

ARBORICULTURAL SURVEY REPORT

Corneli Primary School,
Bridgend

September 2023



Barton Hyett Associates
Arboricultural Consultants

CSA
environmental

Summary table		
Site Name:	Corneli Primary School, Bridgend	
Project reference:	5685	
Site Address:	9 Heol Fach, North Cornelly, Bridgend	
Nearest Postcode:	CF33 4LB	
Central Grid reference:	SS 81984 81631	
Local Planning Authority:	Bridgend County Borough Council	
Relevant planning policies:	Bridgend Local Development Plan 2006-2021: SP2 - Design and sustainable place making; SP4 - Conservation and enhancement of the natural environment; ENV5 - Green infrastructure; ENV6 - Nature conservation. Supplementary Planning Guidance: SPG7 - Trees and development. NB: Replacement Bridgend Local Development Plan 2018-2033 is in development.	
Statutory Controls:	Tree Preservation Order	Conservation Area
	Yes - off-site trees T10 - T13	No
Soil Type: (Source: BGS online soils map © NERC 2023)	Superficial/Drift	Bedrock
	Deep clayey loam to silty/sandy loam over Head - clay, silt, sand and gravel (part site) and Devensian Till - diamicton.	Mercia Mudstone Group conglomerate.
Topographical Survey:	3698_REV0 (July 2020)	
Notes:	None.	
Report author:	David Holmes <i>FdSc, MArborA</i>	
Checked by:	Paul Barton <i>MSc, BSc (Hons), MArborA, RCarborA</i>	
Date of issue:	8th of September 2023	

REPORT CONTENTS:

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SECTION 2:	TREE SURVEY & CONSTRAINTS PLAN
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THIS REPORT HAS BEEN PREPARED TO PROVIDE ADVICE AND GUIDANCE ON THE POTENTIAL FOR DEVELOPMENT OF LAND IN RELATION TO TREES. IT IS THEREFORE INTENDED FOR 'INTERNAL USE' ONLY BY THE NAMED CLIENT AND DESIGN TEAM. IT MAY NOT THEREFORE BE SUITABLE FOR SUBMISSION TO A PLANNING AUTHORITY WITH A PLANNING APPLICATION.

1. INSTRUCTION

- 1.1. Barton Hyett Associates Ltd have been instructed by CSA Environmental on behalf of HSP Consulting to survey trees located at Corneli Primary School, Bridgend ('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 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 Corneli Primary School, Children's Centre and grounds in the village of North Cornelly, approximately 3 miles west of Bridgend.
- 2.2. The site includes school buildings, car parks, tarmac and grass play areas, sports courts and a sports field. The site has access from Greenfield Terrace to the north and separate pedestrian and vehicular accesses from Hall Drive to the south.
- 2.3. The site is fairly level, at about 33 metres above mean sea level but with profiles to accommodate buildings and play areas as well as occasional landscaped earth bunds. A planted belt of trees along the south-east boundary grows partially on a sloped embankment which rises to the adjacent properties.
- 2.4. The boundaries are school security fencing.
- 2.5. The wider area is C20th residential estates with scattered open spaces.

3. TREE SURVEY FINDINGS

- 3.1. The survey recorded 33 arboricultural features. These are summarised in terms of their quality in accordance with the recommendations of BS 5837 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	19	3	8	7	1
Groups	9	-	5	4	-
Hedgerows	5	-	3	2	-
Total	33	3	16	13	1

Table 1: summary of arboricultural features of each BS 5837 quality category

4. KEY ARBORICULTURAL FEATURES

- 4.1. No veteran or ancient trees were identified within the site. The off-site trees T10 - T13 are protected by a Tree Preservation Order (TPO).
- 4.2. Scots pine T1 achieves category A2 because, although it is currently only a small semi-mature tree, it is the only tree within the Greenfield Terrace street scene. This means that the tree is of particular visual importance as a landscape feature.
- 4.3. Broad-leaved lime T5 is of good health and form and is of quality category A2. It grows within a small grouping of other trees which are mostly quality category B2, with one category C field maple T7.
- 4.4. Sycamore T20 (A1) is of good form and condition and is situated in a very suitable location for future growth.
- 4.5. The previous survey identified a loss of vigour in several ash, with minor twiggy dieback noted throughout the crowns of T9, T14, T15 and the ash within the groups G2 - G6. The individual trees along with G6 have since been felled. The ash within G2, G3, G4 and G5 have been thinned along with several small dead elm stems. The group G3 was predominantly ash and this has caused a reduction in the footprint of the group. The size of the other groups was not affected since ash was a smaller part of the population.

