

# BOKLOK - FULBECK AVENUE, WORTHING

## Arboricultural Implications Report

DOC: 19297-01a

January 2020





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# **Arboricultural Implications Report**

## **Proposed development at**

### **Land off Fulbeck Avenue**

#### **Worthing**

#### **West Sussex**



**January 2020**

Ref. SJA air 19297-01a

## **SUMMARY**

S1. On the basis of our assessment, we conclude that the arboricultural impact of this scheme is of low magnitude, as defined according to the categories set out in **Table 1** of this report.

S2. Our assessment of the impacts on trees concludes that no trees of high landscape or biodiversity value are to be removed. With the exception of the recent secondary woodland in the north section of the site, none of the main arboricultural features of the site are to be removed. The proposed removal of individuals and groups of trees will represent only a minor alteration to the main arboricultural features of the site and will not have a significant adverse impact on the arboricultural character and appearance of the local landscape. The alteration to the main arboricultural features will be mitigated through considerable replacement planting.

S3. The proposed pruning is minor in extent, will not detract from the health or appearance of these trees, and complies with current British Standards.

S4. The incursions into the Root Protection Areas of trees to be retained are minor, and subject to implementation of the measures recommended on the Tree Protection Plan and set out at **Appendix 1**, no significant or long-term damage to their root systems or rooting environments will occur.

S5. As none of the proposed apartments or amenity space lie within the shadow patterns of any retained trees, they will not be shaded by retained trees to the extent that this will interfere with their reasonable use or enjoyment by incoming occupiers; which might otherwise lead to pressure to permit felling or severe pruning that the LPA could not reasonably resist.

S6. As the proposed development will not result in the removal of trees which are of significant landscape or biodiversity value, it complies with Policy 13 of the Core Strategy 2011 and Policies CP5 and CP 19 of the Worthing Borough Draft Local Plan 2016-2033 (October 2018).

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# 1. INTRODUCTION AND BACKGROUND INFORMATION

## 1.1. Instructions

1.1.1. SJAtrees has been instructed by Boklok Housing Ltd to visit Land off Fulbeck Avenue, Worthing and to survey the trees growing on or immediately adjacent to this site.

1.1.2. We are further asked to identify which trees are worthy of retention within a proposed development of the site; to assess the implications of the development proposals on these specimens, and to advise how they should be protected from unacceptable damage during construction.

## 1.2. Scope of report

1.2.1. This report and its appendices reflect the scope of our instructions, as set out above. It is intended to accompany a planning application to be submitted to Worthing Borough Council, and complies with local validation requirements, and with the recommendations of British Standard BS 5837:2012, *Trees in relation to design, demolition and construction – Recommendations* ('BS 5837').

1.2.2. The proposed development comprises the erection of 152 new high-quality modular dwellings including Affordable Housing, consisting of 51 no. 1-bedroom apartments and 101 no. 2-bedroom apartments, with associated car and cycle parking, open space, landscaping and new access at land at Fulbeck Avenue, Worthing, BN13 3RT

1.2.3. This report summarises and sets out the main conclusions of the baseline data collected during the tree survey and identifies those trees or groups of trees whose removal could result in a significant adverse impact on the character or appearance of the local area (Section 3). It then details and assesses the impacts of the proposed development on individual trees and groups of trees, including those to be removed (Section 4), those to be pruned (Section 5), those which might incur root damage that might threaten their viability (Section 6) and those that might become under pressure for removal after occupation as a result of shading (Section 7). A summary and conclusion, with regard to local planning policy, are presented in Section 8.

### 1.3. Site inspection

1.3.1. A site visit and tree inspection were undertaken by Finn Cullerne of SJAtrees on Friday 2<sup>nd</sup> August 2019. Weather conditions at the time were clear, dry and bright. Deciduous trees were in full leaf.

### 1.4. Site description

1.4.1. The site is an irregular shape and is approximately 3ha in size located on the west side of Fulbeck Avenue, as shown at **Figure 1** below. The north boundary adjoins a recent residential development and the east boundary abuts Fulbeck Avenue with a mix of commercial and residential developments beyond. The southern tip of the site adjoins rear gardens of the residential properties along Fulbeck Avenue. The west site boundary adjoins the Northbrook Farm caravan site and Titnore lake.



**Figure 1: Site location shown on Google Earth image**

1.4.2. It is on ground that gently rises from east to west, and currently comprises an open field with dense scrub growth in the south section of the site, which is separated from the young secondary woodland in the northern section of the site by a ditch.

