



TOWN OF  
**Newmarket**

# Tree Preservation, Protection, Replacement and Enhancement Policy

2005

Planning Department  
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web site: [www.newmarket.ca](http://www.newmarket.ca)

Revised April, 2018

## **Background**

The Tree Preservation, Protection, Replacement and Enhancement Policy detailed herein, establishes the Town of Newmarket's policy for the preservation, protection, replacement and enhancement of significant trees respecting the development approval process permitted through the Planning Act and specifically applies to lands subject to applications for official plan amendment, zoning bylaw amendment, draft plan of subdivision and site plan approval and respective amendments, minor variance (permitting new construction only) and consent.

It is the intent of this policy to educate and increase awareness within the development industry of the importance of tree preservation and protection for the health of the community by:

- Encouraging the consideration of the location of existing trees in the design of development plans prior to the submission of development applications;
- Encouraging the ongoing protection of trees during development activities on properties subject to development applications;
- Encouraging no net loss of trees through the planting of replacement trees; and
- Encouraging the planting of additional trees to enhance development properties and streetscapes beyond the requirements of boulevard trees.

## **Community Strategic Plan Linkages**

The Town of Newmarket, in achieving and maintaining the Community Vision of - being ***Well beyond the ordinary*** strives to achieve the community expectations within the following three focus areas:

- ❖ **Living well**
- ❖ **Well-balanced**
- ❖ **Well-planned and connected**

The Tree Preservation, Protection, Replacement and Enhancement Policy assists in achieving the Community Vision through these focus areas by promoting environmental protection and natural heritage preservation, encouraging an appropriate mix of green spaces, and a long-term strategy for our natural heritage matched with a short-term action plan.

## **Natural Heritage Study**

Between 2001 and 2003, the Town of Newmarket, in cooperation with the Lake Simcoe Region Conservation Authority, the Region of York and the Ministry of Natural Resources, piloted the Natural Heritage Study project. The goal of this study was to create a reliable and viable framework for the Town of Newmarket to achieve its environmental goals for

the municipality. The Tree Preservation, Protection, Replacement and Enhancement Policy further supports this initiative at the local, individual property level.

### **2006 Official Plan**

The 2006 Official Plan identifies the Tree Preservation, Protection, Replacement and Enhancement Policy as a tool to achieve the Council directive to promote and establish programs to increase the tree cover of the entire Town from its current level of 9% to 12%. (Section 9.3.2 – Woodlots).

### **Public Tree Preservation By-law 2017-59**

In November 2017, Council enacted a by-law protecting trees on town-owned lands. The by-law sets out an application process for residents to request a public tree removal and sets out fines and penalties for injuring or removing a tree without permission.

## **General Policies**

- 1.0 This policy applies to all significant trees situated on and within 4.5 metres of the lands subject to a development application, as described herein.
- 1.1 All significant trees, as identified in Section 2.0 herein, situated in the Town of Newmarket and subject to a development application may not be removed, injured, pruned or destroyed in any way without approval by the Council of the Corporation of the Town of Newmarket. Reference made to a tree herein, refers to any part of a tree, including the root system.
- 1.2 Tree pruning or root cutting of any tree located on a municipal boulevard or municipal park may only be done by Town of Newmarket staff, an authorized Arborist or other qualified professional as approved by the Town of Newmarket, authorized staff of the Regional Municipality of York, an authorized public utility, including Ontario Hydro, or the Lake Simcoe Region Conservation Authority, unless appropriate written authorization has been given by or a legal agreement has been executed with the municipality.
- 1.3 Significant trees that are identified to be protected on the lands subject to a draft plan of subdivision or site plan approval or respective amendment(s), or minor variance or consent application, must be protected by adequate fencing to the satisfaction of the Town. Fencing shall be installed as per the Town's standard detail and in accordance with the recommendations of the Arborist report, to the satisfaction of the Director of Planning. Fencing may be inspected by the Town's consulting arborist.
- 1.4 Any tree to be protected must be identified on a survey, and/or a tree inventory, and within a tree preservation and protection plan, prepared by a qualified tree professional, as defined in the Glossary as a certified arborist, registered professional forester, a qualified ecological consultant, or a landscape architect, qualified in determining the tree species, size, and health. (Refer to Section 3).
- 1.5 Anyone failing to adhere to the following policies and specifications detailed herein, will be financially responsible for any damage to or destruction of any trees, prior to, during and upon request by the owner for release of securities, approximately one year after the completion of the construction stage, and in the case of subdivisions, up to the assumption of the roads by the Corporation of the Town of Newmarket. (Refer to Section 5).

## **2.0 Identification of Trees to be Protected and Preserved**

- 2.1 Significant trees are any tree that meets one or more of the following conditions:
  - 2.1.1 have a Diameter at Breast Height (dbh) of 20cm or greater

- 2.1.2 were planted as a condition of approval of a development application (e.g. appear on an approved site plan and/or landscape plan)
- 2.1.3 are located on an adjacent property within 4.5m of the subject lands.

### **3.0 Submission Requirements**

The following information will be required upon submission of a development application to the Town of Newmarket Planning Department, as described above:

- 3.1 A survey prepared, signed and sealed by an Ontario Land Surveyor identifying the location of all significant trees. The Town acknowledges that it may be difficult to obtain access to adjacent lands to identify significant trees located thereon. As such, the Town shall accept approximate locations and sizes of trees located on adjacent lands.
- 3.2 A Tree Inventory comprises of a base survey (prepared, signed and sealed by an Ontario Land Surveyor) and shall include information regarding the location, size (measured using dbh and height), species, and condition of the existing trees completed by a qualified tree professional.
- 3.3 A Tree Preservation, Protection, Replacement and Enhancement Plan shall include information regarding;
  - Trees to be preserved and protected
    - Species(common and botanical name)
    - Condition
      - Size
      - Health
      - Vigor
      - Defects: Rot, Included bark, Seams, Cracks, Heavy limbs. Cavities, Ribs
    - Insects and diseases
    - Location (if this has a bearing on the condition of the trees such as low lying wet areas etc.)
  - A maintenance plan/program for trees to be preserved, protected or relocated including programs or activities related to;
    - Pruning(Cleaning, Thinning, Reduction etc according to BMP for arboriculture)
    - Fertilization
    - Mulching
    - Aeration
    - Watering
    - Cabling
    - Other

- Protection could include the installation of wood or stone mulch over the root zone for protection in addition to the tree protection fencing
- If trees are to be moved, specific instructions will need to be added to ensure the survival of the transplanted tree(s)
- Trees that may require replacement or approval for removal
- Replacement tree calculations in a legend on the tree planting plan (based on aggregate inch replacement – refer to section 5.1, considering;
  - Species to be removed
  - Condition of the plant to be removed.

For trees that are located on Town property the monetary value shall be calculated based on the “Guide for Plant Appraisal” 9<sup>th</sup> (or latest) edition established by the International Society of Arboriculture, or other recognized appraisal guide or method.

3.4 The Tree Survey, Inventory and/or the Tree Preservation, Protection, Replacement and Enhancement Plan may be submitted as one drawing/plan at the discretion of the applicant’s qualified tree professional.

**4.0 Post-Submission: Tree Preservation, Protection and Replacement Plans**

The Town shall retain the services of a qualified tree professional to undertake a peer review of any tree preservation, protection and replacement plan submitted, as required.

4.1 The Town shall be reimbursed by the applicant at cost for the services rendered by the Town’s consultant.

4.2 The Town’s qualified tree consultant shall, using best efforts, review and provide written comments back to the Town Planning Department for consideration within 2 weeks of the date of receipt by the Town’s qualified tree consultant.

