

ARBORICULTURAL IMPACT ASSESSMENT

Land North of A507,
Buntingford

May 2024
Revision C



Barton Hyett Associates
Arboricultural Consultants

In association with

CSA
environmental

Summary table		
Site Name:	Land North of A507, Buntingford	
Project reference:	5798	
Site Address:	Baldock Road, Throcking, Hertfordshire.	
Nearest Postcode:	SG9 9ER	
Central Grid reference:	TL 35093 30100	
Local Planning Authority:	East Hertfordshire Council	
Relevant planning policies:	East Herts District Plan 2018: DES2 - Landscape character' DES3 - Landscaping; DES4 - Design of development; NE3 - Species & Habitats; NE4 - Green Infrastructure. East Herts Planning Obligations SPD: Nature conservation & landscape improvements.	
Statutory Controls:	Tree Preservation Order	Conservation Area
	None	No
Soil Type: (Source: BGS online soils map © NERC 2024)	Superficial/Drift	Bedrock
	Deep lime-rich loamy and clayey soil with impeded drainage over Lowestoft Formation Diamicton	Lewes Nodular Chalk Formation and Seaford Chalk Formation - Chalk
Topographical Survey:	Drawing No: 230901 2D dated 31/01/2024	
Site layouts:	HLM082_018_H_Land Use Components Plan NORTH 6755_20240510_Illustrative Masterplan 231_SK_T_001 (P5) Proposed Site Access Arrangements plan 231_SK_T_002 (P3) Bridge Crossing Over plan	
Checked by:	Ian Monger <i>MSc, BSc (Hons), TechCert (ArborA) MArborA</i>	
Date of issue:	14/05/2024	
Revisions:	Revision C - amended site layout	

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1. INTRODUCTION

- 1.1. Barton Hyett Associates Ltd has been instructed by CSA Environmental to survey trees located at Land North of A507, Buntingford ('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. 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 lies approximately 1.4 km northwest of the town of Buntingford and is made up of agricultural land with field boundaries being defined by a mixture of ditches, hedgerows and fences. The approximate site boundary is shown edged yellow in Figure 1 below.
- 2.2. The survey area measures approximately 64 hectares and is used for arable crop production. The site is relatively flat with the approximate height above mean sea level varying from 116m at the southern tip to 123m at the north.
- 2.3. Throcking Lane runs east-to-west along the northern boundary of the site with the A10 running north-to-south along the eastern boundary. Baldock Road runs east-to-west along the southern boundary with the western boundary backing onto the adjacent fields.



Figure 1: aerial image (Google Maps) of the site with the approximate survey area shown in yellow.

- 2.4. Access to the site is from entrances along Throcking Lane and Baldock Road with internal access points located between the fields. There are two Public Rights of Way (PRoWs) which cross the site from east-to-west.
- 2.5. The surrounding area is agricultural land with occasional farms and outlying dwellings and the town of Stevenage is located approximately 12.5 miles southwest of the site.

3. TREE SURVEY FINDINGS

- 3.1. The survey recorded 83 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**).
- 3.2. Only trees and hedgerows within or immediately adjacent to the site are included in this report. The tree survey was undertaken on a wider survey area and so the identification numbers are not wholly consecutive.

Table 1: arboricultural features by type and 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	24	1	11	12	-
Groups	19	-	13	6	-
Hedgerows	40	-	7	33	-
Total	83	1	31	51	0

4. KEY ARBORICULTURAL FEATURES

- 4.1. No ancient or veteran trees were identified in the survey. There is no woodland recorded as ancient in the Natural England Ancient Woodland Inventory (AWI) affecting the site. However, the AWI is provisional in nature and ecological surveys at the site, including for ground flora indicator species, are ongoing.
- 4.2. The most significant features on the site are the three boundary groups to the southeast corner (G6, G7 and G8) and the small copse to the approximate centre of the site (G16). These groups are moderate quality and in the case of the former three appear to be outgrown hedgerows with established mature trees. Within the copse to the centre of the site, several animal borrows were noted to the south of the plot.

5. PROPOSED DEVELOPMENT

- 5.1. The development proposal is an outline planning application for development of up to 600 dwellings (C3), elderly accommodation (C3), Local Centre (flexible use E, F and Sui Generis), First School, Health Centre, informal and formal open space, associated works and infrastructure including a new access from the A507 and pedestrian bridge over the A10, with all matters reserved save for access.
- 5.2. The proposed site layout is shown on the Land Use Components Plan *HLM082_018_H_Land Use Components Plan NORTH*. Detailed access arrangements are shown on the Proposed Site Access Arrangements plan 231_SK_T_001 (P5) and Bridge Crossing Over plan 231_SK_T_002 (P3).

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 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 & hedgerows to be removed

- 6.2. The likely tree and hedgerow removals are shown on the Tree Retention and Removal Plan (TRR) in **Section 3**.
- 6.3. Two new accesses are proposed as a non-reserved matter. The primary new access is a new roundabout on Baldock Road to the south of the site. This would require, as a minimum, the removal early-mature ash and field maple group G14 (C2) along with an approximate 95m length of maintained field maple, hazel and blackthorn hedgerows H46 and H50 (B2).
- 6.4. It is also likely that the construction of the pedestrian footway and cycleway and the battering usually required for highway improvement work would necessitate the removal of the semi-mature trees and shrubs within G13 (B2) and H17 (C2).
- 6.5. At the northern site boundary, a new access is proposed from Throcking Lane. The only affected vegetation is young whips recently planted within the field boundary and their removal is of no significance. The whips could be lifted and replanted elsewhere on site.
- 6.6. A new pedestrian over bridge is proposed to improve the connection between public footpaths Cottered 041 and Buntingford 035 across the A10 road. There would be no trees or hedgerows affected at the site, but some removal of young off-site ash trees and hawthorn/blackthorn may be required on the eastern side of the highway. The impact of any removal would be negligible.
- 6.7. The Illustrative Masterplan also shows a new pedestrian footbridge over the A10 in the southeast corner, in addition to the existing footbridge. The construction of an additional bridge here would be likely to require some removals of trees from G5 (see image 2 below).

