

# ARBORICULTURAL SURVEY REPORT

Land South of Guarlford  
Road, Malvern

April 2020

Ellen Boardman  
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**Barton Hyett Associates**  
Arboricultural Consultants

*In association with*

**CSA**  
environmental



Summary table		
Site Name:	Land South of Guarlford Road, Malvern	
Project reference:	C.3492	
Site Address:	Guarlford Road, Malvern	
Nearest Postcode:	WR14 3QS	
Central Grid reference:	SO 79948 45206	
Local Planning Authority:	Malvern Hills	
Relevant planning policies:	South Worcestershire Development Plan Policies: 5: Green Infrastructure, 22: Biodiversity and Geodiversity, 23: The Cotswolds & Malvern Hills AONBs, 25: Landscape Character.	
Statutory Controls:	Tree Preservation Order	Conservation Area
	No	No
Soil Type: (Source: BGS online soils map © NERC 2019)	Superficial/Drift	Bedrock
	Head - Clay, Silt, Sand And Gravel.	Sidmouth Mudstone Formation - Mudstone.
Topographical Survey:	Ref: 1109, dated March 2020 - Geoff Perry Associates Limited	
Report author:	Ellen Boardman - Arboriculturist	
Checked by:	Paul Barton - Director	
Date of issue:	27th April 2020	

REPORT CONTENTS:

SECTION 1:	SUMMARY AND SITE DETAILS
SECTION 2:	TREE SURVEY & CONSTRAINTS PLAN
SECTION 3:	TREE SURVEY SCHEDULE
SECTION 4:	METHODOLOGY
SECTION 5:	DESIGN GUIDANCE AND GENERIC ADVICE



PR:2257



### 1. Instruction

- 1.1. Barton Hyett Associates Ltd have been instructed by CSA on behalf of Fisher German to survey trees located at Land South of Guarlford Road, Malvern ('the site') in accordance with BS5837:2012 '*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 at the site and provide written advice on how they inform feasibility and design options for the site. This report is intended for use by the applicant and design team only, and is not for submission to the local planning authority (LPA).

### 2. Site Description

- 2.1. The site is located to the east of Great Malvern and the Malvern Hills Area of Outstanding Natural Beauty.
- 2.2. Land to the north of Guarlford Road and west of Mill Lane is residential with a development on Mill Lane currently under construction. A line of residential properties border the north of the site including an ongoing housing project.
- 2.3. The site is relatively flat with existing hedgerows and several ponds surrounded by trees. The land is currently ploughed and used for crops.
- 2.4. The site is visible from a public right of way that runs along the eastern boundary and from Mill Lane to the west of the site, both are popular with walkers.
- 2.5. The land has been allocated for development under the local plan.

### 3. Tree Survey Findings

- 3.1. A total of 87 trees, 11 groups of trees and 23 hedgerows were surveyed. These are summarised in terms of their quality in accordance with the recommendations of BS5837 below, and shown in more detail on the tree survey and constraints plan (section 2) and within the tree survey schedule (section 3).

	Total	A - High quality trees whose retention is most desirable.	B - Moderate quality trees whose retention is desirable.	C - Low quality trees which could be retained but should not significantly constrain the proposal.	U - Very poor quality trees that should be removed unless they have high conservation value.
Trees	87	34	24	28	1
Groups	11	-	1	10	-
Hedgerows	23	-	8	15	-
Total	121	34	33	53	1

### 4. Key arboricultural features

- 4.1. The site contains a high-quality arboricultural resource of early mature and mature English oak trees. These are set within historic and existing hedge lines or around the site's ponds.
- 4.2. There are 26 high quality (quality category A) English oak trees within the site.
- 4.3. A further eight high quality trees surveyed are outside of the site boundary on Guarlford Road and form part of a significant avenue feature along one of the main roads in to Malvern. They have been included within the survey as they could be impacted by a new access required for the potential development.
- 4.4. There are 24 moderate quality (quality category B) trees and one group within or adjacent to the site.
- 4.5. T34 is classed as a borderline ancient tree and so poses a clear constraint to development. The tree is not yet a 'true' ancient/veteran tree therefore I have not applied the additional buffer zone around the tree as recommended in the standing advice from Natural England/Forestry Commission.

