Rootcause
Arboriculture

3 Church Street,
Waltham Abbey,
Essex, EN9 1DX

BS 5837:2012 Tree Survey & Arboricultural Impact

Address: 8 Densley Close,
Welwyn Garden City

Site Surveyed by Peter Holloway

Report prepared by
Peter Holloway BSc(Hons) FArborA CEnv

Date 7th January 2015

Report Prepared for Mr & Mrs Hooley

1. Introduction

1.1 Instructions:

I am instructed by Mrs Nicola Hooley.

My brief is:

- To carry out a Tree Survey in accordance with the British Standard 5837: 2012 'Trees in relation to design, demolition and construction – Recommendations' April 2012.

- To produce and **Arboricultural Implications Assessment** of the proposal for a house and garage extension.

2. Documents

2.1 I was provided with the following documents:

i. Ground Floor Plan as Existing, 2223/EX/1, Nov. 2014.
ii. First & Second Floor Plans as Existing, 2223/EX/2, Nov. 2014.
iii. Elevations as Existing, 2223/EX/3, Nov. 2014.
iv. Elevations & Roof Plan as Existing, 2223/EX/4, Nov. 2014.
v. Site Layout Plan as Existing, 2223/EXSP/1, Nov 2014.
vi. Ground Floor Plan as Proposed, 2223/P/1, Dec. 2014.
vii. First & Second Floor Plans as Proposed, 2223/P/2, Dec. 2014.
viii. Elevations as Proposed, 2223/P/3, Dec. 2014.
ix. Elevations & Roof Plan as Proposed, 2223/P/4, Dec. 2014.
x. Site Layout Plan as Proposed, 2223/PSP/1, Dec. 2014.

3. Scope of this report

3.1 This report includes:

i. Standard BS5837 Methodology (Appendix 1)
ii. Tree Survey Data (Appendix 2)
iii. Site Plan with Tree Constraints (Appendix 3)
iv. Arboricultural Impact Assessment Plan (Appendix 4)

3.2 The trees within the garden and those in adjacent gardens that might be affected by the proposal were surveyed from ground level using a visual tree assessment method. No detailed tree examinations were undertaken during the survey.

5. Tree Survey

5.1 Tree survey method

The methodology for the tree survey is described in Appendix 1.

5.2 Appraisal of trees surveyed

5.2.1 I recorded thirty seven trees within the site, or near to the site boundaries, which might be affected by the proposal. The tree details are included in Appendix 2 and plotted on the attached site plans in Appendix 3 and Appendix 4. Appendix 3 shows the existing ground floor layout with the tree constraints. Appendix 4 shows the proposed ground floor layout to indicate where the proposal could affect the retained trees.

5.2.2 The tree categories I assessed in accordance with BS5837:2012 criteria are as detailed in table 2 below.

Tree Category	Tree numbers	Quantity
A	T18.	1
B	T1, T3, T4, T11, T17, T20.	6
C	T2, T7, T8, T9, T10, T12, T14, T15, T16, T21, T22, T23, T24, T26, T27, T28, T29, T30, T31, T32, T33, T35, T37.	23
U	T5, T6, T13, T19, T25, T34, T36.	7
Total		37

Table 2 Tree Categories
(Quality A, high; B, moderate, C, low; and U, poor)

5.3 I recommended some tree safety work for trees with obvious defects and further investigation of possible decay in T4 and T24 in order to help maintain the trees in a reasonably safe condition. The birch T24 has signs of decline (crown dieback) and possibly fungal infection (stem exudate). The Hornbeam T4 has canker and bleeding on the lower stem. With these symptoms the trees may be affected by honey fungus.

5.4 I had no access to offsite trees and so I estimated their stem diameters and dimensions. Their stem diameter is used to calculate the model root protection area and so it is important to estimate the stem diameter as accurately as possible for trees that cannot be measured.