- 6.8. With regard to the reserved matters, a new structural street is proposed that would pass through blackthorn hedgerow H11 (C2). The removal of a section of H11 would have a negligible impact.
- 6.9. The school site would likely require the removal of young and low-quality hedgerow H18 (C2).
- 6.10. Three access routes are proposed as passing through G15 which would require removing small sections of the group. The construction of a pond would require that H18 be removed entirely.

Impacts on retained trees

- 6.11. With regard to the reserved matters layout, the residential development is set well away from the site's trees and hedgerows, with areas of open space and playing fields providing for the retention of tree and hedgerow features within green buffers. Subject to an assessment of detailed finished ground levels and drainage schemes, there would be no other impacts on retained trees and hedgerows. No further pruning of trees would be required.
- 6.12. Attention is drawn to paragraph 136 of the NPPF (see Section 5) which requires streets to be 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.
- 6.13. New structural planting is indicatively shown in the southwest of the site to enhance connectivity. There appears to be ample scope in detailed design to provide tree-lined primary streets at the site, along with new tree planting within the open spaces, at the SuDS features and to enhance the site boundaries.

Conclusion

- 6.14. The proposed development is feasible from an arboricultural perspective, and if carefully implemented according to an approved AMS there would be no negative impact on the retained trees. Overall, a landscape scheme can deliver a significant net gain in tree canopy cover and species diversity at the site.

7. TREE PROTECTION MEASURES

- 7.1. Temporary physical barriers would be installed to protect the RPAs of retained trees during groundworks and construction phases. The barrier locations would be devised once the detailed site layout and other schemes including levels, drainage and construction access/management have been reviewed and adjusted where impacts need to be avoided.
- 7.2. The finalised barrier locations (as well as any temporary ground protection considered necessary) would be provided within an approved Arboricultural Method Statement (AMS), along with a scheme of arboricultural monitoring to ensure that tree protection measures and precautions are adhered to during works.

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 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. 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
 - Review of other schemes that could conflict with tree protection, including levels, drainage and construction access/management
 - 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/hedgerow 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.
 - 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 new tree planting.

9. CONCLUSIONS AND RECOMMENDATIONS

- 9.1. In conclusion, the arboricultural impacts of the detailed access and outline development proposal on trees and hedgerows at the site are low in the context of the scale of development and are acceptable. The landscape scheme can deliver a significant net gain in tree canopy cover and species diversity at the site.
- 9.2. An assessment of the potential impacts of the detailed design will need to be prepared and submitted at the Reserved Matters stage. An AMS and finalised Tree Protection Plan will then need to be produced following approval of the Reserved Matters to ensure the optimum level of physical protection of retained trees.



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Senior Arboriculturist



IMAGE 1: A view looking north along the site boundary with the A10 (to the far right of frame)



IMAGE 2: A view looking east at the PRow footbridge which crosses the A10



IMAGE 3: A view looking north along the edge of the boundary group G7



IMAGE 4: A view looking north-east from the southern boundary of the site; note the off-site oak T10 labelled



IMAGE 5: A view looking north at the copse G16 which is in the approximate centre of the site



IMAGE 6: A view looking south along the recent planted plot G15 - although technically below minimum recordable dia. this group merits consideration



Tree Ref	Species	Height (m)	Lifespan	RPA Radius (m)	RPA (#2)
T1	Ash (Manna)	6	SM	3.1	31
T2	Ash (Common)	9	SM	5.9	109
T3	Redwood	4.5	SM	1.3	5
T4	Ash (Common)	6	SM	2.4	18
T5	Ash (Common)	14	M	10.3	335
T6	Maple (Field)	7	EM	5.9	109
T7	Ash (Common)	14	M	10	203
T8	Ash (Common)	15	M	11.4	426
T9	Ash (Common)	12	M	9.6	290
T10	Oak (English)	15	M	10.8	366
T11	Ash (Common)	17	M	9.6	290
T12	Oak (English)	12	EM	8.5	238
T13	Maple (Field)	12	EM	4.5	65
T14	Elm (English)	15	EM	6	113
T15	Elm (English)	11	SM	3.3	35
T16	Oak (English)	14	M	11	383
T17	Oak (English)	10	SM	5.4	54
T18	Maple (Field)	9	EM	4.8	72
T19	Ash (Common)	10	M	10.2	327
T20	Maple (Field)	5	M	5.4	92
T21	Hawthorn	1.5	M	3.6	41
T22	Ash (Common)	2.5	M	0.9	241
T23	Ash (Common)	9.5	SM	5.9	109
T36	Ash (Common)	14	EM	6	113

Habitat Ref	Species	Avg. Height (m)	Life Stage	RPA Radius (m)	RPA (m ²)
H1	Blackburn	3	Y	1.1	4
H2	Elm; Hawthorn	3	EM	1.3	5
H3	Hawthorn; tulashie; elder	3	EM	1	3
H4	Hawthorn	3	EM	1.3	5
H5	Hawthorn	3	EM	1	3
H6	Hawthorn; blackthorn	3	EM	1.3	5
H7	Hawthorn	3	EM	1	3
H8	Blackthorn; elder	2.5	EM	1	3
H9	Blackthorn	2.5	EM	1	3
H10	Blackthorn; dogrose	2.5	EM	1	3
H11	Blackthorn	2.5	EM	1	3
H12	Field maple	8	EM	2.6	22
H13	Blackthorn; dogrose	2.5	EM	1	3
H14	Hawthorn; blackthorn	2.5	EM	1	3
H15	Hazel	2.5	EM	1	3
H16	Hawthorn; blackthorn; field maple	2	EM	2.2	15
H17	Hazel; blackthorn; field maple	2	SM	1	3
H18	Dogwood; field maple; hawthorn; wild privet; cherry	2	Y	0.6	1
H19	Field maple; blackthorn	2.5	EM	1	3
H20	Field maple; blackthorn	2.5	EM	1	3
H21	Field maple; blackthorn	2.5	EM	1	3
H22	Blackthorn; dogrose	2.5	EM	1	3
H23	Blackthorn; field maple; dogrose	2.5	EM	1	3
H24	Field maple; hawthorn	2.5	EM	1	3
H25	Hawthorn	3	EM	1	3
H26	Field maple; elm; bullace	6	EM	1.8	10
H27	Blackthorn; bullace	2.5	EM	1.3	5
H28	Ash; field maple; blackthorn; elder; dogrose	2.5	M	1.3	5
H29	Ash; field maple; blackthorn; hawthorn; dogrose	2.5	M	1.3	5
H30	Ash; field maple; blackthorn; hawthorn; dogrose	2.5	M	1.3	5
H31	Hawthorn; ash	2.5	M	1.3	5
H32	Blackthorn	2.5	EM	1	3
H33	Blackthorn; hawthorn	2.5	EM	1	3
H34	Blackthorn; hawthorn; field maple	2	M	1.6	8
H35	Hawthorn; elder	2	Y	1.1	4
H36	Hawthorn; elm; dog rose	2	Y	1.1	4
H37	Elm; hazel; blackthorn; ash; dogwood	2	EM	1.5	7
H38	Field maple; hazel; blackthorn; elder	2	EM	1	3
H39	Field maple; hazel; blackthorn	2	EM	1	3
H40	Field maple; hazel; blackthorn	2	EM	1	3
H41	Field maple; hazel; blackthorn	2	EM	1	3
H42	Field maple; hazel; blackthorn	2	EM	1	3
H43	Elm; hazel; blackthorn; ash; dog rose	2	EM	1.5	7

