ATTACHMENT 6
9850 KEELE

Tree Inventory and Preservation Plan Report
9846 Keele Street
Vaughan, Ontario

prepared for

Marton Smith Landscape Architects
170 The Donway West, Suite 206
Toronto, ON M3C 2G3

prepared by

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22 April 2022

KUNTZ FORESTRY CONSULTING INC Project P3240

Introduction

Kuntz Forestry Consulting Inc. was retained by Marton Smith Landscape Architects to complete a Tree Inventory and Preservation Plan in support of a development application for the property located at 9846 Keele Street in Vaughan. The property is located on the west side of Keele Street, north of Merino Road, south of Naylon Street, and east of Ramsey Armitage Park, within a residential area.

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.

Methodology

The tree inventory was conducted on 22 April 2022. Tree resources were located using the topographic survey provided, aerial imagery, and estimations made in the field. Trees included in the inventory were identified as Trees 186 – 198 and A – N. Where appropriate, trees were tagged with their identification number. Trees that were not tagged were identified using the letter sequence. Tree locations are shown on Figure 1. Refer to Table 1 for the tree inventory and Appendix A for photographs of trees.

Tree resources were assessed utilizing the following parameters:

Tree # – Number assigned to trees that corresponds to Figure 1.
Species – Common and botanical names provided in the inventory table.
DBH – Diameter (centimeters) at breast height, measured at 1.4 m above the ground.
Condition – Condition of tree considering trunk integrity (TI), crown structure (CS) and crown vigor (CV). Condition ratings include poor (P), fair (F), and good (G).
Crown Dieback – Percentage of dead branches within the crown.
Comments – Any other relevant tree condition information.

It should be noted, according to the City of Vaughan's standards, for trees with multiple major stems at 1.4 m above ground, the DBH of the tree is determined by adding the diameters of the three largest stems together.

Existing Site Conditions

The subject property is currently occupied by a brick dwelling with associated amenity areas. Tree resources included in the inventory exist in the form of landscape trees and natural regeneration. Refer to Figure 1 for the existing conditions.

Individual Tree Resources

The inventory documented 27 trees on and within six metres of the subject area. 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 Black Walnut (*Juglans nigra*), Blue Spruce (*Picea pungens*), Manitoba Maple (*Acer negundo*), Norway Maple (*Acer platanoides*), Norway Spruce (*Picea abies*), Silver Maple (*Acer saccharinum*), and Sugar Maple (*Acer saccharum*).

Proposed Development

The proposed work includes the demolition of the existing dwelling and the construction of four two-storey semi-detached dwellings with a combined laneway providing access to Keele Street. Refer to Figure 1 for the existing conditions and proposed site plan.

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.

Development Impacts/Tree Removal

The removal of three trees, including Trees 187, 193, and 194, will be required to accommodate the proposed development. These trees directly conflict with the proposed dwellings. These trees are located on the subject property and are greater than 20cm DBH.

The removal of four additional trees is recommended based on their condition, including Trees 189, 190, A, and E. These trees all display considerable decay in their trunks, various amounts of deadwood, and poor to poor-fair overall condition. These trees are all greater than 20cm DBH. Trees A and E are located on neighbouring properties and as such, permission from the respective property owner will be required prior to their removal.

Refer to Figure 1 for the locations of trees identified for removal.

Tree Preservation

The preservation of 20 trees, including Trees 186, 188, 191, 192, 195 – 198, B – D, and F – N, will be possible with the use of appropriate tree protection measures as indicated on Figure 1. Tree protection fencing should be installed prior to demolition and construction to ensure designated trees are not impacted by construction. Refer to Figure 1 for the location of trees identified for preservation, the preservation fencing details, and further protection notes. Heavy-duty fencing should be utilized per detail MLA-107A.

Where the minimum tree protection zones (mTPZs) of trees cannot be fully respected, including for Trees 191, 198, L, and M, special mitigation measures have been prescribed.

Tree 191

Encroachment into the mTPZ of Tree 191 will be required to facilitate access during the construction processes. Tree preservation fencing has been prescribed adjacent to Tree 191. If the following mitigation measures are followed, long-term adverse effect are not anticipated for this tree.