6.4.2 The soil, roots and tree branches of the Ash tree (T1) will need to be protected during demolition and construction. If the existing hard surfaces are left in place they can act as ground protection for manual excavations and small machinery. The ground may be exposed during foundation and floor slab creation so tree protection will need to be planned for this stage of the work.

6.5 I have assumed that no new services are required and that existing services will be used.

6.6 The Cherry Laurel (T37) and the Hornbeam (T2) will need to be removed to facilitate the proposed construction. The remaining trees can be retained during the work and any damage minimised using tree protection measures. The details of a tree protection (arboricultural) method statement can only be formulated with a construction management plan but Section 7 includes the important considerations.

6.7 It is proposed to plant two new trees at the front of the property. The proposed location will only accommodate very small trees or large shrubs but a pair of trees in this location will be an attractive addition to the property frontage.

7. Tree Protection Considerations

7.1 The proposal will require the demolition of some external garage and house walls and the construction of new foundations, walls and roofs. Tree Protection information will be a condition of planning consent and this should include site supervision to monitor tree protection and supervise high risk work (foundation within RPA of T1).

7.2 T37 and T2 will need to be removed to accommodate the development.

7.3 Standard 2.4m weld-mesh fencing and plywood ground protection will be able to protect the retained trees but a more bespoke tree protection will be required for the Weeping Ash T1.

7.4 The protection of T1 will entail hand excavations to remove the existing hard surface. Construction of ground protection for proposed foundation construction and preparation for floor slab using a biodegradable void former above the ground. The tree protection detail can be prepared when the details of the foundation and floor slab are known. The design of the floor slab may also be a condition of planning consent.

9. Appendix 1 Standard Methodology

A.1 Survey

A1.1 All my observations were from ground level without detailed investigations and I measured tree stem diameters where possible and estimated height and crown spread by pacing and using a clinometer. I do not normally have access to trees outside the boundaries and so my observations and comments on these trees are based on the visual assessment made from within the site or the surrounding public highway.

A.1.2 I surveyed all trees objectively without reference to any design proposals supplied or suggested by the client. The trees were located using the topographical survey supplied. If the topographical plan did not include all relevant trees, they would be added in their approximate positions.

A.1.3 As suggested in the BS 5837:2012 all single stem trees with a stem diameter of less than 75 mm at 1.5 m above ground level are usually excluded from the survey as they are not deemed to be of significant size to be included. Multi stemmed trees were measured in accordance with the standard.

A.1.4 Trees and shrubs are living organisms whose health and condition can change rapidly, for this reason the BS 5837 grades, along with any conclusions or tree management recommendations can only remain valid for a period of 12 months.

A.1.5 Where possible trees were assessed as individual specimens, however, where there were trees that formed distinctive groups of the same species within the landscape they can be assessed and graded as groups.

A.1.6 Trees on or adjacent to development sites are a material consideration that may have a significant impact on the future development and use of the site.

A.2 Use of survey data

A.2.1 The British Standard 5837:2012 provides guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees with structures.