 **Category A Tree - High quality**
(Retention highly desirable)

 **Category A Tree - Hedgerow, Group, Woodland - High quality**
(Retention highly desirable)

 **Category B Tree - Moderate quality**
(Retention desirable)

 **Category B Tree - Hedgerow, Group, Woodland - Moderate quality**
(Retention desirable)

 **Category C Tree - Low quality**
(May be retained but should not constrain development)

 **Category C Tree - 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 Tree - 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/moss/offside tree/out of scope (OOS)**

 **Star/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

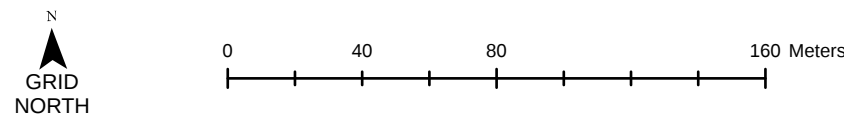
Natural tree/woodland or Veteran tree buffer: As per published standing advice from Natural England and the Forestry Commission

Group Ref	Species	Height Range (m)	LifeStage	RPA Radius (m)	RPA (m2)
G1	Field maple	7	SM	3	28
G2	Hawthorn	5	SM	1.1	4
G3	Hawthorn; ash	5-9	SM	3	28
G4	Field maple; ash; hawthorn; grey willow; dogrose; blackthorn; hawthorn; bullace; dogrose	2-10	SM	1.1	4
G5	Field maple; ash; Turkey oak; birch; English oak; hazel; blackthorn; hawthorn; dogrose	2-14	EM	4.8	72
G6	Ash; English oak; field maple; hazel; hawthorn; elder	2-14	M	6	113
G7	Ash; English oak; field maple; hazel; hawthorn; elder	2-14	M	5.4	92
G8	Field maple; ash; crab apple; elder	12 - 14	M	4.3	59
G9	Field maple; ash; hazelnut; goat willow; elder	4-10	EM	1.8	10
G10	Field maple; goat willow; hawthorn; blackthorn; elder	2-12	EM	3	28
G11	Field maple; ash	9-12	EM	4.8	72
G12	Field maple	8	EM	3.6	41
G13	Ash; English oak; blackthorn; hazel; dogrose	2-11	SM	4.8	72
G14	Field maple; ash	8	EM	4.2	56
G15	Ash; English oak; dogrose; hazel; field maple; hawthorn; holly; dogrose; wild privet	1-2.5	Y	0.6	1
G16	Field maple; ash; hawthorn; elder	3-12	M	4.8	72
G17	English oak; elder	3.5	SM	1.1	4
G18	Elder; hazel; field maple	5	SM	2.4	18
G19	Field maple; ash	7-12	EM	5.4	92

Label	Description	Label	Description	Label	Description
O051	New whips planted at hedge line	O058	Specific clusters of headless or elder saplings	O0518	Thorns and eels small diameter scrub
O052	New whips planted at hedge line	O050	Fold made sapling	O0520	Thorn and eel small diameter scrub
O053	New whips planted at semi mature edge	O0511	New whips planted along the edge of tubes appear to be full of growth or have been blown over	O0521	Small diameter cherry
O054	Degrade cluster on boundary x3	O0512	Falch trees; massive heartshen stens heavily shaded by grass with foliage on ground, gnarled with deadwood, gnarled with deadwood	O0522	Newly planted small diameter shrubs, birch & apple
O056	Young oak growing from hedge line	O0513	Bramble mass	O0523	Small diameter field maple
O057	Off-site trees; curlew species from boundary due to disturbance establishing developing into a thicket, predominantly sycamore and ash with occasional willow	O0514	Bramble mass	O0524	Small diameter field maple
O058	Establishing thicket of young blackberry	O0515	Small diameter hedgerow	O0525	Thorn, elm, oak & hazel small diameter scrub
		O0516	Small diameter cherry	O0526	Small diameter field maple
		O0517	Thorn and eel with small diameter scrub	O0527	New whips planted on hedge line
		O0518	Small diameter cherry	O0528	New whips planted on hedge line



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

Land North of A507, Buntingford

RAWING TITLE
Tree Survey Plan

SCALE	Scale: 1:2,250 @ A1	DRAWING NUMBER	BHA_5798_01
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TB	DH	-	04/03/2024
COORDINATE SYSTEM / DATUM			
British National Grid / Newlyn Datum (AOD)			

CLIENT **CSA Environmental**

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Address: Office 5E, Deer Park Business Centre,
Eckington, Pershore, Worcestershire, WR10 3D



