<i>Thuja plicata</i>	16	NA	NA	NA	12/12	NA	Fair	Yes	No	topped, low risk	Save	
cv - cultivated variety														25

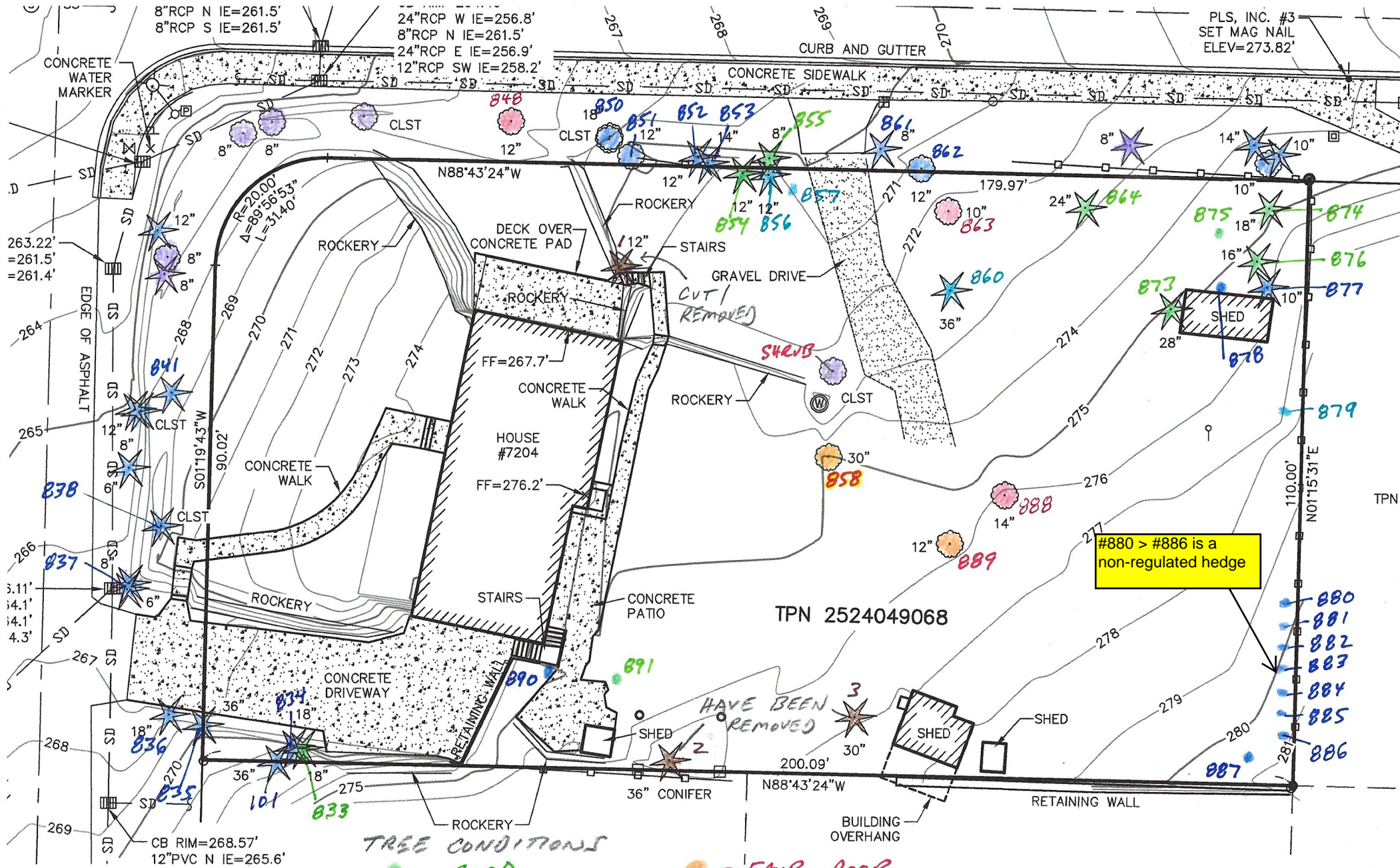
Drip-Line and Limits of Disturbance measurements from face of trunk

Calculated DBH: the DBH is parenthesis is the square root of the sum of the dbh for each individual stem squared (example with 3 stems:

dbh = square root [(stem1)² +(stem2)² +(stem3)²]).