5. CONSTRAINTS AND OPPORTUNITIES

- 5.1. The peripheral location of high-quality trees T1, T20 and the belt of trees in the south-east of the site means that it should be relatively straightforward to incorporate them successfully into a site design. The retention of high-quality lime tree T5 and surrounding trees will need consideration in order to provide sufficient space for the future growth of this large tree, a species that can typically reach a mature height of 17-22 metres.
- 5.2. Following the removal of ash stems from the tree belt in the south-east of the site, a landscape scheme for the site should take into account the re-stocking of this area. It is likely that natural regeneration of other species, particularly sycamore, will in time replace the ash trees by taking advantage of the increased space and light from their removal. It may, however, prove difficult to establish newly planted trees below the canopy of the larger trees within the belt.
- 5.3. New tree planting along the site frontages, particularly Greenfield Terrace, will contribute to improving the street scene.
- 5.4. Please see section 5 for further advice and guidance on designing new developments near to trees.

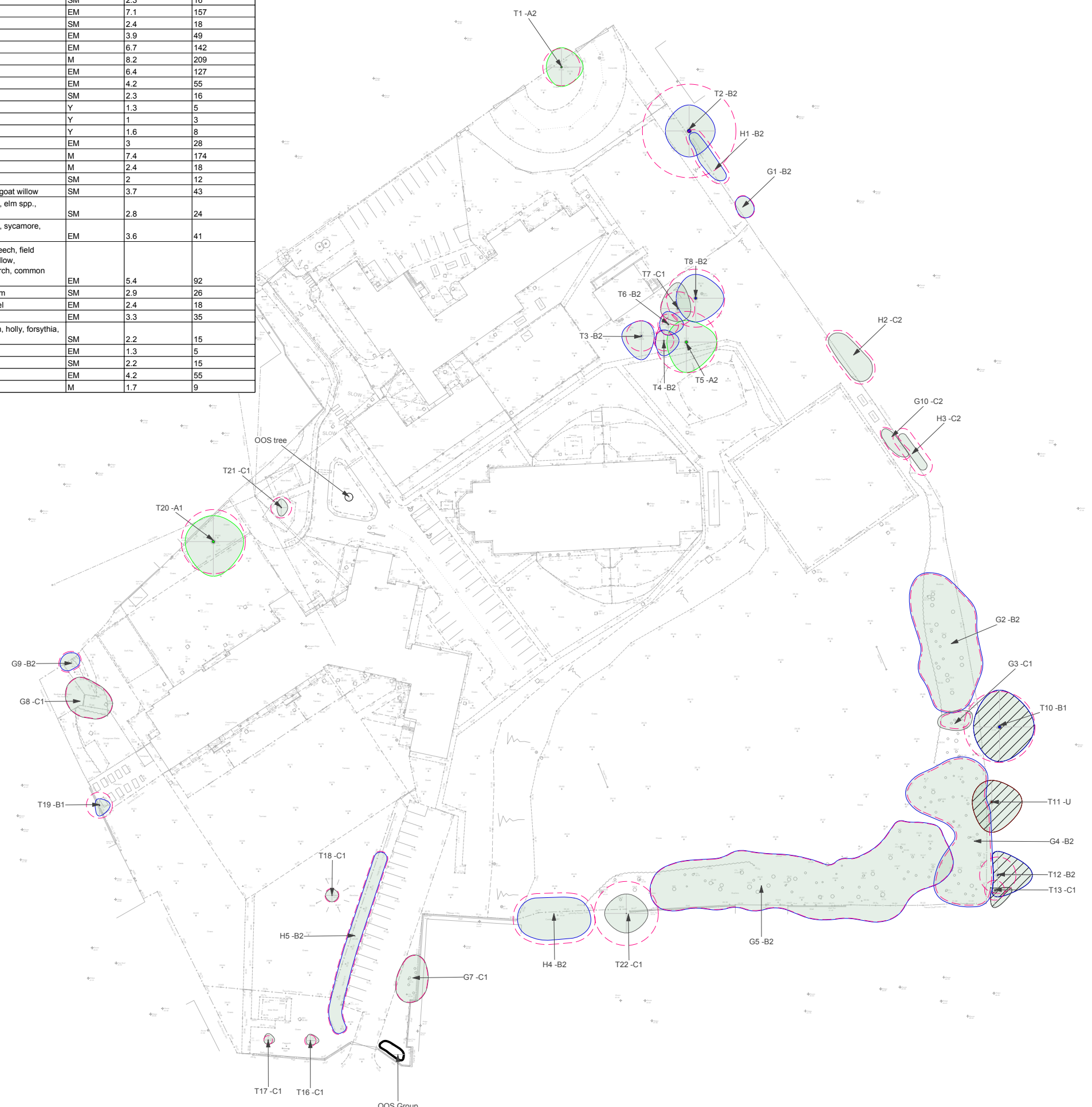
6. RECOMMENDATIONS AND CONCLUSION

- 6.1. 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.
- 6.2. Once the design proposal has been agreed upon, an Arboricultural Impact 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.



