

Gilles Consulting

— Brian K. Gilles —

4 2 5 - 8 2 2 - 4 9 9 4

**TREE PLAN III
AT**

**RUNNING SHORT PLAT
7004 132ND AVE NE
KIRKLAND, WA 98033**

June 11, 2007

PREPARED FOR:

**Kirk Running
6513 132nd Ave NE
PMV 160
Kirkland, WA 98033**

PREPARED BY:

GILLES CONSULTING

Brian K. Gilles, Consulting Arborist

ISA Certified Arborist # PN-0260

ASCA Registered Consulting Arborist # RCA-418A

PNW-ISA Certified Tree Risk Assessor #148



Fax: 425-822-
E-mail: bkgil@
P.O. Box 2366

ATTACHMENT 5

SP07-0025

CONTENTS

ASSIGNMENT.....	3
EXECUTIVE SUMMARY.....	3
METHODOLOGY.....	3
Tree Tags.....	4
OBSERVATIONS.....	4
CONCLUSIONS AND RECOMMENDATIONS.....	4
Tree Protection Measures.....	4
WAIVER OF LIABILITY.....	5
ATTACHMENTS.....	7

ASSIGNMENT

Kirk Running, owner of the property at 7004 122nd Avenue NE, in Kirkland, Washington, contracted with Gilles Consulting to evaluate the trees on the site. The property is under consideration for redevelopment into a two lot short plat. The City of Kirkland requires a Tree Plan III as part of the permit application process. This evaluation report can be used to develop the full sized Tree Plan III.

EXECUTIVE SUMMARY

- 20 Trees were evaluated:
 - 2 trees are presumed to be off the property, they are #'s 781 and 782
 - Both trees are in the neighbor's yard to the north and are just north of the subject property driveway.
 - They can be adequately protected with tree protection fencing placed along the northern edge of the driveway.
 - 18 trees were evaluated on the subject property:
- **Significance:**
 - 5 Trees are less than 6 inches in diameter and are therefore, *Non-Significant*
 - They are #'s 770, 772, 775, 776, & 778.
 - 15 Trees are greater than 6 inches in diameter and are, therefore, *Significant*.
- **Viability:**
 - 2 trees are *Non-Viable* due to poor health, poor structure, lack of wind firmness, or a combination.
 - They are #'s 768 & 774.
 - 18 trees have the health, structure, and wind firmness to withstand the stresses of construction if site development requirements allow.
- **Tree Credits:**
 - The 16 *Viable* trees on the subject property that total 51.5 Tree Credits

METHODOLOGY

To evaluate the trees and to prepare the report, I drew upon my 25+ years of experience in the field of arboriculture and my formal education in natural resources management, dendrology, forest ecology, plant identification, and plant physiology. I also followed the protocol of the International Society of Arboriculture (ISA) for Visual Tree Assessment (VTA) that includes looking at the overall health of the trees as well as the site conditions. This is a scientifically based process to look at the entire site, surrounding land and soil, as well as a complete look at the trees themselves.

In examining each tree, I looked at such factors as: size, vigor, canopy and foliage condition, density of needles, injury, insect activity, root damage and root collar health, crown health, evidence of disease-causing bacteria, fungi or virus, dead wood and hanging limbs. While no one can predict with absolute certainty which trees will or will

not fail, we can, by using this scientific process, assess which trees are most likely to fail and take appropriate action to minimize injury and damage.

Tree Tags

The trees were tagged and numbered 765 through 784. The tags are made of shiny aluminum approximately one inch by three inches in size and are attached to the tree with staples and a one foot strip of brightly colored survey tape. The tags were placed as high as possible to minimize their removal and were generally placed on the backsides of the trees as inconspicuously as possible. Please refer to *Attachment 1, Site Plan* for an orientation to the site and the approximate location of the trees.

OBSERVATIONS

The subject property is located at the northeast corner of the intersection of NE 70th Street and 122nd Avenue NE. The property currently contains an existing single-family home, concrete driveway, a carport, a block and gravel walk way, a covered patio, a garden shed, lawn area in the back, and various landscape beds. The existing trees on the site are primarily around the perimeter of the existing lot.

The proposal is to divide the lot into two with a north/south property line at or near the center of the existing lot. Access to the newly created lot in the rear will be over the existing driveway.

In an effort to present the information and conclusions for each tree in a manner that is clear and easy to understand, I have included a detailed spreadsheet, *Attachment 2, Tree Inventory/Condition Spreadsheet*. The descriptions on the spreadsheet were left brief in order to include as much pertinent information as possible and to make the report manageable. A detailed description of the terms used in the spreadsheet and in this report can be found in *Attachment 3, Glossary*. A brief review of these terms and descriptions will enable the reader to rapidly move through the spreadsheet and better understand the information.

CONCLUSIONS AND RECOMMENDATIONS

There are two trees on the lot that are in poor condition and are *Non-Viable*.

- Tree # 768 is a 9.2-inch diameter Western Red Cedar in the southwest corner of the lot.
 - Unless there is any utility work required in the area the tree can be left at this time since it does not pose a significant threat to life or property.
- Tree # 774 is a dying purple leafed Plum in the back yard.
 - It will likely be in the way of construction and it is advisable to remove the tree.

There are five small trees that are *Non-Significant* by City of Kirkland standards. They are #'s 770, 772, 775, 776, and 778. However, they contribute to the landscape and provide 1.5 tree credits. If construction/developments allow their retention, they are worthy of retention and would contribute to the long-term value of the project.

Trees # 781 and 782, located just north of the north property line, can be adequately protected with a tree protection fence along the north side of the existing driveway. The southern limbs of # 781 may need to be trimmed to allow for the safe entry and exit of the site. It is recommended that the neighbor be contacted and that the neighbor be made aware of the need and allowed to make the necessary pruning cuts themselves.

