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Arborist Report
2524 Cawthra Road, Mississauga ON

Hossack & Associates Architect Inc.
1939 Ironoak Way #105
Oakville ON L6H 3V8



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**R.J. Burnside & Associates Limited
292 Speedvale Avenue West
Guelph ON N1H 1C4 CANADA**

**July 2024
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Arborist Report
July 2024

Distribution List

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Record of Revisions

Revision	Date	Description
-	May 24, 2024	Draft Submission to Hossack & Associates Architect Inc.
0	June 3, 2024	First Submission to Hossack & Associates Architect Inc.
1	July 16, 2024	Revised Submission for Tree Replacement

R.J. Burnside & Associates Limited

Report Prepared By:



Mackenzie Dawson, H.B.Sc.F., TRAQ
ISA Certified Arborist (ON-2643A)
MD:jm

Report Reviewed By:



Kevin Butt B.Sc. (Env). Eco. Rest. Cert., TRAQ
Certified Arborist and Terrestrial Ecologist
ISA (ON-0861A)
Vice President, Ecology

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1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) has been retained by Hossack & Associates Architect Inc. (Client) to prepare an Arborist Report and Tree Preservation Plan (TPP) for the proposed Fire Station 124 at 2524 Cawthra Road, within the City of Mississauga (City) and Regional Municipality of Peel (Region).

Review of trees within and immediately adjacent to the proposed work zone is required to be completed by a certified arborist. The existing locations as well as their qualitative and quantitative measurements were determined and assessed in context with the proposed construction.

The intent of the report and the associated figures and appendices is to provide an analysis of the impacts to trees, prescribe measures to promote their retention where feasible and illustrate the proposed construction and the impact on tree resources.

This report has been prepared in accordance with the City's *Tree Preservation & Protection Standards, The Urban Tree Management Group* (Revised 2019-07-15).

2.0 Study Area

The study area has previously been utilized as an auto service facility which has since been demolished and is currently vacant land owned by the City. The property is approximately 5,900m² in area, bordered by an industrial facility to the south, right-of-way (ROW) (Needham Lane) to the east, a recreational skateboard park to the west and vacant land to the north, which is associated with the railway corridor between the Dixie and Cooksville GO Stations. An existing chain-link fence encloses the study area. All existing trees are located along the margins of the property line.

3.0 Methodology

The tree inventory and assessment were completed by Mackenzie Dawson (ISA Certified ON-2643A) with TRAQ designation on May 8, 2024. The methodology used to assess the trees is provided in Appendix C. Information provided by the survey was annotated with tree data using ESRI Field Maps and a Trimble R1 GNSS Receiver during the assessment.

The following data was collected for each tree:

- Tree ID.
- Species (Scientific and Common name).
- Diameter at Breast Height – DBH (cm).
- Ownership (Public, Private, Shared).
- Minimum Tree Protection Zone – MTPZ (m).
- Condition (Good, Fair, Poor, or Dead).

- Additional comments (to supplement condition or location notes).

A Minimum Tree Protection Zone (MTPZ), or diameter of protection, has been calculated for each individual tree as per the City's *Tree Preservation & Protection Standards, The Urban Tree Management Group* (Revised 2019-07-15). Preservation recommendations (i.e., preserve or remove) are provided in separate columns in the data based on the existing condition and proposed development impacts.

Table 1: City of Mississauga Tree Protection Zones

Trunk Diameter (cm)	Minimum Tree Protection Zone (MTPZ) Distance from Trunk (m)
<10 cm	1.2
10 - 20	1.5
21 - 30	1.8
31 - 40	2.4
41 - 50	3.0
51 - 60	3.6
61 - 70	4.2

A final preservation recommendation is determined based on the recommendations regarding existing condition and the proposed development. A tree is recommended for preservation if it has been assigned a fair or good condition rating and can be incorporated into the development. A tree is recommended for removal if it has been assigned a poor condition rating and / or will be significantly impacted by or is in conflict with the proposed development.

Tree assessment data and MTPZ size is provided in Appendix A and locations of individual trees with the property extents are provided in the Figure. Limitations of this tree assessment are provided in Appendix D.

4.0 Proposed Development

The proposed development includes the construction of a one-story fire station with a capacity for two trucks, approximately 1,000 m² in area. Access to the proposed station is on the east limit of the property abutting the public ROW of Needham Lane. The station will be centrally located on the property with heavy duty asphalt along the south limit, leading to a concrete walkway and pad west of the station. A parking area abuts the concrete walkway with a 7.5 m yard setback from the west property boundary where an existing chain-link fence and gravel area will remain. Landscaped areas are proposed along the north property boundary, south of the parking lot and between the station building and asphalt. A 1.2 m side yard setback and 4.5 m side yard setback are proposed along the north and south property boundaries, respectively.