1. Prior to the commencement of the proposed work, tree protection fencing should be installed as show on Figure 1.
2. The installation of 300 millimeters of coarse woodchip and ¼ inch steel plates on top is recommended in the area indicated on Figure 1 with hatched cyan, to mitigate soil compaction.
3. Woodchips can be left in place following the proposed development to increase the organic matter and aid in soil compaction mitigation.
4. Tree preservation fencing must be maintained throughout construction.
5. Branches that extend into the proposed development and require pruning must be pruned by a Certified Arborist or other tree professional in accordance with Good Arboricultural Standards.

Tree 198

Encroachment into the mTPZ of Tree 198 is required to facilitate the removal of the existing driveway and walkway. Tree preservation fencing has been prescribed at the limit of the existing driveway and walkway. Given that a driveway and walkway exist within the area of encroachment of Tree 198, it is anticipated that few roots extend into this area. If the following mitigation measures are followed, long-term adverse effects are not anticipated for this tree.

1. Prior to the commencement of the proposed work, tree protection fencing should be installed as show on Figure 1.
2. The existing driveway and walkway should be removed during the final stages of construction.
3. The existing driveway and walkway must be removed carefully by hand or using small machinery (i.e. a skidsteer).
4. The existing subsurface and any roots encountered within the subsurface should be left intact.
5. Once the existing driveway is removed, no machinery use will be permitted within the mTPZ of Tree 198.
6. Any softscaping to occur within the mTPZ of Tree 198 must occur by hand.
7. All works should be supervised by a Certified Arborist in accordance with Good Arboricultural Standards.
8. Branches that extend into the proposed development and require pruning must be pruned by a Certified Arborist or other tree professional in accordance with Good Arboricultural Standards.

Trees L and M

Encroachment into the mTPZs of Trees L and M will be required to accommodate the new combined laneway. Tree preservation fencing has been prescribed at the limit of encroachment of Trees L and M. If the following mitigation measures are followed, long-term adverse effects are not anticipated for these trees.

1. Prior to the commencement of the proposed work, tree protection fencing should be installed as show on Figure 1.
2. Air-spading technology should be used to excavate a trench at the limit of the proposed laneway within the mTPZs of Trees L and M, as shown in Figure 1 with solid cyan.
3. The depth of the trench will be determined by the depth of excavation required to construct the proposed laneway.
4. The roots of Trees L and M are to be pruned inside the trench by a Certified Arborist in accordance with Good Arboricultural Standards.
5. The trench is to be backfilled with clean topsoil.
6. All works should be supervised by a Certified Arborist in accordance with Good Arboricultural Standards.
7. Branches that extend into the proposed development and require pruning must be pruned by a Certified Arborist or other tree professional in accordance with Good Arboricultural Standards.

It should be noted that Trees L – N are Recognized Heritage Trees through the Ontario Heritage Tree Program and are identified as HT-2019-239-251.

Tree Compensation

The City of Vaughan requires the following tree replacement ratios:

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

A total of 25 replacement trees will be required to compensate for the removal of Trees 187, 189, 190, 193, 194, A, and E. Refer to Table 1 for the number of trees required to compensate for the removal of each individual tree.

Summary and Recommendations

Kuntz Forestry Consulting Inc. was retained by Marton Smith Landscape Architects to complete a Tree Inventory and Preservation Plan for 9846 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 27 trees on and within six metres of the subject property. The removal of three trees will be required to accommodate the proposed development. The removal of four additional trees is recommended due to their condition. 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.

- Special mitigation measures have been prescribed for select trees, as outlined in the *Tree Preservation* section of this report.

- 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.

Respectfully Submitted,
Kuntz Forestry Consulting Inc.