Tree Protection Measures

In order for trees to survive the stresses placed upon them in the construction process, tree protection must be planned in advance of equipment arrival on site. If tree protection is not planned integral with the design and layout of the project, the trees will suffer needlessly and possibly die. With proper preparation, often costing little or nothing extra to the project budget, trees can survive and thrive after construction. This is critical for tree survival because damage prevention is the single most effective treatment for trees on construction sites. Once trees are damaged, the treatment options available are limited.

The minimum Tree Protection Measures in *Attachment 5, Tree Protection Measures* are on three separate sheets that can be copied and introduced into all relevant documents such as site plans, permit applications and conditions of approval, and bid documents so that everyone involved is aware of the requirements. These Tree Protection Measures are intended to be generic in nature. They will need to be adjusted to the specific circumstances of your site that takes into account the location of improvements and the locations of the trees.

WAIVER OF LIABILITY

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. Changes in circumstances and conditions can also cause a rapid deterioration of a tree's health and stability. Adverse weather conditions can dramatically affect the health and safety of a tree in a very short amount of time. While I have used every reasonable means to examine these trees, this evaluation represents my opinion of the tree health at this point in time. These findings do not guarantee future safety nor are they predictions of future events.

The tree evaluation consists of an external visual inspection of an individual tree's root flare, trunk, and canopy from the ground only unless otherwise specified. The inspection may also consist of taking trunk or root soundings for sound comparisons to aid the evaluator in determining the possible extent of decay within a tree. Soundings are only

an aid to the evaluation process and do not replace the use of other more sophisticated diagnostic tools for determining the extent of decay within a tree.

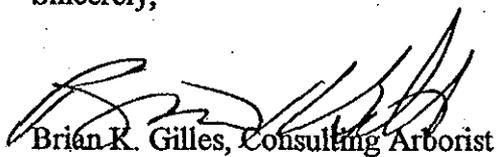
As conditions change, it is the responsibility of the property owners to schedule additional site visits by the necessary professionals to ensure that the long-term success of the project is ensured. It is the responsibility of the property owner to obtain all required permits from city, county, state, or federal agencies. It is the responsibility of the property owner to comply with all applicable laws, regulations, and permit conditions. If there is a homeowners association, it is the responsibility of the property owner to comply with all Codes, Covenants, and Restrictions (CC&R's) that apply to tree pruning and tree removal.

This tree evaluation is to be used to inform and guide the client in the management of their trees. This in no way implies that the evaluator is responsible for performing recommended actions or using other methods or tools to further determine the extent of internal tree problems without written authorization from the client. Furthermore, the evaluator in no way holds that the opinions and recommendations are the only actions required to insure that the tree will not fail. A second opinion is recommended. The client shall hold the evaluator harmless for any and all injuries or damages incurred if the evaluator's recommendations are not followed or for acts of nature beyond the evaluator's reasonable expectations, such as severe winds, excessive rains, heavy snow loads, etc.

This report and all attachments, enclosures, and references, are confidential and are for the use of the client concerned. They may not be reproduced, used in any way, or disseminated in any form without the prior consent of the client concerned and Gilles Consulting.

Thank you for calling Gilles Consulting for your arboricultural needs.

Sincerely,



Brian K. Gilles, Consulting Arborist

ISA Certified Arborist # PN-0260

ASCA Registered Consulting Arborist # RCA-418A

PNW-ISA Certified Tree Risk Assessor #148



ATTACHMENTS

ATTACHMENT 1 - SITE PLAN

ATTACHMENT 2 - TREE INVENTORY/CONDITIONS SPREADSHEET

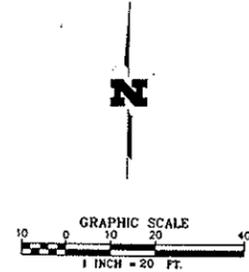
ATTACHMENT 3 - GLOSSARY

ATTACHMENT 4 - PHOTOS

ATTACHMENT 5 - TREE PROTECTION MEASURES

ATTACHMENT 6 - REFERENCES

SE4, NW4, SECTION 9, TWP. 25N, R. 5E, W.M.
KING COUNTY, WASHINGTON



LEGEND

- SANITARY SEWER MANHOLE
- STORM DRAIN CATCH BASIN
- ⊗ WATER METER
- ⊗ WATER VALVE
- ⊗ FIRE HYDRANT
- ⊗ ELECTRICAL J-BOX
- ⊗ ELECTRICAL TRANSFORMER
- ⊗ X-WALK SIGNAL POST
- ⊗ STREET LUMINAIRE
- ⊗ X-WALK SIGNAL HEAD
- ⊗ YARD LIGHT
- ⊗ SIGN POST
- ⊗ UTILITY CUY ANCHOR
- ⊗ MAILBOX

LEGAL DESCRIPTION
LOT 10, BLOCK 3, PLAT OF ORCHARD HEIGHTS, VOLUME 19, PAGE 89, KING COUNTY, WASHINGTON;
EXCEPT THE NORTH 186 FEET THEREOF;
BEING A PORTION OF THE NORTHWEST QUARTER OF SECTION 9, TOWNSHIP 25 NORTH, RANGE 5 EAST, W.M.
LESS THAT PORTION LYING SOUTHWESTERLY OF A 25 FOOT RADIUS CURVER TANGENT TO THE SOUTH AND WEST LINES OF THE PARCEL OF LAND DESCRIBED AS LOT 10, BLOCK 3, ORCHARD HEIGHTS, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 19 OF PLATS, PAGE 89, IN KING COUNTY, WASHINGTON; EXCEPT THE NORTH 186 FEET THEREOF.

