

ADDITIONAL INFORMATION

Karen DeMaria

From: Gary Volenec
Sent: Monday, January 16, 2023 8:55 AM
To: Ronald Ramsingh; Raj Ramsingh
Cc: Karen DeMaria; Todd C. Stoughton; Patti McLauchlin
Subject: RE: City Mahogany tree removal 1701 Von Phister
Attachments: PXL_20230114_193548467.jpg; PXL_20230114_193541311.jpg; PXL_20230114_193445638.jpg; PXL_20230114_193526052.jpg

Yes, I did, and I have to admit that there is quite a root collar at the base of the tree. It rises up substantially. That being said, the root pruning between the fence and the structure plus installation of a subsurface barrier wall should protect the foundation. But Karen would have the final say as to what would be best for the health of the tree.

Gary

Gary J. Volenec, P.E.
City Engineer / Interim Director
Engineering Department
City of Key West
(W) 305.809.3828



From: Ronald Ramsingh <rramsingh@cityofkeywest-fl.gov>
Sent: Friday, January 13, 2023 2:40 PM
To: Gary Volenec <gary.volenec@cityofkeywest-fl.gov>; Raj Ramsingh <raj.ramsingh@cityofkeywest-fl.gov>
Cc: Karen DeMaria <kdemaria@cityofkeywest-fl.gov>; Todd C. Stoughton <tstoughton@cityofkeywest-fl.gov>; Patti McLauchlin <pmclauchlin@cityofkeywest-fl.gov>
Subject: RE: City Mahogany tree removal 1701 Von Phister

Did you already perform a site visit?

Ron

From: Gary Volenec <gary.volenec@cityofkeywest-fl.gov>
Sent: Friday, January 13, 2023 1:46 PM
To: Ronald Ramsingh <rramsingh@cityofkeywest-fl.gov>; Raj Ramsingh <raj.ramsingh@cityofkeywest-fl.gov>
Cc: Karen DeMaria <kdemaria@cityofkeywest-fl.gov>; Todd C. Stoughton <tstoughton@cityofkeywest-fl.gov>; Patti McLauchlin <pmclauchlin@cityofkeywest-fl.gov>
Subject: RE: City Mahogany tree removal 1701 Von Phister

Ron,

After discussing with Karen and evaluating the situation, I would recommend that the tree be root pruned adjacent to his structure and a root guard be installed. This would allow most roots opposite the ROW to be saved while preventing growth towards the foundation of his home. I defer to Raj as to whether any present or imminent danger of damage to the house foundation exists.

Gary

Gary J. Volenec, P.E.

City Engineer / Interim Director

Engineering Department

City of Key West

(W) 305.809.3828



From: Ronald Ramsingh <r Ramsingh@cityofkeywest-fl.gov>

Sent: Tuesday, January 10, 2023 6:22 PM

To: Gary Volenec <gary.volenec@cityofkeywest-fl.gov>; Raj Ramsingh <raj.ramsingh@cityofkeywest-fl.gov>

Cc: Karen DeMaria <kdemaria@cityofkeywest-fl.gov>; Todd C. Stoughton <tstoughton@cityofkeywest-fl.gov>; Patti McLauchlin <pmclauchlin@cityofkeywest-fl.gov>

Subject: City Mahogany tree removal 1701 VonPhister

Hello Gary/Raj:

There was a unique tree removal application filed by the city for this city mahogany on the public ROW. It is a very large tree that is very close to the side of a home owned by Eric Denhart. The tree evaluation indicates that the tree is otherwise very healthy. The city has arranged for pruning and canopy trimming over the last couple of years. There is an allegation that the tree roots are currently damaging the home's foundation. I have no independent professional opinion to that effect and the Tree Commission has postponed the item at my suggestion to have someone from the Building and Engineering departments perform a site visit to determine objectively if there is present or imminent danger of damage to the house.

With Management's direction, I recommend that to make a determination with a site visit in your respective disciplines.

Thanks,

Ronald J. Ramsingh
Interim City Attorney
City Attorney's Office
City of Key West
1300 White Street
Key West, FL 33040
(305) 809-3770



Public
Notice







Karen DeMaria

From: Raj Ramsingh
Sent: Monday, January 30, 2023 10:58 AM
To: Todd C. Stoughton; Ronald Ramsingh; Karen DeMaria; Gary Volenec
Subject: 1701 Tree issue

Good morning Todd,

I looked at the mahogany tree located at 1701 Von Phister on the city ROW. It is my opinion that the massive root system from this tree is definitely impacting the foundation of the home. The owner has gone above and beyond in his efforts to save a tree that is not on his property. In the past 30 years he has trimmed roots on his property, fixed the cracked flooring and foundations several times in his home, and has also had pool leaks cause by the spreading roots. According to his statement he has asked the city several times in the past to trim the tree which was never done. Now the tree is just to big and massive to trim without causing some stability issues. Unfortunately, should we have massive storm related event the tree can become a liability for the city not only house at 1701 Von Phister, but for neighboring homes as well.

