

# TREE PRESERVATION REPORT FOR ZONING BY-LAW AMENDMENT



459 HALE STREET LONDON, ONTARIO

Report prepared by Ron Koudys Landscape Architects Inc

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RKLA Project #24-143



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# **CONTENTS**

1.0	Introduction and Executive Summary	. 1
1.1	Introduction	1
1.2	Executive Summary	1
1	2.1 Tree Species Composition Chart	1
1	2.2 Tree Removal and Preservation Recommendations	1
2.0	Subject Site and Scope of Work	.2
3.0	Methodology	.2
3.1	Health Assessment	.3
3.2	Critical Root Zones	.3
4.0	Tree Inventory and Preservation/Removal Recommendations	4
4.1	Tree Data Table	4
5.0	Potential Construction Impacts on Trees	6
5.1	Soil Compaction	6
5.2	Root Loss	6
5.3	Grade Changes	.7
5.4	Mechanical Damage	.7
5.5	Changes to Exposure - Sun and Wind	.7
5.6	Soil Contamination	.7
5.7	Water Availability	.7
6.0	Construction Impact Mitigation Recommendations	8
6.1	Pre-construction recommendations	8
6.2	Recommendations related to the construction process	8
6.3	Post-construction recommendations	9
7.0	Disclaimer	9
8.0	Contact Information	9
9.0	Appendix A - Tree Preservation Drawings	11

#### 1.0 Introduction and Executive Summary

#### 1.1 Introduction

Ron Koudys Landscape Architects Inc. (RKLA) was retained by the developer to prepare a tree assessment report in conjunction with the proposed development at 459 Hale Street, London. The intent of this report is to summarize the findings of the tree assessment and make recommendations regarding tree preservation and removal based on tree health, the current site plan, and site grading for the purpose of application for rezoning.

Note that refinement of these recommendations will be made upon design refinement at the time of application for site plan approval.

#### **1.2 EXECUTIVE SUMMARY**

The inventory captured 17 individual trees and 1 vegetation unit. Trees were identified within the subject site, and within 3 meters of the legal property boundary. No species classified as endangered or threatened under the Ontario Endangered Species Act, 2007, S.O. 2007, c. 6 were observed during the tree inventory. All trees observed are common to the current land uses and can be characterized as anthropogenic or opportunistic.

# 1.2.1 TREE SPECIES COMPOSITION CHART The following chart summarizes the amount of each tree species observed.

%	Qty.	Botanical Name	Common Name
29%	5	Acer negundo	Manitoba Maple
24%	4	Acer platanoides	Norway Maple
18%	3	Ulmus pumila	Siberian Elm
6%	1	Celtis occidentalis	Hackberry
6%	1	Gleditsia triacanthos var. inermis	Honey Locust
6%	1	Malus spp	Apple
6%	1	Picea glauca 'Conica'	White Spruce
6%	1	Pinus strobus	White Pine
6%	1	Thuja spp.	Cedar
100%	17	Total	

#### 1.2.2 Tree Removal and Preservation Recommendations

- Removal of 5 trees located beyond the subject site with consent from adjacent landowners. Consent will be acquired at the time of Site Plan Approval.
- Removal of 3 trees from the subject site due to direct conflict with the proposed work.
- Preserve 9 trees and 1 vegetation unit located beyond the subject site.
- Follow pre, during, and post construction recommendations outlined in the Construction Impact Mitigation Recommendations in this report.

#### 2.0 SUBJECT SITE AND SCOPE OF WORK

Refer to Figure 1 for scope of tree inventory.



Figure 1 - City of London mapping with 2022 aerial imagery. NTS



Red dashed line - Limit of inventory

#### **3.0** METHODOLOGY

Updated fieldwork was completed on March 4<sup>th</sup>, 2024 by RKLA staff member Kathleen Garrett, ISA certified arborist ON 3009A to review and confirm findings from the initial tree inventory completed on December 5<sup>th</sup>, 2017. A topographic survey provided by Callon Dietz Inc. dated November 28<sup>th</sup>, 2017 was used as a base for the field work and determined tree location/ownership. Trees not located on the topographic survey have been located based on aerial imagery and approximate field measurements. All trees with a minimum DBH of 10cm within the given scope were identified and assessed. Groups of trees and hedges were identified and assessed as vegetation units, and include trees smaller than 10cm DBH. Each tree and vegetation unit was assigned a number which are identified in the tree data table and on the tree preservation plan. Tree identification numbers include 1-17 & veg unit 1.