### 5. Recommendations

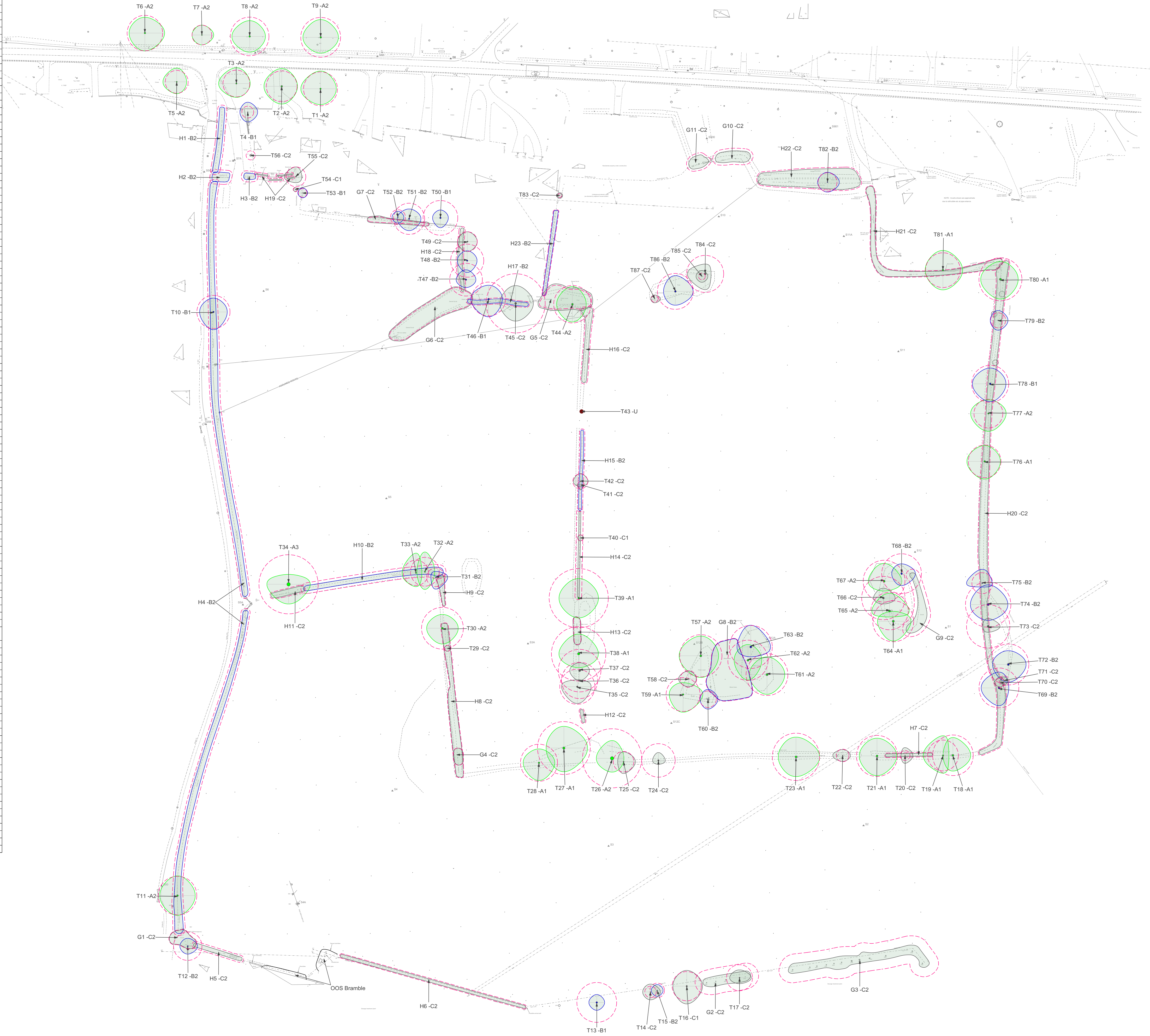
- 5.1. The information contained within this report should be used in the preparation of design proposals for the site, in order to minimise negative arboricultural impacts. Please see section 5 for advice about designing developments with trees.
- 5.2. I recommend that consideration is given to incorporating the high quality category A English oak trees into the proposed layout. These could form valuable linear features within a development and enhance the visual amenity of the proposals. As the majority of trees are early mature or mature there will not be a significant future impact of growth.
- 5.3. Guarlford Road has an avenue of trees leading into Malvern which creates a desirable route into the site. This treescape has the potential to be continued onsite with the retention of the site's high value arboricultural assets.
- 5.4. High quality trees are also located around two ponds within the southern area of the land allocated for development. I recommend the retention of these trees within public open spaces within the proposed development.
- 5.5. As the significant trees are predominately located to the south of the site, between the allocated land to the north and the proposed land for green infrastructure in the south, the impacts of shading on development within the southern area of the site should be considered.
- 5.6. Due to the significance of the high quality trees I recommend that any plans do not propose incursions into the RPAs of these trees. This will serve to protect the trees during construction as well as minimising future conflict between residents and trees on completion of the development.
- 5.7. Once the design proposal has been agreed, an arboricultural impacts assessment report should be prepared for submission to the LPA in order for the planning application to be validated and to provide the LPA with sufficient information in order to determine the application.



