The City of BARRIE

Engineering Department
MEMORANDUM TO
DEVELOPMENT SERVICES COMMITTEE

TO: Chair B. Ward and Members of Development Services Committee

FROM: R. S. Kahle, M. Eng., P. Eng., Director of Engineering

NOTED: R. J. Forward, MBA, M.Sc., P. Eng., General Manager of Infrastructure & Growth Management

C. Ladd, Chief Administrative Officer

RE: 147 Toronto Street – Heritage Woodlot Assessment

DATE: August 13, 2013

The following memo is to provide Development Services Committee members with an overview of the 147 Toronto Street site conditions and comments on the sustainability of the wooded area of the southern portion of the property.

On June 24, 2013, Council adopted Motion 13-G-174 as follows:

> "That the City's Urban Forester be requested to review the 147 Toronto Street site and provide a memorandum to the Development Services Committee on the sustainability of the southern portion of the property as a wooded area from a heritage preservation perspective."

In 1992, the property known municipally as 147 Toronto Street in the City of Barrie was designated as being of architectural and historical value or interest through By-law 92-33. This designation was registered against the property in the Land Registry. Among the reasons for its designation noted in the by-law are that the extensive grounds were covered with mature trees including a description of the setting that states:

> "The combination of natural setting and landscaping is considered to be a significant factor in the preservation of the residence."

Records and research used as part of the process to designate the property and building for its heritage quality make reference to the building being constructed in 1868. Based on the site inspection and background information, the large, mature trees on the site are clearly over 100 years of age. The earliest available aerial photography we have access to for the City of Barrie was by Spartan Air Services Limited and shows the woodlot in existence in 1955. The forested area on the south half of the property is currently regulated under the Tree Preservation By-law 2005-120 (i.e. defined as a "woodlot" within the by-law).

Site Observations:

On the afternoon of June 3, 2013, the City of Barrie's Urban Forester (accompanied by a forestry co-op student) made the following observations of the conditions of the forested area on the south half of 147 Toronto Street. The inspection on the property was constrained to the southern half, and dealt only with the trees in the forested area, as per the request by the Development Services Committee. However, it is important to note that there are a significant number of large, mature trees that make up the landscape on the north half of the lot as well.

Based on the Ecological Land Classification (ELC) for Southern Ontario (Lee, et.al, 1998), this site would be classified as a Dry-Fresh Sugar Maple Deciduous Forest Ecosite (FOD5), dominated by Sugar Maple, with a minor component of other species (American Elm, Black Walnut, White Ash, Black Cherry) mixed throughout the site in various sizes and age classes. According to the ELC description, these forested

areas tend to be disturbed and variable in understorey vegetation. Common understorey vegetation species include dogwood, raspberry and elderberry, and perennial plants can include Trilliums, wild sasparilla, blue cohosh, jack in the pulpit, etc. The photograph below (Lee et. al., 1998) shows an example of this ELC type:

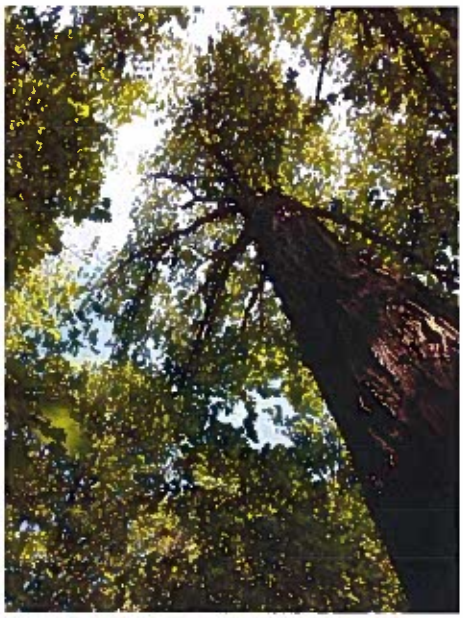
Forest - Deciduous Forest
Dry–Fresh Sugar Maple Deciduous Forest Type (FOD5-1)
(Blue Mountain, Grey County; J.L. Riley)

