Tree Inventory & Preservation Plan Report
2082-2090 James Street
Burlington, Ontario

prepared for

Mattamy Homes
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prepared by

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Introduction

Kuntz Forestry Consulting Inc. was retained by Mattamy Homes to complete a Tree Inventory and Preservation Plan in support of a development application for a group of properties situated at 2082-2090 James Street in Burlington, Ontario.

The work plan for this study included the following:

- Prepare field mapping (overlay site plan onto the topographic survey);
- Prepare inventory of all tree resources 10 cm in diameter and larger occurring on subject property, within the road allowances and on neighbouring property with the potential to be impacted by the proposed development;
- Evaluate potential tree saving opportunities based on proposed site plans; and,
- Document the findings in a Tree Inventory and Preservation Plan report.

Field assessments were conducted on the 14th of February 2018. All tree resources included in the inventory were visually assessed for condition utilizing the following parameters:

Tree # - numbers assigned to trees that corresponds to Figure 1.
Species - common and botanical names provided in the inventory table (Table 1).
DBH - diameter (centimeters) at breast height, measured at 1.4 m above the ground.
Condition - condition of tree considering trunk integrity, crown structure and crown vigor. Condition ratings include poor (P), fair (F) and good (G).
Crown Dieback – the percentage of dead branches located in the crown.
mTPZ – Minimum tree preservation zone.
Comments - additional relevant detail.

Most of the trees situated on subject property and in the road allowance were located by land surveyors. Trees situated in the adjacent creek channel were located by estimations made on site.

Existing Site Conditions

The site at 2082-2090 James Street is comprised of 3 detached homes surrounded by amenity areas. The Rambo Creek channel traverses the western portion of the property in a north to south direction. The channel then meanders eastward adjacent to the southern property boundary. The property is surrounded by James Street to the north, Martha Street to the east, Rambo Creek to the south and a condominium complex to the west.

The tree inventory documented a total of 77 Trees located on subject property, in the road allowance and on neighboring property within vicinity of the proposed development. Tree resources are comprised of naturally occurring trees and some landscape plantings. Refer to Figure 1 for tree locations and Table 1 for the complete tree inventory.

Tree resources included in the inventory are comprised of Austrian Pine (*Pinus nigra*), Siberian Elm (*Ulmus pumila*), Green Ash (*Fraxinus americana*), Manitoba Maple (*Acer negundo*), White Elm (*Ulmus americana*), Sugar Maple (*Acer saccharum*), Black Walnut (*Juglans nigra*), White Birch (*Betula papyrifera*), Basswood (*Tilia americana*), Norway

Maple (*Acer platanoides*), White Mulberry (*Morus alba*), Tree-of-Heaven (*Ailanthus altissima*), Little Leaf Linden (*Tilia cordata*) and White Poplar (*Populus alba*).

Proposed Development

The proposed development is comprised of a 17 storey condominium building. In addition, the Rambo Creek channel is proposed for reconstruction to ensure the existing flows and storm water runoff are managed and contained within the channel block in a manner that functions coherently with the existing creek above and below the subject site. The creek reconstruction will also address the degradation that has occurred in the past and the invasive and exotic vegetation that has established in this portion of the creek. The resulting channel construction, in combination with the proposed restoration will provide an enhancement of the ecological function of Rambo Creek that falls in line with the policies outlined in the Official Plan regarding natural channel design and development adjacent to natural features.

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

The minimum Tree Preservation Zone (mTPZ) distances, as outlined in the City of Burlington's Specifications For Tree Protection and Preservation (Spec No. SS12A), were used in the preservation planning process to determine tree removal requirements. Where encroachment is required within the mTPZ there is the potential to damage tree roots and tree removal may be required.

Tree Removal

Removal of Trees 1, 2, 44, 45, 46 and 57-61 will be required to accommodate the proposed condominium complex. Removal of trees 3-26, 38-43, 47-56 and 62-77 will be required to re-construct the Rambo Creek channel.

Of the Trees identified for removal Trees 1, 38-43, 47-56 and 63-77 are situated on City property (i.e. ROW or Rambo Creek Channel). As per the City of Burlington's public Tree By-Law (No. 68-2013), compensation may be required for the removal of these trees.

Tree Preservation

Preservation of Trees 27-37 will be possible with appropriate tree protection measures. Tree protection measures will have to be implemented prior to the construction phase to ensure trees identified for preservation are not impacted by the proposed development. Tree protection fence must be comprised of 1.2 m (4 ft.) high orange plastic web snow fencing on a 2" x 4" frame. Refer to Figure 1 for the location of prescribed tree protection fence and the tree protection fence detail.

