



## STAFF REPORT

### Town of Wellesley - Planning Department

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Application: DR-17-09 - 16 Hampshire Road - Waiver/Reduction of Delay Period

Subject Property: 16 Hampshire Road (Assessor's Parcel ID # 108-23)

Applicant: Wei Zhang and Jia Zhou

Property Owner: DNH Homes, LLC/Stan Hargus

Date: Report prepared 11/9/2017 for 11/13/2107 Historical Commission Meeting; Updated 12/5/2017 for 12/11/2017 Historical Commission Meeting

Staff Contact: Claudia Zarazua, Planner; Michael Zehner, Planning Director

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#### APPLICATION OVERVIEW

On October 11, 2017, following a public hearing on an application for a Preservation Determination for the building located at 16 Hampshire Road, the Historical Commission voted 6-1 to determine that the building be Preferably Preserved, thereby imposing a delay on the issuance of a permit to demolish the building for 12 months. On October 18, 2017, pursuant to part D.(4) of the Historic Preservation Demolition Review Bylaw, the Owner applied to the Commission for a reduction of the imposed Delay Period ("Waiver"). A public hearing before the Historical Commission was scheduled for November 13, 2017 to allow the Commission to make a determination as to whether or not to reduce or modify the Delay Period.

**At the November 13, 2017 meeting, the Applicant presented the plans for the proposed house to replace the existing house. The Commission provided the following feedback on the design of the project for consideration by the Applicant:**

- 1. Consider reduce the ridge height of the proposed home;**
- 2. Provide a preliminary landscape plan and information of tree removal;**
- 3. Consider locating the proposed home no closer to the front property line than the existing home;**
- 4. Verify with the Building Department that the TLAG of the proposed home is being calculated correction, especially with respect to the second floor and attic;**
- 5. Consider that the proposed dormers make the house appear taller;**
- 6. Consider tying the portico into the band between the first and second floors;**
- 7. Verify that building height is being calculated correctly based on relative grade;**
- 8. Consider reducing the ridge height of the left wing, relative to the ridge height of the main body of the house;**
- 9. Consider increasing the width of the projecting gable on the portico;**

- 10. Consider the size of the home in relation to other home in the neighborhood and the context of the neighborhood;**
- 11. The massing and scale of the home may be too large, especially compared to the home that it is replacing;**
- 12. Consider providing more detail for the newel on the portico railing; and**
- 13. Consider combining or enlarging the windows on the portico.**

**Following a discussion, the Commission continued the matter to the meeting on December 11, 2017.**

## **COMMISSION CONSIDERATION AND APPLICANT REQUEST**

Pursuant to the Bylaw, “the Commission may consider whether the Owner has:

- i. made a bona fide, reasonable and unsuccessful effort to locate a purchaser for the Building who is willing to preserve, rehabilitate or restore the Building; or
- ii. agreed to accept a Demolition Permit on specified conditions approved by the Commission. If the specified conditions involve approved plans and elevations, then no Demolition Permit shall be issued by the Inspector of Buildings unless the Owner provides to the Inspector of Buildings a complete set of plans and elevation drawings which have been signed and stamped by the Commission, provided, however, that if such plans and elevations are subsequently modified, no copy signed and stamped by the Commission shall be required if such modifications do not substantially alter the plans and elevations previously approved by the Commission.”

Consistent with these standards, the Owner submitted plans and elevations for the proposed house to replace the existing house, if demolished. The proposed house is a center-entry Colonial with garage extension toward the rear, with the main body of the home sited similarly to the existing home. The proposed house is larger than the existing house, but is similar to the existing house in terms of architectural character (the Commission may recall that the existing house is a Colonial Revival, Second-Story Overhang sub-type, or Garrison Colonial).

**Following the November 13 meeting, the Applicant met with Planning staff on November 28, 2017 to review revisions to the proposed house and receive further guidance based on the Commission’s comments. The Applicant submitted revised plans on December 5, 2017. Staff acknowledges that the revised plans address many of the Commission’s comments.**

## **PROCEDURAL CONSIDERATIONS AND STAFF RECOMMENDATIONS**

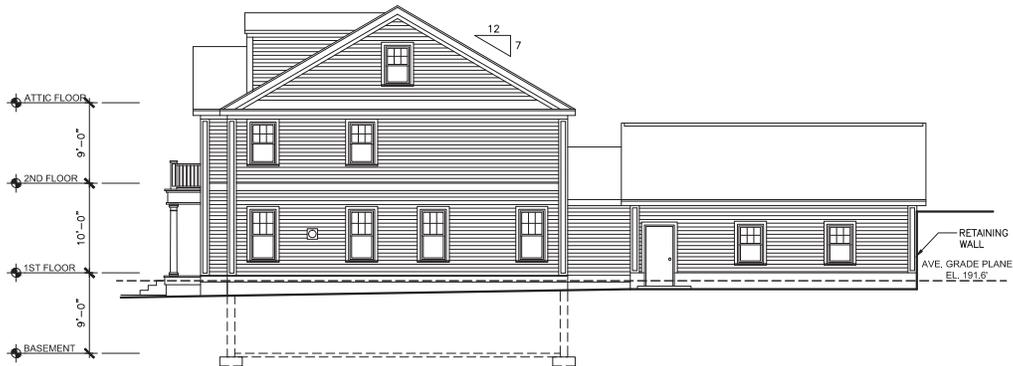
Within fifteen (15) days after the Commission has closed the public hearing on the Waiver, the Commission shall provide to the Owner written notice of its determination or a summary of the Owner and the Commission’s agreed-upon plans with respect to the Delay Period and the Building.

