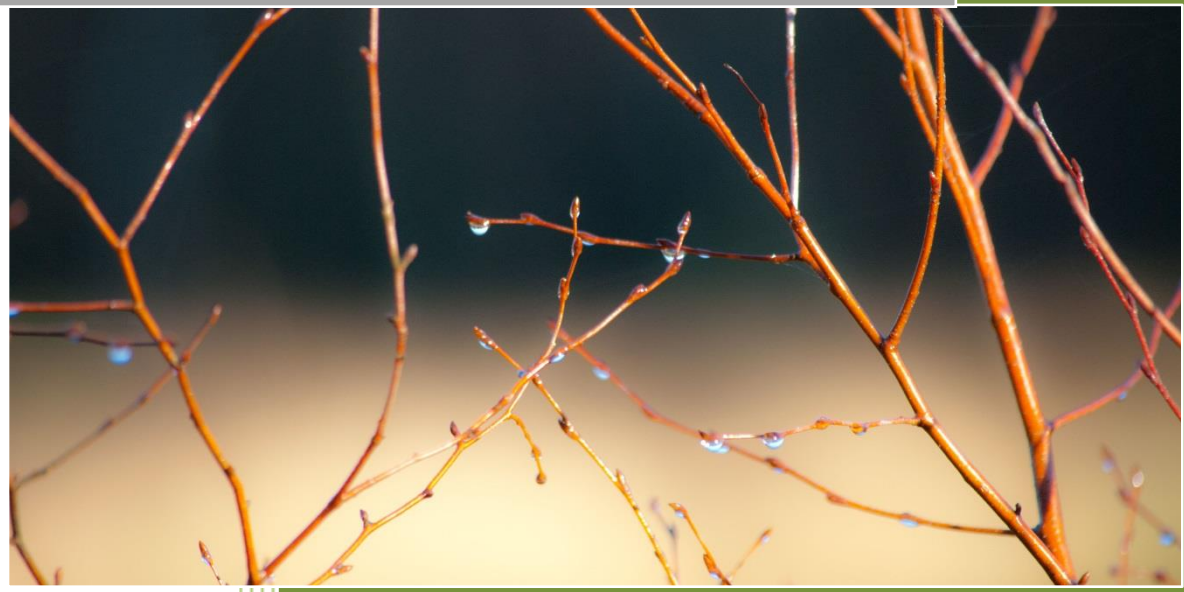
BS5837 Arboricultural Impact Assessment



35(A) Buckland Crescent, London, NW3 5DJ

Client: William Carter Limited

Job Reference: 02008R

Consultant: Keiron Hart (BSc Hons, C.Env, F.Arbor.A, MICFor, MEWI)

Tamla Trees
consulting arborists

February 2014

Contents

1. Executive Summary

1.1 Tamla Trees ltd has been appointed by William Carter Limited to provide advice on the arboricultural issues relating to a proposed re-development of the site. We surveyed the site on the 25th January 2014. The survey accorded with BS5837:2012 "Trees in relation to design, demolition and construction – Recommendations".

1.2 The site is currently occupied by a semi-detached residential building which has been subdivided into flats. Our instruction related to the ground floor (right) flat and rear garden. An overview of the site can be seen here.

1.3 The arboricultural issues associated with the redevelopment of the site can be summarised as excavation and construction pressure to excavate the new basement extended dwelling. This will result in the loss of some small visually insignificant trees from within the enclosed rear garden. There is a risk of direct physical damage to the Local Authority street tree to the front of the property.

1.4 Trees 1, 2, 4 & 5 are proposed for removal. T1, 2 & 4 are on the very verge of Conservation Area dbh size threshold.

1.5 The site is located within a Conservation Area and this report has arisen as a result of discussions with the Local Authority where information on the trees was suggested as a planning requirement.

1.6 This report is based on William Carter Limited final layout plan Dr No: 35BC/DC/PI/B.

2. Statutory Protection

2.1 Our detailed check with the Local Planning Authority remains unanswered at the time of reporting. However the Local Authority website has advised the site is located within a Conservation Area.

Conservation Area Status	
Is the site located within a Conservation Area?	Yes
Notes: All trees larger than 7.5cm diameter at 1.5m above ground level are subject to regulations within a Conservation Area. Exemptions apply for trees which are dead and dangerous but clarification before any tree works is advised. A notification is required in many circumstances.	
Tree Preservation Order Status	
Are inspected trees subject to a TPO?	Unknown
Type of TPO	**Area**
	Individual
	Group
	Woodland
TPO Reference	NA
Date TPO Made	NA
Notes: (i) The type and details of any TPO determine which trees are 'protected'. Exemptions apply for trees which are dead and dangerous but clarification before any tree works is advised. An application may be required before undertaking works. (ii) The homeowner has suggested the trees to the rear of the site (T6, 7 & 8) are subject to a TPO.	