4.3 No tree removal shall take place prior to official plan, zoning, draft plan or site plan approval, or in the case of minor variance or consent applications, a decision is made by the Committee of Adjustment, is obtained, which includes the approval of a Tree Preservation, Protection, and Replacement Plan.

4.4 No site works shall take place that may result in the damaging or destroying of trees identified as significant trees on the Tree Plan, prior to the approval by the Director of Planning.

4.5 The Tree Plan shall set out and identify the trees to be preserved, protected and replaced.

4.6 Replacement trees shall be protected by the implementation of a tree maintenance program. Every replacement tree and planted boulevard tree shall be cared for by the applicant/developer as recommended and/or approved by the

Town's consulting arborist, every two years to a maximum of 10 years after planting.

- 4.7 The Town may also require the applicant/owner/developer to have a tree enhancement strategy or tree management strategy prepared by a qualified tree professional as a condition of: draft plan of subdivision approval (as identified in the Subdivision Approval Process: Design Submission Requirements and Final Plan Registration); minor variance and/or consent approval; or site plan approval including a clause in the site plan agreement.
- 4.8 The Town may also require the posting of securities for the purposes of tree preservation based on the value of the trees to be preserved, protected and replaced as per the "Guide for Plant Appraisal" 9<sup>th</sup> (or latest) edition, published by the International Society of Arboriculture, or other recognized appraisal guide or method. The amount of the security deposit shall be 20% of the value of all protected trees. The value of all protected trees shall be provided in the Arborist Report. Generally, the Town shall hold securities for tree protection up to final assumption of all the works, as contemplated by the subdivision agreement, or in the case of site plans, final inspection for the release of securities by the Planning Department. However, there may be special circumstances where a special clause may be included in a subdivision or site plan agreement, or as a condition of approval of a minor variance or consent application to allow for the release of securities three years after the occupancy permit is issued, upon confirmation by the Town that the trees to be protected and preserved exhibit vigorous health and have not sustained any damage as a result of site development activities.
- 4.9 The Town will require replacement trees to be planted as agreed to in the appropriate agreement or as required in the decision made by the Committee of Adjustment.
- 4.10 A qualified tree professional must undertake revisions to the Tree Plan that are required by the Town as a result of the Town's peer review, at the expense of the applicant/owner/developer, and must receive approval by the Planning Department, prior to Planning Department approvals respecting the issuance of any municipal permits.
- 4.11 Should there be any disagreement between the review and assessment made by the Town's consultant and the plans submitted, the applicant may request a decision by the Director of Planning and/or Council.
- 4.12 The Director of Planning and/or Council, may request the submission of a Tree Enhancement Plan (which may be made in combination with a Tree Preservation, Protection and Replacement Plan) as part of the tree management strategy to achieve the environmental goals of the Official Plan and/or Strategic Plan.

## 5.0 Compliance

It is the intent of this Tree Preservation, Protection, Replacement and Enhancement Policy to ensure that adherence to the policy is maintained on all new development sites in the Town of Newmarket and to protect and preserve significant trees as identified in a tree plan. However, it is recognized that alternate methods of compliance are required in order to balance growth and development within the Town. As such, the Town has identified two alternate methods for calculating replacement value for trees that need to be removed or have sustained damage as a result of construction and/or development.

- 5.1 Trees that have been identified to be preserved and protected in an approved tree plan which cannot be preserved or protected due to development constraints, can be removed and the Town will allow the use of the “Aggregate Inch Replacement” method for calculating tree replacement requirements, i.e. if one 30cm (11.8 inches) dbh tree is to be removed, the replacement will be 2 trees of 15cm, or 3 trees of 10cm, etc.. Note: invasive trees are to be included in any financial compensation requirements of this policy associated with replacement tree plantings, based on the condition of the tree as determined by a qualified tree professional.
- 5.2 It shall be the intent of the policy to plant replacement trees on the subject lands whenever feasible, to the satisfaction of the Director of Planning.
- 5.3 The owner/applicant shall provide financial compensation to the Town for damaged or destroyed trees that have been identified as trees to be protected or preserved in a tree plan submitted as part of a development application. Compensation shall be calculated based on the “Guide for Plant Appraisal” 9<sup>th</sup> (or latest) edition established by the International Society of Arboriculture, or other recognized appraisal guide or method.
- 5.4 Trees that have been identified in an approved tree plan as trees to be preserved or protected and have been damaged or destroyed as confirmed by the Planning Department (after receiving Council approval of the official plan amendment, zoning bylaw amendment, draft plan of subdivision approval, minor variance approval, consent approval, or site plan approval and prior to the Town’s assumption of a subdivision, receipt of the final and binding notice of a consent application, or request for release of securities in the case of a site plan approval), shall be replaced on public property at a rate of two times the diameter required by the “Aggregate Inch Replacement” method and planted at a location satisfactory to the Director of Engineering, Capital Projects and Asset Management Services in consultation with the Director of Planning. Funding for the purchase and planting of replacement trees shall be derived from drawing upon the letter of credit . Should the letter of credit be insufficient to cover the replacement plantings, the owner/applicant shall be contacted by the Director of Planning or his or her designate, to work out an acceptable replacement method to achieve the required replacement plantings.



- 5.5 Trees identified in an approved tree plan to be preserved or protected, that sustain damage or are destroyed after the Town has no obligations for approvals, shall be valued as per the “Guide for Plant Appraisal” 9<sup>th</sup> (or latest) edition, published by the International Society of Arboriculture or other recognized appraisal guide or method and the current owner/applicant shall be responsible for the financial requirements and direct payment to the Town accordingly.
- 5.6 Replacement trees are recommended to be planted a minimum of 4.5 metres from any building, fence, walkways or permanent structure that may interfere with the growth of the tree. However, it is understood that site specific consideration is necessary due to planting constraints as approved by the Director of Planning.
- 5.7 The Town may, at its discretion, contribute the funds received from drawing on a letter of credit or fines/penalties for tree replacement requirements to the acquisition of lands of natural heritage significance.

**6.0 Effective Date**

This Policy shall come into effect immediately upon approval by Council. Planning Act Development Applications submitted to the Town that are deemed complete on, or after, the date of approval of this Policy shall be subject to this Policy.

Applications which are dormant for a significant amount of time may be subject to the policies in place at the time of re-activation, at the discretion of the Director.

## **Glossary of Terms**

**Arborist:** a person who is a specialist or expert in the area of the care and maintenance of trees and includes an arborist qualified by the Ontario Training and Adjustment Board Apprenticeship and Client Services Branch, an OTA Board certified master arborist or a certified arborist qualified by the International Society of Arboriculture, a consulting arborist registered with the American Society of Consulting Arborists, a registered professional forester or a person with other similar qualifications as approved by the Commissioner.

**Caliper:** the diameter of a tree measured 30 cm above ground level.

**Condition of Tree:** is based on factors identified in the ISA methodology for determining condition. For the purposes of this policy, the condition of a tree shall be described as excellent, good, fair, poor, dead/dying, or maintenance recommended.

**dbh:** the diameter of a tree at breast height; the diameter of the tree measured 1.4 metres above ground level.

**Development Application:** an application requiring approval of the Planning Department for which a Tree Inventory and Tree Preservation, Protection, and Replacement Plan are required, specifically, applications for draft plan of subdivision and site plan approval and respective amendments, and minor variance and consent.

