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**ARBORIST REPORT
FOR
8383 & 8375 E Mercer Way
Mercer Island, WA**



September 3rd, 2014

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1. Introduction

American Forest Management, Inc. was contacted by Victoria Genise with Ripple Design Studio, and was asked to compile an 'Arborist Report' for two parcels located within the City of Mercer Island, WA.

The proposed 2-Lot short plat encompasses the properties located at 8383 & 8375 E Mercer Way. Our assignment is to prepare a written report on present tree conditions, which is to be filed with the short plat permit application.

Date of Field Examination: August 29th, 2014

2. Description

Significant trees are comprised of a mix of planted and native species. Subject trees can be identified in the field by a numbered aluminum tag. Before I began this assignment many of the trees were tagged with aluminum tags and flagged with a pink ribbon. Any tree that did not already have an aluminum tag was tagged with the number on the pink ribbon. Tree tag numbers correspond with tree numbers on the attached tree summary tables and the copy of the site plan. Detailed information for assessed trees can be found on the accompanying Tree Condition Summary spreadsheets. Tree/Tag #, species, DBH (diameter at 4 ½ feet above ground), height, measured drip-lines, specific defects and overall condition are given.

41 significant trees were evaluated on the subject property. Two of these were found to be in a non-viable condition and four are borderline viable. In addition 7 trees on neighboring properties were assessed. One of these was found to be non-viable and one was borderline viable.

3. 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 of the tree is examined for current vigor. This is comprised of inspecting the crown (foliage, buds and branches) for color, density, form, and annual shoot growth, limb dieback and disease. The percentage of live crown is estimated for coniferous species only and scored appropriately.
- The bole or main stem of the tree is inspected for decay, which includes cavities, wounds, fruiting bodies of decay (conks or mushrooms), seams, insects, bleeding, callus development, broken or dead tops, structural defects and unnatural leans. Structural defects include crooks, forks with V-shaped crotches, multiple attachments, and excessive sweep.
- The root collar and roots are inspected for the presence of decay, insects and/or damage, as well as if they have been injured, undermined or exposed, or original grade has been altered.

Based on these factors a determination of viability is made. Trees considered 'non-viable' are trees that are in poor condition due to disease, extensive decay and/or cumulative structural defects, which exacerbate failure potential. A 'viable' tree is a tree found to be in good health, in a sound condition with minimal defects and is suitable for its location. Also, it will be wind firm if isolated or left as part of a grouping or grove of trees. A 'borderline' viable tree is a tree where its viability is in question. These are trees that are beginning to display symptoms of decline due to age, species related problems and/or man caused problems. Borderline trees are not expected to positively contribute to the landscape for the long-term and are not recommended for retention.

4. Observations

8383

Tree #8185 is a Douglas-fir on the in between the driveways of house 8383 and 8375. This tree has good taper but has been crown thinned. Tree vigor is good and the condition is fair.

Tree #101 is a deciduous tree in the south end of 8383. The subject tree was topped and has co dominant stems. This tree is in fair condition.

Tree #8538 and 422 are two 55' tall western red cedars on the west edge of 8383. Both trees were topped and now have multiple new leaders. These new leaders are weakly attached and prone to breaking. Both trees are in fair-poor condition and are borderline viable.

Tree #508 is a 22" dbh western hemlock. The subject tree is infected with a leaf defoliator, hemlock woolly adelgid. Hemlock woolly adelgid is not known to cause serious damage in western hemlocks. This tree has no other concerning defects and is in fair condition.

Tree #8467 is a Sitka spruce. The subject tree has a crook 40' up the trunk and was crown thinned. There is some foliage dieback. This tree is in fair condition and is viable.

Tree #521 is a 9" dbh Washington hawthorn. The subject tree is in good condition and has no concerning defects.

Tree #519 is a 22" dbh Douglas-fir. The subject tree is in good condition, has good trunk taper and a full crown.

Tree #520 is a 25' tall European mountain ash. The subject tree has co-dominant stems with good attachment and is viable.

