



# Paisley Park Tree Inventory & Preservation Plan

Prepared for:

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**NATURAL RESOURCE SOLUTIONS INC.**

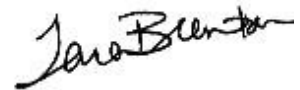
Aquatic, Terrestrial and Wetland Biologists

# Paisley Park Tree Inventory & Preservation Plan

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## 1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained in October, 2017 by Armel Corporation to complete an Environmental Impact Study (EIS) and Tree Inventory and Preservation Plan (TIPP) to support the City of Guelph Official Plan (OP) amendment and Zoning By-law amendment applications for a proposed residential development known as “Paisley Park” at the corner of Paisley Rd and Whitelaw Rd in the City of Guelph.

The reader is referred to the EIS report and EIS Addendum letter for a summary of flora and fauna surveys conducted by NRSI and an analysis of natural feature constraints and potential impacts (2018, 2019). The representative Concept Plan accompanying this submission is shown on Map 1 of this report. It is noted that current applications are for an amendment to the City’s OP and Zoning Bylaw to permit the future mixed density residential development of this property. Therefore, approval is not being sought at this time to actually develop the site. Prior to any future site grading or development occurring, a formal grading plan, Erosion and Sediment Control Plan and site plan approval will be required.

This TIPP was conducted in accordance with the City of Guelph By-law (2010)-19058 and the Wellington County Woodlands Conservation By-law 5115-09 (2009). The City of Guelph’s by-law states that if an owner wishes to destroy or injure a regulated tree and if none of the exemptions set out in this by-law are applicable, then the owner shall submit the information required in Part 5 of the by-law, including a Landscaping, Replanting and Replacement Plan. Within the By-law, a regulated tree is defined as:

*“a specimen of any species of deciduous or coniferous growing woody perennial plant, supported by a single root system, which has reached, or could have reached a height at least 4.5m from the ground at physiological maturity, is located on a lot that is greater than 0.2 hectares (0.5 acres) in size and has a DBH of at least 10cm”.*

Section 4.2.4 of the City of Guelph OP (2018) requires that a TIPP be completed where development or site alteration is proposed. The TIPP is to provide an inventory of all trees over 10cm Diameter at Breast Height (DBH) and identify a Preservation Plan for healthy, indigenous and non-invasive trees.

In compliance with the City's By-law (2010)-19058 and OP (2018), this report summarizes the following:

- Findings of the tree inventory;
- Assessment of overall health and potential for structural failure of inventoried trees;
- Preliminary tree retention analysis based on details of the proposed development;
- Protection measures for trees to be retained and;
- Recommended mitigation and compensation measures.

Based on field survey work conducted by NRSI in July 2018 in conjunction with GRCA staff, the extent of the municipal boundary relative to the adjacent treed / wetland area was confirmed. The Subject Property (i.e. land within the City boundary) is entirely outside of the adjacent natural area (including tree canopy). The Concept Plan as shown on Map 1 in this report generally illustrates the boundary of the natural area relative to the conceptual extent of development, confirming that development can occur with no encroachment into the natural area. Further, a significant buffer (generally 30 metres) can be incorporated along the edge of the natural area. As the current approvals submission does not include a formal site plan application, this TIPP provides a high-level analysis of tree removal and retention to inform potential tree impacts based on the Concept Plan.

## 2.0 Tree Inventory Field Methods

A comprehensive tree inventory and assessment was completed by a NRSI Certified Arborist on November 18, 2017 and July 5, 2018 in accordance with the City of Guelph By-law (2010)-19058 and OP (2018). The inventory included the tagging of on-site trees with pre-numbered aluminum forestry tags and assessment of all trees  $\geq 10\text{cm}$  DBH within approximately 5m of the Subject Property boundary. Off-property trees were not tagged; however, were assigned a unique letter identifier for mapping purposes. A summary of trees inventoried is provided in Appendix I and their location is shown on Map 1.

The following information was recorded for inventoried trees:

- Tree location;
- Tag number (on-site trees) / unique letter identifier (off-site trees);
- Species (common and scientific name);
- DBH (cm);
- Crown radius (m);
- General health (excellent, good, fair, poor, very poor, dead);
- Potential for structural failure (improbable, possible, probable, imminent);
- Potential cavities that could be used for Species at Risk (SAR) bats; and
- General comments (i.e. disease, aesthetic quality, development constraints, sensitivity to development, etc.).

The overall health of each tree and potential for structural failure was assessed based on the criteria outlined in Appendix II. In carrying out these assessments, NRSI has exercised a reasonable standard of care, skill and diligence as would be customarily and normally provided in carrying out these assessments. The assessments have 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, 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. None of the trees examined were dissected, cored, probed or climbed and detailed root examinations involving excavation were not undertaken. The conditions for this assessment, including restrictions, professional responsibility and third-party liability can be found in Appendix III.

## 2.1 Bat Habitat Assessment Methodology

Four bat species known from the area are listed as Endangered provincially and are afforded general habitat protection under the Endangered Species Act (2007). Bat Species at Risk (SAR) include Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Eastern Small-Footed Myotis (*Myotis leibii*) and Tri-colored Bat (*Perimyotis subflavus*).

