Memorandum to the City of Markham Committee of Adjustment
November 17, 2020

File: **A/095/20**
Address: **42 Galsworthy Dr – Markham, ON**
Applicant: **Greg Ireland**
Agent: **N/A**
Hearing Date: **December 2, 2020**

The following comments are provided on behalf of the East Team. The applicant is requesting relief from the following Residential (R1) zone requirements under By-law 1229, as amended, as they relate to a proposed two-storey residential dwelling, to permit:

a) **By-law 1229, Sec. 1.2(iii):**
a maximum building depth of 20.93 m (68.67 ft); whereas the By-law permits a maximum building depth of 16.80 m (55.12 ft); and

b) **By-law 1229, Sec. 1.2(vi):**
a maximum floor area ratio of 49.93%; whereas the By-law permits a maximum floor area ratio of 45.0%.

BACKGROUND

Property Description

The 956.50 m^2 (10,295.68 ft^2) subject property is located on the west side of Galsworthy Drive, north of Robinson Street, east of Hawkridge Avenue, and south of Bullock Drive. The property is developed with an existing one-storey single detached dwelling. Mature vegetation exists across the property. The property is located within an established residential neighbourhood comprised of a mix of one and two-storey detached dwellings. The surrounding area is undergoing a transition with newer dwellings being developed as infill developments.

Proposal

The applicant is proposing to demolish the existing one-storey single detached dwelling, and to construct a two-storey single detached dwelling with an attached two-car garage. The ground floor would have an area of approximately 217.61 m^2 (2,342.30 ft^2) including the garage area, and a second floor area with a smaller floor plate of approximately 174.18 m^2 (1,874.90 ft^2), for a total gross floor area of 391.79 m^2 (4,217.20 ft^2)

Official Plan and Zoning

Official Plan 2014 (partially approved on November 24/17, and updated on April 9/18)
The subject property is designated “Residential Low Rise”, which provides for low rise housing forms including single detached dwellings. Section 8.2.3.5 of the Official Plan outlines development criteria for the “Residential Low Rise” designation with respect to height, massing and setbacks. This criteria is established to ensure that the development is appropriate for the site and generally consistent with the zoning requirements for adjacent properties and properties along the same street. In considering applications for development approval in a “Residential Low Rise” area, which includes variances, infill development is required to meet the general intent of these development criteria. Regard shall also be had for retention of existing trees and vegetation, the width of proposed garages and driveways and the overall orientation and sizing of new lots within a residential neighbourhood.

Zoning By-Law 1229

The subject property is zoned Residential (R1) under By-law 1229, as amended, which permits one single detached dwelling per lot.

Residential Infill Zoning By-law 99-90

The subject property is also subject to the Residential Infill Zoning By-law 99-90. The intent of this By-law is to ensure the built form of new residential construction will maintain the general character of existing neighbourhoods. It specifies development standards for building depth, garage projection, garage width, net floor area ratio, building height, and number of storeys. The proposed development does not comply with the Infill By-law requirements with respect to maximum building depth, and maximum floor area ratio.

Zoning Preliminary Review (ZPR) Undertaken

The applicant has completed a ZPR on November 6, 2020 to confirm the variances required for the proposed development.

COMMENTS

The *Planning Act* states that four tests must be met in order for a variance to be granted by the Committee of Adjustment ("the Committee"):

a) The variance must be minor in nature;
b) The variance must be desirable, in the opinion of the Committee, for the appropriate development or use of land, building or structure;
c) The general intent and purpose of the Zoning By-law must be maintained;
d) The general intent and purpose of the Official Plan must be maintained.

Increase in Maximum Building Depth

The applicant is requesting a maximum building depth of 20.93 m (68.67 ft), whereas the By-law permits a maximum building depth of 16.80 m (55.12 ft). This represents an increase of approximately 4.13 m (13.55 ft).

Building depth is measured based on the shortest distance between two lines, both parallel to the front lot line, one passing through the point on the dwelling which is the nearest and the other through the point on the dwelling which is the farthest from the front lot line. The proposed development includes both front and rear covered porches, which add approximately 5.18 m (17.0 ft) to the overall building depth. Excluding the porches, the two-storey dwelling has an approximate depth of 15.75 m (51.67 ft) at the ground floor, and an approximate depth of 14.68 m (48.16 ft) at the second floor, both of which comply with the By-law requirement. Staff are of the opinion that the proposed development generally meets the intent of the By-law, and do not object to the requested variance.

Increase in Maximum Floor Area Ratio

The applicant is requesting relief to permit a floor area ratio of 49.93%, whereas the By-law permits a maximum floor area ratio of 45.0%. The variance will facilitate the construction of a two-storey detached dwelling with a gross floor area of 391.79 m^2 (4,217.20 ft^2), whereas the By-law permits a dwelling with a maximum floor area of 353.22 m^2 (3,802.05 ft^2). This is an increase of approximately 38.57 m^2 (415.15 ft^2).

Staff are of the opinion that the proposed development will result in a dwelling that meets the intended scale of residential infill developments within the surrounding area and along the street, and do not object to its approval.

Tree Preservation & Compensation

The applicant submitted an Arborist Report and Tree Preservation Plan dated September 30, 2020 (Appendix "C"). The tree inventory identifies a total of eight trees which exist on the property, and five neighbouring trees in proximity to the subject property. All trees have been assessed as fair or good condition. The applicant is proposing to remove one Norway (Crimson) Maple tree (Tree #4) located in the rear yard of the subject property, and to protect all other trees, including any neighbouring trees. Urban Forestry staff request that the proposed development be subject to the tree protection and compensation conditions of approval provided in Appendix "A".

Metrolinx Comments

Metrolinx provided comments on this application on November 17, 2020 (Appendix "D"), requesting that the applicant enter into an agreement to grant Metrolinx an environmental easement for operational emissions, registered on title in favour of Metrolinx, as the property is located within 300.0 m (984.25 ft) of the rail corridor right-of-way. in any event of approval, staff recommend that the proposed development be subject to the condition of approval provided in Appendix "A".

PUBLIC INPUT SUMMARY

No written submissions were received as of November 17, 2020. It is noted that additional information may be received after the writing of the report, and the Secretary-Treasurer will provide information on this at the meeting.

CONCLUSION

Planning staff have reviewed the application with respect to Section 45(1) of the *Planning Act, R.S.O. 1990, c. P.13, as amended*, and are of the opinion that the variance request meets the four tests of the *Planning Act* and have no objection. Staff recommend that the Committee consider public input in reaching a decision.

The onus is ultimately on the applicant to demonstrate why they should be granted relief from the requirements of the By-law, and how they satisfy the tests of the *Planning Act* required for the granting of minor variances.

Please see Appendix "A" for conditions to be attached to any approval of this application.

APPENDICES

Appendix "A" – Conditions of Approval
Appendix "B" – Plans
Appendix "C" – Arborist Report & Tree Preservation Plan
Appendix "D" – Metrolinx Comments

PREPARED BY:

Aleks Todorovski, Planner, Zoning and Special Projects

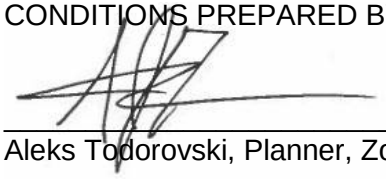
REVIEWED BY:

Stephen Corr, Senior Planner, East District

APPENDIX "A"
CONDITIONS TO BE ATTACHED TO ANY APPROVAL OF FILE A/095/20

1. The variances apply only to the proposed development as long as it remains.
2. That the variances apply only to the subject development, in substantial conformity with the batch stamped plans attached as Appendix "B" to this Staff Report, and that the Secretary-Treasurer receive written confirmation from the Director of Planning and Urban Design or designate that this condition has been fulfilled to his or her satisfaction.
3. Submission of an Arborist Report & Tree Assessment and Preservation Plan, prepared by a qualified arborist in accordance with the City's Streetscape Manual (2009), as amended, to be reviewed and approved by the City, and that the Secretary-Treasurer receive written confirmation from Tree Preservation Technician or Director of Operations that this condition has been fulfilled to his/her satisfaction, and that any detailed Siting, Lot Grading and Servicing Plan required as a condition of approval reflects the Tree Assessment and Preservation Plan.
4. That prior to the commencement of construction or demolition, tree protection be erected and maintained around all trees on site, including street trees, in accordance with the City's Streetscape Manual (2009) as amended, and inspected by City Staff to the satisfaction of the Tree Preservation Technician or Director of Operations.
5. That tree replacements be provided and/or tree replacement fees be paid to the City, as identified in the Tree Preservation Plan attached as Appendix "C", if required in accordance with the Tree Assessment and Preservation Plan, and that the Secretary-Treasurer receive written confirmation that this condition has been fulfilled to the satisfaction of the Tree Preservation Technician or Director of Operations.
6. That the applicant satisfies the requirements of Metrolinx, financial or otherwise, as indicated in their letter to the Secretary-Treasurer attached as Appendix "D" to this Staff Report, and that the Secretary-Treasurer receive written confirmation that this condition has been fulfilled to the satisfaction of Metrolinx.

CONDITIONS PREPARED BY:



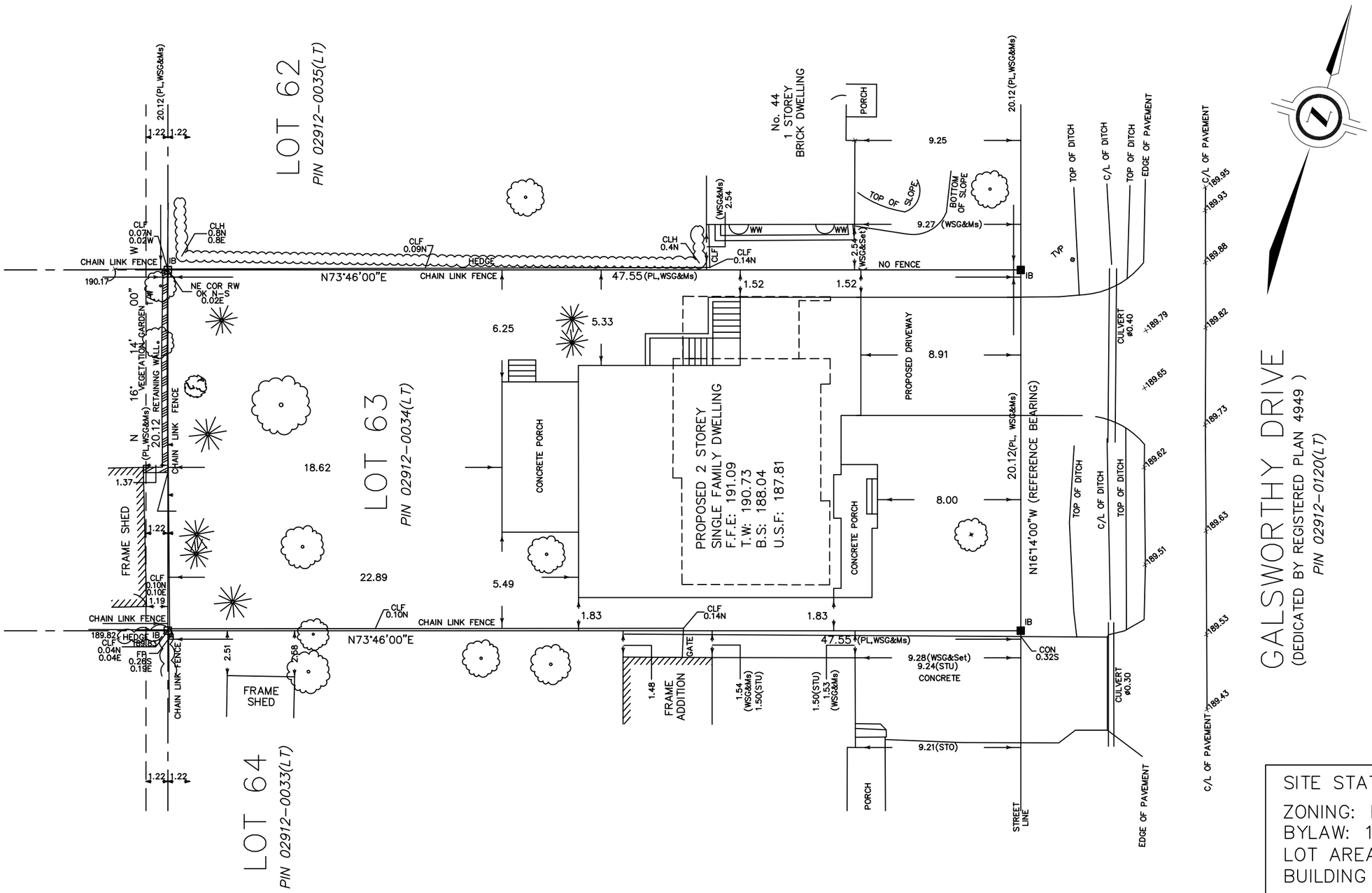
Aleks Todorovski, Planner, Zoning and Special Projects

APPENDIX "B"
PLANS TO BE ATTACHED TO ANY APPROVAL OF FILE A/095/20

Appendix B

File: 20.129231.000.00.MNV

Date: 11/26/20 MM/DD/YY



SITE STATISTICS:

ZONING: R1
BYLAW: 1229 AS AMENDED
LOT AREA: 10,298
BUILDING AREA: 2,885.7 SQ FT
BUILDING COVERAGE: 28.0 %

BUILDING AREA:

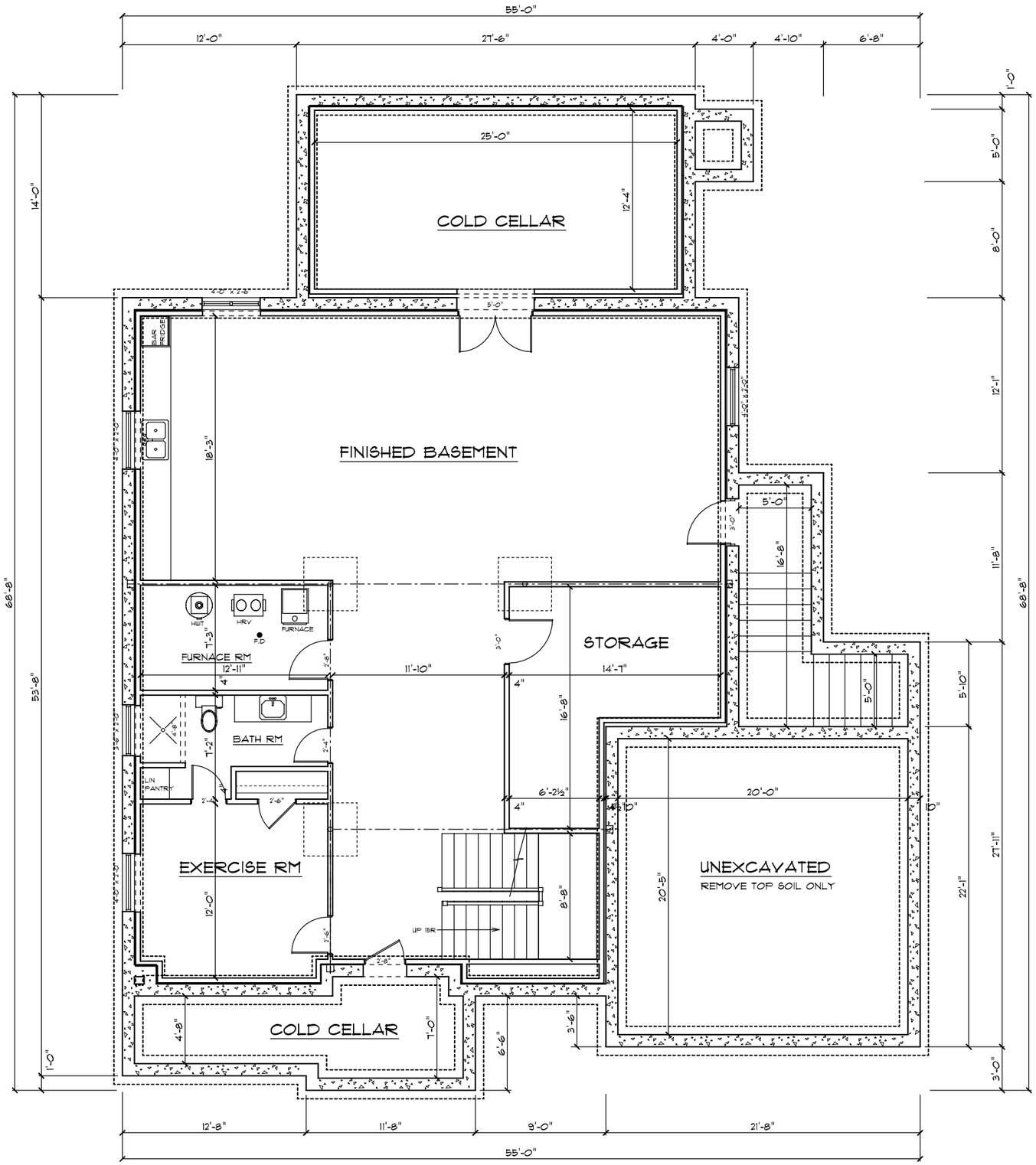
MAIN FLOOR: 2,342.3 SQ FT
2ND FLOOR: 1,874.9 SQ FT
TOTAL G.F.A: 4,217.2 SQ FT (49.9 %)

