

TREE ASSESSMENT REPORT

12433 DILLON DRIVE
TECUMSEH, ONTARIO

DRAFT

Prepared

NOVEMBER, 2019

Prepared by

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**DEPENDENT ON FINAL SITE PLAN AND
GRADING/SERVICING PLAN**

**PURPOSE OF THIS PRELIMINARY
REPORT IS TO INFORM ALL PARTIES OF
THE PROPOSED TREE PRESERVATION
STRATEGY**



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RKLA PROJECT NO. 19-231

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INTRODUCTION

Ron Koudys Landscape Architects Inc. (RKLA) was retained to conduct a tree inventory and assessment in conjunction with site plan development of the proposed development at 12433 Dillon Drive in Tecumseh, Ontario.

This report details the tree inventory process, quantifies required tree removals, outlines the potential impacts of the proposed development on trees to be preserved, notes relevant tree related legislation, and makes recommendations for construction impact mitigation. RKLA worked closely with the design team to find design solutions that preserve as many quality trees as possible.

This report should be read in conjunction with all other servicing, grading, and landscaping plans that have been prepared for the project.

EXECUTIVE SUMMARY

General Summary

No rare, endangered, or unusual species were observed on site. All observed trees are common to the geographic area and are typical of the current and neighbouring land uses.

There are six (6) immature Kentucky Coffee Trees on the property, which are listed as 'threatened' under the Endangered Species Act (2007) that conflict with the proposed development. These trees are to be transplanted within the site OR to a suitable nearby site following regulations as set out by SARO (Species at Risk Ontario) and any specific conditions prescribed within the Permit for Species Protection or Recovery that is being obtained in relation to this project.

There is a row of seven (7) mature Silver Maples within the subject site near the southern edge of the property that provide ecological and aesthetic benefits to the community. Construction setbacks from these trees were established and recommended by the project consulting arborist to ensure that structural stability and tree vitality are not compromised.

There are eight (8) boundary trees that are recommended for removal. Written consent from the adjoining land owners is required to remove these trees prior to removal.

Summary of findings

Total quantity of trees inventoried	94
Trees to be retained	38
Trees to be transplanted	6
Trees to be removed - from subject site	43
Trees to be removed - boundary trees	7
Total quantity of vegetation units inventoried	7
Vegetation units to be preserved	3
Vegetation units to be removed	4

RKLA recommends the following:

1. Acquire written confirmation from applicable neighbouring land owners for consent to remove noted boundary trees.
2. Root pruning for trees 25 and 30 to 36 to be executed prior to construction.
3. Tree preservation fencing is to be installed prior to any grading or site work as per the details and layout on the tree preservation drawing.
4. Tree preservation fencing is to be maintained in good condition and effective for the duration of construction until all construction activity is complete or as per the project arborist or landscape architect.
5. Removal of interior trees where there is conflict with construction or individuals are in poor health/condition.
6. Preservation of all trees on private property beyond the subject site.
7. Transplanting of six Kentucky Coffee Trees as per the conditions of a permit issued by the Ministry of the Environment, Conservation and Parks (MECP). Note that an application for permit will be submitted by RKLA to the MECP and is expected within 90 days of submission.

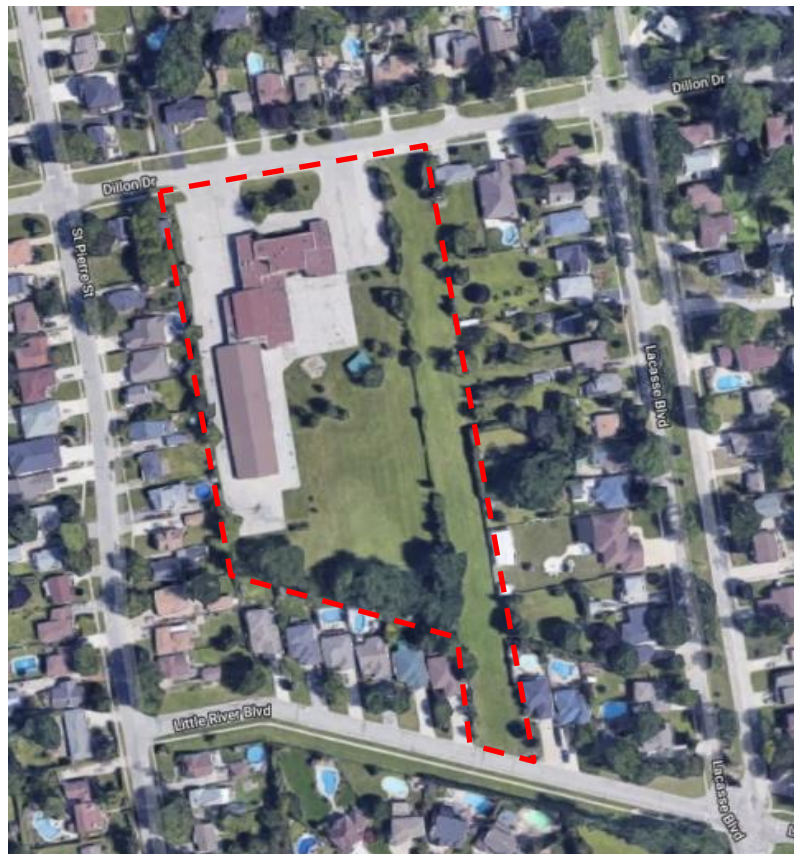
Note that this arborist report has been prepared using the latest drawings and information provided by the client. Any subsequent design or site plan changes affecting trees may require revisions to this report. Any new information or drawings are to be provided to RKLA prior to report submission to planning authorities.

SUBJECT SITE & SCOPE OF SERVICE

The subject site is a former school site at 12433 Dillon Drive, Tecumseh, Ontario.

The northwest portion of the site is largely asphalt and remnants of the previously existing building. The southeast portion of the site is open lawn with scattered trees. Most of the trees on the site are located along the perimeter of the property boundary, along an existing fence line that runs north south through the site and associated with the existing parking lot.

Our firm was instructed to undertake an assessment of the existing trees within the subject site and 3m beyond to prepare a preservation strategy and removal plan.



Subject site – screen shot from Google Maps.
Scope of inventory noted by red dashed line NTS.

Tree Assessment Method

On October 7, 2019, Michelle Peeters, ISA certified arborist On-2129A, undertook an assessment of the existing trees on the above noted project site with respect to tree health and preservation. A comprehensive assessment of all existing trees with a DBH ≥ 10 cm within the identified scope was undertaken with consideration for the proposed development and associated site work. Significant hedges or vegetation units were also identified. A topographic survey prepared by Clarke Surveyors Incorporated was used as the basis for the field work.

Trees and vegetation units were not tagged in the field. Each tree and vegetation unit was assigned a number which is identified in the table below and on the tree preservation plan. Tree identification numbers include 1 to 94, and vegetation unit identification numbers include V1 to V9. See the tree preservation plan (Appendix C) for the locations of each of the inventoried trees and vegetation units.

The following information was recorded for each tree:

- Species
- Diameter at breast height (DBH) (centimeters)
- Crown radius (meters)
- Crown Condition (overall general vigour of crown)
- Structural Condition (good, fair, poor)
- General Comments

Trees were assessed following accepted arboricultural techniques and best practices using a limited visual inspection that included a 360 degree visual examination of the above-ground parts of each tree for structural defects (including cavities and wounds), scars, external indicators of internal decay, evidence of insect presence, discoloured or deformed foliage, canopy and root distribution, and the overall condition of the tree. Evaluation of tree health was based on visible tree health indicators including live buds, foliage condition, deadwood, structural defects, form, and signs of disease or insect infestation. Quantitative health assessments included in the inventory are explained here:

Crown Condition Classification

- 5 Healthy: less than 10% crown decline
- 4 Slight decline: 11% - 30% crown decline
- 3 Moderate decline: 31% - 60% crown decline
- 2 Severe decline: 61% - 90% crown decline
- 1 Dead

Structural Condition Classification

Good: Defects if present are minor (e.g. twig dieback, small wounds); defective tree part is small (e.g. 5-8 cm diameter limb) providing little if any risk.