## **1.5. Soil type**

1.5.1. The British Geological Survey Solid and Drift Geology map of the area indicates the site lies on superficial deposits of River Terrace Deposits of sand, silt and clay above a bedrock of Lambeth Group

1.5.2. This is expanded upon by the Ground Investigation Interpretative Report, undertaken by Geofirma and dated November 2019. The report details that the typical soil profile is topsoil to 0.4m below ground level (bgl), head deposits of slightly sandy or gravelly clay to 4.6bgl overlaying Lambeth Group bedrock.

## **1.6. Statutory controls**

1.6.1. At the time of writing none of these trees are covered by a tree preservation order (TPO).

1.6.2. The site is not within a conservation area, and therefore there are no constraints relating to existing trees in this regard.

## **1.7. Non-statutory designations**

1.7.1. There are no woodlands within or abutting the site that are classified as 'Ancient'. Ancient woodland is defined as "any area that's been wooded continuously since at least 1600 AD" and is considered an important and irreplaceable habitat.

## 2. METHODOLOGY

### 2.1. National policy context

2.1.1. Under Section 197 of the Town and Country Planning Act 1990, local authorities have a statutory duty to consider the protection and planting of trees when considering planning applications. The effects of proposed development on trees are therefore a material consideration, and this is normally reflected in local planning policies.

2.1.2. The National Planning Policy Framework (NPPF) (February 2019), sets out the Government's planning policies for England and how these should be applied in both plan and decision-making. Paragraph 2 makes it clear that the NPPF is itself a material consideration in the determination of planning application. Paragraph 11 states that **"Plans and decisions should apply a presumption in favour of sustainable development."**

2.1.3. At paragraph 127, within Section 12 "Achieving well-designed places" the NPPF states: **"Planning policies and decisions should ensure that developments:**

**a) will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;**

**b) are visually attractive as a result of good architecture, layout and appropriate and effective landscaping;**

**c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities);**

**d) establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming and distinctive places to live, work and visit;**

**e) optimise the potential of the site to accommodate and sustain an appropriate amount and mix of development (including green and other public space) and support local facilities and transport networks; and**



**f) create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion and resilience.”**

2.1.4. At paragraph 170, within Section 15 “Conserving and enhancing the natural environment” the NPPF states: **“Planning policies and decisions should contribute to and enhance the natural and local environment by:**

**a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);**

**b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland...”**

2.1.5. At paragraph 175 the NPPF states: **“When determining planning applications, local planning authorities should apply the following principles:**

**c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists....”**

## **2.2. Local policy context**

2.2.1. Local planning policies are contained in the Worthing Borough Council Core Strategy 2011 and the Draft Local Plan 2016-2033 (October 2018).

2.2.2. The relevant section of Policy 13 of the Core Strategy states:

**“... All new development will respect the biodiversity and natural environment that surrounds the development and will contribute to the protection and, where applicable, the enhancement of the area...”**

2.2.3. Policy A2 of the Draft Local Plan (October 2018) relates specifically to this site and states:

**“This greenfield site is located to the north west of the town. It lies on the edge of the urban area but falls within the current built-up area. The Titnore Way Caravan Park (see Site A1) lies to the west and recent development along Fulbeck Avenue and the West Durrington Strategic Development now mean that the site is adjacent to residential development to the north and south. A lake is situated to the north-west from which a stream flows through the southern part of the site. The Titnore & Goring Woods Local Wildlife Site borders the site to the north west. There is no current use of the use of the site which is heavily vegetated, particularly along site boundaries. The southern part of the site consists of overgrown grassland and scrub. The northern part consists of a small area of woodland.**

#### **Site constraints**

- **A band of preserved trees runs along the north east boundary of the site.**
- **Local Wildlife Site borders site to north-west.**
- **Lake lies to the north of the site – a breach of the dam has previously caused flooding in the local area.**
- **Barleyfields Stream crosses the southern part of the site**

#### **Development Requirements – any future development proposals should:**

- **retain mature trees, in particular some of the woodland in the northern part of the site to act as a feature between the site and the West Durrington development and to limit views to the site from the National Park to the north;**
- **enhance boundary vegetation;**
- **adopt the sequential approach so the most vulnerable uses are located in the areas at lowest risk of flooding;**
- **maintain a suitable buffer to the lake and demonstrate how flood risk will be safely managed across the lifetime of the development, taking climate change into account, and not increased elsewhere;**
- **protect the stream / watercourse and incorporate within the design of the open space to be provided as part of the development;**

- ensure a suitable relationship with the site to the west (Site A1 – Caravan Club) in terms of private amenity and overlooking; and
- provide a new point of access from Fulbeck Avenue.”

