Tree Inventory and Preservation Plan Report 60 Dundas Street East Mississauga, Ontario

prepared for

STUDIO tla 20 Champlain Boulevard, Suite 102 Toronto, Ontario M3H 2Z1

prepared by



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16 February 2022; revised 7 December 2022

KUNTZ FORESTRY CONSULTING INC. Project P3151

Introduction

Kuntz Forestry Consulting Inc. was retained by STUDIO tla to complete a Tree Inventory and Preservation Plan for the proposed development for the property located at 60 Dundas Street East in Mississauga, Ontario. The subject property is located at the east corner of the intersection of Dundas Street East and Shepard Avenue, within a mixed-use area.

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

- Prepare inventory of the tree resources greater than 10cm diameter at breast height (DBH) on and within six metres of the subject property and trees of all sizes within the road rightof-way:
- Evaluate potential tree saving opportunities based on proposed site plans; and,
- Document the findings in a Tree Inventory and Preservation Plan Report.

The results of the evaluation are provided below.

Methodology

Trees greater than 10cm DBH on and within six metres of the subject property and trees of all sizes within the road right-of-way were included in the tree inventory. Trees were located using the topographic survey provided for the subject property, aerial imagery, and measurements taken from known points in-field. The City of Mississauga requires dripline as the limit of protection and as such, the dripline of each tree was estimated in-field. Trees included in the inventory were identified as Trees 549 - 583. Trees that were accessible for tagging were tagged with their identification number. Trees that were not accessible were not tagged and were denoted with "NT" before their identification number. Tree polygons (groups of trees) were denoted with "P" before their identification number.

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 (cm) at breast height, measured at 1.4m 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.

Dripline – Crown radius (m).

Comments – Any other relevant tree condition information.

Refer to Figure 1 for the tree locations and Table 1 for the results of the tree inventory. See Appendix A for photographs of the trees.

Existing Site Conditions

The subject property is currently occupied by a one-storey concrete block commercial building and a surface parking area. Tree resources exist predominantly in the form of landscape trees. Refer to Figure 1 for the existing site conditions.

Tree Resources

The tree inventory was conducted on 10 February 2022. The inventory documented a total of 34 trees and one tree polygon on and within six metres of the subject property. Refer to Table 1 for the detailed tree inventory and Figure 1 for the location of trees reported in the tree inventory. See Appendix A for photographs of the trees.

Tree resources were comprised of Austrian Pine (*Pinus nigra*), Manitoba Maple (*Acer negundo*), Norway Maple (*Acer platanoides*), Red Oak (*Quercus rubra*), Siberian Elm (*Ulmus pumila*), Silver Maple (*Acer saccharinum*), White Ash (*Fraxinus americana*), and White Mulberry (*Morus alba*).

Proposed Development

The proposed development includes the demolition of the existing commercial building and surface parking area. Three towers are proposed on the subject property, including one 16-storey tower, one 27-storey tower, and one 29-storey tower. An associated subsurface parking garage and various walkways are proposed within the boundaries of the subject property. The reconfiguration of the sidewalks within the road right-of-way adjacent to the subject property is also proposed. Refer to Figure 1 for the proposed site plan.

Discussion

The following sections provide a discussion and analysis of tree impacts and tree preservation relative to the proposed work and existing conditions.

Development Impacts / Tree Removal

The removal of ten trees is required to accommodate the proposed development. The required tree removals include Trees 566 – 570 and 579 – 583.

Trees 566 - 568 and 570 conflict directly with proposed walkways / sidewalks. Tree 569 conflicts directly with the proposed vehicular access from Shepard Avenue. Trees 579 - 583 are located close to the proposed subsurface parking garage such that their roots would be significantly impacted by the associated excavation.

Trees 566, 567, 579, 580, 582, and 583 are greater than 15cm DBH. Trees 568 – 570 are located within the road right-of-way. The removal of one additional dead tree within the road right-of-way, as noted on Figure 1, is also recommended. Permits are required prior to the removal of these trees.

In addition, Trees 579 – 583 are located on a neighbouring property and as such, permission from the respective property owner is required prior to the removal of these trees.

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

Tree Preservation

The preservation of the remaining 24 trees and one tree polygon, including Trees / Polygon 549 – 565 and 571 – 578, will be possible with the use of appropriate tree protection measures as indicated on Figure 1. Tree protection measures must be implemented prior to the

commencement of the proposed works to ensure tree resources designated for retention are not impacted by the proposed development.

The City of Mississauga requires tree protection fencing to be installed at the dripline, as indicated on the City of Mississauga's "Tree Preservation Hoarding" detail. Refer to Figure 1 for the location of tree driplines.

