

Arborist Report and Tree Inventory & Preservation Plan

Terms of Reference
2024



Introduction

Purpose

An Arborist Report is a technical document that defines and describes the possible impact that a proposed development may have on all trees and large shrubs existing on or within 6 meters of a subject site. This includes an inventory and assessment of the condition of existing vegetation, as well as a strategy to retain and protect trees. The Arborist Report is to be submitted to the Urban Design Department for review and approval in conjunction with all development application submissions, unless otherwise specified.

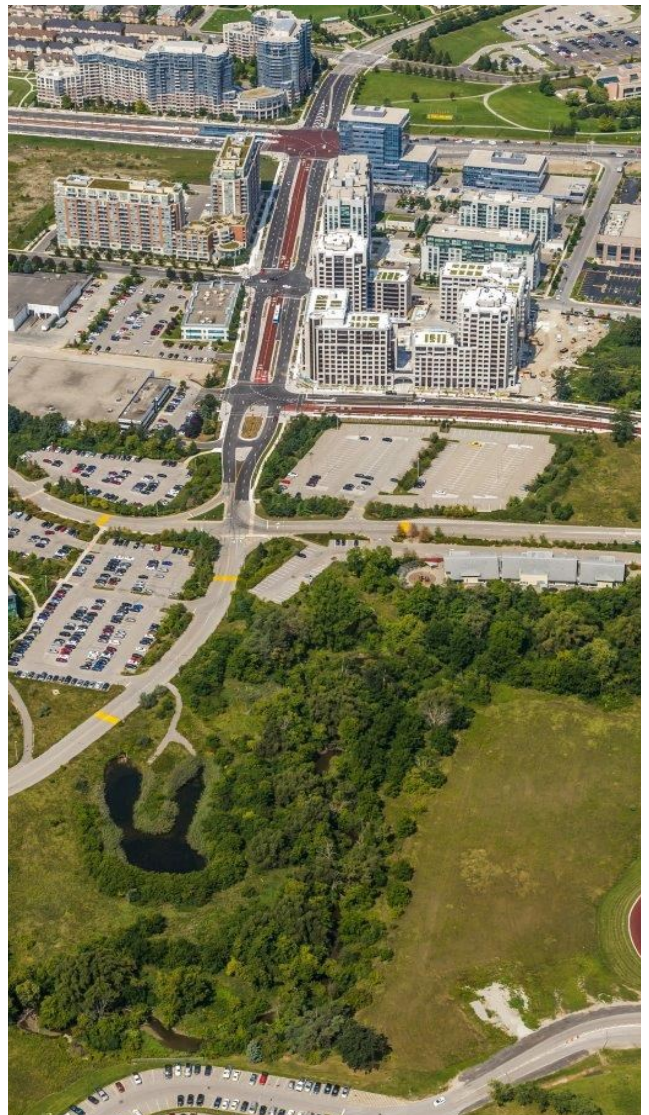
When Is This Required?

The submission of an Arborist Report is required when trees and large shrubs are located on or within 6 meters of the subject site, and as a component of the following development applications:

- Draft Plan of Subdivision
- Site Plan Application
- Site Alteration Permit Application
- Municipal Servicing Agreement

The City of Markham may require the submission of an Arborist Report in some cases for Official Plan Amendment Applications and Zoning Amendment Applications.

If no trees or large shrubs are present on or within 6 meters of the subject site, a statement must be made on the draft plan, accompanied by a letter written by the Arborist in lieu of an Arborist Report.



Who Prepares This?

The Arborist Report should be prepared by an Arborist certified with the International Society of Arboriculture (ISA) or a Registered Professional Forester (RPF) with membership in good standing with the Ontario Professional Foresters Association (OPFA).

Why Do We Need This?

An Arborist Report is needed to ensure that the development application conforms to applicable by-laws and policies from the City of Markham 2014 Official Plan, including, but not limited to:

3.2.1 To protect, expand, and integrate the urban forest in existing and new communities by:

c) reviewing applications for development, redevelopment and site alteration to minimize impacts on the urban forest. Where woodlands or other trees cannot be retained in situ, as supported by appropriate studies in accordance with the policies of this Plan, compensation will be provided in accordance with Council policy and best practices determined as follows:

ii) Compensation for trees not within significant woodlands or woodlands, shall be applied using tree replacement standards in accordance with City policy and guidelines

d) regulating the injury and destruction of trees on public and private property through York Region and Markham tree protection by-laws

6.1.8.5 To design and place buildings on site to achieve:

c) preservation and enhancement of significant vegetation

e) opportunities to minimize impacts on the urban forest in accordance with Section 3.2.1 c)