Tree #8509 is a western hemlock. The subject tree was crown thinned and has poor structural form. This tree is in fair condition and is viable.

Tree #510 is a 22" western white pine. This tree has good trunk taper, was crown thinned and is in fair condition.

Tree #8510 is a western red cedar in fair condition. The subject tree has a self-correcting lean northwest.

Tree #8464 is a western hemlock. The subject tree has ivy high into the canopy and was crown thinned.

Tree #561 is a big leaf maple in close proximity to tree #8462. The trunk is covered in ivy and the tree is in fair condition.

Tree #8462 is a big leaf maple. The subject tree forks 1' from the ground and the co-dominant stem is dead. This tree is in fair condition and is viable.

Tree #540 is a big leaf maple in the northwest section of 8383 with good form and evidence of past branch failures. This tree is in good condition and is viable.

8375

Tree #8471 and #562 are western red cedars on the west edge of 8375. Both are in good condition and have no noteworthy defects.

Tree #8470 and #564 are Douglas-firs on the west edge of 8375. Both trees have good taper and no concerning defects.

The row of *Pyramidalis arborvitae* (#839, 8497, 841, 842, 843, 8498, 845 and 846) in the middle of 8375 range from 15' to 35' tall. All of the trees are in fair condition except for tree #8497 which is in fair-poor condition and was topped.

The fruit and cherry trees (#787, 835, 833, 819, 818 and 820) on the east side of 8375 are fair condition. The subject trees have typical form (widespread crowns, leaning, pruned) and are in fair condition.

Tree #798 is a western red cedar on the east edge of 8375, adjacent to the pond. The tree is growing on a 4' tall stump. The tree has excellent form and a full crown.

Tree #8432 is a mature big leaf maple on the north edge of the property. The subject tree leans SE, and has some dead branches. This tree additionally has a large, widespread crown and is in fair condition.

Neighboring trees

Tree #543 is a big leaf maple adjacent to the northwest property corner at 8383. The subject tree has good form and no concerning defects.

Tree #576 is an over mature red alder north of 8375. The subject tree is an over mature alder in severe decline. The subject tree has a small live crown, and leaf discoloration. This tree additionally has pockets of decay and past branch failure. The subject tree is in poor condition and is non-viable.

Tree #574 is an over mature red alder north of 8375. The subject tree leans SE and has co dominant stems with included bark. There are pockets of decay throughout the trunk and ivy covering the lower trunk. The subject tree is in fair-poor condition and is borderline viable.

Tree #847 is a mature big leaf maple north of 8375. This tree has four co dominant stems and a SE lean. The subject tree has some large dead branches, the most notable has a rope swing attached to it. The overall condition of the tree is fair and the tree is viable.

Tree #201 and 202 are young Douglas-fir trees east of 8375. Both trees have full crowns and no concerning issues.

5. Discussion

In the greenbelt northwest of the properties there are mature hardwoods in significant decline. The neighboring trees with drip lines that extended over the property line were visually assessed. The trees in this greenbelt should be examined further as there may be more trees that pose a risk to the new houses.

The two non-viable trees on the property (#787 and #8280) should be removed to reduce risk. The two borderline trees (#8497 and #8100) are in decline and unlikely to contribute long term to the health of the forest. There are multiple large standing dead trees on the 8383 property. These should be removed to abate risk.

A few of the large conifers on 8383 were crown thinned, likely to reduce "windsail". There is no clear evidence that crown thinning to reduce windsail is effective in preventing failure of a mature, healthy conifer.

The extent of drip-lines (farthest reaching branches) for trees potentially impacted by development can be found in the tree summary tables at the back of this report. The information plotted on the attached site plan may need to be transferred to a final tree retention/protection plan to meet City submittal requirements.

All of the viable trees, if construction will remain outside the limits of disturbance, would be well suited for retention. Tree #540 (big leaf maple, 22"), #8432 (big leaf maple, 38"), and #508 (Western Hemlock, 22") are all healthy, viable trees located on the perimeter of the property and would be very good options for retention.