3. Terms of Reference

3.1 BS5837:2012 'Trees in relation to design, demolition and construction – recommendations'

3.2 BS3998:2010 'Tree work – recommendations'

3.3 NJUG 4 – National Joint Utilities Group "Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees. Volume 4, issue 2. London: NJUG 2007" To include Operatives Hand-out Guidance

3.4 BGS Open Source Soil Data http://www.bgs.ac.uk/nercsoilportal/maps.html

4. The Trees

4.1 The trees can be summarised as follows:

BS 5837 Cat	A	B	C	U
Specific Trees	*None*	*T6, 7 , 8 & 9*	*T1, 2, 3, 4, & 5* *TG2 & SG1*	*None*
Total Number	-	4 Individuals	5 individuals 4 within TG2	-

4.2 These trees locations and a summary of their visual contributions can be summarized as follows:

BS 5837 Cat	A	B	C
Northern Boundary Mature trees contributing to inner residential amenities and between property screening.	-	*T6, 7 , 8 & 9*	-
Southern part of garden close to property Very localised amenity from within garden. Not visible from any public places.			*T1, 2, 3, 4, & 5 TG2 & SG1*

4.3 T6, 7, 8 & 9 are located to the north of the property. T9 is a 3rd party tree. T6, 7 & 8 are away from the proposed development and there is likely to be no impact on them if they are protected by virtue of a single fence line across the garden during construction and in accordance with this report.

4.4 T6 (Ash) has 2 large decay pockets and Inonotus hispidus fungal fruiting bodies were noted high on the western stem. The tree has been braced. We are advised that this tree may be subject to a TPO. A large limb has recently been shed from the western stem. Tree works in accordance with the enclosed schedule are therefore advised to address safety concerns and reduce the canopies exposure and hopefully prolong the retention life of the tree. It should be inspected again within 3-5 years of this report.

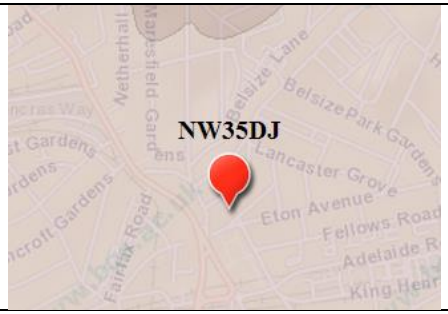
4.5 No hedgerows were identified on site and as such the Hedgerow Regulations 1997 do not apply to this development.

5.0 Arboricultural Impact Assessment

5.1 Site Specific Soils

5.1.1 Soil is an important factor in tree growth and the type of underlying soil can impact on successful integration of new development. Clay soils are characterised by small structural material which is easily compressed when wet. Such soils are inherently dense making root penetration of a compacted soil particularly difficult.

5.1.2 A free draining sandy or soil containing gravel water is likely to be accessible at greater depths and trees will have explored a larger volume of soil. The structure of the soil makes compression more difficult and root penetration is easier for the trees.



Soil Description
London Clay Formation - Clay And Silt. Sedimentary Bedrock formed approximately 34 to 56 million years ago in the Palaeogene Period. Local environment previously dominated by deep seas.

Underlying Soil Material	**CLAY**
Soil Type increased rooting depth profile?	**NO**
Increased risk of soil compaction due to soil type	**YES**

5.1.3 The presence of a known clay soil on site (subject to localised confirmation) increases the risk of compaction damage to tree roots. Clay soil in compression (particularly when wet) are not conducive to tree root growth. Care is therefore required to minimise the risk of compression from site demolition and construction activities.

5.1.4 All comments regarding soils should be verified with onsite geotechnical investigations and laboratory testing with foundation depth and design undertaken by a structural engineer in accordance with the requirements of NHBC Chapter 4.2.

5.2 Root Protection Area (RPA) Incursions

5.2.1 The following incursions into the RPA's of trees to be retained have been identified:

BS 5837 Cat	A	B	C	Summary
RPA Incursion	-	-	-	Subject to the removal of T1, 2, 4 & 5 there will be no RPA incursions from the proposed development.
Note: The local authority tree to the front of the property is not included within this report. The tree is surrounded by hard standing and as such the ground will not compress regardless of the construction activity to the front of the property. Subject to suitable shielding of the main stem by a plywood frame erected prior to construction there is envisaged to be no potential adverse effect on this tree.				

