

**ARBORICULTURAL
IMPACT
ASSESSMENT**

Nuneham Solar Farm

April 2024



Barton Hyett Associates
Arboricultural Consultants

Summary table		
Site Name:	Nuneham Solar Farm	
Project reference:	4848	
Site Address:	A4074, Nuneham Courtenay, Oxfordshire	
Nearest Postcode:	OX44 9EF	
Central Grid reference:	SU 54861 99415	
Local Planning Authority:	South Oxfordshire District Council	
Relevant planning policies:	South Oxfordshire District Council Core Strategy: CSEN1 - Landscape; CSQ3 - Design; CSG1 - Green infrastructure. Saved Policies South Oxfordshire Local Plan 2011: C4 - The landscape setting of settlements; C6 - Biodiversity; C9 - Landscape features. South Oxfordshire Design Guide.	
Statutory Controls:	Tree Preservation Order	Conservation Area
	None	No
Ancient trees/ woodlands?	High quality oak T28 identified as veteran (A3)	
Soil Type: (Source: BGS online soils map © NERC 2024)	Sand to sandy loam	Portland Group - Limestone and calcareous sandstone
Proposed site plan:	Drawing No: 04531-RES-LAY-DR-PT-004 (Rev. 5), dated: 11/03/2024	
Report author:	David Holmes <i>FdSc, MArborA</i>	
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Revision:	Rev. 02	
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1. INTRODUCTION

- 1.1. Barton Hyett Associates Ltd has been instructed by Pegasus Group on behalf of RES to survey trees located at Nuneham Courtenay ('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 a planning application for a solar farm 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 4.5 miles south-east of the city of Oxford and is made up of agricultural land with field boundaries being defined by a mixture of hedgerows and fences.
- 2.2. The survey area measures approximately 66.8 hectares and is used for arable crop production. The site slopes gently uphill to the south with the approximate height above mean sea level varying between 57m and 83m.
- 2.3. The River Thames runs from north-to-west to the far west of the site. The A4074 runs from north-to-south at the east of the site.
- 2.4. The surrounding area is agricultural land with occasional farms and outlying dwellings and the village of Nuneham Courtenay is located just under half a mile to the south-east of the site.
- 2.5. Access to the site is possible from the A4074 via a single-track road with an unmetalled surface. There is a public footpath crossing the north-east corner of the site that runs from the A4074.

3. TREE SURVEY FINDINGS

- 3.1. The survey recorded 115 arboricultural features. These are summarised in terms of quality in accordance with the recommendations of BS 5837:2012 in Table 1 below and shown in more detail on the Tree Survey and Constraints Plan (**Section 2**) and within the Tree Survey Schedule (**Section 4**).

4. KEY ARBORICULTURAL FEATURES

- 4.1. A veteran oak has been recorded as T28. Although estimated, the trunk diameter of 2000mm converts to a girth dimension of 6.2m. Oak appear in Figure 1.3 in Lonsdale (2013)¹, with the recorded girth placing the tree within the veteran category. The tree has also been assessed as being a veteran using the characteristic features found on veteran trees (in para. 2.1.1 in Read, 2000 ²). The tree exhibits a major trunk cavity,

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	61	6	39	16	-
Groups	21	-	20	1	-
Woodlands	1	-	1	-	-
Hedgerows	32	-	26	6	-
Total	115	6	86	23	-

- 4.2. The Forestry Commission and Natural England standing advice 'Ancient woodland, ancient trees and veteran trees: protecting them from development' ('the Standing Advice') is a material planning consideration which is taken into account when making decisions on planning applications. In reaching a planning decision, the LPA should assess the potential impacts, and avoid, mitigate or compensate for identified impacts. A key method of mitigation is the use of a 'buffer zone'. So, in accordance with the Standing Advice, additional veteran/ancient tree buffers with a radius of 15 times the diameter of the tree stem diameters have been shown in the Tree Survey and Constraints Plan in **Section 2**.
- 4.3. The 5x high-quality oak T1, T3, T7, T52 and T27 have been recorded as category A1 since the trees are good examples of the species with the minimum of significant defects. To the north of the root collar around T7, a decay fungus fruiting body (Hen of the Woods) was noted.
- 4.4. The low-quality oak T16 has been recorded as category C3. This tree is in irreversible decline with only a limited amount of foliage present and Hen of the Woods fruiting bodies present within the root plate. There are several previous limb failures which are evidenced by the debris on the ground. It is recommended that the scaffold limbs be reduced back to the main stem, which should be retained as a habitat monolith with an approximate height of 6m. Standing deadwood is recognised as a rare type of habitat and is an important factor in helping to maintain/increase biodiversity.
- 4.5. To the eastern boundary of the site, a new hedgerow has been planted offering a good mix of common UK native species, e.g. hawthorn, blackthorn, common dogwood, etc. Additional new hedgerow planting has also been carried out elsewhere across the site with existing, semi-derelict hedgerows being supplemented with new planting. This new planting has been recorded as Out of Scope (OOS) feature.

¹ Lonsdale, D. (ed.) 2013. Ancient and other veteran trees: further guidance on management. London: The Tree Council

² Read, H. 2000. Veteran Trees: A guide to good management. London: English Nature.

5. PROPOSED DEVELOPMENT

- 5.1. The development proposal is for the construction and operation of a solar farm with all associated works, equipment, necessary infrastructure and biodiversity net gains. The proposed site layout is shown on the proposed site plan, drawing No: 04531-RES-LAY-DR-PT-004 (Rev. 5), dated: 11/03/2024 (as amended and submitted).

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 BS 5837:2012 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 to be removed

- 6.2. None of the recorded trees are proposed to be removed. The retained trees are shown on the Tree Retention and Removal Plan in **Section 3**.

Impacts on retained trees

- 6.3. A proposed new internal access track will cross the Root Protection Area (RPA) of T29, a moderate-quality ash showing good vitality and fair structural condition. An increase in site traffic around the RPA of this tree is likely to cause further soil compaction and could bring about a loss of vigour. To ensure the health and longevity of this tree and the long-term use of this track for the lifetime of the scheme, it should be constructed using the no-dig principle that uses a Cellular Confinement System (CCS) back-filled with an inert aggregate. The track will also require that the moderate quality hedge H10 be cut back for clearance which is a small amount of vegetation to be pruned and will not require the removal of any stems.
- 6.4. The layout has the potential to impact four, moderate-quality hedgerows where the proposed perimeter security fencing will be installed. The hedgerows that would be affected are H7, H13, H14 and H31. To the north of H7 and H13 and to the east of H31, cutting back the hedgerow would be appropriate with the level of impact amounting to reducing the size of the hedgerow to provide better clearance. This would not require any stems to be removed from the hedgerow. This level of work would be no more impactful than annual maintenance carried out to the hedgerows for agricultural purposes. Where the fencing would pass through the south of H7 and the north of H14, locally adjusting the fencing layout to avoid stems and exploit existing gaps will minimise the amount of pruning required. If necessary, coppicing the adjacent hedgerow stems would allow for clearance to instal the panels and allow the hedge to regrow to the new fence.

