

# 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 #:	Individual tree number.	
# 3 Species:	AB/Ph Austrian Black Pine, <i>Pinus nigra</i> Apple/Msp Apple, <i>Malus sp.</i> Bch/Pa Bitter Cherry, <i>Prunus emarginata</i> BLM/Am Big Leaf Maple, <i>Acer macrophyllum</i> CG/Ps Chinese Quince, <i>Pseudocystodonia sinensis</i> DF/Pm Douglas Fir, <i>Pseudotsuga menziesii</i> EWB/Bpe European Weeping Birch, <i>Betula pendula</i> GSI/Sg Giant Sequoia, <i>Sequoiadendron giganteum</i> Mad/Am Madrona, <i>Arbutus menziesii</i> Nm/As Norway Maple, <i>Acer platanoides</i> PSF/Am Pacific Silver Fir, <i>Abies amabilis</i> RA/R Red Alder, <i>Alnus rubra</i> RMD/PM 'g' Rocky Mountain Douglas Fir, <i>Pseudotsuga menziesii 'glauca'</i> SM/As Silver Maple, <i>Acer saccharinum</i> WRC/TP Western Red Cedar, <i>Thuja plicata</i>	
# 4 DBH:	Trunk diameter @ 4.5' above average ground level.	
# 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.	
# 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:	Live Crown Ratio - the amount of live canopy expressed as a % of the entire tree height	
# 9 Symmetry:	General shape of canopy and weight distribution of the tree around the trunk.	
# 10 Foliage:	General description of foliage density that indicates tree health and vigor.	
# 11 Crown Condition:	The most important external indication of tree health and vigor.	
# 12 Trunk:	Description of trunk condition or abnormalities if any.	
# 13 Root Collar:	The base of the tree where the trunk flares into the roots--deformities or problems are noted here.	
# 14 Roots:	Root problems are noted here.	
# 15 Comments:	Additional observations about the tree's condition.	
# 16 Significance:	A "significant" tree is at least 6" in diameter measured at 4.5' above the average ground level.	
# 17 Current Health Rating:	a description of general health ranging from dead, dying, hazard, poor, suppressed, fair, good, very good, to excellent.	
# 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 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.	

1	2	3	4	5	6	7 -- LIMITS OF DISTURBANCE				8	9	10	11	12	13	14	15	16	17	18	19
LOCATIO N	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	HEALTH RATING	VIABILITY	STATUS / RECOMMENDATION
In R-o-W	501	WRC/TP	8.1"	1.0	6'	to road shoulder	6'	6'	6'	98%	Maj. Asym.	Average	Previously Topped, utilities	Straight	Internal Structural Weakness	-	ivy up 10 feet	Significant	Fair	Viable	Tree protection measures
In R-o-W	502	WRC/TP	6.2"	1.0	6'	to road shoulder	6'	8'	6'	98%	Maj. Asym.	Average	Previously Topped, utilities	Straight	Internal Structural Weakness	-	ivy up 10 feet	Significant	Fair	Viable	Tree protection measures
In R-o-W	503	WRC/TP	8.2"	1.0	6'	to road shoulder	6'	6'	6'	98%	Maj. Asym.	Average	Previously Topped, utilities	Straight	Internal Structural Weakness	Restricted: 2 to sidewalk	ivy up 10 feet. Utility box 3 feet to the west	Significant	Fair	Viable	Tree protection measures
In R-o-W	504	SM/As	9.5"	1.0	12'	to road shoulder	10'	10'	10'	55%	Gen. Sym.	Dense	Average	Typical	NAD	Restricted in parking strip	Previously utility pruned. Forked at 8 feet with included bark down 2 feet. Roots lifting up side walk	Significant	Fair	Viable	Tree protection measures
In R-o-W	505	SM/As	12.6"	2.0	12'	to road shoulder	10'	10'	10'	65%	Gen. Sym.	Dense	Average	Typical	NAD	Restricted	Forked at 9 feet with included bark down 2 feet. Roots lifting up sidewalk	Significant	Fair	Viable	Tree protection measures
In R-o-W	508	PSF/Am	19.8"	5.0	16'	to road shoulder	15'	15'	15'	80%	Gen. Sym.	Average	Utility pruned on west side	Straight	NAD	-	Spider mite. Woolly adelgid. 2 feet from ext. drive. Significant root compaction	Significant	Fair	Viable	Tree protection measures
In R-o-W	507	Apple/Msp	11.9"	0.0	8'	n/a	n/a	n/a	n/a	75%	Min. Asym.	Average	Previously topped	90° kink at 4 feet	Center rot	Partially failed, base rot	Open wound from base up 5 feet on south side. Advanced carpenter ant infestation. Open wound at previous fork with rot column down to base. Mower damage	Significant	Poor	Non-viable	Remove Tree protection measures 10 feet from fence