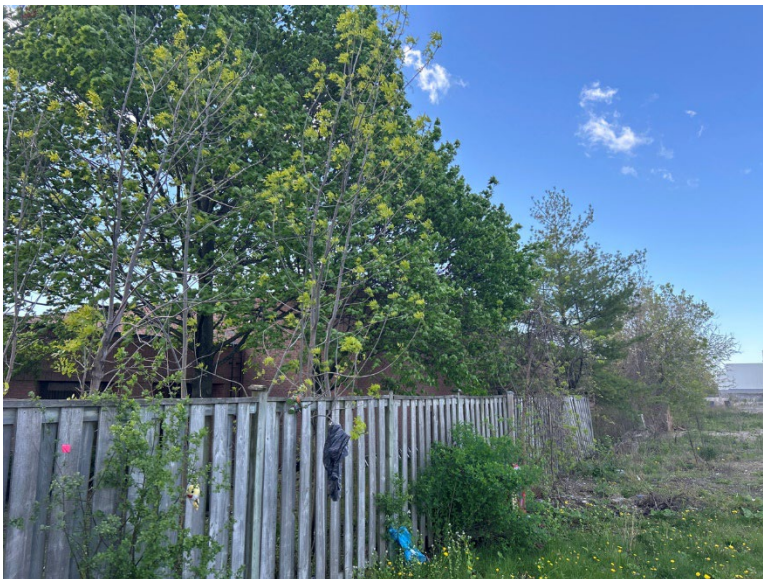
5.0 Findings

A total of 71 individual trees were assessed within and immediately adjacent to the study area. The majority of trees (54) are located off-site on immediately adjacent private property, with 16 trees located on-site and one tree (T37) located within the public ROW. Photos are provided that illustrate the trees in context with the existing site conditions.

Photo 1: Existing site conditions, looking east



Photo 2: Off-site trees along south property boundary, looking west



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Photo 3: Tree nos. T52 to T57 on-site along south property boundary, looking south



Photo 4: Trees off-site along northeast property boundary, looking north



Photo 5: Trees off-site along north property boundary, looking east



Photo 6: Trees off-site southeast of property, looking south



Table 2 provides a breakdown of assessed trees by species and relative percentage of the total.

Table 2: Tree Species Diversity and Relative Percentage

Tree Species	Count	Percentage
Eastern Cottonwood	18	25%
Manitoba Maple	17	24%
Black Locust	7	10%
Eastern White Pine	5	7%
Green Ash	4	6%
Norway Maple	4	6%
Crab Apple	3	4%
Russian Olive	3	4%
Black Walnut	2	3%
Red Oak	2	3%
Siberian Elm	2	3%
Silver Maple	2	3%
White Elm	1	1%
White Mulberry	1	1%
Total	71	100%

5.1 Trees Recommended for Preservation

There are 55 individual trees recommended for preservation that are adequately setback from the proposed development or can be reasonably protected and have a good or fair condition.

Tree Protection Fence (TPF) is recommended to be installed around trees adjacent to the proposed work areas.

- Tree nos. T65 to T70 are located off-site, immediately adjacent to the south property boundary. TPF should be installed to protect a significant portion of these trees MTPZs.
- Tree nos. T44 to T46 are located on-site along the south property boundary. TPF should be installed at the limits of the trees MTPZs for protection.

Tree protection fencing details as per the City's (Detail: 02830-6) Framed Protective Construction Hoarding Solid Board – Plastic Snow Fence, and Tree Protection Zone Signage are provided in the Tree Preservation Plan Details section of the Figures.

The existing chain-link fence along the west and north boundary is proposed to remain in place and will provide an offset from existing peripheral trees. Additionally, the existing boundary fence does not accurately reflect the set property line, resulting in four existing trees (T43 to T46) located on-site that are located beyond the chain-link fence.

Existing trees located off-site along the north property boundary are adequately setback from construction or have minor MTPZs encroachments. The 1.2 m side yard

(north) setback is proposed for landscaping which will enhance the existing site conditions. Existing trees located off-site along the west property boundary are subject to a 7.5 m rear yard setback and will be undisturbed.

5.2 Trees Recommended for Removal

A total of 16 individual trees are recommended for removal. Most of these trees (14) conflict with the proposed development elements or significant impacts to root zones will occur (i.e., root severance and compaction) as a result of implementation of the plan.

- A total of 12 of the 14 trees proposed for removal are located on-site including tree nos. T47 to T58.
- Tree nos. T59 and T60 are located off-site, immediately adjacent to the south property boundary where a retaining wall is proposed. These trees will conflict with the elements of development over time. Permission and an agreement from the adjacent landowner will be required to remove these two trees.
- The remaining two trees recommended for removal (T43 and T66) are based on poor condition, with no construction impacts anticipated. These trees have been assigned an asterisk within the data set for distinguishment. Tree no. T66 is located off-site, and its removal is at the final discretion of the adjacent landowner.

The associated TPP identifies the locations of trees to be removed.

6.0 Tree Appraisal

All public trees are subject to a tree appraisal using the Trunk Formula Method. A total of 17 public trees have been appraised at a value of \$10,724.53. A detailed breakdown of tree appraisal is provided in Appendix B.

7.0 Tree Replacement

Tree replacement has been approached based on the City's Private Tree Protection By-law (0021-2022) and City's *Tree Preservation & Protection Standards* for the removal of private and public trees, respectively. Trees recommended for removal based on condition (T43 and T66) have not been included in tree replacement calculations.