These species are known to roost in tree cavities, hollows, or under loose bark, within leaf clusters, as well as within buildings (OMNR 2000). As part of the tree health assessments, NRSI's Certified Arborists, who are trained and experienced in the Ministry of Natural Resources and Forestry (MNR) bat habitat assessment protocols (OMNR 2011, MNR 2014, MNR 2017), visually scanned all trees  $\geq 10$ cm DBH within the Subject Property for the presence of features (i.e. cavities, loose bark, etc.) that may provide bat maternity colony habitat. This search was focused on trees within and immediately adjacent to the proposed development area only and plot-based surveys within the adjacent, off-site woodland / wetland were not undertaken as the feature is being retained and buffered in its entirety (refer to survey methods and findings in EIS).

Information considered (and recorded, where applicable) for cavity trees included tree species, location, DBH, canopy cover, tree height, decay class according to Watt and Caceres (1999), and number of potentially suitable cavities. Other criteria were also considered, including the use of cavities by other wildlife, the potential for cavities to be used by predators, supporting/surrounding habitat, and other characteristics which may contribute to the habitat requirements of these species, such as temperature regulation.

### **3.0 Summary of Tree Inventory Findings**

In total, 73 trees were inventoried, including 22 species. A complete list of inventoried trees, including information on their overall health and potential for structural failure, is provided in Appendix I. Tree locations within the proposed residential development are shown on Map 1.

### **3.1 Bat Habitat Assessment Findings**

NRSI did not document any candidate bat maternity roosting habitat within the subject property during the tree inventory.



## 4.0 Tree Preservation Plan

### 4.1 Tree Removal and Retention Analysis

The removal and retention of trees within the Subject Property has been based on the following:

- Trees that require removal based on the extent of the concept grading plan for the proposed development. This was determined by comparing the location of the trees to the location of the potential components of the development and City park as shown on Map 1;
- Trees identified as being in very poor or poor condition, or identified as dead, and having the possibility of impacting a target in the event of structural failure. The removal of these trees would be recommended for safety, especially if they are located within striking distance of a component of the proposed development, existing residential development and future proposed City park. For the purposes of this report, this primarily includes a recommendation for the removal of Ash trees that are declining and exhibiting signs of Emerald Ash Borer. The Ash trees are situated within the area proposed to be future Park Block and are also immediately adjacent to existing residential homes (Map 1).
- An area southwest of the Subject Property that is entirely outside of the proposed development limit is identified as Core Greenlands by the County of Wellington (2018) (Map 1). With the exception of minimal encroachment into the outer limit of the buffer by the proposed stormwater management facility, the swamp/woodland community is afforded a 30m buffer from the proposed development. As such, trees within this area, as well as their root systems will be retained and protected.

Of the 73 trees inventoried, 52 are anticipated to be removed based on the criteria noted above. Ash trees within the future park block area have been recommended for removal as a result of safety concerns due to their existing condition and signs of Emerald Ash Borer. Once infected with EAB, Ash tree condition declines rapidly and most often, the entire tree fails as a result of the weakened main trunk.

### 4.2 Tree Compensation Plan

Section 5 (h) in the City's tree by-law (2010)-19058 states that "*where three or more trees are proposed for Destruction or Injuring, and where the Inspector so requires, a Landscaping, Replanting and Replacement Plan*" is required. Overall compensation for tree loss is a requirement of the City's by-law, which notes that "*each tree Destroyed or Injured be replaced with one or more replacement trees to be planted and maintained to the satisfaction of the Inspector in accordance with the Landscaping, Replanting and Replacement Plans approved by the Inspector*" [Section 7 (b)]. The City's OP (2018) also requires that a 'Vegetation Compensation Plan' be developed to replace trees lost through the development and site alteration process (Section 4.1.6.4).

According to City of Guelph Tree By-law Number (2010)-19058, trees exempt from compensation must have the following site-specific criteria:

- *“A tree having no living tissue, having 70% or more of its crown dead, or being infected by a lethal pathogen, fungus or insect (including the Emerald Ash Borer or the Asian Longhorned Beetle), and where required, a certificate issued by an Arborist, confirming this justification for Destruction or Injuring, has been submitted to an Inspector” [Part 4, section (a)],*
- *“A tree which is Hazardous, and where required, a certificate issued by an Arborist, confirming this justification for Destruction or Injuring, has been submitted to an Inspector” [Part 4, section (b)]*
- *“A specimen of Rhamnus cathartica (common buckthorn), Rhamnus frangula (European or glossy buckthorn), Alnus glutinosa (black alder), Elaeagnus umbellata (autumn olive), or Morus alba (white mulberry)” [Part 4, section (g)],*
- *“A fruit tree that is capable of producing fruit for human consumption” [Part 4, section (h)].*

Development of the property and removal of trees (in particular Ash trees) in very poor to poor condition from within the Subject Property will result in the loss of canopy cover from the City of Guelph urban forest. To mitigate the effects of canopy loss (i.e. shade, oxygen creation, habitat, aesthetic appeal, etc.) and eventually replace the removed urban canopy, it is recommended that the overall compensation strategy for this property be in accordance with the City’s By-law (2010) and OP (2018).

Trees identified for removal that are in excellent to fair condition (18) may be compensated on-site at a 3:1 ratio with trees and 5:1 with shrubs. This excludes the 4 fruit trees identified to be in excellent to fair condition proposed for removal (Appendix I). Where on-site plantings are not achievable, cash in lieu equal to the value of the replacement vegetation will be required to be paid to the City. It is recommended that the final compensation strategy, including appropriate species and potential use of trees, shrubs and herbaceous species for pollinator habitat, be determined once a formal site plan application has been submitted and prior to the development of detailed landscaping plans.

