

Appendix E **ARBORIST REPORT**

**Living Arts Drive Extension,
Mississauga, Ontario
Arborist Report**



Prepared for:
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November 20, 2017

Sign-off Sheet

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**LIVING ARTS DRIVE EXTENSION,
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Introduction
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1.0 INTRODUCTION

Stantec Consulting Limited (Stantec) has been retained by The City of Mississauga to prepare an Arborist Report and Tree Management Plan (TMP) for the Living Arts Drive Extension in Mississauga, Ontario. The TMP has been prepared to support the Class EA study and preparation of the preliminary project design.

This report outlines the trees that will be impacted by the design of the proposed extension of Living Arts Drive, located between Rathburn Road West and Centre View Drive (i.e., the project area).

1.1 EXISTING SITE

The project area bisects the Cineplex Cinemas parking lot. There are boulevard trees and landscaped areas, with a naturalized area along the north end of the project area between the north end of the parking lot and Centre View Drive.

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Methodology
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2.0 METHODOLOGY

The tree inventory and assessment was conducted by Ms. Jennifer Koskinen, HBESfcon, Certified Arborist, on June 14th, 2017, and included trees located within the project area that may be impacted by the project design.

The inventory data includes tree species, general health condition, diameter at breast height (DBH), and dripline radius. Trees greater than 10 cm Diameter at Breast Height (DBH) were tagged with a numbered steel tree tag (i.e., trees #1, #2, etc.). At the time of the assessment, some areas were dense with trees and/or located on adjacent property where access was not available. These areas are identified as vegetation Units 'A', 'B', and 'C'. Detailed tree data and Tree Inventory data for vegetation units are provided in Tables 1 and 2, respectively, of Drawing L-901, located in Appendix 'A' of this report.

Trees locations have been provided through a legal survey provided by the City. The tree locations have been identified on the Tree Management Plan, Drawing L-900, located in Appendix 'A' along with the preliminary design. The tree data and locations were reviewed in conjunction with the preliminary project design to identify trees recommended for preservation or removal.

2.1 TREE CONDITION RATING

Outlined below are the detailed guidelines utilized for the classification of condition rating:

Excellent: (Vigour Class 6: Healthy)	No major branch mortality: crown is reasonably normal with less than 10% branch or twig mortality; no signs of decay.
Good: (Vigour Class 5: Light Decline)	Branch mortality, twig dieback in 11-25% of the crown: broken branches or crown missing based on presence of old snags is less than 26%; minor evidence of decay.
Fair: (Vigour Class 4: Moderate Decline)	Branch mortality, twig dieback in 26-50% of the crown: broken branches or crown area missing based on presence of old snags is 50% or less; decay evident.
Poor: (Vigour Class 3: Severe Decline)	Branch mortality, 50% or more of the crown dead: broken branches or crown area missing based on presence of old snags in more than 50%; decay resulting in high hazard assessment.
Dead: (Vigour Class 2: Dead due to Natural Causes)	Tree is dead, either standing or down: phloem under bark has brown streaks: few epicormic shoots may be present.
Dead: (Vigour Class 1: Dead due to Human Causes)	Tree removed: tree has been sawed or girdled by human activity.

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Observations and Analysis
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3.0 OBSERVATIONS AND ANALYSIS

3.1 OBSERVATIONS

The project area contained predominantly non-native trees species that were landscape plantings for the parking lot area of the Cineplex Cinemas Mississauga property. The trees were predominantly young and in good condition. Tree species identified during the inventory consisted of:

Amur Maple (*Acer ginnala*), Russian Olive (*Elaeagnus angustifolia*), Ash (*Fraxinus sp.*), White Ash (*Fraxinus americana*), Honeylocust (*Gleditsia triacanthos 'inermis'*), Juniper sp. (*Juniperus sp.*), Apple sp. (*Malus sp.*), Buckthorn (*Rhamnus sp.*), and Elm sp. (*Ulmus sp.*).

3.1.1 Rare and Endangered Species Review

There were no rare or endangered species within the project area.

