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RE: TREE CONSERVATION REPORT FOR 320 MCRAE AVENUE, OTTAWA

This report details a pre-construction Tree Conservation Report (TCR) for the above-noted property in Ottawa. The need for this TCR is related to the proposed development of the subject property. Such reports are required for all plans of subdivision and site plan control applications where a tree of 10 centimetres in diameter or greater is present on the subject property. The approval of this TCR by the City of Ottawa and the issuing of a permit by them authorize the removal of approved trees. **Importantly, although this report may be used to support the application for a city tree removal permit, it does not by itself constitute permission to remove trees or begin site clearing activities. No such work should occur before a tree removal permit is issued by the City of Ottawa. In particular, permission to remove private or city owned trees adjacent to the subject property will be required before a tree removal permit is issued.**

The inventory in this report details the assessment of all individual trees on the subject, neighbouring private and adjacent City of Ottawa property. Field work for this report was completed in January of 2020.

The construction proposed for the site includes multiple mixed-use buildings with underground parking. The combined foot prints of the buildings in addition to the excavation necessary for the underground parking will result in the removal of all trees currently on the subject property. The possible exceptions are trees within the proposed park area. All adjacent private trees and all but one city owned tree will be retained. The tree preservation and protection measures cited in this report will be followed to ensure the survival of trees proposed for retention.

TREE SPECIES, CONDITION, SIZE AND STATUS

Table 1 on page 2 details the species, condition, size (diameter) and status of the individual trees on the subject and nearby private and City of Ottawa property. Each of these trees is referenced by the numbers plotted on the accompanying tree conservation plans.

Table 1. Species, condition, diameter, ownership and status of trees at 320 McRae Avenue.

Tree No.	Tree Species	Condition (VP→E)	DBH[1] (cm)	Owner-ship	Tree Condition Notes & **Preservation Status** (to be removed or preserved and protected)
1	Sugar maple *(Acer saccharum)*	Fair	19.7	City	Maturing; tri-stemmed at 1.75m; native species; **to be removed** (conflicts with proposed driveway)
2	Bur oak *(Quercus macrocarpa)*	Good	97.9	City	Very mature; three co-dominant leaders at 12m from grade; broad generally symmetrical crown; good root collar; **to be preserved and protected** (surrounding 9.7m rooting zone to be protected during construction)
3	Amur maple *(Acer tataricum* var. *ginnala)*	Poor	23.9 (at 0.5m)	City	Mature; 'standard' variety - upright growth form; heavy sprouting from base and lower trunk – in moderate decline; introduced invasive species; **to be preserved and protected**
4	Sugar maple	Fair	15.9	City	Maturing; competing leaders at 3m; **to be preserved and protected**
5	Amur maple	Good	22.3	City	Mature; 'standard' variety - upright growth form; dense crown; **to be preserved and protected**
6	Manitoba maple *(Acer negundo)*	Fair	14 avg.	Private	Maturing; double stemmed at 0.3m from grade; naturalized species; **to be removed**
7	Ash *(Fraxinus* spp.*)*	Dead	-	Private	**To be removed**
8	Ash	Dead	-	Private	**To be removed**
9	Ash	Dead	-	Private	**To be removed**
10	Siberian elm *(Ulmus pumila)* & (1) Manitoba maple	Fair	23 avg.	Private	Mature; multi-stemmed from grade; generally upright growth forms; introduced invasive species (elm); **to be removed**
11	Siberian elm	Fair	21 avg.	Private	Mature; multi-stemmed from grade; generally upright growth forms; **to be removed**
12	Manitoba maple	Fair	17 avg.	Private	Mature; multi-stemmed from grade; divergent growth forms; **to be removed**

Table 1. Con't

Tree No.	Tree Species	Condition (VP→E)	DBH[1] (cm)	Owner -ship	Tree Condition Notes & **Preservation Status** (to be removed or preserved and protected)
13	Siberian elm	Dead	-	Private	**To be removed**
14	Manitoba maple	Poor	21 avg. (at 2m)	Shared	Mature; coppice growth – multiple stems arising from stump; divergent growth forms – most stems overhang shared property line (will need to be cut back); **to be removed** (with neighbour's permission)
15	Manitoba maple & (1) white elm *(Ulmus americana)*	Fair to Good	15 to >50	Neigh-bour	Mature; most maples are multi-stemmed, elm is single stemmed; some stems overhanging property line – will need to be cut back; **all except elm to be removed** (with neighbour's permission)
16	Sugar maple	Good	17	Private	Maturing; likely originated from seed; has grown through chain-link fence; **to be removed**
17	Siberian elm	Fair	12	Private	Maturing; originated from seed; has grown through chain-link fence; **to be removed**
18	White elm	Good	14 avg.	Private	Maturing; three stems; originated from seed; have grown through chain-link fence; **to be removed**
19	Manitoba maple & (1) white elm	Fair		Private	Maturing; originated from seed; have grown through chain-link fence; generally divergent forms; **to be removed**

[1]Diameter at breast height, or 1.4m from grade.