The following information was recorded for each individual tree:

Genus + specific epithet (Species)

Diameter at breast height (DBH) (centimetres)

Crown radius (metres)

Crown Condition (overall general vigour of crown)

Structural Form (excellent, good, fair, poor)

Structural Integrity (good, fair, poor, hazard)

#### **General Comments**

#### **3.1 HEALTH ASSESSMENT**

Trees were assessed following accepted arboricultural techniques and best practices using a limited visual inspection. The inspection included a 360-degree visual examination of the above-ground parts of each tree for structural defects including cavities, wounds, scars, external indicators of internal decay, evidence of insect presence, discoloured or deformed foliage, canopy and root distribution, and the overall condition of the tree. Evaluation of tree health was based on visible tree health indicators including live buds, foliage condition, deadwood, structural defects, form, and signs of disease or insect infestation. If needed, field observations were reviewed against available online imagery of the site to assist in determining tree canopy health. Quantified health assessments included in the inventory are explained here:

#### **Crown Condition Assessment**

- 5 Healthy: less than 10% crown decline
- 4 Slight decline: 11% 30% crown decline
- 3 Moderate decline: 31% 60% crown decline
- 2 Severe decline: 61% 90% crown decline
- 1 Dead No visible indication of living foliage or buds in crown

#### Structural Form Assessment

Excellent: An ideal expression of a specific tree species, true to form, balanced

canopy, good flare, typical internode length, full crown, etc.

Good: A satisfactory and generally expected expression of a specific tree

species, with only minor or typical variances from an ideal form.

Fair: Nearly satisfactory, with defects or a combination of defects such as

codominant leaders, unbalanced crown, poor/no flare, shortened

internodes, has been poorly pruned, etc.

Poor: Significantly flawed expression of a specific tree species

#### Structural Integrity Assessment

Good: Defects if present are minor (e.g. twig dieback, small wounds); defective tree

part is small (e.g. 5-8 cm diameter limb) providing little if any risk.

Fair: Defects are numerous or significant (e.g. dead scaffold limbs); defective parts

are moderate in size (e.g. limb greater than 5-8 cm in diameter).

Poor: Defects are severe (trunk cavity in excess of 50%); defective parts are large

(e.g. majority of crown).

Hazard: Defects are severe and acute; defective part or collective defective parts

render the tree a high risk threat to potential targets.

#### **3.2 CRITICAL ROOT ZONES**

The critical root zone of a tree is the portion of the root system that is the minimum necessary to maintain tree vitality and stability. Critical root zones are commonly prescribed by municipal bylaws based solely on DBH and/or drip line, and are typically expressed as a circular shape around the tree. There are a number of other factors, however, that are considered when establishing a critical root zone.

Factors that inform location and extent of a tree preservation barriers to protect the critical root zone include: species tolerance to root loss and other construction impacts

(as established by authoritative resources and professional experience), tree trunk size (DBH), tree health and vigour, structural condition, landscape context, soil type, moisture availability, topography, ground cover, crown size (drip line) and balance, current physical root restrictions, visible root arrangement, relationship to neighbouring trees, relationship between tree and proposed construction, type of proposed construction, etc.

The City of London Tree Protection By-Law (C.P.-1555-252) defines the Critical Root Zone as "the area of land within a radius of ten (10) cm from the trunk of a tree for every one (1) cm of trunk diameter". The Tree Preservation drawing graphically represents this radius for trees to be preserved.

### 4.0 TREE INVENTORY AND PRESERVATION/REMOVAL RECOMMENDATIONS

#### **4.1 TREE DATA TABLE**

The following recommendations are based on requirements of the current site plan. Grey indicates recommended removal.

GENERAL INFORMATION					SIZE HEALTH & CONDITION					RECOMMENDATIONS		
ID#	BOTANICAL NAME	COMMON NAME	LOCATION	DBH (cm)	CANOPY RADIUS (m)	CROWN CONDITION	STRUCTURALFORM	STRUCTURAL INTEGRITY	COMMENTS	EXPECTED CONSTRUCTION IMPACTS	PRESERVE OR REMOVE	IMPACT MITIGATION / CONSENT REQUIREMENTS
1	Gleditsia triacanthos var. inermis	Honey Locust	Boundary - 459 Hale Street and City ROW	30	4.5	5	Good	Good	Full form	no expected impacts	preserve	tree protection barrier
2	Picea glauca 'Conica'	White Spruce	549 Hale Street	25	1	5	Good	Good	Full form	no expected impacts	preserve	tree protection barrier
3	Ulmus pumila	Siberian Elm	Subject site	40	6	4	Fair	Fair	previously a multistem 2 tree - 35 dia. Trunk removed at 60cm from grade. North side of root system covered by asphalt driveway right up to base of trunk	conflict with proposed driveway entrance	remove	
4	Acer negundo	Manitoba Maple	Subject site	40	6	4	Poor	Fair	codominant stems, included bark, epicormic growth, supressed, open crown. North side of root system covered by asphalt driveway right up to base of trunk	conflict with proposed driveway entrance	remove	
5	Acer negundo	Manitoba Maple	Boundary - subject site and 461 Hale Street	30	6	4	Fair	Fair	epicormic growth, uneven crown, supressed, dead limbs, dramatically curved trunk - significant lean NWW. North side of root system covered by asphalt driveway right up to base of trunk	conflict with proposed driveway entrance	remove	consent from 461 Hale Street required