3.2 ANALYSIS

3.2.1 Tree Impacts

The following is a summary of the total quantity of trees inventoried that are located within the project area; trees to be retained; trees to be removed; and trees included in the removals that are Ash sp.

- Trees to be retained = 33
- Trees to be removed = 47
- Total trees inventoried = 80

A detailed breakdown of the above tree impacts are identified for the detailed tree inventory, and vegetation units as identified in Tables 3 and 4 on Drawing L-901.

3.2.2 Tree Protection Fencing

Proposed Tree Protection Fencing (TPF) has been identified on the Tree Management Plan (TMP) drawing to protect trees to be retained during construction. Sediment control may also be required depending on how close the trees to be preserved are to the construction area.

The TPF details conform to the current City of Mississauga standard details and have been provided on drawing L-900. Detailed information for TPF maintenance, installation and tree protection recommendations have been identified in Section 4.0 of this report. Refer to Drawing

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L-900 in Appendix 'A' for locations of the trees to be retained and proposed locations of Tree Protection Fencing.

3.3 PERMIT APPLICATION

The City of Mississauga By-Law 254-12 (amended by 13-13) has been used to identify tree removal and injury permit requirements. Permitting is required for trees greater than 15 cm DBH; trees that are in poor condition greater than 15cm DBH require a permit but are excluded from the permit fee. Ash trees are exempt under the by-law, as they are being decimated by the invasive emerald ash borer beetle; a separate form is required to be submitted to expedite the removal process for Ash trees.

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4.0 SOIL MANAGEMENT

The following provides guidance to soil management for future planted trees within the new corridor. The main soil properties required to grow a healthy tree are quality, moisture, compaction, and volume.

SOIL QUALITY

- Topsoil will need to be imported to site during tree planting.
- Soil shall meet the following requirements of the City of Mississauga's Subdivision Requirements Manual Specifications, Section 02950: Topsoil will be free of subsoil, roots, grass, weeds, toxic materials, stones, and foreign objects. Topsoil will have an acidity range (pH) of 6.0 to 7.5.

SOIL MOISTURE

- A watering program should be in place to ensure roots do not dry out.
- Mulching the topsoil will aid in maintaining soil moisture.
- Ensure drainage is possible in the case of a rain event. Excess water should drain away from tree roots to prevent roots from being exposed to soil saturation.

SOIL COMPACTION

- Soil should meet a compaction rate of 85% SPD as this is often the quoted density for planting soil.
- A Proctor test will measure compaction of the soil. This is the most common standard to measure compaction.

SOIL VOLUME

- The soil volume for rooting must be large enough to support the intended tree size. Designers responsible for the planting should be required to identify minimum soil volumes required to sustain trees of different sizes.
- Typically, 1,000 cubic feet (28 cubic meters) of soil is required per tree.¹

¹ <http://www.deeproot.com/blog/blog-entries/our-recommended-soil-volume-for-urban-trees>

5.0 CONSTRUCTION MITIGATION AND MANAGEMENT

5.1 CONSTRUCTION IMPACT

5.1.1 Potential Construction Impacts to Trees

Trees are living organisms that react to changes in their environment. Trees can be damaged during construction without showing signs of damage until some years later. Most impacts relate to the removal of roots that results in the slow death of the tree because of its inability to absorb sufficient water and nutrients. Contained within this section are descriptions of the potential impacts this project may have on trees, and impact mitigation methods that are intended to aid in the design and construction process.

5.1.2 Soil Compaction and Root Damage

The leading cause of construction damage to trees is compaction of the soil around the roots or within the Tree Protection Zone (TPZ). The TPZ is the area around the tree or group of trees in which no grading or construction activity may occur (Harris 1992). Equipment entering a TPZ compresses the air pockets around the roots inhibiting the tree from absorbing nutrients and water. This damage ultimately reduces the health of the tree. Accordingly, during the removal stage, equipment use within the preservation zones should be restricted to ensure that the tree's roots are not disturbed, thereby, assisting in maintaining their continued health. The TPZ is protected and delineated by the TPF.