IRELAND RESIDENCE
196 DONALD SIM AVE
MARKHAM, ON L6B 1B6
PHONE: 416-457-4020
EMAIL: gregireland11@gmail.com

SITE PLAN

PROJECT LOCATION:
42 GALSWORTY DR
MARKHAM, ON L3P 1T1

AA-1



Appendix B

File: 20.129231.000.00.MNV

Date: 11/26/20
MM/DD/YY

IRELAND RESIDENCE

196 DONALD SIM AVE
MARKHAM, ON L6B 1B6
PHONE: 416-457-4020
EMAIL: gregirelandii@gmail.com

SHEET TITLE:

BASEMENT

SCALE: 1/8" = 1'-0"
DRAWN BY: Greg
DATE: September 2020

PROJECT LOCATION:
42 GALSWORTHY DR
MARKHAM, ON L3P 1T1

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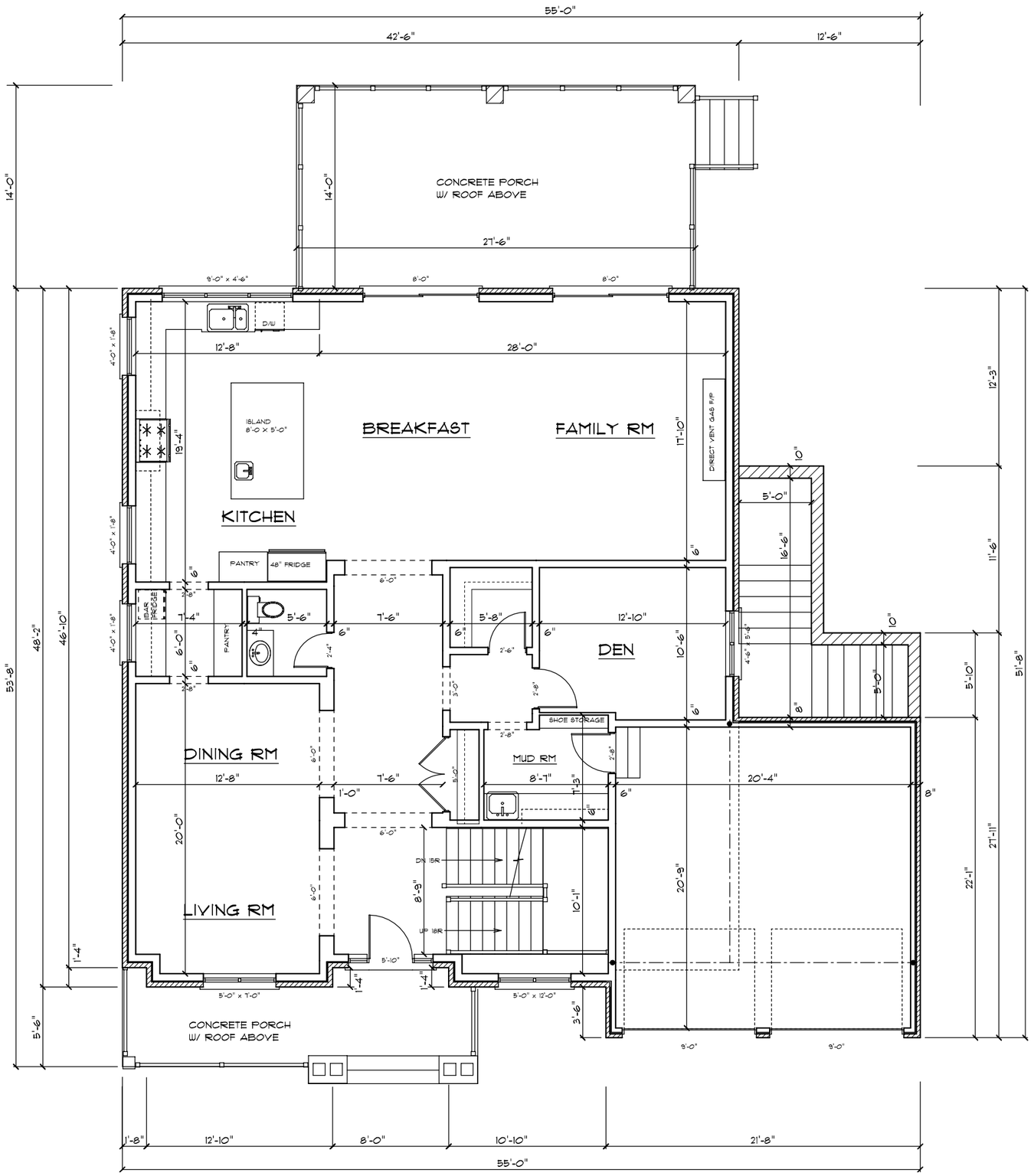

Appendix B

File: 20.129231.000.00.MNV

Date: 11/26/20
MM/DD/YY

IRELAND RESIDENCE

196 DONALD SIM AVE
MARKHAM, ON L6B 1B6
PHONE: 416-457-4020
EMAIL: gregirelandii@gmail.com

SHEET TITLE:

MAIN FLOOR

SCALE: 1/8" = 1'-0"
DRAWN BY: Greg
DATE: September 2020

PROJECT LOCATION:
42 GALSWORTHY DR
MARKHAM, ON L3P 1T1

PAGE#

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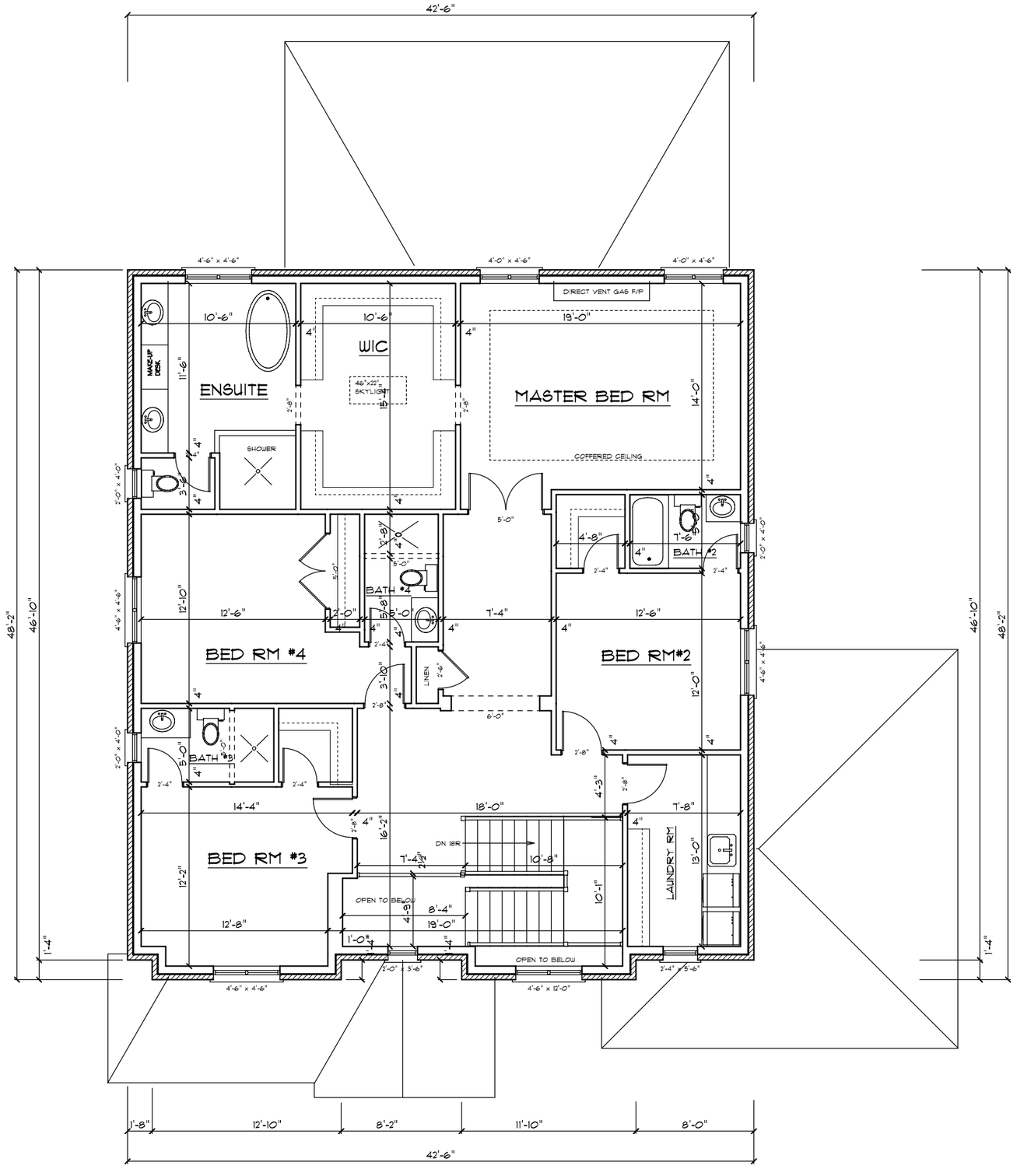

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File: 20.129231.000.00.MNV

Date: 11/26/20
MM/DD/YY

IRELAND RESIDENCE

196 DONALD SIM AVE
MARKHAM, ON L6B 1B6
PHONE: 416-457-4020
EMAIL: gregirelandll@gmail.com

SHEET TITLE:

2ND FLOOR

SCALE: 1/8" = 1'-0"
DRAWN BY: Greg
DATE: September 2020

PROJECT LOCATION:
42 GALSWORTHY DR
MARKHAM, ON L3P 1T1

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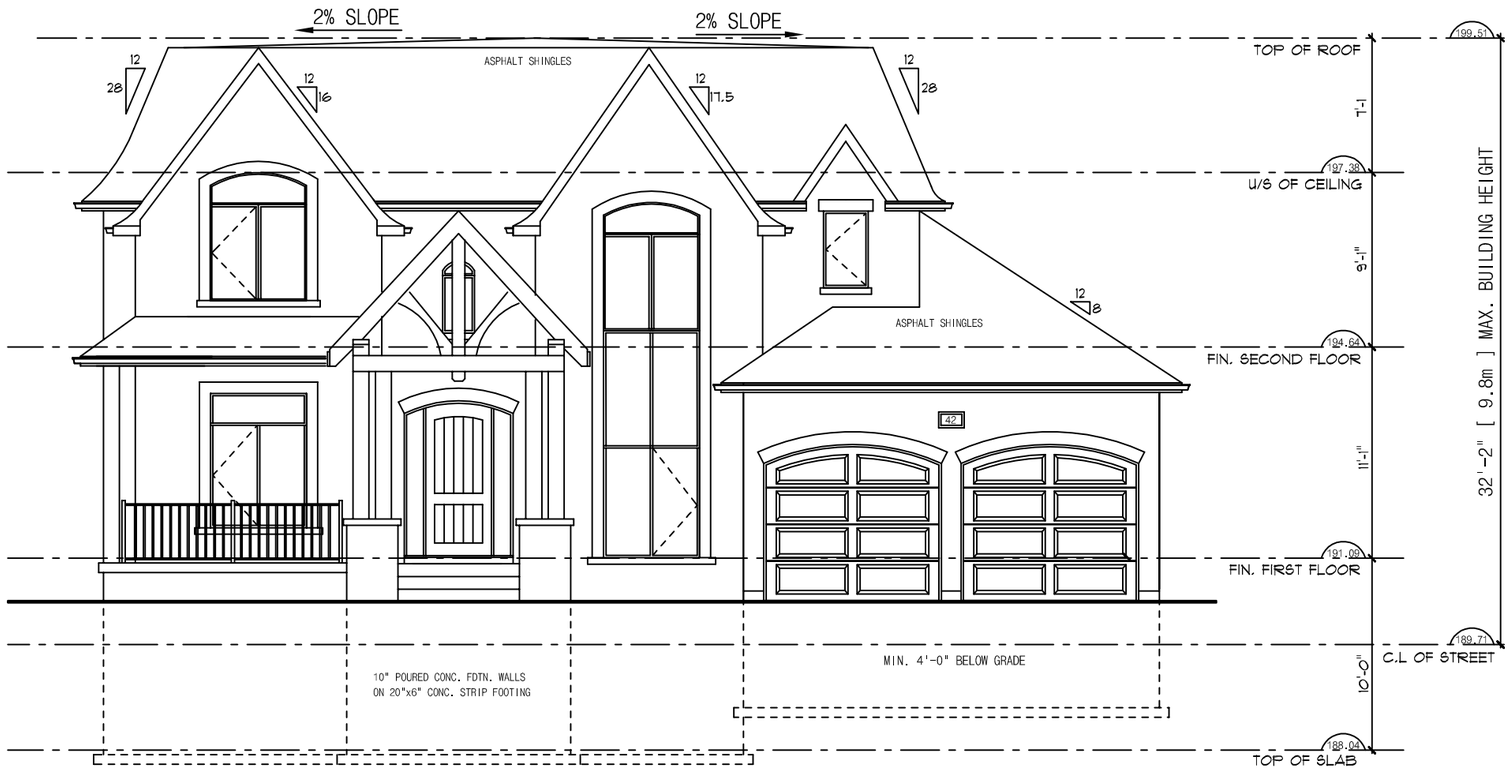

NOTE: EAVES TO HAVE A MAXIMUM PROJECTION OF 18" INTO ANY SIDE YARD

Appendix B

File: 20.129231.000.00.MNV

Date: 11/26/20
MM/DD/YY

IRELAND RESIDENCE

196 DONALD SIM AVE
MARKHAM, ON L6B 1B6
PHONE: 416-457-4020
EMAIL: gregireland@gmail.com

SHEET TITLE:

FRONT ELEVATION

SCALE: 1/8" = 1'-0"

DRAWN BY: GREG IRELAND

DATE: SEPTEMBER 2020

PROJECT LOCATION:

42 GALSWORTHY DR
MARKHAM, ON L3P 1T1

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Appendix B

File: 20.129231.000.00.MNV

Date: 11/26/20
MM/DD/YY

IRELAND RESIDENCE

196 DONALD SIM AVE
MARKHAM, ON L6B 1B6
PHONE: 416-457-4020
EMAIL: gregireland@gmail.com

SHEET TITLE:

REAR ELEVATION

SCALE: 1/8" = 1'-0"

DRAWN BY: GREG IRELAND

DATE: SEPTEMBER 2020

PROJECT LOCATION:

42 GALSWORTHY DR
MARKHAM, ON L3P 1T1

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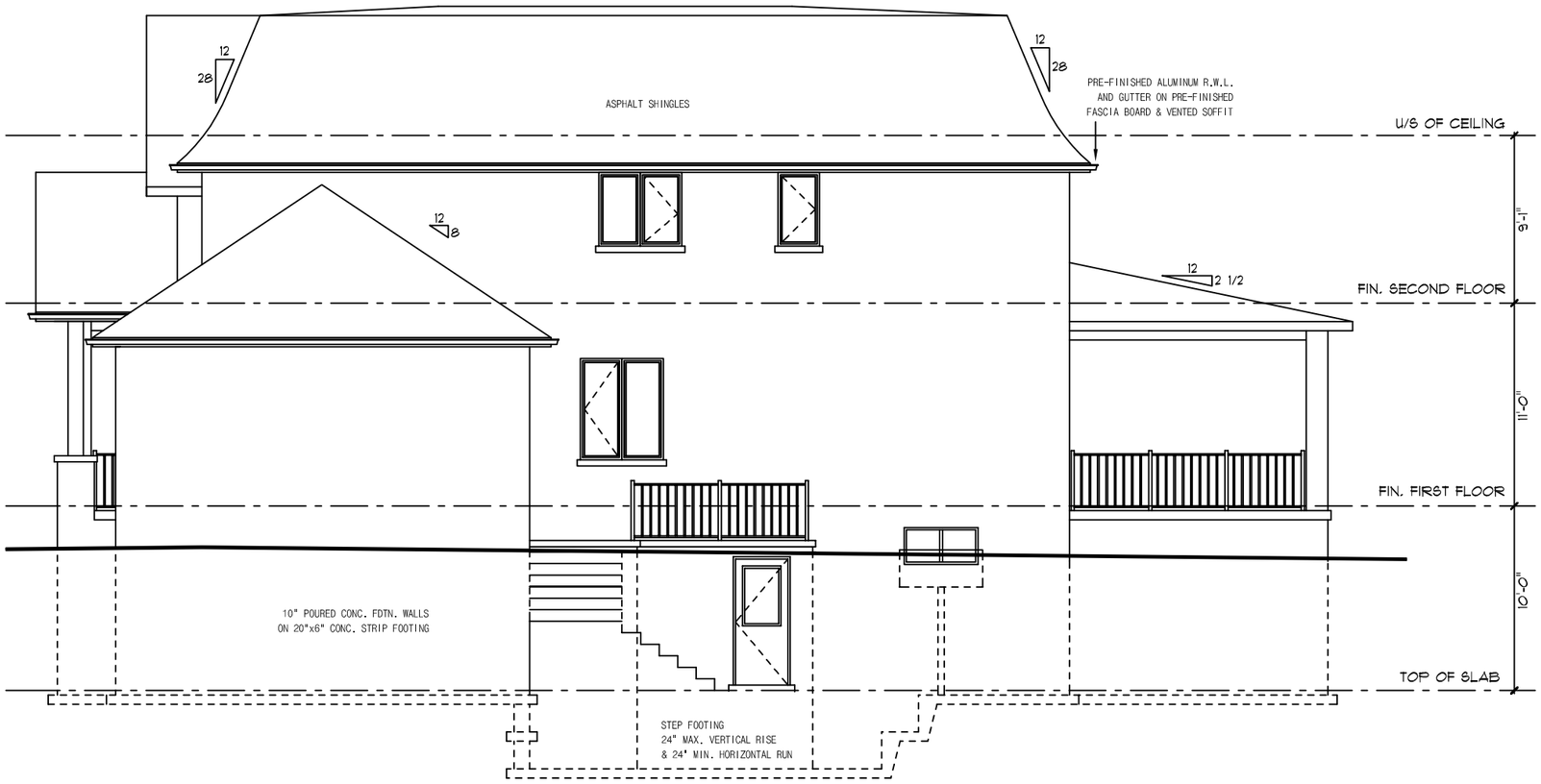

