

**ARBORICULTURAL
IMPACT
ASSESSMENT**

Land to east of
Newgate Lane East

January 2022



Barton Hyett Associates
Arboricultural Consultants

Summary table		
Site Name:	Land to east of Newgate Lane East	
Project reference:	4547	
Site Address:	Land to east of Newgate Lane East, Fareham	
Nearest Postcode:	PO13 0SG	
Central Grid reference:	SU 57439 03669	
Local Planning Authority:	Fareham Borough Council	
Relevant planning policies:	Fareham Local Development Plan Core Strategy 2011: CS4 - Green infrastructure, biodiversity and geological conservation; CS17 - High quality design. Development Sites & Policies: DSP13 - Nature conservation. DRAFT Fareham Local Plan 2037: NE1 Protection of nature conservation, biodiversity and the local ecological network; NE2 - Biodiversity net gain; NE6 - Trees, woodland and hedgerows; NE9 - Green infrastructure; D1 - High quality design and placemaking.	
Statutory Controls:	Tree Preservation Order	Conservation Area
	None	No
Soil Type: (Source: BGS online soils map © NERC 2021)	Superficial/Drift	Bedrock
	Deep sand to sandy loam over River Terrace Deposits - sand, silt and clay	London Clay Formation clay, silt and sand.
Topographical Survey:	A97690 - Newgate Lane SUR-01 Rev.B	
Site Layout:	Concept Masterplan P20-3154_03 Rev.C	
Notes:	None.	
Report author:	Ian Monger MSc, BSc (Hons), TechCert (ArborA) MArborA	
Date of issue:	13.01.2022	

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SECTION 2:	TREE SURVEY & CONSTRAINTS PLAN
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1. INTRODUCTION

- 1.1. Barton Hyett Associates Ltd have been instructed by Miller Homes and Bargate Homes to survey trees located at Land east of Newgate Lane East, Fareham ('the site') in accordance with the recommendations of British Standard 5837:2012 'Trees in relation to design, demolition and construction - recommendations'.
- 1.2. The scope of the instruction was to inspect trees relevant to an Outline planning application at the site and provide written advice on how they inform feasibility and design options for the site. The instruction also required an assessment of the potential impact (the Arboricultural Impact Assessment) of the proposed development on the site's arboricultural resource to be undertaken.

2. SITE DESCRIPTION

- 2.1. The site is four adjoining fields located to the immediate east of Newgate Lane East and to the west of Tukes Avenue, between the towns of Fareham and Gosport to the west of Portsmouth Harbour. The site area is 20.04ha. The three southernmost fields were arable at the time of my visit, and the northernmost field was a pasture.
- 2.2. The site lies within Fareham Borough, with Gosport Borough to the east. The boundaries of the site are a mix of unmanaged hedgerows and linear belts of trees. The south-west site boundary is marked by a highway fence and recently-planted highway hedgerow, with the recently constructed Newgate Lane East beyond. The internal field boundaries are maintained field hedgerows. A linear belt of trees with wire fencing separates the northern field from the south part of the site, with no existing access between them.
- 2.3. The site has gated agricultural access from Newgate Lane East in the south-west corner, with further access to adjoining off-site fields to the south. The north pasture field has gated access via a lane from Tukes Avenue to the west which also serves the rear garages for about 38 dwellings along Tukes Avenue.
- 2.4. The site is in a semi-urban landscape, being located in the middle of the conurbation formed by Fareham, Gosport, Lee-on-the-Solent and the village of Stubbington. Beyond the highway to the west is a residential home, solar farm and water treatment plant. To the north-west of the site is a sports ground, and to the north is the cycleway with a small field and retail park beyond. Beyond the trees to the east is the residential area of Woodcot, and to the south are adjoining fields that are cut through by Newgate Lane East.
- 2.5. The site is fairly level, at about 10m above mean sea level.

3. TREE SURVEY FINDINGS

- 3.1. A total of 85 trees, groups of trees and hedgerows were surveyed. These are summarised in terms of their quality in accordance with the recommendations of BS5837 below, and shown in more detail on the Tree Survey and Constraints Plan (Section 2) and within the Tree Survey Schedule (Section 3).

	Total	A - High quality trees whose retention is most desirable.	B - Moderate quality trees whose retention is desirable.	C - Low quality trees which could be retained but should not significantly constrain the proposal.	U - Very poor quality trees that should be removed unless they have high conservation value.
Trees	36	13	22	-	1
Groups	33	3	19	11	-
Hedgerows	16	-	10	6	-
Total	85	16	51	16	1

Table 1: Summary of arboricultural features of each BS5837 quality category

4. KEY ARBORICULTURAL FEATURES

- 4.1. The most important arboricultural features at the site are the high-quality oak trees growing along the east boundary, within the boundaries of the north field and the boundary that separates the southern fields from the north field and adjacent sports ground. These boundaries (as well as internal hedgerow boundaries) have remained largely unchanged since the start of the C20. Thirteen individual and 3 groups of high-quality oaks were identified, but there are many more moderate quality oaks within the site and field boundaries.
- 4.2. The north pasture field appears to have been under a low level of management for some time, and so areas of blackthorn and other scrub G17, G22, H14, G32 and G33 (C3) have developed from the now barely-visible hedgerows behind them. They are generally accompanied by bramble which extends further into the field. Although they are low-quality groups, scrub habitat has material conservation value in itself.
- 4.3. Willow T32 (U) is a dead, weathered standing tree that has conservation value in its current location. Its ownership is unclear because of dense vegetation. Although unsuitable for retention next to dwellings, the tree could be retained next to open space to retain its standing deadwood habitat.
- 4.4. The maintained field hedgerows are dominated by the usual hawthorn and blackthorn, with field maple, elder and goat willow. Naturally-regenerated tree species are also present, along with dogwood and holly. Dogwood dominates in some hedgerow areas along the east boundary.

5. PROPOSED DEVELOPMENT

- 5.1. The development proposal is an Outline application with all matters reserved except Access for residential development of up to 375 dwellings, access from Newgate Lane East, landscaping and other associated infrastructure works on land east of Newgate Lane East, Fareham, Hampshire. The proposed site layout is shown on the Concept Masterplan P20-3154_03 Rev.C.

6. IMPACT ASSESSMENT

Trees to be removed

- 6.1. The proposal would require no high-quality trees or groups of trees to be removed. A section of one moderate-quality group of trees, one low-quality group of trees and 10 sections of hedgerow are proposed to be removed. An area of low-quality scrub would also be cut back. These removals are shown on the Tree Retention and Removal Plan in **Section 3**.
- 6.2. Options for connecting the north and south areas of the site are limited by the presence of the continuous belt of trees G4 to G9 running along the boundary between the two. The connecting road has been located to minimise the need for the removal of moderate-quality trees. Group G8 is low-quality and consists of a single ash tree exhibiting crown dieback, as well as willow, blackthorn and hawthorn. A western section of G9 would also require removal. The group includes four early-mature oak trees with a maximum trunk diameter of 420mm, as well as aspen, hawthorn and blackthorn. It is likely that a maximum of two oak trees would need to be removed (either because they grow within the road footprint or would be severely affected by excavation). A section of low-quality hedgerow H4 at this location would also be removed. This location for the connecting road would have the lowest possible impact because it avoids the larger, better-quality individual oaks within the tree belt. The visual impact would be low because the retained trees to the east and west will continue to provide a visually-contiguous canopy when viewed from many angles.
- 6.3. A significant length of recently planted hedgerow H2 (C1) would be removed for the new access roundabout on Newgate Lane East. New hedgerow would be replanted along the north side of the new access from the roundabout into the site to replace the removed hedgerow, and so the impact would be negligible.
- 6.4. One section each of maintained hedgerows H1, H5 and H7 (B2) would be removed for internal roads. These hedgerows are predominantly of hawthorn and blackthorn and are of low shrub species diversity. The visual impact would be low.
- 6.5. In addition, 5 short sections of hedgerow would be removed for new pedestrian links. These are at the north end of H2 (C1), north and south ends of H5 (B2), east end of H4 (C2) and west end of H14 (C3). H14 is an unmanaged hedgerow predominantly of hawthorn and blackthorn scrub which has habitat value. The proposed link to the path and cycleway to the north is likely to require a more significant section of this scrub to be removed than for paths elsewhere on site. However, the new tree planting indicatively shown to the immediate south of the link will mitigate for the removal by providing good future connectivity.
- 6.6. Group G26 (C3) consists of low-quality blackthorn, goat willow and dog rose scrub. Part of the group would be cut-back to increase the area of open space, but much of the scrub habitat and screening would be retained.

Impacts on retained trees

- 6.7. Once detailed design of the new road link at G9 is available at a later stage, the potential impact of ground level changes on retained trees at the west end of the group can be assessed. The detailed design can be produced with arboricultural input to minimise impact. Some tree root pruning might be required to

accommodate any excavation, ground level change and kerbing, but this could be carefully carried out to reduce any impact to an acceptable level.