Ellen Boardman  
Arboriculturist



Tree No	H (m)	Species	Life Stage	RPA Radius (m)	RPA Area (m2)
T1	14	English oak	M	8.6	236
T2	15	Red oak	EM	7.8	191
T3	15	Red oak	EM	6.8	147
T4	9	Cedar	SM	3	28
T5	14	Lime	EM	5.8	104
T6	19	Lime	EM	9	255
T7	10	Lime	EM	5	80
T8	19	Lime	EM	9.8	304
T9	19	Lime	EM	10.1	319
T10	14	Ash	EM	8.4	222
T11	14	English oak	M	9.8	304
T12	17	Eucalyptus	EM	7.2	163
T13	22	Lombardy poplar	EM	10.1	319
T14	9	Birch	SM	2.9	26
T15	18	Lombardy poplar	SM	3.7	43
T16	16	Ash	M	7.4	174
T17	5	Silver birch	LM	6.6	137
T18	14	English oak	M	10.3	335
T19	14	English oak	M	7.8	191
T20	7	Field maple	LM	2.5	20
T21	16	English oak	M	10.4	342
T22	6	English oak	SM	3.2	33
T23	15	English oak	M	12	452
T24	6	Ash	SM	8.5	228
T25	12	English oak	SM	5.2	84
T26	13	English oak	LM	15	707
T27	17	English oak	M	13.4	568
T28	15	English oak	EM	9.4	275
T29	3	Elm	SM	1.5	7
T30	15	English oak	EM	10.6	350
T31	14	English oak	EM	4.7	69
T32	15	English oak	EM	7.3	168
T33	15	English oak	EM	6.4	127
T34	13	English oak	LM	15	707
T35	15	English oak	LM	8.9	248
T36	6	English oak	LM	9.2	289
T37	15	English oak	LM	10.8	366
T38	16	English oak	M	13.8	598
T39	14	English oak	M	15	707
T40	7	Poplar	Y	1.5	7
T41	7	Field maple	SM	1.7	9
T42	8	Field maple	EM	3.8	46
T43	4	English oak	LM	n/a	n/a
T44	15	English oak	M	9.5	282
T45	14	English oak	LM	15	707
T46	14	English oak	M	8.6	235
T47	14	Ash	EM	9.3	215
T48	14	Ash	EM	8.4	222
T49	14	Ash	EM	5	80
T50	13	Ash	LM	8.8	241
T51	13	English oak	EM	7.9	197
T52	14	English oak	EM	3.6	46
T53	12	Silver birch	SM	2.2	15
T54	9	Ash	Y	1.1	4
T55	6	Ornamental cherry	EM	5	80
T56	2	Ash	SM	2.3	16
T57	15	English oak	M	10.7	358
T58	10	English oak	EM	4.2	55
T59	14	English oak	EM	8.6	235
T60	10	English oak	EM	4.2	55
T61	15	English oak	M	10.6	350
T62	15	English oak	M	10.2	327
T63	15	English oak	M	10.9	375
T64	16	English oak	M	10.4	342
T65	16	English oak	M	9.5	282
T66	11	English oak	LM	11	383
T67	14	English oak	M	10.6	350
T68	17	Crack willow	EM	10.1	319
T69	16	English oak	M	10.1	319
T70	5	Field maple	SM	2.4	18
T71	8	Field maple	SM	2.5	20
T72	16	English oak	M	10.4	342
T73	17	English oak	LM	11	383
T74	15	English oak	M	11.5	417
T75	13	English oak	SM	5.3	88
T76	15	English oak	M	8.3	215
T77	14	English oak	M	7.3	168
T78	16	English oak	M	9.4	275
T79	9	English oak	EM	3.8	46
T80	15	English oak	M	10.9	375
T81	15	English oak	M	8.8	241
T82	11	English oak	EM	4.8	72
T83	3	Ornamental sycamore 'Brilliantissimum'	SM	1	3
T84	12	English oak	LM	9.4	275
T85	5	Goat willow	SM	1.7	9
T86	16	English oak	M	9.1	261
T87	5	Hawthorn	M	1.7	9
G1	5 - 7	Elm	SM	2.2	n/a
G2	8 - 21	Lombardy poplar	EM	7	n/a
G3	18 - 22	Lombardy poplar	M	7.7	n/a
G4	5 - 6	Hawthorn, blackthorn	EM	2	n/a
G5	3-6	Hawthorn, ash, goat willow, hazel, English oak	SM	1.3	n/a
G6	3-4	Hawthorn, Goat willow,	EM	1.6	n/a
G7	3-5	Hawthorn, ilac, plum,	EM	1.5	n/a
G8	10-12	Fr, Lawson cypress	EM	3.2	n/a
G9	2-5	Hawthorn, elder, goat willow	SM	2.3	n/a
G10	4-6	Elm	SM	2.3	n/a
G11	3-8	Pine, hawthorn, ilac, plum	SM	2.6	n/a
H1	2	Hawthorn, elm	SM	1.8	n/a
H2	2.5	Hawthorn	SM	2.2	n/a
H3	2.5	Hawthorn	SM	2.2	n/a
H4	2	Hawthorn, holly, elm,	SM	1.8	n/a
H5	2.5	Hawthorn	SM	1.8	n/a
H6	4	Hawthorn, privet, elder	SM	1.1	n/a
H7	2	Hawthorn, ash	EM	1.1	n/a
H8	2	Hawthorn, blackthorn next, elder	EM	1.3	n/a
H9	0.5	Blackthorn	SM	0.6	n/a
H10	2	Hawthorn, blackthorn, elder	EM	1.6	n/a
H11	6	Hawthorn, elm, ash	EM	1.5	n/a
H12	4	Hawthorn	EM	1.3	n/a
H13	3	Hawthorn, hazel	EM	1.3	n/a
H14	1	Hawthorn, elder	M	1.7	n/a
H15	2	Hawthorn, hazel, blackthorn	EM	1.3	n/a
H16	2	Hawthorn, elder,	EM	1.3	n/a
H17	2	Hawthorn, English oak, beech	EM	1.5	n/a
H18	1.5	Elm	EM	1.3	n/a
H19	0.5	Hawthorn	EM	1.1	n/a
H20	4	Hawthorn, elm,	SM	1.5	n/a
H21	3	Elder, blackthorn, hawthorn, elm, cherry	EM	1.3	n/a
H22	2.5	Hawthorn	EM	1.8	n/a
H23	2	Lawson cypress	SM	1.3	n/a



INDIVIDUAL TREES

Ref	Species	On / off site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m <sup>2</sup>
T1	English oak	Off	14	1	-	720	9-8-8-10	2.5	2	E	M	None	Attractive tree of good form. Part of an avenue of trees leading into Malvern. Deadwood within crown. Compaction of rootplate to the S by pedestrians. Girdling root to E side	Good	Fair	40+	A2	9	235
T2	Red oak	Off	15	1	-	650	9-8-9-9	2	2	NE	EM	None	Attractive tree with low canopy. Adjacent to surfaced driveway. Base of tree higher than adjacent land, no obvious surface roots.	Good	Good	40+	A2	8	191
T3	Red oak	Off	15	1	-	570	8-7-7-9	2	2	S	EM	None	Attractive tree. Minor branch damage over field entrance. Sporadic deadwood within crown. Base of tree higher than adjacent land.	Good	Good	40+	A2	7	147
T4	Cedar	Off	9	1	#	250	5-5-5-4	0.5	0.5	SW	SM	None	Attractive tree of average form.	Good	Good	40+	B1	3	28
T5	Lime	Off	14	1	-	480	7-5-6-7	0.5	2	S	EM	None	Attractive tree with low canopy. Ivy covering base of stem. Epicormic growth at base.	Good	Good	40+	A2	6	104
T6	Lime	Off	19	1	-	750	8-10-9-8	1	2.5	N	EM	None	Attractive tree of good form. Mistletoe within crown. Ivy covering stem and extending into crown. Epicormic growth at base.	Good	Good	40+	A2	9	255
T7	Lime	Off	10	1	-	420	5-6-5-5	0	1.5	E	EM	None	Attractive tree with low crown. Tight fork @1.5m. Ivy on stem and extending into crown.	Good	Good	40+	A2	5	80
T8	Lime	Off	19	1	-	820	8-8-8-9	1	2.5	SE	EM	None	Attractive tree of good form. Minor deadwood within crown usual for species. Ivy covering base. Mistletoe within crown.	Good	Good	40+	A2	10	304
T9	Lime	Off	19	1	-	840	9-9-8-9	2	2	S	EM	None	Attractive tree with low canopy. Mistletoe within crown. Ivy covering base.	Good	Good	40+	A2	10	319



