



BLOOR HOMES, PHASE 2, WHISTON KNOWSLEY GROUND-BASED ASSESSMENT OF TREES FOR BATS

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Document Title	Ground-based Assessment of Trees for Bats
Prepared for	Bloor Homes North West
Prepared by	TEP - Warrington
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Date	August 2022
Checked	Steph Davies
Approved	Steph Davies

[illegible]

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DRAWINGS

Arboricultural Impact Assessment - March 2022, Tree Solutions Ltd

1.0 Introduction

- 1.1 TEP was commissioned by Bloor Homes to undertake surveys of trees for roosting bats at land associated with Phase 2 of the development at the Land North of M62 off Windy Arbor Road (Halsnead), Whiston, Knowsley, henceforth referred to as 'the site'.
- 1.2 This report has been prepared by TEP, in order to set out the surveys undertaken, and any further surveys required to discharge the ecological planning conditions for the development of the site, planning ref 18/00283/HYB.
- 1.3 Paragraphs 8-11 in the response from MEAS regarding the reserved matters application state:

8. Tree removal works are proposed. The tree schedule highlights those trees and groups proposed for removal. The majority of these trees are young or early mature however removal does include T1 cherry and T11 birch (400mm DBH) which may have suitability for roosting bats.

9. Bats are protected species and a material consideration. Local Plan Core Strategy policy CS8 applies. I advise that a preliminary roost assessment is required prior to determination.

10. A preliminary roost assessment should in this instance assess the trees on site (and off site where impacted by proposals) identified for removal for their suitability for roosting bats and the value of the habitats for foraging and commuting. The survey and report are essential to determine if the Local Planning Authority needs to assess the proposals against the three tests (Habitats Regulations) and whether an EPS licence is likely to be granted. Surveys must follow Standing Advice and best practice guidance¹. Any deviation from these guidelines must be fully justified.

11. If the preliminary roost assessment categorises a greater than low suitability for trees, further surveys will be required. These can only be carried out between May and August/September.

Legislation

- 1.4 All bats, their breeding and resting places are internationally protected under Regulation 41 of the Conservation of Habitats and Species Regulations (amendments) (EU Exit) 2019. In England and Wales, bats are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). It is an offence to:
- Deliberately capture, injure or kill bats;
 - Damage or destroy a breeding or resting place;
 - Obstruct access to their resting or sheltering places;
 - Possess, sell, control or transport live or dead bats, or parts of them;
 - Intentionally or recklessly disturb a bat while it's in a structure or place of shelter or protection
- 1.5 Works that can affect bats include:

- Cutting down or removing branches from a mature tree;
 - Installing lighting in a roost, or outside if it lights up the entrance to the roost;
 - Installing lighting along key commuting routes or in key foraging hotspots;
 - Removing 'commuting habitats' like hedgerows, watercourses or woodland;
 - Changing or removing bats' foraging areas;
 - Using insecticides or treating timber.
- 1.6 If the disturbance of bats cannot be avoided during works, then a mitigation licence from Natural England will be required before works can lawfully commence.
- 1.7 Several bat species are additionally listed as Section 41 species of principal importance under the Natural Environment and Rural Communities (NERC) Act 2006. These species include soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, common noctule *Nyctalus noctula*, barbastelle *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii*, lesser horseshoe *Rhinolophus hipposideros* and greater horseshoe *Rhinolophus ferrumequinum*.
- 1.8 The objectives of this report are to:
- Identify potential features in trees that are suitable for roosting bats;
 - Identify the suitability of the site for commuting and foraging bats;
 - Advise of further survey that may be required; and
 - Advise of mitigation requirements that may be needed prior to development of the site, including licensing if relevant.
- 1.9 The survey area and site context is shown in Figure 1 below.



Figure 1: Site location in wider landscape

2.0 Methods

Preliminary Daytime Bat Roost Assessment of Trees

- 2.1 A ground-based assessment of all trees within the site boundary that are due to be removed, according to the AIA report/Tree Survey Schedule produced by Tree Solutions in March 2022, was carried out. This was conducted with the aid of binoculars to search for any field signs of bats or features with bat roosting potential. In addition, the habitats within and surrounding the survey area were assessed for their potential to support foraging and commuting bats. The preliminary daytime bat roost assessment was carried out by TEP Ecologist Emma Hickson on 8th August 2022.
- 2.2 Most tree roosts are created by one or a combination of the following:
- Old woodpecker holes;
 - Splits in trunk, bough or large branches;
 - Rot holes in trunk, bough or large branches;
 - Holes formed by two boughs or branches growing in contact;
 - Loose or lifting bark; and
 - Underneath a covering of dense latticed creeper, usually ivy (*Hedera helix*).
- 2.3 Physical evidence of use by bats may include the following:
- Live or dead bats;
 - Bat droppings;
 - Feeding remains (e.g. stripped moth or butterfly wings);
 - Urine staining; and
 - Fur oil staining.
- 2.4 The trees and habitats on site were categorised based upon the Bat Conservation Trust (BCT) Guidelines (2016¹) as shown in Table 1 below.

Table 1: Roost Assessment Criteria (from Table 4.1 of BCT Guidelines 2016)

Roost Suitability	Description of roosting habitat
Negligible	Negligible habitat features on site to be used by roosting bats.
Low	A tree of sufficient size and age to contain potential roost features (PRFs) but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A tree with one or more potential roost features that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat, but which is unlikely to support a roost of high conservation status (maternity or hibernation).
High Potential	A tree with one or more potential roost features that are suitable for use by larger numbers of bats on a regular basis and potentially for longer periods of time, due to their size, shelter, protection, conditions and surrounding habitat.

¹ BCT 2016. Bat Surveys for Professional Ecologists: Good Practice Guidelines. Bat Conservation Trust 3rd Ed.

Limitations

- 2.5 There are no seasonal constraints for undertaking preliminary bat roost tree assessments, however the optimal period for undertaking this survey is between December and March when trees are out of leaf. This assessment was made in August when trees are in full leaf, where visibility was obscured, a precautionary assessment was made.