- 6.8. New paths are indicatively shown passing through the Root Protection Areas (RPAs) of T1 to T8, T13, T18, T23, T29 and G4/G5. Standard excavated construction with a compacted sub base would be likely to cause root system severance. Instead, the sandy soil (which has a low compactibility) and level ground means that the paths can be constructed using a no-dig cellular confinement system (CCS) through the RPAs to avoid root severance. The presence of the ditch and regular ploughing of the field to the south of trees T2 to T7 will have severely limited root system development in the upper soil layer in any case, but the use of CCS for this section of path will help to promote healthy (and improved) root system development in the future. There is an existing gap between the trees in G4 and G5, which can be seen in the centre of image 5 in **Section 4** of this report. There is ample scope to install the path connection in this location using CCS without the need for tree removals.
- 6.9. The path connection to Newgate Lane East indicatively shown at T1 will need to overcome the existing ditch and culvert in this location. I presume that this will require an engineered solution and likely alteration of ground levels within the RPA. (The existing engineering presumably caused a significant degree of disturbance within the RPA when the Newgate Lane East was constructed.) There appears to be a good degree of flexibility at the detailed design stage to design the path location, culvert engineering and installation methodology to minimise impacts on T1, particularly as the field will be retained as open space.
- 6.10. It appears that no facilitation pruning of trees, other than light lifting of crowns above new paths, would be required to implement the proposal. There is ample space between trees and the proposed residential areas to allow for future tree growth.
- 6.11. Although existing service connections and proposed schemes are not available at the Outline design stage, there appears to be ample opportunity to install new underground drainage and other utilities outside of the RPAs of retained trees. However, detailed design of these schemes will require arboricultural review and input so that this can be achieved. In particular, underground services that connect the north and south parts of the site will need very careful consideration, and should be located beneath the new road link if possible.
- 6.12. Trenchless installation techniques, such as percussive boring and directional drilling, are available to allow new services to be installed beneath retained trees and hedgerows by passing below the majority of the root system and so avoiding root system severance. The deep soil conditions at the site seem to me to be well-suited to such techniques. The efficacy of these techniques in preserving tree root systems relies on launch and receiver pits being able to be located outside of the RPAs of retained trees, and there appears to be ample scope for this at the site.
- 6.13. The Concept Masterplan indicatively shows new tree planting along retained boundary hedgerows and new roads as well as within open spaces. The proposal has the potential to deliver a significant net gain in tree number, species diversity and canopy cover at the site.

Conclusion

- 6.14. Subject to detailed site design, the proposal is feasible from an arboricultural perspective, and if carefully implemented according to an approved arboricultural method statement there would be no or only a low potential negative impact on the retained trees. A Tree Retention and Removal Plan is included in **Section 3**.

7. TREE PROTECTION MEASURES

- 7.1. It will be a relatively straightforward matter to provide physical protection from construction activities for retained trees in the form of tree protection fencing installed in accordance with Figure 2 of BS5837:2012 to exclude their RPAs and crowns from construction access.
- 7.2. A Tree Protection Plan and accompanying Arboricultural Method Statement (AMS) take into account detailed site design (including new underground services) and would be phased to allow for the installation of paths and soft landscaping within tree RPAs following completion of the main construction phase.

8. HEADS OF TERMS FOR AN ARBORICULTURAL METHOD STATEMENT (AMS)

- 8.1. BS5837:2012 (Figure 1) recommends that detailed/technical design of tree protection and arboricultural methodologies should be resolved and finalised following on from the approval of the feasibility of a scheme by the Local Planning Authority.
- 8.2. Annex B and Table B.1 of BS5837:2012, an informative, advises that AMS heads of terms are a sufficient level of information in order to deliver tree-related information into the planning system. The table also advises that a detailed AMS might reasonably be required as a 'reserved matter' or planning condition.
- 8.3. In relation to the site, it is anticipated that arboricultural working methods are likely to be quite straightforward. A brief summary of the principles of tree protection on development sites is included in **Section 7**.
- 8.4. Arboricultural review and input will be required for the design of the new road past G9, the footpath link at oak T1 and underground drainage and other utility schemes.
- 8.5. A draft, 'heads of terms' for an arboricultural method statement is set out below:
- Project arboriculturist – schedule of monitoring and supervision to be agreed with the applicant and LPA
 - Pre-commencement site meeting - to be attended by the project arboriculturist, client, site manager and other relevant parties.
 - Tree removals and facilitation pruning - as shown on the Tree Retention and Removal Plan (TRR)
 - Erection of tree protection barriers and temporary ground protection as may be required as per the Tree Protection Plan (TPP)
 - Site preparation and ground works - no access for any machinery within the fenced tree protection areas.
 - Construction method for the new road at G9 (including root pruning of retained tree(s), if required)
 - Locations and installation methods for drainage and other underground utilities in the vicinity of tree RPAs
 - Location, design and installation of any engineering required for the footpath link to Newgate Lane East at oak T1

- Main construction phase - all tree protection measures shall remain in situ and intact for the duration of the construction phase
- Removal of tree protection barriers - only to occur following approval of site conditions by the project arboriculturist.
- Installation method for no-dig CCS construction of paths within tree RPAs
- Final landscaping including tree planting.

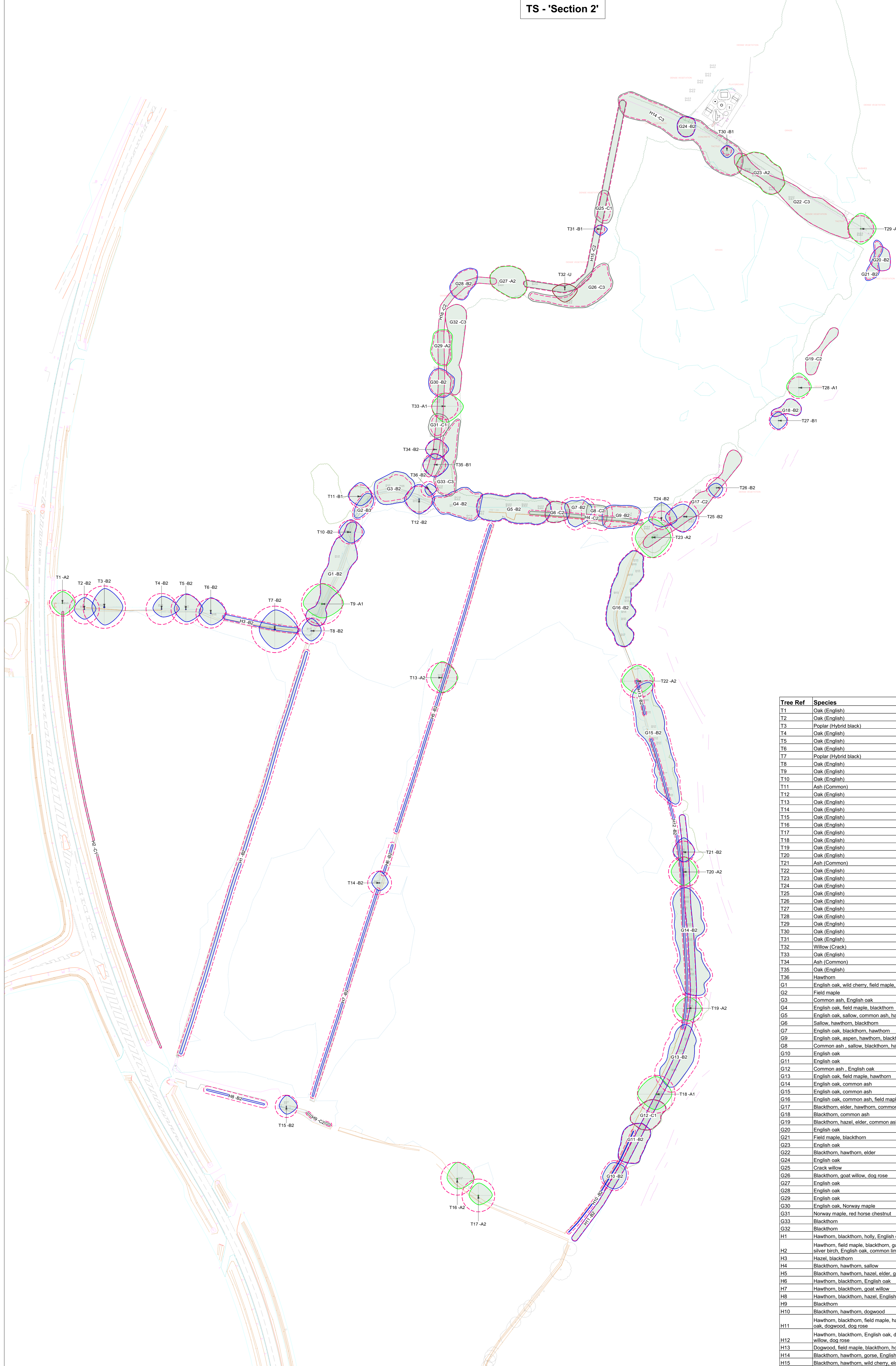
9. CONCLUSIONS AND RECOMMENDATIONS

- 9.1. Subject to detailed site design and the implementation of the advice contained within this report the proposed development is acceptable from an arboricultural perspective. The loss of trees can be readily mitigated and the retained trees can be adequately protected during construction activities to sustain their health and longevity.
- 9.2. Arboricultural review and input will be required for the design of the new road past G9, the footpath link at oak T1 and underground drainage and other utility schemes, so that impacts on retained trees can be avoided and/or reduced to an acceptable level.
- 9.3. An Arboricultural Method Statement and Tree Protection Plan will need to be produced. Where the feasibility of a scheme has been agreed upon by the Local Planning Authority, this detail can be agreed and submitted later as part of a reserved matters application.



