

**Tree Inventory and Preservation Plan Report
9675-9697 Keele Street
Vaughan, Ontario**

prepared for

**2777100 Ontario Inc.
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prepared by



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KUNTZ FORESTRY CONSULTING INC Project P2245

**ATTACHMENT 7
9657-9697 KEELE**

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1. Introduction

Kuntz Forestry Consulting Inc. was retained by 2777100 Ontario Inc. to complete a Tree Inventory and Preservation Plan in support of a development application for the property located at 9675-9697 Keele Street in Vaughan. The property is located on the east side of Keele Street, south of Major Mackenzie Drive West, within the mixed-use area of the community of Maple.

The work plan for this tree preservation study included the following:

- Prepare inventory of the tree resources over 15cm DBH on and within six metres of the subject area, and trees of all sizes within the road right-of-way;
- Evaluate potential tree saving opportunities based on proposed development plans; and
- Document the findings in a Tree Inventory and Preservation Plan Report.

The results of the evaluation are provided below.

2. Methodology

The tree inventory was conducted on 15 January 2019. The site was re-visited on 1 February 2021 to inventory new regional right-of-way trees that had been planted since the original inventory (Trees F-J), and to conduct a Level 2 Tree Risk Assessment for Trees 259 (see *Tree Removals* section below for results). The topographic survey and estimations made in-field were used to locate tree resources. Trees located on the subject property were tagged using numbers 247-275. Neighbouring trees and recently planted trees were identified with the letters A-J. Tree locations are shown on Figure 1. Refer to Table 1 for the tree inventory.

Tree resources were assessed utilizing the following parameters:

Tree # - number assigned to tree that corresponds to Figure 1.

Species - common and botanical names provided in the inventory table.

DBH - diameter (centimetres) at breast height, measured at 1.4 m above the ground.

Condition - condition of tree considering trunk integrity, crown structure, and crown vigour. Condition ratings include poor (P), fair (F) and good (G).

Comments - additional relevant detail.

3. Existing Site Conditions

The subject property is currently occupied by three single detached homes with associated amenity areas. Tree resources exist in the form of landscape and naturally regenerating trees. Refer to Figure 1 for the existing conditions.

4. Individual Tree Resources

The inventory documented 40 trees on and within six metres of the subject property. Refer to Table 1 for the full tree inventory and Figure 1 for the locations of trees reported in the tree inventory. Refer to Appendix A for photographs of trees.

Tree resources were comprised of Blue Spruce (*Picea pungens*), Shademaster Honey Locust (*Gleditsia triacanthos 'inermis'*), Black Walnut (*Juglans nigra*), Manitoba Maple (*Acer negundo*), White Mulberry (*Morus alba*), Norway Maple (*Acer platanoides*), Littleleaf Linden (*Tilia cordata*), Silver Maple (*Acer saccharinum*), White Spruce (*Picea glauca*), Cherry species (*Prunus sp.*), Apple species (*Malus sp.*), Japanese Tree Lilac (*Syringa reticulata*), Columnar Eastern Cottonwood (*Populus deltoides fastigiata*), Accolade Elm (*Ulmus x Morton*), and Kentucky Coffeetree (*Gymnocladus dioicus*).

5. Proposed Development

The proposed development includes the demolition of the existing buildings at 9675 and 9687 Keele Street and the construction of a new semi-detached dwelling complex. A new laneway will provide access from Keele Street. The existing house at 9697 Keele Street is proposed to remain. Refer to Figure 1 for the existing conditions and proposed site plan.

6. Discussion

The following sections provide a discussion and analysis of development impacts, tree removal requirements, and tree preservation relative to the proposed development and existing conditions.

6.1. Development Impacts/Tree Removal

The removal of 23 trees will be required to accommodate the proposed development, including Trees 251, 253-256, 259-264, 267-275, D, G, and K. Trees 253, 260, 261, 263, 264, 267, 268, 270-272, 275, and D are greater than 20cm DBH and protected by the City of Vaughan's tree protection by-law. Tree D is likely shared with the neighbouring property to the east; permission from this property owner is required prior to its removal.

Trees 259, G, and K are located within the Region of York road right-of-way (Tree K is within the ultimate right-of-way). Permission from the Region is required prior to their removal.

Refer to Figure 1 for the location of trees identified for removal and Appendix A for photographs.