**Natural Heritage:** Natural heritage is all living organisms, natural areas and ecological communities which we inherit and leave to future generations (<http://www.mnr.gov.on.ca/MNR/nhic/glossary.cfm#P>).

**Qualified tree professional:** a person, including an arborist, a registered professional forester, a qualified ecological consultant, or a landscape architect, who through related training and on-the-job experience, is qualified to determine the size, species and health and condition of trees, and having at least 5 years of practical tree care experience working as a practitioner.

**Significant tree:** a tree 20cm at dbh or greater, or any tree planted as a condition of approval for a development application.

**Survey:** a detailed map of an area of land, including its boundaries, area, and elevation, using geometry and trigonometry to measure angles and distances.

**Tree Enhancement/Management Strategy:** a long term strategy recommending phased tree plantings and woodlot management practices in addition to the minimum requirements of the tree preservation, protection, and replacement plan.

**Tree Inventory:** a list of trees on the property and within 4.5 metres of the boundary of the property, including information regarding location, species, condition and size.

Tree Maintenance Program: a program to ensure the health, safety and vigor of the trees identified to be maintained, either original plantings or existing trees to be cared for, replaced if necessary, pruned, pest and fungus control, removed, storm damage repaired, staked for a period as recommended by the applicants consulting arborist and approved by the Town

Base Survey: a detailed map of an area of land indicating the location, of all trees within the survey boundary and 4.5 metres of the property boundary.

### **Cross-References**

[2006 Official Plan](#)

[Draft Plan of Subdivision Submission Requirements](#)

[Site Plan Application Process Manual](#)

[Tree Cutting in York Region](#)

[Public Tree Protection By-law 2017-59](#)

[2016 Urban Forestry Study](#)

[Lake Simcoe Protection Plan](#)

[Community Energy Plan](#)

[Urban Centres Secondary Plan](#)

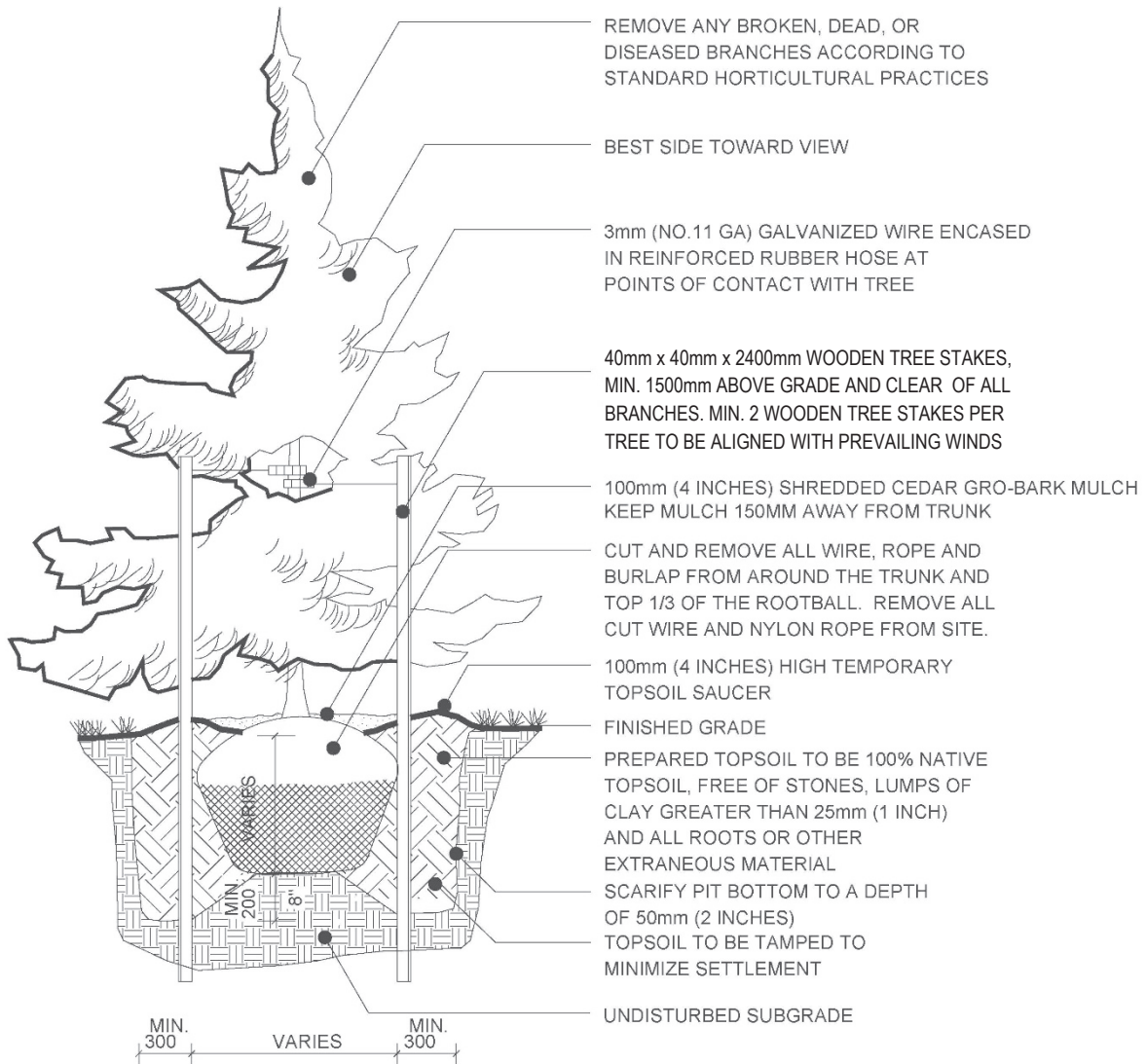
[Stormwater Management Rate and Credit Programs](#)

[Town's Woodlot By-law](#)

[Park's By-law 2013-14](#)

[Lake Simcoe Protection Plan](#)

