

Arborist Report

TESTON ROAD FROM 250 M WEST OF PINE VALLEY DRIVE TO KLEINBURG SUMMIT WAY

prepared for:

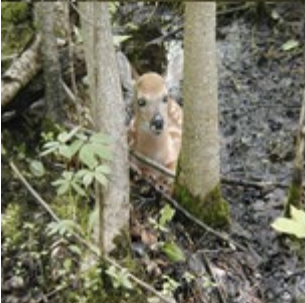


prepared by:



NOVEMBER 2022

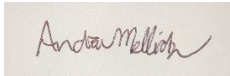
LGL FILE TA9021



TESTON ROAD FROM 250 M WEST OF PINE VALLEY DRIVE TO KLEINBURG SUMMIT WAY

ARBORIST REPORT

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LGL PROJECT TA9021

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1.0 INTRODUCTION

The City of Vaughan has initiated a Schedule “C” Municipal Class Environmental Assessment (EA) study to assess potential transportation improvements to Teston Road from 250 m west of Pine Valley Drive to Kleinburg Summit Way, a distance of 2.1 km. The study area is presented in **Figure 1**. The study will address transportation needs for those who live in the area and travel through it, including safety and operational improvements for all modes of transportation, like motor vehicles, public transportation, biking and walking.

HDR Inc. was retained by the City of Vaughan to lead the Municipal Class EA study. LGL Limited was retained by HDR Inc. to provide arborist services. This Arborist Report documents the results of the tree inventory conducted in the summer of 2020, and fall of 2022, and an impact assessment which includes recommendations for tree protection, removals and mitigation measures. The impact assessment provided herein is based on the preliminary design alternative provided to LGL by HDR.

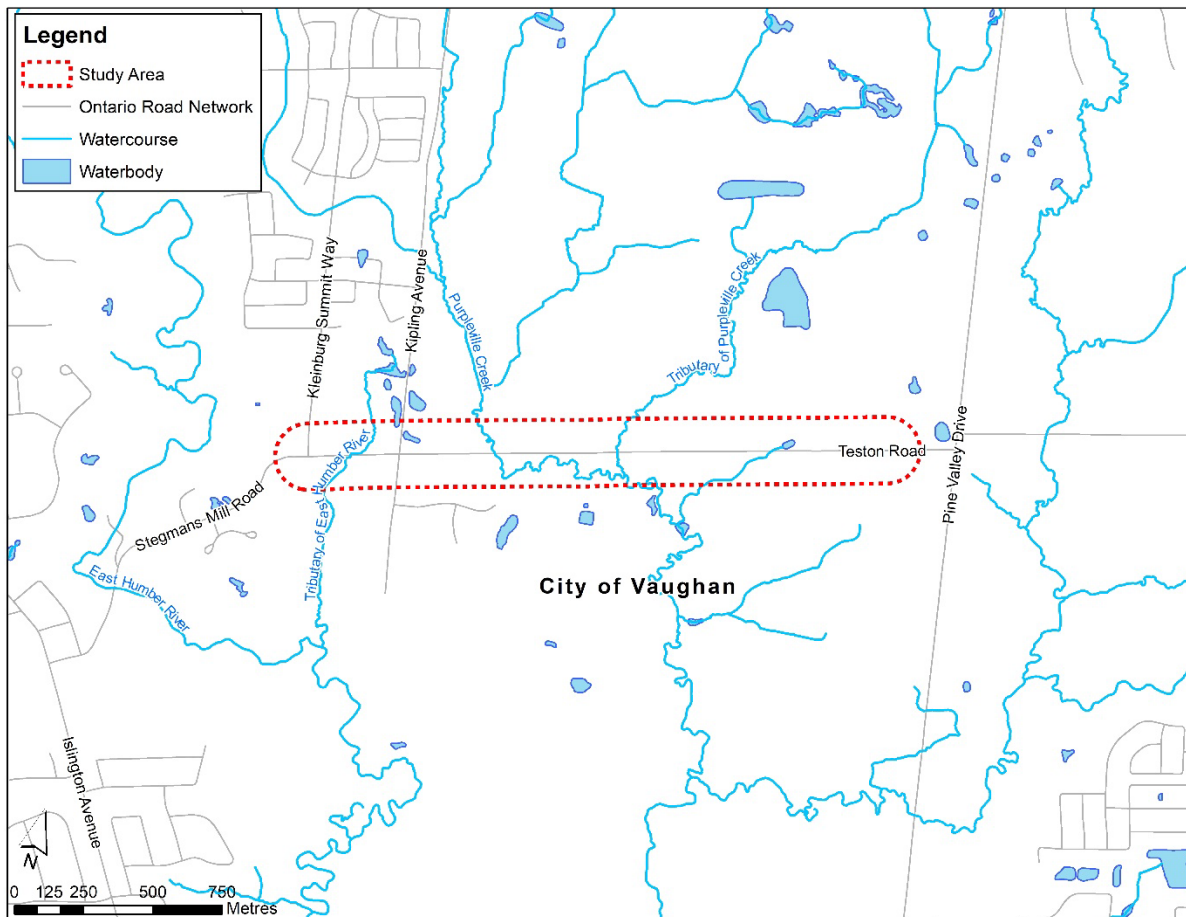


FIGURE 1. STUDY AREA

2.0 METHODOLOGY

An ISA Certified Arborist conducted an inventory of tree resources on August 28, 2020 and October 26, 2022 to identify potential tree constraints within the study area. The inventory focused on trees within the Teston Road right-of-way and beyond, to the extent possible. Permission to enter was not provided for private property and as such trees located on private property were not assessed during LGL's tree inventory. The following information was collected for each tree:

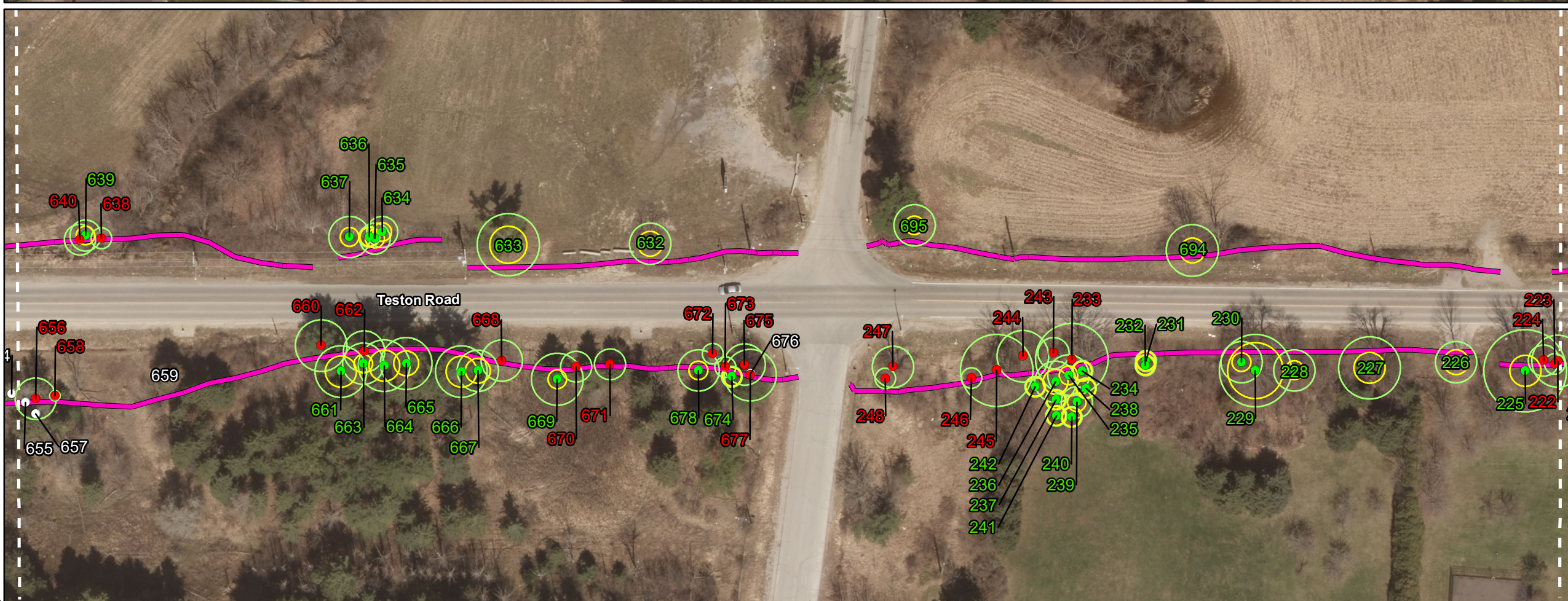
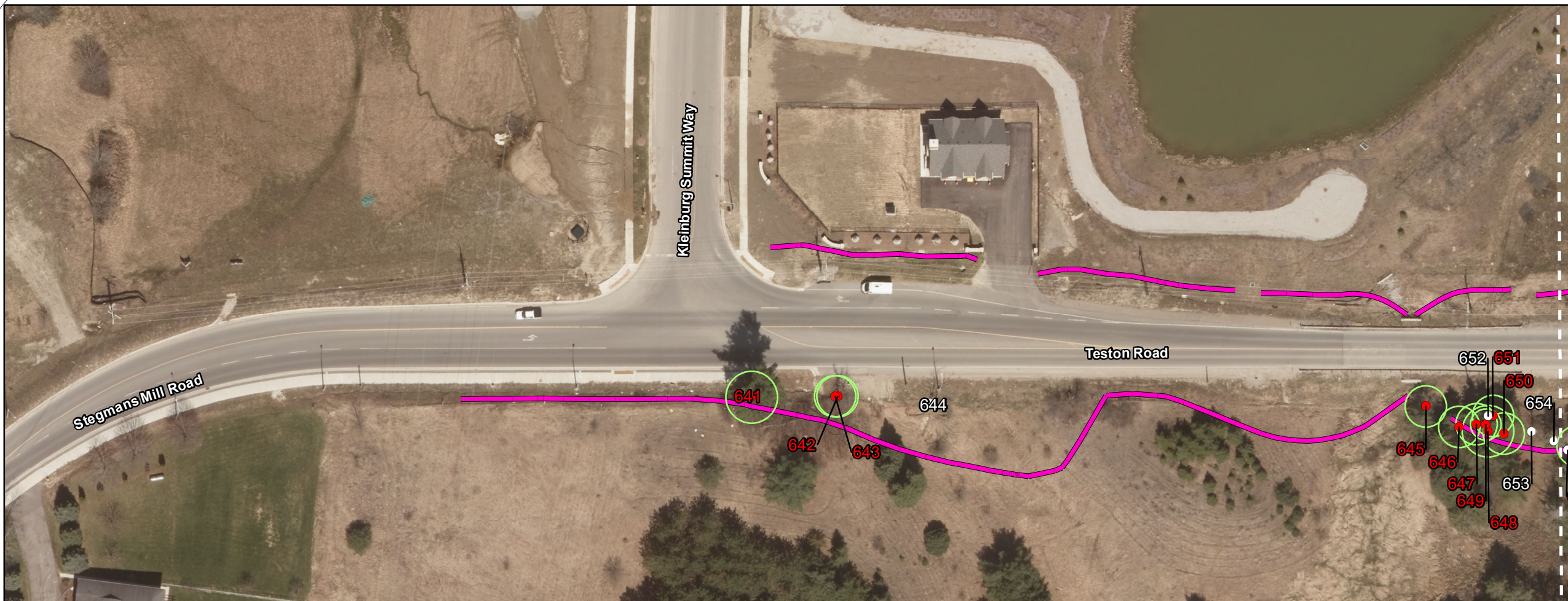
- Species: each tree was identified to species level using common and scientific name;
- Size: DBH was recorded in centimetres and measured 1.40 metres above ground level;
- Dripline diameter: the radial dripline for each tree was estimated to the nearest metre;
- Location: tree locations were recorded using a mapping grade EOS Arrow 100 GPS unit. Trees within the Teston Road right-of-way (ROW) were affixed with a uniquely numbered aluminum tag.
- Overall health/condition: tree condition was assessed based on a matrix of trunk integrity, crown structure and crown vigour. Each tree surveyed was assigned a ranking of poor, fair and good.
 - Poor: more than 50% dead branches, weak compartmentalization, early leaf drop, presence of insects/disease, major structural defects
 - Fair: 10-50% dead branches, size or occurrence of wounds present some concerns, minor structural defects
 - Good: dead branches less than 10%, signs of good compartmentalization, none or minor wounds, no structural defects;