GENERAL INFORMATION					Έ	HEALTH & CONDITION				RECOMMENDATIONS		
ID#	BOTANICAL NAME	COMMON NAME	LOCATION	DBH (cm)	CANOPY RADIUS (m)	CROWN CONDITION	STRUCTURAL FORM	STRUCTURALINTEGRITY	COMMENTS	EXPECTED CONSTRUCTION IMPACTS	PRESERVE OR REMOVE	IMPACT MITIGATION / CONSENT REQUIREMENTS
6	Acer negundo	Manitoba Maple	Boundary - subject site and 461 Hale Street	35	6	4	Fair	Fair	previously a multistem 2 tree - 35 dia. Trunk removed at 30cm from grade. Supressed, significant lean NWW, epicormic growth along stem and emerging from remaining stump. North side of root system covered by asphalt driveway right up to base of trunk	conflict with proposed driveway entrance	remove	consent from 461 Hale Street required
7	Ulmus pumila	Siberian Elm	Boundary - subject site and 461 Hale Street	110	6	5	Fair	Fair	tree is growing on property line - existing wood fence is cut around the trunk, codominant stems, included bark, low unions, epicormic growth	conflict with proposed driveway entrance	remove	consent from 461 Hale Street required
8	Acer platanoides	Norway Maple	465 Hale Street	85	9	5	Fair	Fair	elevated root plate, low unions, dead limbs in upper centre of crown, broad spreading crown	minor impact to critical root zone	preserve	tree protection barrier
9	Celtis occidentalis	Hackberry	Boundary - subject site and 465 Hale Street	35	4	5	Fair	Good	trunk is touching existing wire fence, low branched	conflict with proposed construction and critical root zone	remove	consent from 465 Hale Street required
10	Ulmus pumila	Siberian Elm	Boundary - subject site and 465 Hale Street	30, 30, 45	4.5	2	Poor	Fair	multistem 3, trunk is touching wire fence, all trunks heavy with moss and showing a pattern of disfigurement, no indication of live growth at time of assessment	conflict with proposed construction and poor tree condition	remove	consent from 465 Hale Street required
11	Acer negundo	Manitoba Maple	Subject site	10, 10, 10	3.5	3	Poor	Fair	multi stem 3, approx. 5 additional stems removed at 80cm from grade, significant epicormic growth from pruned stems, entangled in vine	conflict with proposed construction and poor tree condition	remove	
12	Acer negundo	Manitoba Maple	87 Heather Place	10, 15, 20	7	3	Poor	Fair	multstem 3, base of tree is beyond subject site, but all three stems and 95% of the canopy extends into subject site, significant lean, rubbing/damaged branches, wounds	minor impact to critical root zone and canopy	preserve	tree protection barrier - pre- construction canopy pruning
13	Acer platanoides	Norway Maple	456 Hale Street	11	3	4	Fair	Fair	leaning, trunk wounds	minor impact to critical root zone	preserve	tree protection barrier
14	Acer platanoides	Norway Maple	455 Hale Street	35	6	5	Fair	Good	beyond subject site, growing immediately beside tree 17, wound from rubbing branch from tree 17	minor impact to critical root zone	preserve	tree protection barrier