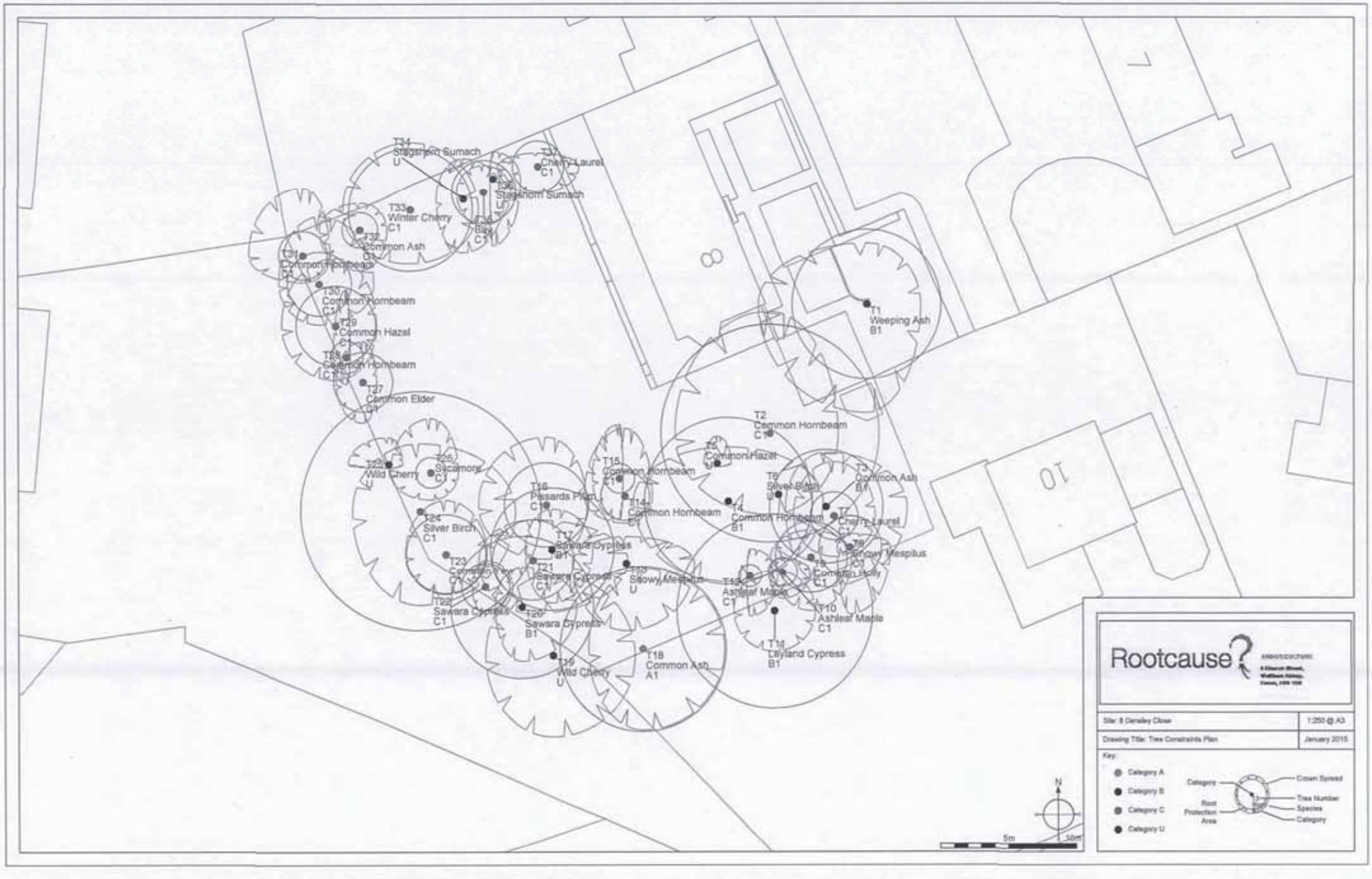
A.2.2 The tree survey with minimum requirements of BS5837 is enclosed in the appendices of this report.

A.2.8 Approved tree work should be carried out in accordance with BS 3998:2010 by suitably qualified and experienced professional tree surgeons. Under no circumstances shall site personnel undertake any tree pruning operations. All tree works should also take into consideration The Wildlife and Countryside Act 1981(as amended), the Conservation (natural habitats etc.) Regulations 1994, and the Countryside and Rights of Way Act 2000 protected species of flora and fauna.

A.2.9 If the site is within a conservation area then the local authority will need to be notified of your intention to prune trees which, in some cases, they can prevent by making a Tree reservation Order. Some forms of tree work are exempt from this requirement and tree works directly required to accommodate a development that has planning permission would be exempt. However, to avoid error I would always recommend notifying the local authority to avoid mistakes.

