

MEMORANDUM

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Date: October 23, 2015

To: Joel Bush – Maryland State Highway Administration

From: Greg O'Hare, L.P.F., MD LTE #511, ISA Certified Arborist #MA-3158A, ISA TRAQ

CC: Joe Vervier - SHA

Ken Schmidt - Mahan-Rykiel

Rick Maddox - RK&K

Re: MD 28 Champion Tree Health Assessment Memorandum

Contract 2007-17F Task 21 (FMIS # - PCA - 23843)

SUMMARY

The Maryland State Highway Administration (SHA) requested a tree health assessment for two champion trees within SHA Right-of-Way (ROW) adjacent to Darnestown Rd (MD 28) in Darnestown, MD. Tree 1 (T1) is a 59" diameter at breast height (DBH) Kentucky Coffeetree (*Gymnocladus dioicus*) in poor overall condition with high overall and residual tree risk ratings. Tree 2 (T2) is a 79" DBH Northern Catalpa (*Catalpa speciosa*) in very poor overall condition with high overall and residual tree risk ratings. Both trees are recommended for removal.

INTRODUCTION

Greg O'Hare conducted a tree condition and risk assessment on two champion trees located along MD 28, at the request of the SHA Landscape Operations Division. The trees are located in front of 14001 Darnestown Rd. within the SHA right-of-way and adjacent to the Darnestown Heritage Park. SHA installed a split rail fence around the area to protect the trees from foot and vehicle traffic. SHA requested this tree assessment in response to concerns raised by local citizens regarding the potentially hazardous condition of the trees. The 59" Kentucky Coffeetree (T1) is a specimen tree that may be eligible for champion status, and the 79" Northern Catalpa (T2) is a former county and state champion tree (2011). The locations of the trees and potential targets are shown on the attached Field Survey Map.

METHODS

The health and condition of the two champion trees were assessed by an ISA Certified Arborist using current arboriculture industry standards and International Society of Arboriculture (ISA) best management practices. Our arborist is also ISA Tree Risk Assessment Qualified (TRAQ) and he conducted a tree risk assessment following those criteria. The following data were recorded for each tree:

- ✓ Location
- ✓ Photographs
- ✓ Species (common and scientific names)
- ✓ DBH diameter at breast height
- ✓ Tree height & canopy spread

- ✓ Detailed health assessment of crown/branches, trunk, roots and root collar
- ✓ ISA basic tree risk assessment form

The tree locations for each tree were surveyed using a GPS equipped iPad, and are shown on the Field Survey Map. The diameter of each tree was measured using a DBH tape, and photos were taken to document tree condition. See attached photo log.

FINDINGS & RECOMMENDATIONS

TREE 1 (T1)

Tree 1 (T1) is a 59" DBH Kentucky Coffeetree (*Gymnocladus dioicus*) that is located just west of the driveway at 14001 Darnestown Road. T1 is approximately 95 feet tall, with a crown spread of 96 feet. Lightning protection was observed on the north side of the tree, as shown in the attached photo log. This tree is in poor overall condition and exhibiting crown decline due to age and significant decay in the trunk and co-dominant leaders. A significant vertical crack (approximately 6' long and 1"-12" wide) has developed in the trunk just below the union of several co-dominant leaders, and the entire eastern portion (right side looking from MD 28) of the tree has split and is shifting toward the driveway and MD 28. Response growth around the crack is minor. A large column of decay was confirmed in the trunk through visual assessment, probing with a 4' section of rebar, and sounding with a rubber mallet. It is estimated that approximately 2/3 of the stem diameter is decayed and the decay likely extends into the trunk/root collar union. Cavities and decay were also observed just above the co-dominant leader unions with the trunk, and on a large lead (16" diameter) hanging over MD 28. There is significant loading on these defects due to the weight of the mature canopy.

Targets are people, property, or activities that could be injured, damaged, or disrupted by a tree failure. Targets within close proximity of T1 include the traveling public on MD 28, residents/visitors in yards or driveway at 14001 and 13909 (including a school bus stop at the end of the driveway near 13909 Darnestown Rd.), powerlines on the southern side of MD 28, residence at 13920 Darnestown Rd., and the residence at 13909 Darnestown Rd. T1 was assigned a high overall tree risk rating due to significant defects with probable failure that would have severe consequences to human life and property. The highest risk is associated with failure of the eastern portion of the tree that is within striking distance of MD 28 and the driveway at 14001 and 13909 that also functions as a school bus stop. There is also moderate risk associated with failure of the western portion of the tree (left side looking from MD 28) and the decaying co-dominant lead over MD 28.

