

NOVEMBER 19, 2020

PROJECT NO: 1953-5729

Georgian Communities
85 Bayfield Street, Suite 500
Barrie, ON L4M 3A7

Attention: Jay Beech, Manager of Development

**RE: 400 MAPLE STREET, TOWN OF COLLINGWOOD
TREE INVENTORY AND ASSESSMENT UPDATE**

Dear Mr. Beech,

C.F. Crozier & Associates was retained to provide an update to tree inventory and assessment work previously completed to support the 400 Maple Street development in the Town of Collingwood. Previous tree assessment reports were completed by WillowStone (July 12, 2006) and Arboreal Tree Care Professionals (December 5, 2016). The purpose of this letter is to provide an updated evaluation of the vigour and health of the trees. This tree inventory and assessment update letter shall be read in conjunction with the previously issued arborist reports and updated servicing, grading and landscape design intent plans.

Methodology

Field Observations

Following our review of the previous arborist reports and current Site Plan, we inventoried and assessed the trees within and immediately adjacent to the development property on October 14, 2020. The trees were still in full foliage and were just beginning to exhibit fall colour. Trees were evaluated for health, structure and risk potential. The on-site inventory of existing trees was carried out using the current survey, and most current aerial photography of the property. No trees were tagged as part of this inventory. Only trees over 10cm dbh were assessed, and each tree was evaluated from the ground. No permission was granted to access the trees on the neighbouring properties, and therefore those trees were assessed from inside the 400 Maple Street property limits.

Tree Inventory & Assessment

Seventeen (17) trees were inventoried: one (1) on the development, eight (8) within Town right-of-way, and eight (8) on the neighbouring properties. The inventory is summarized graphically in the Tree Management Plan (attached), which shall always be read in conjunction with this letter. The trees are identified in terms of species, condition and recommendations. The condition of trees range from excellent to poor.

To guide an accurate appraisal of the tree condition, six factors were studied: trunk condition, growth rate, structure, insect and disease problems, crown development, and life expectancy. Each factor is given a rating between either one and three or one and five, with the higher number being the better rating. Each of these ratings and factors criteria is described in the table below.

Rating	Description
Trunk Condition	
5	Tree Trunk is sound and solid throughout, has no visible deterioration present and no visible damage to bark and cambium
3	Minor cambium damage
1	Extensive decay, hollowness and some bark and cambium damage
Growth Rate	
3	More than 6" twig elongation
2	2-6" of twig elongation
1	Less than 2" of twig elongation
Structure	
5	No major limbs dead, broken or missing, no narrow crotch angles and good radial branch distribution
4	Good radial branch distribution, but one that has a narrow crotch angle
3	One of the major limbs is dead or broken, destroying the radial balance of the structure
2	A tree has 2 or 3 major branches forming narrow crotches with at least one being broken
1	Two or more major limbs area dead, broken or missing, and there are several narrow crotch angles present
Insect & Disease Problems	
3	There are no pests present
2	There are one or two minor insect or disease problems, such as leaf feeders or leaf disease
1	Insect or disease problem is serious, such as canker disease, wilt disease, bark beetles or wood borers
Crown Development	
5	A dense leafy crown that is evenly balanced on all sides
4	Slightly unbalanced crown with development extended slightly in one direction
3	Thin crown or a severe imbalance
2	Slight imbalance combined with a thin crown
1	Thin crown with severe imbalance
Life Expectancy	
5	Over 30 years
4	20-30 years
3	15-20 years
2	5-15 years
1	Less than 5 years

In reviewing the six factors of condition, all factors combined range from 6 to 26. This range is distributed over the five condition classes as follows:

Rating for Condition Class	
Condition Class	Rating Points
Excellent	23-26
Good	19-22
Fair	14-18
Poor	10-13
Very Poor	6-9

ID No.	Latin Name	Common Name	Trunk Condition	Growth Rate	Structure	Insect & Disease Problems	Crown Development	Life Expectancy	Rating
1	<i>Acer saccharinum</i>	Silver Maple	3	1	2	2	2	2	12
2	<i>Acer saccharinum</i>	Silver Maple	3	1	2	2	3	2	13
3	<i>Fraxinus pennsylvanica</i>	Green Ash	3	2	4	3	5	2	19
4	<i>Acer saccharinum</i>	Silver Maple	5	2	2	2	3	3	17
5	<i>Acer saccharinum</i>	Silver Maple	5	2	2	2	2	2	15
6	<i>Acer platanoides</i>	Norway Maple	5	3	4	3	5	5	25
7	<i>Robinia pseudoacacia</i>	Black Locust	3	2	2	3	4	3	17
8	<i>Acer saccharinum</i>	Silver Maple	3	2	4	3	3	3	18
9	<i>Robinia pseudoacacia</i>	Black Locust	3	2	2	3	3	2	15
10	<i>Ulmus spp.</i>	Elm	3	2	1	3	3	3	15
11	<i>Picea spp.</i>	Spruce	5	2	3	3	4	4	21
12	<i>Picea spp.</i>	Spruce	5	2	3	3	4	4	21
13	<i>Acer negundo</i>	Manitoba Maple	3	2	2	2	3	4	16
14	<i>Acer negundo</i>	Manitoba Maple	3	2	2	2	3	4	16
15	<i>Acer negundo</i>	Manitoba Maple	3	2	2	2	3	4	16
16	<i>Gleditsia spp.</i>	Honeylocust	3	3	4	3	3	5	23
17	<i>Acer platanoides</i>	Norway Maple	3	3	5	3	5	5	24