Tree Ref	Species	Height (m)	LifeStage	RPA Radius (m)	RPA (m2)	Remove
T1	Ash (Marna)	6	SM	3.1	31	
T2	Ash (Common)	9	SM	5.9	109	
T3	Bulface	4.5	SM	1.3	5	
T4	Ash (Common)	6	SM	2.4	19	
T5	Ash (Common)	14	M	10.3	339	
T6	Maple (Field)	7	EM	5.9	109	
T7	Ash (Common)	14	M	8	203	
T8	Ash (Common)	15	M	11.4	408	
T9	Ash (Common)	12	M	9.6	290	
T10	Oak (English)	15	M	10.8	365	
T11	Ash (Common)	17	M	9.6	290	
T12	Oak (English)	12	EM	8.5	228	
T13	Maple (Field)	12	EM	4.5	65	
T14	Elm (English)	15	EM	6	113	
T15	Elm (English)	11	SM	3.3	35	
T16	Oak (English)	14	M	11	383	
T17	Oak (English)	10	EM	5.4	92	
T18	Maple (Field)	9	EM	4.8	72	
T19	Ash (Common)	16	M	10.2	327	
T20	Maple (Field)	5	M	5.4	82	
T21	Hawthorn	1.5	M	3.6	41	
T22	Ash (Common)	2.5	M	8.8	241	
T23	Ash (Common)	9.5	SM	5.9	109	
T35	Ash (Common)	13	EM	11.2	395	
T36	Ash (Common)	14	EM	6	113	
T37	Ash (Common)	16	M	9	254	

Hedge Ref	Species	Avg. Height (m)	LifeStage	RPA Radius (m)	RPA (m2)	Remove
H1	Blackthorn	3	Y	1.1	4	
H2	Elm; hawthorn	3	SM	1.3	5	
H3	Hawthorn; bulface; elder	3	EM	1	3	
H4	Hawthorn	3	EM	1.3	5	
H5	Hawthorn	3	EM	1	3	
H6	Hawthorn; blackthorn	3	EM	1.3	5	
H7	Hawthorn	3	EM	1	3	
H8	Blackthorn; elder	2.5	EM	1	3	
H9	Blackthorn	2.5	EM	1	3	
H10	Blackthorn; dogrose	2.5	EM	1	3	
H11	Blackthorn	2.5	EM	1	3	
H12	Field maple	8	EM	2.6	22	
H13	Blackthorn; dogrose	2.5	EM	1	3	
H14	Hawthorn; blackthorn	2.5	EM	1	3	
H15	Hazel	2.5	EM	1	3	
H16	Hawthorn; blackthorn; field maple	5	EM	2.2	15	
H17	Hazel; blackthorn; field maple	2	SM	1	3	Yes
H18	Dogwood; field maple; hawthorn; wild privet	2	Y	0.6	1	Yes
H19	Field maple; blackthorn	2.5	EM	1	3	
H20	Field maple; blackthorn	2.5	EM	1	3	
H21	Field maple; blackthorn	2.5	EM	1	3	
H22	Blackthorn; dogrose	2.5	EM	1	3	
H23	Blackthorn; field maple; dogrose	2.5	EM	1	3	
H24	Field maple; hawthorn	2.5	EM	1	3	
H25	Hawthorn	3	EM	1	3	
H26	Field maple; elm; bulface	6	EM	1.8	10	
H27	Blackthorn; bulface	2.5	EM	1.3	5	
H28	Ash; field maple; blackthorn; elder; dogrose	2.5	M	1.3	5	
H29	Ash; field maple; blackthorn; hawthorn; dogrose	2.5	M	1.3	5	
H30	Ash; field maple; blackthorn; hawthorn; dogrose	2.5	M	1.3	5	
H31	Hawthorn; ash	2.5	M	1	3	
H32	Blackthorn	2.5	EM	1	3	
H33	Blackthorn; hawthorn	2.5	EM	1	3	
H34	Blackthorn; hawthorn; field maple	2.5	M	1.6	8	
H35	Hawthorn; elder	2	Y	1.1	4	
H36	Hawthorn; ash; dog rose	2	Y	1.1	4	
H37	Elm; hazel; blackthorn; ash dogwood	2	EM	1.5	7	
H38	Elm; oak	2	Y	0.8	2	
H39	Field maple; hazel; blackthorn; elder	2	EM	1	3	
H40	Elm; field maple; goat willow; hawthorn	5	EM	1.8	10	
H45	Field maple; hazel; blackthorn; elder	2	EM	1	3	
H47	Field maple; hazel; blackthorn	1.5	EM	1	3	
H48	Blackthorn	2.5	SM	0.8	2	
H49	Field maple; hazel; dogwood; blackthorn	2	EM	1	3	Yes
H50	Field maple; hazel; blackthorn	2	EM	1	3	
H51	Ash; field maple; blackthorn	8	SM	2.2	15	Yes
H62	Hawthorn; blackthorn	3	Y	0.8	2	
H63	Elm; hazel; blackthorn; ash dog rose	2	EM	1.5	7	

Group Ref	Species	Height Range	LifeStage	RPA Radius (m)	RPA (m2)	Remove
G1	Field maple	7	SM	3	28	
G2	Hawthorn	9	SM	1.1	4	
G3	Hawthorn; ash	5-9	SM	3	28	
G4	Field maple; ash; sycamore; goat willow;	2-10	SM	1.1	4	
G5	Field maple; ash; Turkey oak; birch; English oak;	2-14	EM	4.8	72	
G6	Ash; field maple; bulface; hawthorn; dogrose;	2-14	M	6	113	
G7	Ash; English oak; field maple; hazel; hawthorn;	2-14	M	5.4	92	
G8	Field maple; ash; crab apple; elder	12-14	M	4.3	59	
G9	Field maple; hazel; hawthorn; goat willow; elder	4-10	EM	3.8	10	
G10	Field maple; goat willow; hawthorn; blackthorn;	2-12	EM	3	28	
G11	Field maple; ash	6-12	EM	4.8	72	
G12	Field maple	8	EM	3.6	41	
G13	Ash; English oak; blackthorn; hazel; dogrose	2-11	SM	4.8	72	Yes
G14	Field maple; ash	8	EM	4.2	55	Yes
G15	Alder; cherry; English oak; dogwood; hazel; field	1-2.5	Y	0.6	1	
G16	Field maple; ash; hawthorn; elder	3-12	M	4.8	72	
G17	English elm; elder	1.5	SM	1.1	4	
G18	Elm; hazel; field maple	5	SM	2.4	18	
G19	Field maple; ash	7-12	EM	5.4	92	
G20	Field maple	2	EM	4.8	72	
G21	Field maple	2	EM	4.8	72	
G25	Ash; English oak; cherry; field maple	2-12	SM	4.2	55	
G26	Cherry; field maple	5-13	SM	5.4	92	
G27	Ash; English oak; cherry; field maple; hawthorn;	2-12	SM	4.2	55	