Tree 259

A Level 2 Tree Risk Assessment was conducted for Tree 259 in accordance with the ISA's Tree Risk Assessment Manual. The primary targets of concern include cars travelling along Keele Street and pedestrians utilizing the sidewalk. Tree 259 currently has poor-fair crown structure due to its moderately asymmetrical crown, aggressive crown pruning that appears to have occurred in recent years, and the removal of one primary stem roughly 3m above grade. Cavities and weak branch attachments were noted in the crown, the tree has evidence of limb failures, and the tree exhibits large wounds from recent crown pruning including the removal of one leader. The hazard potential of this tree appears to have been largely managed through significant crown pruning. The likelihood of crown or stem failure is "possible", the likelihood of impact of either primary target (cars and/or pedestrians) is low. The likelihood of failure and

impact is therefore unlikely and the consequences of failure and impact are severe. The overall risk rating of the tree was calculated to be “Low”.

In order to complete a Level 3 risk assessment, it is recommended that either a climbing Arborist examine the upper branches of the crown to investigate rot at the unions, the branch structure, and cavities more thoroughly. Sonic tomography would also identify the extent of rot, if any, within the main stem, a possibility given the large stem that has been removed and the cavities noted within the tree.

Despite the risk rating of Low (given the currently available evidence obtained during the Level 2 risk rating), this tree is still identified for removal. This tree is in decline, as evidenced by the loss of limbs and stem in recent years. The preservation of this tree would require the relocation of the entranceway to the proposed complex, which would be a significant design compromise. KFCI and the design team has reviewed the possibility of relocating the main entranceway currently located between Units 6 and 7, to a new location between Units 2 and 3, the only other option from a design and tree preservation standpoint. This is undesirable, as the rear laneway would become quite long in the south direction behind the units. This will cause challenges during property maintenance including snow removal and create the appearance of a long alleyway. It would also make turn-around of larger vehicles behind the complex more difficult. This would have long-term impacts on the functionality of the design, for a tree that is likely to continue to decline in the coming years.

6.2. Tree Preservation

The preservation of Trees 247-250, 252, 257, 258, 265, 266, A-C, E, F, and H-J will be possible with the use of appropriate tree protection measures as indicated on Figure 1. Refer to Figure 1 for the location of trees identified for preservation, the preservation fencing details, and further protection notes.

Preservation specifications for trees located on the subject properties or adjacent private property must adhere to City of Vaughan standards. Preservation specifications for trees within the current regional right-of-way, including Tree 265, 266, F, and H-J must adhere to York Region specifications. Refer to Figure 1 for the York Region tree protection details and notes.

Trees 247-250

The following protection and mitigation measures are required adjacent to Trees 247-250. A combination of vertical and horizontal hoarding has been prescribed within this area to allow for working room during grading and servicing through this area.

- The driveway located within the minimum tree preservation zones (mTPZ's) of Trees 247-249 will be removed to permit grading and servicing through this area.
 - o The vertical hoarding as shown on Figure 1 must be installed prior to construction including driveway removal.
 - o The asphalt located within the mTPZ's of these trees should be removed by hand or using small equipment, under the supervision of a certified Arborist.
 - o The subsurface should remain intact within the mTPZ's and be utilized when the driveway is resurfaced.

- The horizontal hoarding as shown on Figure 1 should be installed after asphalt removal and prior to any additional work occurring.
- The garage located within the mTPZ of Tree 250 can be removed prior to the installation of vertical and horizontal hoarding adjacent to this tree (all other vertical hoarding through this area should be installed prior to demolition).
 - The demolition of the garage should occur in a careful manner to ensure Tree 250 is not injured during demolition.
 - Crown pruning is permitted if required during demolition but must occur by a certified Arborist in accordance with Good Arboricultural Standards.
 - Immediately after demolition of the garage, the vertical and horizontal hoarding as shown on Figure 1 must be installed and maintained through the duration of construction.
- Very minor encroachment into the mTPZ's of Trees 248 and 249 is required to accommodate the proposed footpath to the retained dwelling. Excavation at the limit of encroachment should occur by air spading or hydro-vac. This should be supervised by a certified Arborist, and exposed roots should be pruned in accordance with Good Arboricultural Standards.

Trees 265 and E

The site plan has been altered to allow for the preservation of Tree 265. Minor encroachment into the mTPZ's of Trees 265 and E will be required to accommodate the walkway and grading, respectively. Excavation at the limit of encroachment should occur by air spading or hydro-vac in accordance with Detail NHF-403. This should be supervised by a certified Arborist, and exposed roots should be pruned in accordance with Good Arboricultural Standards.