5.1.3 Mechanical Damage

Equipment can physically damage the trees through striking the trunk, limbs and/or roots. Felled trees can also cause damage during the tree removal stage of construction. Some damage is unavoidable due to proximity of adjacent trees; however, using proper equipment and Best Management Practices (BMP) the damage can be minimized. The Contractor should be held responsible for all avoidable damage to the trees during all stages of development. It should be noted that trees shall be felled away from adjacent trees to be retained.

5.1.4 Root Damage

The success of tree preservation is dependent not only on protecting the root zone from compaction and damage, it is also contingent upon the ability to ensure that the structural roots within the root zone are not disturbed. Impacts to this area may result in the structural failure of these trees.

Excavating soil 1 m outside of a tree's dripline, or within a dripline if approved by an Arborist, can damage roots by tearing and splitting back to the stem. This type of root damage can later

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lead to rot, which can kill the tree. When excavating the top 30-60 cm of soil adjacent to trees, care must be taken. Excavation should cleanly sever the roots prior to stripping and removal of soil. Exposed roots, greater than 2.5 cm diameter, shall be pruned back to the soil face to prevent damage to the tree.

5.2 PROTECTING AND MANAGING TREES DURING CONSTRUCTION

The following recommendations are presented to provide appropriate tree protection and management during the construction for this project.

1. Tree protection fencing shall be installed to protect trees identified for preservation. TPF installation must conform to details and City of Mississauga Development and Design Construction Hoarding standards identified on drawing L-900 located in Appendix 'A'. Upon installation of the tree protection fencing, the Contractor shall contact the Project Arborist to review and approve the fencing and its location prior to commencement of any site work. This shall be coordinated with City staff for approval. The protection fencing shall remain intact throughout the entire protection. The fencing will be inspected weekly and, if required, repaired. The fencing shall be removed at the completion of all site works.
2. Upon receiving the necessary project approvals and prior to the commencement of tree removals, all trees designated for preservation must be flagged in the field. All designated preservation areas must be left standing and undamaged during site works. Removals are to be completed outside of migratory bird nesting season from April 1 to August 15. Removals may take place during this restricted time only if the requirements of the Migratory Birds Convention Act are met and nesting activity is routinely monitored by qualified individuals (i.e., Wildlife Biologists).
3. The TPZ is the area around a retained tree that is to be protected by tree protection fencing. The TPZ is not to be used for any type of storage (e.g. storage of debris, construction material, surplus soils, and construction equipment). No trenching or tunneling for underground services shall be located within the TPZ. Construction equipment shall not be allowed to idle or exhaust within the TPZ.
4. Trees shall not have any rigging cables or hardware of any sort attached or wrapped around them, nor shall any contaminants be dumped within the protective areas. Furthermore, no contaminants shall be dumped or flushed where they may come into contact with the feeder roots of the trees. If roots from retained trees are exposed, or if it is necessary to remove limbs or portions of trees after construction has commenced, the Project Arborist shall be informed and the proper actions conforming to the Private Tree Protection By-law shall be carried out.
5. Upon completion of the tree removals, all felled trees are to be removed from the site. No lumber or brush from the clearing is to be stored on the site. Any chipping, cutting or brush

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cleanup are to be completed outside of the bird nesting season. These works may take place during this restricted time only if the requirements of the Migratory Birds Convention Act are met and nesting activity is routinely monitored by qualified individuals (i.e., Wildlife Biologists).

6. The following is the process that shall be carried out if tree removals are requested during the restricted time indicated in the Migratory Birds Convention Act:
 - Contact a qualified individual (i.e., Wildlife Biologist) to determine if nesting birds are within the tree removal disturbance area. Stantec has a qualified bird specialist on staff that can be contacted.
 - If the bird specialist has determined that there are nesting birds on-site, there will be no tree removals/chipping conducted within the boundary set out by the specialist. Tree removals can resume within this area at the end of the nesting season, August 15, or if the migratory bird specialist has determined the birds have left.
 - If the bird specialist determines there are no migratory birds nesting within the disturbance area, the contractor has 3 days to conduct removals. At the end of 3 days, if removals and chipping is not complete, the bird specialist will return to the site and proceed with another assessment. If there are still no birds, work can resume for another 3 days. This process will continue until all removals and chipping is complete.