Detailed landscaping plans will be required for the Paisley Park development area at the Site Plan Approval stage. The compensation plans may include on-site plantings within the stormwater management areas, future park block and the natural feature buffer. Additional plantings that are a requirement through the Site Plan Approval stage (i.e. street trees) can also be established within the developable area and common amenity spaces to increase the urban forest canopy cover.

## **5.0 Tree Protection Measures**

### **5.1 Prior to Construction and Site Alteration**

Prior to any future grading occurring, it is recommended that temporary Tree Protection Fencing (TPF) be situated along the ultimate limit of development (inclusive of wetland setback) adjacent to the off-site natural area. A combined Sediment and Erosion Control (ESC) fence (i.e. heavy-duty filter fabric silt fence) and TPF is recommended along the agreed upon limit of disturbance to protect the adjacent natural area, trees and their associated root zones. TPF should also be installed outside of the driplines of boundary trees to be retained, particularly in the northeastern limit. A TPF, along with an Erosion and Sediment Control Plan will be required at Site Plan Approval stage.

Any temporary TPF is to be installed and maintained by the Developer and/or their representative. Prior to any construction activities (i.e. rough grading, vegetation and tree removal), the TPF should be installed at the limit of grading. It is recommended that the TPF take the form of 1200mm high heavy-duty paige wire fencing in accordance with the City of Guelph's Tree Protection guidelines (Tree Protection Zone Fence Detail SD-90a).

Prior to any on-site works commencing, the fence installation and location should be inspected by a Certified Arborist and/or the on-site Environmental Monitor. Signage, as per the City of Guelph Tree Protection Zone Information Signage (SD-90c), indicating the purpose of the protection fencing should be attached to the paige-wire at appropriate intervals along the length of the fence.

Upon receipt of a detailed development and grading plan from the Paisley Park end-user, the Tree Protection Plan is to be reviewed and approved by the City of Guelph. Trees that may pose a future safety concern from within the Park Block have been identified for removal in this report (Map 1). However, as tree condition may change from the time of NRSI's tree inventory to when a Site Plan application is submitted, it may be necessary for a Certified Arborist, qualified tree professional or the City of Guelph to reassess tree condition and clearly mark any trees posing a safety concern prior to installation of the TPF.

Prior to any on-site works, written confirmation should be provided to the City that all of tree protection measures have been installed in accordance with the approved Tree Protection Plan.

## **5.2 During Construction**

A Certified Arborist is to be on-site during any tree removal activities to ensure that trees identified for retention are not removed or damaged. The Certified Arborist will also be on-site to ensure that the TPF is functioning as intended and that tree and vegetation removal is in accordance with the Migratory Birds Convention Act (MBCA) (Government of Canada 1994).

The TPF is to be maintained by the Developer and/or their agents during the entire construction period to ensure that trees and their root systems are being retained and protected. Any minimal damage (i.e. damage to limbs or roots) to trees to be retained during construction must be pruned using proper arboricultural techniques. Should any trees identified to be retained be seriously damaged or die as a result of construction activities (including installation of landscape plantings), the City will be consulted and presented with a proposed plan of action, such as treatment or replacement, including the appraisal value of the affected trees. Any replacement species are to be reviewed by a Certified Ontario Landscape Architect or Certified Arborist. Watering and pruning of newly planted trees will be carried out by the owner/contractor as required during the warranty period.

## **5.3 Post Construction**

To ensure that fencing does not get buried and degrade into the environment over-time, the TPF is to be removed upon completion of construction activities and stabilization of the site. Once construction activities are complete and exposed soils have been stabilized, a final inspection is to be conducted by the City of Guelph, a Landscape Architect and/or Certified Arborist to provide sign-off that fencing has been removed.

## **6.0 Recommended Mitigation Measures**

### **6.1 Pre and During Construction Activities**

To minimize disturbance to vegetation being retained, maintenance and refueling of machinery during construction is to occur at a designated location away from the natural area being protected off-site / tree protection zone. No storage of equipment, materials or fill is to occur within these areas.

#### **6.1.1 Migratory Birds Convention Act**

The removal of vegetation (trees, shrubs, grasses, etc.), structures and soil piles during site grading has the potential to disrupt nesting birds. The MBCA (Government of Canada 1994) identifies a list of migratory bird species that are protected. The Act prohibits the destruction of nests, individuals and activities that would cause an adult bird to abandon a nest. Vegetation removal is to occur outside of the core nesting period for migratory birds as established by the Canadian Wildlife Service (Government of Canada 2017). This period extends from approximately April 1 through August 31. Each developer/consultant/contractor, etc. is legally obligated to carry out due diligence to protect migratory birds from harm during all construction projects.