ALLOWABLE UNPROTECTED OPENINGS	
TOTAL WALL AREA:	603.4 SF
LIMITING DISTANCE:	17'-6"
ALLOWABLE OPENINGS:	168.9 SF (28%)
ACTUAL OPENINGS:	35.8 SF

Appendix B

File: 20.129231.000.00.MNV

Date: 11/26/20
MM/DD/YY

IRELAND RESIDENCE

196 DONALD SIM AVE
MARKHAM, ON L6B 1B6
PHONE: 416-457-4020
EMAIL: gregireland@gmail.com

SHEET TITLE:

NORTH ELEVATION

SCALE: 1/8" = 1'-0"

DRAWN BY: GREG IRELAND

DATE: SEPTEMBER 2020

PROJECT LOCATION:

42 GALSWORTHY DR

MARKHAM, ON L3P 1T1

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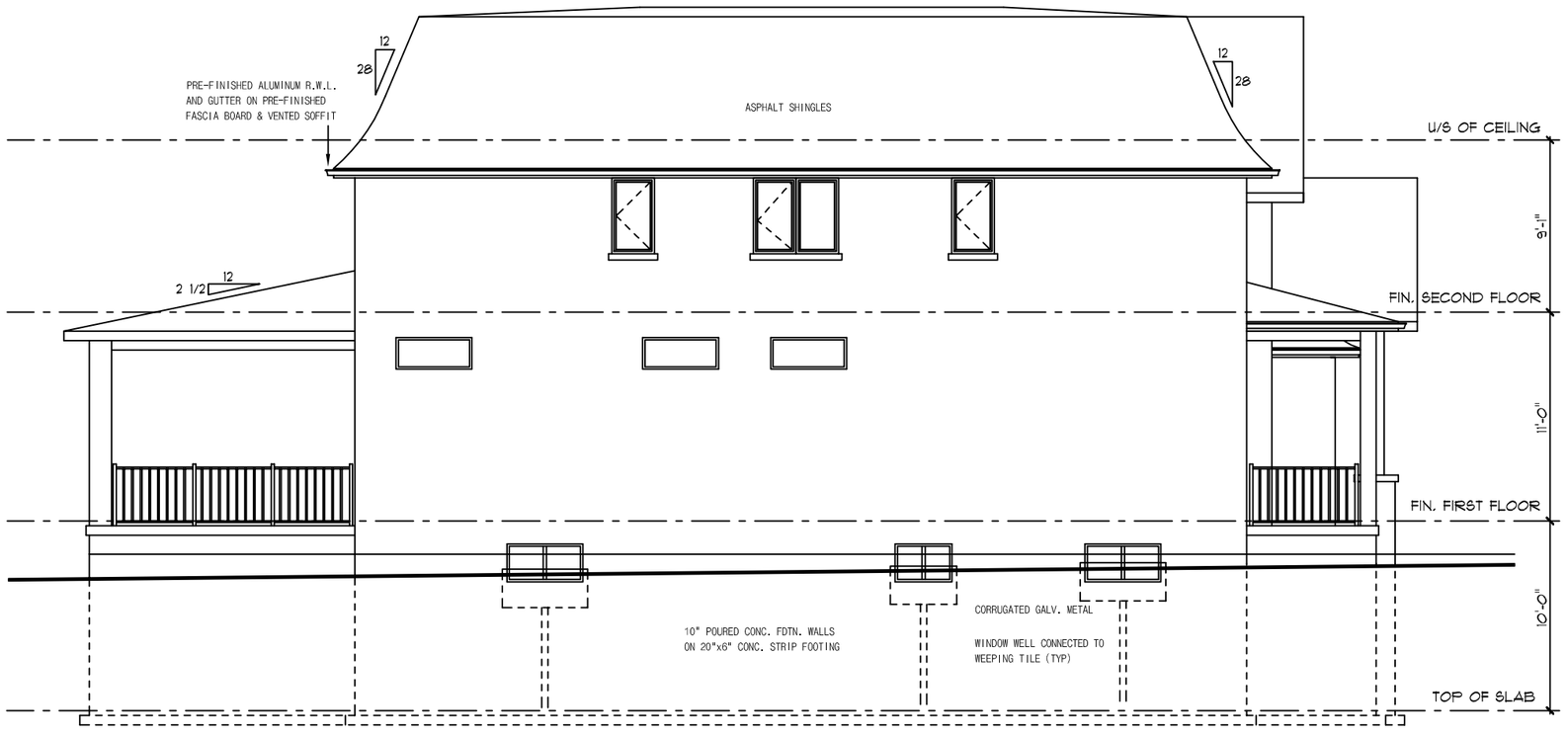

ALLOWABLE UNPROTECTED OPENINGS	
TOTAL WALL AREA:	976.2 SF
LIMITING DISTANCE:	6'-0"
ALLOWABLE OPENINGS:	78.1 SF (8%)
ACTUAL OPENINGS:	74.8 SF

Appendix B

File: 20.129231.000.00.MNV

Date: 11/26/20
MM/DD/YY

IRELAND RESIDENCE

196 DONALD SIM AVE
MARKHAM, ON L6B 1B6
PHONE: 416-457-4020
EMAIL: gregireland@gmail.com

SHEET TITLE:

SOUTH ELEVATION

SCALE: 1/8" = 1'-0"

DRAWN BY: GREG IRELAND

DATE: SEPTEMBER 2020

PROJECT LOCATION:

42 GALSWORTHY DR
MARKHAM, ON L3P 1T1

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APPENDIX "C"
ARBORIST REPORT & TREE PRESERVATION PLAN

CONSTRUCTION ARBORIST REPORT

42 Galsworthy Drive, Markham, ON L3P 1T1

Date: September 30th, 2020

Prepared for: Homeowner(s)

Prepared by: **Ivan Mitev**, M.Sc. Ecologist
ISA Certified Arborist® #-2297A
Consulting Arborist – *Lothlorien Garden Consulting*
https://www.lothloriengarden.com/

ADDRESS: 111 INVERLOCHY BLVD, ON L3T 3R7 OFFICE: (647) 351 2631 WEB: www.lothloriengarden.com

TABLE OF CONTENTS

INTRODUCTION

Lothlorien Garden Consulting was retained by homeowner(s), to prepare a Construction Arborist Report and Tree Assessment and Preservation Plan (TAPP) in support of a development application for the property located at 42 Galsworthy Drive, Markham, Ontario.

ASSIGNMENT

An on-site inspection was undertaken by the arborist most recently on Monday, September 28th, 2020 in order to:

- Prepare an inventory of all bylaw-protected trees. The inventory includes all private trees measured 20 cm in diameter at breast height (DBH) or greater, as well as all trees located on the City road allowance, on or within 6 meters of the subject site; * *In cases where private or neighboring trees have a DBH of < 20 cm, but are within proximity of the site disturbance, they have been included in the inventory and Tree Assessment and Protection Plan in the interest of preserving a private asset.*
- Document each tree's condition, location, and minimum protection requirements;
- Evaluate potential site plan modifications in the interest of tree preservation;
- Establish and illustrate the required hoarding layout to be maintained for the duration of construction activities;

SUMMARY

- The tree inventory documented a total of thirteen (**13)** trees, on or within 6 meters of the subject site. No at risk or endangered species were encountered during the site assessment.
- One (**1)** Privately-owned Norway maple **(Tree #4)** located at the rear of the property, requires a permit to remove from the Urban Forestry Department at City of Markham, to accommodate the proposed new development. As compensation for the removal of **Tree #4**, Urban Forestry shall require compensation in the form of minimum two **(2)** newly planted trees. Please see the section titled "Replanting Plan" on page #29 in this report for details related to species selection and/or proposed compensation.
- No other trees shall be affected by the proposed development. All other trees will be protected to the full extent of the required tree protection zone.

PURPOSE AND USE

This report is provided to the homeowner (s) and shall be used in whole and as provided to the City of Markham's Forestry Department and other stakeholders as it relates solely to this project. This report should be shared with all contractors responsible for site development.

METHODOLOGY

A **Basic Tree Assessment** (**Level 2**) was undertaken on all bylaw-protected trees. Bylaw-protected trees include all private trees measured with a diameter at breast height (DBH) of 20 cm or greater, as well as all trees located on the City road allowance, on or within 6 meters of the subject site. The BTA method is used to evaluate the health and structural condition of each tree and the site in which it grows. This method is recognized as a Limited Visual Inspection by the International Society of Arboriculture. The primary limitation of a basic assessment is that it includes only conditions that can be detected from a ground-based visual inspection. Internal, below-ground, and upper-crown factors may be impossible to see or difficult to assess, thus remaining largely undetected or unevaluated.
Tree resources were assessed based on the following parameters:

Tree #: identification number assigned to the tree, corresponding to the location plotted of the *Tree Protection Plan.*
Species: common and botanical names provided in the inventory table.
DBH: stem diameter measured 140 cm above grade. In cases where a tree has two or more stems, the diameter of the largest stem is provided
Condition: condition of tree considering trunk integrity, crown structure, and crown vigour.
Condition ratings are defined as follows:

1. Excellent – High vigor and nearly perfect health with little or no twig dieback, discoloration, or defoliation.
2. Good – trees in good overall health and condition with desirable structure.
3. Fair – trees in moderate health and condition with less desirable structure.
4. Poor – trees displaying prominent health issues such as decay and disease and/or poor form and structure.
5. Very Poor– trees appear to be dying and in the last stages of life. Little live foliage.
6. Dead – trees that have no living tissue.

More details regarding tree assessment criteria can be found in *Table 1* on the next page.
Trees have been assigned one of the following ownership categories:

1. Trees with diameters of 20 cm or more, situated on private property on the subject site.
2. Trees with diameters of 20 cm or more, situated on private property, within 6 m of the subject site.
3. Trees of all diameters situated on City-owned parkland within 6 m of the subject site.
4. Trees on lands designated under the TRCA regulations, of all diameters situated within 12 m of construction activity.
5. Trees of all diameters situated within the City road allowance, on or within 6 m of the subject site.

Table 1. Assessment of plant condition considers health, structure, and form

Rating category	Condition components			Percent rating
	Health	**Structure**	**Form**	
Excellent	High vigor and nearly perfect health with little or no twig dieback, discoloration, or defoliation.	Nearly ideal and free of defects.	Nearly ideal for the species. Generally symmetric. Consistent with the intended use.	81% to 100%
Good	Vigor is normal for the species. No significant damage due to diseases or pests. Any twig dieback, defoliation, or dis-coloration is minor.	Well-developed structure. Defects are minor and can be corrected.	Minor asymmetries/deviations from species norm. Mostly consistent with the intended use. Function and aesthetics are not compromised.	61% to 80%
Fair	Reduced vigor. Damage due to insects or diseases may be significant and associated with defoliation but is not likely to be fatal. Twig dieback, defoliation, discoloration, and/or dead branches may comprise up to 50% of the crown.	A single defect of a significant nature or multiple moderate defects. Defects are not practical to correct or would require multiple treatments over several years.	Major asymmetries/deviations from species norm and/or intended use. Function and/or aesthetics are compromised	41% to 60%
Poor	Unhealthy and declining in appearance. Poor vigor. Low foliage density and poor foliage color are present. Potentially fatal pest infestation. Extensive twig and/or branch dieback.	A single serious defect or multiple significant defects. Recent change in tree orientation. Observed structural problems cannot be corrected. Failure may occur at any time	Largely asymmetric/abnormal. Detracts from intended use and/or aesthetics to a significant degree	21% to 40%
Very Poor	Poor vigor. Appears to be dying and in the last stages of life. Little live foliage.	Single or multiple severe defects. Failure is probable or imminent.	Visually unappealing. Provides little or no function in the landscape.	6% to 20%
Dead				0% to 5%

TREE PROTECTION BY-LAW

In accordance with: BY-LAW 2008-96TO REGULATE OR PROHIBIT THE INJURY OR DESTRUCTION OF TREES WITHIN THE TOWN OF MARKHAM

SECTION 3.0: APPLICATION OF THE BY-LAW

3.1 Except as otherwise provided in this By-law, the provisions of this By-law shall apply to any tree located within the Town with a DBH of 20 cm or greater.

3.2 Despite subsection 3.1, the provisions of this By-law do not apply to any woodland with an area of 1.0 ha or more or to any woodlot with an area of 0.2 ha up to 1.0 ha within the Town, in accordance with Regional Municipality of York Forest Conservation By-law No.TR-0004-2005-036.

3.3 Despite subsection 3.1, the provisions of this By-law do not apply to trees on municipal public lands regulated under existing Town of Markham By-law No. 118-1999 and Bylaw No. 2002-115.

SECTION 4.0: EXEMPTIONS FROM THE BY-LAW

4.1 The provisions of this by-law do not apply to:

(a) activities or matters or the injury or destruction of any tree exempted pursuant to subsection 135(12) of the Act;

(b) the injury or destruction of any tree located within a waste disposal site as defined in Part V of the Environmental Protection Act, R.S.O. 1990, c. E.19, as amended;

(c) the injury or destruction of, or where specifically noted in the following clauses, the maintenance of any tree that:

(i) is a Dead, Dying or Diseased Tree, as defined in this by-law;

(ii) is a Hazard Tree, as defined in this by-law;

(ii) is required as a result of Emergency Work, as defined in this by-law;

(iii) is required under an Order under any Property Standards By-law of the Town;

(iv) requires the pruning, maintenance or removal of branches or limbs, where the branches or limbs interfere with existing utility conductors, buildings or structures, provided such activities shall be carried out in accordance with Good Arboricultural Practice;

(v) is a tree on a raised podium, in an indoor courtyard, in a solarium or on a rooftop garden, excluding rooftops of parking garages or other substructures below or at grade;

(vi) is a tree in a nursery or cultivated orchard, provided that it is a tree devoted to the nursery or orchard business and maintained for sale or propagation of trees or fruits for sale;

(vii) is removed, injured or destroyed to permit the construction of a building or structure, where the removal, injury or destruction is required under a municipal building permit;

(d) the pruning or maintenance of any tree carried out in accordance with Good Arboricultural Practice.

OBSERVATION AND COMMENTS

The existing site is occupied by a 1-storey single-family brick dwelling, an asphalt driveway along Galsworthy Drive, an attached one-car brick garage, as well as a wooden deck at the rear of the property. Tree resources appear to be comprised of landscape plantings and naturally occurring trees. The inventory documented a total of thirteen **(13)** permitted trees, on/ or within six **(6)** meters of the subject site. Tree resources on site include the following species: Red maple *(Acer rubrum)*, Norway maple *(Acer platanoides* 'Crimson King'*)*, Silver maple *(Acer saccharinum)*, Eastern white cedar *(Thuja occidentalis),* Bur oak *(Quercus macrocarpa),* Colorado spruce *(Picea pungens),* Manitoba maple *(Acer negundo),* Paper birch *(Betula papyrifera),* Freeman maple *(Acer x freemanii),* as well as some undersized species at the front such as Yew *(Taxus baccata),* Emerald cedar *(Thuja occidentalis* 'Smaragd'*)* and Weeping mulberry tree *(Morus alba* 'Pendula'*).* Canopy cover is estimated at 50 percent of the lot.

PROPOSED DEVELOPMENT

The proposed development, as illustrated in the Proposed Site Plan (AA-1), dated September 25th, 2020, includes the construction of a new 2-storey detached dwelling with an integral two-car garage, covered front porch, construction of a new widened driveway, as well as a rear walk-out basement and a new deck at the same location. The accompanying Tree Protection Plan includes an overview of the site plan details.