Review of the forested area found that the overstorey contained mature to over mature trees that created greater than 75% canopy coverage. There was a range of mainly sugar maple in the understorey, ranging in size from young seedlings and saplings, to immature trees suppressed under the larger trees. This is a common situation in late succession forests, as is present within this woodlot. The more shade tolerant species (in this case Sugar Maple) dominates the understorey and mid-level canopy, eventually taking their place in the overstorey when canopy gaps open up as a result of wind-throw, tree decline due to age or other impacts, and/or other forest disturbances. Below is a picture of the forested area at 147 Toronto Street:

Sugar Maples, within the forested area ranged in size from seedlings to as large as 101cm in diameter at breast height (DBH), with the median being approximately 60cm in DBH. There were several over 70cm in DBH. Native Trees of Canada (Hosie, 1990) notes that sugar maple (a ubiquitous species in Ontario) can commonly reach a DBH of 60-90 cm. This would signify that the older sugar maples on the site are of a significant age and maturity, some at their maximum growth potential for a typical forest condition. If these were the original seedlings on the property from the late 1860's, they would be over 150 years of age. Evidence of one of the original trees (portion of its stem on the site) is shown below to provide context. The photograph below also illustrates regeneration of red and sugar maple seedlings, wild raspberry, big-leafed aster and other native plants growing in the understorey.

The photograph below shows one of the healthy Sugar Maples that are present within the woodlot and characterizes an old-growth canopy. In the background of the photograph (below) there are young saplings suppressed in the understorey. These saplings are awaiting further canopy openings to take advantage of the additional sunlight and replace the canopy lost when older trees succumb to age or other impacts.

The photograph below is of a large diameter sugar maple dominating the overstorey. In the foreground are the canopies of several younger understorey maples. As these mature trees eventually decline and die, the younger trees will form the new overstorey canopy.



Another example photograph (below) of the mixed ages and sizes of trees within the forested area illustrates how a late-succession forest, such as one dominated by sugar maples, will have various tree sizes from old, over mature trees to young saplings. It is quite common in these forest types to have dead trees (also referred to as snags or wildlife trees) which provide critical habitat and foraging opportunities for birds, bats and other forest dwelling species. For example, insects invade dead and dying trees, which are in turn food for woodpeckers. The Silvicultural Guide to Managing Southern Ontario Forests (OMNR, 2000) recommends leaving standing snags and downed woody debris (>10 cm DBH) for the provision of wildlife habitat and forest stand structure.

Based on visual observation only, it appears as though maintenance of this forested area has been on a hazard tree related reactive basis during the last few decades. This opinion is based upon the lack of evidence of any forest management activities within the lot of any kind, with the exception of the removal of dead, damaged or fallen trees. In a few cases, tops, branches and stems have been cut up and piled on site. If these branch piles had been removed or spread around the forested area (as opposed to piled) they would decompose to provide nutrients and organic matter for the benefit of the forest soils. This is also true of the leaf piles closer to the south half of the lot (yard area associated with the building).

There are trees with several cables tied to their main stems, supporting what has been described as an art piece from the days of the MacLaren Art Centre. These cables should be removed as soon as possible to prevent girdling and killing of the stems of the large maple trees to which they are attached.

Invasive species: There are non-native, invasive species in the ground cover of the forested area (e.g. garlic mustard, periwinkle), which is unfortunately common for urban woodlots, parks and ravines within the City. These non-native, invasive species compete with regenerating native species (e.g. sugar maple) and are considered to be detrimental to natural areas.

There is no clear evidence that this property has had indiscriminate harvest over the last 30-50 years. The City of Barrie has had a Tree Cutting/Protection By-law in place since 1990, and over the last 23 years there are no permits on record for tree cutting on this property. In addition, based on the current condition of the forest and range of size classes as well as species present it appears as though tree cutting was limited to dead or damaged trees, as opposed to the management of the woodlot for increased value wood products (e.g. sawlogs, veneer).

Like most woodlots, there are trees in various conditions from healthy to dead, and evidence of trees with broken branches, lower branch dieback from shading and competition. However, overall this woodlot is not unhealthy, structurally unsound or diseased. A Silvicultural Guide to Managing Southern Ontario Forests (OMNR, 2000) does note that "Where possible, retain a 30 m buffer of uncut densely growing trees beside open fields or other hard edges to reduce windthrow and other damage to the forest interior and minimize invasion by exotic species." This is rarely possible within an urban woodlot, and is a recommendation of the Guide to protect forest interior habitat (which is only found in large tracts of forest).