Label	Description
OOS1	New whips planted on hedge line
OOS2	New whips planted on hedge line
OOS3	Multi stemmed semi mature elder
OOS4	Dogrose clusters on boundary x3
OOS5	Dogrose cluster on boundary
OOS6	Young oak on boundary, growing through fence
OOS7	Off-site trees; cursory inspection from boundary due to limited access, establishing broadleaf developing into a thicket, predominantly thorn & elder with occasional ash visible
OOS8	Establishing thicket of young blackthorn
OOS9	Sporadic clusters of blackthorn & elder saplings
OOS10	Field maple sapling

Label	Description
OOS11	New whips planted on hedge line; majority of whips appear to be full of grass or have been blown over
OOS12	Failed tree; mature hawthorn stem heavily weighted in by has failed to NW with debris on ground, approx dia. 8400m
OOS13	Bramble mass
OOS14	Bramble mass
OOS15	Small diameter hedgerow
OOS16	Small diameter cherry
OOS17	Thorn and elm small diameter scrub
OOS18	Small diameter cherry
OOS19	Thorn and elm small diameter scrub

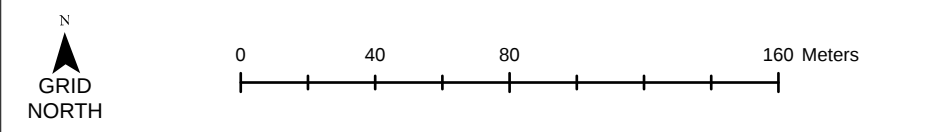
- Category A Tree - High quality
(Retention highly desirable)
- Category A - Hedgerow, Group, Woodland - High quality
(Retention highly desirable)
- Category B Tree - Moderate quality
(Retention desirable)
- Category B - Hedgerow, Group, Woodland - Moderate quality
(Retention desirable)
- Category C 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
- Tree / Hedgerow / Group to be removed
- 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

Label	Description
OOS1	New whips planted on hedge line
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OOS9	Sporadic clusters of blackthorn & elder saplings
OOS10	Field maple sapling

Label	Description
OOS11	New whips planted on hedge line; majority of whips appear to be full of grass or have been blown over
OOS12	Failed tree; mature hawthorn stem heavily weighted in by has failed to NW with debris on ground, approx dia. 8400m
OOS13	Bramble mass
OOS14	Bramble mass
OOS15	Small diameter hedgerow
OOS16	Small diameter cherry
OOS17	Thorn and elm small diameter scrub
OOS18	Small diameter cherry
OOS19	Thorn and elm small diameter scrub



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

Land North of A507, Buntingford

DRAWING TITLE

Tree Retention and Removal Plan

SCALE

Scale: 1:2,250 @ A1

DRAWING NUMBER

BHA_5798_02

DRAWN BY

TB

APPROVED BY

DH

REVISION

A

SHEET

14/05/2024

DATE

14/05/2024

COORDINATE SYSTEM / DATUM

British National Grid / Newlyn Datum (AOD)

CLIENT

CSA Environmental

CREDITS

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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) N-E-S-W	Avg. low crown height (m)	1st branch ht (m)	1st branch dir.	Life Stage	General Observations (*) = not on topographic survey plan	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m²
T1	Ash (Manna)	On	6.0	1	None	260	4.0-4.0-4.0-4.0	3.0	3.0	N	SM	Within OOS larger linear group that is establishing	Good	Good	20+	B2	3.1	31
T2	Ash (Common)	Off	9.0	6	None	490	4.0-4.0-4.0-4.0	2.0	1.5	S	SM	Roadside tree crown dieback.	Fair	Fair	10+	C1	5.9	109
T3	Bullace	On	4.5	2	Yes	110	1.5-1.5-1.5-1.5	0.0	0.0	None	SM	Established on embankment adjacent to road	Good	Fair	20+	C1	1.3	5
T4	Ash (Common)	On	6.0	7	None	200	2.0-1.0-1.0-1.0	0.5	0.0	None	SM	Multi-stemmed tree adjacent to access	Good	Fair	20+	C1	2.4	18
T5	Ash (Common)	On	14.0	6	None	860	6.5-6.0-6.0-5.0	2.0	0.0	None	M	Multi-stemmed tree; mature bole with early mature re-gen forming a new crown; appears to be remnant of old hedge; cavitation around bole but no obvious decay	Good	Fair	20+	B1	10.3	335
T6	Maple (Field)	On	7.0	6	Yes	490	4.5-3.0-3.0-3.0	1.5	0.0	None	EM	Multi stemmed tree; previously maintained as part of hedge - management in this manner has now lapsed	Good	Fair	20+	B1	5.9	109
T7	Ash (Common)	On	14.0	1	None	670	7.0-7.0-6.0-7.0	1.0	1.5	NE	M	Significant limb failure in upper crown with tear-out wounds & associated decay; moderate occlusion growth with very poor vigour throughout crown. Recommend tree be reduced to habitat monolith @6m / above main union (*)	Fair	Fair	20+	C3	8.0	203
T8	Ash (Common)	On	16.0	1	Yes	950	7.0-7.0-6.0-6.0	4.0	3.5	W	M	Moderate sized deadwood in upper crown with visible woodpecker activity; main stem & scaffold limbs swathed in ivy; hung-up deadwood to mid crown which appears stable (*)	Good	Fair	20+	B1	11.4	408
T9	Ash (Common)	On	12.0	1	Yes	800	1.0-2.0-3.0-1.0	4.5	7.5	NE	M	Significant basal cavity; historic storm damage - stem appears to be sheared-off @6m leaving a single limb; heavily swathed in ivy. Recommend stem be maintained as habitat monolith; ivy should be severed & stripped to allow future inspections (*)	Fair	Fair	20+	C3	9.6	290

