



Attachment 8

TREE IMPACT & EVALUATION REPORT for **TREE #8** at **8 Main Street, Vaughan, ON L4H 3N5**

Date: April 22nd, 2025

Prepared for: property owner(s)

Prepared by: **Ivan Mitev**, M.Sc. Ecologist

ISA Certified Arborist® #2297A

Consulting Arborist – *Lothlorien Garden Consulting*

<https://www.lothloriengarden.com/>



TABLE OF CONTENTS

TABLE OF CONTENTS	2
INTRODUCTION	3
EXPLORATORY ROOT EXCAVATION METHOD	3
CITY'S/COMMENTS AND CORESPONDENCE	4
EVALUATING TREE HEALTH, STRUCTURE, & CONDITION	6
EXPLORATORY EXCAVATION RESULTS	6
EVALUATING ROOT LOSS	7
CONCLUSION	8
PICTURES.....	9
ASSUMPTIONS AND LIMITING CONDITIONS.....	19
CERTIFICATE OF PERFORMANCE.....	20
REFERENCES AND RESOURCES	21

INTRODUCTION

On April 15th, 2025, and with the approval of the City's Vaughan Parks, Forestry and Horticulture Operations, Lothlorien Garden Consulting provided site assessment and arborist supervision during the root-sensitive excavation performed by Kifiak Tree Service Inc., using an Air Spade method to evaluate the severity of the proposed root severance to **T8**, associated with the new development on 8 Main Street, Vaughan, Ontario. The proposed Site Plan (A) prepared by Rubinoff Design Group on February 20th, 2024, includes a proposal to demolish the existing house and rear sheds and construct a new two-storey single-family dwelling with integral garages to the east and west side, new permeable driveways fronting Main Street and 1½ storey pool house at the rear.

The accompanying Root Trench Plan includes an overview of the concept plan details, as well as the daylighted roots during the provided root study.

EXPLORATORY ROOT EXCAVATION METHOD

An Exploratory Root Excavation (ERE) or root investigation may be conducted to provide more information on the extent of a tree's 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 600 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 not 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.