5.3 Tree Loss

5.3.1 It is proposed to remove T1, 2, 4 & 5. All are C Cat trees.

5.3.2 T1, 2 & 4 are on the very verge of CA size threshold for notification. T5 is a larger Magnolia tree but this is not visually significant from a public place and is growing in very close proximity to the existing building. It has a large included union at the base of the main stem It is not considered a suitable tree for long term retention within a TPO.

5.4 Foundations

5.4.1 The foundations of the proposal will not encroach in to the RPA areas of retained trees (subject to the above removals). The client has expressed a desire to retain T3 (Acer) and given its proximity to the proposal we have advised that a ply shuttering form of protection offers the best solution given the inevitable overspill of building activity and materials in to this area of the garden.

5.5 Surfaces near Trees

5.5.1 No new surfaces near trees are proposed.

5.6 Site Service Provision

5.6.1 The development draws upon existing site services.

5.7 Ground Level Changes

5.7.1 All ground level changes are within the property by way of basement excavation and will not affect retained trees.

5.8 Tree Shading of Proposal

5.8.1 The trees are all to the north of the proposal and will not cast direct shade. The basement design seeks to maximize the use of light.

5.9 Arboricultural Project Supervision

5.9.1 Most damage to trees on developments sites is caused inadvertently and to ensure continued protection during development a system of site monitoring is normal.

5.9.2 Basic checks will ensure that protective fencing remains intact. Any unforeseen issues can also be identified and discussed before damage to the trees occurs.

5.9.3 The Local Planning Authority is invited to secure the following schedule by way of Planning Condition. To be effective the Local Planning Authority must provide us with a copy of the formal Decision Notice to ensure we can then contact and follow up the proposed monitoring. A copy of the Decision Notice should be emailed to info@tamlatrees.com . The number of proposed visits is driven by the scale of the proposal.

5.9.4 Following each visit a formal record is sent to the Local Authority to allow formal discharge of the planning condition. The scale of this development is such that only 2 visits are proposed. One at the start to check fencing is in place and one towards the end to ensure it has remained in place and no trees have been compromised.

Visit Detail	Date	Status
Pre-commencement Inspections **Attend site to inspect type and location of tree protection and temporary ground protection prior to development commencing and discuss any issues associated with enabling works.**	**TBC**	**Incomplete**
Site Inspection **Final site visit to confirm that no damage has been done to retained trees/ identify any remedial actions in the event damage has occurred. Assess any required tree surgery following construction.**	**TBC**	**Incomplete**

Appendix 1 – BS5837 Survey Key

BS 5837 Cat	Description
A	Those of high quality and value: in such a condition as to be able to make a substantial contribution (> 40 years)
B	Those trees of moderate quality and value: those in such a condition as to make a significant contribution (> 20 years)
C	Those trees of low quality and value: currently in an adequate condition to remain until new planting could be established (> 10 years)
U	Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed regardless of development (< 10 years)

Note: Sub categories are denoted in the tree survey data (A1, B1, C2 etc.). You are referred to BS5837 for further detail if required.

Tree No.	T (tree), G (group), H (hedge), W (woodland) + Ref No.
Species	Common Name
Ht (m)	Measured height in metres
DBH (m)	Diameter at 1.5m above ground level
No of stems	An indication of the trees form @1.5m (1 = single stem, m/s = multi-stemmed)
Branch Spread	In m to cardinal points
Cr Ht Clearance (m)	Overall height of lowest branches from the ground level on side of proposed development
Life Stage	Young, Semi-Mature, Early-Mature, Mature, Over-Mature
General Observations	Observations on the condition of the tree(s)
Tree Work Specification	Proposed tree works in accordance with BS3998
BS Cat	See above
Life Exp	Estimated remaining contribution in years.
RPA Radius(m)	Radius of the trees Root Protection Area measured from the trunk to the edge of the RPA circle in metres
RPA (m2)	Overall Root Protection Area in m2

Appendix 2 – BS5837 Survey Key

Tree No.	Species	DBH (m)	No of Stems	Ht (m)	N W E S	BS Cat	Age Class	Life Expect	Cr Ht (m)	Observation	Recommendations	RPA (m2)	RPR (m)
T1	Box	0.21	1	7.6	2.9 1.8 1.6 1.8	C1	M	20-40	<1	Previous pruning wounds, very close to the building. Visually insignificant.to wider amenity.	Remove to facilitate development	18	2.4
T2	Acer	0.07	1	4	0.8 0.8 0.8 0.8	C1	Y	20-40	<2	Previously pruned. Small and visually insignificant to wider amenity.	Remove to facilitate development	2.5	1
T3	Acer	0.09	M/S	3.4	1.8 1.8 1.8 1.8	C1	M	20-40	2	Pruned small and visually insignificant to wider amenity. Multi-stemmed from ground level.	No Works	3.7	1.1
T4	Cornus	0.07	1	3.1	1.2 1.2 1.2 1.2	C1	Y	20-40	2	Topped small and visually insignificant to wider amenity.	Remove to facilitate development	2.5	1
T5	Magnolia (grandiflora)	0.21	2	8.2	3 4.1 3 3.4	C1	M	20-40	2.2	Twin stemmed tree from 0.5m. Ivy and location hindered full inspection. Basal included union.	Remove to facilitate development	18	2.4
T6	Ash	1.2	1	24	10 8 8 10	B1	M	<20	<4	Tree divides at 2.3m to 2 main stems. Decay pockets present in upper canopy. Inonotus hispidus noted and previous large branch lost in winter	Crown reduce by 3-4m to reduce leverage on the areas of decay on the main stem.	651	14.4