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6.0 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. It is both professionally and practically impossible to predict with absolute certainty the behavior of any single tree or group of trees in all circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential for failure if provided with the necessary combinations of stresses and elements. This risk can only be eliminated if the tree is removed.

Every effort has been made to ensure that this assessment is reasonably accurate and the trees should be re-assessed periodically. The assessment presented in this report is valid at the time of inspection.

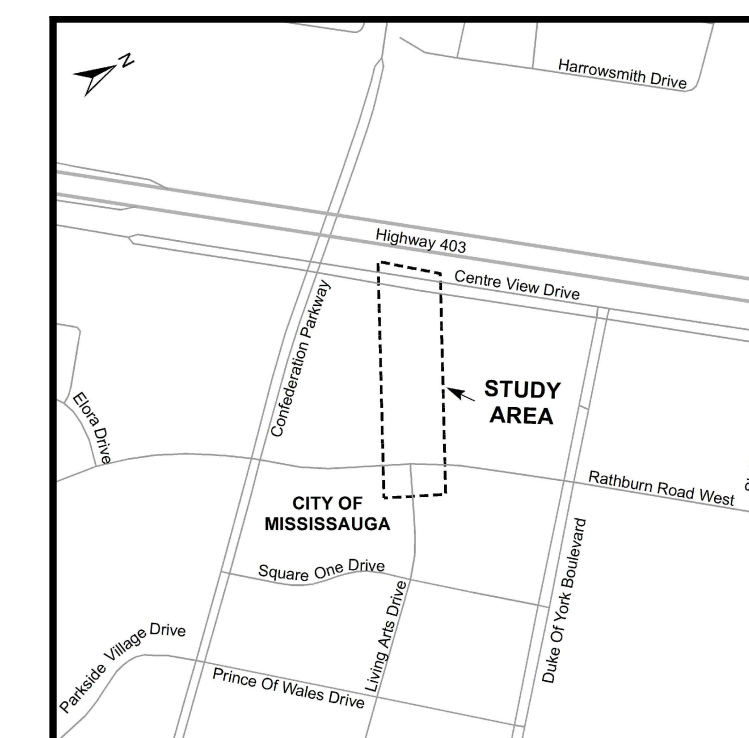
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7.0 REFERENCES

Urban, James. 2008. Up By Roots. ISA. Champaign, Illinois, U.S. 479pp.

**APPENDIX A
TREE MANAGEMENT PLAN,
DRAWINGS L-900 AND L-901**



Notes

Refer to Drawing L-901 for Detailed Tree Inventory Tables

Legend

- Existing Deciduous Tree
- Existing Tree To be Retained Identification Key
- Existing Tree To be Removed Identification Key
- Tree Protection Fencing (Solid Board Hoarding)
- Tree Protection Fencing (Framed Hoarding)
- Existing Vegetation Unit to be Retained and Protected
- Existing Vegetation Unit to be Removed

Revision	By	Appd.	YY.MM.DD
1.	SL	JK	17.11.20
File Name: 165011016_L-1M.dwg			
	BM	JK	17.10.24
	Dwn.	Chkd.	Dgn.
			YY.MM.DD