Kaylee Harper

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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: 9846 Keele Street, Vaughan Date: 22 April 2022 Surveyors: KNH

Tree #	Common Name	Scientific Name	DBH	Multistem DBH	TI	CS	CV	CDB	mTPZ	Comments	Owner	Action	Comp.
186	Norway Maple	*Acer platanoides*	33	-	F	F	F	15	2.4	Lean (L), bow (L), asymmetrical crown (L), deadwood (L)	City (Park) / Private	Preserve	-
187	Silver Maple	*Acer saccharinum*	21, 19	40	PF	P	F		2.4	V-union at 0.5m with included bark, cavities (M), poor form (M), asymmetrical crown (M), poor unions	Private	Remove	2
188	Norway Maple	*Acer platanoides*	35	-	F	F	F	15	2.4	Sweep (H), lean (M), asymmetrical crown (M), deadwood (L)	Private	Preserve	-
189	Manitoba Maple	*Acer negundo*	31, 27, 22, 22, 21, 14	80	P	PF	PF	30	4.8	Union at base, lean (M-H), vertical crack in one leader from base to 1.5m, deadwood (M), decay (M) in main stem	Private	Remove (Condition)	4
190	Sugar Maple	*Acer saccharum*	51	-	P	P	P	15	3.6	Main stem lost at 3.5m, decay in main stem (H), broken branches (L), deadwood (L), fruiting bodies at base, **hazard**	Private	Remove (Condition)	4
191	Norway Maple	*Acer platanoides*	30	-	F	FG	FG	10	2.4	Sweep (L), deadwood (L), lean (L), poor unions	Private	Preserve	-
192	Norway Maple	*Acer platanoides*	17.5	-	FG	PF	FG		1.8	Sweep (L), asymmetrical crown (M), poor form (L)	City (Park)	Preserve	-
193	Blue Spruce	*Picea pungens*	51	-	G	G	FG		3.6	Epicormic branching (L)	Private	Remove	4
194	Blue Spruce	*Picea pungens*	48	-	FG	G	FG		3	Sweep (L)	Private	Remove	3
195	Norway Maple	*Acer platanoides*	15	-	FG	F	FG		1.8	Crook (L), asymmetrical crown (M)	City (Park) / Private	Preserve	-
196	Norway Maple	*Acer platanoides*	53	-	G	G	FG		3.6	Pruning wounds (L)	Private	Preserve	-
197	Blue Spruce	*Picea pungens*	40.5	-	FG	G	FG		3	Lean (L)	Private	Preserve	-
198	Blue Spruce	*Picea pungens*	48	-	F	G	FG		3	Lean (M)	Private	Preserve	-
A	Black Walnut	*Juglans nigra*	~65	-	PF	P	P	75	4.2	Deadwood (M), broken branches (H), decay (M) in main stem, poor unions	Neighbour	Remove (Condition)	4
B	Norway Maple	*Acer platanoides*	~28	-	F	G	G		1.8	Sweep (M)	Neighbour	Preserve	-
C	Silver Maple	*Acer saccharinum*	~58	-	F	F	F	15	3.6	V-union at 4m, deadwood (L), pruning wounds (L), cavities (L)	Neighbour	Preserve	-
D	Norway Maple	*Acer platanoides*	~18	-	FG	PF	FG		1.8	Sweep (M), asymmetrical crown (M), poor form (L)	City (Park)	Preserve	-
E	Sugar Maple	*Acer saccharum*	~78	-	P	P	P	60	4.8	Cavities (H), deadwood (M), decay (H) in main stem, broken branches (M), asymmetrical crown (M), poor form (M), **hazard**	Neighbour	Remove (Condition)	4
F	Sugar Maple	*Acer saccharum*	~52	-	PF	PF	F	15	3.6	Cavities (L) at base, main stem dead and broken in crown, decay (M) in main stem, deadwood (L)	Neighbour	Preserve	-
G	Norway Spruce	*Picea abies*	52	-	F	FG	F	10	3.6	V-union at 6m with included bark, deadwood (L)	Neighbour	Preserve	-
H	Norway Spruce	*Picea abies*	45	-	G	F	F	10	3	Deadwood (L), asymmetrical crown (L)	Neighbour	Preserve	-
I	Norway Spruce	*Picea abies*	75	-	F	FG	F		4.8	V-union at 7m (codominance) with included bark	Neighbour	Preserve	-
J	Silver Maple	*Acer saccharinum*	~48	-	F	F	F		3	Epicormic shoots (M) at base, pruning wounds (M), asymmetrical crown (L), lean (L), epicormic branching (L)	City (Park)	Preserve	-