Tree No.	Species	DBH (m)	No of Stems	Ht (m)	N W E S	BS Cat	Age Class	Life Expect	Cr Ht (m)	Observation	Recommendations	RPA (m2)	RPR (m)
										(2013) storms. Ivy covers lower stem hindering full inspection. Cable brace at 14/15m.	Monitor condition and fungal pathogen progress.		
T7	Lime	0.45	1	24	10 8 8 10	B1	M	20-40	<4	Previously topped with suppressed lean due to the presence of T6. Ivy hindered full inspection.	Monitor with a view to crown reduction by 2-3m within 5 years to address previous pruning wounds/ reduction	91.6	54
T8	Lime	0.45	1	16	7 7 7 7	B1	M	20-40	<2	Previously topped with suppressed lean due to the presence of T6. Ivy hindered full inspection.	Monitor with a view to crown reduction by 2-3m within 5 years to address previous pruning wounds/ reduction	91.6	5.4
T9	Sycamore	0.5	1	17.5	7 7 7 7	B1	M	20-40	<4	3rd party tree unable to inspect	No Works	113	6
TG1	Irish Yew (x 2)	-	-	-	-	-	-	-	-	Below BS and CA size threshold	-	-	
TG2	Hornbeam (x 4)	0.10	4.3	4.3	1 1 1 1	C1	EM	20-40	<1	Topped/ pruned and managed as screen	No Works	4.5	1.2

Tree No.	Species	DBH (m)	No of Stems	Ht (m)	N W E S	BS Cat	Age Class	Life Expect	Cr Ht (m)	Observation	Recommendations	RPA (m2)	RPR (m)
SG1	Pittosporum x 1 & Privet x 1	0.13	M/S	5.8	2 2 2 2	C1	M	<20	<1	Shrubs	No Works	4.5	1.2

Appendix 3 – Tree Works Schedule

NOTE: All tree works to be undertaken in accordance with BS 3998:2010 'Tree work - Recommendations'.

Tree Surgery

Tree No.	Species	Proposed Tree Works	BS Cat
T6	Ash	Crown reduce by 3-4m to reduce leverage on the areas of decay on the main stem. Monitor condition and fungal pathogen progress.	B1

Proposed Removal

Tree No.	Species	Proposed Tree Works	Observations	BS Cat
T1	Box	Remove to facilitate development	Previous pruning wounds, very close to the building. Visually insignificant.to wider amenity.	C
T2	Acer	Remove to facilitate development	Previously pruned. Small and visually insignificant to wider amenity.	C
T4	Cornus	Remove to facilitate development	Topped small and visually insignificant to wider amenity.	C
T5	Magnolia (grandiflora)	Remove to facilitate development	Twin stemmed tree from 0.5m. Ivy and location hindered full inspection. Basal included union.	C

