



**BS 5837:2005 Arboricultural Impact Assessment and Tree Protection Scheme
for a Proposed Replacement Garage at South Cottage, The Green, Harefield**

Client: Mr J Barrett
Architect: Michael Oakes, B.A.Hons
Author: Daniel Simpson, HND.For ND.Arb M.Arbor.A
Report Reference: TR.11.17.Rev_B
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Updated 30th July 2015



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1. EXECUTIVE SUMMARY

- 1.1 The proposal is to ~~demolish~~ ^{dismantle} the existing garage ^{retaining the foundations} that sits within the Root Protection Areas (RPAs) of trees, and build a new one that has a larger footprint which will extend further into RPAs of trees both off and on the site, including those subject to a Tree Preservation Order.
- 1.2 As the proposed development is small in scale and not habitable, shade and dominance of trees is not a problem.
- 1.3 ~~Only one low quality individual tree and a group of 3 small low quality trees shall be removed to facilitate development. These trees are not part of the Tree Preservation Order.~~ ^{No}
- 1.4 My client is proposing to use ~~mini-pile~~ ^{surface raft} foundations to mitigate arboricultural impact of the new footings, following consultation with an engineer.
- 1.5 The Tree Protection Plan (TPP) and Arboricultural Method Statement (AMS) demonstrate that ~~significant~~ trees can be retained and protected effectively during demolition and construction.
- 1.6 I see no reason why planning permission subject to conditions to address matters arising in this report, or beyond the scope of it should not be granted.



2. INTRODUCTION

2.1 This report is prepared for electronic release by email in PDF file format, and can be viewed in free software such as Acrobat reader. Some appendices are provided in separate files to this document. The report and all associated files are combined into a single archive folder in a standard .zip file format for release.

2.2 My name is Daniel Simpson, and my expertise is in the field of arboriculture. Full details of my qualifications and experience are appended.

Scope of report

2.3 This report is intended to provide all the arboricultural information required to validate and determine a planning application. And inform the local authority as to the potential impact on trees and demonstrate how this can be mitigated.

2.4 British Standard 5837:2005 'Trees in Relation to Construction' is referred to throughout this report. This is a nationally recognised standard typically used by Local Planning Authorities to assess planning applications. It is frequently referred to in planning conditions to enforce protection or control of works that may be harmful to trees both on and off the site.

Brief from client

2.5 To carry out a tree survey and provide a report incorporating an Arboricultural Impact Assessment (AIA), Tree Constraints Plan (TCP), Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP) to support a planning application for a proposed replacement garage.

Description of the proposed development

2.6 The proposal is to ^{dismantle} ~~demolish~~ the existing garage ^{whilst retaining the existing foundations} and build a ^{timber} replacement.

Background

2.7 The client informed me that some trees were subject to a Tree Preservation Order, and supplied me with drawings of the proposed development and TPO documents.

Documents Used in preparation of this report

2.8 Please refer to appendix III for a full list of the documents I referred to.



Limitations

- 2.9 This report was prepared for use by our client in accordance with the terms of the contract only. This report is not a substitute for a subsidence or health and safety / mortgage service. Third parties may not use or rely upon the information in this report without written consent from Tree Reports Ltd. Information provided by third parties used in the preparation of this report has not been independently verified by Tree Reports Ltd and is assumed to be correct.

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3. SITE VISIT AND DATA COLLECTION

- 3.1 I carried out a site visit on the 11th October 2011 in the presence of my client. The weather was sunny with some cloud and light breezes.
- 3.2 The site is a semi-detached house in a suburban area outside of the centre of Harefield. It sits back from Northwood Road behind a car repair workshop, at the end of a long narrow access drive, and adjacent to 'The Green'.
- 3.3 The existing garage is adjacent to the house and is indicated on the Tree Constraints Plan. The proposed footprint of the replacement is indicated on the Tree Protection Plan. These plans have been put together by converting the Architects drawings to a CAD format.
- 3.4 Data was collected in accordance with the requirements of British Standard 5837 "Trees in Relation To Construction". All observations were from ground level without detailed or invasive investigations. Measurements were taken using a diameter tape, digital clinometer and Disto laser measure. Where this was not possible measurements have been estimated by eye.
- 3.5 Trees are surveyed and assessed impartially and irrespective of the proposed development and legal status.