All of the trees identified for preservation are situated on neighboring property to the West. These trees are identified for preservation at their minimum tree preservation zone distance (MTPZ) as set out by the City of Burlington's Specifications for Tree Protection and Preservation. Given that no encroachment is required within the MTPZ the trees identified for preservation should not be subject to any adverse long term impacts. If any roots are exposed during the creek re-construction, they must be pruned by a Certified Arborist in accordance with good arboricultural practice.

If construction occurs during the months of May-September Trees 27-37 must be watered weekly, unless a major rain event has occurred that week. The root zones should be watered with approximately 150 gallons of water each watering event. The water must be sprayed on the ground slowly such that it has time to percolate into the soil and does not run overland away from the trunks of the trees.

Compensation

Of the trees identified for removal, a total of 32 reside on City property and may be regulated by the City of Burlington's public Tree By-Law (No. 68-2013). Within the By-Law, Schedule A lists trees that exempt from the regulations of the By-Law. Of the 32 Trees identified for removal, 19 are listed in Schedule A and 4 more are considered invasive species and do not require compensation. As such, a total of 9 City Trees identified for removal must be compensated for, including the City tree residing in the road allowance.

The 9 trees which require compensation are identified as Trees 1, 38, 40, 42, 43, 63, 70, 73 and 75. These trees must be compensated for using the aggregate caliper ratio replacement method. The combined DBH of these trees equates to 209 cm and as such, the sum of the DBH of all the compensation trees must equate to more than 209 cm. Compensation plantings must occur in the road allowance adjacent to the subject property and in the Rambo Creek channel. Given the size of the channel additional compensation trees may be required such that more than 209 cm of tree DBH will be planted.

Compensation Trees should be comprised of native tree species purchased from a native tree nursery to ensure no cultivars or varieties have been substituted. Appropriate species include, but are not limited to, Sugar Maple (*Acer saccharum*), Red Maple (*Acer rubrum*), Bur Oak (*Quercus macrocarpa*), Red Oak (*Quercus rubra*), Hackberry (*Celtis occidentalis*), Eastern White Pine (*Pinus strobus*), White Birch (*Betula papyrifera*), Trembling Aspen (*Populus tremuloides*), Basswood (*Tilia americana*) and Black Cherry (*Prunus serotina*).

Given that many of the replacement trees will be planted on slopes within the redesigned creek channel it will be difficult to dig a large hole for trees with large root balls. As such, replacement trees should range in size from 1-4 cm in diameter.

Considering that 70-80% of trees that die within 1 year of planting do so because they received too little or too much water, it is strongly recommend that Tree Watering Bags be placed around the trunks of the compensation trees. The bags should be filled with water and replenished as needed during the first year following planting. These bags function using drip irrigation and will provide moisture to the root zone to ensure the compensation trees do not die of drought within the first year of planting.

Refer to the Landscape Plan for additional tree planting locations and details.

Summary and Recommendations

Kuntz Forestry Consulting Inc. was retained by Mattamy Homes to complete a Tree Inventory and Preservation Plan in support of a development application for a group of properties situated at 2082-2090 James Street in Burlington, Ontario. A tree inventory was conducted and reviewed in the context of the proposed development plan.

The findings of the study indicate a total of 77 Trees located on subject property, in road allowances and on neighboring property within vicinity of the proposed development. Removal of 67 Trees will be required to accommodate the proposed development. Of those 67 Trees, 10 Trees require removal to accommodate the condominium building and 57 Trees require removal to accommodate Rambo Creek re-construction. Compensation, as outlined in the report above, will be required to offset the removal of the City owned trees.

The following recommendations are suggested to minimize impacts to trees identified for preservation. Refer to Figure 1 for tree preservation fence locations, further tree preservation plan notes and the Tree Protection Detail.

- Tree protection barriers and fencing should be erected at locations prescribed on Figure 1. All tree protection prescriptions should follow the Tree Protection Detail on Figure 1.

- Tree protection measures will have to be implemented prior to the construction phase to ensure the trees identified for preservation are not impacted by the proposed works.

- No construction activity including grade changes, 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 anytime during or after construction.

- Branches that extend past prescribed tree protection zones that require pruning must be pruned by a qualified Arborist or other tree professional as approved by the City of Burlington. 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.