Fair: Defects are numerous or significant (e.g. dead scaffold limbs); defective parts are moderate in size (e.g. limb greater than 5-8 cm in diameter).

Poor: Defects are severe (e.g. trunk cavity in excess of 50%); defective parts are large (e.g. majority of crown).

Dead: Tree exhibits no signs of life.

Critical Root Zones and Tree Preservation Barriers

The critical root zone of a tree is the portion of the root system that is the minimum necessary to maintain tree vitality and stability. Critical root zones are commonly prescribed by municipal bylaws based solely on DBH and/or drip line, and are typically expressed as a circular shape around the tree. These guidelines are informative; however, there are a number of other factors that must be considered when establishing a critical root zone.

Factors that inform location and extent of a tree preservation fencing to protect the critical root zone include: species tolerance to root loss and other construction impacts (as established by authoritative resources and professional experience), tree trunk size (DBH), tree health and vigour, structural condition, landscape context, soil type, moisture availability, topography, ground cover, canopy size and balance, current physical root restrictions, visible root arrangement, relationship to neighbouring trees, relationship between tree and proposed construction, type of proposed construction, etc.

Critical root zones will be protected in the field with tree preservation barriers.

INVENTORY DATA AND PRESERVATION/REMOVAL RECOMMENDATIONS

The following recommendations are based on a combination of tree health/condition and requirements of the site and grading plan.

Grey indicates recommended removal.

Green indicates recommended transplanting.

Orange indicates boundary tree recommended for removal.

GENERAL INFORMATION				SIZE		HEALTH			RECOMMENDATION		
ID #	BOTANICAL NAME	COMMON NAME	LOCATION	DBH (cm)	CANOPY RADIUS (m)	CROWN CONDITION	STRUCTURAL CONDITION	COMMENTS	PROPOSED ACTION	RATIONALE	REQUIREMENTS
1	<i>Acer rubrum</i>	Red Maple	within subject site	6	1.5	4	poor	Interveinal chlorosis, severe mechanical damage at base	remove	condition	none
2	<i>Pinus nigra</i>	Austrian Pine	within subject site	35	4	5	good	Bowed trunk, wood pecker damage, limbed up 3m	remove	construction	none
3	<i>Gymnocladus dioica</i>	Kentucky Coffeetree	within subject site	11	3	5	good	1 low scaffold branch	transplant	construction conflict species at risk 'threatened'	permit & documentation of transplanting required by the MECP
4	<i>Acer saccharinum</i>	Silver Maple	within subject site	46	7	5	good	Minor epicormic growth, loose crown	remove	construction	none
5	<i>Acer saccharinum</i>	Silver Maple	within subject site	54	9	5	good	Loose crown	remove	construction	none
6	<i>Pinus nigra</i>	Austrian Pine	within subject site	20	4	5	good		remove	construction	none
7	<i>Juniperus spp</i>	Juniper	Lot 18	3 < 10	3	5	fair	Multistem 3, some branches leaning into site	preserve	beyond subject site	
8	<i>Acer negundo</i>	Manitoba Maple	Lot 18	-20, 12, 10	3	5	hazard	Multistem 3, tree is emerging from house foundation, fungal growth at base	preserve	beyond subject site	
9	<i>Acer negundo</i>	Manitoba Maple	Lot 19	-18, 10	3	5	poor	Multistem 2, epicormic growth	preserve	beyond subject site	
10	<i>Acer negundo</i>	Manitoba Maple	Lot 19	-20	3	5	fair	Lean south, epicormic growth	preserve	beyond subject site	

11	<i>Acer negundo</i>	Manitoba Maple	Lot 19	-30, 12	3	5	poor	Multistem 2, one stem growing into fence, topped, epicormic growth, large cavity at prune cut	preserve	beyond subject site	
12	<i>Acer negundo</i>	Manitoba Maple	within subject site	-40	5	5	poor	one-sided, lean (east), growing into fence, epicormic growth	remove	condition	none
13	<i>Misc Deciduous Tree</i>	Misc Deciduous tree	Lot 20	-15	3	5	good	Low crown	preserve	beyond subject site	
14	<i>Acer negundo</i>	Manitoba Maple	within subject site	-60	5	5	poor	large dead branch pruned off, significant cavities and rot, canopy heavy towards subject site	remove	condition	none
15	<i>Acer negundo</i>	Manitoba Maple	boundary tree - subject site and Lot 23	-60, 50	7	3	poor	Multistem 2, significant lean (north), dead branches, dead leader, epicormic growth	remove	condition	yes - consent from adjacent land owner required
16	<i>Acer negundo</i>	Manitoba Maple	boundary tree - subject site and Lot 23	15, 10, 9, 7, 7, 6	4	3	poor	Multistem 7, dead branches, hollow rotting cavity at base with frass	remove	condition	yes - consent from adjacent land owner required
17	<i>Misc Deciduous Tree</i>	Misc Deciduous tree	boundary tree - subject site and Lot 24	-30, 30, 20, 20	6	3	poor	Multistem 4, die back, significant dead branches, Virginia Creeper in tree	remove	condition	yes - consent from adjacent land owner required
18	<i>Acer negundo</i>	Manitoba Maple	boundary tree - subject site and Lot 24	-80	8	4	fair	Ivy, pruned limbs, epicormic growth, canopy heavy towards subject site	remove	condition	yes - consent from adjacent land owner required
19	<i>Morus alba</i>	Mulberry	within subject site	-10	3	4	fair	Shrubby habit, several prune cuts, low primary union	remove	condition	none
20	<i>Acer negundo</i>	Manitoba Maple	boundary tree - subject site and Lot 27	-80, 60, 25	8	4	poor	Multistem 3, one stem leaning, epicormic growth, base of tree damaged due to growing through fence	remove	condition	yes - consent from adjacent land owner required
21	<i>Acer negundo</i>	Manitoba Maple	boundary tree - subject site and Lot 27	-30	7	4	hazard	lean, growing into fence causing major structural defect	remove	condition	yes - consent from adjacent land owner required
22	<i>Acer negundo</i>	Manitoba Maple	boundary tree - subject site and Lot 27	35, 30	5	4	poor	Multistem 2, wide root flare, epicormic growth	remove	condition	yes - consent from adjacent land owner required
23	<i>Populus tremuloides</i>	Trembling Aspen	Lot 28	-40	6	5	good	Low branched	preserve	beyond subject site	
24	<i>Picea abies</i>	Norway Spruce	boundary tree - subject site and Lot 28	-25	3	5	good	Right next to hydro pole, limbed up 4m	preserve	boundary tree	
25	<i>Acer saccharinum</i>	Silver Maple	within subject site	143	13	4	fair	Low primary union with multiple codominant leaders, fused branches, included bark at several unions, minor rot where large limb was removed, loose crown, epicormic growth, open wounds with wound wood near base	remove	construction impacts	none
26	<i>Gymnocladus dioica</i>	Kentucky Coffeetree	within subject site	9	2	5	good	Minor basal damage	transplant	construction conflict species at risk 'threatened'	permit & documentation of transplanting required by MECP
27	<i>Gleditsia triacanthos inermis</i>	Honey Locust	within subject site	12	3	5	good	Wide root flare on one side, undercut root flare on one side, recent prune cuts from removed suckers from base	remove	construction	none
28	<i>Gymnocladus dioica</i>	Kentucky Coffeetree	within subject site	9	2	5	good	Minor basal damage	transplant	construction conflict species at risk 'threatened'	permit & documentation of transplanting required by MECP