Appendix 4 - Tree Constraints Plan

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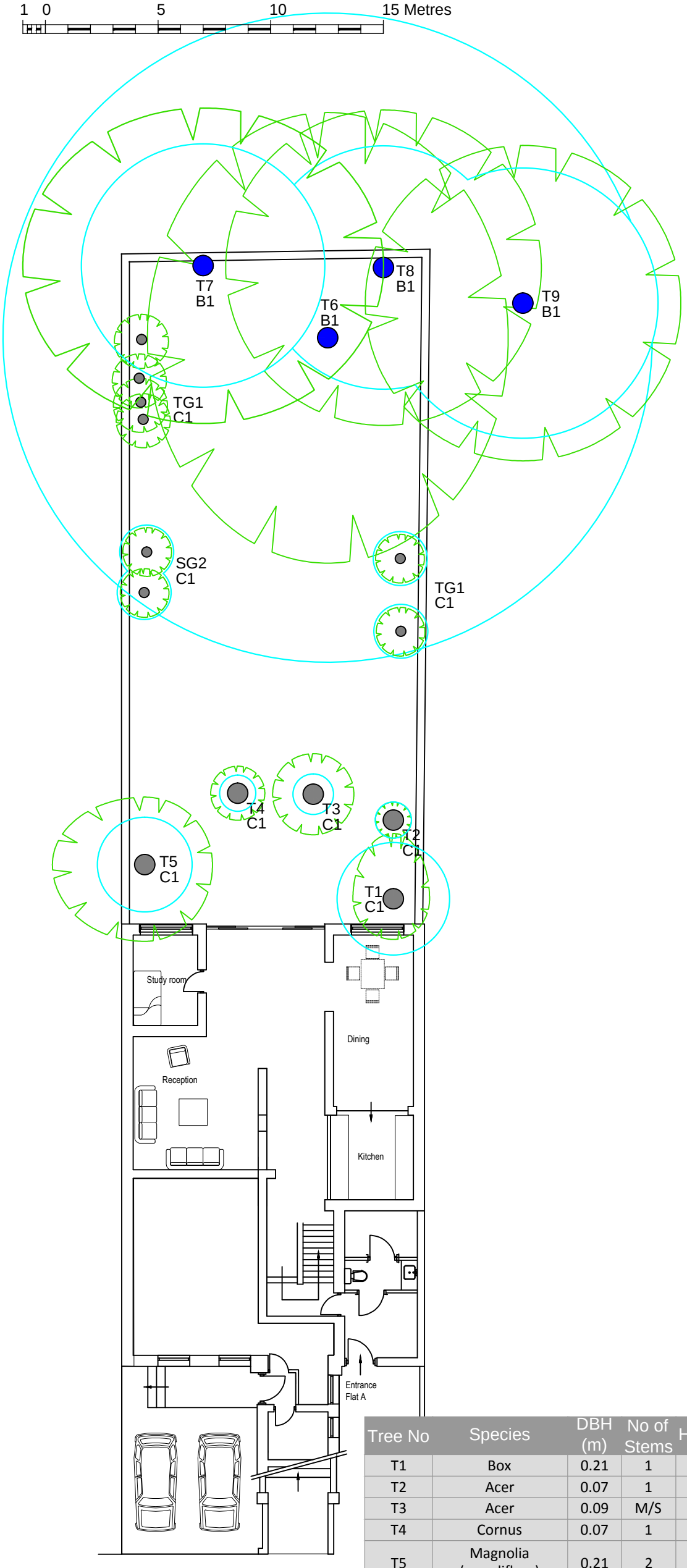
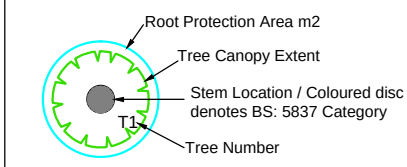
1 0 5 10 15 Metres



Ground Floor

Tree No	Species	DBH (m)	No of Stems	Ht (m)	BS Cat
T1	Box	0.21	1	7.6	C1
T2	Acer	0.07	1	4	C1
T3	Acer	0.09	M/S	3.4	C1
T4	Cornus	0.07	1	3.1	C1
T5	Magnolia (grandiflora)	0.21	2	8.2	C1
T6	Ash	1.2	1	24	B1
T7	Lime	0.45	1	24	B1
T8	Lime	0.45	1	16	B1
T9	Sycamore	0.5	1	17.5	B1
TG1	Irish Yew (x 2)	-	-	-	-
TG2	Hornbeam (x 4)	0.1	4.3	4.3	C1
SG1	Pittosporum x 1 & Privet x 1	0.13	M/S	5.8	C1

Tree Survey Drawing Key



See Tamla Trees for Individual Tree Details

KEY

Please refer to Marishal Thompson arboricultural report for details

- Category A - high quality and value
- Category B - moderate quality and value
- Category C - low quality and value
- Category U - removal

RPA - root protection area as defined by Table 2 BS 5837:2012

Category U - removal

REV AMENDMENTS DRAWN DATE AUTH'D

PROJECT
35A Buckland Crescent
London
NW3

CLIENT
William Carter Limited

TITLE
Tree Constraints Plan (TCP)

Job	Scale	DRG NO	Revision
02008R	1:200 @ A3	02008P	-
Date 31/01/14	Type TT.TCP.02008P.v1		