Jeremy Jackson

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Associate
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Table 1. Tree Inventory

Location: 2082-2090 James St Burlington Date: 14 Feb. 2018 Surveyors: JJJ

Tree #	Common Name	Scientific Name	DBH	TI	CS	CV	CDB	mTPZ	Comments	Action
1	Austrian Pine	*Pinus nigra*	16	G	G	G		2.4		Remove
2	Siberian Elm	*Ulmus pumila*	~55	G	G	G		3.6		Remove
3	Green Ash	*Fraxinus pennsylvanica*	~10	F	F	F	20	1.8	EAB infestation	Remove
4	Manitoba Maple	*Acer negundo*	~20	FG	FG	FG		2.4	Lean (M) west	Remove
5	Green Ash	*Fraxinus pennsylvanica*	~15	F	PF	PF	60	2.4	EAB infestation	Remove
6	Manitoba Maple	*Acer negundo*	~13	FG	F	F	10	2.4	Bowed (M) west	Remove
7	White Elm	*Ulmus americana*	~25	G	G	G		2.4		Remove
8	Sugar Maple	*Acer saccharum*	~17	G	FG	G		2.4	Understory	Remove
9	Green Ash	*Fraxinus pennsylvanica*	27	F	F	PF	30	2.4	EAB infestation, epicormic branching (L)	Remove
10	Sugar Maple	*Acer saccharum*	21	F	P	PF	50	2.4	Top of crown dead	Remove
11	Black Walnut	*Juglans nigra*	38	G	G	G		2.4		Remove
12	White Elm	*Ulmus americana*	16	G	G	G		2.4	Bowed (L) understory	Remove
13	Green Ash	*Fraxinus pennsylvanica*	25	G	F	F	20	2.4	EAB infestation	Remove
14	Sugar Maple	*Acer saccharum*	21	FG	F	F	20	2.4	Top of crown dead	Remove
15	White Birch	*Betula papyrifera*	17	FG	FG	FG		2.4	Bowed (M), understory	Remove
16	Basswood	*Tilia americana*	~15	FG	FG	G		2.4	Bowed (M)	Remove
17	Green Ash	*Fraxinus pennsylvanica*	~25	FG	FG	F	15	2.4	EAB infestation, epicormic branching (M)	Remove
18	Manitoba Maple	*Acer negundo*	~15, 20	FG	FG	FG		2.4	Bowed (M), union at 0.3 m	Remove
19	Green Ash	*Fraxinus pennsylvanica*	~17	FG	F	F	20	2.4	EAB infestation, epicormic branching (L)	Remove
20	White Elm	*Ulmus americana*	24	G	G	G		2.4	Union at 2.5 m	Remove
21	Green Ash	*Fraxinus pennsylvanica*	53	FG	F	F	20	3.6	EAB infestation, lean (L) southwest	Remove
23	Green Ash	*Fraxinus pennsylvanica*	33	F	F	F		2.4	EAB infestation remove	Remove
23	Norway Maple	*Acer platanoides*	~15	FG	FG	FG		2.4	Broken branches (L)	Remove
24	White Mulberry	*Morus alba*	~11	G	FG	G		2.4		Remove
25	Manitoba Maple	*Acer negundo*	~12	G	FG	FG		2.4		Remove
26	Manitoba Maple	*Acer negundo*	~20	F	FG	FG		2.4	Lean (M) northeast , grapevine competition (L)	Remove
27	Manitoba Maple	*Acer negundo*	~12	FG	F	F	15	2.4	Bowed (M), grapevine competition (M)	Preserve
28	Tree-of-heaven	*Ailanthus altissima*	~45, 35, 25	FG	G	G		3.0	Union at ground	Preserve
29	Manitoba Maple	*Acer negundo*	~15	FG	F	PF	40	2.4	Understory, epicormic branching (M)	Preserve
30	Tree-of-heaven	*Ailanthus altissima*	~20	G	G	G		2.4		Preserve
31	Manitoba Maple	*Acer negundo*	~20	F	F	F	15	2.4	Lean (M) south, understory	Preserve
32	White Mulberry	*Morus alba*	~35	FG	F	FG		2.4	Lean (M) southwest, understory	Preserve