2.2.4. The relevant section of Policy CP 5 of the Draft Local Plan (October 2018) states:

**“a) All new development (including extensions, alterations, ancillary development, change of use and intensification ) should:**

**...respect the existing natural features of the site, including landform, trees and biodiversity and contribute positively to biodiversity;...”**

2.2.5. The relevant section of Policy CP 19 of the Draft Local Plan (October 2018) states:

**“a) All development should ensure the protection, conservation, and where possible, enhancement of biodiversity, including nationally and locally designated sites, Biodiversity Opportunity Areas (BOAs), marine habitats and other Biodiversity Action Plan (BAP) priority habitat areas, wildlife corridors and stepping stones, and protected and priority species. If significant harm cannot be avoided (by locating development on an alternative site with less harmful impacts), then such harm should be adequately mitigated. Where it cannot be adequately mitigated then such harm must be compensated for. Where it cannot be compensated for, then planning permission should be refused. This process is referred to below as the mitigation hierarchy.**

**b) Proposed developments which would adversely affect a Site of Special Scientific Interest (SSSIs) (individually or cumulatively) will not normally be permitted. Exceptions will only be made where the benefits of the development on the particular site clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts. Where an exception is considered the mitigation hierarchy will apply.**

**c) Proposals for development in, or likely to have an adverse effect (directly or indirectly) on a Local Wildlife Site (including ancient woodlands, ancient/veteran trees, wildlife corridors and stepping stones) or Local Geological Site will not be permitted unless it can be demonstrated that reasons for the proposal outweigh the need to safeguard the nature conservation value of the site/feature. Where an exception is considered the mitigation hierarchy will apply.**

d) Where relevant, new development adjacent to the coast will have to demonstrate how it is addressing the issue of coastal squeeze.

e) Assessment must be informed by appropriate up-to-date ecological information.

f) Major development should take account of and incorporate biodiversity features at the design stage and where possible environmental net gains should be achieved.

g) Tree planting is encouraged to improve the quality of the local environment. Tree Preservation Orders will be made to ensure that healthy locally important trees that make a positive contribution to the streetscene are protected.

h) Where appropriate, the Council will use planning conditions or obligations to provide appropriate enhancement and site management measures, and where impacts are unavoidable, mitigation or compensatory measures.”

### **2.3. Neighbourhood policy context**

2.3.1. At the time of writing there is no Neighbourhood Plan covering the area within which the site is found.

### **2.4. Tree survey and baseline information**

2.4.1. We surveyed individual trees with trunk diameters of 75mm and above<sup>1</sup>, trees with trunk diameters of 150mm and above growing in groups or woodlands, and shrub masses, hedges and hedgerows<sup>2</sup> growing within or immediately adjacent to the site; and recorded their locations, species, dimensions, ages, condition, and visual importance in accordance with BS 5837 recommendations.

2.4.2. The baseline information collected during our site survey was recorded on site using a hand-held digital device. This information was then imported into an Excel spreadsheet and used to produce the tree survey schedule at **Appendix 2**. The numbers assigned to the trees in the tree survey schedule correspond with those shown on the appended tree protection plan.

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<sup>1</sup> BS 5837, paragraph 4.2.4 b), recommends that all trees over 75mm stem diameter should be included in a pre-planning land and tree survey.

<sup>2</sup> Ibid, 4.4.2.7

2.4.3. We surveyed trees as groups where we considered that they had grown together to form cohesive arboricultural features, either aerodynamically (trees that provide companion shelter), visually (e.g. avenues or screens) or culturally<sup>3</sup>. However, where we considered that it might be necessary to differentiate between specific trees within these groups, we also surveyed these individually.

2.4.4. We inspected the trees from the ground only, aided by binoculars as appropriate, but did not climb them. We took no samples of wood, roots or fungi. We did not undertake a full hazard or risk assessment of the trees, and therefore can give no guarantee, either expressed or implied, of their safety or stability.

2.4.5. We have categorised the trees in accordance with BS 5837, and details of the criteria used for this process can be found in the notes that accompany the tree survey schedule.

2.4.6. We have applied this methodology in line with the NPPF's presumption in favour of sustainable development, giving greater weighting to the contribution of a tree to the character and appearance of the local landscape, to amenity, or to biodiversity, where its removal might have a significant adverse impact on these factors.

## **2.5. Tree constraints**

2.5.1. In line with the NPPF's presumption in favour of sustainable development, we assessed whether any trees should be retained in the context of a proposed development. To do this, we identified the main arboricultural features within or immediately adjacent to the site, whose removal we considered could have an adverse impact on the character and appearance of the local landscape, on amenity or on biodiversity.