Tree 1 is recommended for removal due to high overall tree and residual risk to the traveling public and adjacent residents and their properties. Bracing of the trunk, cabling of the co-dominant leads, crown reduction to reduce loading, and fertilization are possible (\$6,000-\$10,000, with additional costs for monitoring and maintenance), but not recommended for T1 due to extensive trunk decay and declining overall health. Bracing and cabling can negatively affect the load dynamics of large mature trees, resulting in increased loading on the lower trunk and roots. In addition, overall tree health is not likely to improve dramatically with the application of bio-stimulants and/or fertilizer, in conjunction with crown reduction.

TREE 2 (T2)

Tree 2 (T2) is a 79" DBH Northern Catalpa (*Catalpa speciosa*) that is located west of T1, directly in front of 14001 Darnestown Rd, and adjacent to Darnestown Heritage Park. T2 is approximately 70 feet tall, with a crown spread of 84 feet. Lightning protection was observed on the east side of the tree, as shown in the attached photo log. This tree is in very poor condition and is exhibiting major crown decline due to age and significant decay in the trunk and root collar. Response growth is low, which is another indicator of overall decline in vigor. A major column of decay was confirmed in the trunk through visual assessment, probing with a 4' section of rebar, and sounding with a rubber mallet. It is estimated that approximately 3/4 of the trunk diameter is decayed and the decay extends into the root collar. Missing bark, decay, and dieback were also observed in the canopy. Four cables were installed in the canopy by others to provide structural support, but the function of this

hardware may be compromised due to decay and dieback. There is significant loading on the defects described above due to the weight of the mature canopy.

Targets within close proximity of T2 include the traveling public on MD 28, residents/visitors in the yard at 14001 Darnestown Rd., powerlines on the southern side of MD 28, and Darnestown Heritage Park users. T2 was assigned a high overall tree risk rating due to significant defects with probable failure that would have severe consequences to human life and property. The highest risks are associated with failure of the entire tree or failure of the front half of the tree (closest to MD 28) that are within striking distance of MD 28 and the powerlines on the southern side of MD 28. There is also moderate risk associated with failure of the codominant lead over MD 28 that has internal decay.

Tree 2 is recommended for removal due to high overall tree and residual risk to the traveling public and adjacent residents and their properties. Remedial activities for whole tree failure are not recommended for Tree 2 due to extensive trunk decay and declining overall health.

Attachments: Field Survey Map

Photo Log

ISA Basic Tree Risk Assessment Forms

Arborist Credentials



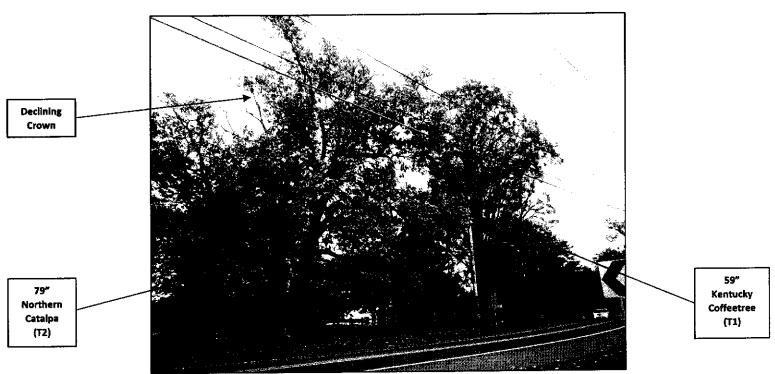


Photo 1. Facing northeast along Darnestown Rd. towards 59" Kentucky coffeetree (T1) and 79" northern catalpa tree (T2).

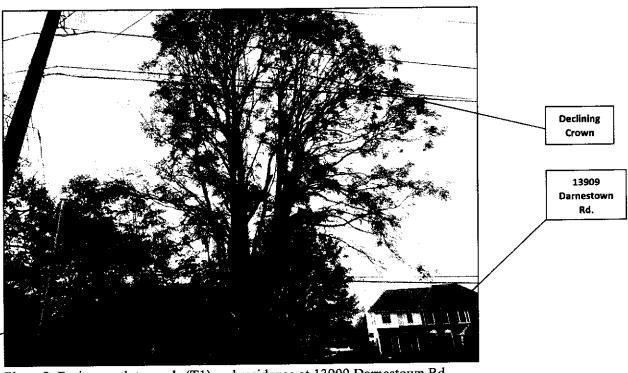


Photo 2. Facing north towards (T1) and residence at 13909 Darnestown Rd.