Summary of tree survey data

Table 1 – Summary of Tree Categories		
BS 5837 Category	Number of Trees	% of Trees
A	2	25
B	3	37.5
C	3	37.5
R	0	0
Total	8	100

Table 2 – Summary of Group Categories

BS 5837 Category	Number of Groups / Hedges	% of Groups / Hedges
A	0	0
B	0	0
C	3	100
R	0	0
Total	3	100

Table 3 – Breakdown of Species – individual trees

Species	Number of Trees	% of Trees
Lawson Cypress	3	37.5
Yew	1	12.5
Sycamore	1	12.5
Blackthorn	1	12.5
Holly	1	12.5
Dwarf Cypress	1	12.5
TOTAL	8	100

Table 4 – Breakdown of Species – Groups & Hedges

Species	Number of Groups & Hedges	% of Groups and Hedges
Juniper	1	33.33
Privet	1	33.33
Leyland Cypress	1	33.33
TOTAL	3	99.99

Legal Status of the Trees

- 3.6 The off-site Sycamore (T5) and Yew (T9) trees are protected by the Tree Protection Order, in addition to T1 and T3 Lawson Cypress. The site is also within a Conservation Area, which affords protection to all trees not covered by a TPO.
- 3.7 An approved planning permission will over-ride a Tree Preservation Order and Conservation Area. Nonetheless, before carrying out any tree works or development, it is recommended that the client establishes any legal procedures to be followed with the



Local Planning Authority (LPA). Any works carried out must not go beyond the scope of what is necessary to facilitate construction as part of the approved permission, and must be in accordance with any conditions that may be applied.



4. ARBORICULTURAL IMPACT ASSESSMENT

General Information

- 4.1 BS 5837 provides a methodology for determining above and below ground constraints presented by trees on and adjacent to the site. These have been recorded and presented visually on the appended Tree Constraints Plan (TCP).
- 4.2 I have identified where there is risk of impact on retained trees, as detailed below.

Loss of Trees

- 4.3 ~~The proposal requires the loss of T6 and G1 both low value category C trees. BS 5837 does not require the retention of trees of this category and they are not covered by the TPO. Due to their size and location they do not make any significant contribution to public amenity.~~ No Loss of trees.

Below Ground Impact

- 4.4 Access is required to Root Protection Areas of off-site trees adjacent to the development area and T4. The existing hard standing will provide some protection and this shall be reinforced where necessary in accordance with the Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP).
- 4.5 I have discussed the need for specially engineered foundations with my client and the Architect. The Architect has enquired with an engineer about non-dig solutions and found that ~~some mini-piles~~ ^{surface raft foundation is} are a suitable method to mitigate the potential harm to trees caused by extending the existing footprint into Root Protection Areas (RPAs). The ~~dig~~ ^{equipment} required to install such ~~piles~~ ^{foundation} would be relatively lightweight, and therefore no additional ground protection would be needed. ~~Special~~ foundations should be designed and installed in accordance with the appended AMS and TPP.
- 4.6 ~~Demolition~~ ^{ismantling} of the existing garages takes place within Tree Root Protection Areas, This will be acceptable if carried out carefully by hand in accordance with an AMS and TPP. ^{but without disturbing existing foundations}

Table 3 – Area and radius of Root Protection Areas

Survey ref.	RPA (m ²)	RPA Radius
T1	58.6	4.3
T2	40.7	3.6
T3	99.9	5.6
H1	5.5	1.3
T4	38.1	3.5
T5	136.9	6.6
T6	50.3	4.0
G1	12.6	2.0
T7	136.9	6.6
T8	6.2	1.4
H2	0.8	0.5

- 4.7 The presence of the existing garages reduces the impact of the scheme considerably, as a significant proportion of the proposed development footprint is already developed. The trees are not open grown, and therefore the RPAs of the trees cannot be adjusted. There is a significant area of soft landscaping in adjacent sites that provides ideal additional rooting environment for the trees.

Shade, Dominance, Branch Spread and Other Above Ground Impacts

- 4.8 A Tree Shadow Plan (TSP) was not considered necessary as the proposal is not for a habitable structure.
- 4.9 The proposal should not affect the canopies of any retained trees.

Dominance

- 4.10 Adjacent trees dominate the proposed garage to some extent, but in any case - the garage is not habitable and therefore this is not considered to be a problem.

Risk of Collision with Stem or Branches of Trees

- 4.11 All retained trees can be protected from collision with tree protective fencing in accordance with an AMS and TPP. The existing boundary fence affords protection to off-site trees, but this shall be reinforced near the TPO trees. Due to the size of the weld mesh panels typically used to protect trees, it will be necessary to protect the stem of T4 with wooden boarding in accordance with the AMS and TPP. The method statement also includes procedures for



where the canopies of trees overhang protective fencing or hoarding, and are at risk from crane or hydraulic arm operators.



