Region of Peel Working for you





Tree Inventory and Assessment Coleraine Drive CPR Grade Separation

August 2017



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Appendix A

Tree Inventory and Assessment Drawing TI-1 to TI-5

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1. INTRODUCTION

CIMA+ has been retained by the Region of Peel to complete a tree assessment along Coleraine Drive between Harvest Moon Road/King Street West and Holland Drive in preparation of a grade separation between the CP rail and Coleraine Drive.

The purpose of this Tree Inventory and Assessment Report is to record species, size, and condition of trees and groups of vegetation within the site for use in the development of a tree preservation plan for the site.

2. LIMITATIONS

The assessment presented in this report has been made using accepted standard arboriculture techniques as outlined in the Council of Tree and Landscape Appraisers *Guide for Plant Appraisal*, 9th Edition (2000). These techniques include visual examination of above ground parts of each tree. The trees observed were not climbed, cored, or dissected, and excavation for detailed root crown inspection was not performed. Since some symptoms may only be present seasonally, the extent of observations that can be made may be limited by the time of year in which the inspection took place.

Since trees are living organisms, their health and vigour continually change over time due to seasonal variations, changes in site conditions, and other factors. For this reason, the assessment presented in this report is valid at the time of inspection, and no guarantee is made about the continued health of trees that are deemed to be in good condition. It is recommended that the trees be re-assessed periodically to identify changes in condition. While every standing tree has the potential for failure and therefore poses some risk, a tree assessment is a good indication of present health and potential problems that could arise in the future.

CIMA+ has prepared this report for the sole use of the client. Any use of this report by a third party, as any decision based on this report, is the singular responsibility of the third party. CIMA+ will not be held responsible for eventual damages towards a third party resulting from decisions taken, or based, on this report.

3. METHODOLOGY

The site was visited by CIMA+ employees on August 23, 2017. Trees were identified, numbered, measured, and assessed for condition. Tree groups were also assessed, and are shown on the drawing as well. The tree inventory and assessment table containing this information is included in Section 4.

Drawing No. TI-1 through to TI-5 shows locations of the numbered trees included in the assessment. The drawing is included as Appendix A.

3.1 Tree Size

Size refers to trunk diameter (caliper or DBH) measured in centimetres at 1.4 m above the ground. Where trees had more than one trunk from the base, the size of each trunk was recorded. Where trees forked to codominant trunks, each trunk was measured or the diameter was measured under the flare and the approximate height of the measurement was noted.

Trees under 5 cm DBH were not included in the assessment.

3.2 Condition

Trees and shrubs were given a subjective condition rating of Excellent, Good, Fair, Poor, or Dead. Following is a summary of how the ratings are determined:

- + EXCELLENT (E): no apparent health problems; good structural form
- + GOOD (G): minor problems with health and/or structural form
- + FAIR (F): more serious problems with health and/or structural form
- + POOR (P): major problems with health and structural form
- + DEAD (D): dead

The notes section of the assessment table in this report includes details of observations made concerning the structural form and health of trees.

3.3 Observations

Several structural defects and health problems are included in the Notes section of the tree inventory and assessment table. Structural defects are often insignificant when a tree is small, but can pose problems when the tree grows larger and the weight of branches put added stress on defects that can cause weakness. Larger trees also have the potential to cause more damage should they fail. Following is an explanation of some of the problems included in the Notes section of the inventory and assessment table, and how they can affect trees over time.

- + *Adventitious shoots* are vigorous growth of shoots from pruning cuts, inner branches, or along the trunk that usually occur in response to stress.
- + Buckthorn is a thorny, invasive exotic shrub species that out-competes native vegetation.
- + Codominant leaders (2 trunks or branches of approximately equal size) often have narrow branch angles, and are associated with weak branch attachment. Strong branch

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attachments occur between 2 limbs of unequal size with enough space for branch enlargement and formation of a branch bark ridge.