Ref	Species	On / off site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m²
T10	Ash	On	14	1	#	700	7-7-9-7	3	3.5	N	EM	None	Growing within hedgerow, stem covered in ivy extending into crown. Hedgerow unmaintained under canopy, bramble growing into lower canopy.	Good	Fair	20+	B1	8	222
T11	English oak	On	14	1	#	820	10-9-10-9	2	2	E	M	None	Attractive tree of good form growing within hedgerow. Stem covered in ivy extending into crown.	Good	Fair	40+	A2	10	304
T12	Eucalyptus	Off	17	1	#	600	4-5-4-4	6	4	E	EM	None	Ivy covering stem and extending into crown. Overhead power lines to S side.	Good	Fair	20+	B2	7	163
T13	Lombardy poplar	Off	22	1	#	840	4-4-4-4	5.0	2.5	N	EM	None	Tree of good form. Minor deadwood usual for species.	Good	Fair	20+	B1	10	319
T14	Birch	Off	9.0	1	#	240	4-5-4-4	3.0	2	E	SM	None	Failure of central leader at approx 7m	Poor	Poor	10+	C2	2.9	26
T15	Lombardy poplar	Off	18.0	2	#	310	3-3-3-3	4.0	1.5	N	SM	None	Twin stemmed tree of average form. Behind post and chain link fence	Good	Fair	20+	B2	3.7	43
T16	Ash	Off	16.0	1	#	620	8-8-9-7	4.0	2.5	N	M	None	Inonotus hispidus above first fork on southern stem. Small inclusion on western side of northern fork. Extends into site 7m	Good	Fair	10+	C1	7.4	174
T17	Silver birch	Off	5.0	1	#	550	4-6-3-5	2.0	0.5	E	LM	None	Central leader has failed leading to decay in base of stem.	Fair	Poor	10+	C2	6.6	137
T18	English oak	On	14.0	2	-	860	9-9-8-5	3.0	1	W	M	None	Attractive tree of good form. Growing in old field boundary. Evidence of historic ditch to N side. Deadwood within crown usual for species at this life stage.	Good	Good	40+	A1	10.3	335
T19	English oak	Off	14.0	1	-	650	10-3-9-10	3.5	2	W	M	None	Attractive tree of good form. Growing in old field boundary. Evidence of historic ditch to N side. Deadwood within crown usual for species at this life stage.	Good	Good	40+	A1	7.8	191
T20	Field maple	On	7.0	1	-	210	4-4-4-2	0.0	-	-	LM	None	Decay evident at base of tree. Has been flailed to N and S side. Deadwood within crown.	Fair	Poor	10+	C2	2.5	20

Ref	Species	On / off site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m <sup>2</sup>
T21	English oak	On	16.0	1	-	870	9-10-10-9	2.5	2	E	M	None	Attractive tree of good form. Growing in old field boundary. Evidence of historic ditch to N side. Deadwood within crown usual for species at this life stage	Good	Good	40+	A1	10.4	342
T22	English oak	On	6.0	1	-	270	3-4-3-5	1.0	1	W	SM	None	Tree in historic field boundary line, has been felled to N and S.	Good	Good	20+	C2	3.2	33
T23	English oak	On	15.0	2	-	1000	10-12-10-9	3.0	3.5	S	M	None	Attractive tree of good form. Growing in old field boundary. Evidence of historic ditch to N side. Deadwood within crown usual for species at this life stage.	Good	Good	40+	A1	12.0	452
T24	Ash	On	6.0	7	-	710	4-3.5-2-3	2.5	1	N	SM	None	Tree is regenerating from a stump, substantial regrowth now forms multi-stemmed tree.	Good	Fair	10+	C2	8.5	228
T25	English oak	On	12.0	1	-	430	5-6-6-3	3.0	2	W	SM	None	Asymmetric crown. Ivy at base. Growing in historic field boundary	Good	Good	20+	C2	5.2	84
T26	English oak	On	13.0	1	-	1750	9-6-7-8	4.0	1	W	LM	None	Tree is hollow with gap to the SW. Historic large limb failure to the N. Ivy covering stem and extending into crown. Deadwood within the crown. No other veteran characteristics however girth suggests it is an ancient tree.	Good	Fair	40+	A2	15.0	707
T27	English oak	On	17.0	1	-	1120	11-12-12-9	3.0	2	SE	M	None	Attractive tree of good form. Growing in old field boundary. Evidence of historic ditch to N side. Deadwood within crown usual for species at this life stage.	Good	Good	40+	A1	13.4	568
T28	English oak	On	15.0	1	-	780	7-8-9-8	2.5	2.5	W	EM	None	Attractive tree of good form. Growing in old field boundary. Evidence of historic ditch to E side. Deadwood within crown usual for species at this life stage.	Good	Fair	40+	A1	9.4	275
T29	Elm	On	5.0	1	-	120	1.5-1.5-1.5-1.5	2.0	-	-	SM	None	Small tree growing within field boundary. Dieback showing in tips.	Fair	Fair	10+	C2	1.5	7

