

August 03, 2017
[REVISED April 27, 2018]

ARBORIST REPORT
2441 Lakeshore Road West,
Oakville, Ontario

BACKGROUND

MHBC was retained to conduct a detailed tree assessment and arborist report for the existing trees pertaining to the Town of Oakville's Tree By-Laws within the property known as 2441 Lakeshore Road West in Oakville, Ontario.

PROCEDURE

An on-site review was conducted on May 30, 2017 and the findings noted herein refer to the condition of the trees on that date. The onsite review was carried out on a clear day when access to the site was not limited by adverse conditions.

None of the trees inventoried in this report were physically tagged in the field. The trees that were inventoried for this report have been fully assessed documenting tree number, species, ownership, condition (structure and health), and size using standard arboriculture procedures approved by the International Society of Arboriculture (I.S.A). The caliper of each tree was measured at 1.37 metres above existing grade using a caliper tape and recorded in centimetres as Diameter at Breast Height (DBH).

The on-site inventory of existing trees was carried out using the current survey of the property and relies on the accuracy of this survey. The inventory includes by-law trees within the site boundary, all trees within adjacent public boulevards, and all private trees within 6.0 metres of the site boundary as per Town of Oakville's Town Tree Protection By-law 2009-025, and Private Tree Protection By-law 2008-156.

This inventory is summarized graphically in the Tree Inventory Plan TI-1, which shall always be read in conjunction with this report and shall form part of this report.

The following rating system was used in describing the general health condition as well as the structure of the trees inventoried:

- Good: Indicates a condition of vigor and no major concerns.
- Fair: Indicates an adequate tree, which may have some minor issues.
- Poor: Indicates declining health, bad form, or other more serious issues.
- Dead: Indicates a dead tree that should be removed.

The following classifications were used in describing the ownership of each tree inventoried:

P	Private Client owned tree
N	Neighbor (private) owned tree
SN	Shared ownership with neighbor
M	Municipal tree on boulevard
M1	Municipal/ Public tree in park or open/naturalized area
SM	Shared ownership with Municipality / Public Agency

ASSUMPTIONS AND LIMITING CONDITIONS

- Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible and is assumed to be correct; however MHBC can neither guarantee nor be responsible for the accuracy of information provided by others.
- It is assumed that the properties are not in violation of any applicable codes, ordinances, statutes, or other governmental regulations.
- Unless otherwise required by law, possession of this report or a copy thereof does not imply right of publication or use for any purpose in whole or in part by any other than the person or company by whom it was commissioned.
- The use of excerpts from this report or alterations to this report, without the authorization of MHBC Planning will invalidate the entire report. This report may not be used for any purpose other than its intended purpose as outlined.
- Unless expressed otherwise: 1) information contained in this report covers only those items that were examined and reflect the condition of those items at the time of inspection; and 2) the inspection is limited to visual examination or accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies in the plants inventoried may not arise in the future.
- Fulfilling the recommendations made within this report is the sole responsibility of the property owner. MHBC will not be responsible for any occurrence resulting from the failure to follow such recommendations.
- The determination of ownership of any subject tree(s) is the responsibility of the owner and any civil or common-law issues, which may exist between property owners with respect to trees, must be resolved by the owner. The recommendation to remove or maintain any tree(s) does not grant authority to encroach in any manner onto adjacent private properties.

SUMMARY OF FINDINGS AND RECOMMENDATIONS

The following table summarizes the on-site trees subject to the Town of Oakville's Tree By-laws. We note that there were eight (8) privately owned trees within the site boundary and forty five (45) Town-owned trees located on adjacent public boulevards. The trees inventoried will be subject to tree protection per Town of Oakville standards as outlined on schedule 1 (See Figure 2). We have reviewed the proposal for the redevelopment of the site and we conclude that the trees inventoried within the site boundary are in conflict with the proposed development and would require removal.