K	Norway Maple	*Acer platanoides*	22	-	FG	F	F	10	1.8	Lean (L), asymmetrical crown (L), deadwood (L)	City (Park)	Preserve	-
L	Sugar Maple	*Acer saccharum*	71	-	F	FG	F		4.8	Pruning wounds (M) with decay (L), poor unions, growth deficit (L), Ontario Heritage Tree #HT-2019-239-251	Neighbour	Preserve	-
M	Sugar Maple	*Acer saccharum*	69	-	PF	F	F		4.2	V-union at 3.5m with decay (L) down to 2m, decay (L) in main stem, pruning wounds (M) with decay (L), asymmetrical crown (L), poor unions, Ontario Heritage Tree #HT-2019-239-251	Neighbour	Preserve	-
N	Sugar Maple	*Acer saccharum*	76	-	F	FG	F	10	4.8	V-union at 2m with included bark, pruning wounds (L), deadwood (L), Ontario Heritage Tree #HT-2019-239-251	Neighbour	Preserve	-

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 Dieback	*(%)*
mTPZ	minimum Tree Protection Zone	*(m), radius from outside edge of tree base*
Owner	Ownership of Tree	*Private, Neighbour, City*
Comp.	Compensation Trees Required	*(number of trees)*
~ = estimate; (VL) = very light; (L) = light; (M) = moderate; (H) = heavy; (VH) = very heavy		

Appendix A. Photographs of Trees

Image 1. Facing the west property line of the subject property

Image 2. Trees 193 (right) and 194 (left)