Tamla Trees
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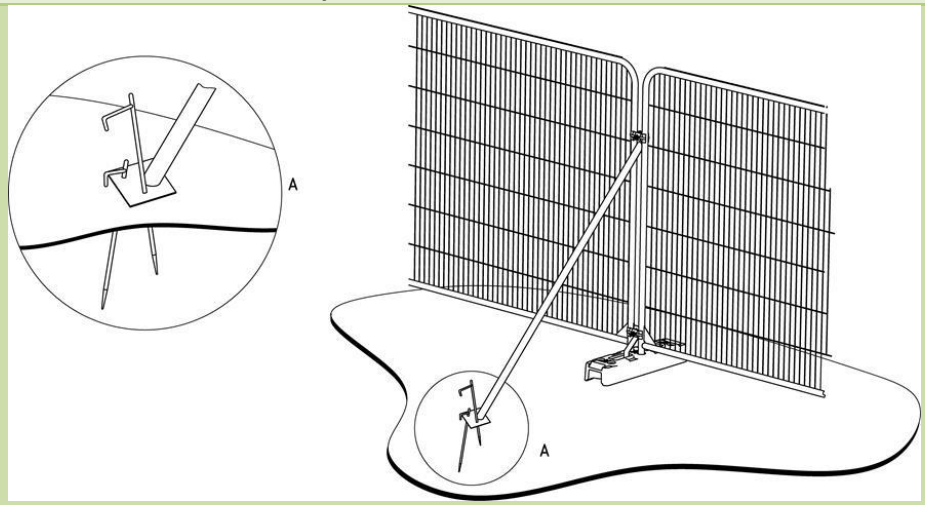
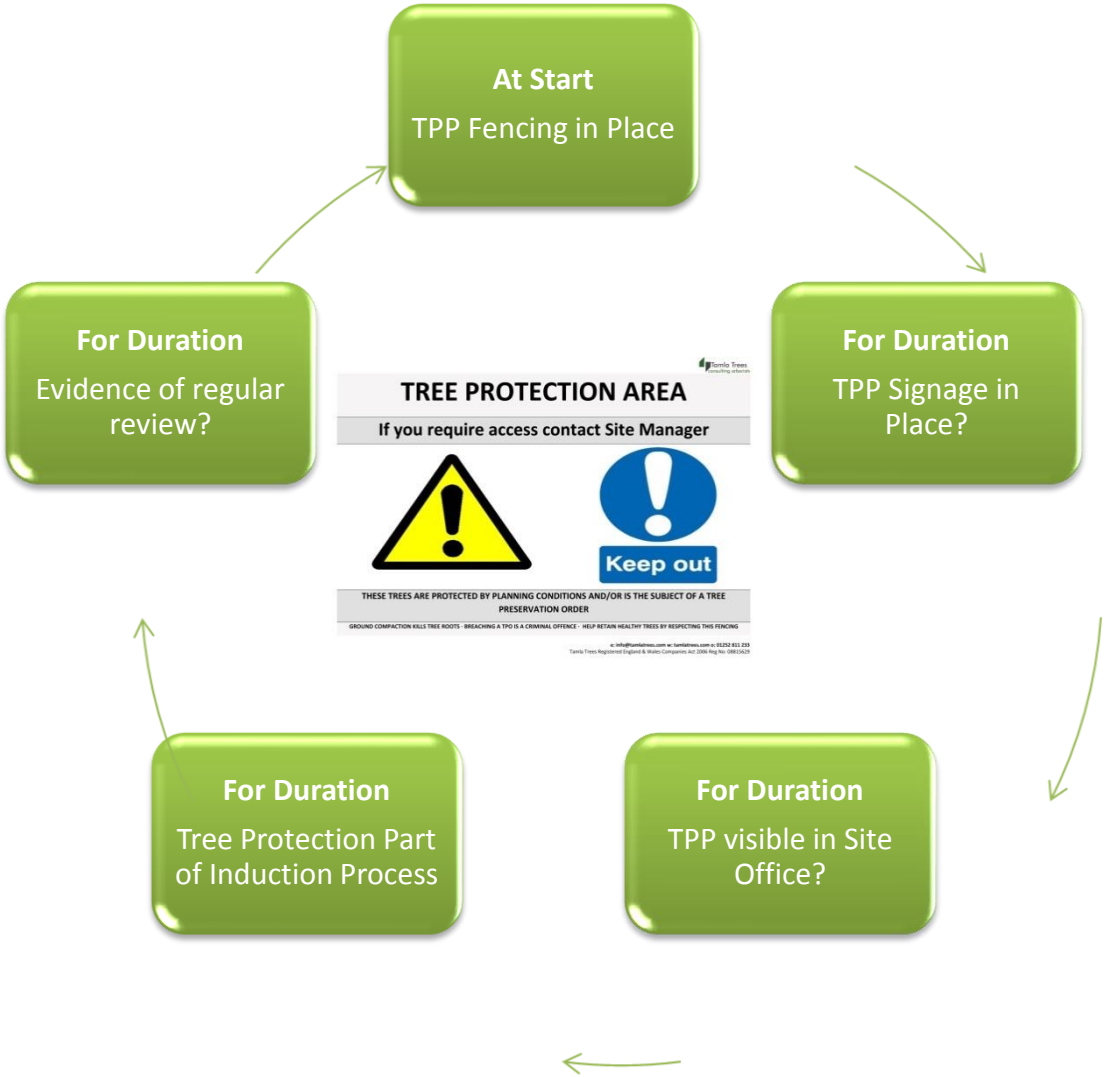
Appendix 5 - Tree Protection Plan