ID No.	Latin Name	Common Name	Hazardous	Condition	Location	Remove/Retain	Comments
1	<i>Acer saccharinum</i>	Silver Maple	Yes	Poor	Town ROW	Remove	Construction conflicts
2	<i>Acer saccharinum</i>	Silver Maple	Yes	Poor	Town ROW	Remove	Construction conflicts
3	<i>Fraxinus pennsylvanica</i>	Green Ash	No	Good	Town ROW	Remove	Construction conflicts
4	<i>Acer saccharinum</i>	Silver Maple	Yes	Fair	Town ROW	Remove	Construction conflicts
5	<i>Acer saccharinum</i>	Silver Maple	Yes	Fair	Town ROW	Remove	Construction conflicts
6	<i>Acer platanoides</i>	Norway Maple	Yes	Excellent	Town ROW	Remove	Construction conflicts
7	<i>Robinia pseudoacacia</i>	Black Locust	Yes	Fair	Town ROW	Remove	Construction conflicts
8	<i>Acer saccharinum</i>	Silver Maple	Yes	Fair	Town ROW	Remove	Construction conflicts
9	<i>Robinia pseudoacacia</i>	Black Locust	Yes	Fair	139 Sixth St.	Retain	Hazardous branch overhangs require pruning – engagement with the neighbouring property owner is required
10	<i>Ulmus spp.</i>	Elm	Yes	Fair	139 Sixth St.	Retain	Hazardous branch overhangs require pruning – engagement with the neighbouring property owner is required
11	<i>Picea spp.</i>	Spruce	No	Good	139 Sixth St.	Retain	
12	<i>Picea spp.</i>	Spruce	No	Good	139 Sixth St.	Retain	
13	<i>Acer negundo</i>	Manitoba Maple	Yes	Fair	139 Sixth St.	Retain	Hazardous branches require pruning – engagement with the neighbouring property owner is required. Trees may require complete removal.
14	<i>Acer negundo</i>	Manitoba Maple	Yes	Fair	139 Sixth St.	Retain	Hazardous branches require pruning – engagement with the neighbouring property owner is required. Trees may require complete removal.
15	<i>Acer negundo</i>	Manitoba Maple	Yes	Fair	139 Sixth St.	Retain	Hazardous branches require pruning – engagement with the neighbouring property owner is required. Trees may require complete removal.
16	<i>Gleditsia spp.</i>	Honeylocust	No	Excellent	138 Fifth St.	Retain	
17	<i>Acer platanoides</i>	Norway Maple	No	Excellent	400 Maple St.	Remove	Construction conflicts

* These tree inventory and assessment charts shall be read in conjunction with the previously issued arborist reports.

Conclusion

Overall, the general condition of the trees inventoried were of low quality. A number of the trees have coppice growth, and several of those stems create a hazardous situation (greater than 30° lean). Due to the proximity to the proposed development works, nine (9) trees are recommended for removal, and five (5) trees are recommended for pruning due to hazardous limbs, which may facilitate their removal. Engagement with the neighbouring property owner will be required.

Should you have any questions or require any further information, please do not hesitate to contact the undersigned.

Sincerely,

C.F. CROZIER & ASSOCIATES INC.



Katie Wardrop, OALA, CSLA
Intermediate Landscape Architect

/kw

C.C.

Enclosure

Tree Management Plan (Crozier, Rev. 1 – November 19, 2020)

Tree Assessment at the Victoria Annex development in Collingwood (WillowStone, July 12, 2006)