2.5.2. Whilst BS 5837 states that trees in categories 'A', 'B' and 'C' are all a material consideration in the development process, the retention of category 'C' trees, being of

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<sup>3</sup> Ibid, 4.4.2.3

low quality or of only limited or short-term potential, will not normally be considered necessary should they impose a significant constraint on development.

2.5.3. Furthermore, BS 5837 makes it clear that young trees, even those of good form and vitality, which have the potential to develop into quality specimens when mature **“need not necessarily be a significant constraint on the site’s potential”**<sup>4</sup>.

2.5.4. Moreover, BS 5837 states that **“.... care should be taken to avoid misplaced tree retention; attempts to retain too many or unsuitable trees on a site can result in excessive pressure on the trees during demolition or construction work, or post-completion demands for their removal”**<sup>5</sup>.

2.5.5. The ‘Root Protection Areas’ (RPAs)<sup>6</sup> of the trees identified for retention were calculated in accordance with Section 4.6 of BS 5837; and were assessed taking account of factors such as the likely tolerance of a tree to root disturbance or damage, the morphology and disposition of roots as influenced by existing site conditions (including the presence of existing roads or structures), as well as soil type, topography and drainage.

2.5.6. To assess whether the trees identified for retention would be in harmony with the proposed development (without casting excessive shade or otherwise unreasonably interfering with incoming residents’ prospects of enjoying their properties, and thereby leading inevitably to requests for consents to fell), we plotted a segment or “shading arc” from each trunk, with a radius equal to the current height of the tree concerned, from due north-west to due east. This gave an indication of potential direct obstruction of sunlight and the shadow pattern cast through the main part of the day<sup>7</sup>.

2.5.7. Based on these principles and recommendations, the tree survey and our assessment of suitability for retention informed the production of a tree constraints

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<sup>4</sup> Ibid. 4.5.10.

<sup>5</sup> Ibid. 5.1.1.

<sup>6</sup> The minimum area around a retained 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 is treated as a priority." BS 5837, paragraph 3.7.

<sup>7</sup> BS 5837, paragraph 5.2.2 Note 1.

plan (TCP) which showed the most suitable trees for retention, and their associated below-ground and above-ground constraints.

2.5.8. As a design tool, the TCP showed how close to those trees selected for retention the proposed development could be positioned, in terms of three key criteria:

- a). avoidance of unacceptable root damage;
- b). avoidance of the necessity for unacceptable pruning works; and
- c). avoidance of future felling or pruning works to prevent unacceptable shading or apprehension on behalf of the occupants.

## **2.6. Arboricultural impact assessment and tree protection plan**

2.6.1. Once finalised, we assessed the arboricultural impacts of the proposed layout, by overlaying it onto our TCP, and produced the tree protection plan (TPP) presented at **Appendix 3**. This is based on the proposed site layout plan by ECE Architects, drawing no. 6783 Site Plan.

2.6.2. The TPP identifies the trees which will be removed to accommodate the proposed development, either because they are situated within the footprints of proposed structures or surfaces, or because in our judgment they are too close to these structures or surfaces to enable them to be retained. These are shown by means of **red crosses** on the TPP.

2.6.3. The TPP also shows how trees to be retained will be protected from damage during construction, and the measures identified are set out and described at **Appendix 1** to this report. The implementation of, and adherence to, these measures can readily be secured by the imposition of appropriate planning conditions.

2.6.4. For the trees shown to be retained, all measurements for pruning specifications, percentage estimates of RPA incursions and shading issues have been calculated using AutoCAD software.

2.6.5. Details of the impacts identified within these categories, and our assessment of their respective significance, are analysed in Sections 4 to 7 below.

2.6.6. Based on these findings, we have assessed the magnitude of the overall arboricultural impact of the proposals according to the categories defined in Table 1 below.

Category	Description
High	Total loss of or major alteration to main elements/ features/ characteristics of the baseline, post-development situation fundamentally different
Medium	Partial loss of or alteration to main elements/ features/ characteristics of the baseline, post-development situation will be partially changed
Low	Minor loss of or alteration to main elements/ features/ characteristics of the baseline, post-development changes will be discernible but the underlying situation will remain similar to the baseline
Negligible	Very minor loss of or alteration to main elements/ features/ characteristics of the baseline, post-development changes will be barely discernible, approximating to the 'no change' situation

**Table 1: Magnitude of impacts<sup>8</sup>**

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<sup>8</sup> Determination of magnitude based on DETR (2000) Guidance on the Methodology for Multi-Modal Studies, as modified and extended.