5. ARBORICULTURAL METHOD STATEMENT

Responsibilities

- 5.1 Successful implementation of tree protection measures and long term tree retention, depend on co-ordination between key personnel involved in the development.
- 5.2 The client and agent shall ensure that:
- the site manager and all other key personnel are provided with this document;
 - all planning conditions are cleared before development commences;
 - all requirements of this Tree Protection Scheme are adhered to;
 - the site manager is updated of any approved changes or variations to this document.
- 5.3 The site manager shall ensure that:
- a copy of this document with the plan in appendix III is easily accessible for site personnel to refer to before and during the time construction activity is taking place;
 - all personnel working on the site are made aware of the tree protection plan and arboricultural method statements covering any activities they will undertake. This duty includes delegating the task of briefing personnel in the absence of the site manager.
 - The tree protection measures are left in place until the construction phase of development is completed, except with the written consent of the LPA.
 - site personnel are updated of any approved changes or variations to the approved tree protection measures.
- 5.4 All personnel on the site shall work in accordance with this document at all times, or in accordance with any approved variation.



Procedures for incidents

5.5 If any breach of the approved tree protection measures occurs:

- the site manager must be informed immediately;
- the Site Manager, or person acting in his absence shall inform Tree Reports Ltd, the Client and the local Tree Officer as soon as reasonably practical after the breach is discovered. It is the responsibility of the site manager to delegate this task to someone each time he leaves site.
- swift action must be taken to halt the breach and prevent any further breach;
- damage mitigation measures appropriate to the scale of the incident will be deployed where required. For example, soil de-compaction and enrichment or corrective tree surgery or felling.

Prohibited Activities

5.6 The following must not be carried out under any circumstances:

- cutting down, uprooting, damaging or otherwise destroying any retained tree;
- lighting a fire within 10 metres of the canopy of any retained tree;
- equipment, signage, fencing, tree protection barriers, materials, components, vehicles or structures shall not be attached to or supported by a retained tree;
- mixing cement, chemical toilets and other use or storage of anything that would be harmful to trees shall not take place within, or close to a Root Protection Area (RPA). The distance away from the RPA must be sufficient, and the slope of the site must be such that contamination of soil in the RPA would not occur if there were spillage, seepage or displacement.

5.7 No alterations or variations shall be made to the approved tree protection measures without written approval from the LPA.

Timing of Operations

5.8 The development must be carried out in the following order unless otherwise agreed in writing with the LPA. Each step must be completed before moving onto the next

- i. Tree Work
- ii. Demolition of existing garage
- iii. Installation of ground protection and tree protective fencing / hoarding
- iv. Construction of replacement garage
- v. Removal of tree protection measures

Tree Work

5.9 All tree works should be carried out by professional arboricultural contractors with appropriate qualifications, experience and public liability insurance. The work should be carried out in accordance with British Standard document number 3998:2010 "Recommendations for Tree Work".

Table 5: Schedule of Tree Works to be undertaken	
	None
Survey Ref	Description of works
~~GK and T6~~	~~Remove to ground level and leave stump in situ or dig out by hand carefully to avoid damage to roots from retained trees.~~

Demolition of existing driveway

5.10 The existing garage is within RPAs of retained trees and therefore ~~demolition~~ removal must be carried out as follows:

- The walls shall be ~~knocked down~~ dismantled by hand with sledgehammers, and the resulting spoil removed by wheelbarrow.
- The existing footings shall be retained where possible. Where it is not practical to do so, the footings shall be broken up by hand tools or a jackhammer. The resulting spoil shall be removed by hand with the use of a wheelbarrow. Great care must be taken not to disturb the ground below the existing footings.
- Ground protection shall be laid immediately onto the exposed ground as detailed below where indicated on the appended Tree Protection Plan.



Ground Protection & Special Surfaces

- 5.11 Ground protection shall be deployed where indicated on the appended Tree Protection Plan as per the order of work operations given in the 'timing' section above. It must be retained until construction is complete unless otherwise specified in this document or agreed in writing with the LPA.
- 5.12 A variety of ground protection methods exist, including 'off the shelf' products such as Cellweb. Whichever method is adopted, it must be designed to perform adequately for the use it is deployed. The following functions must be incorporated into the design:
- Will be permeable and allow liquid infiltration and gaseous exchange to tree roots.
 - Will prevent any soil compaction or loss of soil structure.
 - Will be installed above the existing ground level without disrupting the soil structure in tree root protection areas. (excluding the existing hard surface)
- 5.13 Where only pedestrian access is required the area will be protected from pedestrian movements by scaffold boards atop a compressible layer (e.g. wood chips to a depth of around ten centimetres) laid onto a geotextile.
- 5.14 For heavier use cellular confinement system products such as Cellweb may be suitable. However it is recommended that engineering advice is sought to formulate a design that meets the above specification and vehicles, equipment, plant entering the root protection area.
- 5.15 Whichever ground protection methods are chosen, their suitability for meeting the above specification should be confirmed by an engineer and / or the manufacturer.