Historically, the implementation policies of the MBCA provided for biologists to conduct nest searches when vegetation removals were to occur during the nesting period. These provisions were revoked in 2014. One exception is for when the removals are to occur in simple habitats which are characterized in the MBCA (i.e. bridge structures, isolated trees, vacant lot). Trees inventoried and identified for removal from within the Paisley Park Subject Property are within simple hedgerow areas, or are individual trees within the open landscape and are therefore considered 'simple' habitat. Should tree/vegetation removal be required to occur within the peak breeding window, pending discussion and approval by the CWS, nest surveys may be conducted by a qualified biologist just prior to the removal activity (less than 48 hours prior to) to ensure that nesting birds are not present. Should a nest be identified within a tree(s) to be removed, there shall be no removal or construction activity until sign-off is obtained from the qualified biologist that the nest is no longer active. Trees identified as having no nesting activity can be removed; however, tree removal is to occur within 48 hours of the nest search. If tree removal does not occur within this time frame, additional nest searches are to be conducted.

In the event a nest survey is conducted, a clearance letter is to be prepared by the qualified biologist that undertook the surveys and submitted to the Developer for their files in the event a record of due diligence is requested by the CWS.

## **6.2 Post Construction Activities**

Any areas of bare soil within the construction area should be re-vegetated as soon as feasible to prevent erosion of soils and keep dust to a minimum.

### **6.2.1 Restoration and Landscaping**

If compensation plantings are incorporated into the natural area buffer and stormwater management ponds in the future Site Plan, it is recommended that species be native to Wellington County and known to occur in the region. Invasive and/or introduced species should also be avoided and the use of hardy species will ensure successful early establishment and minimize the potential for invasive species proliferation.

Although not included in the overall compensation strategy, to the greatest extent possible, plantings within the future development area and amenity spaces should aim to be comprised of native species that are known from the area. Species known to tolerate urban conditions, such as drought, salt and soil compaction are also recommended. At the Site Plan Stage, it is recommended that the following criteria be considered during the development of restoration / landscaping plans:

- Buffer and stormwater management plantings are to be limited to native, non-invasive tree, shrub and herbaceous species indigenous to Wellington County that complement the surrounding natural features;
- Tree species to be situated in close proximity to roads should be salt tolerant;
- Avoid ash species due to the risk of the Emerald Ash Borer (*Agrilus planipennis*);
- All plant material is to conform to the latest edition of the *Canadian Nursery Trades Association Specifications and Standards*;
- Plantings are to be installed as per specifications outlined in planting plans to be prepared by an OLA or Certified Arborist;
- Spacing of plant material should account for the ultimate size and form of the selected species and also the purpose of the planting, whether it be for screening, shade, naturalizing, rehabilitation, etc.;
- Special attention to location and height of trees in proximity to utilities, and;
- Ensure that there is sufficient soil volume for all plantings.

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**APPENDIX I**      Tree Inventory Data