3.0 Results

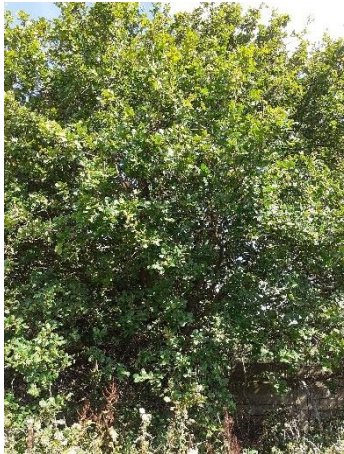
Preliminary Daytime Bat Roost Assessments of Trees

- 3.1 Of the trees due to be removed as part of the development, two groups of trees and one tree were identified with suitability for roosting bats (BCT, 2016). Both tree groups (G4 and G5) and the individual tree (T11) had low suitability for roosting bats. Table 2 summarises the details of the preliminary ground based assessment of trees for roosting bats.
- 3.2 The only other trees scheduled for potential removal are ash trees in W2. These are only to be removed following further survey by an arboriculture consultant to assess the level of ash dieback. Further information on which trees are to be removed will be required prior to further ecological assessment in this area.

Table 2: Preliminary ground based tree assessment for roosting bats

Tree ID	Description	Photo	BCT Category
G2	Self-set Cherry (Bird) trees and root suckers from T1. Located in the south west corner of the site. No potential roost features.		Negligible
G4	Group of low value Goat Willow trees with multiple stems. Located in the north of the site, on the edge of W3. Bark on the trees is flaking with suitability for opportunistic roosting, potential roosting features for small numbers of bats.		Low

Tree ID	Description	Photo	BCT Category
G5	Group of low-value, semi-mature Goat Willow and Alder trees. Located in the north east corner of the site. Bark on the trees is flaking with suitability for opportunistic roosting, potential roosting features for small numbers of bats.		Low
T1	Mature wild Cherry tree, due to be removed for new pedestrian access, part of G2. Located in the south west corner of the site. No potential roost features.		Negligible
T10	Semi mature, small Norway maple tree. Located in the north west corner of the site. Small tree with no potential roost features.		Negligible

Tree ID	Description	Photo	BCT Category
T11	Mature, small, ivy clad silver birch tree. Located in the north west corner of the site. Small tree with small trunk, no visible potential roost features. The ivy does not act as a potential roost feature in itself,, however ivy cover may be obscuring potential roosting features. The ivy is heavily cluttered, obscuring any potential entry/exit points with no areas suitable for bats to crawl. Despite this a precautionary assessment has been made.		Low
T12	Young, small English Oak tree. Located in the north west corner of the site. Small tree with no potential roost features.		Negligible

3.3 The site itself was assessed as having low potential for foraging and commuting bats, due to its proximity to residential area and its proximity to the active construction site of the 1st phase of the Whiston development. The woodland areas in the north, south and to the east of the site, mostly outside of the site boundary hold the most value for foraging and commuting bats and it is likely that bats will use these offsite areas instead, particularly the large area of woodland and the lake to the east of the site for foraging and for commuting to the wider area. These areas, according to the tree survey schedule, will not be affected by the development.

4.0 Conclusions

- 4.1 There were trees on site assessed as having suitability for roosting bats (BCT, 2016). Table 3 summarises the results of the ground based tree assessment.

Table 3: Summary of results for preliminary bat roost assessment of trees

Low	G4, G5, T11
Moderate	-
High	-
Negligible	G2, T1, T10, T12

- 4.2 Any trees with low suitability proposed for removal will be required to be removed under Reasonable Avoidance Measures including:
- Tree felling must be supervised by a licenced bat consultant
 - Inspection of potential roosting features, by the licenced bat consultant will be undertaken prior to cutting or felling of the tree;
 - Soft felling any limbs with PRFs and leaving the for 24 hours before disposal to allow any bats potentially present to escape;
- 4.3 If during these works, bats are identified roosting within any trees on-site a Natural England European Protected Species Mitigation (EPSM) licence will be required to be obtained, prior to works re-commencing on these trees.
- 4.4 Ash trees in W2 will need further survey by an arboriculture consultant to assess the level of ash dieback. Further information on which trees are to be removed, following this assessment, will be required prior to further ecological assessment in this area.
- 4.5 Opportunities for enhancement of the site post-development in order to minimise impacts on biodiversity could include the use of bat boxes on buildings or retained trees as well as replacement planting of native tree and hedgerow species as art of the landscaping scheme to provide further foraging opportunities for bats throughout the development.

APPENDIX A

Arboricultural Impact Assessment - March 2022, Tree Solutions Ltd

Arboricultural Impact Assessment & Method Statement

Windy Arbor Rd, Whiston – (PHASE 2)

Prepared for:

BLOOR HOMES

Our Ref: 22/AIA/Knowsley/25

March 2022

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<i>Appendix 1</i>	Tree Survey Schedule
<i>Appendix 2</i>	Preliminary Tree Constraints Plan
<i>Appendix 3</i>	Arboricultural Impact Plan
<i>Appendix 4</i>	Tree Protection Plan
<i>Appendix 5</i>	Tree Protection Measures/Method Statement

1.0 INSTRUCTION

- 1.1 We have been instructed by Bloor Homes to carry out an Arboricultural Impact Assessment (AIA) and Method Statement (AMS) in order to assess the development proposal in relation to trees in accordance with the principles of British Standard 5837 'Trees in Relation to Design, Demolition & Construction - Recommendations' 2012.
- 1.2 We are instructed to prepare a report in order to provide information to assist all parties involved in the planning process to make balanced judgements regarding arboricultural features in relation to the proposed residential development at Windy Arbor Lane, Whiston (Phase 2). As such, all significant trees within influencing distance to the development proposal both on and adjoining the site have been surveyed and are listed within a Tree Survey Schedule (**Appendix 1**) and plotted on all accompanying plans.
- 1.3 Our appraisal of the mechanical integrity of trees on the site is enough to inform the current project. The assessment of trees is carried out from ground level without invasive investigation and the disclosure of hidden defects cannot therefore be expected. Whilst the survey is not specifically commissioned to report on matters of tree safety, we report obvious defects that are significant in relation to the existing and proposed land use. We do not carry out detailed safety inspections unless specifically instructed to do so in writing and have not carried out such inspections of trees on the proposal site.
- 1.4 Twelve individual trees (T1–T12), five groups (G2–G6) and three woodlands (W2–W4) were surveyed and mapped on a Preliminary Tree Constraints & Impact Assessment Plan Ref: 22/AIA/Knowsley/25, Drawing Nos. 1 & 2 at **Appendix 2**. All arboricultural information recorded during the survey is presented within a schedule at **Appendix 1**.
- 1.5 The Arboricultural Impact Assessment is based on the site layout, Drawing No: NW056-PD-2001 provided by Bloor Homes.

2.0 STATUTORY CONTROLS & PLANNING POLICY

- 2.1 A search on Knowsley Council interactive map on 23/03/2022 revealed that woodland 3 & 4 are subject to a Tree Preservation Order Ref: Halsnead Park, Lickers Lane TPO no. 1 (1964). The land does not fall within a designated Conservation Area. As such, formal planning consent is required prior to undertaking any works to trees within W3 or W4.