Image 3. From left to right, Trees A – C

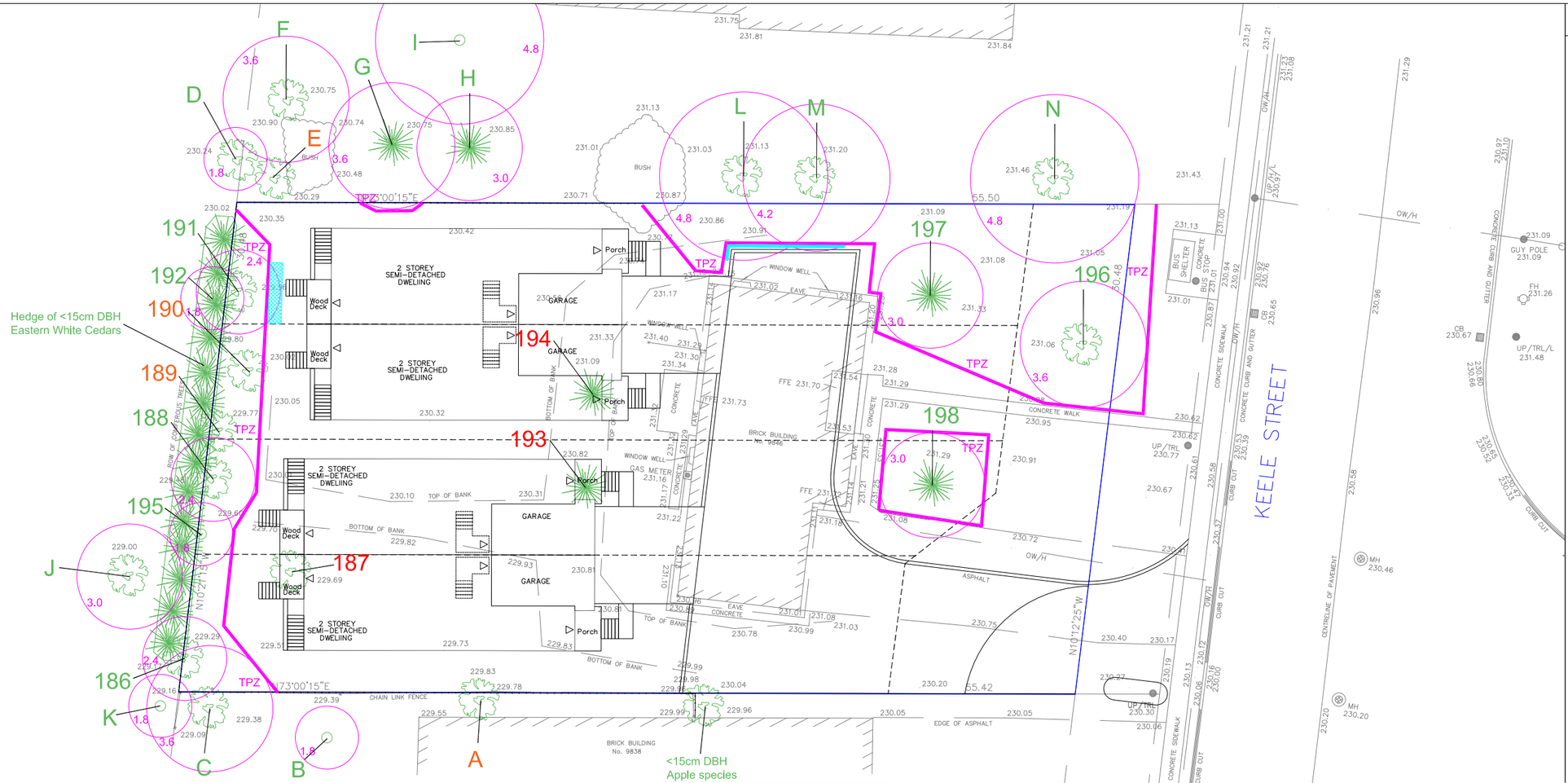

Image 4. Tree E


Image 5. From left to right, Trees G, I, and H

Image 6. From far to near, Trees L – N

Image 7. Plaque identifying Trees L – N as being Recognized Heritage Trees

Image 8. From right to left, Trees 196 – 198



LEGEND

Tree Inventory

Refer to Table 1 of report dated 22 April 2022 for complete tree inventory information. Tree resources greater than 15cm on and within six metres of the subject property and trees of all sizes within the road right-of-way were included in the inventory.

Tree Removals

The removal of three trees will be required to accommodate the proposed development, as indicated with RED labels. The removal of four additional trees are recommended due to their condition, as indicated with ORANGE labels.

Tree Preservation

The preservation of all other trees will be possible with the use of appropriate tree protection measures. Minimum tree preservation zones (mTPZs) and required tree preservation hoarding are indicated in MAGENTA. Trees identified for preservation are indicated with GREEN labels.

Tree Label (GREEN), preservation recommended	X
Tree Label (RED), removal required	X
Tree Label (ORANGE), removal recommended due to condition	X
Tree Location Estimated by KFCI	○
Minimum Tree Preservation Zone (MAGENTA CIRCLE), with radius in metres from edge of tree	Xm
Airspade Trench Location (thick CYAN)	
Horizontal Hoarding Location (hatched CYAN)	
Heavy-Duty Tree Protection Fencing Location (thick MAGENTA)	

No.	Issue/Revisions	Date	By
1	Report Submission	22 Apr. '22	KNH

Base Data: Schaeffer Dzaldov Bennett Ltd. (survey), KNYMH Architecture + Solutions (site)

TREE PROTECTION PLAN NOTES

Prior to site disturbance the owner must confirm that no migratory birds are making use of the site for nesting. The owner must ensure that the works are in conformance with the Migratory Bird Convention Act and that no migratory bird nests will be impacted by the proposed work. It is the applicants' responsibility to discuss potential tree injury of trees on shared property lines with their neighbours. Should such trees be injured to the point of instability or death the applicant may be held responsible for removal and such issues would be dealt with in civil court or through negotiation. The applicant would be required to replace such trees to the satisfaction of the City of Vaughan.

TREE PROTECTION ZONE: No construction activity including grade changes, surface treatments or excavations of any kind is permitted within the area identified on the Tree Protection Plan or Site Plan as a Tree Protection Zone (TPZ). No root cutting is permitted. No storage of materials or fill is permitted within the TPZ. No movement or storage of vehicles or equipment is permitted within the TPZ. Grade changes are not permitted within established TPZ. The area(s) identified as a TPZ must remain undisturbed at all times.