- 6.5. Elsewhere around the site, a spacious buffer between the site boundaries and proposed Photovoltaic Cell (PV) compounds and fencing has been designed and existing gateways have been used for the internal access tracks therefore there will be no detriment to the existing tree stock. The site perimeter security fencing, compound and access track layouts have been informed by the Root Protection Areas (RPAs). The Veteran Tree Buffer (VTB) around T28 is clear of proposed development.
- 6.6. It was noted that across the majority of the site, where the existing access tracks pass beneath trees, the crown clearance is sufficient for agricultural traffic, with the average clearance being 2.5 - 3m. Depending on the size of vehicles entering the site, increasing this to a maximum of 3.5m would be acceptable and achieving this by pruning would not be detrimental to tree health. In particular, the crown clearance beneath T29 would need to be increased from the current distance of 4m to 5m which can be carried out with little detriment to the tree. Final pruning requirements will need to be assessed by the contractor(s) when devising the Construction and Environmental Management Plan (CEMP) and any additional pruning will be agreed and specified at a pre-commencement site meeting.
- 6.7. If the surfacing of an existing track is to be improved or a new track is proposed, existing levels are to be retained with no excavations taking place. The existing surfacing or levels will be retained as a sub-base with a geo-textile separation layer installed prior to making good existing or installing new tracks. The site construction and operation tracks are to be approximately 5m wide consisting of compacted aggregate.
- 6.8. The detailed design of underground cables should be designed to not enter the RPAs of retained trees. An assessment of the site layout indicates this will be possible. Should cables need to be installed near, or within, RPAs, the project arboriculturist should be consulted and an appropriate installation method statement prepared.

Conclusion

- 6.9. The proposal is feasible from an arboricultural perspective, and, if carefully implemented according to an approved Arboricultural Method Statement there would be no, or only a low, potential negative impact on the retained trees. A combined draft Tree Retention and Removal and Tree Protection Plan is included in **Section 3**.

7. TREE PROTECTION MEASURES

- 7.1. The proposed site perimeter security fence which is to be erected around the periphery of the site will act as an effective tree protection barrier if erected before any construction works commence on site. This will avoid the need to install additional BS 5837:2012 fencing along the outer perimeters of the site while still providing the same level of protection in most areas.
- 7.2. The security fencing will only protect trees located around the periphery of the site. In-field trees within the interior of the site could be impacted during the construction phase of the development. As such, additional temporary tree protection barriers are specified for T27, T28 (veteran oak) and T52.

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

- 8.1. BS 5837:2012 (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 BS 5837:2012, 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 planning condition.
- 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.
 - Pre-commencement site meeting - to be attended by the project arboriculturist, client, site manager and other relevant parties (including contracting Arborist). Project arboriculturist to ensure that all parties have copies of the tree protection plan and this report.
 - Tree facilitation pruning (if required, to be carried out to comply with BS 3998:2010).
 - Erection of site perimeter security fencing, the tree protection barriers (around T27, T28 and T52) as per the Tree Protection Plan (TPP).
 - Site preparation and ground works (including installation of CCS beneath T29) - 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. CONCLUSIONS AND RECOMMENDATIONS

- 9.1. No trees or hedgerows will be removed to implement the proposal.
- 9.2. The cutting back or coppicing proposed for short sections of hedgerow to install the site perimeter security fencing will be readily mitigated by new planting within the site and the retained trees can be adequately protected during construction activities to sustain their health and longevity.
- 9.3. The use of a no-dig construction approach to the new access track beneath T29 and H10 will reduce the potential impact on the root systems of these features to an acceptable level and ensure their health and longevity. The proposal to increase the crown clearance beneath T29 (from 4m to 5m) can be carried out with little detriment to the tree

- 9.4. Subject to the implementation of the advice contained within this report the proposed development is acceptable from an arboricultural perspective and, if carefully implemented according to an approved Arboricultural Method Statement (AMS) there would be a negligible negative impact on the retained trees and hedgerows.
- 9.5. An AMS and finalised Tree Protection Plan (TPP) will need to be produced. Where the feasibility of a scheme has been agreed upon by the Local Planning Authority, this detail can be agreed upon and submitted later as part of a pre-commencement planning condition (by agreement with the applicant).



David Holmes, *FdSc, MArborA*
Arboriculturist



IMAGE 1: A view looking south-west at T28, a high quality veteran tree.



IMAGE 2: A close-up shot showing the main stem of T28 in more detail.



IMAGE 3: A view looking north-west at T16, the low-quality oak.



IMAGE 4: A view looking south-east at T9, a hazel to the rear of W1



IMAGE 5: A view looking west at T7, a high quality oak.



IMAGE 6: A general view looking north-west across the site.



Tree Ref	Species	Height (m)	LifeStage	RPA Radius (m)	RPA (m2)
T1	Oak (English)	20	M	13.9	609
T2	Maple (Field)	5.5	SM	3.5	38
T3	Oak (English)	18	M	15	707
T4	Maple (Field)	5	SM	3.5	38
T5	Ash (Common)	15	M	8.6	241
T6	Elder	4	EM	2.8	24
T7	Oak (English)	19	M	15	707
T8	Hawthorn	5	M	2.6	22
T9	Hedge (Common)	8	M	5.6	104
T10	Maple (Field)	6	SM	1.8	10
T11	Maple (Field)	8	M	5.2	84
T12	Ash (Common)	15	M	12	452
T13	Maple (Field)	11	EM	5	62
T14	Ash (Common)	12	EM	5.8	104
T15	Ash (Common)	12	EM	6.4	127
T16	Oak (English)	18	M	14.4	651
T17	Ash (Common)	13	EM	4.8	72
T18	Ash (Common)	12	EM	4.2	55
T19	Ash (Common)	12	EM	5.2	84
T20	Sycamore	8	EM	4.3	59
T21	Sycamore	8	EM	3.8	44
T22	Sycamore	8	EM	4.4	62
T23	Sycamore	8	EM	4.4	62
T24	Ash (Common)	12	EM	5.4	92
T25	Sycamore	10	EM	4.8	72
T26	Ash (Common)	12	EM	5.2	84
T27	Oak (English)	20	M	15	707
T28	Oak (English)	15	M	10	314
T29	Ash (Common)	18	M	8.8	241
T30	Sycamore	11	EM	6.2	122
T31	Ash (Common)	10	Y	3.6	41
T32	Ash (Common)	9	Y	3.6	41
T33	Ash (Common)	12	EM	12.7	508
T34	Ash (Common)	9	Y	2.8	24
T35	Maple (Field)	9	EM	3.3	35
T36	Ash (Common)	9	SM	5.4	92
T37	Maple (Field)	8	M	5.4	92
T38	Willow (Crack)	8	M	6.1	118
T39	Ash (Common)	16	M	8.4	222
T40	Ash (Common)	17	M	9.6	290
T41	Ash (Common)	14	M	8.4	222
T42	Ash (Common)	13	EM	6.6	137
T43	Ash (Common)	16	M	8.4	222
T44	Maple (Field)	8	EM	4.2	55
T45	Ash (Common)	14	SM	4.4	62
T46	Oak (English)	10	EM	7.2	163
T47	Oak (English)	12	EM	7.2	163
T48	Apple (Crab)	6	EM	3.8	48
T49	Maple (Field)	12	EM	5.3	88
T50	Maple (Field)	14	M	8	113
T51	Ash (Common)	17	M	9	254
T52	Oak (English)	20	M	15	707
T53	Oak (English)	6	Y	1.3	5
T54	Hawthorn	5.5	EM	3	28
T55	Hawthorn	5	EM	2.8	24
T56	Hawthorn	5	M	4.1	52
T57	Hawthorn	6	M	4.4	62
T58	Hawthorn	6	M	2.4	18
T59	Oak (English)	15	M	9	254
T60	Oak (English)	15	M	9	254
T61	Oak (English)	14	M	8	203