There are various non-native invasive plants in the forest ground cover. This is something that could be corrected with effort by the landowner and/or interested volunteer groups. There were no concerns about falling limbs or trees due to wind during the site visit (Environment Canada reported winds from the northwest gusting to 61 km per hour). The Silvicultural Guide (OMNR, 2000) also notes that to promote long-term health of a forest stand that a landowner should remove exotic species, not that the presence of exotic species would result in an unsustainable forest.

It is the opinion of the City's Urban Forester that this forest is sustainable whether it is part of the property as a whole or separated from the north half of the lot. The forest could use management to enhance its long-term quality. All trees have a genetic lifespan; however the south half of this property has the capability to sustain a healthy forest indefinitely.

Heritage Status:

Council has the authority to specifically designate this woodlot as having Heritage status under the Tree Preservation By-law (2005-120) as stated within the Tree Protection Manual:

> "Council may designate a tree(s) as being unique and of importance to the City in terms of form, size, age and/or historical significance. Injury or destruction of a Heritage Tree is prohibited by the provisions of the Tree Preservation By-law (2005-120). A heritage tree is an outstanding specimen because of its size, form, shape, age, colour, rarity, genetic constitution or other distinctive community landmark; a specimen associated with an

historic person, place, event or period; representative of a crop grown by ancestors and their successors that is at risk of disappearing from cultivation; a specimen recognized by members of a community as deserving heritage recognition."

Section 5 of the Tree Protection Manual establishes the context for designation of a tree or trees as having heritage status, and specifically the candidacy of this forested portion of the property could be designated by Council under the following criteria:

i. Associated with an event, a period, a structure, a noted person, or can be tree(s), groves or arboreal remnants of spiritual significance;
ii. Recognized by members of a community as deserving heritage recognition simply as "a treasured tree to the community". It could be (but not necessarily so) rare or culturally or historically significant, a prominent landmark, unusual in the particular area, a particularly noteworthy specimen or significantly large size or age for its species; and/or
iii. Part of a group of trees or avenue of trees on a property designated under the Ontario Heritage Act.

Potential Options:

Successful management of the forested area on the south half of 147 Toronto Street could maintain a Heritage quality woodlot indefinitely. Currently there are a few (e.g. 101 cm DBH Sugar Maple) heritage quality individual trees on the property, with several mature trees approaching this stature and prominence (e.g. 70-90 cm DBH Sugar Maples). Numerous immature and sapling maples are growing in the understorey of the forest, and will provide future large, mature trees over the next century. However, the landowner would be encouraged to invest in this woodlot, much like a historic building, to maintain the trees and forest in their optimum condition in perpetuity. Eventually, the over-mature trees will need to be removed, and sustainable management will ensure good quality trees in the mid-level canopy to replace these trees.

Other considerations for long-term management of this forest include:

v. the immediate removal of the cable ties on the large maples;
ii. removal of non-native, invasive species, perhaps through an organized volunteer group doing an annual removal program;
iii. assessment and removal of any trees that are hazardous (potential to fall on adjacent buildings, roads or parking lot);
iv. removal and/or spreading of piled wood and leaf debris; and
v. consideration of developing a woodlot management plan to enhance the long-term sustainability of the forest (http://www.opfa.ca/private-land/woodlands.php).

If Council deems the woodlot on this property to be of historical value, the City's Urban Forester would recommend that the forested portion be considered for designation under the Tree Preservation By-law (2005-120) as having heritage tree status. Heritage tree status within the Tree Preservation By-law would protect and maintain the southern portion of the property in a forested state, regardless of any severance or sale of the property.

R. S. Kahle, M. Eng., P. Eng.
Director of Engineering

APPENDIX 'A'

Literature Cited:

Hosie, R.C. 1990. **Native Trees of Canada**. Eighth Edition. Fitzhenry & Whiteside Limited. Markham, Ontario, Canada.

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig, and S. McMurray. 1998. **Ecological Land Classification for Southern Ontario: First Approximation and Its Application**. Ontario Ministry of Natural Resources, Southcentral Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02.

OMNR. 2000. **A Silvicultural Guide to Managing Southern Ontario Forests**. Ontario Government, Ministry of Natural Resources.