If new tree plantings are desired, I recommend planting western red cedar on the north end of the property. Once the invasive plants and standing dead trees are cleared from the area, there will be large gaps in the tree canopy.

6. 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.

1. Tree protection fencing shall be erected per 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.
2. Excavation limits should be laid out in paint on the ground to avoid over excavating.
3. Excavations within the drip-lines of retained trees 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 is required and allowed up to the "limits of disturbance".
4. To establish sub grade for foundations, curbs and pavement sections near the trees, soil should 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 drip-line. Any roots damaged during these excavations should be exposed to sound tissue and cut cleanly with a saw. Cutting tools should be sterilized with alcohol.
5. Areas excavated within the drip-line of retained trees should be thoroughly irrigated weekly during dry periods.
6. Preparations for final landscaping shall be accomplished by hand within the drip-lines of retained trees. Large equipment shall be kept outside of the tree protection zones.

There is no warranty suggested for any of the trees subject to this report. Weather, latent tree conditions, and future man-caused activities could cause physiologic changes and deteriorating tree condition. Over time, deteriorating tree conditions may appear and there may be conditions, which are not now visible which, could cause tree failure. This report or the verbal comments made at the site in no way warrant the structural stability or long term condition of any tree, but represent my opinion based on the observations made. Nearly all trees in any condition standing within reach of improvements or human use areas represent hazards that could lead to damage or injury.

Please call if you have any questions or if we can be of further assistance.

Sincerely,



Kelly Wilkinson
ISA Certified Arborist #PN-7673A
ISA Tree Risk Assessment Qualified

Tree Protection Standards

1. Tree Protection Fencing shall be erected at prescribed distance per arborist report. Fences shall be constructed of chain link and be at least 4 feet high.
2. Install highly visible signs on protection fencing spaced no further than 15 feet apart. Signs shall state "Tree Protection Area-Entrance Prohibited", and "City of Mercer island" code enforcement phone number.
3. No work shall be performed within protection fencing unless approved by Planning Official. In such cases, activities will be approved and supervised by a "Qualified Tree Professional".
4. The original grade shall not be elevated or reduced within protection fencing without the Planning Official authorization based on recommendations from a qualified professional.
5. No building materials, spoils, chemicals or substances of any kind will be permitted within protection fencing.
6. Protection Fencing shall be maintained until the Planning Official authorizes its removal.
7. Ensure that any approved landscaping within the protected zone subsequent to the approved removal of protection fencing be performed with hand labor.

In addition to the above, the Planning Official may require the following:

- a. If equipment is authorized to operate within the root zone, the area will be mulched to a depth of 6" or covered with plywood or similar material to protect roots from damage caused by heavy equipment.
- b. Minimize root damage by excavating a 2-foot deep trench, at edge of protection fencing to cleanly sever the roots of protected trees.
- c. Corrective pruning to avoid damage from machinery or building activity.
- d. Maintenance of trees throughout construction period by watering and fertilization.

Photos

Tree #8538, western red cedar, previously topped, many new leaders



Tree #508, western hemlock with hemlock woolly adelgid



Pyramidalis arborvitae's



Tree #787



Tree #798, western red cedar growing on a stump



Tree #576, red alder with a broken top and foliage dieback



Tree #574, red alder with decay



Tree Summary Table

For: 8383 E Mercer Way

American Forest Management, Inc.

