

**ARBORICULTURAL  
IMPACT  
ASSESSMENT**

Pamington, Ashchurch  
November 2023



**Barton Hyett Associates**  
Arboricultural Consultants

Summary table		
Site Name:	Pamington, Ashchurch	
Project reference:	5680	
Site Address:	Pamington Lane, Pamington, Ashchurch, Tewkesbury	
Nearest Postcode:	GL20 8LX	
Central Grid reference:	<a href="#">SO 94101 32813</a>	
Local Planning Authority:	Tewkesbury Borough Council	
Relevant planning policies:	Gloucester Cheltenham and Tewksbury Joint Core Strategy 2011-2031: SD4 - Design requirements; SD9 Biodiversity and Geodiversity; INF3 - Green infrastructure.	
Statutory Controls:	Tree Preservation Order	Conservation Area
	None	No
Soil Type: (Source: BGS online soils map © NERC 2023)	Superficial/Drift	Bedrock
	None recorded	Charmouth Mudstone Formation - Mudstone
Proposed site plan:	Illustrative Masterplan - 23122.101 Rev D	
Notes:	N/a	
Report author:	Siobhan Dickenson <i>TechArborA</i>	
Checked by:	Richard Hyett <i>MSc, BSc (Hons), MICFor, MArborA</i>	
Date of issue:	10th November 2023	

### REPORT CONTENTS:

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## 1. INTRODUCTION

- 1.1. Barton Hyett Associates Ltd have been instructed by Greystoke Land to survey trees located at land adjacent to Pamington near Ashchurch, Tewkesbury ('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 and hedgerows relevant to an outline planning application at the site and provide written advice on how they inform feasibility and design options. 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, spanning approximately 13.05 hectares, is located to the south of Pamington village in Ashchurch, England. The site solely consists of level agricultural fields.
- 2.2. The site boundaries are defined by hedgerows situated next to drainage ditches, with the occasional tree group. At the time of the survey all the ditches were water-logged. These ditches will likely have an effect on the root systems of trees in proximity to them which will be discussed within the Arboricultural Impact Assessment.
- 2.3. There are no public rights of way (PRoWs) on site.
- 2.4. The site has several access points leading on from the surrounding agricultural fields and from the nearby road B4079.



Figure 1: aerial image (Google Maps 2023) showing approximate survey area (not the application boundary).

## 3. TREE SURVEY FINDINGS

- 3.1. The survey recorded 31 arboricultural features. These are summarised in terms of quality in accordance with the recommendations of BS 5837 in Table 1 below and shown in more detail on the Tree Survey and Constraints Plan (**Section 2**) and within the Tree Survey Schedule and within the Tree Survey Schedule (**Section 4**).

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

	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	1	-	-	-	1
Groups	6	-	-	5	1
Hedgerows	24	-	15	9	-
<b>Total</b>	<b>31</b>	<b>0</b>	<b>15</b>	<b>14</b>	<b>2</b>

## 4. ARBORICULTURAL FEATURES

- 4.1. No ancient/veteran trees were identified in this survey. There is no ancient woodland associated to the site.
- 4.2. The majority of the tree stock on site are of low to moderate quality and located along field boundaries. While some management efforts were historically undertaken on the hedgerows, they appeared overgrown at the time of the survey.
- 4.3. The northern boundary of the site contained a selection of very poor quality/dead elm trees (G4) and the eastern boundary included a single very poor quality tree (T1) within the hedgerow.

## 5. PROPOSED DEVELOPMENT

- 5.1. Outline planning consent is sought for the development of the Site. The development proposal is described as:

*["Outline planning application with all matters reserved apart from principles points of access for up to 175 units, together with green infrastructure/community areas provided in the "Buffer Zone" south of Pamington"]*

- 5.2. Whilst a site wide Illustrative Masterplan (drawing reference: 23122.101 Rev D) has been prepared in order to demonstrate the likely form of the development and to assist in the assessment of likely impacts, the outline application reserves all matters for later approval apart from the principal point of access.

## 6. IMPACT ASSESSMENT

6.1. The impact assessment considers the effects of any tree loss required to implement the proposed development as well as any reasonably foreseeable potentially damaging activities proposed in the vicinity of retained trees. This is undertaken with reference to BS5837:2012 and considering the outline nature of the proposed development. Actual and potential impacts can include tree removal to facilitate the development, soil compaction in close proximity to trees, and direct impact damage to the canopy and roots of retained trees from construction activities. A summary of anticipated impacts resulting from the proposed development is provided below.

