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**BS5837:2012 TREE SURVEY AND  
ARBORICULTURAL IMPACT ASSESSMENT:  
65 Crescent Road, Barnet, EN4 9RD**

Dated: 24<sup>th</sup> November 2023

Our reference: GHA/DS/162350:23

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# Arboricultural Impact Assessment

Location: 65 Crescent Road, Barnet, EN4 9RD  
Our reference: GHA/DS/162350:23  
Client: M Sampson  
Dated: 24<sup>th</sup> November 2023  
Prepared by: Glen Harding MICFor, MSc (Forestry), MArborA  
Date of Inspection: 2<sup>nd</sup> November 2023

## Instructions

Issued by –M Sampson

TERMS OF REFERENCE –GHA Trees were instructed to survey the subject trees within and adjacent to 65 Crescent Road, Barnet, in order to assess their general condition and to provide a planning integration statement for the indicative proposed development that safeguards the long term wellbeing of the retained trees in a sustainable manner.

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## Executive Summary

The proposal for the site is to construct two new dwellings to the rear of 65 Crescent Road. The existing house will be demolished to allow access to the rear of the site, with a new narrower house being built to replace it. The proposed scheme requires the removal of one small and relatively insignificant (C category) tree. The proposal requires a new structure to be installed within the root protection areas of nearby trees; however, mitigations are proposed to ensure these structures will not adversely affect these trees. The retained trees require protection in accordance with industry best practice and BS 5837: 2012 –Trees in relation to design, demolition and construction –recommendations, in order to ensure their longevity.

## Documents Supplied

The client supplied the following documents:

- ♣ Existing layout plans
- ♣ Proposed layout plans

## Scope of Survey

- 1.1 The survey is concerned with the arboricultural aspects of the site only.
- 1.2 The planning status of the subject property was not investigated in detail.
- 1.3 A qualified Arboriculturist undertook the report and site visit and the contents of this report are based on this. Whilst reference may be made to built structure or soils, these are only opinions and confirmation should be obtained from a qualified expert as required.
- 1.4 Trees in third party ownership were surveyed from within the subject property, therefore a detailed assessment was not possible and some (if not all) measurements were estimated. Where the stem location of a third party tree has been estimated, this is noted on the plan.
- 1.5 Dense vegetation or climbers (such as ivy) also prohibited full inspections for some trees; this is noted where applicable.
- 1.6 No discussions took place between the surveyor and any other party.
- 1.7 The trees were inspected on the basis of the Visual Tree Assessment method expounded by Mattheck and Breleor (The body language of tree, DoE booklet Research for Amenity Trees No. 4, 1994)
- 1.8 The survey was undertaken in accord with British Standard 5837: 2012 –Trees in relation to design, demolition and construction –recommendations.
- 1.9 Underground services near to trees will need to be installed in accord with the guidance given in BS5837.
- 1.10 The client's attention is drawn to the responsibilities under the Wildlife and Countryside Act (1981).

## Survey Method

- 2.1 The survey was conducted from ground level with the aid of binoculars if needed.

- 2.2 No tissue samples were taken nor was any internal investigation of the subject trees undertaken.
- 2.3 No soil samples were taken.
- 2.4 The height of each subject tree was estimated using a clinometer and recorded to the nearest half metre.
- 2.5 The stem diameter for each tree was measured in line with the requirements set out in BS 5837: 2012 –Trees in relation to design, demolition and construction – recommendations.
- 2.6 The crown spreads were measured with an electronic distometer and recorded to the nearest half metre. Where the crown radius was notably different in any direction this has been noted on the Plan (appendix A) and within the tree table (Appendix B). The crowns of those trees that are proposed for removal, or trees where the crown spread is deemed insignificant in relation to the proposed development are not always shown on the appended plan; however their stem locations are marked for reference.
- 2.7 The Root Protection Area (RPA) for each tree is included in the tree table, both as an area, and as the radius of a circle.
- 2.8 The crown clearance was measured using a clinometer and recorded to the nearest half metre. Where it is significantly lower in one direction, this is noted within the tree table at appendix B.
- 2.9 All of the trees that were inspected during the site visit are detailed on the plan at Appendix A; this plan was produced in colour and **MUST** only be scanned or reproduced in colour. The trees on this plan are categorised and shown in the following format:

#### COLOUR CODING AND RATING OF TREES:

Category A –Trees of high quality with an estimated remaining life expectancy of at least 40 years. Colour = light **green** crown outline on plan.