Sincerely,

Raj Ramsingh
Building Director
Chief Building Official
City of Key West
1300 White Street
Key West, FL 33040

Sent via the Samsung Galaxy Note20 Ultra 5G, an AT&T 5G smartphone

Karen DeMaria

From: Mimi Denhart <mimidenhart@aol.com>
Sent: Thursday, February 2, 2023 11:08 AM
To: Karen DeMaria
Subject: [EXTERNAL] From: Eric Denhart denhart
Attachments: From Eric Denhart denharte@bellsouth.net.pdf

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Karen,
I'll split the paperwork into a few emails since you had trouble with opening my file previously.

Thanks,
Mimi

Sent from my iPhone

From: Eric Denhart denharte@bellsouth.net
Subject: Re: City Mahogany tree
Date: Jun 20, 2019, 11:47:27 AM
To: Karen DeMaria kdemaria@cityofkeywest-fl.gov

As per our recent conversation on 6/10/2019 I am requesting the city of Key West to take action on major trimming of the mahogany tree on Von Phister and Ashby streets. This tree which lies on city property has become so large and overgrown that many limbs pose a huge liability to my home and family. I have spoken with Jim Scholl and he assures me that you will be able to address this in a timely manner. As you know I am a devoted tree advocate and have worked with the city forestry officials and the tree commission for the past 28 years regarding this tree. This is truly a "great" tree but it must be properly maintained.

Thanks,
Eric Denhart

Sent from my iPad

On Jun 10, 2019, at 9:28 AM, Karen DeMaria <kdemaria@cityofkeywest-fl.gov> wrote:

Eric:

It was a pleasure talking with you today. Can you please send me a written comment regarding your concerns with the mahogany tree growing over your house.

Sincerely,

Karen

Karen DeMaria
Urban Forestry Manager
Certified Arborist
City of Key West Planning Department
1300 White Street, Key West, FL 33040
305-809-3768

<image001.jpg>

From: Raj Ramsingh raj.ramsingh@cityofkeywest-fl.gov
Subject: 1701 Tree issue
Date: Jan 30, 2023 at 10:57:40 AM
To: Todd C. Stoughton tstoughton@cityofkeywest-fl.gov, Ronald
Ramsingh rramsingh@cityofkeywest-fl.gov, Karen DeMaria
kdemaria@cityofkeywest-fl.gov, Gary Volenec
gary.volenec@cityofkeywest-fl.gov

Good morning Todd,

I looked at the mahogany tree located at 1701 Von Phister on the city ROW. It is my opinion that the massive root system from this tree is definitely impacting the foundation of the home. The owner has gone above and beyond in his efforts to save a tree that is not on his property. In the past 30 years he has trimmed roots on his property, fixed the cracked flooring and foundations several times in his home, and has also had pool leaks cause by the spreading roots. According to his statement he has asked the city several times in the past to trim the tree which was never done. Now the tree is just too big and massive to trim without causing some stability issues. Unfortunately, should we have a massive storm related event the tree can become a liability for the city not only house at 1701 Von Phister, but for neighboring homes as well.

Sincerely,

Raj Ramsingh
Building Director
Chief Building Official
City of Key West
1300 White Street
Key West, FL 33040

Sent via the Samsung Galaxy Note20 Ultra 5G, an AT&T 5G smartphone

Using the ISA Basic Tree Risk Assessment Form

This form is provided with the *ISA Tree Risk Assessment Manual* and is intended to act as a guide for collecting and recording tree risk assessment information. This form is for trees receiving a basic (Level 2) risk assessment. It is *not intended for use* with limited visual (Level 1) or advanced (Level 3) assessments. Space is provided to write comments and notes for various conditions that are not included elsewhere on the form or for points that need additional explanation. *It is not necessary to mark every box or to fill in every line on this form.* Only information relevant to the tree risk assessment should be collected. You may adapt this form for your specific needs.

PAGE I—DATA COLLECTION

Section I—Assignment and Tree ID

305-797-5334

Client	DENHART	Date		Time	
Address/Tree location	1701 VON PHILSTER	Tree no.		Sheet	of
Tree species		dbh		Height	Crown spread dia.
Assessor(s)		Time frame		Tools used	

This section outlines the basic information for you assessment. This will be valuable information when drafting your written report. Be sure to refer back to the time frame stated in this section when determining likelihood of failure later on this form.

Client—name of the person who hired you to perform the assessment or agency for which you are working.

Date—date of the tree inspection.

Time—time of the tree inspection.

Address/Tree location—the physical address, GPS coordinates, or other location description of the tree and the location of the tree on the property, such as “backyard” or “between street and sidewalk on the north side of walk.” A typical entry may be “411 Pine Street, Oakville. Large tree on left near driveway.”

Tree no.—if the tree has an inventory tag with a number, it should be entered here. If a group of trees without tags are assessed, they may be assigned a sequence number.

Sheet—if multiple sheets are used for a tree assessment—or if a group of trees are assessed—the sheet number and total number of sheets used on the job may be entered.

Tree species—include the common and/or scientific name of the tree; cultivar, if known.

dbh—diameter at breast height [U.S., 4.5 feet (1.37 m); or customary diameter measure for your country; IUFRO standard is 1.3 m above ground] measured in inches or cm.

Height—tree height either visually estimated or measured. If measured, the tool used for this measurement should be noted in Tools used.

Crown spread dia.—the average diameter of the drip line of the tree; measured or estimated.

Assessor(s)—name of the person or people collecting the tree risk information; may also include qualifications such as “TRAQ.”