T1



Photo 3. Facing west along Darnestown Rd. towards T1.

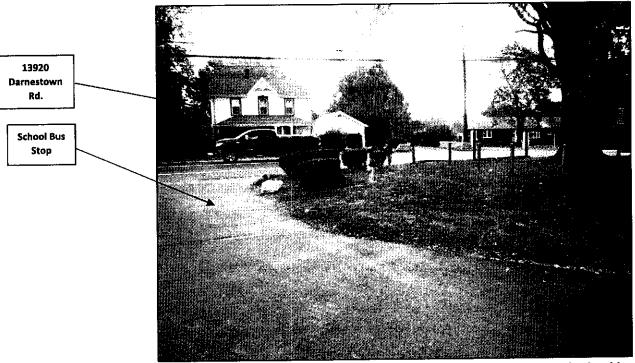


Photo 4. Facing south towards residence at 13920 Darnestown Rd. and school bus stop for neighborhood children



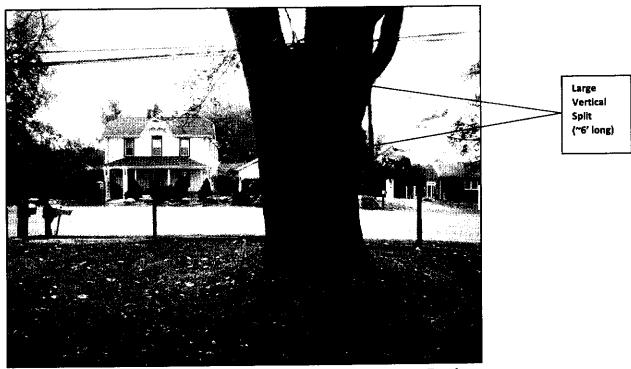


Photo 5. Facing south towards T1 and residence at 13920 Darnestown Road.

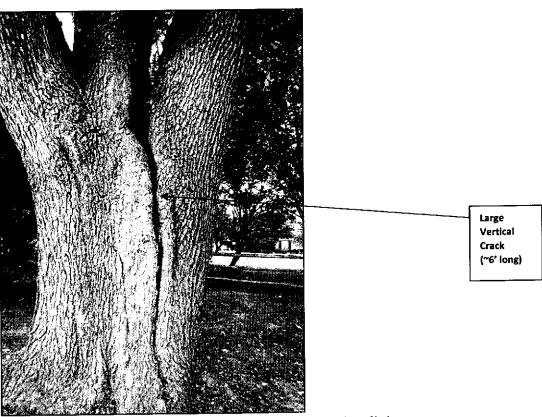


Photo 6. Facing north towards large crack at base of T1 where main stem is splitting.



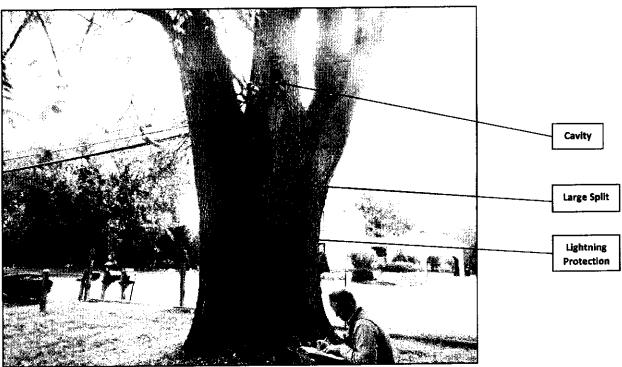


Photo 7. Facing north side of T1 towards cavity, large split, and lightning protection.



Photo 8. South side of T1 canopy above Darnestown Rd.





Photo 9. Sounding T1 to determine extent of decay.

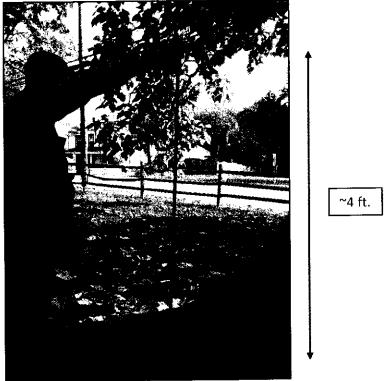


Photo 10. Full length of rebar "probe" used to determine depth of cavities.