Permit-Seal



JENNIFER KOSKINEN
 0N-1234R

Client/Project

CITY OF MISSISSAUGA

LIVING ARTS DRIVE EXTENSION

Mississauga, ON Canada

Title

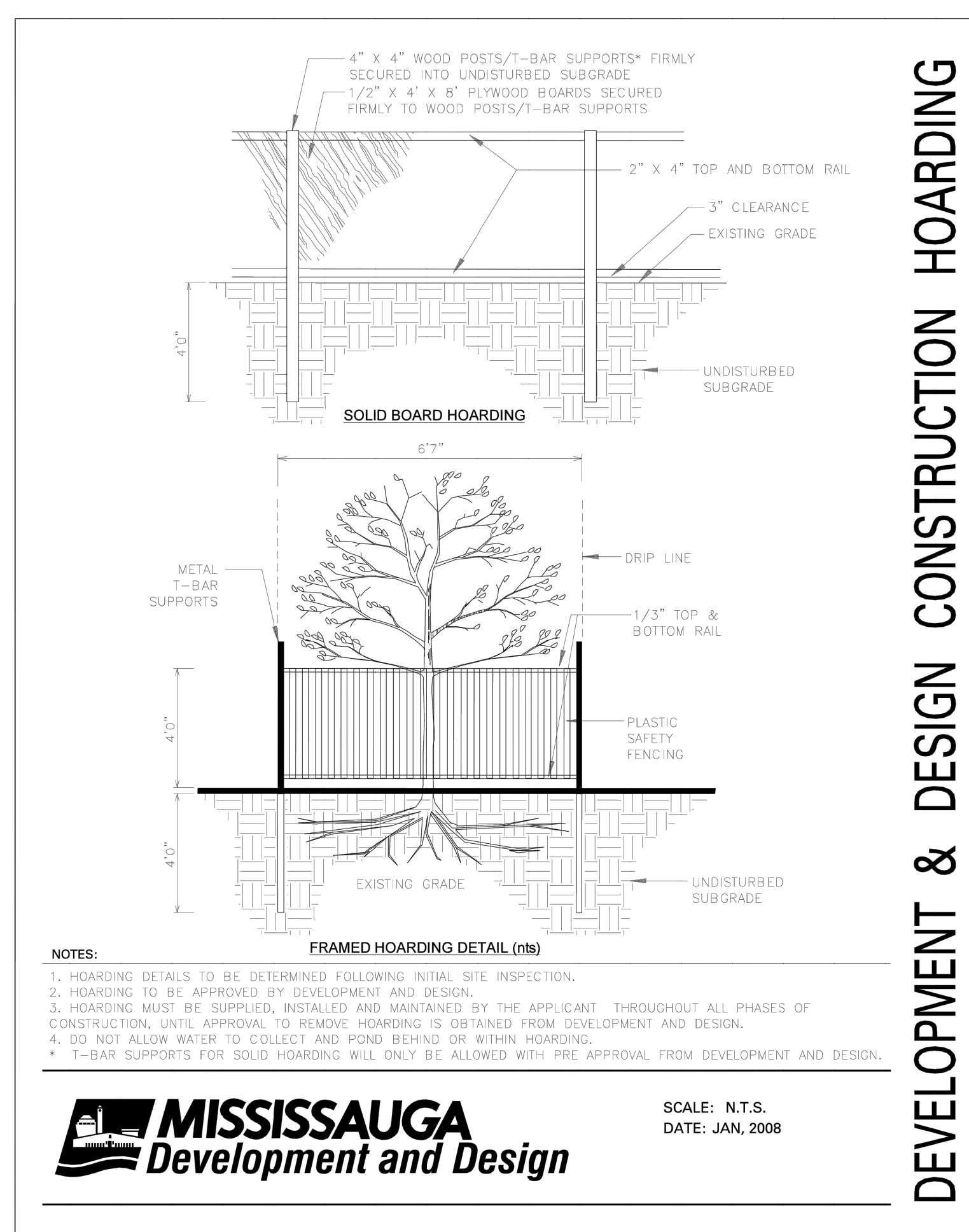
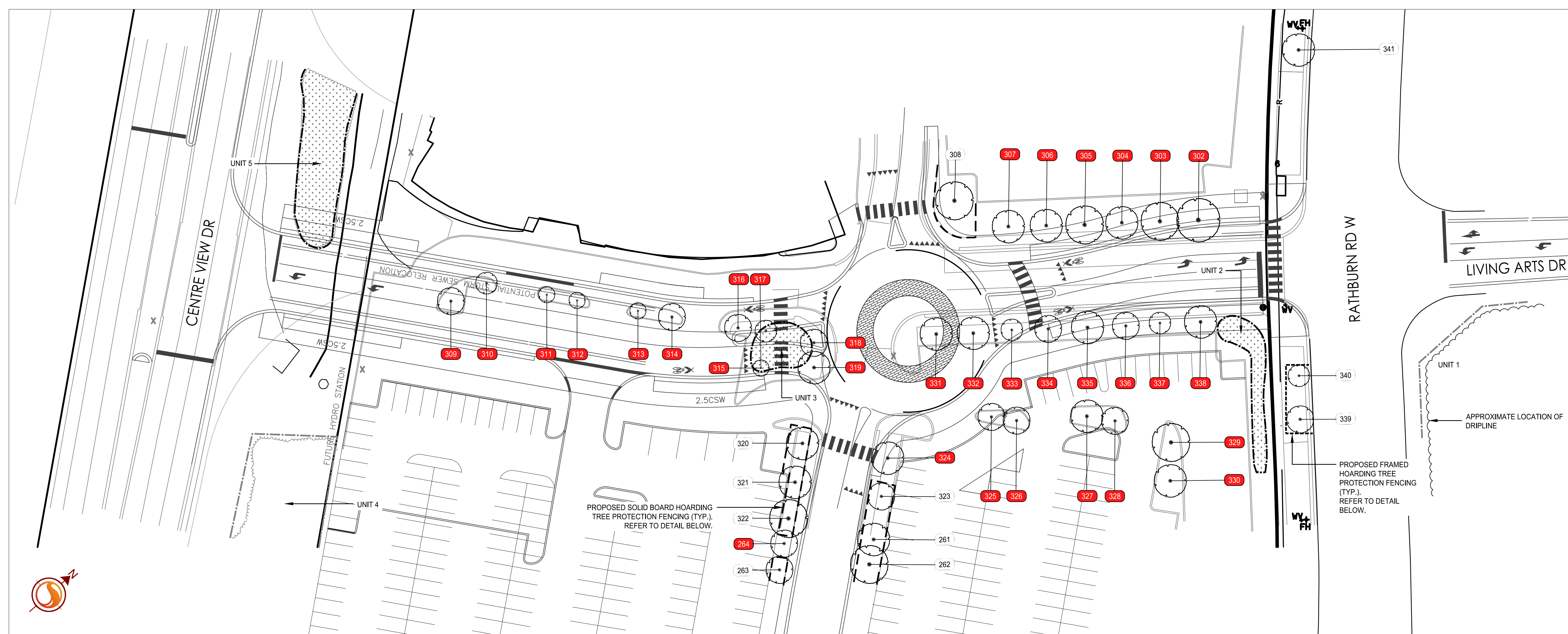
TREE MANAGEMENT PLAN