6.3. Tree Compensation

For trees within the York Region right-of-way along Keele Street, the required replacement trees and associated compensation value was calculated in accordance with section 1.8 of York Region's "Street Tree and Forest Preservation Guidelines" document. For this exercise, the replacement tree caliper size was assumed to be 50mm.

The number of replacement trees is calculated as follows:

$$\text{Number of replacement trees} = (\text{DBH of tree to be removed} / \text{replacement tree caliper size}) * \text{Condition rating}$$

Compensation value is calculated as follows:

$$\text{Compensation Value (\$)} = \text{Number of replacement trees} * \text{Replacement Cost}$$

Refer to Table 2 below for the compensation calculations.

Table 2. Regional Right-of-way Tree Removal Compensation

Tree	DBH	Condition	Number of Replacement Trees	Compensation Value (assume \$909.11/tree)
259	125.5	0.8	20	\$ 18,182.20
G	4	1	1	\$ 909.11
Total			21	\$ 19,091.31
Replacement Plantings			10	\$ 9,091.10
TOTAL				\$ 10,000.21

Tree K has been excluded from the above calculation as it is a Manitoba Maple and therefore exempt from compensation requirements.

The City of Vaughan requires the following tree replacement ratios:

DBH of Tree to be Cut or Removed	Number of Replacement Trees Required
20cm to 30cm	1
31cm to 40cm	2
41cm to 50cm	3
51cm or greater	4

KFCI calculates the compensation requirements to be thirty-two (32) replacement trees (see Table 1).

The cost of the Tree Protection Hoarding is estimated to be \$21,500.

The cost of the Tree Removals is estimated to be \$16,500.

Compensation valuations for trees identified for removal are in Table 3 as follows. In accordance with Urban Design comments, the compensation has been calculated per section 4.1 of the City's Tree Protection Protocol.

Table 3. Private tree removal compensation value calculation

Tree #	# Compensation Trees	Compensation Valuation (\$550/compensation tree)
251		\$-
253	1	\$550.00
254		\$-
255		\$-
256		\$-
260	2	\$1,100.00
261	2	\$1,100.00
262		\$-
263	2	\$1,100.00
264	2	\$1,100.00
267	4	\$2,200.00
268	2	\$1,100.00
269		\$-
270	3	\$1,650.00
271	4	\$2,200.00
272	3	\$1,650.00
273		\$-
274		\$-
275	3	\$1,650.00
D	4	\$2,200.00
Total	32	\$17,600.00

7. Summary and Recommendations

Kuntz Forestry Consulting Inc. was retained by 2777100 Ontario Inc. to complete a Tree Inventory and Preservation Plan for 9675-9697 Keele Street in Vaughan, Ontario. A tree inventory was conducted and reviewed in the context of the proposed site plan.

The findings of the study indicate a total of 40 trees on and within six metres of the subject property. The removal of 23 trees will be required to accommodate the proposed development. The remaining trees can be saved provided appropriate tree protection measures are installed prior to construction.

The following recommendations are suggested to minimize impact to trees identified for preservation. Refer to Figure 1 for the location of required tree preservation fencing, general Tree Protection Plan Notes, and the tree preservation fence detail.

- Tree protection barriers and fencing should be erected at locations as prescribed on Figure 1. All tree protection measures should follow the guidelines as set out in the tree preservation plan notes and the tree preservation fencing detail.

- No construction activity including surface treatments, excavations of any kind, storage of materials or vehicles, unless specifically outlined above, is permitted within the area identified on Figure 1 as a tree protection zone (TPZ) at any time during or after construction.
- Branches and roots that extend beyond prescribed tree protection zones that require pruning must be pruned by a qualified Arborist or other tree professional. All pruning of tree roots and branches must be in accordance with Good Arboricultural Standards.
- Site visits, pre, during, and post construction are recommended by either a certified consulting arborist (I.S.A.) or registered professional forester (R.P.F.) to ensure proper utilization of tree protection barriers. Trees should also be inspected for damage incurred during construction to ensure appropriate pruning or other measures are implemented.