Tree No.	Common Name	Botanical Name	Owner	DBH (CM)	Cond.	Structure	Canopy Diameter (m)	Comments	Recommendation
1	Spruce sp.	Picea sp.	P	27	F	F	2	Some deadwood in canopy	Remove - due to construction
2	Spruce sp.	Picea sp.	P	24	F	F	4	Some deadwood in canopy	Remove - due to construction
3	Silver Maple	Acer saccharinum	M	43,36	F	F-P	8	Co- dominant stems, light to moderate deadwood throughout tree.	Remove - due to construction
4	Norway Maple	Acer platanoides	P	29	F	F	7	Light deadwood throughout tree.	Remove - due to construction
5	Norway Maple	Acer platanoides	P	34	F	F	9	Some dieback at ends.	Remove - due to construction
6	Norway Maple	Acer platanoides	P	20	F-P	F-P	4	Dieback at crown, calloused wound at base, some evidence of decay.	Remove - due to construction
7	Norway Maple	Acer platanoides	P	37	F	F	10	Dieback in crown evident, Tree is beginning to decline.	Remove - due to construction
8	Norway Maple	Acer platanoides	M	31	F-P	F-P	7	Moderate to severe dieback in crown.	Remove - due to construction
9	Ash sp.	Fraxinus sp.	M	37	F-P	F-P	5.5	Tree struggling with EAB, appx 50% foliage dead, calloused wound at base.	Remove - due to construction

10	Ash sp.	Fraxinus sp.	M	20,20,11	P	P	3	Tree struggling with EAB, Co-dominant stems, City marked tree with 'X'.	Remove - due to construction/health
11	Ash sp.	Fraxinus sp.	M	25	P	F-P	6	Tree struggling with EAB, City marked tree with 'X'.	Remove - due to construction/health
12	Spruce sp.	Picea sp.	P	24	F	F	3	Light deadwood throughout tree.	Remove - due to construction
13	Norway Maple	Acer platanoides	M1	38	F	F	12	Light deadwood in canopy.	Retain
14	Norway Maple	Acer platanoides	M1	48	F	F	12	Light deadwood in canopy.	Retain
15	Norway Maple	Acer platanoides	P	33,32,28,29	F-P	F	11	Co-dominant stems, Moderate to severe deadwood, Canopy dieoff at tips, Tree is in decline.	Remove - due to construction
16	Norway Maple	Acer platanoides	P	36,35,16	P	F-P	9	Half of tree is dead, Other half has moderate to severe dieback in crown.	Remove - due to construction
17	Norway Maple	Acer platanoides	M	33	F-P	F	6	Moderate dieback at branch ends (approaching severe).	Remove - due to construction
18	Spruce sp.	Picea sp.	M	40	F	F	3.5	Moderate deadwood throughout tree.	Remove - due to construction
19	Spruce sp.	Picea sp.	M	45	F-P	F-P	5	Moderate to severe deadwood throughout tree, Leader broken off.	Remove - due to construction
20	Norway Maple	Acer platanoides	M	23	F-P	F	4	Moderate to severe dieoff.	Remove - due to construction

21	Ash sp.	Fraxinus sp.	M	34	F	F	7	Beginning signs of EAB, Tree has been treated.	Remove - due to construction
22	Amur Maple	Acer ginnala	M	26	F	F	4	Moderate dieback in crown.	Remove - due to construction
23	Norway Maple	Acer platanoides	M	33	F	F	7	Old trunk split is healing, moderate dieback.	Retain
24	Norway Maple	Acer platanoides	M	30	F-P	F-P	7	Central leader dead, severe dieback in lower crown, fruiting bodies present, mechanical damage at base attempting to heal.	Retain
25	Norway Maple	Acer platanoides	M	26	F	F	7	Some dieback beginning.	Retain
26	Ivory Silk Lilac	Syringa reticulata	M	4	F-P	F	2	Moderate dieback in canopy, signs of urban stress.	Retain
27	Norway Maple	Acer platanoides	M	32	F	F	6	Mild to moderate dieback, tree is in decline.	Retain
28	Honey Locust	Gleditsia triacanthos	M	48	F	F	13		Remove - due to construction
29	Honey Locust	Gleditsia triacanthos	M	5	F	F		Some deadwood in canopy	Remove - due to construction
30	Col. Blue Spruce	Picea pungens	M	27	F	F-P	3	Leader dead, remainder retains needles	Remove - due to construction
31	Spruce sp.	Picea sp.	M	23	F-P	F-P	3	Moderate deadwood throughout tree, suspect leader has broken in past and has re-established.	Remove - due to construction