Off property	508	RMD/PM 'g'	est. 18"	0.0	15'	10'	10'	n/a	n/a	75%	Min. Asym.	Average	Average	5 foot east of fence	Partially Exposed	Surface	Early bark beetle infestation. Canopy overhangs 8 feet.	Significant	Poor	Non-viable	Tree protection measures 10 feet from fence
Off property	509	DF/Pm	est. 17"	0.0	15'	10'	10'	10'	10'	75%	Gen. Sym.	Average	Average	Straight	NAD	-	5 feet off fence line. Early bark beetle infestation.	Significant	Poor	Non-viable	Tree protection measures 10 feet
	510	RMD/PM 'g'	15.2"	3.0	16'	16'	16'	16'	16'	70%	Gen. Sym.	Average	Previously topped	Straight	NAD	-	Early bark beetle infestation	Significant	Fair	Viable	Tree protection measures 16 feet
	511	RMD/PM 'g'	15.6"	3.0	17'	16'	16'	16'	16'	70%	Gen. Sym.	Average	Previously topped	Straight	NAD	-		Significant	Fair	Viable	Tree protection measures 16 feet
	512	RMD/PM 'g'	19.0"	5.0	20'	18'	18'	18'	18'	80%	Min. Asym.	Average	Previously topped	Slight lean west	NAD	-	Large horizontal branching 6 feet from base	Significant	Fair	Viable	Tree protection measures 18 feet
Off property	513	RMD/PM 'g'	est. 17.0"	0.0	20'	15'	15'	15'	15'	80%	Min. Asym.	Average	Average	Straight	NAD	-	Utility and window pruned on east side. Early bark beetle infestation. 1 foot from fence.	Significant	Fair	Viable	Tree protection measures 15 feet from fence
Off property	514	RMD/PM 'g'	est. 14.0"	0.0	15'	10'	10'	10'	10'	75%	Gen. Sym.	Average	Previously topped at 20 feet. Regeneration is healthy/average	Straight	NAD	-	2 feet from fence line.	Significant	Fair	Viable	Tree protection measures 10 feet from fence
	515	RMD/PM 'g'	11.0"	1.0	15'	??	??	??	??	70%	Maj. Asym.	Thin	Previously topped at 15 feet. Suppressed	Serpentine	NAD	-		Significant	Fair	Viable	
Off property	516	DF/Pm	est. 12.5"	0.0	10'	5'	5'	5'	5'	70%	Gen. Sym.	Average	Regeneration is healthy/average	Straight	Partially Exposed	-	2.5 feet from fence	Significant	Fair	Viable	Tree protection measures 5 feet from fence
	517	RMD/PM 'g'	10.0"	0.0	14'	10	10	to prop. Line	10	60%	Maj. Asym.	Thin	Suppressed and weak	Possible center rot	NAD	-	Early bark beetle infestation. Rot pocket at fork with sap flow. Previously topped at 16 feet. Regeneration is poor	Significant	Poor	Non-viable	Remove Tree protection measures 5 feet from fence
Off property	518	RMD/PM 'g'	est. 10.5"	0.0	10'	5'	5'	5'	5'	70%	Min. Asym.	Average	Average	Straight	NAD	-	Previously topped at 20 feet. Regeneration is good. Early bark beetle infestation.	Significant	Fair	Viable	Tree protection measures 5 feet from fence

1 LOCATION #	2 TREE #	3 SPECIES	4 DBH	5 TREE CREDIT	6 DRIP LINE	7 -- LIMITS OF DISTURBANCE				8 LCR	9 SYMMETRY	10 FOLIAGE	11 CROWN CONDITION	12 TRUNK	13 ROOT COLLAR	14 ROOTS	15 COMMENTS	16 SIGNIFICANCE	17 HEALTH RATING	18 VIABILITY	19 STATUS / RECOMMENDATION
						North	South	East to prop. Line	West												
	519	RMDF/Pm 'g'	14.3"	3.0	15'	10'	10'	to prop. Line	10'	60%	Maj. Asym.	Average	Previously topped @ 20', regeneration is average	Slightly serpentine	NAD	-	Open wound on branch collar with sap flow. Early bark beetle infestation	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
Off property	520	RMDF/Pm 'g'	est. 12.5"	0.0	10'	5'	5'	n/a	5'	70%	Min. Asym.	Average	Average	Previously topped @ 18', regeneration is good	NAD	-	4 feet from fence. Early bark beetle infestation	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	521	RMDF/Pm 'g'	12.8"	2.0	12'	10'	10'	to prop. Line	10'	70%	Min. Asym.	Average	Average	Slight bow @ base	-	Previously topped at 18'. Early bark beetle infestation. Unusual butt swell.	Significant	Fair	Viable	Potential to retain with adequate tree protection measures	
	522	RMDF/Pm 'g'	10.7"	1.0	15'	10'	10'	to prop. Line	10'	70%	Min. Asym.	Average	Average	Slightly serpentine	NAD	-	Previously topped at 18 feet, regeneration is poor. Early bark beetle infestation. 4 feet from NW of existing power pole	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