Paisley Park Tree Inventory Data

Tree Number	Common Name	Scientific Name	Native/ Non-native	Stem Count	DBH (cm)	Crown Radius (m)	Potential for Structural Failure Rating	Overall Condition	Location	Proposed Action	Rationale for Removal	Compensation Required	Comments
830	Crack Willow	<i>Salix fragilis</i>	Non-Native	2	14	2.5	Improbable	Good	Part 1	Remove	Proposed SWM grading	Yes	Growing in small wet pocket.
831	Crack Willow	<i>Salix fragilis</i>	Non-Native	2	11	1.5	Improbable	Good	Part 1	Remove	Proposed SWM grading	Yes	Growing in small wet pocket.
832	Golden Weeping Willow	<i>Salix alba var. vitellina</i>	Non-Native	1	16	1.3	Improbable	Good	Part 1	Remove	Building grading	Yes	Growing in small wet pocket; some epicormic growth.
833	Golden Weeping Willow	<i>Salix alba var. vitellina</i>	Non-Native	1	10	1.0	Improbable	Good	Part 1	Remove	Building grading	Yes	Small, vigorous tree.
834	Black Locust	<i>Robinia pseudoacacia</i>	Non-Native	3	16	2.5	Possible	Fair	Part 1	Remove	Building grading	Yes	Crack in lower main stem with some staining.
835	Freeman's Maple	<i>Acer X freemanii</i>	Native	1	25	3.0	Possible	Fair	Paisley Park Municipal ROW	Retain		No	Some dieback in lower scaffold branches; some epicormic growth. Tree already tagged as within City's ROW (Tree 771).
836	Crack Willow	<i>Salix fragilis</i>	Non-Native	1	36	3.0	Possible	Good	Private Property	Retain		No	Minimal branch dieback in lower scaffold branches; main stem growing on slight angle.
837	White Ash	<i>Fraxinus americana</i>	Native	1	13	2.5	Possible	Fair	Part 3 / Future Park Block	Remove	Safety/ Proposed Park	No	One-sided crown due to competition; evidence of insect feeding.
838	White Ash	<i>Fraxinus americana</i>	Native	2	30	3.5	Probable	Fair	Part 3 / Future Park Block	Remove	Safety/ Proposed Park	No	Some insect holes and woodpecker damage; minimal dieback in crown.
839	Sweet Cherry	<i>Prunus avium</i>	Non-Native	2	13	2.3	Improbable	Good	Part 3 / Future Park Block	Remove	Proposed Park	Yes	Tree could benefit from selective pruning if retained.
840	White Ash	<i>Fraxinus americana</i>	Native	2	13	2.0	Possible	Fair	Part 3 / Future Park Block	Remove	Safety/ Proposed Park	No	Evidence of insect feeding; included bark between union in main stem.
842	White Ash	<i>Fraxinus americana</i>	Native	1	17	2.5	Probable	Poor	Part 3 / Future Park Block	Remove	Safety	No	Some evidence of insect feeding; some crown dieback; cracks up main stem.
843	Eastern Cottonwood	<i>Populus deltoides</i>	Native	1	67	4.5	Possible	Good	Part 3 / Future Park Block	Remove	Proposed Park	Yes	Some grapevine in lower branches; very minimal crown dieback. Tree could benefit from minor selective pruning if retained.
844	Eastern Cottonwood	<i>Populus deltoides</i>	Native	1	38	4.0	Improbable	Good	Part 3 / Future Park Block	Remove	Proposed Park	Yes	Tree could benefit from minor selective pruning if retained. Growing on slight slope.
845	Red Maple	<i>Acer rubrum</i>	Native	1	22	2.5	Possible	Fair	Part 3 / Future Park Block	Remove	Proposed Park	Yes	Included bark between upper branch union; some stress cracks in main stem; soil somewhat high against root flare.
846	White Ash	<i>Fraxinus americana</i>	Native	2	22	2.5	Probable	Fair	Part 3 / Future Park Block	Remove	Safety	No	Some crown dieback; evidence of insect feeding and woodpecker damage.
847	White Ash	<i>Fraxinus americana</i>	Native	3	14	1.5	Possible	Fair	Part 3 / Future Park Block	Remove	Safety	No	Minimal dieback with evidence of insect feeding.
848	White Ash	<i>Fraxinus americana</i>	Native	1	31	3.0	Probable	Poor	Part 3 / Future Park Block	Remove	Safety	No	Crown dieback; extensive insect feeding in upper branches.
849	White Ash	<i>Fraxinus americana</i>	Native	1	29	3.0	Possible	Fair	Part 3 / Future Park Block	Remove	Proposed Park	Yes	Some crown dieback; no other visible evidence of EAB currently.
850	Siberian Elm	<i>Ulmus pumila</i>	Non-Native	1	41	4.0	Possible	Fair	Part 3 / Future Park Block	Remove	Proposed Park	Yes	Dieback in lower scaffold branches with insect feeding and defoliation in leaves.
851	Red Maple	<i>Acer rubrum</i>	Native	2	11	2.0	Improbable	Good	Part 3 / Future Park Block	Remove	Proposed Park	Yes	Minimal cracking in bark along main stem; overall healthy tree.
852	Common Apple	<i>Malus domestica</i>	Non-Native	3	12	2.5	Improbable	Good	Part 3 / Future Park Block	Remove	Proposed Grading	Yes	Minimal dieback; could benefit from minor selective pruning if retained.
853	Common Apple	<i>Malus domestica</i>	Non-Native	2	12	2.0	Improbable	Good	Part 3 / Future Park Block	Remove	Proposed Park	Yes	Could benefit from minor selective pruning if retained.
854	White Ash	<i>Fraxinus americana</i>	Native	1	35	3.5	Possible	Fair	Part 3 / Future Park Block	Remove	Safety/ Proposed Park	No	Some woodpecker damage in upper main stem; some crown dieback.
855	Green Ash	<i>Fraxinus pennsylvanica</i>	Native	2	15	1.0	Probable	Very Poor	Part 3 / Future Park Block	Remove	Safety	No	EAB exit holes present; extensive crown dieback.
856	Green Ash	<i>Fraxinus pennsylvanica</i>	Native	1	20	2.5	Imminent	Very Poor	Part 3 / Future Park Block	Remove	Safety	No	Tree may be dead or very near to being so (winter inventory date).
857	White Ash	<i>Fraxinus americana</i>	Native	1	33	3.0	Probable	Poor	Part 3 / Future Park Block	Remove	Safety	No	Extensive crown dieback with woodpecker damage.
858	Green Ash	<i>Fraxinus pennsylvanica</i>	Native	1	30	3.0	Probable	Poor	Part 3 / Future Park Block	Remove	Safety	No	Crown dieback; insect feeding and woodpecker damage.
859	Balsam Fir	<i>Abies balsamea</i>	Native	1	14	1.3	Improbable	Good	Part 3 / Future Park Block	Remove	Proposed Grading	Yes	Minimal dieback; otherwise healthy tree with good form.
860	Balsam Fir	<i>Abies balsamea</i>	Native	1	14	1.5	Improbable	Good	Part 3 / Future Park Block	Remove	Proposed Grading	Yes	Very minimal dieback and good growth form.
861	Balsam Fir	<i>Abies balsamea</i>	Native	1	14	1.5	Improbable	Good	Part 3 / Future Park Block	Remove	Proposed Grading	Yes	Relatively full, vigorous tree with good growth form.
862	White Spruce	<i>Picea glauca</i>	Native	1	15	2.3	Improbable	Good	Part 3 / Future Park Block	Remove	Proposed Grading	Yes	Heavy cone production; vigorous tree with good growth form.