TYPES OF TREE DAMAGE

The tree injures outlined below reflect the policy of Markham Council following *Tree Preservation By-law - regulating the destruction or injury of trees - for all properties on June 24, 2008.*

Physical injury to the main stem or branches of a tree will occur if construction equipment is permitted close to the trees or if structures are built into the growing space of a tree. Physical injuries are permanent and can be fatal.
Root cutting is another type of injury that can significantly impact the health of a tree. Excavation for foundations or utility installation may cut tree roots if the excavation is too close to the trees. The majority of tree roots are found in the upper 30 to 60 cm of soil. Trees can also become destabilized and may fail if structural support roots are severed. Prior to commencing with any excavation, an exploratory dig should be undertaken using a low-pressure hydro vac system, with water pressure less than 20 p.s.i. This method of non-intrusive excavation will determine the presence or absence of roots and provide guidance to design construction projects with tree protection in mind.
Compaction of the soil in which tree roots grow is one of the leading causes of tree decline in Toronto's urban forest. Soil compaction occurs primarily from vehicles and equipment moving across the root zones. Often, you cannot see the damage being done and unless you have some

arboricultural background you are likely not aware of the damage that can occur. Soil compaction causes the pore space in the soil, which contains air and water necessary for root growth, to be reduced. Without space available for oxygen and water, tree roots will suffocate and the decline of the tree will follow. Adding soil on top of tree roots can smother them by reducing the amount of oxygen and water they are accustomed to receiving. Only a few centimetres of added soil can have a significant and sometimes detrimental impact on the health of a tree.

DISCUSSION

The following section of the report provides discussion and analysis of the construction-related impact on the existing trees on site, tree removal requirements, and tree preservation and pruning measures relative to the proposed development and existing conditions. The following tree conflicts with the proposed construction:

Tree #4: 32 cm Norway maple – Request Permit to Remove Privately-owned Tree.

Tree #4 is a semi-mature Crimson maple, located at the rear of the property, South of the existing wooden deck. The tree is considered in good condition with upright growth habit, good crown density and colour. Several surface roots were observed during the provided Site assessment on September 28th, 2020. Despite the shallow roots, the tree is healthy and in good condition structurally and botanically.

The site plan indicates that the existing dwelling is to be demolished and rebuilt with a wider footprint, encroaching up to **1.30 m** on the tree's **2.4-meter** protected root zone.

In order to determinate the structural stability of the tree in question, the following measures were taken into consideration.

The **Structural Root Zone** was estimated to be **2.12 m** using the following formula:

SRZ radius = (D x 50) ^0.42 x 0.64

With the required minimum **0.60** cm over-dig for slope stabilization, the encroachment within **SRZ** is up to **1.03** m. **Please review TPRP L-1 for more details.** It should be noted, that a 30% loss of the critical root zone would be considered enough to kill or significantly destabilize the tree. Due to the tree's proximity to construction, I do not expect that it can be maintained in safe and healthy condition. Therefore, in order to accommodate the proposed development, we are requesting a permit to remove the Crimson maple tree. Two large-growing shade trees shall be planted at the rear of the lot as a compensation for the proposed removal. Please see the section titled "Replanting Plan" on page #29 in this report for details related to species selection and/or proposed compensation.

All other trees on site can be protected to the full extent of the required tree protection zone. Please refer to the Tree Protection and Replanting Plan for the required hoarding layout.

INVENTORY AND PROTECTION REQUIREMENTS

Table 2. Detailed Tree Inventory Table

Tree ID Number	*Common*	*Botanical*	DBH (cm) 1.4 m	Ownership Category	Heavy Duty TPZ	Light Duty TPZ	Removal (R)	Encroachment TPZ (m)	Minimum Protection Distance (m)	Overall Condition	Observations
1	Red maple	*Acer rubrum*	*16	1. Private	**Required**				1.8	Good	Upright growth habit; botanical vigour appears good with good crown density and colour ***To be retained**
2	Paper birch	*Betula papyrifera*	30	2. Neighbour					2.4	Good	Upright growth habit; botanical vigour appears good with good crown density and colour; longitudinal seam (frost crack), visible from the south side of the trunk present **TPZ does not extend onto subject site; No hoarding required**
3	Freeman maple	*Acer x freemanii*	47 33 33	2. Neighbour	**Required**				6.80	Good	Multi-stemmed growth habit; botanical vigour appears good; included bark section at the main union up to 45 cm observed
4	Crimson maple	*Acer platanoides* 'Crimson King'	32	1. Private			**R**	1.30	2.4	Good	Upright growth habit; good radial branch distribution; several large diameter surface roots observed; **Proposed for removal**
5	Norway maple	*Acer platanoides*	39	2. Neighbour	**Required**				2.4	Fair to Good	Unbalanced canopy due to light competition with adjacent trees; Tar spot observed

Tree ID Number	*Common*	*Botanical*	DBH (cm) 1.4 m	Ownership Category	Heavy Duty TPZ	Light Duty TPZ	Removal (R)	Encroachment TPZ (m)	Minimum Protection Distance (m)	Overall Condition	Observations
6	Norway maple	*Acer platanoides*	32	2. Neighbour	**Required**				2.4	Fair to Good	Unbalanced canopy due to light competition with adjacent trees; Tar spot observed
7	Manitoba maple	*Acer negundo*	55	2. Neighbour	**Required**				3.6	Fair	Leaning tree up to 45 degrees from upright towards south direction; evidence of previous branch failures present
8	Bur oak	*Quercus macrocarpa*	54	1. Private	**Required**				3.6	Good	Mature tree; Good crown density and colour observed; no visible defects present
9	Silver maple	*Acer saccharinum*	103	1. Private	**Required**				6.20	Fair	Mature tree; Botanical vigour appears good; balanced developed canopy; cable support system previously installed; large size cavity observed on the western leader; surface roots present
10	Colorado spruce	*Picea pungens*	*10	1. Private	**Required**				1.2	Good	Pyramidal growth habit; good crown density and colour observed; ***To be retained**
11	Eastern White cedar	*Thuja occidentalis*	31	1. Private	**Required**				2.4	Fair	Reduced botanical vigour and crown density due to restricted light exposure; no visible defects observed
12	Eastern White cedar	*Thuja occidentalis*	23 22	1. Private	**Required**				3.0	Fair	Co-dominant growth habit; reduced botanical vigour and crown density due to restricted light exposure; no visible defects observed
13	Eastern White cedar	*Thuja occidentalis*	25	1. Private	**Required**				2.4	Fair	Reduced botanical vigour and crown density due to restricted light exposure; no visible defects observed

TREE PROTECTION PLAN

The tree protection policies and specifications outlined below reflect the policy of Markham City Council as per *"BY-LAW 2008-96", as well as Best Management Practices- Managing Trees During Construction-2016 by Kelby Fite; E Thomas Smiley;*

Tree Protection and Landscape Plan Details

The Tree Protection and Replanting Plan attached to this report (TPRP L1, L2 and L3) include the following information:

1. Identified size and species of all existing trees on or within 6 metres of the subject site. Shown extent of the crown of all existing trees.
2. Indicated trees to be injured or removed.
3. Highlighted and labeled tree protection barriers and tree protection zones. (See Table 2 to determine size of tree protection zone. Distances are measured from base of tree).
4. Established and illustrated the required hoarding layout to be maintained for the duration of construction activities;
5. Indicated vehicular access and construction staging areas.
6. Indicated location of any excavation that requires root pruning.
7. Specified Post-Construction Restoration measures.
8. Designated guidelines of practices for the purpose of interpreting tree care standards.
9. Indicated location of all new trees proposed for replanting.

TREE PROTECTION SPECIFICATIONS AND DETAILS

Tree Protection Zones

No construction activity including grade changes, surface treatments or excavations of any kind is permitted within the area identified on the Tree Protection Plan or Site Plan as a Tree Protection Zone (TPZ). No root cutting is permitted. No storage of materials or fill is permitted within the TPZ. No movement or storage of vehicles or equipment is permitted within the TPZ. The area(s) identified as a TPZ must remain undisturbed at all times. The following is a chart showing minimum required distances for determining a Tree Protection Zone (TPZ) for City-owned trees located on a City Street, in parks and trees on private property subject to either the Ravine and Natural Feature Protection By-law or the Private Tree By-law. Some trees and some site conditions may require a larger TPZ.

Determining the Structural Root Zone (SRZ)

The SRZ is the area required for tree stability. A larger area is required to maintain a viable tree. The SRZ only needs to be calculated when major encroachment into a TPZ is proposed. There are many factors that affect the size of the SRZ; e.g. tree height, crown area, soil type, soil moisture etc. The

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SRZ may also be influenced by natural or built structures, such as rocks and footings. An indicative SRZ radius can be determined from the trunk diameter measured immediately above the root buttress using the following formula:

SRZ radius = (D x 50) ^0.42 x 0.64

Where - D = trunk diameter, in m, measured above the root buttress.

The SRZ for trees with trunk diameters less than 0.15m will be 1.5m.

It needs to be emphasized that this is an indicative calculation which generalizes all the conditions influencing the estimate. SRZ is often less than the indicated calculation. An Exploratory Root Excavation (ERE) or root investigation according to *Best Management Practices- Managing Trees During Construction-2016*, may provide more information on the extent of these roots.

TPZ and SRZ Encroachment

Any encroachment into TPZ should be advised and supervised by a qualified Arborist.

Minor encroachment: *If the proposed encroachment is less than 10% of the area of the TPZ and is outside the SRZ detailed root investigations should not be required. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ.*

TPZ encroachment considerations: *When determining the potential impacts of encroachment into the TPZ, the project arborist should consider the following:*

I. *Location and distribution of the roots to be determined through non-destructive investigation methods (pneumatic, hydraulic, hand digging or ground penetrating radar). Photographs should be taken and a root zone map prepared.* **NOTE:** *Regardless of the method, roots must not be cut, bruised or frayed during the process. It is imperative that exposed roots are kept moist and the excavation back filled as soon as possible.*
II. *The potential loss of root mass resulting from the encroachment: number and size of roots.*
III. *Tree species and tolerance to root disturbance.*
IV. *Age, vigour and size of the tree.*
V. *Lean and stability of the tree.* **NOTE:** *Roots on the tension side are likely to be most important for supporting the tree and are likely to extend for a greater distance.*
VI. *Soil characteristics and volume, topography and drainage.*
VII. *The presence of existing or past structures or obstacles affecting root growth.*

Tree sensitive construction measures such as pier and beam, suspended slabs, cantilevered building sections, screw piles and contiguous piling can minimize the impact of encroachment.

When siting a structure near to a tree, the future growth of the tree, both above and below ground should be taken into account. Precautions should be taken at the planning and design stage to minimize potential conflict between trees and new structures.

When the root zone is reactive clay, techniques such as localized pier and beam (bridged), screw pile footings or root and soil moisture control barriers may be appropriate to minimize effects on structures.

NOTE: *Collaboration may be required between the project arborist and the geotechnical or structural engineer.*

Table 3. Tree Protection Zones

City of Markham Tree Protection Zones (TPZ)		
DBH[1]	Minimum TPZ[2]	Ideal TPZ[3]
< 10 cm	1.2 m	1.2 m
11 – 19 cm	1.8 m	2.7 m
20 – 40 cm	2.4 m	3.6 m
41 – 50 cm	3.0 m	4.5 m
51 – 60 cm	3.6 m	5.4 m
61 – 70 cm	4.2 m	6.3 m
71 – 80 cm	4.8 m	7.2 m
81 – 90 cm	5.4 m	8.1 m
91 – 100 cm	6.0 m	9.0 m
> 100 cm	6 cm per 1 cm DBH	9 cm per 1 cm DBH

1.DBH (Diameter at Breast Height) is the diameter measurement of the tree's trunk at 1.37 meters up from the base of the tree. For trees with multiple trunks it is the total of the diameters of the 3 largest trunks at 1.37 meters up from the base of the tree.
2.TPZ distance is measured from the outside base of the tree. Minimum TPZ requirement or at the tree's dripline.
3.TPZ distance is measured from the outside base of the tree. Ideal TPZ recommendation or at the tree's dripline, whichever is greater.

Tree Protection Barriers

Prior to the commencement of any site activity the tree protection barriers specified on this plan must be installed and written notice provided to Urban Forestry. The tree protection barriers must remain in effective condition until all site activities including landscaping are complete. Where required, signs as specified in Section “Tree Protection Signage” must be attached to all sides of the barrier. Written notice must be provided to Urban Forestry prior to the removal of the tree protection barriers. In some instances, where the tree is healthy and the management of the tree or forest cover has not been addressed to the satisfaction of Urban Forestry, requests received by Urban Forestry may be forwarded to a Community Council and City Council for approval.

TPZ (Tree Protection Zone) Barrier

a. Shall be installed **prior to any demolition, excavation or construction activity** on the site. The purpose of the barrier is to define the Tree Protection Zone, which is to be protected from any activity throughout the project.

b. Shall completely enclose all trees to be preserved, or up to property lines where applicable.

c. Shall be located at minimum TPZ requirements or at the tree’s dripline, whichever is greater.

d. Shall be continuous rigid and immovable solid wood hoarding. Plywood on 1.22 metres (4’) high, 2x4 wood frames, secured to the ground and installed with screws not nails.

e. ONLY where sightline is a safety issue, the TPZ barrier may be, orange safety fencing mounted on a rigid and immovable 1.22 metres (4’) high, 2x4 wood frame, secured to the ground and installed with screws not nails.

f. Shall remain in place throughout the entire project, and cannot be altered, moved or removed in any way without the written authorization of City of Markham, Tree Preservation Technician.

g. No grade change, storage or temporary storage of any materials or equipment, washing of equipment, nor the dumping of any debris is permitted within this area.

For City-owned Trees

Tree protection barriers for trees situated on the City road allowance where visibility must be maintained, can be 1.2m (4ft.) high and consist of chain link, or orange plastic web snow fencing on a 2” x 4” wood frame. All supports and bracing used to secure the barrier should be located outside the TPZ. All supports and bracing should minimize damage to roots outside the TPZ. Where some fill or excavate has to be temporarily located near a tree protection barrier, plywood must be used to ensure no material enters the TPZ. If the TPZ needs to be reduced to facilitate construction access, the tree protection barrier must be maintained at a lesser distance and the exposed TPZ protected with plywood and wood chips. This must first be approved by Urban Forestry.

For trees on private property situated on or adjacent to construction sites

Tree protection barriers must be installed around trees to be protected using plywood clad hoarding or an equivalent approved by Urban Forestry. All supports and bracing to safely secure the barrier

should be outside the TPZ. All such supports and bracing should minimize damage to roots outside the TPZ.

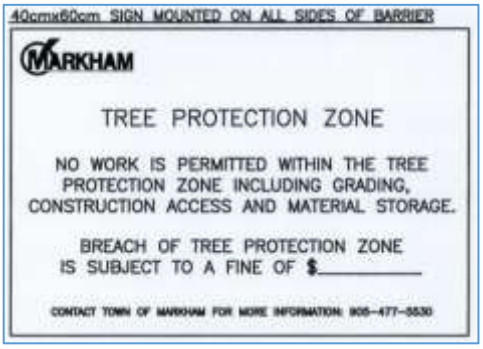
Tree Protection Hoarding in the TRCA Protected Areas

The applicant/owner shall protect all trees in the protected area that have not been approved for removal or injury, throughout development works to the satisfaction of Urban Forestry.
Plywood (or chain link fence, if agreed to by Urban Forestry) tree protection hoarding shall be installed in the locations as indicated in the Urban Forestry approved tree protection plan. Tree protection hoarding shall be installed to standards as detailed in the City's Tree Protection Policy and Specifications for Construction near Trees and to the satisfaction of Urban Forestry.
Tree protection hoarding must remain in place and in good condition during demolition and/or construction and must not be altered or moved until authorized by Urban Forestry. Established tree protection zones must not be used as construction access, storage or staging areas. Grade changes are not permitted within established TPZ. All additional tree protection or preservation requirements, above and beyond the required tree protection hoarding, must be undertaken or implemented as detailed in the Urban Forestry approved arborist report and/or the approved tree protection plan and to the satisfaction of Urban Forestry.
TPZs must remain in place for the duration of any construction or demolition occurring on the property. Inside the TPZ no construction, storage or disposal of material of any kind, adding of fill, or excavation may occur. For each TPZ that falls below the minimum size stipulated by City bylaws in order to accommodate construction, an Application to Injure or Destroy Trees will be made and the City appropriately compensated.
Establishing a TPZ is necessary to prevent physical harm to the stem and branches of the tree which may otherwise be incurred due to proximity of construction or demolition activities. The TPZ will encompass the tree's critical root area, protecting the roots from being damaged during excavation and from soil compaction which may occur due to the presence of heavy machinery.

Tree Protection Signage

A sign that is similar to the illustration below may be required to be mounted on all sides of a Tree Protection Barrier for trees protected by the Trees on City Streets By-law and the Private Tree By-law. The sign should be a minimum of 40cm x 60cm and made of white gator board or equivalent material.