7.1 Public Tree Replacement

Table 3 details the City's public tree replacement guidelines for tree preservation and protection standards, subject to land development or construction.

Table 3: Public Tree Replacement guidelines

DBH Range (cm)	Number of Replacement Trees
6-15	1
16-30	2
31-45	3
46-60	4
61-75	5
76-90	6
91-105	7
106-120	8
>120	9

Table 4 provides a breakdown of tree replacement required for the removal of 12 public trees.

Table 4: Public Tree Replacement Required

DBH Range (cm)	Quantity Removed (Replacement Ratio)	Replacement Trees Required
6 - 15	8 (1)	8
16 - 30	2 (2)	4
31 - 45	2 (3)	6
Total Replacement Trees		18

7.2 Private Tree Replacement

Replacement for private tree removal is subject to trees 15 cm in DBH or greater at a ratio of one replacement tree for every 15 cm DBH removed. Two trees are recommended for removal on private property including Tree nos. T59 and T60. Tree no. T60 is 23 cm in DBH and requires a replacement of 1.5 trees. Tree no. T59 is 9 cm in DBH and therefore is not subject to replacement.

The removal of 12 public trees and one private tree will require a total of 19.5 replacement trees. Replacement trees are required to be a minimum 60 mm diameter for deciduous trees and 1.8 m in height for coniferous trees. A landscape plan has been prepared by FRP Inc. under a separate cover that details all landscape plantings on the site. Any deficit of tree replacement plantings as a result of site constraints will be addressed through payment or additional replacement plantings at the discretion of the City.

8.0 Recommendations and Requirements

- To reduce the risk of contravening the *Migratory Bird Convention Act*, timing constraints shall be applied to avoid any limited vegetation clearing (including grubbing) and / or structure works (construction) during the breeding bird period broadly from April 1 to August 31 for most species (regardless of the calendar year).
- If tree removal within the breeding bird period cannot be avoided, a pre-construction nest survey can be completed by a qualified ecologist no greater than three days prior to clearing activities. If nesting is identified, a species-specific buffer will be applied until the nest is no longer active.
- Active nests (nests with eggs or young birds) of protected migratory birds, including Species at Risk (SAR) protected under the *Endangered Species Act (ESA)*, cannot be destroyed at any time of the year. The destruction of inactive nests for some species may also be prohibited (e.g., Barn Swallow, Osprey, Great Blue Heron).
- Trees should be felled to avoid damage to retained trees, including both trunks and roots.

9.0 Summary

Tree preservation and removal has been identified in this Arborist Report and the Tree Preservation Plan. Measures to ensure protection of the trees prior to and during the demolition period are detailed to minimize impacts to preserved trees.



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Figure

Figure



LEGEND

- PROPOSED SIGNAGE
- FIRE HYDRANT
- MANHOLE
- CATCH BASIN
- MAIN ACCESSIBLE ENTRANCE/ EXIT TO SECTION 3.8 OF THE (OBC) ONTARIO BUILDING CODE
- SECONDARY ACCESSIBLE ENTRANCE/ EXIT TO SECTION 3.8 OF THE (OBC) ONTARIO BUILDING CODE
- OVERHEAD/ BI-FOLDING TRUCK BAY DOOR
- EX CHAINLINK FENCE TO REMAIN - REMOVE RAZOR WIRE PORTION
- CHAIN LINK FENCE (HEIGHT AS INDICATED)
- FOUNDATION WEeping TILE, CONNECT TO NEAR BY CATCH BASIN (TYP.)
- UTILITY POLE
- BOLLARD & PVC SLEEVE (AD 210)
- BOREHOLE, SEE GEOTECHNICAL REPORT
- CONDUIT FOR 'FUTURE' ELECTRIC CHARGING STATION, REF. ELECT. DWGS.
- LIGHT STANDARD
- WALL PACK, SEE ELECT. DWGS.
- DEPRESSED CURB
- CONCRETE WALKWAY, PAD OR APRON, SEE GEOTECH. REPORT, LANDSCAPE DWGS. AND AD DETAILS
- HEAVY DUTY ASPHALT, SEE GEOTECH REPORT AND AD DETAILS
- RIVER ROCK, REF. LANDSC. DWGS.
- LINE PAINTING

- T8P EXISTING TREE, RECOMMENDED FOR PRESERVATION. CIRCLE REPRESENTS MINIMUM TREE PROTECTION ZONE OF TREE.
- T15R EXISTING TREE, RECOMMENDED FOR REMOVAL. CIRCLE REPRESENTS MINIMUM TREE PROTECTION ZONE OF TREE.
- T40R* EXISTING TREE, RECOMMENDED FOR REMOVAL BASED ON CONDITION. CIRCLE REPRESENTS MINIMUM TREE PROTECTION ZONE OF TREE.
- TREE PROTECTION FENCING PER DETAIL 02830-6

- Notes
- This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
 - The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
 - This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