GENERAL INFORMATION					SIZE HEALTH & CONDITION					RECOMMENDATIONS		
ID#	BOTANICAL NAME	COMMON NAME	LOCATION	DBH(cm)	CANOPY RADIUS (m)	CROWN CONDITION	STRUCTURAL FORM	STRUCTURAL INTEGRITY	COMMENTS	EXPECTED CONSTRUCTION IMPACTS	PRESERVE OR REMOVE	IMPACT MITIGATION / CONSENT REQUIREMENTS
15	Acer platanoides	Norway Maple	455 Hale Street	85	6	5	Fair	Good	beyond subject site, growing immediately beside tree 16, included bark, low union, trunk is pushing up against ex. Fence	minor impact to critical root zone	preserve	tree protection barrier
16	Malus spp	Apple	457 Hale Street	20	3	4	Fair	Good	typical epicormic growth	no expected impacts	preserve	tree protection barrier
17	Pinus strobus	White Pine	459 Hale Street	40	5	5	Good	Good	Full form	no expected impacts	preserve	tree protection barrier
Veg unit 1	Thuja spp.	Cedar	85 Heather Place	10-15	2.5	4	fair	fair	approximately 10 individuals, grapevine covering canopy	no expected impacts	preserve	tree protection barrier

#### **5.0 POTENTIAL CONSTRUCTION IMPACTS ON TREES**

Some trees have been recommended for removal due to direct conflict with the proposed development. Some trees that have been recommended for preservation may be in proximity to the proposed construction. Trees to be preserved may be affected by the construction process, or by the construction itself. It is imperative that the design team and the construction crew understand the potential for, and the causes of tree damage. Trees recommended for preservation may experience some or all of the following potential construction impacts. Strategies and methods to avoid these impacts are outlined in the Construction Impact Mitigation Recommendations section of this report.

#### **5.1 SOIL COMPACTION**

Soil compaction is caused by heavy or repeated compression or vibration of the soil around the tree. Soil compaction reduces the amount and size of macro and micro pore space that is vital for subsurface movement of air and water. The harmful effects of soil compaction include, but are not limited to: slower water infiltration, poor aeration, reduced root growth and an overall increased susceptibility to biotic and abiotic stressors.

#### **5.2 ROOT LOSS**

Root loss occurs when roots are severed. The majority of roots are typically located within the top 60cm of soil and can extend outward up to three times the extent of the tree drip line. Excavation of any kind within the critical root zone\* can sever roots. Two categories of roots need to be considered when evaluating impacts of root loss-small, fibrous absorbing roots, and large structural roots. <u>Significant</u> loss of either or both of these functions can cause stress and/or affect the structural stability of the tree. Note, however, that it is commonly accepted that healthy trees can typically tolerate and recover from the removal of approximately 33% (up to a maximum of 50%) of their root mass. Thorough consideration regarding extent of acceptable root removal is dependent on individual species characteristics, root loss distribution, and

site specific conditions (ref. Trees and Development: A Technical Guide to Preservation of Trees During Land Development by Nelda Matheny and James R. Clark, 1998. Pg 72).

\* Refer to 'Critical Root Zones" in this report for definition.

#### **5.3 GRADE CHANGES**

Lowering of the grade around trees has immediate and long term effects on trees. Lowering of grade requires immediate root loss from cutting the roots which results in water stress from the root removal and potential reduced structural stability.

Raising the grade around a tree can be equally damaging. The addition of fill over the root zone of a tree alters the roots' ability for normal water and gas exchange that is necessary for healthy root growth and stability. Fill essentially suffocates the roots and can lead to the slow and eventual decline of the tree.

#### **5.4 MECHANICAL DAMAGE**

Mechanical damage is caused by physical contact with a tree that damages the tree to any degree. During land development and construction activities, there is an increased risk of both minor and fatal mechanical damage to trees from construction equipment. Minor damage can create entry points for insects and pathogens, and fatal damage can cause irreparable structural damage.

#### 5.5 CHANGES TO EXPOSURE - SUN AND WIND

Trees can be negatively affected by <u>increased exposure</u> to sun or wind when neighbouring trees are removed. This can be of particular concern when 'interior trees' (trees that have developed surrounded by other trees) are suddenly exposed to forest edge conditions. These trees may experience higher intensity of direct sunlight resulting in leaf scald, and instability due to increased wind and snow loads.

Trees can be negatively affected by <u>decreased exposure</u> to sunlight. Proposed development that includes tall buildings located to the south and west of mature existing trees can greatly reduce the amount of daily direct sunlight. While this change in environment may not cause the immediate or eventual death of a tree, it can certainly slow development and alter growing habits and patterns, and must therefore be a consideration when evaluating trees for potential preservation.

#### **5.6 SOIL CONTAMINATION**

Soil health around a tree can be compromised by contamination from spills or leaks of fuels, solvents, or other construction related fluids.

#### 5.7 WATER AVAILABILITY

Grading and servicing requirements for development can affect water availability for trees. Trees may experience a loss of available water due to a lowered water table or the capture or redirection of subsurface and/or overland flow. Conversely, trees may experience an increase of available water due to changes in site grading and storm water retention efforts.