Category B –Trees of moderate quality with an estimated remaining life expectancy of at least 20 years. Colour = mid **blue** crown outline on plan.

Category C –Trees of low quality with an estimated remaining life expectancy of at least 10 to 20 years, or young trees with a stem diameter below 150mm. Colour = uncoloured crown outline on plan.

Category U –Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. Colour = **red** crown outline on plan.

All references to tree rating are made in accordance with BS 5837: 2012 –Trees in relation to design, demolition and construction –recommendations’, Table 1.

## The Site

- 3.1 The site is located on Crescent Road, a residential through road located to the east of Barnet.

## The Subject Trees

- 4.1 The details of the subject trees are set out in the Schedule at Appendix B.
- 4.2 Please be aware that ash tree(s) were identified during the survey. Many ash trees in the UK are suffering from ‘ash dieback’ (*Hymenoscyphus fraxineus*) which can cause the rapid decline of affected trees, often rendering them unsafe. Affected trees have been highlighted in the tree table at appendix B and the severity of the infection noted; however please ensure these trees are inspected regularly.
- 4.3 Of the seven individual trees, three have been assessed as BS category B, with the remaining trees being assessed as BS 5837 category C.

Category B	3 trees / group:
Category C	4 trees / group:

## The Proposal

- 5.1 The proposal for the site is to construct two new dwelling to the rear of 65 Crescent Road.
- 5.2 The existing house will be demolished to allow access to the rear of the site, with a new narrower house being built to replace it.
- 5.3 The proposed location of the above structures can be seen on the appended plan.

## Arboricultural Impact Assessment

### PROPOSED TREE REMOVAL / RETENTION:

- 6.1 T1 is proposed for removal as part of the new development, as this tree could not be effectively retained as it is located within the outline of the new structures, or located too close to make its retention feasible / sustainable. This tree has been given a C category grading in accordance with BS 5837 and therefore should not act as a limitation on the effective use of the site, or impose any significant constraints on the layout (see table 1 BS5837).

## TREE PRUNING TO ACCOMODATE THE PROPOSAL OR ACCESS TO THE SITE

- 6.2 The implementation of the proposal does not lead to the requirement to prune any of the retained trees, or shrubs.
- 6.3 There is no part of the new structure which will have tree canopies (from trees to be retained) overhanging it and the building works can progress safely without the need for any facilitation pruning.

## ASSESSMENT OF RETAINED TREES ROOT PROTECTION AREAS

- 6.4 Section 4.6.3 of BS 5837: 2012 states that the Root Protection Area (RPA) of each tree should be assessed by an arboriculturalist considering the likely morphology and disposition of the roots, when known to be influenced by past or existing site conditions.
- 6.5 Following the assessment described in section 6.5, the RPAs have all been drawn as notional circles as there are no existing site structures (visible from the available access) which are assessed to have the potential to significantly affect tree root morphology.

## ASSESSED IMPACT ON RPAS BY PROPOSED STRUCTURES

- 6.6 There is an encroachment into the RPA of G1 from the new structure as shown on the appended plan; thus, the use of traditional strip foundations will not be acceptable as this would cause harm to these trees.
- 6.7 The use of systems employing mini piles in conjunction with ground beams will instead be adopted and is now widely accepted. The Abbey Pynford 'Treesafe' system is one such system, which has a proven track record in delivering 'root friendly' foundations and has been successfully used on a number of similar projects.

*Below: Treesafe footing details*

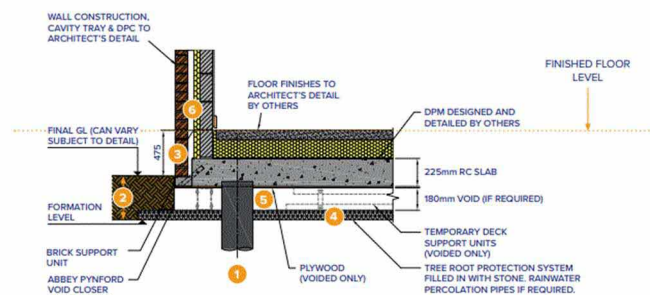


Treesafe is a version of our Housedeck ground floor solution. The system allows construction of dwellings or commercial structures close to or within tree root protection zones.

