

**Tree Inventory and Preservation Plan Report V2
50 Speers Road
Oakville, Ontario**

prepared for

**Helberg Properties Limited
c/o Arcanos Property Management Corporation
235 Carlaw Avenue, Suite 403
Toronto, ON M4M 2S1**

prepared by



146 Lakeshore Road West
PO Box 1267 Lakeshore W PO
Oakville ON L6K 0B3
t: 289.837.1871
e: consult@kuntzforestry.ca

19 July 2022, revised 7 September 2022 and 13 February 2024

KUNTZ FORESTRY CONSULTING INC Project P2759

Table of Contents

1.0 INTRODUCTION	2
2.0 METHODOLOGY	2
3.0 EXISTING SITE CONDITIONS	3
4.0 INDIVIDUAL TREE RESOURCES	3
5.0 PROPOSED WORKS	4
6.0 DISCUSSION	4
6.1 DEVELOPMENT IMPACTS/TREE REMOVALS.....	4
6.2 TREE PRESERVATION.....	4
7.0 SUMMARY AND RECOMMENDATIONS	5
KUNTZ FORESTRY CONSULTING INC.	6
8.0 REFERENCES	6

1.0 Introduction

Kuntz Forestry Consulting Inc. was retained by Helberg Properties Limited c/o Arcanos Property Management Corporation to complete a Tree Inventory and Preservation Plan in support of a proposed development application for the property located at 50 Speers Road in the Town of Oakville. The property is located on the south side of Speers Road, east of Kerr Street, within a residential area.

The work plan for the tree preservation study included the following:

- Prepare an inventory of tree resources over 10cm DBH occurring on and within six metres of the subject property, and trees of all sizes within the road right-of-way;
- Evaluate potential tree saving opportunities based on proposed development plans; and
- Document the findings in a Tree Inventory and Preservation Plan Report.

The results of the evaluation are provided below.

2.0 Methodology

2.1 Tree Inventory and Preservation Plan

Field assessments for the tree inventory were conducted on 28 April 2021. Trees measuring over 10cm DBH on and within six metres of the subject property and trees of all sizes within the road right-of-way were identified in the tree inventory. Trees were located using the topographic survey provided and estimates made in the field. Trees on the subject property that could be tagged were identified as 707-733. Trees that could not be tagged were identified as N1-N32. Polygons (groups of trees) are identified with a suffix "P".

Tree resources included in the inventory were visually assessed for condition utilizing the following parameters:

Tree # - number assigned to tree that corresponds to Figure 1.

Species - common and botanical names provided in the inventory table.

DBH - diameter (centimetres) at breast height, measured at 1.4 metres above the ground.

Condition - condition of tree considering trunk integrity, crown structure, and crown vigour. Condition ratings include poor (P), fair (F), and good (G).

Drip Line – Crown radius (metres); and

Comments - additional relevant detail.

2.2 Tree Valuation

A tree valuation was calculated for the trees within the road right-of-way based on the information obtained by the tree inventory and stand tally analysis conducted in the field. The value was calculated using the Reproduction Cost Method – Trunk Formula Technique as described in the Guide for Plant Appraisal, 10th Edition (CTLA, 2019). The Ontario Supplement (2003) provides regionally relevant data pertaining to basic costs for trees.

Trunk Formula Technique

This method is used for trees that are larger than what is commonly available for transplant from a nursery. The Unit Tree Cost of the replacement tree is derived from a survey of nurseries or supplied by the Regional Plant Appraisal Council and published within the Ontario Supplement (2003). For Ontario, the unit tree cost has been set at \$6.51/cm² within the Supplement and this value has been used for the calculation. For trees that were small enough in size to be replaced with nursery stock, the price of the nursery stock was obtained through wholesale price quotes from multiple nurseries throughout southern Ontario.

The Basic Tree Cost is calculated by multiplying the unit tree cost by the cross-sectional area of the subject tree. For multi-stemmed trees, the appraised trunk area considers the cross-sectional area of all stems. The Appraised Value is calculated by multiplying the Basic Reproduction Cost by the three depreciation factors (Condition Rating, Functional Limitation Rating, and External Limitation Rating, as described in the Guide).