Driveway within Root Protection Areas

- 5.16 The existing driveway shall be retained and left undisturbed.



Boom & Hydraulic Arm Operation

- 5.17 Where cranes and other vehicles or equipment with a boom such as a concrete pump are operated near the canopy of any retained tree, the following precautions must be adopted. E.g. when receiving delivery of materials, operating a crane, or piling rig.
- The operator shall take great care and avoid any collision with the tree.
 - The works shall be supervised e.g. by the site manager, who will provide constant feedback as required to assist the operator.
- 5.18 Any incidents of damage to retained trees or other breach of tree protection measures shall be reported to the Council's Tree Officer and (if retained throughout development) Arbtech Consulting Ltd. Works must cease until the Council have had an opportunity to inspect the damage and where appropriate, agree a mitigation plan.

Installation of Foundations

- 5.19 The foundations of the proposed garage must be designed to perform and be installed in a way that prevents damage to trees and allows their successful retention. ~~A typical example is a pile and beam foundation. "Off the shelf" solutions exist such as the Abbey Rynford House deck system. However, engineering advice is recommended to determine the best product or other solution to use to meet the specification below and also building regulations.~~
- 5.20 The foundations must be specially engineered to:
- prevent any soil compaction or loss of soil structure within RPAs;
 - avoid the need for any root pruning or changes in level;
 - be installed above the existing ground level without disrupting the soil structure in tree root protection areas.
- 5.21 ~~Piling must be carried out by removing ground protection from the pile locations by hand to clear just enough space to carry out the installation, leaving the surrounding ground protection intact.~~XXXXXXXXXXXX
- 5.22 If and when ground protection must be removed to facilitate construction of the Foundations (e.g. when installing a slab on top of piles or installing anti heave measures), it must only be removed just before the operation for which it is being removed takes place.



Only the requisite amount of ground protection will be removed. While the RPA is exposed, there shall be no access to any person, vehicle, equipment, materials, plant or anything else.

~~Construction of protective hording for T4 Holly~~

- 5.23 ~~The hording is required to prevent damage to the stem of the tree during construction, whilst allowing access to the RPA. The hording is to be installed immediately following the completion of the tree works in accordance with TPP. It must remain in situ until construction has been completed unless otherwise agreed in writing by the council.~~
- 5.24 ~~The hording shall be constructed around the stem of the tree as shown on the TPP using 1 inch thick plywood sheets mounted onto a framework of 2 x 2 inch diameter pine. The plywood sheets shall be 2m in height, and of sufficient width to incorporate any exposed woody roots around the base of the tree.~~
- 5.25 ~~The hording shall be free standing and must not lean on or be attached to the tree in any way. It will be made strong enough to withstand the impact of construction vehicles and plant operating nearby.~~



6. CONCLUSIONS

6.1 Provided the development is carried out in accordance with this report, I consider that:

- a. the proposed development will not result in any harm to retained trees, significant loss of landscape amenity, or increased pressure to prune trees subject to the Tree Preservation Order in the future;
- b. allowing the development will not reduce the Councils ability to resist future applications to substantially prune the trees beyond good arboricultural practice as a result of the proximity of the proposed structure to TPO trees.

6.2 Any matters arising as a result of this report, or beyond the scope of it, could be addressed with planning conditions.

6.3 I therefore consider that there is no reason why planning permission should not be granted.



APPENDIX I

THE AUTHOR

Brief overview of career to date

- Five years in practical arboriculture as a self-employed climbing arborist.
- Eighteen months - surveyor / consulting arboriculturalist for a private consultancy
- Four years - Senior Tree and Landscape Officer in a Local Planning Authority.
- In 2010 I started Tree Reports Ltd and began working as an arboricultural consultant

Qualifications

Lantra Professional Tree Inspector, Writtle College, Essex	July 2008
EDEXCEL Higher National Diploma in Forestry, National School of Forestry	Jan 2007
CIEH – Risk Assessment (Credit), Warwickshire College	June 2001
BTEC National Diploma: Arboriculture (Distinction), Warwickshire College	July 2000

Professional Memberships

Arboriculture Association – Professional	Since 2004
Institute of Chartered Foresters – Associate (level 2)	Since 2008