In the event that the Commission is considering granting the waiver request based on submitted plans, Staff would recommend that the Commission do so contingent on the Owner's execution of an agreement specifying the following:

1. Issuance of a Demolition Permit for the dwelling is contingent on subsequent construction based on submitted/approved plans
2. Obligation for the Owner to provide the Planning Director with written notice of all building permit applications concerning the property at the same time as it is filed with the Building Department.
3. Obligation that the Owner not apply for any building permit concerning the property that does not conform to the Approved Plans, and that all construction on the property that does not conform to the Approved Plans is prohibited.
4. Authorization for the Planning Director to determine plans submitted for a Building Permit are consistent with the plans approved by the Commission, and authorization for the Planning Director to confirm compliance of the project prior to the issuance of a Certificate of Occupancy.
5. That the agreement run with the land and be binding on Owner's successors and assigns.
6. That the Historical Commission has the right to enforce all terms of this agreement.



1 PROPOSED EAST (FRONT) ELEVATION  
3/32" = 1'-0"



2 PROPOSED NORTH (SIDE) ELEVATION  
3/32" = 1'-0"

16 HAMPSHIRE ROAD, WELLESLEY, MA  
 DECEMBER 5, 2017  
 SCALE: 3/32" = 1'-0"

LAU DESIGN CO.  
 7 BRANDON STREET,  
 LEXINGTON, MA 02420



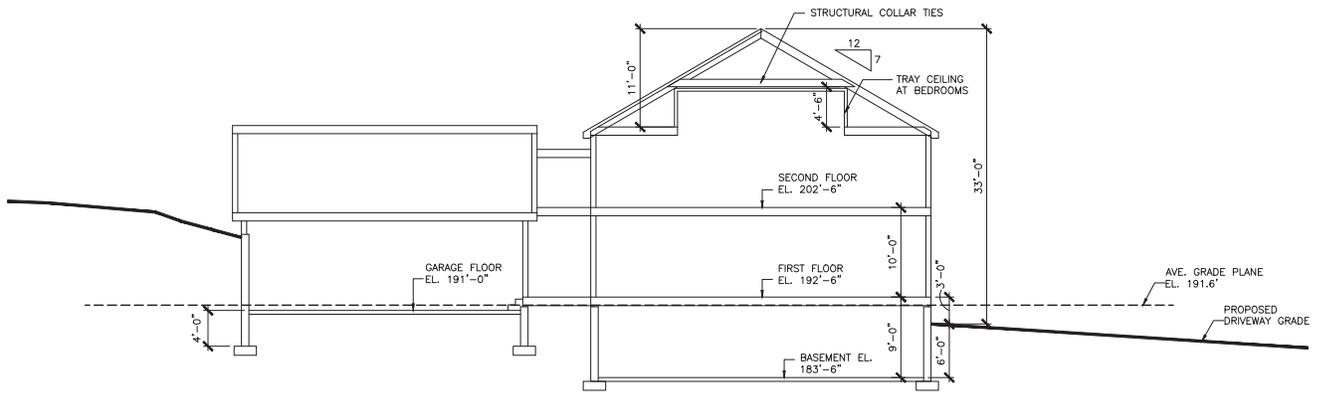
3 PROPOSED WEST (REAR) ELEVATION  
3/32" = 1'-0"



4 PROPOSED SOUTH (SIDE) ELEVATION  
3/32" = 1'-0"

16 HAMPSHIRE ROAD, WELLESLEY, MA  
 DECEMBER 5, 2017  
 SCALE: 3/32" = 1'-0"

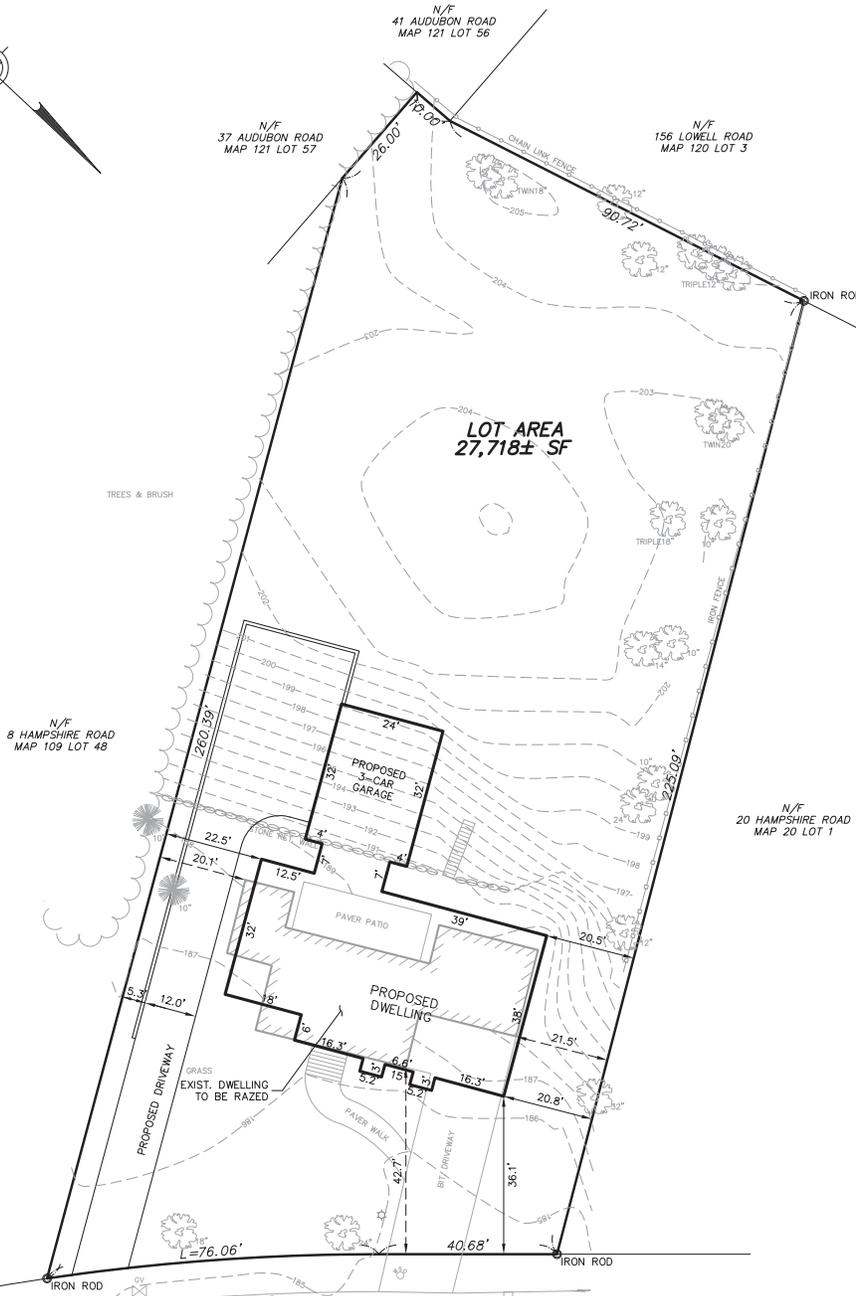
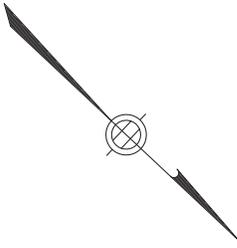
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 LEXINGTON, MA 02420