NOT FOR CONSTRUCTION

No.	Issue / Revision	Date	Auth.
0	INITIAL SUBMISSION	5/30/2024	MD



R. J. Burnside & Associates Limited
252 Speedvale Ave. W., Unit 20
Guelph, Ontario, N1H 1C4
telephone 1-800-265-9662
web www.rjburnside.com

Client
HOSSACK & ASSOCIATES ARCHITECT INC.
1939 IRONDALE WY #105
OAKVILLE, ON
L6H 3V8

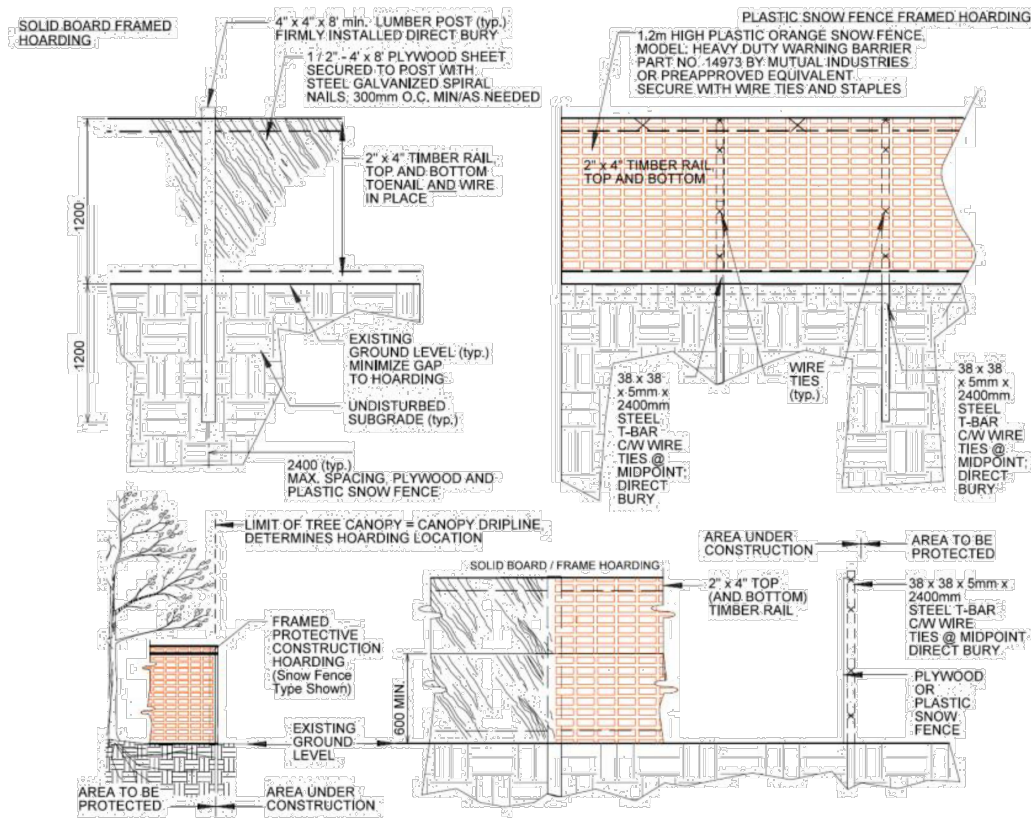
Drawing Title
2524 CAWTHRA ROAD FIRE STATION

Drawn	Checked	Designed	Checked	Date	Drawing No.
HN	MD	MD	KB	24/05/30	
Project No.	Contract No.	Revision No.	0		
300058445	CONTRACT NO.				
Scale	1:250				

T1

02830-6

Hoarding
Framed Protective Construction Hoarding
Solid Board- Plastic Snow Fence



- NOTES:
- HOARDING LOCATION AS PER DRAWINGS. HOARDING INSTALLATIONS ARE TO INCLUDE WOVEN GEOTEXTILE FABRIC FOR SEDIMENT CONTROL.
 - NO MOBILIZATION OR CONSTRUCTION WORK TO OCCUR UNTIL HOARDING HAS BEEN INSPECTED AND APPROVED BY COMMUNITY SERVICES.
 - PROJECT MANAGER (CLIENT) CONTRACTOR TO ARRANGE FOR A HOARDING INSPECTION WITH CSRS. 48 HOUR NOTICE REQUIRED.
 - HOARDING TO BE SUPPLIED, INSTALLED AND MAINTAINED BY THE CONTRACTOR THROUGHOUT ALL PHASES OF WORK ON SITE.
 - THE CONTRACTOR IS TO REMAIN RESPONSIBLE FOR THE HOARDING OFF SITE WHEN DIRECTED BY THE CSRS.
 - ALL WOOD PRODUCTS TO BE NEW AND LUMBER KILN DRIED SPF.
 - ALL FASTENERS TO BE NEW GALVANIZED STEEL AND SECURELY INSTALLED. WIRE TIES MIN 3.0mm DIA. GALVANIZED STEEL.
 - DO NOT ALLOW WATER TO COLLECT AND/OR POND ON EITHER SIDE OF THE HOARDING.
 - MAIN INSTALLING DIRECT BURY TIMBER POSTS AND GABLE TIES TO AVOID VISIBLE AND ACCURATELY ANCHOR TREE ROOTS.
 - PLACE HOARDING AT LIMIT OF TREE CANOPY OR LINE OR BEYOND (E.G. FURTHER AWAY FROM TRUNK OF TREE).
 - HOARDING OFF AREA TO REMAIN UNDISTURBED. NO STOCKPILING, STAGING OR MOVEMENT OF VEHICLES TO OCCUR WITHIN PROTECTED AREA.
 - FOR PROTECTION OF TREES AND ROOT SYSTEMS, CONTRACTOR MAY BE REQUIRED TO PROVIDE WATERING, MULCHING, FERTILIZING, PRUNING OR OTHER ACTIVITIES TO ENSURE THE HEALTH OF THE TREES.
 - ALL MEASUREMENTS IN THIS PLAN UNLESS NOTED OTHERWISE (S.D. DIMENSIONAL LUMBER).
 - CONTRACTOR RESPONSIBLE FOR LOCATES.