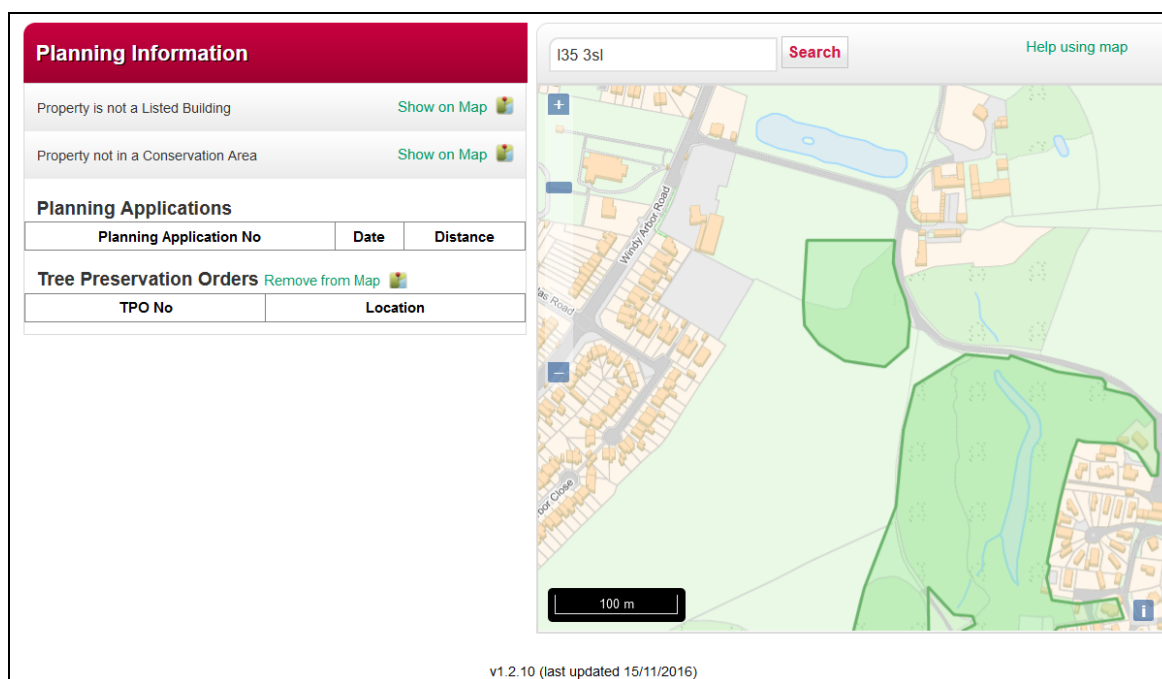


Plate 1 – Extract from interactive map indicating protected trees in green hatch

2.2 Protected Species

- 2.2.1 Mature trees often contain cavities, crevices and hollows that offer potential habitat for species such as bats and barn owls. Both are afforded protection under the Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), as well as The Conservation (Natural Habitats, &c) (Amendment) Regulations 2007.

2.3 Wildlife Habitats

- 2.3.1 Trees and hedgerows of most species provide valuable nesting sites for a wide range of birds and it is likely that nesting birds will be present on the site during the period March to September.

3.0 THE SITE

- 3.1 The site is phase 2 of the already approved phase 1 located to its south. The principle trees are within the established woodland blocks (W2-W4)

4.0 DEVELOPMENT PROPOSAL

- 4.1 Residential dwellings with associated vehicular access and parking area.

5.0 GENERAL CONSTRAINTS DATA - CONSTRUCTION EXCLUSION ZONES (CEZ's)

5.1 GENERAL

- 5.1.1 The three phases of an AIA were outlined in Section 1. In addition, during the development process for retention trees, there may be three and even four constraints to consider: Construction Exclusion Zone (CEZ's):

- CEZ 1: Root Protection Area (see 5.2)
- CEZ 2: Tree Crown Protection (see 5.3)
- CEZ 3: Tree Dominance (see 5.4)
- CEZ 4: New Tree Planting Zone (see 5.5)

CEZ's are explained below:

5.2 CEZ 1: ROOT PROTECTION AREA (RPA)

- 5.2.1 The RPA, calculated in m², should be protected before and during any demolition/construction works. This ensures the effective retention of trees by safeguarding a reliable quantum of functioning tree roots. The RPA is based on a radial measure from the centre of the tree stem, which is calculated by multiplying the stem diameter by a factor of twelve or by the (mean stem diameter²) x number of stems for multi-stemmed trees. With the AIA 1, the RPA is only shown indicatively on the preliminary TCP, as its shape may be subject to amendment as the design progresses.
- 5.2.2 During the AIA 2, the derived radial measure is converted by the arboriculturalist into the actual area to be protected, having due regard to prevailing site conditions and how these may have affected the tree(s), particularly in relation to factors affecting their likely rooting disposition. The RPA for each tree should initially be plotted as a circle centred on the base of the stem. Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution.
- 5.2.3 The means of protecting the RPA will include the installation of tree protective fencing prior to the start of any demolition or construction work on site. The prohibition of various activities within the RPA must be adhered to (e.g. mechanical excavation, soil stripping, fire lighting, material storage, lowering levels and creating excessive sealed surfacing) and may include the use of temporary ground protection and/or special engineering solutions where construction is proposed near to retention trees or within the RPA.

5.3 CEZ 2: TREE CROWN PROTECTION ZONE

- 5.3.1 This is the area above ground occupied by the crown (branches) of the tree, along with allowances for working space (safe working area) and if appropriate, for future growth. The extent of CEZ 2 is determined by considering the existing and future crown spread of the tree(s), bearing in mind the possibility of this being modified by an acceptable quantum of pruning.

5.4 CEZ 3: TREE DOMINANCE ZONE

- 5.4.1 There are no issues with shading or overdominance from trees as they are located well beyond any influencing distance. W2 is beyond the access road to the west of adjacent plots that predominantly front onto the road. The rear elevations and gardens enjoy uninterrupted daylight from the north, south and east. W3 is located NE of adjacent plots and again beyond the vehicular access road. Each plot has a south facing rear aspect. All individual trees to the north are small insignificant specimens predominantly located within adjacent gardens.

5.5 CEZ 4: NEW PLANTING ZONE

- 5.5.1 Refer to landscape plan for further details.