Off property	523	RMDF/Pm 'g'	est. 13.0"	0.0	12'	5'	5'	n/a	5'	70%	Min. Asym.	Average	Average	Slight lean east	NAD	Restricted - parking lot 2' from base	Previously topped, regeneration is good	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	524	RMDF/Pm 'g'	9.5"	0.0	13'	10'	10'	to prop. Line	10'	70%	Maj. Asym.	Thin	Average	Straight	Base rot	-	Bark beetle infestation. 5 feet from fence. Bacterial infection in branch collars. Power line through canopy.	Significant	Poor	Non-viable	Remove Tree protection measures 3 feet from fence
Off property	525	RMDF/Pm 'g'	est. 7.0"	0.0	10'	3'	3'	n/a	3'	70%	Gen. Sym.	Average	Average	Straight	NAD	-	Previously topped, regeneration is good. 3 feet from fence.	Significant	Fair	Viable	Tree protection measures 15 feet
	526	RMDF/Pm 'g'	14.0"	3.0	16'	14'	14'	to prop. Line	14'	80%	Min. Asym.	Average	Average	Slight lean NW	NAD	-	Previously utility topped, regeneration is good at 20 feet	Significant	Fair	Viable	Tree protection measures 10 feet from fence
Off property	527	RMDF/Pm 'g'	est. 15.0"	0.0	15'	10'	10'	n/a	10'	80%	Min. Asym.	Average	Average	Straight	NAD	-	Previously topped, regeneration is good. Early bark beetle infestation.	Significant	Good	Viable	Potential to retain with adequate tree protection measures
	528	RMDF/Pm 'g'	17.1"	4.0	18'	14'	14'	to prop. Line	14'	80%	Gen. Sym.	Average	Average	Previously topped	NAD	-		Significant	Fair	Viable	
	529	Apple/Msp	4" - 9"	0.0								Thin	Dying				9 apple trees with ivy and blackberry to top, over-pruned, not wind firm	Significant	Poor	Non-viable	Remove
	530	DF/Pm	7.8"	0.0	20'	16'	16'	to prop. Line	16'	75%	Maj. Asym.	Average	Average	Previously topped @ 16', regeneration is poor.	NAD	-	Utility pruned at 20 feet with no foliage on east side. Slight lean west. Ivy. All planted 5 feet from fence	Significant	Poor	Non-viable	Remove
	531	DF/Pm	13.3"	0.0	20'	16'	16'	to prop. Line	16'	75%	Maj. Asym.	Average	Average	Straight	NAD	-	Utility pruned at 20 feet with no foliage on east side. Slight lean west. Ivy. All planted 5 feet from fence	Significant	Poor	Non-viable	Remove
	532	DF/Pm	10.5"	0.0	20'	16'	16'	to prop. Line	16'	75%	Maj. Asym.	Average	Average	Straight	NAD	-	Utility pruned at 20 feet with no foliage on east side. Slight lean west. Ivy. All planted 5 feet from fence	Significant	Poor	Non-viable	Remove
	533	DF/Pm	10.6"	0.0	20'	16'	16'	to prop. Line	16'	75%	Maj. Asym.	Average	Average	Straight	NAD	-	Utility pruned at 20 feet with no foliage on east side. Slight lean west. Ivy. All planted 5 feet from fence	Significant	Poor	Non-viable	Remove
	534	DF/Pm	10.0"	0.0	20'	16'	16'	to prop. Line	16'	75%	Maj. Asym.	Average	Average	Straight	NAD	-	Utility pruned at 20 feet with no foliage on east side. Slight lean west. Ivy. All planted 5 feet from fence	Significant	Poor	Non-viable	Remove
	535	DF/Pm	12.7"	0.0	20'	16'	16'	to prop. Line	16'	75%	Maj. Asym.	Average	Average	Straight	NAD	-	Utility pruned at 20 feet with no foliage on east side. Slight lean west. Ivy. All planted 5 feet from fence	Significant	Poor	Non-viable	Remove
	536	DF/Pm	12.9"	0.0	20'	16'	16'	to prop. Line	16'	75%	Maj. Asym.	Average	Average	Straight	NAD	-	Utility pruned at 20 feet with no foliage on east side. Slight lean west. Ivy. All planted 5 feet from fence	Significant	Poor	Non-viable	Remove
	537	DF/Pm	8.9"	0.0	20'	16'	16'	to prop. Line	16'	75%	Maj. Asym.	Average	Average	Straight	NAD	-	Utility pruned at 20 feet with no foliage on east side. Slight lean west. Ivy. All planted 5 feet from fence	Significant	Poor	Non-viable	Remove
	538	DF/Pm	10.5"	0.0	20'	16'	16'	to prop. Line	16'	75%	Maj. Asym.	Average	Average	Straight	NAD	-	Utility pruned at 20 feet with no foliage on east side. Slight lean west. Ivy. All planted 5 feet from fence	Significant	Poor	Non-viable	Remove