N.T.S.

Detail: 02830-6

ORIGINAL DATE: MAY 09/18
REVISION DATE: MAY 09/18



BELOW IS THE APPROVED TREE PRESERVATION SIGN TEMPLATE. TREE PRESERVATION SIGNS ARE TO BE 16 INCHES BY 24 INCHES OR 40.64 CM BY 60.96 CM AND ON A WATERPROOF MATERIAL. INSTALLATION OF THE SIGNS IS MANDATORY, AND ALL ASSOCIATED COSTS OF THE SIGNAGE ARE THE SOLE RESPONSIBILITY OF THE APPLICANT. NO OTHER SIGNAGE IS PERMITTED TO BE FIXED ONTO ANY TREE PROTECTION HOARDING.

MISSISSAUGA

Tree Protection Zone (TPZ)

BY-LAW #

No construction activities, including grade changes, storage of materials or equipment, dumping, excavation is permitted within this TPZ

This tree protection barrier must remain in good condition and must not be removed or altered without the authorization of City of Mississauga, Urban Forestry.

Concerns or inquires regarding this TPZ can be directed to:

(3-1-1) Dial 3-1-1 905-615-4311 outside city limits

MIGRATORY BIRDS PROTECTION NOTE:
REMOVAL OF WOODY VEGETATION (TREES AND SHRUBS) SHOULD OCCUR OUTSIDE OF THE MIGRATORY BIRD BREEDING SEASON, TYPICALLY FROM APRIL 1 TO AUGUST 31. IF THIS IS NOT POSSIBLE, A PRE-CONSTRUCTION NEST SURVEY WILL BE COMPLETED NO GREATER THAN 3 DAYS PRIOR TO THE PROPOSED SITE PREPARATION AND CLEARING ACTIVITIES BY A QUALIFIED ECOLOGIST. IF NESTING SPECIES ARE IDENTIFIED, AN APPROPRIATE SPECIES-SPECIFIC BUFFER WILL BE APPLIED UNTIL THE NEST IS NO LONGER ACTIVE.

PERMISSION AND AN AGREEMENT FROM THE ADJACENT LANDOWNER WILL BE REQUIRED TO REMOVE OFFSITE TREES (T59 AND T60)