### Trees to be removed

- 6.2. The Illustrative Masterplan drawing identifies that some minor hedgerow/tree loss will be required in order to allow the proposed development to be implemented. These removals are summarised below and shown on the Tree Retention and Removal Plan in **Section 3**.
- 6.3. In order to establish a safe and appropriate highway access (a non reserved matter) into the site from the nearby road B4079, the following removals will be required:
- Hedgerow - H1 & H24 - Hawthorn; blackthorn; ash; elm; rose hip - moderate quality (category B) - partial removal (approximately 112 linear metres removed)
  - Tree - T1 - Ash - Dead standing tree, (category U).
- 6.4. To accommodate the internal road network and pedestrian access points (along the north & west boundary), as shown on the Illustrative Masterplan the following removals are likely to be required:
- Hedgerow - H21 - Hawthorn; blackthorn; dog rose - moderate quality (category B) - three sections to be removed totalling approximately 38.5 linear metres.
  - Hedgerow - H16 - Hawthorn; blackthorn; plum; elm; dog rose; elder - moderate quality (category B) - partial removal, approximately 6 linear metres.
  - Group - G4 - Group made up mostly dead elms - very poor quality (category U) - partial removal.
- 6.5. The majority of the vegetation identified for removal is comprised of typical hedgerow species such as English elm, hawthorn, blackthorn, and ash. Whilst it is necessary to remove vegetation to achieve the site access, an assessment of the vegetation along the B4079 boundary indicates the proposed access is located in one of the most appropriate locations (in arboricultural terms).
- 6.6. Appropriate and high-quality (e.g. more resilient and species diverse) mitigation and enhancement planting is proposed within the Illustrative Masterplan, helping to mitigate this loss through the provision of new tree planting alongside the proposed primary roads, within the proposed open spaces and around the site boundaries.

### Impacts on retained trees

- 6.7. Once the tree removals have taken place, there is still potential for the retained trees to be adversely impacted during the construction phase of the project. To ensure these impacts are kept to an acceptable level all construction works should adhere to recommendations within this report.
- 6.8. The proposed development does not require the demolition of any significant structures near retained trees.
- 6.9. Based on the Illustrative Masterplan, no significant facilitation pruning of retained trees will be required.
- 6.10. All of the internal road network has been (and can be at Reserved Matters stage) designed to avoid the RPAs of retained trees.
- 6.11. Any proposed changes in ground level will need to ensure that the existing ground level within the RPAs of retained trees is maintained.
- 6.12. There is adequate space within the site to allow the construction compound, storage areas and contractor parking to be situated without impact on retained trees. As a rule, these should be located away from tree canopies and RPAs.
- 6.13. Further assessment at the Reserved Matters stage will be required and the project Arboriculturist will offer guidance as needed at the appropriate point in the detailed design and planning stages.

### Conclusion

- 6.14. Given the nature of the site and the trees identified within the survey, the proposed development is feasible from an arboricultural perspective. This is based on the proposed new tree planting and landscape enhancements being successfully implemented and the development being carefully implemented according to an approved arboricultural method statement and finalised tree protection plan.
- 6.15. A combined draft Tree Retention and Removal and Tree Protection Plan are included in **Section 3**.

## 7. TREE PROTECTION MEASURES

- 7.1. Tree protection fencing will be required to protect retained trees/hedgerows during the groundworks and construction phases. Given the location of the trees to be retained, their successful protection is achievable.
- 7.2. However, the outline nature of the proposals do not facilitate the production of the detailed tree protection plan at this stage. Sufficient information has been provided to allow a decision on the principle of the proposed development to be made. A detailed and informed tree protection plan can be provided at the detailed design/Reserved Matters planning stage.
- 7.3. This approach is in line with Figure 1 of BS5837:2012 which advises 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. 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 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 Arboricultural Method Statement (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 part of a Reserved Matters application.
- 8.3. A brief summary of the principles of tree protection on development sites is included in **Section 7**.
- 8.4. A draft, 'Heads of Terms' for an AMS is set out below:
  - Project arboriculturist – schedule of monitoring and supervision to be agreed upon with the applicant and LPA (if required)
  - Pre-commencement site meeting - to be attended by the project arboriculturist, client, site manager and other relevant parties. Project arboriculturist to ensure that all parties have copies of the tree protection plan and this report.
  - Tree and hedgerow removals - as shown on the final, approved Tree Retention and Removal Plan (TRR)
  - Erection of tree protection barriers as may be required as per the final, approved Tree Protection Plan (TPP)
  - Site preparation and ground works - no access for any machinery within the fenced tree protection areas.
  - 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.
  - Final landscaping including tree planting.