29	<i>Gymnocladus dioica</i>	Kentucky Coffeetree	within subject site	8	2	5	fair	Significant basal damage - healing	transplant	construction conflict species at risk 'threatened'	permit & documentation of transplanting required by MECP
30	<i>Acer freemanii</i>	Freeman Maple	within easement between subject site and Lot 320	-35	5	5	good	Tar spot	preserve	beyond subject site	
31	<i>Acer saccharinum</i>	Silver Maple	within subject site	75	11	5	good	Loose crown, weak attachments	preserve	limited construction impacts anticipated	
32	<i>Acer saccharinum</i>	Silver Maple	within subject site	89	11	5	fair	Weak attachments, wide root flare	preserve	limited construction impacts anticipated	
33	<i>Acer saccharinum</i>	Silver Maple	within subject site	90	11	5	good	Codominant leaders with included bark, snag, canopy heavy south	preserve	limited construction impacts anticipated	
34	<i>Acer saccharinum</i>	Silver Maple	within subject site	60	10	5	good	Low scaffold branches, wide root flare	preserve	limited construction impacts anticipated	
35	<i>Acer saccharinum</i>	Silver Maple	within subject site	55	11	5	fair	Scaffold branch has taken apical dominance	preserve	limited construction impacts anticipated	
36	<i>Acer saccharinum</i>	Silver Maple	within subject site	62	10	4	good	Epicormic growth emerging from basal wound, wide root flare, epicormic growth	preserve	limited construction impacts anticipated	
37	<i>Gymnocladus dioica</i>	Kentucky Coffeetree	within subject site	6	2	5	good	Basal damage - healing	transplant	construction conflict species at risk 'threatened'	permission & documentation of transplanting required by MECP
38	<i>Gleditsia triacanthos inermis</i>	Honey Locust	within subject site	7	2.5	5	good	Basal damage - healing, low branched	remove	construction	none
39	<i>Gleditsia triacanthos inermis</i>	Honey Locust	within subject site	7	3	5	good	Basal damage - healing, low branched	remove	construction	none
40	<i>Acer platanoides</i>	Norway Maple	within easement between subject site and Lot 316	10	3	5	good	Crooky trunk	preserve	beyond subject site	
41	<i>Acer freemanii</i>	Freeman Maple	within easement between subject site and Lot 315	30	5	5	good	Low primary union	preserve	beyond subject site	
42	<i>Pinus strobus</i>	White Pine	within easement between subject site and Lot 315	-15	2	5	good	Branched to grade	preserve	beyond subject site	
43	<i>Picea pungens var. glauca</i>	Colorado Blue Spruce	within easement between subject site and Lot 315	-20	2	5	good	Branched to grade	preserve	beyond subject site	
44	<i>Ulmus spp.</i>	Elm	within subject site	-150	10	5	poor	3 leaders, trunk grown through fence, rot at base	remove	construction	none
45	<i>Acer saccharinum</i>	Silver Maple	within subject site	-20	3	5	fair	Epicormic growth, tar spot	remove	construction	none

46	<i>Juniperus spp</i>	Juniper	within subject site	-12, 10, 10, 9	2	5	fair	Multistem 4, vines climbing, branched to grade	remove	construction	none
47	<i>Morus alba</i>	Mulberry	within subject site	-12, 12	4	5	fair	Multistem 2, suppressed, epicormic growth	remove	construction	none
48	<i>Morus alba</i>	Mulberry	within subject site	-15, 12, 10, 10	4	5	fair	Multistem 4, vines climbing	remove	construction	none
49	<i>Malus spp</i>	Apple	within subject site	9 < 10	4	5	fair	Multistem shrubby habit, growing into fence	remove	construction	none
50	<i>Morus alba</i>	Mulberry	within subject site	-15	3	5	fair	Low branched	remove	construction	none
51	<i>Morus alba</i>	Mulberry	within subject site	12, 5, 5, 5	4	4	poor		remove	construction	none
52	<i>Morus alba</i>	Mulberry	within subject site	8, 7	4	4	fair		remove	construction	none
53	<i>Platanus occidentalis</i>	Sycamore	within subject site	60	6	5	good	Slight lean to north, low branched, good form	remove	construction	none
54	<i>Juniperus spp</i>	Juniper	within subject site	-20	2	5	good	Branched to grade	remove	construction	none
55	<i>Acer freemanii</i>	Freeman Maple	within subject site	15	2	5	fair	Tar spot, included bark, basal damage, poor prune cuts	remove	construction	none
56	<i>Gymnocladus dioica</i>	Kentucky Coffeetree	within subject site	12	3	5	good	Basal damage - healing	transplant	construction conflict species at risk 'threatened'	permit & documentation of transplanting required by MECP
57	<i>Acer freemanii</i>	Freeman Maple	within subject site	22	5	5	good	Tar spot	remove	construction	none
58	<i>Pinus nigra</i>	Austrian Pine	within subject site	33	5	5	good	Wood pecker damage, limbed up 5m	remove	construction	none
59	<i>Celtis occidentalis</i>	Hackberry	within subject site	21	3.5	5	fair	Tight union at one low scaffold branch	remove	construction	none
60	<i>Acer saccharinum</i>	Silver Maple	within subject site	42	6	4	fair	Open basal wound - healing, tar spot, loose crown	remove	construction	none
61	<i>Acer saccharinum</i> 'Laciniatum'	Cutleaf Silver Maple	within subject site	15, 12, 10	4	5	fair	Multistem 3, tar spot	remove	construction	none
62	<i>Acer saccharinum</i>	Silver Maple	within subject site	31	4.5	5	fair	Tar spot, dense crown	remove	construction	none
63	<i>Acer saccharinum</i>	Silver Maple	within subject site	30	5	5	fair	Tar spot, dense crown	remove	construction	none
64	<i>Acer saccharinum</i>	Silver Maple	within subject site	15, 10, 4	2.5	5	fair	Multistem 3, epicormic growth, tar spot, basal damage	remove	construction	none
65	<i>Acer saccharinum</i>	Silver Maple	within subject site	15	3	5	fair	Tar spot, epicormic growth	remove	construction	none
66	<i>Juniperus spp</i>	Juniper	within subject site	15	2	5	fair	Growing into fence, branched to grade	remove	construction	none
67	<i>Juglans nigra</i>	Black Walnut	within subject site	30	5	5	poor	Old prune cuts	remove	construction	none
68	<i>Tilia americana</i>	Basswood	within subject site	10<10	4	5	poor	Multistem, scrubby form	remove	construction	none
69	<i>Morus alba</i>	Mulberry	within subject site	15	4	4	fair		remove	construction	none
70	<i>Acer negundo</i>	Manitoba Maple	within subject site	-18, 12, 10	4	5	poor	Multistem 3, basal rot	remove	construction	none
71	<i>Fraxinus spp</i>	Ash	within subject site	-13, 12, 12, 11, 10, 10	4	5	poor	Multistem 5, all stems are epicormic and emerging around a dead stump, bark cracking and some Emerald Ash Borer exit holes visible	remove	construction	none
72	<i>Thuja occidentalis</i> 'Nigra'	Black Cedar	boundary tree - City ROW and Lot 293	-30, 30, 30	3	5	good	Multistem 3, low branched	preserve	beyond subject site	
73	<i>Picea pungens</i> var. <i>glauca</i>	Colorado Blue Spruce	within subject site	-40	3	5	good	Minor dead lower branches, branched to grade	remove	construction - proposed water line	none