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Appendix A

Tree Assessment Data

Appendix A

Tree ID	Common Name	Scientific Name	Ownership	DBH (cm)	MPFZ (m)	Condition	Comments	Recommendation (Condition)	Recommendation (Design)	Recommendation (Final)
T1	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Private (Offsite)	57	7.77	Good	-	Preserve	Preserve	Preserve
T2	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Private (Offsite)	30	3.9	Good	-	Preserve	Preserve	Preserve
T3	Norway Maple	<i>Acer platanoides</i>	Private (Offsite)	10	3.1	Good	-	Preserve	Preserve	Preserve
T4	Black Locust	<i>Robinia pseudoacacia</i>	Private (Offsite)	15	3.15	Good	-	Preserve	Preserve	Preserve
T5	Black Locust	<i>Robinia pseudoacacia</i>	Private (Offsite)	10	3.1	Good	-	Preserve	Preserve	Preserve
T6	Black Locust	<i>Robinia pseudoacacia</i>	Private (Offsite)	11	3.11	Good	-	Preserve	Preserve	Preserve
T7	Manitoba Maple	<i>Acer negundo</i>	Private (Offsite)	11	3.11	Good	Lean (low)	Preserve	Preserve	Preserve
T8	Manitoba Maple	<i>Acer negundo</i>	Private (Offsite)	8	2.48	Good	-	Preserve	Preserve	Preserve
T9	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Private (Offsite)	25, 27, 20	6.42	Good	-	Preserve	Preserve	Preserve
T10	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Private (Offsite)	20, 16, 15	3.9	Good	-	Preserve	Preserve	Preserve
T11	Manitoba Maple	<i>Acer negundo</i>	Private (Offsite)	12	3.12	Good-Fair	Lean (moderate)	Preserve	Preserve	Preserve
T12	Manitoba Maple	<i>Acer negundo</i>	Private (Offsite)	9, 8	3.12	Good-Fair	Lean (moderate)	Preserve	Preserve	Preserve
T13	Manitoba Maple	<i>Acer negundo</i>	Private (Offsite)	6	2.46	Good	-	Preserve	Preserve	Preserve
T14	Manitoba Maple	<i>Acer negundo</i>	Private (Offsite)	11, 21, 10	3.86	Good	-	Preserve	Preserve	Preserve
T15	Manitoba Maple	<i>Acer negundo</i>	Private (Offsite)	10, 18, 9, 13, 10	3.88	Good	-	Preserve	Preserve	Preserve
T16	White Elm	<i>Ulmus americana</i>	Private (Offsite)	9, 10	3.13	Good-Fair	Included bark (low)	Preserve	Preserve	Preserve
T17	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Private (Offsite)	22	3.82	Good-Fair	Included in fence (low)	Preserve	Preserve	Preserve
T18	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Private (Offsite)	23	3.83	Good-Fair	Included in fence (low)	Preserve	Preserve	Preserve
T19	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Private (Offsite)	9	2.49	Good-Fair	Included in fence (low)	Preserve	Preserve	Preserve
T20	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Private (Offsite)	24	3.84	Good-Fair	Included in fence (low)	Preserve	Preserve	Preserve
T21	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Private (Offsite)	13	3.13	Good-Fair	Included in fence (low)	Preserve	Preserve	Preserve
T22	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Private (Offsite)	7	2.47	Good-Fair	Included in fence (low)	Preserve	Preserve	Preserve
T23	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Private (Offsite)	17	3.17	Good-Fair	Included in fence (low)	Preserve	Preserve	Preserve
T24	Russian Olive	<i>Elaeagnus angustifolia</i>	Private (Offsite)	6, 8	3.1	Good	-	Preserve	Preserve	Preserve
T25	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Private (Offsite)	20	3.2	Good	-	Preserve	Preserve	Preserve
T26	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Private (Offsite)	20	3.2	Good	-	Preserve	Preserve	Preserve
T27	Siberian Elm	<i>Ulmus pumila</i>	Private (Offsite)	6	2.46	Good	-	Preserve	Preserve	Preserve
T28	Russian Olive	<i>Elaeagnus angustifolia</i>	Private (Offsite)	11, 9, 14	3.2	Good	-	Preserve	Preserve	Preserve
T29	Manitoba Maple	<i>Acer negundo</i>	Private (Offsite)	6	2.46	Good	-	Preserve	Preserve	Preserve
T30	Crabapple	<i>Malus coronaria</i>	Private (Offsite)	5, 4, 4	2.48	Good	-	Preserve	Preserve	Preserve
T31	Crabapple	<i>Malus coronaria</i>	Private (Offsite)	5	2.45	Good	-	Preserve	Preserve	Preserve
T32	Manitoba Maple	<i>Acer negundo</i>	Private (Offsite)	7	2.47	Good	-	Preserve	Preserve	Preserve
T33	Manitoba Maple	<i>Acer negundo</i>	Private (Offsite)	32	5.12	Good	-	Preserve	Preserve	Preserve
T34	Crabapple	<i>Malus coronaria</i>	Private (Offsite)	9, 5	3	Good	-	Preserve	Preserve	Preserve