A.2.10 If individual trees are protected by Tree Preservation Orders then written consent is required for tree pruning or tree removal except for a few exemptions and also if the work is directly required to accommodate a development which has planning permission. As above, I would always recommend applying for consent rather than assuming that works are exempt from requiring consent.

Table 1	8 Densley Close, Welwyn Garden City, Hertfordshire.																Weather: Cloudy occasional rain		20-Dec-14		
Tree Number	Tree Name (species)		Estimated dimensions	Height (m)	Calculated Stem Diameter (mm)	Number of Stems	Root Protection Area		Crown constraints			North (m)	South (m)	East (m)	West (m)	Age class	Observations		Remaining contribution years	Tree Category	Tree work recommendations
	Common	Botanical					Radius, m	Area m2	Crown height m	Lowest branch m	Direction lowest branch						Summary of Physiological condition	Structural Condition & General comments			
T1	Weeping Ash	Fraxinus pendula		11	460	1	5.5	96	1	2.4	N	4.5	8	4	8	D	Fair	Species has defects in branch formation. Pruning to maintain shape and structure important.	>40 yrs	B1	Remove major dead wood, lift crown to 4m, reduce crown 1-3m to shape.
T2	Common Hornbeam	Carpinus betulus		19	671	5	8.0	203	3	3	SW	9	6	5	7	D	Good	Fire damage to north side historic. More serious fire damage to two southern stem recently. Grading and contribution affected.	10 to 20 yrs	C1	Lift crown to 4m
T3	Common Ash	Fraxinus excelsior		19	350	1	4.2	55	5	6	E	4	6	6	3	D	Good	Some deadwood over garden areas. Asymmetrical crown due to neighbouring trees.	>40 yrs	B1	No action
T4	Common Hornbeam	Carpinus betulus		18	1050	2	6.2	121	3	5	S	4	6	7	7	M	Good	Twin stem. Canker and bleeding on lower stem north side. Too low for fire damage - possible Honey fungus.	20 to 40 yrs	B1	Further inspection of roots and stem.
T5	Common Hazel	Corylus avellana		6	224	5	2.7	23	3	2	W	2	0	1	1	Y	Poor	Coppice. Serious fire damage. Main stems dead and decayed.	<10 yrs	U	Coppice to 0.5m.
T6	Silver Birch	Betula pendula		4.5	250	1	3.0	28	na	na	na					M	Poor	Dead stem. Retain for wildlife biodiversity.	<10 yrs	U	See Comment
T7	Cherry Laurel	Prunus laurocerasus		8	148	2	1.8	10	1	1.5	S	4	3	3	3	M	Good	Cherry laurel casts dense shade for understorey in woodland garden. Removal recommended.	20 to 40 yrs	C1	Fell and treat stump with herbicide
T8	Snowy Mespilus	Amelanchier laevis		6	192	3	2.5	17	3	2	NE	1	5	3	1	MA	Fair	Deadwood, ivy, form poor as suppressed.	10 to 20 yrs	C1	No action
T9	Common Holly	Ilex aquifolium		8	220	6	2.6	22	0	1.5	AR	2	4	3	3	M	Good	Group of Holly	20 to 40 yrs	C1	No action
T10	Ashleaf Maple	Acer negundo		5	90	1	1.1	4	3	2	SW	1	2	2	1	MA	Fair	Remove stake. Species of maple a best guess.	20 to 40 yrs	C1	See Comment
T11	Leyland Cypress	X Cupressocyparis leylandii	*	22	600	1	7.2	163	0	2	E	3	3	3	3	Y	Good	Offsite.	20 to 40 yrs	B1	No action
T12	Ashleaf Maple	Acer negundo		8	70	1	0.8	2	3	3	E	2	3	2	0	MA	Fair		20 to 40 yrs	C1	No action