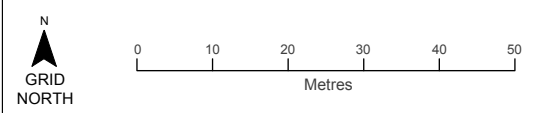
David Holmes, FdSc, MArborA, Arboriculturist

Tree No	Ht (m)	Species	Life Stage	RPA Radius (m)	RPA Area (m2)
T1	7	Scots pine	SM	4.3	59
T2	12	Leyland cypress	M	10.8	366
T3	6	Pedunculate oak	SM	3.5	38
T4	7	Rowan	SM	2.3	16
T5	11	Broad-leaved lime	EM	7.1	157
T6	8	Pedunculate oak	SM	2.4	18
T7	8	Field maple	EM	3.9	49
T8	10	Horse chestnut	EM	6.7	142
T10	16	Common ash	M	8.2	209
T11	14	Elm spp.	EM	6.4	127
T12	10	Wild cherry	EM	4.2	55
T13	10	Wild cherry	SM	2.3	16
T16	4.5	Silver birch	Y	1.3	5
T17	5	Silver birch	Y	1	3
T18	4.5	Swedish whitebeam	Y	1.6	8
T19	4	Common holly	EM	3	28
T20	10	Sycamore	M	7.4	174
T21	4	Cabbage palm	M	2.4	18
G1	4-6	Goat willow, birch spp.	SM	2	12
G2	7-14	Sycamore, common ash, goat willow	SM	3.7	43
G3	4-13	Common ash, goat willow, elm spp., common beech	SM	2.8	24
G4	6-14	Common ash, goat willow, sycamore, cherry spp., elm spp.	EM	3.6	41
G5	7-12	Common ash, common beech, field maple, sycamore, goat willow, pedunculate oak, silver birch, common alder	EM	5.4	92
G7	6	Common beech, hornbeam	SM	2.9	26
G8	5	Willow, cherry laurel, hazel	EM	2.4	18
G9	6	Common holly	EM	3.3	35
H1	4	Hawthorn, lilac, hornbeam, holly, forsythia, snowberry, plum	SM	2.2	15
H2	3	Forsythia	EM	1.3	5
H3	3.5	Lawson cypress	SM	2.2	15
H4	11	Leyland cypress	EM	4.2	55
H5	3	Escallonia	M	1.7	9



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

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
Corneli Primary School, Bridgend (5695)