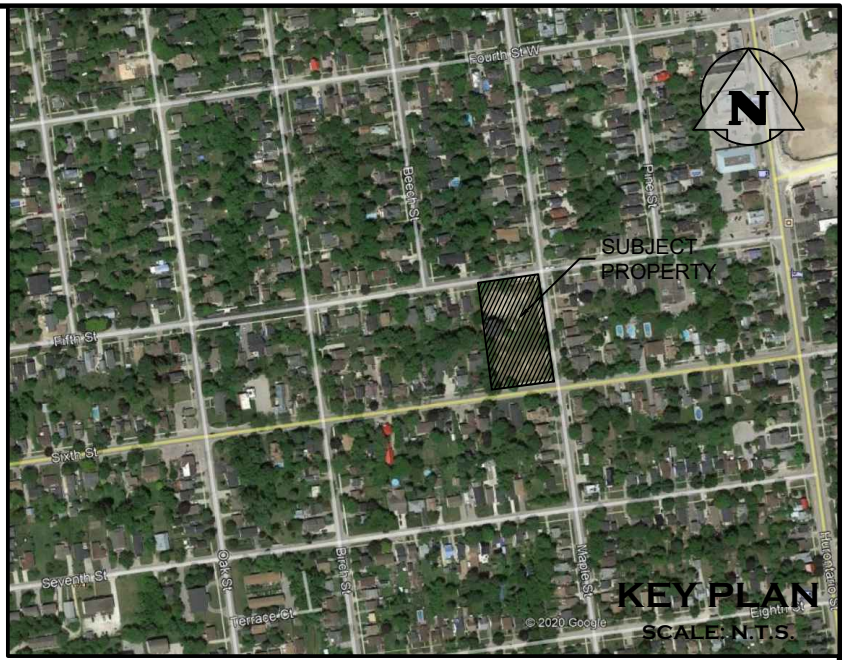
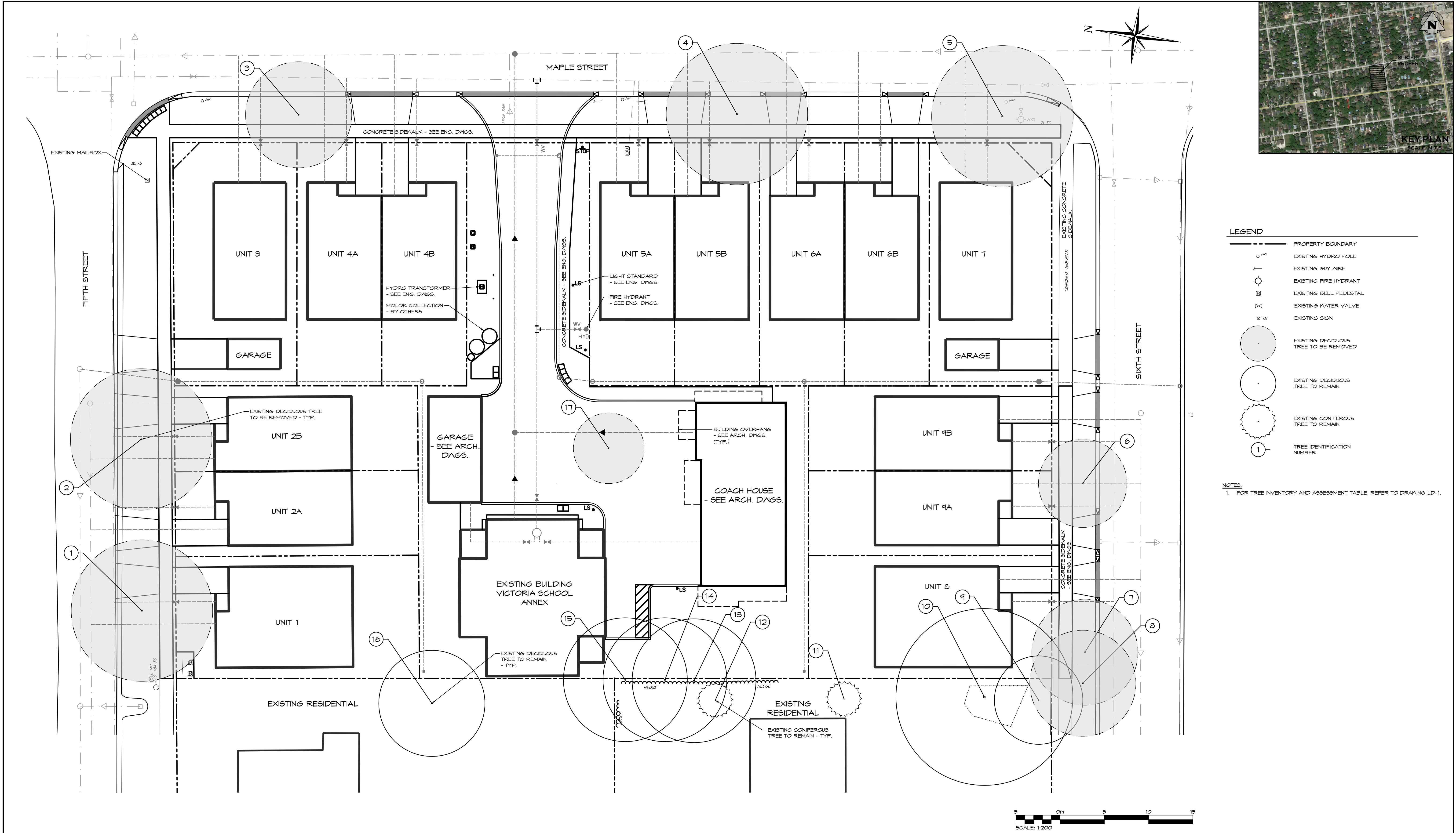
Arborist Report – Annex Project (Arboreal Tree Care Professionals, December 5, 2016)

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C.F. CROZIER & ASSOCIATES INC.



Mike Hensel, OALA, CSLA
Senior Development Consultant



LEGEND

—	PROPERTY BOUNDARY
○ HP	EXISTING HYDRO POLE
—	EXISTING GUY WIRE
⊙	EXISTING FIRE HYDRANT
⊠	EXISTING BELL PEDESTAL
⊗	EXISTING WATER VALVE
⊕	EXISTING SIGN
○	EXISTING DECIDUOUS TREE TO BE REMOVED
○	EXISTING DECIDUOUS TREE TO REMAIN
⊙	EXISTING CONIFEROUS TREE TO REMAIN
①	TREE IDENTIFICATION NUMBER

NOTES:
1. FOR TREE INVENTORY AND ASSESSMENT TABLE, REFER TO DRAWING LD-1.

1. THIS DRAWING IS THE EXCLUSIVE PROPERTY OF G.F. CROZIER & ASSOCIATES INC. AND THE REPRODUCTION OF ANY PART WITHOUT PRIOR WRITTEN CONSENT OF THIS OFFICE IS STRICTLY PROHIBITED.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.
3. THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT.
4. DO NOT SCALE THE DRAWINGS.
5. ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

NOTES:
1. TOPOGRAPHIC SURVEY AND BASE PLAN PROVIDED BY TATHAM ENGINEERING LTD. (NOVEMBER 2020).
2. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED.