Although this level of protection cannot be respected for Tree 576, this tree is afforded a minimum tree protection zone (mTPZ) that is consistent with standards utilized by surrounding municipalities.

The minimum tree protection zones (mTPZs) are based on the trunk diameter of the tree as follows:

Diameter at Breast Height (cm)	Minimum Tree Protection Zone (m) (from edge of stem)						
<10	1.2						
10 – 29	1.8						
30 – 40	2.4						
41 – 50	3.0						
51 – 60	3.6						
61 – 70	4.2						
71 – 80	4.8						
81 – 90	5.4						
91 – 100	6.0						
101 – 110	6.6						
111 – 120	7.2						
121 – 130	7.8						
131 – 140	8.4						

Tree 576 is afforded at least 3.0m of protection from its base. This level of protection is expected to be sufficient to protect this tree during construction.

Where the mTPZs of trees cannot be fully respected, including for Trees 564, 565, 571, and 573 – 575, special mitigation measures have been prescribed and are described below.

Trees 564, 565, 571, 573 – 575

Encroachment into the driplines and mTPZs of Trees 564, 565, 571, 573 – 575 is required to allow for the removal of the existing asphalt driveway or the removal and replacement of the existing driveway with a proposed walkway. Given the presence of the existing asphalt, it is anticipated that few roots extend into the areas of encroachment. If the following protection and mitigation measures are employed before, during and after construction, 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 shown on Figure 1.
- 2. Tree protection fencing may be adjusted to facilitate the removal of asphalt from within the mTPZs of these trees. Once the asphalt has been removed, the tree protection fencing must be reinstalled as shown on Figure 1.

- 3. The existing asphalt must be removed carefully using small machinery (i.e. a skidsteer) and by pulling radially away from the trunks.
- 4. No machinery use will be allowed within the mTPZs of these trees after the removal of the asphalt / concrete to minimize the impacts on the trees.
- 5. If roots are encountered in the subsurface material, they are to be left intact.
- 6. Where the installation of a new walkway is proposed where the asphalt driveway exists, the existing granular base should be used for the proposed surfaces.
- 7. Any softscaping to occur within the mTPZs of these trees should occur by hand.

Trees 573 – 575

Encroachment into the mTPZs of Trees 573 – 575 is required to accommodate the construction of the proposed subsurface parking garage. If the following protection and mitigation measures are employed before, during and after construction, 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-spade or low-pressure hydro-vac technology should be used to excavate a trench at the limit of the proposed subsurface parking garage within the mTPZs of Trees 573 575, as shown in Figure 1 with solid cyan.
- 3. The trench must be a depth of at least 90cm.
- 4. The roots of Trees 573 575 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 within the mTPZs of these trees should be supervised by a Certified Arborist in accordance with Good Arboricultural Standards.

Tree preservation fencing has not been prescribed for Trees 549 – 562 and Polygon 563 located adjacent to the north property line. It is anticipated that the existing pathway and the softscape north of the existing pathway is to remain undisturbed by the proposed development. If disturbance to this area is anticipated, tree protection fencing and / or special mitigation measures may be required for Trees 549 – 562 and Polygon P563.

Refer to Figure 1 for the location of required tree preservation fencing and general Tree Protection Plan Notes and tree preservation fence details.

Tree Compensation

The City of Mississauga requires replacement for any by-law protected tree removals. The ratio of required replacement plantings per tree is below:

DBH of Tree to be Removed	Number of Replacement Plantings
15-50 cm	1
>50 cm	2

A total of nine replacement plantings is required as there are nine trees identified for removal between 15 and 50cm DBH.

Tree Valuation

A valuation was calculated for all trees within the road right-of-way. Refer to Table 2 for the individual tree value computations. See below for the methodology used to calculate the appraised value of the trees. The value was calculated using the Trunk Formula Technique. This method is described in the Guide for Plant Appraisal, 10th Edition (CTLA 2018). The Ontario Supplement (2003) provides regionally relevant data pertaining to basic costs for trees.

Trunk Formula Technique

This method is used for trees that are larger than what is commonly available for transplant from a nursery. The Unit Tree Cost of the replacement tree is derived from a survey of nurseries or supplied by the Regional Plant Appraisal Council and published within the Ontario Supplement (2003). For Ontario, the unit tree cost has been set at \$6.51/cm² within the Supplement and this value has been used for the calculation.

The Basic Tree Cost is calculated by multiplying the Unit Tree Cost by the cross-sectional area of the subject tree. For multi-stemmed trees, the appraised trunk area considers the cross-sectional area of all stems. The Appraised Value is calculated by multiplying the Basic Reproduction Cost by the three depreciation factors (Condition Rating, Functional Limitation Rating, and External Limitation Rating, as described in the Guide).