	539	DF/Pm	11.4"	0.0	20'	16'	16'	to prop. Line	16'	75%	Maj. Asym.	Average	Average	Straight	NAD	-	Utility pruned at 20 feet with no foliage on east side. Slight lean west. Ivy. All planted 5 feet from fence	Significant	Poor	Non-viable	Remove
	540	DF/Pm	16.2"	0.0	20'	16'	16'	to prop. Line	16'	75%	Maj. Asym.	Average	Average	Forked @ 5'	NAD	-	Utility pruned at 20 feet with no foliage on east side. Slight lean west. Ivy. All planted 5 feet from fence	Significant	Poor	Non-viable	Remove

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	541	DF/Pm	9.4"	0.0	20'	16'	16'	to prop. Line	16'	75%	Maj. Asym.	Average	Average	Straight	NAD	-	Utility pruned at 20 feet with no foliage on east side. Slight lean west. Ivy. All planted 5 feet from fence	Significant	Poor	Non-viable	Remove
	542	DF/Pm	11.7"	0.0	20'	16'	18'	to prop. Line	16'	75%	Maj. Asym.	Average	Average	Straight	NAD	-	Utility pruned at 20 feet with no foliage on east side. Slight lean west. Ivy. All planted 5 feet from fence	Significant	Poor	Non-viable	Remove
Off property	543	DF/Pm	11.0"	0.0	20'	16'	16'	n/a	16'	75%	Maj. Asym.	Average	Average	Straight	NAD	-		Significant	Poor	Non-viable	Remove
Off property	544	DF/Pm	11.0"	0.0	20'	18'	16'	n/a	18'	75%	Maj. Asym.	Average	Average	Straight	NAD	-		Significant	Poor	Non-viable	Remove
	545	DF/Pm	13.0"	2.0	15'	15'	15'	to prop. Line	to fence	50%	Min. Asym.	Average	Previously topped @ 16', regeneration is good with 2 trunk average	Straight	NAD	-	Ivy up 20 feet. 5 feet from fence	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	546	DF/Pm	8.5"	1.0	12'	12'	12'	to prop. Line	to fence	50%	Min. Asym.	Average	Previously topped @ 15', regeneration is fair	Straight	NAD	-	Ivy up 20 feet. 5 feet from fence	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	547	Apple/Msp	12.0"	0.0	12'	n/a	n/a	to prop. Line	n/a	50%	Min. Asym.	Average	Average	Center Rot	Base Rot	-	Forked at 8 feet with rot column to base. Ivy with berries. Dead branches in canopy.	Significant	Poor	Non-viable	Remove
Off property	548	DF/Pm	7.0"	0.0	9'	9'	9'	n/a	9'	70%	Min. Asym.	Average	Previously topped @ 20', regeneration is poor	Straight	NAD	-	3 feet from fence	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	549	DF/Pm	10.0"	1.0	12'	10'	10'	to prop. Line	10'	45%	Min. Asym.	Average	Previously topped regeneration is average	Straight	NAD	-	Ivy up 20 feet. 5 feet from fence	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	550	DF/Pm	7.0"	0.0	6'	n/a	n/a	to prop. Line	n/a	40%	Maj. Asym.	Average	Previously topped, regeneration is poor	Straight, Center rot	Base Rot	-	Ivy	Significant	Poor	Non-viable	Remove
	551	DF/Pm	7.2"	0.0	8'	n/a	n/a	to prop. Line	n/a	35%	Maj. Asym.	Average	Previously topped, regeneration is poor	Bowed @ base, Center rot	Previously failed, base rot	-		Significant	Poor	Non-viable	Remove
	552	Apple/Msp	10.5"	0.0	10'	n/a	n/a	n/a	n/a	45%	Min. Asym.	Average	Forked @ 3' with internal structural weakness down to base	Typical, Center rot	Base Rot	-	Previously pruned several times. Woodpecker activity	Significant	Poor	Non-viable	Remove
	553	DF/Pm	38.7"	0.0	25'	20'	20'	to prop. Line	20'	75%	Gen. Sym.	Average	Average	Straight	NAD	-	Previously topped at 35 feet with rot column down 28 feet. Dead branches in canopy. Internal structural weakness under fork. Ivy up 25 feet. Not wind firm. Branch collar wounds on south side. Significant sap flow down to base. Old fort in canopy. 12 feet from fence.	Significant	Poor	Non-viable	Remove
	554	WRCh/Tp	28.8" est.	10.0	18'	18'	18'	to prop. Line	18'	95%	Min. Asym.	Average	Average	Straight	NAD	-	Slightly drought stressed	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	556	BCh/Pe	10.5	0.0	12'	n/a	n/a	n/a	n/a	75%	Min. Asym.	Thin	Weak	Leans NE	NAD	-	Forked at 15 feet. Ivy down to base. Forked at 8 feet with included bark down 2'	Significant	Poor	Non-viable	Remove