Treesafe utilises an open core working surface to support our lightweight piling rigs, minimising excavation that could potentially cause permanent damage to tree roots.

### The Abbey Pynford benefits:

- 1 Allows construction of buildings within tree root protection zones.
- 2 Significant reduction in excavation.
- 3 Significant reduction in under build.
- 4 Open core deck system in place of piling mat.
- 5 Clear void to mitigate heave risk.
- 6 No venting required.



- 6.8 Localised piles will be positioned (following trial digs) to ensure that any significant roots (over 25mm) that are present in the area where the new building will sit can be retained and protected to coexist with the new structure.
- 6.9 In order to arrive at a suitable foundation design (which minimises root disturbance within the RPAs of nearby retained trees), site specific and specialist advice regarding footings should be sought from an Engineer, in close discussion with the projects Arboriculturalist.
- 6.10 These trees have been graded as a C category tree in accordance with BS 5837: 2012 –Table 1, and should therefore not act as a limitation on the effective use of the site, or impose any constraints on the layout.
- 6.11 The proposed new structures are situated outside of the assessed RPAs of all of the other trees proposed for retention, therefore these trees pose no below ground constraints on the new structures or vice versa.

#### INSTALLATION OF SERVICES

- 6.12 New services must be routed to avoid all RPAs of retained trees on site and within nearby sites. From an assessment of the subject site, undertaken in conjunction with the project architect, there is no reason to assume this isn't possible. Inspection chambers must also be sited outside the RPAs of any nearby trees.

#### Post Development Pressure

#### FUTURE TREE AND STRUCTURE RELATIONSHIPS

- 7.1 The retained trees are at a satisfactory distance from the proposed new buildings and highly unlikely to give rise to any inconvenience.
- 7.2 Regular inspections of the retained trees by a suitably qualified Arboriculturalist and subsequent remedial works will ensure that the trees are maintained in a suitable manner, to exist in harmony with the new structures and its occupants for many years to come.

#### Tree Protection Measures and Preliminary Method Statement for Development Works

##### 8.1 TREE PROTECTION BARRIERS

It is essential for the future health of the trees to be retained on site, that all development activity is undertaken outside the root protection zone of these trees. The position of the fence **MUST** be marked out with biodegradable marker paint on site and agreed with appropriate representatives from the LPA and contractor. The fencing **MUST** be erected **prior** to any works in the vicinity of the trees and removed only when all development activity is complete. The protective fencing **MUST** be as that shown in BS 5837 (see Appendix C). The herras panels



**MUST** be joined together using a minimum of two anti-tamper couplers which **MUST** be installed so they can only be removed from the inside of the fence. The panels **MUST** supported by stabilizer struts, which **MUST** be installed on the inside and secured to the ground using pins or appropriate weights.

The Fence must be marked with a clear sign reading:

**“Construction Exclusion Zone –No Access”**

8.2 GROUND PROTECTION –LIGHTWEIGHT ACCESS ONLY

Where any additional ground protection is required, these areas **MUST** be covered with a permeable membrane, with 150mm layer of compressible woodchip overlaying it; an 18mm marine ply boards will then be secured on top of the woodchip to allow a 1.5tonne mini-digger to access the area without causing major compaction or soil erosion.