## Appendix A – Tree Planting Details



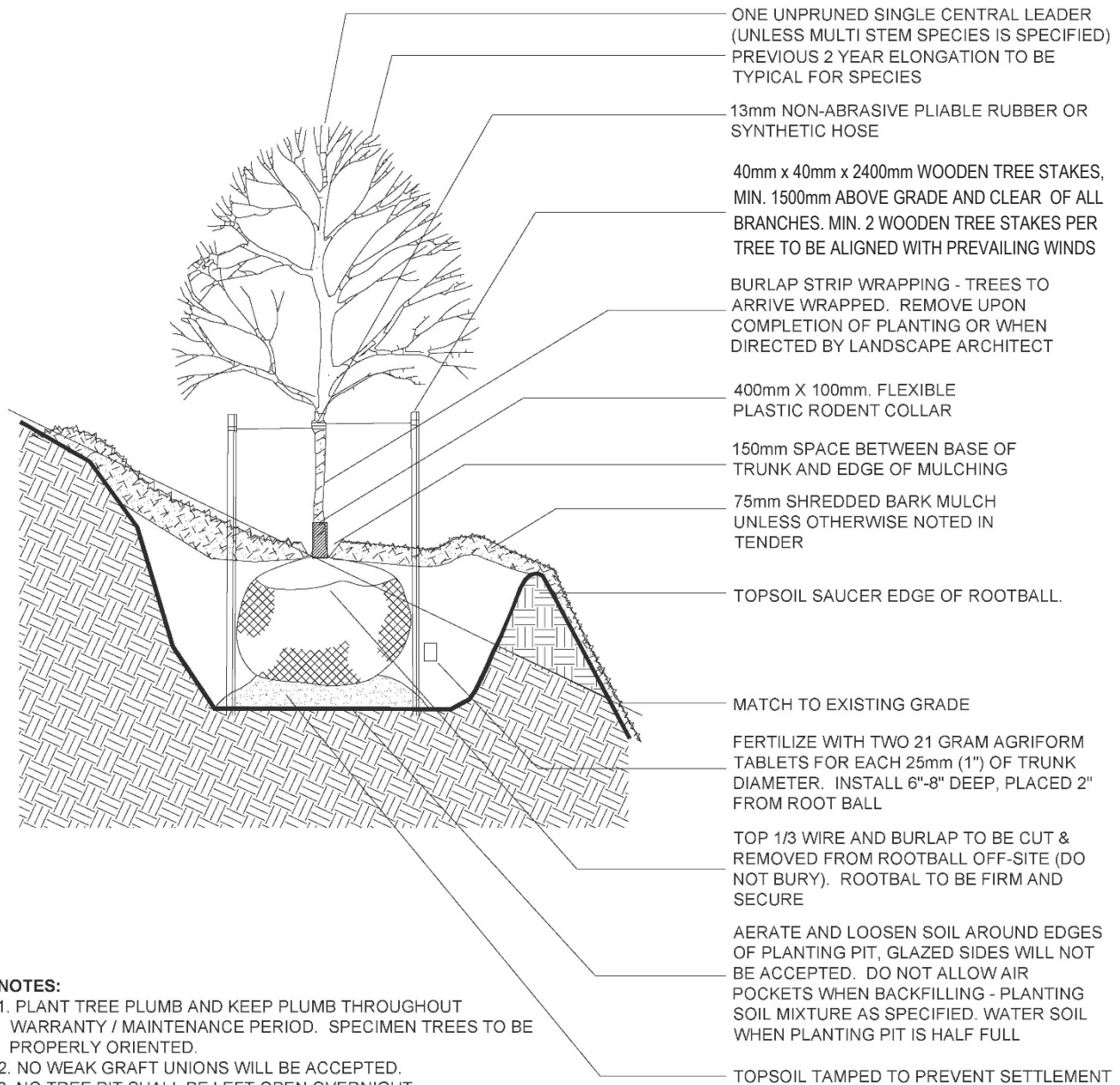
### NOTES

- 1) SAUCER SHALL BE SOAKED WITH WATER AND MULCHED IMMEDIATELY FOLLOWING PLANTING
- 2) PLANT STOCK MOVED WHILE IN LEAF SHALL BE COVERED WHILE IN TRANSIT OR IN TEMPORARY STORAGE
- 3) PLANT TREE SO THAT NURSERY SOIL LINE MATCHES FINISHED GRADE AFTER SETTLING
- 4) TAMP TOPSOIL WHEN BACKFILLING TO REMOVE AIR POCKETS
- 5) REMOVE ALL NURSERY TAGS, METAL OR PLASTIC
- 6) IN HEAVY CLAY OR POORLY DRAINED SOIL, ALL WOODY PLANTS TO BE PLACED SO THAT THE ROOT COLLAR IS POSITIONED 75MM-100MM HIGHER THAN SURROUNDING GRADE.

## TYPICAL CONIFEROUS TREE PLANTING

WIRE BASKET, BALLED AND BURLAPPED

N.T.S.

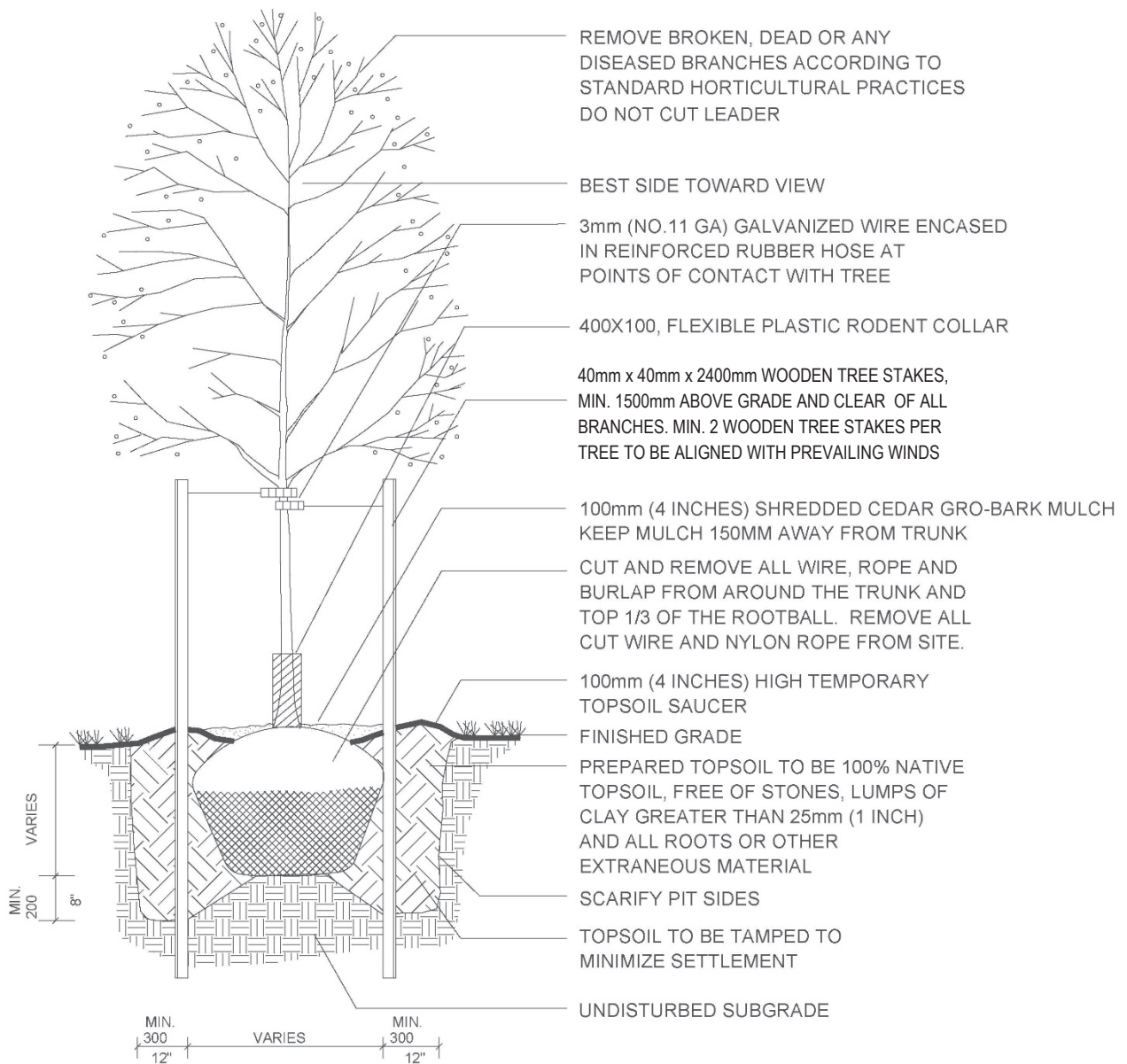


**NOTES:**

1. PLANT TREE PLUMB AND KEEP PLUMB THROUGHOUT WARRANTY / MAINTENANCE PERIOD. SPECIMEN TREES TO BE PROPERLY ORIENTED.
2. NO WEAK GRAFT UNIONS WILL BE ACCEPTED.
3. NO TREE PIT SHALL BE LEFT OPEN OVERNIGHT.
4. ROOT BALL CROWN SHALL BE POSITIONED.GENERALLY 50mm. ABOVE THE ORIGINAL UPHILL. GRADE MEASURED OPPOSITE THE TRUNK.