DRAWING TITLE
Tree Survey & Constraints Plan

SCALE: **1:1000 @ A3** DRAWING NUMBER: **BHA_780_01**

DRAWN BY: **SD** APPROVED BY: **IM** REVISION: **-** SHEET: **-** DATE: **22/08/2023**

LAYOUT USED WITHIN DRAWING: **n/a**

CLIENT: **HSP Consulting**

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

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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 ²	TPO
T1	Scots pine	On	8.0	2	-	410	4.5-5.0-4.5-3.5	1.5	0.5	S	SM	None	Four branches arise below 1.5m. This is only significant tree in street scene.	Good	Good	40+	A2	4.9	76	
T2	Leyland cypress	Off	12.0	1	#	900	6.0-6.0-6.0-5.5	4.5	2.5	S	M	None	Bole is of tightly pressing smaller stems, perhaps three. Ivy on bole.	Good	Fair	20+	B2	10.8	366	
T3	Pedunculate oak	On	6.0	2	-	350	3.5-3.0-5.5-4.5	2.0	1	S	SM	None	Basal bark wound. Branch tear wound at 1.5m north. Wounds may occlude given age. Crown previously suppressed by felled tree.	Good	Good	20+	B2	4.2	55	
T4	Rowan	On	7.0	1	-	220	2.5-3.5-3.5-2.0	2.0	1.5	N	SM	None	Mechanical wound at base. Crown previously suppressed by felled tree.	Good	Good	20+	B2	2.6	22	
T5	Broad-leaved lime	On	11.0	3	-	540	5.0-7.0-7.0-4.5	1.5	1.5	SW	EM	None	Crown to NE previously suppressed by felled tree. Dia. recorded as single stem @0.25m. Low crown clearance (<1m) above footpath	Good	Good	40+	A2	6.5	132	
T6	Pedunculate oak	On	8.0	1	-	220	3.0-3.5-2.5-2.0	1.5	1.5	NE	SM	None	Basal mechanical wound largely occluded. Suppressed form.	Good	Fair	20+	B2	2.6	22	
T7	Field maple	On	8.0	3	-	360	6.0-3.0-3.0-4.0	2.0	1.5	S	EM	None	Extensive peeled bark on south stem from ground to 2.5m. Cambium has tried to regrow but exposed wood now too weathered. Dia. recorded as 2x stems @1m	Good	Fair	10+	C1	4.3	59	
T8	Horse chestnut	On	10.0	5	-	570	5.5-6.5-5.5-4.5	3.0	1.5	S	EM	None	Exposed surface root with mechanical wounding. Inspection cover within 1m of stem base. Three stems from 0.5m with included bark unions. Rusty exudate from one union. Yellowing of some crown areas. Dia. recorded @ 1m as 3x stems	Fair	Fair	40+	B2	6.8	147	
T10	Common ash	Off	16.0	2	#	680	8.5-8.0-8.0-6.0	7.0	3.5	W	M	None	Included bark stem union 1.5m west. Deadwood. Treehouse attached.	Good	Good	20+	B1	8.2	209	Yes

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 ²	TPO
T11	Elm spp.	Off	14.0	2	#	530	5.0-7.0-7.0-4.5	3.5	-	-	EM	None	Dead standing tree.	Dead	Dead	<10	U	6.4	127	Yes
T12	Wild cherry	Off	10.0	1	#	350	5.5-8.0-5.0-1.0	4.5	1	NW	EM	None	Smaller cherry closer to site boundary.	Good	Good	20+	B2	4.2	55	Yes
T13	Wild cherry	Off	10.0	1	-	200	0.5-4.0-4.0-1.0	4.0	1.5	W	SM	None	Suppressed tree.	Fair	Fair	20+	C1	2.4	18	Yes
T16	Silver birch	On	4.5	1	-	100	1.5-2.0-1.0-1.0	1.5	0.5	N	Y	None	Staked tree. Strimmer wound at base. Tie band cutting in. Adjust tie and replace wooden support with stake	Fair	Fair	10+	C1	1.3	5	
T17	Silver birch	On	5.0	1	-	80	1.5-1.5-1.0-1.0	2.0	1.5	N	Y	None	Staked tree. Strimmer wound at base. Crown decline. Remove wooden support. Monitor future health to determine management decision	Fair	Fair	10+	C1	1.0	3	
T18	Swedish whitebeam	On	4.5	1	#	50	1.5-1.5-1.5-1.5	2.0	2	n/a	Y	None	Good establishment. Remove wooden support. Visible root damage	Good	Good	40+	C1	0.6	1	
T19	Common holly	On	4.0	4	#	250	1.5-2.5-2.5-1.0	1.5	1.5	n/a	EM	None	Ownership unclear. Grows between wire fence and block wall.	Good	Good	20+	B1	3.0	28	
T20	Sycamore	On	10.0	1	-	650	6.0-7.0-8.0-6.5	1.5	2.5	N	M	None	Good form and condition. Good location. Recent crown lift/crown clean to lower canopy	Good	Good	40+	A1	7.8	191	
T21	Cabbage palm	On	4.0	6	-	610	2.0-1.5-2.0-1.0	0.5	1.5	n/a	M	None	Past frost dieback.	Good	Fair	10+	C1	7.3	168	
T22	Norway Maple	Off	14.0	5	#	620	3.0-6.0-4.0-6.0	2.5	0	n/a	EM	None	Poor vigour throughout crown with minor twiggy dieback and undersized leaves	Fair	Fair	10	C1	7.4	174	

