

**Tree Inventory and Preservation Plan Report
6611 Second Line West
Mississauga, Ontario**

prepared for

**Newgate Development
3751 Victoria Park Avenue
Toronto, Ontario M1W 3Z4**

prepared by



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KUNTZ FORESTRY CONSULTING Inc. Project P1402

Introduction

Kuntz Forestry Consulting Inc. was retained by Newgate Development to complete a Tree Inventory and Preservation Plan in support of a development application for a property located at 6611 Second Line West in Mississauga, Ontario. The subject property is located northwest of Mavis Road and Highway 401.

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

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

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 (centimeters) at breast height, measured at 1.4 m above the ground.

Dripline – radius (metres) of the tree crown, measured from the stem to the outer branches

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

Comments - additional relevant detail.

The results of the evaluation are provided below.

Methodology

Trees measuring over 15cm DBH on and within six metres of the subject property were identified in the tree inventory. Trees were located by a topographic survey provided for the subject property and measurements taken from known points in-field. The City of Mississauga requires dripline as the limit of protection and as such dripline of each tree was measured in field. Trees included in the inventory were numbered 1-51. Tree locations are shown on Figure 1. See Table 1 for the results of the inventory.

Existing Site Conditions

The subject area is currently occupied by a one-storey residential dwelling, an attached garage, and an asphalt driveway. Tree resources exist in the form of landscape and naturally-occurring trees. a natural heritage feature exists on the north side of the property. Refer to Figure 1 for the existing site conditions.

Tree Resources

The tree inventory was conducted on 11 November 2016. The inventory documented 51 trees on and within six metres of the subject property. Refer to Table 1 for the full tree inventory and Figure 1 for the location of trees reported in the tree inventory.

Tree resources were comprised of Manitoba Maple (*Acer negundo*), Norway Maple (*Acer platanoides*), Sugar Maple (*Acer saccharum*), Bitternut Hickory (*Carya cordiformis*), Green Ash (*Fraxinus pennsylvanica*), Black Walnut (*Juglans nigra*), Apple Species (*Malus spp.*), Ironwood (*Ostrya virginiana*), White Spruce (*Picea glauca*), Blue Spruce (*Picea pungens*), Cherry Species (*Prunus spp.*), Douglas-fir (*Pseudotsuga menziesii*), Bur Oak (*Quercus macrocarpa*), Willow Species (*Salix spp.*), Eastern White Cedar (*Thuja occidentalis*), and Basswood (*Tilia americana*).

Proposed Development

The proposed development includes the demolition of the existing building and the asphalt driveway, and the construction of townhouses and a driveway connected to Harmony Hill. Refer to Figure 1 for the proposed development.

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 Tree 1, 25-37, and 51 (15 trees) is required to accommodate the proposed development. The removal of Trees 22-24, 39-45, 48, and 49 (12 trees) is recommended due to their poor and/or hazardous condition. All trees for removal are protected by the City of Mississauga Private Tree Protection By-law and a permit will be required prior to their removal. Tree 40 are in hazardous condition and Trees 1, 22-24, and 41-45 are Ash trees infested with Emerald Ash Borer. Refer to Figure 1 for the location of required and recommended tree removal.

Several dead ash trees were found along the eastern limit of the property and their removal is also recommended. Refer to Figure 1 for the location of dead trees.

Encroachment into the dripline of Trees 46, 47, and 50 will be required to accommodate the proposed development and may impact the tree. Mitigation measures are proposed to minimize the impacts of the tree as detailed below.

Tree Preservation

The preservation of Trees 2-21, 38, 46, 47, and 50 (24 trees) will be possible with the use of appropriate tree protection measures as indicated on Figure 1. Tree protection measures will have to be implemented prior to the demolition to ensure tree resources designated for retention are not impacted. Refer to Figure 1 for the location of required tree preservation fencing and general Tree Protection Notes, and Appendix A for tree preservation fence detail.