Paisley Park Tree Inventory Data

Tree Number	Common Name	Scientific Name	Native/ Non-native	Stem Count	DBH (cm)	Crown Radius (m)	Potential for Structural Failure Rating	Overall Condition	Location	Proposed Action	Rationale for Removal	Compensation Required	Comments
863	White Spruce	<i>Picea glauca</i>	Native	1	17	2.0	Improbable	Good	Part 3 / Future Park Block	Remove	Proposed Grading	Yes	Full, vigorous tree.
864	Canada Plum	<i>Prunus nigra</i>	Native	2	15	3.0	Improbable	Good	Part 3 / Future Park Block	Remove	Proposed Grading	Yes	Some competition with adjacent Common Buckthorn; could benefit from some pruning if retained.
865	Common Apple	<i>Malus domestica</i>	Non-Native	1	31	3.0	Improbable	Good	Part 3 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	No	Slightly one-sided crown due to adjacent Common Buckthorn; remaining crown relatively full.
47	Green Ash	<i>Fraxinus pennsylvanica</i>	Native	1	21	2.5	Probable	Poor	Part 3 / Whitelaw Rd Municipal ROW	Remove	Safety / Whitelaw Rd Grading	No	Insect feeding and woodpecker damage; growing on slope.
48	Hawthorn species	<i>Crataegus sp.</i>	**	3	15	2.5	Improbable	Good	Part 3 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	Yes	Full vigorous crown; growing on slope.
49	Hawthorn species	<i>Crataegus sp.</i>	**	1	10	3.0	Improbable	Good	Part 3 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	Yes	One-sided crown due to competition with adjacent Ash tree; remaining crown relatively full; growing on slope.
50	Green Ash	<i>Fraxinus pennsylvanica</i>	Native	1	22	3.0	Probable	Poor	Part 3 / Whitelaw Rd Municipal ROW	Remove	Safety / Whitelaw Rd Grading	No	Crown dieback; EAB exit holes present; woodpecker damage; growing on slope.
51	Green Ash	<i>Fraxinus pennsylvanica</i>	Native	1	16	2.0	Probable	Poor	Part 2 / Whitelaw Rd Municipal ROW	Remove	Safety / Whitelaw Rd Grading	No	Crown dieback; insect feeding.
52	Canada Plum	<i>Prunus nigra</i>	Native	2	22	3.0	Possible	Fair	Part 2 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	No	Smallest stem dead; some evidence of rot on lower main stem; crown relatively full. Prune out deadwood if able to retain.
53	Canada Plum	<i>Prunus nigra</i>	Native	1	19	2.5	Possible	Fair	Part 2 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	No	Sapsucker damage; narrow crown due to competition with adjacent tree.
54	Canada Plum	<i>Prunus nigra</i>	Native	2	15	2.5	Possible	Fair	Part 2 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	No	Portion of tree in poor condition, with evidence of rot. Prune out deadwood if able to retain. Some crown dieback.
55	Green Ash	<i>Fraxinus pennsylvanica</i>	Native	3	18	3.0	Possible	Fair	Part 2 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	Yes	Some crown dieback; included bark between branch union; minimal insect feeding.
56	Hawthorn species	<i>Crataegus sp.</i>	**	1	17	1.8	Improbable	Good	Part 2 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	Yes	Full, vigorous crown; growing on very slight lean.
57	White Ash	<i>Fraxinus americana</i>	Native	1	16	2.0	Possible	Good	Part 2 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	Yes	Still relatively healthy tree; no visible evidence of EAB.
58	Hawthorn species	<i>Crataegus sp.</i>	**	2	21	3.5	Improbable	Good	Part 2 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	Yes	Very full crown with solid stem.
59	Hawthorn species	<i>Crataegus sp.</i>	**	4	18	3.5	Possible	Fair	Part 2 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	Yes	Some crown dieback; minimal insect feeding; could benefit from minor selective pruning.
60	Hawthorn species	<i>Crataegus sp.</i>	**	1	27	4.0	Possible	Fair	Part 2 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	Yes	Codominant; 1 stem dead; draped in grapevine; some crown dieback.
61	American Basswood	<i>Tilia americana</i>	Native	5	44	5.5	Possible	Good	Part 2 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	Yes	Could benefit from selective pruning if retained. Growing on slope; grapevine in lower branches.
62	Hawthorn species	<i>Crataegus sp.</i>	**	1	29	3.0	Possible	Fair	Part 2 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	Yes	Crown slightly suppressed due to competition for sunlight; grapevine in lower branches.
63	White Ash	<i>Fraxinus americana</i>	Native	3	34	2.0	Probable	Fair	Part 2 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	Yes	Growing out of slope; some included bark; insect feeding. Recommend pruning branches over-hanging road.
64	Green Ash	<i>Fraxinus pennsylvanica</i>	Native	1	43	4.0	Probable	Fair	Part 1 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	Yes	Insect feeding in upper branches; growing out of slope; grapevine in lower branches; some crown dieback.
65	Freeman's Maple	<i>Acer X freemanii</i>	Native	1	27	4.0	Possible	Good	Part 1 / Whitelaw Rd Municipal ROW	Remove	Whitelaw Rd Grading	Yes	Some included bark between branch union; could benefit from selective pruning if retained; relatively full crown.
A	Norway Maple	<i>Acer platanoides</i>	Non-Native	1	24	3.0	Improbable	Fair	Private Property	Retain		No	Private tree within fenced yard; some crown dieback.
B	Large-tooth Aspen	<i>Populus grandidentata</i>	Native	1	10	0.5	Improbable	Good	Private Property	Retain		No	Private tree within fenced yard; narrow but healthy crown; solid main stem.
C	Red Maple	<i>Acer rubrum</i>	Native	1	18	3.0	Improbable	Good	Private Property	Retain		No	Private tree within fenced yard; minor stress crack up main stem; full vigorous crown.
D	White Ash	<i>Fraxinus americana</i>	Native	1	26	3.5	Possible	Fair	Private Property	Retain		No	Crown extends further into private property; within fenced yard; epicormic growth; crown dieback
E	Black Locust	<i>Robinia pseudoacacia</i>	Non-Native	1	32	4.0	Improbable	Good	Private Property	Retain		No	Crown doesn't extend over fence; within fenced yard; minor dieback.
F	Colorado Spruce	<i>Picea pungens</i>	Non-Native	1	17	2.3	Improbable	Good	Private Property	Retain		No	Private tree within fenced yard; immediately on fence; slightly unbalanced crown with minimal dieback; Virginia creeper in crown.
G	Colorado Spruce	<i>Picea pungens</i>	Non-Native	1	18	2.0	Improbable	Good	Private Property	Retain		No	Private tree within fenced yard; relatively full crown.
H	Colorado Spruce	<i>Picea pungens</i>	Non-Native	1	14	2.5	Improbable	Fair	Private Property	Retain		No	Private tree within fenced yard; unbalanced crown with some dieback.