Time frame—period in which you are estimating the likelihood of failure; typically between one and five years; Time frame should be considered when rating the likelihood of failure with all categories except imminent, which has a different time frame (very soon).

Tools used—list of tools used in the assessment such as “mallet” or “binoculars.” If no tools were used, write “none” or leave blank.

Section 2—Target Assessment

Target Assessment							
Target number	Target description	Target zone			Occupancy rate 1 – rare 2 – occasional 3 – frequent 4 – constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1 x Ht.	Target within 1.5 x Ht.			
1							
2							
3							
4							

The Target Assessment chart is used to list target(s)—people, property, or activities that could be injured, damaged, or disrupted by a tree failure—within the striking distance (target zone) of the tree part concerned. Four lines are provided; additional targets can be listed on a separate form. Target information will correspond with the Risk Categorization chart on the back of the form.

Target number—many trees have multiple targets within the target zone; the target number is provided to list individual targets and to facilitate inclusion of this number in the Risk Categorization chart so that the target description does not need to be rewritten.

Target description—brief description such as “people near tree” “house,” “play area,” or “high-traffic street.” Location of the target can be noted by checking one of the distance boxes to the right of the description.

Target zone—identify where the targets are in relation to the tree or tree part:

Within drip line—target is underneath the canopy of the tree.

Within 1 x Ht—target is within striking distance if the trunk or root system of the tree fails (1 times the height of the tree).

Within 1.5 x Ht—target is within striking distance if the trunk or root system of the tree fails and there are dead or brittle branches that could shatter and fly from the failed tree.

Occupancy rate—an estimated amount of time the target is within the target zone. Use corresponding numbered codes (1–4):

1. **Rare**—targets are very uncommon in the target zone.
2. **Occasional**—the target is present infrequently or irregularly.
3. **Frequent**—the target is present for a large portion of the day or week.
4. **Constant**—the target is present at all times or nearly all times.

Practical to move target?—check box if it is practical to move the target out of the target zone if mitigation is required.

Restriction practical?—check box if it is practical to restrict access to the target zone.

Section 3—Site Factors

Site Factors	
History of failures _____	Topography Flat <input type="checkbox"/> Slope <input type="checkbox"/> _____ % Aspect _____
Site changes None <input type="checkbox"/> Grade change <input type="checkbox"/> Site clearing <input type="checkbox"/> Changed soil hydrology <input type="checkbox"/> Root cuts <input type="checkbox"/> Describe _____	
Soil conditions Limited volume <input type="checkbox"/> Saturated <input type="checkbox"/> Shallow <input type="checkbox"/> Compacted <input type="checkbox"/> Pavement over roots <input type="checkbox"/> _____ % Describe _____	
Prevailing wind direction _____ Common weather Strong winds <input type="checkbox"/> Ice <input type="checkbox"/> Snow <input type="checkbox"/> Heavy rain <input type="checkbox"/> Describe _____	

Site factors may influence the likelihood of tree failure. This section provides a list of common site factors that should be considered. There may be other site factors that are critical on a given site, or which you should note even if they are not on this form. Any of these factors can be further described in the space provided or on additional paper. Other site factors affecting wind load should be noted. These may include the site elevation, surface roughness, and hilltop locations.

History of failures—note and describe evidence of previous whole-tree failures on the site, and estimate the time frame for how recently they occurred. Previous branch failures should be noted in the Crown and Branches box (located in the Tree Defects and Conditions Affecting the Likelihood of Failure section of the form).

Topography—check boxes for flat or sloping topography; an estimate of the slope percentage may be included.

Aspect—the compass direction that the slope is facing.

Site changes—factors affecting the root system of the tree or the change in exposure of the tree to wind; check all that apply:

None—no evidence of recent site changes.

Grade change—soil was added or removed from the site.

Site clearing—adjacent trees, which may have blocked the wind, have been removed or significantly reduced.

Changed soil hydrology—changes have been made that affect water flow in or out of the site.

Root cuts—the root system has been cut or otherwise significantly damaged. Additional information on root cuts will be included in the Roots and Root Collar box.

Soil conditions—factors that can affect the ability of the root system to mechanically support the tree, as well as the general health and vitality of the tree; check all that apply:

Limited volume—soil volume limited by rocks, water table, building foundations, size of a container, or other factors.

Saturated—soil saturated due to poor drainage, high water table, excess irrigation, or location in a low area. May be saturated now or have a history of inundation.

Shallow—rooting depth limited by one or more factors including high water table, rock ledges, compacted layers, or underground structures such as parking decks.

Compacted—soil is severely compacted, limiting the depth, spread, and distribution of the root system.

Pavement over roots—concrete, asphalt, pavers, or other materials restricting root growth or water movement into the root zone. If present, enter the percentage of the area within the drip line that is paved.

Prevailing wind direction—a typical, consistent, moderate-to-strong wind, usually from a single direction, which has affected tree crown and root system development.

Common weather—trees will adapt to a number of climatic conditions if they occur regularly; check all that apply.