6.0 SURVEY METHODOLOGY

- 6.1 The method used in the preparation of this report is based on the principles of BS 5837: 2012.
1. Tree heights were surveyed to the nearest 1m.
 2. Trunk diameters were measured by use of forestry girth tape
 3. The category assessment (Table 1) on which the trees is based include current and long-term arboricultural, landscape, cultural and conservation values (BS5837: 2012). This table can be found at **Appendix 1**
 4. For clarity, the grading system is summarised from **Table 2** of the BS as follows:

U grade – trees for removal, effective for less than 10 years

A grade – trees of high quality and value, effective for more than 40 years

B grade – trees of moderate quality and value, effective for more than 20 years

C grade – trees of low quality and value, effective for 10 years

Note: We have indicated colour coding on the drawing and therefore a monochrome copy should not be relied on.

6.2 SOIL ASSESSMENT

- 6.2.1 A soil assessment should be undertaken by a competent person to inform decisions relating to:
- the root protection area (RPA)
 - tree protection
 - new planting design; and
 - foundation design to take account of retained, removed and new trees (potential soil subsidence/heave)

Tree Solutions do not undertake soil assessments and the client is advised to seek specialist advice in this respect.

7.0 JUXTAPOSITION OF TREES AND STRUCTURES

7.1 Below ground constraints

- 7.1.1 The below ground constraints are generally summarised as the root protection area (RPA). The shape of the RPA and its exact location will depend upon arboricultural considerations including likely tolerance of the tree to root disturbance; morphology and disposition of the roots when known influenced by past or existing site conditions; soil type and structure; and topography and drainage.
- 7.1.2 The purpose of the RPA is to prevent physical damage to tree roots and to prevent damage to the soil structure. Tree roots are damaged by soil compaction, changes in soil levels or soil contamination which could reduce tree health and/or stability.

- 7.1.3 Root patterns are affected by topography and characteristics of the soil or substrate. Where trees are located within proximity to existing hard standing or underground physical barriers, they are unlikely to have an even distribution of lateral roots due to restrictions in root growth created by compacted sub-grades beneath. The RPA of all trees are shown unmodified as there were no significant underground barriers to prevent good radial root spread.

7.2 Underground Services

- 7.2.1 We have considered the broad implications of the provision of underground services but the locations of existing and proposed were not identified on the plans supplied by the Project Architect and in this regard, our advice is of a general nature.
- 7.2.2 Drainage and service runs may need to be constructed within the rooting areas of retained trees. If this is a requirement of the development it will be necessary to retain significant roots and methods of excavation, such as thrust boring or hand digging, may need to be adopted to ensure that these impacts are acceptable.
- 7.2.3 As with foundation design, low impact construction methods for services installation are now well established. For more information regarding underground services, reference should be made to the National Joint Utilities Group (NJUG) Publication No. 10. Volume 4 '*Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees*' 2007.

8.0 DEVELOPMENT IMPACT TO TREES

- 8.1 Tree Solutions carried out a stage one preliminary tree survey and provided the project architect with a report in which all existing trees and their respective Root Protection Areas (RPA) were identified and plotted on a tree constraints and impact assessment plan. We are satisfied that the proposal has taken the long-term future of the most important trees and into account and the layout is therefore in accordance with Knowsley Council Planning Policies, National Planning Policy Framework (NPPF) 2021 and recommendations contained with BS5837: 2012.
- 8.2 No trees of any significant value are to be removed to accommodate this development proposal. The design provides good cohesion between the mature woodland areas and plots allowing both to coexist well ensuring the high amenity value they afford is enhanced further in the future. The woodland areas provide an attractive mature landscape to the site that will be seen as a real asset to future occupants. This together with the proposed new tree planning will radically enhance the landscape character and setting of the area making this a good sustainable site.

9.0 PROPOSED REVISIONS TO THE SCHEME

- 9.1 We advise that all proposed revisions having implications for trees should be referred to us for review.

10.0 CONCLUSIONS

- 10.1 BS 5837: 2012 contains clear and current recommendations for a best practice approach to the assessment, retention, and protection of trees on development sites. The proposed development has followed this guidance by:
- Seeking arboricultural advice and undertaking a phase 1 preliminary tree survey to inform the layout and design of the proposed development
 - Respecting the constraints posed to development of the site by high or moderate quality trees
 - Acting upon arboricultural advice throughout the design process to obtain the best development proposal whilst considering the current and future tree requirements
 - No trees of any value are to be removed to accommodate the development
 - There are no significant impacts to retained trees by this development proposal
 - Taking the above into consideration, we can see no valid arboricultural grounds for refusal
- 10.2 The protection of retained trees will be in accordance with recommendation contained within the BS and as detailed on the Tree Protection Plan at **Appendix 4**.

11.0 LIMITING CONDITIONS

- Unless stated otherwise:
- Information contained in this report covers only those trees that were examined and reflects the condition of those trees at the time of the inspection.
- The inspection is limited to visual examination of the subject trees from ground level only and without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.
- This report has been prepared for the sole use and benefit of the client. Any liability of Tree Solutions shall not be extended to any third party.
- No part of this report can be reproduced without the authorisation of *Tree Solutions Ltd*.

Appendix One

Tree Survey Schedule

TREE SURVEY SCHEDULE (BS5837: 2012)

SITE:	WINDY ARBOR ROAD, WHISTON – PHASE 2
CLIENT:	BLOOR HOMES
BRIEF:	ARBORICULTURAL IMPACT ASSESSMENT

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	MARCH 2022 (REV A)
VIEWING CONDITIONS:	GOOD
JOB REFERENCE:	21/AIA/KNOWSLEY/25

TREE NO. T - Tree G - Group H - Hedge	SPECIES (COMMON NAME)	AGE	HEIGHT (m) + CROWN CLEARANCE/ DIRECTION OF GROWTH (N.S.E.W)	RADIAL CROWN SPREAD (m)				STEM/ MULTI-STEM* DIA. (mm)	VITALITY	COMMENTS	MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RADIUS (m) RPA (m²)
				N	S	E	W						
T1	Cherry (Wild)	M	13 0.5E	4	4	4	4	400	G	- No significant defects - E.R.C. 20	Remove for new pedestrian access	B2	4.8 72m²
T2	Acacia	M	14 1.5S	5	4.5	3.5	4	400	G	As T1	3rd party tree - N/A	B2	4.8 72m²
T3	Sycamore	EM	5 0	2	2	2	2	350	M	- Topped at 4m leaving small secondary crown above - no value - E.R.C. 0	3rd party tree - N/A	C3	4.2 55m²
T4	Rhus	M	9 2S	2	2	2.5	2	260	G	- No visual defects - Located outside northern boundary - E.R.C. ≤10	3rd party tree - N/A	C3	2 31m²
T5	Willow (Weeping)	M	7 1S	4.5	5	2	4.5	400	G	- Top heavy crown due to past crown lift - Located outside northern boundary - E.R.C. 10+	3rd party tree - N/A	B2	4.8 71m²
T6	Sycamore	EM	7 0.5S	2	2	2.5	2.5	190	G	- Small self set tree of no value - Located outside northern boundary - E.R.C. 10	3rd party tree - N/A	C3	2.3 16m²