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Senior Arboriculturist

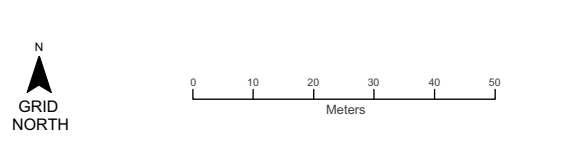
TS - 'Section 2'



Tree Ref	Species	Height (m)	Life Stage	RPA Radius (m)	RPA (m ²)
T1	Oak (English)	13	M	8.4	222
T2	Oak (English)	14	M	9.6	290
T3	Poplar (Hybrid black)	25	M	13.7	588
T4	Oak (English)	14	M	10	312
T5	Oak (English)	13	M	9.6	290
T6	Oak (English)	13	M	9.6	290
T7	Poplar (Hybrid black)	23	M	15	707
T8	Oak (English)	12	M	8.4	222
T9	Oak (English)	17	M	13.2	547
T10	Oak (English)	15	M	7.7	185
T11	Ash (Common)	19	M	7.4	174
T12	Oak (English)	15	M	8.4	222
T13	Oak (English)	15	M	9.8	304
T14	Oak (English)	10	M	7.7	185
T15	Oak (English)	10	M	7.2	163
T16	Oak (English)	11	M	10.6	350
T17	Oak (English)	12	M	10.6	350
T18	Oak (English)	16	M	12.2	471
T19	Oak (English)	14	M	9.6	290
T20	Oak (English)	16	M	9.8	304
T21	Ash (Common)	14	EM	6.8	147
T22	Oak (English)	18	M	10.8	366
T23	Oak (English)	19	M	13.2	547
T24	Oak (English)	18	M	6	113
T25	Oak (English)	18	M	9.6	290
T26	Oak (English)	12	M	6.6	137
T27	Oak (English)	12	EM	6	113
T28	Oak (English)	12	M	7	152
T29	Oak (English)	13	M	8.4	222
T30	Oak (English)	8	SM	2.8	24
T31	Oak (English)	8	SM	2.8	24
T32	Willow (Crack)	15	M	7.2	163
T33	Oak (English)	14	M	8.5	228
T34	Ash (Common)	14	M	6.6	137
T35	Oak (English)	15	M	7.2	163
T36	Hawthorn	6.5	M	5	80
G1	English oak, wild cherry, field maple, hawthorn, elder	4-15	M	10.2	-
G2	Field maple	8	M	5	-
G3	Common ash, English oak	12-17	EM	7.9	-
G4	English oak, field maple, blackthorn	3.5-14	M	6	-
G5	English oak, sallow, common ash, hawthorn, blackthorn	3.5-15	M	8.5	-
G6	Sallow, hawthorn, blackthorn	4-8	EM	3.3	-
G7	English oak, blackthorn, hawthorn	4-13	M	9.1	-
G9	English oak, aspen, hawthorn, blackthorn	3.5-12	EM	5	-
G8	Common ash, sallow, blackthorn, hawthorn	3.5-9	EM	7.3	-
G10	English oak	14-16	M	7.7	-
G11	English oak	12-14	M	6.7	-
G12	Common ash, English oak	12-14	EM	6.7	-
G13	English oak, field maple, hawthorn	6-15	M	9.7	-
G14	English oak, common ash	10-16	M	8.6	-
G15	English oak, common ash	7-16	M	8.4	-
G16	English oak, common ash, field maple	6-17	M	8.4	-
G17	Blackthorn, elder, hawthorn, common ash, field maple, hazel	3-6	SM	2.4	-
G18	Blackthorn, common ash	5-8	EM	2.8	-
G19	Blackthorn, hazel, elder, common ash	4-6	EM	2.4	-
G20	English oak	13	EM	6	-
G21	Field maple, blackthorn	4-8	SM	2.2	-
G22	English oak	10-15	M	9.2	-
G24	Blackthorn, hawthorn, elder	4-6	M	2.4	-
G24	English oak	9	SM	4.2	-
G25	Crack willow	9	EM	4.2	-
G26	Blackthorn, goat willow, dog rose	3-5	EM	1.5	-
G27	English oak	14	M	9.8	-
G28	English oak	10-11	EM	5.4	-
G29	English oak	15	M	7.2	-
G30	English oak, Norway maple	12-13	M	7.2	-
G31	Norway maple, red horse chestnut	8-12	SM	3.6	-
G33	Blackthorn	3-4	SM	0.6	-
G32	Blackthorn	3-5	SM	1.6	-
H1	Hawthorn, blackthorn, holly, English oak, common ash, dog rose	1.5	M	2.2	-
H2	Hawthorn, field maple, blackthorn, guelder rose, wild privet, silver birch, English oak, common lime, goat willow, dog rose	3	Y	0.6	-
H3	Hazel, blackthorn	4	M	2.2	-
H4	Blackthorn, hawthorn, sallow	3	EM	1.8	-
H5	Blackthorn, hawthorn, hazel, elder, goat willow, dog rose	1.5	M	1.8	-
H6	Hawthorn, blackthorn, English oak	1.5	M	2.2	-
H7	Hawthorn, blackthorn, goat willow	1.5	M	1.8	-
H8	Hawthorn, blackthorn, hazel, English oak	1.5	M	2.4	-
H9	Blackthorn	1.5	EM	1.3	-
H10	Blackthorn, hawthorn, dogwood	1.5	EM	1.3	-
H11	Hawthorn, blackthorn, field maple, hazel, common ash, English oak, dogwood, dog rose	4	M	1.8	-
H12	Hawthorn, blackthorn, English oak, dogwood, field maple, goat willow, dog rose	1.5	EM	1.3	-
H13	Dogwood, field maple, blackthorn, holly	1.5	EM	1.3	-
H14	Blackthorn, hawthorn, orp, English oak, elder	5	M	1.8	-
H15	Blackthorn, hawthorn, wild cherry, elder, English oak, sycamore	5	M	2.4	-
H16	Blackthorn, hawthorn, hazel, English oak, elder, Norway maple	5	M	2	-

KEY

- Category A Tree - High quality (Retention highly desirable)
- Category B Tree - Moderate quality (Retention desirable)
- Category C Tree - Low quality (May be retained but should not constrain development)
- Category U Tree - Very low quality (Mostly unsuitable for retention)
- Category A - Hedgerow, Group, Woodland - High quality (Retention highly desirable)
- Category B - Hedgerow, Group, Woodland - Moderate quality (Retention desirable)
- Category C - Hedgerow, Group, Woodland - Low quality (May be retained but should not constrain development)
- Category U - Hedgerow, Group, Woodland - Very low quality (Mostly unsuitable for retention)
- Root Protection Area (RPA) - Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and soil volume to maintain the tree's viability
- Shrub massifs/trees out of scope (OOS)



PROJECT TITLE
Land east of Newgate Lane East, Fareham

DRAWING TITLE
Tree Survey & Constraints Plan

SCALE: 1:1250 @ A1 DRAWING NUMBER: BHA_4547_01

DRAWN BY: DV APPROVED BY: IM REVISION: - SHEET: - DATE: 09/11/2021

TOPOGRAPHICAL SURVEY: A97690 - Newgate Lane SUR-01 Rev.B

CLIENT: Miller Homes & Bargate Homes

COORDINATE SYSTEM / DATUM: British National Grid / Newlyn Datum (ADD)

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TRR - 'Section 3'