Label	Description
O051	Young mixed species hedge
O052	Young mixed species hedge
O053	Young mixed species hedge
O054	Young mixed species hedge
O055	Brantem
O056	Semiyoung hawthorn & montbano elm stems
O057	Semiyoung stems & montbano elm stems
O058	Semiyoung stem & hawthorn
O059	Brantem
O060	Brantem
O061	Brantem & dogrose
O062	Brantem & dogrose
O063	Brantem & dogrose, semiyoung oak & sycamore
O064	Sporadic outcrop of small elm
O065	Brantem & dogrose
O066	Sporadic outcrop of small elm & elder
O067	Sporadic outcrop of small elm

KEY

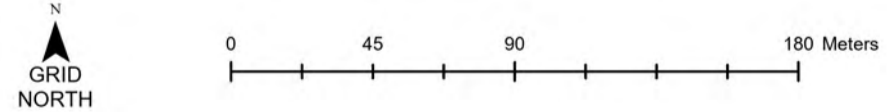
- Category A Tree - High quality (Retention highly desirable)
- Category B Tree - Moderate quality (Retention desirable)
- Category C Tree - Low quality (May be retained but should not constrain development)
- Category U Tree - Very low quality (Mostly unsuitable for retention)
- Category U - Hedgerow, 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/offshore 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 free 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.

Group Ref	Species	Height Range (m)	LifeStage	RPA Radius (m)	RPA (m2)
G1	English oak	8	EM	4.2	56
G2	English oak	4-12	EM	6.4	127
G3	English oak	12	EM	4.3	59
G4	Ash	14	M	6.5	132
G5	English oak	12	EM	4.1	52
G6	Ash	15	M	6.2	122
G7	Line, ash	12-14	EM	6.6	137
G8	Field maple, sycamore	10-12	EM	4.5	65
G9	Field maple, ash, field elm, hawthorn	5-9	M	3.7	43
G10	Field maple	10	M	3.9	49
G11	Field maple, ash, field elm	5-13	M	6.8	147
G12	Field maple, ash, field elm, elder hawthorn	6-12	EM	3.9	49
G13	Field maple, field elm	8-10	EM	4.5	65
G14	Field maple, field elm, dogrose	4.5	SM	2.2	15
G15	Field maple, goat willow, field elm	8-10	EM	4.5	65
G16	Field maple, goat willow, elder, field elm	8	EM	4.2	55
G17	Field maple	8	EM	3.1	31
G18	Field maple	8	EM	3.3	35
G19	Common ash	14	EM	4.8	72
G20	English oak	12-14	EM	6	113
G21	English oak	12	EM	4.8	72

Hedge Ref	Species	Avg. Height (m)	Life Stage	RPA Radius (m)	RPA (m2)
H1	Hawthorn, field elm	6	M	1.7	9
H2	Field elm, hawthorn, field maple, bullace, elder	7	EM	2.2	15
H3	Hawthorn, field elm, sycamore	6	M	1.7	9
H4	Field elm, English oak, ash, field maple	5.5	SM	1.1	4
H5	Field elm, elder, dogrose	5	SM	1.1	4
H6	Field maple, elder, dogrose	5	SM	1.1	4
H7	Field elm, hazel	5	SM	1.3	5
H8	Field elm, hazel, field maple	5	SM	1.3	5
H9	Hawthorn, blackthorn, dog wood, dogrose	2.5	SM	1.3	5
H10	Field elm, oak, field maple, elder	9	EM	3.6	41
H11	Elder	6	EM	1.1	4
H12	Hawthorn	6	M	1.5	7
H13	Field elm, field maple	6	SM	1.6	8
H14	Field elm, field maple	6	SM	1.6	8
H15	Field elm, field maple, dogrose	6	M	1.3	5
H16	Field elm, field maple	6	SM	1.3	5
H17	Field elm, hawthorn, elder	6	M	1.3	5
H18	Field elm, hawthorn, blackthorn, field maple, elder	2.5	SM	1.3	5
H19	Field maple, hazel, hawthorn, elder, dogwood	4	SM	1.1	4
H20	Field elm, elder, field maple, ash, sycamore	6	SM	1.7	9
H21	Field elm, goat willow, dogrose	6	SM	1.1	4
H22	Field elm, elder	6	SM	1.1	4
H23	Field elm	6	SM	1.3	5
H24	Field elm	6	SM	1.3	5
H25	Field elm, blackthorn, hawthorn	6	SM	1.5	7
H26	Blackthorn	6	SM	1.1	4
H27	Field elm	6	SM	1.3	5
H28	Field elm, elder	6	SM	1.3	5
H29	Field elm	5	SM	1.3	5
H30	Field elm	5	SM	1.3	5
H31	Hawthorn, elder, ash, dogrose	2.5	SM	1.3	5
H32	Field elm, hawthorn, crab apple, cherry	6	SM	1.5	7



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: Nuneham Courtenay (4848)