Town	
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No.	ISSUE / REVISION	DATE: MM/DD/YYYY
1	ISSUED FOR 1st SUBMISSION	11/14/2020

STAMP: TOWN OF LAND
PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Project: **400 MAPLE STREET**
TOWN OF COLLINGWOOD
Drawing: **TREE MANAGEMENT PLAN**

CROZIER & ASSOCIATES
Consulting Engineers
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By	P.R.	Design By	K.J.N.	Project	1953-5729
Check By	K.J.N.	Check By		Scale	1:200
				Drawing	TMP-1

WillowStone
Landscape Development and Management

July 12, 2006

Mr. Andrew Johnson
Quinn Design Associates Inc.
132 Cumberland Street
Toronto, Ontario M5R 1A6

Dear Mr. Johnson:

As requested by Chris Skelton of Porter Skelton and Associates I have completed the tree assessment at the Victoria Annex development in Collingwood.

I evaluated each tree from the ground only and because of the current leaf cover it was not possible to see all parts of the tree. Therefore my observations are of the general variety. There are 2 trees that were not indicated on the layout plan. I've indicated their location on the plan.

Except for 3 trees of different species the large silver maple are mature trees in the initial stages of decline. They have a typical street tree growth pattern consisting of a short massive trunk supporting many upright co-dominant stems. Some of these upright stems are quite large and weighty with less than adequate tree attachments. Silver maple generally has a shallow, fibrous and vigorous root system. The root system of this tree is quite capable of buckling sidewalks and clogging drain lines. It is a brittle wood and is subject to wind and ice storm damage. All of these details need to be taken into consideration when making decisions about how these trees will have an effect on the development and vise versa.

I have presented pictures of each of the trees that are to remain around the perimeter of the development along with details describing my observations and health concerns. All tree diameter and height measurements are approximate. All trees assessed are boulevard trees.

If you have any questions or I can be of further assistance, please give me a call.

Sincerely,



David Whalen
Certified Arborist
Forest Technician

Tree No. 1 Acer saccharinum Silver Maple
Located at the northwest corner of the development.
90 cm dbh 22m ht.

This tree was not shown on the layout plan so I have placed it on the photocopied page submitted. **Photos 1, 2, and 3** show the tree from the west, north and east sides.

- Small branch dieback
- Some dead hanging debris in the crotches.
- No main structural dieback.
- Leaf colour and size is typical.
- Typical silver maple co-dominant stem attachment structure. **Photo 4**
- No apparent serious decay or fungal fruiting bodies.

Tree No. 2 Acer saccharinum Silver Maple
Located to the east of Tree No. 1
115 cm dbh 25m ht.

Photos 5 and 6 show the tree from the northwest and northeast sides.

- Very full crown. Multiple upright co-dominant stems.
- Small branch dieback.
- Leaf colour and size is typical.
- No apparent fungal fruiting bodies.
- **Photo 7** shows attachment to the tree of the co-dominant upright stems. A number are very large, extend well beyond the trunk of the tree and have poor attachment sites.
- **Photo 8** shows the type of stem attachments that will have the highest potential of breakage. There is also an old decayed portion of a remaining upright stem that was once part of the canopy. It is safe to say that decay continues into the trunk of the tree.
- **Photo 9** shows the sidewalk buckling from root pressure.
- **Photo 10** gives a view of the proposed entrance from Fifth Street into the development. The green flag in the grass, to the left of the tree indicates where the edge of the new curb will be. Beyond this point a new pavement entrance is to be installed.

At this point it is worth discussing the problems this tree will encounter after the entrance has been constructed.

The majority of the roots of this tree will be in the top 1 metre of soil with the majority of those within the top 45 cm (18"). The roots will extend out 2 to 3 times the height of the tree. Obviously the surrounding hardscape features have influence on the direction of root growth. Roots are opportunistic and will grow to areas that best influence the overall health of the tree. The outer extent of the root system is the feeding portion that provides the necessary water and nutrients.

As mentioned, the green flag in **Photo 10** indicates the edge of the curb. I don't know how much of an excavation will be needed under the paved areas, concrete curbing and sidewalk but for sure it will require cutting heavily into the roots of this tree. Three sides of this tree will have serious root damage done to it. The accumulated effects of this root severing or disturbance will at the very least result in decline of this very mature tree. Because of the age of this tree and the fact it is showing signs of decline in the upper crown it is my opinion that this tree will decline rapidly and will not survive this type of construction. As a comparison, if asked to provide an optimum tree protection zone prior to any type of construction for a tree growing in an open area I would advise a 17 metre radius tree protection zone to ensure the survival of the tree. The green flag in the grass is 3.2 metres from the centre of the tree. Tree stability becomes an issue to consider when severing the large roots so close to the tree.

Tree No. 3 Fraxinus pennsylvanica Green Ash
Located just south of the northeast corner of the development.
30 cm dbh

This tree was not shown on the layout plan so I have placed it on the photocopied page submitted. **Photo 11** shows the tree from the north.

- Young tree. No apparent health issues.

Tree No. 4 Acer saccharinum Silver Maple
Located at the corner of Maple Street and Sixth Street
90 cm dbh All mature silver maple range 20m to 25m

Photo 12 shows the tree from the north side.

- Small branch dieback.
- Thinner in leaf in upper crown.
- Massive branch extending to the west with inadequate branch attachment. **Photo 13**
- Open old co-dominant stem attachment site. Decay in trunk likely. **Photo 14**
- No visible fungal fruiting bodies.
- Leaf colour and size typical in lower crown.

Tree No. 5 Acer saccharinum Silver Maple
Located on Sixth Street at the southeast corner.
85 cm dbh

Photo 15 shows the tree from the east side.

- More upper crown damage in this tree than the others due to wind, ice damage or snow load. **Photo 15**
- Small branch dieback.