Photo 11. Determining depth of cavity on north side of T1.

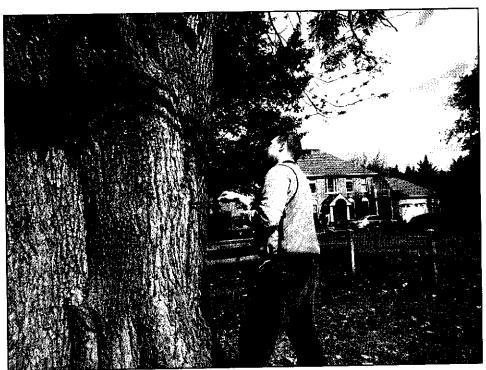


Photo 12. Determining depth of cavity on south side of T1.



Photo 13. Facing east towards 79" northern catalpa (T2).

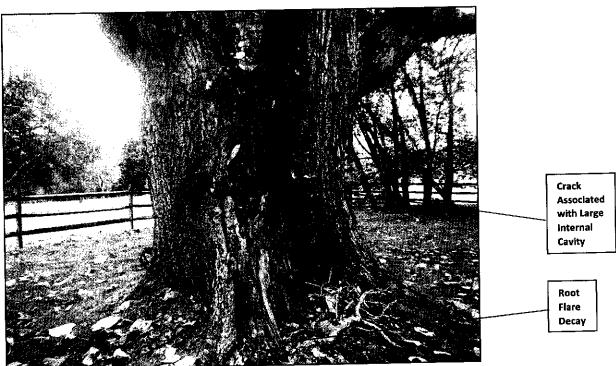


Photo 14. Facing west towards crack and main stem decay at base of T2.

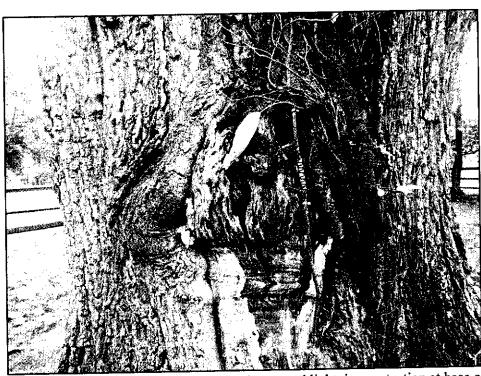


Photo 15. Close up of crack, main stem decay, and lightning protection at base of T2.

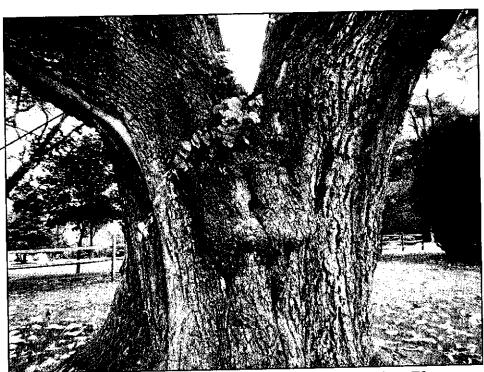


Photo 16. Facing east towards cavities, included and missing bark on T2.

Missing Bark/ Decay

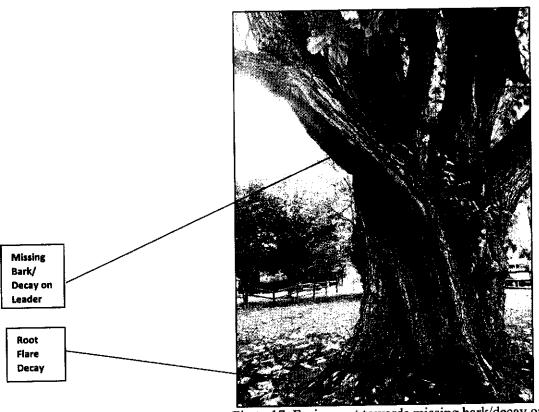


Photo 17. Facing east towards missing bark/decay on the leader and root flare decay on T2.