Figure 1: General Root Pruning Details

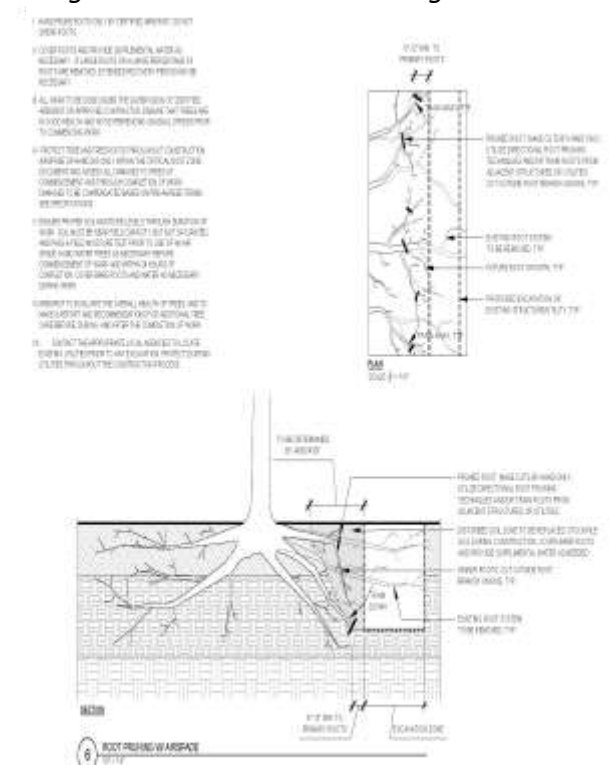
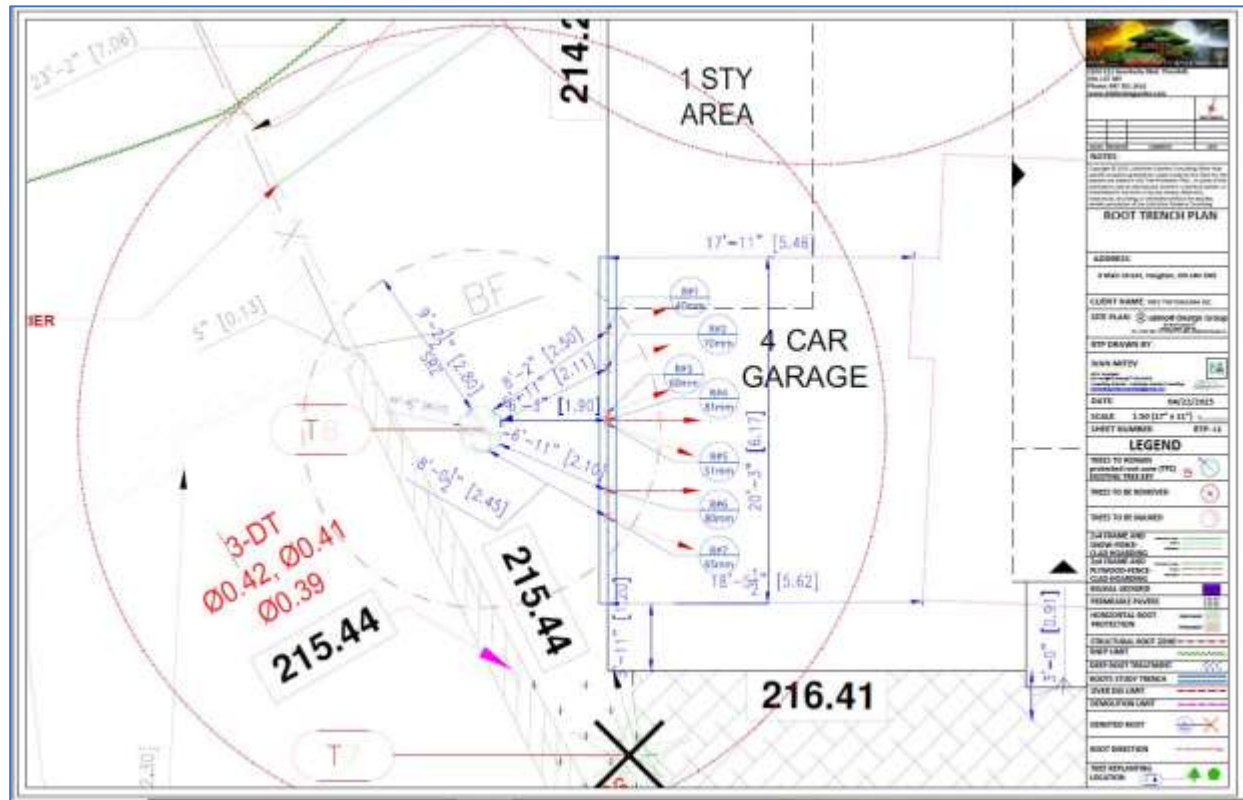




Figure 2: illustrates roots found in root exploratory trench. Roots are labelled with the corresponding diameter sizes; Please review Root Trench Plan-L1 for more details



CITY'S/COMMENTS AND CORRESPONDENCE



Linda Ford

Apr 11, 2025, 4:31 PM
(10 days ago)

to Zachary, Sherard, me

Hi Zachary,

We're going to proceed with the roots study as requested. Ivan is going to supervise the work being done. We plan to be on site on Tuesday weather permitting.

If you have any questions please let me know. Thank you.



Zachary Guizzetti

**Apr 14, 2025,
7:22 AM (7 days ago)**

to Linda, Sherard, me

Hi Linda,

No problem at all please photo document all findings.



Ivan Mitev <lothloriengardenconsulting@gmail.com>

**Apr 14, 2025,
10:59 AM (7 days ago)**

to ktreeserv.24@gmail.com, Paulina, Zachary, Linda, Sherard

Hi Zachary,

Thank you for your confirmation.

We will proceed with the root study tomorrow, Thursday 15, 2025.

No structural roots will be severed during the exploratory work.

Once the job is completed, a Tree Impact report will be sent to you with the arborist's findings.

Thank you.

EVALUATING TREE HEALTH, STRUCTURE, & CONDITION

With reference to the subject above, the condition rating of one regulated European Horse chestnut, corresponding to **T8** in this report, was re-assessed. The provided report below outlines the arborist findings.

Tree #8: 77 cm (base diameter) European Horse chestnut

The subject tree is a mature chestnut with a multi-stemmed growth habit, situated west of the existing dwelling, near the boulder retaining wall that encloses the property from the west.

Objective findings

As of the date of inspection (April 15th, 2025), the tree's condition was re-evaluated from **Good** to **Fair** due to following structural defects and noted health problems.