## 9. PROPOSED ENHANCEMENTS

- 9.1. A series of potential enhancements to the arboricultural resource of the site could be provided through the delivery of the development. These are summarised in the non-exhaustive list below:
  - Existing green infrastructure framework retained where possible as part of green strategy
  - New reinforcement planting proposed to support existing green infrastructure features within the sites interior and boundary.
  - Establishment of new woodland belt planting to north eastern boundary of site
  - Extensive new planting (including orchard planting) to the north of the site to supplement and enhance existing vegetation using appropriate, ecologically valuable tree and shrub species

- Delivery of appropriate high-quality new amenity tree planting within the interior of the site and along primary roads.

## 10. CONCLUSIONS AND RECOMMENDATIONS

- 10.1. The proposed development of the site, in the form indicated on the Illustrative Masterplan is feasible from an arboricultural perspective.
- 10.2. Although tree and hedgerow removal is required, the loss can be mitigated through new diverse tree and shrub planting across the wider site. Management works and new planting to improve the quality of retained arboricultural features can also be provided. In addition, enhancement planting beyond that required to mitigate the losses could be provided. Overall, the proposal is for a significant net gain in tree canopy cover at the site and had the potential to deliver a significant increase in tree species diversity.
- 10.3. A further Arboricultural Impact Assessment (detailed) as well an Arboricultural Method Statement and finalised Tree Protection Plan will need to be produced. Once the feasibility of a scheme has been agreed by the Local Planning Authority at the outline planning stage, these details can be secured through the Reserved Matters process.
- 10.4. The anticipated direct arboricultural impacts are limited to the hedgerow loss required to establish the highway access point into the site.

*Siobhan Dickenson*

Siobhan Dickenson, *TechArborA*





IMAGE 1: A view looking east showing the difference between two moderate quality hedgerows H13 and H16, in comparison with the low quality H14.



IMAGE 2: A view looking east showing the access to site used.



IMAGE 3: A view looking south showing the low quality group G5.



IMAGE 4: A view looking south along moderate quality hedgerow H13, showing the drainage ditch alongside.



IMAGE 5: A view looking north to show the very-low quality T1, located next to a B road.



IMAGE 6: A view looking northwest showing the collection of dead elms to the left (G4 category U) and the low quality mixed group to the right.



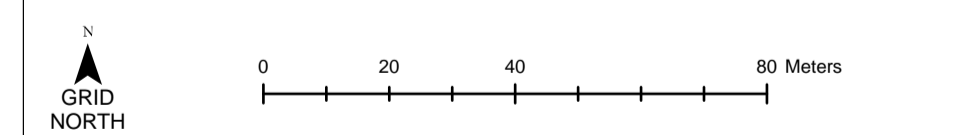


- KEY**
- Category A Tree - High quality (Retention highly desirable)
  - Category A - Hedgerow, Group, Woodland - High quality (Retention highly desirable)
  - Category B Tree - Moderate quality (Retention desirable)
  - Category B - Hedgerow, Group, Woodland - Moderate quality (Retention desirable)
  - Category C Tree - Low quality (May be retained but should not constrain development)
  - Category C - Hedgerow, Group, Woodland - Low quality (May be retained but should not constrain development)
  - Category U Tree - Very low quality (Mostly unsuitable for retention)
  - 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 mass/offsite tree/out of scope (OOS)
  - Tree/Group/Hedgerow not on topographical survey. Location given is an estimate
  - Ancient Tree / Woodland or Veteran Trees
    - Ancient tree/woodland or Veteran tree: Important trees that require special consideration
    - Ancient tree/woodland or Veteran tree buffer: As per published standing advice from Natural England and the Forestry Commission
  - Statutory Protection
    - Tree Preservation Order (TPO): Trees under statutory protection. No tree works to be undertaken without specific consent or by relevant exception. The site may be within a designated Conservation Area which restricts tree works. Please see attached advice and guidance.