TREE PROTECTION BARRIERS:

For CIty-owned Trees:

Tree protection barriers for trees situated on the City road allowance where visibility must be maintained, can be 1.2m (4ft.) high and consist of chain link, or orange plastic web snow fencing on a 2" x 4" wood frame. All supports and bracing used to secure the barrier should be located outside the TPZ. All supports and bracing should minimize damage to roots outside the TPZ. Where some fill or excavate has to be temporarily located near a tree protection barrier, plywood must be used to ensure no material enters the TPZ. If the TPZ needs to be reduced to facilitate construction access, the tree protection barrier must be maintained at a lesser distance and the exposed TPZ protected with plywood and wood chips. This must first be approved by the CIty of Vaughan.

For trees on private property situated on or adjacent to construction sites:

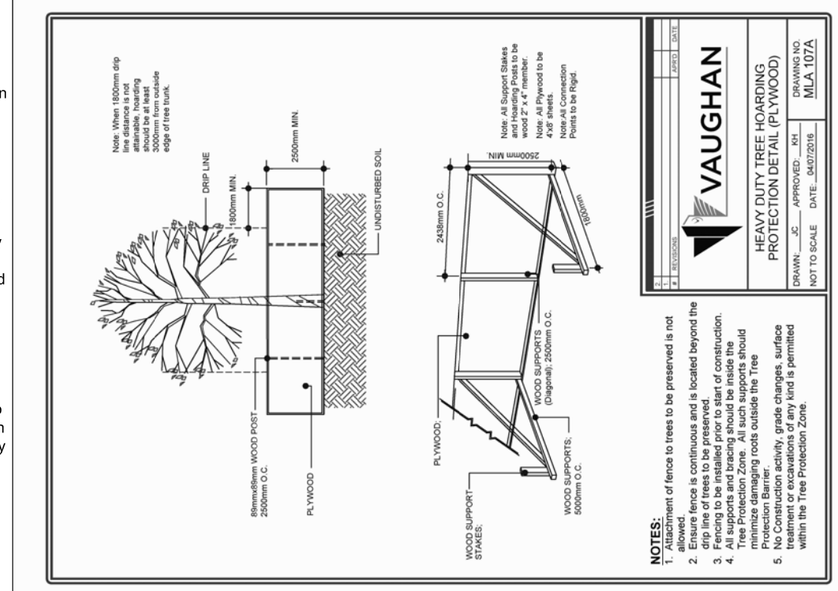
Tree protection barriers must be installed around trees to be protected using plywood clad hoarding or an equivalent approved by the City of Vaughan. All supports and bracing to safely secure the barrier should be outside the TPZ. All such supports and bracing should minimize damage to roots outside the TPZ.

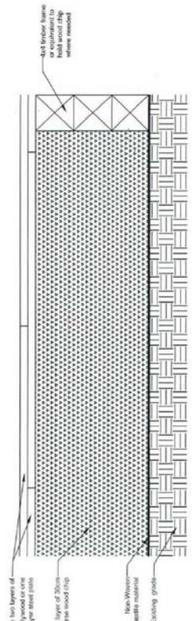
General Note:

Prior to the commencement of any site activity the tree protection barriers specified on this plan must be installed and written notice provided to the City of Vaughan. Established tree protection zones must not be used as construction access, storage or staging areas. The tree protection barriers must remain In effective condltion untll all site activities including landscaping are complete. Written notice must be provided to the City of Vaughan prior to the removal of the tree protection barriers.

ARBORICULTURAL WORK:

Any roots or branches which extend beyond the TPZ indicated on this plan which require pruning, must be pruned by a qualified Arborist or other tree professional as approved by the City of Vaughan. All pruning of tree roots and branches must be in accordance with good arboricultural standards. Roots located outside the TPZ that have received approval from the City of Vaughan to be pruned must first be exposed by hand digging or by using a low pressure hydro vac method. This will allow a proper pruning cut and minimize tearing of the roots. The Arborist/tree professional retained to carry out crown or root pruning must contact the City of Vaughan no less than 48 hours prior to conducting any specified work.





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Property
9846 Keele Street
Vaughan, Ontario

Tree Inventory & Preservation Plan

Project	P3240	Figure	1
Date	22 April 2022		
Scale	1:300		