- **Photo 16** shows an example of a secure upright stem attachment. The 'U' shape between the existing 2 stems is more secure than the 'V' shaped attachments normally found.
- Open old co-dominant stem attachment site. Decay in trunk likely. **Photo 17**
- Old branch attachment site. Hopefully the tree has successfully compartmentalized this area. Broken upright stem. **Photo 18**
- Leaf colour typical. Leaves appear to be smaller in general.
- No visible fungal fruiting bodies.

Tree No. 6 Acer saccharinum Silver Maple
 Located just to the west of Tree no. 5 on the south side of the property.
 60 cm dbh

Photo 19 shows the tree from the west side.

- Large and small branch dieback in the upper crown
- Old branch attachment site. Hopefully the tree has successfully compartmentalized this area. **Photo 20**
- Leaf colour and size is typical.
- No visible fungal fruiting bodies.

Tree No. 7 Acer plantanoides Norway Maple
 Located just to the west of Tree No. 6 on the south side of the property.
 26 cm dbh

Photo 21 shows the tree from the west side.

- Young tree. No apparent health problems.

Tree No. 8 Robinia pseudoacacia - spineless cultivar of a Black Locust
 Located just to the west of Tree No. 7 on the south side of the property at the southwest corner.
 45 cm dbh

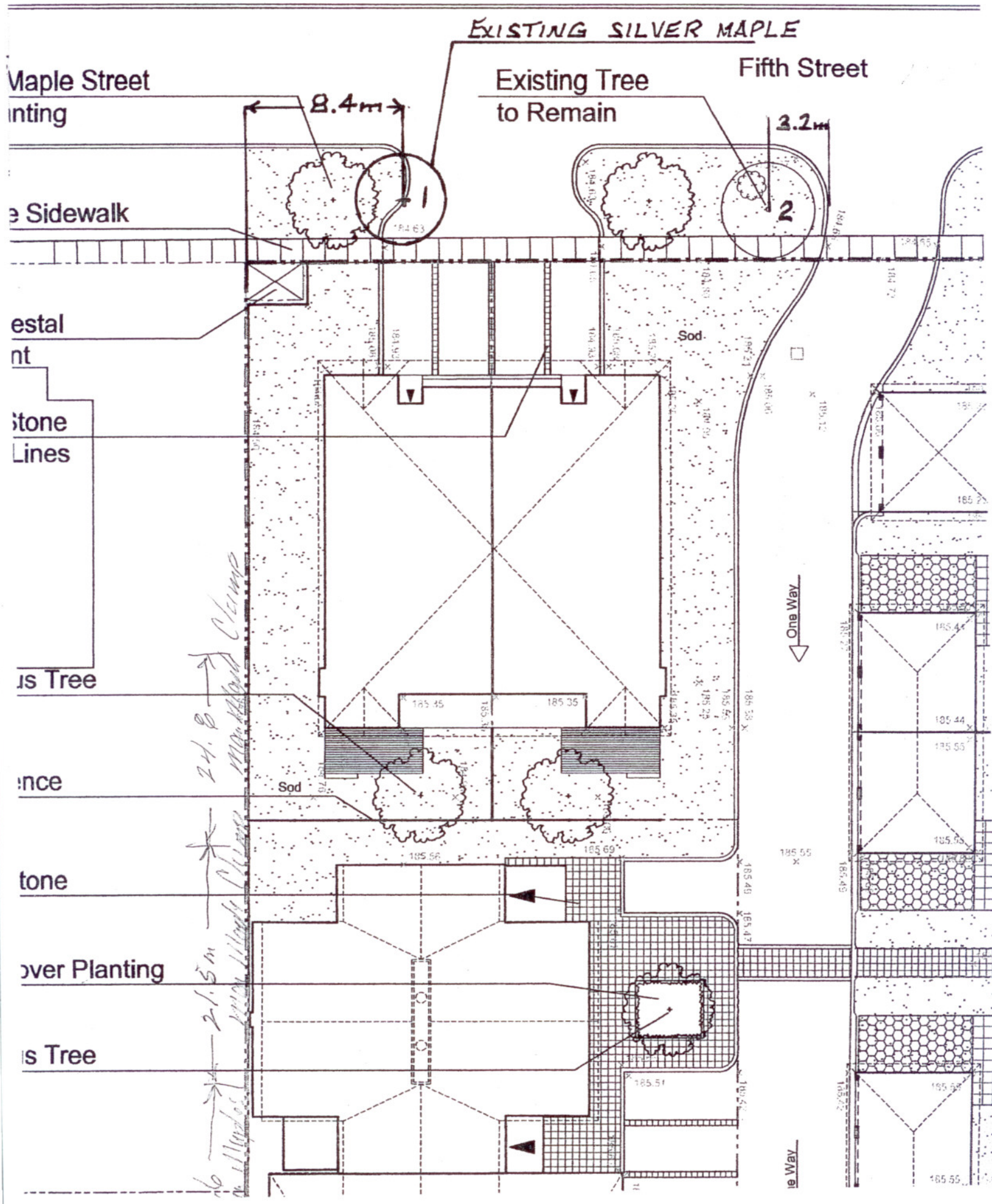
Photo 22 shows the tree from the east side.

- Young tree. No apparent health problems.