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)
G1	Goat willow, birch spp.	Off	4-6	3	-	160.0	2	2.0	SM	None	Planted guarded group.	Good	Good	20+	B2	2.0
G2	Sycamore, common ash, goat willow	On	7-14	47	-	310.0	4	4.0	SM	None	Planted group on gently sloping bank. Good screen. Ash Dieback affecting nearby ash trees, but symptoms not yet clearly evident in this group. Ash is 15% of group by number.	Fair	Good	20+	B2	3.7
G3	Goat willow, elm spp.	On	4-13	20	-	230.0	3	3.5	SM	None	Typical for age & species.	Poor	Good	10+	C1	2.8
G4	Common ash, goat willow, sycamore, cherry spp., elm spp.	On	6-14	35	-	300.0	4	3.5	EM	None	Ash is about 43% of group by number. Ash Dieback symptoms less advanced than G3. Five dead elm in south of group.	Fair	Good	20+	B2	3.6
G5	Common ash, common beech, field maple, sycamore, goat willow, pedunculate oak, silver birch, common alder	On	7-12	54	-	450	5.5	1.5	EM	None	Ash is about 5% of group by number, and predominantly in east of group. Some Dieback symptoms. Most trees have included bark unions. Peeled bark on trees nearest field.	Good	Fair	40+	B2	5.4
G7	Common beech, hornbeam	On	6	6	-	240	3	0.0	SM	None	Tightly planted group, presumably planted to soften view of rear of adjacent shops. Almost forming hedge. Likely to cause complaints or structural damage if allowed to grow to maturity.	Good	Fair	10+	C1	2.9
G8	Willow, cherry laurel, hazel	On	5	5	#	200	2.5	0.0	EM	None	Overgrown group previously tightly trimmed.	Good	Fair	10+	C1	2.4
G9	Common holly	Off	6	2	#	280	3	1.0	EM	None	Ownership unclear but grow outside of boundary fence.	Good	Good	40+	B2	3.3
G10	Apple, damson	On	2 - 4	3	#	100	2	0.0	Y	None	Small fruit trees established adjacent to MUGA	Good	Good	10	C2	1.3

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, lilac, hornbeam, holly, forsythia, snowberry, plum	Off	4.0	3	180	0.0	SM	Unmaintained group of young to early mature shrubs and one young hornbeam forming hedge screen at end of garden.	Good	Fair	20+	B2	2.2
H2	Forsythia	Off	3.0	1.5	100	0.5	EM	Unmaintained screening hedge with ivy. Two cherry plums and a holly beyond.	Good	Good	20+	C2	1.3
H3	Lawson cypress	Off	3.5	2	180	1.5	SM	Partially maintained hedge with dead section.	Fair	Fair	10+	C2	2.2
H4	Leyland cypress	Off	11.0	6.5	350	2.0	EM	Outgrown hedge.	Good	Good	20+	B2	4.2
H5	Escallonia	On	3.0	3	140	0.0	M	Unmaintained informal hedge.	Good	Good	20+	B2	1.7



IMAGE 1: View from within the north of the site, looking east towards Greenfield Terrace, with T1 & the off-site T2 shown.



IMAGE 2: View of tree grouping T3 to T8, looking north-west, with off-site Leyland cypress to the right.



IMAGE 3: View of T20 & T21 looking south-west from the north school entrance.



IMAGE 4: View south of the boundary showing the space created by the removal of G6 & the off-site tree T22.



IMAGE 5: A wider view south of the boundary showing the space created by the removal of G6 & the off-site tree T22, in relation to the other features.



IMAGE 6: An internal view west looking within G5, showing the outdoor classroom area.

- 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 crown e.g. the average height of the crown above ground level. Measurements are recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- ESTIMATES. Where any measurement has had to be estimated, due to inaccessibility for example, this is indicated by a "#" suffix to the measurement as shown in the tree survey schedule.

LIFE STAGE is defined as follows:

- Y Young: normally stake dependent, establishing trees. Should be growing fast, usually primarily increasing in height more than spread, but as yet making limited impact upon the landscape.
- SM Semi-mature: Established young trees, normally of good vigour and still increasing in height, but beginning to spread laterally. Beginning to make an impact upon the local landscape & 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)

ESTIMATED REMAINING CONTRIBUTION:

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

- less than 10 years
- 10+ years
- 20+ years
- 40+ years

SPECIAL IMPORTANCE:

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

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

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

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

QUALITY CATEGORY:

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

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

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

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

CATEGORY A: HIGH QUALITY:

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

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

CATEGORY B: MODERATE QUALITY:

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

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

CATEGORY C: LOW QUALITY:

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

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

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

CATEGORY U:

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

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

(Category U trees may have conservation values that it might be desirable to preserve.

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

ROOT PROTECTION AREA (RPA):

These are normally represented as a circle centred on the base of each tree stem with a radius of 12 times stem diameter measured at 1.5m above ground level, but 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 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

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

Tree Opportunities

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

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