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T30	English oak	On	15.0	1	-	880	7-8-8-8	4.0	2	N	EM	None	Attractive tree of good form. Historic ditch to E side. Deadwood within crown usual for species at this life stage.	Good	Good	40+	A2	10.6	350
T31	English oak	On	14.0	1	-	390	3-6-6-2.5	2.5	1.5	S	EM	None	Asymmetric crown. Ivy extending into crown. Minor deadwood	Good	Good	40+	B2	4.7	69
T32	English oak	On	15.0	1	-	610	10-5-9-4	4.0	2.5	S	EM	None	Attractive tree of good form. Growing in close proximity to adjacent trees.	Good	Good	40+	A2	7.3	168
T33	English oak	On	15.0	1	-	530	10-3-7-7	3.0	2.5	W	EM	None	Attractive tree growing in close proximity to adjacent trees.	Good	Good	40+	A2	6.4	127
T34	English oak	On	13.0	1	-	1810	5-11-10-11	3.0	1	S	LM	Emerging veteran	Historically managed as a pollard. Large historic branch failure to N at 1.5m. Stem covered in ivy so not possible to fully assess bole of tree. Girth indicative of a borderline ancient tree. Also shows some veteran characteristics including deadwood in the crown, beginning to retrench and historically pollarded.	Good	Fair	40+	A3	15.0	707
T35	English oak	On	15.0	1	-	740	3.5-7-8.5-8	5.0	4.5	S	LM	None	Crown dieback especially in the tips of upper branches and lower branches. Asymmetric crown.	Fair	Fair	10+	C2	8.9	248
T36	English oak	On	6.0	1	-	770	0-0-0-0	-	-	-	LM	None	Tree has previously been pollarded previously at first fork. No obvious regrowth. One remaining branch is dead. Lifting bark on stem and significant decay at base.	Dead	Dead	<10	C2	9.2	268
T37	English oak	On	15.0	1	-	900	4-5-5-5	2.0	2	NE	LM	None	Tree has previously lost large limb to NW leaving decayed stub at first fork. Southern section of canopy is dead, some live branches in northern section, however it is very sparse.	Poor	Poor	<10	C2	10.8	366
T38	English oak	On	16.0		-	1150	10-10-7-10	2.0	2	N	M	None	Previously pollarded tree of good form. Deadwood within crown usual for species at this life stage	Good	Good	40+	A1	13.8	598



Ref	Species	On / off site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m <sup>2</sup>
T39	English oak	On	14.0		-	8400	10-10-10-10	2.0	2	N	M	None	Attractive tree of good form. Deadwood within crown usual for species at this life stage.	Good	Good	40+	A1	15.0	707
T40	Poplar	On	7.0	1	-	120	1.5-1.5-1.5-1.5	2.0	2	S	Y	None	Young tree of good form growing within hedgerow	Good	Good	40+	C1	1.5	7
T41	Field maple	On	7.0	1	-	140	0-1-2.5-2	2.0	-	-	SM	None	Asymmetric crown die yo close proximity to tree to N. Potential to return to part of hedgerow.	Good	Fair	10+	C2	1.7	9
T42	Field maple	On	8.0	7	-	320	4-4-2.5-3.5	2.0	-	-	EM	None	Flailed to E and W. Multi-stemmed tree of low amenity value. Potential to return to part of hedgerow.	Good	Fair	10+	C2	3.8	46
T43	English oak	On	4.0	1	-	1590	1-1-1-1	-	-	-	LM	None	Tree has been pollarded. No regrowth. Lifting bark to SE small fruiting body to south. Holly growing within first fork.	Poor	Dead	<10	U	-	-
T44	English oak	On	15.0	1	#	790	9-7-9-8	3.0	2	S	M	None	Growing to the S side of a pond. No access to stem due to steep slope, water and vegetation.	Good	Fair	40+	A2	9.5	282
T45	English oak	Off	14.0	1	#	9400	9-9-9-8	2.0	2	S	LM	None	Large amounts of deadwood within the N side of canopy. Strip of necrotic bark to E side. Unable to access base due to location within hedgerow.	Fair	Fair	10+	C2	15.0	707
T46	English oak	Off	14.0	1	#	720	7-7-9-9	3.0	3.5	S	M	None	Attractive tree of good form. Slight lean to N towards garden shed.	Good	Good	20+	B1	8.6	235
T47	Ash	Off	14.0	1	#	690	5-5-4-5	4.0	4	N	EM	None	Previously reduced. Average form	Good	Fair	20+	B2	8.3	215
T48	Ash	Off	14.0	1	#	700	5-5-6-5	6.0	6	E	EM	None	Tree of average from	Fair	Fair	20+	B2	8.4	222
T49	Ash	Off	14.0	2	#	420	5-5-5-5	4.0	4	S	EM	None	Tree of average from	Good	Fair	20+	C2	5.0	80
T50	Ash	Off	13.0	1	#	730	4-4-5-4	4.0	3	E	LM	None	Previously pollarded.	Good	Fair	20+	B1	8.8	241
T51	English oak	Off	13.0	1	#	660	5-6-6-6	3.0	2	S	EM	None	Flail damage to lower canopy on S side. Stem covered in ivy extending into crown.	Good	Fair	40+	B2	7.9	197
T52	Fir	Off	14.0	1	#	320	3-3-3-3	3.0	4	W	EM	None	Attractive tree of good form. Stem covered in ivy extending into crown.	Good	Fair	20+	B2	3.8	46