8.3 IMPLEMENTATION OF THE NEW BUILDING ON A “RAFT STYLE” FOUNDATION WITH ASSOCIATED PILES

- **NOTE: any excavations in the RPAS with the use of mechanical excavators will undoubtedly sever any roots that may be present and can change the hydrology and structure of the nearby soil in a way that will adversely affect the health of any nearby trees.**
- The design of the new pile layout must have sufficient flexibility that the locations of the supporting piles / pads is changeable. The location for these piles / pads will be confirmed following hand excavated, trial digs of the top 1000mm of each potential hole (this is where the majority of roots exist).
- The foundation design must also incorporate a void that will allow for water to reach the area beneath the structure and ensure that gaseous exchanges are not restricted.
- Hand tool excavations will only be undertaken by fully briefed site personnel. This operation will be done slowly and carefully to ensure the retention and protection of any roots that are discovered that are in excess of 25mm. These roots **MUST** then be covered and protected using damp hessian whilst further excavation commences; hessian must be left in situ until backfilling commences and re-wetted if needed to avoid root desiccation. **NOTE: OPERATIVES MUST CHECK FOR THE PRESENCE OF ANY EXISTING UNDERGROUND SERVICES PRIOR TO THE COMMENCEMENT OF SUCH WORK.**
- Any roots discovered in these trial pits in excess of 25mm diameter will immediately signal the requirement for a change of pit location.
- These trial digs will be attended by the retained arboriculturalist and site manager who will agree the final locations of the piles.
- **A piling mat of appropriate thickness / loading capability MUST** be placed over the working area whilst the deeper piling / excavation of the final locations commences, with the use of a lightweight rig. This will alleviate the possibility of excessive compaction or erosion within the RPA's.

- Once the trial holes are excavated to the correct depth, care must then be taken to ensure the new piles / pads are installed so as to avoid any roots present. **Any roots that require pruning (those less than 25mm diameter) should be cut using sharp tools to leave a 'clean' cut, in order to minimise the risk of infection by decay pathogens.**
- Once the piles are installed, the excavated holes **MUST** then be backfilled and the soil compacted using hand tools only, to ensure not air pockets are left as these can be damaging to tree roots.
- The supporting beams can now be installed and must be raised above the ground level between the piles and no further excavation carried out.

#### 8.4 BOUNDARY TREATMENTS

Boundary fencing installation / upgrades **MUST** be undertaken as part of the soft landscaping phase and **MUST** be installed **ONLY** when all machinery that is on site for the main build has permanently left the site (NB. If needed, boundary fencing can also be installed prior to the commencement of site works, i.e.. before any machinery has been bought onto the site). Where sections of new / upgraded fencing are located within the RPA of ANY tree that is to be retained, this work **MUST** be undertaken by hand using hand tools only. The locations of the new fence upright posts will be finalised following trial digs to confirm there are no major (over 25mm) roots present; if any such roots are found, the location must be altered. If any smaller roots are found, these can be cut using sharp hand sharp tools to leave a 'clean' cut, in order to minimise the risk of infection by decay pathogens. The post holes within the RPAs should then be lined with plastic sheeting before any concrete or cement is placed into the hole, in order that there is no risk of leaching into the nearby soil as the mixture dries.

#### 8.5 SITE HUTS, WELFARE FACILITIES AND STORAGE OF EQUIPMENT, MATERIALS AND CHEMICALS

All site huts **MUST** be positioned outside of the retained trees RPA's.

#### 8.6 MIXING OF CONCRETE

All mixing of cement / concrete **MUST** be undertaken outside of the RPA of all of the retained trees.

#### 8.7 INCOMING SERVICES, DRAINAGE AND SOAKAWAYS

New services **MUST** be routed to avoid all RPAs of retained trees on site and within nearby sites. From an assessment of the subject site, undertaken in conjunction with the project architect, there is no reason to assume this isn't possible. Inspection chambers **MUST** be sited outside the RPA.

#### 8.8 ON SITE SUPERVISION

**Regular site supervision is essential to ensure all potentially damaging activities near to trees are properly supervised.** A pre start site meeting **MUST** occur to ensure all parties are aware of their responsibilities relating to tree protection on site; this **MUST** include a site induction for key personnel.

Key personnel:

<b>Name</b>	<b>Position</b>	<b>Contact number / email:</b>
Glen Harding	Retained arboriculturalist	
TBC	Local authority Arboricultural Officer	TBC
TBC	Site manager	TBC

#### 8.9 OTHER TREE PROTECTION PRECAUTIONS

- **NO** fires lit on site within 20 metres of any tree to be retained.
- **NO** fuels, oils or substances with will be damaging to the tree shall be spilled or poured on site.
- **NO** storage of any materials within the root protections zone.