74	<i>Picea pungens</i> var. <i>glauca</i>	Colorado Blue Spruce	within subject site	-35	3	4	good	Limbed up 2m, rhizosphaera needlecast	remove	construction - proposed water line	none
75	<i>Juniperus</i> spp	Juniper	within subject site	-15	1	4	good	Minor browning needles, dense growth habit	remove	construction - proposed water line	none
76	<i>Acer negundo</i>	Manitoba Maple	boundary tree - subject site, Lot 291 and 290	12, 11, 10, 10, 10	4	5	fair	Multistem 5, union at grade	preserve	no construction impacts anticipated	
77	<i>Quercus robur</i> 'fastigiata'	Columnar English Oak	Lot 291	-8	0.75	5	good	Typical form	preserve	beyond subject site	
78	<i>Carya ovata</i>	Shagbark Hickory	Lot 290	-30	5	5	good	Balanced crown, excellent specimen	preserve	beyond subject site	
79	<i>Picea pungens</i> var. <i>glauca</i>	Colorado Blue Spruce	Lot 289	-30	3	4	fair	Codominant leaders, sparse crown, no root flare, branched to grade	preserve	beyond subject site	
80	<i>Picea pungens</i> var. <i>glauca</i>	Colorado Blue Spruce	Lot 289	-35, 15	3.5	5	fair	Branched to grade	preserve	beyond subject site	
81	<i>Acer negundo</i>	Manitoba Maple	within subject site	58	6	4	poor	Extensive epicormic growth, weak attachment and cavity at primary union	remove	condition and construction	none
82	<i>Acer negundo</i>	Manitoba Maple	boundary tree - Lot 288 and 287	-35	5	4	poor	Bend/lean east, extensive epicormic growth	preserve	beyond subject site	
83	<i>Acer negundo</i>	Manitoba Maple	Lot 286	-30, 25	5	5	fair	Multistem 2, balanced crown	preserve	beyond subject site	
84	<i>Thuja occidentalis</i> 'Nigra'	Black Cedar	Lot 280	-20	1.5	4	fair	Lean east	preserve	beyond subject site	
85	<i>Thuja occidentalis</i> 'Nigra'	Black Cedar	Lot 280	-15	1.5	4	fair	Lean south east	preserve	beyond subject site	
86	<i>Acer negundo</i>	Manitoba Maple	Lot 280	-30	3	4	fair	Lean south east, epicormic growth, old rotting stump at base	preserve	beyond subject site	
87	<i>Thuja occidentalis</i> 'Nigra'	Black Cedar	Lot 280	-20	2	4	fair	Ash shrub emerging from base	preserve	beyond subject site	
88	<i>Acer platanoides</i> 'Royal Red'	Royal Red Norway Maple	Lot 279	-25	4	5	good	Low branched	preserve	beyond subject site	
89	<i>Acer freemanii</i>	Freeman Maple	City ROW	-20	3	5	fair	Low primary union with included bark, ascending scaffold branches	preserve	beyond subject site	
90	<i>Acer freemanii</i>	Freeman Maple	boundary tree - subject site and Lot 315	-20	3	5	good	Elevated crown, tar spot, in garden	preserve	no construction impacts anticipated	
91	<i>Acer freemanii</i>	Freeman Maple	boundary tree - subject site and Lot 315	-15	3	5	good	Ascending scaffold branches, in garden	preserve	no construction impacts anticipated	
92	<i>Acer platanoides</i>	Norway Maple	boundary tree - subject site and Lot 315	-9, 9, 8, 7	3	5	fair	Multistem 4, low primary union, in garden	preserve	no construction impacts anticipated	
93	<i>Acer freemanii</i>	Freeman Maple	boundary tree - subject site and Lot 315	-40	5	5	good	Included bark at primary union, west of existing deciduous hedge	preserve	no construction impacts anticipated	
94	<i>Acer negundo</i>	Manitoba Maple	boundary tree - subject site and Lot 315	-40	6	4	fair	Epicormic growth, thin crown, west of existing deciduous hedge	preserve	no construction impacts anticipated	

Vegetation Units											
V1	<i>Juniperus spp</i>	Juniper	within subject site	avg 8	1.5	5	fair	hedge near Lot 22	remove	construction	none
V2	<i>Acer platanoides</i> <i>Fraxinus spp</i> <i>Tilia americana</i> <i>Acer negundo</i> <i>Ulmus spp</i> <i>Morus alba</i> <i>Rosa spp</i> <i>Rhus typhina</i> <i>Forsythia spp</i>	Norway Maple Ash Basswood Manitoba Maple Elm Mulberry Shrub Rose Staghorn Sumac Forsythia	within subject site	n/a	n/a	4	fair	Scrubby mass of immature trees and shrub understory along existing fence line	remove	construction	none
V3	<i>Acer platanoides</i> <i>Fraxinus spp</i> <i>Tilia americana</i> <i>Acer negundo</i> <i>Ulmus spp</i> <i>Morus alba</i> <i>Rhus typhina</i> <i>Juniperus spp</i>	Norway Maple Ash Basswood Manitoba Maple Elm Mulberry Staghorn Sumac Juniper	within subject site	n/a	n/a	4	fair	Scrubby mass of immature trees and shrub understory along existing fence line	remove	construction	none
V4	<i>Thuja occidentalis</i> <i>'Nigra' (hedge)</i>	Black Cedar (hedge)	boundary hedge between Lot 293 and 292	-10 - 15	2	5	good	4-5 individuals	preserve	beyond subject site	
V5	<i>Thuja occidentalis</i> <i>'Nigra' (hedge)</i>	Black Cedar (hedge)	boundary hedge between Lot 287 and 286 and subject site (minor)	2 - 15	1 - 3	5	good	Approx. 15 individuals, 1-2 western most individuals within subject site	preserve - western most <u>may</u> need to be removed	mostly beyond subject site	
V6	<i>Thuja occidentalis</i> <i>'Nigra' (hedge)</i>	Black Cedar (hedge)	boundary hedge - subject site, Lot 286, 285 and 284	avg 10	avg 2	5	good	L shaped hedge - western portion likely on the property line - may interfere with any proposed fencing	preserve	no construction impacts anticipated	
V7	<i>Thuja occidentalis</i> <i>'Smaragd' (hedge)</i>	Emerald Cedar (hedge)	boundary hedge - Lot 279 and subject site (minor)	-8	1	5	good	4 individuals, western most may be within subject site or boundary tree	preserve	mostly beyond subject site	

POTENTIAL CONSTRUCTION IMPACTS

Several trees have been recommended for removal due to direct and unavoidable conflict with the proposed construction and required grading and servicing. Other trees that may be in proximity to the proposed construction are candidates for preservation. Trees to be preserved may be affected by the construction process, or by the construction itself. It is imperative that the design team and the construction crew understand the potential for, and the causes of tree damage. Trees recommended for preservation may experience some or all of the following potential construction impacts. Strategies and methods to avoid these impacts are outlined in the Construction Mitigation Recommendations section of this report.

Soil Compaction

Soil compaction is caused by heavy or repeated compression or vibration of the soil around the tree. Soil compaction reduces the amount and size of macro and micro pore space that is vital for subsurface movement of air and water. The harmful effects of soil compaction include, but are not limited to: slower water infiltration, poor aeration, reduced root growth and an overall increased susceptibility to biotic and abiotic stressors.

Grade Changes

Lowering of the grade around trees has immediate and long term effects on trees. Lowering of grade requires immediate root loss from cutting the roots which results in water stress from the root removal and potential reduced structural stability. Note that it is commonly accepted that healthy trees can tolerate the removal of approximately 33% to 50% of their root zone, with sensitivity to extent of acceptable removal dependent on individual species characteristics, root loss distribution, and site specific conditions (*ref. Trees and Development: A Technical Guide to Preservation of Trees During Land Development by Nelda Matheny and James R. Clark, 1998. Pg 72*).

Raising the grade around a tree can be equally damaging. The addition of fill over the root zone of a tree alters the roots' ability for normal water and gas exchange that is necessary for healthy root growth and stability. Fill essentially suffocates the roots and can lead to the eventual decline of the tree.

Mechanical Damage

Mechanical damage is caused by physical contact with a tree that damages the tree to any degree. During land development and construction activities, there is an increased risk of minor and fatal mechanical damage to trees from construction equipment. Minor damage can create entry points for insects and pathogens, and fatal damage can cause irreparable structural damage.

Increased Exposure

Trees can experience increased exposure to sun or wind when neighbouring trees are removed. Sudden and increased exposure to these elements to trees that have developed in a sheltered location are susceptible to leaf scald and instability or failure.

Soil Contamination

Soil health around a tree can be compromised by contamination from spills or leaks of fuels, solvents, or other construction related fluids.

Water Availability

Grading and servicing requirements for development can affect water availability for trees. Trees may experience a loss of available water due to a lowered water table or the capture or redirection of subsurface and/or overland flow. Conversely, trees may experience an increase of available water due to changes in site grading and storm water retention efforts.

The successful survival of the trees to be preserved is largely dependent on adhering to the recommendations that follow.

CONSTRUCTION IMPACT MITIGATION RECOMMENDATIONS

The following general recommendations are provided to guide the removal process, mitigate construction impacts, and ensure compliance with regulatory requirements. All recommended action directly related to the trees (ie root pruning, pruning, and fertilizing) is to be undertaken by an experienced ISA certified arborist following best practices as recommended by the International Society of Arborists.