10.2.3.1 To place a holding provision on lands, where appropriate, in accordance with Section 36 of the Planning Act identifying conditions that must be met before the ultimate use of the land is permitted, which may include the following:

f) protection of the natural environment including tree preservation



Structure and Format

What Should Be Included? Submission Requirements

Introduction

- Site description, including municipal address of site, and existing site conditions such as existing buildings, natural heritage features, or identification of tree resources
- Scope of work, including an outline of proposed works to be completed on site

Investigation/Evaluation

- Date of assessment
- Inventory method for all trees and large shrubs surveyed on the subject site and within 6 meters of all property lines
 - Inventory tree size requirements to be reviewed on case-by-case basis
- Provide description of which plan(s) the Arborist Report is based on
 - i.e Site Servicing and Grading Plan, dated _____ and prepared by _____
- Summary of Tree Inventory results
- Appraisals of all inventoried trees using the Progressive Aggregate Caliper Method
- Indication of the presence of any Species at Risk, as per the Ministry of Natural Resources and Forestry's Endangered Species Act
- Additional notes or comments

Recommendations

- Identification of any impacts that the proposed development may have on trees to be retained
- Discussion on proposed mitigation measures to minimize impacts to trees on site, including a maintenance schedule and arboricultural work to be undertaken as recommended by the Arborist
- Rationale for tree removal, including tree condition or conflict with proposed works



Drawings and Supporting Information

Tree Inventory

- Field tagging of trees if more than 20 trees are present on subject site
- All trees on site and within 6 meters of property limit must be numbered individually
- Tree inventory is to be no older than 3 years at time of submission
- A comprehensive Tree Inventory Chart, including:
 - Tree number
 - Species Common name and Botanical name
 - Size: Diameter at Breast Height (DBH) measurement in centimeters at 1.37 meter height from grade, as well as any relevant additional size observations
 - Condition: structural integrity as well as biological health rating, such as dieback and decay, vigor, presence of insects, disease, and potential safety hazards
 - Minimum Tree Protection Zone (TPZ) distance based on City's Tree Preservation Detail drawing T-1
 - Proposed action for individual trees, such as: preserve, injure, remove, or transplant
 - Tree ownership: private, neighbouring, City, Region