A total of three (3) small to medium size cavities were documented during the provided tree assessment. Two of them have formed at the site of the former western and northern leaders, whose lateral branches have fallen some time ago. Although the tree has produced a significant response growth that almost enclosed the cavities, the size of the inner hollow remains large. The cavity of the western leader is visible from the west side of the tree, roughly 2m above the existing grade. It has an approximate depth of 30cm and width of 8.5 cm. Given that the size of the cavity exceeds 30% of the inner circumference, with sound shell less than 70 %, we may conclude that the mechanical strengths of the western stem is reduced.

Another cause of concern is the small hollow found close to the base of the tree, just below trunk bifurcation. It has an approximate depth of 10cm and width of 5 cm. Oozing was noted during the conducted site assessment. Oozing on the subject tree may be an early symptom of bleeding canker, a disease caused by the bacterium *Pseudomonas syringae pathovar aesculi*. An additional laboratory analysis including culturing the bacterium, DNA analysis (PCR), and/or microscopic examination of the affected tissues must be conducted in order to confirm the presence of specific genes in *P. syringae pv. aesculi* or *Phytophthora*.

EXPLORATORY EXCAVATION RESULTS

Trench and Soil Characteristics

The trench has a linear profile with a total length of **6.17m**, approximate width of **0.30m** and depth of **0.60m**.

Roots Sensitive excavation was performed by Air Spade to a depth of **0.60 m** along with the westerly limit of the proposed new foundation. The exploratory trench is marked in blue colour, as indicated in the cut-out from the Root Trench Plan L1 (Fig.2).

Soil composition of the first 60cm soil surface was largely loam. Below that depth, the soil composition significantly declines and clay particles and buried construction debris are prevalent in the B horizon. A small number of fibrous roots were severed cleanly on the west side of the excavation trench in order to allow Air Spade access only.

Root study:

The upper 60 cm of soil revealed a mat of fibrous, lateral and structural roots in moderate to high density with individual root diameters between **5mm-81mm**. A total of seven (**7**) lateral



roots associated with **T8** with individual diameter i.e., **R#1: ø 40mm/450mm depth; R#2: ø 70mm/300mm depth; R#3: ø 60mm/600mm depth, R#4: ø 81mm/600mm depth, R#5: ø 51mm/600mm depth, R#6: ø 80mm/600mm depth, and R#7: ø 65mm/600mm depth**, were carefully exposed, mapped and documented on the provided Root Trench Plan. Please review RTP-L1 for more details. These roots were revealed within first 60cm of the soil level. The largest found root is associated with **T8: R#4: ø 81mm** was found at a distance of **1.90 m**, east from the base of the tree.

EVALUATING ROOT LOSS

In accordance with the Best Management Practices -Managing Trees During Site Development and Construction, Third Edition, 2023, *“cutting roots closer than six times the DBH on one side of the tree can cause sustained and chronic water-stress symptoms in some species”*

A total of seven (**7**) individual roots associated with the above-noted tree will require pruning to accommodate the proposed new development.

As per the Best Management Practices Root Management, 2017 *“Linear cuts on one side of the tree can reduce the stability when the cuts is made at a distance from the trunk that is less than three times the trunk diameter. Severe loss of stability is common when cuts are made at a distance that is less than 1 to 1.5 times the trunk diameter.”*

** Specific comments to the tree in question are denoted below for reference.*

Following By-law 185-2007. *This application is applicable to the injury or destruction of any one (1) or more trees having a tree diameter of twenty (20) centimetres or more measured at base, or any multi-stemmed tree(s) having a combined base diameter of twenty (20) centimetres, unless authorised by permit to do so pursuant to By-law 185-2007.*

Thus, the total trunk area is $41+42+39= 122\text{cm}$. The minimum tree protection zone (mTPZ) is approximately 7m.

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 base of the tree (trunk diameter at the base) was determined using the following formula:

The trunk diameter for the tree is found by taking the square root of the sum of all squared stem DBHs. Thus, the base diameter was estimated **≈70cm**.

An indicative SRZ radius can be determined from the trunk diameter measured immediately above the root buttress using the following formula: $\text{SRZ radius} = (D \times 50)^{0.42} \times 0.64$

Using the above formula the SRZ was estimated at **2.8m**.

Following the Best Management Practices Root Management, 2017 *“The impact of linear root cuts is highly dependent on the configuration of the root system”. Trees with lateral root system are more susceptible to a loss of stability than trees with oblique or tap root systems”*



CONCLUSION

Tree #8: 77 cm (base diameter) European Horse chestnut

In accordance with the Georgina Forestry Commission research, *"a 30% loss of the critical root zone would be considered enough to kill or significantly destabilize the tree"*.

Following *"Ranking of common tree species in tolerance to construction damage by (Matheny & Clark 1998)"*, genus *Aesculus* shows good tolerance to construction.