32	Honey Locust	Gleditsia triacanthos	M	35	F	F	9	Moderate deadwood in canopy.	Remove - due to construction
33	Honey Locust	Gleditsia triacanthos	M	31	F	F	9	Moderate deadwood, some dieback at tips.	Remove - due to construction
34	Honey Locust	Gleditsia triacanthos	M	35	F-P	F	7	Moderate deadwood, moderate dieback in canopy.	Remove - due to construction
35	Honey Locust	Gleditsia triacanthos	M	32	F	F	9	Moderate deadwood, some dieback at tips.	Remove - due to construction
36	Spruce sp.	Picea sp.	M	23	F-P	F-P	3	Moderate to significant dieback throughout tree.	Remove - due to construction
37	Spruce sp.	Picea sp.	M	28	F-P	F-P	5	Broken leader, moderate to severe deadwood, exposed roots.	Remove - due to construction
38	Honey Locust	Gleditsia triacanthos	M	31	F-P	F	7	Moderate deadwood, dieback at tips.	Remove - due to construction
39	Honey Locust	Gleditsia triacanthos	M	35	F-P	F	8	Moderate deadwood, dieback at tips.	Remove - due to construction
40	Honey Locust	Gleditsia triacanthos	M	28	F	F	9	Moderate deadwood, dieback beginning in twigs.	Remove - due to construction
41	Honey Locust	Gleditsia triacanthos	M	35	F	F	8	Some deadwood, some dieback in twigs.	Remove - due to construction
42	Spruce sp.	Picea sp.	M	18	F	F-P	2.5	Moderate bow in trunk, moderate deadwood.	Remove - due to construction
43	Spruce sp.	Picea sp.	M	24	F	F	4	Moderate to heavy deadwood throughout tree.	Remove - due to construction

44	Honey Locust	Gleditsia triacanthos	M	29	F	F	9	Some dieback at tips.	Remove - due to construction
45	Honey Locust	Gleditsia triacanthos	M	28	F	F	7	Some dieback at tips.	Remove - due to construction
46	Honey Locust	Gleditsia triacanthos	M	27	F	F	8	Some dieback at tips, some deadwood.	Remove - due to construction
47	Honey Locust	Gleditsia triacanthos	M	31	F	F	8	Some dieback at tips.	Remove - due to construction
48	Spruce sp.	Picea sp.	M	29	D	D	2.5		Remove - due to construction
49	Spruce sp.	Picea sp.	M	28	F	F-P	6	Lower 2/3 branches are dead.	Remove - due to construction
50	Honey Locust	Gleditsia triacanthos	M	29	F	F	7	Moderate deadwood, dieback at tips.	Remove - due to construction
51	Honey Locust	Gleditsia triacanthos	M	36	F	F	7	Moderate deadwood, dieback at tips.	Remove - due to construction
52	Spruce sp.	Picea sp.	M	20	F	F	2	Some deadwood throughout tree.	Remove - due to construction
53	Spruce sp.	Picea sp.	M	22	F	F	1.5	Some deadwood throughout tree.	Remove - due to construction
54	Spruce sp.	Picea sp.	M	19	F	F	1.5	Some deadwood throughout tree.	Remove - due to construction