Tree Ref	Species	Height (m)	LifeStage	RPA Radius (m)	RPA (m <sup>2</sup> )
T1	Ash (Common)	7	None	6	113
Group Ref	Species	Height Range (m)	LifeStage	RPA Radius (m)	RPA (m <sup>2</sup> )
G1	Hawthorn; Lawson's cypress; elm; blackthorn; holly	2.5	EM	2	13
G2	Hawthorn; plum	5.6	M	2.5	20
G3	Guylder rose; elm; hawthorn; blackthorn	5.6	M	2.6	22
G4	Elm; hawthorn	3.7	M	2.2	15
G5	Hawthorn	4.5	EM	3.1	31
G6	Hawthorn; elder; dog rose; blackthorn	4.7	M	2.5	20
Hedge Ref	Species	Avg. Height (m)	Life Stage	RPA Radius (m)	RPA (m <sup>2</sup> )
H1	Hawthorn; blackthorn; ash; elm; rose hip	3	M	1.1	4
H2	Hawthorn; blackthorn; ash	3	M	1.1	4
H3	Blackthorn; guelder rose; hawthorn	3	M	0.8	2
H4	Blackthorn; hawthorn	2.5	M	0.8	2
H5	Blackthorn; hawthorn; field maple; elder	2.5	M	0.8	2
H6	Elm; hawthorn; rose hip	3	M	0.8	2
H7	Lawson's cypress	4	M	0.8	2
H8	Hawthorn	3	M	0.8	2
H9	Hawthorn	2	M	0.8	2
H10	Hawthorn	4	M	0.8	2
H11	Hawthorn; elm; privet	1	EM	0.8	2
H12	Hawthorn; ash	3	M	1	3
H13	Hawthorn; blackthorn; ash; elm	2.5	M	1	3
H14	Hawthorn	2	EM	0.8	2
H15	Hawthorn; blackthorn; plum; elder	2.5	M	1	3
H16	Hawthorn; blackthorn; plum; elm; dog rose; elder	2.5	M	1	3
H17	Elder; hawthorn	3	M	1	3
H18	Hawthorn; blackthorn; dog rose	3	M	1.1	4
H19	Hawthorn; blackthorn; dog rose; elder	3	M	1.3	5
H20	Hawthorn; blackthorn; dog rose; elder; ash	3	M	1.3	5
H21	Hawthorn; blackthorn; dog rose	2.5	M	0.8	2
H22	Hawthorn; blackthorn	2.5	M	0.8	2
H23	Hawthorn; blackthorn; privet; rose hip; field maple	2.5	M	0.8	2
H24	Hawthorn; blackthorn; elm	3	M	0.8	2



Note: The original of this drawing was produced in colour – a monochrome copy should not be relied upon. This drawing should be interpreted with reference to the accompanying tree schedule and written advice.



PROJECT TITLE: Ashchurch (5680)

DRAWING TITLE: Tree Survey Plan

SCALE: 1:1,202 @ A1

DRAWING NUMBER: BHA\_5680\_01

DRAWN BY: TB	APPROVED BY: SD	REVISION: -	SHEET: -	DATE: 20/10/2023
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COORDINATE SYSTEM / DATUM: British National Grid / Newlyn Datum (AOD)

CLIENT: Greystoke Land

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**Barton Hyett Associates**  
Arboricultural Consultants

Tel: 01386 576161  
Address: Office 2E, Deer Park Business Centre, Edington, Pershore, Worcestershire, WR10 3DN





- KEY**
- Category A Tree - High quality (Retention highly desirable)
  - Category A - Hedgerow, Group, Woodland - High quality (Retention highly desirable)
  - Category B Tree - Moderate quality (Retention desirable)
  - Category B - Hedgerow, Group, Woodland - Moderate quality (Retention desirable)
  - Category C Tree - Low quality (May be retained but should not constrain development)
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  - Category U Tree - Very low quality (Mostly unsuitable for retention)
  - 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
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  - Ancient tree/woodland or Veteran tree buffer: As per published standing advice from Natural England and the Forestry Commission
  - Statutory Protection**
  - Tree Preservation Order (TPO): Trees under statutory protection. No tree works to be undertaken without specific consent or by relevant exception. The site may be within a designated Conservation Area which restricts tree works. Please see attached advice and guidance.
  - Protection Measures**
  - Tree Protection Barrier
  - Secondary Tree Protection Barrier - location to allow works within CEZ (only in accordance with detailed AMS)
  - Cellular Confinement System (see AMS report for specification)
  - Temporary Ground Protection to BS 5837:2012
  - Permanent Ground Protection to BS 5837:2012
  - Area of No Dig Construction to BS 5837:2012
  - Construction Exclusion Zone (CEZ) - No work to occur within CEZ without prior approval of Project Arboriculturist and/or LPA. All ground levels to be maintained as existing
  - All weather information notices to read 'Construction Exclusion Zone - No Entry' A3 in size. To be attached to tree protection barriers at regular intervals
  - Target Note