Pre-construction recommendations

1. Prior to any construction activity, tree preservation fencing is to be installed as per the attached tree preservation drawings and detail. See appendix A and C.
2. Where high quality specimens to be preserved are adjacent to areas subject to intensive construction activities, these trees are to have additional protection measures implemented to protect their trunks from mechanical damage. These measures may include surrounding the trunk with wood planks. Trees that require additional protection will be clearly identified on the tree preservation plan with detailed information on specific protection measures.
3. Trees to be removed are to be marked with spray paint by the arborist or landscape architect prior to any tree removal operations.
4. In accordance with the Migratory Birds Convention Act, 1994, all removals must take place from September 1st to March 31st to avoid disturbing nesting migratory birds. Trees may be removed outside this window (between April 1st and August 31st) only if a qualified bird specialist/ecologist has determined there are no nesting birds in the trees.
5. Care should be taken during the felling operation to avoid damaging the branches, stems, trunks, and roots of the trees to be preserved. Where possible, all trees are to be felled towards the construction zone to minimize impacts on adjacent vegetation.
6. Heavy equipment is not allowed to idle under the drip line of trees to be preserved nor have their exhaust directed at a tree trunk or canopy for an extended period of time.
7. The existing ground-layer vegetation must remain intact within protected critical root zones so as not to disturb the soil around the base of the existing trees.
8. Final site grading plans should ensure that the existing soil moisture conditions are maintained.
9. Some trees may be candidates for pre-construction root pruning to help reduce stress and prepare the tree for nearby construction activity. These trees to be identified on the tree preservation plan.
10. Tree transplanting is to be executed by an experienced tree spading contractor or other qualified person/company. Transplanting to be executed either by direct spading or by preparing the root mass in a wire basket according to standard horticulture best practices. If direct spading is possible, refer to tree spading detail (Appendix B).

Recommendations related to the construction process

1. Tree preservation fencing is to be maintained in good condition and effective for the duration of construction until all construction activity is complete or as per the project arborist or landscape architect.
2. No construction, excavation, adding of fill, stockpiling of construction material, or heavy equipment is permitted within the critical root zone.

3. When excavation near a tree is required, and it is anticipated that roots will be severed and exposed, duration of exposure is to be minimized to prevent root desiccation.
4. During the excavation process, roots that are severed and exposed are to be hand pruned to leave a clean-cut surface. Exposed severed roots that cannot be covered in soil on the same day as the cuts are made are to be kept moist. Exposed roots are to be kept moist by covering them with water soaked burlap or any other means available.
5. Avoid idling heavy equipment under or within close proximity to trees to be preserved to prevent canopy damage from exposure to the heat of the exhaust.
6. Broken branches on trees within the subject site to be preserved should be cleanly cut as soon as possible after the damage has occurred.
7. Avoid running above-ground wires and underground services near trees to be preserved. Avoid open trenching within the tree root zone. Utilize horizontal boring techniques to install utilities within root zones.
8. Regular communication with the site supervisor and regular monitoring of the site by the project arborist or landscape architect is recommended to ensure proper procedures are followed and protection barriers are maintained. It is the responsibility of the site supervisor to promptly contact the project arborist if any concerns or questions arise regarding trees.
9. Watering of preserved trees may be required during construction. Watering details including frequency, timing, method, and volume will be determined by the consulting arborist and the project manager.

Post-construction recommendations

1. Avoid discharging rain water leaders adjacent to retained trees. This may result in an overly moist environment which will cause the tree roots to rot.
2. After all work is completed, snow fences and other barriers are to be removed.
3. All trees affected by construction are to be deep root fed, and have all broken branches removed by a certified arborist.
4. A final review must be undertaken by the project arborist or landscape architect to ensure that all mitigation measures as described above have been met.
5. Post construction monitoring of trees may be required. Monitoring schedule to be determined with design team and project manager.

BOUNDARY TREE LEGISLATION

Trees whose trunks are located wholly within a property limit can be removed at the owner's discretion. Trees whose trunks are located wholly beyond a property limit cannot be harmed by actions beyond that property limit. Trees whose trunks are shared between two properties are considered boundary trees and require the consent of both property owners to remove or damage them.

Section 2 and 3 of the Ontario Tree Act outlines actions that are permitted and prohibited with regard to boundary trees:

Trees Act, R.S.O. 1990, c. T.20

Trees on boundary lines

2. An owner of land may, with the consent of the owner of adjoining land, plant trees on the boundary between such lands, and every tree so planted shall be the common property of the owners. R.S.O. 1990, c. T.20, s.2.

Injuring trees

3. Every person who ties or fastens any animal to or injures or destroys any tree growing for the purposes of shade or ornament upon a boundary line between lands, or who suffers or permits any animal in the person's charge to injure or destroy or who trims, cuts down or removes any such tree without the consent of the owners thereof, is guilty of an offence and on conviction is liable to a fine of not more than \$1,000. R.S.O. 1990, c. T.20, s.3.

Seven (7) of the trees recommended for removal in this report are boundary trees (tree #'s 15, 16, 17, 18, 20, 21, and 22), and therefore require consent from adjoining landowners for lawful removal.

SPECIES AT RISK LEGISLATION - KENTUCKY COFFEE TREE

Explanation of Species Protection Legislation

Endangered Species Act, 2007 (ESA): *The provincial legislation that provides protection to species at risk in Ontario.*

Species at Risk Act (SARA): *The federal legislation that provides protection to species at risk in Canada. This act establishes Schedule 1 as the legal list of wildlife species at risk.*

Species at Risk in Ontario (SARO) List: *The regulation made under section 7 of the Endangered Species Act, 2007 that provides the official status classification of species at risk in Ontario. This list was first published in 2004 as a policy and became a regulation in 2008.*

Under the provincial Endangered Species Act, 2007 (ESA), in Ontario, the Kentucky Coffee-tree (*Gymnocladus dioicus*) is listed as 'Threatened'. Threatened means the "species lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it" (SARO).

RKLA is in the process of applying for a permit to transplant six (6) Kentucky Coffee Trees (tree id #'s 3, 26, 28, 29, 37, and 56) that are within the subject site. The permit for species protection or recovery will be issued by the Ministry of the Environment, Conservation and Parks (MECP).

All work related to the transplanting of the six trees shall be done in accordance with the permit and schedules listed therein.