Licenses

National Proficiency Test Council Pesticide Licence	Dec 2001
National Proficiency Test Council Chainsaw Licence	Oct 1999

Events, seminars, and short courses attended (continues overleaf)

ICF conference + Trees and the Built Environment + AGM	April 2011
Meeting - SE group meeting & AGM, Institute of Chartered Foresters	Dec 2010
Seminar - VTA - latest research and methodology update, Claus Mattheck	May 2010
Short course- Designing with Trees, Arboricultural Association	May 2010
Short course- Professional Report Writing, Arboricultural Association	July 2009
Seminar - Planning for Trees, Trees and Design Action Group, Barchams	May 2009
Seminar - The Future of Arboriculture, Barchams	2009



Short course - Special Hard Surfaces, NATO	2007
Short course - Tree Preservation Orders – Preparing for prosecution, NATO	Nov 2006
Workshop - Decay Awareness, Forest Research, David Rose	Oct 2005
Short course - Phase 1 Habitat Survey, IEEM	Sept 2005
Seminar - Planning For Profit, Landscape Planning Group	June 2005
Short course - Training Officer, Greenmech Chippers	Oct 2001



APPENDIX II

TERMS AND DEFINITIONS

Arboricultural Method Statement (AMS) – guidelines for specified working operations near trees to avoid any harmful impact as defined within BS 5837:2005. An AMS can cover a range of works from tree work to operating cranes, installing foundations or services and guidelines for how special engineering must perform to function as a tree protection measure.

Ground Protection – in this context the term refers to a method for preventing the ground from being disturbed, usually within the Root Protection Areas of retained trees. Other uses include protection areas to be planted. The way ground protection should be designed to perform is typically described within an Arboricultural Method Statement.

Local Planning Authority (LPA) – Typically a department of the local council that manages planning applications and often protected tree issues.

No dig solution – a method of constructing a hard surface above the existing ground level to avoid damage to tree roots by bridging over them and preventing soil compaction.

Root Protection Area (RPA) – a minimum recommended area for tree protection in ‘BS 5837:2005 Tree in Relation to Construction’. In these areas works should be avoided where possible. Where work in these areas cannot be avoided, it should be carried out in accordance with a Tree Protection Plan and / or Arboricultural Method Statement.

Tree Constraints Plan (TCP) – as defined within BS 5837. This plan shows above and below ground constraints that may impact on a planning proposal such as the tree branch spread and Root Protection Area.

Tree Protection Plan (TPP) – as defined within BS 5837:2005. This shows the layout of protective measures for retained trees in, typically including tree protective fencing and / or ground protection. And in some cases, shows where special working methods recommended in the Arboricultural Method Statement in this report will be adopted. This is intended to be used for planning purposes and also as a reference on-site

Tree protective fencing – typically a barrier that consists of 2m high x 3m long weldmesh panel such as a standard Heras fencing. It is deployed to prevent or control access to tree root protection areas. It should be anchored into the ground to prevent movement and withstand impact from construction vehicles. The layout is usually specified on a TPP.

Visual Tree Assessment (VTA) – a method for assessing the health and structural condition of trees.



APPENDIX III

LIST OF DOCUMENTS

Documents received from client or a representative of the client:

Name / Description Reference

Partial TPO plan (no ref)
Partial TPO plan (no ref)
Proposed replacement garage (Various drawings) / 6a
Proposed replacement garage (Various drawings) / 8
Proposed replacement garage (Various drawings) / 4
Proposed replacement garage (Various drawings) / 5

Documents sourced by the author:

OS Site Plan



BS 5837:2005 Arboricultural Impact Assessment for Proposed
Development at South Cottage, The Green, Harefield

APPENDIX IV

TREE SURVEY SCHEDULE

TREES FOR REMOVAL

Category and definition	Criteria	Colour on Plan
Category R - Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other R category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)	DARK RED
	• Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline	
	• Trees infected with pathogens of significance to the health and/or safety of other trees nearby (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree).	

TREES TO BE CONSIDERED FOR RETENTION

Category and definition	Criteria — Subcategories			Colour on Plan
	1 Mainly arboricultural values	2 Mainly landscape values	3 Mainly cultural values, including conservation	
Category A - Those of high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
Category B - Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE
Category C - Those of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	GREY

NOTE: Whilst 'C' category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150 mm should be considered for relocation.