DRAWING TITLE: Tree Survey Plan

SCALE: 1:2,400 @ A1

DRAWING NUMBER: BHA_4848_01

DRAWN BY: TB APPROVED BY: DH REVISION: - SHEET: - DATE: 02/11/2022

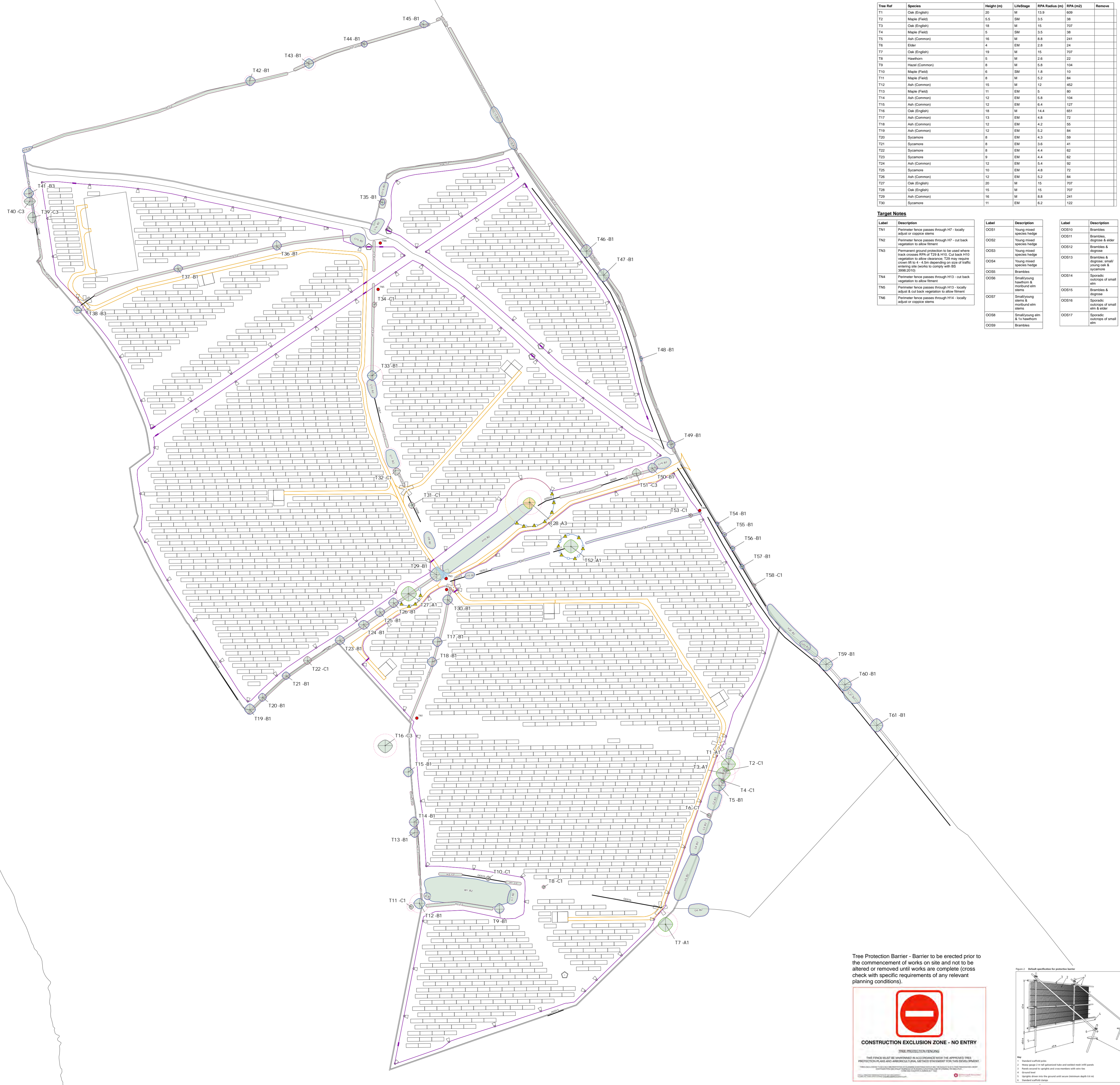
COORDINATE SYSTEM / DATUM: British National Grid / Newlyn Datum (AOD)

CLIENT: Pegasus Planning Group

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Tree Ref	Species	Height (m)	LifeStage	RPA Radius (m)	RPA (m2)	Remove
T1	Oak (English)	20	M	13.9	609	
T2	Maple (Field)	5.5	SM	3.5	38	
T3	Oak (English)	18	M	15	707	
T4	Maple (Field)	5	SM	3.5	38	
T5	Ash (Common)	15	M	8.8	241	
T6	Elder	4	EM	2.6	24	
T7	Oak (English)	19	M	15	707	
T8	Hawthorn	5	M	2.6	22	
T9	Hazel (Common)	5	M	5.8	104	
T10	Maple (Field)	6	SM	3.5	38	
T11	Maple (Field)	8	M	5.2	84	
T12	Ash (Common)	15	M	12	452	
T13	Maple (Field)	11	EM	5	80	
T14	Ash (Common)	12	EM	5.8	104	
T15	Ash (Common)	12	EM	6.4	127	
T16	Oak (English)	18	M	14.4	651	
T17	Ash (Common)	13	EM	4.8	72	
T18	Ash (Common)	12	EM	4.2	55	
T19	Ash (Common)	12	EM	5.2	84	
T20	Sycamore	8	EM	4.3	59	
T21	Sycamore	8	EM	3.6	41	
T22	Sycamore	8	EM	4.4	62	
T23	Sycamore	9	EM	4.4	62	
T24	Ash (Common)	12	EM	5.4	92	
T25	Sycamore	10	EM	4.8	72	
T26	Ash (Common)	12	EM	5.2	84	
T27	Oak (English)	20	M	15	707	
T28	Oak (English)	15	M	15	707	
T29	Ash (Common)	16	M	8.8	241	
T30	Sycamore	11	EM	6.2	122	

Label	Description	Label	Description	Label	Description
TN1	Perimeter fence passes through H7 - locally adjust or replace wire.	OOS1	Young mixed species hedge	OOS10	Brambles
TN2	Perimeter fence passes through H7 - cut back vegetation to allow fence.	OOS2	Young mixed species hedge	OOS11	Brambles, dogrose & elder
TN3	Perimeter ground protection to be used where track crosses RPA of T29 & H10. Cut back H10 vegetation to allow clearance. T29 may require crown lift to 4 - 4.5m depending on slope of traffic entering site banks to comply with BS 3998:2010.	OOS3	Young mixed species hedge	OOS12	Brambles & dogrose
TN4	Perimeter fence passes through H13 - cut back vegetation to allow fence.	OOS4	Young mixed species hedge	OOS13	Brambles & dogrose, small ground oak & sycamore
TN5	Perimeter fence passes through H13 - locally adjust & cut back vegetation to allow fence.	OOS5	Brambles	OOS14	Brambles & dogrose, small ground oak & sycamore
TN6	Perimeter fence passes through H14 - locally adjust or replace wire.	OOS6	Small/young mixed/old stem	OOS15	Brambles & dogrose
		OOS7	Small/young mixed/old stem	OOS16	Sporadic outcrops of small stem & elder
		OOS8	Small/young stem & hawthorn	OOS17	Sporadic outcrops of small stem
		OOS9	Brambles		

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/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
- Access tracks
- Fence
- Protection Measures
- Tree Protection Barrier
- Permanent Ground Protection to BS 5837:2012
- 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

Group Ref	Species	Height Range	LifeStage	RPA Radius (m)	RPA (m2)	Remove
G1	Field maple, English oak	9	EM	4.2	55	
G2	English oak, field maple, hazel, hawthorn	4 - 12	EM	6.4	127	
G3	English oak, field maple	12	EM	4.3	59	
G4	Ash	14	M	8.5	132	
G5	English oak, field maple, hazel	12	EM	4.1	52	
G6	Ash	15	M	6.2	122	
G7	Lime, ash	12 - 14	EM	6.6	137	
G8	Field maple, sycamore	10 - 12	EM	4.5	65	
G9	Field maple, ash, field elm, hawthorn	5 - 9	M	3.7	43	
G10	Field maple	10	M	3.9	49	
G11	Field maple, ash, field elm	5 - 13	M	6.8	147	
G12	Field maple, ash, field elm, elder, hawthorn	6 - 12	EM	3.9	49	
G13	Field maple, field elm	8 - 10	EM	4.5	65	
G14	Field maple, field elm, dogrose	4.5	SM	2.2	15	
G15	Field maple, goat willow, field elm	8 - 10	EM	4.5	65	
G16	Field maple, goat willow, elder, field elm	8	EM	4.2	55	
G17	Field maple	8	EM	3.1	31	
G18	Field maple	8	EM	3.3	35	
G19	Common ash	14	EM	4.8	72	
G20	English oak	12 - 14	EM	6	113	
G21	English oak	12	EM	4.8	72	

Woodref	Species	Height Range	LifeStage	RPA Radius (m)	RPA (m2)	Remove
W1	Field maple, English oak, cherry, ash, lime	5 - 18	EM	6.7	142	