T13	Snowy Mespilus	Amelanchier laevis		9	260	4	3.1	31	4	2	SE	2	5	5	4	Y	Poor	Stem canker, dieback and deadwood.	<10 yrs	U	Coppice to 0.5m.
T14	Common Hornbeam	Carpinus betulus		10	150	1	1.8	10	2	3	W	5	2	2	3	MA	Fair	Squirrel damage in crown	>40 yrs	C1	No action
T15	Common Hornbeam	Carpinus betulus		10	90	1	1.1	4	2	3	W	4	3	0	2	MA	Fair		20 to 40 yrs	C1	No action
T16	Pissards Plum	Prunus atropurpurea		10	260	1	3.1	31	3	2	NE	5	4	3	5	MA	Fair		20 to 40 yrs	C1	No action
T17	Sawara Cypress	Chamaecyparis pisifera		15	380	1	4.6	65	3	1.5	W	3	4	3	2	MA	Fair	Owl box. Species uncertain. Foliage at height.	20 to 40 yrs	B1	No action
T18	Common Ash	Fraxinus excelsior		20	510	1	6.1	116	5	6	NE	6.0	6.0	6.0	4.0	MA	Fair	Deadwood over garden area.	>40 yrs	A1	No action
T19	Wild Cherry	Prunus avium	*	15	450	1	5.4	92	6	5	S	6.0	6.0	6.0	5.0	MA	Poor	Dead tree offsite by boundary. Consult owner.	<10 yrs	U	Fell to stable height
T20	Sawara Cypress	Chamaecyparis pisifera		15	440	1	5.3	88	3	2	S	3.0	4.0	4.0	2.0	M	Fair	Two appressed stems. Tight union.	20 to 40 yrs	B1	No action
T21	Sawara Cypress	Chamaecyparis pisifera		9	250	1	3.0	28	0	1	W	3.0	4.0	7.0	4.0	M	Fair	Stem inclined SE.	10 to 20 yrs	C1	No action
T22	Sawara Cypress	Chamaecyparis pisifera		8	149	2	1.8	10	2	1	E	2.0	2.0	2.0	1.0	M	Fair	Twin stem, tight union.	20 to 40 yrs	C1	No action
T23	Common Yew	Taxus baccata		6	245	6	2.9	27	0	na	na	4	3	3	3		Good	Multistemmed	>40 yrs	C1	No action
T24	Silver Birch	Betula pendula		20	738	4	8.9	246	2	2	N	5	7	7	5		Poor	Multistemmed, Rusty exudation on one stem. Tree in decline; tip dieback and deadwood	10 to 20 yrs	C1	Reduce crown by 3m
T25	Wild Cherry	Prunus avium		7	330	1	4.0	49	3	2	N	2	0	1	3		Poor	Dead tree	<10 yrs	U	Fell to ground level
T26	Sycamore	Acer pseudoplatanus		6	94	2	1.1	4	2	0.5	S	4	2	2	3		Fair	Twin stem.	>40 yrs	C1	No action
T27	Common Elder	Sambucas nigra		6	184	2	2.2	15	2	2	S	3	3	1	2		Fair		20 to 40 yrs	C1	No action
T28	Common Hornbeam	Carpinus betulus		5	100	1	1.2	5	1	3	E	5	2	0	1		Fair		>40 yrs	C1	No action
T29	Common Hazel	Corylus avellana		8	246	5	3.0	27	2	2	S	5	4	3	4		Fair	Some dead and broken stems	10 to 20 yrs	C1	Coppice to 0.5m.
T30	Common Hornbeam	Carpinus betulus		8	197	2	2.4	18	2	2	E	5	3	4	3		Poor	Squirrel damage in crown - quite severe	>40 yrs	C1	No action
T31	Common Hornbeam	Carpinus betulus		12	150	1	1.8	10	3	4	N	5	2	2	4		Good		>40 yrs	C1	No action
T32	Common Ash	Fraxinus excelsior		7	110	1	1.3	5	2	4	E	2	3	2	3		Fair		>40 yrs	C1	No action
T33	Winter Cherry	Prunus subhirtella		10	380	1	4.6	65	3	1.8	NE	5	4	5	5		Good		20 to 40 yrs	C1	No action
T34	Stagshorn Sumach	Rhus typhina		5	100	1	1.2	5	3	2	W	3	4	3	2		Fair	Rhus typhina. Stem exudate.	<10 yrs	U	Fell to ground level
T35	Bay	Laurus nobilis		5	196	6	2.4	17	0	0	na	2	2.5	2	2		Good	Multistemmed	20 to 40 yrs	C1	No action
T36	Stagshorn Sumach	Rhus typhina		5	90	1	1.1	4	2	1	na	2	5	2	0		Poor	Rhus typhina. Stem broken just above ground. Inclined East	<10 yrs	U	Fell to ground level
T37	Cherry Laurel	Prunus laurocerasus		5	158	10	1.9	11	0	0	na	1	2	3	3		Fair	Leaves affected by rust.	20 to 40 yrs	C1	No action