A screening has been conducted to identify if inventoried tree species are regulated by the *Ontario Endangered Species Act*, (2007).

3.0 RESULTS

A total of 179 trees consisting of 24 species were identified and assessed during the tree inventory. The majority of trees within the study area are part of larger forest communities that extend beyond the Teston Road ROW. A detailed summary of all trees surveyed is presented in **Appendix A** (Tree Inventory), and the locations of each tree (by identifier number) are presented in **Figures 2a to 2d**.

Overall, trees within the study limits range in size from 10 to 81 cm DBH and are generally considered to be in good to fair condition. Trees in poor condition displayed signs of a number of abiotic and biotic defects. Evidence of Emerald Ash Borer was prevalent throughout the study area. No tree species regulated by the *Ontario Endangered Species Act* were identified during LGL's tree inventory.

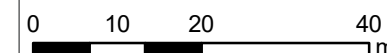


LEGEND

- Tree Resource - Dead
- Tree Resource to be Removed
- Tree Resource to be Retained
- Tree Protection Zone
- Dripline
- Matchline
- Proposed Grading Limit
- Proposed Retaining Wall

Data sources: LGL Limited field surveys.

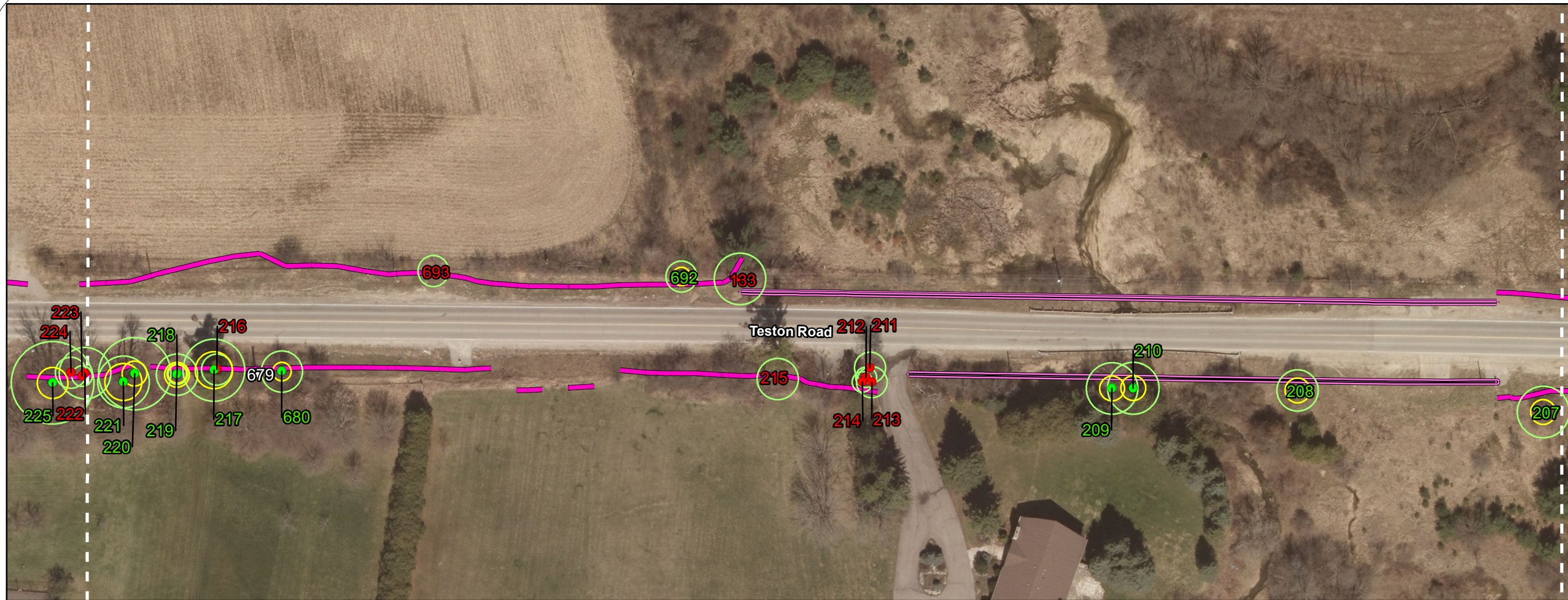
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**Teston Road
Tree Resources**



Project: TA9006	Figure: 2a
Date: November, 2022	Prepared By: AM
Scale: 1:900	Verified By: LMC

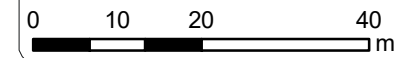


LEGEND

- Tree Resource - Dead
- Tree Resource to be Removed
- Tree Resource to be Retained
- Tree Protection Zone
- Dripline
- Matchline
- Proposed Grading Limit
- Proposed Retaining Wall

Data sources: LGL Limited field surveys.