The appraised value of trees is therefore calculated using the following equation:

$$\text{Basic Tree Cost} = \text{Appraised Tree Trunk Area} \times \text{Unit Tree Cost}$$

$$\text{Appraised Value} = \text{Basic Tree Cost} \times \text{Condition Rating} \times \text{Functional Limitation Rating} \times \text{External Limitation Rating}$$

Functional Limitation Ratings and External Limitation Ratings are calculated according to the methods outlined in the guide. Condition ratings were calculated based on the assessed condition of the trees on the site and in accordance with the guide.

Only live trees were included in the tree valuation. For trees in hedgerows or with multiple stems, the average DBH was used to calculate the appraisal value. For trees with appraisal values less than \$744.00 (Town of Oakville's minimum value per tree), their values were set to \$744.00.

3.0 Existing Site Conditions

The subject property is currently occupied by an apartment building with parking and amenity areas. Tree resources exist in the form of landscape trees and natural regeneration. Refer to Figure 1 for the existing site conditions.

4.0 Individual Tree Resources

The tree inventory documented 59 trees and tree polygons on and within six metres of the subject property and within the road right-of-way. Tree resources are composed of Siberian Elm (*Ulmus pumila*), Silver Maple (*Acer saccharinum*), Eastern White Cedar (*Thuja occidentalis*), White Mulberry (*Morus alba*), Austrian Pine (*Pinus nigra*), Bur Oak (*Quercus macrocarpa*), Poplar species (*Populus sp.*), and Shademaster Honey Locust (*Gleditsia triacanthos inermis* cv).

5.0 Proposed Works

The proposed development includes the demolition of the existing apartment building and the construction of a new residential building with below-ground parking and outdoor amenity areas. Refer to Figure 1 for the existing conditions and proposed site plan.

6.0 Discussion

The following sections provide a discussion and analysis of impacts, tree removal requirements, and tree preservation relative to the proposed development and existing conditions.

6.1 Development Impacts/Tree Removals

The removal of 51 trees or tree polygons is required to accommodate the proposed development and/or due to their condition. Tree removals are identified as Trees P707-733, N6-N25, P26, P28, N29, and N30. Of these trees, Trees 714, 727, 730, N7, N11, and N12 would be recommended for removal regardless of the site plan, due to their condition.

Trees 726-730, N6-N25, P26, P28, N29, and N30 are located partially or fully on neighbouring properties. Permission from these property owners is required prior to their removal.

Trees N29 and N30 requires removal to accommodate the proposed mid-block pathway connection along the western perimeter of the site. Trees along the southern perimeter and the southeast corner of the site require removal to accommodate the proposed sanitary and storm sewer along the rear of the property. It is our understanding that these services will need to tie into existing services offsite to the east, within the mTPZ's of Trees N16-N19. Trees along the eastern perimeter require removal as excavation for the underground parking garage is proposed well into their minimum tree protection zones and we would not expect them to tolerate the injury.

Refer to Figure 1 for the location of the proposed tree removals.

6.2 Tree Preservation

Preservation of Trees N1-N5, N27, N31, and N32 will be possible with the use of appropriate tree protection measures as indicated on Figure 1. Tree protection measures must be implemented prior to the proposed work to ensure tree resources designated for retention are not impacted by the proposed development. Refer to Figure 1 for the location of required tree preservation fencing, general Tree Protection Plan Notes, tree preservation fence details.

Trees N1 and N2

Encroachment into the minimum tree protection zones (mTPZ's) of Trees N1 and N2 will be required to accommodate excavation for the adjacent underground parking garage. If the following protection and mitigation measures are employed before, during, and after construction, long-term adverse effects are not anticipated to these trees.

1. Tree protection fencing as specified on Figure 1 must be installed and maintained throughout construction.
2. Excavation at the limit of encroachment must occur using air spading technology, and be supervised by a certified Arborist.
3. Exposed roots must be pruned in accordance with Good Arboricultural Standards.
4. If structural roots or a dense mat of feeder roots are encountered, the roots must be left intact and the City contacted immediately.

6.3 Tree Valuation

The value of Trees N31 and N32 is less than \$744 using the Trunk Formula Technique; as such, each tree is valued at \$744 for a total of \$1,488.

7.0 Summary and Recommendations

Kuntz Forestry Consulting Inc. was retained by Helberg Properties Limited c/o Arcanos Property Management Corporation to complete a Tree Inventory and Preservation Plan in support of a development application for the property located at 50 Speers Road in Oakville. A tree inventory was conducted and reviewed in the context of the proposed site plan.