Tree Ref	Species	Height (m)	Linkage	RPA Radius (m)	RPA (m2)	Remove
T1	Ash (Common)	7	None	6	113	Yes

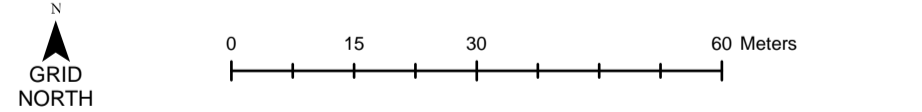
Group Ref	Species	Height Range	Linkage	RPA Radius (m)	RPA (m2)	Remove
G1	Hawthorn; Lonicera opressa; elm; blackthorn	2-5	EM	2	13	
G2	Hawthorn; plum	5-6	M	2.5	20	
G3	Guelder rose; elm; hawthorn; blackthorn	5-6	M	2.6	22	
G4	Elm; Hawthorn	3-7	M	2.2	15	
G5	Hawthorn	4-5	EM	2.1	11	
G6	Hawthorn; elder; dog rose; blackthorn	4-7	M	2.5	20	

Hedge Ref	Species	Avg Height (m)	Linkage	RPA Radius (m)	RPA (m2)	Remove
H1	Hawthorn; blackthorn; ash; elm; rose hpy	3	W	1.1	4	
H2	Hawthorn; blackthorn; ash	3	W	1.1	4	
H3	Blackthorn; guelder rose; hawthorn	3	W	0.9	2	
H4	Blackthorn; hawthorn	2.5	W	0.9	2	
H5	Blackthorn; hawthorn; field maple; elder	2.5	W	0.9	2	
H6	Elm; hawthorn; rose hpy	2	W	0.8	2	
H7	Lonicera opressa	4	W	0.9	2	
H8	Hawthorn	2	W	0.8	2	
H9	Hawthorn	2	W	0.8	2	
H10	Hawthorn	4	W	0.9	2	
H11	Hawthorn; elm; ash	1	W	0.8	2	
H12	Hawthorn; ash	3	W	1	3	
H13	Hawthorn; blackthorn; ash; elm	2.5	W	1	3	
H14	Hawthorn	2	W	0.8	2	
H15	Hawthorn; blackthorn; plum; elder	2.5	W	1	3	
H16	Hawthorn; blackthorn; plum; ash; dog rose; elder	2.5	W	1	3	
H17	Elm; hawthorn	2	W	1	3	
H18	Hawthorn; blackthorn; dog rose	3	W	1.1	4	
H19	Hawthorn; blackthorn; dog rose; elder	3	W	1.1	4	
H20	Hawthorn; blackthorn; dog rose; elder; ash	2	W	1.2	5	
H21	Hawthorn; blackthorn; dog rose	2.5	W	0.9	2	
H22	Hawthorn; blackthorn	2.5	W	0.9	2	
H23	Hawthorn; blackthorn; plum; ash; hpy; field maple	2.5	W	0.9	2	
H24	Hawthorn; blackthorn; ash	3	W	0.9	2	



Note: The original of this drawing was produced in colour – a monochrome copy should not be relied upon. This drawing should be interpreted with reference to the accompanying tree schedule and written advice.



PROJECT TITLE: Ashchurch (5680)

DRAWING TITLE: Tree Retention and Removal Plan

SCALE: Scale: 1:925 @ A1 DRAWING NUMBER: BHA\_5680\_02

DRAWN BY: TB APPROVED BY: SD REVISION: SHEET: DATE: 10/11/2023

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

CLIENT: Greystoke Land

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**Barton Hyett Associates**  
Arboricultural Consultants

Tel: 01386 576166  
Address: Office 2E, Deer Park Business Centre, Edkington, Pershore, Worcestershire, WR10 3DN



**INDIVIDUAL TREES**

Ref	Species	On/off site	Height (m)	No. of stems	Est diam?	Calc. / actual stem dia. (mm)	Crown radii (m) N-E-S-W	Av. 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)	BS 5837 Category	RPA radius (m)	RPA m <sup>2</sup>
T1	Ash (Common)	On	7.0	4	None	500	2.0-2.0-2.0-2.0	2.0	1.0	N	None	None	Dead standing tree part of hedgerow; close to road.	None	None	None	<b>U</b>	6.0	113.0