### 3. THE TREES

#### 3.1. Survey findings

3.1.1. We surveyed a total of eighty-eight individual trees, four groups of trees, and five woodland compartments growing within or immediately adjacent to the site. Their details are found in the tree survey schedule at **Appendix 2**. A summary of this information can be found at **Table 2** below.

	No.	% of total
No. of individual trees	88	n/a
No. of groups of trees	4	n/a
No. of different species	10	n/a
Broadleaved specimens	9	90%
Conifers	1	10%
No. over 25m in height	0	0%
No. over 20m in height	0	0%
No. over 15m in height	24	27%
No. over 1500mm trunk diameter	0	0%
No. over 1000mm trunk diameter	0	0%
No. over 500mm trunk diameter	21	24%
No. over 250mm trunk diameter	59	67%
Age: Veteran	0	0%
Age: Over Mature	1	1%
Age: Mature	21	24.5%
Age: Semi-mature	53	60%
Age: Young	13	14.5%

**Table 2: Summary of information in tree survey schedule**

3.1.2. There are three distinct arboricultural characters of the site: the recent secondary woodland in the north section of the site; the mature trees growing along the ditch separating the north and south site and the west boundary, and the open grown trees located in the open space in the south section of the site.

3.1.3. The recent secondary woodland is identified as deciduous woodland priority habitat on the Magic Map Application and is comprised of five woodland compartments of varying quality. Overall the woodland is of low arboricultural diversity, dominated by semi-mature to young goat willow and English oak with limited understorey and ground cover.

3.1.4. The woodland is visible from the surrounding public realm, however its impact on the landscape is limited by the short height of the specimens within it. Furthermore, compartment 4 of the woodland, located opposite the roundabout connecting Fulbeck

Avenue, Cornfield Way and the Tesco site to the east, is comprised of dense shrub specimens and bramble, which does not make a positive contribution to the streetscape and screens views of the better-quality trees to the west.

3.1.5. The second arboricultural character of the site is characterised by predominantly mature specimens growing along the west boundary and the ditch intersecting the site, which is in stark contrast to the secondary woodland. The species contained within are more diverse and comprise English oak, Turkey oak, Norway maple, ash, swamp cypress, willow and poplar.

3.1.6. The trees growing scattered within the open fields in the south section of the site are pre-dominantly young to semi-mature silver birch and English oak with small canopies.

## **3.2. Assessment of suitability for retention**

3.2.1. As noted above in Section 2.3, local planning policies require the retention of trees that are “**healthy locally important trees that make a positive contribution to the streetscene**”. The individuals and groups of trees within or adjacent to the site, whose attributes we consider meet these criteria, are as follows:

- the off-site belt of trees (G2) growing alongside the west boundary, which are a feature in the local landscape, readily visible from Fulbeck Avenue;
- the off-site mature oaks (nos. 42, 81, 132 and 160-164) and swamp cypress (no. 43) growing alongside the west site boundary, which are readily visible from Fulbeck Avenue and from the recent residential development to the north;
- the English oak (no. 1) growing alongside Fulbeck Avenue and contributing to the street character; and
- the secondary woodland (W1, W2, W4, W5 and W6) growing in the north section of the site, readily visible from Fulbeck Avenue and the recent residential development to the north.

3.2.2. None of the trees surveyed have been assessed as category 'U' specimens.

3.2.3. There are no category 'A' trees and twenty-one category 'B' specimens. The remaining 67 trees are assessed as category 'C' trees, being either of low quality, very limited merit, only low landscape benefits, no material cultural or conservation value, or only limited or short-term potential; or young trees with trunk diameters below 150mm; or a combination of these.

3.2.4. Of the four groups of trees, one has been assessed as category 'A' (G2), one as category 'B' (G3) and the remaining two group as category 'C' (G1 and G4).

3.2.5. Of the five woodland compartments, one has been assessed as category 'B' (W1), and the remaining four as category 'C'.

## 4. TREES TO BE REMOVED

### 4.1. Details

4.1.1. To accommodate the proposed development, as shown on the proposed layout plan, fifty-one individual trees are to be removed, either because they are situated within the footprints of proposed structures or surfaces, or because they are too close to these to enable them to be retained.

4.1.2. Of the trees to be removed, one is category 'B' (English oak no. 2) and the remaining fifty are category 'C'.

4.1.3. Two groups of trees are to be removed (G1 and G4), both are assessed as category 'C'.

4.1.4. Four woodland compartments are to be removed (W1, W2, W4 and W5), which are assessed as category 'C'. One woodland compartment (W6) is to be partially removed, which is assessed as category 'B'.