7204 78TH AVE SE

TREE LOCATOR / CONDITIONS MAP



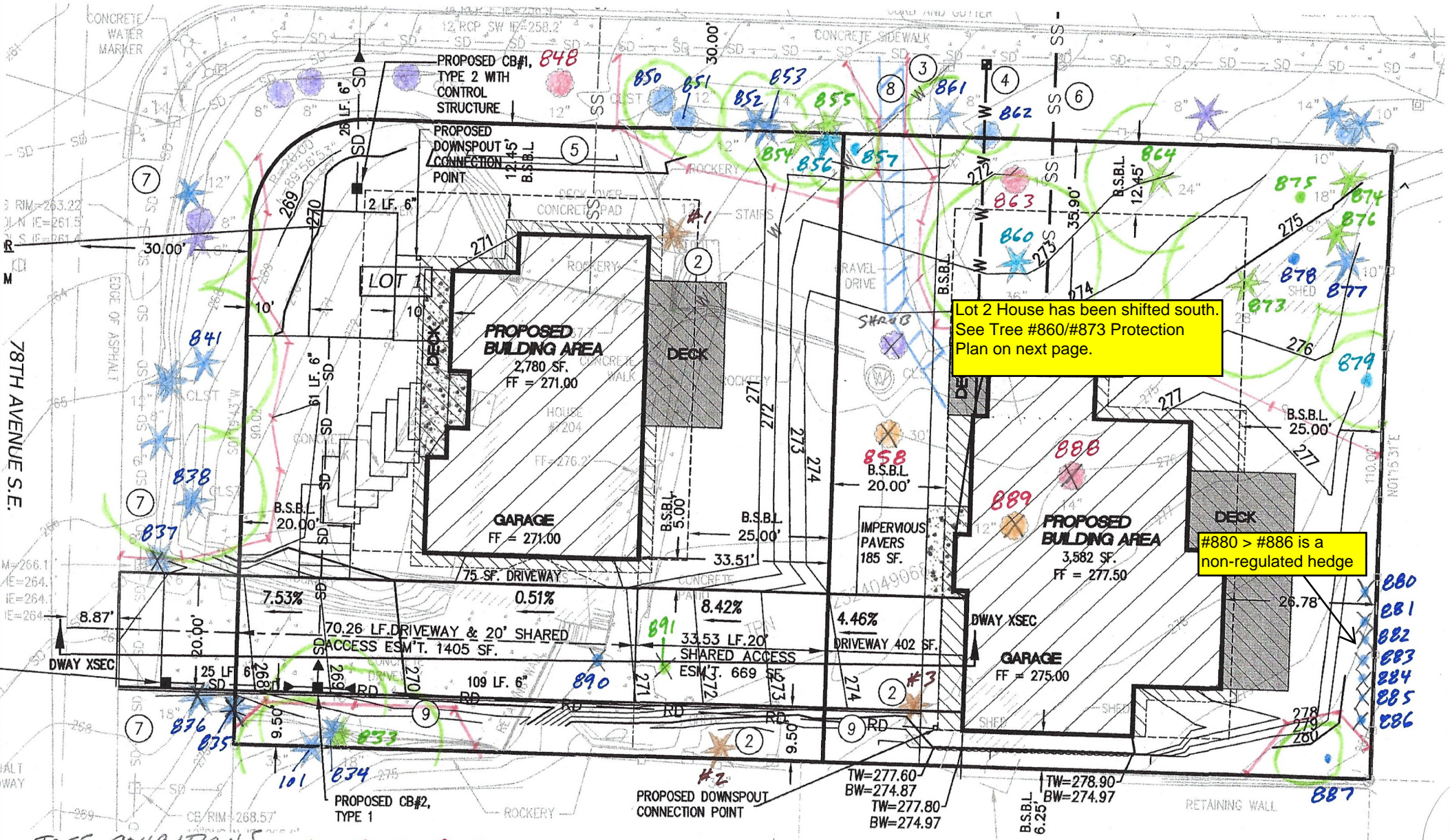
TREE CONDITIONS

- - GOOD
- - FAIR-GOOD
- - FAIR
- - FAIR-POOR
- - POOR
- - SMALL - NON REGULATED TREE

APPROX. SCALE
1" = 23.6'

7204 78TH AVE SE

TREE PLAN MAP



Lot 2 House has been shifted south. See Tree #860/#873 Protection Plan on next page.