Tree protection signage



Sediment/Silt Control Fence

I. Sediment control fencing (**if required**) shall be installed in the locations as indicated in the Urban Forestry approved sediment control plan. The sediment control fencing must be installed to Ontario Provincial Standards (OPSD-219.110) and to the satisfaction of Urban Forestry.

II. The sediment control fencing can be attached to the tree protection hoarding.

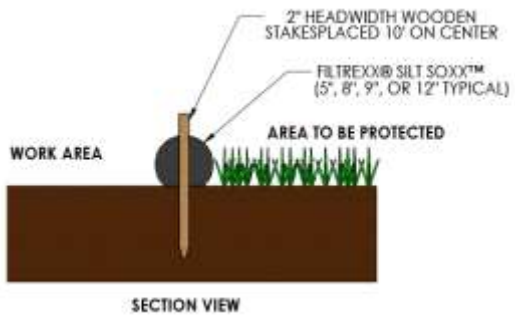
III. Geotextile material should be woven with a weave density of 270R or equivalent;

IV. The geotextile material must be stretched tight when installing the material and the bottom edge buried a minimum of 150 mm with compaction of the excavated backfill. Diagonal bracing of the posts is recommended where deep ponding is experienced or anticipated;

V. Any failure must be repaired immediately;

VI. Sediment control fence must be inspected regularly, and after every rainfall, to identify failed sections. If wet conditions persist, repairs must be undertaken to restore the integrity of the fencing;

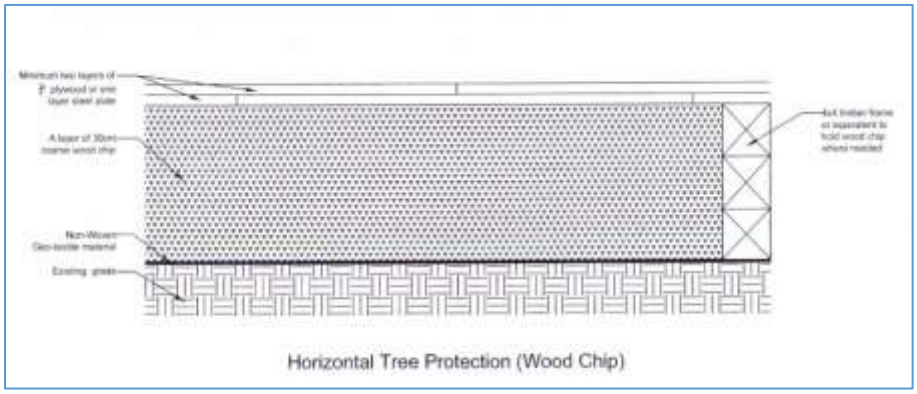
Example of Sediment Control fence & Silt Soxx for Perimeter Control



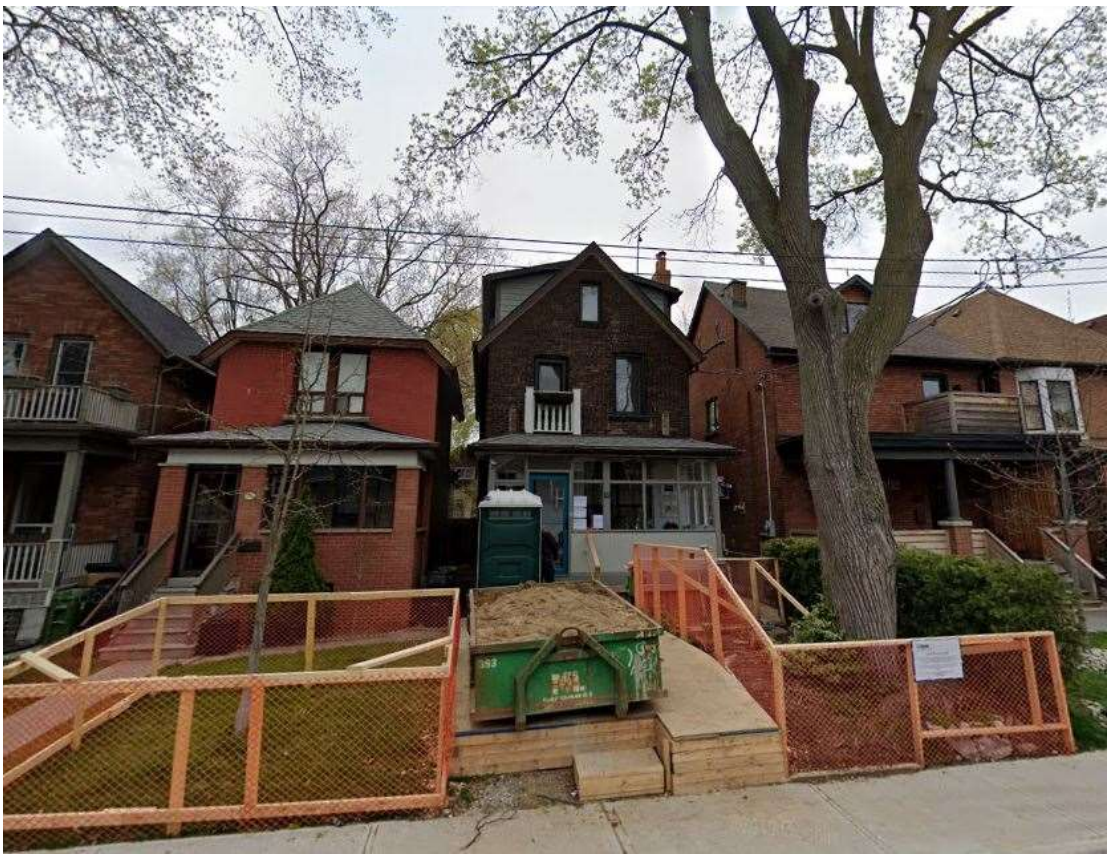
Horizontal Tree Protection

Where worker and machine access is required, horizontal tree protection is an acceptable alternative to vertical hoarding. Horizontal hoarding consists of a 30-cm. tall 4”x4” timber frame filled with 30 cm. of coarse wood chips. The deck shall consist of a double layer of ¾” plywood or a single steel plate. All tree protection requires inspection and final approval by Urban Forestry prior to any construction activity on site.

Horizontal Tree Protection Detail



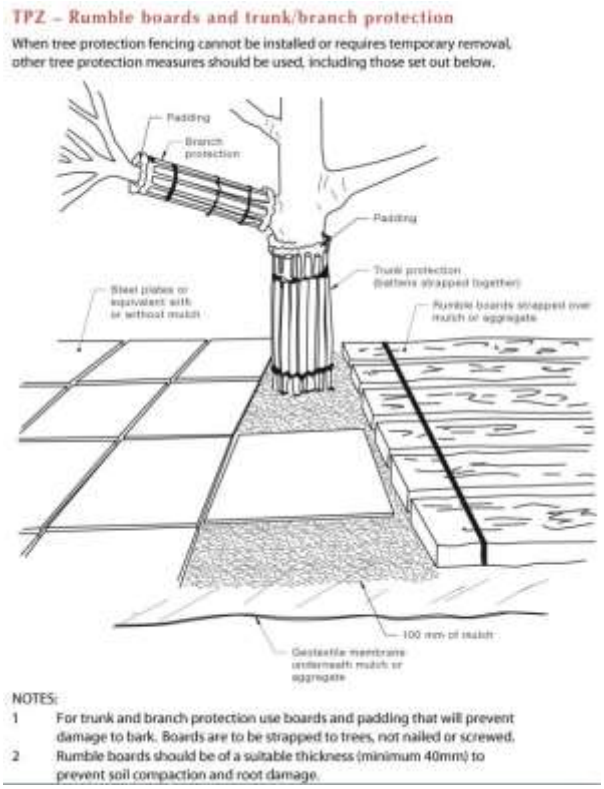
Example of combination of Snow-Fence Hoarding& Horizontal Protection barrier for Perimeter Control



Example of Snow-Fence Hoarding for Perimeter Control

Example of Plywood Clad Hoardings for Perimeter Control

Trunk and Branch Protection Detail



Trunk and Branch Protection

Trees impacted upon by construction works should be protected as per the Sketch to the right. It is suggested that suitable rubberized padding material be used under 75 by 50 hardwood timber which is strapped with galvanized tin strapping approximately 30 mm wide at 900 mm spacing from bottom of trunk upwards and nailed or screwed to the hardwood timber with 25 mm long galvanized fasteners. The rubberized padding material should be perforated to allow air to the trunk, and not soak water into itself. No nails or screws are to enter the tree trunk or branches and care must be taken to ensure that no materials bite into the tree surface and scar or damage its surface in any way.

Ground Protection

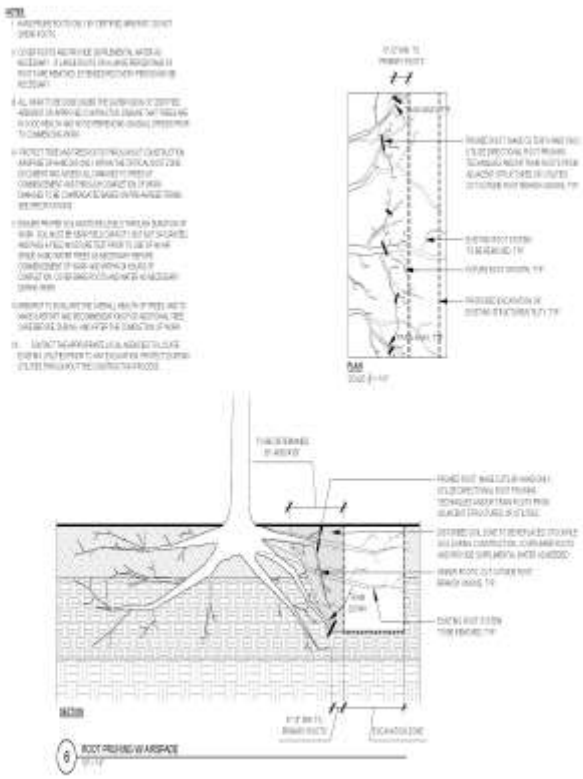
The planking to the right in the sketch following is an example of the planking that could be used. If temporary access for machinery is required within the TPZ, ground protection measures will be required. The purpose of ground protection is to prevent root damage and soil compaction within the TPZ. Measures should include a permeable membrane such as Geo-textile fabric beneath a layer of mulch or crushed rock, below rumble boards as per sketch for Trunk and Branch Protection Details on previous page. Rubber matting and packing plywood may also be used. Under this planking or sheeting within the TPZ, a 75 mm layer of leaf mulch or similar, aged for at least 12 weeks and proven to contain no toxic substances must be installed. These measures may also be applied to root zones beyond the TPZ. Rumble boards should be of a suitable thickness to prevent soil compaction and root damage.

Irrigation

During warmer periods the Tree Protection Zones should be irrigated with 1 litre of clean water for every 1 cm of trunk girth measured at the soil / trunk interface on a weekly basis.
No persons, vehicles or machinery are to enter the Tree Protection Zones unless authorized to do so, preferably with permission from the Determining Authority.

Exploratory Root Excavation

Root Pruning Details



An Exploratory Root Excavation (ERE) or root investigation may be conducted to provide more information on the extent of a trees SRZ. The SRZ is an indicative measure and the actual positions and extent of the roots can only be determined by an investigation. A trench is carefully excavated along a pre-determined line (for example, the edge of a proposed slab or decking posts) to a depth of at least 650 mm and no more than 300mm wide. If roots are located, they must be carefully exposed without any damage to the root. The position and size of any roots found can be photographed, recorded and mapped. If there are too many large roots or root mats found the Arborist may decide to move the trench further out from centre of trunk. An ERE may indicate that a building can or cannot be placed in the proposed location, or that piers/stumps can be placed between roots, or that roots are nor extending far enough to directly damage a building/path/pipe. The ERE map may lead to design and engineering changes to enable a building, extensions, or earthworks that encroach into the TPZ, to proceed or be moved. Where possible the trenching is done by hand but there are times when machinery or water pressure excavation can be used under the supervision of an Arborist.

Root Protection during Works within the TPZ

Some approved works within the TPZ, such as regrading, installation of piers or landscaping may have the potential to damage roots. If the grade is to be raised the material should be coarser or more porous than the underlying material. Depth and compaction should be minimized.
Manual excavation is the preferred method and should be carried out under the supervision of an arborist to identify roots critical to tree stability and determine the actual extent of the SRZ. An ERE may be used with photographs and maps to serve as a guide for designers and workers. Relocation or redesign of construction works may be required. (See preceding section)
Where the project arborist identifies roots to be pruned within or at the outer edge of the TPZ, they should be pruned with a final cut back to undamaged wood. Pruning cuts should be made with sharp tools such as secateurs, pruners, handsaws or chainsaws. Pruning wounds should not be treated

with dressings or paints. It is not acceptable for roots within the TPZ to be 'pruned' with machinery such as backhoes or excavators.
Where roots within the TPZ are exposed by excavation, temporary root protection should be installed to prevent them drying out. This may include jute mesh or hessian sheeting as multiple layers over exposed roots and excavated soil profile, extending to the full depth of the root zone. Root protection sheeting should be pegged in place and kept moist during the period that the root zone is exposed.
Other excavation works in proximity to trees, including landscape works such as paving, irrigation and planting can adversely affect root systems. The project arborist should be consulted and supervise any works.

TPZ Encroachment Over 10%

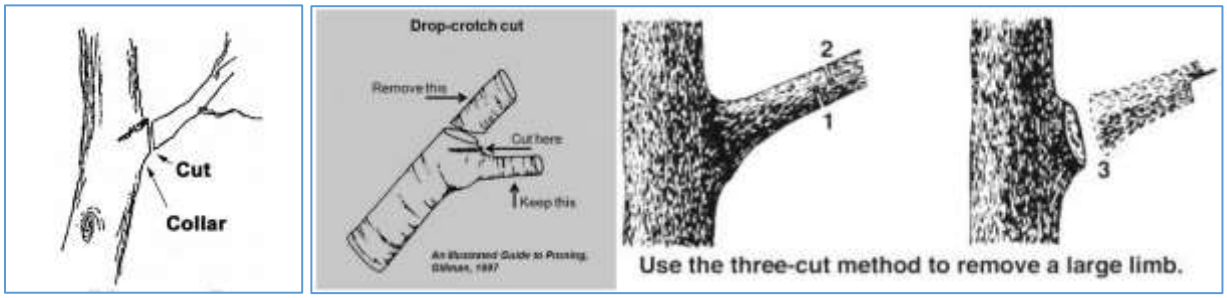
If the proposed building footprint encroaches into the TPZ more than 10%; either the building footprint will have to change to reduce the encroachment to 10% or an Exploratory Root Excavation (ERE) could be carried out by an Arborist to determine the exact location of any roots present. Prior to an ERE make certain to contact the Urban Forestry Department to see if permission is required. If roots are discovered belonging to the tree that are under 40 mm diameter, they could be cut by an arborist to allow either the entire building footprint to be accommodated, or if that is not possible, a smaller redesigned building footprint to be accommodated. If the TPZ is varied following an ERE room must be allowed for the lost area to be compensated for elsewhere. Roots greater than 40 mm diameter and fibrous root mats or clumps greater than 50mm diameter should not be cut but need to be worked around. A well-qualified arborist may cut a root greater than 40 mm diameter, but not greater than 50 mm diameter unless given permission to cut from the Urban Forestry Department. Alternatively, if an ERE shows it is impossible to vary the TPZ, alternative "tree friendly" construction methods could be employed, such as installing a building slab above grade, pier and beam methods, or building on stumps. Piers and stumps can be relocated to avoid damage to any significant roots discovered by the ERE. These alternative building methods should be specified by a suitably qualified person.

Crown protection

Tree crowns may be injured by machinery such as excavators, drilling rigs, cranes, trucks, hoarding installation and scaffolding. The TPZ may need to include additional protection of above ground parts of the tree. Where crown protection is required, it will usually be located at least one metre outside the perimeter of the crown. The erection of scaffolding may require an additional setback from the edge of the crown. Crown protection may include pruning, tying-back of branches or other measures. Any branches which extend beyond the TPZ indicated on this plan which require pruning, must be pruned by a qualified Arborist or other tree professional as approved by Urban Forestry. All pruning of tree and branches must be in accordance with good arboricultural standards.
The Arborist/tree professional retained to carry out crown pruning must contact Urban Forestry no less than 48 hours prior to conducting any specified work. **NOTE:** *Prior to the pruning of or removal of any tree the Determining Authority, usually the local council must be consulted to be certain the*

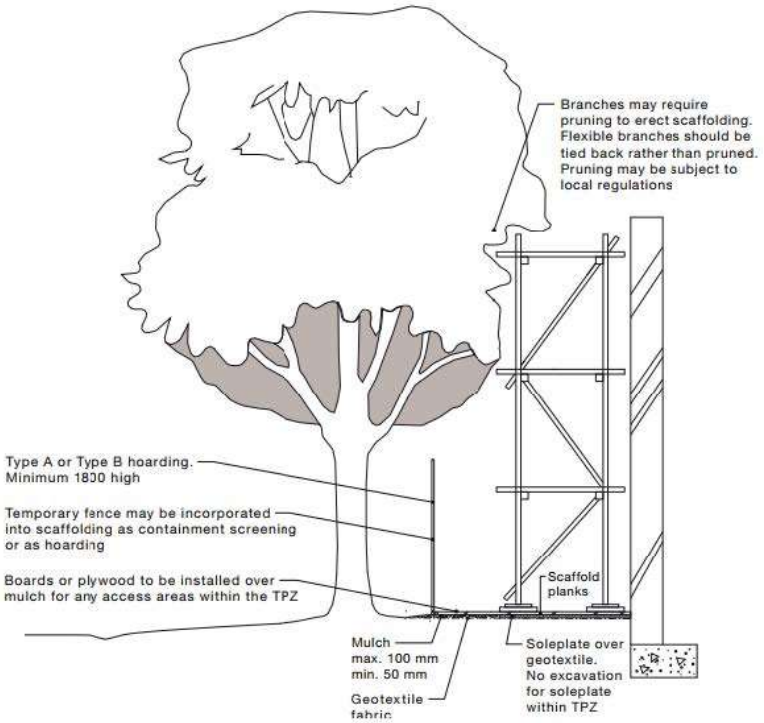
pruning or removal is allowed by them and is lawful.