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8. Limitations of Assessment

Only the tree(s) identified in this report were included in the inventory. The assessment of the trees presented in this report has been made using accepted arboricultural techniques. These may include a visual examination taken from the ground of all the above-ground parts of the tree for structural defects, scars, external indications of decay such as fungal fruiting bodies, evidence of attack by insects, discoloured foliage, the condition of any visible root structures, the degree of lean (if any), the general condition of the trees and the identification of potentially hazardous trees or recommendations for removal (if applicable). Where trees could not be directly accessed (ie. due to obstructions, and/or on neighbouring properties), trees were assessed as accurately as possible from nearby vantage points.

Locations of trees provided in the report are determined as accurately as possible based on the best information available. If official survey information is not provided, tree location in the report may not be exact. In this case, if trees occur on or near property boundaries, an official site survey may be required to determine ownership utilizing specialized survey protocol to gain precise location.

Furthermore, recommendations made in this report are based on the site plans that have been provided at the time of reporting. These recommendations may no longer be applicable should changes be made to the site plan and/or grading, servicing, or landscaping plans following report submission.

Notwithstanding the recommendations and conclusions made in this report, it must be recognized that trees are living organisms, and their health and vigor constantly change over time. They are not immune to changes in site conditions or seasonal variations in the weather conditions. Any tree will fail if the forces applied to the tree exceed the strength of the tree or its parts.

Although every effort has been made to ensure that this assessment is reasonably accurate, the trees should be re-assessed periodically. The assessment presented in this report is valid at the time of inspection.

Table 1. Tree Inventory

Location: 9675-9697 Keele Street, Vaughan

Date: 15 November 2019, 1 February 2021

Surveyors: CB

Tree #	Common Name	Scientific Name	DBH	TI	CS	CV	YCR	CD	CDB	mTPZ	Comments	Action	Owner	Comp.
247	Blue Spruce	<i>Picea pungens</i>	45	F-G	F-G	F	PT			3.0	Stem wounds (L), lean (VL), dead leader	Retain	Ultimate ROW	
248	Blue Spruce	<i>Picea pungens</i>	47.5	F-G	F-G	G	S			3.0	Co-dominant in crown	Retain	Ultimate ROW	
249	Honey Locust (shademaster)	<i>Gleditsia triacanthos inermis</i>	62	F	F-G	F-G				4.2	Pruning wounds (M), epicormic branching (L), deadwood (L), asymmetrical crown (L)	Retain	Private	
250	Black Walnut	<i>Juglans nigra</i>	67	F	F	F				4.2	Asymmetrical crown (M), pruning wounds (M), epicormic branching (M)	Retain	Private	
251	Manitoba Maple	<i>Acer negundo</i>	17	F-G	G	G				1.8	Sweep (L), on fence line	Remove	Shared (Private/Neighbour)	
252	White Mulberry	<i>Morus alba</i>	17.5, 11, 8	F	P-F	F				1.8	Poor union at 0.1 and 0.4m, pruning wounds (L), epicormic branching (L), poor form (M)	Retain	Private	
253	Norway Maple	<i>Acer platanoides</i>	20.5	F-G	F-G	F-G				1.8	Grapevine competition (L), bowed (L)	Remove	Private	1
254	Norway Maple	<i>Acer platanoides</i>	16.5	F-G	F	F-G				1.8	Bowed (M) south	Remove	Private	
255	Norway Maple	<i>Acer platanoides</i>	17	F-G	F-G	G				1.8	Sweep (L)	Remove	Private	
256	Norway Maple	<i>Acer platanoides</i>	18	F-G	G	G				1.8	Sweep (L)	Remove	Private	
257	Littleleaf Linden	<i>Tilia cordata</i>	18	F-G	F	F	PT	1.5		2.4	Pruning wounds (L), epicormic branching (M), crook (L)	Retain	Current ROW	
258	Littleleaf Linden	<i>Tilia cordata</i>	15.5	F-G	F	F	PT	1.5		2.4	Pruning wounds (L), epicormic branching (M)	Retain	Current ROW	
259	Silver Maple	<i>Acer saccharinum</i>	125.5	F	P-F	F	Dc	9		11.5	Marked yellow, previously tagged 163, union at 3m, pruning wounds (H), one leader pruned, asymmetrical crown (M), overextended limb (M), epicormic branching (M), poor form (M)	Remove	Current ROW	
260	Blue Spruce	<i>Picea pungens</i>	39	F-G	F-G	F-G				2.4	Lean (L), sparse crown (L)	Remove	Private	2
261	Norway Maple	<i>Acer platanoides</i>	23, 23.5	F-G	F-G	F-G				1.8	V-union at 0.1m, sparse crown (M)	Remove	Private	2