PHOTOGRAPHIC INVENTORY OF TREES



Trees #1 and #2 looking South



Tree #3 looking South



Trees #4 through #8 looking south east



Trees #10 through #12 looking south east



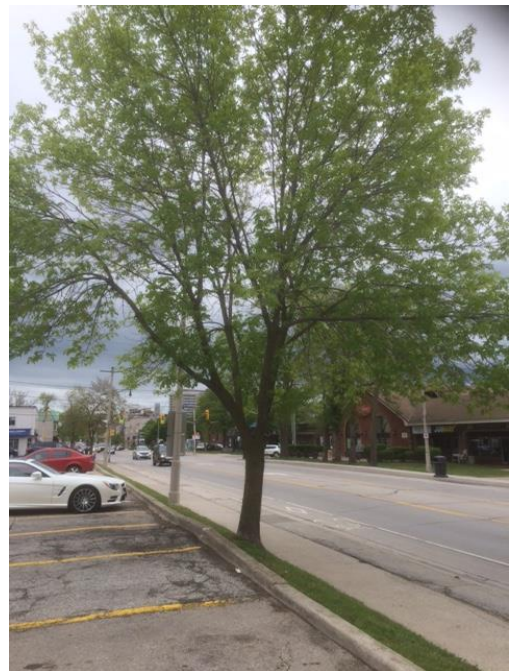
Trees # 13 and #14 looking South West



Trees #15 through 17 looking North West



Trees #18 through #20 looking North East



Tree #21 looking North East



Tree #22 looking North East



Trees #27 through #23 looking South East



Tree #28 looking West



Trees #29 through #45 looking South West



Trees #36 through #49 looking South West



Trees #48 through #54 looking South West



Trees #54 through #52 looking North East

TREE PROTECTION RECOMMENDATIONS

The following standards shall apply in order to protect the existing trees. Where the municipality enforces its own standards, those of the governing municipality shall supersede the recommendations contained herein. In all other instances, the following recommendations shall be treated as minimum standards for tree protection and retention.

1.0 ESTABLISH A TREE PROTECTION ZONE

The purpose of the tree protection zone is to prevent root damage, soil compaction and soil contamination during construction activities. Workers and machinery shall not disturb the tree protection zone in any way. In order to prevent access, the following recommendations are offered.

- Install tree protection hoarding as per Town of Oakville standards (See Figure 3 – Tree Protection Barriers).
- Allow no fill, equipment, supplies, or waste within the tree protection zone.
- Maintain the tree protection hoarding in good condition for the duration of construction.
- Tree protection hoarding is not to be removed until all construction activities have been completed.
- A TREE PROTECTION ZONE sign must be mounted on one side of the tree protection barrier for the duration of site construction. The sign should be a minimum 40cm x 60cm and made of white gator board or equivalent material. The sign must contain the same notes and be similar to the illustration shown below.

TREE PROTECTION ZONE (TPZ)

No grade change, storage of materials or equipment is permitted within this area. Tree protection barrier must not be removed without the written authorization of the Town of Oakville.

Report any contraventions to

Contact Name_____ **Tel. No.**_____

Unauthorized removal of the tree protection barrier or other contraventions may result in prosecution.

2.0 ROOT PRUNING

Where possible, hand dig areas closest to each tree to prevent any unnecessary tearing or pulling of roots. Removal of roots that are greater than 2.5 centimetres in diameter or roots that are injured or diseased should be performed as follows:

- Preserve the root bark ridge (similar in structure to the branch bark ridge). Directional Root Pruning (DRP) is the recommended technique and should be employed during hand excavation around tree roots. Roots are similar to branches in their response to pruning practices. With DRP, objectionable and severely injured roots are properly cut to a lateral root that is growing downward or in a favorable direction.
- All roots needing to be pruned or removed shall be cut cleanly with sharp hand tools, by a Certified Arborist.
- No wound dressings or pruning paint shall be used to cover the ends of each cut.
- All roots requiring pruning shall be cut using any of the following tools:

Large or small loppers, Hand pruners, Small hand saws, Woundscribers

- Avoid prolonged exposure of tree roots during construction - keep exposed roots moist and dampened with mulching materials, irrigation or wrap in burlap if exposed for longer than 4 hours.

3.0 FERTILIZATION AND IRRIGATION

The following measures are recommended:

- Fertilizer, if applied, must be a low nitrogen formula such as 5-30-30 to promote root growth rather than shoot growth.
- If construction occurs during July and / or August, roots must be irrigated during conditions of drought.

4.0 ESTABLISH MAINTENANCE PROGRAM

Pre-Construction:

- Prune all trees to remove any deadwood and obstruction prune as required.
- All trees to be preserved shall be protected with a tree protection barrier (See figure 2 – Tree Protection Barrier)
- Attach a filter cloth 600mm high to the construction side of the hoarding to act as a sediment control. Sediment control fencing per OPSD-219.110, and installed to the satisfaction of Urban Forestry.
- All supports and bracings used to secure barrier must be located outside of Tree Protection Zone.
- The applicant shall notify the Town of Oakville and the consulting Arborist to confirm that the tree protection barriers are in place.