Proper Pruning Principles



Scaffolding

Scaffolding Details

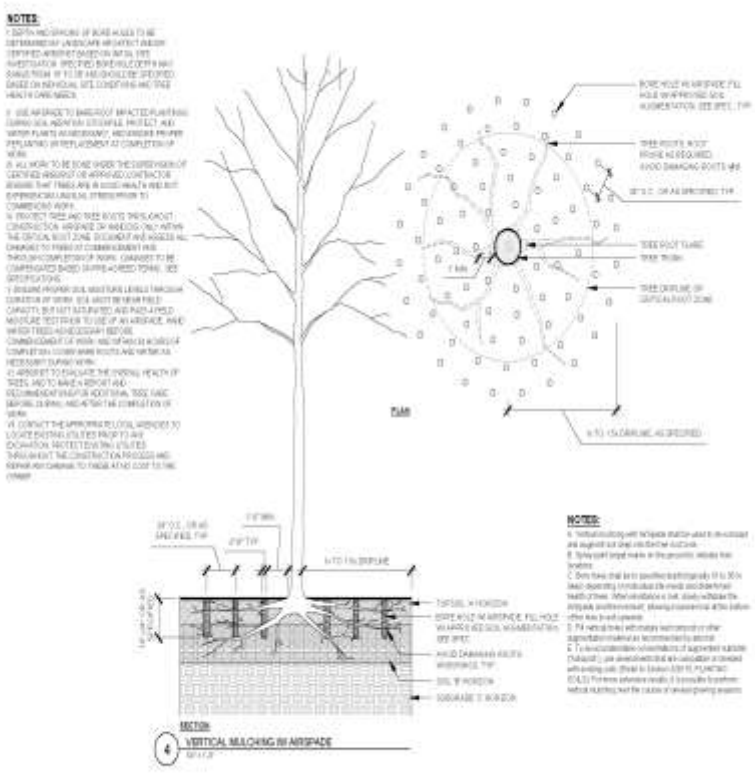


NOTE: Excavation required for the insertion of support posts for tree protection fencing should not involve the severance of any roots greater than 20 mm in diameter, without the prior approval of the project arborist.

Where scaffolding is required, it should be erected outside the TPZ. Where it is essential for scaffolding to be erected within the TPZ, branch removal should be minimized. This can be achieved by designing scaffolding to avoid branches or tying back branches. Where pruning is unavoidable it must be specified by the project arborist in accordance with the Best *Management Practices- Managing Trees During Construction- 2016 by Kelby Fite; E Thomas Smiley;* **NOTE:** *Pruning works may require approval by the determining authority.* Ground below the scaffolding should be protected by boarding (e.g. scaffold board or plywood sheeting) as shown in **Trunk and Branch Protection** earlier. Where access is required, a board walk, or other surface material should be installed to minimize soil compaction. Boarding should be placed over a layer of mulch and impervious sheeting to prevent soil contamination. The boarding should be left in place until the scaffolding is removed.
There is a risk of materials falling off the scaffold decking and into the TPZ, damaging the tree. Care must be exercised, and solid walls or mesh barriers be installed on any scaffolding over the TPZ. Impervious membrane, mulch, boards or plywood must be used under the scaffold soleplates and no excavation is to be performed for the soleplates. It may be possible to erect secondary fencing inside the general TPZ fencing to further protect the tree from damage.

Vertical Mulching Method

Vertical Mulching Details



Soil compaction is the most common injury to the tree's root zone, being a significant part of the building process. Compaction of soil is the compression of soil particles into a smaller volume, which reduces the size of pore space available for air and water. The vertical mulching method is one of the most effective ways to treat stressed trees and shrubs. Vertical mulching with ***Air Spade*** is done to de-compact and augment soil deep into the tree root zone. This method is used as therapy for low- vigor trees growing in heavy traffic areas, zones with poor drainage, with shallow or impervious soils, or shared by perennial or ground-cover plantings, where minimal disturbance is desired. This technique involves drilling vertical channels, about 5-cm diameter and spaced about 100 cm apart throughout the root zone, to a depth of 45 cm; channels are back-filled with sand, perlite or other long-lasting porous material to prevent collapse. Conceptually, vertical mulching may benefit trees by improving the movement of water, air, nutrients, and roots within the soil. Considered as an arboricultural tool, vertical mulching could most responsibly be prescribed for use in soils with relatively shallow hardpans or other types of soil layers that perch water. In such soils, water ponded during wet weather would develop sufficient hydraulic pressure to enter and drain through vertical mulch channels that are open to the surface and extend below the restrictive layer.

Note: *We recommend that all work (if required) be performed by a reputable tree care company following generally accepted arboricultural standards.*

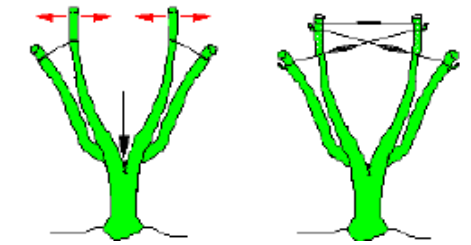
Tree Support System

Tree support systems help support the tree by limiting the movement of branches, leaders or the entire tree. This reduces the risk of injury to humans and damage to property by providing supplemental support for structurally weak areas of the tree.

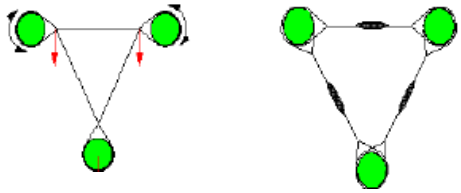
Branch Saver Dynamic Cabling System

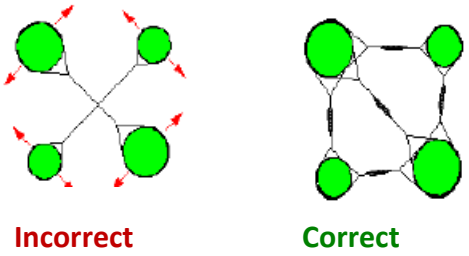
There are several advantages to a using a dynamic system:

- ✓ Adheres to ANSI A300 standard, CE certified
- ✓ UV-protected, adjustable
- ✓ Shock-absorbing
- ✓ Invented by arborists, designed by aero-engineers
- ✓ Simple to install, easy to learn
- ✓ Non-metallic, nonconductive, non-reflective
- ✓ Lightweight (average system under 8 lb)
- ✓ Consistent tensile strength throughout—no weak links!
- ✓ Requires no drilling of healthy wood



The mono file cobra propylene rope can be used as hollow rope because of its braiding. The diameter can be expanded through contraction.





The expansion of the cobra hollow braid rope can be seen clearly. After girdling, the end is inserted into the outcoming rope by stretching the meshs. This connection type is called Quick Splice. To avoid chafing of rope the girdling area is wrapped in a polypropylene friction sleeve tube.

Note: *We recommend that all work (if required) be performed by a reputable tree care company following generally accepted arboricultural standards.*

Screw Piling Near Protected Trees

Helical piles (**if required**) shall be installed in the locations as indicated in the Urban Forestry approved TAPP. Trees form an integral part of our natural and built environment – providing a multitude of visual, environmental & societal benefits. Local Planning Authorities have the power to protect trees which bring significant amenity &/or benefit to the local area. This protection is particularly important where trees are under threat. Any number of trees, of any type or combination of types can be protected under a legal notice known as a Tree Preservation Order (TPO) although hedges, bushes or shrubs are not usually protected. Generally, a TPO is issued by an LPA in response to the submission of a planning application for a new house, building or structure.

Structural Foundations in Root Protection Areas

It should be noted, that much of the damage that can be done to trees by construction occurs below the ground, and so if you are planning to build within an RPA foundation design is critical. One of the most significant issues of building around trees is severing roots. In extreme cases this can cause the tree to fall over (the issues this might create for a new building are clear), but will more likely cause the tree to die slowly as its nutrient supply is cut off. Essentially this means that traditional trench foundations in RPAs are out, unless they will only clip a small area. The preferred alternative to traditional foundations when building in RPAs is to use small diameter piles. Piled foundations limit potential damage to roots during installation, and ensure no part of the tree bears the loads from the structure. Screw piles are a far less invasive foundation system. A screw pile consists of a slender, hollow steel shaft with a small number of steel helices (or screw threads) welded to it. A screw pile displaces a comparatively small amount of soil & tree roots compared to a micro pile or traditional foundations. The helices attached to the screw pile shaft are deliberately made from thin steel plate, with a blunt protruding edge to ensure that where possible, roots are moved out of the way during installation rather than severing them. The pile shaft is considerable smaller than that of a micro pile so again, displacement of soil and tree roots is minimized.

Keeping Root Damage to a Minimum

Clearly there is no way that a pile can be installed through an existing root system without causing some damage, however it is key to the health of the tree to minimize this effect as much as possible. As previously discussed, micro piling requires the removal of all material in the position of the pile, including any tree roots encountered. Typically screw piles are used in combination with a cast concrete ground beam system. This system is generally flexible enough to allow pile to be adjusted on site if any large tree roots are encountered and need to be avoided.

Compression of soil containing tree roots by traditional foundations has been shown to have a detrimental effect on the continued health of the tree. Compaction of soil reduces the passage of oxygen to roots during wet weather, and can cause the soil to become so dense that roots are no longer able to penetrate through it. Screw piles overcome this by supporting load directly on their constituent helices. These are placed well below the tree roots to ensure the root ball does not experience any loading influence or disturbance as a result of development.

Screw Pile Installation Method

The typical screw pile installation method (if required) is described briefly below for reference.

1. Clear away vegetation in the area to be piled and check for underground cables, drains, pipes using appropriate equipment. Identify any major tree roots to be avoided in the intended pile locations.
2. Mount the powerhead to the excavator, remembering to connect the auxiliary hydraulics to the powerhead as per the detailed instructions supplied.
3. Insert the upper end of the screw pile lead section into the anchor driver & secure with the drive pins supplied.
4. Positions the anchor at the desired location and at a near vertical position screw the first helix into the ground.
5. When the first helix is buried, begin to make the angular adjustment to maintain verticality. Remember that final angular adjustments should be made before the second helix penetrates the ground.
6. When the installing tool becomes 300mm-500mm from the ground disconnect it from the section in the ground and reconnect it to the next extension.
7. Align the extension with the section in the ground and bolt them together. (Make certain that the bolt and nut are securely tightened)
8. Continue to drive the anchor and add extensions until the desired torque is reached and maintained; and the pile is installed to the correct depth and required height. It may be necessary to cut the pile to the desired length if it cannot be driven to a suitable depth in the ground.






Additional notes

The applicant/owner shall protect all bylaw regulated trees in the area of consideration that have not been approved for removal throughout development works to the satisfaction of Urban Forestry.
Prior to site disturbance the owner must confirm that no migratory birds are making use of the site for nesting. The owner must ensure that the works are in conformance with the Migratory Bird Convention Act and that no migratory bird nests will be impacted by the proposed work.
It is the applicants' responsibility to discuss potential tree injury of trees on shared property lines with their neighbours. Should such trees be injured to the point of instability or death the applicant may be held responsible for removal and such issues would be dealt with in civil court or through negotiation. The applicant would be required to replace such trees to the satisfaction of Urban Forestry.
Urban Forestry does not have the authority to issue a permit to injure or remove a heritage tree. Such requests would be forwarded to a Community Council and/or City Council for approval.
Butternut (*Juglans cinerea,* L.) is an endangered species. Butternuts and their habitat are protected under Endangered Species Act (S.O. 2007, c.6) available on the Government of Ontario website at http://www.ontario.ca/laws/statute/07e06/v1
A permit to injure or remove a butternut tree must be obtained from the Ministry of Natural Resources and Forestry Ontario.

Contravention of the Tree by-law

Convictions of offences respecting the regulations in the Street Tree By-law and Private Tree By-law are subject to fines. A person convicted of an offence under these by-laws is liable to a minimum fine of **$500** and a maximum fine of **$100,000** per tree, and /or a Special Fine of **$100,000**. The landowner may be ordered by the City to stop the contravening activity and/or ordered to undertake work to correct the contravention.

POST-CONSTRUCTION REPLANTING PLAN

City of Markham Urban Forestry Compensation:

The applicants understand the replanting requirements: a minimum of two (2) replacement trees (Deciduous trees 60mm+ caliper, nursery grown stock OR Coniferous trees 1.75-2.5m height, nursery grown stock) per existing tree removed in accordance with the City of Markham guidelines.

Two **(2)** large-growing shade trees shall be planted at the rear of the lot as a compensation for the proposed for removal Norway maple **(Tree #4).**

** "Accepted replacement ratios: 2 to 1 replacement to removal ratio for trees ≤40 cm DBH; 3 to 1 replacement to removal ratio for trees 41 to 60 cm DBH; 4 to 1 replacement to removal ratio for trees 61 to 80 cm DBH; and 5 to 1 replacement to removal ratio for trees ≥81 cm DBH)", as per the City of Markham guidelines.*

Table 4. Urban Forestry Compensation

Tree ID Number	Species	*Botanical*	*DBH cm*	Removal (R)	Injury Encroachment (m)	Urban Forestry Compensation newly planted trees or cash in lieu of replanting ($583/tree)
4	Norway maple	*Acer platanoides*	32	**R**	1.3	**2**
						2

Table 5. Recommended Tree Species for Post-Construction Replanting Plan

Number of Trees	Species	Replacement Tree Number (#)
1	Tulip tree *(Liriodendron tulipifera)*	**1**
1	Eastern hemlock *(Tsuga canadensis)*	**2**
2 Total		

The trees will be planted according to the methodology outlined for balled and burlapped trees in turf by Urban Forestry. Please keep in mind that a new tree should not be planted any closer than 6 meters apart, or 1.5 meters to fences, property lines, sidewalks or driveways and far enough away from structures and existing trees to allow it to grow to full maturity. Please refer to TPRP -L3, attached to this report for species location, selection, and maintenance requirements.