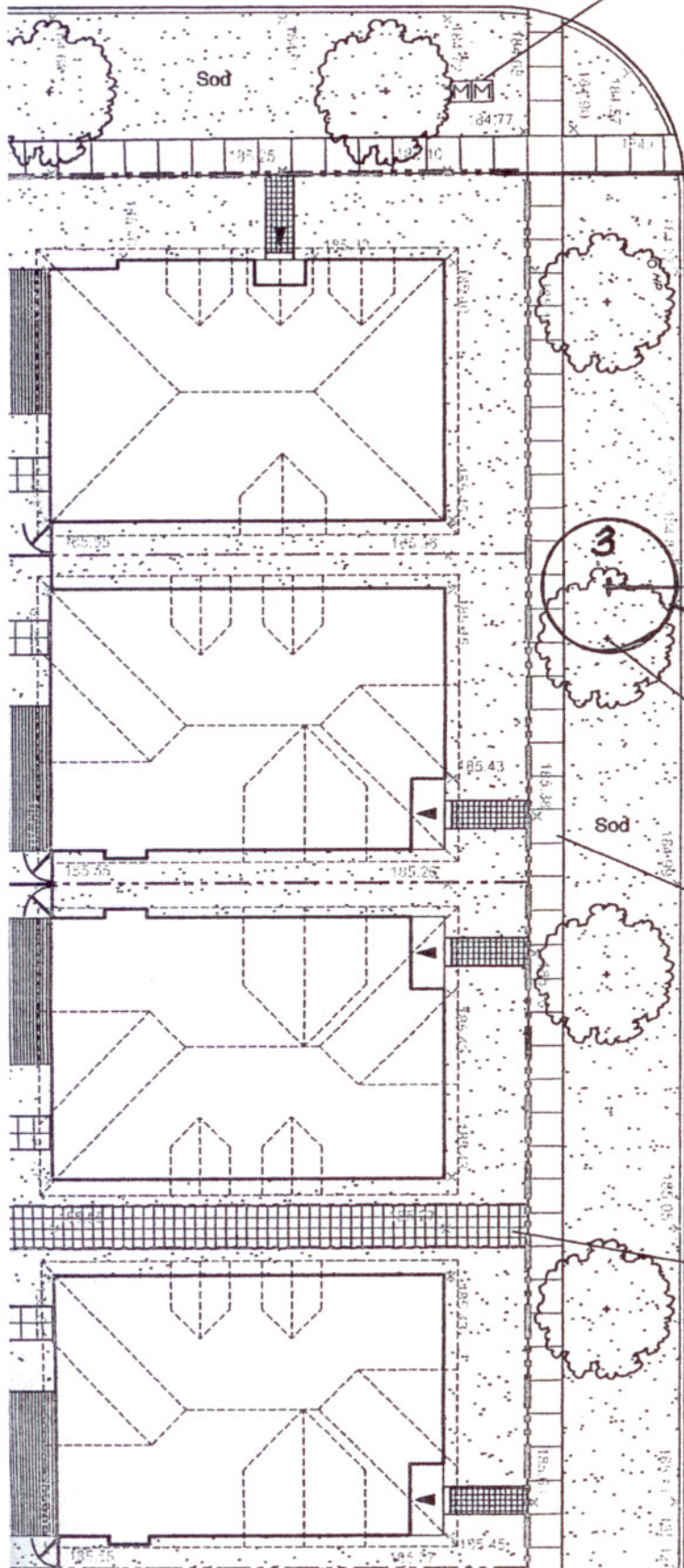
Tree No. 9 Acer saccharinum Silver Maple
 Located at the extreme southwest corner of the property.
 37 dbh

Photo 23 shows the tree from the west side.

- Young tree. No apparent health problems.