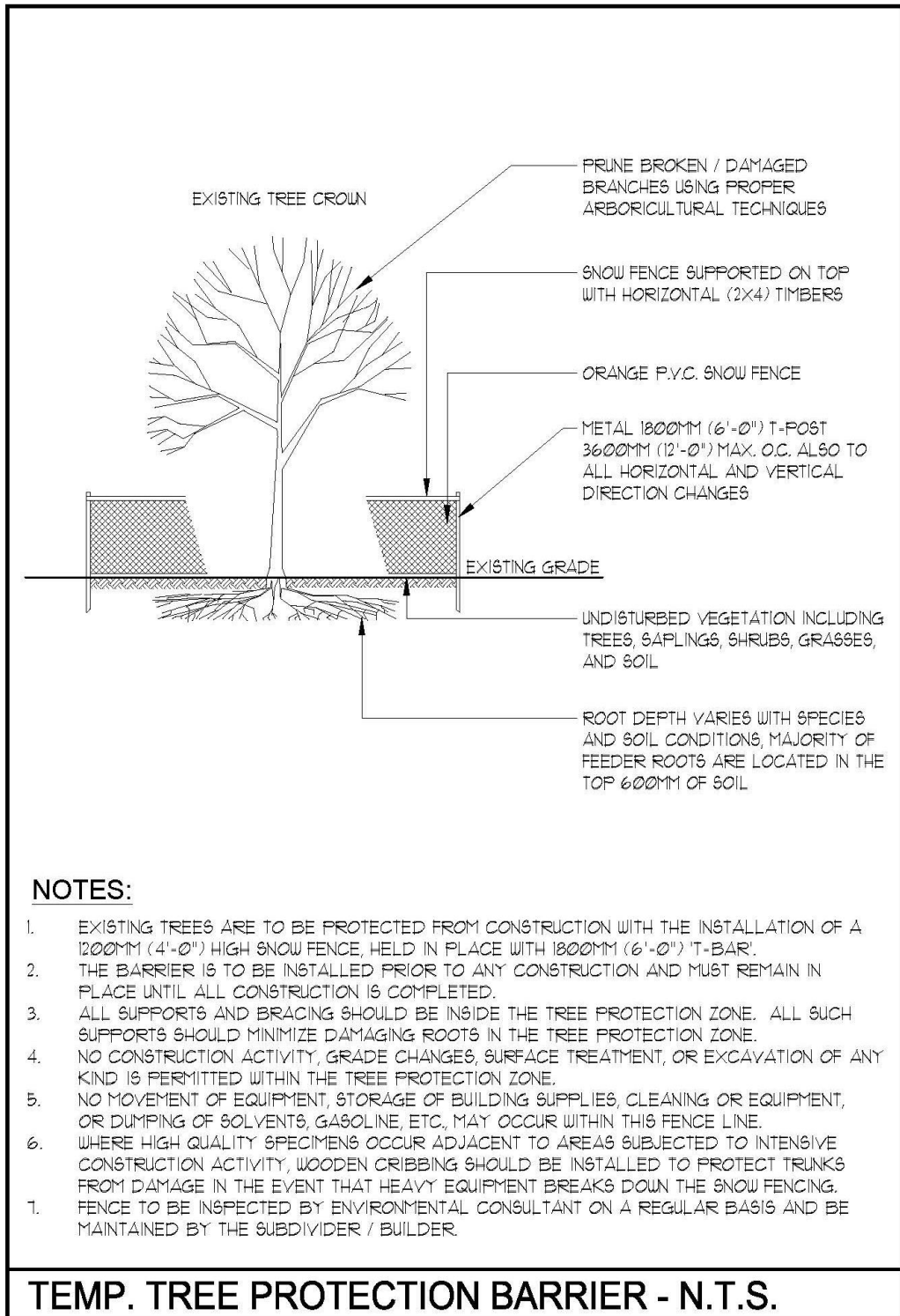
DISCLAIMER

The assessment of the trees presented within this report has been made using accepted arboricultural techniques. These include a visual examination of the above-ground parts of each tree for structural defects, scars, external indications of decay, evidence of insect presence, discoloured foliage, the general condition of the trees and the surrounding site, as well as the proximity of property and people. None of the trees examined were dissected, cored, probed, or climbed, and detailed root crown examinations involving excavation were not undertaken.

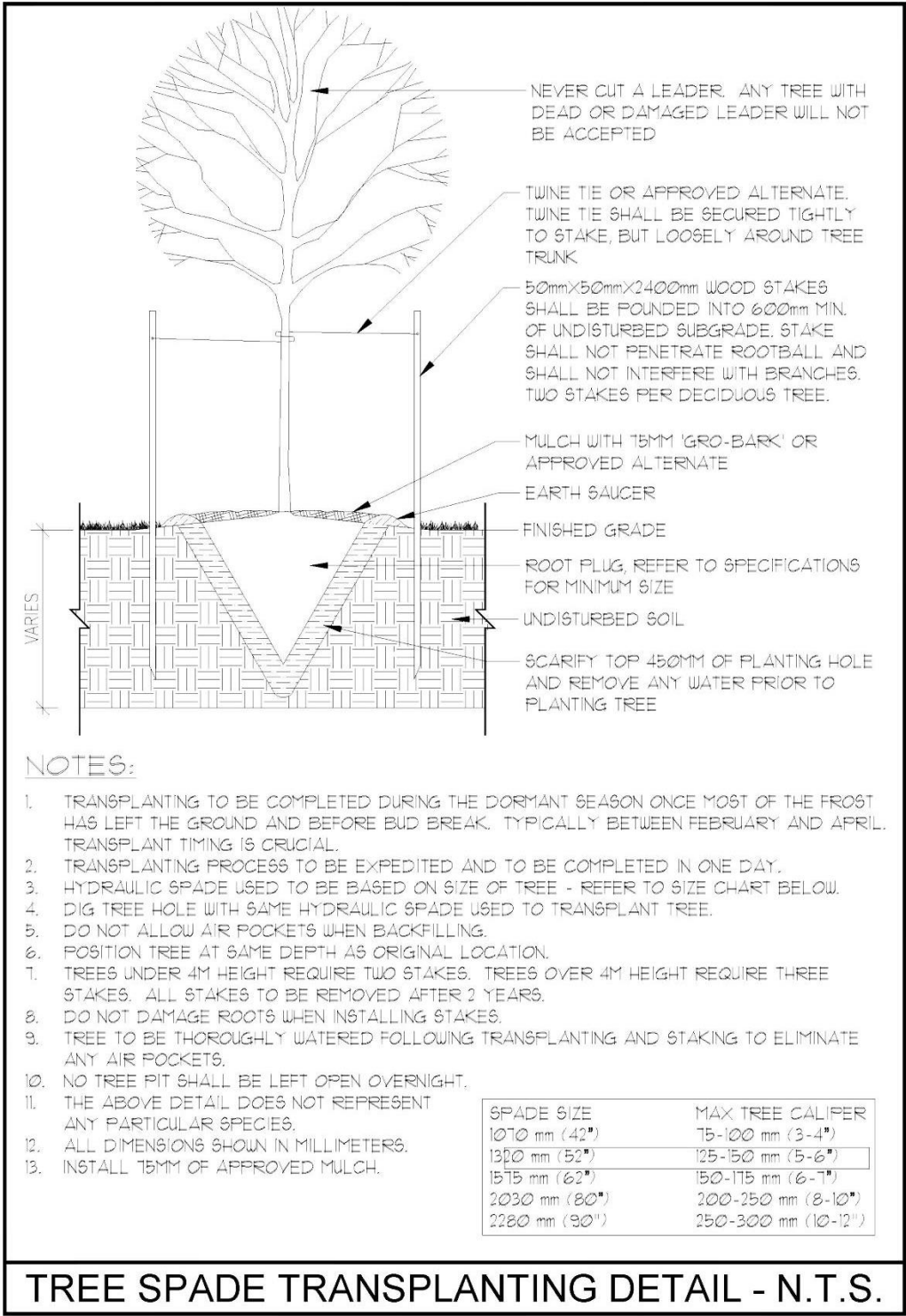
Notwithstanding the recommendations and conclusions made in this report, it must be realized that trees are living organisms and their health and vigour is constantly changing. They are not immune to changes in site conditions or seasonal variations in the weather.

While reasonable efforts have been made to ensure the trees recommended for retention are healthy, no guarantees are offered or implied, that these trees or any part of them will remain standing.