BASIS OF BEARING
THE SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 9, TOWNSHIP 25N, RANGE 5E, W.M., PER WASHINGTON STATE PLANE COORDINATES, NORTH ZONE BEARING NORTH 87°59'13" WEST BETWEEN THE FOUND MONUMENTS AT THE WEST QUARTER CORNER OF SECTION 9 AND THE CENTER OF SECTION 9.

HORIZONTAL DATUM
NAD 1991

VERTICAL DATUM
NAVD 1988

BENCH MARK
VERTICAL:
WCCS POINT 14 (DE23)
WEST 1/4 CORNER OF SEC. 9-25-5
FOUND MON IN CASE W/2" BRASS DISK
ELEVATION: 313.031 US FEET
HORIZONTAL:
WCCS POINT 14 (DE23)
WEST 1/4 CORNER OF SEC. 9-25-5
FOUND MON IN CASE W/2" BRASS DISK
NORTHING: 246,697.574 FEET
EASTING: 1,307,246.214 FEET
WCCS POINT 13 (DE12)
CENTER OF SEC. 9-25-5
FOUND MON IN CASE W/2" BRASS DISK
NORTHING: 246,603.410 FEET
EASTING: 1,309,925.148 FEET

REFERENCE
1. PLAT OF ORCHARD HEIGHTS, AN ADDITION TO THE CITY OF SEATTLE VOL. 19, PG. 89.
2. KING COUNTY RECORD OF SURVEY VOL. 152, PG. 64.
3. KING COUNTY RECORD OF SURVEY VOL. 78, PG. 198.

LOT AREA
13,415.5 SQUARE FEET
0.308 ACRES

ZONING
RSK-7.2

5 SECOND DIRECT READING TOTAL STATION METHOD: TRAVERSE AND RADIAL SURVEY. PRECISION OF CONTROL TRAVERSE IS AT HIGHER LEVEL THAN MINIMUM STANDARDS. REQUIRED BY WAC 332-130-090.

No.	Revisions	Date	By

Date	3-14-2007
Scale	20
Drawn	MLS
Surveyed	GCK/MSS
Checked	GTC

TOPOGRAPHIC SURVEY
FOR
KIRK RUNNING
7004 122ND AVENUE NE
KIRKLAND, WA 98033



American Engineering Corporation
Engineers • Planners • Surveyors
4032 148th Ave. N.E.
Redmond, WA 98052
PHONE (425) 881-7430 Fax (425) 881-7731
File path & Name
P:\Projects\8807\0712\Survey\880712120.dwg 5/9/2007 12:42:26 PM 251

JOB NO.
0712
SHEET
1 of 1

Location: Indicates the general area of the site where the tree is located.																				
Individual tree number.																			# 5 Tree Credit: This is based upon Table 95.35.1, Page 12, Chapter 95 of the Kirkland Municipal Code.	
																			# 6 Drip Line: The radius, the distance from the trunk to the furthest branch tips.	
DF/Pm	Douglas Fir, <i>Pseudotsuga menziesii</i>																		# 7 Limits of Disturbance: The boundary between the area of minimum protection around a tree and the allowable site disturbance as determined by a qualified professional.	
WRC/tp	Western Red Cedar, <i>Thuja plicata</i>																		# 8 LCR: Live Crown Ratio - the amount of live canopy expressed as a % of the entire tree height	
SxM/Mxs	Soulangiana Magnolia, <i>Magnolia x soulangiana</i>																		# 9 Symmetry: General shape of canopy and weight distribution of the tree around the trunk.	
TcP/Pc	Thundercloud Plum, <i>Prunus cerasifera</i>																		# 10 Foliage: General description of foliage density that indicates tree health and vigor.	
VMI/Ac	Vine Maple, <i>Acer circinatum</i>																		# 11 Crown Condition: The most important external indication of tree health and vigor.	
Dw/Cf	Dogwood, <i>Cornus florida</i>																		# 12 Trunk: Description of trunk condition or abnormalities if any.	
Plum/Psp	Plum, <i>Prunus sp.</i>																		# 13 Root Collar: The base of the tree where the trunk flares into the roots--deformities or problems are noted here.	
WB/Bp	White Birch, <i>Betula papyrifera</i>																		# 14 Roots: Root problems are noted here.	
Js/Js	Juniper species, <i>Juniperus species</i>																		# 15 Comments: Additional observations about the tree's condition.	
LC/Cl	Lawson Cypress (Port Orford Cedar), <i>Chamaecyparis lawsoniana</i>																		# 16 Significance: A "significant" tree is at least 6" in diameter measured at 4.5' above the average ground level.	
DF/Pm	Douglas Fir, <i>Pseudotsuga menziesii</i>																		# 17 Current Health Rating: a description of general health ranging from dead, dying, hazard, poor, suppressed, fair, good, very good, to excellent.	
k diameter @ 4.5' above average ground level.																			# 18 Viability: A significant tree that is in good health with a low risk of failure due to structural defects, is relatively wind firm if isolated or remains as	
																			remains as part of a grove, and is a species that is suitable for its location.	
																			# 19 Recommendation: This is an estimate of whether or not the tree is of sufficient health, vigor, and structure to consider retaining.	
2	3	4	5.0	6	7 -- LIMITS OF DISTURBANCE				8	9	10	11	12	13	14	15	16	17	18	19
TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	STATUS / RECOMMENDATION
765	DF/Pm	29.2"	11.0	18'	16'	16'	to house	to sidewalk	65%	Min. Asym.	Dense	Regeneration healthy	Previously topped at 20'	Unusual butt swell south side	Restricted, 5' east of sidewalk	Popping bark, early bark beetle, base rot and possible center rot.	Significant	Fair	Viable	Potential to Retain with Tree Protection Measures
766	DF/Pm	36.5"	15.0	20'	16'	16'	to house	to sidewalk	80%	Gen. Sym.	Dense	Regeneration healthy	Previously topped at 30'	NAD	Restricted, 7' east of sidewalk	Early Bark Beetle Infestation	Significant	Fair	Viable	Potential to Retain with Tree Protection Measures
767	WRC/tp	12.3"	5.0	12'	6'	to sidewalk	8'	to sidewalk	70%	Min. Asym.	Dense	Healthy	Previously topped at 3' with rot down to base	Base Rot	Restricted	Fill on 45% of critical root zone. Calloused wound south east side at 5.5 feet down to 3 feet.	Significant	Fair	Viable	Potential to Retain with Tree Protection Measures
768	WRC/tp	9.2"	1.0	12'	7'	to sidewalk	9'	to sidewalk	60%	Maj. Asym.	Average	Regeneration healthy	Previously topped at 5.5', Center rot	Base Rot	Restricted	Fill on 25% of critical root zone. Callused wound south side 7 feet down to base.	Significant	Poor	Non-viable	Potential to Retain with Tree Protection Measures
769	SxM/Mxs	8.0"	1.0	13'	14'	to sidewalk	14'	14'	65%	Min. Asym.	Dense	Average	Forked at 1' with included bark down to 6"	NAD	-	Diameters equal 3.5 and 5.0 inches.	Significant	Good	Viable	Potential to Retain with Tree Protection Measures
770	TcP/Pc	4.5"	0.5	14'	NA	NA	NA	NA	45%	Min. Asym.	Thin	Average	Forked at 4'	NAD	-		Not Significant	Fair	Viable	Potential to Retain with Tree Protection Measures
771	Plum/Psp	6.5"	1.0	16'	12'	to sidewalk	12'	12'	60%	Gen. Sym.	Dense	Healthy	Forked at 3.5'	NAD	Restricted	Bacterial infection in trunk. Lots of suckers at base. Growing on top of 3 foot tall rockery and next to side walk.	Significant	Fair	Viable	Potential to Retain with Tree Protection Measures
772	WB/Bp	5.2"	0.5	16'	6'	to sidewalk	6'	6'	75%	Min. Asym.	Average	Average	Previously topped at 6'. Leans south west over fence	Bowed at base	Surface to west	Growing on top of 3 foot tall rockery and next to side walk.	Not Significant	Fair	Viable	Potential to Retain with Tree Protection Measures
773	Js/Js	8.5"	1.0	14'	8'	to sidewalk	10'	10'	50%	Min. Asym.	Dense	Pruned Off	Forked at 2.5', previously topped at 5.5'	NAD	-		Significant	Fair	Viable	Potential to Retain with Tree Protection Measures