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L-900

1 of 2

1



- NOTES:
- HOARDING DETAILS TO BE DETERMINED FOLLOWING INITIAL SITE INSPECTION.
 - HOARDING TO BE APPROVED BY DEVELOPMENT AND DESIGN.
 - HOARDING MUST BE SUPPLIED, INSTALLED AND MAINTAINED BY THE APPLICANT THROUGHOUT ALL PHASES OF CONSTRUCTION, UNTIL APPROVAL TO REMOVE HOARDING IS OBTAINED FROM DEVELOPMENT AND DESIGN.
 - DO NOT ALLOW WATER TO COLLECT AND POND BEHIND OR WITHIN HOARDING.
 - T-BAR SUPPORTS FOR SOLID HOARDING WILL ONLY BE ALLOWED WITH PRE APPROVAL FROM DEVELOPMENT AND DESIGN.



SCALE: N.T.S.
 DATE: JAN, 2008

DEVELOPMENT & DESIGN CONSTRUCTION HOARDING

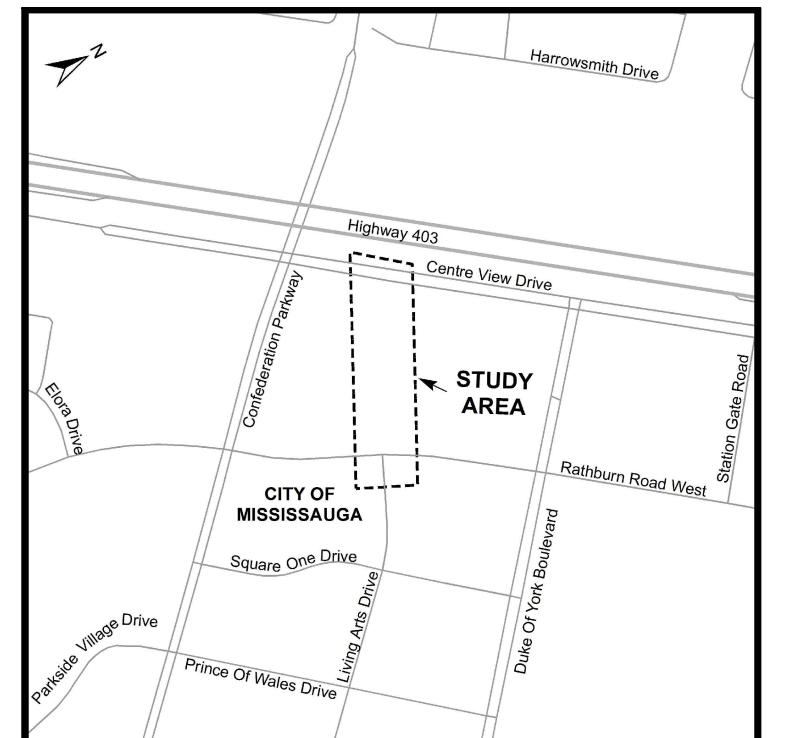


TABLE 1. Detailed Tree Inventory - Living Arts Drive, Mississauga, Ontario
Date: June, 14th 2017

Tag #	Botanical Name	Common Name	DBH (cm)	Dripline Radius (m)	Condition				Comments	Action
					Trunk Integrity	Crown Structure	Crown Vigour	Overall Condition		
261	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	23	3	G	G	G	G		Retain
262	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	23	3.5	G	G	G	G		Retain
263	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	16	2.5	G	G	G	G		Retain
264	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	13	2.5	P	G	G	P	Wound at base, will compromise growth of tree.	Remove
302	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	23	4	G	G	G	G		Remove
303	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	21	3.5	G	G	G	G		Remove
304	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	20	3	G	G	G	G		Remove
305	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	21	3.5	G	G	G	G		Remove
306	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	20	3	G	G	G	G		Remove
307	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	20	3	G	G	G	G		Remove
308	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	23	3.5	G	G	G	G		Retain
309	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	15	2.5	G	G	F	F		Remove
310	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	13	2	G	G	P	P	Minimal die back in branch tips.	Remove
311	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	11	1.5	G	P	P	P	~50% LC, LC=Sucker growth.	Remove
312	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	12	1.5	G	P	P	P	<50% LC	Remove
313	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	10	1.5	G	P	P	P	<10% LC	Remove
314	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	14	2.5	G	G	P	P	Die back in canopy, 50% CC	Remove
315	<i>Fraxinus americana</i>	White Ash	10	1.5	P	G	G	P	Wound and rot on trunk.	Remove
316	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	17	2.5	G	G	G	G		Remove
317	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	15	2	G	G	F	F	Die back in canopy.	Remove
318	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	15	2.5	G	G	G	G		Remove
319	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	22	3	G	G	G	G		Remove
320	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	22	3	G	G	G	G		Retain
321	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	23	3	G	G	G	G		Retain
322	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	24	3.5	G	G	G	G		Retain
323	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	17	2.5	G	G	G	G		Retain
324	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	19	3	G	G	G	G		Remove
325	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	13	2.5	G	G	F	F	Branch die back in branch tips.	Remove
326	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	13	2.5	G	G	F	F	Branch die back in branch tips.	Remove
327	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	17	3	F	G	F	F	Poor taper, minor die back in branch tips.	Remove
328	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	12	2.5	F	G	F	F	Poor taper, minor die back in branch tips.	Remove
329	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	21	3.5	G	G	G	G		Remove
330	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	20	3	G	G	G	G		Remove
331	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	19	3	G	G	F	F	Die back in branch tips.	Remove
332	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	17	3	G	G	F	F	Die back in branch tips.	Remove
333	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	12	2	G	G	F	F	Die back in branch tips.	Remove
334	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	13	2.5	G	G	F	F	Die back in branch tips.	Remove
335	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	13	3	G	G	F	F	Die back in branch tips, top crown.	Remove
336	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	14	2.5	G	G	F	F	Die back in branch tips.	Remove
337	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	12	2	G	G	G	G	Poor trunk taper.	Remove
338	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	18	3	G	G	G	G	Shallow root/minor die back, some branch tips.	Remove
339	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	12	2.5	G	G	G	G		Remove
340	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	12	2	G	G	G	G	Rock at base of trunk will eventually grow into trunk.	Remove
341	<i>Gleditsia tricanthos var. inermis</i>	Honeylocust	14	3	G	G	G	G		Remove