BS 5837 Tree Survey Schedule

Client: Mr J Barrett

Site: South Cottage, The Green, Harefield

Date of Survey: 11/10/2011

Surveyor: Daniel Simpson

Trees tagged: No

Weather conditions: Breezy, some cloud, sunny

Project Reference: TR.11.17

Present: Client

Reference Number Codes T# - tree, S# - shrub, G# - group, h# - hedge, w# - woodland

Abbreviations - Est. = estimate, MS = multi-stem,

Age Class Codes - Y - young, EM - early mature, MA - middle aged, M - mature, OM - over-mature, V - veteran

Range of physiological condition values - Good, Fair, Poor, Dead

Category grading - refer to BS 5837:2005 chart below for explanation

Estimated remaining contribution values (years) - <10, 10-20, 20-40, 40+

Category Grading - A = High Quality, B = Moderate quality, C = low quality, R = remove

Reference Number	Species	Height (m)	Stem Diameter (mm)	Branch Spread (m) E S W N				Crown clearance (m)	Age class	Physiological Condition	Structural Condition	Preliminary management recommendations	Estimated remaining contribution (years)	Category grading
T1	Lawson Cypress	15.9	360	2.5	2.5	2.5	1.5	2	MA	Good	Previously topped at approx 5m above ground level and subsequently established new full	Reduce height by 4m.	20 - 40	B2
T2	Lawson Cypress	15	300	1	2	2	2	2	MA	Fair	Compression fork at 2.5m above ground level - no implications	Reduce height by 3m	20-40	B2