Paisley Park Tree Inventory Data

Tree Number	Common Name	Scientific Name	Native/ Non-native	Stem Count	DBH (cm)	Crown Radius (m)	Potential for Structural Failure Rating	Overall Condition	Location	Proposed Action	Rationale for Removal	Compensation Required	Comments
I	Norway Maple	<i>Acer platanoides</i>	Non-Native	1	27	4.5	Possible	Fair	Private Property	Retain		No	Private tree within backyard; evidence of decay on main stem and large scaffold branch; some compartmentalization; unbalanced crown with no crown overhanging fence.
J	Red Maple	<i>Acer rubrum</i>	Native	1	27	3.5	Improbable	Good	Private Property	Retain		No	Private tree within fenced yard; relatively full, vigorous crown; crown over fence by 1m.
K	Eastern White Pine	<i>Pinus strobus</i>	Native	1	16	3.5	Improbable	Fair	Private Property	Retain		No	Private tree within fenced yard; unbalanced crown with no crown over fence; slightly necrotic.
L	White Ash	<i>Fraxinus americana</i>	Native	1	24	4.5	Possible	Poor	Private Property	Retain		No	Private tree within fenced yard; no crown over fence; crown dieback; epicormic growth; woodpecker damage.
M	Eastern White Cedar	<i>Thuja occidentalis</i>	Native	1	14	2.0	Improbable	Good	Private Property	Retain		No	Private tree within fenced yard; no crown over fence; full crown.
N	Eastern White Cedar	<i>Thuja occidentalis</i>	Native	2	15	3.0	Improbable	Good	Private Property	Retain		No	Private tree within fenced yard; full crown.
O	Austrian Pine	<i>Pinus nigra</i>	Non-Native	1	32	3.3	Improbable	Fair	Private Property	Retain		No	Private tree within backyard; some needle dieback; slightly unbalanced with more crown extending into Paisley Road side of property.
P	Austrian Pine	<i>Pinus nigra</i>	Non-Native	4	13	2.0	Improbable	Good	Private Property	Retain		No	Private tree; narrow upward branching; codominant; minor dieback.
Q	Austrian Pine	<i>Pinus nigra</i>	Non-Native	1	18	2.8	Improbable	Poor	Private Property	Retain		No	Private tree; relatively extensive dieback; needle tip death; competing with dense grass.
R	Austrian Pine	<i>Pinus nigra</i>	Non-Native	1	32	3.3	Improbable	Fair	Private Property	Retain		No	Private tree; slightly unbalanced with some dieback; minor sapsucker damage.
S	Colorado Spruce	<i>Picea pungens</i>	Non-Native	1	34	2.3	Improbable	Excellent	Private Property	Retain		No	Private tree; full, vigorous crown.

**APPENDIX II**      Tree Health & Risk Assessment Criteria

## Tree Health Assessment Criteria

Assessment Criteria*	Definition <sup>1</sup>
Excellent	Represents a tree in near perfect form, health, and vigour. This tree would exhibit no deadwood, no decline, and no visible defects.
Good	Represents a tree ranging from a generally healthy tree to a near perfect tree in terms of health, vigour and structure. This tree exhibits a complete, balanced crown structure with little to no deadwood and minimal defects as well as a properly formed root flare.
Fair	Represents a tree with minor health, balance or structural issues with minimal to moderate deadwood. Branching structure shows signs of included bark or minor rot within the branch connections or trunk wood. The root flare shows minimal signs of mechanical injury, decay, poor callusing, or girdling roots. Trees in the category require minor remedial actions to improve the vigour and structure of the tree.
Poor	Represents a tree that exhibits a poor vigour, reduced crown size (<30% of crown typical of species caused by overcrowding or decline), extreme crown unbalance, or extensive rot in the branching and trunk wood. Fungus could be seen from these rotting areas, suggesting further decay. These trees have extensive crown die back with a large amount of deadwood, and possibly dead sections. These weakened areas can lead to a potential failure of tree sections. Rooting zones show signs of extensive root decay or damage (fruiting bodies or mechanical damage) or girdling roots. Trees in this category require more extensive actions to prevent failure. A tree identified as poor would be a candidate for removal in the near future.
Very Poor	Represents a tree that exhibits major health and structural defects. Quite often the defects or diseases affecting this tree will be fatal. Large quantities of fungus, large dead sections with possible cavities and bark falling off all are signs that a tree is in an advanced state of decline and would be identified as very poor. These trees may have a probable or imminent potential for structural failure and may be identified for removal.
Dead	Represents a tree that exhibits no sign of new growth, including buds, foliage, or shoot growth. These trees may have a probable or imminent potential for structural failure and may be identified for removal.
<p>* Trees which are located within dense groupings are evaluated as individual specimens. Trees within these stands quite often have a reduced crown size (&lt;30% of crown typical of species), off balanced crowns, and prioritized upward growth (i.e. low trunk taper and few lateral branches). As such, these trees would be considered to have poor vigour. As well, these trees pose a probable potential for structural failure when newly exposed edges or individual trees are isolated through removal of surrounding trees. This is often the case with overstocked plantations. Individual trees which meet the above criteria will be identified as poor or probable potential for structural failure.</p>	