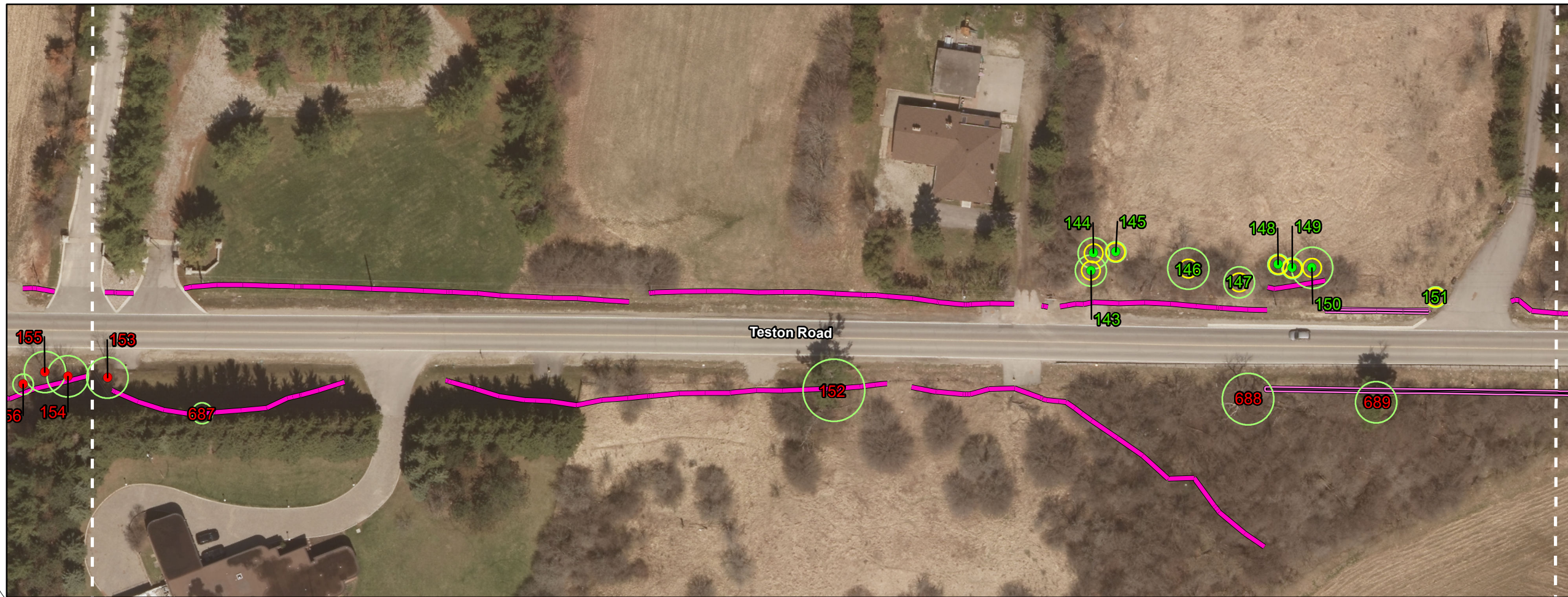
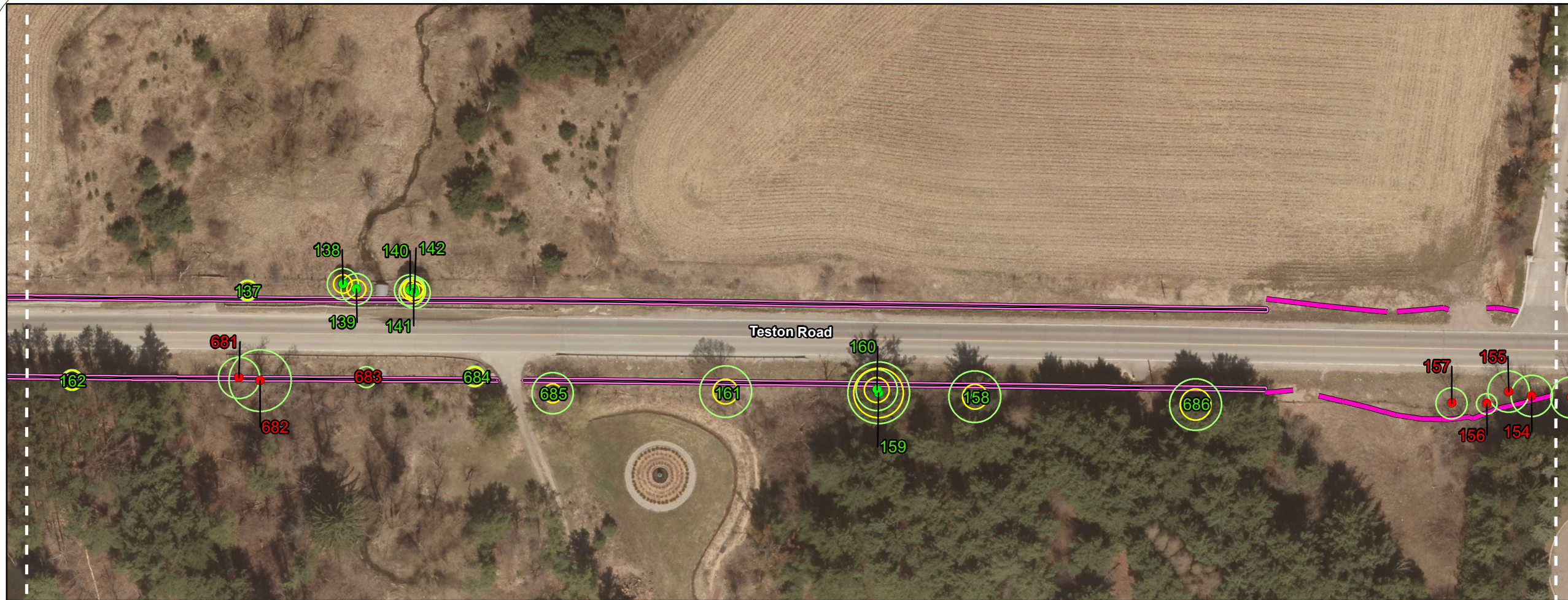
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**Teston Road
Tree Resources**



Project: TA9006	Figure: 2b
Date: November, 2022	Prepared By: AM
Scale: 1:900	Verified By: LMC

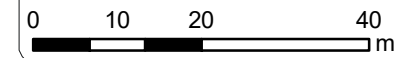


LEGEND

- Tree Resource - Dead
- Tree Resource to be Removed
- Tree Resource to be Retained
- Tree Protection Zone
- Dripline
- Matchline
- Proposed Grading Limit
- Proposed Retaining Wall

Data sources: LGL Limited field surveys.