2	3	4	5.0	6	7 -- LIMITS OF DISTURBANCE				8	9	10	11	12	13	14	15	16	17	18	19
TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	STATUS / RECOMMENDATION
774	TcP/Pc	7.5"	10	6'	NA	NA	NA	NA	50%	Maj. Asym.	Thin	Regeneration weak	Center Rot	Base Rot	-	Open wound east side base up 16 inches. Previously topped at 6.5 feet. Forked at 4 feet with included bark down 12 inches.	Significant	Poor	Non-Viable	Consider Removal
775	Js/Js	2.8"	0.0	7'	4'	to sidewalk	NA	4'	90%	Min. Asym.	Thin	Previously topped at 8'	Straight	NAD	Restricted	Growing in raised bed and adjacent to retaining wall. Adjacent to east property line fence.	Not Significant	Fair	Viable	Potential to Retain with Tree Protection Measures
776	LC/CI	2.9"	0.0	6'	6'	6'	To property line	6'	98%	Min. Asym.	Dense	Healthy	Straight	NAD	-	Adjacent to east property line fence.	Not Significant	Good	Viable	Potential to Retain with Tree Protection Measures
777	LC/CI	6.8"	1.0	7'	6'	6'	To property line	7'	98%	Min. Asym.	Dense	Healthy	Forked at 6', straight	NAD	-	Adjacent to east property line fence.	Significant	Good	Viable	Potential to Retain with Tree Protection Measures
778	LC/CI	4.1"	0.5	7'	6'	6'	To property line	8'	9800%	Min. Asym.	Dense	Healthy	Straight	NAD	-	Adjacent to east property line fence. Early bark beetle.	Not Significant	Good	Viable	Potential to Retain with Tree Protection Measures
779	Js/Js	7.0"	1.0	10'	10'	10'	To property line	10'	50%	Min. Asym.	Dense	Healthy	Forked at base	Partially Exposed	Restricted, surface to west	In raised bed.	Significant	Fair	Viable	Potential to Retain with Tree Protection Measures
780	Js/Js	11.1"	2.0	16'	To property line	12'	to shed	12'	35%	Min. Asym.	Dense	Regeneration good	Forked at 2'	NAD	-	Next to garden shed.	Significant	Fair	Viable	Potential to Retain with Tree Protection Measures
781 OP	VM/Ac	est. 5.5"	0.0	7'	NA	6'	to sidewalk	6'	75%	Maj. Asym.	Average	Healthy	Previously pruned, regeneration good	NAD	-	Forked at 3 feet.	Significant	Good	Viable	Potential to Retain with Tree Protection Measures
782 OP	DF/Pm	Est. 25"	0.0		NA	to property line	to property line	to property line	70%	Maj. Asym.	Short shoot elongation, average	Epicormic growth	Straight	NAD	-	Sap flow all sides, early bark beetle.	Significant	Fair	Viable	Potential to Retain with Tree Protection Measures
783	Dw/Cl	8.0"	1.0	8'	to driveway	10'	10'	10'	70%	Gen. Sym.	Dense	Healthy	Forked at 1.5'	NAD	-		Significant	Good	Viable	Potential to Retain with Tree Protection Measures
784	DF/Pm	28.5"	11.0	24'	NA	to sidewalk	NA	8'	75%	Min. Asym.	Average	Average	Straight	NAD	-	Ivy up 20 feet from base. Epicormic growth. Short shoot elongation.	Significant	Good	Viable	Potential to Retain with Tree Protection Measures
			51.5	= Total number of Tree Credits on the site on the inspection day.																