Section 4—Tree Health and Species Profile

Tree Health and Species Profile									
Vigor	Low <input type="checkbox"/>	Normal <input type="checkbox"/>	High <input type="checkbox"/>	Foliage	None (seasonal) <input type="checkbox"/>	None (dead) <input type="checkbox"/>	Normal ____%	Chlorotic ____%	Necrotic ____%
Pests				Abiotic _____					
Species failure profile				Branches <input type="checkbox"/>	Trunk <input type="checkbox"/>	Roots <input type="checkbox"/>	Describe _____		

This section provides the opportunity to note any species specific failure patterns that you suspect may influence likelihood of failure. Any species information you feel is important should be noted in this section. Any of these factors can be further described in the spaces provided or on additional paper.

Vigor—an assessment of overall tree health; classify as low, normal, or high:

Low—tree is weak, growing slowly, and/or under stress.

Normal—tree has average vigor for its species and the site conditions.

High—tree is growing well and appears to be free of significant health stress factors.

Foliage—size and color are indications of tree health; compare with a healthy specimen of the same species in the area. Lines and boxes in this section allow data collection of the percentage of each category, or simply a check mark for presence:

None (seasonal)—a deciduous tree that has dropped its leaves for the winter.

None (dead)—a tree that has dropped its leaves because it is dead.

Normal—foliage size and color are normal for the species in the area.

Chlorotic—yellowish-green to yellow.

Necrotic—dead foliage in part of or the entire crown.

Pests—insects and diseases that may significantly affect tree health or stability.

Abiotic—abiotic problems that may significantly affect tree health or stability.

Species failure profile—any known failure problems with the species in the branches, trunk, or roots.

Section 5—Load Factors

Load Factors			
Wind exposure	Protected <input type="checkbox"/> Partial <input type="checkbox"/> Full <input type="checkbox"/>	Wind funneling <input type="checkbox"/>	Relative crown size Small <input type="checkbox"/> Medium <input type="checkbox"/> Large <input type="checkbox"/>
Crown density	Sparse <input type="checkbox"/> Normal <input type="checkbox"/> Dense <input type="checkbox"/>	Interior branches	Few <input type="checkbox"/> Normal <input type="checkbox"/> Dense <input type="checkbox"/> Vines/Mistletoe/Moss <input type="checkbox"/>
Recent or planned change in load factors _____			

Generally, two types of load need to be considered when evaluating tree risk. Dynamic load is from wind as it impacts the tree, and static load is from gravity acting on the tree. These two loads can interact.

Wind exposure—factors that affect wind load on the tree; check all that apply:

Protected—trees or structures in the area significantly reduce wind velocity or the tree's exposure to wind.

Partial—other trees, or buildings near the tree, moderately reduce the impact of wind on the tree.

Full—tree is fully exposed to wind.

Wind funneling—wind may be “funneled” or “tunneled” (by buildings, canyons, large stands of trees) toward the tree so that wind velocity experienced by the tree is increased.

Relative crown size—comparison of the tree's crown size to the trunk diameter; classify as small, medium, or large.

Crown density—the relative wind transparency of the crown:

Sparse—crown allows a large degree of wind and light penetration; varies with species.

Normal—indicates moderate wind and light penetration.

Dense—crown does not allow much light or wind penetration.

Interior branches—increase wind resistance but dampen branch/tree movement:

Few—little wind resistance and damping.

Normal—moderate wind resistance and damping.

Dense—significant wind resistance and damping.

Vines/Mistletoe/Moss—check box if present at moderate to high levels that increase weight or wind resistance. Moss refers to Spanish or ball moss (epiphytes).

Recent or planned change in load factors—record any factors, recent or planned, that may significantly affect the load on any defects.

Section 6—Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —			
Unbalanced crown <input type="checkbox"/>	LCR _____ %	Cracks <input type="checkbox"/>	Lightning damage <input type="checkbox"/>
Dead twigs/branches <input type="checkbox"/>	_____ % overall	Codominant <input type="checkbox"/>	Included bark <input type="checkbox"/>
Broken/Hangers Number _____	Max. dia. _____	Weak attachments <input type="checkbox"/>	Cavity/Nest hole _____ % circ.
Over-extended branches <input type="checkbox"/>	Max. dia. _____	Previous branch failures <input type="checkbox"/>	Similar branches present <input type="checkbox"/>
Pruning history		Dead/Missing bark <input type="checkbox"/>	Cankers/Galls/Burls <input type="checkbox"/>
Crown cleaned <input type="checkbox"/>	Thinned <input type="checkbox"/>	Raised <input type="checkbox"/>	Sapwood damage/decay <input type="checkbox"/>
Reduced <input type="checkbox"/>	Topped <input type="checkbox"/>	Lion-tailed <input type="checkbox"/>	Conks <input type="checkbox"/>
Flush cuts <input type="checkbox"/>	Other _____	Heartwood decay <input type="checkbox"/>	Response growth _____
Main concern(s) _____			
Load on defect N/A <input type="checkbox"/> Minor <input type="checkbox"/> Moderate <input type="checkbox"/> Significant <input type="checkbox"/>			
Likelihood of failure Improbable <input type="checkbox"/> Possible <input type="checkbox"/> Probable <input type="checkbox"/> Imminent <input type="checkbox"/>			

This section provides a systematic checklist for assessing the tree, dividing it into “Crown and Branches”, “Trunk”, and “Roots and Root Collar”. Check only factors that apply to the assessed tree. These factors may or may not contribute to your Main concern(s), Load on defect, or Likelihood of failure.

