

APPENDIX F.1 – Arborist Report



MORRISON HERSHFIELD

Arborist Report

Individual Environmental Assessment of the Teston Road Area (Y.R.49) between Highway 400 and Bathurst Street (Y.R.38)

Presented to:

The Regional Municipality of York



Report No. 190261800
March 14, 2023

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1. INTRODUCTION

Morison Hershfield Limited (MH) was retained by the Regional Municipality of York (York Region) to complete an Individual Environmental Assessment (IEA) study for transportation improvements along Teston Road (Regional Road 49) between Keele Street and Dufferin Street, in accordance with the approved Terms of Reference (ToR) previously received by the Ministry of the Environment, Conservation and Parks in 2018.

The purpose of this IEA is to generate a transportation solution that addresses and evaluates a variety of transportation improvement alternatives within the missing link on Teston Road between Keele Street and Bathurst Street. The project will consider improvements for the movement of vehicles, pedestrians, and transit through the Teston Road corridor.

To support the IEA, a Tree Inventory and Assessment was completed to collect data of existing trees within the study area, including species, size (diameter at-breast-height), health and structure, and location. The Tree Inventory Study Area for this Arborist Report is defined as the Project's Preliminary Design (Impact Area) plus a Buffer Area (10 m), collectively known as the Study Area, as illustrated in **Figure 1**. The information detailed in this Arborist Report will provide the Region with environmental information on existing arboreal conditions, and a preliminary assessment of potential impacts associated with the development of Teston Road to existing trees present within the Study Area.

1.1 Project Location

As illustrated on **Figure 1**, the Study Area is situated in York Region, and extends along Teston Road from just west of Keele Street to Bathurst Street within the City of Vaughan, spanning a densely treed ravine feature regulated by the Toronto and Region Conservation Authority (TRCA). The Study Area included planted and naturally occurring trees within the Teston Road right-of-way (ROW) plus a 10 m buffer, as well as general vegetation surveys of the ravine feature.

1.2 Purpose of Report

The Region requires an Arborist Report be prepared for all projects associated with tree removals prior to site disturbance (i.e., altering any physical aspects of a site from its existing conditions including grading, excavation, and land clearing). As such this report has been prepared in accordance with the Region's tree protection by-laws and guidelines, as well as the City of Vaughan and TRCA.

A tree inventory has been completed within the Preliminary Design for the improvements to Teston Road to provide tree related information (species, size, and location) to support the Detail Design phase of this project.

Considering that the tree inventory has been completed using the Preliminary Design, future tree surveys may be required during Detail Design to confirm or augment the information provided within this report to confirm tree recommendations (remove/injure and protect/retain),

establish locations for tree protection fencing and calculate tree removal compensation requirements.



Figure 1: Key Map of the Study Area using the Preliminary Design

2. RELEVANT BY-LAWS AND REGULATIONS

The Study Area is subject to York Region, City of Vaughan and TRCA tree protection by-laws and guidelines as described below. As the Upper Tier Municipality, York Region does not require tree removal or injury permits for trees located on their lands. The Project may be subject to the Endangered Species Act, 2007 (ESA), where tree Species at Risk (SAR) are encountered. The following provides a summary of the by-laws and regulations considered as part of this Arborist Report.

2.1 York Region's Forest Conservation Bylaw 2013-68

The Region's Forest Conservation Bylaw prohibits and regulates the destruction or injuring of trees in woodlands and woodlots within York Region without a Good Forestry Practices or Special Permit, where a "woodland" means land at least 1 hectare in area with at least:

- 1000 trees of any size, per hectare
- 750 trees measuring over five (5) cm DBH, per hectare
- 500 trees measuring over twelve (12) cm DBH, per hectare
- 250 trees measuring over twenty (20) cm DBH, per hectare

The total area of woodlands within the Preliminary Design is equal to 5.25 hectares (ha), with 4.85 ha present within the ravine feature between Keele Street and Dufferin Street; however, activities undertaken by the Region are exempt from this By-Law.

2.2 York Region's Street Tree and Forest Preservation Guidelines

These guidelines are focused on the preservation of existing Regionally-owned street trees and natural vegetation within the road allowance, where site disturbance (alteration of any physical aspects of a site from its existing conditions) is proposed and a tree inventory required for:

- Street trees of all sizes within the York Region ROW will be inventoried and assessed individually;
- In areas identified as 'Natural Vegetation' (any group of trees suspected to have grown from natural processes such as seed germination or stump/root sprouting), trees measuring 10 cm DBH will be individually inventoried and assessed, and trees measuring less than 10 cm DBH will be inventoried and assessed as a group polygon; and
- Trees measuring 10 cm DBH and greater on adjacent lands not owned by the Region will be inventoried and assessed individually

These guidelines also provide information regarding tree protection zones (TPZ), compensation requirements for tree removals (through payment or tree replacement plantings), and tree protection specifications for trees recommended for protection. Compensation requirements should be calculated for all trees recommended for removal during the Detail Design phase of this project.

2.3 City of Vaughan By-Law 052-2018

This Tree Protection By-Law regulates the planting, maintenance, and removal of trees on public and private property in the City of Vaughan and identifies a tree of being a self-supporting woody plant that has or will likely reach a height of at least 4.5 m at maturity.

A Tree Removal Permit is required for trees of any size that are recommended for injury or destruction (removal) on public property, and a Tree Removal Permit is required for trees measuring 20 cm DBH or greater on private property within the City; however, this By-Law does not apply to activities undertaken by the Region.

2.4 TRCA Guideline for Determining Ecosystem Compensation

A portion of the study area is regulated by the Toronto and Region Conservation Authority, specifically the forested ravine between Keele Street and Dufferin Street. **Appendix B** of the *Guideline for Determining Ecosystem Compensation (Calculating Basal Area)* was followed when conducting prism sweeps within the forested ravine.

3. METHODOLOGY

The tree inventory and assessment were completed by MH's International Society of Arboriculture (ISA) Certified Arborists from June 20 to June 22, 2022, to confirm and characterize the treed features within the Preliminary Design as illustrated by the Study Area in **Figure 1**.

3.1 Tree Inventory

Due to the mix of urban and naturalized features within the Study Area and the changing nature of the Preliminary Design, two approaches to the tree inventory were completed, and are discussed in the sections below.

3.1.1 Individual Tree Assessments

To ensure adequate data was collected during the Preliminary Design stage of the project, individual assessments for trees of all sizes were surveyed within the Region's ROW, as well as trees of all sizes within 10 m of the ROW, including trees on private property. Trees on private property were assessed from the publicly accessible ROW.

For individually inventoried trees, the following information was recorded: DBH (cm), height (m), condition and size of the crown (m), and comments on overall health. Additionally, each tree was geolocated and are illustrated within **Appendix A**. Data collected for each individually assessed tree is located within **Appendix B**.

3.1.2 Prism Sweeps

Prism sweeps were completed for the woodland feature between Keele Street and Dufferin Street following the guidelines outlined in Appendix B (Calculating Basal Area) of the TRCA's *Guideline for Determining Ecosystem Compensation* (TRCA, 2018).

This approach was taken within the woodland feature at the Preliminary Design stage of this project to eliminate the high level of effort that would have been required for MH Arborist staff to inventory each tree within the forest for a project design that is likely to change. It is recommended that a detailed tree inventory be completed within the Detail Design stage of this project where impacts to trees are anticipated to refine the number of trees within the Impact Area and provide tree recommendations (removals, injuries, or protection) and compensation requirements as required by York Region and the TRCA.

The purpose of completing prism sweeps within the woodland was to determine the total stand Basal Area (BA) in m² through sample plots and extrapolate the data to provide a general understanding of the woodland density within the Preliminary Design.

Basal tree measurements are the area in square meters of the cross section of the trunk of a tree at breast height and is commonly used as an indicator of stand density. BA is measured by adding the area of the stems at breast height of all the trees in the stand. Due to the time

required to measure every tree, only a sample of the stand is measured. The sample is used to predict the total amount of BA in the stand. To calculate the stand BA in m² the total number of trees within the stand (ELC community) is multiplied by 2.

Following the directions outlined in the TRCA's *Guideline for Determining Ecosystem Compensation*, a minimum of three (3) prism sweep plot locations were plotted per ELC community to ensure a minimum sample size of 10% coverage within the polygon. The sample plots were spaced a minimum of 80 m apart. Ideally, sample plots were located 40 m from an edge of an ELC polygon to avoid edge bias; however, in some instances this preference was not achievable due to polygon size. A field map was exported and georeferenced using ArcGIS software so MH arborists could navigate to each prism sweep plot in the field. Refer to **Appendix A** for the prism sweep plot locations. Data collected for each tallied tree within the prism sweeps is located within **Appendix C**.

After navigating to a prism sweep plot, an MH ISA Certified Arborist would use a BAF2 metric prism to conduct the prism sweep. When using the prism, the refraction of light through the prism causes the portion of the tree below breast-height to appear separated. For all trees who appear superimposed, as $\frac{1}{2}$ or those which touched the edge of the glass would be recorded within the survey plot. With one eye closed, the arborist would stand in the middle of the prism sweep plot holding the prism to their eye and turn in a circle, tallying each tree species that were considered 'in' the prism. **Figure 2** illustrates which trees are tallied within a prism sweep.

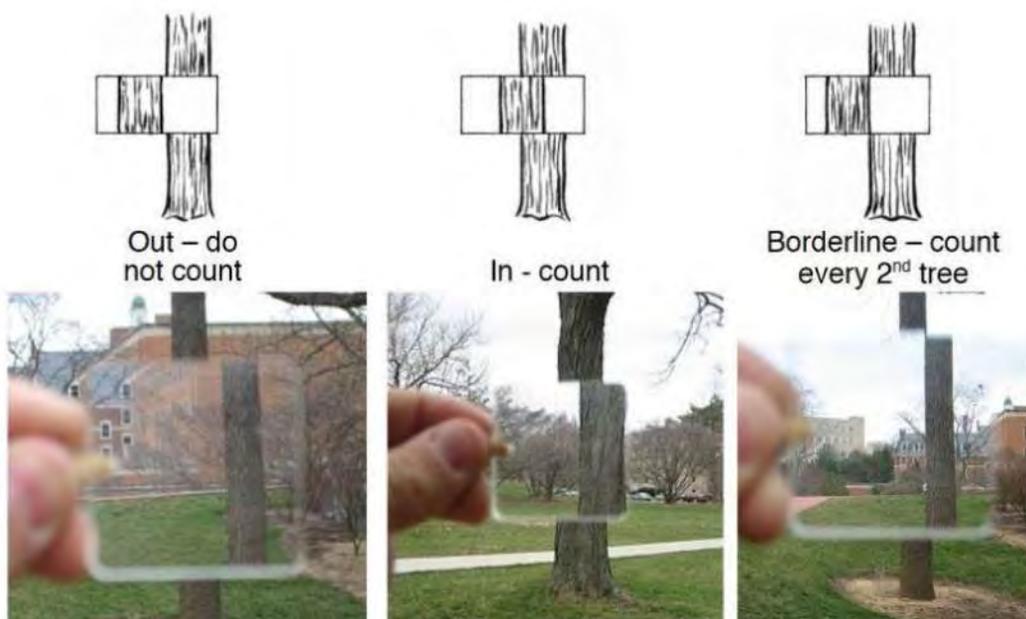


Figure 2: Identifying trees using BAF2 prism during prism sweep (University of Houston-Clear Lake, 2023)

Following field investigations, the stand basal area (m²) was be calculated for the woodland within the study area and further discussed in the results section of this report.

3.2 Tree Assessment

Assessments for the individual tree inventory and trees recorded within prism sweeps included a visual examination of above-ground parts for each measurable tree. These trees were not climbed, probed, cored, or dissected, and excavation for detailed root crown inspection was not completed. Since some symptoms may only be present seasonally, the extent of observation that can be made may be limited by the time of year in which the assessment took place. As this tree inventory was conducted during the summer months, each tree underwent a full crown assessment through assessing the proportion of leaves in the crown, and its overall vigour. It is understood that trees are living organisms and their health are continually changing over time due to factors such as seasonal variations and changes in site conditions. For this reason, the assessment presented in this report is valid at the time of inspection and no guarantee is made about the continued health of trees included within the tree inventory.

Each tree was given a health condition rating of Excellent, Good, Fair, or Poor:

- Excellent: No apparent health problems; good structural form
- Good: Minor problems with health and/or structural form
- Fair: More serious problems with health and/or structural form
- Poor: Major problems with health and structural form
- Dead: Tree has no living tissue

3.3 Tree Impact Analysis

A tree impact analysis was performed for all individually assessed trees within the Tree Inventory Study Area using the Preliminary Design. The analysis was completed using ArcGIS software and each tree's recommendation (removal, injury & protection, and retention) was based on the tree's current health condition and relation to the Preliminary Design. The Region outlines Tree Protection Zones (TPZ) within its *Street Tree and Forest Preservation Guidelines* (2.4 m for trees <24 cm DBH, and 10 cm from the trunk of a tree for every centimeter of trunk diameter). The TPZ is a radius from the stem of a tree where no works are prohibited. To obtain a tree's recommended action, the following guidelines were followed:

- Trees with equal to or greater than 40% of its TPZ affected by the PD recommend as **Removal**
- Trees with 0-39% of its TPZ affected by the PD recommend as **Injury & Protection**
- Trees with TPZs that are not affected by the PD recommend as **Retain**
- Additionally, trees found to be in dead or poor condition recommend as **Removal**

4. RESULTS

4.1 Tree Inventory

The results of the tree inventory have been divided into sections which speak directly to the two methodologies taken to complete the inventory; the individual tree inventory along York Region’s right-of-way, and the prism sweeps within the woodland feature between Keele Street and Dufferin Street. To determine tree ownership within the Tree Inventory Study Area, parcel fabric was available to download from the Region’s open data platform, illustrating the general right-of-way and private property linework.

4.1.1 Individual Street Tree Inventory

A total of seven hundred and forty-six (746) individual trees were inventoried and assessed within and outside the Tree Inventory Study Area. **Table 1** below provides a summary of tree locations within and outside the Tree Inventory Study area, and **Appendix B** summarizes the data collected for each tree, including species name, DBH (cm), location and recommended action. Trees inventoried are illustrated within **Appendix A**.

Table 1: Summary of Tree Locations within the Tree Inventory Limits

Ownership	Trees within Preliminary Design (Impact Area)	Trees within the Buffer Area (10 m)	Trees Located Outside the Tree Inventory Study Area	Total
York Region (ROW Trees)	272	131	20	423
Private Property	75	195	34	304
Shared (York Region & Private Property)	13	6	0	19
Total	360	332	54	746

The survey consisted of trees with DBH measurements ranging from 2 to 184 cm; the average DBH was 16 cm. Most defects observed were caused either by human interference such as mechanical damage or natural occurrences including insects, weather events, and natural environmental conditions. Biotic and abiotic disorders and structural defects observed are included in **Appendix B**. **Table 2** provides a summary of the overall health condition of trees ranging from a rating of Excellent to Dead.

Table 2: Individual Tree Health Condition

Tree Condition	Total Number of Individual Trees
Excellent	18
Good	549
Fair	114
Poor	38
Dead	27
Total	746

4.1.2 Prism Sweep Inventory

A total of thirty-eight (38) prism sweep survey locations were plotted within ten (10) ELC communities within the woodlot between Keele Street and Dufferin Street. A total of five hundred and twenty-four (524) individual trees were identified within the 38 survey locations.

As individual trees were not surveyed within the woodlot at the time of the Preliminary Design, the values from the total basal area were extrapolated to calculate the stand basal area for each ELC community. Stand basal area is the total cross-sectional area of all stems in an ecosystem typically expressed in m² per hectare and provides a general overview of how dense the forested community is with respect to trees.

The most densely forested ELC community within the woodland feature was the Fresh-Moist Hemlock - White Pine Coniferous Forest (FOC3-A), with an average stand basal area of 50m². The most abundant tree species identified were Eastern White Pine (*Pinus strobus*), Black Cherry (*Prunus serotina*) and Trembling Aspen (*Populus tremuloides*). The least densely forested ELC community within the woodland feature was the White Pine – Successional Savannah (CUS1-A2) with Eastern White Pine, White Spruce (*Picea glauca*) and Black Walnut (*Juglans nigra*) dominating the canopy.

Table 3 provides a summary of the total amount of trees identified within each ELC community, as well as which prism sweep plots were found within each ELC community. A more detailed list of tree results per plot location can be found in **Appendix C**.