5 PROPOSED BUILDING SECTION  
3/32" = 1'-0"

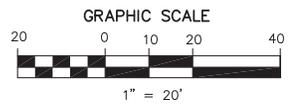
16 HAMPSHIRE ROAD, WELLESLEY, MA  
 DECEMBER 5, 2017  
 SCALE:  $\frac{3}{32}$ " = 1'-0"

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 LEXINGTON, MA 02420



AVERAGE GRADE PLANE FOR PROPOSED BUILDING  
 $(199.2+200.2+188.5+188.9+186.5+186.6)/6=191.6$

HAMPSHIRE ROAD



**ZONING SETBACKS: SR-20**  
 FRONT YARD 30'  
 SIDE YARD 20'  
 REAR YARD 20'

**RECORD OWNER:**  
 WEI ZHANG & JIA ZHOU  
 LAND COURT CERT. 195817

**PLAN REFERENCE:**  
 LOT 195 ON L.C. PLAN 17670E

I HEREBY CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL INSTRUMENT SURVEY MADE ON THE GROUND IN JULY 2017 AND THE STRUCTURE DEPICTED HEREON IS LOCATED AS SHOWN.

11-17-17  
 DATE

*Scott M. Cerrato*  
 SIGNATURE



**SCOTT M. CERRATO**  
 Professional Land Surveyor  
 24 Pleasant View Drive • Exeter, NH 03833 • 781-775-3724

**PROPOSED PLOT PLAN**

**16 HAMPSHIRE ROAD**  
**WELLESLEY, MASSACHUSETTS**  
**PARCEL ID: 108-23**

NOVEMBER 17, 2017



## URBAN HORTICULTURAL CONSULTANTS

TREE RISK ASSESSMENT-TREE INVENTORIES - LANDSCAPE DESIGN - PROJECT MANAGEMENT



### Tree Protection Plan

#### Prepared for

Mr. Wei Zhang  
16 Hampshire road  
Wellesley Hills, MA. 02481

#### Prepared by

Karen Malloy Cyr  
Registered Consulting Arborist  
14 Hales Court  
Groveland, MA. 01834

October 10, 2017

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## URBAN HORTICULTURAL CONSULTANTS

TREE RISK ASSESSMENT-TREE INVENTORIES - LANDSCAPE DESIGN - PROJECT MANAGEMENT



Wei Zhang  
16 Hampshire Road  
Wellesley Hills, MA. 02481

October 10, 2017

Re: Tree Protection Plan, Wei Zhang, 16 Hampshire Rd., Wellesley, MA. 02481

### **Introduction**

On Saturday August 5, 2017, I visited your property at 16 Hampshire Road, Wellesley, Ma. Mr. Zhang has expressed concern for protecting his trees during a house construction project at his current residence. He purchased the home three months ago and has plans to remove the existing house and constructing a new home. The plans show the new home will be moved closer to the road with an addition of a new driveway on the left or southeast side of the house. There is a total of seven trees that will be protected from the proposed construction. The trees of concern are 2 Norway maple (*Acer platanoides*), 3 Canadian Hemlock (*Tsuga canadensis*), 1 White oak (*Quercus alba*), 1 White pine (*Pinus strobus*) 1 Carolina silverbell (*Halesia carolina*). Nine (9) trees were removed in the back yard and recommendations for tree replacement are included in this report.

### **Purpose of the Report**

The purpose of this report is to provide Mr. Wei Zhang with a Tree Protection Plan. This information will be used by Mr. Zhang to provide guidelines to adequately protect and care for these trees prior to and after the house construction is completed.

### **Assignment:**

After meeting with Mr. Wei Zhang, we agreed that my assignment was to:

1. Identify the trees that will be impacted by the construction.
2. Determine how the trees will be protected during the construction.
3. Record my findings and recommendations in a Tree Protection Plan.
4. Provide recommendations for tree replacement when construction is finished.

### **Limitations of Assignment:**

My inspection of the 6 trees and 9 tree stumps was limited to ground-based observations of exposed parts of the trees. The trees were measured, and details recorded on sketches of the tree and site. (Appendix A and B)<sup>1</sup>

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<sup>1</sup> See Appendix A- Site Map

**Observations:**

**A Protection Plan will be established for the following trees:**

**Tree number 1** Norway Maple (*Acer platanoides*) is 60 feet tall with a trunk diameter of 24 inches DBH. This tree is located on the right front of the existing house. The new house foundation will be 30 feet from the trunk. The current condition of the Sugar Maple is about 80%. The average tree crown width (leaves and branches) is 55ft. The crown spread on the south side of the tree appears to be the part that will be affected by any construction because of the distance to the property boundary to the east. These measurements aid in determining the radius for the dripline and the baseline for the critical root zone protection plan. (Appendix A)<sup>2</sup>

**Tree number 2** Norway maple (*Acer platanoides*) is 60 feet tall with a trunk diameter of 21 inches DBH. The Maple tree is located 46 feet measured from the tree stem to the new foundation facing south, and 8 feet from the new driveway, to be installed, on the west side. The average tree crown width (leaves and branches) is 60 feet. The crown extends out beyond the tree stem 30 feet on the south side. It would appear that the construction would be on the south and west of this Maple.

