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Arboricultural and Planning Integration Report: 45 Copse Wood Way, Northwood, HA6 2TZ

28th August 2023

Ref: GHA/DS/122960:23

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Arboricultural Report

Location: 45 Copse Wood Way, Northwood, HA6 2TZ
Ref: GHA/DS/122960:23
Client: DDA
Date: 28th August 2023
Prepared by: Glen Harding MICFor, MSc (Forestry), MArborA
Date of Inspection: 22nd August 2023

Instructions

Issued by – DDA

TERMS OF REFERENCE – GHA Trees were instructed to survey the subject trees within and adjacent to 45 Copse Wood Way, Northwood, in order to assess their general condition and to provide a planning integration statement for the indicative proposed development that safeguards the long term well being of the retained trees in a sustainable manner.

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Executive Summary

The proposal for the site is to renovate the existing house, work that will include new extensions to the side and rear. The existing access from the public highway will be retained and reused for the new development. The proposed scheme does not require the removal of any of the trees on site, or of trees within nearby adjacent sites; therefore, the landscape character of the site will be unaffected by the proposal. 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:

1. Topographical survey
2. Existing layout plans
3. 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 together with the National Joint Utilities Group Booklet 4: 2007 Guidelines for the planning, installation and maintenance of utility services in proximity to trees (NJUG4).
- 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 Copse Wood Way, a residential through road located to the south of Northwood.
- 3.2 Access to the property is currently gained via a driveway to the front (north west) of the site.

The Subject Trees

- 4.1 The details of the subject trees are set out in the Schedule at Appendix B.
- 4.2 Of the thirteen individual trees, and groups of trees surveyed, five have been assessed as BS 5837 category B, with the remaining trees being assessed as BS 5837 category C.

Category B	5 trees / groups
Category C	8 trees / groups

The Proposal

- 5.1 The proposal for the site is to renovate the existing house, work that will include new extensions to the side and rear.
- 5.2 The existing access from the public highway will be retained and reused for the new development.
- 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 The proposed site layout and all of its associated structures allows for the healthy retention of all of the trees on the site itself, and within nearby adjacent sites; therefore, the arboricultural landscape character of the site will be retained.

TREE PRUNING TO ACCOMMODATE 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 house 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 The RPAs of some trees have been amended to take account of the existing house and road; these adjustments can be seen on the appended plan.
- 6.6 The other RPAs have been drawn as notional circles, as there are no structures within their RPAs that have been assessed to significantly impact the root layout.

ASSESSED IMPACT ON RPAS BY PROPOSED STRUCTURES

- 6.7 The proposed extensions and rear patio that encroaches into the RPAs of T4, T8 and T10 requires the use of a specialist foundation. The use of systems employing mini piles in conjunction with ground beams is now widely accepted.
- 6.8 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.
- 6.9 There MUST be an air void beneath the new structure and rain water must be gathered from the roof and redistributed beneath the new structure to allow any root growth present to be allowed to continue to thrive.
- 6.10 The area of building / patio nearest T8 currently exists as a raised patio and is a well-engineered structure with an assumed sub base in excess of 300mm. The new slab will be raised and will go no deeper than this sub base, with the new piles being the only part of the structure which goes into the 'virgin' soil beneath. These piles will be located to avoid any large (over 25mm) tree roots.

- 6.11 The proposed new structures and basement level 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.

PROPOSED ACCESS TO THE NEW DEVELOPMENT

- 6.12 The existing driveway and parking areas will be retained and there are no plans to upgrade or extend these areas as part of the proposed site works.

INSTALLATION OF SERVICES

- 6.13 The installation of underground apparatus and drainage systems 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. Particular care should therefore be taken when assessing the layout of new services and consideration **MUST** be given to the methods of installation of **ALL** underground apparatus.