Ref	Species	On / off site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m <sup>2</sup>
T53	Silver birch	Off	12.0	1	#	180	2.5-2.5-2.5-2.5	-	-	-	SM	None	Attractive tree of good form	Good	Good	40+	B1	2.2	15
T54	Ash	On	9.0	1	-	90	1-1-1-15	3.5	3.5	W	Y	None	Young tree of average form growing on edge of ploughed field.	Good	Good	40+	C1	1.1	4
T55	Ornamental cherry	Off	6.0	1	#	420	5-3-3-6	2.0	-	-	EM	None	Encroached onto site by approx 3m	Good	Fair	10+	C2	5.0	80
T56	Ash	On	2.0	3	-	190	0.5-0.5-0.5-0.5	-	-	-	SM	None	Topped and regrowth pruned.	Fair	Fair	10+	C2	2.3	16
T57	English oak	On	15.0	1	-	890	10-9-11-11	3.0	2	SW	M	None	Attractive tree of good form. Small bracket of Ganoderma on stem at 1m to W side. No significant decay located.	Good	Fair	40+	A2	10.7	358
T58	English oak	On	10.0	1	-	350	4-4-4-5	4.0	3	W	EM	None	Dieback in tips especially to N side. Deadwood within crown.	Fair	Fair	10+	C2	4.2	55
T59	English oak	On	14.0	1	-	720	6-10-9-7	3.0	2.5	S	EM	None	Stem covered in ivy. Attractive tree of good form	Good	Fair	40+	A1	8.6	235
T60	English oak	On	10.0	4	-	350	5-5-5-4	-	-	-	EM	None	Tree has historically slumped to wards the pond in the north, giving a layered multi stemmed form.	Good	Fair	20+	B2	4.2	55
T61	English oak	On	15.0	1	-	880	9-9-10-9	3.0	2	S	M	None	Tree is on slope leading towards pond. Ivy covering stem. Attractive tree.	Good	Fair	40+	A2	10.6	350
T62	English oak	On	15.0	1	-	850	8-7-10-7	2.5	2.5	E	M	None	Attractive tree of good form growing adjacent to pond. Stem covered in ivy	Good	Good	40+	A2	10.2	327
T63	English oak	On	15.0	1	-	910	11-10-5-7	2.5	2	N	M	None	Tree has historically slumped towards pond. Asymmetric canopy due to proximity to adjacent trees.	Good	Fair	20+	B2	10.9	375
T64	English oak	On	16.0	1	-	870	5-9-10-8	2.5	2	SE	M	None	Attractive tree of good form	Good	Good	40+	A1	10.4	342
T65	English oak	On	16.0	1	-	790	9-10-3-9	5.0	2	W	M	None	Attractive tree of good form	Good	Good	40+	A2	9.5	282
T66	English oak	On	11.0	1	-	920	5-6-3-5	4.0	3	NE	LM	None	Major dead limbs within crown. Ivy covering stem.	Fair	Fair	10+	C2	11.0	383
T67	English oak	On	14.0	1	-	880	9-9-5-8	1.0	1.5	N	M	None	Growing adjacent to pond	Good	Fair	40+	A2	10.6	350
T68	Crack willow	On	17.0	1	-	840	5-7-6-5	1.0	1	NE	EM	None	Growing on edge of pond	Good	Fair	20+	B2	10.1	319



Ref	Species	On / off site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m <sup>2</sup>
T69	English oak	On	16.0	1	-	840	8-5-9-9	3.0	3	NW	M	None	Large limbs pruned to W side leaving stubs. Ivy extending into canopy.	Good	Fair	40+	B2	10.1	319
T70	Field maple	On	5.0	2	-	200	3-2-2-3	1.0	0.5	W	SM	None	On edge of pond. In shade of adjacent tree.	Good	Fair	20+	C2	2.4	18
T71	Field maple	On	8.0	1	-	210	2-2-2-2	2.0	-	-	SM	None	On edge of pond. In shade of adjacent tree.	Good	Good	20+	C2	2.5	20
T72	English oak	On	16.0	1	-	870	7-9-9-8	3.0	2	N	M	None	In close proximity to overhead power lines.	Good	Fair	40+	B2	10.4	342
T73	English oak	On	17.0	1	-	920	4-6-3-3	6.0	2	N	LM	None	Tree has historically failed at first fork. One stem remains to E side.	Fair	Poor	10+	C2	11.0	383
T74	English oak	On	15.0	1	-	960	10-10-8-9	3.0	2.5	NW	M	None	Previous limb failure to SE. Cavities to SE at first fork. Deadwood within crown.	Good	Fair	20+	B2	11.5	417
T75	English oak	On	13.0	1	-	440	7-5-2-8	3.0	2	W	SM	None	Asymmetric crown due to proximity to adjacent tree.	Good	Good	40+	B2	5.3	88
T76	English oak	On	15.0	1	-	690	8-8-9-9	4.0	3	S	M	None	Attractive tree of good form.	Good	Good	40+	A1	8.3	215
T77	English oak	On	14.0	1	-	610	7-9-9-9	3.0	2	W	M	None	Attractive tree of good form	Good	Good	40+	A2	7.3	168
T78	English oak	On	16.0	1	-	780	8-8-9-9	3.0	3	W	M	None	Previous branch failure at first fork.	Good	Fair	20+	B1	9.4	275
T79	English oak	On	9.0	1	-	320	5-5-5-4	2.5	2	W	EM	None	Low spreading tree within hedgerow.	Good	Fair	40+	B2	3.8	46
T80	English oak	On	15.0	1	-	910	9-9-10-10	4.0	2	SE	M	None	Attractive tree of good form	Good	Good	40+	A1	10.9	375
T81	English oak	Off	15.0	1	#	730	10-10-10-9	3.0	2	S	M	None	Attractive tree of good form	Good	Good	40+	A1	8.8	241
T82	English oak	Off	11.0	1	#	400	5-6-5-5	1.5	2	S	EM	None	Heavily covered in ivy extending into crown. To north of field drainage ditch.	Good	Fair	40+	B2	4.8	72
T83	Ornamental sycamore 'Brilliantissimum'	On	3.0	1	-	80	1-1.5-1-1	0.5	0.5	W	SM	None	Small ornamental tree	Good	Good	20+	C2	1.0	3
T84	English oak	On	12.0	1	-	780	5-3-8-9	3.0	3	S	LM	None	Leaning slightly to SW . Significant crown dieback and major deadwood. Lifting bark on limbs to the south.	Poor	Poor	<10	C2	9.4	275
T85	Goat willow	On	5.0	3	-	140	3-3-3-3	0.0	-	-	SM	None	On edge of pond adjacent to T85.	Good	Good	20+	C2	1.7	9

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SURVEY DATES: 9 & 14 April 2020