The City of Mississauga requires that the driplines of trees identified for preservation be protected; however, this is not possible due to spacing constraints on the property and it would result in the removal of additional trees. The minimum Tree Protection Zones (mTPZ's) as utilized by most surrounding municipalities as shown on Figure 1 can be protected and should be sufficient to protect the trees through construction. Any roots and branches that extend beyond the limit of encroachment into the dripline should be pruned by a Certified Arborist, in accordance with Good Arboricultural Standards.

Trees 46, 47, and 50

Encroachment into the dripline of Trees 46, 47, and 50 will be required to accommodate the proposed townhouses and the driveway. The following mitigation measures must be implemented to ensure Trees 46, 47, and 50 will respond well to the impacts of the development. Given these recommendations and that small amount of encroachment required, long-term adverse effects are not anticipated to these trees.

- Prior to the commencement of construction, tree preservation fencing should be installed as indicated on Figure 1;
- Excavation within the dripline of Trees 46, 47, and 50 should be completed by air spading and supervised by a Certified Arborist to ascertain the extent of roots encountered during excavation and to ensure the tree will not be destabilized by the severance of the roots;
- Once the excavation has been completed, the exposed tree roots should be pruned by a Certified Arborist in accordance with Good Arboricultural Standards after it is determined that Trees 46, 47, and 50 will not be destabilized from root pruning within the excavated trench; and
- 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 Replacement

The City of Mississauga requires replacement for any by-law protected tree removal. The removal of 15 trees protected by the City of Mississauga Tree Bylaw is proposed to accommodate the proposed site plan. One tree is an Ash tree with poor vigor; thus, exempt from replacement trees. The remaining 14 trees will require tree replacements. As such, a total of 42 replacement plantings is required (3:1 ratio of plantings to removals). Refer to Landscape Plan for the proposed plantings.

Summary and Recommendations

Kuntz Forestry Consulting Inc. was retained by Newgate Development to complete a Tree Inventory and Preservation Plan in support of a development application for a property located at 6611 Second Line West in 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 51 trees on and within six metres of the subject property. The removal of 15 trees is required to accommodate the proposed development. The removal of additional 12 trees is recommended due to their poor condition. The remaining 24 trees can be saved provided appropriate tree protection measures are installed prior to the proposed work.

The following recommendations are suggested to minimize impacts to trees identified for preservation. Refer to Figure 1 for the location of required tree preservation fencing and general Tree Protection Plan Notes, and Appendix A for 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.
- Encroachment will be required within the dripline of Trees 46, 47, and 50 to accommodate the proposed development. Special mitigation measures must be implemented to minimize the impacts of the development on the trees as described above.
- 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 is 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.**

Kaho Hayashi

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References

City of Mississauga. Private Tree Protection By-law 254-12 (amended by 13-13). Enacted on December 12, 2012.