Crown and Branches

Unbalanced crown—check box if foliage is not uniformly distributed.

Live crown ratio (LCR)—the ratio of the height of the live crown to the height of the entire tree [$LCR = (\text{crown height} / \text{tree height}) \times 100$].

Dead twigs/branches—small diameter, dead branches; check box if present and indicate percentage and maximum size(s) in diameter.

Broken/Hangers—broken or cut branches remaining in the crown; record the number and size (maximum diameter).

Over-extended branches—check box if there are branches that extend beyond the tree's canopy or that are excessively long with poor taper.

Pruning history—check appropriate boxes if pruning is known and relevant:

Crown cleaned—pruning of dead, dying, diseased, and broken branches from the tree crown.

Thinned—selective removal of live branches to reduce crown density. Other pruning types include, but are not limited to, structural, pollarding, espalier, and vista, and may be included in your notes.

Raised—removal of lower branches to provide clearance.

Reduced—pruning to decrease tree height or spread by cutting to lateral branches.

Topped—inappropriate pruning technique used to reduce tree size; characterized by internodal cuts.

Lion-tailed—inappropriate pruning practice removing an excessive number of inner and/or lower lateral branches.

Flush cuts—pruning cuts through (or removal of) the branch collar, causing unnecessary injury to the trunk or parent branch.

Other—note any other pruning history that may affect the likelihood of failure.

Cracks—separation in the wood in either a longitudinal (radial, in the plane of ray cells) or transverse (across the stem) direction; check box if present and describe briefly.

Lightning damage—often evidenced by a centrally located line of sapwood damage and bark removal on either side in a spiral pattern on the trunk or branch; check box if present.

Codominant—branches of nearly equal diameter arising from a common junction and lacking a normal branch union. Check box if present and describe.

Included bark—bark that becomes embedded in a union between branch and trunk, or between codominant stems, causing a weak structure. Check box if present.

Weak attachments—branches that are codominant or that have included bark or splits at or below the junctions. Check box if present and describe.

Cavity/Nest hole—openings from the outside into the heartwood area of the tree; record the percentage of the branch circumference that has missing wood.

Previous branch failures—check box if there is evidence of previous branch failures and describe briefly. Note “similar branches present,” if relevant.

Dead/Missing bark—check box if branches are dead or if areas of dead cambium are present where new wood will not be produced.

Cankers/Galls/Burls—check box if relevant and circle which one(s) are of concern:

Canker—localized diseased areas on the branch; often sunken or discolored.

Gall—abnormal swellings of tissue caused by pests; may or may not be a defect.

Burl—outgrowth on the trunk, branch, or roots; not usually considered a defect.

Sapwood damage/decay—check box if there is mechanical or fungal damage in the sapwood that may weaken the branch, or decay of dead or dying branches. If checked, you may circle “damage” or “decay” to indicate which one is present.

Conks (mushrooms, brackets)—fungal fruiting structures; common, definite indicators of decay. Check box if present and describe under Main concern(s).

Heartwood decay—check box if present and describe.

Response growth—reaction wood or additional wood grown to increase the structural strength of the branch; note location and extent.

Main concern(s)—conditions in the crown and branches that may affect likelihood of failure. Note the main concern(s); if there are no concerns, write “none.”

Load on defect—a consideration of how much loading is expected on the tree part of concern. Record as N/A (not applicable), minor, moderate, or significant, and/or note the cause of loading.

Likelihood of failure—the rating (*improbable, possible, probable, or imminent*) for the crown and branches of greatest concern. If there is a main concern, this information should be transferred to the Risk Categorization chart.

— Trunk —

Dead/Missing bark ☐ Abnormal bark texture/color ☐
 Codominant stems ☐ Included bark ☐ Cracks ☐
 Sapwood damage/decay ☐ Cankers/Galls/Burls ☐ Sap ooze ☐
 Lightning damage ☐ Heartwood decay ☐ Conks/Mushrooms ☐
 Cavity/Nest hole _____ % circ. Depth _____ Poor taper ☐
 Lean _____ ° Corrected? _____
 Response growth _____
 Main concern(s) _____

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☐
Likelihood of failure
 Improbable ☐ Possible ☐ Probable ☐ Imminent ☐

Trunk

Dead/Missing bark—check box if a stem or codominant stem is dead or if areas of dead cambium are present where new wood will not be produced.

Abnormal bark texture/color—may indicate a fungal or structural problem with the trunk; check box, if present, and add notes if it is a concern.

Codominant stems—stems of nearly equal diameter arising from a common junction and lacking a normal branch union. Note the size, location, and number, if relevant, under Main concern(s) in the Trunk box.

Included bark—bark that becomes embedded in a union between branch and trunk, or between codominant stems, causing a weak structure; check box if present.

Cracks—separation in the wood in either a longitudinal (radial, in the plane of ray cells) or transverse (across the stem) direction; check box if present and describe.

Sapwood damage/decay—check box if there is mechanical or fungal damage in the sapwood that may weaken the trunk. If checked, you may circle “damage” or “decay” to indicate which one is present.

Cankers/Galls/Burls—check box if relevant and circle which one(s); may or may not affect the structural strength of the tree:

Canker—localized diseased areas on the branch; often sunken or discolored.

Gall—abnormal swellings of tissue caused by pests; may or may not be a defect.