Ref	Species	On / off site	Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. Canopy Height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m²
T86	English oak	On	16.0	1	-	760	8-9-7-6	0.0	-	-	M	None	Previous limb failure to W side. Occluded well. Low canopy over pond. Tree leans slightly into pond to N.	Good	Fair	20+	B2	9.1	261
T87	Hawthorn	On	5.0	1	-	140	2-3-2-2	1.5	-	-	M	None	Swamped in ivy and bramble.	Fair	Fair	10+	C	1.7	9



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. Canopy Height (m)	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	TPO?
G1	Elm	On	5 - 7	5	-	180	2.0	3.0	SM	None	Two trees to E dead. Stems covered in ivy extending into crown.	Fair	Fair	10+	C2	2.2	
G2	Lombardy poplar	Off	8 - 21	5	#	580	3.0	2.5	EM	None	One tree has completely decayed in the centre leaving two stems with poor structure. Trees are equally spaced.	Good	Fair	10+	C2	7.0	
G3	Lombardy poplar	Off	18 - 22	13	#	640	3.0	3.0	M	None	Several trees have major deadwood within crown. Birch and hawthorn between trees to the eastern end of group.	Good	Fair	10+	C2	7.7	
G4	Hawthorn, blackthorn	On	5 - 6	3	-	160	2.0	1.0	EM	None	Growing within maintained hedgeline.	Good	Fair	10+	C2	2.0	
G5	Hawthorn, ash, goat willow, hazel, English oak	On	3-6	20	-	110	2.0	0.0	SM	None	Group of trees growing on the edge of a pond. Goat willow is within the pond.	Good	Fair	20+	C2	1.3	
G6	Hawthorn, Goat willow,	On	3-4	20	#	130	2.0	0.0	EM	None	Growing around edge of pond.	Good	Good	10+	C2	1.6	
G7	Hawthorn, lilac, plum,	On	3-5	8	-	120	2.0	0.0	EM	None	Group on boundary with garden.	Fair	Fair	10+	C2	1.5	
G8	Fir, Lawson cypress	On	10-12	17	-	270	3.0	1.0	EM	None	Group of coniferous trees between two ponds. Several stems covered in ivy.	Good	Good	20+	B2	3.2	
G9	Hawthorn, elder, goat willow	On	2-5	7	-	190	0.5	0.0	SM	None	Growing on edge of pond. Several trees covered in ivy.	Good	Fair	10+	C2	2.3	

SURVEY DATES: 9 & 14 April 2020

Ref	Species	On / off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. Crown radius (m)	Avg. Canopy Height (m)	Life Stage	Special importance	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	TPO?
G10	Elm	On	4-6	8	-	190	1.0	2.0	SM	None	Several trees covered in ivy. Bramble growing between trees.	Fair	Fair	10+	C2	2.3	
G11	Pine, hawthorn, lilac, plum	Off	3-8	15	#	220	1.5	1.0	SM	None	Pine swamped in ivy. Trees growing in close proximity	Fair	Fair	10+	C2	2.6	



HEDGES

Ref	Species	On / off site	Av. Height (m)	Av. width (m)	Av. Stem diam (mm)	Avg. Canopy Height (m)	Life Stage	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H1	Hawthorn, elm	On	2	1.5	150.0	0.0	SM	Uniform maintained hedgerow. Bramble growing throughout.	Good	Good	20+	B2	1.8
H2	Hawthorn	On	2.5	2.0	180.0	0.0	SM	Uniform maintained hedgerow, has been allowed to grow in height in places.	Good	Good	20+	B2	2.2
H3	Hawthorn	On	2.5	2.0	18.0	0.0	SM	Uniform maintained hedgerow.	Good	Good	20+	B2	0.0
H4	Hawthorn, holly, elm,	On	2	1.5	150.0	0	SM	Attractive maintained hedgerow. Has not been maintained in height under T10 and T11.	Good	Fair	20+	B2	1.8
H5	Hawthorn	On	2.5	2.0	150.0	0	SM	Maintained hedgerow becoming swamped by bramble	Fair	Fair	10+	C2	1.8
H6	Hawthorn, privet, elder	Off	4	1.5	90	0	SM	Thorn quick hedge planted on adjacent land behind chain link fence. Ivy creeping in in places along with bramble. Maintained to N side, not currently cut in top.	Good	Good	20+	C2	1.1
H7	Hawthorn, ash	On	2	1.5	90	0	EM	Gappy hedge with barbed wire fence on old field boundary.	Good	Fair	10+	C2	1.1
H8	Hawthorn , blackthorn next, elder	On	2	2.0	100	0	EM	Maintained hedgerow with bramble and ivy in places. Gap# to northern end filled with low bramble. Double line of stems with eastern line at higher elevation than western side.	Good	Fair	20+	C2	1.3
H9	Blackthorn	On	1	1.0	50	0	SM	Low cut hedgerow with bramble growing throughout.	Fair	Fair	10+	C2	0.6
H10	Hawthorn, blackthorn, elder	On	2	0.5	130	0	EM	Well maintained field boundary hedgerow.	Good	Fair	20+	B2	1.6
H11	Hawthorn, elm, ash	On	6	2.0	120	0	EM	Hedgerow that is maintained on sides, not on top. Growing into canopy of T34. Ivy at base and growing up several stems.	Good	Fair	10+	C2	1.5
H12	Hawthorn	On	4	1.5	110	0	EM	Small section of hedge, flailed to E and W.	Good	Fair	10+	C2	1.3
H13	Hawthorn, hazel	On	3	3.0	110	0	EM	Small section of hedge with pond to E side. Maintained by flailing to W side, not managed to E or in height.	Good	Fair	10+	C2	1.3
H14	Hawthorn, elder	On	1	1.0	140	0	M	Mature hedgerow with gaps infilled with bramble.	Good	Fair	10+	C2	1.7
H15	Hawthorn, hazel, blackthorn	On	2	1.5	110	0	EM	Well maintained, ivy beginning to encroach into centre, otherwise an attractive hedgerow.	Good	Good	20+	B2	1.3
H16	Hawthorn, elder,	On	2.0	1.5	110	0.0	EM	Gappy hedge heavily covered in ivy in places.	Fair	Fair	10+	C2	1.3
H17	Hawthorn, English oak, beech	On	2.0	2.0	120	0.0	EM	Attractive well maintained boundary hedgerow.	Good	Good	20+	B2	1.5
H18	Elm	On	1.5	1.5	110	0.0	EM	Well maintained boundary hedgerow. Gappy in places.	Good	Good	10+	C2	1.3