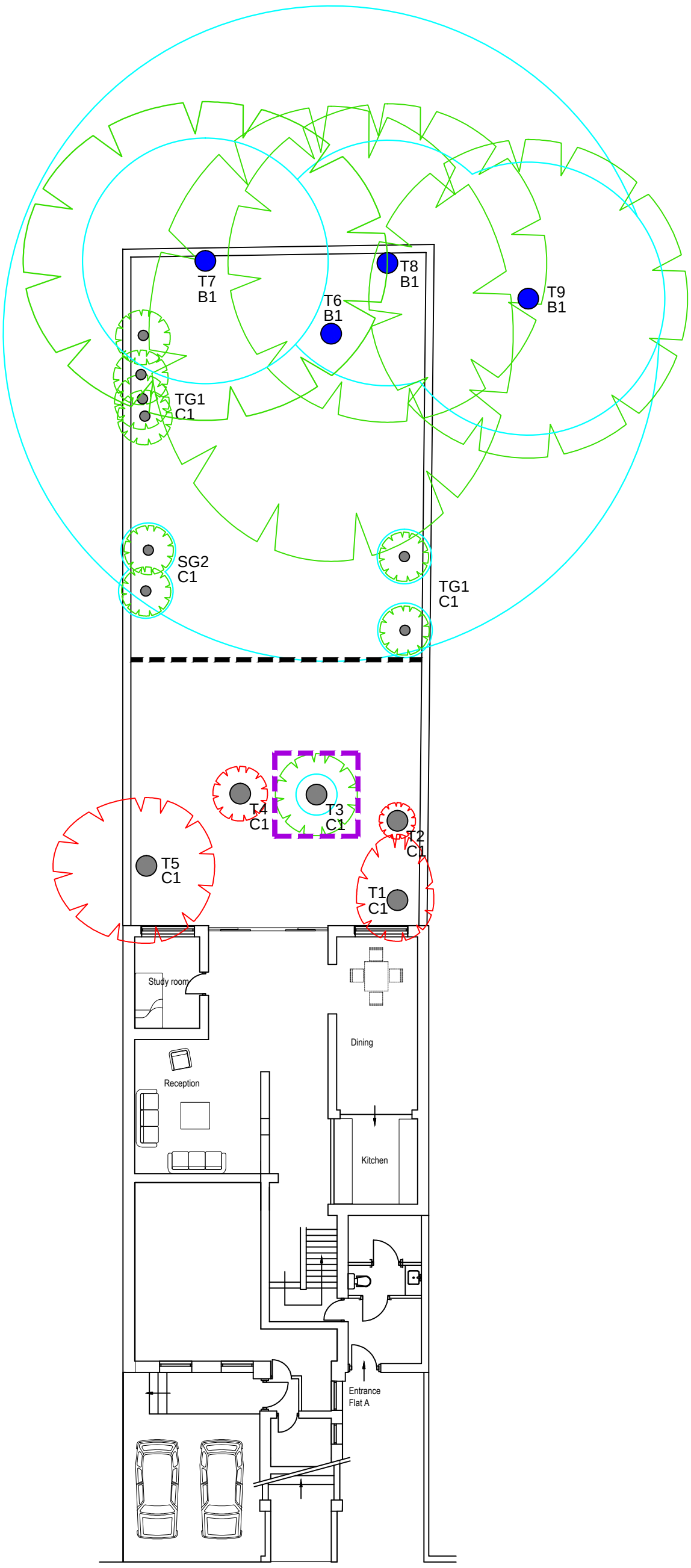
Tree protection is essential to successfully integrate the proposal into the surrounding trees. It is designed to manage the impact on the underlying soil and rooting environment. It must therefore be installed prior to any site activity (including demolition). Even apparently minimal tracking of the soil near trees has the capacity to irretrievably modify the soil environment to the detriment of tree health and stability.

All our fencing specifications accord with advice and guidance within BS 5837. Modifications to fence types are possible but should be discussed prior to implementation. In all other instances the form detailed below should be shown. This offers the best protection to retained trees.