SUMMARY:

- 20 Trees were evaluated:
- 2 trees are presumed to be off the property, they are #s 781 and 782
 - Both trees are in the neighbor's yard to the north and are just north of the subject property driveway.
 - They can be adequately protected with tree protection fencing placed along the northern edge of the driveway.
- 18 trees were evaluated on the subject property:
- **Significance:**
 - 5 Trees are less than 6 inches in diameter and are therefore, *Non-Significant*
 - They are #s 770, 772, 775, 776, & 778.
 - 15 Trees are greater than 6 inches in diameter and are, therefore, *Significant*.
- **Viability:**
 - 2 trees are *Non-Viable* due to poor health, poor structure, lack of wind firmness, or a combination.
 - They are #s 768 & 774.
 - 18 trees have the health, structure, and wind firmness to withstand the stresses of construction if site
- **Tree Credits:**
 - The 16 *Viable* trees on the subject property that total 51.5 Tree Credits

ATTACHMENT 3 - GLOSSARY

Terms Used in This Report, on the Tree Condition / Inventory Spreadsheet, and Their Significance

In an effort to clearly present the information for each tree in a manner that facilitates the reader's ability to understand the conclusions I have drawn for each tree, I have collected the information onto a spreadsheet format. This spreadsheet was developed by Gilles Consulting based upon the *Hazard Tree Evaluation Form* from the book, *The Evaluation of Hazard Trees in Urban Areas*, by Matheny and Clarke. The descriptions were left brief on the spreadsheet in an effort to include as much pertinent information as possible, to make the report manageable, and, to not bore the reader with infinite levels of detail. A review of these terms and descriptions will allow the reader to rapidly move through the report and understand the information.

- 1) **TREE LOCATION**—indicates what general area of the site the tree is on, or whether the tree is Off the Project property.
- 2) **TREE #**—the individual number of each tree.
- 3) **SPECIES**—this describes the species of each tree with both most readily accepted common name and the officially accepted scientific name.
- 4) **DBH**—Diameter Breast Height. This is the standard measurement of trees taken at 4.5 feet above the average ground level of the tree base.
 - i) Occasionally it is not practical to measure a tree at 4.5 feet above the ground. The most representative area of the trunk near 4.5 feet is then measured and noted on the spreadsheet. For instance, a tree that forks at 4.5 feet can have an unusually large swelling at that point. The measurement is taken below the swelling and noted as, "28.4" at 36".
 - ii) Trees with multiple stems are listed as a "clump of x," with x being the number of trunks in the clump. Measurements may be given as an average of all the trunks, or individual measurements for each trunk may be listed.
 - (1) Every effort is made to distinguish between a single tree with multiple stems and several trees growing close together at the bases.
- 5) **TREE CREDIT**—Tree Credit based on Trunk Diameter
- 6) **DRIP LINE**— The radius, the distance from the trunk to the furthest branch tips.
- 7) **LIMITS OF DISTURBANCE**— The boundary between the area of minimum protection around a tree and the allowable site disturbance as determined by a qualified professional.
- 8) **% LCR**—Percentage of Live Crown Ratio. The relative proportion of green crown to overall tree height. This is an important indication of a tree's health. If a tree has a high percentage of Live Crown Ratio, it is likely producing enough photosynthetic activity to support the tree. If a tree has less than 30 to 40% LCR it can create a shortage of needed energy and can indicate poor health and vigor.
- 9) **SYMMETRY**—is the description of the form of the canopy. That is, the balance or overall shape of the canopy and crown. This is the place I list any major defects in

the tree shape—does the tree have all its foliage on one side or in one unusual area. Symmetry can be important if there are additional defects in the tree such as rot pockets, cracks, loose roots, weak crown etc. Symmetry is generally categorized as Generally Symmetrical, Minor Asymmetry or Major Asymmetry:

- i) Gen. Sym.—Generally Symmetrical. The canopy/foliage is generally even on all sides with spacing of scaffold branches typical for the species, both vertically and radially.
- ii) Min. Asym.—Minor Asymmetry. The canopy/foliage has a slightly irregular shape with more weight on one side but appears to be no problem for the tree.
- iii) Maj. Asym.—Major Asymmetry. The canopy/foliage has a highly irregular shape for the species with the majority of the weight on one side of the tree. This can have a significant impact on the tree's stability, health and hazard potential—especially if other defects are noted such as cracks, rot, root defects.

10) **FOLIAGE/BRANCH**—describes the foliage of the tree in relation to a perfect specimen of that particular species. First the branch growth and foliage density is described, and then any signs or symptoms of stress and/or disease are noted. The condition of the foliage, or the branches and buds for deciduous trees in the dormant season, are important indications of a tree's health and vigor.