The findings of the study indicate a total of 59 trees and tree polygons on and within six metres of the subject property and within the right-of-way. The removal of 51 trees or tree polygons is required to accommodate the proposed development and/or due to their condition. All other trees can be saved provided appropriate tree protection measures are installed prior to development.

The following recommendations are suggested to minimize impacts to trees identified for preservation. Refer to Figure 1 for the location of the required tree protection fencing, general Tree Protection Plan Notes, and tree preservation detail.

- Tree protection barriers and fencing should be erected at locations as prescribed on Figure 1. All tree protection measures should follow the guidelines as set out in the tree preservation plan notes and the tree preservation fencing detail.
- No construction activity including surface treatments, excavations of any kind, storage of materials or vehicles, unless specifically outlined above, is permitted within the area identified on Figure 1 as a tree protection zone (TPZ) at any time during or after construction.
- Special mitigation measures are required adjacent to select trees; refer to the *Tree Preservation* section for details.
- Branches and roots that extend beyond prescribed tree protection zones that require pruning must be pruned by a qualified Arborist or other tree professional. All pruning of tree roots and branches must be in accordance with Good Arboricultural Standards.
- Site visits, pre, during and post construction is recommended by either a certified consulting arborist (I.S.A.) or registered professional forester (R.P.F.) to ensure proper utilization of tree protection barriers. Trees should also be inspected for damage incurred during construction to ensure appropriate pruning or other measures are implemented.

Respectfully Submitted,

Kuntz Forestry Consulting Inc.



Celine Batterink, H.B.Sc. Ecology
Senior Consulting Arborist, Ecologist
ISA Certified Arborist #ON1546-A
Email: cbatterink@kuntzforestry.ca, Phone: 289-837-1871 ext 18

8.0 References

Council of Tree & Landscape Appraisers, 2019. Guide for Plant Appraisal, 10th Edition.

Ontario Supplement to the Guide for Plant Appraisal – 8th Edition, 2003. ISA Ontario.
International Society of Arboriculture, Champaign, Illinois. 26 pp. Updated 2003.

Limitations of Assessment

Only the tree(s) identified in this report were included in the inventory. The assessment of the trees presented in this report has been made using accepted arboricultural techniques. These may include a visual examination taken from the ground of all the above-ground parts of the tree for structural defects, scars, external indications of decay such as fungal fruiting bodies, evidence of attack by insects, discoloured foliage, the condition of any visible root structures, the degree of lean (if any), the general condition of the trees and the identification of potentially hazardous trees or recommendations for removal (if applicable). Where trees could not be directly accessed (i.e. due to obstructions, and/or on neighbouring properties), trees were assessed as accurately as possible from nearby vantage points.

Locations of trees provided in the report are determined as accurately as possible based on the best information available. If official survey information is not provided, tree location in the report may not be exact. In this case, if trees occur on or near property boundaries, an official site survey may be required to determine ownership utilizing specialized survey protocol to gain precise location.

Furthermore, recommendations made in this report are based on the site plans that have been provided at the time of reporting. These recommendations may no longer be applicable should changes be made to the site plan and/or grading, servicing, or landscaping plans following report submission.

Notwithstanding the recommendations and conclusions made in this report, it must be recognized that trees are living organisms, and their health and vigor constantly change over time. They are not immune to changes in site conditions or seasonal variations in the weather conditions. Any tree will fail if the forces applied to the tree exceed the strength of the tree or its parts.

Although every effort has been made to ensure that this assessment is reasonably accurate, the trees should be re-assessed periodically. The assessment presented in this report is valid at the time of inspection.