T35	Manitoba Maple	<i>Acer negundo</i>	Private (Offsite)	22, 14	3.86	Good-Fair	Included in fence, epicormic growth (low)	Preserve	Preserve	Preserve
T36	Black Walnut	<i>Juglans nigra</i>	Private (Offsite)	11	3.11	Good	-	Preserve	Preserve	Preserve
T37	Manitoba Maple	<i>Acer negundo</i>	Public	10, 14, 9	3.19	Good	-	Preserve	Preserve	Preserve
T38	Black Locust	<i>Robinia pseudoacacia</i>	Private (Offsite)	15, 8	3.17	Good	Included in fence (low)	Preserve	Preserve	Preserve
T39	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Private (Offsite)	23, 6, 6, 8, 9, 9	3.89	Good	Included in fence (low)	Preserve	Preserve	Preserve
T40	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Private (Offsite)	10, 8, 19, 8, 9, 8, 8, 10, 12	5.12	Good	-	Preserve	Preserve	Preserve
T41	Black Locust	<i>Robinia pseudoacacia</i>	Private (Offsite)	4	2.44	Good	Grapevine (moderate)	Preserve	Preserve	Preserve
T42	Black Locust	<i>Robinia pseudoacacia</i>	Private (Offsite)	7	2.47	Good	Grapevine (moderate)	Preserve	Preserve	Preserve
T42*	Green Ash	<i>Fraxinus pennsylvanica var. subintegerrima</i>	Public	8	2.48	Dead	-	Remove	Remove	Remove
T44	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Public	15	3.15	Good	-	Preserve	Preserve	Preserve
T45	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Public	24, 14	3.88	Good	-	Preserve	Preserve	Preserve
T46	Eastern Cottonwood	<i>Populus deltoides ssp. deltoides</i>	Public	13	3.13	Good	-	Preserve	Preserve	Preserve
T47	Black Locust	<i>Robinia pseudoacacia</i>	Public	16, 16, 23	5.12	Good	-	Preserve	Remove	Remove
T48	Manitoba Maple	<i>Acer negundo</i>	Public	12	3.12	Good-Fair	Crown thinning (low)	Preserve	Remove	Remove
T49	Manitoba Maple	<i>Acer negundo</i>	Public	9, 11	3.14	Fair	Crown dieback (moderate)	Preserve	Remove	Remove
T50	White Mulberry	<i>Morus alba</i>	Public	4	2.44	Good	-	Preserve	Remove	Remove
T51	Manitoba Maple	<i>Acer negundo</i>	Public	12	3.12	Good-Fair	Lean (moderate), suppressed	Preserve	Remove	Remove
T52	Russian Olive	<i>Elaeagnus angustifolia</i>	Public	22, 26	5.14	Good-Fair	Lean (moderate)	Preserve	Remove	Remove
T53	Eastern White Pine	<i>Pinus strobus</i>	Public	8, 9	3.12	Good	-	Preserve	Remove	Remove
T54	Manitoba Maple	<i>Acer negundo</i>	Public	12, 16	3.2	Good	-	Preserve	Remove	Remove
T55	Eastern White Pine	<i>Pinus strobus</i>	Public	11	3.11	Good-Fair	Leader broken	Preserve	Remove	Remove
T56	Manitoba Maple	<i>Acer negundo</i>	Public	8	2.48	Good	-	Preserve	Remove	Remove
T57	Siberian Elm	<i>Ulmus pumila</i>	Public	16	3.16	Good	-	Preserve	Remove	Remove
T58	Green Ash	<i>Fraxinus pennsylvanica var. subintegerrima</i>	Public	10	3.1	Poor	Grapevine (moderate), Crown dieback (high)	Remove	Remove	Remove
T59	Eastern White Pine	<i>Pinus strobus</i>	Private (Offsite)	9	2.49	Good	-	Preserve	Remove	Remove
T60	Eastern White Pine	<i>Pinus strobus</i>	Private (Offsite)	23	3.83	Good	-	Preserve	Remove	Remove
T61	Eastern White Pine	<i>Pinus strobus</i>	Private (Offsite)	22	3.82	Good	-	Preserve	Preserve	Preserve
T62	Norway Maple	<i>Acer platanoides</i>	Private (Offsite)	29	3.89	Good	-	Preserve	Preserve	Preserve
T63	Norway Maple	<i>Acer platanoides</i>	Private (Offsite)	27	3.87	Good	-	Preserve	Preserve	Preserve
T64	Norway Maple	<i>Acer platanoides</i>	Private (Offsite)	24	3.84	Good	-	Preserve	Preserve	Preserve
T65	Green Ash	<i>Fraxinus pennsylvanica var. subintegerrima</i>	Private (Offsite)	5, 5, 5	2.49	Fair	Crown dieback (moderate)	Preserve	Preserve	Preserve
T66*	Green Ash	<i>Fraxinus pennsylvanica var. subintegerrima</i>	Private (Offsite)	7	2.47	Poor	Crown dieback (high)	Remove	Preserve	Remove*
T67	Silver Maple	<i>Acer saccharinum</i>	Private (Offsite)	10, 22	3.84	Fair	Crown dieback (moderate), crown reduced, epicormic growth (moderate)	Preserve	Preserve	Preserve
T68	Red Oak	<i>Quercus rubra</i>	Private (Offsite)	8, 8, 5, 5	3.13	Good	-	Preserve	Preserve	Preserve
T69	Red Oak	<i>Quercus rubra</i>	Private (Offsite)	12	3.12	Good	-	Preserve	Preserve	Preserve
T70	Silver Maple	<i>Acer saccharinum</i>	Private (Offsite)	63, 8, 10	9.04	Fair	Crown dieback (low), trunk deformity, fused with deadwood of other dead tree	Preserve	Preserve	Preserve
T71	Black Walnut	<i>Juglans nigra</i>	Private (Offsite)	64	9.04	Good-Fair	Utility pruning	Preserve	Preserve	Preserve