- + *Crossing branches* are often associated with narrow branch angles. Branches that cross over each other often rub, causing damage and therefore weakness to one or both branches, and crossing branches can eventually girdle each other.
- + Dieback refers to the ends of branches dying, which is often associated with root problems.
- + Emerald Ash Borer refers to a species of beetle native to East Asia that feeds on all species ash trees (*Fraxinus* spp.) during its larval stage. Typical symptoms of infection include heavy seed set, dieback, splitting bark, and adventitious shoots. Almost all infected ash trees will die within a few years of infection.
- Exposed surface roots can be a result of erosion and soil compaction combined with increasing root diameter. It is important to protect exposed roots from pedestrian and vehicular traffic, and lawn mowers. Damage to roots can cause stress and can result in canopy dieback.
- + *Girdling roots* are roots that cross over each other or around the trunk of the tree. As these roots grow larger, they can restrict the uptake of nutrients and water, and inhibit structural anchorage.
- + A tree with a *lean* can be more susceptible to windthrow and soil failure. *Self-correcting lean* refers to a natural correction of the lean by development of new growth that counteracts the lean of the trunk to provide a more balanced form.
- + *Live crown ratio* is the ratio of the live crown to the overall height of the tree. A low live crown ratio can develop when trees are growing close together in stands, or can be created by pruning or dieback. Low live crown ratio is associated with increased likelihood of failure, depending on the cause and site factors.
- + When a tree has *multiple branches from the same point of attachment*, the branches usually have characteristics of weakly attached branches.
- + *Narrow branch angles*, especially where there is included bark, can be a problem as trees grow larger because the inner wood is poorly attached.
- + *Suppressed* trees are growing under the canopies of neighbouring trees, which can diminish vigour and affect structural form.

The detailed observations made concerning tree species, size, and condition are included in the tree inventory and assessment table in Section 4.

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4. TREE INVENTORY AND ASSESSMENT TABLE

Tree No.	Species	Size (cm)	Condition	Notes
1A	Norway spruce	13	G-E	
1B	Norway spruce	13	G-E	
2A	Littleleaf linden	17	E	A few adventitious shoots typical of <i>Tilia</i> spp.
2B	Littleleaf linden	19	E	A few adventitious shoots typical of <i>Tilia</i> spp.
2C	Littleleaf linden	17	E	A few adventitious shoots typical of <i>Tilia</i> spp.
2D	Littleleaf linden	17	E	
2E	Littleleaf linden	17	E	On south slope and aspect of berm; lean south 10
				degrees from vertical; no buttress adaptation
2F	Littleleaf linden	17	E	
3	Burning bush	NA	E	Shrub; approx. 3 m tall
4	Norway spruce	19	G-E	
5	Norway spruce	15	D	Dead
6	Littleleaf linden	17	E	
7	Norway spruce	7	D	Dead
8	Norway spruce	13	G-E	
9	Lilac, staghorn	NA	Е, Р	Shrub group; approx. 4 m tall; lilac healthy; 50%
	sumac			dieback of sumac
10A	Norway spruce	13	G-E	
10B	Norway spruce	21	E	
10C	Norway spruce	13	G-E	
11A	Littleleaf linden	17	E	
11B	Littleleaf linden	17	E	Lean south 10 degrees from vertical; no buttress
				adaptation; not on a slope, so likely rotated when
110	Littleleaf linden	Multi-	F	Wounds from lawnmower deck damage to trunks:
110		stem		crossing branches
12	Littleleaf linden	19	E	
13	Norway spruce	19	G-E	
14A	Norway spruce	13	G-E	
14B	Norway spruce	13	G-E	
14C	Norway spruce	19	G-E	
15	Lilac, staghorn	NA	Е, Р	Shrub group; approx. 4 m tall; lilac healthy; 90%
	sumac			dieback of sumac
16A	Littleleaf linden	19	E	A few adventitious roots typical of <i>Tilia</i> spp.
16B	Littleleaf linden	19	E	A few adventitious roots typical of <i>Tilia</i> spp.
17	Norway spruce	13	G-E	Lost leader (recently topped); some dieback in lower 1 m of crown
L		I	1	in or or own