Date: 8/29/14

Inspector: Wilkinson

Tree/ Tag #	Species	DBH (inches)	Height (feet)	Drip-Line/Limits of Disturbance (feet)				Condition	Viability	Comments
				N	S	E	W			
8185	Douglas fir	26	85		17 / 12		15 / 12	good	viable	driveway is 12' south of tree, good taper, was crown thinned in the past
101	deciduous ornamental	5, 7	20	15 / 8	10 / 8	10 / 8	12 / 8	good	viable	forks at 2', was topped
8538	western red cedar	19	55	13 / 12			18 / 12	fair-poor	borderline	was topped in the past, lots of new leaders, pink ribbon - 507
422	western red cedar	9, 22	55	14 / 12			16 / 12	fair-poor	borderline	was topped in the past, lots of new leaders, pink ribbon - 422, co-dominant stem forks at 1'
508	western hemlock	22	75	22 / 15		23 / 15	13 / 15	fair	viable	hemlock woolly adelgid
518	deciduous	5						good	viable	
8467	sitka spruce	17	75	6 / 10	16 / 10	20 / 10	4 / 10	fair	viable	foliage dieback, co dominant stems fork at 40', minor bleeding on trunk
521	Washington hawthorne	9	52	12 / 6		12 / 6		fair	viable	suppressed
519	Douglas fir	22	125		14 / 12	11 / 12	6 / 12	good	viable	no concerns
520	European mountain ash	7	25	15 / 6	10 / 6	13 / 6		good	viable	co-dominant forks at 10'
8509	western hemlock	20	90	15 / 12	12 / 12	14 / 12	8 / 12	fair	viable	was crown thinned, poor form, spike knot
510	western white pine	22	95	12 / 12	18 / 12	15 / 10	12 / 12	fair	viable	was pruned
8510	western red cedar	17	75	11 / 10	12 / 10	5 / 10	11 / 10	fair	viable	ribbon - 841, 15 deg lean NW, lean self correcting
8464	western hemlock	12	88		10 / 8		2 / 8	fair	viable	ribbon - 535, covered in ivy, crown thinned
561	big leaf maple	19	90			12 / 10		fair	viable	ivy covering the trunk
8462	big leaf maple	18	90	5 / 10			18 / 10	fair	viable	ribbon - 560, forks at 1', dead co-dominant stem
540	big leaf maple	22	90	25 / 15	25 / 15	17 / 15	10 / 15	good	viable	some past branch failure, good form
328	deciduous	6, 6	12	8	10	5	5	fair	viable	
8280	red alder	25	95					poor	non-viable	ribbon - 548
Neighboring Trees										
543	big leaf maple	26			20 / 15		16 / 15	good	viable	good form, full crown, no concerns

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

Trees on neighboring properties - Drip-line and Limits of Disturbance measurements from property lines

Tree Summary Table

For: 8375 E Mercer Way

American Forest Management, Inc.