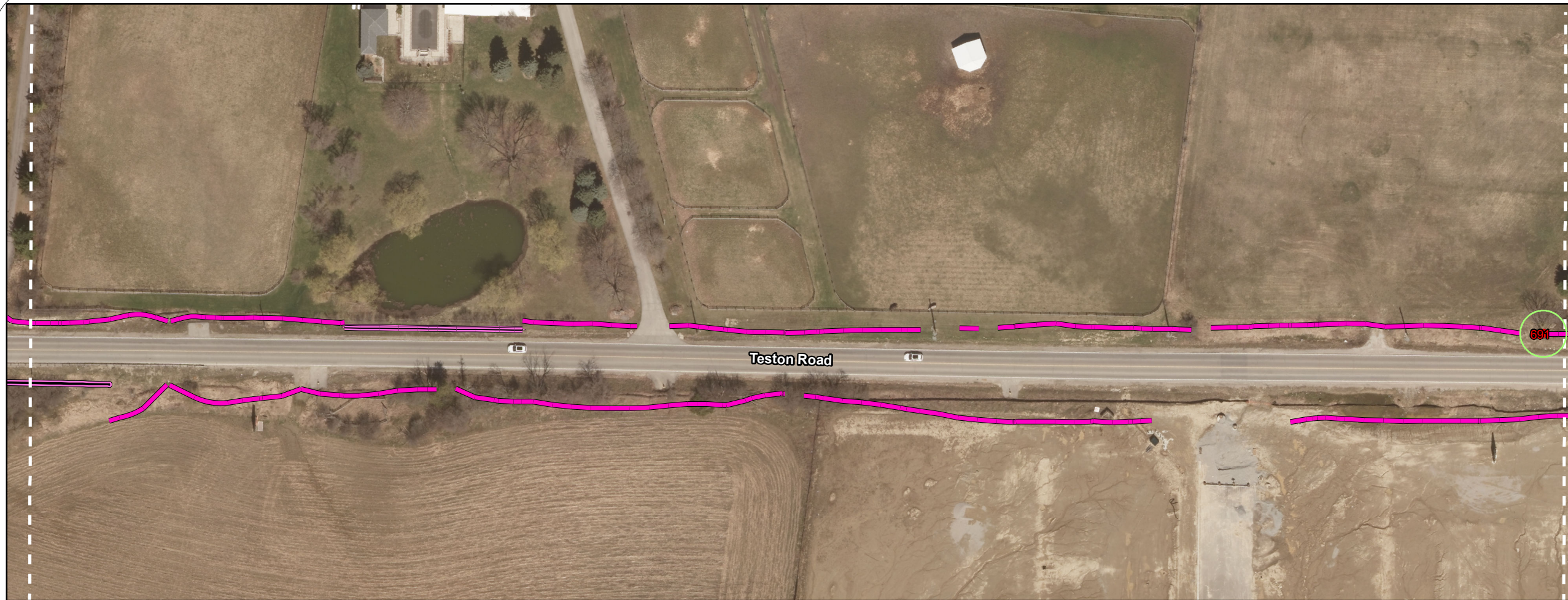
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**Teston Road
Tree Resources**



Project: TA9006	Figure: 2c
Date: November, 2022	Prepared By: AM
Scale: 1:900	Verified By: LMC

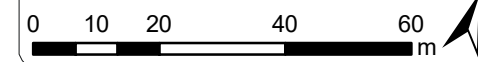


LEGEND

- Tree Resource - Dead
- Tree Resource to be Removed
- Tree Resource to be Retained
- Tree Protection Zone
- Dripline
- Matchline
- Proposed Grading Limit
- Proposed Retaining Wall

Data sources: LGL Limited field surveys.

Imagery Credits: © The Regional Municipality of York.



**Teston Road
Tree Resources**



Project: TA9006	Figure: 2d
Date: November, 2022	Prepared By: AM
Scale: 1:1,200	Verified By: LMC

4.0 IMPACT ASSESSMENT

An impact assessment was undertaken to determine impacts to trees as a result of the proposed improvements to Teston Road from Pine Valley Drive to Kleinburg Summit Way. This assessment was conducted using the preliminary design alternative provided to LGL by HDR.

Trees recommended for removal include trees within or outside the grading limit that would not be able to withstand construction related impacts. Alternatively, trees identified as retained are considered to be minimally affected by the proposed works and will be protected through mitigation measures to be implemented during construction. A detailed description of those trees identified for removal and retention is provided in **Sections 4.1 to 4.2** and presented on **Figures 2a to 2d**.

4.1 TREES IDENTIFIED FOR REMOVAL

As noted in **Section 5.0**, trees identified for removal includes trees within the proposed disturbance limits and those trees outside of the disturbance limits where the amount of critical root zone that will be removed will likely cause significant and irreversible decline of the health of the tree. As such, a total of 72 trees have been identified for removal as a result of the proposed road improvements. Trees identified for removal and the reason for removal are listed in **Appendix A** and presented in **Figures 2a to 2d**.

4.2 TREES IDENTIFIED FOR RETENTION

A total of 107 trees have been identified for retention and listed in **Appendix A** and presented in **Figures 2a to 2d**.

5.0 MITIGATION

5.1 TREE PROTECTION ZONE

Designation of tree protection measures (TPZ) is imperative for the protection of trees (roots, trunks, branches) adjacent to construction works. The TPZ will restrict construction related machinery and activities from damaging trees identified for retention. Physical protection (plywood hoarding, Fast Fence, or other as approved by the City) shall be considered for all trees in proximity to construction. **Table 1** lists the City of Vaughan minimum protection distance. These protection distances are depicted in **Figures 2a to 2d** and have been provided to the design team. Protection distances are also listed in **Appendix A Tree Inventory**. Note that some site-specific deviations from the City’s standards may be required, particularly to alleviate conflicts with pedestrian and vehicle traffic and private property.