	555	Mad/Am	27.8"	9.0	14'	14'	to prop. Line	to prop. Line	14'	40%	Min. Asym.	Average	Average	Typical	NAD	-	Blackberries and ivy up 15 feet. Verticillium wilt. Open wound on east side from base up. Not wind firm. Forked at 12 feet with center rot. Advanced carpenter ant infestation.	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	557	DF/Pm	18.3"	0.0	9'	9'	9'	9'	9'	75%	Gen. Sym.	Average	Average	Slightly serpentine	NAD	-	Shed 1 foot from base. Dead branches in canopy.	Significant	Poor	Non-viable	Remove
	558	BLM/Am	24.0"	5.0	14'	14'	14'	14'	14'	75%	Gen. Sym.	Dense	Healthy	Typical	NAD	-	Forked at base. Ivy and blackberries up 10 feet and 2 smaller trunks. Trunk diameters = 5.5", 7.0", 13.3" & 11.6" = single trunk tree of 24 inches.	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	559	RA/Ar	14.0"	3.0	12'	10'	10'	10'	10'	70%	Min. Asym.	Average	Average	Typical	NAD	Surface south 12'	Forked at 18 feet with included bark at base. 3 feet from drive. Trunk diameters = 8.3 inches and 4.4 inches - single trunk of 14 inches.	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	560	DF/Pm	18.2"	5.0	10'	10'	10'	10'	10'	80%	Gen. Sym.	Thin	Average	Serpentine	Bowed @ base	Surface all directions	In kept-up bed. Adelgids	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	581	DF/Pm	20.4"	8.0	12'	12'	12'	12'	12'	80%	Gen. Sym.	Thin	Average	Straight	Bowed @ base	Surface all directions	In kept-up bed. Adelgids	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	562	DF/Pm	24.1"	8.0	22'	22'	22'	22'	22'	85%	Min. Asym.	Average	Previously topped at 6'-9' and 35'	Typical	NAD	-	Lower branches pruned. Early bark beetle	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	563	DF/Pm	18.3"	5.0	22'	22'	22'	22'	22'	85%	Min. Asym.	Average	Average	Straight	NAD	-		Significant	Fair	Viable	Potential to retain with adequate tree protection measures

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	564	DF/Pm	17.6"	4.0	22'	22'	22'	22'	22'	85%	Min. Asym.	Average	Average	Straight	NAD	-		Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	565	DF/Pm	16.1"	4.0	22'	22'	22'	22'	22'	85%	Min. Asym.	Average	Average	Straight	NAD	-		Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	566	DF/Pm	19.6"	5.0	22'	22'	22'	22'	22'	85%	Min. Asym.	Average	Average	Straight	NAD	-		Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	567	DF/Pm	11.9"	1.0	22'	22'	22'	22'	22'	85%	Min. Asym.	Average	Suppressed	Straight	NAD	-	Center rot and base rot	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	568	DF/Pm	28.8"	9.0	22'	22'	22'	22'	22'	85%	Min. Asym.	Average	Average	Straight	NAD	-		Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	569	DF/Pm	7.8"	1.0	22'	22'	22'	22'	22'	85%	Min. Asym.	Average	Suppressed	Straight	NAD	-	Center rot and base rot	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	570	DF/Pm	19.1"	5.0	22'	22'	22'	22'	22'	85%	Min. Asym.	Average	Average	Straight	NAD	-		Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	571	DF/Pm	18.0"	5.0	22'	22'	22'	22'	22'	85%	Min. Asym.	Average	Average	Straight	NAD	-	Girdling root around Tree #572 40% vascular cambium	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	572	DF/Pm	23.9"	7.0	22'	22'	22'	22'	22'	85%	Min. Asym.	Average	Average	Straight	NAD	-		Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	573	DF/Pm	22.9"	7.0	20'	20'	20'	20'	20'	80%	Min. Asym.	Average	Average	Slight bow north	NAD	Surface east 20'	Early bark beetle infestation	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	574	DF/Pm	21.1"	6.0	12'	12'	12'	12'	12'	70%	Maj. Asym.	Average	Average	Leans NE	Partially Exposed	-	Unusual butt swell, Popping bark	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	575	DF/Pm	7.0"	0.0	n/a	n/a	n/a	n/a	n/a	30%	Maj. Asym.	Thin	Suppressed	Center Rot	Base Rot	-	Bark beetle infestation	Significant	Poor	Non-Viable	Remove
	576	DF/Pm	15.8"	0.0	n/a	n/a	n/a	n/a	n/a	60%	Maj. Asym.	Thin	Weak	Center Rot	Base Rot	-	Forked @ 20 feet with sap flow	Significant	Poor	Non-Viable	Remove