*Tolerance: P= poor, M= medium, G= good.

As with any healthy mature tree, mitigating the risk of failure is our first consideration.

The hollows on the subject tree poses a safety concern, as the mechanical strengths may be heavily compromised, increasing the risk of structural failure.

The forked trunk bifurcation signals a potential weakness, especially on the side where the leader grows outward on a lean. A narrow-angled fork like this can also be prone to infection. The seam creates a crevice for insects and disease pathogens and increases the likelihood of tree failure.

Based on my visual assessment I have assigned the tree a risk rating of "Possible." I think that failure of one of the leaders is possible under extreme weather event. Due to the size of the tree and its location, consequences are likely to be severe.

With respect to the conducted root study, after evaluating the tree's health, architecture and assessing the root system and distribution it is the consultant's opinion that several structural roots exceeding **50mm** threshold for pruning will require severance in order to accommodate the proposed development. It should be noted that the root zone has already been restricted by the westerly boulder retaining wall. The tree responds with high-density lateral and oblique roots on the opposite side to increase its anchorage. Even if the proposed root severance occurs outside of the Structural Root Zone (2.8/3.0m distance from the tree), there will be at least a total of three (3) structural roots, i.e., **R#2, R#4 and R#6** that will require pruning. Moreover, a significant portion of the tree's canopy must be reduced to allow the construction of the upper floors and roof structure.

The property owner is not willing to accept any site risks and would like to see the tree removed in order to eliminate any hazard to property the safety of the residents, and the neighbour's property. Given the very low-risk tolerance of the property owner, as well as taking into consideration the above arborist's findings, we recommend that the tree be removed and replaced.

PICTURES

Fig.3: European Horse-chestnut growing habit



Fig.4: Basal cavity, close up



Fig.5: Cavity on the western leader



Fig.6: Associated depth, close up



Fig.7: Cavity on the northern leader

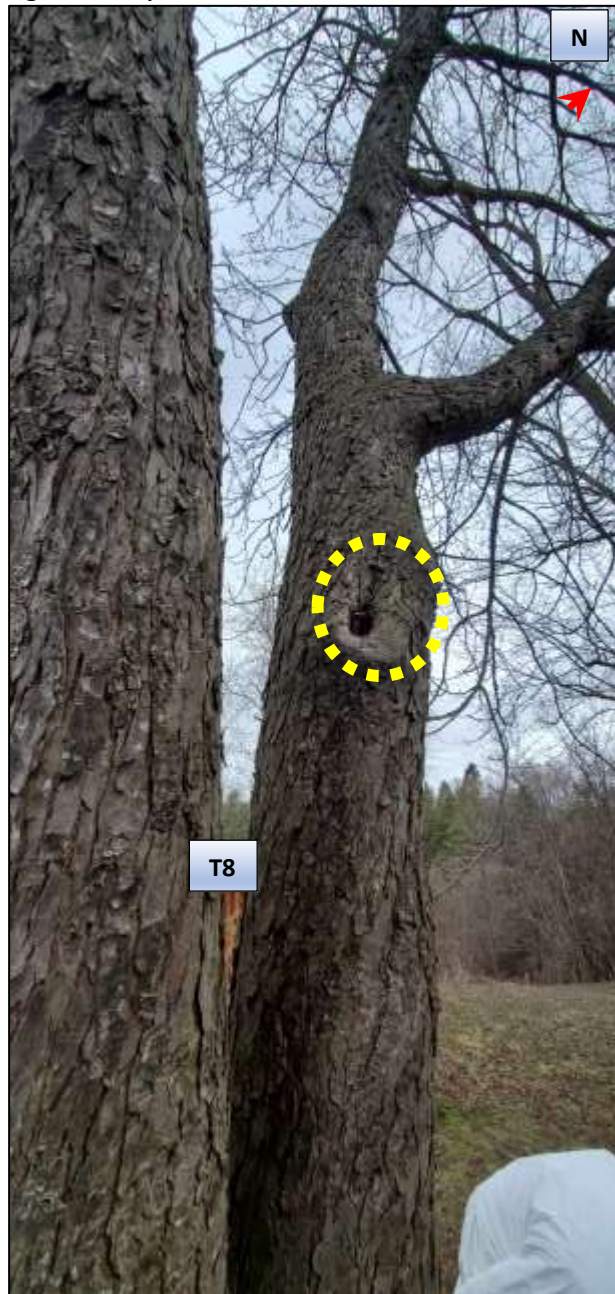


Fig.8: Included bark section, close up



Fig.9: The root study area viewed from the east. The red arrows mark the total limit of the proposed exploratory excavation trench



Fig.10: Air Spade technicians reveal roots in the exploratory trench, viewed from the north.