Table 1: City of Vaughan Tree Protection Zone Requirements.

Diameter at Breast Height ¹ in centimeters	Minimum Protection Distances Required ² (Public and Private Trees)	Minimum Protection Distances Required Trees in Naturalized Areas
<10	1.2	The drip line ³ or 1.2 m
10-29	1.8	The drip line or 3.6 m
30-40 ⁴	2.4	The drip line or 4.8 m
41-50	3.0	The drip line or 6.0 m
51-60	3.6	The drip line or 7.2 m
61-70	4.2	The drip line or 8.4 m
71-80	4.8	The drip line or 9.6 m
81-90	5.4	The drip line or 10.6 m
91-100	6.0	The drip line or 12.0 m
>100	6 cm protection for each 1 cm diameter	12 cm protection for each 1 cm diameter or the drip line

1. Diameter at breast measurement of tree trunk taken at 1.4 meters (m) above the ground.

2. Minimum Tree Protection Zone distances are to be measured from the outside edge of the tree base.

3. The drip line is defined as the area beneath the outer most branch tips of a tree

4. Converted from ISA (International Society of Arboriculture) Arborist Certification Study Guide, general guidelines for tree protection barriers of 0.3 meters of diameter from the tree stem for each centimeter of tree trunk diameter.

(Source: City of Vaughan Tree Protection Protocol, 2018)

5.2 GENERAL RECOMMENDATIONS

The following general recommendations conform to good arboriculture practices and are designed to help ensure impacts to trees surrounding the work zone, and those identified to be retained are minimized.

General recommendations include:

- Tree protection fencing must be installed accordance with OPSS 801 – Construction Specification for the Protection of Trees. The contract administrator must review and approve the fencing prior to the commencement of any grading work and the fencing will be maintained until all construction is complete;
- Tree protection fencing shall be installed at a minimum at the dripline of the tree plus 1 m;
- Heavy machinery shall not to be operated within the TPZ (including overhead swinging of machine arms);
- Construction materials, equipment, soil, construction waste or debris shall not to be stored within the TPZ or dripline of the trees identified for protection;
- No movement or parking of vehicles, placement of equipment or pedestrian traffic shall occur within the TPZ;
- No grade changes shall occur within the TPZ unless approved by the Tree Protection Plan;
- Trees shall not have any rigging cables or hardware of any sort attached or wrapped around them, nor shall any contaminants be dumped within protected areas;
- All removals must be felled into the work zone to ensure that damage does not occur to trees within the TPZ;
- Should any additional, incidental or accidental tree injuries occur during construction, a qualified Arborist shall be consulted to determine whether additional mitigation measures should be employed; and,
- Tree clearing shall not be conducted during the *Migratory Bird Convention Act* (MBCA) breeding season commonly considered May 1 – August 31, unless under appropriate permitting.

5.3 PRUNING

The following recommendations shall be implemented for any root or canopy pruning taken on the property.

5.3.1 Root Pruning

All approved root pruning shall be undertaken by an ISA Certified Arborist or an Ontario College of Trades 444A Arborist or Arborist Apprentice and in accordance with Best Management Practices. The following practices shall be implemented for any root pruning:

- Prior to root pruning low pressure hydro-vac excavation should be undertaken in a 0.5 m wide section within and along the length of the TPZ to a depth of 500 mm to expose the roots;
- No roots greater than 6 cm in diameter shall be pruned;
- Exposed roots shall not be allowed to dry out, where roots are exposed they shall be covered by dampened mulch or topsoil to prevent desiccation;

- All pruning shall maintain the integrity of the root bark ridge;
- A slow release deep root low nitrogen fertilizer shall be applied to any trees requiring root pruning to increase vigour; and,
- Backfilling shall occur as soon as possible and shall occur with clean native uncontaminated topsoil.

5.3.2 Canopy Pruning

All canopy and clearance pruning shall be undertaken by an ISA Certified Arborist or an Ontario College of Trades 444A Arborist or Arborist Apprentice. Any branches that overhang the work site and require pruning shall be pruned using good arboricultural practices in accordance with American National Standard (ANSI) A300 (Part 1) – 2008 Pruning.

6.0 FUTURE COMMITMENTS

6.1 GAP ANALYSIS

A gap analysis must be undertaken during the detail design phase prior to construction when permission to enter has been obtained for private property and should include all trees within 6 m of the proposed disturbance limits. The gap analysis will be undertaken to ensure that all trees are surveyed and impacts to trees within the study area are adequately addressed. The gap analysis will be undertaken in accordance with the City of Vaughan and TRCA requirements.

6.2 DESIGN REFINEMENTS

During the detail design phase, the Arborist Report will be updated to reflect any refinements to the detail design, such as revised grading limits, and to consider site-specific mitigation measures to reduce the impact to trees throughout the study area.

7.0 SUMMARY AND CONCLUSIONS

An evaluation of tree resources within the study area was conducted in the summer of 2020 and fall of 2022 by LGL. The information presented herein includes:

- A detailed tree inventory;
- Mapping of the proposed disturbance limit from which an impact assessment has been conducted;
- Recommendations for the protection of trees and natural areas during construction.