Table 1. Tree Inventory

Location: 6611 Second Line West, Mississauga

Date: 11 November 2016

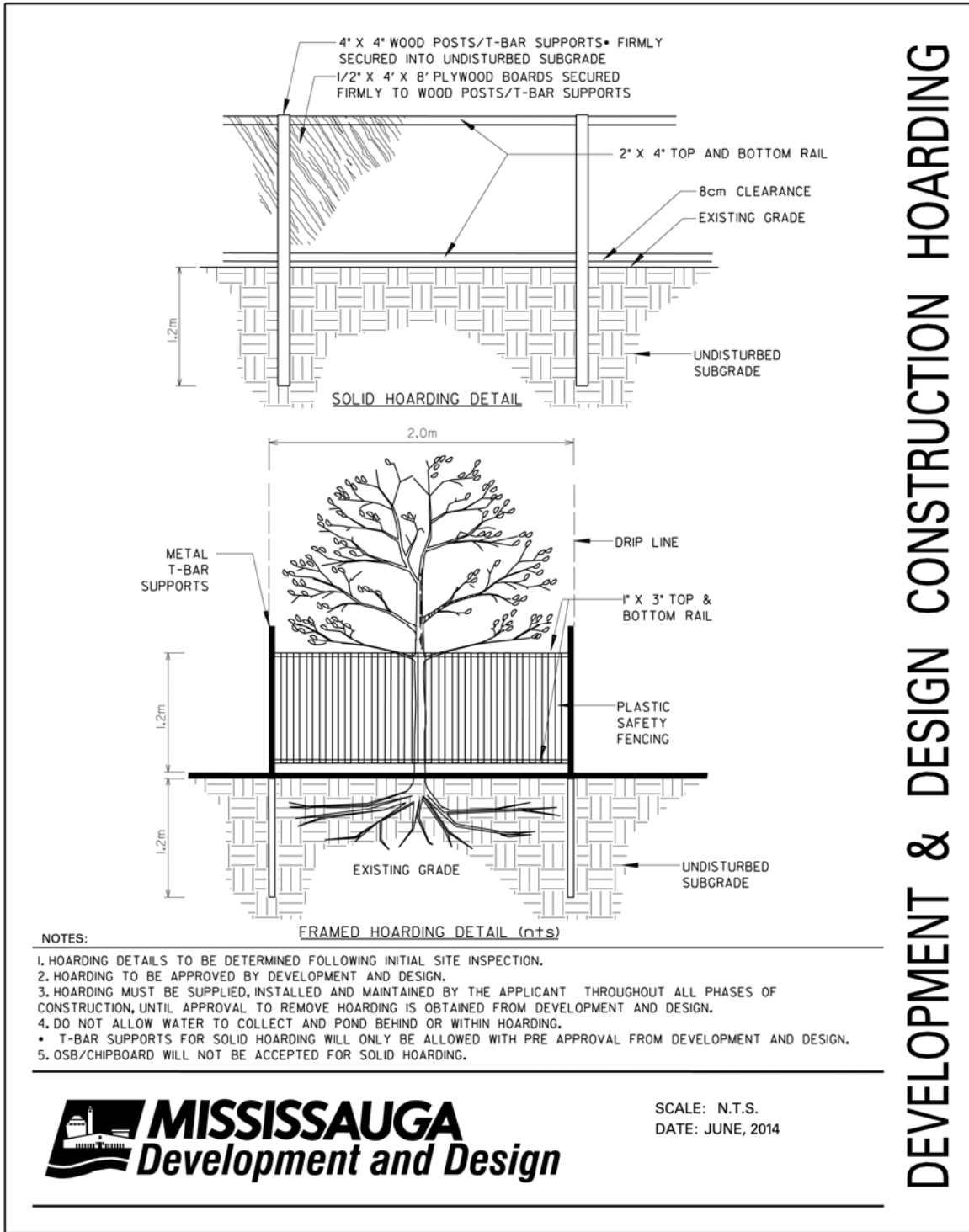
Surveyors: KH

Tree#	Common Name	Scientific Name	DBH	TI	CS	CV	CDB	DL	Owner	Comments	Removal
1	Green Ash	<i>Fraxinus pennsylvanica</i>	19, 18, 14	F	F	P/F	25	3	Private	Union at base, epicormic branches (H), Emerald Ash Borer (H)	X
2	Black Walnut	<i>Juglans nigra</i>	10-20 (ave 15)	F	F	F/G		5	Neighbour	Union at base (4 stems), grape vine competition (H), asymmetrical crown n (M)	
3	Black Walnut	<i>Juglans nigra</i>	~12, 10	F	F	F/G		4	Neighbour	Union at 0.2m, crook (M), asymmetrical crown n (H)	
4	Black Walnut	<i>Juglans nigra</i>	36.5	F/G	G	G		6	Neighbour	Co-dominance at 5m (3 stems)	
5	Bur Oak	<i>Quercus macrocarpa</i>	~80	G	G	G		10	Neighbour	Asymmetrical crown n (L), previously tagged 798	
6	Sugar Maple	<i>Acer saccharum</i>	44	G	G	G		8	Private/Neighbour		
7	Bur Oak	<i>Quercus macrocarpa</i>	~85	G	G	G		10	Neighbour	Co-dominance in crown n, previously tagged 796	
8	Bitternut Hickory	<i>Carya cordiformis</i>	31	F	F/G	F		6	Neighbour	Lean (M) to east, crook (L), previously tagged 702	
9	Bur Oak	<i>Quercus macrocarpa</i>	~95	F/G	F/G	F/G		8	Neighbour	Crook (L), co-dominance in crown n, asymmetrical crown n (L), previously tagged 701	
10	Manitoba Maple	<i>Acer negundo</i>	19.5	P	F/G	F/G		6	Neighbour	Lean (H) to east, crook (M), pruning wounds (M), stem wounds (M), fruiting bodies, epicormic branches (H)	
11	Manitoba Maple	<i>Acer negundo</i>	~45, 20, 15	P	P/F	G		5	Neighbour	Union at base, larger stem lean (M) to east, smaller stem bow (H) to west	
12	Manitoba Maple	<i>Acer negundo</i>	~20	P	P/F	F		10	Neighbour	Lean (H) to south, main stem split, broken branches (M), epicormic branches (H) ==> hazard	
13	Manitoba Maple	<i>Acer negundo</i>	5-10 (ave 6)	P	P/F	F		5	Neighbour	Coppice growth from stump (8 stems)	
14	Manitoba Maple	<i>Acer negundo</i>	18.5, 18	P/F	P/F	P	60	6	Neighbour	Co-dominance at 0.6m, crook (M), dead branches (M), lean (M) to south, epicormic branches (H), 1 stem is dead	
15	Black Walnut	<i>Juglans nigra</i>	~30, 28	F/G	G	G		6	Neighbour	Union at 0.3m with included bark (M)	