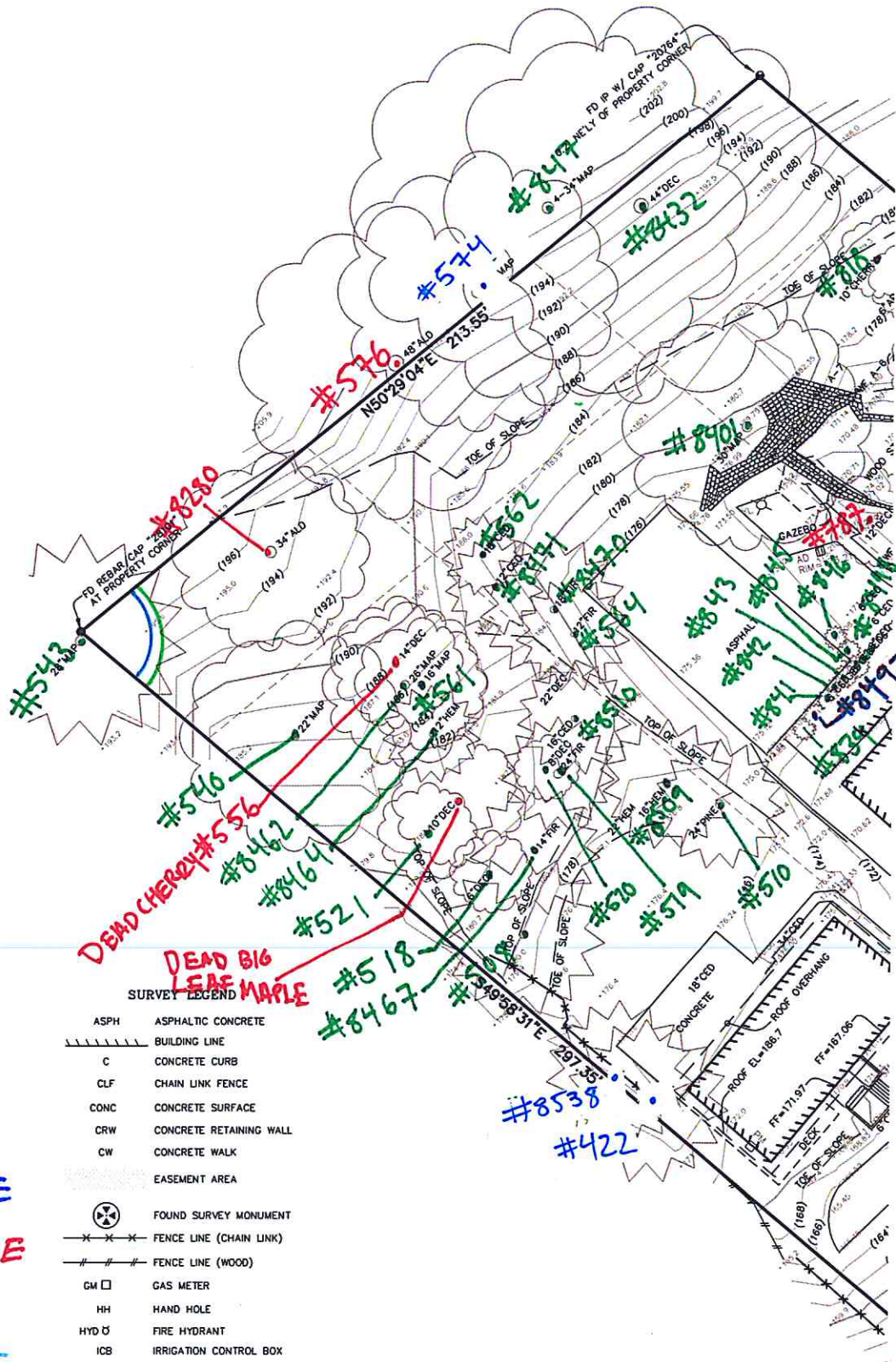
Date: 8/29/2014

Inspector: Wilkinson

Tree/ Tag #	Species	DBH (inches)	Height (feet)	Drip-Line/Limits of Disturbance (feet)				Condition	Viability	Comments
				N	S	E	W			
8471	western red cedar	11	50	10 / 8	10 / 8	12 / 8	9 / 8	good	viable	ribbon - 542
8432	big leaf maple	38	100		38 / 20	35 / 20		fair	viable	ribbon - 837, leans SE, some dead branches
839	Pyramidalis arborvitae	5	25	Drip-lines range from 2-3', limiting distance for all sides is 3'				fair	viable	
8497	Pyramidalis arborvitae	10	15					fair-poor	borderline	topped, co dominant stems, ribbon - 840
841	Pyramidalis arborvitae	6	28					fair	viable	
842	Pyramidalis arborvitae	6	30					fair	viable	
843	Pyramidalis arborvitae	6	30					fair	viable	
8498	Pyramidalis arborvitae	7	30					fair	viable	ribbon - 844
845	Pyramidalis arborvitae	6	35					fair	viable	
846	Pyramidalis arborvitae	7	35					fair	viable	
564	Douglas-fir	13	92		7 / 8	10 / 8	4 / 8	good	viable	good taper
8470	Douglas-fir	18	95	12 / 8		12 / 8	6 / 8	good	viable	ribbon - 563, good taper
562	western red cedar	18	65	11 / 10		15 / 12	5 / 10	good	viable	no concerns
8401	big leaf maple	36	95	20 / 18	25 / 10	29 / 10	26 / 18	fair	viable	ribbon - 645, some past branch failures, pond is adjacent and SE
787	cherry	13	18					poor	non viable	growths
8100	deciduous	8	22	4 / 4	15 / 4	4 / 4		fair-poor	borderline	ribbon - 834, leans south, foliage discoloration
835	fruit	5, 2	20	5 / 4	4 / 4	8 / 4		fair	viable	
833	apple	6	18	5 / 4	2 / 4	4 / 4	4 / 4	fair	viable	
819	fruit tree	5, 3	15	4 / 4	10 / 4	5 / 4	5 / 4	fair	viable	
818	cherry	9	22				10 / 8	fair	viable	cherry gummosis, heavy pruning
820	fruit tree	5, 2	12	2 / 4	8 / 4	4 / 4	6 / 4	fair	viable	pruned
798	western red cedar	26	70	10 / 12	15 / 12		18 / 12	fair	viable	growing on a stump, picture
Neighboring Trees										
847	big leaf maple	38, 22, 30, 25			39 / 20	31 / 20		fair	viable	four co dominant stems, ivy covering the trunk, SE lean, rope swing
574	red alder	15, 32			38			fair-poor	borderline	past stem failure, included bark, pockets of decay, ivy on trunk
576	red alder	12, 9, 34						poor	non-viable	severe foliage dieback, broken top
8399	cherry	3, 11, 4					8 / 5	fair	viable	ribbon - 807, pruned
201	Douglas-fir	4					4 / 4	good	viable	
202	Douglas-fir	4					8 / 4	good	viable	