**Tree number 3** Canadian hemlock (*Tsuga canadensis*) is 20 feet tall with a trunk diameter of 12 inches DBH. The average crown extends out beyond the tree stem 15 feet on the northeast side. The Hemlock is located 5 feet, measured from the tree stem, to the boundary of the new driveway facing northeast. This hemlock tree is small for this size diameter.

**Tree number 4** Serbian spruce (*Picea omorika*) is 20 feet tall with a trunk diameter of 12 inches DBH. The average crown extends out beyond the tree stem 15 feet on the northeast side. The Spruce is located 5 feet, measured from the tree stem, to the boundary of the new driveway facing northeast.

**Tree number 5** Canadian hemlock (*Tsuga canadensis*) is 40 feet tall with a trunk diameter of 12 inches DBH. The average crown extends out beyond the tree stem 10 feet on the southwest side. The Hemlock is located 35 feet off back east facing corner of the existing house. There is damage to the bark from previous tree removal and construction practices.

**Tree number 6** White oak (*Quercus alba*) is 60 feet tall with a trunk diameter of 32 inches DBH. The Oak tree is located 19 feet off the front right corner of the house facing north. The average tree crown width (leaves and branches) is 60 feet. The crown extends out beyond the tree stem 30 feet on the south facing side of the tree.

Diameter at 4.5 feet, otherwise known as DBH, and height vary in size among these trees because of the different growing conditions regarding shade and sun availability.

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<sup>2</sup> See Appendix A- Site map

**Existing Tree Stumps in back yard:** Trees are numbered on Survey Plan

1. Oak species- 26 inch DBH. 12 feet from property line. 30 feet off corner of house facing SE
2. Pine species- 11inch DBH. 37 feet off corner of house facing SE.
3. Oak species- 28 inch DBH. 7 feet from property line, 39 feet from corner of house facing SE
4. Oak species- 34 inch DBH. (9 feet from stump # 3). 16 feet from property line, 39 feet from corner of house facing SE
5. Oak species- 20 inch DBH. (28 feet from tree stump # 4), 28 feet from corner of house
6. Pine species- 11 inch DBH. 10 feet from top of stairs.
7. Oak species- 32 inch DBH. Next to top of stairs.
8. Oak species- 32 inch DBH. Right of stairs, 19 feet from corner of house.
9. Oak species- (2 stem)- 42inch DBH near corner of house.

**Discussion:**

The Tree Protection Plan includes the establishment of a Tree Protection Zone<sup>3</sup>. The Critical Root Zone (CRZ) is the minimum area beneath the canopy of a tree which must be left undisturbed in order to preserve a sufficient root mass to give a tree a reasonable chance of survival. The Tree Protection Zone includes the Critical Root Zone. This is an area that is enclosed by a fence and is usually defined by the dripline, or area directly under the canopy of the tree. Another method of calculating the optimal Tree Protection Zone takes into account the species tolerance for construction, the age of the tree, and the trunk diameter (Matheny and Clark, 1998)<sup>4</sup>. The root zone of a tree could extend as much as two or three times the width of the canopy. Within the Critical Root Zone, trenching, pavement, soil compaction, mechanical injury, and any change in grade should be avoided. Tree(s) should be properly irrigated during construction.

**Soil Compaction**

All protected trees in the construction zone are subject to soil compaction from heavy vehicles, and any heavy debris placed in the Critical Root Zone (CRZ). Soil compaction occurs when the pore space between soil particles is greatly reduced. This causes the reduction of oxygen available to the roots and can lead to decline in trees. Use of equipment, grading, digging, and heavily used walking paths can cause soil compaction in a construction area. Use protective fencing, mulching within the protective fencing, and limiting the amount of access routes will minimize soil compaction. (Matheny, et al, 1998)

**Mechanical Injury**

There will be heavy equipment and vehicles used near the tree(s) that are to be protected. Wounds to the tree's branches and trunk, caused by mechanical damage, may reduce tree stability by decreasing the wood strength, the internal movement of water and nutrients, and the ability to

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<sup>3</sup> See Glossary for definition

<sup>4</sup> Authors enclosed in parentheses are listed in the Bibliography

compartmentalize against decay. Enclosing the Critical Root Zone with protective fencing will prevent damage from construction equipment. (Matheny, et al, 1998)

#### Change in Grade

Within my knowledge, no changes in grade are planned within the CRZ of the trees that are to be protected. Lowering or rising of the grade within the root zone can damage or kill a tree. The normal exchange of moisture and gases within the root zone is disrupted with the change in grade. The original grade should be maintained as far out from the trunk as possible. As little as four inches of soil placed over the root system can kill some species of trees. The change in grade can have either immediate or long term adverse effects on the tree. (Matheny, et al, 1998)

#### Trenching

A home expansion may require adding a cement foundation to support the additional structure. Trenching within the CRZ can damage the root system of a tree and lead to tree decline or death. Ninety percent of the fine roots that absorb water and minerals are found in the upper few inches of soil. Roots require air space, air, and water, and grow best where these requirements are met, which is usually very near the soil surface. If trenching is required through the CRZ, it should be done by hand, not mechanically, whenever it is reasonable to do so. When roots are cut due to trenching, the cut should be clean, not leaving torn edges. Tunneling and bridging should be used to preserve roots two inches in diameter or greater, and whenever possible, underground lines should occupy common trenches. Multiple trenching is destructive because it impacts a greater portion of the root system. (Fite and Smiley, 2008)