PICTURES

Figure 1: Acer rubrum growth habit; To be retained

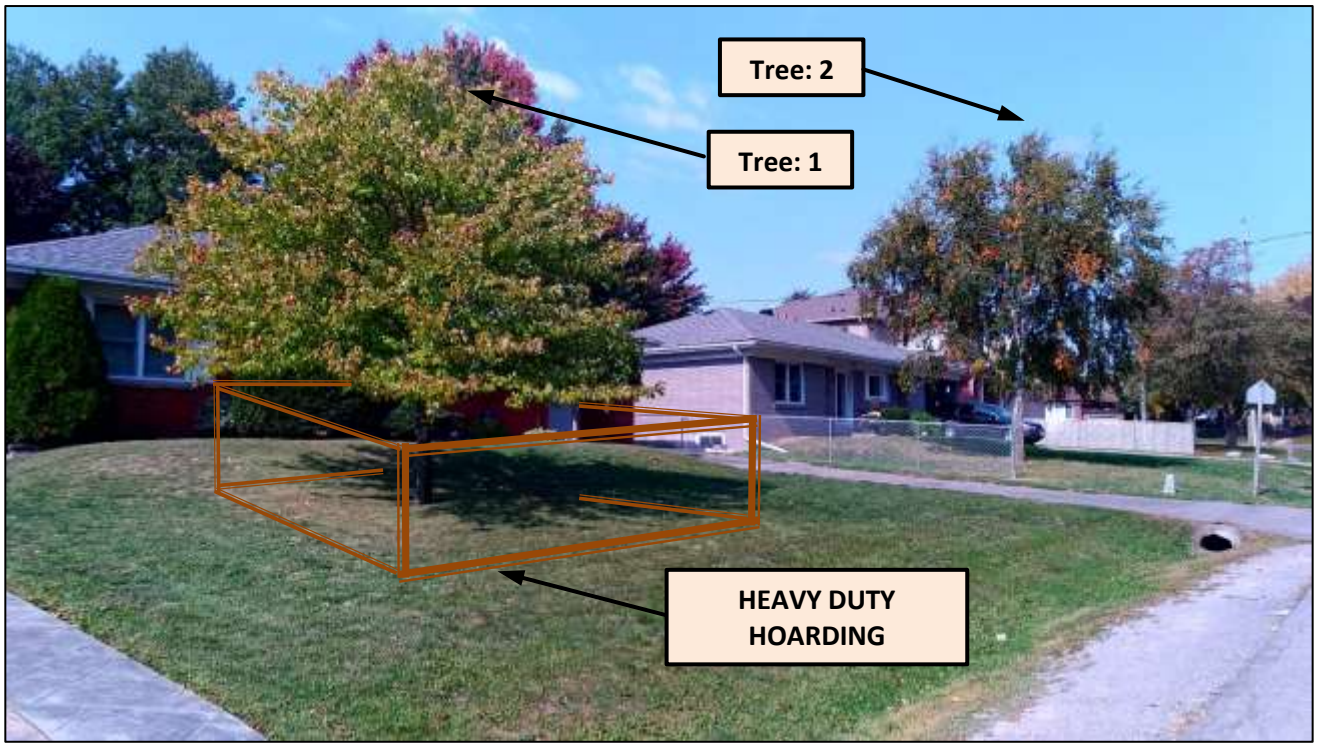
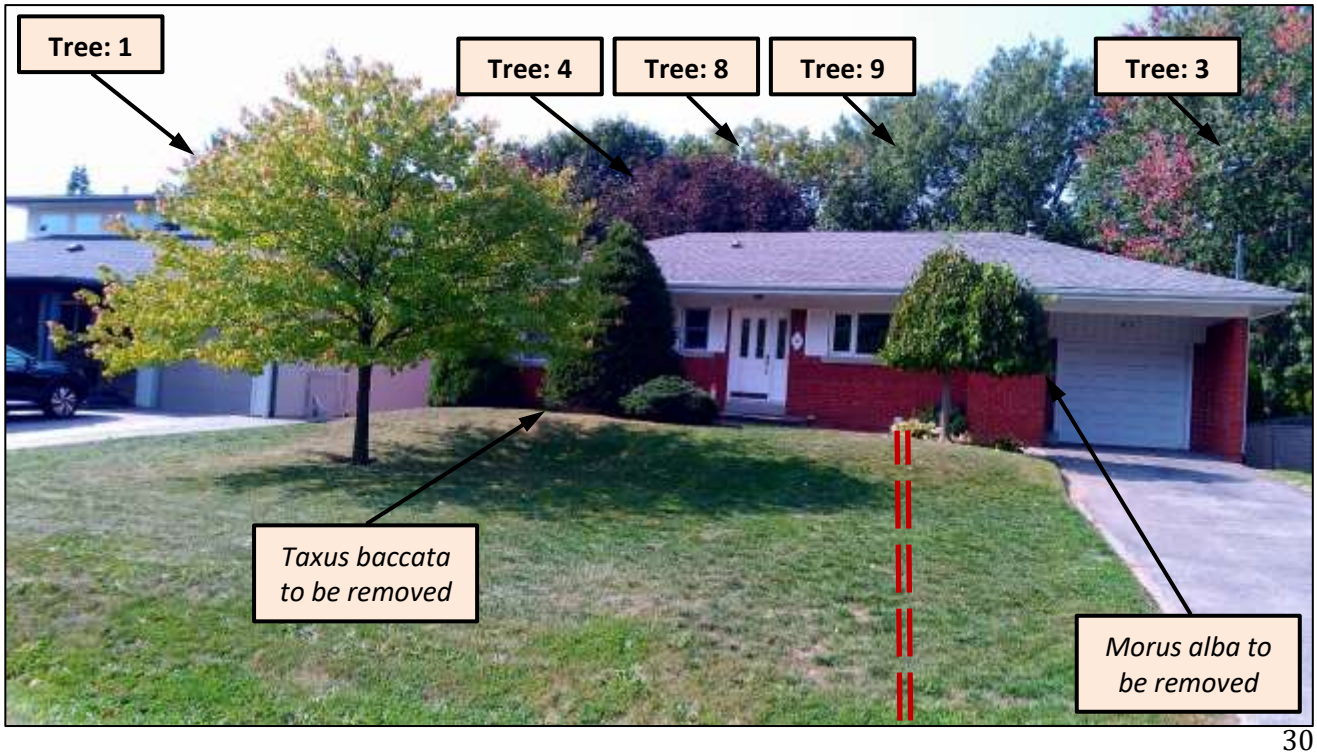


Figure 2: The double dashed red line indicates the proposed new widened driveway



ADDRESS: 111 INVERLOCHY BLVD, ON L3T 3R7 OFFICE: (647) 351 2631 WEB: www.lothloriengarden.com

Figure 3: Acer rubrum (Tree #1)

Figure 4: Betula papyrifera growth habit (Tree #2)

Figure 5: Acer x freemanii growth habit

Figure 6: Multi-stemmed Acer x freemanii

Figure 7: Acer platanoides 'Crimson King'

Figure 8: Several large diameter surface roots

Figure 9: Acer platanoides on neighbour's yard

Figure 10: Acer negundo (Tree #7)

Figure 11: Quercus macrocarpa growth habit (Tree #8)

Figure 12: Acer Saccharinum (Tree #9)

ASSUMPTIONS AND LIMITING CONDITIONS

1. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the arborist can neither guarantee nor be responsible for the accuracy of the information provided by others.

2. Loss or alteration of any part of this report invalidates the entire report.

3. Possession of the report or copy of thereof does not imply right of publication or use for any purpose by anyone other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consulting arborist.

4. The consulting arborist shall not be required to give testimony or to attend court by reason of the report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract engagement.

5. Sketches, diagrams, graphs, and photographs in the report, are intended as visual aids, and are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.

6. Unless expressed otherwise: 1) the information contained in this report covers only those items at the time of inspection; and 2) the inspection is limited to visual examination of the accessible items without dissection, excavation, probing or coring. There is no warranty of guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.

CERTIFICATE OF PERFORMANCE

I Ivan Mitev, of Lothlorien Garden Consulting, do certify:

That I have personally inspected the subject tree(s) and/or the property defined in the “Assignment” found within this report, and have stated my findings accurately. The extent of the evaluation and/or appraisal is stated in the attached report and Terms of Assignment.

That I have no current or prospective interest in the vegetation or the property that is the subject of this report, and I have no personal interest or bias with respect to the parties involved.

That the analysis, opinions and conclusions stated herein are my own.

That my analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted Arboricultural practices.

That no one provided significant professional assistance to the consultant, except as indicated within the report.

That my compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party, nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any other subsequent events

I further certify that I am an International Society of Arboriculture Certified Arborist® and that I acknowledge, accept and adhere to the ISA Code of Ethics. I have been involved with the practice of Arboriculture and the care and study of trees since 2005.

Ivan Mitev,
M.Sc. Ecologist
ISA Certified Arborist® #-2297A
Consulting Arborist – *Lothlorien Garden Consulting*
lothloriengardenconsulting@gmail.com

REFERENCES AND RESOURCES

City of Markham

- TREE PRESERVATION BY-LAW TO REGULATE OR PROHIBIT THE INJURY OR DESTRUCTION OF TREES WITHIN THE TOWN OF MARKHAM BY-LAW 2008-96
- ISA, 2001-2011. Best Management Practices, Books 1-9, Companion publications to ANSI A300
- ANSI A300 (Part 6) – 2005. Tree, Shrub, and Other Woody Plant Maintenance –Standard Practices (Transplanting)
- ANSI A300 (Part 1) – 2008. Tree, Shrub, and Other Woody Plant Management –Standard Practices (Pruning)
- Canadian Nursery Landscape Association. 2006. Canadian Standards for Nursery Stock – 8th Edition
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- Grand River Conservation Authority. Salt Resistance of Trees and Shrubs
- Pennsylvania State University. College of Agricultural Sciences. A Guide to Preserving Trees in
- Development Projects
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- Dujesiefken, Dr. Dirk, 2012. Director of the Institute for Tree Care in Germany, The CODIT Principle, research presented on cambial regrowth on trees after injury at the Annual ISA Conference in Kingston Ontario
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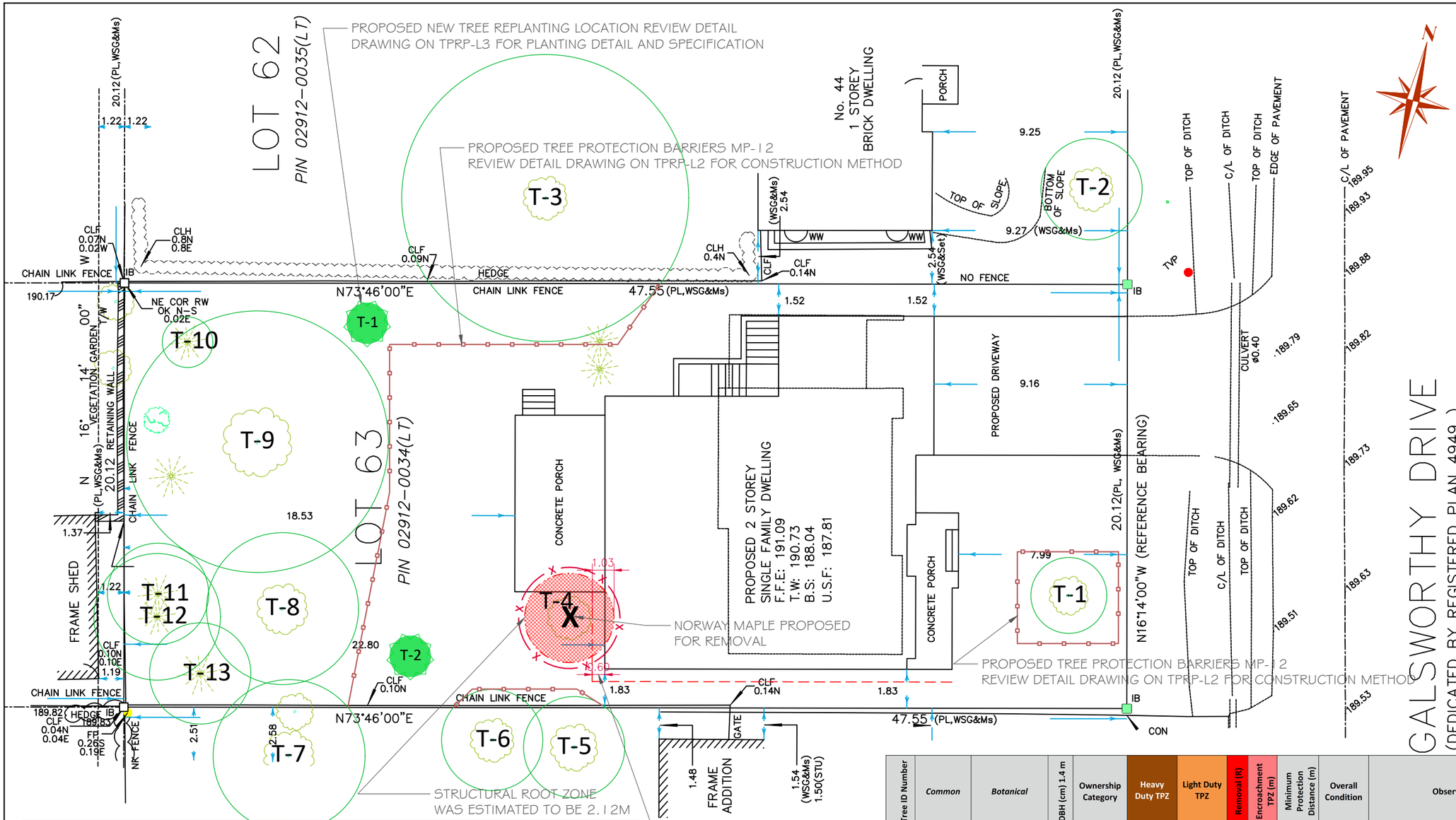
- Neely and Watson, ISA, 1994 and 1998. The Landscape Below Ground 1 and 2
- Matheny and Clark, ISA, 1994. A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas, 2nd Edition
- VERTICAL MULCHING OF TREES: EFFECTS ON ROOTS AND WATER STATUS by P.J. Kalisz, J.W. Stringer, and R.J. Wells
- AS 4970-2009 PROTECTION OF TREES ON DEVELOPMENT SITES
- ABC Anchors, Stockley Road, Heddington, Nr Calne, Wiltshire, SN110PS. Date: 16/02/2018



Tree ID Number	Common	Botanical	DBH (cm) 1.4 m	Ownership Category	Heavy Duty TPZ	Light Duty TPZ	Removal (R)	Encroachment TPZ (m)	Minimum Protection Distance (m)	Overall Condition	Observations
1	Red maple	*Acer rubrum*	*16	1. Private	Required				1.8	Good	Upright growth habit; botanical vigour appears good with good crown density and colour ***To be retained**
2	Paper birch	*Betula papyrifera*	30	2. Neighbour					2.4	Good	Upright growth habit; botanical vigour appears good with good crown density and colour; longitudinal seam (frost crack), visible from the south side of the trunk present **TPZ does not extend onto subject site; No hoarding required**
3	Freeman maple	*Acer x freemanii*	47 33 33	2. Neighbour	Required				6.80	Good	Multi-stemmed growth habit; botanical vigour appears good; included bark section at the main union up to 45 cm observed
4	Crimson maple	*Acer platanoides* 'Crimson King'	32	1. Private			R	1.30	2.4	Good	Upright growth habit; good radial branch distribution; several large diameter surface roots observed; **Proposed for removal**
5	Norway maple	*Acer platanoides*	39	2. Neighbour	Required				2.4	Fair to Good	Unbalanced canopy due to light competition with adjacent trees; Tar spot observed
6	Norway maple	*Acer platanoides*	32	2. Neighbour	Required				2.4	Fair to Good	Unbalanced canopy due to light competition with adjacent trees; Tar spot observed
7	Manitoba maple	*Acer negundo*	55	2. Neighbour	Required				3.6	Fair	Leaning tree up to 45 degrees from upright towards south direction; evidence of previous branch failures present
8	Bur oak	*Quercus macrocarpa*	54	1. Private	Required				3.6	Good	Mature tree; Good crown density and colour observed; no visible defects present
9	Silver maple	*Acer saccharinum*	103	1. Private	Required				6.20	Fair	Mature tree; Botanical vigour appears good; balanced developed canopy; cable support system previously installed; large size cavity observed on the western leader; surface roots present
10	Colorado spruce	*Picea pungens*	*10	1. Private	Required				1.2	Good	Pyramidal growth habit; good crown density and colour observed; ***To be retained**
11	Eastern White cedar	*Thuja occidentalis*	31	1. Private	Required				2.4	Fair	Reduced botanical vigour and crown density due to restricted light exposure; no visible defects observed
12	Eastern White cedar	*Thuja occidentalis*	23 22	1. Private	Required				3.0	Fair	Co-dominant growth habit; reduced botanical vigour and crown density due to restricted light exposure; no visible defects observed
13	Eastern White cedar	*Thuja occidentalis*	25	1. Private	Required				2.4	Fair	Reduced botanical vigour and crown density due to restricted light exposure; no visible defects observed

LOTHLORIEN GARDEN DESIGN CONSULTING
(647) 351 2631
www.lothloriengarden.com
1502-111 Inverlochy Blvd. Thornhill,
ON, L3T 3R7
Phone: 647 351 2631
www.lothloriengarden.com

TRUE NORTH

ISSUED	REVISION	COMMENTS	DATE

NOTES:

TREE PROTECTION AND REPLANTING PLAN

ADDRESS:

42 Galsworthy Drive, Markham, ON L3P 1T1

CLIENT NAME:

Greg Ireland

DRAWN BY:

IVAN MITEV
M.Sc. Ecologist
ISA Certified Arborist® ON-2297A
Consulting Arborist - Lothlorien Garden Consulting
lothloriengardenconsulting@gmail.com

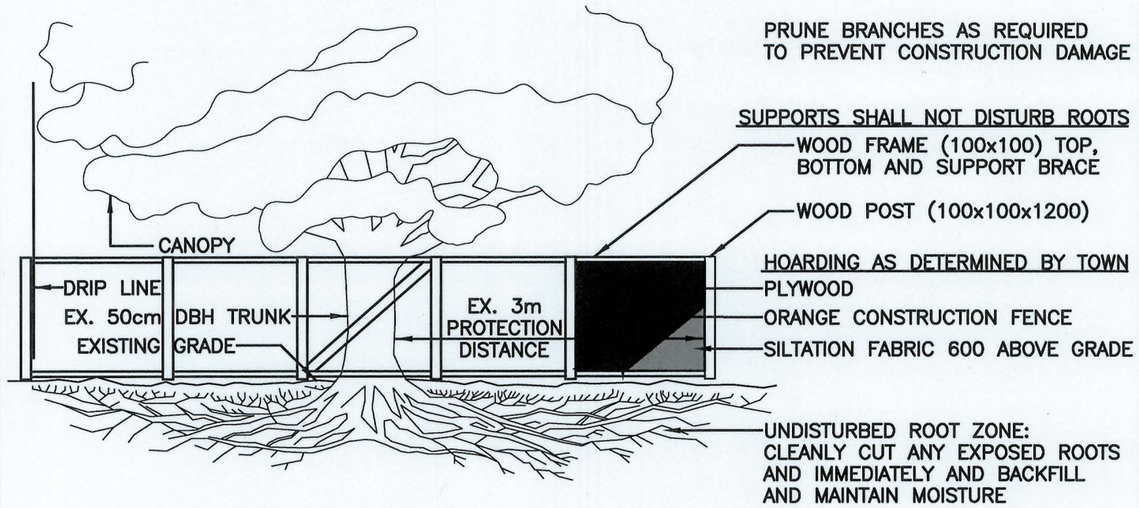
DATE: 09/30/2020

SCALE: 1:200 (17" x 11")

SHEET NUMBER: TPRP- L1

LEGEND

- TREES TO REMAIN protected root zone (TPZ)
- TREES TO BE REMOVED
- TREES TO BE INJURED
- 2x4 FRAME AND SNOW-FENCE-CLAD HOARDING
- 2x4 FRAME AND PLYWOOD-FENCE-CLAD HOARDING
- HORIZONTAL TREE PROTECTION
- REQUIRED OVER DIG FOR SLOPE STABILIZATION
- SILT BARRIER FENCE
- RNFP REGULATION LIMIT
- TREE REPLANTING LOCATION



MINIMUM TREE PROTECTION DISTANCE FROM TRUNK:

< 10cm DBH	1.2m
10–29cm DBH	1.8m
30–40cm DBH	2.4m
41–50cm DBH	3.0m
51–60cm DBH	3.6m
61–70cm DBH	4.2m
71–80cm DBH	4.8m
81–90cm DBH	5.4m
91–100cm DBH	6.0m
> 100cm DBH	6cm/1cmø

(DIAMETER AT BREAST HEIGHT) DBH = TRUNK DIAMETER AT 1.4m HEIGHT

40cmx60cm SIGN MOUNTED ON ALL SIDES OF BARRIER

MARKHAM

TREE PROTECTION ZONE

NO WORK IS PERMITTED WITHIN THE TREE PROTECTION ZONE INCLUDING GRADING, CONSTRUCTION ACCESS AND MATERIAL STORAGE.