	577	DF/Pm	19.4"	5.0	20'	15'	15'	15'	15'	75%	Maj. Asym.	Average	Suppressed	Bowed NW, Kinked @ 30'	NAD	-	Early bark beetle infestation	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	578	DF/Pm	10.4"	0.0	n/a	n/a	n/a	n/a	n/a	75%	Maj. Asym.	Thin	Average	Kinked @ 18', Leans north	Base rot, Partially exposed	-	Center rot, Early bark beetle infestation	Significant	Poor	Non-Viable	Remove
	579	DF/Pm	13.1"	0.0	n/a	n/a	n/a	n/a	n/a	70%	Min. Asym.	Average	Suppressed	Forked @ 20' with rot columns	Base rot	-	Center rot, Bark beetle infestation	Significant	Poor	Non-Viable	Remove
	580	DF/Pm	22.7"	7.0	15'	10'	10'	10'	10'	70%	Min. Asym.	Thin	Suppressed	Previously topped @ 20', regeneration is good	NAD	-	Early bark beetle infestation	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	581	DF/Pm	6.3"	0.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Weak	n/a	n/a	-		Significant	Dead	Non-Viable	Remove
	582	DF/Pm	11.2"	0.0	n/a	n/a	n/a	n/a	n/a	75%	Maj. Asym.	Average	Average	Previously topped @ 15', regeneration is poor	Base rot	-	Center rot with columns	Significant	Poor	Non-Viable	Remove
	583	DF/Pm	20.3"	6.0	18'	18'	18'	18'	to fence	50%	Min. Asym.	Average	Average	Slightly bowed @ base	NAD	-	Bark beetle infestation. Epicormic growth, 1 foot from fence. Previously topped @ 30 feet.	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	584	DF/Pm	24.2"	8.0	20'	15'	15'	15'	to fence	60%	Gen. Sym.	Average	Average	Straight	NAD	-	Previously topped @ 30 feet. 6 feet from fence. Epicormic growth. Early bark beetle infestation. Dead branches in canopy.	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	585	DF/Pm	26.9"	9.0	15'	15'	15'	15'	15'	75%	Min. Asym.	Average	Average	Straight	NAD	-	Previously topped @ 30 feet. Ivy up 20 feet. Epicormic growth. Early bark beetle infestation. Dead branches in canopy	Significant	Fair	Viable	Potential to retain with adequate tree protection measures. Remove ivy.
	586	DF/Pm	25.8"	8.0	13'	13'	13'	13'	13'	70%	Min. Asym.	Average	Average	Straight	NAD	-	Previously topped @ 30 feet. Early bark beetle infestation. Ivy up 15 feet.	Significant	Fair	Viable	Potential to retain with adequate tree protection measures. Remove ivy.

1	2	3	4	5	6	7 -- LIMITS OF DISTURBANCE				8	9	10	11	12	13	14	15	16	17	18	19
LOCATIO N	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	HEALTH RATING	VIABILITY	STATUS / RECOMMENDATION
	627	GS/Sg	2.5" to 5.5" @ 6"	0.0	3' to 7'	7'	7'	7'	to prop line	98%	Gen. Sym.	Dense	Healthy	Straight	NAD	-		Not Significant	Excellent	Viable	Potential to retain with adequate tree protection measures
	628	GS/Sg	2.5" to 5.5" @ 6"	0.0	3' to 7'	7'	7'	7'	to prop line	98%	Gen. Sym.	Dense	Healthy	Straight	NAD	-		Not Significant	Excellent	Viable	Potential to retain with adequate tree protection measures
	629	GS/Sg	2.5" to 5.5" @ 6"	0.0	3' to 7'	7'	7'	7'	to prop line	98%	Gen. Sym.	Dense	Healthy	Straight	NAD	-		Not Significant	Excellent	Viable	Potential to retain with adequate tree protection measures
	630	GS/Sg	2.5" to 5.5" @ 6"	0.0	3' to 7'	7'	7'	7'	to prop line	98%	Gen. Sym.	Dense	Healthy	Straight	NAD	-		Not Significant	Excellent	Viable	Potential to retain with adequate tree protection measures
	631	ABP/Pn	14.4"	3.0	15'	15'	15'	15'	to prop line	80%	Min. Asym.	Dense	Healthy	Slight lean east. Forked @ 16'	NAD	-	6' east of west property line	Significant	Very Good	Viable	Potential to retain with adequate tree protection measures
	632	ABP/Pn	7.0"	1.0	9'	10'	10'	10'	to prop line	75%	Min. Asym.	Average	Average	Slight lean east	NAD	-	6' east of west property line	Significant	Good	Viable	Potential to retain with adequate tree protection measures
	633	ABP/Pn	11.4"	1.0	12'	11'	11'	11'	to prop line	75%	Min. Asym.	Average	Average	Straight	NAD	-	6' east of west property line	Significant	Good	Viable	Potential to retain with adequate tree protection measures
	634	ABP/Pn	11.6"	1.0	15'	15'	15'	15'	to prop line	90%	Min. Asym.	Average	Average	Forked @ 7' with included bark down 6', Serpentine	NAD	-	6' east of west property line	Significant	Good	Viable	Potential to retain with adequate tree protection measures