TREE SURVEY SCHEDULE							PROJECT NO: 5798											
LAND NORTH OF A507, BUNTINGFORD							SURVEYOR: DAVID HOLMES											
							CLIENT: CSA ENVIRONMENTAL											
							SURVEY DATE: 23/01/2024											
Ref	Species	On/off site	Top Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. low crown height (m)	1st branch ht (m)	1st branch dir.	Life Stage	General Observations (* = not on topographic survey plan)	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²
T10	Oak (English)	Off	15.0	1	Yes	900	7.0-7.0-8.0-7.0	3.5	3.0	S	M	Off-site mature oak; main stem splits @3m into 2 stems (sub-dominant stem to west forms a sub-crown; limited cohesion with main crown); on-site swale to west of root-plate; good vigour throughout crown with only minor deadwood noted (*)	Good	Fair	40+	A1	10.8	366
T11	Ash (Common)	On	17.0	1	None	800	8.0-7.5-6.0-7.0	3.0	3.0	N	M	Significant scaffold limb failure to south with large tear-out wound & associated decay; moderate occlusion growth with shaggy bracket present; average vigour throughout crown. Recommend tree be reduced to habitat monolith @5m / above main union (*)	Fair	Fair	10+	C3	9.6	290
T12	Oak (English)	On	12.0	2	Yes	710	5.0-6.0-6.0-7.0	3.5	0.0	None	EM	Twin stemmed; main stem splits @1m into 2 stems; sub-dominant stem to NE forms a sub-crown - limited cohesion with main crown with moderate sized deadwood & bark damage; ditch to S of root-plate	Good	Fair	20+	B1	8.5	228
T13	Maple (Field)	On	12.0	1	Yes	380	4.0-5.0-4.0-4.0	3.0	3.0	N	EM	Typical for age & species; ditch to N of root-plate (*)	Good	Fair	20+	B1	4.5	65
T14	Elm (English)	On	15.0	1	Yes	500	4.0-4.0-4.0-3.5	3.0	3.0	SW	EM	Good vigour throughout crown with only minor deadwood noted; ditch to N of root-plate (*)	Good	Fair	20+	B1	6.0	113
T15	Elm (English)	On	11.0	1	Yes	280	2.0-3.0-3.0-2.0	3.0	1.0	S	SM	Good vigour throughout crown; ditch to N of root-plate (*)	Good	Fair	20+	B1	3.3	35
T16	Oak (English)	On	14.0	5	Yes	920	6.0-6.0-7.0-6.0	3.5	0.0	None	M	Multi-stemmed tree which appears to be remnant of hedge; lower stems swathed in ivy; mature bole with EM re-gen; visible cavitation to lower stem without obvious decay fungus present; swale to W of root-plate	Good	Fair	20+	B1	11.0	383
T17	Oak (English)	On	10.0	1	Yes	450	1.0-3.0-3.0-4.0	4.0	1.5	S	EM	Loss of vigour throughout crown with moderate sized deadwood; Lammas growth throughout crown indicates an improvement; main stem swathed in ivy; visible small cavity to E of root-plate; swale to W of root-plate (*)	Fair	Fair	20+	C1	5.4	92
T18	Maple (Field)	On	9.0	2	Yes	400	3.0-5.0-4.0-3.0	3.0	0.0	None	EM	Typical for age & species; swale to W of root-plate (*)	Good	Fair	20+	C1	4.8	72

Ref	Species	On/off site	Top Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. low crown height (m)	1st branch ht (m)	1st branch dir.	Life Stage	General Observations (*) = not on topographic survey plan	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²
T19	Ash (Common)	On	16.0	1	Yes	850	5.0-7.0-5.0-5.0	4.0	1.0	N	M	Main stem heavily swathed in ivy; 1st sig limb to N topped @4.5m; non-progressive lean to E; good vigour throughout crown; swale to W of root-plate (*)	Good	Fair	20+	B1	10.2	327
T20	Maple (Field)	On	5.0	1	Yes	450	1.0-1.0-1.0-1.0	1.0	0.0	None	M	Topped @4.5m; main stem heavily swathed in ivy; re-flushing crown; swale to W of root-plate; good potential for habitat tree (*)	Fair	Fair	10+	C3	5.4	92
T21	Hawthorn	On	1.5	1	Yes	300	1.0-1.0-1.0-1.0	0.0	0.0	None	M	Topped above ground level; mature stem with new crown formed by re-gen (*)	Good	Fair	20+	C2	3.6	41
T22	Ash (Common)	On	2.5	6	Yes	730	1.5-1.5-1.5-1.5	0.0	0.0	None	M	Topped @1m; mature stem with new crown formed by re-gen (*)	Good	Fair	20+	C2	8.8	241
T23	Ash (Common)	On	9.5	5	Yes	490	5.0-4.0-5.0-4.0	3.0	2.0	S	SM	Hedgerow tree. Ivy clad stems. Flaield canopy to east.	Good	Good	20+	B1	5.9	109
T36	Ash (Common)	On	14.0	1	Yes	500	5.0-4.0-5.0-5.0	3.5	3.0	W	EM	Bark damage to N of root-collar; main stem splits into 2x scaffold limbs @2m which form a cohesive crown; small deadwood throughout N of crown	Good	Fair	20+	C2	6.0	113