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

Trees on neighboring properties - Drip-line and Limits of Disturbance measurements from property lines

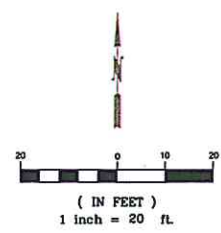


APPROXIMATE SCALE
1" = 40'

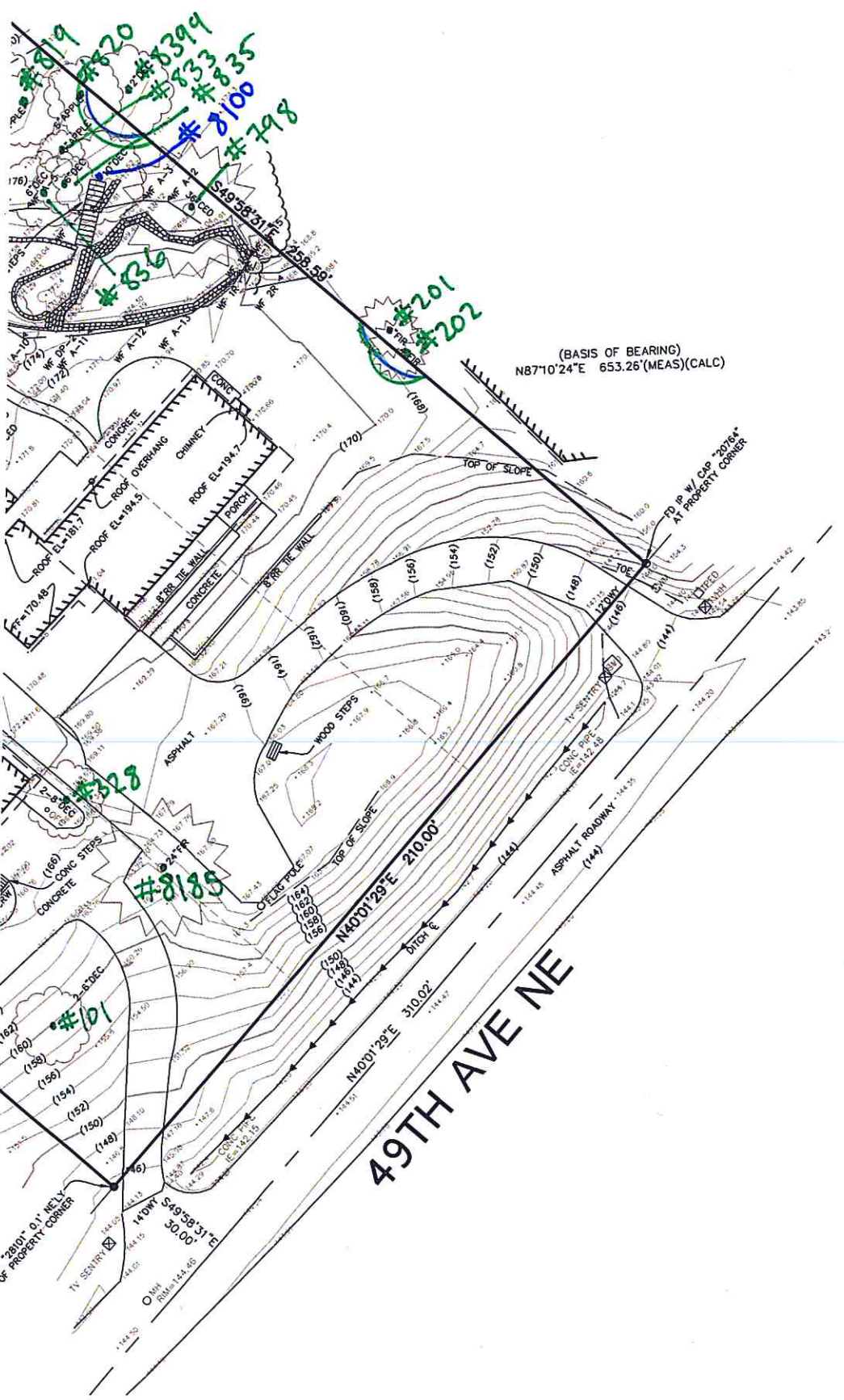
- #518 - VIABLE TREE
- #422 - BORDERLINE TREE
- #8280 - NON-VIABLE TREE
- DRIPLINE
- LIMITS OF DISTURBANCE