Fig. 11&12: Root morphology and directions of the main lateral roots associated with T8



Fig.13&14: Root morphology and directions of the main lateral roots associated with T8



Fig.15&16: Root morphology and directions of the main lateral roots associated with T8



Fig.17: Root morphology and directions



Fig.18: Distance from the boulders to the west



Fig. 19: Root morphology and directions of the main lateral roots associated with T8

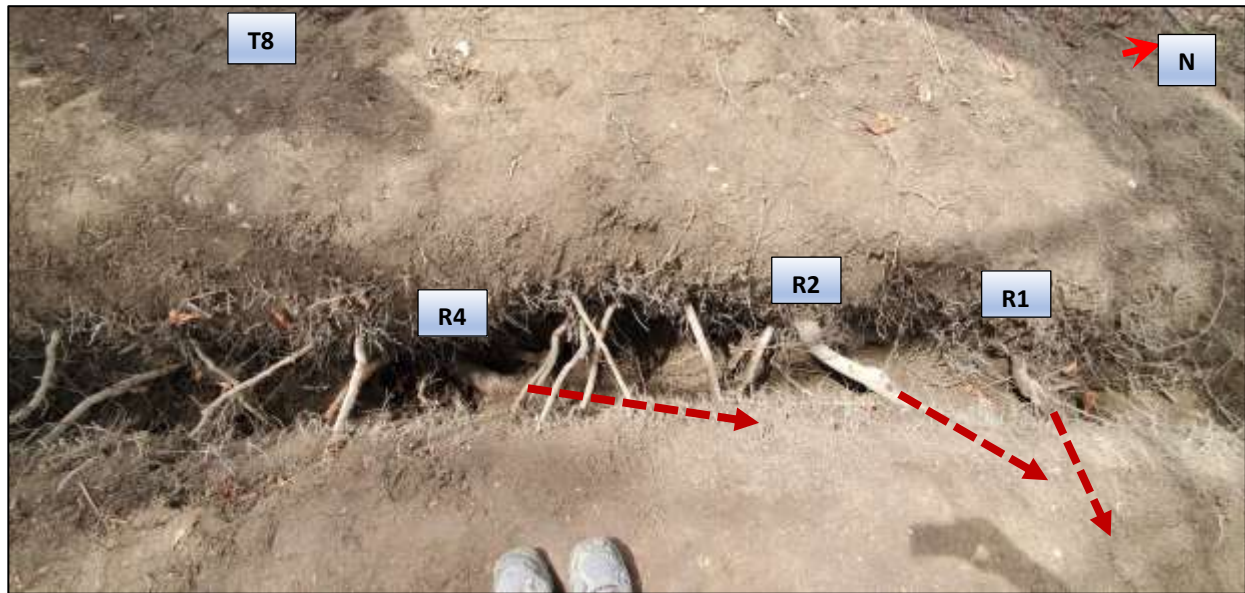


Fig. 20: Root morphology and directions of the main lateral roots associated with T8, continues