The appraised value is therefore calculated using the following equation:

Basic Tree Cost = Appraised Tree Trunk Area X Unit Tree Cost

Appraised Value = Basic Tree Cost X Condition Rating X Functional Limitation Rating X External Limitation Rating

Functional Limitation Ratings and External Limitation Ratings are calculated according to the methods outlined in the guide. Condition Ratings were calculated based on the assessed condition of the trees on the site and in accordance with the guide. The final values were rounded to the nearest \$100 for values greater than \$2000, and to the nearest \$5 for values less than \$2000.

Results

The total appraised value of trees within the road right-of-way, including Trees 568 – 571 was calculated at \$ 3,420.

Summary and Recommendations

Kuntz Forestry Consulting Inc. was retained by STUDIO tla to complete a Tree Inventory and Preservation Plan for the proposed development for the property located at 60 Dundas Street East in the City of Mississauga, 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 34 trees and one tree polygon on and within six metres of the subject property. The removal of ten trees will be required to accommodate the proposed development. The remaining 24 trees and one tree polygon can be saved provided proper tree protection is installed as per Figure 1.

The following recommendations are suggested to minimize impacts to trees identified for preservation. Refer to Figure 1 for tree protection fencing locations and general Tree Protection Plan Notes and tree preservation fence details.

- 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 and are 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.**

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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: 60 Dundas Street East, Mississauga Date: 10 February 2022 Surveyors: KNH

Tree #	Common Name	Scientific Name	DBH	TI	cs	CV	CDB	DL	mTPZ	Comments	Owner	Action
549	Siberian Elm	Ulmus pumila	34	F	FG	FG		3	2.4	V-unions at 1.5m and 2m with included bark, epicormic branching (L), pruning wounds (L)	Neighbour	Preserve
550	Siberian Elm	Ulmus pumila	14, 13	F	FG	FG		2	1.8	V-union at 0.5m with included bark, asymmetrical crown (L), pruning wounds (L)	Neighbour	Preserve
551	Siberian Elm	Ulmus pumila	12	G	FG	FG		2	1.8	Union at 1.5m, asymmetrical crown (L), pruning wounds (L)	Neighbour	Preserve
552	Austrian Pine	Pinus nigra	22	G	FG	G		2	1.8	Pruning wounds (L)	Neighbour	Preserve
553	Norway Maple	Acer platanoides	17.5	Р	PF	F		2	1.8	Main leader lost at 2m, decay (H) in main stem, asymmetrical crown (M)	Neighbour	Preserve
554	Siberian Elm	Ulmus pumila	25	G	FG	FG		2	1.8	Pruning wounds (L), epicormic branching (L)	Neighbour	Preserve
555	Siberian Elm	Ulmus pumila	12.5, 12	F	FG	F	10	2	1.8	V-union at base (codominance) with included bark, deadwood (L)	Neighbour	Preserve
556	Siberian Elm	Ulmus pumila	11	G	FG	FG		1	1.8	Pruning wounds (M)	Neighbour	Preserve
557	Austrian Pine	Pinus nigra	25	FG	G	G		3	1.8	Crook (L)	Neighbour	Preserve
558	Siberian Elm	Ulmus pumila	~15	PF	G	FG		2	1.8	Sweep (M), included fence (H)	Neighbour	Preserve
559	Austrian Pine	Pinus nigra	20	G	Р	Р	80	1	1.8	Deadwood (H)	Neighbour	Preserve
560	Austrian Pine	Pinus nigra	21	FG	FG	FG		2	1.8	Lean (L), broken branches (L)	Neighbour	Preserve
561	Siberian Elm	Ulmus pumila	12, 8	F	F	F	10	2	1.8	V-union at 1m with included bark, asymmetrical crown (L), deadwood (L)	Neighbour	Preserve
562	Siberian Elm	Ulmus pumila	~22, 12	F	FG	FG		3	1.8	V-union at 1m with included bark, pruning wounds (L), epicormic branching (L)	Neighbour	Preserve
P563	Siberian Elm	Ulmus pumila	~3 - 16	FG	FG	FG		1 - 3	1.8	~ 26 trees, average DBH = 5cm	Neighbour	Preserve
NT564	Austrian Pine	Pinus nigra	~42	FG	FG	G		4	3.0	Codominance in crown, crook (L)	Neighbour	Preserve
NT565	Austrian Pine	Pinus nigra	~36	F	PF	Р	55	3	2.4	Main leader dead, epicormic branching (L), deadwood (M), pruning wounds (L)	Neighbour	Preserve
566	Norway Maple	Acer platanoides	16	F	F	F	20	2	1.8	Sweep (L), seam (L), multiple branch attachments, deadwood (L), pruning wounds (L)	Private Remove	
567	Norway Maple	Acer platanoides	25	PF	Р	Р	80	3	1.8	Deadwood (H), decay (M) in main stem, epicormic branching (L)	Private	Remove
568	Norway Maple	Acer platanoides	25.5	PF	PF	PF	30	3	1.8	Main leader lost, deadwood (M), decay (M) in main stem	City	Remove
569	Norway Maple	Acer platanoides	25	Р	PF	PF	30	3	1.8	Deadwood (M), v-union at 2m with included bark, cavity (L), decay (M) in main stem	City	Remove
570	Norway Maple	Acer platanoides	22.5	FG	FG	F	10	3	1.8	Bow (L), deadwood (L)	City	Remove