HEADINGS & ABBREVIATIONS

TREE NO.
SPECIES:
AGE RANGE/LIFE STAGE:
HEIGHT:
CROWN SPREAD:
CROWN CLEARANCE & DIRECTION OF GROWTH:
STEM DIA/MULTI-STEM DIA:
VITALITY:
E.R.C. = ESTIMATED REMAINING CONTRIBUTION:
BS 5837 CATEGORY & SUB-CATEGORY GRADING:
BS 5837 RADIUS & BS 5837 RPA:

REFERENCE NUMBER. REFER TO PLAN OR NUMBERED TAGS WHERE APPLICABLE (T = TREE, G = GROUP, H = HEDGE)
COMMON NAME (LATIN NAMES AVAILABLE ON REQUEST)
Y = YOUNG, SM = SEMI MATURE, EM = EARLY MATURE, M = MATURE, PM = POST MATURE
ESTIMATED AND RECORDED IN METRES. APPROXIMATELY 1 IN 10 TREES ARE MEASURED USING A CLINOMETER AND THE REMAINDER ESTIMATED AGAINST THE MEASURED TREES
MAXIMUM CROWN RADIUS MEASURED TO THE FOUR CARDINAL COMPASS POINTS FOR SINGLE SPECIMENS ONLY (MEASUREMENT FOR TREE GROUPS - MAXIMUM RADIUS OF THE GROUP)
HEIGHT IN METERS OF CROWN CLEARANCE ABOVE ADJACENT GROUND LEVEL (TO INFORM ON GROUND CLEARANCE, CROWN/STEM RATIO AND SHADING)
STEM DIAMETER - MEASURED AT APPROXIMATELY 1.5 METRES ABOVE GROUND LEVEL OR A COMBINATION OF STEMS FOR MULTI-STEMMED TREES
A MEASURE OF PHYSIOLOGICAL CONDITION. D = DEAD, MD = MORIBUND, P = POOR, M = MODERATE, G = GOOD
RELATIVE USEFUL LIFE EXPECTANCY (YEARS)
A = HIGH QUALITY AND VALUE, B = MODERATE QUALITY AND VALUE, C = LOW QUALITY AND VALUE, U = UNSUITABLE FOR RETENTION (SUB-CATEGORY REFERS TO ARBORICULTURAL, LANDSCAPE AND CULTURAL/CONSERVATION VALUES)
PROTECTIVE DISTANCE - RADIUS FROM THE CENTRE OF THE STEM TO THE LINE OF TREE PROTECTION (CONSTRUCTION EXCLUSION ZONE - CEZ) AND PROTECTIVE BARRIER ROOT PROTECTION AREA - BS 5837 (2012) ANNEX D (THE RECOMMENDATIONS STATE THAT THE RPA SHOULD BE CAPPED AT 707 M²) NOTE – ALL CALCULATIONS ROUNDED TO NEAREST DECIMAL

TREE SURVEY SCHEDULE (BS5837: 2012)

Tree Solutions

Arboricultural Consultants

SITE:	WINDY ARBOR ROAD, WHISTON – PHASE 2
CLIENT:	BLOOR HOMES
BRIEF:	ARBORICULTURAL IMPACT ASSESSMENT

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	MARCH 2022 (REV A)
VIEWING CONDITIONS:	GOOD
JOB REFERENCE:	21/AIA/KNOWSLEY/25

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TREE NO. T - Tree G - Group H - Hedge	SPECIES (COMMON NAME)	AGE	HEIGHT (m) + CROWN CLEARANCE/ DIRECTION OF GROWTH (N.S.E.W)	RADIAL CROWN SPREAD (m)				STEM/ MULTI-STEM* DIA. (mm)	VITALITY	COMMENTS	MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RADIUS (m) RPA (m²)
				N	S	E	W						
T7	Cherry (Wild)	M	7 2E	3	4	5	4	420	G	- No visual defects - Located within residential garden beyond northern boundary with no access to survey - E.R.C. 10+	3rd party tree - N/A	C3	5 80m²
T8	Cedar (Deodar)	SM	10 1S	2	3	4.5	2	200	G	- As T7 - E.R.C. 10+	3rd party tree - N/A	C2	2.4 18m²
T9	Plum (Purple)	EM	5 1S	2	2	3	3	230	G	- As T7 - E.R.C. 10+	3rd party tree - N/A	C2	2.8 24m²
T10	Maple (Norway)	SM	5 1S	2	2	3	3	180	G	- Small insignificant tree - E.R.C. 10	Remove	C2	2 15m²
T11	Birch (Silver)	M	14 1S	2.5	3	5	3	400	M	- Small insignificant tree - Ivy clad stem impeding inspection - Abuts boundary fence - E.R.C. 10	Remove	C2	4.8 72m²
T12	Oak (English)	EM	7 1S	4	4	4	4	350	G	- No obvious defects - E.R.C. 20+	Remove	B2	4.2 55m²

TREE SURVEY SCHEDULE (BS5837: 2012)

SITE:	WINDY ARBOR ROAD, WHISTON – PHASE 2
CLIENT:	BLOOR HOMES
BRIEF:	ARBORICULTURAL IMPACT ASSESSMENT

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	MARCH 2022 (REV A)
VIEWING CONDITIONS:	GOOD
JOB REFERENCE:	21/AIA/KNOWSLEY/25