T3	Lawson Cypress	16.5	470	3.5	3.5	3.5	3.5	1.7	M	Good	Previously topped at approximately 8m above ground level and subsequently established new full canopy.	Reduce height by 4m.	20 - 40	B2
H1	Leyland Cypress	7.3	Ave. Est. 110	/	/	/	/	2.5	MA	Good	No significant defects.	None	10 - 20	C2
T4	Holly No longer exists	9.9	290	3.5	2.5	3.5	3.5	2.2	M	Fair - 70% of normal crown density	Topped well over 5 years ago at 4m above ground level.	Monitor	<10	C2
T5	Sycamore	Est. 20	Est 550	7	5	7	7	3	M	Fair - 70% of normal crown density	No access to base, no significant defects observed.	None - tree under third party ownership.	40+	A1, 2
T6	Blackthorn	12.3	Est 400 MS	44	6	4	4	3	M	Fair	Compression fork at 0.5m above ground level - no implications. Main stems beginning to fuse at 1.5m above ground level - no implications.	None	<10	C3
G1	3 x Juniper	6.1	Ave. est. 200 MS	/	/	/	/	0	M	Fair	No significant defects.	None	<10	C1

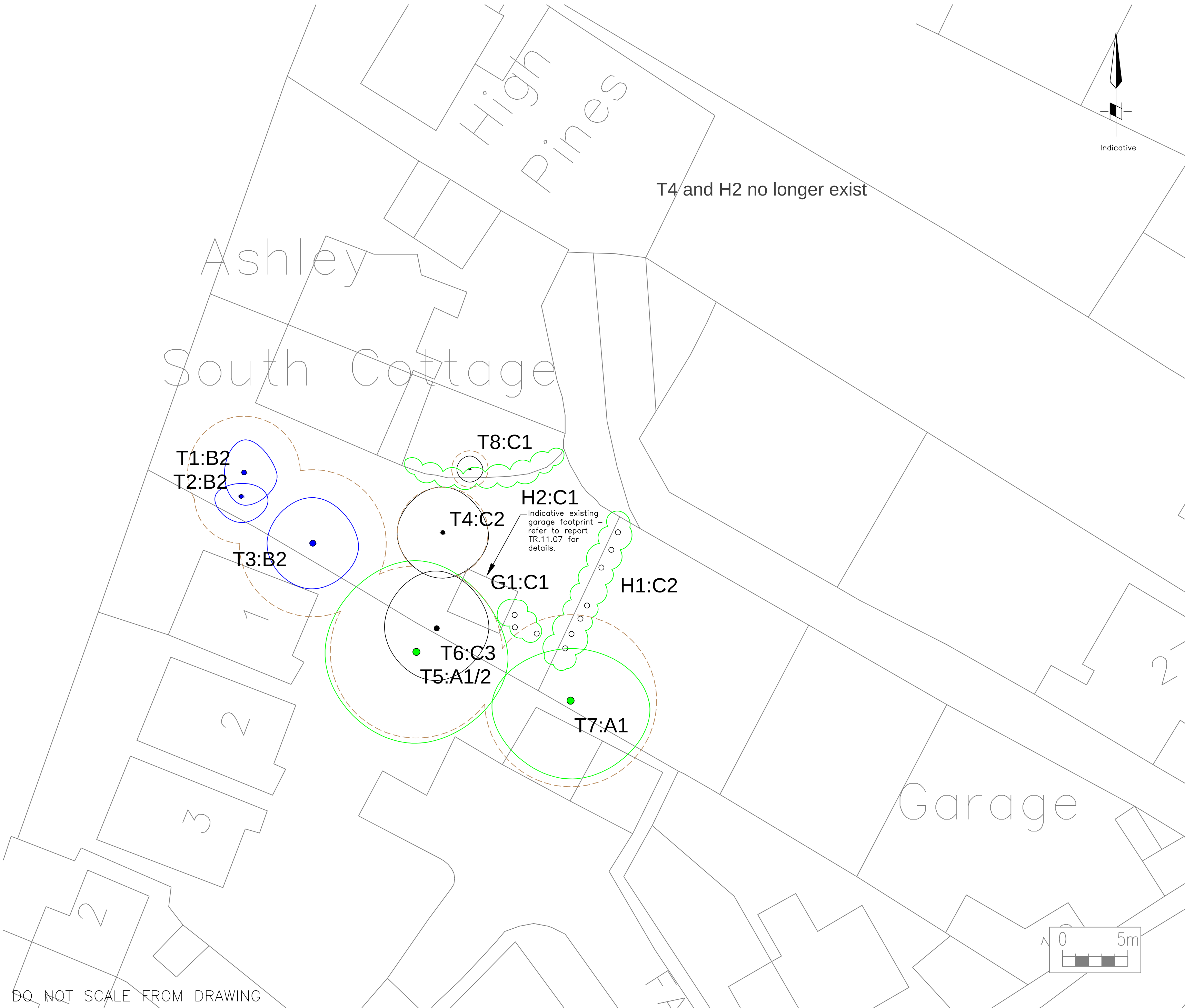
T7	Yew	Est. 16	Est. 550	4	6	6	6	3	M	Good	No access to base - visibility of tree obscured by other vegetation.	None	40+	A1
T8	Dwarf cypress	6.2	140 MS	1	1	1	1	1.5	EM	Good	No significant defects.	None	10 - 20	C1
H2	Privet No longer exists	1 - 2	Ave. 50 MS	/	/	/	/	0	EM	Good	No significant defects.	None	10 - 20	C2