NT571	Silver Maple	Acer saccharinum	55	F	PF	PF	80	6	3.6	Deadwood (H), pruning wounds (L)	City	Preserve
NT572	Austrian Pine	Pinus nigra	~45	F	G	G		4	3.0	Included bark at base	Neighbour	Preserve
NT573	White Mulberry	Morus alba	~10	G	G	G		2	1.8		Neighbour	Preserve
NT574	Manitoba Maple	Acer negundo	~13	F	FG	G		1	1.8	Lean (M) over neighbour, asymmetrical crown (L)	Neighbour	Preserve
NT575	Manitoba Maple	Acer negundo	~26, 24	F	FG	G		4	1.8	V-union at 0.5m	Neighbour	Preserve
NT576	Red Oak	Quercus rubra	~42	G	FG	FG	10	8	3.0	Deadwood (L)	Neighbour	Preserve
NT577	Austrian Pine	Pinus nigra	~26	G	G	F		3	1.8		Neighbour	Preserve
NT578	Austrian Pine	Pinus nigra	~32	G	G	G		4	2.4		Neighbour	Preserve
NT579	Austrian Pine	Pinus nigra	~28	FG	FG	G		4	1.8	Lean (L), pruning wounds (M)	Neighbour	Remove
NT580	Austrian Pine	Pinus nigra	~26	G	FG	G		3	1.8	Pruning wounds (L)	Neighbour	Remove
NT581	Manitoba Maple	Acer negundo	~12	G	G	G		2	1.8		Neighbour	Remove
NT582	White Ash	Fraxinus americana	~15	FG	F	FG		2	1.8	Topped at 2m, coppice growth	Neighbour	Remove
NT583	White Ash	Fraxinus americana	~15	FG	F	FG		2	1.8	Topped at 2m, coppice growth	Neighbour	Remove

	Codes										
DBH	Diameter at Breast Height	(cm)									
TI	Trunk Integrity	(G, F, P)									
CS	Crown Structure	(G, F, P)									
CV	Crown Vigor	(G, F, P)									
CDB	Crown Dieback	(%)									
DL	Dripline in Radius	(m)									
mTPZ	Minimum Tree Protection Zone	(m)									
Owner	Ownership	(City, Private, Neighbour, Shared)									
~ = est	~ = estimate: (VL) = very light: (L) = light: (M) = moderate:										

⁼ estimate; (VL) = very light; (L) = light; (M) = moderate: (H) = heavy; (VH) = very heavy

Table 2. City Tree Valuation

Location: 60 Dundas Street East, Mississauga													
		Appraised Trunk Area (cm²)	Unit Tree Cost (RPAC) (\$/cm²)	Basic Tree Cost (\$)	Condition Rating (%)	Functional Limitation Rating (%)	External Limitation Rating (%)	Appraised Tree Value		Adjusted Tree Value			
Tree #	Common Name	DBH	ос										
568	Norway Maple	25.5	PF	511	6.51	3324.70	0.375	0.4	0.9	\$ 448	3.83	\$	450.00
569	Norway Maple	25	Р	491	6.51	3195.60	0.2	0.4	0.9	\$ 230	0.08	\$	230.00
570	Norway Maple	22.5	F	398	6.51	2588.43	0.55	0.5	0.9	\$ 640	0.64	\$	640.00
NT571	Silver Maple	55	PF	2376	6.51	15466.69	0.375	0.4	0.9	\$ 2,088	3.00	\$	2,100.00
										Total		\$	3,420.00

Appendix A. Site Photographs



Image 1. From left to right, Trees 549 – 556



Image 2. From left to right, Trees 557 – 560



Image 3. From left to right, Trees 561 and 562



Image 4. Polygon 563



Image 5. From right to left, Trees 564 and 565



Image 6. From left to right, Trees 566 and 567







Image 7. Tree 568 Image 8.

Image 8. Tree 569

Image 9. Tree 570



Image 10. From left to right, Trees 572 – 574



Image 11. From left to right, Trees 574 and 575



Image 12. From right to left, Trees 576, 577, 579, 578, and 580



Image 13. From right to left, Trees 581 - 583