TREE NO. T - Tree G - Group H - Hedge	SPECIES (COMMON NAME)	AGE	HEIGHT (m) + CROWN CLEARANCE/ DIRECTION OF GROWTH (N.S.E.W)	RADIAL CROWN SPREAD (m)				STEM/ MULTI-STEM* DIA. (mm)	VITALITY	COMMENTS	MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RADIUS (m) RPA (m²)
				N	S	E	W						
G2	Cherry (Bird)	SM / EM	≤8	3	3	3	3	≤200	G	- Self set trees and root suckers from T1 - No value - E.R.C. 10	Remove & replace with better quality trees	C3	2.4 18m²
G3	Willow (Goat)	EM	≤5	2	2	2	2	≤100	G	- Linear group of scrub outside eastern boundary - Coppiced in past - E.R.C. 10+	N/A	C2	1.2 5m²
G4	Willow (Goat)	EM	≤10	2	4	4	4	≤120	G	- Multiple stems all ≤120mm - Stems lean west due to suppression from woodland to east - Stems to SE have failed at the root-plate - No value - E.R.C. 0	Remove	C1	1.4 7m²
G5	Willow (Goat) Alder x2 (Common)	EM	≤16	2	2	2	2	≤250	G	- Trees of no particular merit forming a small group - Liable to fracture and fail at base - no long-term viability/value to site - E.R.C. 10	Remove	C2	3 28m²
G6	Sycamore	EM	≤16	5	5	5	5	200 x2 (400)	G	- Established self set trees located beyond boundary hedge line - Twin stem - no significant defects - E.R.C. 20+	3rd party trees - N/A	B2	4.8 72m²

TREE SURVEY SCHEDULE (BS5837: 2012)

Tree Solutions

Arboricultural Consultants

SITE:	WINDY ARBOR ROAD, WHISTON – PHASE 2
CLIENT:	BLOOR HOMES
BRIEF:	ARBORICULTURAL IMPACT ASSESSMENT

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	MARCH 2022 (REV A)
VIEWING CONDITIONS:	GOOD
JOB REFERENCE:	21/AIA/KNOWSLEY/25

PAGE 4 OF 4

TREE NO. T - Tree G - Group H - Hedge W - Woodland	SPECIES (COMMON NAME)	AGE	HEIGHT (m) + CROWN CLEARANCE/ DIRECTION OF GROWTH (N.S.E.W)	RADIAL CROWN SPREAD (m)				STEM/ MULTI-STEM* DIA. (mm)	VITALITY	COMMENTS	MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RADIUS (m) RPA (m²)
				N	S	E	W						
W2	Sycamore Ash Oak (English) Hawthorn	EM /M	≤17					≤300	G	- Linear wooded strip located on embankment either side of former dismantled railway - Many trees multi-stem & of poor structural form - Collectively form at attractive linear woodland - Ash with reduced vigour in crowns – suspect Chalara Ash Dieback - E.R.C. 40	Survey Ash in summer 2022 to confirm extent of Ash Dieback & remove affected trees if necessary	A2	3.6 41m²
W3	Sycamore Oak Hawthorn	M	≤18 1.5S					≤400	G	- Established woodland located outside site boundary & beyond concrete fence - E.R.C. 40	N/A	A2	4.8 72m²
W4	Sycamore Poplar (Hybrid)	EM /M/ FM	≤18					≤300 ≤500	G	- Woodland established from naturally colonised Sycamore stem diameters ≤300 - Random fully mature Hybrid Poplar trees with stem diameters ≤500 within that are rapidly reaching the end of their safe & useful life expectancy - E.R.C. 40+ (not Poplars)	3rd party land	A2	6 113m²
H1	Hawthorn	M	≤5					≤100	G	Good quality boundary hedgerow	No works	N/A	N/A

Table 1 Cascade chart for tree quality assessment

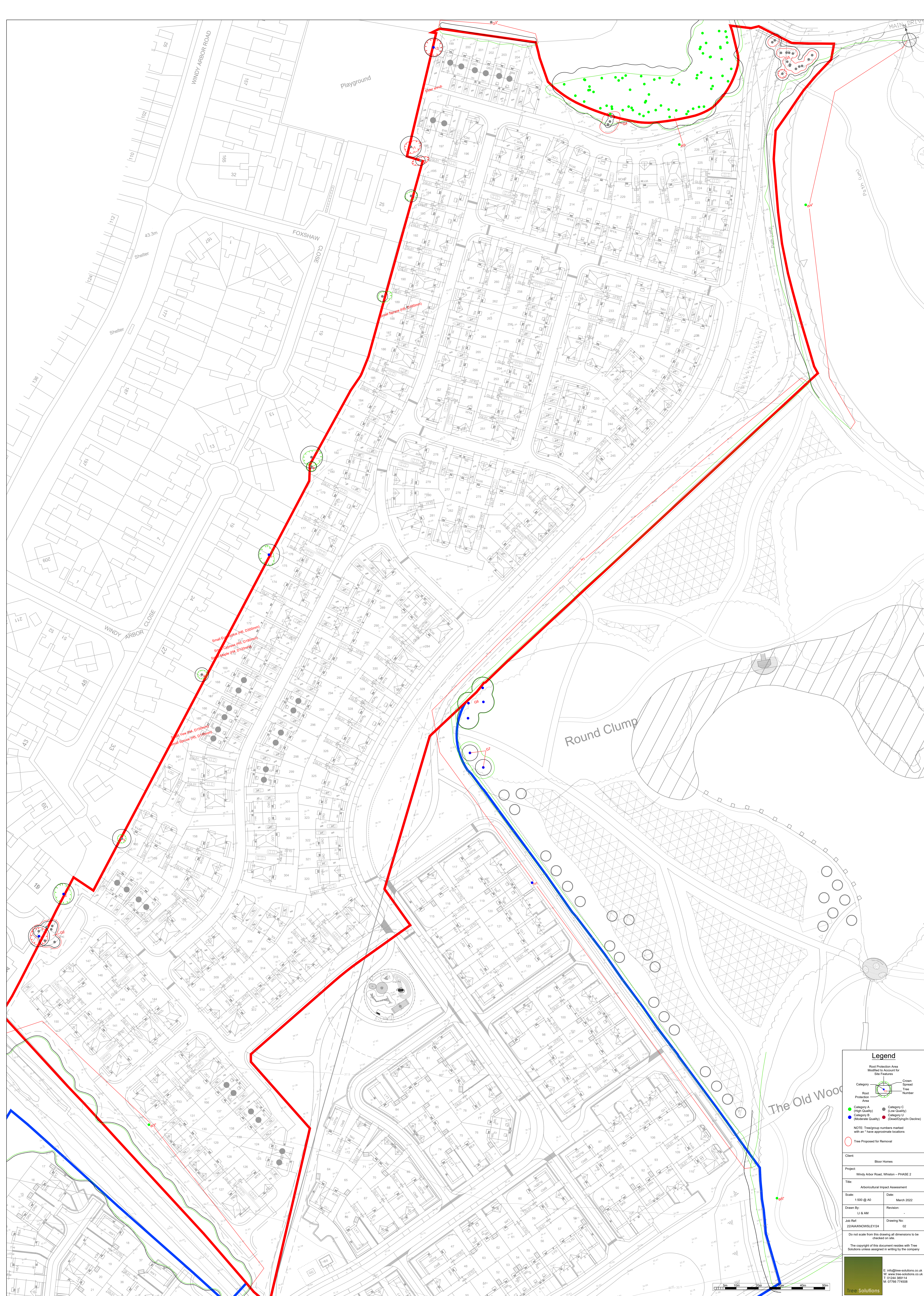
Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	- 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 category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) - 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, or very low quality trees suppressing adjacent trees of better quality <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>			See Table 2
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