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Tree No.	Species	Size (cm)	Condition	Notes
18A	Norway spruce	13	G-E	Lost leader (recently topped); dense growth in top 1 m
18B	Norway spruce	18	E	
19A	Norway spruce	18	E	
19B	Norway spruce	18	E	
19C	Norway spruce	18	E	
19D	Norway spruce	18	E	
20A	Blue spruce	16	F	Bottom 2 m of crown being damaged by entrance traffic
20B	Blue spruce	16	E	
20C	Blue spruce	16	G	Some crown dieback at 2 m height
20D	Blue spruce	22	E	
21A	Norway maple	11	F	Girdled roots exposed at ground surface next to curb; evidence of leaf/small branch stress (colour change) from truck traffic at entrance
21B	Norway maple	7	F	Possible girdled roots - similar position to 21A
22	Columnar European beech	6	F	Possible girdled roots - similar position to 21A
23	Norway maple	11	G	
24A	Honey locust	8	E	In landscaped island
24B	Honey locust	8	E	In landscaped island
24C	Honey locust	8	E	In landscaped island
25	Austrian pine	18	E	At intersection corner
26A	Austrian pine	18	F	Needle tips turning orange; some crown loss between 2-3 m height
26B	Austrian pine	22	F	Leader topped at 5 m
26C	Austrian pine	18	F	Municipal address sign bolted into trunk, becoming included into tree
27A	Austrian pine	18	F	
27B	Austrian pine	22	F	
27C	Austrian pine	18	F	
28	Austrian pine	22	F	Behind chainlink fence on private property
29A	Blue spruce	17	F	Some damage to bottom 2 m of crown from adjacent entrance traffic
29B	Blue spruce	17	G	
29C	Blue spruce	17	G	
30	Austrian pine	22	G	2 m x 2 m Russian olive suppressed beneath the tree within the fence
31A	Austrian pine	22	G	2 m x 2 m Russian olive suppressed beneath the tree within the fence

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Tree No.	Species	Size (cm)	Condition	Notes
31B	Austrian pine	22	G	
31C	Austrian pine	18	G	Codominant stems from 0.3 m above ground
32A	White spruce	10	G	Heavy cone set; directly under hydro line; inside fence
32B	White spruce	10	G	Heavy cone set; directly under hydro line; inside fence
33	Staghorn sumac	NA	G	Shrub; approx. 3 m tall
34	Hawthorn	NA	E	Shrub; approx. 2 m tall
35	Lilac tree	10	E	Inside fence
36A	Honey locust	16	Р	Poor form; crossing branches; 50% dieback; growing in ditch next to hydrant
36B	Honey locust	16	F	Poor form; crossing branches; 30% dieback; growing in ditch next to hydrant
37	Red-osier dogwood and burning bush	NA	E	Shrub group; approx. 2 m tall
38A	Norway spruce	15	G	
38B	Norway spruce	15	F	Some shading and dieback due to interior position in bottom 3 m of crown
38C	Norway spruce	15	E	
39A	Bur oak	10	E	Codominant stems from 2.5 m above ground
39B	Bur oak	10	E	
39C	Bur oak	10	F	Two broken and hanging branches
40A	Blue spruce	15	G	Some dieback in upper crown
40B	Blue spruce	12	E	2-m tall buckthorn at base of tree
41A	Manitoba maple	5	E	Codominant stems from 2.0 m above ground
41B	Manitoba maple	5	E	
42A	Honey locust	16	F	Poor form; crossing branches; 30% dieback
42B	Honey locust	16	D	Dead
43	Manitoba	Multi-	F	5 stems 5-10 cm; poor structure; some wounds from
	maple	stem		friction of growing under wood fence
44	Lilac	NA	E	Shrub; approx. 2 m tall; growing out from backyard under wood fence
45A	Group	1 - 30	P-E	Black walnut, green ash, buckthorn, basswood, sugar maple, Virginia creeper, grapevine; fallen white birch found, though no evidence of living specimens
45B	Group	5 - 25	G-E	Predominantly white spruce, small white pine, ash, apple; ash is affected by Emerald Ash Borer
45C	Group	5 - 25	E	Staghorn sumac, Manitoba maple, buckthorn, apple, Norway maple, white pine, white spruce, white cedar,