- **All tree protection must be in place prior to any site activities. It is recommended that this fencing is installed at the time site hoarding is erected.**
- **To be effective Tree Protection must remain in place for the duration of the development and form part of the site induction process.**
- **In this instance the pinned fencing shown is considered sufficient.**
- **A copy of the site specific specification is also indicated on the Tree Protection Plan.**
- **T3 & Local Authority tree to have main stem 'shuttered' by 1.8m high ply on a 4" x 4" wooden frame.**
- **The warning signs (provided separately to A3 size with this report) should be fixed at 6/10m m intervals to raise awareness of the fencing and its desired function.**



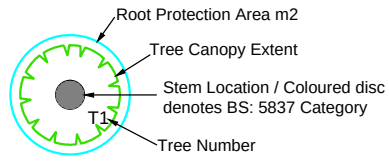

At Start
TPP Fencing in Place
For Duration
TPP Signage in Place?
For Duration
TPP visible in Site Office?
For Duration
Tree Protection Part of Induction Process
For Duration
Evidence of regular review?
TREE PROTECTION AREA
If you require access contact Site Manager
Keep out
THESE TREES ARE PROTECTED BY PLANNING CONDITIONS AND/OR IS THE SUBJECT OF A TREE PRESERVATION ORDER



Ground Floor

scale bar 1:200 — 1 0 5 10 15 Metres

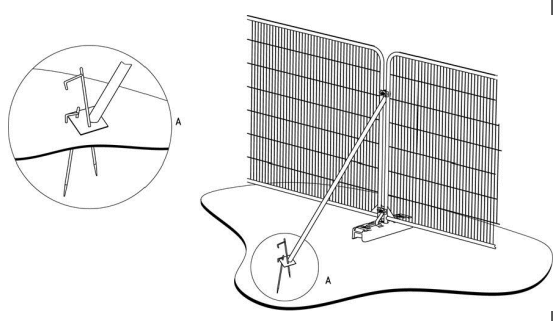
Tree Survey Drawing Key



See Tamla Trees for Individual Tree Details

KEY

- Tree to be retained
- Tree to be removed
- Herras Fencing
- 1.8M High ply hoarding on 4"x4" support



Herras Fencing Detail

REV AMENDMENTS — DRAWN DATE AUTH'D

PROJECT
35A Buckland Crescent
London
NW3

CLIENT
William Carter Limited

TITLE
Tree Protection Plan (TPP)

Job	Scale	DRG NO	Revision
02008R	1:200 @ A3	02008P	-
Date 31/01/14	Type TT.TPP.02008P.v1		

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Appendix 6 – Site Photographs

Image 1 – T1 (l) to T5 (r) – Trees to be removed indicated by arrow (Note: T2 too small to be seen)

Image 2 – Recently lost limb from T6 (Ash)

Image 3 – Local authority tree. Lower stem to be shuttered with ply

Image 4 – T7 (l) to T9 (r) – All trees to be retained. (**Note:** T8 obscured)

Appendix 7 – Limitations

Full Legal Disclaimer

This report was prepared as a report of work instructed by client (as specified). Neither Tamla Trees ltd nor any associated company, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the report and its findings. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favouring by Tamla Trees ltd or any associated company. The views and opinions of authors expressed herein do not necessarily state or reflect those of Tamla Trees ltd or any associated company.

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Specific - Trees

All tree inspections, unless specified, have been undertaken from ground level and using non-invasive techniques. Comments contained within the report on the condition and risk associated with any tree relate to the condition of the tree at the date and time of survey. Please note that the condition of trees is subject to change. This change may occur, but is not limited to biological and non-biological factors as well as mechanical/ physical changes to conditions in the proximity of the tree. Trees should be inspected at intervals relative to risk/ target areas and in accordance with relevant HSE guidance. Tamla Trees ltd can provide further information on this matter if required. Where full access to trees (Ivy, materials at base, location on 3rd party land) was not possible Tamla Trees ltd accept no liability for issues that arise.

Please note no statutory control checks have been undertaken (unless specified). Where tree surgery works have been identified these works are based on the assumption that planning is approved, no tree works should be undertaken prior to determination of this application without up to date confirmation of the Tree Preservation Order / Conservation Area Status of the vegetation. All works should be undertaken in accordance with the appropriate Duty of Care. This should include, for example, site specific risk assessments and due diligence inspections for the presence of protected species.

Any comment/ measurements relating to 3rd party trees have been made without full access to the tree(s). Should these trees have any impact on the proposed development we would advise you to instruct us to contact the 3rd party and undertake further detailed inspection work.

A legal Duty of Care requires that any tree works specified in this report should be performed by qualified, arboricultural contractors who have been competency tested to determine their suitability for such works in line with Health & Safety Executive Guidelines. Additionally all works should be carried out according to British Standard 3998 (2010) Recommendations for Tree Work.