TABLE 2. General Tree Inventory
Date: June 14th, 2017

Unit	Botanical Name	Common Name	DBH (cm)	Quantity	Condition	Action	Comments
1	<i>Ulmus sp.</i>	Elm sp.	10	1	G	Retain	Approximately 5m in from edge; 3m Dripline Radius
	<i>Rhamnus sp.</i>	Buckthorn	<10	1	G	Retain	Dense buckthorn
	<i>Fraxinus americana</i>	White Ash	<10	1	G	Retain	
	<i>Fraxinus sp.</i>	Ash sp.	13	2	Dead	Retain	
	<i>Ulmus sp.</i>	Elm sp.	12, 14	1	G	Retain	3m Dripline Radius
	<i>Fraxinus sp.</i>	Ash sp.	<10	2	G	Retain	
	<i>Ulmus sp.</i>	Elm sp.	20	1	G	Retain	4m Dripline Radius
	<i>Fraxinus sp.</i>	Ash sp.	10	1	Dead	Retain	
	<i>Fraxinus sp.</i>	Ash sp.	<10	3	Dead	Retain	
	2	<i>Juniperus sp.</i>	Juniper	<10	1	G	Remove
		Shrub	<10	1	G	Remove	
3	<i>Juniperus sp.</i>	Juniper shrub	<10	2	G	Remove	Low
	<i>Acer ginnala</i>	Amur maple	<10	1	G	Remove	
4	<i>Rhamnus sp.</i>	Buckthorn	<10	1	G	Retain	
	<i>Fraxinus americana</i>	White Ash	<10	1	P	Retain	
	<i>Fraxinus sp.</i>	Ash sp.	Multiple 10-20	6	Dead	Retain	
	<i>Fraxinus sp.</i>	Ash sp.	Multiple 20-30	2	Dead	Retain	
	<i>Ulmus sp.</i>	Elm sp.	30-40	1	G	Retain	7m Dripline Radius; on other side of property line fence
	<i>Ulmus sp.</i>	Elm sp.	30-40	1	G	Retain	Approximately 7m Dripline Radius
5	<i>Rhamnus</i>	Buckthorn	<10	1	G	Remove	
	<i>Fraxinus americana</i>	White Ash	<10	2	G	Remove	6m Dripline Radius
	<i>Fraxinus sp.</i>	Ash sp.	<10	2	Dead	Remove	
	<i>Elaeagnus angustifolia</i>	Russian Olive	<10	1	G	Remove	

TABLE 3. Tree Impact Summary for Table 1

TOTAL TREES INVENTORIED:	44
TREES TO BE RETAINED:	8
TREES TO BE REMOVED:	36
Trees to be Removed (Good to Fair Condition):	29
Trees to be Removed (Poor Condition):	7

TABLE 4. Tree Impact Summary for Table 2

TOTAL TREES INVENTORIED:	36
TREES TO BE RETAINED:	25
TREES TO BE REMOVED:	11
Trees to be Removed (Good Condition):	9
Trees to be Removed (Dead):	2

TABLE 5. Tree Impact Summary

TOTAL TREES INVENTORIED:	80
TREES TO BE RETAINED:	33
TREES TO BE REMOVED:	47

1.	Revised as per the City of Mississauga Comments	SL	JK	17.11.20	
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Permit-Seal



JENNIFER KOSKINEN
0N-1234A

Client/Project

CITY OF MISSISSAUGA

LIVING ARTS DRIVE EXTENSION

Mississauga, ON Canada

Title

TREE MANAGEMENT PLAN

Project No.	Scale	
165011016	N.T.S.	
Drawing No.	Sheet	Revision