Table 1. Tree Inventory

Location: 50 Speers Road, Oakville

Date: 28 April 2021 Surveyors: KD

Tree #	Common Name	Scientific Name	DBH	TI	CS	CV	CDB	DL	mTPZ	A. mTPZ	Oakville Tree No.	Comments	Ownership	Action
P707	Siberian Elm	<i>Ulmus pumila</i>	5 - 10	P-F	P-F	F		1	2.4			11 trees, epicormic branching (H), deadwood (M), some trees topped	Private	Remove
			10 - 15	P-F	P-F	F	4 trees, epicormic branching (H), deadwood (M), some trees topped							
708	Siberian Elm	<i>Ulmus pumila</i>	24, 21	F	F	F	15	1.75	3			Co-dominant stems at 0.25 metres, included bark (M), pruning wounds (M), epicormic branching (M), coppice growth (L), deadwood (L), wetwood (L), asymmetrical crown (M)	Private	Remove
709	Siberian Elm	<i>Ulmus pumila</i>	81	F	F	F-G	15	5	5.4			Co-dominant stems at 0.5 metres, included bark (H), wetwood (M), pruning wounds (L), deadwood (L)	Private	Remove
710	Silver Maple	<i>Acer saccharinum</i>	48, 47, 40	F	F	F	10	7	4.8			Multi-stem at 1.25 metres, pruning wounds (L), one stem with top-down dieback, epicormic branching (M), cavity with fungal fruiting body on one stem	Private	Remove
711	Silver Maple	<i>Acer saccharinum</i>	38, 36, 36, 34	F-G	F	F-G	10	6	4.8			Bow (M), multi-stem at 1 metre, pruning wounds (L), deadwood (L)	Private	Remove
712	Eastern White Cedar	<i>Thuja occidentalis</i>	24	F	F-G	F	10	1.5	2.4			Lean (L), bark peeling (M) from base to 3 metres, broken branches (L)	Private	Remove
713	Siberian Elm	<i>Ulmus pumila</i>	25	F	F	F		3.5	2.4			Pruning wounds (L), bow (L), broken branches (L), deadwood (L)	Private	Remove
714	Siberian Elm	<i>Ulmus pumila</i>	11	P	P-F	P	90	1	2.4			Failing	Private	Remove (Condition)
715	Siberian Elm	<i>Ulmus pumila</i>	39, 31, 20	F	P-F	F	10	5	3.6			Multi-stem at 1 metre, bow (M), pruning wounds (L), included bark (L), epicormic branching (L), broken branches (L)	Private	Remove
716	Siberian Elm	<i>Ulmus pumila</i>	30, 26	P-F	P-F	F	10	5	3			Co-dominant stems at 0.75 metres, included bark (M), deadwood (M), cavities (M) from pruning wounds, included fence (M), broken branches (M), how (M), epicormic branching (M)	Private	Remove
717	Siberian Elm	<i>Ulmus pumila</i>	12, 11	P-F	P-F	P-F		3	2.4			Co-dominant stems at base, lost leader on both stems, epicormic branching (L)	Private	Remove
718	Siberian Elm	<i>Ulmus pumila</i>	33	F	F	F	10	5	3			Included fence (M), bow (M), asymmetrical crown (H)	Private	Remove
719	Siberian Elm	<i>Ulmus pumila</i>	29	F-G	F	F-G		4	2.4			Bow (L), deadwood (L)	Private	Remove
720	Siberian Elm	<i>Ulmus pumila</i>	21	F	P-F	F		5	2.4			Lost leader, sweep (L), epicormic branching (L)	Private	Remove
721	Siberian Elm	<i>Ulmus pumila</i>	32	F	F	P-F		4	3			Included fence (M), broken branches (M), deadwood (L), top-down dieback	Private	Remove
722	Siberian Elm	<i>Ulmus pumila</i>	18	P-F	P-F	P-F		3	2.4			Stem wound (H) at 4 metres, pruning wounds (M), cavity from pruning wound, included fence (L), epicormic branching (M)	Private	Remove
723	Siberian Elm	<i>Ulmus pumila</i>	29	F	F	F-G		4	2.4			Included fence (L), pruning wounds (M), deadwood (L), broken branches (L)	Private	Remove
724	Siberian Elm	<i>Ulmus pumila</i>	31	P-F	P-F	P-F	15	6	3.0			Bow (H), epicormic branching (M), broken branches (L), deadwood (L)	Private	Remove
725	Siberian Elm	<i>Ulmus pumila</i>	~33	F	F	F	10	5	3			Previous co-dominant stem broken at 1.5 metres and dead, broken branches (L), deadwood (L), epicormic branching (L)	Private	Remove