### 4.2. Assessment

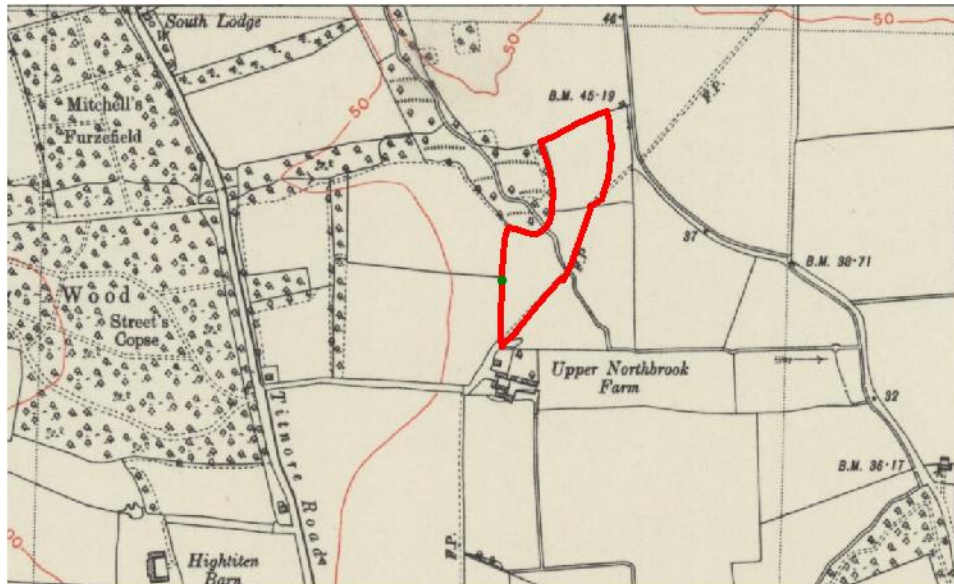
4.2.1. With the exception of the woodland in the north section of the site all those trees and groups of trees that constitute the main arboricultural features of the site and which make the greatest contribution to the character and appearance of the local landscape, to amenity or to biodiversity (see paragraph 3.2.1), will be retained.

4.2.2. The removal of the woodland in the north section of the site, including the complete removal of four woodland compartments (W1, W2, W4 and W5) and the partial removal of woodland compartment (W6), will have an impact on the character and appearance of the local area.

4.2.3. The woodland is categorised as deciduous woodland (Magic Maps, dated 18/12/2019), but this was not always the case. This is corroborated by the historic OS map dated 1938, shown in **Figure 2** below, which shows no woodlands on the site.

4.2.4. The Lizard Ecological Impact Assessment (EIA) dated 14<sup>th</sup> October 2019 states that historical aerial imagery of the site from 2001 continued to show the site as

two small areas of grassland intersected by a mature tree belt (trees nos. 1, 2, 81, 88 and 209). By 2007 the site was starting to be colonised by scrub, while by 2011, the southern section reverted to grassland.



**Figure 2: Historic map dated 1938 with the red line boundary superimposed showing no woodland growing on the site.**

4.2.5. The common definition of 'woodland' is an area of land covered by trees, but this contains no judgment of the quality of the woodland, or the trees within it. Woodland can be classified in many different ways, ranging from virgin forest (woodland entirely untouched by man), primary or ancient semi-natural (woodland that has been present since before 1600 AD, but which may have been coppiced, thinned or cut in the past), secondary (woodland that has sprung up on previously cleared or cultivated land), to plantations (woodlands entirely planted by man).

4.2.6. This woodland is comprised of semi-mature standards of goat willow, grey willow, silver birch, elm and English oak of no more than 10m in height with a poorly developed understorey of sparsely growing elder, hawthorn, hazel and gorse. The woodland is dominated by English oak and goat willow, which make up roughly 90% of the woodland's trees. The low arboricultural diversity can be seen in **Photograph 1** below. Historical maps corroborate the Lizard EIA discussion, showing no previous history of woodland cover on the site, so it would be correct to describe the woodland currently present as "recent secondary woodland".



***Photograph 1: a typical view from within the recent secondary woodland, showing that it's arboriculturally immature and lacking in diversity***

4.2.7. Assessed as secondary or recent woodland, its quality is low. This is a function of the indifferent quality of many of the individual trees within the wooded area, of the limited diversity of species, and on the restricted quality, diversity and extent of natural regeneration. It is also unlikely to be of particular potential or sustainability unless a schedule of regular management is implemented. Overall, this recent secondary woodland is of low value. It is of little or no historical value, being of recent origin; and it is of little or no silvicultural value, as it appears to contain almost no timber of any fiscal value.