SURVEY LEGEND

ASPH	ASPHALTIC CONCRETE
---	BUILDING LINE
C	CONCRETE CURB
CLF	CHAIN LINK FENCE
CONC	CONCRETE SURFACE
CRW	CONCRETE RETAINING WALL
CW	CONCRETE WALK
---	EASEMENT AREA
⊙	FOUND SURVEY MONUMENT
-x-x-x-	FENCE LINE (CHAIN LINK)
- - - -	FENCE LINE (WOOD)
GM □	GAS METER
HH	HAND HOLE
HYD ⊕	FIRE HYDRANT
ICB	IRRIGATION CONTROL BOX
IP	IRON PIPE
LUM ⊗	LUMINAIRE
MH ○	MAINTENANCE HOLE
OHP	OVERHEAD POWER
ℓ	PROPERTY LINE
PM □	POWER METER
PPO	POWER POLE
PPO ⊙	POWER POLE W/ LIGHT
THH	TELEPHONE HAND HOLE
WMC	WATER METER
V	VALVE



FD REBAR/CAP



(BASIS OF BEARING)
 N87°10'24"E 653.26'(MEAS)(CALC)

49TH AVE NE

#819
 #820
 #8399
 #8333
 #835
 #100
 #798
 #836
 #201
 #202

#328
 #247R
 #8185
 #101

2801' 01" NELY
 OF PROPERTY CORNER
 TV SERVICE
 14'DWY S49°58'31"E
 30.00'
 O MEAS
 RUM 144.85

N40°01'29"E 210.00'
 N40°01'29"E 310.02'

TOP OF SLOPE
 TO IP W/ CAP 20764"
 AT PROPERTY CORNER
 TOE
 DIFIED

WOOD STEPS
 ASPHALT ROADWAY (144)
 CONCRETE PAV (E=141.25)
 TV SERVICE (144)

S49°58'31"E
 27.58' 55"

CONCRETE
 CHIMNEY
 ROOF OVERHANG
 ROOF EL=194.7
 ROOF EL=194.5
 ROOF EL=191.7
 ROOF EL=187.8

CONCRETE
 9" BRICK WALL
 ASPHALT
 WOOD STEPS
 OPEN POLE

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