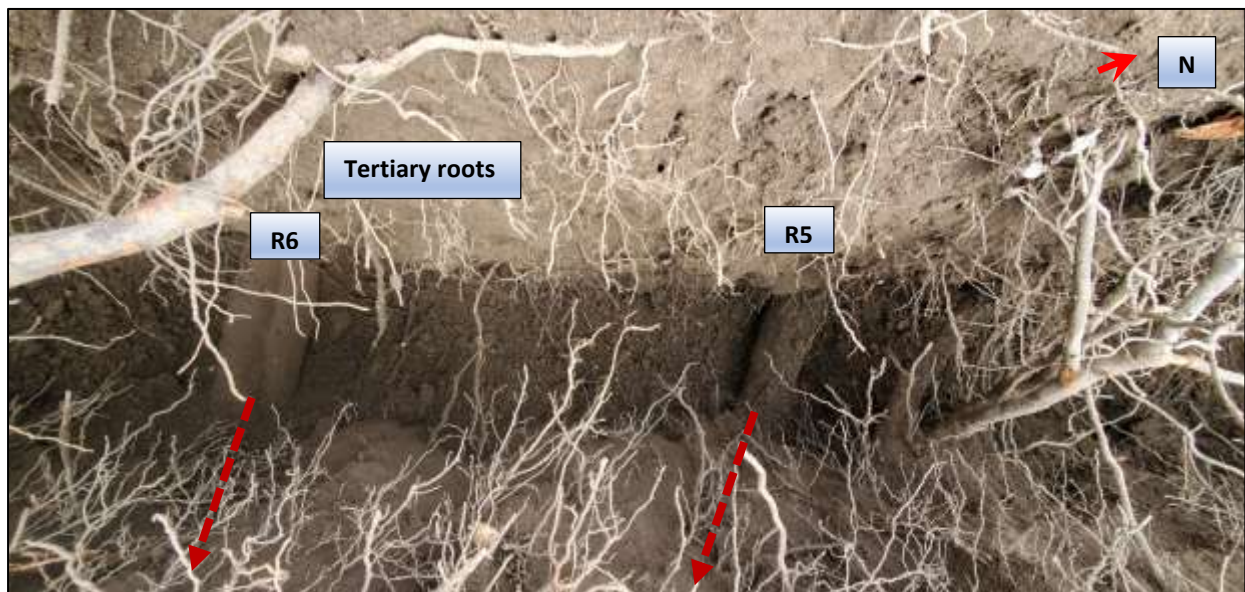


Fig. 21: Immediately after the root's documentation, the trench was covered over promptly with soil according to good arboricultural practices



Fig. 22: A small number of fibrous roots were severed cleanly on the west side of the trench in order to allow Air Spade access.





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.

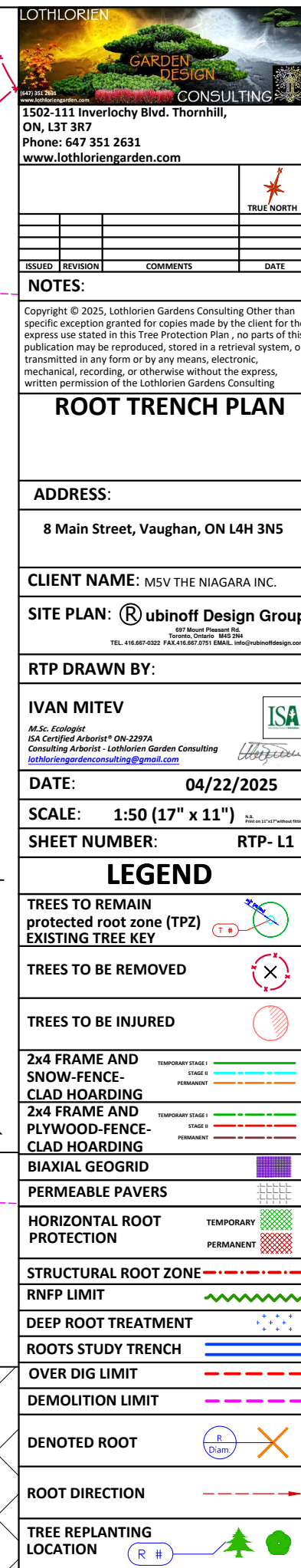
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