#### Irrigation

Irrigation should be provided within the CRZ to apply 1 inch of water per week during the growing season. A deep watering of the trees should take place before construction begins. During construction, the soil in the CRZ should be watered regularly and deeply so water penetrates the root area at least six to eight inches deep. (Fite and Smiley, 2008)

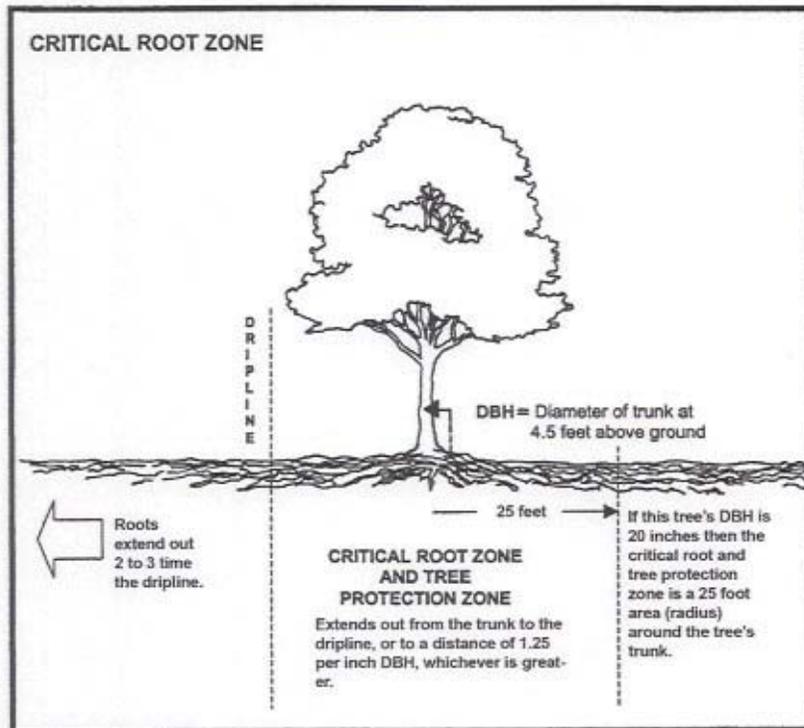
#### Pruning and Support Cables

Only dead, weekend, diseased, or dangerous branches should be removed. If pruning is found to be necessary, it shall be in accordance with the Tree Pruning Guidelines (International Society of Arboriculture) and/or the ANSI A300 Pruning Standard (American National Standard for Tree Care Operation). Pruning should be completed before construction starts to not enter the established fenced off Tree Protection Zone.

#### Mitigation

According to the Town of Wellesley, Section XVII Tree Protection and Preservation Tree Bylaw, the trees will need to be maintained and protected for twenty-four months (24) from the date the construction is complete. Should such a tree die within this twenty-four (24) month period, the owner of the property shall be required to provide mitigation consistent with the requirements for the removal of a Protected Tree. An accepted appraisal method of determining the value of a tree is outlined in the Council of Tree Appraisers' *Guide for Plant Appraisal, 9<sup>th</sup> Edition*, using the Trunk Formula Method

### Discussion for Critical Root Zone<sup>5</sup> Requirements



**Critical Root Zone (CRZ)** is the minimum area beneath a tree that must be left undisturbed in order to preserve a sufficient root mass to give a tree a reasonable chance of survival. The Critical Root Zone is typically represented by a concentric circle centering on the tree trunk with a radius equal in feet to 1.5 times the number of inches of the trunk diameter:  $CRZ \text{ in ft.} = 1.5 \times D_{in}$  or  $DBH \times 1.5 = CRZ$ .

1. Norway maple (*Acer platanoides*)  $24 \times 1.5 = 36$  feet  
The Norway maple has a Critical Root Zone of 36 feet, with the tree trunk as the center point. The diameter of the circle would be a **minimum of 72 feet**
2. Norway maple (*Acer platanoides*)  $21 \times 1.5 = 31.5$  feet  
The Norway maple has a Critical Root Zone of 31.5 feet, with the tree trunk as the center point. The diameter of the circle would be a **minimum of 63 feet**.
3. Canadian hemlock (*Tsuga canadensis*)  $12 \times 1.5 = 18$  feet, with the trunk as the center point. The diameter of the circle would be a **minimum of 36 feet**.
4. Serbian spruce (*Picea omorika*)  $12 \times 1.5 = 18$  feet, with the trunk as the center point. The diameter of the circle would be a **minimum of 36 feet**.

<sup>5</sup> Timely Tree Tips — Tree Protection Part 2: Critical Root Zones ...  
dntreelink.wordpress.com-1911 × 1728-Search by image  
Timely Tree Tips — Tree Protection Part 2: Critical Root Zones | Tree Link

4. Serbian spruce (*Picea omorika*) 12 x 1.5 = 18 feet, with the trunk as the center point. The diameter of the circle would be a **minimum of 36 feet.**
5. Canadian hemlock (*Tsuga canadensis*) 12 x 1.5 = 18 feet, with the trunk as the center point. The diameter of the circle would be a **minimum of 36 feet.**
6. White oak (*Quercus alba*) 12 x 1.5 = 48 feet, with the trunk as the center point. The diameter of the circle would be a **minimum of 96 feet.**

## Conclusion

The 6 trees that will be protected by the house expansion construction project at Mr. Wei Zhang's property have been identified. To prevent or minimize injury to the trees to be protected, a CRZ has been established and must be fenced off. This is an area usually defined by the dripline of a tree. Two Norway maple (numbers 1 & 2), one White oak (# 6), Two Canadian hemlock trees (#'s 3 & 5) and one Serbian spruce (#4) shall be implemented a full Tree Protection Plan as explained in the recommendations below. To properly protect the trees during construction, the following recommendations should be implemented to minimize or eliminate the potential damage to these trees from soil compaction, mechanical injury, potential trenching, and change in grade.