As is typical in urban and peri-urban settings in Ottawa there are many seeded invasive and naturalized species (namely, Manitoba maple, Siberian elm and buckthorn *(Rhamnus* spp.)) on and adjacent to the subject property. Although the larger ones appear on the tree conservation plans, most trees of these species are less than 10 cm in diameter and so are below the threshold relevant to tree conservation reports.

Pictures 1 through 6 on pages 6, 7, 8 and 9 of this report show selected trees on and adjacent to the subject property.

TREE PRESERVATION AND PROTECTION MEASURES

Preservation and protection measures intended to mitigate damage during construction will be applied for the trees to be retained adjacent to the subject property. The following measures are the minimum required by the City of Ottawa to ensure tree survival during and following construction:

1. Erect a fence at the critical root zone (CRZ[1]) of trees;
2. Do not place any material or equipment within the CRZ of the tree;
3. Do not attach any signs, notices or posters to any tree;
4. Do not raise or lower the existing grade within the CRZ without approval;
5. Tunnel or bore when digging within the CRZ of a tree;
6. Do not damage the root system, trunk or branches of any tree;
7. Ensure that exhaust fumes from all equipment are NOT directed towards any tree's canopy.

[1] The critical root zone (CRZ) is established as being 10 centimetres from the trunk of a tree for every centimetre of trunk Diameter at breast height (DBH). The CRZ is calculated as DBH x 10 cm.

In addition to the minimum measures required by the City, a number of other measures are recommended to promote the survival of the mature bur oak (tree #2) following construction:

PRE-CONSTRUCTION MEASURES

1) Tree Protection Barrier: Following the City of Ottawa's tree protection barrier specifications, tree protection fencing will be installed prior to the start of any site works and at the furthest distance possible from the tree. Some adjustments in the fencing with be required as the removal of front porches, poured concrete walkways and gas shut offs are completed. However, the eventual location of the fencing will be in line with the existing foundations, where it will stay for the duration of construction. All of the supports and bracing for the barrier should be installed in such a way as to minimize root damage. The barrier should also have signage attached to it indicating its purpose as a tree protection barrier. Lastly, neither the repair or refueling of machinery, nor the storage or stockpiling of materials should take place within this area.

2) Surface Treatment: Where construction traffic passes near the protected area a root buffer is required outside of the tree protection barrier. This buffer is unnecessary where asphalt driveways are used as access points. Where asphalt is not present the buffer will consist of woodchips spread to a thickness of 10 cm covered by a layer of granular 'A' gravel deep enough to stabilize steel plates or multiple layers of 2-cm thick (¾ inch) plywood. This will help prevent the compaction of soil surrounding the tree's fine feeding roots.

3) Excavation & Exposed Roots: The use of hydro vacuuming to excavate around the tree will be required in order to carefully expose roots. Roots greater than 1cm in diameter should be cleanly cut at the furthest limits of the excavation. Bypass shears or a hand saw should be used for this work. Each cut root end should be sealed immediately with a beeswax compound. Once the exposed roots are properly treated excavation using traditional equipment can be used to complete the work.

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4) Watering: Roots exposed during excavation should be immediately reburied with soil or temporarily covered with burlap, filter cloth or woodchips and kept moist (*i.e.* watering with a soft-spray nozzle at least three times a week). A covering of plastic should be used in order to retain moisture during an extended period when watering may not be possible (*i.e.* over long weekends).

CONSTRUCTION MATERIALS

Sonotubes will be used to support the porches proposed for the townhouses which face Tweedsmuir Avenue as they will extend into the oak's CRZ. For the same reason the base material for the walkways to these porches should be composed of CU-Structural soil underlain with a woven (*i.e.* perforated) geotextile liner. CU-structural soil is unique in that it provides a load-bearing base which can also serve as a rooting medium even once compacted. Stone dust as leveling course and granular A stone as a subgrade should be avoided as once compacted they are not permeable (thus preventing the movement of air and moisture into soil). A permeable brick paver should be used for the surface of walkways. If this is unsuitable for any reason the use of a permeable product such as VersiGrid or Ecoraster should be explored instead.