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REFERENCES AND RESOURCES

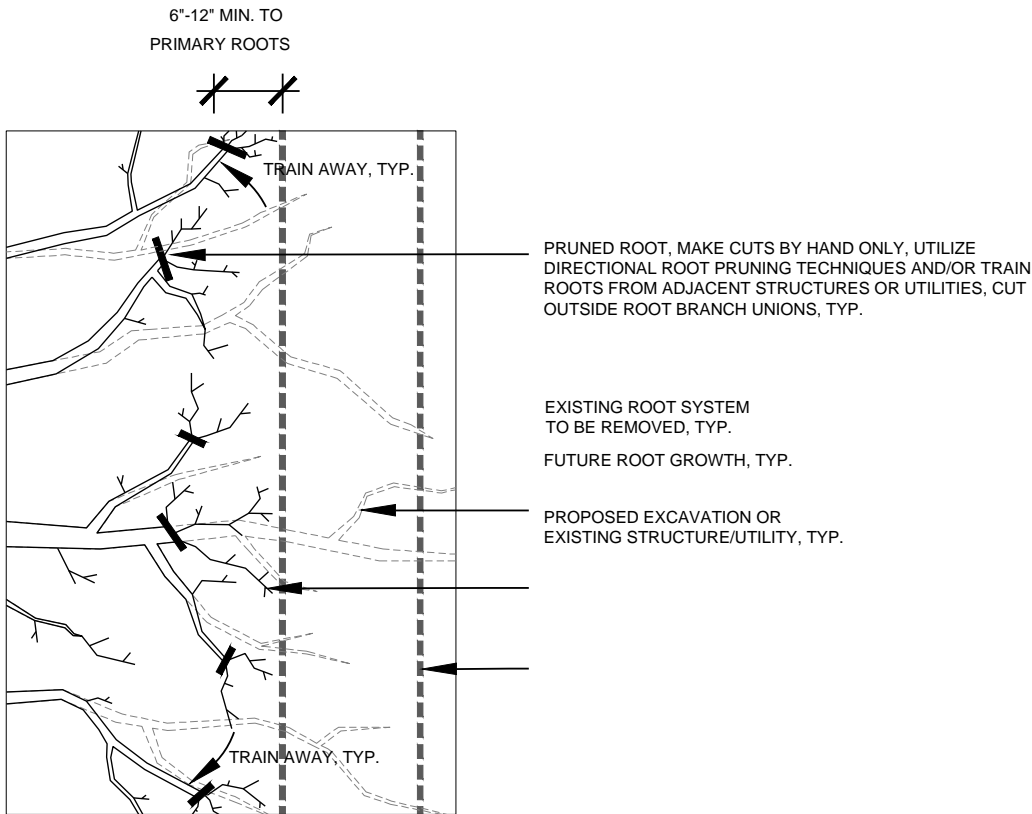
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- Matheny and Clark, ISA, 1994. A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas, 2nd Edition
- VERTICAL MULCHING OF TREES: EFFECTS ON ROOTS AND WATER STATUS by P.J. Kalisz, J.W. Stringer, and R.J. Wells
- AS 4970-2009 PROTECTION OF TREES ON DEVELOPMENT SITES



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ISSUED	REVISION	COMMENTS	DATE
NOTES:			
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ROOT TRENCH PLAN			
ADDRESS:			
8 Main Street, Vaughan, ON L4H 3N5			
CLIENT NAME: MSV THE NIAGARA INC.			
SITE PLAN:  ubinoff Design Group <small>637 Mount Pleasant Rd. Toronto, Ontario M4S 2M4 TEL: 416.867-0322 FAX: 416.867-8793 EMAIL: info@rubinoffdesign.com</small>			
RTP DRAWN BY:			
IVAN MITEV <i>M.Sc. Ecologist</i> ISA Certified Arborist® ON-2297A Consulting Arborist - Lothlorien Garden Consulting lothloriengardenconsulting@gmail.com			 
DATE:		04/22/2025	
SCALE:		1:50 (17" x 11") <small>N.B. Max on 17"x11" without trim</small>	
SHEET NUMBER:		RTP- L1	
LEGEND			
TREES TO REMAIN protected root zone (TPZ) EXISTING TREE KEY 			
TREES TO BE REMOVED 			
TREES TO BE INJURED 			
2x4 FRAME AND SNOW-FENCE-CLAD HOARDING			
2x4 FRAME AND PLYWOOD-FENCE-CLAD HOARDING			
BIAXIAL GEOGRID			
PERMEABLE PAVERS			
HORIZONTAL ROOT PROTECTION			
STRUCTURAL ROOT ZONE 			
RNFP LIMIT			
DEEP ROOT TREATMENT			
ROOTS STUDY TRENCH			
OVER DIG LIMIT			
DEMOLITION LIMIT			
DENOTED ROOT			
ROOT DIRECTION			
TREE REPLANTING LOCATION			