Post Development Pressure

FUTURE TREE AND STRUCTURE RELATIONSHIPS

- 7.1 The retained trees are at a satisfactory distance from the proposed new building, and highly unlikely to give rise to any inconvenience.
- 7.2 T4 and T8 have been reduced in the past, a practice that will no doubt continue to be undertaken by any future occupants. Such pruning would mean that this overhang will not be an ongoing issue, as satisfactory clearance will always be retained.
- 7.3 The trees on site are protected by Tree Preservation Orders. These designations will ensure that the local planning authority retain full control over all future works to these trees, ensuring any future occupants are unable to undertake any inappropriate works to these trees.
- 7.4 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 hessian 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** be 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 GROUND PROTECTION (EXISTING)

The hard surfacing that exists provides adequate ground protection and **MUST** therefore be retained in situ for the entirety of the site works.

8.4 IMPLEMENTATION OF THE NEW BUILDING ON A “RAFT STYLE” FOUNDATION WITH ASSOCIATED PILES / PADS

- **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 locations of the supporting piles / pads is easily changeable, and the exact locations for them will be confirmed following hand excavated, trial digs of the top 1000mm of each potential hole (this is where the majority of roots exist).
- 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 / pads.
- Ground protection as that detailed above should be placed over the working area whilst the deeper piling / excavation of the final locations commences, with the use of a lightweight rig and / or hand tools. 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 / pads 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.

8.5 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 brought 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.

8.6 SITE HUTS, WELFARE FACILITIES AND STORAGE OF EQUIPMENT, MATERIALS AND CHEMICALS

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

8.7 MIXING OF CONCRETE

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

8.8 USE CRANES, RIGS AND BOOMS

Precautionary measures **MUST** be observed to avoid contact of any retained trees when manoeuvring cranes rigs or booms into position.

8.9 INCOMING SERVICES, DRAINAGE AND SOAKAWAYS

Any new underground services which are to be located within (any portion of) the RPAs of any trees which are to be retained **MUST** be installed in accord with the guidance given in BS5837 together with the National Joint Utilities Group Booklet

4: 2007 Guidelines for the planning, installation and maintenance of utility services in proximity to trees (NJUG4). Service installation layouts **MUST** be planned to keep apparatus together in common ducts, in order to minimise the need for excavations. Service trench excavation within the RPAs **MUST NOT** be undertaken with the use of any mechanised machinery (minidiggers, JCBs or alike).

8.10 ON SITE SUPERVISION

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

8.11 OTHER TREE PROTECTION PRECAUTIONS

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

8.12 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 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.

29th August 2023

Signed:

A handwritten signature in blue ink, appearing to read 'Glen Harding', with a stylized, cursive script.

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	Oak	8	500	1	6.00	5	5	4	4	M	4	20-40	B1	Off site - full inspection not possible. Some measurements estimated.
T2	Liquidamber	7	179	2	2.15	3.5	2	3	3	M	2 north	10-20	C1	Suppressed tree of poor form.
T3	Bird cherry	Tree removed since last survey												
T4	Oak	13	580	1	6.96	4	4.5	5	5	M	5.5 south	20-40	B1	Tree has been crown reduced in the past.
T5	Birch	13	250	1	3.00	3	3	3	3	M	3	10-20	C1	Street tree.
T6	Hawthorn	6	113	2	1.36	3	2	1	2	M	2 north	10-20	C1	Off site - full inspection not possible. Some measurements estimated.
T7	Cedar	16	550	1	6.60	6	5	5	5	M	4 north, 6 west	20-40	B1	Off site - full inspection not possible. Some measurements estimated.
T8	Oak	14	480	1	5.76	3.5	4	2.5	2.8	M	6 north	20-40	B1	Tree has been crown reduced in the past.
T9	Willow	6	362	3	4.35	3	3	3	3	M	3	10-20	C1	Small tree of limited value in the wider landscape.
T10	Willow	13	500	2	6.00	4.5	4.5	4.5	4.5	M	3 over site	10-20	C1	One stem from tree is damaging fence.
G11	Leyland cypress	12	350	1	4.20	2	2	2	2	M	3 over site	10-20	C2	Lapsed hedge.

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
T12	Cherry	6	140	1	1.68	0	3	2	0	M	3 over site	10-20	C1	Small tree of limited value in the wider landscape.
G13	Hornbeam and oak	16	400	1	4.80	6	6	6	6	M	3	20-40	B2	No notable defects recorded during inspection.

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