726	Siberian Elm	<i>Ulmus pumila</i>	17	F	F	P-F	20	3	2.4		-	Sweep (L), deadwood (L), broken branches (L)	Shared	Remove
727	Siberian Elm	<i>Ulmus pumila</i>	~15	P	P	P		0.5	2.4		-	Topped at 1.75 metres	Shared	Remove (Condition)
728	Siberian Elm	<i>Ulmus pumila</i>	21	P-F	P-F	F	15	4	2.4		-	Broken branches (M), epicormic branching (M)	Shared	Remove
729	Siberian Elm	<i>Ulmus pumila</i>	28	P-F	P-F	F	20	5	2.4		-	Included fence (M), asymmetrical crown (M), deadwood (L), broken branches (L), co-dominant stems at 3 metres, bow (M), cavity at 3 metres	Shared	Remove
730	Siberian Elm	<i>Ulmus pumila</i>	~22	P	P	P		1	2.4		-	Topped at 2 metres	Shared	Remove (Condition)
731	Siberian Elm	<i>Ulmus pumila</i>	28	G	F-G	G		3	2.4		-	Asymmetrical crown (L), co-dominant stems at 2 metres	Private	Remove
732	Siberian Elm	<i>Ulmus pumila</i>	~33, ~25	F	F-G	F-G		4	3		-	Wetwood (H), co-dominant stems at 1 metre, bow (L)	Private	Remove
733	White Mulberry	<i>Morus alba</i>	~16	G	G	G		2.5	2.4		-		Private	Remove
N1	Austrian Pine	<i>Pinus nigra</i>	48	G	G	G		5	3.0	2.0	-		Neighbouring	Retain
N2	Austrian Pine	<i>Pinus nigra</i>	45	G	F-G	F-G		4	3.0	1.8	-	Browning needles (L), co-dominant stems in crown, asymmetrical crown (L)	Neighbouring	Retain
N3	Austrian Pine	<i>Pinus nigra</i>	~25	F	F	F		2.5	2.4	2.9	-	Lost leader, crook (L), asymmetrical crown (M)	Neighbouring	Retain
N4	Austrian Pine	<i>Pinus nigra</i>	~20	F-G	F	F-G		2	2.4	2.8	-	No leader, possibly topped	Neighbouring	Retain
N5	Siberian Elm	<i>Ulmus pumila</i>	~30	F	F	F	20	4	2.4	6.4	-	Bow (L), co-dominant stems in crown, included bark (L), broken branches (L), deadwood (M)	Neighbouring	Retain
N6	Siberian Elm	<i>Ulmus pumila</i>	31	F	P-F	P-F	40	5	3		-	Included fence (M), bow (M), broken branches (L), deadwood (L), epicormic branching (M)	Neighbouring	Remove
N7	Siberian Elm	<i>Ulmus pumila</i>	~12	P	P	P		1	2.4		-	Topped at 2 metres	Neighbouring	Remove (Condition)
N8	Siberian Elm	<i>Ulmus pumila</i>	~25	P-F	F	F	15	5	2.4		-	Deadwood (L), bow (L), included fence (M)	Neighbouring	Remove
N9	Siberian Elm	<i>Ulmus pumila</i>	~35	F-G	F	F	10	5	3		-	Broken branches (L), co-dominant stems in crown, deadwood (L), included fence (L), epicormic branching (L)	Neighbouring	Remove
N10	Siberian Elm	<i>Ulmus pumila</i>	~38	P-F	P-F	P-F		5	3		-	Co-dominant stems at 2 metres, included bark (L), included fence (L), pruning wounds (M), lost leader on one stem	Neighbouring	Remove
N11	Siberian Elm	<i>Ulmus pumila</i>	~12	P	P	P		1	2.4		-	Topped at 1.5 metres	Neighbouring	Remove (Condition)
N12	Siberian Elm	<i>Ulmus pumila</i>	26	P	F	P-F	25	4	2.4		-	Burl (H) at 1.5 metres, included fence (M), broken branches (M), deadwood (L)	Neighbouring	Remove (Condition)
N13	Siberian Elm	<i>Ulmus pumila</i>	30	P-F	F	F		4	2.4		-	Wetwood (M), pruning wounds (H), swollen base (L), epicormic branching (M)	Neighbouring	Remove
N14	Siberian Elm	<i>Ulmus pumila</i>	~90	P-F	F	P-F	25	7	6		-	Co-dominant stems at 2 metres, included fence (M), broken branches (M), deadwood (M), cavities (M) at 0.75 metres, swollen base	Neighbouring	Remove
N15	White Mulberry	<i>Morus alba</i>	~16, ~14, ~14	F	F-G	F-G		3	2.4		-	Included fence (M), multi-stem at 1 metre, included bark (L), cavity (L)	Neighbouring	Remove
N16	Austrian Pine	<i>Pinus nigra</i>	~30	F-G	F-G	F-G		5	2.4	4.9	-	Bow (L), asymmetrical crown (M)	Neighbouring	Remove
N17	Austrian Pine	<i>Pinus nigra</i>	~30	F-G	F-G	F-G		4	2.4	7.4	-	Bow (L)	Neighbouring	Remove
N18	Bur Oak	<i>Quercus macrocarpa</i>	~95	F-G	F-G	F		5	6.0	7.0	-	Co-dominant stems at 2 metres, included bark (M), fused bark, epicormic branching (M)	Neighbouring	Remove
N19	White Mulberry	<i>Morus alba</i>	~12, ~10	F	F	P	50	1.5	2.4	8.9	-		Neighbouring	Remove
N20	Siberian Elm	<i>Ulmus pumila</i>	~40, ~25	F	F	F	20	5	3.0	3.0	-	Included fence (M), co-dominant stems at base, deadwood (L), broken branches (L), stem wound (L) at base, epicormic branching (M)	Neighbouring	Remove