Tree Ref	Species	Height (m)	Life Stage	RPA Radius (m)	RPA (m ²)
T1	Oak (English)	13	M	8.4	222
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G3	Common ash, English oak	12-17	EM	7.9	-
G4	English oak, field maple, blackthorn	3.5-14	M	9	-
G5	English oak, sallow, common ash, hawthorn, blackthorn	3.5-15	M	8.5	-
G6	Sallow, hawthorn, blackthorn	4-8	EM	3.3	-
G7	English oak, blackthorn, hawthorn	4-13	M	9.1	-
G9	English oak, aspen, hawthorn, blackthorn	3.5-12	EM	5	-
G8	Common ash, sallow, blackthorn, hawthorn	3.5-9	EM	7.3	-
G10	English oak	14-16	M	7.7	-
G11	English oak	12-14	M	6.7	-
G12	Common ash, English oak	3.5-14	M	9	-
G13	English oak, field maple, hawthorn	12-14	EM	6.7	-
G14	English oak, common ash	6-15	M	9.7	-
G15	English oak, common ash	10-16	M	8.6	-
G16	English oak, common ash, field maple	7-16	M	8.4	-
G17	Blackthorn, elder, hawthorn, common ash, field maple, hazel	6-17	M	8.4	-
G18	Blackthorn, common ash	3-6	SM	2.4	-
G19	Blackthorn, hazel, elder, common ash	5-8	EM	2.8	-
G20	English oak	4-8	EM	2.4	-
G21	Field maple, blackthorn	13	EM	9	-
G22	English oak	4-8	SM	2.2	-
G23	English oak	10-15	M	9.2	-
G24	Blackthorn, hawthorn, elder	4-6	M	2.4	-
G25	English oak	9	SM	4.2	-
G26	Crack willow	9	EM	4.2	-
G27	Blackthorn, goat willow, dog rose	3-5	EM	1.5	-
G28	English oak	14	M	9.8	-
G29	English oak	10-11	EM	5.4	-
G30	English oak, Norway maple	15	M	7.2	-
G31	English oak, Norway maple	12-13	M	7.2	-
G32	Norway maple, red horse chestnut	8-12	SM	3.6	-
G33	Blackthorn	3-4	SM	0.6	-
G34	Blackthorn	3-5	SM	1.6	-
H1	Hawthorn, blackthorn, holly, English oak, common ash, dog rose	1.5	M	2.2	-
H2	Hawthorn, field maple, blackthorn, guelder rose, wild privet, silver birch, English oak, common lime, goat willow, dog rose	3	Y	0.6	-
H3	Hazel, blackthorn	4	M	2.2	-
H4	Blackthorn, hawthorn, sallow	3	EM	1.8	-
H5	Blackthorn, hawthorn, hazel, elder, goat willow, dog rose	1.5	M	1.8	-
H6	Hawthorn, blackthorn, English oak	1.5	M	2.2	-
H7	Hawthorn, blackthorn, goat willow	1.5	M	1.8	-
H8	Hawthorn, blackthorn, hazel, English oak	1.5	M	2.4	-
H9	Blackthorn	1.5	EM	1.3	-
H10	Blackthorn, hawthorn, dogwood	1.5	EM	1.3	-
H11	Hawthorn, blackthorn, field maple, hazel, common ash, English oak, dogwood, dog rose	4	M	1.8	-
H12	Hawthorn, blackthorn, English oak, dogwood, field maple, goat willow, dog rose	1.5	EM	1.3	-
H13	Dogwood, field maple, blackthorn, holly	1.5	EM	1.3	-
H14	Blackthorn, hawthorn, dogwood, English oak, elder	5	M	1.8	-
H15	Blackthorn, hawthorn, wild cherry, elder, English oak, sycamore	5	M	2.4	-
H16	Blackthorn, hawthorn, hazel, English oak, elder, Norway maple	5	M	2	-

KEY

- Category A Tree - High quality (Retention highly desirable)
- Category B Tree - Moderate quality (Retention desirable)
- Category C Tree - Low quality (May be retained but should not constrain development)
- Category U Tree - Very low quality (Mostly unsuitable for retention)
- Category A - Hedge/Group, Woodland - High quality (Retention highly desirable)
- Category B - Hedge/Group, Woodland - Moderate quality (Retention desirable)
- Category C - Hedge/Group, Woodland - Low quality (May be retained but should not constrain development)
- Category U - Hedge/Group, Woodland - Very low quality (Mostly unsuitable for retention)
- Root Protection Area (RPA) - Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and soil volume to maintain the tree's viability
- Shrub mass/offset tree/wood of scope (COS)
- Tree / Hedge/Group to be removed

PROJECT TITLE
Land east of Newgate Lane East, Fareham

DRAWING TITLE
Tree Retention & Removal Plan

SCALE 1:1250 @ A1 **DRAWING NUMBER** BHA_4547_02

DRAWN BY DV **APPROVED BY** IM **REVISION** A **SHEET** - **DATE** 13/01/2022

LAYOUT USED WITHIN DRAWING P20-3154_03_C CMP

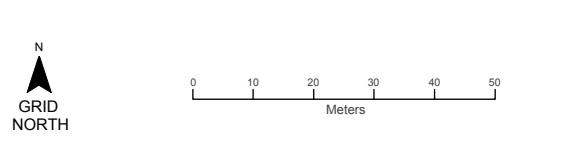
CLIENT Miller Homes & Barge Homes

COORDINATE SYSTEM / DATUM British National Grid / Newlyn Datum (ADD)

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INDIVIDUAL TREES

Ref	Species	On/off site	Top Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) E-S-W	N- Avg. low crown height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²
T1	Oak (English)	On	13.0	1	Yes	700.0	7-8-7-7	4.0	3.5	SW	M	None	Growing to north of ditch. Ivy-clad trunk.	Good	Good	40	A2	8.4	222
T2	Oak (English)	On	14.0	1	Yes	800.0	7-7-6-6	4.0	4.0	S	M	None	Growing to south of ditch. Cracks in bole and audible decay. Branch fracture wounds.	Good	Fair	40	B2	9.6	290
T3	Poplar (Hybrid black)	On	25.0	2	Yes	1140.0	12-12-11-8	5.0	1.5	SW	M	None	Typical branch fracture wounds.	Good	Good	40	B2	13.7	588
T4	Oak (English)	On	14.0	1		830.0	8-11-5-5	6.0	3.0	SE	M	None	Dieback and deadwood in south and west of crown. Retrenchment growth.	Good	Good	40	B2	10.0	312
T5	Oak (English)	On	13.0	1	Yes	800.0	10-11-8-7	4.5	4.5	S	M	None	Spreading form.	Good	Good	40	B2	9.6	290
T6	Oak (English)	On	13.0	1	Yes	800.0	10-10-7-7	6.0	5.5	S	M	None	Branch dieback. Deadwood.	Fair	Good	20	B2	9.6	290
T7	Poplar (Hybrid black)	On	23.0	3	Yes	1270.0	12-15-12-10	4.5	4.5	S	M	None	Two mature suckers close to main trunk and contributing to crown spread.	Good	Good	40	B2	15.0	707
T8	Oak (English)	On	12.0	1	Yes	700.0	8-6-6-6	5.0	5.0	S	M	None	No significant visible defects.	Good	Good	40	B2	8.4	222
T9	Oak (English)	On	17.0	1		1100.0	13-14-9-12	4.5	4.5	E	M	None	Large spreading tree. Deadwood.	Good	Good	40	A1	13.2	547
T10	Oak (English)	On	15.0	1		640.0	8-9-7-7	4.5	6.0	E	M	None	No significant visible defects.	Good	Good	40	B2	7.7	185
T11	Ash (Common)	Off	19.0	1	Yes	620.0	9-7-6-8	8.0	8.0	E	M	None	No significant visible defects.	Good	Good	20	B1	7.4	174
T12	Oak (English)	On	15.0	1		700.0	9-10-9-9	4.5	4.5	S	M	None	Basal cavity. Deadwood.	Good	Good	40	B2	8.4	222
T13	Oak (English)	On	15.0	1		820.0	10-10-9-7	5.0	3.5	S	M	None	Original decayed leader stub being occluded at 4m.	Good	Good	40	A2	9.8	304
T14	Oak (English)	On	10.0	1		640.0	7-5-5-5	5.0	3.5	-	M	None	Basal wound. Historical and recent bark wounds on east of trunk from flail.	Good	Good	40	B2	7.7	185
T15	Oak (English)	On	10.0	1	Yes	600.0	7-7-5-4	4.5	4.0	S	M	None	Heavy ivy cover on trunk and in crown. Small remnant of blackthorn hedgerow below crown.	Good	Good	40	B2	7.2	163
T16	Oak (English)	On	11.0	1		880.0	10-11-6-6	4.5	4.0	N	M	None	Old flail wound.	Good	Good	40	A2	10.6	350
T17	Oak (English)	On	12.0	1		880.0	8-9-6-6	4.5	3.5	E	M	None	Location of tree corrected from aerial photo. Soil eroded at base. Two small remnant hedgerow hawthorns at base.	Good	Good	40	A2	10.6	350