T34
Stagshorn Sumach
U
T32
Cherry Laurel
C1
T35
Stagshorn Sumach
U
T33
Winter Cherry
C1
T36
Bay
C1
T32
Common Ash
C1
T31
Common Hornbeam
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Common Hornbeam
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Common Hazel
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Common Hornbeam
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Weeping Ash
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T5
Common Hazel
U
T6
Silver Birch
U
T3
Common Ash
B1
T4
Common Hornbeam
B1
T7
Cherry Laurel
C1
T9
Snowy Mespilus
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T8
Common Holly
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T10
Ashleaf Maple
C1
T14
Leyland Cypress
B1
T15
Common Hornbeam
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T16
Pissards Plum
C1
T14
Common Hornbeam
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Sawara Cypress
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Sawara Cypress
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Sawara Cypress
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T19
Wild Cherry
U
T18
Common Ash
A1
T22
Wild Cherry
U
T26
Sycamore
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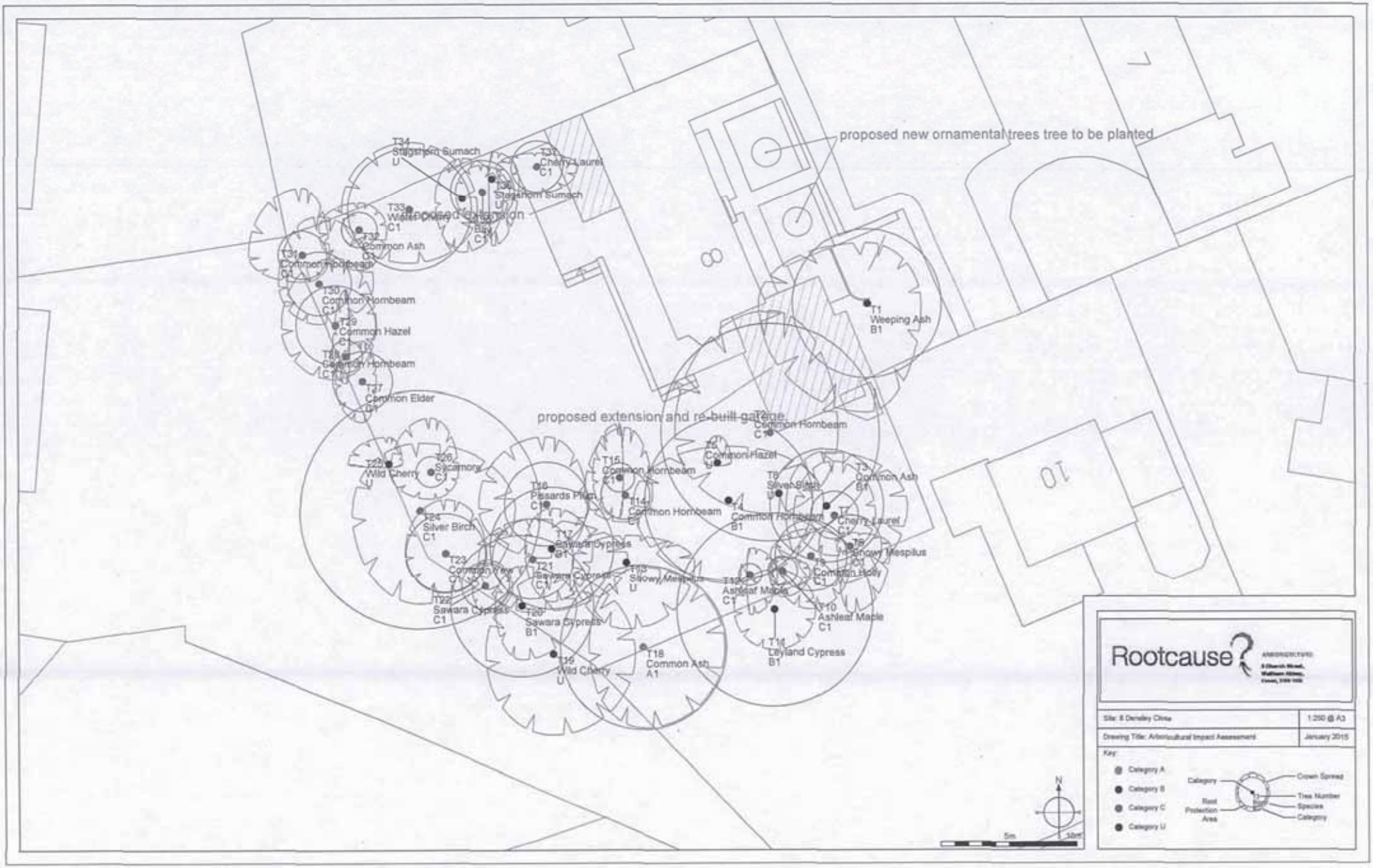
T24
Silver Birch
C1
T23
Common Yew
C1
T25
Sawara Cypress
C1
N
5m
10m
Rootcause
Site: 8 Danaley Close
1:250 @ A3
Drawing Title: Tree Constraints Plan
January 2015
Key:
Category A
Category B
Category C
Category U
Category
Root Protection Area
Crown Spread
Tree Number
Species
Category