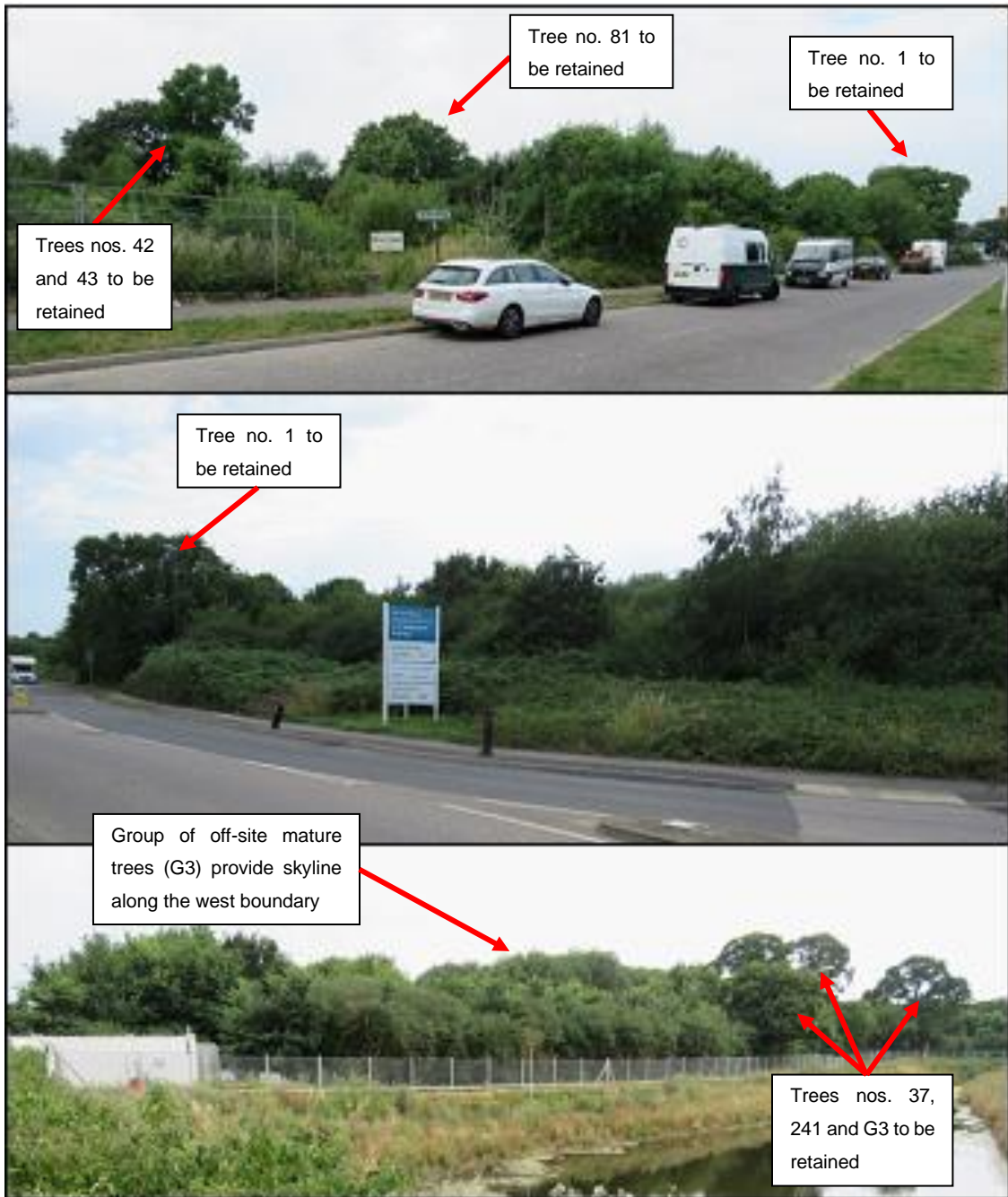
4.2.8. The secondary woodland canopy covers approximately 1.4ha of the site, equating to 47% of the total site area. The retention of the woodland would pose such a considerable constraint to the development of the site that the proposal would not be viable. As such, the proposed scheme will remove the majority of the secondary woodland to facilitate the development, whilst retaining the remaining main arboricultural features of the site; and it will mitigate the loss of the low quality woodland through a considerable replanting scheme, discussed at 4.2.24 below.