Ref	Species	On/off site	Top Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) E-S-W	N-	Avg. low crown height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²
T18	Oak (English)	Off	16.0	3	Yes	1020.0	11-10-10-12		4.5	4.5	W	M	None	Large spreading tree.	Good	Good	40	A1	12.2	471
T19	Oak (English)	On	14.0	2	Yes	800.0	7-9-8-8		5.0	4.0	NW	M	None	Twin-stemmed.	Good	Good	40	A2	9.6	290
T20	Oak (English)	On	16.0	2	Yes	820.0	10-8-8-8		4.5	3.5	W	M	None	Twin-stemmed.	Good	Good	40	A2	9.8	304
T21	Ash (Common)	Off	14.0	2	Yes	570.0	9-7-6-7		4.0	2.0	W	EM	None	Lower branches to east lopped.	Good	Good	20	B2	6.8	147
T22	Oak (English)	On	18.0	1	Yes	900.0	10-10-8-10		5.0	4.0	S	M	None	Deadwood.	Good	Good	40	A2	10.8	366
T23	Oak (English)	Off	19.0	4	Yes	1100.0	12-12-13-11		4.5	4.5	W	M	None	Large, spreading multi-stemmed tree.	Good	Good	40	A2	13.2	547
T24	Oak (English)	On	16.0	1	Yes	500.0	11-10-4-8		3.0	3.5	W	M	None	No significant visible defects.	Good	Good	40	B2	6.0	113
T25	Oak (English)	On	18.0	1	Yes	800.0	8-8-10-12		2.5	5.0	NE	M	None	Tree inaccessible. No significant visible defects.	Good	Good	40	B2	9.6	290
T26	Oak (English)	On	12.0	1	Yes	550.0	3-4-6-5		4.0	5.0	N	M	None	Tree inaccessible. Branch dieback.	Fair	Good	40	B2	6.6	137
T27	Oak (English)	On	12.0	1	Yes	500.0	5-5-5-5		5.0	4.0	-	EM	None	Tree inaccessible. Stem size estimated.	Good	Good	40	B1	6.0	113
T28	Oak (English)	On	12.0	1	Yes	580.0	9-8-6-8		2.0	2.0	N	M	None	Good form. Browse line.	Good	Good	40	A1	7.0	152
T29	Oak (English)	Off	13.0	1	Yes	700.0	10-10-10-8		2.5	2.5	-	M	None	Good form.	Good	Good	40	A1	8.4	222
T30	Oak (English)	On	8.0	1	Yes	230.0	3-4-4-4		4.0	4.0	-	SM	None	Inaccessible behind scrub.	Good	Good	40	B1	2.8	24
T31	Oak (English)	On	8.0	1	Yes	230.0	2-4-4-4		2.5	1.5	-	SM	None	Inaccessible behind scrub.	Good	Good	40	B1	2.8	24
T32	Willow (Crack)	On	15.0	1	Yes	600.0	4-8-8-8		4.0	3.0	W	M	None	Dead standing tree. Ownership unclear. Decayed and weathered.	Poor	Poor	<10	U	7.2	163
T33	Oak (English)	On	14.0	1		710.0	8-12-10-8		2.5	3.0	S	M	None	Good form.	Good	Good	40	A1	8.5	228
T34	Ash (Common)	On	14.0	1	Yes	550.0	7-8-6-7		3.5	3.5	-	M	None	Tree trunk inaccessible and not visible. Data estimated.	Good	Good	20	B2	6.6	137
T35	Oak (English)	On	15.0	1	Yes	600.0	7-9-8-7		3.0	3.0	-	M	None	Lower trunk inaccessible and not visible.	Good	Good	40	B1	7.2	163
T36	Hawthorn	On	6.5	9	Yes	420.0	3-5-4-2		2.0	2.0	-	M	None	Historical browsing wounds on stems.	Fair	Fair	20	B2	5.0	80

GROUPS OF TREES

Ref	Species	On/off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. Crown radius (m)	Avg. low crown height (m)	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G1	English oak, wild cherry, field maple, hawthorn, elder	On	4-15	20		850	10.0	4.5	M	None	Two mature oaks with semi-to early-mature cherry and field maples and young cherry sucker growth below. One oak has trunk wound from ground to 5m.	Good	Good	40	B2	10.2
G2	Field maple	On	8	2	Yes	420	4.0	1.0	M	None	Both trees are flailed as hedge to 4.5m with contiguous canopy above. South tree has decay cavity in base.	Good	Good	40	B3	5.0
G3	Common ash, English oak	Off	12-17	3	Yes	660	10.0	4.5	EM	None	Growing immediately north of boundary fence.	Good	Good	40	B2	7.9
G4	English oak, field maple, blackthorn	On	3.5-14	7		670	9.0	3.0	M	None	Linear group.	Good	Good	40	B2	8.0
G5	English oak, willow, common ash, hawthorn, blackthorn	On	3.5-15	12		710	8.0	4.5	M	None	Linear group of 9 oaks. One fractured willow stem and one oak branch resting on ground.	Good	Good	40	B2	8.5
G6	Sallow, hawthorn, blackthorn	On	4-8	6		280	3.0	3.5	EM	None	Remnant hedgerow. Decay in sallows.	Good	Fair	20	C2	3.3
G7	English oak, blackthorn, hawthorn	On	4-13	4		760	7.0	2.0	M	None	Linear group of 3 oaks. Middle tree has two stems from ground.	Good	Good	40	B2	9.1
G8	Common ash, willow, blackthorn, hawthorn	On	3.5-9	5	Yes	610	4.0	3.0	EM	None	Single ash is coppice-origin with crown dieback. Sallows have flail damage.	Fair	Fair	20	C2	7.3
G9	English oak, aspen, hawthorn, blackthorn	On	3.5-12	8	Yes	420	6.0	4.0	EM	None	Linear group of four oaks.	Good	Good	40	B2	5.0
G10	English oak	Off	14-16	2	Yes	640	6.5	4.5	M	None	No significant visible defects.	Good	Good	40	B2	7.7
G11	English oak	Off	12-14	4	Yes	560	7.0	5.0	M	None	Decay cavity at base of northernmost oak.	Good	Good	40	B2	6.7
G12	Common ash, English oak	Off	12-14	4	Yes	560	7.0	4.0	EM	None	Two southernmost ash trees are multi-stemmed with decay cavities and Inonotus decay visible.	Fair	Fair	20	C1	6.7
G13	English oak, field maple, hawthorn	Off	6-15	8	Yes	810	6.5	4.5	M	None	One multi-stemmed oak has severe flail wounding on one stem and one deadwood stem.	Good	Good	40	B2	9.7
G14	English oak, common ash	Off	10-16	9	Yes	720	7.0	4.5	M	None	Linear belt of oak trees with one ash. Four trees are on west side of ditch. Two northernmost oaks have large bark wounds on lower trunks.	Good	Good	40	B2	8.6
G15	English oak, common ash	Off	7-16	15	Yes	700	7.0	4.5	M	None	Linear group growing to east of ditch.	Good	Good	40	B2	8.4

Ref	Species	On/off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. Crown radius (m)	Avg. low crown height (m)	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G16	English oak, common ash, field maple	On	6-17	11	Yes	700	8.0	4.0	M	None	Linear group growing to east of ditch. Some suppressed oaks below. Southernmost oak is regrowth from 4m fractured trunk. Patches of scrubby hawthorn below.	Good	Good	40	B2	8.4
G17	Blackthorn, elder, hawthorn, common ash, field maple, hazel	On	3-6	30	Yes	200	2.5	0.0	SM	None	Scrubby remnant hedgerow group inaccessible behind dense bramble.	Good	Fair	20	C2	2.4
G18	Blackthorn, common ash	On	5-8	10	Yes	230	3.0	0.0	EM	None	Area of blackthorn scrub providing screening. One inaccessible ash which might be off-site.	Good	Good	20	B2	2.8
G19	Blackthorn, hazel, elder, common ash	On	4-6	10	Yes	200	2.5	0.0	EM	None	Area of scrub to rear of dense bramble.	Good	Fair	20	C2	2.4
G20	English oak	On	13	3	Yes	500	6.0	5.0	EM	None	Inaccessible group apparently within the site or close to site boundary.	Good	Good	40	B2	6.0
G21	Field maple, blackthorn	On	4-8	10	Yes	180	3.0	1.5	SM	None	Scrub growth that has formed within bramble.	Good	Fair	20	B2	2.2
G22	Blackthorn, hawthorn, elder	On	4-6	50	Yes	200	2.5	0.0	M	None	Unmaintained hedgerow that has become larger area of scrub.	Good	Fair	20	C3	2.4
G23	English oak	Off	10-15	4	Yes	770	9.5	2.5	M	None	One suppressed semi-mature oak.	Good	Good	40	A2	9.2
G24	English oak	On	9	2	Yes	350	4.5	3.5	SM	None	Fused stems.	Good	Good	40	B2	4.2
G25	Crack willow	On	9	2	Yes	350	6.0	1.5	EM	None	Stems appear to be subsiding. Stem bases inaccessible. Could be coppiced.	Good	Fair	20	C1	4.2
G26	Blackthorn, goat willow, dog rose	On	3-5	50	Yes	120	2.5	0.0	EM	None	Area of dense scrub.	Good	Good	20	C3	1.5
G27	English oak	On	14	2		820	9.5	2.0	M	None	Two small dead trees within canopy.	Good	Good	40	A2	9.8
G28	English oak	On	10-11	2	Yes	450	6.0	2.5	EM	None	Inaccessible behind scrub.	Good	Good	40	B2	5.4
G29	English oak	On	15	2	Yes	600	8.0	3.0	M	None	Inaccessible behind scrub.	Good	Good	40	A2	7.2
G30	English oak, Norway maple	On	12-13	3		600	8.0	2.5	M	None	Two semi-mature sycamores are off-site.	Good	Good	40	B2	7.2
G31	Norway maple, red horse chestnut	Off	8-12	2	Yes	300	5.0	2.0	SM	None	The Norway maple has split and partially collapsed into site.	Good	Poor	10	C1	3.6
G32	Blackthorn	On	3-5	100	Yes	130	1.5	0.0	SM	None	Area of blackthorn scrub within bramble.	Good	Good	20	C3	1.6
G33	Blackthorn	On	3-4	100	Yes	50	1.5	0.0	SM	None	Area of blackthorn scrub within bramble.	Good	Good	20	C3	0.6