During Construction:

- Irrigate tree preservation zones during drought conditions (June through September), in an attempt to reduce the effects of drought stress.
- Inspect the site every month to ensure that all tree protection fence / hoarding is in place and in good condition, inspect the trees to monitor condition.

Post-Construction:

- Prune crowns to remove any newly developed deadwood only. Do not remove any live growth.
- Inspect the trees three times per year (May, July, and September) to monitor condition for a minimum period of 2 additional years.

5.0 LANDSCAPING

Any landscaping completed within the TPZ, after construction is completed and tree protection fencing / hoarding has been removed, is to be carried out in such a way that it will not cause damage to any of the trees or their roots. The trees must be protected to the same standards listed earlier in this report, but without the use of tree protection fence or hoarding.

The following guidelines are recommended:

- **No grade changes** are permitted which include adding and/or removing soil.
- **No excavation** is permitted that can cause damage to the roots of the tree.
- **No heavy equipment** can be used to compact the soil within the tree preservation zone.
- Where possible, hard surface paving around trees to be protected should be constructed using permeable products such as interlocking stone. Areas to be paved must be hand dug when encroaching within the tree protection zone.

6.0 RECOMMENDATIONS

The recommendations in this section were established after review of the condition of the trees, analysis of the existing site, and review of the concept plan for the proposed development.

Trees #13 and 14

These two (2) publicly owned trees are situated on the parkland block on the northeast corner of Bronte and Lakeshore. These trees will require proper tree protection measures to ensure that they are not damaged or destabilized during shoring operations. Tree # 13 is approximately 2.8m from the property line and Tree # 14 is approximately 2.0m from the property line. The edge of the proposed underground garage slab will be approximately 1.15m from the property line, and the shoring will be within this area between the garage slab edge and the property line. The minimum TPZ for Tree # 13 appears as though it will be entirely unaffected, and it appears that there will be an encroachment of approximately 15% into the TPZ of Tree #14. We recommend that a certified arborist be present on site at the time of shoring excavation in order to guide root pruning as required and to ensure that the trees are not destabilized as a result of the excavation and any required root pruning.

CONCLUSION

Based on our investigations, we conclude that the on-site trees (1, 2, 4-7, 12, 15, and 16) will be in conflict with the proposed development and would require removal to accommodate the proposal. Municipally owned trees (3, 8-11, 17-22, and 28-54), will be affected by the proposal and are recommended for removal.

As requested, a valuation for all municipal trees to be retained is included as 'Appendix A' to this report, and is prepared using the trunk formula method per ISA protocol.

Should you have any questions regarding this report, please contact the undersigned directly.

Respectfully submitted,

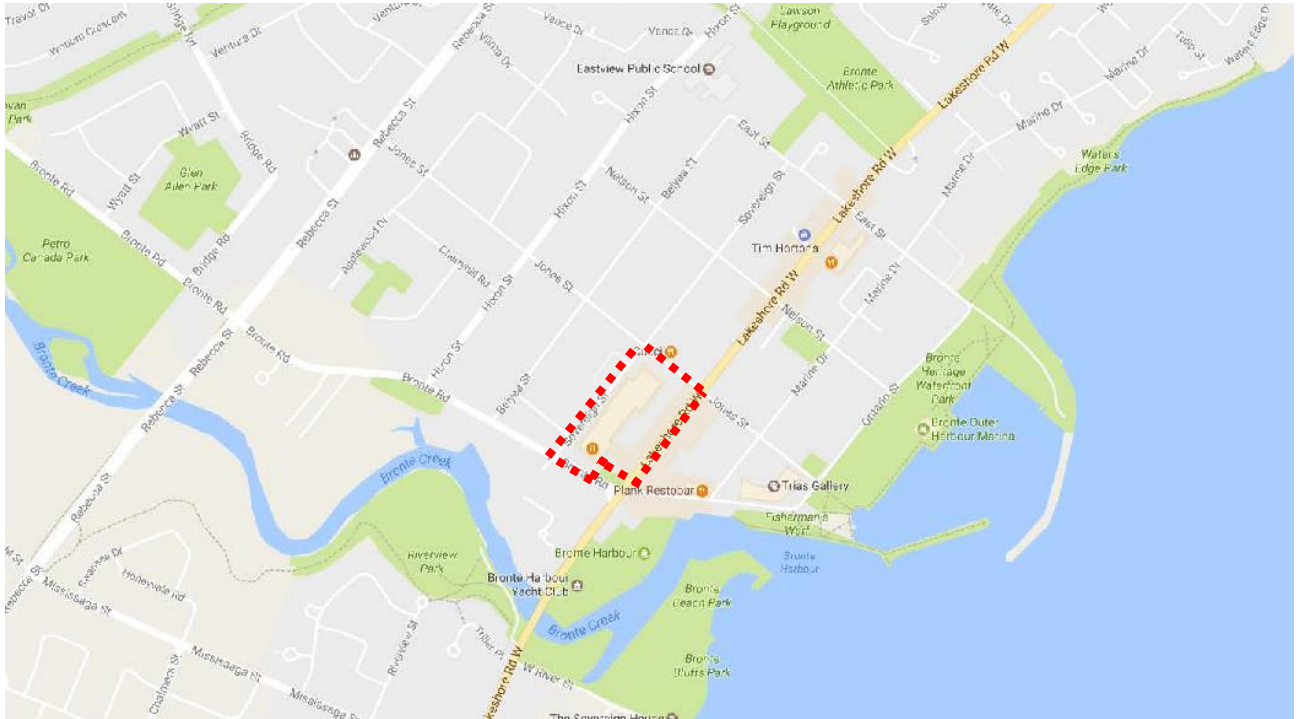
MHBC Planning, Urban Design & Landscape Architecture