**DECIDUOUS TREE PLANTING ON SLOPE**  
**WIRE BASKET, BALLED AND BURLAPPED**

N.T.S.

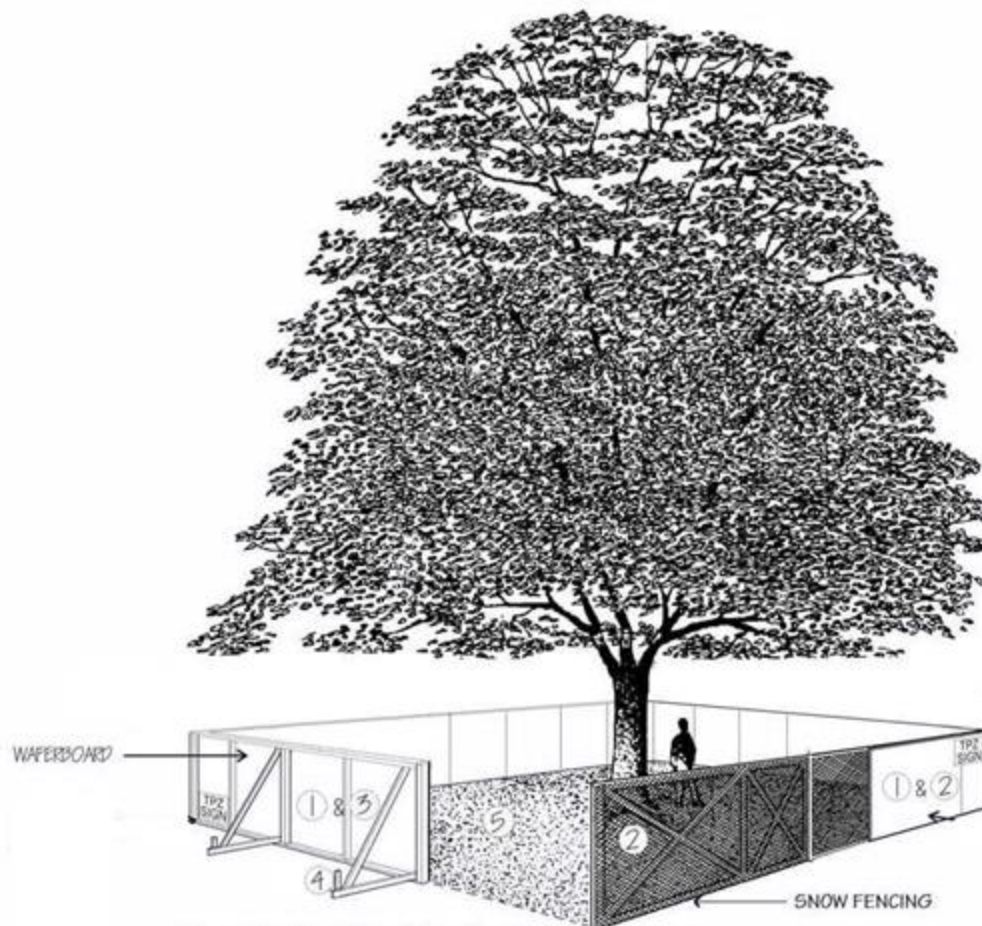


## TYPICAL DECIDUOUS TREE PLANTING

N.T.S.

WIRE BASKET, BALLED AND BURLAPPED

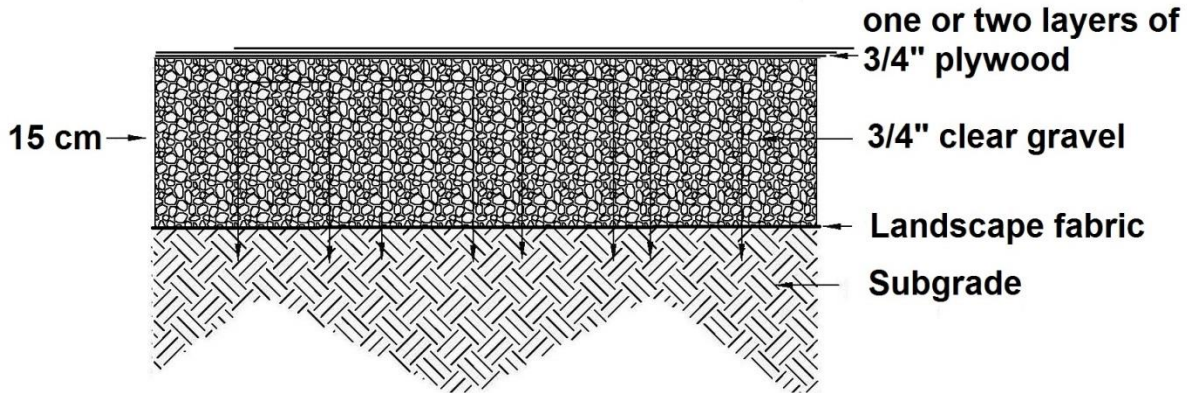
## Appendix B – Tree Protection Fence Details



### Tree Protection Barriers

- ① Tree protection barriers must be 1.2m (4ft) high, waferboard hoarding or an equivalent
- ② Tree protection barriers for trees situated on the Town road allowance where visibility must be maintained can be 1.2m (4ft.) high and consist of plastic web snow fencing on a wood frame made of 2"x 4"s .
- ③ Where some excavate or fill has to be temporarily located near a tree protection barrier, plywood must be used to ensure no material enters the Tree Protection Zone.
- ④ All supports and bracing should be outside the Tree Protection Zone. All such supports should minimize damaging roots outside the Tree Protection Barrier.
- ⑤ No construction activity, grade changes, surface treatment or excavations of any kind is permitted within the Tree Protection Zone.

## Horizontal Tree Protection



**Horizontal tree protection detail**

New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.

**NOTE** The ground protection might comprise one of the following:

- a) for pedestrian movements only, a single thickness  $\frac{3}{4}$ " plywood placed on top of a compression-resistant layer (e.g. 100 mm depth of woodchip/ $\frac{3}{4}$ " clear gravel), laid onto a geotextile membrane (landscape fabric);
- b) for pedestrian-operated plant up to a gross weight of 2 tones, a single thickness  $\frac{3}{4}$ " plywood placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip/ $\frac{3}{4}$ " clear gravel), laid onto a geotextile membrane(landscape fabric);
- c) for wheeled or tracked construction traffic exceeding 2 tones gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.



## **Appendix C – Sample Arborist Report**

A basic arborist report should have at least the following components:

1. Introduction
  - Scope of work
  - When field work was performed
  - What is being proposed
2. Tree Inventory
  - Observations
3. Tree protection
  - Tree preservation specific to individual trees
  - Calculations of securities
4. Tree Removal
  - Compensation
5. Discussion
6. Recommendations/conclusion
7. Appendices

### **Section 2 - Tree Inventory**

- **Observations**

An integral part of an arborist report is a tree inventory. A tree inventory is a list of significant trees on the property and within 4.5 m from the property line on neighbouring properties. The trees shall be marked and numbered on a drawing which corresponds to the list. Information as to the location of the trees shall also be provided.