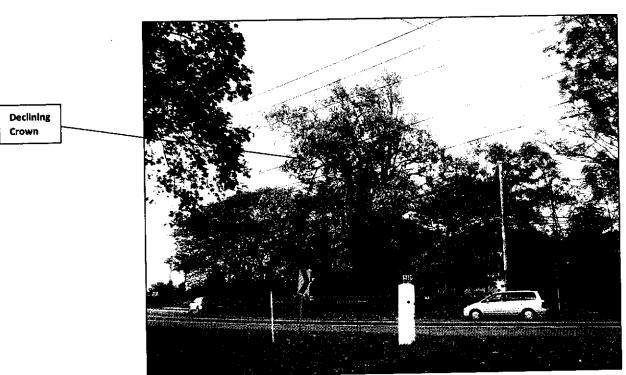


Photo 18. Facing northwest towards crown decline on T2.





Photo 19. Dieback in the canopy on the east side of T2.



Photo 20. Probing crack at base of T2 to determine depth of cavity inside.



Photo 22. Probing cavity on west side of T2 to determine depth of the cavity.



Photo 23. Probing cavity at the base on the west side of T2.

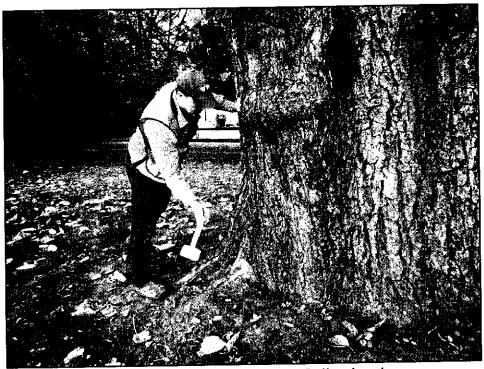


Photo 24. Sounding base of T2 to determine decay/hollow locations.

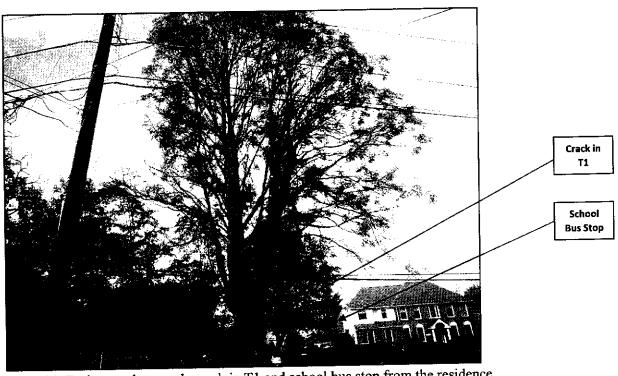


Photo 25. Facing north towards crack in T1 and school bus stop from the residence at 13920 Darnestown Rd.

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Basic Tree Risk Assessment Form 14001 Darnestown Sheet Address/Tree location Height ~ lo Crown spread dia. Tree species Northern Cataloa Very Tools used Mellet, reparprise, d-to Assessor(s) targent beight quide **Target Assessment** Occupancy Target number within 1x 1-rare occasional Target description 3 - frequent 4 – constant owners in yard @ 14001 Darnestown Pel 2 3 Site Factors Topography Flat® Slope□ 0-1 Granch Fulures Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots 2 15-3 Describe MD 28 to The South Prevailing wind direction W Common weather Strong winds Wice Snow Heavy rain W Describe Strong Shane have pure Tree Health and Species Profile None (dead) Normal 50 Foliage None (seasonal) Vigor Low ☑ Normal ☐ High ☐ Abiotic Pests Minor leat damage (chewing + holes) Species failure profile Branches Trunk Roots Describe // Wall failure Load Factor Wind exposure Protected Partial Full Wind funneling 5 maller Trees Relative crown size Small Medium Large M Crown density Sparse Normal Dense , Interior branches Few Normal Dense Vines/Mistletoe/Moss Manner Colson IVI Recent or planned change in load factors _______ Mic back_ In Canapy Tree Defects and Conditions Affecting the Likelihood of Failure — Crown and Branches Cracks & Numarous Washe Visible Lightning damage LCR 50 % Unbalanced crown 🗷 Dead twigs/branches 4 40 % overall Max. dia. 8-10" Codominant & Codominant Thems in Canopy Included bark & Broken/Hangers Number 3 Max. dia. 🔏 Weak attachments & Several In cases, Cavity/Nest hole ___ % circ. Over-extended branches Similar branches present 🖬 Previous branch failures & Smaller Pruning history Dead/Missing bark 🗹 Cankers/Galls/Burls 🛘 Sapwood damage/decay 🗗 Crown cleaned 12' Thinned Raised Heartwood decay Lion-tailed 🔲 Topped Reduced Response growth Low require growt Other rollway of ormore Lecture with being creeks and brinch Four cables already installed in canapy with questionable Minor ☐ Moderate ☑ Significant ☐ Load on defect Possible Probable Imminent I Dre Likelihood of failure | Improbable | - Roots and Root Collar Collar buried/Not visible ☐ ,Depth_____ Stem girdling Abnormal bark texture/color 🗹 Dead/Missing bark 🛮 Conks/Mushrooms □ Decay 🗹 Included bark 🗹 Dead 🗆 Codominant stems 🔽 Cavity 12 5 % circ. Ooze 🗆 Sapwood damage/decay 🗹 Cankers/Galls/Burls 🗆 Sap ooze 🗖 Cracks Cut/Damaged roots Distance from trunk 2-5 Lightning damage 🛘 Heartwood decay 🗹 Conks/Mushrooms 🗀 Cavity/Nest hole 5 % circ. Depth 73 Soil weakness 🗆 Root plate lifting 🗆 Lean ______ Corrected? _ Response growth Vory Miner 15 evident Response growth Very Miner VIsible on Lucas are Main, concerp(s) Post Lecay (a) base of Main concern(s) Trunk is hallow w/major interna lacay . Post collar interfer 15 decayed N/A □ Minor □ Moderate □ Significant □ Load on defect Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant 🗹 Likelihood of failure Likelihood of failure Probable 🗹 Imminent 🗆 Possible 🗆 Improbable 🗀 Possible 🛘 Probable M Improbable 🗆 t heartwood + butt rott evident. Trunk holow with