Nick A. Miele BLA, OALA, CSLA, ISA
Senior Landscape Architect, Partner
ISA Certified Arborist No. ON-1251A

Figure 1: Key Plan

North direction is straight up, and the key plan is not to scale.



The location of the site is shown as a red dashed line. (Source: Google Maps)

Figure 2: Tree Protection Barrier

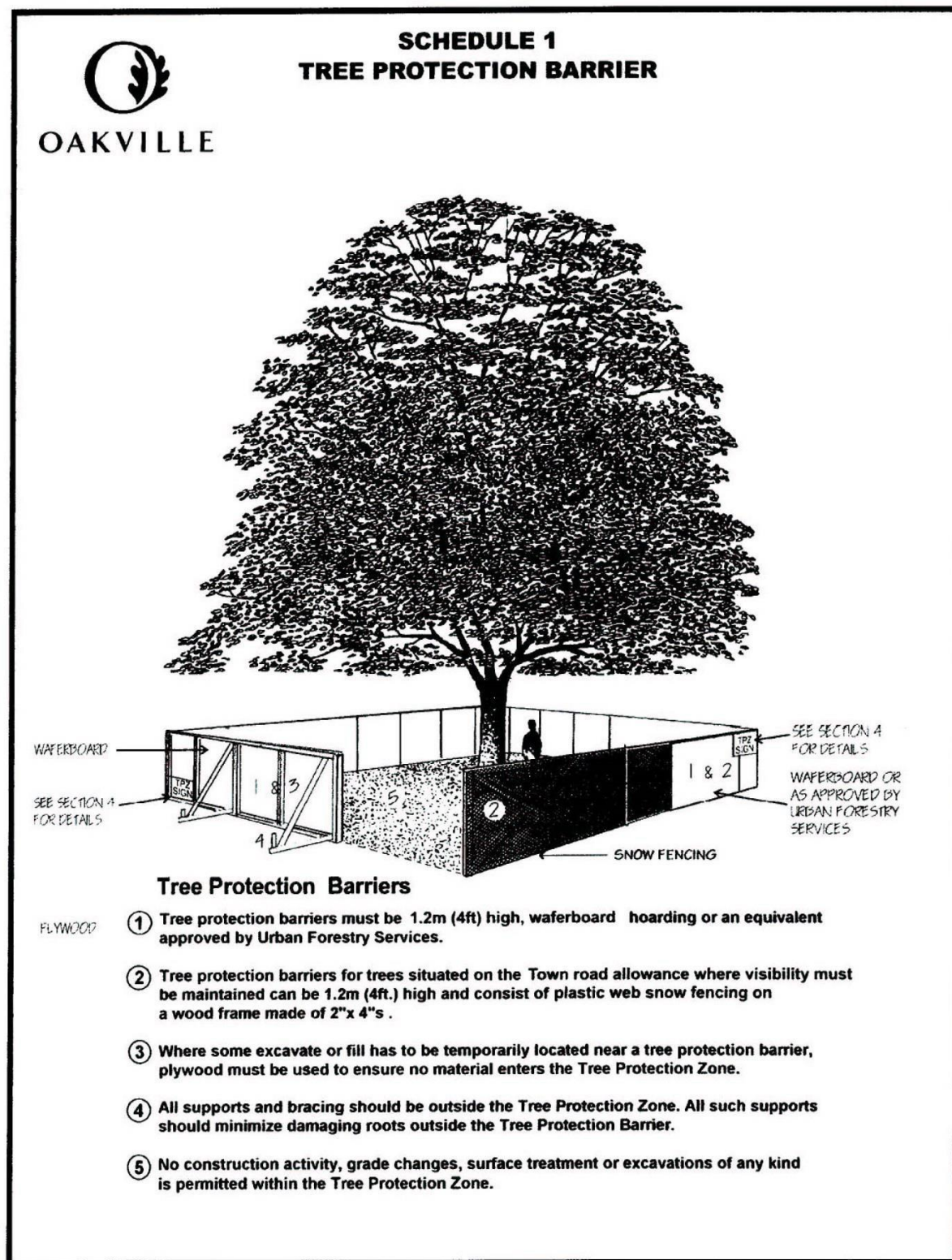
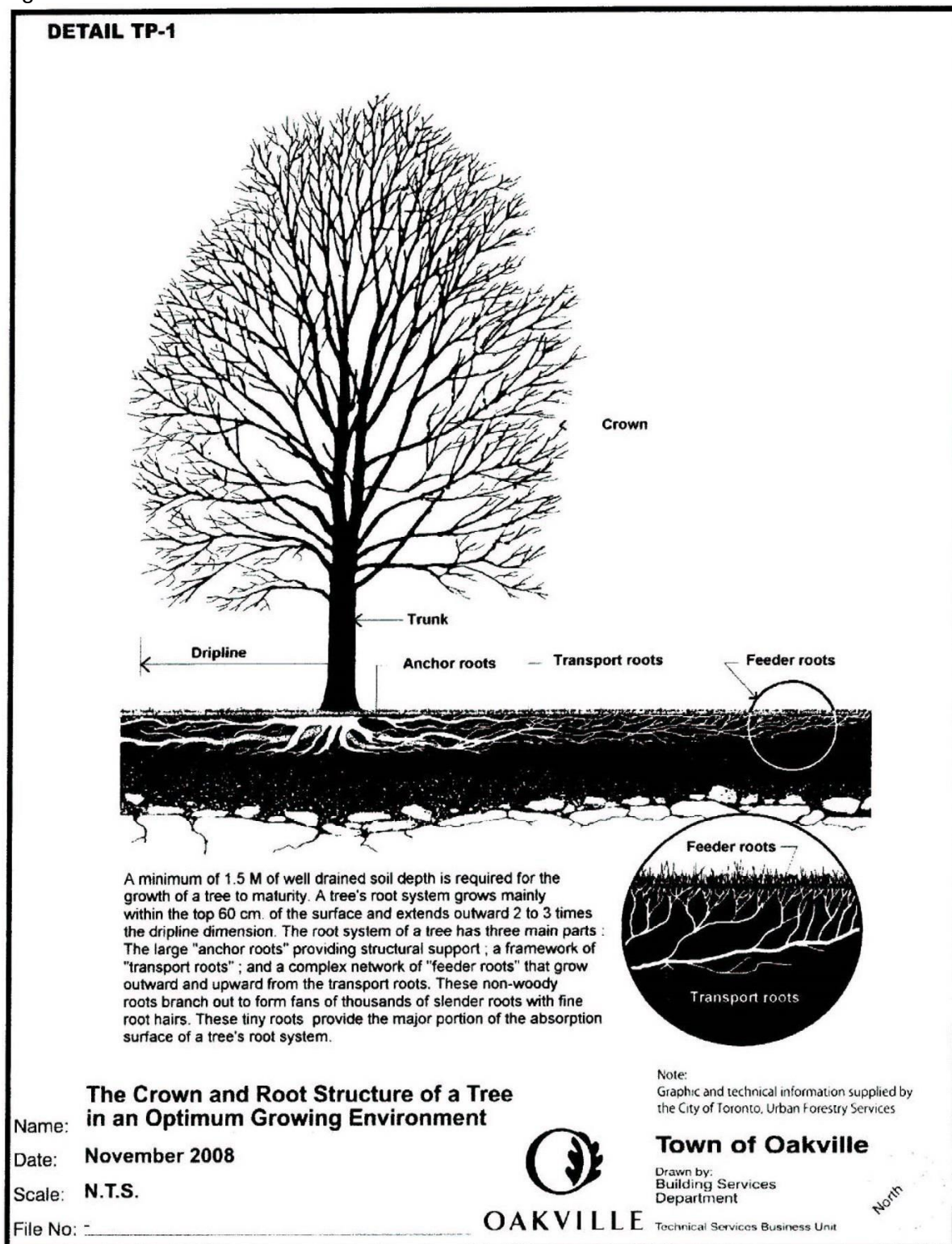