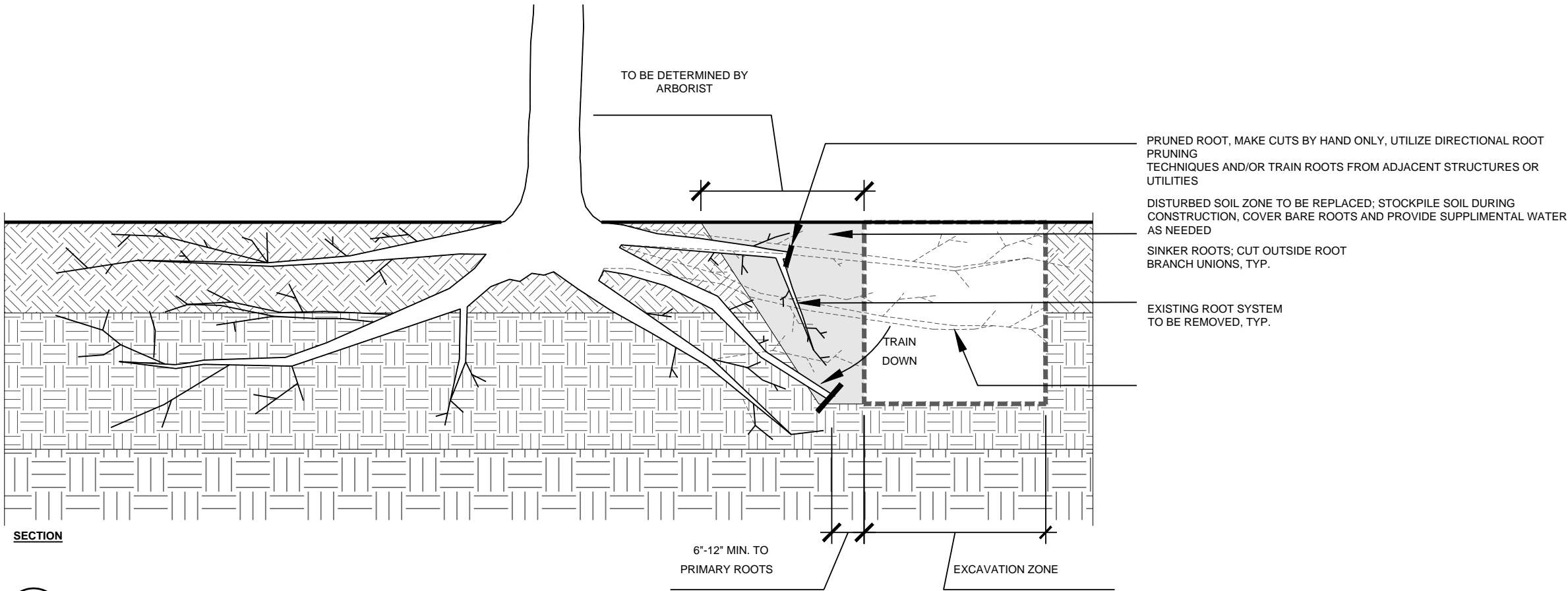
NOTES:

- I. HAND PRUNE ROOTS ONLY BY CERTIFIED ARBORIST. DO NOT SHEAR ROOTS.
- II. COVER ROOTS AND PROVIDE SUPPLEMENTAL WATER AS NECESSARY. IF LARGE ROOTS OR A LARGE PERCENTAGE OF ROOTS ARE REMOVED, EXTENDED RECOVERY PERIOD MAY BE NECESSARY.
- III. ALL WORK TO BE DONE UNDER THE SUPERVISION OF CERTIFIED ARBORIST OR APPROVED CONTRACTOR. ENSURE THAT TREES ARE IN GOOD HEALTH AND NOT EXPERIENCING UNUSUAL STRESS PRIOR TO COMMENCING WORK.
- IV. PROTECT TREE AND TREE ROOTS THROUGHOUT CONSTRUCTION. AIRSPADE OR HAND DIG ONLY WITHIN THE CRITICAL ROOT ZONE. DOCUMENT AND ASSESS ALL DAMAGES TO TREES AT COMMENCEMENT AND THROUGH COMPLETION OF WORK. DAMAGES TO BE COMPENSATED BASED ON PRE-AGREED TERMS. SEE SPECIFICATIONS.
- V. ENSURE PROPER SOIL MOISTURE LEVELS THROUGH DURATION OF WORK. SOIL MUST BE NEAR FIELD CAPACITY, BUT NOT SATURATED, AND PASS A FIELD MOISTURE TEST PRIOR TO USE OF AN AIR SPADE. HAND WATER TREES AS NECESSARY BEFORE COMMENCEMENT OF WORK AND WITHIN 24 HOURS OF COMPLETION. COVER BARE ROOTS AND WATER AS NECESSARY DURING WORK
- VI. ARBORIST TO EVALUATE THE OVERALL HEALTH OF TREES, AND TO MAKE A REPORT AND RECOMMENDATIONS FOR ADDITIONAL TREE CARE BEFORE, DURING, AND AFTER THE COMPLETION OF WORK.
- VII. CONTACT THE APPROPRIATE LOCAL AGENCIES TO LOCATE EXISTING UTILITIES PRIOR TO ANY EXCAVATION. PROTECT EXISTING UTILITIES THROUGHOUT THE CONSTRUCTION PROCESS.



PLAN

SCALE: $\frac{1}{4}'' = 1'-0''$



SECTION

LOTHLORIEN

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NOTES:

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ROOT PRUNING
DETAILS & SPECIFICATIONS

SCALE:	NTS
SHEET NUMBER:	RTP- L2