	635	ABP/Pn	9.5"	1.0	8'	10'	10'	10'	to prop line	50%	Min. Asym.	Thin	suppressed	Slight lean east	NAD	-	6' east of west property line	Significant	Fair	Viable	Potential to retain with adequate tree protection measures
	636	WRC/Tp	13.2" est. 13.5" & 11.5"	2.0	18'	18'	18'	18'	to prop line	98%	Min. Asym.	Average	Average	Straight	NAD	-	6' east of west property line	Significant	Very Good	Viable	Potential to retain with adequate tree protection measures
Off property	637	WRC/Tp	11.5"	0.0	12'	12'	12'	12'	6' west of property line to prop line	85%	Gen. Sym.	Dense	Healthy	Forked at 18' with included bark down to base	NAD	-	Canopy overhangs subject property by 5 feet	Significant	Very Good	Viable	Potential to retain with adequate tree protection measures
Off property	638	BLM/Am	20.2"	0.0	27'	25'	25'	25'	25' east of west prop line to prop line	80%	Gen. Sym.	Dense	Healthy	Typical, forked @ 7' with included bark down 24"	NAD	-	Canopy overhangs subject property by 5 feet	Significant	Good	Viable	Potential to retain with adequate tree protection measures
Off property	639	COJ/Ps	est. 10" @ 12"	0.0	16'	12'	12'	12'	10' east of west prop line to prop line	75%	Gen. Sym.	Dense	Healthy	Typical, Forked @ 2'	NAD	-	Canopy overhangs subject property by 3 feet	Significant	Excellent	Viable	Potential to retain with adequate tree protection measures
Off property	640	WRC/Tp	est. 20"	0.0	18'	16'	16'	16'	10' east of west prop line to prop line	85%	Gen. Sym.	Dense	Healthy	Straight	NAD	-	8 feet west of west property line. Canopy overhangs subject property by 10 feet	Significant	Excellent	Viable	Potential to retain with adequate tree protection measures
Off property	641	EWP/Bp	est. 8" & 15"	0.0	20'	n/a	n/a	n/a	10' east of west prop line to prop line	60%	Min. Asym.	Dense	Healthy	Forked @ base	NAD	-	8 feet west of west property line. Canopy overhangs subject property by 10 feet	Significant	Very Good	Viable	Potential to retain with adequate tree protection measures
	642	Nm/Ap	16.6"	4.0	16'	15'	15'	6'	15'	85%	Gen. Sym.	Dense	Healthy	Forked @ 9' with included bark down 24"	NAD	-	Gravel drive on 2 sides of critical root zone. Within 4 and 6 feet of the base. Open wound West and SW side from base up 6'	Significant	Good	Viable	Potential to retain with adequate tree protection measures
	643	DF/Pm	11.7"	1.0	14'	14'	14'	to building	14'	85%	Min. Asym.	Dense	Regeneration is healthy	Previously topped @ 12'	NAD	-	Sap flow from branch collars. Adelgid infestation	Significant	Good	Viable	Potential to retain with adequate tree protection measures

## 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 #**—the individual number of each tree.
- 2) **SPECIES**—this describes the species of each tree with both most readily accepted common name and the officially accepted scientific name.
- 3) **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"'.
    - (1) Every effort is made to distinguish between a single tree with multiple stems and several trees growing close together at the bases.
  - 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.
- 4) **TREE CREDIT**—Tree Credit based on Trunk Diameter
- 5) **DRIP LINE**— The radius, the distance from the trunk to the furthest branch tips.
- 6) **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.
- 7) **% 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.
- 8) **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/foilage 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/foilage 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/foilage 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.
- 9) **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.

10) **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.

11) **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.
- 12) **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**.
- 13) **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.
- 14) **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.