#880 > #886 is a non-regulated hedge

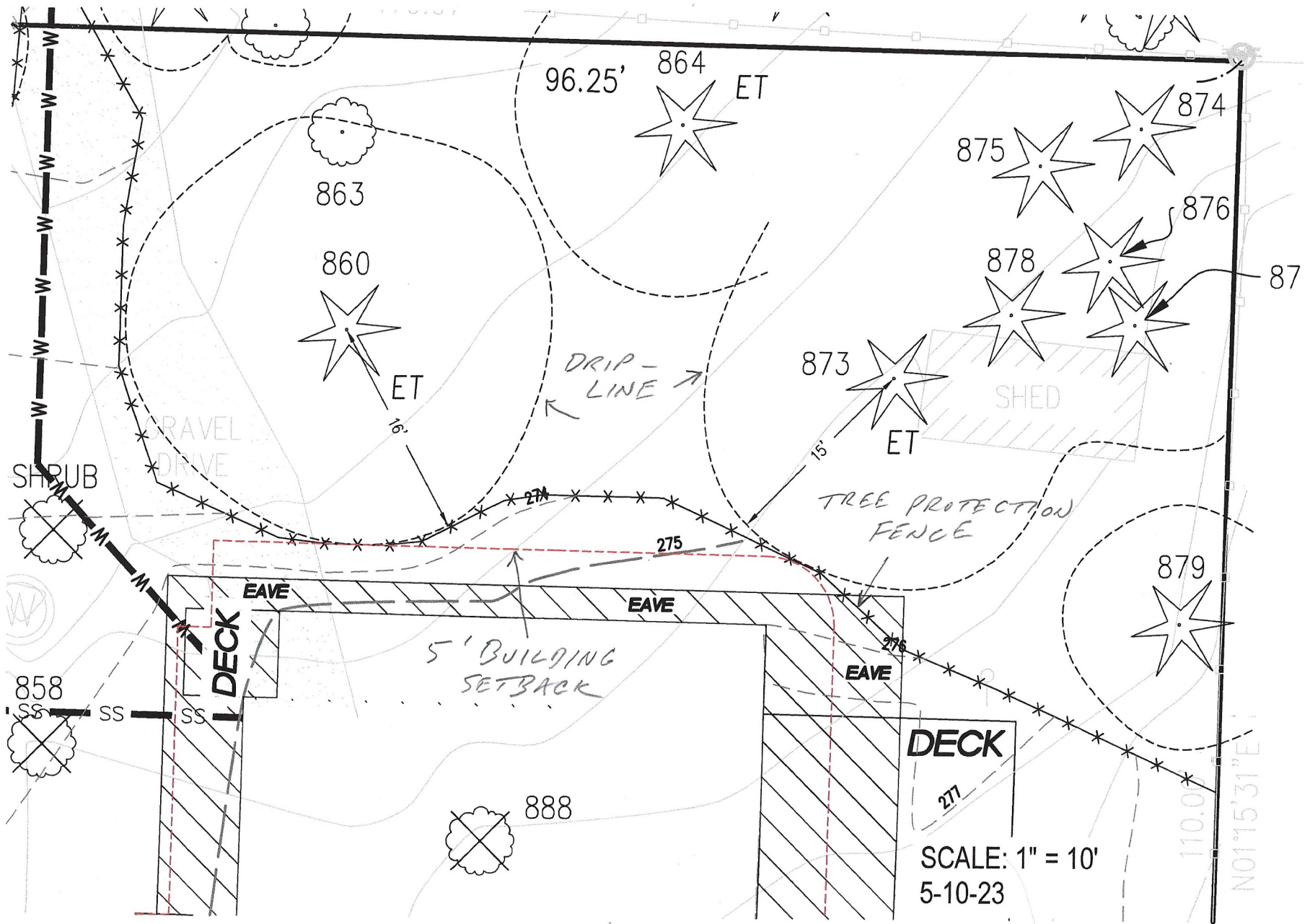
TREE CONDITIONS

- # - GOOD
- # - FAIR - GOOD
- # - FAIR
- - FAIR - POOR
- - POOR
- - SMALL, NON-REGULATED TREE / SHRUB
- - TREE HAS BEEN REMOVED

- DRIPLINE
- TREE PROTECTION FENCE / BARRIER
- X - TREE PROPOSED FOR REMOVAL
- II - ROUTE UTILITIES AWAY FROM PROTECTED TREES

APPROX. SCALE
1" = 23.4'

TREE #860/#873 PROTECTION PLAN



CITY OF MERCER ISLAND

COMMUNITY PLANNING & DEVELOPMENT

9611 SE 36TH STREET | MERCER ISLAND, WA 98040

PHONE: 206.275.7605 | www.mercergov.org



TREE INVENTORY & REPLACEMENT SUBMITTAL INFORMATION

EXCEPTIONAL TREES

Exceptional Trees- means a tree or group of trees that because of its unique historical, ecological or aesthetic value constitutes an important community resource. A tree that is rare or exceptional by virtue of its size, species, condition, cultural/historical importance, age, and/or contribution as part of a tree grove. Trees with a diameter of more than 36 inches, or with a diameter that is equal to or greater than the diameter listed in the Exceptional Tree Table shown in MICC 19.16 under Tree, Exceptional.

List the total number of trees for each category and the tree identification numbers from the arborist report.

Number of trees 36" or greater _____

List tree numbers: _____

Number of trees 24" or greater (including 36" or greater) _____

List tree numbers: _____