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Ref	Species	On / off site	Av. Height (m)	Av. width (m)	Av. Stem diam (mm)	Avg. Canopy Height (m)	Life Stage	General Observations	Health & vitality	Struct. cond.	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H19	Hawthorn	On	0.5	0.5	90	0.0	EM	Well maintained boundary hedgerow. Gappy in places.	Good	Fair	10+	C2	1.1
H20	Hawthorn, elm,	On	4.0	2.0	120	0.0	SM	Boundary hedgerow maintained on sides, not top.	Good	Fair	20+	C2	1.5
H21	Elder, blackthorn, hawthorn, elm, cherry	On	3.0	2.0	110	0.0	EM	Boundary hedgerow, maintained on southern side, top allowed to grow giving uneven form. Bramble and ivy growing within hedgerow	Good	Good	10+	C2	1.3
H22	Hawthorn	Off	2.5	2.5	150	0.0	EM	Unmaintained hedge to N side of drainage ditch.	Good	Fair	10+	C2	1.8
H23	Lawson cypress	Off	2.0	2.0	110	0.0	SM	Attractive, well maintained boundary hedge	Good	Good	20+	B2	1.3





PHOTO 1: Trees alongside Guarlford Road to the north of the site adjacent to the proposed development access.

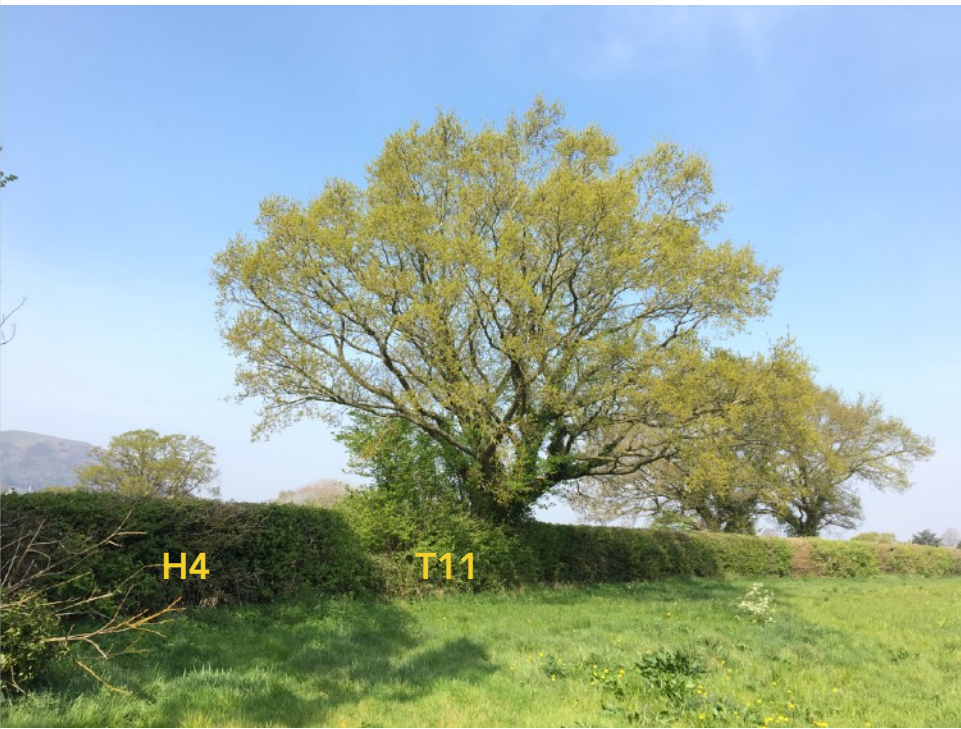


PHOTO 2: T11 and H4 on the western edge of the site, within the area proposed for green infrastructure.



PHOTO 3: T19, T21 and T23, high quality English oak trees, part of an old field boundary. G3 is in the background.



PHOTO 4: Looking towards the residential properties to the northern boundary of the site, T50 - 52.



PHOTO 5: The eastern boundary of the site visible to the left hand side of the photo, T69 - 78, and the southern boundary, to the right hand side, T18 - 23.



PHOTO 6: T80 in the north eastern corner of the site. H20 runs along the eastern boundary and H21 along the northern boundary.



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

The DIMENSIONS taken are:

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

LIFE STAGE is defined as follows:

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

- EM Early-mature: Not yet having reached 75% of expected mature size. Established young trees, normally of good vigour and still increasing in height, but beginning to spread laterally. Beginning to make an impact upon the local landscape & 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 & 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 of epicormic shoot growth)
- Poor: Significant stress or disease noted; larger areas of dieback than above
- Dead: (or Moribund)

STRUCTURAL CONDITION:

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

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

REMAINING USEFUL LIFE EXPECTANCY:

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.

#### **QUALITY CATEGORY:**

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

- (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 U: UNSUITABLE:**

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.

It may also include trees that should be removed irrespective of any development proposals.)

#### **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 highly desirable; selective removal of certain individuals may be acceptable, but only after full consideration of all alternative courses of action.

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

#### **CATEGORY C: MINOR VALUE:**

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

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

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

#### **ROOT PROTECTION AREA (RPA):**

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

## 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 2019 (NPPF paragraph 175) states that:

‘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 an

‘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.

## 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.

### 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 Table 1 below.

Table 1. Staged approach with cross references to key guidance

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

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

### Avoid

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

### Mitigate

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

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

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

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

### Compensate

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

### Considerations:

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

### Tree constraints

#### Root Protection Area:

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

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.