Burl—outgrowth on the trunk, branch, or roots; not usually considered a defect.

Sap ooze—oozing of liquid that may result from infections or infestations under the bark. May or may not affect structure or stability; check box if present.

Lightning damage—often evidenced by a centrally-located line of sapwood damage and bark removal on either side in a spiral pattern on the trunk or branch; check box if present.

Heartwood decay—Check box if present and identify/describe under Main concern(s).

Conks/Mushrooms (brackets)—fungal fruiting structures; common, definite indicators of decay when on the trunk; check box if present and identify/describe under Main concern(s).

Cavity/Nest hole—openings from the outside into the heartwood area of the tree; record the percentage of the trunk circumference that has missing wood, and the depth of the cavity.

Poor taper—change in diameter over the length of the trunk, important for even distribution of mechanical stress; check box if trunk has poor taper.

Lean—angle of the trunk measured from vertical; record the degree of lean.

Corrected?—the tree may have been able to “correct” the lean with new growth in the younger portions of the tree; note conditions related to lean in the space provided.

Response growth—reaction wood or additional wood grown to increase the structural strength of the trunk; note location and extent.

Main concern(s)—conditions in the trunk that may affect likelihood of failure. Note the main concern(s); if there are no concerns, write “none”.

Load on defect—a consideration of how much loading is expected on the tree part of concern. Record as N/A (not applicable), minor, moderate, or significant, and/or note the cause of loading.

Likelihood of failure—the rating (*improbable, possible, probable, or imminent*) for the trunk. If there is a main concern, this information should be transferred to the Risk Categorization chart.

— Roots and Root Collar —

Collar buried/Not visible ☐ Depth _____ Stem girdling ☐
 Dead ☐ Decay ☐ Conks/Mushrooms ☐
 Ooze ☐ Cavity ☐ _____ % circ.
 Cracks ☐ Cut/Damaged roots ☐ Distance from trunk _____
 Root plate lifting ☐ Soil weakness ☐

Response growth _____

Main concern(s) _____

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☐

Likelihood of failure

Improbable ☐ Possible ☐ Probable ☐ Imminent ☐

Roots and Root Collar

Collar buried/Not visible—check box if the root collar is not visible and, if possible, determine and note the depth below ground.

Stem girdling—restriction or destruction of the trunk or buttress roots; check box if it is a failure concern.

Dead—check box if one or more structural support roots are dead.

Decay—check box if present and identify/describe under Main concerns.

Conks/Mushrooms (brackets)—fungal fruiting structures; common, definite indicators of decay; fungal fruiting structures away from the trunk in the turf or mulch may be due to the presence of a mycorrhizal fungus and, if so, do not pose a threat to the tree. Check box if present and identify/describe under Main concern(s).

Ooze—seeping or exudation that can result from pest infestations or infections under the bark; check box if present and describe.

Cavity—definite indicators of heartwood decay; measure the size of the opening and record the percentage of the tree's circumference affected.

Cracks—separation in the wood in either a longitudinal (radial, in the plane of ray cells) or transverse (across the stem) direction; check box if present and describe.

Cut/Damaged roots—check box if present; measure and record the distance from the trunk to the cut.

Root plate lifting—soil cracking or lifting indicates the tree has been rocking, usually in high winds; check box if present, and note under Main concern(s).

Soil weakness—check box if there is a soil condition affecting the anchorage of the tree's root system; note under Main concern(s) if significant.

Response growth—reaction wood or additional wood grown to increase the structural strength of the roots or root collar; note location and extent.

Main concern(s)—conditions in the roots and root collar that may affect likelihood of failure. Note the main concern(s); if there are no concerns, write "none".

Load on defect—a consideration of how much loading is expected on the tree part of concern. Record as N/A (not applicable), minor, moderate, or significant, and/or note the cause of loading.

Likelihood of failure—the rating (*improbable, possible, probable, or imminent*) for the roots or root collar. If there is a main concern, this information should be transferred to the Risk Categorization chart.

The second page of the form focuses on categorizing the risk the tree poses and describing how the risk should be mitigated. It also provides space for additional notes or comments regarding any section from the first page. Use a separate sheet of paper if more space is needed.

[illegible]

Target number—this number should correspond to the target(s) listed on the first page of this form.

Target protection—note any significant factors that could protect the target because this may affect the likelihood of impact and/or the consequences of failure.

Tree risk has two components: (1) the likelihood of a tree failure striking a target, which is divided into the likelihood of failure and the likelihood of impact, and (2) the consequences of failure. Use your best judgment and the data available to assess the likelihood of failure (*improbable, possible, probable, imminent*) and the likelihood of impact (*very low, low, medium, high*). After these two decisions are made, use Matrix 1 for guidance on choosing the likelihood of failure and impact category (*unlikely, somewhat likely, likely, very likely*).

The likelihood of failure can be categorized using the following guidelines:

Improbable—the tree or branch is not likely to fail during normal weather conditions and may not fail in many severe weather conditions within the specified time frame.

Possible—failure could occur, but it is unlikely during normal weather conditions within the specified time frame.

Probable—failure may be expected under normal weather conditions within the specified time frame.

Imminent—failure has started or is most likely to occur in the near future, even if there is no significant wind or increased load. This is a rare occurrence for a risk assessor to encounter, and it may require immediate action to protect people from harm.