## Recommendations for Tree Protection Plan:

1. Prune: Two Norway maple trees #1 & 2 of any existing dead branches and branches that may be damaged by large construction vehicles. Branches should be pruned back from front house to prevent damage from large vehicles. Any pruning and support cable installation necessary will be in accordance with the Tree Pruning Guidelines (International Society of Arboriculture) and /or the ANSI A300 Pruning Standard for Tree Care Operations). A Certified Arborist, with knowledge of Tree Protection Plans, should be hired to perform Arboricultural practices. The general contractor will not perform any cable installation or pruning. This should be completed before step #4

2. Fertilization: Perform a soil analysis and apply fertilizer and soil amendments per analysis results and recommendations. All trees located in the CRZ are to be fertilized to improve and amend existing soil with macro and micro nutrients necessary for tree physiology and health. Trees recommended in this category are to be subsurface root liquid fertilized the first year to improve their health which may be affected by construction, root restriction or compaction and drought related issues. The fertilizer should be a slow-release liquid fertilizer with micronutrients injected in the soil under the branch-spread of the tree. This should be completed before step #4

3. Soil excavation: Two Norway maple trees, numbers 1 and 2 are recommended for Soil excavation procedures prior to the installation of house foundation. Soil will be removed from tree roots where trenching is planned. Tree roots will be hand pruned to prevent root damage.

CRZ. The Tree Protection Zone includes the Critical Root Zone as the minimum area beneath the canopy of a tree where the important absorbing roots are located. (Pg. 5)

**The following guidelines shall be adhered to regarding the protective fencing:**

- a. A chain link fence will be at least six feet tall. To ensure that the Critical Root Zone (CRZ) is protected, the fence should be placed out to the dripline of the two trees. (Appendix B) For each enclosure there will be access to the CRZ for Consulting Certified Arborists to access the area as necessary. This fencing will remain in place throughout the construction duration. Fence should be provided by the construction company.
  - b. A warning sign at least 8 ½ by 11 inches will be attached to the protective fencing with the wording “Warning: Tree Protection Zone, this fence Shall Not Be Removed”.
  - c. Within the fenced in area, no digging, trenching, or other soil disturbance is allowed and the area should be kept clear of building materials, waste, and excess soil.
  - d. A four-inch layer of untreated organic wood chips or mulch shall be placed within the fenced enclosure of trees to help reduce soil compaction and moisture loss. This mulch layer should remain when the construction is complete and fence has been removed.
  - e. Steel road plates will be placed over the 4-inch layer of bark mulch along existing driveway to protect White oak and White pine from vehicle disturbance. The steel plates should be provided by the construction company.
  - f. Construction tools, equipment, and any additional debris will **not** be stored on or near the Tree Protection or CRZ zone.
  - g. No encroachment shall be made by any contracted workers EXCEPT the certified arborist to aid in maintaining the tree’s health during all construction phases.
5. All trees to be protected shall be deeply irrigated before construction begins. Throughout the project, the trees will be properly irrigated. Avoid shallow watering.
- a. Irrigation system shall be calibrated to distribute one inch of water to the Critical Root Zone (CRZ) each week throughout the growing season from April to October during the construction phase.
6. The Consulting Certified Arborist, with knowledge of Tree Protection Plans, should be present when the protective fencing is installed and the mulch applied, and when any work occurs within the Critical Root Zone (CRZ) of any tree.

**Recommendations for Replacement of 9 trees removed, a total of 236 inches Caliper and DBH**

Replacement trees have been selected for the purpose of replacing trees removed. The species are known to grow well in this zone.

1. Green Giant Arborvitae- *Thuja plicata*
2. White Oak- *Quercus alba*
3. Pin Oak- *Quercus palustris*
4. American Hornbeam- *Carpinus caroliniana*
5. Red maple ‘October Glory’- *Acer rubrum* ‘October Glory’
6. White fir- *Abies concolor*
7. Carolina silverbell- *Halesia carolina*
8. Kousa dogwood- *Cornus kousa*

### Glossary of Terms:

Absorbing Roots	fine, fibrous roots that take up water and minerals; most of them are within the top 12 inches of soil
Branch Union	The structural union of a lateral branch to the tree stem.
Caliper	Is measured approximately 6-12' from the root collar. Caliper is an American Nursery Standard measurement. Synonym for trunk diameter used to measure the size of nursery stock; by convention, measured 6' above the ground.
Canopy	The part of the crown composed of leaves and small twigs.
Certified Arborist	A professional arborist possessing current certification issued by the Massachusetts Arborists Association (MAA) and/or the International Society of Arboriculture (ISA)
Codominant	equal in size and relative importance, usually associated with either the trunk/stems or scaffold limbs/ branches in the crown.
Critical Root Zone (CRZ)	The minimum area beneath the canopy of a tree which must be left undisturbed in order to preserve a sufficient root mass to give a tree a reasonable chance of survival. The CRZ is represented by a concentric circle centering on the tree's trunk and extending outward towards the tree's dripline. The minimum area of the CRZ shall be dependent on the required minimum radius of the CRZ; the required CRZ shall be determined by multiplying a tree's DBH (in inches) by eighteen (18) inches, with the resulting product constituting the minimum radius of the CRZ.
Compost	organic matter that has been intentionally subjected to decay processes and is more or less decomposed.
Crown	the upper part of a tree, measured from the lowest branch, including all the branches and foliage
DBH	Stands for Diameter Breast Height. The diameter of a tree measured at 4.5 feet above the ground.
Dripline	Perimeter of the area under a tree including the branches and leaves
Fertilizer (slow release)	substance added to a plant or the surrounding soil to supplement the supply of essential elements