POST-CONSTRUCTION MEASURES

In terms of future maintenance, the oak should be monitored regularly and any dieback or dead branches be pruned out of the crown if warranted. Pruning of diseased, weakly attached and superfluous branches could help in order to help compensate for the loss of roots. Periodic deep root fertilization is also recommended. Since the tree could show signs of root-related stress, a fertilizer with a high-phosphorus formulation should be used.

This report is subject to the attached Limitations of Tree Assessments to which the reader's attention is directed. Please do not hesitate to contact the undersigned with any questions concerning this report.

Yours,

Andrew K. Boyd, B.Sc.F, R.P.F. (#1828)
Certified Arborist #ON-0496A and TRAQualified
Consulting Urban Forester

Picture 1. Sugar maple (tree #1 – in foreground) and bur oak (#2) adjacent to the development site.

Picture 2. Trees #6 through 12 on the development site.

Picture 3. Trees #8 through 14 along property line of the development site (in distance stems of tree #14 far overhang property line).

Picture 4. Tree grouping #16 on far side of property line of the development site (most trees overhang property line).

Picture 5. Trees #15, 16 and 17 on the development site.

Picture 6. Tree grouping #19 on the development site

LIMITATIONS OF TREE ASSESSMENTS

It is the policy of *IFS Associates Inc.* to attach the following clause regarding limitations. We do this to ensure that our clients are clearly aware of what is technically and professionally realistic in assessing trees for retention.

The information contained in this report covers only the tree(s) in question and no others. It reflects the condition of the assessed tree(s) at the time of inspection and was limited to a visual examination of the accessible portions only. *IFS Associates Inc.* has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the forestry and arboricultural professions, subject to the time limits and physical constraints applicable to this report. The assessment of the tree(s) presented in this report has been made using accepted arboricultural techniques. These include a visual examination of the above-ground portions of each tree for structural defects, scars, cracks, cavities, external indications of decay such as fungal fruiting bodies, evidence of insect infestations, discoloured foliage, the condition of any visible root structures, the degree and direction of lean (if any), the general condition of the tree(s) and the surrounding site, and the proximity of property and people. Except where specifically noted in the report, the tree(s) examined were not dissected, cored, probed or climbed to gain further evidence of their structural condition. Also, unless otherwise noted, no detailed root collar examinations involving excavation were undertaken.

While reasonable efforts have been made to ensure that the tree(s) recommended for retention are healthy, no warranty or guarantee, expressed or implied, are offered that these trees, or any parts of them, will remain standing. This includes other trees on the property not examined as part of this assignment. It is both professionally and practically impossible to predict with absolute certainty the behaviour of any single tree or groups of trees or their component parts in all circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential for failure in the event of adverse weather conditions, and this risk can only be eliminated through tree removal.

Notwithstanding the recommendations and conclusions made in this report, it must be realized that trees are living organisms, and their health and vigour constantly change over time. They are not immune to changes in site conditions, or seasonal variations in the weather. It is a condition of this report that *IFS Associates Inc.* be notified of any changes in tree condition and be provided an opportunity to review or revise the recommendations within this report. Recognition of changes to a tree's condition requires experience and so it is recommended that *IFS Associates Inc.* be employed to re-inspect the tree(s) with sufficient frequency to detect if conditions have changed significantly.

No responsibility is assumed for matters legal in character. Statements made to *IFS Associates Inc.* in regards to the condition or history of the tree(s) are assumed to be correct. Any and all property is assessed or evaluated as though free and clear, under responsible ownership and competent management. It is assumed that any property is not in violation of any applicable codes, ordinances, statues or other government regulations.

Neither the author of this report nor anyone else in association with *IFS Associates Inc.* shall be required to give testimony or attend court by reason of this report unless contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contact of engagement, or as previously accepted.

The information, recommendations and opinions expressed in this report are for the sole benefit of the client(s) named above. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressly written consent of the author. Unless otherwise required by law, neither all or any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior expressly written consent of the author, and especially as to value conclusions, identity of the author, or any reference to any professional society or institute or to any initialed designation conferred upon the author as stated in his qualifications.

This report and any values expressed herein represent the opinion of the author; His fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

Details obtained from photographs, sketches, etc., are intended as visual aids and are not to scale. They should not be construed as engineering reports or surveys.

Although every effort has been made to ensure that this assessment is reasonably accurate, the tree(s) should be reassessed at least annually. The assessment presented in this report is valid at the time of the inspection only.

Lastly, loss or alteration of any part of this report invalidates the entire report.