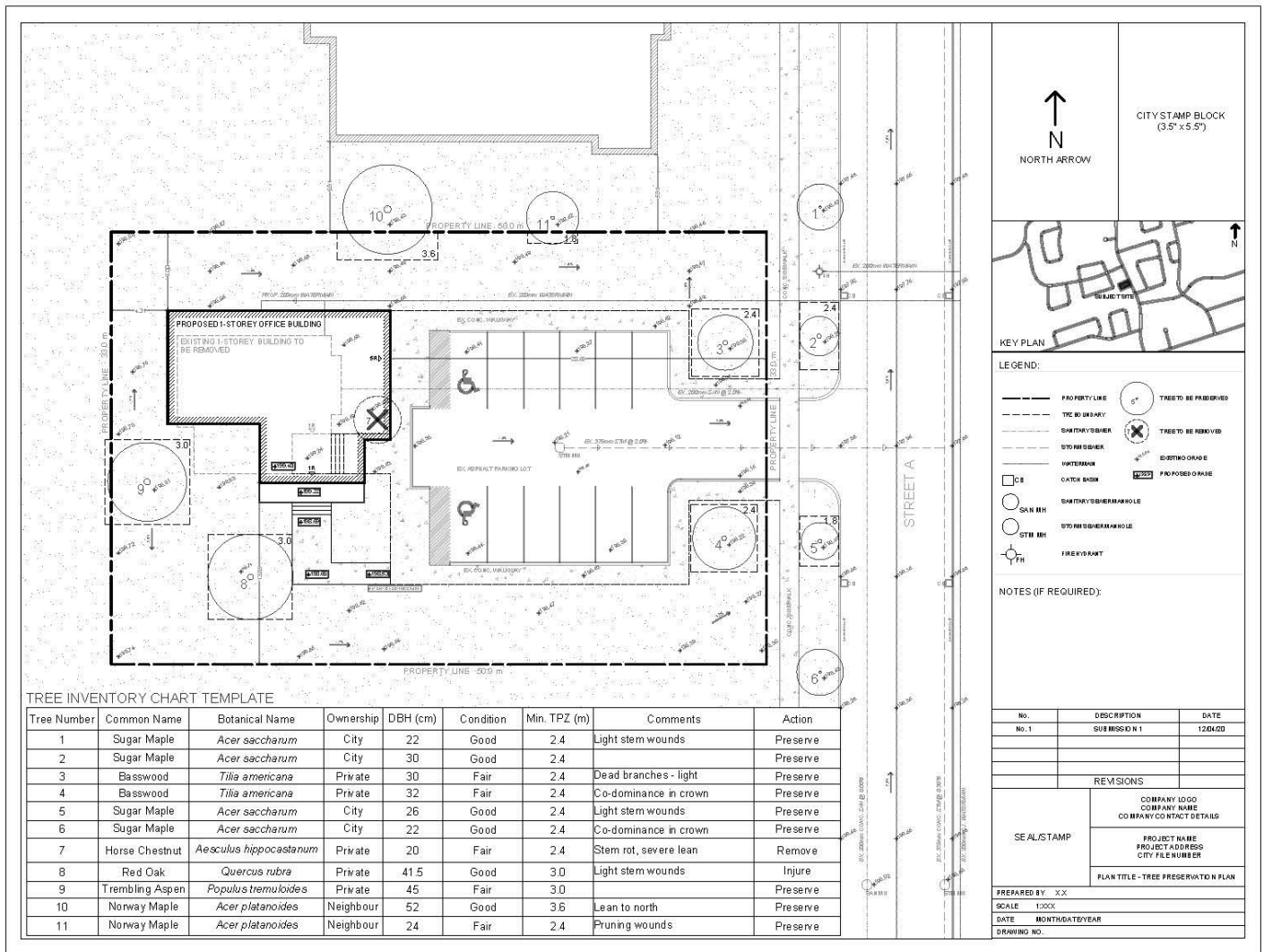
Tree Preservation Plan

- 1:500 scale
- Title Block to include City File Number (eg.: SPC XX XXXXX), Key Map, and 3.5" x 5.5" blank space for City's approval stamp
- Site property lines, including dimensions
- Site context, including adjacent property building setbacks
- Surveyed location of all existing woodlots, trees, valleys, and natural features on proposed development site and within 6 meters of all property lines
- Existing and proposed building footprints
- Proposed servicing connections
- Overlay of grading plan
- Identification chart with tree number, species, size, condition rating, comments, and recommendations, corresponding with Tree Inventory
- Tree symbol sizes on plan reflective of minimum Tree Protection Zone distance requirements
- Layout of tree protection fencing, including specified distances
- City of Markham Tree Preservation Detail T-1 and T-1a

Appendices

- Photographs of trees on site or any tree conditions of concern
- Progressive Aggregate Caliper Method Calculations of all inventoried trees

Example of a Tree Preservation Plan



Progressive Aggregate Caliper Method

- Tree Health and Structural condition is to be assessed using the following ratings:

Excellent – 1.0	Good – 0.8	Fair – 0.6	Poor – 0.4	Very Poor – 0.2	Dead – 0
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- Use the formula:

$$DBH \times ((\text{Tree Condition} + \text{Tree Structure}) / 2) = \text{Diameter to be Replaced}$$

- The result will show the total number of centimeters required to be replaced
- The diameter to be replaced will be divided by five (5) and rounded to the nearest whole number to determine the number of replacement trees (5 cm represents the average diameter of a 50 mm caliper deciduous tree or a 200 cm height coniferous tree).

Example: 30 cm DBH tree, Good Condition, Fair Structure

$$30 \text{ cm} \times ((0.8 + 0.6) / 2) = 21 \text{ cm of diameter to be replaced}$$

$$21 \text{ cm} / 5 = 4.2, \text{ rounded} = 4 \text{ replacement trees}$$

Equation for Calculating DBH of Multi-Stem Trees

- Use the formula:

$$\sqrt{(a^2 + b^2 + c^2)}$$

Example: Tree with 2 stems, 40 cm DBH and 30 cm DBH.

- $\sqrt{(40^2 + 30^2)}$
- $\sqrt{(2500)}$
- Tree DBH is 50 cm

What else should we know?

If trees on a neighbouring property are proposed for injury or removal due to construction activity, written consent from the neighbouring land-owner is required in order to permit these actions. Digital copies of the Arborist Report should be provided for distribution and review by the Planning & Urban Design department at the City of Markham.

City of Markham | Development Client Services
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What other resources are there?

- Trees for Tomorrow Streetscape Manual
- City of Markham Official Plan (2014)
- Tree Preservation By-law (2023-164)
- York Region Forest Conservation By-law (2013-68)
- City of Markham TPZ Detail and Dimension Chart – per Detail in Streetscape Manual
- Ministry of Natural Resources and Forestry Endangered Species Act, 2007, S.O. 2007, c. 6
- Ontario Forestry Act
- Declaration Letter for No On-Site Trees – per example in Streetscape Manual