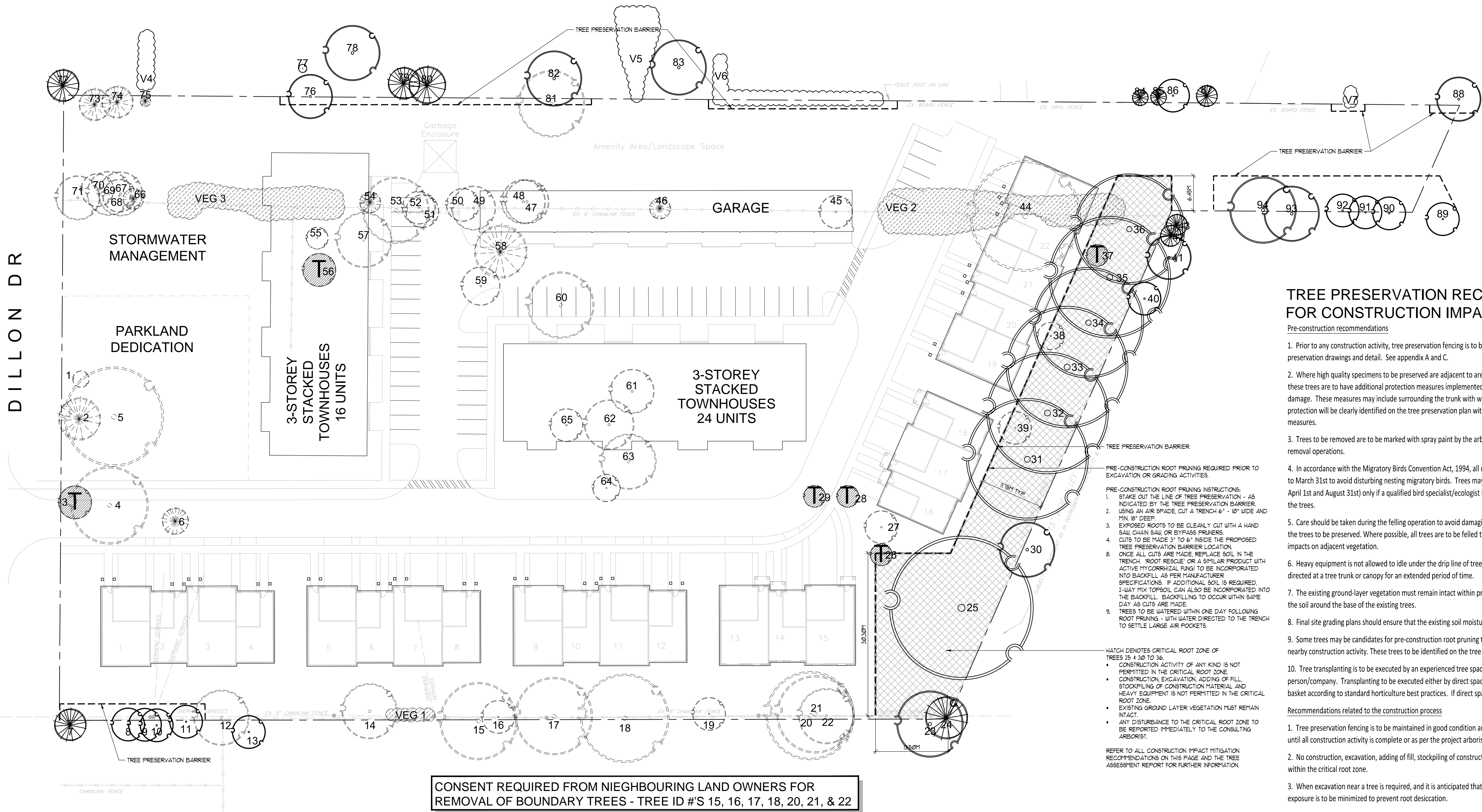
Note that this arborist report has been prepared using the latest drawings and information provided by the client. Any subsequent design or site plan changes affecting trees may require revisions to this report. Any new information or drawings are to be provided to RKLA prior to report submission to planning authorities.



APPENDIX B - TREE SPADE TRANSPLANTING DETAIL



DILLON DR



CONSENT REQUIRED FROM NIEGHBOURING LAND OWNERS FOR
REMOVAL OF BOUNDARY TREES - TREE ID #S 15, 16, 17, 18, 20, 21, & 22

TREE PRESERVATION PLAN

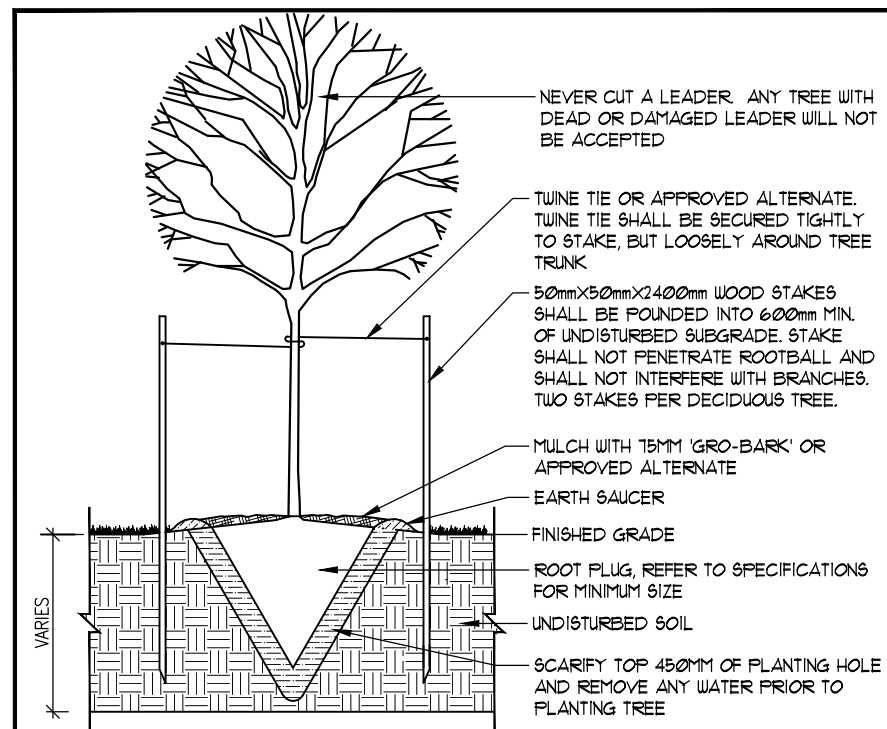
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**DRAFT TREE PRESERVATION DRAWING
FOR INFORMATION ONLY**

**FINAL TREE PRESERVATION DECISIONS
DEPENDENT ON FINAL SITE GRADING
AND SERVICING**

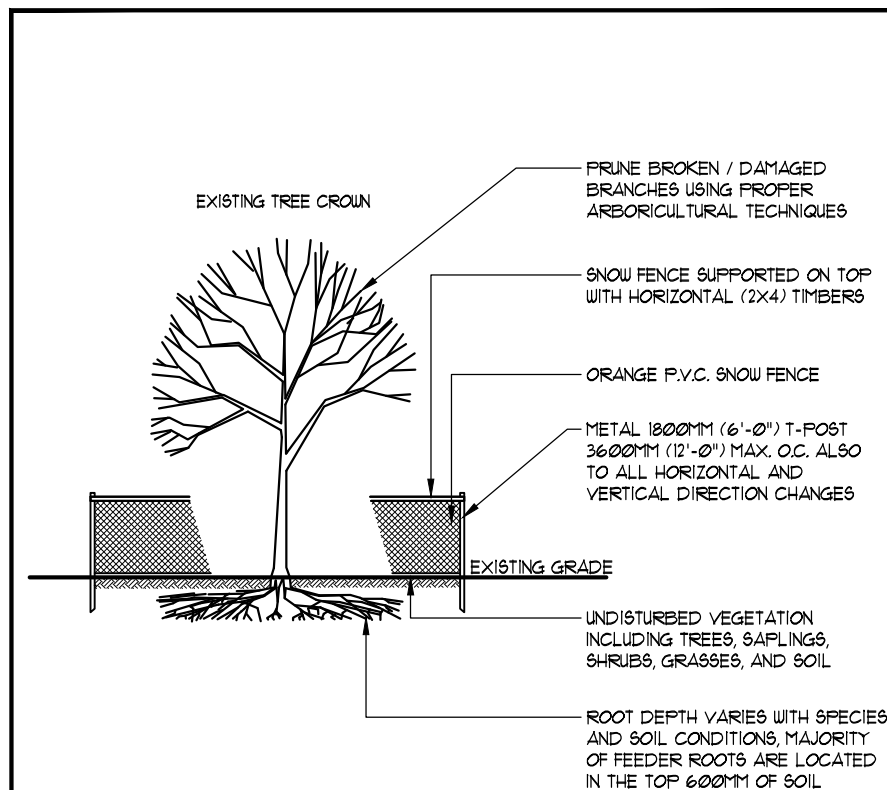
LEGEND

- KENTUCKY COFFEE TREES TO BE TRANSPLANTED OFF SITE OR ON SITE UNDER DIRECTION OF PROJECT MANAGER. PROPOSED NEW LOCATION OF TRANSPLANTED KENTUCKY COFFEE TREE WITH TREE PRESERVATION BARRIER (TO BE DETERMINED).
- EXISTING DECIDUOUS TREES TO REMAIN.
- EXISTING DECIDUOUS TREES TO BE REMOVED.
- EXISTING CONIFEROUS TREES TO REMAIN.
- EXISTING CONIFEROUS TREES TO BE REMOVED.
- EXISTING VEGETATION UNITS TO REMAIN.
- EXISTING VEGETATION UNITS TO BE REMOVED.
- TREE PROTECTION BARRIER.
- ROOT PRUNING REQUIRED PRIOR TO CONSTRUCTION.