Figure 3: Crown and Root Structure



S:\DEPARTMENT\PARKS/CEM AND FORESTRY\THE CROWN AND ROOT STRUCTURE.CDR

Cover Plan for further information TC-1

Figure 4: Tree Appraisal (Trunk Formula Method) for Municipal Trees to be Retained

ITEM	DESCRIPTION	UNIT							
1	Species (Common Name):		Norway Maple	Norway Maple	Norway Maple	Norway Maple	Norway Maple	Ivory Silk Lilac	Norway Maple
	Key	#	13	14	23	24	25	26	27
2	Condition	%	65%	65%	50%	40%	50%	40%	50%
3	Trunk Diameter (cm)	DBH	38	48	33	30	26	4	32
	Calculation for Location								
	Site	%	75%	75%	75%	75%	75%	75%	75%
	Contribution	%	75%	75%	75%	75%	75%	75%	75%
	Placement	%	75%	75%	75%	75%	75%	75%	75%
4	Location (Average Factor)	%	75%	75%	75%	75%	75%	75%	75%
5	Species Rating	%	68%	68%	68%	68%	68%	77%	68%
6	Replacement Tree Size (Trunk Area)	cm2	38.47	38.47	38.47	38.47	38.47	38.47	38.47
7	Replacement Tree Cost	each	\$195.00	\$195.00	\$195.00	\$195.00	\$195.00	\$225.00	\$195.00
8	Installation Cost (1.5x Plant Cost)	each	\$292.50	\$292.50	\$292.50	\$292.50	\$292.50	\$337.50	\$292.50
9	Installed Tree Cost (#7+#8)	each	\$487.50	\$487.50	\$487.50	\$487.50	\$487.50	\$562.50	\$487.50
10	Unit Tree Cost	each	\$12.67	\$12.67	\$12.67	\$12.67	\$12.67	\$14.62	\$12.67
11	Appraised Trunk Area - for trunk diameter 75cm or less ($d^2 \times 0.785$); for trunk diameter over 75cm ($-0.33d^2 + 176(d) - 7020$)	cm2	1133.54	1808.64	854.87	706.50	530.66	12.56	803.84
12	Appraised Tree Trunk Increase (#11-#6)	cm2	1095.07	1770.17	816.40	668.03	492.19	-25.91	765.37
13	Basic Tree Cost (#12x#10+#9)	each	\$14,364.46	\$22,919.47	\$10,833.03	\$8,952.92	\$6,724.64	\$183.65	\$10,186.43
14	Appraised Value (#13x#5x#2X#4)	each	\$4,761.82	\$7,597.80	\$2,762.42	\$1,826.40	\$1,714.78	\$42.42	\$2,597.54
15	Final Appraised Value (if #14 is \$5000 or more, it is rounded to the nearest \$100; if it is less, it is rounded to the nearest \$10)	each	\$4,760	\$7,600	\$2,760	\$1,830	\$1,710	\$40	\$2,600

Total Appraisal		\$21,300.00
-----------------	--	-------------