BREACH OF TREE PROTECTION ZONE IS SUBJECT TO A FINE OF $_____

CONTACT TOWN OF MARKHAM FOR MORE INFORMATION: 905–477–5530

TREE PROTECTION NOTES:

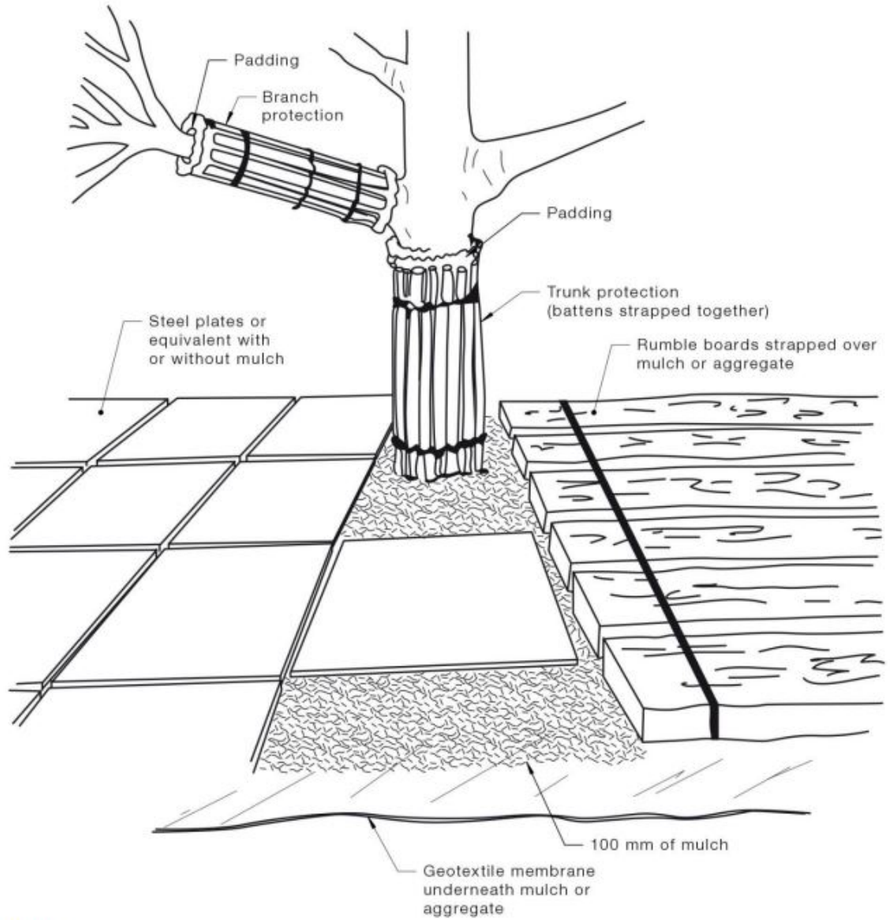
1. ALL TREE PROTECTION BARRIERS SHALL BE IN PLACE AND APPROVED BY THE TOWN PRIOR TO CONSTRUCTION ACCESS.
2. ALL SUPPORTS AND STAKES SHALL BE OUTSIDE THE TREE PROTECTION ZONE AND SHALL MINIMIZE ROOT DAMAGE.
3. TREE PROTECTION BARRIERS SHALL REMAIN IN PLACE AND IN GOOD CONDITION UNTIL ALL CONSTRUCTION IS COMPLETE AND APPROVED BY THE TOWN.
4. ALL ARBORICULTURE WORK SUCH AS PRUNING OF BRANCHES AND ROOTS, SHALL BE DONE BY A QUALIFIED TREE WORKER CERTIFIED WITH THE INTERNATIONAL SOCIETY OF ARBORICULTRE APPROVED BY THE TOWN.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN

MARKHAM ENGINEERING DEPARTMENT	DRAWING NAME: TREE PRESERVATION DETAILS	SCALE: NTS REV: 0 DATE: SEPTEMBER 2010	APPROVED BY: DIRECTOR OF ENGINEERING DWG. NO. MP12

TPZ – Rumble boards and trunk/branch protection

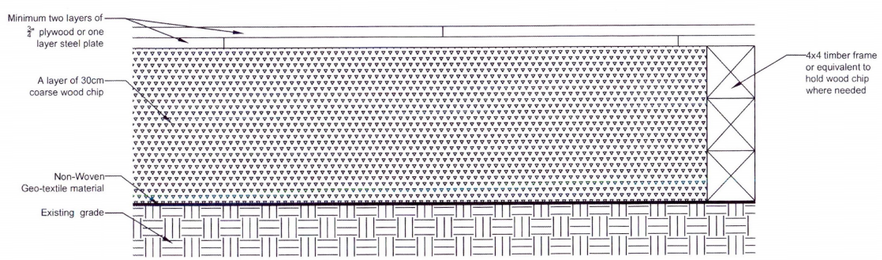
When tree protection fencing cannot be installed or requires temporary removal, other tree protection measures should be used, including those set out below.



NOTES:

1 For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.

2 Rumble boards should be of a suitable thickness (minimum 40mm) to prevent soil compaction and root damage.



Horizontal Tree Protection (Wood Chip)

LOTHLORIEN GARDEN DESIGN CONSULTING
(647) 351 2631
www.lothloriengarden.com
1502-111 Inverlochy Blvd. Thornhill, ON, L3T 3R7
Phone: 647 351 2631
lothloriengardenconsulting@gmail.com

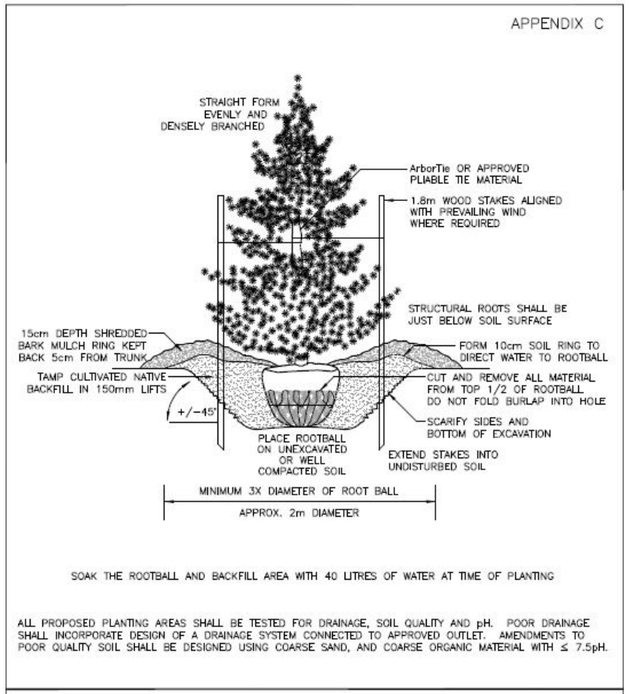
NOTES:

TREE PROTECTION HOARDING DETAIL AND SPECIFICATION

ADDRESS:

42 Galsworthy Drive, Markham, ON L3P 1T1

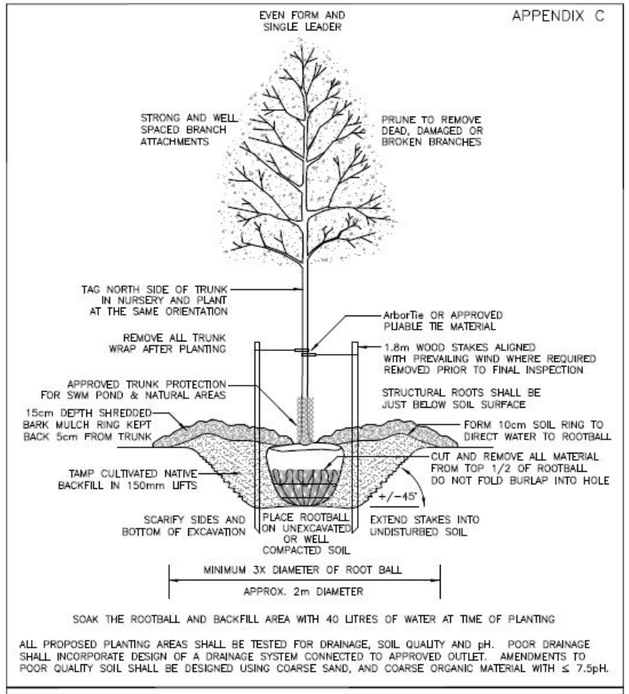
DATE:	09/30/2020
SCALE:	NTS
SHEET NUMBER:	TPRP- L2



CONIFEROUS TREE PLANTING DETAIL

MARKHAM
THE CORPORATION OF THE TOWN OF MARKHAM

SCALE:	DATE:	DRAWING No.
N.T.S.	JUNE 2009	T-5



DECIDUOUS TREE PLANTING IN "GOOD QUALITY SOIL"

MARKHAM
THE CORPORATION OF THE TOWN OF MARKHAM

SCALE:	DATE:	DRAWING No.
N.T.S.	JUNE 2009	T-2

Caring for Newly Planted Trees

Transplant shock is fairly common in newly transplanted trees. A tree can lose as much as 90% of its root system when it is removed from the nursery. This causes a great deal of stress on the plant as it is tries to reestablish itself. Research has shown that approximately one year of recovery is needed for every inch of tree diameter. Starting a regular plant maintenance and inspection program to head-off problems early, and providing good after-care will help maintain the health and vigor of your newly planted trees and shrubs.

Watering:

Water is probably the most important element in caring for new trees and shrubs. Since a newly transplanted tree or shrub has not extended its roots into the existing soil, adequate moisture needs to reach the root ball. Soil type and the amount of rainfall govern the amount of watering necessary. On most well drained soil, one inch of water per week throughout summer and fall is required to establish and maintain good growth. In sandy soils, as much as two inches of water per week is needed.

Mulching:

Mulch is another important element in good plant health care maintenance. Apply a 3-to-4-inch layer of organic, composted mulch (wood chips, leaves, or pine bark) extending from the base of the plant out past the drip line (end of the branches). Do not let the mulch rest against the trunk of the plant. All plants benefit from mulch, because, as the mulch breaks down, it provides an excellent growing medium for roots, and acts as a slow release fertilizer. Mulch will also help conserve moisture, moderate soil temperatures, eliminate weeds, and protect the trunk from mechanical injury, especially weed whips and lawn mowers.

Fertilizing:

Fertilization at the time of planting is generally not recommended. It is ineffective until the root system has a chance to reestablish. It is usually advisable to wait two or three years before applying fertilizer, and then it is recommended to get a soil test first.

Pruning:

Pruning after planting should be limited to removing dead, rubbing, or broken branches only. Wait at least a year before removing any larger limbs or shaping the structure of the tree or shrub. Remember, pruning encourages growth, so cut only where you need growth, and try to maintain the natural shape of the plant.

Recommended Tree Species for Post-Construction Replanting Plan

Number of Trees	Species	Replacement Tree Number (#)
1	Tulip tree *(Liriodendron tulipifera)*	1
1	Eastern hemlock *(Tsuga canadensis)*	2
2 Total		

LOTHLORIEN GARDEN DESIGN CONSULTING
(647) 351 2631
www.lothloriengarden.com
1502-111 Inverlochy Blvd. Thornhill, ON, L3T 3R7
Phone: 647 351 2631
lothloriengardenconsulting@gmail.com

ISSUED	REVISION	COMMENTS	DATE

NOTES:

TREE REPLANTING DETAIL AND SPECIFICATION

ADDRESS:

42 Galsworthy Drive, Markham, ON L3P 1T1

DATE:	09/30/2020
SCALE:	NTS
SHEET NUMBER:	TPRP- L3

APPENDIX “D”
METROLINX COMMENTS

Todorovski, Aleks

From: Leung, Justin
Sent: Tuesday, November 17, 2020 1:10 PM
To: Todorovski, Aleks
Subject: FW: A.095.20-42 Galsworthy Dr-circulation memo
Attachments: Metrolinx Environmental Easement, October 2020.pdf

From: Terri Cowan <Terri.Cowan@metrolinx.com>
Sent: Tuesday, November 17, 2020 1:06 PM
To: Leung, Justin <JLeung@markham.ca>
Subject: RE: A.095.20-42 Galsworthy Dr-circulation memo

Hello Justin,

Further to the circulation for 42 Galsworthy Drive, Markham, dated November 17th, 2020, I note the subject site is within 300 metres of Metrolinx's Uxbridge Subdivision which carries Stouffville GO Train service, I further note that the subject minor variance application is to increase the building footprint of the proposed residential detached dwelling. We have no objections to the application, however, ask that the following be included in any conditions of approvals related to the minor variance and/or subsequent site plan application;

*The Owner shall grant Metrolinx an environmental easement for operational emissions, registered on title against the subject residential dwelling in favour of Metrolinx. I have attached our Environmental Easement language as a reference.

Should you have any questions or concerns, please feel free to contact myself. The proponent may contact myself to initiate the easement.

Thank you,
Terri Cowan
Project Manager
Third Party Projects Review| Capital Projects Group
Metrolinx | 20 Bay Street, Suite 600 |Toronto, Ontario|M5J 2W3
T: 416-202-3903 C: 416-358-1595

METROLINX

Form of Easement

WHEREAS the Transferor is the owner of those lands legally described [insert legal description] (the "**Easement Lands**");

IN CONSIDERATION OF the sum of TWO DOLLARS ($2.00) and such other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the Transferor, the Transferor transfers to the Transferee, and its successors and assigns, a permanent and perpetual easement or right and interest in the nature of a permanent and perpetual non-exclusive easement over, under, along and upon the whole of the Easement Lands and every part thereof for the purposes of discharging, emitting, releasing or venting thereon or otherwise affecting the Easement Lands at any time during the day or night with noise, vibration and other sounds and emissions of every nature and kind whatsoever, including fumes, odours, dust, smoke, particulate matter, electromagnetic interference and stray current but excluding spills, arising from or out of, or in connection with, any and all present and future railway or other transit facilities and operations upon the lands of the Transferee and including, without limitation, all such facilities and operations presently existing and all future renovations, additions, expansions and other changes to such facilities and all future expansions, extensions, increases, enlargement and other changes to such operations (herein collectively called the "**Operational Emissions**").

THIS Easement and all rights and obligations arising from same shall extend to, be binding upon and enure to the benefit of the parties hereto and their respective officers, directors, shareholders, agents, employees, servants, tenants, sub-tenants, customers, licensees and other operators, occupants and invitees and each of its or their respective heirs, executors, legal personal representatives, successors and assigns. The covenants and obligations of each party hereto, if more than one person, shall be joint and several.

Easement in gross.