Table 3: Summary of Trees Surveyed within Prism Sweeps

ELC Community	Prism Sweep Survey Locations within ELC Community	Average Number of Trees Tallied within ELC Community	Average Stand Basal Area (m ²) per ELC Community	Dominant Tree Species
CUS1-A Mineral Cultural Savannah	PSS5 PSS6 PSS13	11	22 m ²	Red Maple, Black Walnut and Eastern White Pine
CUS1-A2 White Pine Successional Savannah	PSS33 PSS36 PSS37 PSS38	4	8 m ²	Eastern White Pine, White Spruce and Black Walnut
FOC3-A Fresh-Moist Hemlock - White Pine Coniferous Forest	PSS14 PSS18 PSS22	25	50 m ²	Eastern White Pine, Black Cherry and Trembling Aspen
FOC3-1 Fresh-Moist Hemlock Coniferous Forest	PSS30 PSS32 PSS34	16	32 m ²	Eastern White Pine, Black Cherry and Eastern White Cedar
FOD3-1 Dry-Fresh Poplar Deciduous Forest	PSS7 PSS8 PSS9 PSS10 PSS11 PSS15	16	32 m ²	Sugar Maple, Eastern White Pine and Trembling Aspen
FOD8-1 Fresh-Moist Poplar Deciduous Forest	PSS12 PSS16 PSS17 PSS20	16	32 m ²	Eastern White Cedar, Trembling Aspen and Ash species
FOM3-1 Dry-Fresh Hardwood-Hemlock Mixed Forest	PSS1 PSS2 PSS3 PSS4	19	38 m ²	Eastern White Pine, Red Maple, Eastern Hemlock
MAM2-9 Jewelweed Mineral Meadow Marsh	PSS24 PSS28 PSS29 PSS31	9	18 m ²	Black Walnut, Eastern White Cedar and Eastern White Pine
SAF1-3 Duckweed Floating-leaved Shallow Aquatic	PSS19 PSS21 PSS25	6	12 m ²	Willow species, Eastern White Cedar and Green Ash
SWC1-2 White Cedar-Conifer Mineral Coniferous Swamp	PSS23 PSS26 PSS27	20	40 m ²	Eastern White Cedar, Black Cherry and Eastern White Pine
Total Average		142	284 m²	n/a

5. PRELIMINARY DESIGN IMPACT ANALYSIS

5.1 Individual Street Tree Analysis

Based on the results of the tree impact analysis, using the Preliminary Design, a total of 396 individual trees are currently anticipated for removal, including 329 trees located within the Preliminary Design Impact Area, 4 trees located within the 10 m Buffer Area, and 63 trees in poor or dead condition that should be considered for removal within and outside of the Tree Inventory Study Area. **Table 4** summarizes the number of trees anticipated for removal, injury and protection, and retention within and outside of the Tree Inventory Study Area. **Appendix D** illustrates the Preliminary Design, along with the tree recommendations for each tree within the Tree Inventory Study Area.

Table 4: Summary of Individual Street Tree Recommendations

Ownership	Trees Recommended for Removal	Trees Recommended for Protection/Injury	Trees Recommended for Retention – No Injury	Total
York Region (ROW Trees)	286	50	87	423
Private Properties	98	30	176	304
Shared (York Region & Private Property)	12	3	4	19
Total	396	83	267	746

5.2 Prism Sweep Analysis

Prism sweeps were conducted to gather a general baseline of data with regards to forest density and species of trees within the ravine feature, as opposed to individual tree assessments. Table 5 provides information relating to total ELC community size, and the amount of each ELC community anticipated to be impacted by the Preliminary Design in hectares, as well as the average stand basal area of each ELC community. The information provided is required to determine TRCA compensation requirements for the loss of treed ecosystems.

Table 5: Summary of ELC Communities within the Preliminary Design (ha)

ELC Community	Total size of ELC Community	ELC Communities within Preliminary Design (ha)	Average Stand Basal Area (m2) per ELC Community
CUS1-A Mineral Cultural Savannah	1.42 ha	0.25 ha	22 m2
CUS1-A2 White Pine Successional Savannah	3.13 ha	1.26 ha	8 m2
FOC3-A Fresh-Moist Hemlock – White Pine Coniferous Forest	2.49 ha	0.23 ha	50 m2
FOC3-1 Fresh-Moist Hemlock Coniferous Forest	5.54 ha	0.17 ha	32 m2
FOD3-1 Dry-Fresh Poplar Deciduous Forest	5.18 ha	1.03 ha	32 m2
FOD8-1 Fresh-Moist Poplar Deciduous Forest	5.36 ha	0.52 ha	32 m2
FOM3-1 Dry-Fresh Hardwood-Hemlock Mixed Forest	9.14 ha	0.17 ha	38 m2
MAM2-9 Jewelweed Mineral Meadow Marsh	0.99 ha	0.23 ha	18 m2
SAF1-3 Duckweed Floating-leaved Shallow Aquatic	0.79 ha	0.01 ha	12 m2
SWC1-2 White Cedar-Conifer Mineral Coniferous Swamp	3.85 ha	0.07 ha	40 m2
Total	37.9 ha	3.94 ha	272 m2

It is highly recommended that an individual tree inventory be completed for all trees anticipated to be impacted within the woodland feature during the Detail Design phase of this project.

6. PRELIMINARY MITIGATION RECOMMENDATIONS

There are many social, economic, and environmental benefits of trees including aesthetics, increased property values, improved air quality, as well as food and shelter for resident wildlife. As a priority, damage should be minimized to existing trees within development limits wherever feasible. The assessment results and recommendations for each tree are summarized in **Appendix B**.

The following recommendations represent general arborist best practices for tree removal operations and should be reassessed during the Detail Design phase of this project, as construction methods, grading limits and staging areas should be confirmed by that time and tree protection fencing can be reviewed for each tree recommended for protection. Additionally, parcel fabric data should be requested from York Region at Detail Design to confirm tree ownership to calculate the appropriate tree removal compensation plantings or monetary value owed, as described per the *Street Tree and Forest Preservation Guidelines*.

6.1 Tree Removal

It is recommended that a Certified Arborist be retained during tree removal operations to ensure that standardized arboricultural techniques are employed, prior to and during the proposed work activities, and to confirm the need to remove or protect additional trees in proximity to the Tree Inventory Study Area. Additionally, it is recommended that a Certified Arborist return at the conclusion of construction to assess the health of trees that were protected during construction and identify opportunities for mitigation should any trees display signs of stress (i.e., falling limbs, declining health, etc.).

6.2 Tree Preservation

It is recommended that a Certified Arborist be retained to regularly monitor the Project's construction activities to ensure that all trees that are recommended for protection and retention are being maintained adequately, in relation to standard arboricultural practices. Additionally, no grading, excavation or restoration related activities are to occur within the TPZ of any protected or retained trees, if it cannot be avoided, without the supervision of a Certified Arborist. Should the limits of the proposed excavation areas change, a Certified Arborist will be retained to review trees with TPZs intersecting new excavation area limits to determine whether trees shall be recommended for removal, injury and protection or retention.

As per the Region's *Street Tree and Forest Preservation Guidelines*, all trees measuring 24 cm DBH and less require a TPZ distance of 2.4 m. For trees measuring 25 cm and above, 10 cm of trunk protection must be provided for every centimeter of trunk diameter.

6.3 Tree Protection Recommendations

The following subsections outline tree protection measure recommendations that will further reduce the potential for negative impacts to preserved trees. The following subsections provide standard protection recommendations shall apply to trees that require tree protection fencing for protection during construction activities. Notwithstanding this, recommendations for the timing of vegetation clearing apply to the site in general.

6.3.1 Tree Protection Fencing

Tree protection fencing should be installed around trees recommended for protection and retention during the Detail Design, where retained trees are near the Impact Area prior to the any work activities taking place within the Tree Inventory Study Area. The tree protection fencing shall be installed in accordance with the Region's *Street Tree and Forest Preservation Guidelines* and follow the Region's typical detail drawing NHF-400.

6.3.2 Vegetation Clearing and Management

Vegetation removal, including tree removal will be limited to the specified activity areas and shall not commence until required permits and approvals are obtained.

Clearing of vegetation outside of the breeding bird season is recommended to reduce potential impacts to migratory birds and avoid contravention of the *Migratory Birds Convention Act*. Searching for nests by a qualified biologist are not recommended within complex habitats, as the ability to detect nests is low while the risk of disturbance to active nests is high. This disturbance increases the risk of nest predation or abandonment by adults. Nests searches may be completed during the nesting period (April 1 to August 31) by a qualified biologist within 'simple habitats' (ECCC 2018) which refer to habitats that contain few likely nesting spots or a small community of migratory birds. Clearing in simple habitats during the nesting season can only occur if a qualified biologist has confirmed it would not affect the nest or young of a protected species.

Where works are proposed within a TPZ of a tree proposed for preservation, clearing of vegetation shall be performed manually to reduce soil compaction and mechanical damage to the tree. These recommendations are critical along the large proposed retaining wall on site.

6.3.3 Branch Pruning

Where branches are likely to be damaged during construction, they shall be pruned accordingly, prior to construction activities, to avoid unnecessary damage to the tree.

6.3.4 Roots

Root damage shall be minimized by restricting equipment in the vicinity of the existing Critical Root Zone (CRZ) and limiting equipment within the construction limits. This will help minimize damage if there is any excavation in the areas of a preserved tree. It is critical to avoid damage to the structural root plate to prevent affecting tree stability and thus creating a hazard tree.

7. SUMMARY AND FUTURE RECOMMENDATIONS

Two approaches were undertaken to complete the tree inventory and assessment for this project within the Preliminary Design, including individual assessments of Regionally owned trees within the ROW and private trees 10 m from the Preliminary Design, and prism sweeps conducted within the woodland feature situated along Teston Road between Keele Street and Dufferin Street to provide a general understanding of forest density within the Preliminary Design.

A total of 746 individually assessed trees were inventoried within and outside the Tree Inventory Study Area, including 360 trees recommended for removal as they currently exist within the Preliminary Design. A total of 524 trees were tallied between 38 survey stations within the woodland feature using the prism sweep method. A total of 3.91 ha of the woodland feature is recommended for removal as that portion currently exists within the Preliminary Design. These woodlands range in stand basal area from 8m² to 50m² across 10 different ELC communities.

It is highly recommended that a detailed tree inventory be completed within the project extents and woodland feature between Keele Street and Dufferin Street during the Detail Design phase of this project to confirm the number of trees to be impacted by construction works to determine tree removal compensation requirements and ensure tree protection fencing is established for trees recommended for protection and retention. The mitigation recommendations presented in this report reflect general best practices and should be elaborated on during the Detail Design to reflect site-specific requirements.

7.1 Certification

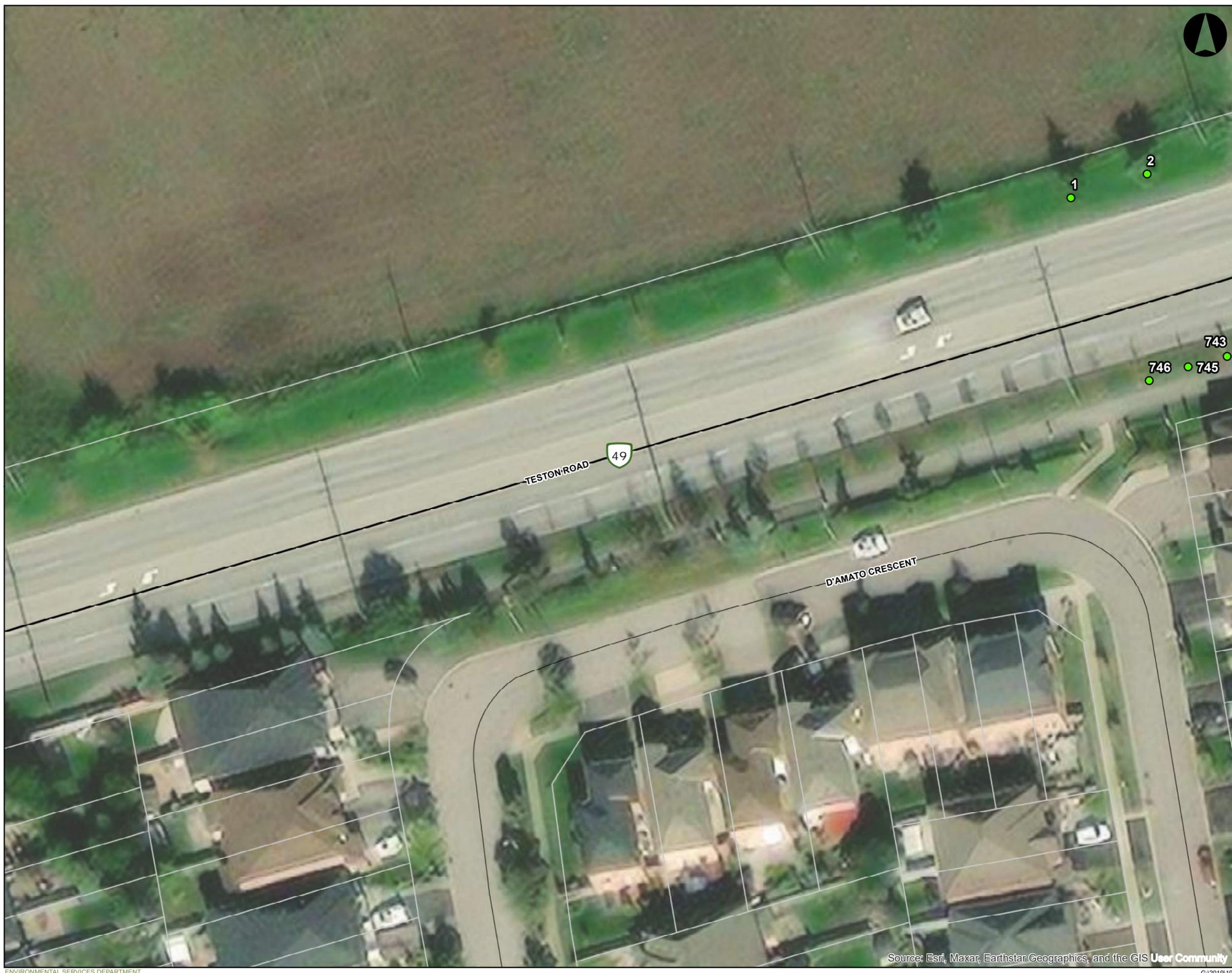
I certify that all the statements of fact in this assessment are true, complete, and correct to the best of my knowledge and belief, and they are made in good faith.

Ami Arsenault
I.S.A. Certified Arborist
#ON2082

Matthew Hooker
I.S.A. Certified Arborist
#ON1641A

APPENDIX A: Tree Inventory Figures





LEGEND

- Individually Surveyed Trees
- York Parcel Fabric

Transportation Network

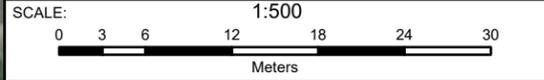
- Arterial / Collector
- Local Roads

NOTES:

- The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
Sources: MNR



TITLE:

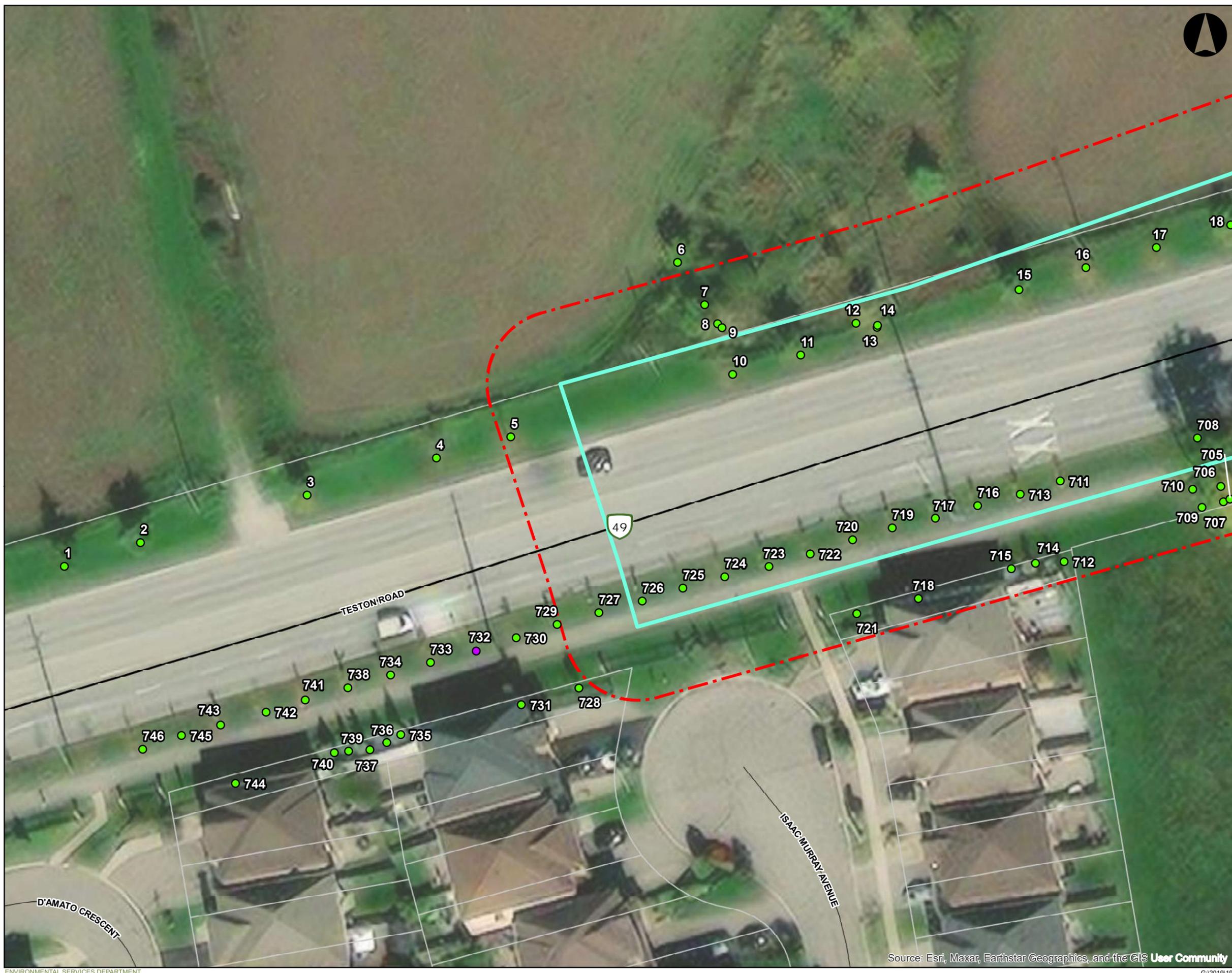
Tree Inventory

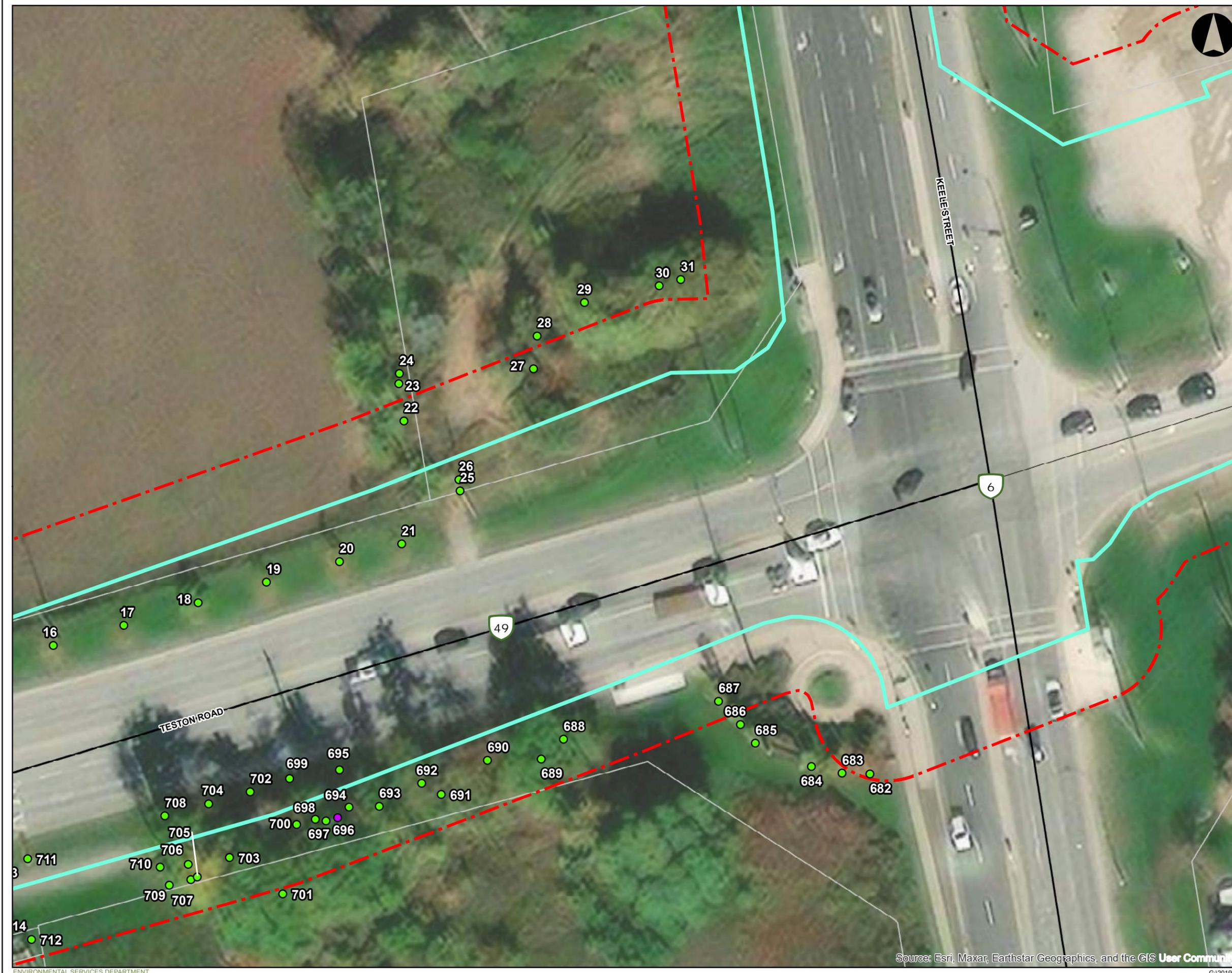
PROJECT NO.: 190261800

Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 1 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community





LEGEND

- Individually Surveyed Trees
- Individually Surveyed Trees - Dead
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric

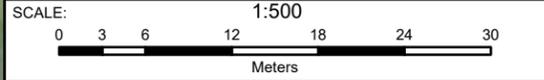
Transportation Network

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Coordinate System: NAD 1983 CSRS MTM 10
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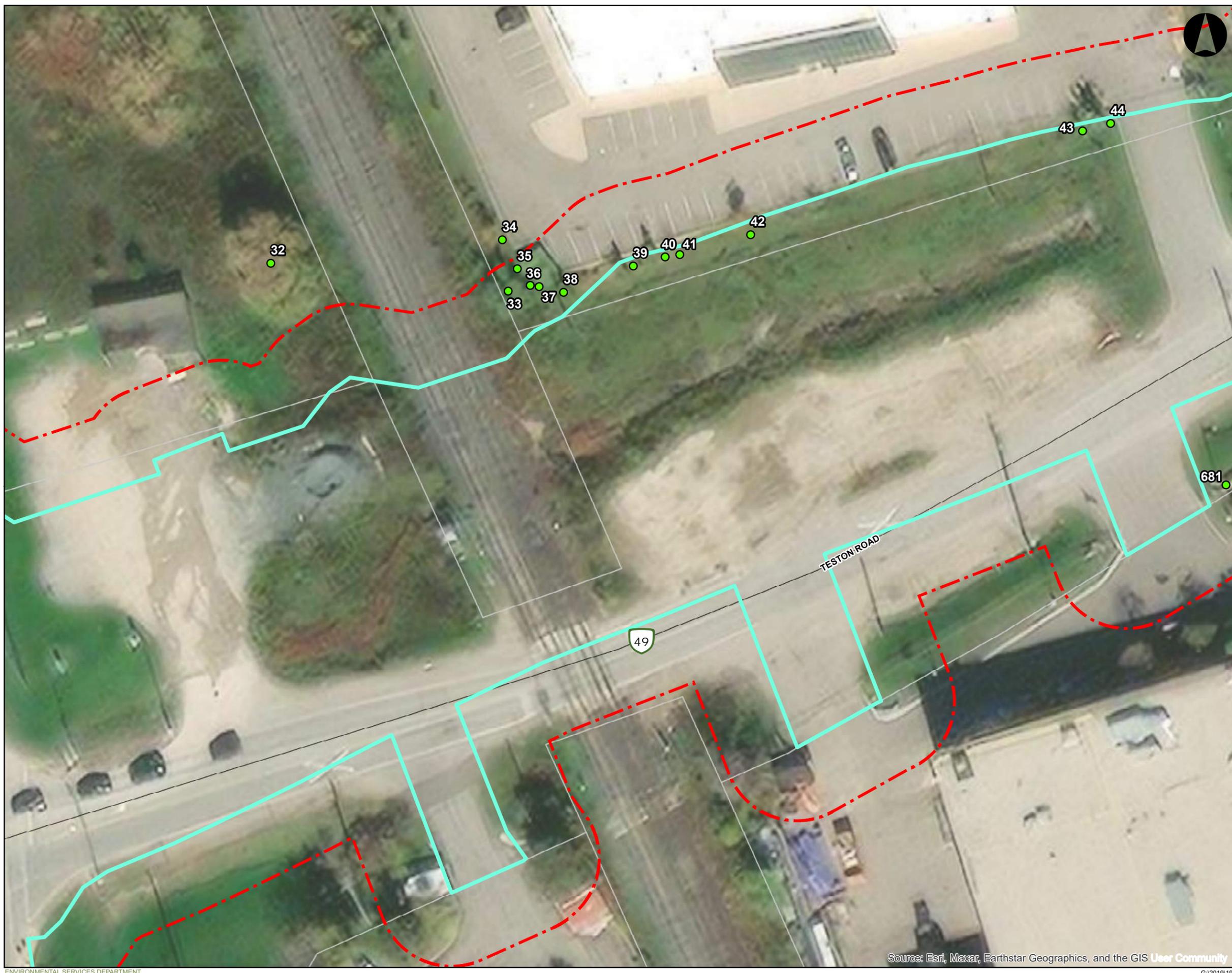


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Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: February 2023 **Figure 3 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



LEGEND

- Individually Surveyed Trees
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric

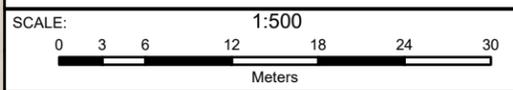
Transportation Network

- Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNRF) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNRF

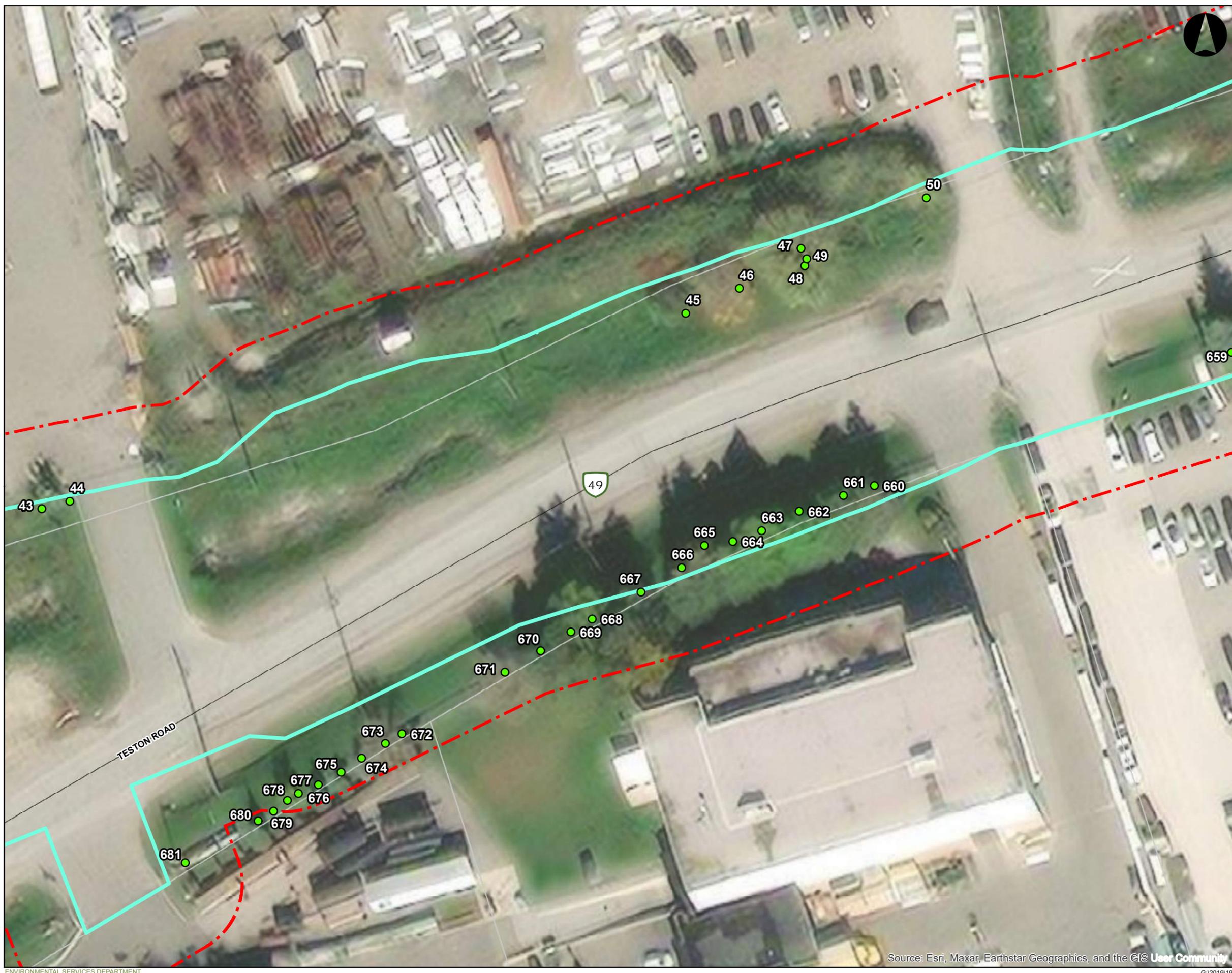


TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 4 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

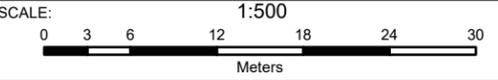


- LEGEND**
- Individually Surveyed Trees
 - Study Area (10 m Buffer)
 - Preliminary Design - Impact Area
 - York Parcel Fabric
- Transportation Network**
- Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR

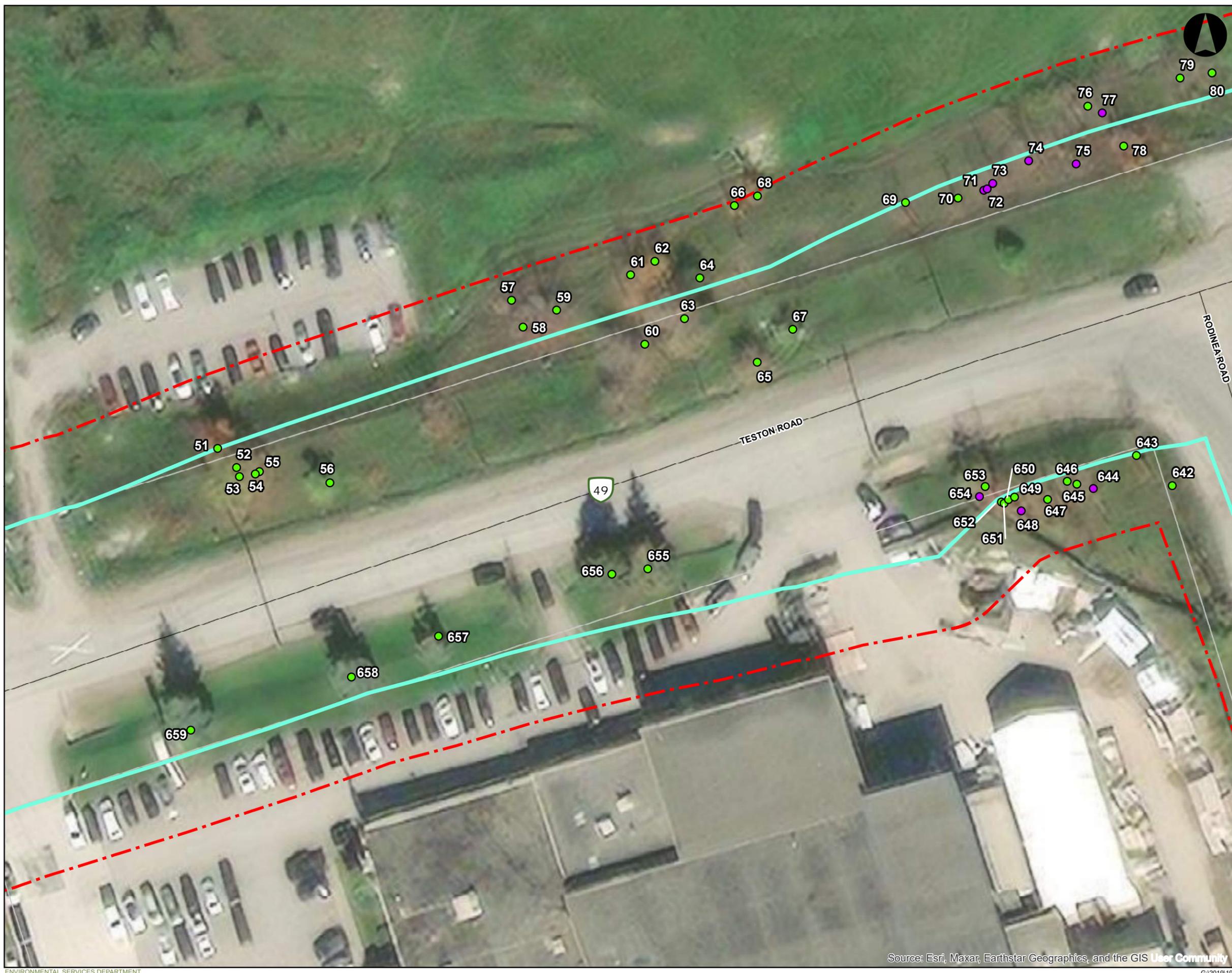


TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 5 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



LEGEND

- Individually Surveyed Trees
- Individually Surveyed Trees - Dead
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric

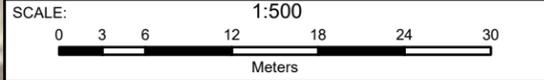
Transportation Network

- Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



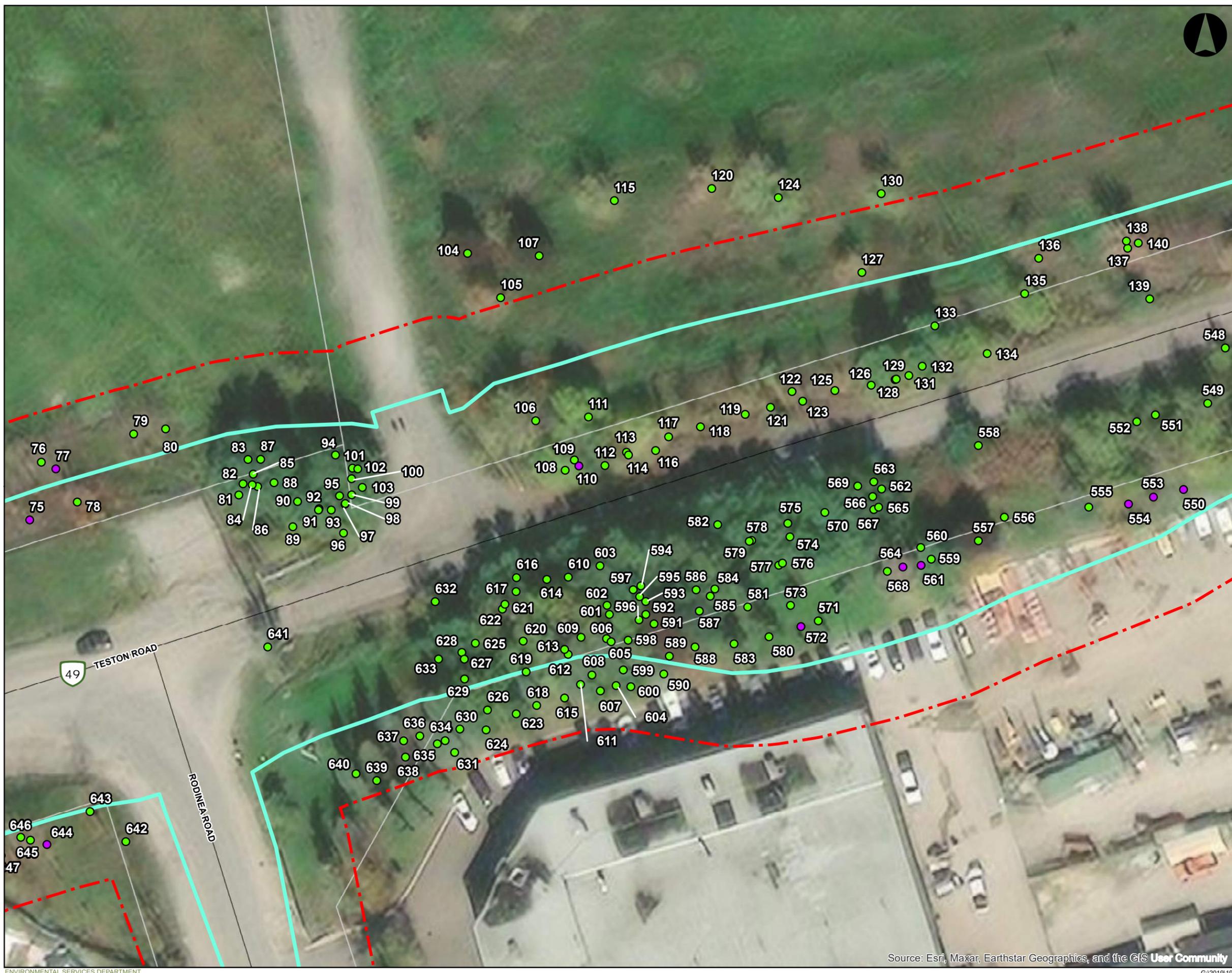
Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR



TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 6 of 31**



LEGEND

- Individually Surveyed Trees
- Individually Surveyed Trees - Dead
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric

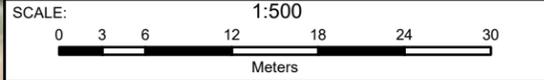
Transportation Network

- Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



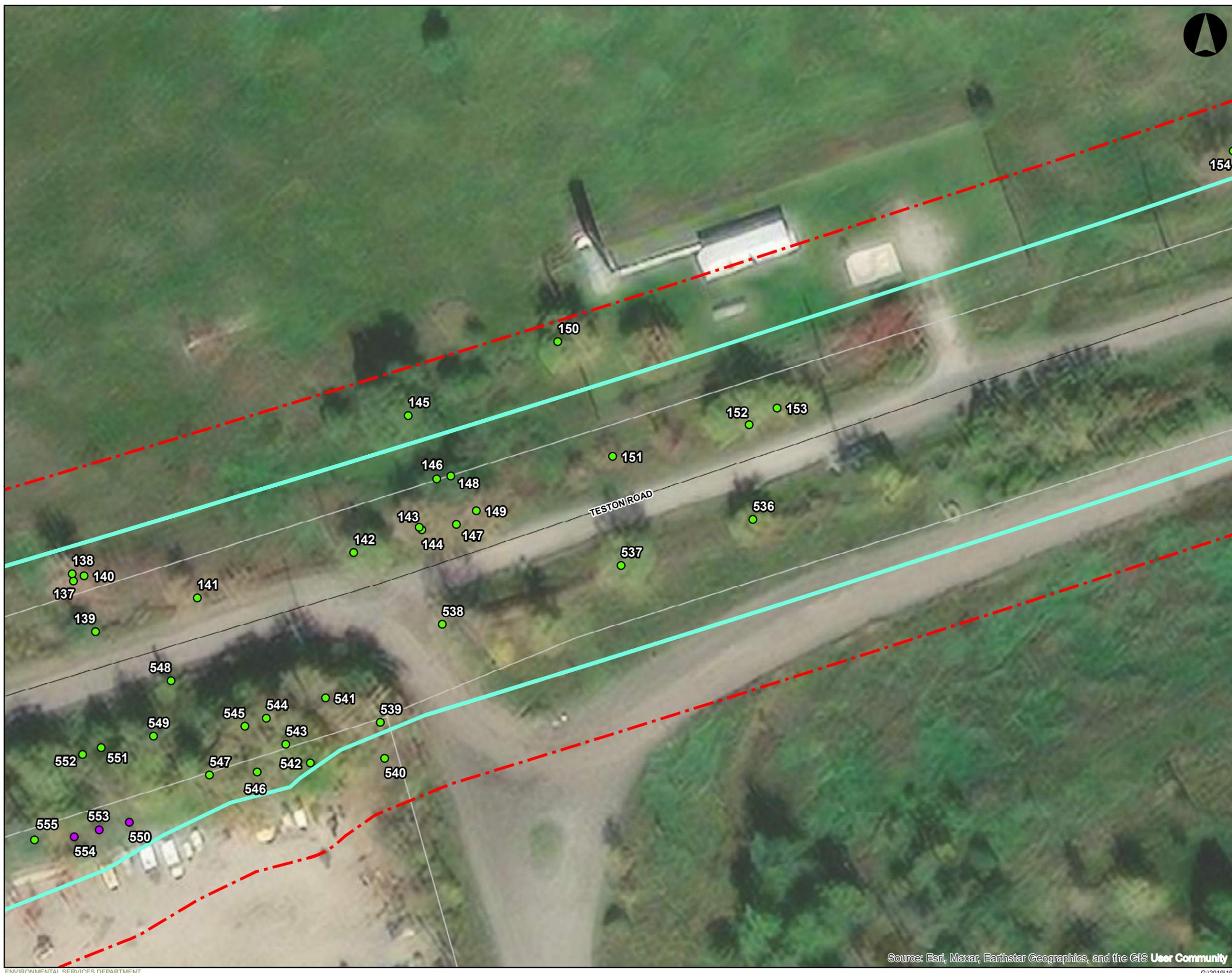
Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR



TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 7 of 31**



LEGEND

- Individually Surveyed Trees
- Individually Surveyed Trees - Dead
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric

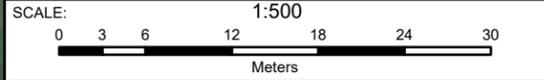
Transportation Network

- Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR



TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 8 of 31**

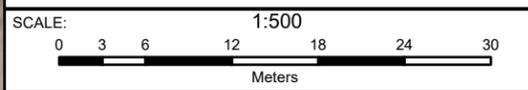


- LEGEND**
- Individually Surveyed Trees
 - Study Area (10 m Buffer)
 - Preliminary Design - Impact Area
 - York Parcel Fabric
- Transportation Network**
- Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNRF) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNRF



TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 9 of 31**

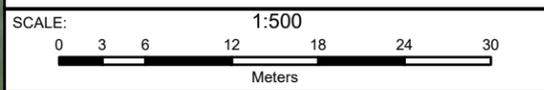


- LEGEND**
- Individually Surveyed Trees
 - Study Area (10 m Buffer)
 - Preliminary Design - Impact Area
 - York Parcel Fabric
- Transportation Network**
- Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNRF) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNRF



TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 10 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



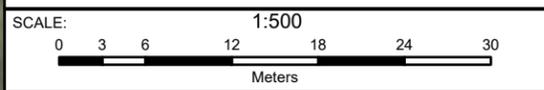
LEGEND

- Individually Surveyed Trees
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNRF) Aurora District and the Toronto and Region Conservation Authority Area



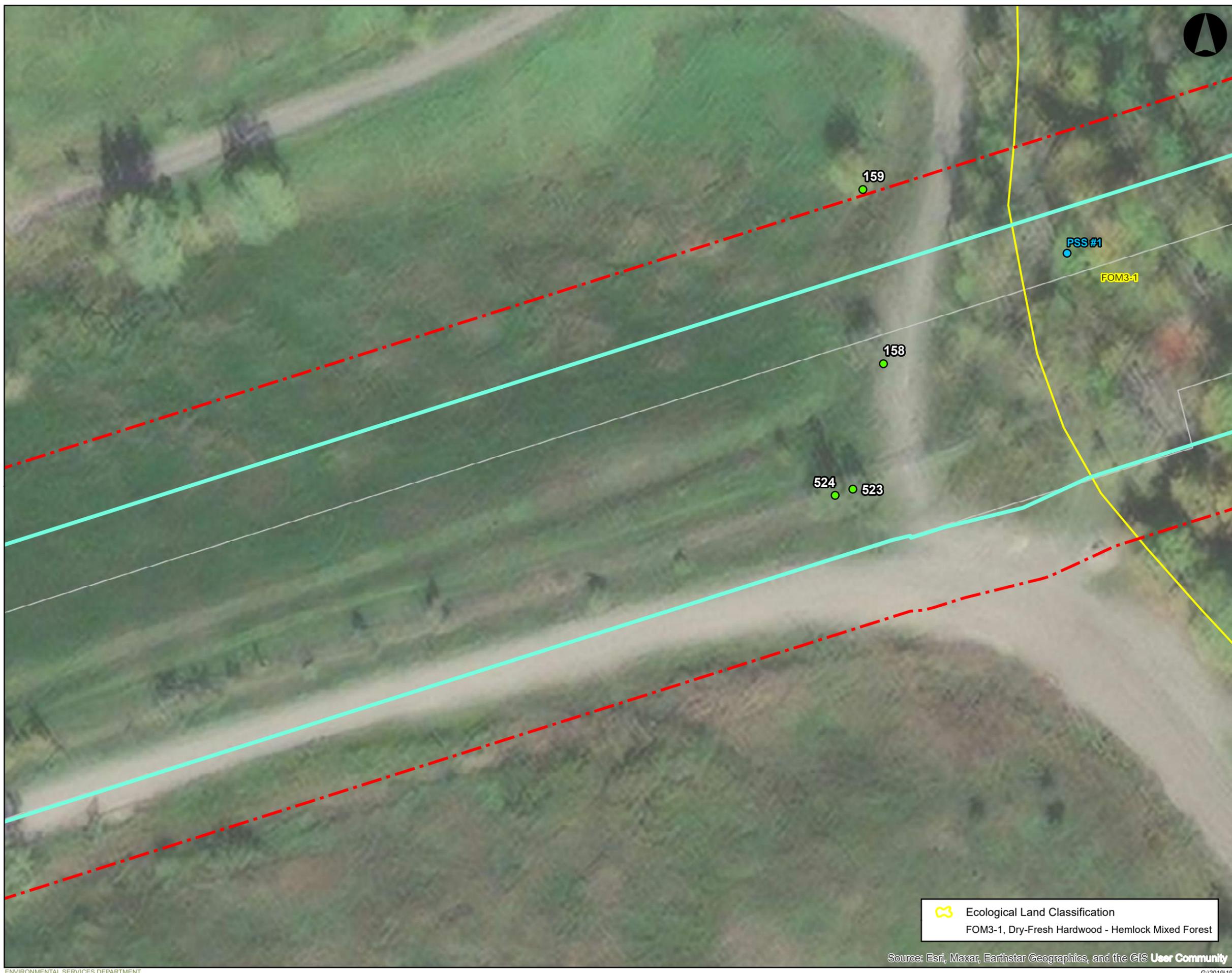
Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNRF



TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 11 of 31**



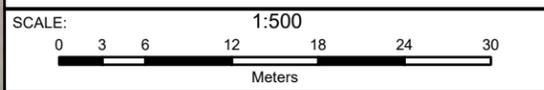
- LEGEND**
- Prism Sweep Plots
 - Individually Surveyed Trees
 - Study Area (10 m Buffer)
 - Preliminary Design - Impact Area
 - York Parcel Fabric

🌿 Ecological Land Classification
FOM3-1, Dry-Fresh Hardwood - Hemlock Mixed Forest

NOTES:
- The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
Sources: MNR

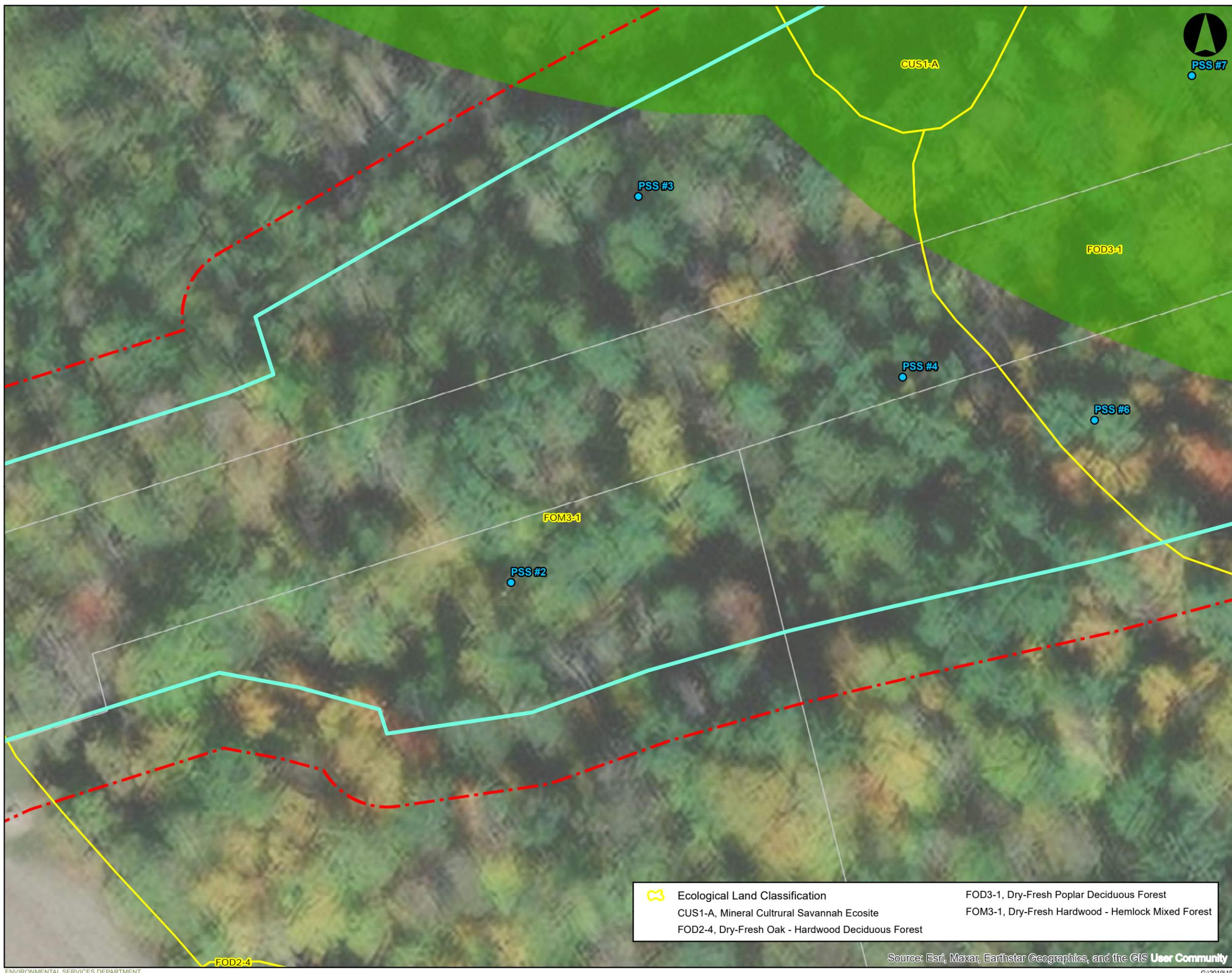


TITLE:
Tree Inventory

PROJECT NO.: 190261800
Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 12 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

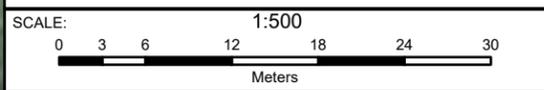


- LEGEND**
- Prism Sweep Plots
 - Study Area (10 m Buffer)
 - Preliminary Design - Impact Area
 - York Parcel Fabric
 - TRCA Regulated Area 2021