- 15) **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 - 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**

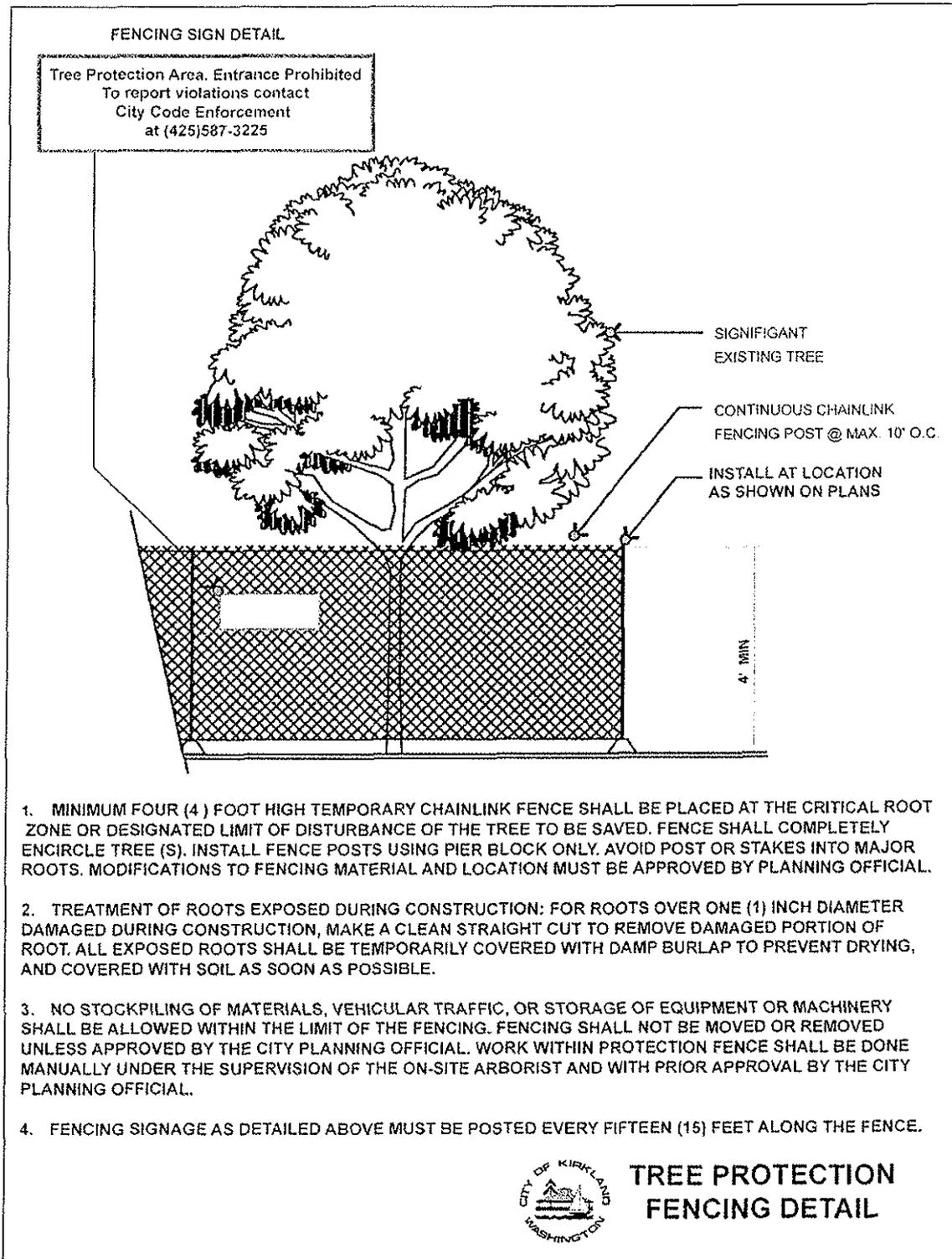
4. The area within the Tree Protection Fencing must be covered with wood chips, hog fuel, or similar materials to a depth of 8 to 10 inches. The materials should be placed prior to beginning construction and remain until the Tree Protection Fencing is taken down.
5. When excavation occurs near trees 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.



## ATTACHMENT 5 - REFERENCES

1. Harris, Richard W. et al. *Arboriculture, Integrated Management of Landscape Trees, Shrubs, and Vines*. 4<sup>th</sup> ed. Upper Saddle River: Prentice Hall, 2004.
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4. Mathews, Daniel. *Cascade -- Olympic Natural History*. Portland, Oregon: Raven Editions with the Portland Audubon Society, 1992.
5. Mattheck, Claus and Breloer, Helge. *The Body Language of Trees, A Handbook for Failure Analysis*. London: HMSO, 1994.
6. Scharpf, Robert F. *Diseases of Pacific Coast Conifers*. Albany, California: USDA Forest Service, Agriculture Handbook 521, rev. June 1993.
7. Watson, Gary W., and Neely, Dan, eds. *Trees & Building Sites*. Savoy: The International Society of Arboriculture Press, 1995.