<b>Identifier #</b>	<b>Species</b>		<b>DBH</b>	<b>Condition</b>	<b>Category</b>			
	<i>TP#/TM#TR#</i>	<i>Common Name</i>			<i>Botanical Name</i>	<i>(cm)</i>	<i>E / G / F / P / D</i>	<b>1</b>

**Identifier #** *Approximate location of tree marked on a site plan, includes recommendation for preservation, maintenance or removal (TP1 = Tree number 1 to be Preserved, TM2 = Tree number 2 to be Maintained, TR3 = Tree number 3 to be Removed)*

**Species** *Both common name and botanical name*

**DBH** *Diameter at breast height (measured at 1.4 m above ground level) must be exact and measured in centimeters*

**Condition** *When considering the condition and or health of a tree, numerous factors will need to be taken into account. The ISA methodology must be used to arrive at a condition rating identified below:*

*Excellent: the tree has a condition factor of 84 to 100%*

<i>Good:</i>	<i>the tree has a condition factor of 67 to 83%</i>
<i>Fair:</i>	<i>the tree has a condition factor of 51 to 66%</i>
<i>Poor:</i>	<i>the tree has a condition factor of 26 to 50%</i>
<i>Dead/Dying:</i>	<i>the tree has a condition factor of 0 to 25%</i>

### **Category**

1. *Trees at or above 20 cm DBH on the subject property*
2. *Trees that were planted as a condition of approval of a development application (e.g. appear on an approved site plan or landscape plan)*
3. *Trees that are located on an adjacent property within 4.5m of the subject lands, regardless of the size of the tree*

### **Section 3 - Tree Protection**

- **Tree preservation specific to individual trees**
- **Calculations of securities**

The Tree Protection Plan shall include the following information regarding each tree to be protected:

- Species (common and botanical name);
- Condition including the Size, Health, and Vigor;
- Defects: Rot, Included bark, Seams, Cracks, Heavy limbs. Cavities, Ribs
- Insects and diseases;
- Location (if this has a bearing on the condition of the trees such as low lying wet areas etc.);
- Maintenance plan for trees to be protected; and
- Replacement tree calculations in a legend on the Tree Plan.

The Arborist Report will include actions that will mitigate any adverse effect of the proposed construction. Actions that could be included but are not limited to:

- Pruning (i.e. cleaning, thinning, reduction etc. according to arboriculture best management practices)
- Fertilization
- Mulching
- Aeration
- Watering
- Cabling

Protection could include the installation of wood or stone mulch over the root zone for protection in addition to the tree protection fencing.

If trees are to be moved, specific instructions will need to be added to ensure the survival of the transplanted tree(s).

In this section of the report the arborist will talk about trees that are to be preserved and what is prescribed for each tree in terms of any of the above mentioned work that should be done if the trees are to be preserved.

For trees to be preserved, proposed root pruning will have to be described, including how that is done. A certified arborist will need to perform this work.

Tree protection fencing will need to be discussed in the report, how far this will need to be from the base of the trees. A plan with Tree Protection Fencing marked on it will also need to be provided.

If mulch or other methods are to be used for tree protection, this will need to be discussed in the report in detail, such as distance from the trunk, depth of mulch and any other detail pertinent to the protection method. The locations will also need to be indicated on a drawing.

#### **Section 4 - Tree Removal**

- **Compensation**

Tree replacement and compensation must be described in this report. All trees over 20 cm, if not preserved, will require compensation in the form of planting or cash-in-lieu paid to the Town. If trees are going to be transplanted on site the compensation could be reduced.

Securities will need to be calculated for trees on municipal lands and trees to be preserved.

Condition is to be applied to the aggregate cm of replacements.

The Town collects a fee per 60 mm tree not planted. This fee is updated regularly, confirm the amount in the Town's Fees and Charges By-law ([www.newmarket.ca](http://www.newmarket.ca)).

It is acknowledged that not all detailed grading can be finalized at an early stage of a project, however, it is the arborist's job to work in conjunction with the planners and engineers of a project to come up with solutions for tree preservation if possible. As the project matures and evolves so does the tree preservation plan. It is one thing to be working off a plan, but once the work in the field starts things can change quickly and in some cases tree preservation can turn into the removal of a tree. All of this is understood but a plan needs to be put in place at an early stage to set the tone for the project.

#### **Depreciated aggregate cm method**

This method of arriving at a figure for compensation is a modification of the trunk formula method. The depreciate aggregate cm method (DAM) does not take the location factor into account; it only looks at the condition factor of the tree as it relates to the DBH. In other words the DBH of a particular tree is depreciated by the condition factor of that tree. The number arrived at would be the total cm that would need to be replaced.

Sample:

**Species:** Red oak  
**Condition:** 80%  
**Size:** 100 cm DBH

**DAM:**  $100 \times 80\% = 80$  cm to be compensated for

If compensation comes in the form of trees planted on the property this would translate into 13, 60 mm trees.  $(80 \text{ cm} / 6 \text{ cm (60 mm)}) = 13.3$

If no trees can be planted on the property and cash in lieu is suggested. \$400.00 in lieu per 6 cm (60 mm) tree not planted. In this example:  $80 \text{ cm} / 6 \text{ cm (60 mm)} = 13 \times \$400.00 = \$5,200.00$

### **Section 5 - Discussion**

### **Section 6 - Recommendations/conclusion**

### **Section 7 - Appendices**

This is where some standard information can be placed as well as photographs that have not been incorporated in the report but that could be helpful

The report will need to be signed and dated.

### **Revisions**

All revision dates will need to be added to the front cover of the report.

All revisions to a report should be summarized in a letter submitted with the revised report.

**PROHIBITED PLANT SPECIES**

TREE SPECIES		NOTES
Botanical Name	Common Name	
<i>Fraxinus species</i>	Ash	Current Ministerial Quarantines in Ontario for Emerald Ash Borer - EAB - ( <i>Agrilus planipennis</i> )
<i>Acer platanoides and associated cultivars</i>	Norway Maple	Excessively planted in urban areas, somewhat invasive, Columnar cultivars are accepted
<i>Acer negundo</i>	Boxelder, Manitoba Maple	Highly Invasive species
<i>Ulmus americana</i>	American Elm	Susceptibility to Dutch Elm Disease ( <i>Ophiostoma ulmi</i> )
<i>Betula species</i>	Birch	Susceptibility to Bronze Birch Borer ( <i>Agrilus anxius</i> )
<i>Prunus species</i>	Cherry, Plum	Ministerial Quarantines in Ontario for Plum Pox Virus ( <i>Sharka</i> ) and Susceptibility to Black Knot ( <i>Dibotryon morbosum</i> )

## TREE SELECTION LIST FOR THE TOWN OF NEWMARKET

The following is a list of tree species approved by the Town of Newmarket for street, park / open space, and utility plantings in the public right-of-way in the Town of Newmarket. Superior cultivars and species may be substituted with the permission of the town. Selection of coniferous species must consider CEPTED (Crime Prevention Through Environmental Design) and visual sightlines to structures such as buildings and play structures.