Total Public	17
Total Private (Offsite)	54

Total Removal (Condition)	2
Total Removal (Design)	14
Total Preserve	55
Total	71



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Appendix B

Tree Appraisal

Tree Appraisal Data

Tree #	Ownership	Recommendation	Species	Condition	Location (Average)	DBH (cm)	Basic Value	Species Rating	Amenity Value	Removal Cost	Total Appraised Value
T37	Public	Preserve	Manitoba Maple	91	40	19	\$2,145.86	38	\$295.59	200	\$495.59
T43	Public	Remove	Green Ash	25	43	8	\$628.09	67	\$45.59	100	\$145.59
T44	Public	Remove	Eastern Cottonwood	94	43	15	\$1,450.86	45	\$265.23	100	\$365.23
T45	Public	Remove	Eastern Cottonwood	94	43	28	\$4,307.54	45	\$787.47	400	\$1,187.47
T46	Public	Remove	Eastern Cottonwood	94	43	13	\$1,164.68	45	\$212.92	100	\$312.92
T47	Public	Remove	Black Locust	100	57	32	\$5,534.03	56	\$1,756.13	400	\$2,156.13
T48	Public	Remove	Manitoba Maple	94	57	12	\$1,036.92	38	\$209.33	100	\$309.33
T49	Public	Remove	Manitoba Maple	84	57	14	\$1,302.66	38	\$236.68	100	\$336.68
T50	Public	Remove	White Mulberry	100	57	4	\$382.79	51	\$110.63	100	\$210.63
T51	Public	Remove	Manitoba Maple	91	57	12	\$1,036.92	38	\$202.35	100	\$302.35
T52	Public	Remove	Russian Olive	94	57	34	\$6,208.59	56	\$1,847.06	400	\$2,247.06
T53	Public	Remove	Eastern White Pine	100	57	12	\$1,036.92	75	\$440.69	100	\$540.69
T54	Public	Remove	Manitoba Maple	100	57	20	\$2,345.17	38	\$504.99	200	\$704.99
T55	Public	Remove	Eastern White Pine	88	57	11	\$919.38	75	\$341.89	100	\$441.89
T56	Public	Remove	Manitoba Maple	100	57	8	\$628.09	38	\$135.25	100	\$235.25
T57	Public	Remove	Siberian Elm	100	57	16	\$1,609.28	39	\$355.65	200	\$555.65
T58	Public	Remove	Green Ash	25	57	10	\$812.06	67	\$77.08	100	\$177.08
											\$10,724.53



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Appendix C

Tree Study Methodology

Tree Studies: Methodology

The list provided below represents all data that may be collected in the analysis of trees. Methodology descriptions should be reviewed with the column headings provided in the data. The columns represent the scope and extent of the tree assessment carried out.

Tree No.: This number may be assigned by the Tree Assessor or predetermined by the Surveyor or Client. The number corresponds with the tree tag affixed to the tree, if tree tagging is part of the study's scope.

Species Name: Botanical name of the species.

Common Name: Commonly used English name.

DBH (cm): Diameter at Breast Height measured using DBH tape or tree caliper.

Crown Reserve (m): Average measurement of the diameter or width of the dripline (extent of branches from the trunk). Generally the trunk is the midpoint of this measurement. It is represented on the drawing(s) as a circle. This measurement may not be used in the subject jurisdiction.

TPZ (m): Tree protection zone required based on the required setback from the trunk, as designated by the agency (e.g., municipality). The TPZ is calculated by doubling the setback and including the trunk diameter to create a diameter of circle of protection around the tree.

HT (m): Estimated height from the base to the top of the tree.

Condition (G, F, P, D): The assigned condition (Good, Fair, Poor, Dead) based on a qualitative assessment of the biological and structural components of the tree roots, trunk, scaffold branches, small branches, and foliage.

Preserve or Remove Reason: Reasons for recommended preservation or removal assigned in the tree study. Reasons for recommended removal may result from:

- Existing condition (critical deficiency such as severe crown dieback).
- Anticipated impacts of the proposed development (i.e., tree location is in conflict with construction element).
- Both existing condition and anticipated impacts.

A checkmark is provided in the appropriate column.

Description of Reason: Rationale for the assignment of preservation or removal rationale based on analysis of collected data and proposed development.

Transplant Potential (G,F,P): Assignment of qualitative measure of reestablishment success of a tree when removed from its existing location and moved to another or removed and stored for replanting following construction. An assignment of Good, Fair, or Poor is assigned based on a species' ability to re-establish, condition of the tree, new growing conditions, etc.



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Appendix D

Limitations of Tree Studies

Tree Studies: Limitations

This report, drawings and data (i.e., qualitative and quantitative measurements) are intended to inform the recipient and reviewer(s) of the report of the tree(s) condition at the time of the assessment. The assessment may be limited by the following constraints:

1. Access – tree is located off-site, or the on-site location is not reasonably accessed.
2. Weather – accumulated snow around the base or in branch attachments may obscure defects.
3. Season – biotic indications (e.g., foliage chlorosis or fungal fruiting bodies) are only obvious for a portion of the year.
4. Visual obstructions – Elements such as other trees' canopies can prevent the view of the entire tree.

The study is completed from the ground using a DBH tape or tree caliper. Non-invasive tools such as binoculars and a sounding hammer may be used to provide additional information about defects and characteristics. Excavation of the rootzone and other intensive analyses have not been completed unless stated.

It must be understood that trees may not manifest signs or symptoms (e.g., dieback) of some impacts (e.g., root compaction) immediately and so recent changes to the tree or its growing conditions prior to the assessment may not be apparent to the Assessor. Also, changes to the tree condition resulting from damage, weather, infestations, defects, soil, decay, light, moisture, exposure, etc. may occur after the assessment.

No tree is without some level of risk, where a tree may fail and strike a target. Mitigation options, if provided, will not eliminate risk but are prescribed treatments to reduce risk based on the measured and assessed factors at the time of assessment, subject to site and assessment constraints.

Identification of the ownership of assessed trees (i.e., on-site or off-site) made in the report is based on the legal survey. The Assessor of trees uses the point location of the tree provided on the survey and the limits of property to assign ownership in the report and associated materials.