N21	White Mulberry	<i>Morus alba</i>	~12, ~9	F-G	P-F	F-G		2	2.4	2.9	-	Co-dominant stems at base, bow (H)	Neighbouring	Remove
N22	White Mulberry	<i>Morus alba</i>	~16, ~6	P-F	F	F	15	2	2.4	2.9	-	Co-dominant stems at base, included fence (M)	Neighbouring	Remove
N23	White Mulberry	<i>Morus alba</i>	~21, ~21, ~7	F-G	F-G	F-G		3	3.0	3.0	-	Multi-stem at base, included fence (L)	Neighbouring	Remove
N24	White Mulberry	<i>Morus alba</i>	~13	F	F-G	F		2	2.4	2.4	-	Included fence (L), deadwood (L)	Neighbouring	Remove
N25	White Mulberry	<i>Morus alba</i>	~25, ~7	F-G	F-G	F-G		3	2.4	2.8	-	Co-dominant stems at base and 1.5 metres, bow (L), included bark (L), wetwood (L)	Neighbouring	Remove
P26	White Mulberry	<i>Morus alba</i>	10 - 15	F-G	F-G	F-G		3	2.4	2.4	-	3 trees	Neighbouring	Remove
			15 - 20									1 tree		
N27	White Mulberry	<i>Morus alba</i>	~17, ~12	F-G	F-G	F-G		2	2.4	7.4	-	Co-dominant stems at base	Neighbouring	Retain
P28	Poplar species	<i>Populus sp.</i>	10 - 15	G	G	F-G		1.5	2.4	2.4	-	2 trees	Neighbouring	Remove
			15 - 20									3 trees		
			20 - 25									6 trees		
N29	Siberian Elm	<i>Ulmus pumila</i>	~20, ~16	F	F-G	G		3	2.4		-	Wetwood (M), co-dominant stems at 0.5 metres	Neighbouring	Remove
N30	Silver Maple	<i>Acer saccharinum</i>	~7, ~7	G	F-G	G		2	1.8	1.8	-	Asymmetrical crown (M)	Neighbouring	Remove
N31	Honey Locust (shademaster)	<i>Gleditsia triacanthos inermis</i>	12	G	G	G		2	1.2		497860		City	Retain
N32	Honey Locust (shademaster)	<i>Gleditsia triacanthos inermis</i>	11	G	G	G		1.5	1.2		497861		City	Retain

Codes		
DBH	Diameter at Breast Height	(cm)
TI	Trunk Integrity	(G, F, P)
CS	Crown Structure	(G, F, P)
CV	Crown Vigor	(G, F, P)
CDB	Crown Die Back	(%)
DL	Dripline	(m)
mTPZ	minimum Tree Protection Zone	TPZ (m) based on Town of Oakville's Tree Protection During Construction (Procedure EN-TRE-001-001) from base of tree
A. mTPZ	Actual minimum Tree Protection Zone	Actual TPZ (m) achievable during construction from base of tree
~ = estimate; (L) = light; (M) = moderate; (H) = heavy		