- i) For Deciduous trees in the dormant season:
 - (1) The structure of the tree is visible,
 - (2) The quantity and quality of buds indicates health, and is described as good bud set, average bud set, or poor bud set. These are abbreviated in the spreadsheet as: gbs, abs, or pbs.
 - (3) The amount of annual shoot elongation is visible and is another major indication of tree health and vigor. This is described as:
 - a) Excellent, Good, Average, or Short Shoot Elongation. These are abbreviated in the spreadsheet as ESE, GSE, ASE, OR SSE.
- ii) For evergreen trees year round and deciduous trees in leaf, the color and density of the foliage indicates if the tree is healthy or stressed, or if an insect infestation, a bacterial, fungal, or viral infection is present. Foliage is categorized on a scale from:
 - (1) Dense—extremely thick foliage, an indication of healthy vigorous growth,
 - (2) Good—thick foliage, thicker than average for the species,
 - (3) Normal/Average—thick foliage, average for the species, an indication of healthy growth,
 - (4) Thin or Thinning—needles and leaves becoming less dense so that sunlight readily passes through; an indication that the tree is under serious stress that could impact the long-term survivability and safety of the tree,
 - (5) Sparse—few leaves or needles on the twigs, an indication that the tree is under extreme stress and could indicate the future death of the tree

(6) Necrosis—the presence of dead twigs and branchlets. This is another significant indication of tree health. A few dead twigs and branches are reasonably typical in most trees of size. However, if there are dead twigs and branchlets all over a certain portion of the tree, or all over the tree, these are indications of stress or attack that can have an impact on the tree's long-term health.

(7) Hangers—A term to describe a large branch or limb that has broken off but is still hanging up in the tree. These can be particularly dangerous in adverse weather conditions.

11) **CROWN CONDITION**—the crown is uppermost portion of the tree, generally considered the top 10 to 20% of the canopy or that part of the canopy above the main trunk in deciduous trees and above the secondary bark in evergreen trees.

i) The condition of the tree's crown is a reflection of the overall health and vigor of the entire tree. The crown is one of the first places a tree will demonstrate stress and pathogenic attack such as root rot.

ii) If the **Crown Condition** is healthy and strong, this is a good sign. If the crown condition is weak, broken out, or shows other signs of decline, it is an indication that the tree is under stress. It is such an important indication of health and vigor that this is the first place a trained forester or arborist looks to begin the evaluation of a tree. Current research reveals that, by the time trees with root rot show significant signs of decline in the crown, fully 50% or more of the roots have already rotted away. **Crown Condition** can be described as:

(1) Healthy Crown—exceptional growth for the species.

(2) Average Crown—typical for the species.

(3) Weak Crown—thin spindly growth with thin or sparse needles.

(4) Flagging Crown—describes a tree crown that is weak and unable to grow straight up.

(5) Dying Crown—describes obvious decline that is nearing death.

(6) Dead Crown—the crown has died due to pathological or physical injury. The tree is considered to have significant stress and/or weakness if the crown is dead.

(7) Broken out—a formerly weak crown condition that has been broken off by adverse weather conditions or other mechanical means.

(8) Regenerated or Regenerating—formerly broken out crowns that are now growing back, Regenerating crowns may appear healthy, average, or weak and indicate current health of the tree.

(9) Suppressed—a term used to describe poor condition of an entire tree or just the crown. Suppressed crowns are those that are entirely below the general level of the canopy of surrounding trees which receive no direct sunlight. They are generally in poor health and vigor.

Suppressed trees are generally trees that are smaller and growing in the shade of larger trees around them. They generally have thin or sparse needles, weak or missing crowns, are prone to insect attack as well as bacterial and fungal infections.

- 12) **TRUNK**—this is the area to note any defects that can have an impact on the tree’s stability or hazard potential. Typical things noted are:
- i) **FORKED**—bifurcation of branches or trunks that often occur at a narrow angle.
 - ii) **INCLUDED BARK**—a pattern of development at branch or trunk junctions where bark is turned inward rather than pushed out. This can be a serious structural defect in a tree that can and often does lead to failure of one or more of the branches or trunks especially during severe adverse weather conditions.
 - iii) **EPICORMIC GROWTH**—this is generally seen as dense thick growth near the trunk of a tree. Although this looks like a healthy condition, it is in fact the opposite. Trees with Epicormic Growth have used their reserve stores of energy in a last ditch effort to produce enough additional photosynthetic surface area to produce more sugars, starches and carbohydrates to support the continued growth of the tree. Generally speaking, when conifers in the Pacific Northwest exhibit heavy amounts of Epicormic Growth, they are not producing enough food to support their current mass and are already in serious decline.
 - iv) **INTERNAL STRUCTURAL WEAKNESS**—a physical characteristic of the tree trunk, such as a **kink, crack, rot pocket, or rot column** that predisposes the tree trunk to failure at the point of greatest weakness.
 - v) **BOWED**—a gradual curve of the trunk. This can indicate an Internal Structural Weakness or an overall weak tree. It can also indicate slow movement of soils or historic damage of the tree that has been corrected by the curved growth.
 - vi) **KINKED**—a sharp angle in the tree trunk that indicates that the normal growth pattern is disrupted. Generally this means that the internal fibers and annual rings are weaker than straight trunks and prone to failure, especially in adverse weather conditions.
 - vii) **GROUND FLOWER**—an area of deformed bark near the base of a tree trunk that indicates long-term root rot.
- 13) **ROOT COLLAR**—this is the area where the trunk enters the soil and the buttress roots flare out away from the trunk into the soil. It is here that signs of rot, decay, insect infestation, fungal or bacterial infection are noted. **NAD** stands for **No Apparent Defects**.
- 14) **ROOTS**—any abnormalities such as girdling roots, roots that wrap around the tree itself that strangle the cambium layer and kill the tree, are noted here.
- 15) **COMMENTS**—this is the area to note any additional information that would not fit in the previous boxes or attributes about the tree that have bearing on the health and structure of the tree.
- 16) **SIGNIFICANCE**—a “significant” tree is at least 6” in diameter measured at 4.5’ above the average ground level.
- 16) **CURRENT HEALTH RATING**— a description of general health ranging from dead, dying, poor, senescent, suppressed, fair, good, very good, to excellent.