262	Norway Maple	<i>Acer platanoides</i>	19, ~13	F-G	F-G	F-G				1.8	Union at base, bowed crown (L), asymmetrical crown (M)	Remove	Private	
263	Manitoba Maple	<i>Acer negundo</i>	34	F	F	F				2.4	Bowed (H) south, poor form (M)	Remove	Private	2
264	Black Walnut	<i>Juglans nigra</i>	28, 15.5	P	F-G	F				1.8	Union at 1.3m, splitting union at 2m => remove or cable	Remove	Private	2
265	Norway Maple	<i>Acer platanoides</i>	53.5	F-G	F	F	PT	6.5	25	5.4	V-union at 1.7m, pruning wounds (L), deadwood (M)	Retain	Current ROW	
266	Norway Maple	<i>Acer platanoides</i>	55	F-G	F-G	F	PT	8		5.5	Pruning wounds (L)	Retain	Current ROW	
267	Norway Maple	<i>Acer platanoides</i>	61	F-G	F-G	F-G				4.2	Pruning wounds (L), deadwood (L), limb wounds (L)	Remove	Private	4
268	White Spruce	<i>Picea glauca</i>	32, 17	F	F	F				2.4	Union at 0.3m, 1 dead leader on smaller stem, asymmetrical crown (L)	Remove	Private	2
269	Black Walnut	<i>Juglans nigra</i>	16	G	G	G				1.8	Crown growing against roof of house	Remove	Private	
270	Blue Spruce	<i>Picea pungens</i>	41	F	F-G	F				3.0	Pruning wounds (L), seam (L)	Remove	Private	3
271	Norway Maple	<i>Acer platanoides</i>	63.5	F-G	F-G	F-G				4.2	Pruning wounds (L), swollen root flare, stem wound (M)	Remove	Private	4
272	Cherry species	<i>Prunus spp.</i>	42	F	F	F				3.0	Asymmetrical crown (L), epicormic branching (M), v-union at 1.5m, fruiting bodies (M) on dead stem, pruning wounds (M)	Remove	Private	3
273	Manitoba Maple	<i>Acer negundo</i>	18, 12	F	F	F				1.8	Growing between fence and sled, union at 1.2m, asymmetrical crown (L)	Remove	Private	
274	Norway Maple	<i>Acer platanoides</i>	15.5, 7.5	F	F	F				1.8	Included fence (M), sweep (M), poor form (M), stem wound (L), asymmetrical crown (M)	Remove	Private	
275	Apple species	<i>Malus spp.</i>	42	F	F	F				3.0	Cavity (M), asymmetrical crown (M), epicormic branching (M), fruiting body, deadwood (M)	Remove	Private	3
A	Norway Maple	<i>Acer platanoides</i>	~18	G	G	G				1.8	Pruning wounds (L)	Retain	Neighbour	
B	Japanese Tree Lilac	<i>Syringa reticulata</i>	~18, 13, 13	F-G	F-G	F-G				1.8	V-union at 1m	Retain	Neighbour	
C	Columnar Eastern Cottonwood	<i>Populus deltoides 'fastigiata'</i>	~43	P	P	P			90	3.0		Retain	Neighbour	
D	Littleleaf Linden	<i>Tilia cordata</i>	~92	F	F-G	F				6.0	Pruning wounds (M), probably shared tree, deadwood (L), poor form (L)	Remove	Shared (Private/Neighbour)	4

E	Norway Maple	<i>Acer platanoides</i>	~65	G	G	G				4.2	Union at 2m	Retain	Neighbour	
F	Accolade Elm	<i>Ulmus x Morton</i>	3.5	G	G	G	G	1		2.4		Retain	Current ROW	
G	Accolade Elm	<i>Ulmus x Morton</i>	4	G	G	G	G	1.5		2.4		Remove	Current ROW	
H	Kentucky Coffeetree	<i>Gymnocladus dioicus</i>	3.5	G	G	G	G	1		2.4		Retain	Current ROW	
I	Kentucky Coffeetree	<i>Gymnocladus dioicus</i>	3	G	G	G	G	1		2.4		Retain	Current ROW	
J	Kentucky Coffeetree	<i>Gymnocladus dioicus</i>	3.5	G	G	G	G	1		2.4		Retain	Current ROW	
K	Manitoba Maple	<i>Acer negundo</i>	<15cm (~13cm)				PT	1.5		2.4	Multi-stemmed	Remove	Ultimate ROW	