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR



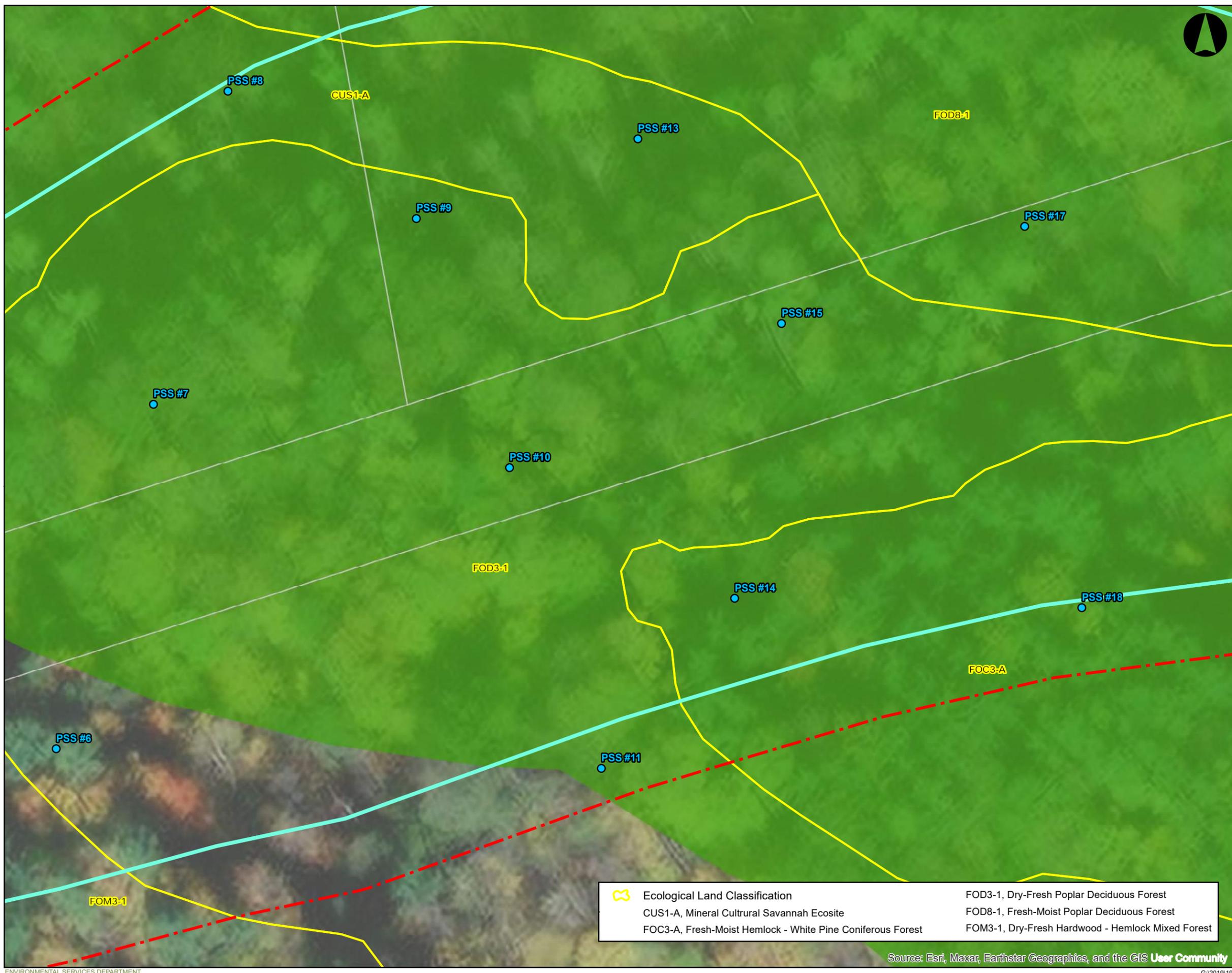
TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 13 of 31**

Ecological Land Classification	CUS1-A, Mineral Cultrural Savannah Ecosite	FOD3-1, Dry-Fresh Poplar Deciduous Forest
	FOD2-4, Dry-Fresh Oak - Hardwood Deciduous Forest	FOM3-1, Dry-Fresh Hardwood - Hemlock Mixed Forest

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

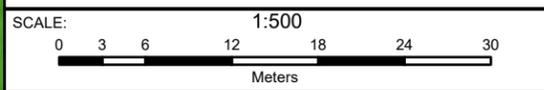


- LEGEND**
- Prism Sweep Plots
 - Study Area (10 m Buffer)
 - Preliminary Design - Impact Area
 - York Parcel Fabric
 - TRCA Regulated Area 2021

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR



TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 14 of 31**

- Ecological Land Classification**
- CUS1-A, Mineral Cultural Savannah Ecosite
 - FOD3-1, Dry-Fresh Poplar Deciduous Forest
 - FOD8-1, Fresh-Moist Poplar Deciduous Forest
 - FOC3-A, Fresh-Moist Hemlock - White Pine Coniferous Forest
 - FOM3-1, Dry-Fresh Hardwood - Hemlock Mixed Forest

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

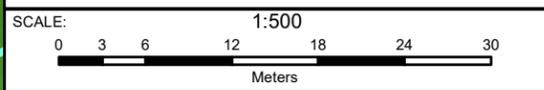


- LEGEND**
- Prism Sweep Plots
 - Study Area (10 m Buffer)
 - Preliminary Design - Impact Area
 - York Parcel Fabric
 - TRCA Regulated Area 2021
 - Waterbodies
 - Watercourses

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR

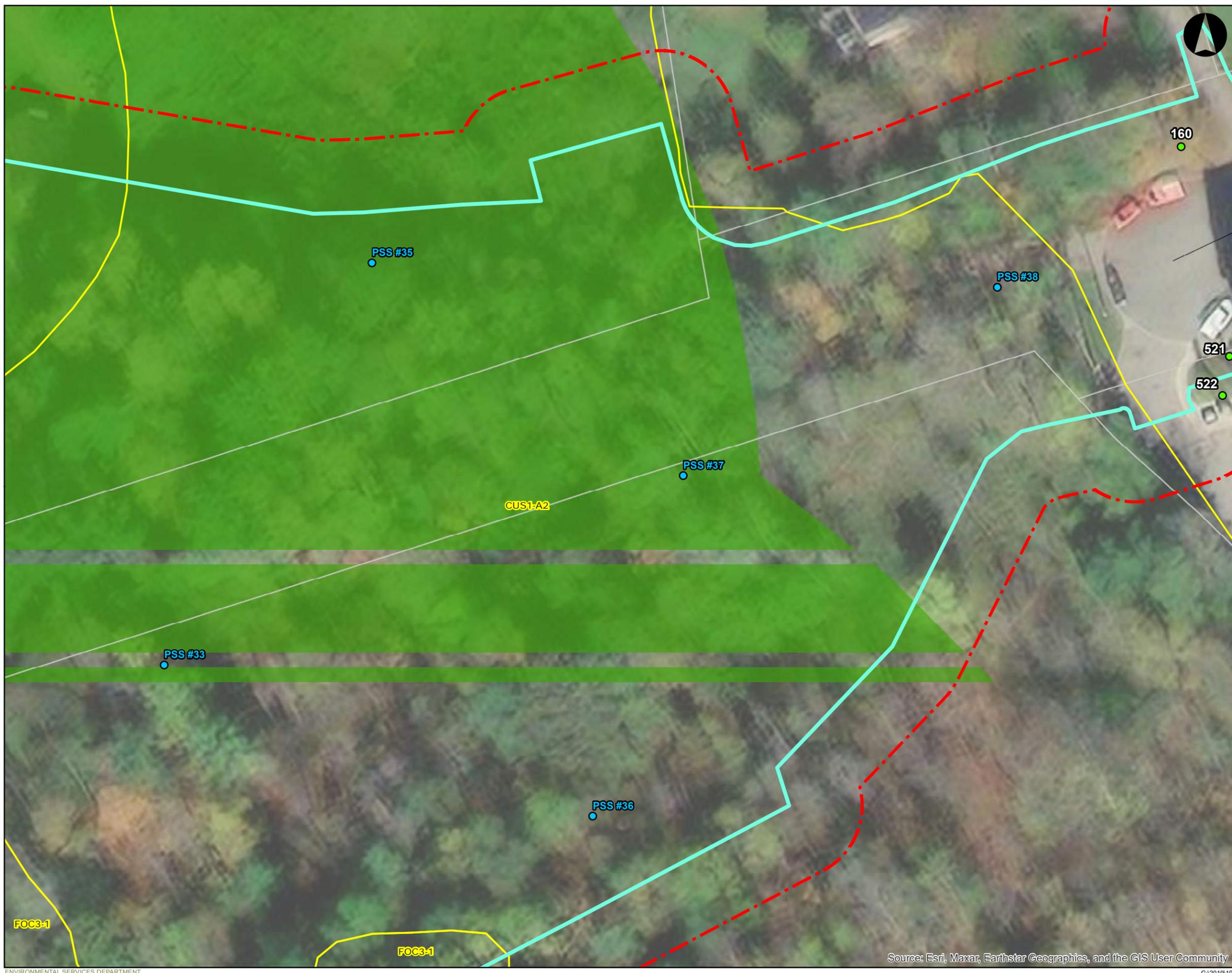


TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 15 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



LEGEND

- Prism Sweep Plots
- Individually Surveyed Trees
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric

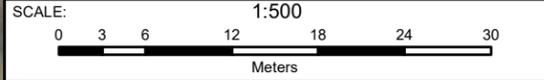
Transportation Network

- Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR

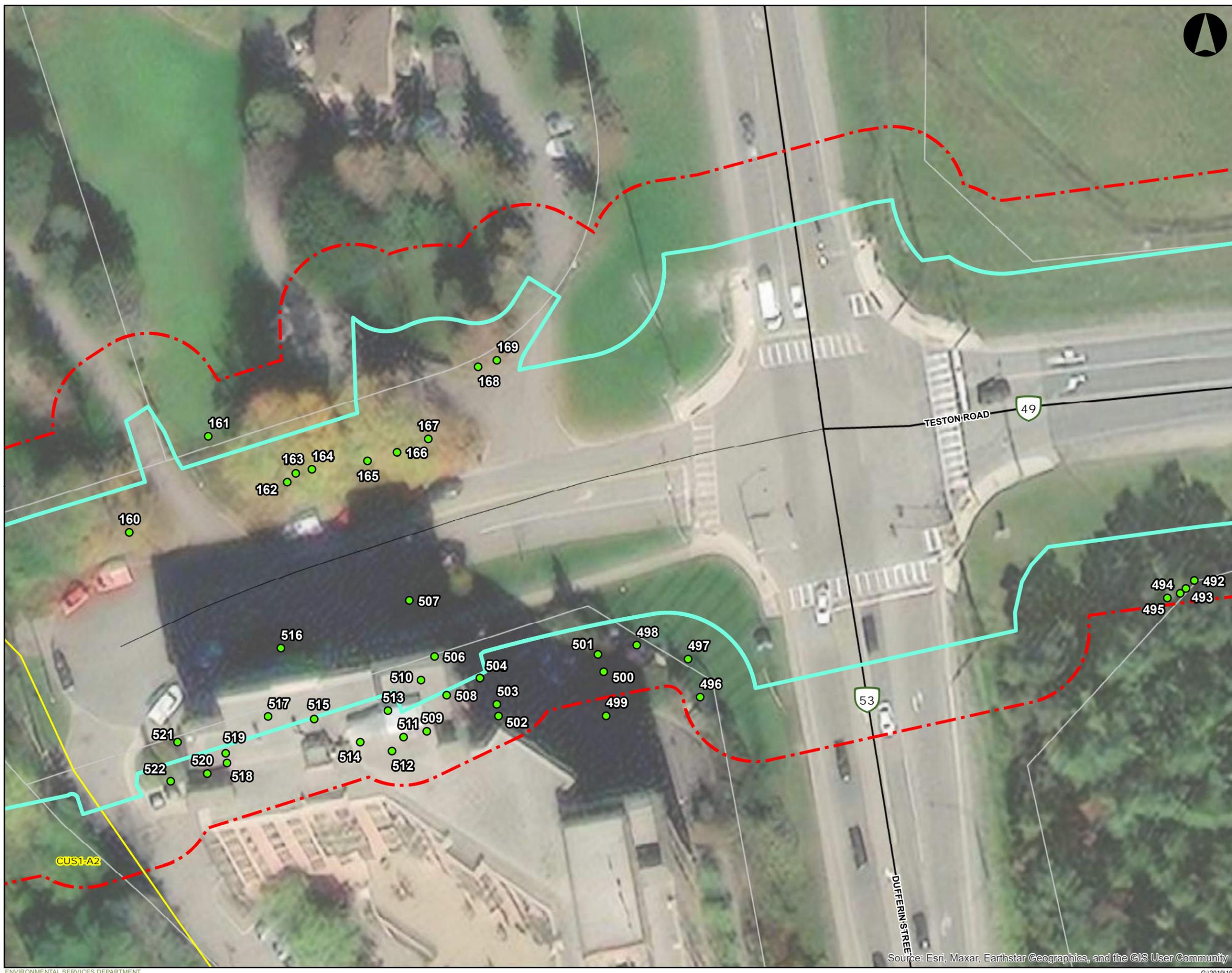


TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 16 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

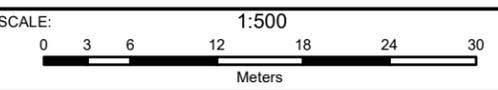


- LEGEND**
- Individually Surveyed Trees
 - Study Area (10 m Buffer)
 - Preliminary Design - Impact Area
 - York Parcel Fabric
- Transportation Network**
- Arterial / Collector
 - Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR

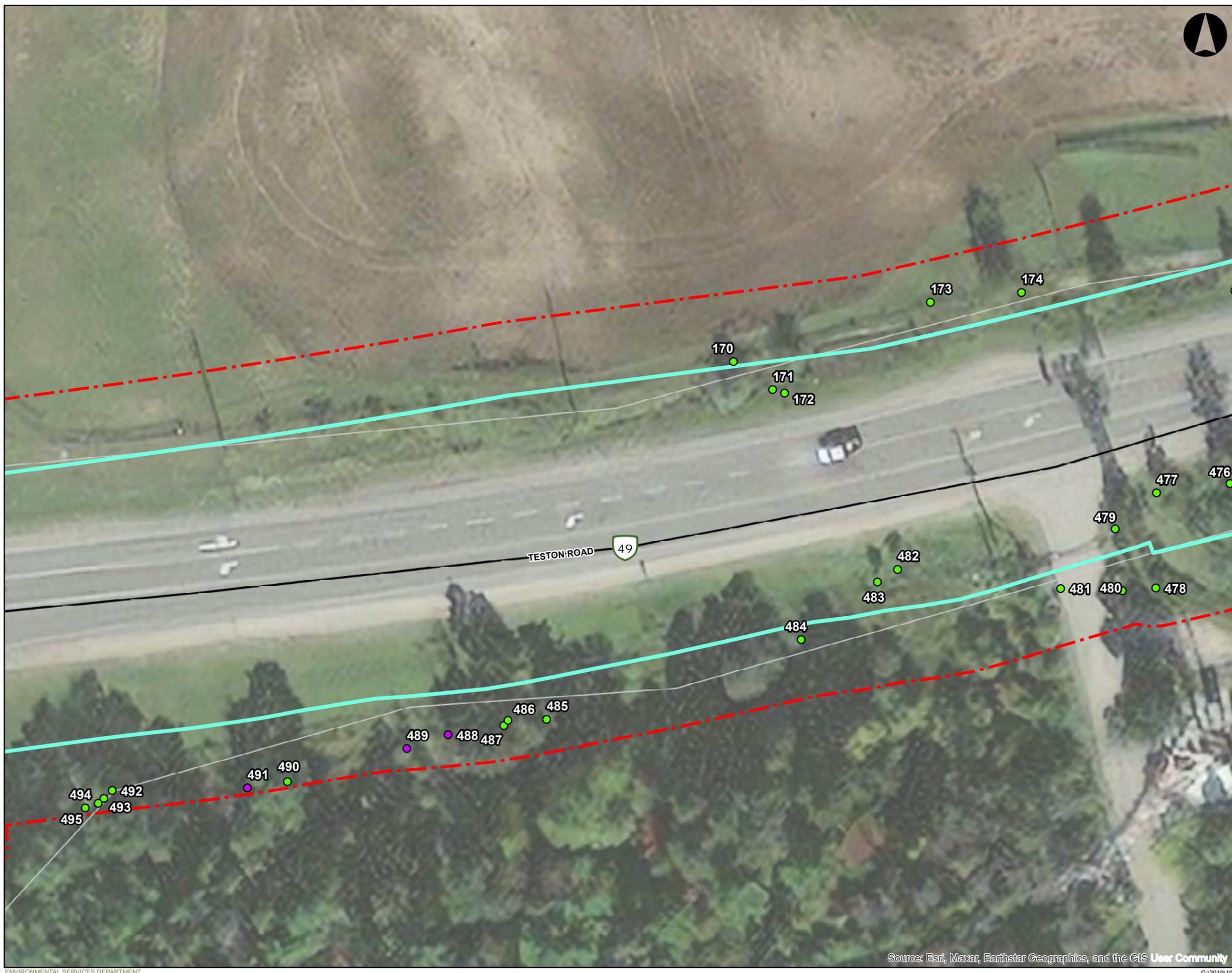


TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 17 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



LEGEND

- Individually Surveyed Trees
- Individually Surveyed Trees - Dead
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric

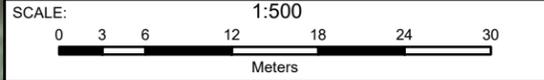
Transportation Network

- Arterial / Collector

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



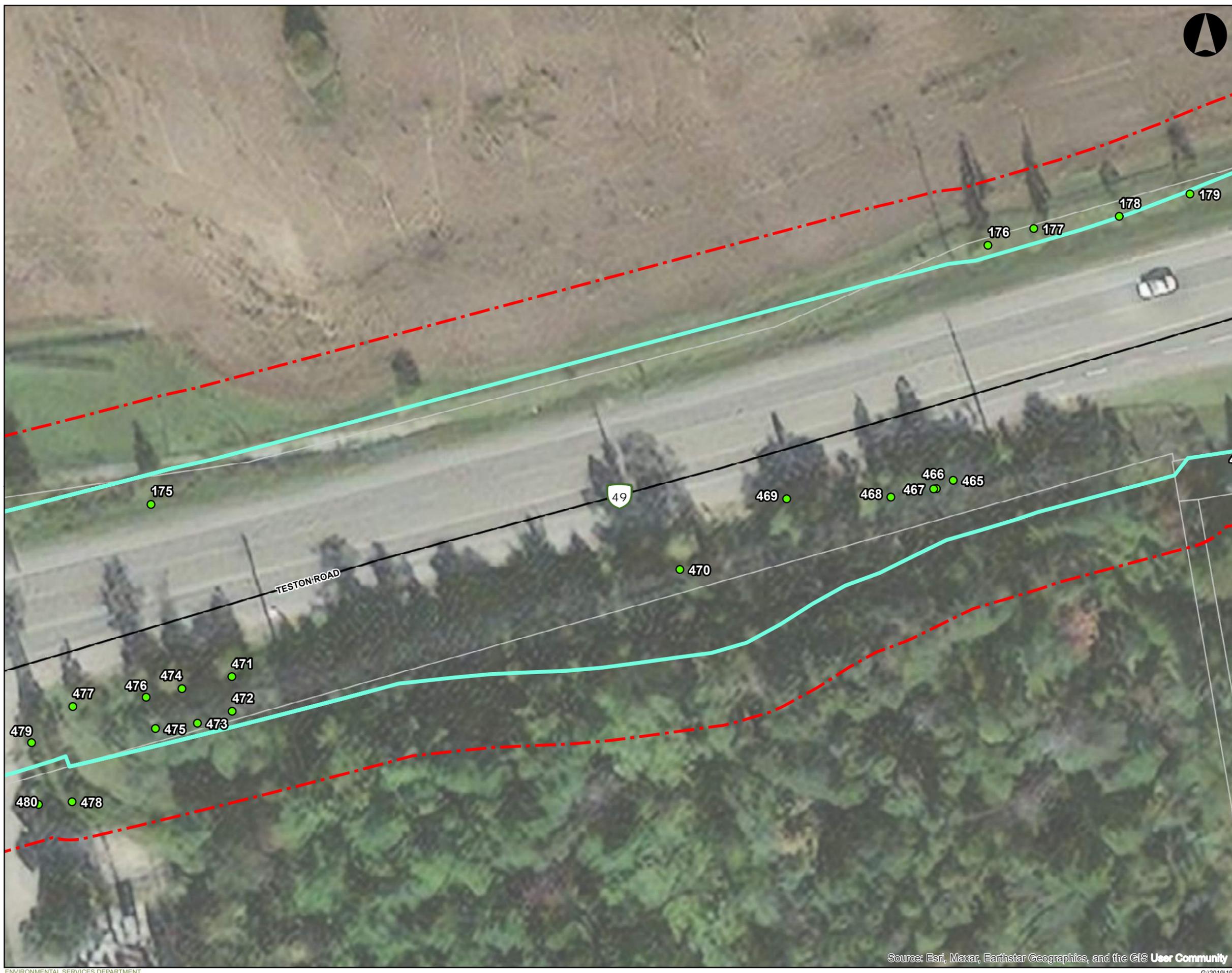
Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR



TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 18 of 31**



LEGEND

- Individually Surveyed Trees
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric

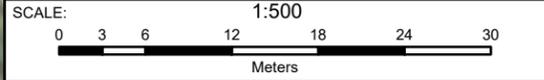
Transportation Network

- Arterial / Collector

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



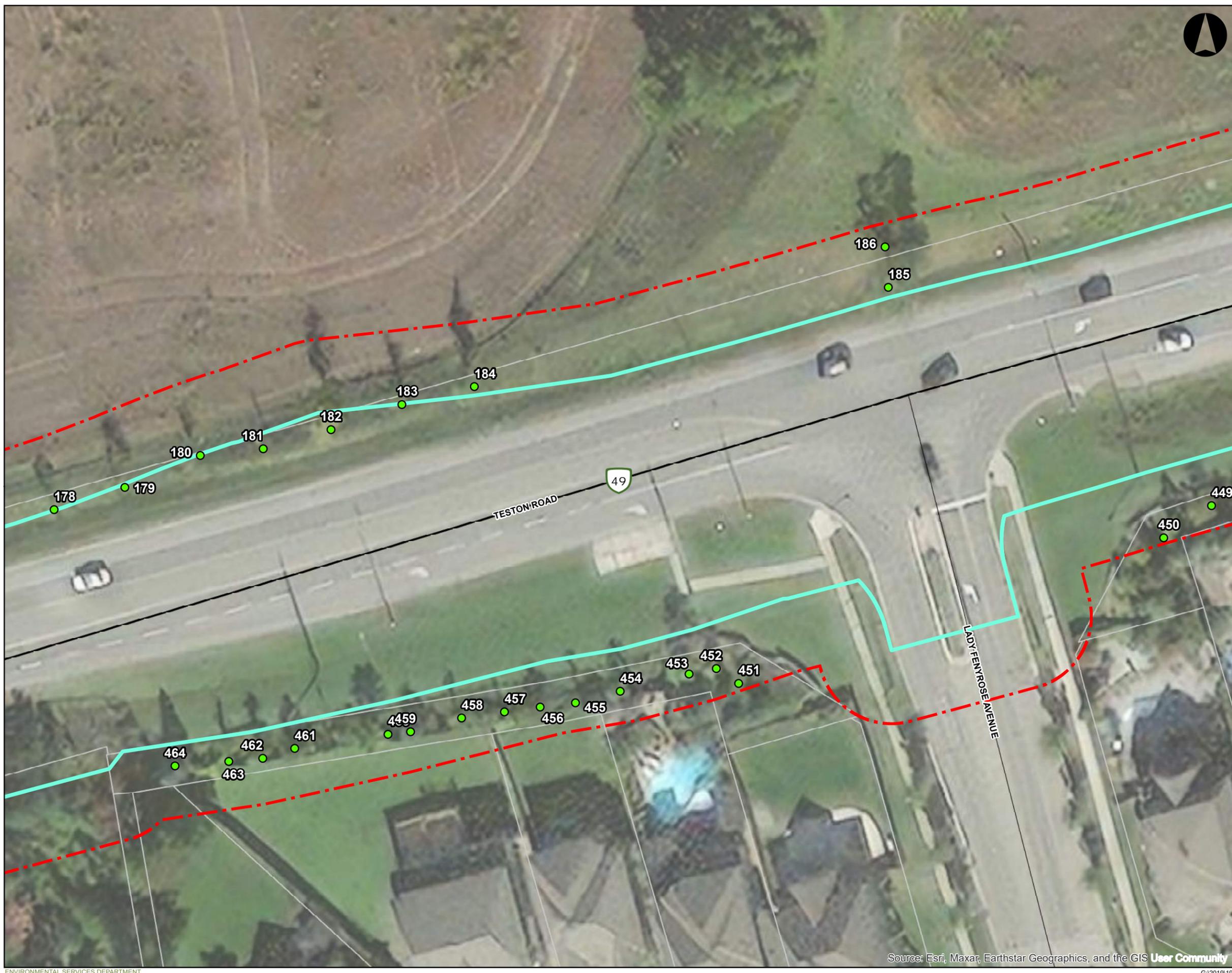
Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR



TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 19 of 31**

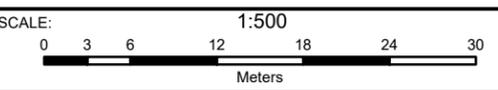


- LEGEND**
- Individually Surveyed Trees
 - Study Area (10 m Buffer)
 - Preliminary Design - Impact Area
 - York Parcel Fabric
- Transportation Network**
- Arterial / Collector
 - Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR

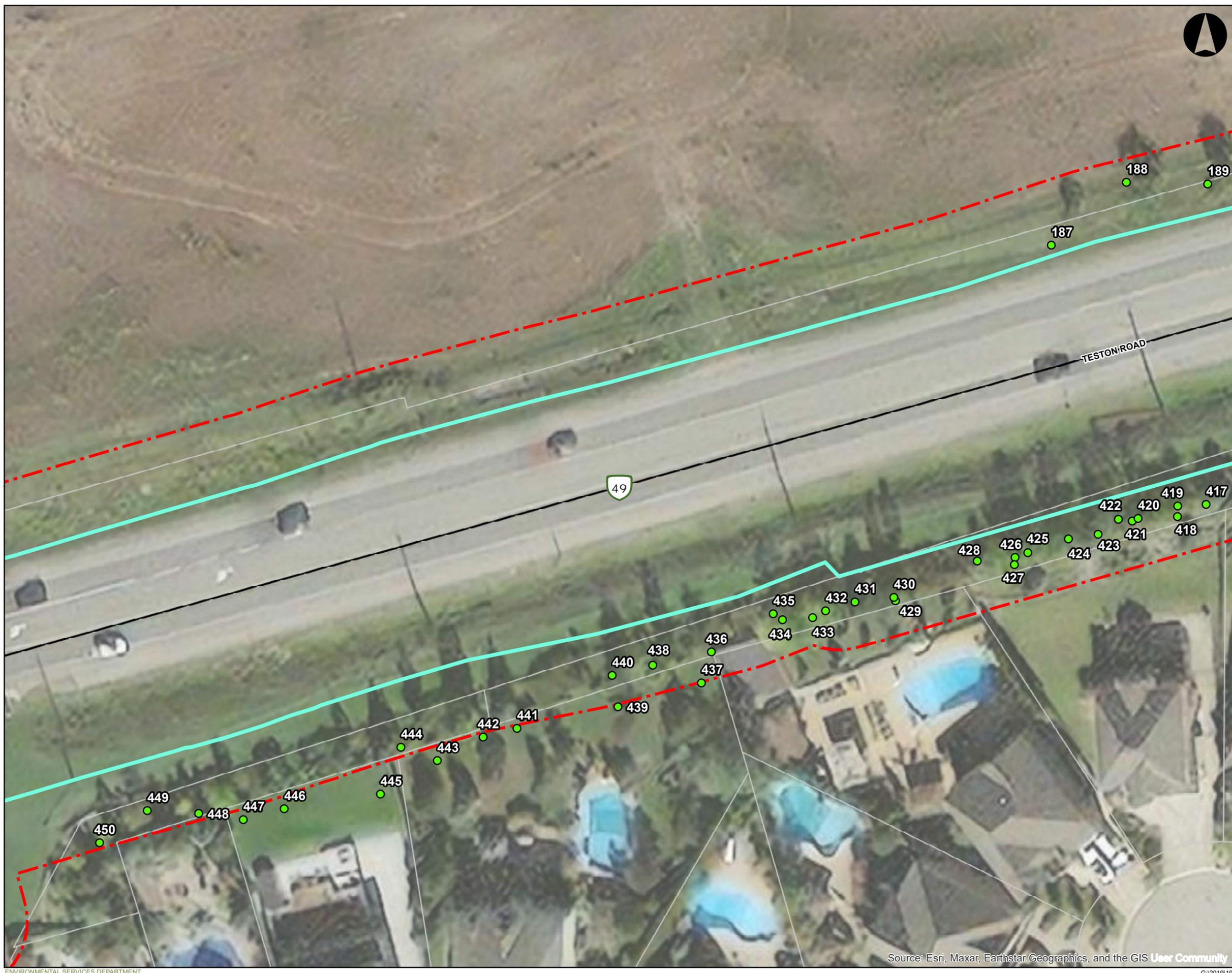


TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 20 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

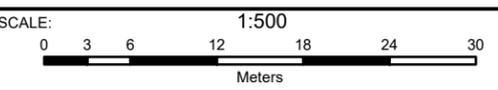


- LEGEND**
- Individually Surveyed Trees
 - Study Area (10 m Buffer)
 - Preliminary Design - Impact Area
 - York Parcel Fabric
- Transportation Network**
- Arterial / Collector

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR

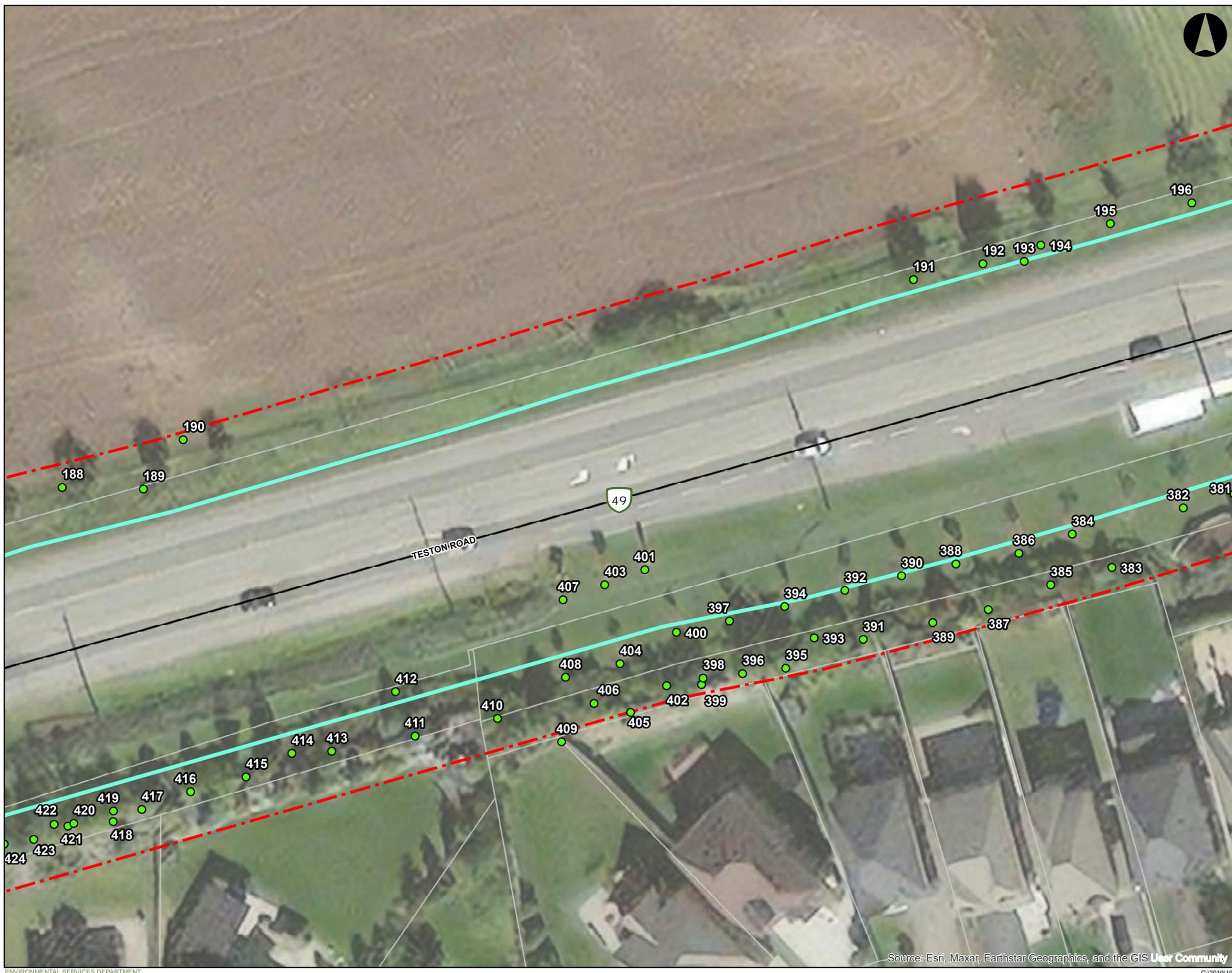


TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 21 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



LEGEND

- Individually Surveyed Trees
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric

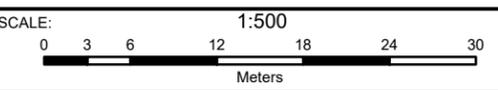
Transportation Network

- Arterial / Collector

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR

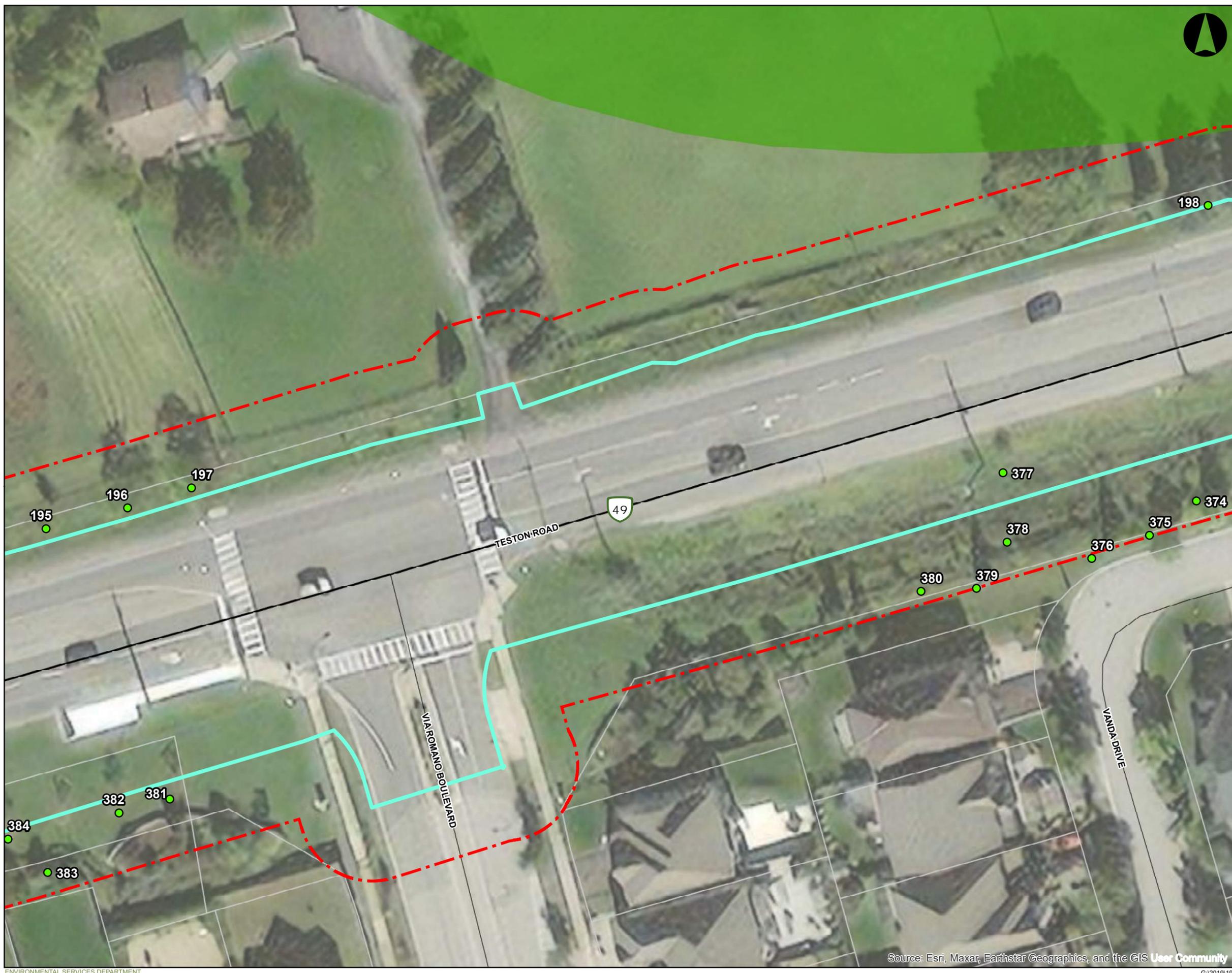


TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 22 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