**GROUPS OF TREES**

Ref	Species	On/off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. crown radius (m)	Av. low crown height (m)	Life stage	Special importance	General observations	Health & vitality	Structural condition	Estimated remaining contribution (Years)	BS 5837 Category	RPA radius (m)
G1	Hawthorn; Lawsons cypress; elm; blackthorn; holly	On	2-5	10	None	170.0	2.0	1.0	EM	None	Mixed boundary group; unmanaged and unruly.	Fair	Good	20+	<b>C2</b>	2.0
G2	Hawthorn; plum	Off	5-6	6	None	210.0	2.5	2.0	M	None	Potentially privately owned; outgrown hedgerow trees.	Good	Good	40+	<b>C2</b>	2.5
G3	Guelder rose; elm; hawthorn; blackthorn;	Off	5-6	6	None	220.0	2.5	0.5	M	None	Outgrown hedgerow; ditch to the south.	Good	Good	40+	<b>C2</b>	2.6
G4	Elm; hawthorn	Off	3-7	40	None	180.0	2.0	0.5	M	None	Outgrown hedgerow; ditch to the south. C. 8 dead elm within group with healthy smaller trees in under canopy.	Poor	Fair	40+	<b>U2</b>	2.2
G5	Hawthorn	On	4-5	15	None	260.0	2.0	1.0	EM	None	Circular placed trees surrounding concrete structure in centre.	Fair	Good	20+	<b>C2</b>	3.1
G6	Hawthorn; elder; dog rose; blackthorn	On	4-7	40	None	210.0	3.0	1.0	M	None	Raised ground behind trees on outskirts; large pipes left scattered. Thick on outskirts; appears to thin in middle of group. Numerous burrows.	Good	Good	20+	<b>C2</b>	2.5



**HEDGEROWS**

Ref	Species	On/off site	Av. height (m)	Av. width (m)	Av. stem diam (mm)	Av. low crown height (m)	Life stage	General observations	Health & vitality	Structural condition	Estimated remaining contribution (Years)	BS 5837 Category	RPA radius (m)
H1	Hawthorn; blackthorn; ash; elm; rose hip;	On	3.0	2	90	0.5	M	Mixed species linear boundary hedgerow. Maintained sides and top; currently unkempt. Ditch to the east.	Good	Good	40+	<b>B2</b>	1.1
H2	Hawthorn; blackthorn; ash;	On	3.0	1.5	90	0.5	M	Mixed species linear boundary hedgerow. Maintained sides and top; currently unkempt. Ditch to the east.	Good	Good	40+	<b>B2</b>	1.1
H3	Blackthorn; guelder rose; hawthorn;	On	3.0	1.5	70	0.5	M	Mixed species linear boundary hedgerow. Maintained sides and top; currently unkempt.	Good	Good	40+	<b>C2</b>	0.8
H4	Blackthorn; hawthorn;	On	2.5	1.5	60	0.5	M	Mixed species linear boundary hedgerow. Maintained sides and top; currently unkempt.	Good	Good	40+	<b>C2</b>	0.8
H5	Blackthorn; hawthorn; field maple; elder	On	2.5	1.5	60	0.5	M	Mixed species linear boundary hedgerow. Maintained sides and top; currently unkempt. Recent pruning work to clear area for electrical equipment.	Good	Good	40+	<b>C2</b>	0.8
H6	Elm; hawthorn; rose hip	On	3.0	1.5	60	0.5	M	Mixed species linear boundary hedgerow. Maintained sides and top; currently unkempt.	Good	Good	40+	<b>C2</b>	0.8
H7	Lawsons cypress	On	4.0	2	70	0.5	M	Linear uniform hedge with one hawthorn to the east. Water logged ditch to the south.	Good	Good	40+	<b>B2</b>	0.8
H8	Hawthorn	On	3.0	2	70	0.5	M	Linear boundary hedgerow. Maintained sides and top; currently unkempt.	Good	Good	40+	<b>B2</b>	0.8
H9	Hawthorn	On	2.0	2	70	0.5	M	Maintained sides and top.	Good	Good	40+	<b>C2</b>	0.8
H10	Hawthorn	On	4.0	2	60	0.5	M	Unmanaged but uniform.	Good	Good	40+	<b>C2</b>	0.8
H11	Hawthorn; elm; privet	Off	1.0	1	60	0.5	EM	Maintained potentially private hedgerow.	Good	Good	40+	<b>C2</b>	0.8
H12	Hawthorn; elm	Off	3.0	2	80	0.5	M	Predominantly hawthorn. Linear boundary hedgerow. Maintained sides and top; currently unkempt.	Good	Good	40+	<b>B2</b>	1.0
H13	Hawthorn; blackthorn; ash; elm	On	2.5	2	80	0.5	M	Predominantly blackthorn. Mixed species linear boundary hedgerow; uniform and thick. Maintained sides and top; currently unkempt. Ditch to the east; underneath hedge.	Good	Good	40+	<b>B2</b>	1.0
H14	Hawthorn	On	2.0	1	60	0.5	EM	Section of thinner hedgerow.	Good	Fair	20+	<b>C2</b>	0.8