Hedge Ref	Species	Avg Height (m)	LifeStage	RPA Radius (m)	RPA (m2)	Remove
H1	Hawthorn, field elm	6	M	1.7	9	
H2	Field elm, hawthorn, field maple, bullock, elder	7	EM	2.2	15	
H3	Hawthorn, field elm, sycamore	6	M	1.7	9	
H4	Field elm, English oak, ash, field maple	5.8	SM	1.1	4	
H5	Field elm, elder, dogrose	5	SM	1.1	4	
H6	Field maple, elder, dogrose	5	SM	1.1	4	
H7	Field elm, hazel	5	SM	1.3	5	
H8	Field elm, hazel, field maple	5	SM	1.3	5	
H9	Hawthorn, blackthorn, dog wood, dogrose	2.5	SM	1.3	5	
H10	Field elm, oak, field maple, elder	9	EM	3.6	41	
H11	Elder	9	EM	1.1	4	
H12	Hawthorn	6	M	1.5	7	
H13	Field elm, field maple	6	SM	1.6	8	
H14	Field elm, field maple	6	SM	1.6	8	
H15	Field elm, field maple, dogrose	6	M	1.3	5	
H16	Field elm, field maple	6	M	1.3	5	
H17	Field elm, hawthorn, elder	6	EM	1.3	5	
H18	Field elm, hawthorn, blackthorn, field maple	2.5	SM	1.3	5	

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: Nuneham Courtenay (4848)

DRAWING TITLE: Tree Retention and Removal Plan

SCALE: Scale: 1:2,400 @ A1

DRAWING NUMBER: BHA_4848_02

DRAWN BY: TB

APPROVED BY: DH

REVISION: SHEET 25/03/2024

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

CLIENT: Pegasus Planning Group

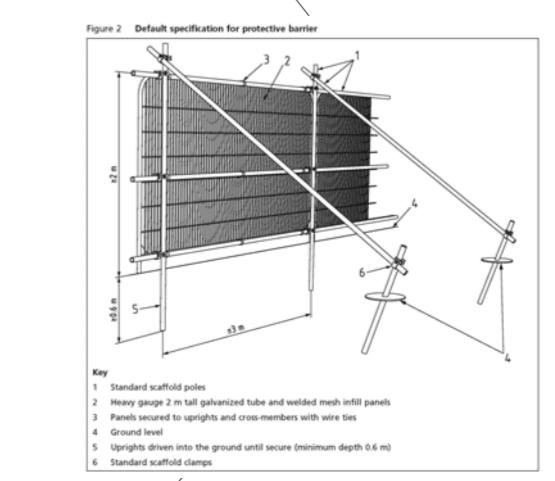
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Barton Hyett Associates
Arboricultural Consultants

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Tree Protection Barrier - Barrier to be erected prior to the commencement of works on site and not to be altered or removed until works are complete (cross check with specific requirements of any relevant planning conditions).

CONSTRUCTION EXCLUSION ZONE - NO ENTRY



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	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	Veteran Tree buffer radius (m)
T1	Oak (English)	On	20.0	1	None	1160	7.5-8.5-8.0-9.0	1.0	2.5	W	M	None	Historic limb failure to north of crown @9m with debris on ground; otherwise vigorous crown	Good	Fair	40+	A1	13.9	609.0	-
T2	Maple (Field)	On	5.5	1	None	290	2.5-2.5-2.0-3.0	0.5	0.5	N	SM	None	Typical for age & species; laterally suppressed by adjacent mature trees	Good	Fair	10+	C1	3.5	38.0	-
T3	Oak (English)	On	18.0	1	None	1250	8.0-9.0-9.0-8.5	0.5	1.5	SW	M	None	Good example of species; historic limb failure to west of crown @6m with debris on ground; early-mature elder to east of root-plate	Good	Good	40+	A1	15.0	707.0	-
T4	Maple (Field)	On	5.0	2	Yes	290	2.5-2.0-3.0-3.0	0.5	0.0	None	SM	None	Typical for age & species; laterally suppressed by adjacent mature trees	Good	Fair	10+	C1	3.5	38.0	-
T5	Ash (Common)	On	16.0	1	None	730	9.0-8.0-7.0-9.0	2.0	2.0	E	M	None	Typical for age & species	Good	Fair	20+	B1	8.8	241.0	-
T6	Elder	On	4.0	8	Yes	230	2.5-2.5-2.5-2.5	0.0	0.0	None	EM	None	Typical for age & species	Good	Good	10+	C1	2.8	24.0	-
T7	Oak (English)	On	19.0	1	None	1450	8.5-9.0-9.0-9.0	1.0	2.0	SW	M	None	Crown reduction to south leaning large pruning pegs; fungal fruiting body to north of root-collar; burrs to root-collar & lower stem; main stem splits @7m into multiple scaffold limbs	Good	Good	40+	A1	15.0	707.0	-

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	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	Veteran Tree buffer radius (m)
T8	Hawthorn	On	5.0	6	Yes	220	2.0-2.0-2.0-2.0	0.0	0.0	None	M	None	Low vigour; dead & damaged limbs	Fair	Fair	10+	C1	2.6	22.0	-
T9	Hazel (Common)	On	8.0	9	None	480	7.0-6.0-5.0-6.0	0.5	0.0	None	M	None	Good example of species; limited management applied	Good	Fair	20+	B1	5.8	104.0	-
T10	Maple (Field)	On	6.0	1	Yes	150	3.0-3.0-3.0-3.0	0.0	0.0	None	SM	None	Typical for age & species	Good	Fair	10+	C1	1.8	10.0	-
T11	Maple (Field)	On	8.0	3	Yes	430	3.0-3.0-3.0-2.5	0.0	0.0	None	M	None	Low vigour; dead & damaged limbs	Poor	Fair	10+	C1	5.2	84.0	-
T12	Ash (Common)	On	15.0	1	Yes	1000	6.0-7.0-7.0-7.0	1.0	0.0	S	M	None	Dia. est. @0.5m; growing to edge of drainage ditch; stem splits @1m into 3x scaffold limbs; visible basal cavity opening to south of root-collar	Good	Fair	20+	B1	12.0	452.0	-
T13	Maple (Field)	On	11.0	2	Yes	420	6.0-6.0-6.0-6.0	0.0	0.0	None	EM	None	Dia. recorded @1m; main stem splits @1m into 2x scaffold limbs; crown to west cut back to clear path	Good	Fair	40+	B1	5.0	80.0	-
T14	Ash (Common)	On	12.0	1	None	480	6.5-6.0-6.0-6.0	1.0	0.0	None	EM	None	Dia. recorded @1m; main stem splits @1m into 4x scaffold limbs; crown to west cut back to clear path	Good	Fair	20+	B1	5.8	104.0	-
T15	Ash (Common)	On	12.0	1	None	530	6.0-6.0-6.0-6.0	1.0	0.0	None	EM	None	Dia. recorded @1m; main stem splits @1m into 3x scaffold limbs; crown to west cut back to clear path	Good	Fair	20+	B1	6.4	127.0	-