LEGEND

- Individually Surveyed Trees
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric
- TRCA Regulated Area 2021

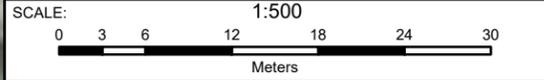
Transportation Network

- Arterial / Collector
- Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR

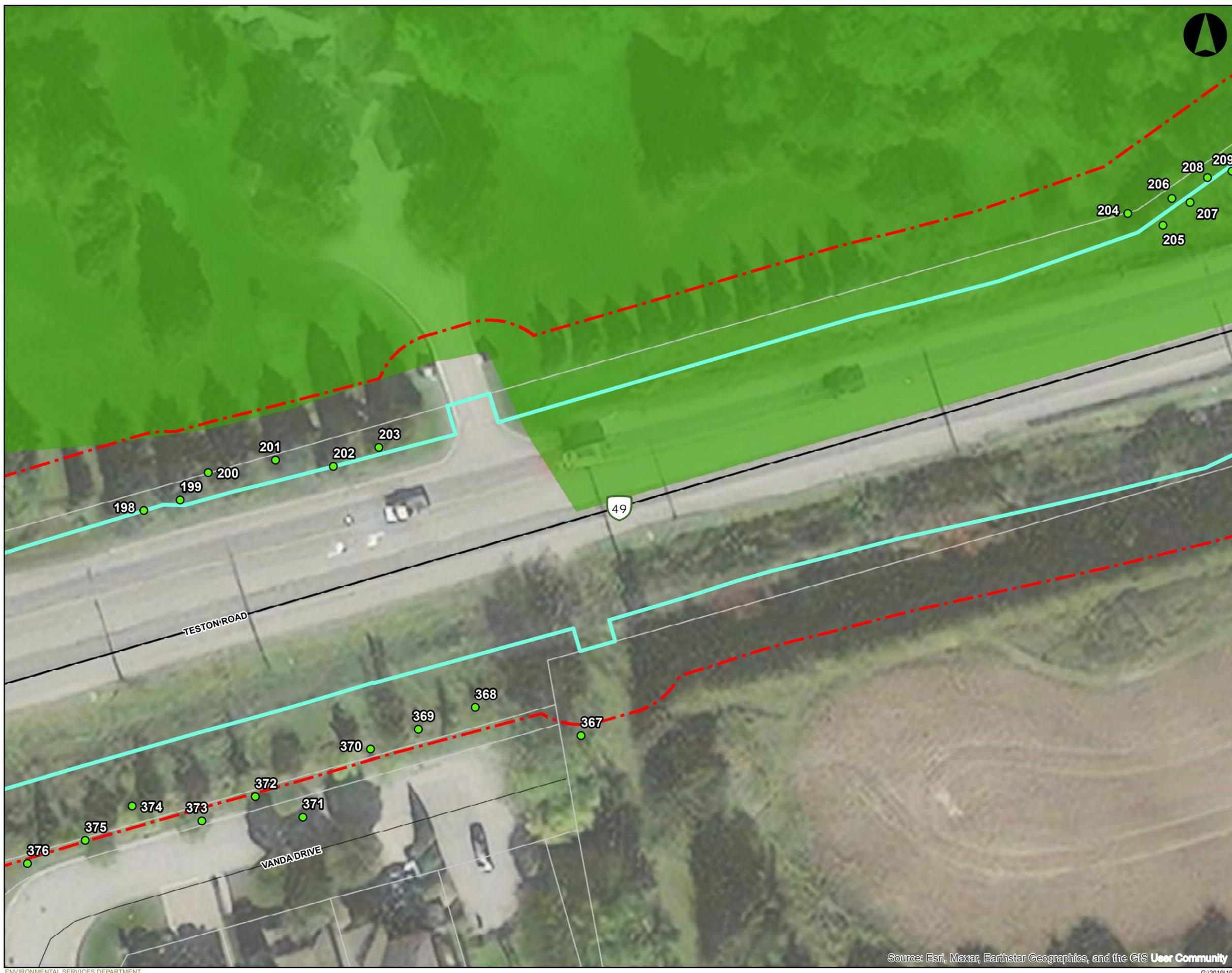


TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 23 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



LEGEND

- Individually Surveyed Trees
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric
- TRCA Regulated Area 2021

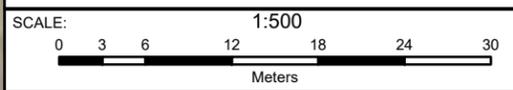
Transportation Network

- Arterial / Collector
- Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR

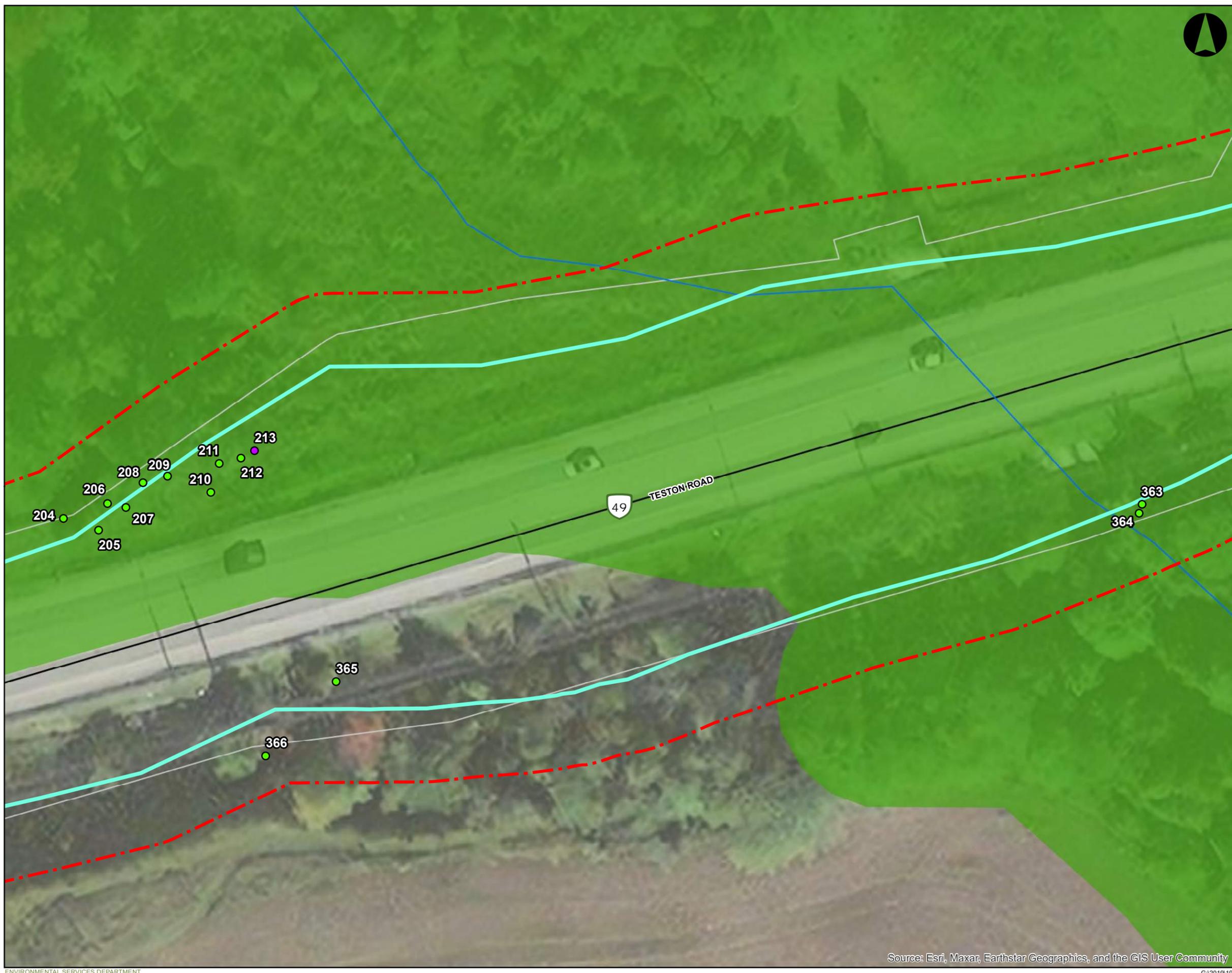


TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 24 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



LEGEND

- Individually Surveyed Trees
- Individually Surveyed Trees - Dead
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric
- TRCA Regulated Area 2021
- Watercourses

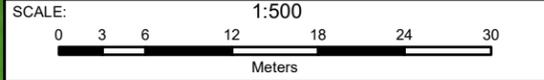
Transportation Network

- Arterial / Collector

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



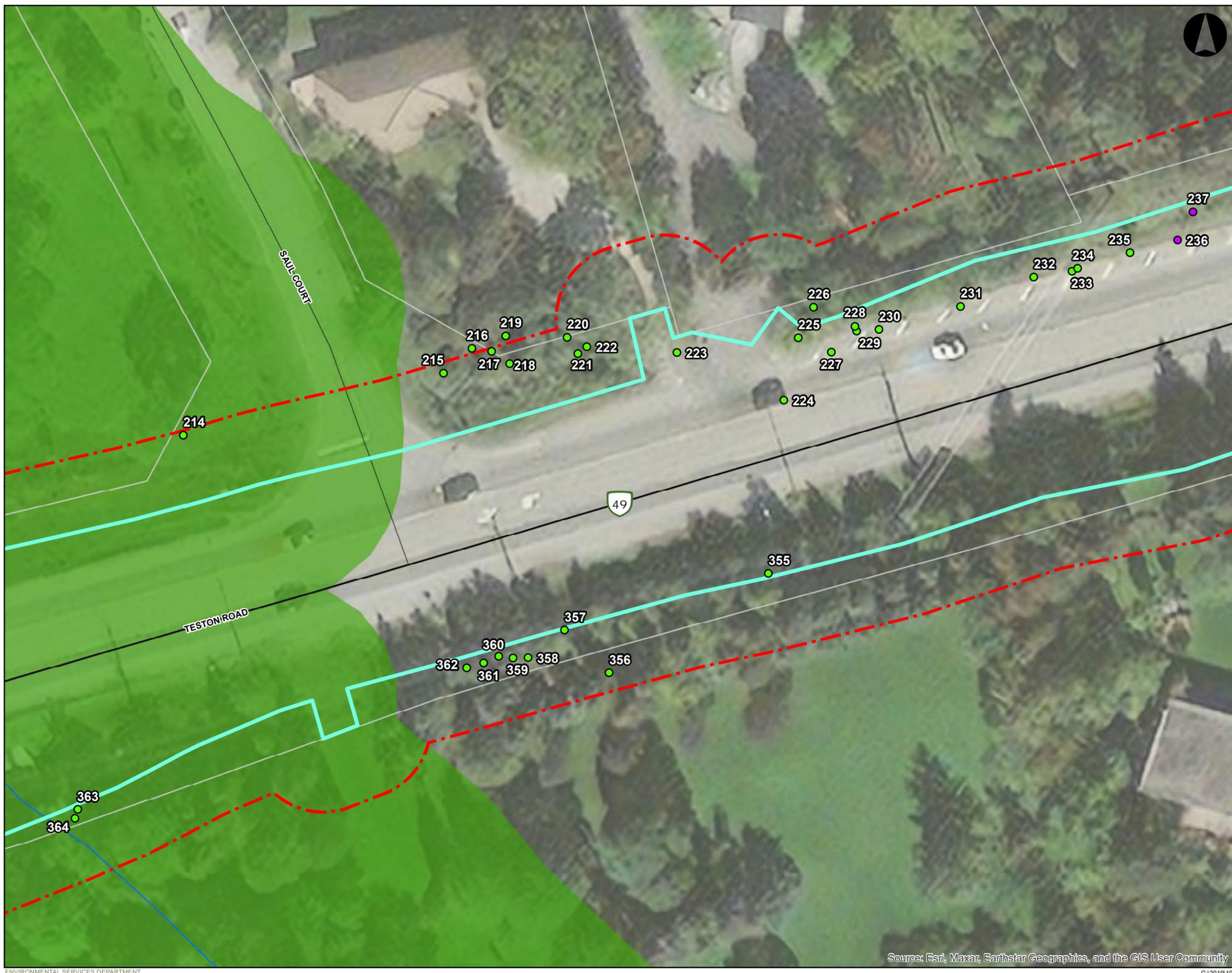
Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR



TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 25 of 31**



LEGEND

- Individually Surveyed Trees
- Individually Surveyed Trees - Dead
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric
- TRCA Regulated Area 2021
- Watercourses

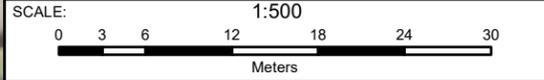
Transportation Network

- Arterial / Collector
- Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR

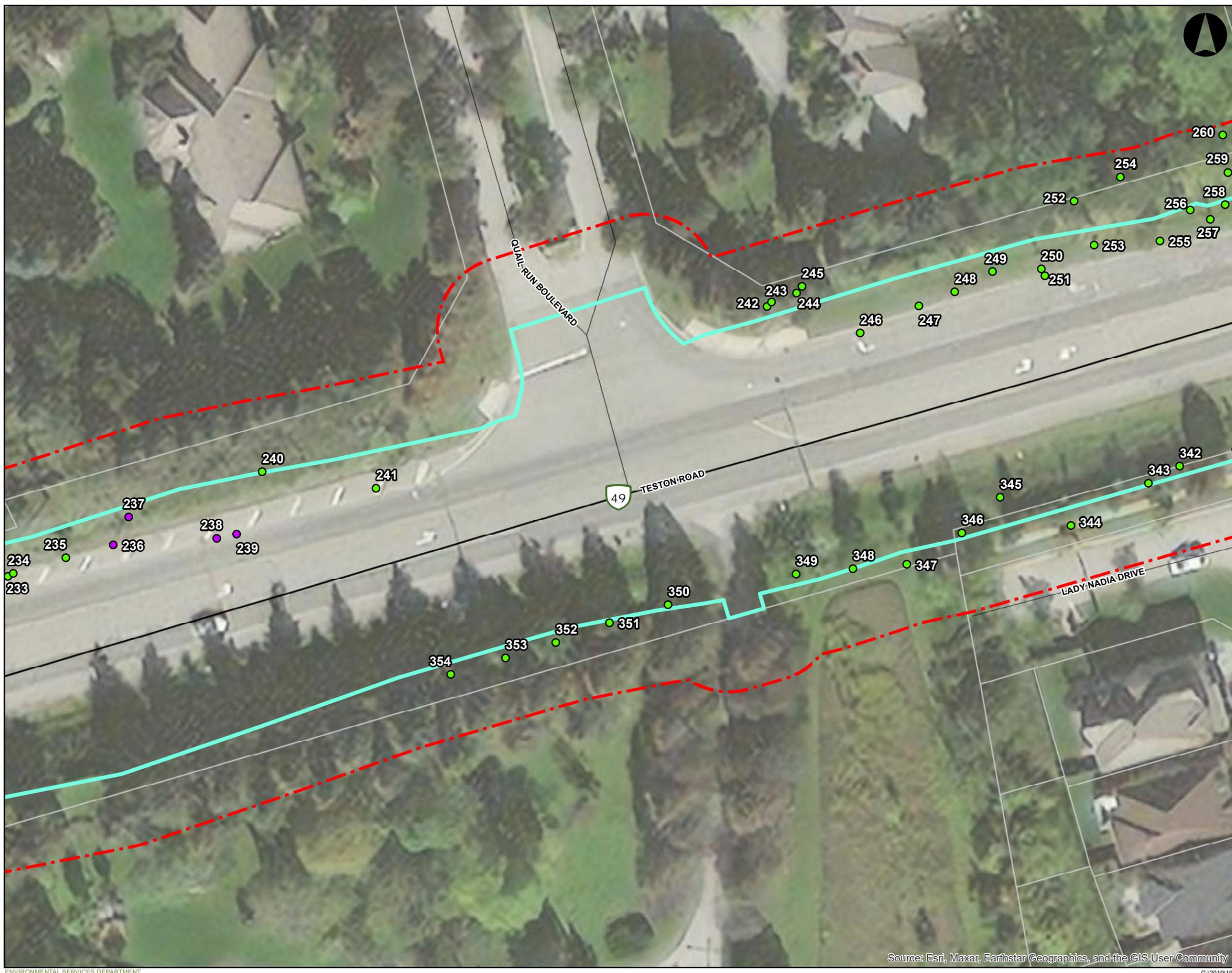


TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 26 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



LEGEND

- Individually Surveyed Trees
- Individually Surveyed Trees - Dead
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric

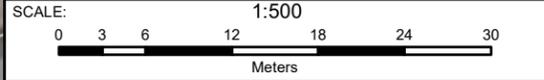
Transportation Network

- Arterial / Collector
- Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR

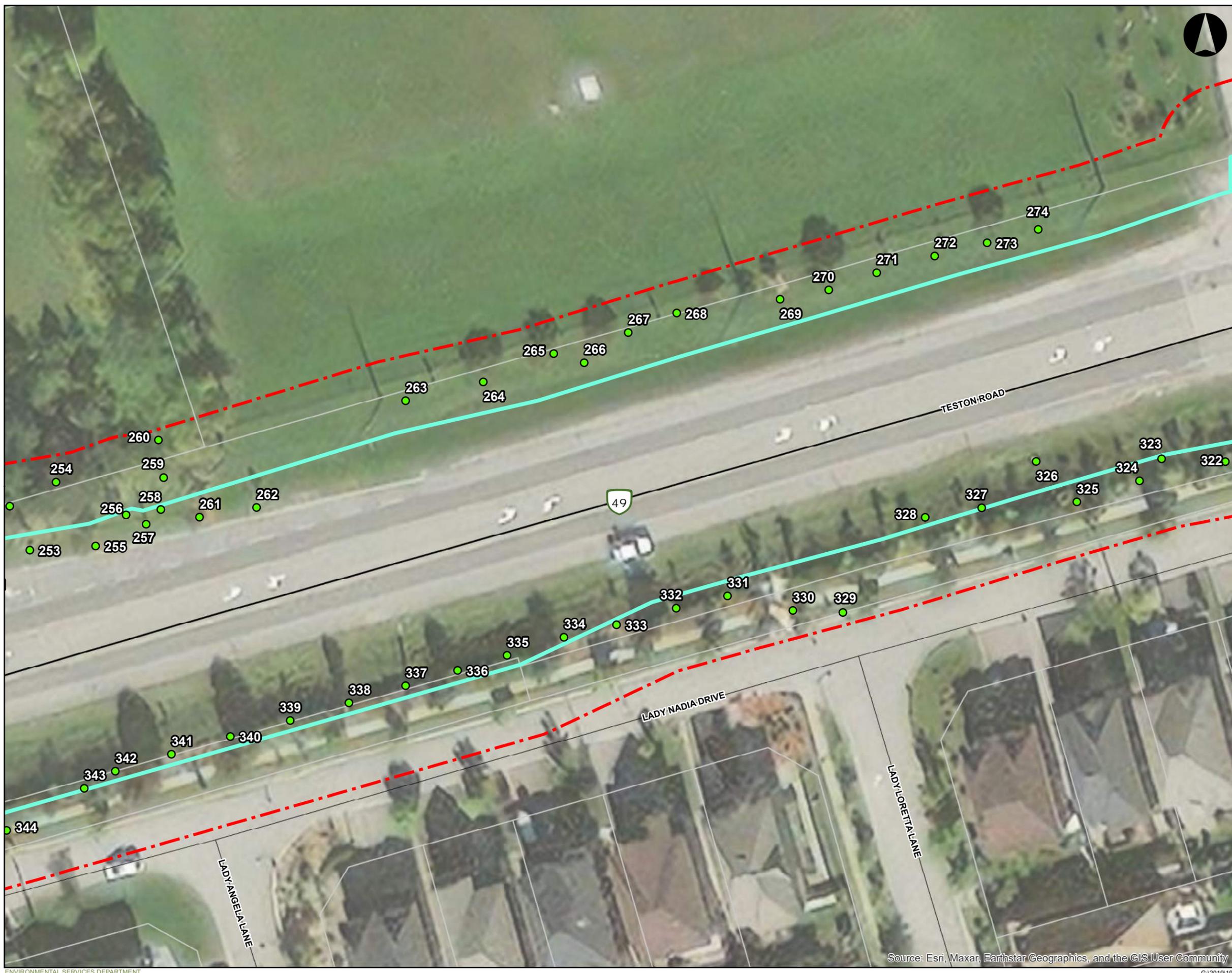


TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 27 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

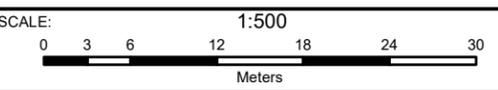


- LEGEND**
- Individually Surveyed Trees
 - Study Area (10 m Buffer)
 - Preliminary Design - Impact Area
 - York Parcel Fabric
- Transportation Network**
- Arterial / Collector
 - Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR

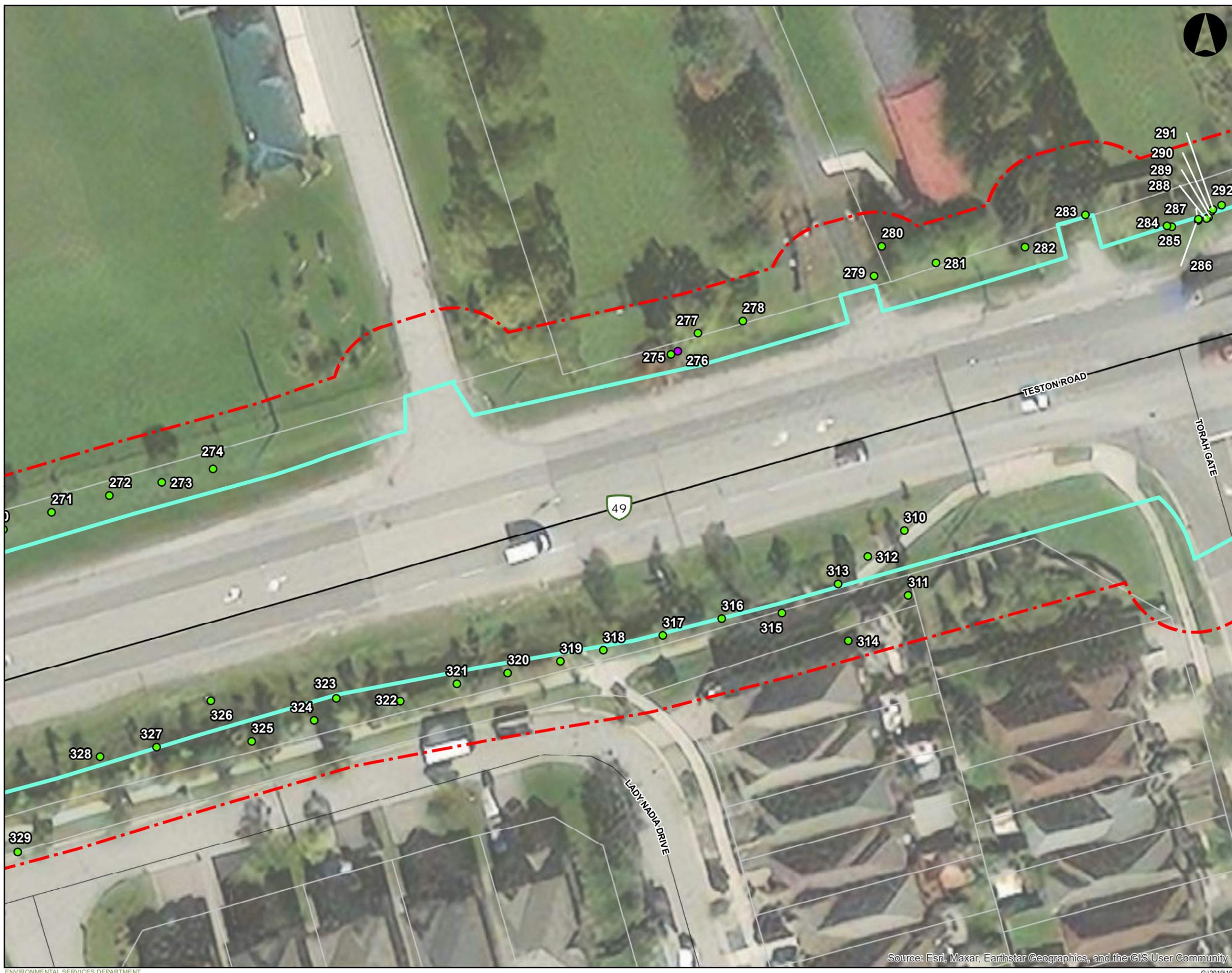


TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 28 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



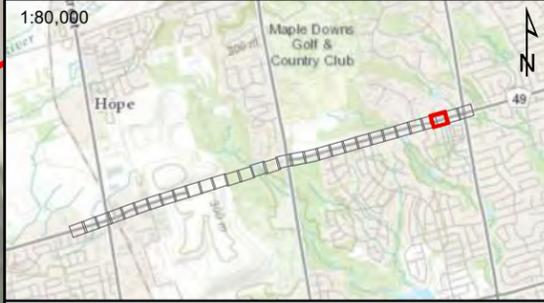
LEGEND

- Individually Surveyed Trees
- Individually Surveyed Trees - Dead
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric

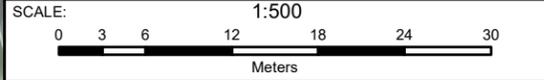
Transportation Network

- Arterial / Collector
- Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR

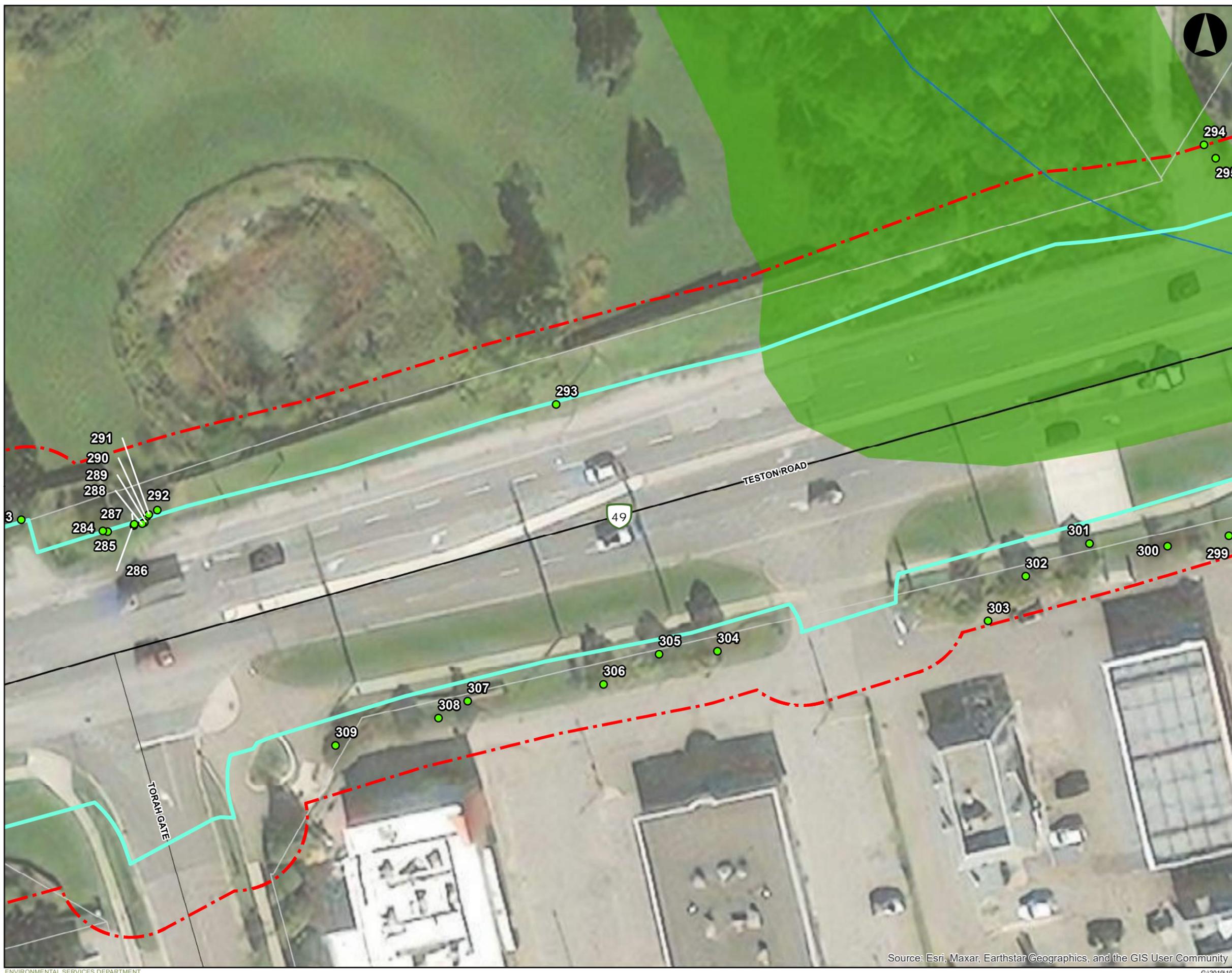


TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 29 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



LEGEND

- Individually Surveyed Trees
- Study Area (10 m Buffer)
- Preliminary Design - Impact Area
- York Parcel Fabric
- TRCA Regulated Area 2021
- Watercourses

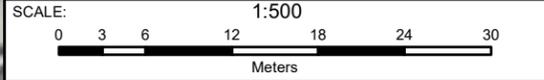
Transportation Network

- Arterial / Collector
- Local Roads

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR

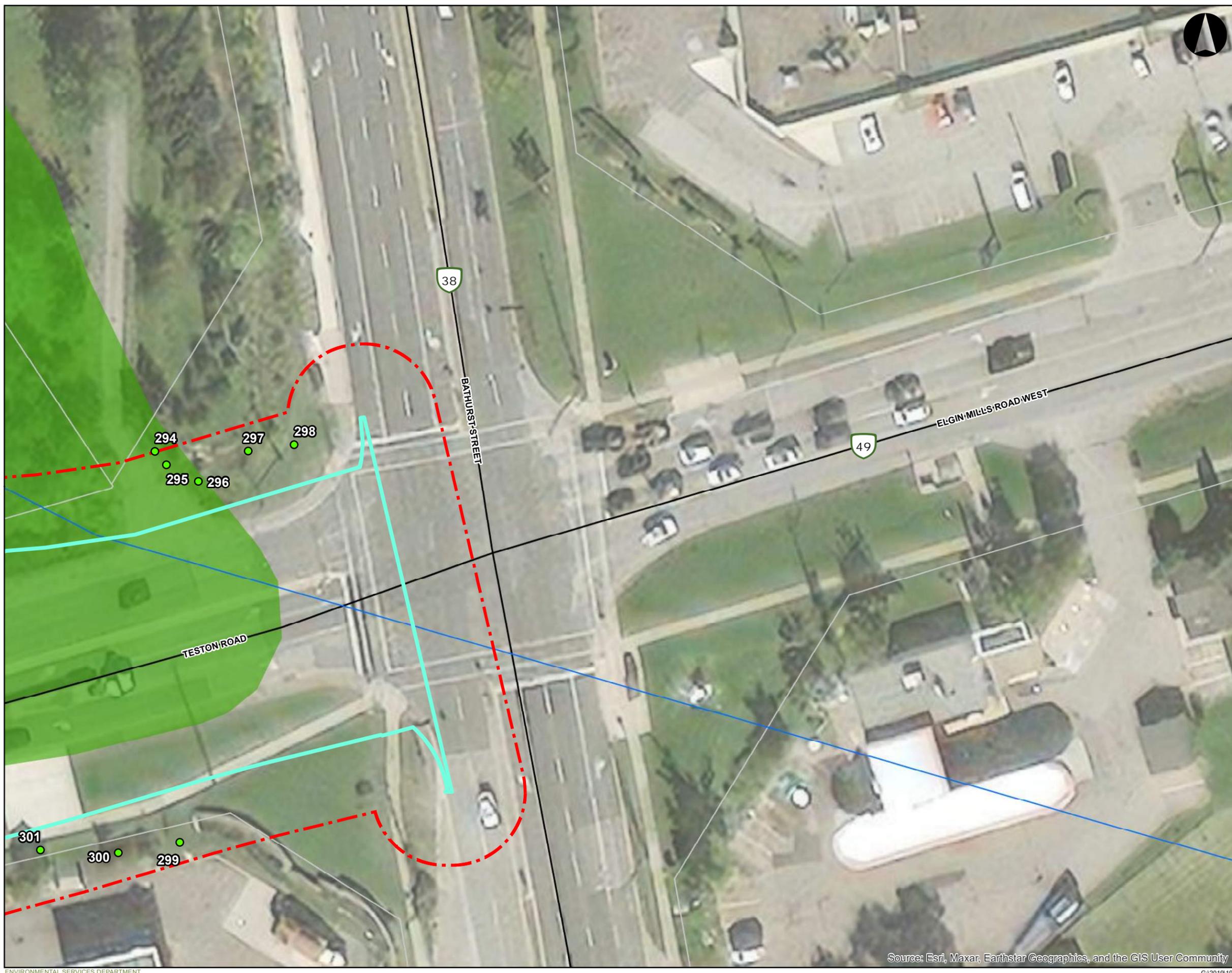


TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 30 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

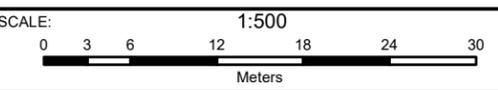


- LEGEND**
- Individually Surveyed Trees
 - Study Area (10 m Buffer)
 - Preliminary Design - Impact Area
 - York Parcel Fabric
 - TRCA Regulated Area 2021
 - Watercourses
- Transportation Network**
- Arterial / Collector

NOTES:
 - The area shown is within the jurisdiction of the Ministry of Natural Resources and Forestry (MNR) Aurora District and the Toronto and Region Conservation Authority Area



Coordinate System: NAD 1983 CSRS MTM 10
 Sources: MNR



TITLE:
Tree Inventory

PROJECT NO.: 190261800
 Teston Road, Vaughan Ontario

DATE: **February 2023** **Figure 31 of 31**

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community