Risk Categorization

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LICENSE * REGISTRATION * CERTIFICATION * PERMIT

STATE OF MARYLAND

DEPARTMENT OF LABOR, LICENSING AND REGULATION

Anthony G. Brown Lt. Gevenan

Martin O'Nialley Gwanor

Leonard J. Howie, III Secretary

STATE BOARD OF FORESTERS CERTIFIES THAT:

GREGORY RICHARD O'HARE

IS AN AUTHORIZED O 1 - FORESTER

LIC/REG/CERT

11-15-2015 EXPIRATION

Signature of Bearer

EFFECTIVE

CONTROL NO 4462511

WHERE REQUIRED BY LAW THIS MUST BE CONSPICUOUSLY DISPLAYED IN OFFICE TO WHICH IT APPLIES



STATE OF MARYLAND DEPARTMENT OF NATURAL RESOURCES FOREST SERVICE



Certificate of Registration as a

Licensed Tree Expert

This is to pertial that

Mr. Gregory O. Hare

REMOTEL, KLEPPER AND KAHL, LEP

81 Moshen Street

Brumore MD., Az

having met the requirements in the Maryland Code is hereby incensed and qualified to practice as a tree expert and to engage in the business of the reaffilent and care of trees in the state of Maryland.

	License	
Issued this Tenth	day of January 2014	-
Company of the company of the	ay ang kang kang kang kang bang kang bang bang bang bang bang bang bang b	in the larger of the second

This license expires December 31, 2015 and is renewable yearly thereafter upon payment of the proper fee, or revoked by the Department for non-compliance with the terms of the Tree Expert Law.

Director / State Forester

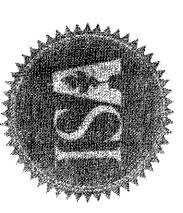
This certificate must be displayed in a conspicuous place.



CERTIFIED ARBORIST

Gregory R O'Hare

Having successfully completed the requirements set by the Arborist Certification the above named is hereby recognized as an ISA Certified Ar Board of the International Society of Arboriculture,



Jim Skiera, Executive Director
International Society of Arboriculture

Certification Board, Chair

Certification Board, Chair International Society of Arboriculture

JA-3158A

Jan 20, 2000

Certified Since

Jun 30, 2018

Certification Number

Expiration Date

4



International Society of Arboriculture" Tree Kisk Assessment Qualification

Gregory R. O'Hare

Having successfully completed the requirements established by the Certification Board of the International Society of Arboriculture," the above named is hereby recognized as ISA Tree Risk Assessment Qualified.

Sas France

Skip Kincaid, Certification Board Chair International Society of Arboriculture

International Society of Arboriculture Jim Skiera, Executive Director

August 21, 2013

August 21, 2018

Issue Date

Term of Validity End Date