BS 5837:2005 Arboricultural Impact Assessment for Proposed
Development at South Cottage, The Green, Harefield

APPENDIX V

TREE CONSTRAINTS PLAN



KEY

- Root Protection Area (RPA)
- Tree Stem
- T1 Tree No.
- TREE CATEGORY ID.
- Category A
- Category B
- Category C
- Category R
- Tree Shadow

REV.	DESCRIPTION	DWN	CHK	DATE
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THIS DRAWING IS CONFIDENTIAL AND MUST NOT BE REPRODUCED WITHOUT THE CONSENT OF TREE REPORTS LTD.

CLIENT
Mr Joe Barratt

PROJECT
South Cottage, The Green,
Harefield, UB9 6NP

TITLE
Tree Constraints Plan (TCP)

DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RCK	10/10/2011	-	-	-	-	1:200

Tree Reports Ltd.
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Drawing Number
TCP.TR.11.17



DO NOT SCALE FROM DRAWING



BS 5837:2005 Arboricultural Impact Assessment for Proposed
Development at South Cottage, The Green, Harefield

APPENDIX VI

TREE PROTECTION PLAN

KEY

Root Protection Area (RPA)

Ground Protection

Proposed Building

Area of Works Controlled by Arboricultural Method Statement

Protective Wooden Hoarding

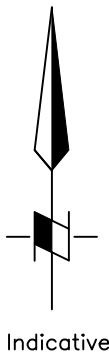
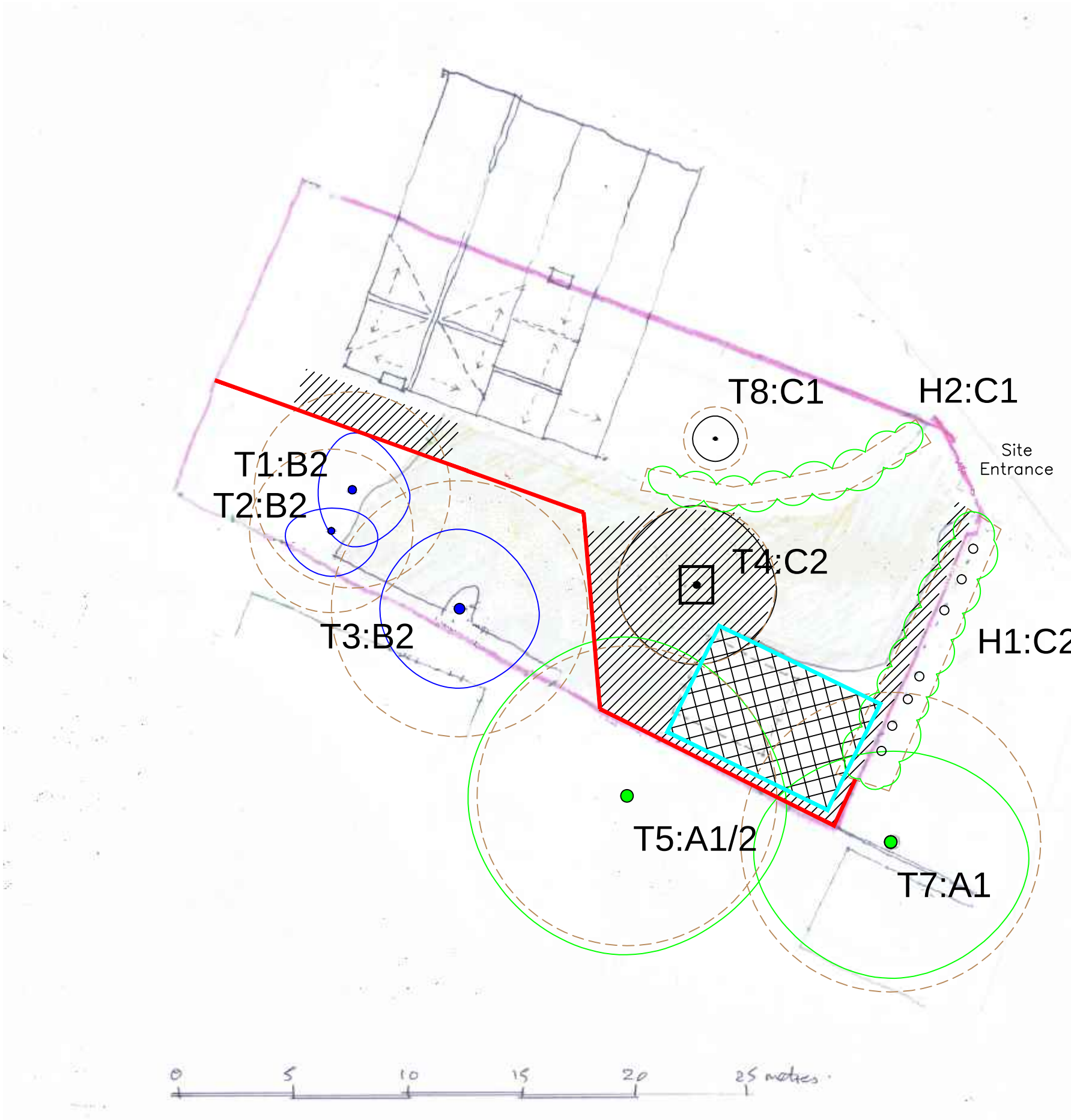
Protective Barrier Fencing

Tree Stem

T1

Tree No.

T4 and H2 no longer exist



NOTES:

This Tree Protection Plan has been prepared in accordance with British Standard BS5837:2005 Trees in relation to construction – Recommendations.

All pre development tree work is to be carried out prior to any construction personnel being present or commencing works or any materials being delivered.

All tree works must be undertaken to British Standard 3998:1989 and by an arboricultural/forestry contractor.

No tree works not specified in this report should be conducted without prior recommendation by an arboriculturist and approval of the local planning authority.

All pre development tree work will be completed prior to commencement of development.

Tree Protective Fencing and Ground Protection should not be removed or altered without prior recommendation by an arboriculturist and approval of the local planning authority.

No mechanical digging or scraping is permitted within an RPA excepting operations listed in the Arboricultural Method Statement.

No chemicals or materials are to be transported, stored, used or mixed within 10.0m of a tree stem.

No machinery, plant or vehicles are to be washed down within 10.0m of a tree stem.

No fires are to be lit within 10.0m of any vegetation.

The leaning against or attaching of objects to any part of a tree is NOT permitted.

Only following build completion can landscaping/tree planting works be undertaken.

REV.	DESCRIPTION	DWN	CHK	DATE		
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CLIENT		Mr Joe Barratt				
PROJECT		South Cottage, The Green, Harefield, UB9 6NP				
TITLE		Tree Protection Plan (TPP)				
DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RCK	10/10/2011	-	-	-	-	1:200
Tree Reports Ltd. St Marks House, 80 Green Tiles Lane, Denham, Uxbridge, UB9 5HT Telephone: 0208 626 4447 Email: ask@treereports.co.uk						
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