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	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G1	Field maple	On	7	2	None	250	2.0	1.0	SM	Previously cut into hedge at 2.5 with large regrowth.	Good	Good	40+	C2	3.0
G2	Hawthorn	On	5	2	Yes	90	2.5	0.0	SM	Off-site on highways verge	Good	Fair	20+	B2	1.1
G3	Hawthorn; ash	On	5 - 9	4	Yes	250	3.0	0.0	SM	Off-site on highways verge; 3x thorn & 1x ash	Good	Fair	20+	B2	3.0
G4	Field maple; ash; sycamore; goat willow; dogwood; blackthorn; hawthorn; bullace; dogrose	Off	2 - 10	200	Yes	90	2.5	0.0	SM	Off-site on highways verge; swale runs through plot (parallel with road) in which saplings are beginning to establish; stems adjacent to boundary are growing through fence which has been maintained by flail; brambles colonising large sections	Good	Fair	20+	B2	1.1
G5	Field maple; ash; Turkey oak; birch; English oak; hazel; blackthorn; hawthorn; dogrose	Off	2 - 14	150	Yes	400	4.5	0.0	EM	Off-site on highways verge (downslope); swale runs through plot (parallel with road) in which saplings are beginning to establish; stems adjacent to boundary are growing through fence which has been maintained by flail; brambles & dogrose colonising the boundary	Good	Fair	20+	B2	4.8
G6	Ash; field maple; bullace; hawthorn; dogrose; hazel; elder	Off	2 - 14	100	None	500	5.0	0.0	M	Off-site boundary trees which appear to be outgrown hedge (multi stemmed ash & maple); swale runs through plot (parallel with boundary) in which young trees have established; lower sides have been maintained by flail	Good	Fair	20+	B2	6.0
G7	Ash; English oak; field maple; hazel; hawthorn; elder	Off	2 - 14	100	None	450	5.0	0.0	M	Off-site boundary trees which appear to be outgrown hedge (multi stemmed ash; oak & maple); swale runs through plot (parallel with boundary) in which young trees have established; lower sides have been maintained by flail	Good	Fair	20+	B2	5.4
G8	Field maple; ash; crab apple; elder	On	12 - 14	4	None	360	4.0	0.0	M	Boundary trees which appear to be outgrown hedge - 1x ash; 1x apple & 2x maple (multi stemmed ash & maple); swale runs through plot (parallel with boundary) in which young elder have established; lower sides have been maintained by flail	Good	Fair	20+	B2	4.3
G9	Field maple; hazel; hawthorn; goat willow; elder	On	4 - 10	20	Yes	150	2.0	0.0	EM	Outgrown hedge; pond to west of plot; lower sides have been maintained by flail	Good	Fair	20+	B2	1.8
G10	Field maple; goat willow; hawthorn; blackthorn; elder	On	2 - 12	15	Yes	250	3.0	0.0	EM	Predominantly maple & willow; thorn & elder established as understory	Fair	Fair	20+	C2	3.0
G11	Field maple; ash	On	6 - 12	2	Yes	400	4.5	0.0	EM	Boundary trees which appear to be remnants of outgrown hedge; swale to west of root-plate; lower sides have been maintained by flail	Good	Fair	20+	B2	4.8

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	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G12	Field maple	On	8	2	Yes	300	3.0	0.0	EM	Boundary trees which appear to be remnants of outgrown hedge; swale to west of root-plate; lower sides have been maintained by flail	Good	Fair	20+	B2	3.6
G13	Ash; English oak; blackthorn; hazel; dogrose	Off	2 - 11	20	None	400	4.0	0.0	SM	Off-site boundary trees within highways verge; lower sides have been maintained by flail	Good	Fair	20+	B2	4.8
G14	Field maple; ash	On	8	2	Yes	350	2.5	0.0	EM	Multi-stemmed trees which form a cohesive crown; vigour throughout crown of ash is poor with moderate sized deadwood; lower sides have been maintained by flail. Recommend ash be felled & maple be reduced to hedge height	Fair	Fair	10+	C2	4.2
G15	Alder; cherry; English oak; dogwood; hazel; field maple; hawthorn; holly; dogrose; wild privet	On	1 - 2.5	350	None	50	0.25	0.0	Y	Undersized however stems occur in significant numbers; strip plantation fenced to prevent rabbits; etc; established as windbreak	Good	Fair	20+	C2	0.6
G16	Field maple; ash; hawthorn; elder	On	3 - 12	25	Yes	400	4.0	1.0	M	Copse on field boundaries; extensive animal burrowing to south of plot; swale to south & west of plot; north of plot defined by level change with field being approx 350mm lower	Fair	Fair	20+	B2	4.8
G17	English elm; elder	On	3.5	2	Yes	90	1.25	0.0	SM	Within fenced area at foot of swale; close grown trees forming a cohesive crown	Fair	Fair	20+	C2	1.1
G18	Elm; hazel; field maple	On	5	8	None	200	2.0	0.5	SM	Overgrown hedge along drainage ditch.	Good	Good	40+	B2	2.4
G19	Field maple; ash	On	7 - 12	2	Yes	450	4.0	1.0	EM	Twin-stemmed ash & maple; maple suppressed by ash & shows visible bark loss with associated decay to S of stem; ash shows ADB symptoms; swale to W. Recommend all stems are felled in mid to long-term	Fair	Fair	20+	C2	5.4

HEDGEROWS

Ref	Species	On/off site	Avg. Height (m)	Avg. width (m)	Avg. 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	Blackthorn	On	3.0	1.5	90	0.0	Y	Semi maintained hedgerow along ditch.	Good	Good	40+	C2	1.1
H2	Elm; hawthorn	On	3.0	1.5	100	0.0	SM	Maintained hedgerow offsite.	Good	Good	40+	B2	1.3
H3	Hawthorn; bullace; elder	On	3.0	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge	Good	Fair	20+	C2	1.0
H4	Hawthorn	On	3.0	1.5	100	0.0	EM	Maintained by flail; orphan section of hedge	Good	Fair	20+	C2	1.3
H5	Hawthorn	On	3.0	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge	Good	Fair	20+	C2	1.0
H6	Hawthorn; blackthorn	On	3.0	1.5	110	0.0	EM	Maintained by flail; orphan section of hedge	Good	Fair	20+	C2	1.3
H7	Hawthorn	On	3.0	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge	Good	Fair	20+	C2	1.0
H8	Blackthorn; elder	On	2.5	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge; swale to N	Good	Fair	20+	C2	1.0
H9	Blackthorn	On	2.5	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge; becoming choked by brambles; swale to N	Good	Fair	10+	C2	1.0
H10	Blackthorn; dogrose	On	2.5	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge; becoming choked by brambles; swale to N	Good	Fair	20+	C2	1.0
H11	Blackthorn	On	2.5	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge; swale to N	Good	Fair	20+	C2	1.0
H12	Field maple	On	8.0	2.5	220	0.0	EM	Lower sides maintained by flail; orphan section of hedge; swale to N	Good	Fair	20+	C2	2.6
H13	Blackthorn; dogrose	On	2.5	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge; brambles beginning to colonise small areas to SW; swale to N	Good	Fair	20+	C2	1.0
H14	Hawthorn; blackthorn	On	2.5	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge; brambles beginning to colonise small sporadic areas; swale to N	Good	Fair	20+	C2	1.0
H15	Hazel	On	2.5	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge; swale to N	Good	Fair	20+	C2	1.0
H16	Hawthorn; blackthorn; field maple	On	5.0	3.5	180	0.0	EM	Boundary hedge; swale to west of root-plate; partially maintained by flail	Good	Fair	20+	B2	2.2
H17	Hazel; blackthorn; field maple	On	2.0	3	80	0.0	SM	Majority of stems maintained by flailing to 2m in height beneath overhead power lines	Good	Fair	20+	C2	1.0