Ref	Species	On/off site	Av. height (m)	Av. width (m)	Av. stem diam (mm)	Av. low crown height (m)	Life stage	General observations	Health & vitality	Structural condition	Estimated remaining contribution (Years)	BS 5837 Category	RPA radius (m)
H15	Hawthorn; blackthorn; plum; alder	Off	2.5	2	80	0.5	M	Mixed species linear boundary hedgerow. Maintained sides and top; currently unkempt.	Good	Good	40+	C2	1.0
H16	Hawthorn; blackthorn; plum; elm; dog rose; elder	On	2.5	2	80	0.5	M	Mixed species linear boundary hedgerow; uniform and thick. Evidence of hedge laying. Maintained sides and top; currently unkempt. Ditch to the east; underneath hedge.	Good	Good	40+	B2	1.0
H17	Elder; hawthorn;	On	3.0	2	80	0.5	M	Hedge lain thinner section; maintained at 2m; outgrown to 3m at time of inspection.	Good	Good	40+	B2	1.0
H18	Hawthorn; blackthorn; dog rose	On	3.0	2	90	0.5	M	Mixed species linear boundary hedgerow; uniform and thick. Maintained sides and top; currently unkempt.	Good	Good	40+	B2	1.1
H19	Hawthorn; blackthorn; dog rose; elder	On	3.0	2	100	0.5	M	Mixed species linear boundary hedgerow; hedge-laying present. Maintained sides and top; currently unkempt. Slight decline in ground to the north. One section of elder thinning.	Good	Good	40+	B2	1.3
H20	Hawthorn; blackthorn; dog rose; elder; ash	On	3.0	2	100	0.5	M	Mixed species linear boundary hedgerow; hedge-laying present. Maintained sides and top; currently unkempt. Shallow ditch to the north.	Good	Good	40+	B2	1.3
H21	Hawthorn; blackthorn; dog rose;	On	2.5	2	70	0.5	M	Mixed species linear boundary hedgerow. Maintained sides and top; currently unkempt. Water filled ditch to the east.	Good	Good	40+	B2	0.8
H22	Hawthorn; blackthorn	On	2.5	2	70	0.5	M	Mixed species linear boundary hedgerow. Maintained sides and top; currently unkempt.	Good	Good	40+	B2	0.8
H23	Hawthorn; blackthorn; privet; rose hip; field maple	On	2.5	2	70	0.5	M	Mixed species linear boundary hedgerow. Maintained sides and top; currently unkempt. Small section of privet. Water filled ditch to the north. Section of gaps in lower crowns in two areas. Section of 4m hawthorn dead section.	Good	Good	40+	B2	0.8
H24	Hawthorn; blackthorn; elm;	On	3.0	2	70	0.5	M	Predominantly blackthorn. Mixed species linear boundary hedgerow. Maintained sides and top; currently unkempt. Small section of privet. Ditch to the east.	Good	Good	40+	B2	0.8



- 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 2023 (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 the relevant Statutory Nature Conservation Organisation (SNCO): Natural England, Scottish Natural Heritage or Natural Resources Wales.

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
<b>Stage A – Tree Survey</b>	2: Concept	4: Feasibility
<b>Stage B – Arboricultural Impact Assessment</b>	3: Developed design	5: Proposals
<b>Stage C – Arboricultural Method Statement</b>	4: Technical design	6: Technical Design
<b>Stage D – Arboricultural Site Supervision</b>	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 Recommended 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