Mulch	material applied onto the soil surface to prevent drying, to prevent rapid changes in soil temperature, as a soil amendment, for decorative purposes, or to prevent weed growth.
Organic mulch	Substance produced by plants or animals and containing carbon compounds.
pH	The measurement of acidity or alkalinity of the soil.
Pruning	Systematic removal of branches of a plant usually a woody perennial
Root Collar	Area at the base of the tree where the roots and the stem merge.
Soil Compaction	Compression of the soil resulting in a reduction of the total air or pore space
Support Cabling	the practice of adding a support system to a tree to reduce the stress on weak branch unions.
Stress	any change in environment conditions that produce a less than ideal plant response
Tree Protection Plan	Report to identify and protect trees indicated to remain. Procedures shall include protective measures to be used for both above and below grade.
Tree Protection Zone	This is an area usually defined by the dripline of a tree. To protect a tree, no construction should ever occur within this area.
Tree Safe Area	The area surrounding a tree which includes, at a minimum, the Critical Root Zone (CRZ) and the dripline of all Protected Trees, unless otherwise authorized. The Tree Safe Area must be enclosed within a fence and remain undisturbed to prevent damage to the tree.
Tree Yard	The area of a parcel zoned Single Residence District or General Residence District located to all front, side, and rear lines of a lot.

### **Bibliography**

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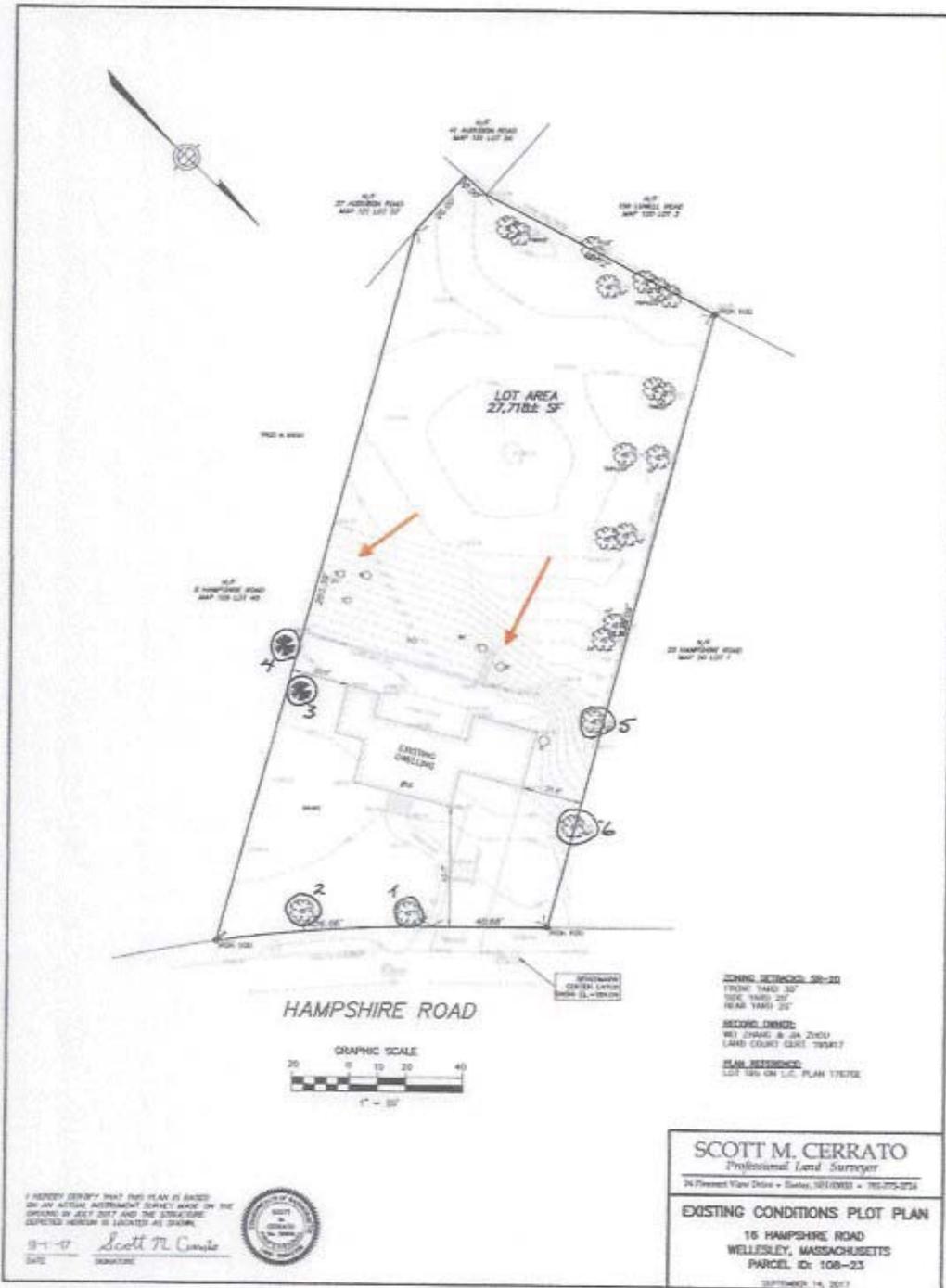
Critical Root Zone Photo and Information

Google Link:

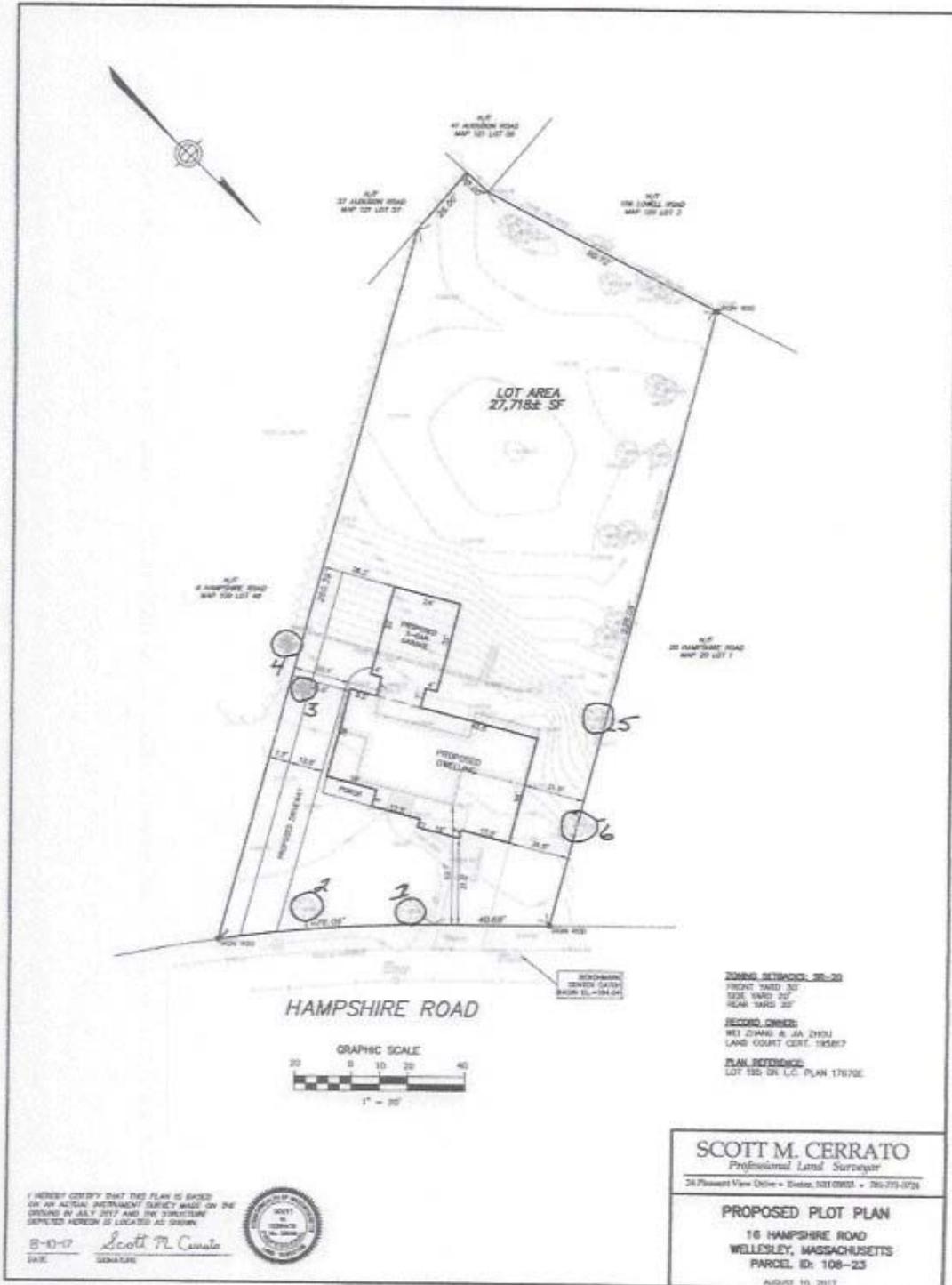
[Timely Tree Tips — Tree Protection Part 2: Critical Root Zones ...](https://www.dnrtreelink.wordpress.com/2011/11/17/28/)  
[dnrtreelink.wordpress.com](https://www.dnrtreelink.wordpress.com/2011/11/17/28/) 1911 × 1728 Search by image

Timely Tree Tips — Tree Protection Part 2: Critical Root Zones | Tree Link

**Appendix A Site Map** 16 Hampshire Rd. Original site plan with existing house and plants. Plants circled will be impacted by construction. (See recommendations pg.6) Orange arrows points to the circles indicating 9 trees removed.



**Appendix B** New house plan. Circled Trees are located on the map to show proximity of new house and driveway in relation to plant location.



## **Appendix C    ASSUMPTIONS AND LIMITING CONDITIONS**

1.        It is assumed that any property is not in violation of any applicable codes, ordinances, Statutes or other governmental regulations.
2.        Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant can neither guarantee nor be responsible for the accuracy of information provided by others.
3.        The consultant shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
4.        Unless required by law, otherwise, possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant.
5.        Unless required by law, neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior expressed written or verbal consent of the consultant –particularly as to value conclusions, identity of the consultant, or any reference to any professional society or institute or to any initialed designation conferred upon the consultant as stated in his qualifications.
6.        This report expressed herein represent the opinion of the consultant, and the consultant's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
7.        Sketches, drawings, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys unless expressed otherwise. The reproduction of any information generated by architects, engineers, or other consultants on any sketches, drawings, or photographs is for the express purpose of coordination and ease of reference only. Inclusion of said information on any drawings or other documents does not constitute a representation by Karen Malloy Cyr, Registered Consulting Arborist, as to the sufficiency or accuracy of said information.
8.        Unless expressed otherwise: 1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring unless otherwise specified. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.
9.        Loss or alteration of any part of this report invalidates the entire report.

#### **Appendix D Certification of Performance**

I, Karen Malloy Cyr, certify that:

1. I have personally inspected the tree and property referred to in this report and have stated my findings accurately.
2. I have no current or prospective interest in the tree or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.
3. The analysis, opinions and conclusions stated herein are my own and are based on current scientific procedures and facts.
4. My analysis, opinions and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.
5. No one provided significant professional assistance to me, except as indicated within the report.
6. My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing of the Massachusetts Arborist Association, American Society of Consulting Arborists, and the International Society of Arboriculture. I have been involved in the field of Arboriculture for over 35 years.

*Signed: Karen Malloy Cyr*

*Date: October 10, 2017*

Karen Malloy Cyr  
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ISA # NE-0526A