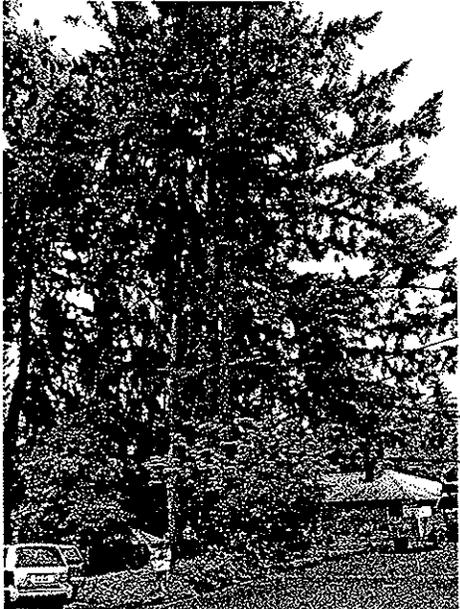
17) VIABILITY— A significant tree that is in good health with a low risk of failure due to structural defects, is relatively wind firm if isolated or remains as part of a grove, and is a species that is suitable for its location.

- i) Please note that many trees may be listed as “Non-Viable” due to poor health, poor structure, or the tree may be below the size threshold for a “Viable Tree.” However, it is worth examining the Non-Viable Trees to determine if any or all of them can be left on the property. They can add significant benefit to the landscape and contribute to wildlife habitat.

18) RECOMMENDATION—This is an estimate of whether or not the tree is of sufficient health, vigor, and structure to consider retaining.

NOTE: TREES WITH THE SAME DESCRIPTION AND DIFFERENT RATINGS:
Two trees may have the same descriptions in the matrix boxes, one may be marked “Significant,” while another may be marked “Non-Significant.” The difference is in the degree of the description—early necrosis versus advanced necrosis for instance. Again, these descriptions were left brief in an effort to include as much pertinent information as possible, to make the report manageable, and, not to bore the reader with infinite levels of detail.

ATTACHMENT 4 - PHOTOS



View of northern property line and driveway
Tree # 782
Tree # 781

View of the southwest property corner at the intersection of NE 70th Street and 122nd Avenue NE



Base of tree # 768 in the southwest property corner at the intersection of NE 70th Street and 122nd Avenue NE

ATTACHMENT 5 - TREE PROTECTION MEASURES

In order for trees to survive the stresses placed upon them in the construction process, tree protection must be planned in advance of equipment arrival on site. If tree protection is not planned integral with the design and layout of the project, the trees will suffer needlessly and will possibly die. With proper preparation, often costing little, or nothing extra to the project budget, trees can survive and thrive after construction. This is critical for tree survival because damage prevention is the single most effective treatment for trees on construction sites. Once trees are damaged, the treatment options available are limited.

The following minimum Tree Protection Measures are included on three separate sheets so that they can be copied and introduced into all relevant documents such as site plans, permit applications and conditions of approval, and bid documents so that everyone involved is aware of the requirements. These Tree Protection Measures are intended to be generic in nature. They will need to be adjusted to the specific circumstances of your site that takes into account the location of improvements and the locations of the trees.

TREE PROTECTION MEASURES:

1. Tree Protection Fences will need to be placed around each tree or group of trees to be retained.
 - a. Tree Protection Fences are to be placed according to the attached drawing and as noted in the attached Tree Inventory/Conditions Spreadsheet, Column 6 - Limits of Disturbance.
 - b. Tree Protection Fences must be inspected prior to the beginning of any construction work/activities.
 - c. Nothing must be parked or stored within the Tree Protection Fences—no equipment, vehicles, soil, debris, or construction supplies of any sorts.
2. Cement trucks must not be allowed to deposit waste or wash out materials from their trucks within the Tree Protection Fences.
3. The Tree Protection Fences need to be clearly marked with the following or similar text in four inch or larger letters:

TREE PROTECTION AREA, ENTRANCE PROHIBITED

To report violations contact

City Code Enforcement

at 425-587-3225

4. The area within the Tree Protection Fencing must be covered with wood chips, hog fuel, or similar materials to a depth of 8 to 10 inches. The materials should be placed prior to beginning construction and remain until the Tree Protection Fencing is taken down.
5. When excavation occurs near trees that are scheduled for retention, the following procedure must be followed to protect the long term survivability of the tree:
 - a. An International Society of Arboriculture, (ISA) Certified Arborist must be working with all equipment operators.
 - i. The Certified Arborist should be outfitted with a shovel, hand pruners, a pair of loppers, a handsaw, and a power saw (a "sawsall" is recommended).
 - b. When any roots of one inch diameter or greater, of the tree to be retained, is struck by the equipment, the Certified Arborist should stop the equipment operator.
 - c. The Certified Arborist should then excavate around the tree root by hand/shovel and cleanly cut the tree root.
 - i. The Certified Arborist should then instruct the equipment operator to continue.