proposed new ornamental trees tree to be planted
proposed extension and re-built garage
T34 Stagshorn Sumach U
T37 Cherry Laurel C1
T35 Stagshorn Sumach U
T33 Wild Cherry C1
T32 Common Ash C1
T31 Common Hornbeam C1
T30 Common Hornbeam C1
T29 Common Hazel C1
T28 Common Hornbeam C1
T27 Common Elder C1
T1 Weeping Ash B1
T22 Wild Cherry U
T26 Sycamore C1
T24 Silver Birch C1
T23 Common Yew C1
T22 Sawara Cypress C1
T21 Sawara Cypress C1
T20 Sawara Cypress B1
T19 Wild Cherry U
T18 Common Ash A1
T16 Pissards Plum C1
T15 Common Hornbeam C1
T14 Common Hornbeam C1
T17 Sawara Cypress B1
T13 Silvery Mespilus U
T2 Common Hazel U
T4 Common Hornbeam B1
T6 Silver Birch U
T5 Common Ash B1
T7 Cherry Laurel C1
T8 Silvery Mespilus C1
T9 Common Holly C1
T12 Ashleaf Maple C1
T10 Ashleaf Maple C1
T11 Leyland Cypress B1
Rootcause
Site: 8 Densley Close
1:250 @ A3
Drawing Title: Arboricultural Impact Assessment
January 2015
Key:
Category A
Category B
Category C
Category U
Category
Root Protection Area
Crown Spread
Tree Number
Species
Category
N
5m
10m