Since these categories are time dependent, the time frame must be considered. The time frame is recorded on the first page.

The likelihood of impacting a target can be categorized using the following guidelines:

Very low—the chance of the failed tree or branch impacting the specified target is remote. This is the case in a rarely used site fully exposed to the assessed tree or an occasionally used site that is partially protected by trees or structures. Examples include a rarely used trail or trail head in a rural area, or an occasionally used area that has some protection against being struck by the tree failure due to the presence of other trees between the tree being assessed and the targets.

Low—it is not likely that the failed tree or branch will impact the target. This is the case in an occasionally used area that is fully exposed to the assessed tree, a frequently used area that is partially exposed to the assessed tree, or a constant target that is well protected from the assessed tree. Examples include a little-used service road next to the assessed tree or a frequently used public street that has a street tree between the street and the assessed tree.

Medium—the failed tree or branch may or may not impact the target, with nearly equal likelihood. This is the case in a frequently used area that is fully exposed on one side to the assessed tree or a constantly occupied area that is partially protected from the assessed tree. Examples include a suburban street next to the assessed street tree or a house that is partially protected from the assessed tree by an intermediate tree.

High—The failed tree or branch will most likely impact the target. This is the case when a fixed target is fully exposed to the assessed tree or near a high-use road or walkway with an adjacent street tree.

After determining the likelihood of failure and the likelihood of impacting a target, the combined likelihood of a failure impacting a target can be categorized. Matrix 1 can be used as a guide in relating these likelihood factors within a given time frame. The resulting terms (*unlikely, somewhat likely, likely, very likely*) are defined by their use within the table and are used to represent this combination of occurrences in Matrix 2.

Within the Consequences section, one category should be selected (*negligible, minor, significant, severe*). Consequences of failure are estimated based on the amount of harm or damage that will be done to a target. The consequences depend on the part size, fall characteristics, fall distance, and any factors that may protect the risk target from harm. The significance of target values—both monetary and otherwise—are subjective and relative to the client.

The consequences of failure can be categorized using the following guidelines:

Negligible—low-value property damage or disruption that can be replaced or repaired, and do not involve personal injury.


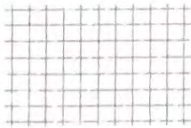
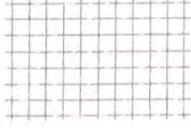
Minor—low-to-moderate property damage or small disruptions to traffic or a communication utility.

Significant—property damage of moderate- to high-value, considerable disruption, or personal injury.

Severe—serious personal injury or death, damage to high-value property, or disruption of important activities.

Risk rating of part—the risk rating of the individual part for a specified target; the risk rating is categorized using Matrix 2: Risk rating matrix. Risk rating terms are *low, moderate, high, and extreme*.

Section 8—Notes, Mitigation and Limitations

Notes, explanations, descriptions _____ _____ _____ _____				
Mitigation options _____ _____ _____		Residual risk _____ Residual risk _____ Residual risk _____ Residual risk _____		
Overall tree risk rating Low <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Extreme <input type="checkbox"/>		Work priority 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/>		
Overall residual risk Low <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Extreme <input type="checkbox"/>		Recommended inspection interval _____		
Data <input type="checkbox"/> Final <input type="checkbox"/> Preliminary Advanced assessment needed <input type="checkbox"/> No <input type="checkbox"/> Yes-Type/Reason _____				
Inspection limitations <input type="checkbox"/> None <input type="checkbox"/> Visibility <input type="checkbox"/> Access <input type="checkbox"/> Vines <input type="checkbox"/> Root collar buried Describe _____				

Upon completion of the assessment, use this section to illustrate potential areas of concern, and to offer mitigation options. Any further recommendations or notes should be included in this section.

Notes, explanations, descriptions—space provided to describe any conditions or factors that are not well described elsewhere on the form. Include notes on anything you need to take into consideration for making ratings or recommendations.

The grid, stem, and circle templates are provided for sketching any applicable details related to the tree or site.

Mitigation options—list options for mitigating each risk described. List your preferred recommendation on the first line.

Residual risk—the residual risk is for the risk remaining after the mitigation you are recommending. Residual risk can be *low*, *moderate*, *high*, or *extreme*.

Overall tree risk rating—the highest risk determined for the tree and target of concern. If there is more than one part or target rating, the tree risk rating is the highest of the group.

Work priority—recommendation for priority of mitigation action(s). The priority aids in communicating the urgency of mitigation for an individual tree. This may be a number (e.g., 1, 2, 3, 4) or you may assign words (e.g., immediate, as soon as possible, when the workload allows; or immediate, high, medium, low). Numbers have been included on the datasheet, with “1” meaning the highest priority.

The shaded rows in the Risk Categorization chart may be used to assess residual risk after proposed mitigation. For each mitigation action, rate the expected risk remaining after treatment using the same methodology for categorizing risk as before.

Overall residual risk—risk remaining if the highest-risk tree part is mitigated.

Recommended inspection interval—recommended time for reinspection or inspection frequency.

Data—use these boxes to indicate whether this assessment is final or preliminary.

Advanced assessment needed—note the reason for any advanced assessment recommended.