New Location for
Existing Mailboxes



EXISTING ASH

14.8 m

3

Typical Maple Street
Tree Planting

Concrete Sidewalk

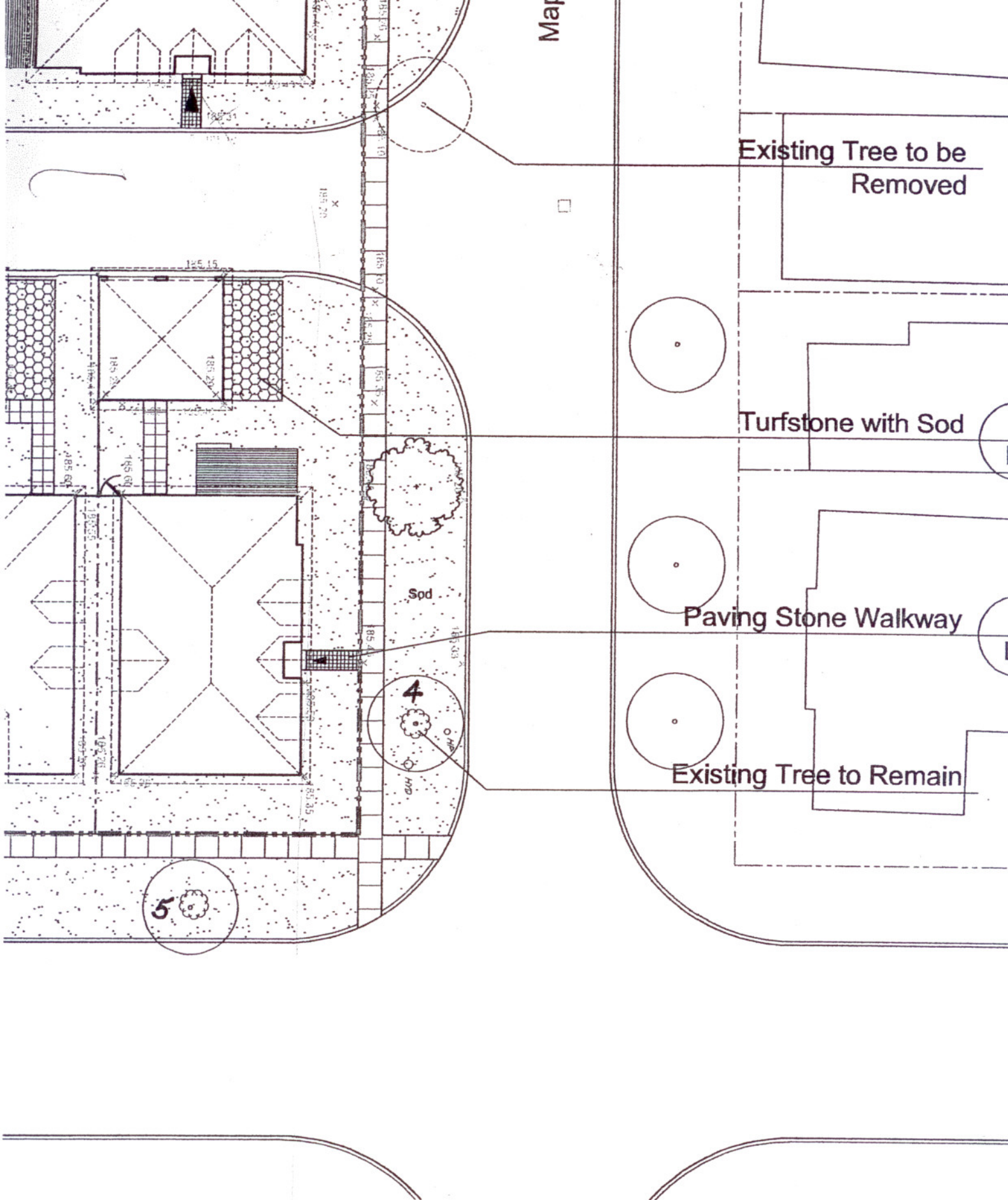
Paving Stone Walkway

Existing Tree to be
Removed

Turfstone with Sod

Paving Stone Walkway

Existing Tree to Remain



1 Cedar

one
ines

nce

with Sod

one

nce

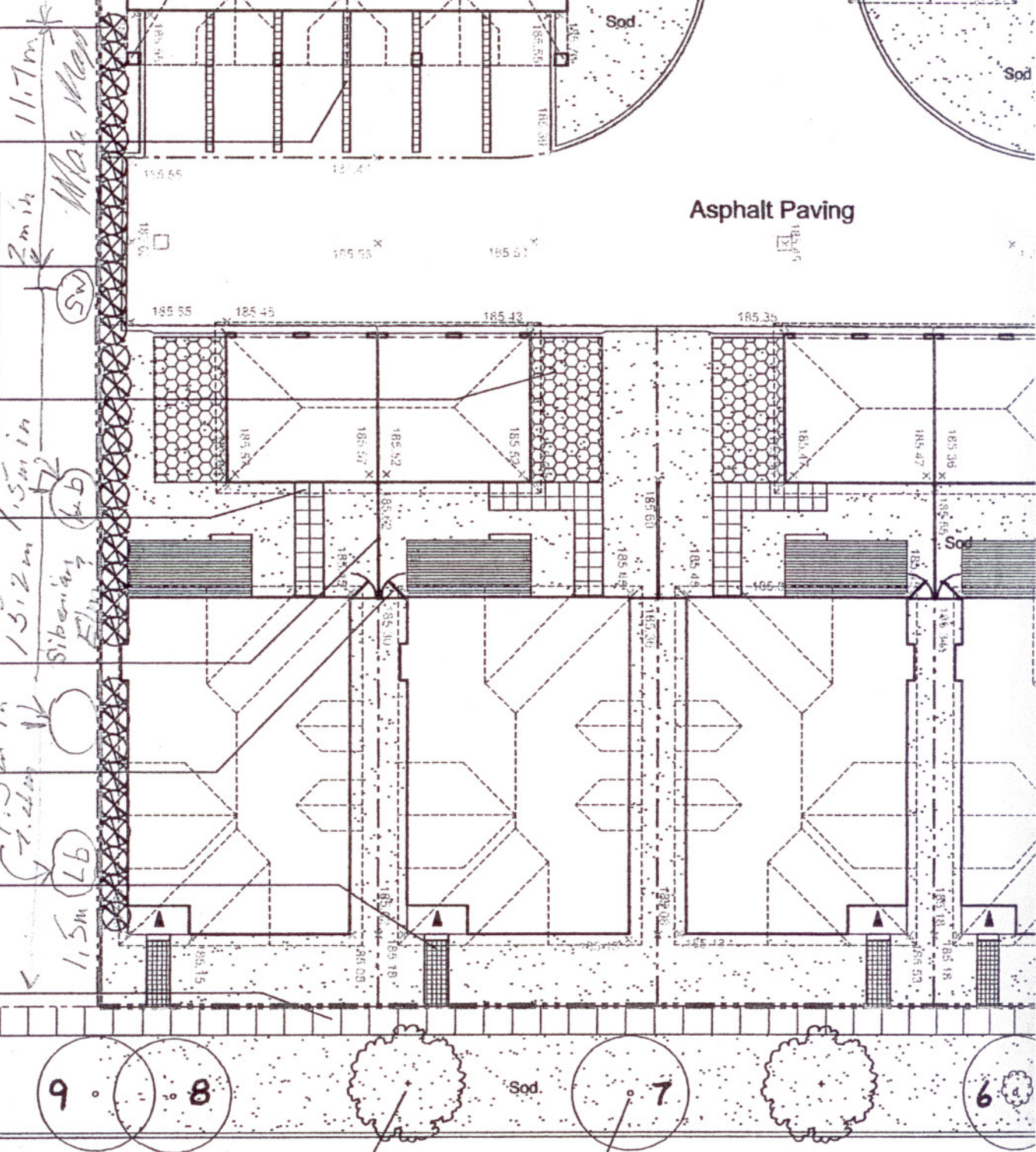
lood Gate

tone

Sidewalk

Maple Street
ting

Trees to
Typical



Sixth Street



Arborist Report

December 5, 2016

Submitted by:

Tobias Effinger *Certified Arborist, Ontario # 989534*

Pertaining to:

Anex Project – Silver maples along Fifth Street, Collingwood

Introduction

This report focuses on the structural assessment of the two silver maples (*Acer saccharinum*) growing along Fifth Street, situated south of the road as identified on aerial photo found on page 4. Resistograph technology, which measures the density of wood in trees with minimal invasiveness, has been employed during this assessment.

Assignment

Special Site Considerations

Both silver maples are growing in a high use area having regular vehicular and pedestrian traffic under their canopies; safety of passersby shall be a priority.

The Trees

#	Botanical name	Common name	DBH (Diameter at Breast Height)	
1	<i>Acer saccharinum</i>	Silver maple	78 cm	
2	<i>Acer saccharinum</i>	Silver maple	114 cm	

Observations

Tree inspection was conducted during the dormant season (December 1st – 6th), hence no foliar samples were present for analysis of health. However annual shoot elongation was inspected to ascertain the trees vitality and the trees growth trend in past years. Limbs from the upper canopy were sampled to assess past vitality by measuring shoot elongation from twigs dating back to 2010.

Year	Elongation – averages measured in mm	
2010	60.0	
2011	45.0	
2012	45.0	
2013	30.0	
2014	25.0	
2015	15.0	
2016	15.0	

The two silver maples are both mature and have developed large stems which share dominance; this is common for the species and is a typical failure point once maturity is reached due to the size the stems and lack of decay resistance shown by the species. These large stems are exhibiting decline, with decay and exposed heartwood being pervasive. Large pruning cuts are present throughout the canopies, these cuts being of substantial diameter will not be sealed off by the trees reaction growth before decay enters them increasing their failure potential.

Roots and root flares are heavily impacted by sidewalk proximity and sidewalk snow clearing activity and have several cavities which are degrading the southern flare integrity (photos on page 6 and 8). It is one of these cavities that has allowed the spread of decay into the trunk in tree # 1 as shown by the heartwood analysis results on page 10. This cavity is over 40cm deep and leaves the southern lower side (at testing point) with no more than 4cm of trunk wall thickness.

Services have been planned to enter from Fifth Street to supply the initial building project, this impact, along with the sidewalk replacement and further root loss by gaining access with a new driveway will have a cumulative negative impact on the health of the specimens.

Conclusion

These mature specimens exhibit several points of concern, and while pruning and cabling may stabilize the canopy, the tree is left vulnerable to complete failure at the trunk/soil interface due to the compromised southern root flares. Shoot elongation has seen a notable decline in our assessment period and for the past 5-7 years the growth was negligible; ongoing activity under the dripline will weaken the trees further, leading to more rapid decline and dieback. It is the sum of these effects and stresses which lead us to recommend complete removal for both of these trees. Planting of suitable species following the construction projects completion is recommended.

Silver maples #1 and #2 location



Tree # 1 – Western silver maple – showing included bark at main union and large pruning cuts as entry points to decay



Large pruning wounds

Tree # 1 – Basal root flare along sidewalk showing decay – south side of tree



Tree # 2 – Eastern silver maple – poorly formed union with several stems sharing dominance



Included bark arising from stems of near equal size developing at low degree acute angles.

Tree # 2 - Basal root flare along sidewalk showing decay – south side of tree



Heartwood analysis drill point locations – numbers correlate with field printouts from Resitograph



Heartwood analysis results

Tree # 1

	Cavity yes/no	Cavity size / comments	Drill point height from grade - cm
1	No	Test shows no defect	75
2	No	Test shows no defect	75
3	No	Test shows no defect	75
4	No	Test shows no defect	30
5	Yes	Wall (trunk) thickness only 3cm	30
6	Yes	Wall thickness only 4cm	30

Tree # 2

	Cavity yes/no	Cavity size / comments	Drill point height from grade - cm
1	No	Test shows no defect	100
2	No	Test shows no defect	100
3	No	Test shows no defect	100
4	No	Test shows no defect	30

Assumptions & Limitations

1. *Any descriptions or title provided to Arboreal is assumed to be current and correct. Arboreal assumes no responsibility for matters legal in character.*
2. *In the case this report is altered or shown incomplete, it shall be invalidated by that action in its entirety.*
3. *Use of this work for anything but the guidance and reference for the goals within shall first be approved by the author.*
4. *This report represents the opinions and recommendations of a qualified arborist, it is not exhaustive.*
5. *Visual aids in this report are not necessarily to scale, nor should they be thought of as architectural or engineering surveys or reports.*
6. *The consultant shall not be required to offer testimony or attend court regarding contents of this report unless subsequent contracts are made, in which additional fees may apply.*
7. *It is certified that the arborist completing this form is a member in good standing of the International Society of Arboriculture and has completed in excess of national requirements the training and examinations for qualification in the field of arboriculture.*

Tobias Effinger