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Tree No.	Species	Size (cm)	Condition	Notes
				elm; all trees are located within the fenced in area or
				further into the neighbouring valley
46	Green ash	34	Р	Greatly affected by Emerald Ash Borer; many
				adventitious shoots and branches, some to 8 cm
				diameter
47	Group	2 - 8	G-E	Eastern white cedar, Manitoba maple, Norway maple;
				approx. 5 m tall; mostly cedar; group growing directly
			-	under hydro line
48A	Scots pine	20	E	
48B	Scots pine	20	E	
48C	Scots pine	22,22	P-F	Codominant stems at 1 m above ground; topped with
				significant crown removal
49	Catalpa	33	G	Some crown removed around hydro line
50	Manitoba	34	G	Lean 10% from vertical with almost entire canopy
	maple		_	overhanging driveway
51	Pear	Multi-	F	3 stems from 10-12 cm; bearing fruit
50.4		stem	-	
52A	Blue spruce	30	E	
52B	Blue spruce	30	E	
53	Group	NA	E	Shrubs; Manitoba maple, fragrant sumac, sandcherry;
= 4 4			-	approx. 3 m tall
54A	Asn	23	D	Dead; evidence of Emeraid Ash Borer; adventitious
E 4 D	Ach	17	D	Shools from base
540	ASII	17	U	shoots from base
55	Group	NA	F	Shruhs: Manitoha manle fragrant sumac spirea:
33	Group		-	approx. 3 m tall
56A	Group	NA	E	Shrubs; burning bush, juniper; approx. 2 m tall
56B	Group	NA	E	Shrubs; burning bush, juniper; approx. 2 m tall
57A	Smooth	9	E	Few dried fruit on upper canopy
	serviceberry			
57B	Smooth	9	F	Adventitious shoots at 0.3 m above ground; leader
	serviceberry			dieback
58A	Elderberry	NA	E	Shrub; approx. 2.5 m tall
58B	Group	NA	E	Elderberry, fragrant sumac; approx. 2.5 m tall
58C	Group	NA	E	Elderberry, fragrant sumac, Manitoba maple; approx.
				2.5 m tall
59A	White spruce	6	F	Approx. 30% dieback concentrated in bottom 1 m of
				crown
59B	White spruce	6	Р	Approx. 60% dieback concentrated in bottom 1 m of
1	1		1	crown

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Tree No.	Species	Size (cm)	Condition	Notes
60	Group	NA	P-E	Staghorn sumac, ash; sumac in excellent condition;
				evidence of Emerald Ash Borer on two ash trees; one
				ash 4 m tall in good health
61A	Manitoba	12,9	E	Next to fence along CPR corridor
	maple			
61B	Manitoba	7	Р	Poor form; many branches and stems haphazardly
64.0	maple			pruned at base and throughout
610	Manitoba	Multi-	G	7 stems at 1, 2, 3, 3, 3, 4, and 5 cm each
62	maple	stem	_	Stacharn sumae, huslithern, 2.5 m tall, growing
62	Group	NA	E	Stagnorn sumac, buckthorn; 3.5 m tail; growing
62.4		15	G	Codominant stoms at 2 m above ground
05A	Blue spruce	10	G	
64	Blue spruce	18	E	
65	Pussy willow	NA	E _	Shrub; approx. 2.5 m tall
66	Variegated	NA	E	Shrub; approx. 1 m tall
67	dogwood		-	
67		NA	E	Shrub; approx. 2 m tall
68	Freeman maple	13	G	Multiple branches from same point on stem; pruning
<u> </u>	Littleleeflinden	10		wounds at 1 m above ground, some epicormic growth
69A	Littleleaf linden	12	E	
69B	Littleleaf linden	12	E _	
69C	Littleleaf linden	12	E	
70	Spirea	NA	E	Shrub; approx. 1.5 m tall
71	Mugho pine	NA	E	Shrub; approx. 1.5 m tall
72	Norway maple	17	E	
73	Freeman maple	13	E	
74	Ninebark	NA	E	Shrub; approx. 1.5 m tall
75	Norway maple	12	E	
76A	Blue spruce	15	E	Codominant stems at 4 m above ground
76B	Blue spruce	15	E	
76C	Blue spruce	15	E	Some heavy sap from wound at 1.5 m above ground
76D	Blue spruce	15	E	
77A	White spruce	17	E	
77B	White spruce	17	E	
77C	White spruce	17	E	

5. CONSTRUCTION MANAGEMENT

The most typical construction damage to trees is root damage from compaction and severance. While the dripline of a tree's canopy is typically thought to be associated with the root area, the root zones can

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actually extend significantly beyond the dripline of the tree, sometimes up to 2 or 3 times the height of the tree.

To protect trees, grade changes and construction activities that could cause soil compaction should be kept away from trees as much as possible. If roots will be damaged by excavation equipment, it is better to cut roots cleanly with sharp pruning tools rather than allow them to be torn by large equipment. Clean cuts will help to minimize decay and entry points for disease.

Equipment and materials should not be stored near trees, and equipment should not be left idling where exhaust could burn foliage.

6. CERTIFICATION

I certify that all the statements of fact in this assessment are true, complete, and correct to the best of my knowledge and belief, and that they are made in good faith.

Cisa alm

Lisa Cullen, ISA Certified Arborist ON-0741A



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