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	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	Veteran Tree buffer radius (m)
T16	Oak (English)	On	18.0	1	None	1200	7.0-9.0-9.0-9.0	3.0	2.0	W	M	None	Extensive deadwood throughout crown with severe loss of vigour; failed limbs with debris on ground; limited clusters of foliage forming a small inner crown; fungal fruiting bodies present to west of root-collar; old oak stump to north-east of plot	Poor	Poor	10+	C3	14.4	651.0	-
T17	Ash (Common)	On	13.0	1	Yes	400	6.0-6.0-6.0-6.0	3.0	2.5	N	EM	None	Typical for age & species; lower stem heavily searched in ivy	Good	Fair	20+	B1	4.8	72.0	-
T18	Ash (Common)	On	12.0	1	Yes	350	6.0-6.0-6.0-6.0	3.0	0.0	N	EM	None	Typical for age & species	Good	Fair	20+	B1	4.2	55.0	-
T19	Ash (Common)	On	12.0	1	None	430	7.0-7.0-6.0-6.5	3.0	2.0	E	EM	None	Typical for age & species	Good	Fair	20+	B1	5.2	84.0	-
T20	Sycamore	On	8.0	1	None	360	5.0-5.0-5.0-5.0	1.0	0.0	None	EM	None	Stem splits into multiple limbs @1.5m	Fair	Fair	20+	B1	4.3	59.0	-
T21	Sycamore	On	8.0	1	None	300	5.0-5.0-4.5-5.0	1.0	0.0	None	EM	None	Stem splits into multiple limbs @1m	Fair	Fair	20+	B1	3.6	41.0	-
T22	Sycamore	On	8.0	1	None	370	5.0-5.0-5.0-5.0	3.0	0.0	W	EM	None	Bark necrosis; minor twiggy dieback throughout crown	Poor	Fair	10+	C1	4.4	62.0	-
T23	Sycamore	On	9.0	1	None	370	6.0-6.0-5.0-6.0	3.0	2.5	W	EM	None	Typical for age & species	Good	Fair	20+	B1	4.4	62.0	-
T24	Ash (Common)	On	12.0	1	None	450	5.0-7.0-6.0-6.5	3.0	2.0	E	EM	None	Typical for age & species	Good	Fair	20+	B1	5.4	92.0	-
T25	Sycamore	On	10.0	1	None	400	5.0-6.0-6.0-6.0	3.0	2.0	E	EM	None	Typical for age & species	Good	Fair	20+	B1	4.8	72.0	-

SECTION 4

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	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	Veteran Tree buffer radius (m)
T26	Ash (Common)	On	12.0	1	None	430	6.0-6.0-6.0-6.0	3.0	2.5	S	EM	None	Typical for age & species	Good	Fair	20+	B1	5.2	84.0	-
T27	Oak (English)	On	20.0	1	None	1620	9.0-10.0-9.0-9.0	1.5	2.5	E	M	None	Good example of species; main stem splits @5m into several scaffold limbs	Good	Good	40+	A1	15.0	707.0	-
T28	Oak (English)	On	15.0	1	Yes	2000	6.0-7.0-8.0-8.0	1.0	2.0	W	M	Veteran	Extensive cavitation to main stem; crown formed by semi-mature re-gen; timber volume retained within root-plate & stacked to east of stem	Good	Poor	40+	A3	15.0	707.0	30.0
T29	Ash (Common)	On	16.0	1	None	730	9.0-9.0-8.0-8.0	3.0	4.0	N	M	None	Basal cavity with opening visible to north-west of root-collar; good reactionary growth around power stem; small area of ivy cover to stem @0.5 - 3.5m; minor twiggy dieback throughout an otherwise vigorous crown	Good	Fair	20+	B1	8.8	241.0	-
T30	Sycamore	On	11.0	3	None	520	6.0-6.0-6.0-6.0	2.0	0.0	None	EM	None	Typical for age & species	Good	Fair	20+	B1	6.2	122.0	-
T31	Ash (Common)	On	10.0	1	None	300	4.0-4.0-4.0-4.0	2.5	2.5	S	Y	None	Typical for age & species	Good	Fair	10+	C1	3.6	41.0	-
T32	Ash (Common)	On	8.0	1	None	300	3.0-6.0-6.0-3.0	2.5	2.5	E	Y	None	Typical for age & species	Good	Fair	10+	C1	3.6	41.0	-
T33	Ash (Common)	On	12.0	7	Yes	1060	6.0-6.0-6.0-6.0	0.0	0.0	None	EM	None	Typical for age & species	Good	Fair	20+	B1	12.7	508.0	-

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	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	Veteran Tree buffer radius (m)
T34	Ash (Common)	On	9.0	1	None	230	3.5-3.0-3.5-3.0	2.5	2.5	W	Y	None	Typical for age & species	Good	Fair	10+	C1	2.8	24.0	-
T35	Maple (Field)	On	9.0	2	Yes	280	4.5-3.0-3.5-3.5	0.5	0.5	N	EM	None	Typical for age & species	Good	Fair	20+	B1	3.3	35.0	-
T36	Ash (Common)	On	9.0	1	Yes	450	7.0-6.0-5.0-5.0	1.5	1.5	E	SM	None	Typical for age & species	Good	Fair	20+	B1	5.4	92.0	-
T37	Maple (Field)	On	8.0	1	Yes	450	5.0-6.0-4.0-5.0	2.0	0.5	E	M	None	Typical for age & species	Good	Fair	20+	B1	5.4	92.0	-
T38	Willow (Crack)	On	8.0	2	Yes	510	5.0-6.0-4.0-4.0	1.0	0.0	None	M	None	Decayed main stem; historically pollarded @2m with upper crown formed by semi-mature re-gen	Fair	Fair	20+	B3	6.1	118.0	-
T39	Ash (Common)	On	16.0	1	Yes	700	6.5-4.5-7.0-6.0	3.0	3.0	W	M	None	Heavily swathed in ivy; reduction in vigour throughout crown with minor twiggy deadwood in upper crown; visible woodpecker activity to south of main stem @5m	Fair	Fair	10+	C3	8.4	222.0	-
T40	Ash (Common)	On	17.0	1	Yes	800	5.0-7.0-5.0-7.0	3.0	3.0	S	M	None	Heavily swathed in ivy; reduction in vigour throughout crown with minor twiggy deadwood in upper crown	Fair	Fair	10+	C3	9.6	290.0	-
T41	Ash (Common)	On	14.0	1	Yes	700	7.0-6.0-5.0-6.0	3.0	3.0	N	M	None	Heavily swathed in ivy; reduction in vigour throughout crown with minor twiggy deadwood	Fair	Fair	20+	B3	8.4	222.0	-