<sup>1</sup>Dunster 2009

## Tree Risk Assessment Criteria

<b>Assessment Criteria*</b>	<b>Definition<sup>1</sup></b>
Improbable	The tree or branch is not likely to fail during normal weather conditions and may not fail in many severe weather conditions within the specified time frame.
Possible	Failure could occur, but it is unlikely during normal weather conditions within the specified time frame.
Probable	Failure may be expected under normal weather conditions within the specified time frame.
Imminent	Failure has started or is most likely to occur in the near future, even if there is no significant wind or increased load. This is a rare occurrence for a risk assessor to encounter, and it may require immediate action to protect people from harm.
*A specified time frame of 1 year will be used when assessing potential for structural failure.	

<sup>1</sup>Dunster et al. 2013

**APPENDIX III**      Conditions of Tree Inventory Assessment



## Conditions of Tree Assessment

### *Limitations*

This tree inventory and assessment is based on the circumstances and observations by Natural Resource Solutions Inc. (NRSI) as they existed at the time of the site inspection(s) of the Client's Property as described in this report "Paisley Park" at the corner of Paisley Rd and Whitelaw Rd in the City of Guelph (the "Property") and the trees situated thereon, and upon information provided by the Client to NRSI. The opinions in this assessment are based on observations made and using professional judgment, however, because trees are living organisms and subject to change, damage and disease, the analysis and recommendations as set out in this assessment are valid for 1 year from the date any such observations and assessment took place. As a result, the Client shall not rely upon this assessment, save and except for representing the circumstances and observations at the date of site inspection(s), and the analysis and recommendations made in relation to the proposed undertaking. It is recommended that the inventoried trees discussed in this assessment should be re-assessed periodically, where required (i.e. after 1 year).

### *Further Services*

Neither NRSI, nor any assessor employed or retained by NRSI (the "Assessor") for the purpose of preparing or assisting in the preparation of this assessment shall be required to provide any further consultation or services to the Client including, without limitation, acting as an expert witness or witness in any court in any jurisdiction unless the Client has first made specific arrangements with respect to such further services, including providing payment of the Assessor's regular hourly billing fees.

NRSI accepts no responsibility for the implementation of all or any part of this report, unless specifically requested to examine the implementation of such activities recommended herein. Any request for the inspection or supervision of all or part of the implementation shall be made in writing and the details agreed to in writing by both parties.

### *Assumptions*

The Client is hereby notified that where any of the information set out and referenced in this assessment are based on assumptions, facts or information provided to NRSI, NRSI will in no way be responsible for the veracity or accuracy of any such information. Further, the Client acknowledges and agrees that NRSI has, for the purposes of preparing their assessment, assumed that the Property is in full compliance with all applicable federal, provincial, municipal and local statutes, regulations, by-laws, guidelines and other related laws. NRSI explicitly denies any legal liability for any and all issues with respect to non-compliance with any of the above-referenced statutes, regulations, by-laws, guidelines and laws as it may pertain to or affect the Property.

### *Restriction of Assessment*

The assessment carried out was restricted to the Property and boundary trees as described in this report. NRSI is not legally liable for any other trees except those expressly discussed herein. The conclusions of this assessment do not apply to any areas, trees, or any other property not covered or referenced in this assessment.

### *Professional Responsibility*

In carrying out this assessment, NRSI and any Assessor appointed for and on behalf of NRSI to perform and carry out the assessment has exercised a reasonable standard of care, skill and diligence. 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, discolored foliage (during the leaf-on period), 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.

No guarantees are offered, or implied, that trees recommended for retention, 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 extreme weather conditions, and this risk can only be eliminated if the tree is removed.

Without limiting the foregoing, no liability is assumed by NRSI 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 with respect to the Property;
- c) the accuracy of the Property line locations or boundaries with respect to the Property; and
- d) the accuracy of any other information provided to NRSI 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.

#### *Third Party Liability*

This assessment was prepared by NRSI for the Client. The data collected reflect NRSI's best assessment of the inventoried trees situated on the Property with the information available at the time of observation. Data analysis and the assessment of potential impacts to inventoried trees is specific to the proposed undertaking as described in this report. NRSI accepts no responsibility for any damages or loss suffered by any third party or by the Client as a result of decisions made or actions based upon the use of this assessment for purposes unrelated to the proposed undertaking.

#### *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.

This report shall be considered as a whole, no sections are severable, and the assessment shall be considered incomplete if any pages are missing.

## **MAPS**