Codes		
DBH	Diameter at Breast Height	(cm)
TI	Trunk Integrity	[G (Good), F (Fair), P (Poor)]
CS	Crown Structure	G (Good), F (Fair), P (Poor)]
CV	Crown Vigor	G (Good), F (Fair), P (Poor)]
CDB	Crown Die Back	(%)
YCR	York Region Condition Rating	G - Good, S - Satisfactory, PT - Potential Trouble, Dc - Declining, DI - Death Imminent, D - Dead
CD	Crown Diameter	(m)
Comp.	Compensation Trees Required	(number of trees)
mTPZ	minimum Tree Protection Zone based on City of Toronto's standard (for private trees) or York Region standards (for ROW trees)	(m), radius from outside edge of tree base
~ = estimate; (VL) = very light; (L) = light; (M) = moderate; (H) = heavy; (VH) = very heavy		

Appendix A. Photos of Trees



Image 1. Photo of Tree 247 (left) and 248 (right)



Image 2. Photo of Tree 249



Image 3. Photo of Tree 250



Image 4. Photo of Tree A



Image 5. Photo of Tree B



Image 6. Photo of Tree 251 (left) and C (right)



Image 7. Photo of Tree 252



Image 8. Photo of Trees 253-255



Image 9. Photo of Tree 256



Image 10. Photo of Tree 257



Image 11. Photo of Tree 258



Image 12. Photo of Tree 259 (2021)



Image 13. Photo of Tree 260



Image 14. Photo of Tree 261-263



Image 15. Photo of Tree D



Image 16. Photo of Tree E



Image 17. Photo of Tree 264



Image 18. Photo of Tree 265



Image 19. Photo of Tree 266



Image 20. Photo of Tree 267



Image 21. Photo of Tree 268



Image 22. Photo of Tree 269



Image 23. Photo of Tree 270



Image 24. Photo of Tree 271



Image 25. Photo of Tree 272



Image 26. Photo of Tree 273



Image 27. Photo of Tree 274



Image 28. Photo of Tree 275



Image 28. Photo of Tree F



Image 29. Photo of Tree G



Image 30. Photo of Tree H

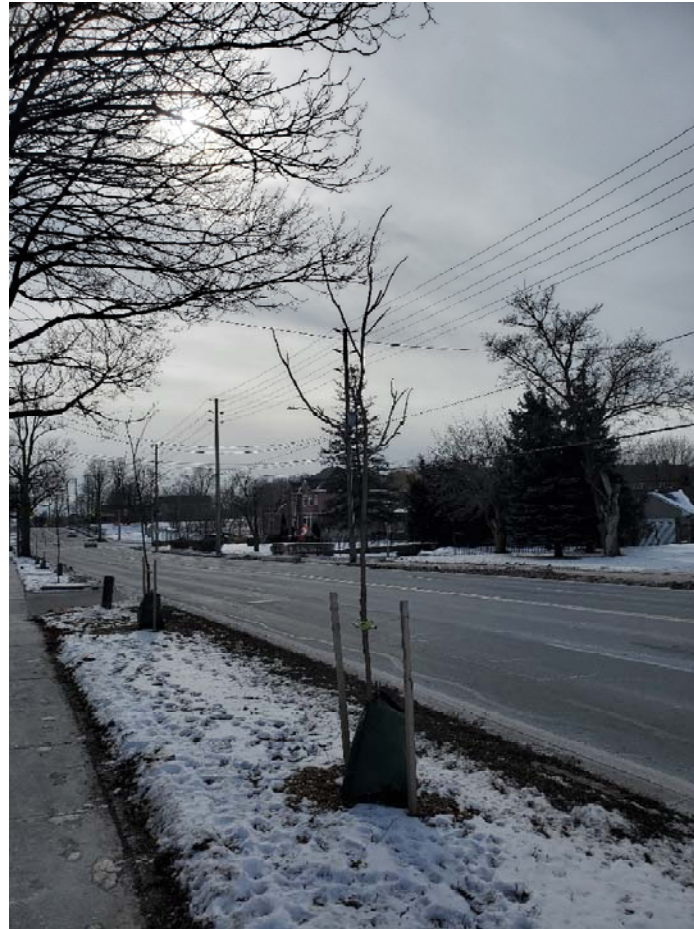


Image 31. Photo of Tree I



Image 32. Photo of Tree J