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	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	Veteran Tree buffer radius (m)
T42	Ash (Common)	On	13.0	1	Yes	550	5.0-7.0-6.5-5.0	2.0	4.5	W	EM	None	Typical for age & species	Good	Fair	20+	B1	6.6	137.0	-
T43	Ash (Common)	On	16.0	1	Yes	700	6.0-6.0-6.0-6.0	2.0	2.0	W	M	None	Heavily swathed in ivy; good vigour throughout crown	Good	Fair	20+	B1	8.4	222.0	-
T44	Maple (Field)	On	8.0	1	Yes	350	4.0-4.0-4.0-4.0	0.5	0.0	None	EM	None	Typical for age & species	Good	Fair	20+	B1	4.2	55.0	-
T45	Ash (Common)	On	14.0	3	Yes	370	5.0-6.0-4.0-5.0	0.0	0.0	None	EM	None	Crown formed by re-gen from old hedge stock	Good	Fair	20+	B1	4.4	62.0	-
T46	Oak (English)	On	10.0	1	Yes	600	8.5-7.0-8.0-7.5	0.5	1.0	NW	EM	None	Typical for age & species	Good	Fair	40+	B1	7.2	163.0	-
T47	Oak (English)	On	12.0	1	Yes	600	8.0-7.0-8.0-8.0	0.5	0.5	SE	EM	None	Typical for age & species	Good	Fair	20+	B1	7.2	163.0	-
T48	Apple (Crab)	On	6.0	4	Yes	320	3.0-2.0-3.0-1.5	0.0	0.0	None	EM	None	Typical for age & species	Good	Fair	40+	B1	3.8	46.0	-
T49	Maple (Field)	On	12.0	6	Yes	440	5.0-5.0-5.0-5.0	0.0	0.0	None	EM	None	Lower stems swathed in ivy	Good	Fair	40+	B1	5.3	88.0	-
T50	Maple (Field)	On	14.0	1	Yes	500	6.0-7.0-6.0-5.0	0.0	0.0	None	M	None	Heavily swathed in ivy	Good	Fair	40+	B1	6.0	113.0	-
T51	Ash (Common)	On	17.0	1	Yes	750	6.0-6.0-3.5-5.0	6.0	6.0	W	M	None	Heavily swathed in ivy; shaggy bracket on ground beneath tree; evidence of recent limb failures with debris on ground; limited crown	Fair	Poor	10+	C3	9.0	254.0	-
T52	Oak (English)	On	20.0	1	None	1380	8.5-9.0-8.0-9.0	1.0	2.0	E	M	None	Good example of species; recent conjoined limb failure to north-east of crown @8m	Good	Good	40+	A1	15.0	707.0	-

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	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	Veteran Tree buffer radius (m)
T53	Oak (English)	On	6.0	1	Yes	100	2.5-2.5-2.5-2.5	0.5	0.5	SE	Y	None	Typical for age & species	Good	Fair	10+	C1	1.3	5.0	-
T54	Hawthorn	On	5.5	1	Yes	250	2.0-2.0-2.5-2.0	0.5	0.0	None	EM	None	Typical for age & species	Good	Fair	20+	B1	3.0	28.0	-
T55	Hawthorn	On	5.0	2	Yes	230	3.0-3.0-2.0-2.5	0.5	0.0	None	EM	None	Typical for age & species	Good	Fair	20+	B1	2.8	24.0	-
T56	Hawthorn	On	5.0	2	Yes	340	3.0-3.0-3.0-2.0	0.5	0.0	None	M	None	Typical for age & species	Good	Fair	20+	B1	4.1	52.0	-
T57	Hawthorn	On	6.0	6	Yes	370	3.0-3.0-3.0-2.5	0.5	0.0	None	M	None	Typical for age & species	Good	Fair	20+	B1	4.4	62.0	-
T58	Hawthorn	On	6.0	1	Yes	200	2.0-3.0-2.0-2.0	0.5	0.5	NW	M	None	Low vigour; dead & damaged limbs	Poor	Fair	10+	C1	2.4	18.0	-
T59	Oak (English)	On	15.0	1	Yes	750	8.0-8.0-8.0-8.0	0.5	2.0	E	M	None	Typical for age & species	Good	Fair	40+	B1	9.0	254.0	-
T60	Oak (English)	On	15.0	1	None	750	8.0-8.0-7.5-8.0	0.5	1.0	SE	M	None	Typical for age & species	Good	Fair	40+	B1	9.0	254.0	-
T61	Oak (English)	On	14.0	1	None	670	8.5-7.5-8.0-8.0	0.5	1.0	SE	M	None	Typical for age & species	Good	Fair	40+	B1	8.0	203.0	-

GROUPS OF TREES

Ref	Species	On/off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. Crown radius (m)	Avg. low crown height (m)	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G1	Field maple; English oak	On	9	4	None	350.0	4.5	2.0	EM	None	Typical for age & species; debris from adjacent mature oak hung-up in maple to	Good	Fair	20+	B2	4.2
G2	English oak; field maple; hazel; hawthorn	On	4 - 12	10	None	530.0	5.0	1.0	EM	None	Shelter-belt on sloping site at field boundaries	Good	Fair	40+	B2	6.4
G3	English oak; field maple	On	12	10	None	360.0	5.0	1.0	EM	None	Shelter-belt on sloping site at field boundaries	Good	Fair	40+	B2	4.3
G4	Ash	On	14	2	None	540.0	7.0	1.5	M	None	2x multi-stemmed trees forming a cohesive crown; typical for age & species	Good	Fair	20+	B2	6.5
G5	English oak; field maple; hazel	On	12	30	None	340.0	5.0	1.0	EM	None	Shelter-belt on sloping site at field boundaries	Good	Fair	40+	B2	4.1
G6	Ash	On	15	2	None	520.0	7.0	1.5	M	None	2x multi-stemmed trees forming a cohesive crown; typical for age & species	Good	Fair	20+	B2	6.2
G7	Lime; ash	On	12 - 14	4	None	550.0	6.0	1.0	EM	None	Typical for age & species	Good	Fair	20+	B2	6.6
G8	Field maple; sycamore	On	10 - 12	2	None	380.0	5.0	2.0	EM	None	Typical for age & species	Good	Fair	20+	B2	4.5
G9	Field maple; ash; field elm; hawthorn	On	5 - 9	8	None	310.0	5.0	0.0	M	None	Group to field boundary forming cohesive crown; elm occurs as understory	Good	Fair	20+	B2	3.7
G10	Field maple	On	10	2	None	330.0	5.0	0.0	M	None	Multi-stemmed trees to field boundary forming cohesive crown	Good	Fair	20+	B2	3.9
G11	Field maple; ash; field elm	On	5 - 13	3	None	570.0	5.0	0.0	M	None	1x maple & 2x ash - all multi-stemmed with upper crowns formed by early-mature re-gen from old stocks; elm occurs as understory	Good	Fair	20+	B2	6.8
G12	Field maple; ash; field elm; elder hawthorn	On	6 - 12	9	None	330.0	5.0	0.5	EM	None	Stems within hedge forming a cohesive crown; elm to approx. centre of plot dead	Fair	Fair	20+	B2	3.9
G13	Field maple; field elm	On	8 - 10	6	None	380.0	5.0	0.5	EM	None	3x maple forming a cohesive crown; elm in decline	Fair	Fair	20+	B2	4.5
G14	Field maple; field elm; dogrose	On	4.5	3	None	180.0	3.0	0.5	SM	None	Sporadic group; dead elm stems to north & maple in decline	Poor	Fair	10+	C2	2.2
G15	Field maple; goat willow; field elm	On	8 - 10	12	None	380.0	5.0	0.0	EM	None	Trees to field boundary forming a cohesive crown	Fair	Fair	20+	B2	4.5
G16	Field maple; goat willow; elder; field elm	On	8	15	None	350.0	4.0	0.0	EM	None	Trees to field boundary forming a cohesive crown	Fair	Fair	20+	B2	4.2
G17	Field maple	On	8	3	None	260.0	5.0	0.5	EM	None	3x multi-stemmed maple forming cohesive crown within elm hedge	Good	Fair	20+	B2	3.1
G18	Field maple	On	8	3	None	280.0	5.0	0.5	EM	None	3x maple within elm hedge	Good	Fair	20+	B2	3.3