Number of trees from Exceptional Tree Table (MICC 19.16) _____

List tree numbers: _____

LARGE REGULATED TREES

Large Regulated Trees- means any tree with a diameter of 10 inches or more, and any tree that meets the definition of an Exceptional Tree.

Number of Large Regulated Trees on site _____

(A)

List tree numbers: _____

Number of Large Regulated Trees on site proposed for removal _____

(B)

List tree numbers: _____

Percentage of trees to be retained ((A-B)/Ax100) note: must be at least 30% _____

%

RIGHT OF WAY TREES

Right of Way Trees- means a tree that is located in the street right of way adjacent to the project property.

Number of Large Regulated Trees in right of way _____

List tree numbers: _____

Number of Large Regulated Trees in right of way proposed for removal _____

List tree numbers: _____

Reason for removal: _____

TREE REPLACEMENT

Tree replacement- removed trees must be replaced based on the ratio in the table below. Replacement trees shall be conifers at least six feet tall and or deciduous at least one and one-half inches in diameter at base.

Diameter of Removed Tree (measured 4.5' above ground)	Tree replacement Ratio	Number of Trees Proposed for Removal	Number of Tree Required for Replacement Based on Size/Type
Less than 10"	1		
10" up to 24"	2		
Greater than 24" up to 36"	3		
Greater than 36" and any Exceptional Tree	6		
TOTAL TREE REPLACEMENTS			