HEDGEROWS

Ref	Species	On/off site	Av. Height (m)	Av. width (m)	Av. Stem diam (mm)	Avg. low crown height (m)	Life Stage	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H1	Hawthorn, blackthorn, holly, English oak, common ash, dog rose	On	1.5	1.5	180	0.5	M	Mature maintained hedgerow with occasional gaps.	Good	Good	40	B2	2.2
H2	Hawthorn, field maple, blackthorn, guelder rose, wild privet, silver birch, English oak, common lime, goat willow, dog rose	Off	3.0	1.0	40	0.0	Y	Recently planted highway hedgerow.	Good	Good	40	C1	0.6
H3	Hazel, blackthorn	On	4.0	3.0	180	0.0	M	Scrubby flailed shrubs forming gappy hedgerow growing to north of ditch.	Good	Fair	20	B2	2.2
H4	Blackthorn, hawthorn, sallow	On	3.0	2.0	150	0.5	EM	Scrubby remnant hedgerow flailed on south side. Suppressed.	Fair	Poor	20	C2	1.8
H5	Blackthorn, hawthorn, hazel, elder, goat willow, dog rose	On	1.5	1.0	150	0.0	M	Maintained hedgerow with occasional gaps with bramble.	Good	Good	40	B2	1.8
H6	Hawthorn, blackthorn, English oak	On	1.5	1.0	180	0.5	M	Maintained hedgerow.	Good	Good	40	B2	2.2
H7	Hawthorn, blackthorn, goat willow	On	1.5	1.0	150	0.0	M	Maintained hedgerow.	Good	Good	40	B2	1.8
H8	Hawthorn, blackthorn, hazel, English oak,	On	1.5	1.0	200	0.5	M	Maintained hedgerow with compacted track to north.	Good	Good	40	B2	2.4
H9	Blackthorn	On	1.5	1.0	100	0.5	EM	Maintained remnant hedgerow with some dead shrubs.	Fair	Poor	10	C2	1.3
H10	Blackthorn, hawthorn, dogwood	On	1.5	0.5	100	0.5	EM	Tightly maintained hedgerow.	Good	Fair	20	B2	1.3
H11	Hawthorn, blackthorn, field maple, hazel, common ash, English oak, dogwood, dog rose	Off	4.0	4.0	150	0.0	M	Scrubby unmaintained hedgerow growing on east side of ditch. Becomes very sparse below mature trees.	Good	Fair	40	B2	1.8
H12	Hawthorn, blackthorn, English oak, dogwood, field maple, goat willow, dog rose	On	1.5	1.0	100	0.0	EM	Maintained hedgerow with occasional gaps.	Good	Good	40	B2	1.3
H13	Dogwood, field maple, blackthorn, holly	On	1.5	1.0	100	0.0	EM	Maintained hedgerow with occasional gaps.	Good	Good	40	B2	1.3
H14	Blackthorn, hawthorn, gorse, English oak, elder	On	5.0	5.0	150	0.0	M	Unmaintained hedgerow that has formed larger area of dense scrub.	Fair	Fair	20	C3	1.8
H15	Blackthorn, hawthorn, wild cherry, elder, English oak, sycamore	On	5.0	4.0	200	0.0	M	Inaccessible unmaintained boundary hedgerow.	Fair	Fair	20	C2	2.4
H16	Blackthorn, hawthorn, hazel, English oak, elder, Norway maple	On	5.0	4.0	160	0.5	M	Scrubby unmaintained boundary hedgerow, mostly inaccessible.	Fair	Fair	20	C2	2.0



IMAGE 1: View looking north across the south-eastern field.



IMAGE 2: View along the north boundary of the south-western field, looking west.



IMAGE 3: View looking north-west in the centre of the site, with the sports ground beyond the trees.



IMAGE 4: View along the boundary between the southern arable fields and the north pasture field, looking north-east from T10.



IMAGE 5: View of the boundary between the southern arable fields and the north pasture field, looking north from H5.



IMAGE 6: View of the two open-grown oaks along the south site boundary, looking east.



IMAGE 7: View looking north along the east site boundary within the arable fields, from the south-east corner of the site.



IMAGE 8: View within the north pasture field, looking north-west.



IMAGE 9: View along the north boundary of the north pasture field, looking east.



IMAGE 10: View of the east boundary of the north pasture field, looking north-east.



IMAGE 11: View along the boundary between the north pasture field and the southern fields, looking east from G5.



IMAGE 12: View of the west boundary of the north pasture field, looking north-west.

- The tree survey was carried out with reference to the methodology set out in BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.
- Trees were surveyed individually or as groups where it was considered that they had grown together to form cohesive arboricultural features either aerodynamically (trees that provide companion shelter), visually (e.g. avenues or screens) or culturally (including for biodiversity). However, where it was considered that there was an arboricultural need to differentiate between attributes trees within groups and / or woodlands were also surveyed as individuals.
- The full tree survey findings are recorded in the following tree survey schedule.
- Within the tree survey schedule, each surveyed TREE (T), GROUP (G), HEDGEROW (H), WOODLAND (W) or SHRUB MASS on or adjacent to the site is given a reference number which refers to its position on the tree survey and constraints plan.
- TREE SPECIES are listed by common name.

The **DIMENSIONS** taken are:

- STEM-No. Indicates the number of main stems (i.e. whether the trunk divides at or below 1.5m; (Used in the calculation of RPA.) "m-s" = Multi-stemmed.
- STEM DIAMETER (measured in millimetres), obtained from the girth measured at approx. 1.5m. For trees with 2 to 5 sub-stems a notional figure is derived from the sum of their cross-sectional areas. For multi-stemmed trees, the notional diameter may be estimated on the basis of the average stem size x the number of stems. (A notional diameter may be estimated where measurement is not possible.)
- HEIGHT (measured in metres), recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- The CROWN SPREAD, taken at the four cardinal points to derive an accurate representation of the tree crown, recorded up to the nearest half metre for dimensions up to 10m and to up the nearest whole metre for dimensions over 10m.
- CROWN CLEARANCES are expressed both as existing height above ground level of first significant branch along with its direction of growth (e.g. 2.5m-N), and also in terms of the overall crown e.g. the average height of the crown above ground level. Measurements are recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- ESTIMATES. Where any measurement has had to be estimated, due to inaccessibility for example, this is indicated by a "#" suffix to the measurement as shown in the tree survey schedule.

LIFE STAGE is defined as follows:

- Y Young: Normally stake dependent, establishing trees. Should be growing fast, usually primarily increasing in height more than spread but as yet making limited impact upon the landscape.
- SM Semi-mature: Established young trees, normally of good vigour and still increasing in height but beginning to spread laterally. Beginning to make an impact upon the local landscape and environment. Semi-Mature (still capable of being transplanted without preparation, up to 30cm girth and not yet sexually mature).

- EM Early-mature: Not yet having reached 75% of expected mature size. Established young trees, normally of good vigour and still increasing in height but beginning to spread laterally. Beginning to make an impact upon the local landscape and environment.
- M Mature: Well-established trees, still growing with some vigour but tending to fill out and increase spread. Bark may be beginning to crack and fissure. In the middle half of their safe, useful life expectancies.
- LM Late-Mature: In full maturity but possibly beyond mature and in a state of natural decline). Still retaining some vigour but any growth is slowing.
- A Ancient: A tree that has passed beyond maturity and is old/aged compared with other trees of the same species. Typically having a very wide trunk and a small canopy.

PHYSIOLOGICAL CONDITION (HEALTH & VITALITY):

Essentially a snapshot of the general health of the tree based upon its general appearance, it's apparent vigour and the presence or absence of symptoms associated with poor health, physiological stress etc. (Fungal infections may be recorded here but decay giving rise to structural weakness would be recorded under 'Structural Condition' – see next parameter):

- Good: No significant health issues.
- Fair: Indications of slight stress or minor disease (e.g. the presence of minor dieback/deadwood or of epicormic shoot growth).
- Poor: Significant stress or disease noted; larger areas of dieback than above.
- Dead: (or Moribund).