A total of 72 trees have been identified for removal. The remaining 107 trees will be preserved and protected with hoarding.

Recommended mitigation measures have been outlined in **Section 5.0** and include:

- General tree protection measures including: tree protection specifications, identification and implementation of a tree protection zone;
- Measures to ensure compliance with the *Migratory Bird Convention Act* shall be undertaken including the avoidance of disturbance/destruction of bird species habitat between April 1 –August 31.

In addition, recommendations for future commitments to be completed during the detail design study are provided in **Section 6.0**.

8.0 DISCLAIMER

8.1 LIMITATIONS OF THIS ASSESSMENT

This Assessment is based on the circumstances and observations as they existed at the time of the site inspection of the Client's Property and the trees situate thereon and upon information provided by the Client to LGL Limited. The opinions in this Assessment are given based on observations made and using generally accepted professional judgment, however, because trees and plants are living organisms and subject to change, damage and disease, the results, observations, recommendations, and analysis as set out in this Assessment are valid only as at the date any such testing, observations and analysis took place and no guarantee, warranty, representation or opinion is offered or made as to the length of the validity of the results, observations, recommendations and analysis contained within this Assessment. As a result, the Client shall not rely upon this Assessment, save and except for representing the circumstances and observations, analysis and recommendations that were made as at the date of such inspections. It is recommended that the trees discussed in this Assessment should be re-assessed periodically.

8.2 RESTRICTION OF ASSESSMENT

The Assessment carried out was restricted to the Property. No assessment of any other trees or plants has been undertaken by LGL. LGL is not legally liable for any other trees or plants on the Property except those expressly discussed herein. The conclusions of this Assessment do not apply to any areas, trees, plants or any other property not within the study area or referenced in this Assessment.

8.3 PROFESSIONAL RESPONSIBILITY

In carrying out this Assessment, LGL Limited and any Assessor appointed for and on behalf of LGL Limited to perform and carry out the Assessment has exercised a reasonable standard of care, skill and diligence as would be customarily and normally provided in carrying out this Assessment. The Assessment has been made using accepted arboricultural techniques. These include a visual examination of each tree for structural defects, scars, external indications of decay such as fungal fruiting bodies, evidence of insect attack, discoloured foliage, the condition of any visible root structures, the degree and direction of lean (if any), the general condition of the tree(s) and the surrounding site, and the current or planned proximity of property and people. Except where specifically noted in the Assessment, none of the trees examined on the property were dissected, cored, probed, or climbed and detailed root crown examinations involving excavation were not undertaken.

While reasonable efforts have been made to ensure that the trees recommended for retention are healthy, no guarantees are offered, or implied, that these trees, or all parts of them will remain standing. It is professionally impossible to predict with absolute certainty the behaviour of any single tree or group of trees, or all their component parts, in all given circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential to fall, lean, or otherwise pose a danger to property and persons in the event of adverse weather conditions, and this risk can only be eliminated if the tree is removed.

Without limiting the foregoing, no liability is assumed by LGL or its directors, officers, employers, contractors, agents or Assessors for:

- a) any legal description provided with respect to the Property;
- b) issues of title and or ownership respect to the Property;
- c) the accuracy of the Property line locations or boundaries with respect to the Property;
- d) the accuracy of any other information provided to LGL by the Client or third parties;
- e) any consequential loss, injury or damages suffered by the Client or any third parties, including but not limited to replacement costs, loss of use, earnings and business interruption; and,
- f) the unauthorized distribution of the Assessment.

8.4 GENERAL

Any plans and/or illustrations in this Assessment are included only to help the Client visualize the issues in this Assessment and shall not be relied upon for any other purpose.

Appendix A Tree Inventory

Appendix A Tree Inventory

Project: TA9006
 Client: HDR
 Collectors: LMC, JJP, JBP

Date: August 28, 2020 and October 26, 2022
 Area: Teston Road from Pine Valley Drive to Kleinburg Summit Way



Tree #	Scientific Name	Common Name	DBH (cm)	Additional Stems	Estimation of DBH (x)	CONDITION															Tree Protection Measures			COMMENTS
						TI	CS	CV	Radial Dripline (m)	Canopy Die Back (%)	Co-dominant stem	Included Bark	Lean, Dir.	Fungus	Insects	Cavity	Rot	Wound	Frost Crack	Epicormic	Emerald Ash Borer	Asymmetrical crown	Ownership	

- 1 Trees with diameters of 30 cm or more, situated on private property on the subject site.
- 2 Trees with diameters of 30 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 On lands designated under the City of Toronto Municipal Code, Chapter 658, Ravine and Natural Feature Protection, trees of all diameters situated within 10 meters of any construction activity
- 5 Trees of all diameters situated within the City road allowance adjacent to the subject site.

Reason for Removal

- 1 Trees interfere with proposed development (100%)
- 2 greater than 25% of canopy or roots are in conflict with development
- 3 trees are dead, dying or hazardous