LARGE TREE SPECIES: Mature height > 15m (50')										
TREE SPECIES		LOCATIONAL USE			ORIGIN	GROWTH		CULTURE		NOTES
Botanical Name	Common Name	Street	Park	Utilities	Native	Rate	Max.	Environmental Sensitives	Environmental Tolerances	Notes
<i>Abies concolor</i>	White Fir		■			medium	15m		Drought / Wide pH	Highly adaptable, good for division of spaces
<i>Acer negundo 'Flamingo'</i>	Boxelder		■			fast	15m		Drought and Flooding / Wide pH	Short lived, weak wooded, good visual interest
<i>Acer nigra</i>	Black maple	■	■		●	medium	20m	wet soils		Needs room to develop, excellent shade tree, great street tree
<i>Acer pseudoplatanus</i>	Sycamore maple	■	■			medium	20m		Soil extremes and salt tolerant	
<i>Acer rubrum</i>	Red Maple		■		●	medium	20m		Wet or dry / Low pH	pH test required / good for low lying areas in parks
<i>Acer saccharinum</i>	Silver Maple	■	■		●	fast	20m	Chlorosis on high pH soils	Varied soils/ Wet or Dry / Shade	Fast growing, tolerates flooding, At least 3m from public hardscapes, single stem only
<i>Acer saccharinum 'Silver Queen'</i>	Silver Queen Maple	■	■			fast	20m		Varied soils/ Wet or Dry / Shade	Fast growing, tolerates flooding, At least 3m from public hardscapes, single stem only
<i>Acer saccharinum 'Wieri'</i>	Wieri Silver Maple	■	■			fast	20m		Varied soils/ Wet or Dry / Shade	Fast growing, tolerates flooding, At least 3m from public hardscapes, single stem only
<i>Acer saccharum</i>	Sugar Maple	■	■		●	medium	15m	Soil extremes / Wet soils		Needs room to develop, excellent shade tree, great street tree
<i>Aesculus hippocastanum</i>	Horsechestnut	■	■			medium	20m	Leaf blight	Soil adaptable	Large Fruit
<i>Aesculus hippocastanum 'Baumannii'</i>	Bauman Horsechestnut	■	■			medium	20m	Hot dry environments	Soil adaptable / Moist soil	Fruitless cultivar, needs room to develop, great in parks and on streets
<i>Aesculus octandra</i>	Yellow buckeye	■	■			medium	20m	Leaf blight		
<i>Alnus cordata</i>	Italian Alder	■	■			medium	20m	Prolonged drought	Infertile high pH soils	Excellent for difficult sites and streets, low lying areas, dry soils
<i>Alnus glutinosa</i>	Common Alder	■	■			medium	15m		Infertile soil / Standing water	Excellent for difficult sites and streets, low lying areas, dry soils
<i>Betula alleghaniensis</i>	Yellow birch				●	medium	25m	Hot, dry soils		Moist, well drained, rich, acidic soils
<i>Betula nigra</i>	River Birch		■		●	fast	20m	High pH soils	Standing water / Low pH	Birch Borer Resistant, showy bark, spring dug and planted only
<i>Carya cordiformis</i>	Bitternut Hickory		■		●	medium	20m	Restricted root zones	Moist soils	Great for naturalized areas
<i>Carya glabra</i>	Pignut Hickory		■		●	medium	15m	Infertile soils	Moist soils	Great for naturalized areas
<i>Carya lociniosa</i>	Shellbark hickory	■	■		●	slow	25m	High clay soils	Drought tolerant	Rare in Ontario
<i>Carya ovata</i>	Shagbark hickory	■	■		●	slow	25m			Unique bark
<i>Catalpa speciosa</i>	Northern Catalpa		■			fast	17m		Adverse soils and conditions	Showy flower and fruit, great for difficult sites, significant litter
<i>Celtis occidentalis</i>	Common Hackberry	■	■		●	fast	17m		Wind / Adverse conditions	Good tree for urban and poor conditions
<i>Fagus grandifolia</i>	American Beech		■			medium	20m	High pH soils / Wet soils	Calcerous soils / drought	Majestic tree for open spaces and parks
<i>Fagus sylvatica 'cultivars'</i>	European Beech		■			medium	20m			Great tree for parks, excellent bark and winter interest, straight species needs significant room
<i>Fraxinus quadrangulata</i>	Blue ash	■	■		●	medium	20m		Lime stone soils and drought	Seems to be immune to EAB
<i>Gingko biloba</i>	Gingko	■	■			slow	20m	Permanently Wet Soils	Drought / High pH / Salt	Male species only - Does not bear fruit, one of the best urban tolerant trees

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LARGE TREE SPECIES: Mature height > 15m (50')										
TREE SPECIES		LOCATIONAL USE			ORIGIN	GROWTH		CULTURE		NOTES
Botanical Name	Common Name	Street	Park	Utilities	Native	Rate	Max.	Environmental Sensitives	Environmental Tolerences	Notes
<i>Gleditsia tiacanthos var. inermis 'Shademaster'</i>	Shademaster Honeylocust	■	■			medium	20m		Wet or Dry Soils / Salt / High pH	Readily used, light shade tree, one of the best urban tolerant trees
<i>Gymnocladus dioicus</i>	Kentucky Coffee Tree	■	■			medium	20m	Requires large soil volumes	Drought / Salt / Adverse soils	Male preferred - Does not bear fruit
<i>Juglans cinerea</i>	Butternut		■		●	medium	20m		Moist soils	
<i>Juglans nigra</i>	Black Walnut		■			medium	20m	Prolonged drought	Moist soils	Significant fruit drop, Avoid placement near structures and ornamental planting beds. Best in open spaces.
<i>Larix decidua</i>	European Larch		■			medium	20m	High pH / Soil compaction	Wind / Moist and dry soils	Great park tree, does drop litter
<i>Larix laricina</i>	Tamarack		■		●	medium	15m	Prolonged drought	Heat and cold / Standing water	Best in groups and naturalized
<i>Liriodendron tulipifera</i>	Tulip Tree	■	■		●	medium	20m	Prolonged drought and heat	Moist soils / Low pH	Unique native tree
<i>Metsequoia glyptostroboides</i>	Dawn Redwood		■			fast	30m	Early frosts	Wet or dry soils / Wide pH	Fast grower, excellent park tree for wet areas
<i>Nyssa sylvatica</i>	Blackgum	■	■		●	medium	25m		Clay soil / wet soil	Some sesceptibility to leaf spots, canker, rust, leaf miner, and scale
<i>Phellodendron amurense</i>	Amur Corktree		■			medium	20m	High pH / Prolonged drought	Low pH / Wet and dry soils	Suitable for large open spaces, good tree for tough areas
<i>Picea abies</i>	Norway Spruce		■			medium	20m	Excessive heat	Wind / Highly adaptable / Low pH	Large cones, requires room to develop
<i>Picea glauca</i>	White Spruce		■		●	medium	20m	Excessive heat	Wind / Drought / Low pH / Salt	Good salt tolerance, good in masses
<i>Picea omerika</i>	Serbian Spruce		■			medium	20m	Wind	Wide pH / Infertile soils	Great narrow evergreen for tight spaces
<i>Picea orientalis</i>	Oriental Spruce		■			medium	20m	Moist soils / Wind	Infertile soils / High pH	Excellent evergreen
<i>Pinus strobus</i>	White Pine		■		●	fast	25m	High pH / Iron	Wind / drought / Low pH	Great evergreen for parks and buffer plantings
<i>Pinus sylvestris</i>	Scotts Pine		■			medium	20m		Wide pH / Infertile soils / Wind	Great evergreen for screening
<i>Pinus resinosa</i>	Red pine		■		●	medium	35m	Salt / wind / shade	Low pH	Colder climates
<i>Platanus xacerifolia 'Bloodgood'</i>	Bloodgood London Planetree	■	■			fast	30m		All soil extremes / Salt / Pollution	Great street and park tree where space is available
<i>Prunus serotina</i>	Black cherry	■	■		●	medium	20m	Shade		Unique bark
<i>Quercus alba</i>	White Oak	■	■		●	slow	25m	Disruption of root system	Moist soils / Low pH	Long lived slow growing tree, pH test required, some litter
<i>Quercus macrocarpa</i>	Bur Oak	■	■		●	slow	25m		Wide pH / Infertile soils	Provide ample room for growth, Long lived, some litter
<i>Quercus palustris</i>	Pin Oak		■		●	medium	20m	Calcerous soils / High pH	Low pH / Moist soils	Requires moist acidic soils, Excellent park tree, pH test required
<i>Quercus rubra</i>	Red Oak	■	■		●	medium	20m	Prolonged drought / High pH	All Soil extremes / Pollution	Shallow root system, pH test required
<i>Quercus velutina</i>	Black Oak	■	■		●	medium	20m	Disruption of root system	Moist soils / Low pH	Long lived slow growing tree, pH test required, some litter
<i>Salix alba 'Tristis'</i>	Weeping Willow		■			fast	20m	Prolonged drought	Soil Extremes / Moist soils	Messy tree, Excellent for wet locations, single stem only
<i>Salix nigra</i>	Black Willow		■			fast	25m	Prolonged drought	Soil Extremes / Moist soils	Messy tree, Excellent for wet locations, single stem only