- NOTES:**
- TRANSPLANTING TO BE COMPLETED DURING THE DORMANT SEASON ONCE MOST OF THE FROST HAS LEFT THE GROUND AND BEFORE BUD BREAK, TYPICALLY BETWEEN FEBRUARY AND APRIL. TRANSPLANTING IS CRUCIAL.
 - TRANSPLANTING PROCESS TO BE EXPEDITED AND TO BE COMPLETED IN ONE DAY.
 - HYDRAULIC SPADE USED TO BE BASED ON SIZE OF TREE - REFER TO SIZE CHART BELOW.
 - DIG TREE HOLE WITH SAME HYDRAULIC SPADE USED TO TRANSPLANT TREE.
 - DO NOT ALLOW AIR POCKETS WHEN BACKFILLING.
 - POSITION TREE AT SAME DEPTH AS ORIGINAL LOCATION.
 - TREES UNDER 4M HEIGHT REQUIRE TWO STAKES. TREES OVER 4M HEIGHT REQUIRE THREE STAKES. ALL STAKES TO BE REMOVED AFTER 1 YEAR.
 - DO NOT DAMAGE ROOTS WHEN INSTALLING STAKES.
 - TREE TO BE THOROUGHLY WATERED FOLLOWING TRANSPLANTING AND STAKING TO ELIMINATE ANY AIR POCKETS.
 - NO TREE PIT SHALL BE LEFT OPEN OVERNIGHT.
 - THE ABOVE DETAIL DOES NOT REPRESENT ANY PARTICULAR SPECIES.
 - ALL DIMENSIONS SHOWN IN MILLIMETERS.
 - INSTALL 150MM OF APPROVED MULCH.
- | SPACE SIZE | MAX TREE CALIPER |
|--------------|------------------|
| 1200 mm (4') | 15-100 mm (3-4') |
| 1500 mm (5') | 15-150 mm (3-4') |
| 1800 mm (6') | 15-175 mm (3-4') |
| 2100 mm (7') | 15-200 mm (3-4') |
| 2400 mm (8') | 15-225 mm (3-4') |
| 2700 mm (9') | 15-250 mm (3-4') |

TREE SPADE TRANSPLANTING DETAIL - N.T.S.



- NOTES:**
- EXISTING TREES ARE TO BE PROTECTED FROM CONSTRUCTION WITH THE INSTALLATION OF A 1000MM (4'-0") HIGH SNOW FENCE. HELD IN PLACE WITH 1000MM (4'-0") T-POSTS. THE BARRIER IS TO BE INSTALLED PRIOR TO ANY CONSTRUCTION AND MUST REMAIN IN PLACE UNTIL ALL CONSTRUCTION IS COMPLETED.
 - ALL SUPPORTS AND BRACING SHOULD BE INSIDE THE TREE PROTECTION ZONE. ALL SUCH SUPPORTS SHOULD MINIMIZE DAMAGING ROOTS IN THE TREE PROTECTION ZONE.
 - NO CONSTRUCTION ACTIVITY, GRADE CHANGES, SURFACE TREATMENT, OR EXCAVATION OF ANY KIND IS PERMITTED WITHIN THE TREE PROTECTION ZONE.
 - NO MOVEMENT OF EQUIPMENT, STORAGE OF BUILDING SUPPLIES, CLEANING OR EQUIPMENT, OR DIPPING OF SOLVENTS, GASOLINE, ETC. MAY OCCUR WITHIN THIS FENCE LINE.
 - WHERE HIGH QUALITY SPECIMENS OCCUR ADJACENT TO AREAS SUBJECTED TO INTENSIVE CONSTRUCTION ACTIVITY, WOODEN CRIBBING SHOULD BE INSTALLED TO PROTECT TRUNKS FROM DAMAGE IN THE EVENT THAT HEAVY EQUIPMENT BREAKS DOWN THE SNOW FENCING.
 - FENCE TO BE INSPECTED BY ENVIRONMENTAL CONSULTANT ON A REGULAR BASIS AND BE MAINTAINED BY THE SUBDIVIDER / BUILDER.

TEMP. TREE PROTECTION BARRIER - N.T.S.

TREE PRESERVATION RECOMMENDATIONS FOR CONSTRUCTION IMPACT MITIGATION

Pre-construction recommendations

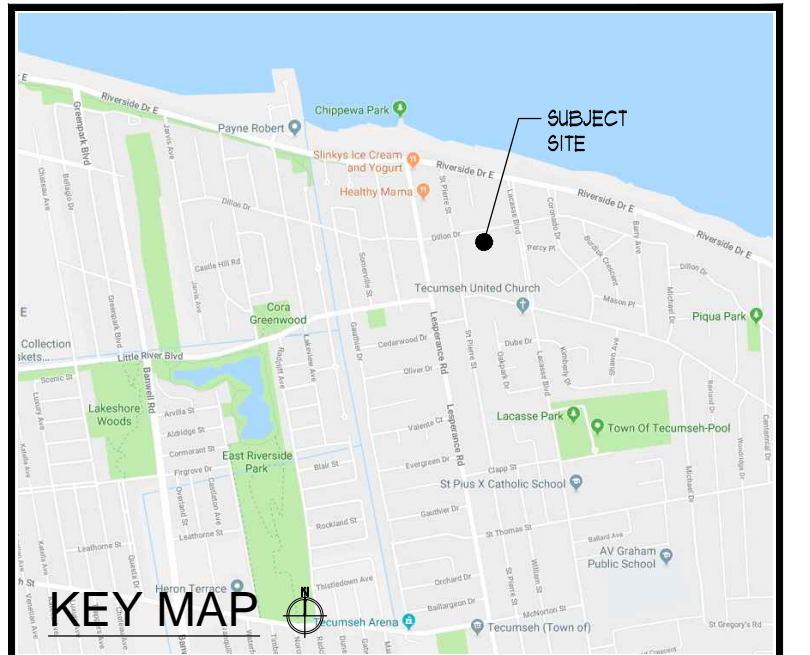
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KEY MAP



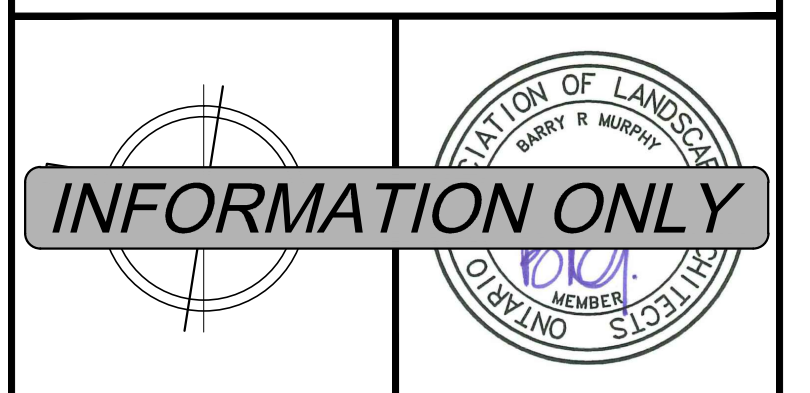
ALL DRAWINGS REMAIN THE PROPERTY OF THE LANDSCAPE ARCHITECT AND SHALL NOT BE REPRODUCED OR REUSED WITHOUT THE LANDSCAPE ARCHITECT'S WRITTEN PERMISSION.

THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION OR TENDER PURPOSES UNLESS SIGNED AND DATED BY BARRY R. MURPHY, O.A.L.A., C.S.L.A., LANDSCAPE ARCHITECT, LONDON, ONTARIO (519) 867-3322.

Barry R. Murphy, O.A.L.A., C.S.L.A. DATE

DATE	DESCRIPTION	No.
2019.11.22	ISSUED FOR INFORMATION	2.
2019.08.26	ISSUED FOR DISCUSSION	1.

PLOTTING INFORMATION:
PLOTTED DATE = 2019.11.22
PLOTTED SCALE = 1:1



PROJECT TITLE:
**VICTORIA BY
THE LAKE**
12433 DILLON DRIVE
TECUMSEH, ONTARIO

DRAWING TITLE:
**TREE PRESERVATION
PLAN**

DATE: AUGUST 2019	SCALE: AS NOTED	DRAWING No. T-1
DRAWN: RMLA Inc.	CHECKED BY: B.R.M.	
PROJECT No. 19-231Lf		