Inspection limitations—note and/or describe any factors that limited your ability to inspect the tree, or check “none.”

ISA Basic Tree Risk Assessment Form

Client _____ Date _____ Time _____
 Address/Tree location _____ Tree no. _____ Sheet _____ of _____
 Tree species _____ dbh _____ Height _____ Crown spread dia. _____
 Assessor(s) _____ Time frame _____ Tools used _____

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1 - rare 2 - occasional 3 - frequent 4 - constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1 x ht.	Target within 1.5 x ht.			
1							
2							
3							
4							

Site Factors

History of failures _____ Topography Flat ☐ Slope ☐ _____ % Aspect _____
 Site changes None ☐ Grade change ☐ Site clearing ☐ Changed soil hydrology ☐ Root cuts ☐ Describe _____
 Soil conditions Limited volume ☐ Saturated ☐ Shallow ☐ Compacted ☐ Pavement over roots ☐ _____ % Describe _____
 Prevailing wind direction _____ Common weather Strong winds ☐ Ice ☐ Snow ☐ Heavy rain ☐ Describe _____

Tree Health and Species Profile

Vigor Low ☐ Normal ☐ High ☐ Foliage None (seasonal) ☐ None (dead) ☐ Normal _____ % Chlorotic _____ % Necrotic _____ %
 Pests _____ Abiotic _____
 Species failure profile Branches ☐ Trunk ☐ Roots ☐ Describe _____

Load Factors

Wind exposure Protected ☐ Partial ☐ Full ☐ Wind funneling ☐ _____ Relative crown size Small ☐ Medium ☐ Large ☐
 Crown density Sparse ☐ Normal ☐ Dense ☐ Interior branches Few ☐ Normal ☐ Dense ☐ Vines/Mistletoe/Moss ☐ _____
 Recent or planned change in load factors _____

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown ☐ LCR _____ % Cracks ☐ _____ Lightning damage ☐
 Dead twigs/branches ☐ _____ % overall Max. dia. _____ Codominant ☐ _____ Included bark ☐
 Broken/Hangers Number _____ Max. dia. _____ Weak attachments ☐ _____ Cavity/Nest hole _____ % circ.
 Over-extended branches ☐ Previous branch failures ☐ _____ Similar branches present ☐
Pruning history
 Crown cleaned ☐ Thinned ☐ Raised ☐ Dead/Missing bark ☐ Cankers/Galls/Burls ☐ Sapwood damage/decay ☐
 Reduced ☐ Topped ☐ Lion-tailed ☐ Conks ☐ Heartwood decay ☐ _____
 Flush cuts ☐ Other _____ Response growth _____
 Main concern(s) _____

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☐ _____
 Likelihood of failure Improbable ☐ Possible ☐ Probable ☐ Imminent ☐ _____

— Trunk —

Dead/Missing bark ☐ Abnormal bark texture/color ☐
 Codominant stems ☐ Included bark ☐ Cracks ☐
 Sapwood damage/decay ☐ Cankers/Galls/Burls ☐ Sap ooze ☐
 Lightning damage ☐ Heartwood decay ☐ Conks/Mushrooms ☐
 Cavity/Nest hole _____ % circ. Depth _____ Poor taper ☐
 Lean _____ * Corrected? _____
 Response growth _____
 Main concern(s) _____

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☐
 Likelihood of failure Improbable ☐ Possible ☐ Probable ☐ Imminent ☐

— Roots and Root Collar —

Collar buried/Not visible ☐ Depth _____ Stem girdling ☐
 Dead ☐ Decay ☐ Conks/Mushrooms ☐
 Ooze ☐ Cavity ☐ _____ % circ.
 Cracks ☐ Cut/Damaged roots ☐ Distance from trunk _____
 Root plate lifting ☐ Soil weakness ☐

Response growth _____
 Main concern(s) _____

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☐
 Likelihood of failure Improbable ☐ Possible ☐ Probable ☐ Imminent ☐

Risk Categorization

Condition number	Tree part	Conditions of concern	Part size	Fall distance	Target number	Target protection	Likelihood												Consequences				Risk rating of part (from Matrix 2)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
							Failure				Impact				Failure & Impact (from Matrix 1)				Consequences																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
							Improbable	Possible	Probable	Imminent	Very low	Low	Medium	High	Unlikely	Somewhat	Likely	Very likely	Negligible	Minor	Significant	Severe																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impacting Target			
	Very low	Low	Medium	High
Imminent	Unlikely	Somewhat likely	Likely	Very likely
Probable	Unlikely	Unlikely	Somewhat likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	Negligible	Minor	Significant	Severe
Very likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low

Notes, explanations, descriptions _____

Mitigation options _____ Residual risk _____
 _____ Residual risk _____
 _____ Residual risk _____
 _____ Residual risk _____

Overall tree risk rating Low ☐ Moderate ☐ High ☐ Extreme ☐

Work priority 1 ☐ 2 ☐ 3 ☐ 4 ☐

Overall residual risk Low ☐ Moderate ☐ High ☐ Extreme ☐

Recommended inspection interval _____

Data ☐ Final ☐ Preliminary Advanced assessment needed ☐ No ☐ Yes-Type/Reason _____

Inspection limitations ☐ None ☐ Visibility ☐ Access ☐ Vines ☐ Root collar buried Describe _____