34	Manitoba Maple	*Acer negundo*	~12	F	F	F		2.4	Lean (M), broken branches (M)	Preserve
34	White Mulberry	*Morus alba*	~35	FG	FG	G		2.4	Bowed (M) south	Preserve
35	Tree-of-heaven	*Ailanthus altissima*	~20, 13	FG	G	G		2.4	Union at ground	Preserve
36	Siberian Elm	*Ulmus pumila*	~17, 18, 16	FG	G	G		2.4	Union at ground	Preserve
37	Manitoba Maple	*Acer negundo*	~15	F	F	F	26	2.4	Bowed (H), understory	Preserve
38	Black Walnut	*Juglans nigra*	45	G	G	FG		3.0		Remove
39	Green Ash	*Fraxinus pennsylvanica*	~13	P	P	P		2.4	Top of crown failed	Remove
40	Black Walnut	*Juglans nigra*	~35	F	FG	FG		2.4	Base of tree undermined by creek	Remove
41	Tree-of-heaven	*Ailanthus altissima*	~12	FG	G	G		2.4	Exposed roots	Remove
42	Sugar Maple	*Acer saccharum*	~11	G	G	G		2.4		Remove
43	Black Walnut	*Juglans nigra*	13	G	G	G		2.4		Remove
44	Little-leaf Linden	*Tilia cordata*	~11	FG	G	G		2.4	Crook (L)	Remove
45	Black Walnut	*Juglans nigra*	~40, 45	G	G	G		3.0	Union at 0.3 m	Remove
46	Green Ash	*Fraxinus pennsylvanica*	28	G	FG	FG		2.4	EAB infestation	Remove
47	White Mulberry	*Morus alba*	~10	F	F	F	20	2.4	Bowed (H), understory	Remove
48	White Mulberry	*Morus alba*	23	G	G	G		2.4		Remove
49	White Poplar	*Populus alba*	35	F	FG	FG		2.4	1 stem failed and lying on the ground	Remove
50	White Poplar	*Populus alba*	28, 25	FG	FG	FG		2.4	Union at ground, lean/bowed (M)	Remove
51	White Poplar	*Populus alba*	~25	G	FG	G		2.4	Bowed (L)	Remove
52	White Poplar	*Populus alba*	37	G	G	G		2.4	Bowed (L)	Remove
53	White Poplar	*Populus alba*	34	FG	FG	FG		2.4	Lean/bowed (L), broken branches (L)	Remove
54	White Poplar	*Populus alba*	45, 43	G	G	G		3.0	Union at ground	Remove
55	White Poplar	*Populus alba*	42	F	FG	FG		3.0	Lean/bowed (M) south, slightly undermined by creek, remove a lot of end weight over parking lot	Remove
56	Manitoba Maple	*Acer negundo*	10	FG	FG	FG		2.4	Lean (M) northwest	Remove
57	Manitoba Maple	*Acer negundo*	12	FG	FG	G		2.4	Lean (m) northwest	Remove
58	Black Walnut	*Juglans nigra*	70	G	FG	FG		4.2	Pruning wounds (L)	Remove
59	Tree-of-heaven	*Ailanthus altissima*	14	G	G	G		2.4		Remove
60	Tree-of-heaven	*Ailanthus altissima*	21, 21	G	G	G		2.4	Union at ground	Remove
61	White Mulberry	*Morus alba*	~18, 15	G	FG	G		2.4	Union at ground	Remove
62	Green Ash	*Fraxinus pennsylvanica*	16	F	F	F		2.4	Grapevine competition (H)	Remove
63	White Elm	*Ulmus americana*	37	G	G	G		2.4		Remove
64	White Poplar	*Populus alba*	10	G	G	G		1.8		Remove
65	Norway Maple	*Acer platanoides*	~12	G	G	G		2.4		Remove
66	White Poplar	*Populus alba*	~13	G	G	G		2.4		Remove
67	Green Ash	*Fraxinus pennsylvanica*	~10	G	G	G		1.8		Remove
68	White Poplar	*Populus alba*	~12	FG	G	G		2.4	Bowed (L)	Remove
69	Manitoba Maple	*Acer negundo*	~10	F	F	F	15	1.8	Lean (M), understory	Remove
70	Black Walnut	*Juglans nigra*	~15	G	G	G		2.4		Remove
71	Manitoba Maple	*Acer negundo*	~12	F	FG	FG		2.4	Lean (H) south	Remove
72	Green Ash	*Fraxinus pennsylvanica*	~11	F	F	F		2.4	EAB infestation	Remove

73	White Elm	*Ulmus americana*	17	G	G	G		2.4		Remove
74	Manitoba Maple	*Acer negundo*	~13	FG	FG	FG		2.4		Remove
75	White Elm	*Ulmus americana*	20	G	G	G		2.4		Remove
76	Green Ash	*Fraxinus pennsylvanica*	~11, 12	F	F	F		2.4	Union at ground, bowed (M), EAB infestation	Remove
77	White Poplar	*Populus alba*	~18	FG	G	G		2.4	Sweep/crook at flare (M), undermined by creek, lean (M) south	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 Die Back	(%)
DL	Dripline	(m)
mTPZ	Minimum Tree Preservation Zone	
EAB	Emerald Ash Borer	
~ = estimate, G=Good, F=Fair, P=Poor		