The successful survival of the trees to be preserved is largely dependent on adhering to the construction impact mitigation recommendations that follow.

#### **6.0** Construction Impact Mitigation Recommendations

The following general recommendations are provided to guide the removal process, mitigate construction impacts, and ensure compliance with provincial, federal, and municipal regulatory requirements. Some of the recommendations listed below are noted to be undertaken by an ISA certified arborist.

#### **6.1 Pre-construction recommendations**

- a) Prior to any construction activity, tree preservation fencing is to be installed as per the attached tree preservation drawings and detail.
- b) Trees approved for removal are to be clearly indicated in the field (marked with spray paint or other agreed upon method) by the project arborist or landscape architect prior to any tree removal operations. All removals to be undertaken by an ISA certified arborist.
- c) In accordance with the Migratory Birds Convention Act, 1994, all removals must take place between September 1st and March 31st to avoid disturbing nesting migratory birds. If tree removal occurs between April 1st and August 31st, a biologist is required to complete a search for nests. Once cleared, the contractor has 48 hours to remove. If removal does not occur within 48 hours, another search will be required.
- d) Care should be taken during the felling operation to avoid damaging the branches, stems, trunks, and roots of nearby trees to be preserved. Where possible, all trees are to be felled towards the construction zone to minimize impacts on adjacent vegetation. All removals to be undertaken by an ISA certified arborist.
- e) It is recommended that the existing ground-layer vegetation at the base of trees to be preserved remain intact within the critical root zone so as not to disturb the soil around the base of the existing trees.
- f) Final site grading plans should ensure that the existing soil moisture conditions are maintained.

#### **6.2 RECOMMENDATIONS RELATED TO THE CONSTRUCTION PROCESS**

- a) Tree preservation fencing is to be maintained in good condition and effective for the duration of construction until all construction activity is complete or as per the project arborist or landscape architect.
- b) Tree preservation fencing is to remain intact as per the tree preservation drawings, and can only be temporarily removed with the express written consent from the project arborist or landscape architect. Should tree preservation fencing be temporarily relocated or moved, it is to be reinstated as per the tree preservation plans as soon as possible.
- c) No construction, excavation, adding of fill, stockpiling of construction material, or heavy equipment is permitted within the critical root zone/within the tree preservation fencing.
- d) When excavation near a tree is required, and it is anticipated that roots will be severed and exposed, duration of exposure is to be minimized to prevent root desiccation.
- e) During the excavation process, roots 25mm or larger that are severed and exposed should be hand pruned to leave a clean-cut surface. To be undertaken by an ISA certified arborist. Exposed severed roots that cannot be covered in soil on the same day as the cuts are made are to be kept moist. Exposed roots

- are to be kept moist by covering them with water soaked burlap or any other means available to prevent them from drying out.
- f) Avoid idling heavy equipment under or within close proximity to trees to be preserved to prevent canopy damage from exposure to the heat of the exhaust.
- g) Broken branches on trees within the subject site to be preserved should be cleanly cut as soon as possible after the damage has occurred. To be undertaken by an ISA certified arborist.

#### **6.3**Post-construction recommendations

- a) Avoid discharging rain water leaders adjacent to retained trees, as this may result in an overly moist environment which can cause root rot.
- b) After all work is completed, tree preservation fences and any other impact mitigation paraphernalia must be removed.
- c) A final review must be undertaken by the project arborist or landscape architect to ensure that all mitigation measures as described above have been met.

#### 7.0 DISCLAIMER

The assessment of the trees presented within this report has been made using accepted arboricultural techniques. These include a visual examination of the above-ground parts of each tree for structural defects, scars, external indications of decay, evidence of insect presence, discoloured foliage, the general condition of the trees and the surrounding site, as well as the proximity of property and people. None of the trees examined were dissected, cored, probed, or climbed, and detailed root crown examinations involving excavation were not undertaken.

Notwithstanding the recommendations and conclusions made in this report, it must be realized that trees are living organisms and their health and vigour is constantly changing. They are not immune to changes in site conditions or seasonal variations in the weather.

While reasonable efforts have been made to ensure the trees recommended for retention are healthy, no guarantees are offered or implied, that these trees or any part of them will remain standing.

Note that this arborist report has been prepared using the latest drawings and information provided by the client. Any subsequent design or site plan changes affecting trees may require revisions to this report. Any new information or drawings are to be provided to RKLA prior to report submission to planning authorities.

#### **8.0** Contact Information

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# 9.0 APPENDIX A - TREE PRESERVATION DRAWINGS