Appendix Two

Preliminary Tree Constraints Plan

Appendix Three

Impact Assessment Plan



Legend

Root Protection Area
Modified to Account for
Site Features

Category A (High Quality) Category B (Moderate Quality)	Crown Spread Tree Number Category C (Low Quality) Category D (Dead/Declining/Dieback)
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NOTE: Treegroup numbers marked with an * have appropriate locations

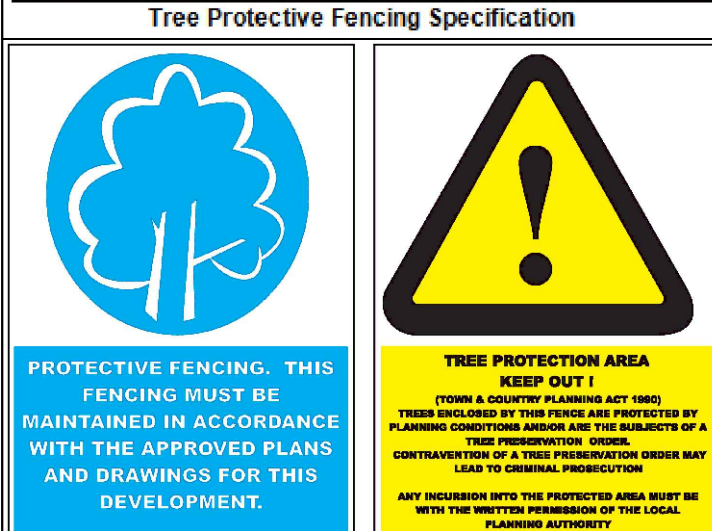
 Tree Proposed for Removal

Client:	Bloor Homes		
Project:	Windy Arbor Road, Winton – PHASE 2		
Title:	Arboricultural Impact Assessment		
Scale:	1:500 @ A0	Date:	March 2022
Drawn By:	J.L.A.M	Revision:	
Job Ref:	22/04/MKNOWSLEY04	Drawing No:	02
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Appendix Four

Tree Protection Plan



No-Dig/ Hard Surface Construction

The new hard surface section identified by hatching shall be constructed over the existing ground described on elevation sheet or shall be by hand, of surface vegetation and minor (<10%) height surface vegetation or loose soil to a depth of not more than 100mm.

Any excavation of ground within the hatched area shall be by hand and shall be supervised by the Project Engineer.

The new surfacing in the hatched area shall be constructed using the 'Greenweld' Cellular Confinement System to enable adequate loadbearing capacity to be achieved with minimal depth of construction.

All approved materials for this structure shall contain no roots, crushed glass or verminable.

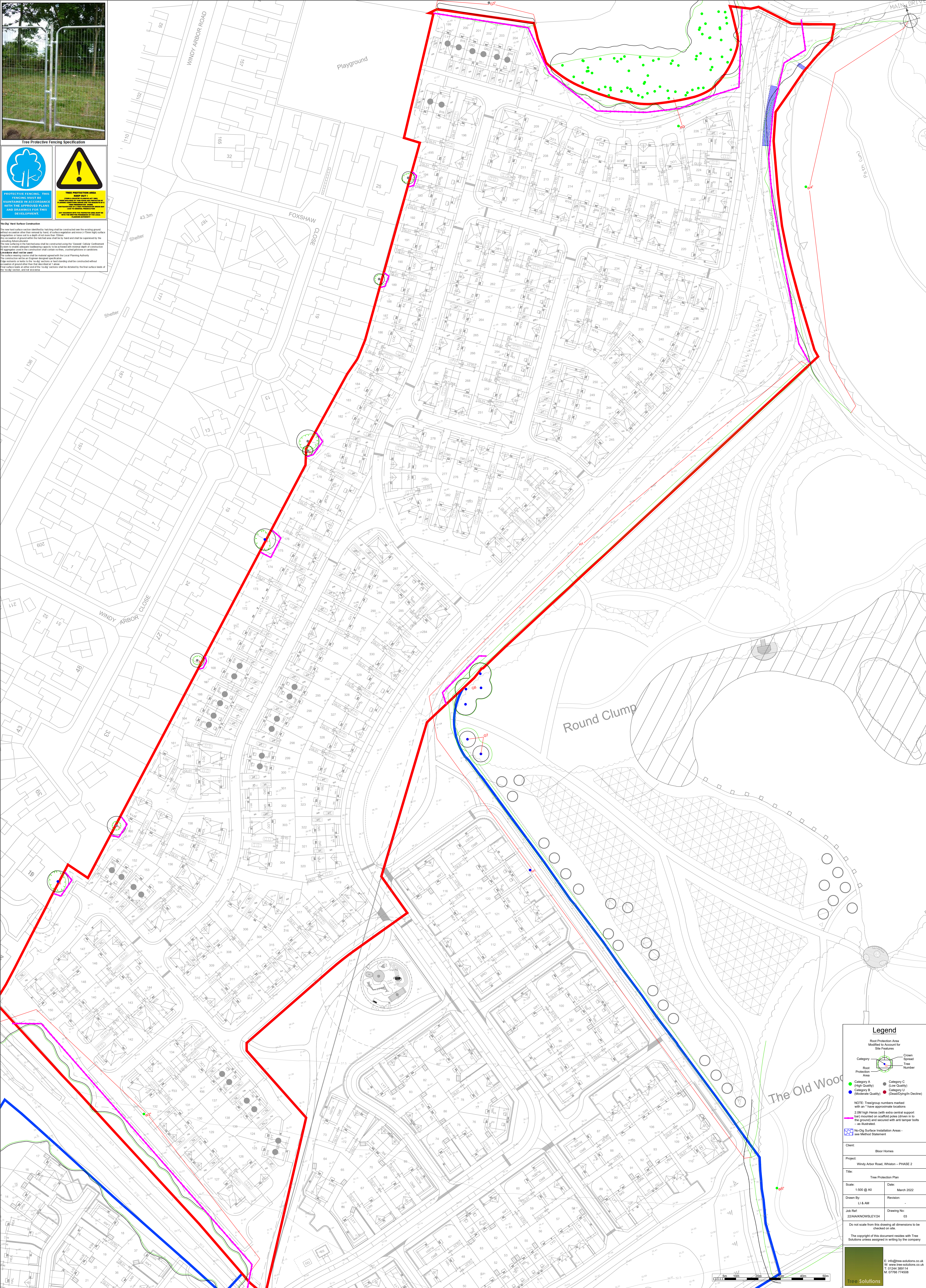
Livestock shall not be used

The surface wearing surface shall be material agreed with the Local Planning Authority.