#### 8.10 DISMANTLING PROTECTIVE BARRIERS

Protective barriers must only be completely removed when all machinery, and equipment has left site.

### **Conclusion**

- 9.1 In conclusion, the principal arboricultural features within the site can be retained and adequately protected during development activities.
- 9.2 No significant or important trees will be lost to facilitate the proposed scheme.
- 9.3 Subject to precautionary measures as detailed above, the proposal will not be injurious to trees to be retained.

### **Recommendations**

- 10.1 Site supervision – An individual e.g. the Site Agent, must be nominated to be responsible for all arboricultural matters on site. This person must:
- a. Be present on the site the majority of the time.
  - b. Be aware of the arboricultural responsibilities.
  - c. Have the authority to stop any work that is, or has the potential to cause harm to any tree.
  - d. Be responsible for ensuring that all site personnel are aware of their responsibilities towards trees on site and the consequences of the failure to observe those responsibilities.
  - e. Make immediate contact with the local authority and / or retained arboriculturalist in the event of any related tree problems occurring whether actual or potential.

10.2 It is recommended, that to ensure a commitment from all parties to the healthy retention of the trees, that details are passed by the architect or agent to any contractors working on site, so that the practical aspects of the above precautions are included in their method statements, and financial provision made for these.

24<sup>th</sup> November 2023

Signed:



Glen Harding MICFor, MSc (Forestry), MArborA  
For and on behalf of GHA Trees

Appendix A  
TREE PLAN  
(see separate PDF)

Appendix B  
TREE TABLE

Tree Number	Tree Name (species)	Ht (m)	Calculated Stem Diameter (mm)	Number of Stems	Root Protection Area (Radius, m)	N (m)	E (m)	S (m)	W (m)	Age Class	Clearance (m)	Estimated life expectancy	BS Category	Comments / Recommendations
T1	Apple	6	280	1	3.36	3.5	3	2.5	3.5	M	1.5	10-20	C1	Small tree of limited value in the wider landscape. Recommend: to be removed.
G2a	Leyland cypress	21	600	1	7.20	4	4	4	4	M	2 over site	10-20	C2	Lapsed hedge. Off site - full inspection not possible. Some measurements estimated.
G2b	Leyland cypress	21	340	1	4.08	3.6	3.6	3.6	3.6	M	2 over site	10-20	C2	Lapsed hedge. Off site - full inspection not possible. Some measurements estimated.
G2c	Leyland cypress	21	420	1	5.04	3.5	3.5	3.5	3.5	M	2 over site	10-20	C2	Lapsed hedge. Off site - full inspection not possible. Some measurements estimated.
G2d	Lawson cypress	14	260	1	3.12	2	2	2	2	M	2 over site	10-20	C2	Lapsed hedge. Off site - full inspection not possible. Some measurements estimated.
T3	Ash	21	700	1	8.40	8	8	8	4	M	6	20-40	B1	Off site - full inspection not possible. Some measurements estimated.
T4	Sycamore	9	180	2	2.16	2.5	2.5	2.5	2.5	M	2.5	10-20	C1	Self set tree of little value.
G5	Field maple	16	600	1	7.20	6	6	6	6	M	6 over site	20-40	B2	Off site - full inspection not possible. Some measurements estimated.

Tree Number	Tree Name (species)	Ht (m)	Calculated Stem Diameter (mm)	Number of Stems	Root Protection Area (Radius, m)	N (m)	E (m)	S (m)	W (m)	Age Class	Clearance (m)	Estimated life expectancy	BS Category	Comments / Recommendations
T6	Field maple	8	300	1	3.60	0	3	5	3	M	5 south	10-20	C2	Suppressed tree of poor form. Off site - full inspection not possible. Some measurements estimated.
T7	Poplar	22	849	2	10.18	6.5	6.5	6.5	6.5	M	6	20-40	B1	Off site - full inspection not possible. Some measurements estimated.

KEY :

Tree No: (T= individual tree, G= group of trees, W= woodland)  
Age class: Young (Y), Middle aged (MA), Mature (M), Over mature (OM),  
Veteran (V)  
Height (Ht): Measured in metres +/- 1m



Appendix C  
TREE FENCING DETAIL

Figure 3 Examples of above-ground stabilizing systems