STRUCTURAL CONDITION:

Defects affecting the structural stability of the tree including decay, significant dead wood, root-plate instability or significant damage to structural roots, weak forks (e.g. those where bark is included between the members) etc. Classified as:

- Good: No obvious structural defects: basically sound.
- Fair: Minor, potential or incipient defects.
- Poor: Significant defect(s) likely to lead to actual failure in the medium to long-term.
- Dead: (or Moribund).

ESTIMATED REMAINING CONTRIBUTION:

An estimate of the length of time in years that a tree might be expected to continue to make a useful contribution to the locality at an acceptable level of risk (based on an assumption of continued routine maintenance):

- Less than 10 years
- 10+ years
- 20+ years
- 40+ years

SPECIAL IMPORTANCE:

Trees that are particularly notable as high value trees such as ancient trees/woodland or veteran trees. Such trees may be regarded as the principal arboricultural features of a site and pose a significant constraint to potential development.

An *ancient tree* is one that has passed beyond maturity and is very old compared with other trees of the same species. Very few trees reach the ancient life-stage.

Veteran trees are often very old but not necessarily so; they may be regarded as ‘survivors’ that have developed some of the characteristic features of an ancient tree but have not necessarily lived as long. All ancient trees are veterans but not all veteran trees are ancient.

An ancient woodland is an area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland (ASNW), plantations on ancient woodland sites (PAWS) and ancient replanted woodland (ARW)

QUALITY CATEGORY:

Trees are classed as category U, A, B or C, based on criteria given in BS5837:2012; summary definitions as follows (see BS5837 for further details). Categories A, B and C are further characterised by the use of sub-categories, which attempt to identify what aspect of the tree is the main source of its perceived value, These are:

- (1) arboricultural qualities
- (2) landscape qualities, and
- (3) cultural, historic or ecological/conservation qualities.

Examples of these qualities for each of the three categories are given below, although these are indicative only.

Note: This is NOT a health and safety classification; the classification does not take into account any requirement for remedial tree care or ongoing maintenance apart from that which may affect the trees’ general suitability for retention.

CATEGORY A: HIGH QUALITY:

Trees or groups whose retention should be given a particularly high priority within the design process. Normally with an expected useful life expectancy of at least 40 years.

- A1: Notably fine specimens; rare or unusual specimens; essential component trees within groups, semi-formal or formal plantings (e.g. dominant trees within an avenue etc.).
- A2: Trees, groups or woodlands of particular visual importance as landscape features.
- A3: Trees, groups or woodlands of particular significance by virtue of their conservation, historical, commemorative or other value (e.g. veteran trees or wood pasture.)

CATEGORY B: MODERATE QUALITY:

Trees or groups of some importance with a likely useful life expectancy in excess of 20 years. Their retention would be desirable; selective removal of certain individuals may be acceptable but only after full consideration of all alternative courses of action.

- B1: Fair quality but not exceptional; good specimens showing some impairment (e.g. remediable defects, minor storm damage or poor past management.)
- B2: Acceptable trees situated such as to have little visual impact within the wider locality. Also numbers of trees, perhaps in groups or woodlands, whose value as landscape features is greater collectively than would warrant as individuals (such that the selective removal of an individual would not impact greatly upon the trees’ overall, collective value).
- B3: Trees, groups or woodlands with clearly identifiable conservation or other cultural benefits.

CATEGORY C: LOW QUALITY:

Trees or groups of rather low quality, although potentially capable of retention for at least approx. 10 years. Also small trees with stems below 15cm diameter.

Potentially retainable, but not of sufficient value to be regarded as a significant planning constraint.

- C1: Unremarkable trees of very limited merit or of significantly impaired condition.
- C2: Trees offering only low or short-term landscape benefits; also secondary specimens within groups or woodlands whose loss would not significantly diminish their landscape value.
- C3: Trees with extremely limited conservation or other cultural benefit.

CATEGORY U:

Trees likely to prove to be unsuitable for retention for longer than 10 years should any significant increase in site usage arise as a result of development.

E.g. dead or moribund trees; those at risk of collapse or in terminal decline; trees that will be left unstable by other essential works such as the removal of nearby category U trees; trees infected by pathogens that could materially affect other trees; low quality trees that are suppressing better specimens.

(Category U trees may have conservation values that it might be desirable to preserve. This category may also include trees that should be removed irrespective of any development proposals.)

ROOT PROTECTION AREA (RPA):

These are normally represented as a circle centred on the base of each tree stem with a radius of 12 times stem diameter, measured at 1.5m above ground level. The shape of the RPA may be altered where site conditions dictate that there are sound reasons to do so.

VETERAN OR ANCIENT TREE BUFFER (VTB/ATB)

In line with the Standing Advice produced by the Forestry Commission and Natural England this is a buffer zone (in metres) around an ancient or veteran tree that should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree’s canopy if that area is larger than 15 times the tree’s stem diameter.

ANCIENT WOODLAND BUFFER (FOR ASNW, PAWS OR ARW)

In line with the Standing Advice produced by the Forestry Commission and Natural England this is a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, a larger buffer zone may be required.

THE IMPORTANCE OF TREES

Wider benefits:

There is a growing body of evidence that trees bring a wide range of benefits to the places people live.

Some *Economic* benefits of trees include:

- Trees can increase property values
- As trees grow larger, the lift they give to property values grows proportionately
- They can improve the environmental performance of buildings by reducing heating and cooling costs, thereby cutting bills
- Mature landscapes with trees can be worth more as development sites
- Trees create a positive perception of a place for potential property buyers
- Urban trees improve the health of local populations, reducing healthcare costs

Some *Social* benefits of trees include:

- Trees help create a sense of place and local identity
- They benefit communities by increasing pride in the local area
- They can create focal points and landmarks
- They have a positive impact on people's physical and mental health
- They can have a positive impact on crime reduction

Some *Environmental* benefits of trees include:

- Urban trees reduce the 'urban heat island effect' of localised temperature extremes
- They provide shade, making streets and buildings cooler in summer
- They help remove dust and particulates from the air
- They help to reduce traffic noise by absorbing and deflecting sound
- They help to reduce wind speeds
- By providing food and shelter for wildlife they help increase biodiversity
- They can reduce the effects of flash flooding by slowing the rate at which rainfall reaches the ground
- They can help remediate contaminated soil

On new development sites:

Trees bring many benefits to new development. Where retained successfully they can form important and sustainable elements of green infrastructure, contribute to urban cooling and reduce energy demands in buildings. Their importance is acknowledged in relation to adaptation to the effects of climate change. Other benefits brought by trees include:

- increasing property values;
- visual amenity
- softening, complementing and adding maturity to built form
- displaying seasonal change
- increasing wildlife opportunities in built-up areas
- contributing to screening and shade
- reducing wind speed and turbulence

NATIONAL PLANNING POLICY

The National Planning Policy Framework 2021 (NPPF paragraph 180) states that, when determining planning applications, local planning authorities should apply the following principle:

c) 'development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.'

In this respect the following definitions apply:

'Ancient woodland: An area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites (PAWS)', and

'Ancient or veteran tree: A tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient, but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage.'

Note: Further information from the National Planning Policy Guidance Suite and Standing Advice is provided in the design guidance section.

Other paragraphs of the NPPF 2021 of relevance to this report are:

Paragraph 131: *'Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users.'*

Paragraph 174: *'Planning policies and decisions should contribute to and enhance the natural and local environment by:*

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland.'

STATUTORY CONTROLS

Statutory tree protection

Works to trees which are covered by Tree Preservation Orders (TPOs) or are within a Conservation Area (CA) require permission or consent from the Local Planning Authority. Where information is available on any Statutory designations such as this they are identified within the summary table in Section 1 and on the Tree Survey and Constraints Plan at Section 2.

Notwithstanding specific exceptions and in general terms, a TPO prevents the cutting down, uprooting, topping, lopping, wilful damage or wilful destruction of protected trees or woodlands without the prior written consent of the LPA.

Penalties for contravention of a TPO tend to reflect the extent of damage caused but can, in the event of a tree being destroyed, result in a fine of up to £20,000 if convicted in a Magistrates' Court, or an unlimited fine if the matter is determined by the Crown Court.

Similarly, and again notwithstanding specific exceptions, it is an offence to carry out any works to a tree in a Conservation Area with a trunk diameter greater than 75mm diameter at 1.5 height without having first provided the LPA with 6 weeks written notification of intent to carry out the works.

On many non-residential sites (excluding specific exemptions) there is also a statutory restriction relating to tree felling that relates to quantities of timber that can be removed within set time periods. In basic

terms, it is an offence to remove more than 5 cubic metres of timber in any one calendar quarter without having first obtained a felling licence from the Forestry Commission.

Any proposed tree works that are planned to be carried out on site must be carried out in accordance with the statutory controls outlined. Therefore, we recommend that a further check is made with the LPA before any tree works are carried out.

Statutory Wildlife Protection

Although preliminary visual checks from ground level of likely wildlife habitats are made at the time of surveying, detailed ecological assessments of wildlife habitats are not made by the arboriculturist and fall outside of the scope for this report.