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)
H18	Dogwood; field maple; hawthorn; wild privet; cherry	On	2.0	1.25	40	0.0	Y	Undersized however stems occur in significant numbers; established as hedge; fenced to prevent rabbits; etc; 3x cherry planted & staked as hedgerow trees however only stems to south remains (other 2 stems broken off above stake height); patchy to N of plot	Good	Fair	20+	C2	0.6
H19	Field maple; blackthorn	On	2.5	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge	Good	Fair	20+	C2	1.0
H20	Field maple; blackthorn	On	2.5	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge; ditch to north	Good	Fair	20+	C2	1.0
H21	Field maple; blackthorn	On	2.5	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge; ditch to north	Good	Fair	20+	C2	1.0
H22	Blackthorn; dogrose	On	2.5	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge; ditch to north	Good	Fair	20+	C2	1.0
H23	Blackthorn; field maple; dogrose	On	2.5	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge; ditch to north	Good	Fair	20+	C2	1.0
H24	Field maple; hawthorn	On	2.5	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge with gaps <1.5m; ditch to north	Good	Fair	20+	C2	1.0
H25	Hawthorn	On	3.0	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge; ditch to north	Good	Fair	10+	C2	1.0
H26	Field maple; elm; bullace	On	6.0	1.5	150	0.0	EM	Maintained by flail; orphan section of hedge; ditch to north	Good	Fair	20+	C2	1.8
H27	Blackthorn; bullace	On	2.5	1.5	100	0.0	EM	Maintained by flail; orphan section of hedge; ditch to north	Good	Fair	20+	C2	1.3
H28	Ash; field maple; blackthorn; elder; dogrose	On	2.5	3	100	0.0	M	Maintained by flail; mature ash & maple coppice stools recently cut @1m interspersed with thickets of thorn; sporadic gaps <1m; swale to W	Good	Fair	20+	C2	1.3
H29	Ash; field maple; blackthorn; hawthorn; dogrose	On	2.5	3	100	0.0	M	Maintained by flail; mature ash & maple coppice stools recently cut @1m interspersed with thickets of thorn; sporadic gaps <1m; swale to W	Good	Fair	20+	C2	1.3
H30	Ash; field maple; blackthorn; hawthorn; dogrose	On	2.5	3	100	0.0	M	Maintained by flail; mature ash & maple coppice stools recently cut @1m interspersed with thickets of thorn; sporadic gaps <1m; swale to W	Good	Fair	20+	C2	1.3
H31	Hawthorn; ash	On	2.5	3	100	0.0	M	Maintained by flail; predominantly thorn; mature stems topped @2m; sporadic gaps <1.5m; swale to W	Good	Fair	20+	C2	1.3
H32	Blackthorn	On	2.5	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge; swale to W	Good	Fair	20+	C2	1.0
H33	Blackthorn; hawthorn	On	2.5	1.5	80	0.0	EM	Maintained by flail; orphan section of hedge; sporadic gaps <1.5m; swale to W	Good	Fair	20+	C2	1.0



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)
H34	Blackthorn; hawthorn; field maple	On	2.5	1.5	130	0.0	M	Maintained by flail; orphan section of hedge; swale to W	Good	Fair	20+	C2	1.6
H35	Hawthorn; elder	On	2.0	1.5	90	0.0	Y	Maintained hedgerow	Good	Good	40+	B2	1.1
H36	Hawthorn; elm; dog rose	On	2.0	1.5	90	0.0	Y	Maintained hedgerow numerous dead elm sections.	Fair	Fair	20+	C2	1.1
H37	Elm; hazel; blackthorn; ash dogwood	On	2.0	1.5	120	0.0	EM	Maintained by flail	Good	Fair	20+	B2	1.5
H46	Field maple; hazel; blackthorn; elder	On	2.0	1.5	80	0.0	EM	Maintained by flail	Good	Fair	20+	B2	1.0
H50	Field maple; hazel; blackthorn	On	2.0	1.5	80	0.0	EM	Maintained by flail	Good	Fair	20+	B2	1.0
H63	Elm; hazel; blackthorn; ash dog rose	On	2.0	1.5	120	0.0	EM	Maintained by flail	Good	Fair	20+	B2	1.5

- The tree survey was carried out with reference to the methodology set out in BS 5837:2012 '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.
- 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.
- OOS: The recorded Out Of Scope trees and features refer to either a dead-standing or failed tree; a stump or minor shrubs; where trees are inaccessible or located off-site and unlikely to be affected by the development or, it is found that the trees are undersized according to BS 5837:2012, which stipulates a minimum recordable diameter of 75mm.

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 root protection area (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. Note: 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, expressed both as the existing height above ground level of the 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, e.g., due to inaccessibility, 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 a 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 on the local landscape and environment. Semi-mature are still capable of being transplanted without preparation, up to 300mm 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 on 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, its 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 epicormic shoot growth).
- Poor: Significant stress or disease noted; larger areas of dieback than above.
- Dead: (or Moribund).

STRUCTURAL CONDITION:

Features affecting the structural stability of the tree include decay, significant deadwood, 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 feature(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.

The term '*notable*' carries no weight within the National Planning Policy Framework (NPPF), but is a term that recognises a mature tree which may stand out in the local environment because it is large in comparison with other trees around it.

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 BS 5837:2012; summary definitions as follows (see BS 5837 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 the number 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 150mm diameter.

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

- C1: Unremarkable trees of very limited merit or 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 benefits.

CATEGORY U: VERY LOW QUALITY

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 the 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 186) 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 2023 of relevance to this report are:

Paragraph 136: *'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 180: *'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