The construction of the new hard surface shall be by hand.

Edge restraints or kerbs to the 'no-dig' sections or hard standing shall be constructed without excavation of ground other than that described if above.

The depth of excavation at either end of the 'no-dig' sections shall be dictated by the final surface levels of the 'no-dig' section, and not vice-versa.



Legend

Category I
High Quality
Category II
(Moderate Quality)

Category III
(Low Quality)
Category IV
(Dead/Dying/In Decline)

Crown Spread
Tree Number

NOTE: Tree/group numbers must all "have approximate locations".
2.0M High Access (with both aerial support and pit) mounted on scaffold poles (driven in to the ground) and secured with anti-tamper bolts - as illustrated.

No-Dig Surface Installation Areas - see Method Statement

Client:	Boor Homes
Project:	Windy Arter Road, Whiston – PHASE 2
Title:	Tree Protection Category U
Scale:	1:500 @ A0 Date: March 2022
Drawn By:	L.I.J.A.M Revision: -
Job Ref:	22AIAKMSLEY724 Drawing No: 03

Do not scale from this drawing all dimensions to be checked on site.

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Appendix Five
Tree Protective Measures/Method Statement

SEQUENCE OF OPERATIONS

From commencement of the above development, the following methodology shall be implemented in the manner and sequence described:

1. Erect temporary protective fencing
2. Main construction phase
3. Removal of temporary fencing
4. Landscaping within RPA's
5. Arboricultural site supervision

1. Erect Temporary Tree Protective Fencing

1. Prior to commencement of any site demolition and subsequent construction, preparation, excavation, or material deliveries the main contractor shall erect the temporary protective fencing as detailed in the 'Tree Protection Specification' and in the location indicated on the Tree Protection Plan.
2. Council Tree Officer is to be given 5 days' notice as soon as all protective fencing has been erected in order to inspect the specification and location. An inspection report will be completed and returned to the LPA Tree Officer for approval. Any damage occurring to protective fencing during the demolition or construction phase shall be made good by the main contractor

2. Main Construction Phase

1. There shall be no storage of construction material, site parking, site accommodation or equipment in any area designated as the Root Protection Area (RPA) and Construction Exclusion Zone (CEZ) and enclosed by Temporary Protective Fencing
2. No materials that are likely to have an adverse effect on tree health such as oil, bitumen or cement will be stored or discharged within 10 metres of the trunk of a tree that is to be retained. No fires will be lit
3. The site agent shall supervise deliveries by self-loading crane, with vehicles positioned in such a manner that retained trees are not at risk of damage

Cement Mixing

- The cement mixer will be laid on top of plywood boards in a position outside the RPA of any trees. The mixer will be kept in this position throughout all development work.

Avoiding Damage to Stems and Branches

- Care shall be taken when planning site operations in proximity to trees to ensure that wide or tall loads or plant with booms, jibs and counterweights can operate without coming into contact with retained trees. Such contact can result in serious injury resulting in safe retention impossible

On Site Storage of Spoil and Building Materials

- Prior to and during all site construction works no spoil will be stored and no cement mixing will take place within the Root Protection Area of any tree on or adjacent to the site even if proposed site work is to be within the crown spread. Any encroachment within this protected area will only be with the prior agreement of the LPA Arboricultural Officer

3. Remove all Temporary Tree Protective Fencing

1. Tree Protective fencing will only be removed upon completion of all construction work and once all machinery associated with the works has left site.

4. Landscaping within RPA of Trees

1. There shall be **no rotovating** of ground within any area designated as a Root Protection Area (RPA) and Construction Exclusion Zone (CEZ) and enclosed by Temporary Protective Fencing.
2. No hard landscaping works or excavation for cables or any other service should be installed within the Root Protection Area (RPA) and Construction Exclusion Zone (CEZ) without the written consent of the LPA

5. ARBORICULTURAL SITE SUPERVISION

- 1 The erection of all tree protection measures outlined in this AMS and as indicated on the Tree Protection Plan will be inspected by the contract Arboricultural Consultant immediately after erection. Photographic evidence of the location and specification of all protective fencing will be forwarded to the LPA Tree Officer upon completion.

Useful Contacts

Arboricultural Consultant

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LPA Arboricultural Officer

Tel: 0151 443 2381

TREE PROTECTIVE FENCING

- 1 Before the commencement of any demolition and subsequent construction works on site (other than those set out in the schedule of tree works contained in this document), protective fencing will be erected as detailed on the Tree Protection Plan and as specified below. The LPA Tree Officer will be given 5 days' notice upon completion of the fencing in order to inspect and approve prior to the commencement of any site works.
- 2 The fencing will consist of a scaffold framework in accordance with Figure 2 of BS 5837 – 2012 (illustration below) comprising a metal framework, both vertical and horizontal, well braced to resist impacts. Vertical tubes will be spaced at a maximum interval of 3m. Onto this, weldmesh panels shall be securely fixed with wire or scaffold clamps. Weldmesh panels on rubber or concrete feet are not considered resistant to impact and for this reason will not be used. The site manager or other suitably qualified appointed person will be responsible for inspecting the protective fencing daily; any damage to the fencing or breaches of the fenced area will be rectified immediately.
- 3 Clearly legible weatherproof signage, stating "Protected Trees – Exclusion Zone" shall be attached to the fencing 1.5m from the ground, facing out of the Tree Protection Zone located at regular intervals along the fence line
- 4 The fencing will remain in place until completion of all site works and then only removed when all site traffic is removed from site
- 5 Other than works detailed within this method statement or approved in writing by the Local Planning Authority (LPA), no works including storage or dumping of materials shall take place within the exclusion zones defined by the protective fencing.

Protective Fencing Detail

The fence types are shown on the Tree Protection Plan with the following colour key: -

1. Magenta (Trees)

2.0M high heavy-duty rhino panels (with extra central support bar) mounted on scaffold poles (driven into the ground) and secured with anti-tamper bolts – as illustrated below.



Tree Protective Fencing Specification



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