Trees which contain holes, splits, cracks and cavities could potentially provide a habitat for protected species such as bats in addition to birds and small mammals. It is advised that in some instances specialist ecological advice may be required. This may result in tree works being carried out following a detailed climbing inspection to the tree to ensure that protected species or their nests/roosts are not disturbed. If any are found, the site manager, site owner or consulting arboriculturist should be informed and appropriate action taken as recommended by the appointed Ecologist or Natural England.

It is advised that tree/hedgerow works are carried out with the understanding that birds will generally nest in trees, hedges and shrubs between March and August. This time period only provides an indication of likely nesting times and as such diligence is required when undertaking tree works at all times.

Irrespective of the time of year and other than any actions approved under General Licence, it is an offence to intentionally kill, injure or take any wild bird or to intentionally take, damage or destroy the nest or eggs of any wild bird. Ideally, tree operations should be avoided during the likely bird nesting period. However, any tree works should always only be carried out following a preliminary visual check of the vegetation.

For information, the Wildlife and Countryside Act 1981 (as amended), The Countryside and Rights of Way Act 2000 (as amended) and the Conservation of Habitat and Species Regulations 2010, form the basis of the statutory legislation for flora and fauna in England and Wales. A different legislative framework applies in Scotland and Northern Ireland.

Any proposed tree works that are planned to be carried out on site must be carried out in accordance with any relevant statutory controls, outlined above.

DESIGN GUIDANCE

Approach

The approach adopts the guidelines set out in the British Standard BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations. The process is broken down to coordinate with the key elements within both the RIBA Plan of Work (2013) and British Standard 5837:2012 as set out in the table below:

Information Stage	RIBA Stage	BS5837:2012
Stage A – Tree Survey	2: Concept	4: Feasibility
Stage B – Arboricultural Impact Assessment	3: Developed design	5: Proposals
Stage C – Arboricultural Method Statement	4: Technical design	6: Technical Design
Stage D – Arboricultural Site Supervision	5: Construction	7: Demolition and construction

A hierarchical approach is adopted in order to achieve optimum use of the site and location of built structures. This is set out below:

Avoid

The starting point of Site layout design should be to avoid the RPA of retained trees and provide suitable clearance from above ground constraints [tree canopies]. Where possible building lines should be at least 2m outside the RPA to provide working space for construction. However, protection measures can be taken if such clearance is not achievable.

Mitigate

Where intrusion within the RPA is unavoidable then its impact on the tree can be mitigated by specialist measures:

Foundations that avoid trenching e.g. screw piles, suspended floor slabs or casting at ground level for lightweight structures such as bin and cycle stores.

Limited use may be made for parking, drives or hard surfaces within the root protection areas, subject to advice from a qualified arboriculturist. Cellular confinement systems that enable hard surfaces to be built above existing soil levels are acceptable methods subject to site-specific soil conditions.

Service runs that cannot be routed outside the RPA(s) can be installed by, for example, thrust boring, directional drilling, air excavation or hand digging. These operations often require supervision by the project arboriculturist.

Compensate

Replacement planting can ensure the continuity of tree cover where tree removal is unavoidable or desirable. Off-site provision may be considered in some circumstances but this will require negotiation with the local planning authority.

Considerations:

For proposed residential developments, consideration must be given to numerous factors future tree growth and orientation.

Tree constraints

Root Protection Areas:

With reference to BS5837:2012, a root protection area (RPA) is defined as “a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure should be treated as a priority”. **“The default position [when considering design layout in relation to RPAs] should be that structures are located outside the RPAs of trees to be retained”.**

BS5837:2012 states (4.6.2) that, “where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced.” The BS goes on to state that, “modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution,” and that any deviation from the original circular plot should take into account:

- Morphology and disposition of roots;
- topography and drainage;
- soil type and structure;
- the likely tolerance of the tree to root damage/disturbance.

Additional buffer zones beyond the RPA:

The following text is taken from the Standing Advice produced by the Forestry Commission and Natural England as included in the National Planning Policy Guidance:

'A buffer zone's purpose is to protect ancient woodland and individual ancient or veteran trees. The size and type of buffer zone should vary depending on the scale, type and impact of the development'.

Ancient woodland buffer:

'For ancient woodlands, you should have a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, you're likely to need a larger buffer zone. For example, the effect of air pollution from development that results in a significant increase in traffic'.

Ancient and veteran tree buffer:

'A buffer zone around an ancient or veteran tree should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's diameter'.

Above ground:

Above ground constraints posed by trees describe the capacity for trees to have an overbearing or dominating effect on new developments; usually post occupancy. Typical above ground constraints include a number or combination of inconveniences including shading, branch spread, movement of trees during strong winds and so on. If not adequately considered, above ground constraints can lead to repeated requests to fell or heavily prune retained and protected trees.

Shade:

Adverse shading and blocked views from windows raise concerns for incoming residents, which may lead to pressure to fell or remove trees in the future. Wherever possible it is advisable to arrange fenestration away from tree canopies to lessen the conflict, or increase window size to accommodate ambient light. Conversely, appropriate designed development can use existing or new trees to create necessary and welcome shade and screening.

As part of the adopted approach the above considerations and constraints are assessed cumulatively in order to provide clear and site-specific advice on the areas of a site most suitable for the location of development.

Dependent on the site and nature of the proposed development, the Tree Survey and Constraints Plans may show the following:

Recommended Developable area - an advisory area defined in order to minimise arboricultural impacts using standard approaches to construction. Restricting proposed development to this area will limit the risk of harm to retained trees and of the Local Planning Authority objecting to the proposed development. It may be possible to propose development outside of this area but specific 'low impact' construction techniques may be needed recommended.

Recommended Buffer to development - similar to the Recommend Developable Area but defined as a line marking a suitable buffer to retained trees. More commonly used on large sites or sites where the presence of trees is localised.

Tree Opportunities

Depending on the scale of developments existing trees can often provide opportunities to enhance the existing arboricultural resource of a site by bringing it into good management or by putting in place remedial measures e.g. soil amelioration.

Appropriately designed new tree planting is extremely important in maintaining healthy and sustainable tree populations. For the reasons highlighted, new trees can bring many benefits to new developments. It is critical to the establishment of new tree planting that the locations, species and specification of new trees is appropriate. Subsequently the sourcing of high-quality stock, suitable planting and the provision of post planting maintenance are essential to allow new trees to establish and to allow them to mature.

HOW TREE DAMAGE CAN OCCUR

Above the ground

Damage can occur as a result of knocks and scuffs, breakages of branches and/or tree trunks. This is often but not always associated with machine operations, groundworks excavations, tele handlers, high sided vehicles and crane use. Other forms of above ground damage include fixings to trunk and unauthorised cutting back of branches. Wounds will harm a tree's health and shorten its life by letting in disease-causing organisms.

Below the ground

It is often not appreciated that the majority of most tree roots are generally located within the top 600mm of the ground. On this basis it needs to be understood that damage to roots can occur in three ways:

- Root severance can occur as a result of, for example, soil stripping during site clearance or excavations.
- Root dieback and death can result from compaction of the soil. Compaction can occur as a result of vehicle weight, weight of stored materials or increased pedestrian access. Compaction crushes out soil pore space and prevents tree respiration from occurring (respiration requires gas exchange between the ground and the atmosphere). Compacted soil is denser and therefore inhibits/prevents any further new root growth.
- Pollution of the soil with chemicals such as oil or cement washings can destroy the soil environment, making it inhospitable for the tree cause causing it stress.

The effects of these impacts can be disfiguring to a tree's appearance and also weaken a tree making it more liable to attack by pest and diseases. In addition, root damage or death results in corresponding decline above the ground with dieback occurring within the tree crown.

The effects of damage to trees generally take some time to become fully apparent. In many cases, damaged trees decline slowly after the completion of a new development, until they eventually need to be removed due to ill health.

Tree protection barriers and load distributing 'no-dig' paths are specified in order to prevent soil compaction from taking place.

GENERAL SITE RULES FOR TREE PROTECTION

Do not independently carry out any activity that is at odds with the site scheme of tree protection. This is contained within an approved Arboricultural Method Statement (AMS) and accompanying Tree Protection Plan.

In simple terms: do not carry out any work within any Construction Exclusion Zone (CEZ) without prior liaison with the Project Arboriculturist and written authorisation from the Local Planning Authority.

Within the CEZ:

- No mixing of cement
- No soil/turf stripping, raising/lowering of ground levels (unless advised), deposit or excavation of soil or rubble
- No excavations for services or installation of services
- No storage of materials, machinery fuel, chemicals or other materials of any other description
- No parking/use of tracked or wheeled machinery
- No siting of temporary structures including hard standing areas, portaloos, site huts
- No lighting of fires or disposal of liquids
- Fires on site should be avoided if possible. Where they are unavoidable, they must not be lit in a position where heat could damage foliage or branches. Fires must be a minimum of 20m from the trunk of any retained tree or the centre line of any hedgerow to be retained
- No signs, cables, fixtures or fittings of any other description shall be attached to any part of a retained tree