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LARGE TREE SPECIES: Mature height > 15m (50')										
TREE SPECIES		LOCATIONAL USE			ORIGIN	GROWTH		CULTURE		NOTES
Botanical Name	Common Name	Street	Park	Utilities	Native	Rate	Max.	Environmental Sensitives	Environmental Tolerences	Notes
<i>Thuja occidentalis</i>	American Arborvitae		■		●	fast	15m	Wind / Prolonged flooding	Highly adaptable	Great evergreen for hedges, screening and wet areas
<i>Tilia americana</i>	Gbasswood	■	■		●					
<i>Tilia americana 'Boulevard'</i>	Boulevard basswood	■	■			medium	30m			
<i>Tilia americana 'Redmond'</i>	Redmond basswood	■	■			medium	20m			
<i>Tilia cordata 'Greenspire'</i>	Littleleaf Linden	■	■			medium	15m	Prolonged wet soils	Soil extremes/Wide pH/Pollution	Proven to be an excellent and uniform street tree
<i>Tsuga canadensis</i>	Eastern Hemlock		■		●	slow	20m	Wind / Heat / Salt	Low pH / Moist soils / Shade	Native shade evergreen, Excellent hedge
<i>Ulmus glabra</i>	Scotch Elm		■			medium	15m		Highly adaptable	Good tree when located in parks
<i>Zelkova serrata</i>	Japanese Zelkova	■	■			medium	20m		Adaptable / Drought / Wide pH	Vase shape, Excellent tree for streets and parks



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MEDIUM TREE SPECIES: Mature height 10-15m (35-50')										
TREE SPECIES		LOCATIONAL USE			ORIGIN	GROWTH		CULTURE		NOTES
Botanical Name	Common Name	Street	Park	Utilities	Native	Rate	Max.	Environmental Sensitives	Environmental Tolerances	Notes
<i>Acer ginnala</i>	Amur Maple		■	■		fast	10m		Drought / High pH / All soils	Excellent for planters, streets, small spaces
<i>Acer griseum</i>	Paper bark maple	■	■	■		very slow	10m	Prolonged drought	All pH extremes, all soils	Showy Tree, very tolerant
<i>Aesculus glabra</i>	Ohio Buckeye		■			medium	12m	Drought	Moist soils / Low pH	Fruit litter, Susceptible to scorch and blight
<i>Alnus incana</i>	White alder	■	■		●	medium	15m	Full shade	Wet soil	Can tolerate cold winters
<i>Betula populifolia</i>	Gray birch		■		●	fast	15m	Some suseptability to bronze birch boerer	Dry soil / Wet Soil	Non salt tolerant, peeling bark
<i>Carpinus betulus 'Fastigiata'</i>	European Hornbeam	■	■			slow	10m	Disruption of root system	Wide pH / Dry or wet soils / Shade	Excellent for planters, streets, small spaces
<i>Cercidiphyllum japonicum</i>	Katsuratree	■	■			medium	15m	Prolonged drought	Moist soils / Wide pH	Great specimen and street tree
<i>Corylus colurna</i>	Turkish Filbert	■	■	■		medium	15m		Drought / pH / Adverse soils	Underutilized street and park tree
<i>Eucommia ulmoides</i>	Hardy rubber tree	■	■			medium	15m		Every thing	Very hardy tree tolerant to almost everything
<i>Ostrya virginiana</i>	American Hophornbeam	■	■		●	slow	12m		Drought / pH / All soils	Slow to establish, Great street and park tree
<i>Pyrus calleryana 'Chanticleer'</i>	Chanticleer Ornamental Pear	■	■	■		medium	10m	Wind	Heat / Drought / Compacted soil	Great urban tolerant, 3 season tree
<i>Quercus muehlenbergii</i>	Chinkapin oak	■	■		●	fast	15m	Acidic Soil	Alkaline soil	Must be pH <6
<i>Quercus robur</i>	English Oak	■	■			slow	15m		Drought / High pH	Great shade tree that requires room to develop

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SMALL TREE SPECIES: Mature height < 10m (35')										
TREE SPECIES		LOCATIONAL USE			ORIGIN	GROWTH		CULTURE		NOTES
Botanical Name	Common Name	Street	Park	Utilities	Native	Rate	Max.	Environmental Sensitives	Environmental Tolerances	Notes
<i>Acer campestre</i>	Hedge Maple	■		■		fast	10m		Drought/ Compaction / All soils	Good urban tree, can be hedged
<i>Acer platanoides 'Globosum'</i>	Globe Maple		■			slow	8m		Drought / All soils	Grafted tree with unique form for formal layout
<i>Alnus reugos</i>	Speckled alder	■	■	■	●	medium	6m	Full Shade	Sun / wet soils	Showy / Great Tree
<i>Amelanchier arborea</i>	Downy Serviceberry	■	■	■	●	medium	10m		Wide pH / All soils / Wet soils	Great shade tree with year round interest
<i>Amelanchier canadensis</i>	Serviceberry	■	■	■	●	medium	8m		Wide pH / All soils / Wet soils	Great shade tree with year round interest
<i>Carpinus caroliniana</i>	Blue Beech	■	■	■	●	slow	8m	Prolonged drought	Low pH / Moist soils / shade	Great native tree, highly versatile
<i>Cercis canadensis</i>	Eastern Redbud		■		●	slow	8m	Wet soils / prolonged drought	Wide pH / All soils / shade	Native tree, excellent small tree
<i>Cornus alternifolia</i>	Pagoda Dogwood		■		●	medium	8m	Prolonged drought	Low pH / Moist soils / shade	Excellent tree for parks, great structure
<i>Cornus racemosa</i>	Gray dogwood	■	■	■	●	medium	3m	Shade	Sun	Berries attract song birds
<i>Crataegus crusgalli var. inermis 'Crusader'</i>	Cockspur Hawthorn	■	■	■		medium	8m	Prolonged drought	Wide pH / All soils	Thornless cultivar
<i>Hamamelis virginiana</i>	Witch hazel	■	■	■	●	medium	7m			
<i>Malus 'White Angel', 'Prairiefire'</i>	Crab Apple		■			medium	8m	Extreme stresses	Wide pH / All soils	Proper selection of disease and pest resistance, cultivars that hold fruit, away from hardscapes
<i>Syringa reticulata</i>	Japanese Lilac Tree	■	■	■		medium	10m		Highly adaptable	Great flowering small tree that is urban tolerant