6. Putting Utilities Under the Root Zone:

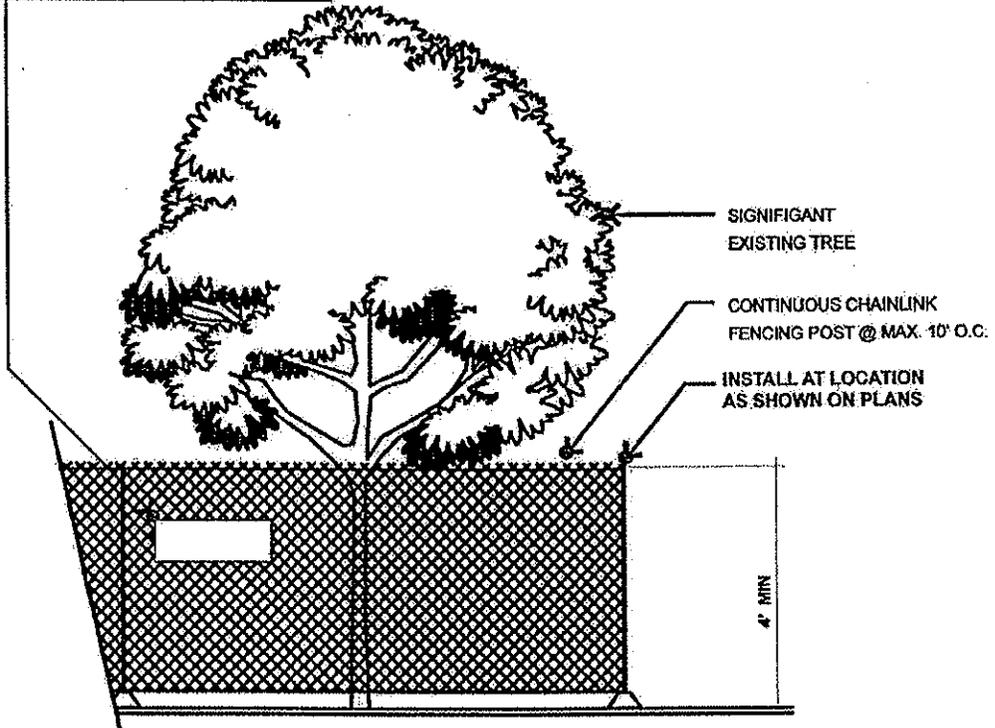
- a. Boring under the root systems of trees (and other vegetation) shall be done under the supervision of an ISA Certified Arborist. This is to be accomplished by excavating a limited trench or pit on each side of the critical root zone of the tree and then hand digging or pushing the pipe through the soil under the tree. The closest pit walls shall be a minimum of 7 feet from the center of the tree and shall be sufficient depth to lay the pipe at the grade as shown on the plan and profile.
- b. Tunneling under the roots of trees shall be done under the supervision of an ISA Certified Arborist in an open trench by carefully excavating and hand digging around areas where large roots are exposed. No roots 1 inch in diameter or larger shall be cut.
- c. The contractor shall verify the vertical and horizontal location of existing utilities to avoid conflicts and maintain minimum clearances; adjustment shall be made to the grade of the new utility as required.

7. Watering:

- a. The trees will require significant watering throughout the summer and early fall in order to survive long-term. An easy and economical watering can be done using soaker hoses placed three feet from the trunk of the tree and spiraled around the tree. One 75-foot soaker hose per tree is adequate. It is best to place the soakers using landscape staples, (available from HD Fowler in Bellevue for pennies apiece) then cover the area with two to three inches composted materials. The composted material will act as a mulch to minimize evaporation and will also stimulate the microbial activity of the soil which is another benefit to the health of the tree.
- b. Water the tree to a depth of 18 to 20 inches. I recommended leaving the water on the soaker hoses for six to eight hours and then digging down to determine how deep your water is penetrating. Then adjust accordingly. It may take a good two days of watering to reach the proper depth.
- c. Once the water reaches the proper depth, turn off the hoses for four weeks and then water again. Water more often when temperatures increase—every three weeks when temperatures exceed 80 degrees and every two weeks when temperatures exceed 90 degrees. This drying out of the soil in between watering is important to prevent soil pathogens from attacking the trees.

FENCING SIGN DETAIL

Tree Protection Area, Entrance Prohibited
To report violations contact
City Code Enforcement
at (425)587-3225



1. MINIMUM FOUR (4) FOOT HIGH TEMPORARY CHAINLINK FENCE SHALL BE PLACED AT THE CRITICAL ROOT ZONE OR DESIGNATED LIMIT OF DISTURBANCE OF THE TREE TO BE SAVED. FENCE SHALL COMPLETELY ENCIRCLE TREE (S). INSTALL FENCE POSTS USING PIER BLOCK ONLY. AVOID POST OR STAKES INTO MAJOR ROOTS. MODIFICATIONS TO FENCING MATERIAL AND LOCATION MUST BE APPROVED BY PLANNING OFFICIAL.
2. TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER ONE (1) INCH DIAMETER DAMAGED DURING CONSTRUCTION, MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING, AND COVERED WITH SOIL AS SOON AS POSSIBLE.
3. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING. FENCING SHALL NOT BE MOVED OR REMOVED UNLESS APPROVED BY THE CITY PLANNING OFFICIAL. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY UNDER THE SUPERVISION OF THE ON-SITE ARBORIST AND WITH PRIOR APPROVAL BY THE CITY PLANNING OFFICIAL.
4. FENCING SIGNAGE AS DETAILED ABOVE MUST BE POSTED EVERY FIFTEEN (15) FEET ALONG THE FENCE.



**TREE PROTECTION
FENCING DETAIL**

ATTACHMENT 6 - REFERENCES

1. Dirr, Michael A. *Manual of Woody Landscape Plants, Their Identification, Ornamental Characteristics, Culture, Propagation, and Uses*. Champaign: Stipes Publishing Company, 1990.
2. Harris, Richard W. et al. *Arboriculture, Integrated Management of Landscape Trees, Shrubs, and Vines*. 4th ed. Upper Saddle River: Prentice Hall, 2004.
3. Matheney, Nelda P. and Clark, James R. *Evaluation of Hazard Trees*. 2nd ed. Savoy: The International Society of Arboriculture Press, 1994
4. Matheney, Nelda P. and Clark, James R. *Trees & Development, A Technical Guide to Preservation of Trees During Land Development*. Savoy: The International Society of Arboriculture Press, 1998.
5. Watson, Gary W., and Neely, Dan, eds. *Trees & Building Sites*. Savoy: The International Society of Arboriculture Press, 1995.