16	Green Ash	<i>Fraxinus pennsylvanica</i>	10-12 (ave 11)	P	P	P/F		3	Private/Neighbour	Union at base and 1m (3 stems), all main leaders pruned, coppice growth (H)	
17	Green Ash	<i>Fraxinus pennsylvanica</i>	11.5, 7	F	F	P/F		3	Neighbour	Union at 0.3m and 1.8m (3 stems)	
18	Blue Spruce	<i>Picea pungens</i>	~36	G	G	G		4	Private		
19	White Spruce	<i>Picea glauca</i>	~45	G	G	G		6	Private		
20	Blue Spruce	<i>Picea pungens</i>	~50	G	G	G		5	Private		
21	Cherry Species	<i>Prunus spp.</i>	~10-15	F	F/G	F		5	Private	Union at base (4 stems), pruning wounds (M) at base, coppice growth (H), dead branches (L), epicormic branches (M)	
22	Green Ash	<i>Fraxinus pennsylvanica</i>	28.5	F/G	G	P/F	25	4	Private	Co-dominance in crown n, Emerald Ash Borer (H)	X (recommended)
23	Green Ash	<i>Fraxinus pennsylvanica</i>	31.5, 18.5	P	P	P	90	4	Private	Union at base, Emerald Ash Borer (H)	X (recommended)
24	Green Ash	<i>Fraxinus pennsylvanica</i>	31, 16.5	P	P	P	80	6	Private	Union at base, Emerald Ash Borer (H)	X (recommended)
25	Apple Species	<i>Malus spp.</i>	22.5, 14.5	F	G	F/G		4	Private	Union at 1m, stem wounds (L) at base, epicormic branches (H)	X
26	Apple Species	<i>Malus spp.</i>	5-8 (ave 7)	F	F	F		3	Private	Union at base (4 stems), epicormic branches (H)	X
27	Red Oak	<i>Quercus rubra</i>	15-25 (ave 20)	P/F	F	F		7	Private	Union at 0.5m (6 stems), epicormic branches (H)	X
28	Cherry Species	<i>Prunus spp.</i>	17.5, 17	F	F	F		4	Private	Union at 0.3m, crook (H)	X
29	Apple Species	<i>Malus spp.</i>	~22	P/F	F	F		4	Private	Stem wounds (M), epicormic branches (H), coppice growth (H), pruning wounds (M)	X
30	Apple Species	<i>Malus spp.</i>	31.5	F	F	F		6	Private	Stem wounds (M), pruning wounds (L), sap sucker damage (H), crook (M)	X
31	Apple Species	<i>Malus spp.</i>	27.5, 16.5, 11.5	F	F	F		6	Private	Union at 0.8m and 1m, crook (M)	X
32	Apple Species	<i>Malus spp.</i>	17, 15, 14	F	F	F		4	Private	Union at 0.5m, epicormic branches (H)	X
33	Apple Species	<i>Malus spp.</i>	15.5, 13	F	F	F		5	Private	Union at 0.5m, crook (M), epicormic branches (M)	X
34	Blue Spruce	<i>Picea pungens</i>	~45	G	G	G		5	Private		X
35	Douglas Fir	<i>Pseudotsuga menziesii</i>	~50	G	G	G		8	Private		X