Ref	Species	On/off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. Crown radius (m)	Avg. low crown height (m)	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G19	Common ash	On	14	3	Yes	400.0	6.5	0.0	EM	None	3x stems forming a cohesive crown; multi-stemmed hedge trees; main stems swathed in ivy; shaggy bracket on ground beneath trees	Good	Fair	20+	B2	4.8
G20	English oak	On	12 - 14	2	None	500.0	6.0	1.0	EM	None	2x stems forming a cohesive crown; tree to south-east of plot showing minor twiggy dieback throughout crown	Good	Fair	20+	B2	6.0
G21	English oak	On	12	15	None	400.0	6.0	1.0	EM	None	Stand of close grown stems forming a cohesive crown	Good	Fair	40+	B2	4.8

WOODLANDS

Ref	Species	On/off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. Crown radius (m)	Avg. low crown height (m)	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
W1	Field maple; English oak; cherry; ash; lime; sycamore	On	5 - 18	60	None	560.0	6.0	1.5	EM	None	Formally established; plot demarcated by fencing for pleasant-rearing; limited understory	Good	Fair	40+	B2	6.7

HEDGEROWS

Ref	Species	On/off site	Av. Height (m)	Av. width (m)	Av. Stem diam (mm)	Avg. low crown height (m)	Life Stage	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H1	Hawthorn; field elm	On	6.0	3.5	140	0.0	M	Small sporadic gaps due to moribund elm stems; plot choked by brambles	Fair	Fair	10+	C2	1.7
H2	Field elm; hawthorn; field maple; bullace; elder; dogrose	On	7.0	3.5	180	0.0	EM	Small sporadic gaps; multiple stem failures; several stems swathed in ivy	Fair	Fair	10+	C2	2.2
H3	Hawthorn; field elm; sycamore	On	6.0	3.5	140	0.0	M	Small sporadic gaps; multiple stems swathed in ivy	Fair	Fair	10+	C2	1.7
H4	Field elm; English oak; ash; field maple	On	5.5	2	90	0.0	SM	Small sporadic gaps	Fair	Fair	10+	C2	1.1
H5	Field elm; elder; dogrose	On	5.0	2	90	0.0	SM	Predominantly maple; small sporadic gap due to moribund elm stems	Fair	Fair	10+	C2	1.1
H6	Field maple; elder; dogrose	On	5.0	2	90	0.0	SM	Predominantly maple; small sporadic gap due to elder stems	Fair	Fair	10+	C2	1.1

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)
H7	Field elm; hazel	On	5.0	2.5	100	0.0	SM	Predominantly elm; small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.3
H8	Field elm; hazel; field maple	On	5.0	3	100	0.0	SM	Predominantly elm; small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.3
H9	Hawthorn; blackthorn; dog wood; dogrose	On	2.5	2.5	100	0.0	SM	Maintained but flail; predominantly thorn; plot becoming choked by brambles in places	Good	Fair	20+	B2	1.3
H10	Field elm; oak; field maple; elder	On	9.0	6	300	0.3	EM	Predominantly maple & occasional oak with other species occurring as understory; on field boundary	Good	Fair	40+	B2	3.6
H11	Elder	On	6.0	3	90	0.0	EM	2x sporadically spaced elder with young stems planted to west of plot	Fair	Fair	10+	C2	1.1
H12	Hawthorn	On	6.0	3	120	0.0	M	4x sporadically spaced hawthorn with young stems planted to west of plot	Fair	Fair	20+	C2	1.5
H13	Field elm; field maple	On	6.0	3	130	0.0	SM	Predominantly elm; small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.6
H14	Field elm; field maple	On	6.0	3	130	0.0	SM	Predominantly elm; small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.6
H15	Field elm; field maple; dogrose	On	6.0	3	100	0.0	M	Historically failed @2m; predominantly elm; small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.3
H16	Field elm; field maple	On	6.0	3	100	0.0	M	Predominantly elm; small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.3
H17	Field elm; hawthorn; elder	On	6.0	3	110	0.0	M	Predominantly elm; small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.3
H18	Field elm; hawthorn; blackthorn; field maple; elder; dogrose	On	2.5	2.5	100	0.0	SM	Maintained but flail; plot becoming choked by brambles in places	Good	Fair	20+	B2	1.3
H19	Field maple; hazel; hawthorn; elder; dogwood	On	4.0	4.5	90	0.0	SM	At field boundary adjacent to pylon	Good	Fair	20+	B2	1.1
H20	Field elm; elder; field maple; ash; sycamore	On	6.0	3.5	140	0.0	SM	Predominantly elm; small sporadic gaps due to moribund elm stems; plot becoming choked by brambles	Fair	Fair	10+	C2	1.7
H21	Field elm; goat willow; dogrose	On	6.0	3.5	90	0.0	SM	Predominantly elm; small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.1
H22	Field elm; elder	On	6.0	3.5	90	0.0	SM	Predominantly elm; small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.1
H23	Field elm	On	6.0	3.5	110	0.0	SM	Small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.3
H24	Field elm	On	6.0	3.5	110	0.0	SM	Small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.3

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)
H25	Field elm; blackthorn; hawthorn	On	6.0	3.5	120	0.0	SM	Predominantly elm; small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.5
H26	Blackthorn	On	6.0	2	90	0.0	SM	Outgrown hedge with small sporadic gaps	Fair	Fair	10+	C2	1.1
H27	Field elm	On	6.0	3.5	110	0.0	SM	Small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.3
H28	Field elm; elder	On	6.0	3.5	110	0.0	SM	Predominantly elm; small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.3
H29	Field elm	On	5.0	3	100	0.0	SM	Small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.3
H30	Field elm	On	5.0	3	100	0.0	SM	Small sporadic gaps due to moribund elm stems	Fair	Fair	10+	C2	1.3
H31	Hawthorn; elder; ash; dogrose	On	2.5	2.5	100	0.0	SM	Maintained but flail; predominantly thorn; plot becoming choked by brambles in places	Good	Fair	20+	B2	1.3
H32	Field elm; hawthorn; crab apple; cherry	On	6.0	4	250	0.0	SM	Predominantly elm; on boundary with highway	Good	Fair	20+	B2	3.0

- 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 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
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 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



CONSTRUCTION EXCLUSION ZONE - NO ENTRY

TREE PROTECTION FENCING

THIS FENCE MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED TREE PROTECTION PLANS AND ARBORICULTURAL METHOD STATEMENT FOR THIS DEVELOPMENT.

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER.
CONTRAVENTION CAN RESULT IN BREACH OF PLANNING CONDITIONS AND/OR CRIMINAL PROSECUTION.
(TOWN AND COUNTRY PLANNING ACT 1990)

FOR ALL ENQUIRIES REGARDING TREES AT THIS DEVELOPMENT
PLEASE CALL 01386 576161 OR EMAIL ENQUIRIES@BARTON-HYETT.CO.UK