36	Blue Spruce	<i>Picea pungens</i>	~35	F/G	G	G		3	Private	Sweep (L)	X
37	Norway Maple	<i>Acer platanoides</i>	46	F	G	F		6	Private	Girdling roots, exposed roots (L), pruning wounds (L), stem wounds (L)	X
38	Green Ash	<i>Fraxinus pennsylvanica</i>	17.5	F	F	P/F	40	4	Private	Crook (M), grape vine competition (M), Emerald Ash Borer (H)	
39	Sugar Maple	<i>Acer saccharum</i>	~40	G	P	P	60	4	Neighbour	Dead branches (H), epicormic branches (H)	X (recommended)
40	Basswood	<i>Tilia americana</i>	~40	P	P	P	80	3	Neighbour	Stem wounds (H), lean (L) to east, lost leader, epicormic branches (L) ==> hazard	X (recommended)
41	Green Ash	<i>Fraxinus pennsylvanica</i>	17.5	P	P	P	75	4	Private/Neighbour	Emerald Ash Borer (H)	X (recommended)
42	Green Ash	<i>Fraxinus pennsylvanica</i>	16	P	P	P	40	3	Private/Neighbour	Emerald Ash Borer (H)	X (recommended)
43	Green Ash	<i>Fraxinus pennsylvanica</i>	15	P	P	P	80	3	Neighbour	Emerald Ash Borer (H)	X (recommended)
44	Green Ash	<i>Fraxinus pennsylvanica</i>	16	P	P	P	80	3	Neighbour	Emerald Ash Borer (H)	X (recommended)
45	Green Ash	<i>Fraxinus pennsylvanica</i>	18	P	P	P	80	3	Neighbour	Emerald Ash Borer (H)	X (recommended)
46	Ironwood	<i>Ostrya virginiana</i>	23.5	F	G	F/G		6	Neighbour	Lean (L) to west, union at 3m (6 stems)	
47	Black Walnut	<i>Juglans nigra</i>	24	F	F/G	F/G		6	Private/Neighbour	Co-dominance at 4m, crook (L)	
48	Sugar Maple	<i>Acer saccharum</i>	44.5	G	P/F	P	40	6	Neighbour	Dead leader, dead branches (M)	X (recommended)

49	Sugar Maple	<i>Acer saccharum</i>	37	P/F	F/G	F	10	6	Private/ Neighbour	Dead branches (L), stem wounds (H) at base, lean (L) to north	X (recommended)
50	Willow Species	<i>Salix spp.</i>	27	F/G	G	F/G		6	Neighbour	Lean (L) to east, union at 1.5m	
51	Eastern White Cedar	<i>Thuja occidentalis</i>	~18, 12	P/F	F/G	F		2	Private	Union at base, lean (H) to south, sweep (M), grape vine competition (H)	

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	(m)
Owner	Private, Neighbour, City	
P = poor, F = fair, G = good, ~ = estimate, (VL) = very light, (L) = light, (M) = moderate, (H) = heavy		

Appendix A. Tree Preservation Fence Detail



I:\codd\projects\44138 PB Construction Hoarding.CP\Vector\ D&D.ConstructHd.dgn