4.2.9. The visual impact of the proposed scheme is discussed in the Landscape and Visual Impact Appraisal (LVIA) by Neil Tully Associates dated November 2019, which

concludes “Overall, the impact of the proposed development on landscape and visual character is localised and moderate in the context of surrounding new built form and aspirations for the development of the area. The most significant effects are the changes to the character of the site from one that is predominantly wooded with scrubland to that of pavilion like built forms set within a sylvan landscape...”

4.2.10. As the LVIA highlights the proposed development will have a moderate, localised impact on the visual character of the site, it is important to assess to what extent the tree removals contribute to this visual impact and to assess the arboricultural relevance of this.

4.2.11. The woodland is visible in views from Fulbeck Avenue, Cornfield Way and Malt House Way, as shown in *Image grid 1*, below. The secondary woodland canopy does not exceed 10m in height and as such, its impact on the wider landscape is limited. Furthermore, the dense scrubby appearance of the woodland gives the existing site an unkempt character of low amenity value. The removal of this woodland will alter the local landscape; however, it will not have a significant adverse impact on the main arboricultural features of the site.



**Image grid 1: #Top- Views of the woodland from Fulbeck Avenue to the south-east. #Middle- Views of the woodland from Cornfield Way to the north-east. #Bottom- Views of the woodland from Malt House Way from the north.**

4.2.12. The removal of the secondary woodland will be mitigated by the retention of the mature trees that grow along the western boundary (trees nos. 37, 42, 43, 241, G2 and G3); these form the skyline in views from the east and act as a backdrop to the woodland, as demonstrated in the photographs above. Consequently, the removal of the woodland will not alter the existing skyline of the site in these views.



4.2.13. Additionally, the removal of the woodland will be mitigated by the retention of the row of mature English oaks (nos. 1, 81 and 109) that separate the northern and southern sections of the site. The retention of these trees will ensure a tree buffer will be retained between both sections of the site; providing a screen and a backdrop of trees in views from the south and north along the road.

4.2.14. Discussions with the Worthing Borough Council tree officer Jeremy Sergeant, included his request that part of the wooded area at the north end of the site needed to be retained as woodland (whether existing trees are retained or not), to retain the sylvan character of the area and to act as a separation between the two large developments. As a result, space has been included in the layout for replacement planting to achieve this. An area of approximately 1,250m<sup>2</sup> is to be retained, which includes the existing English oak no. 37, the area of off-site land between the attenuation basin and the site boundary and the area to the north and north-east of the proposed block. In addition, the off-site woodland to the west of the site will also be retained. Subject to the successful establishment of replacement planting, these mitigating factors will ensure the sylvan character of the north site boundary is retained.

4.2.15. In terms of arboricultural biodiversity, the removal of this secondary woodland is not contrary to local planning policies, as set out in 2.2. Moreover, as the Lizard EIA concludes that **“the site is of negligible value to amphibians, roosting bat, dormice and water vole, however a population of slow worm and grass snake; low numbers of foraging bats and common species of breeding birds were identified on site”** it is clear that the woodland is also of limited ecological biodiversity value.

4.2.16. Of the twenty-one category 'B' trees surveyed, only one (English oak no. 2) is to be removed.

4.2.17. The English oak (no. 2) is a component of the mature tree belt that intersects the two sections of the site. It is to be removed to facilitate the construction of the road connecting the two sections of the proposed site. As the tree belt transects the entire site, the removal of trees is unavoidable, however, the route was selected to have the least impact on the arboricultural character of the site.

4.2.18. The semi-mature English oak no. 2 has the smallest canopy and trunk diameter compared to English oaks nos. 1 and 109, summarised in **Table 3** below. It is not an essential component of the mature tree belt, and as such, its removal will have the least impact on the visual landscape.

Tree no.	Tree species	Trunk diameter (mm)	Canopy cover (m <sup>2</sup> )
1	English oak	850	162
2	English oak	560	100
109	English oak	750	120

**Table 3: Summary of tree dimensions**

4.2.19. Furthermore, the English oak (no. 2) is screened in views from the north end of Fulbeck Avenue by the larger oak (no. 1), as shown in **Photograph 2** below. In views from the south the top of the crown of tree no. 2 is visible, but it is dominated by the larger crown of tree no. 1 adjacent to it as shown in **Photograph 3**. As such, the removal of this specimens will not have a detrimental impact on the character or appearance of the area.



**Photographs 2 & 3: Photographs showing English oak no. 1 screening views of oak no. 2 from Fulbeck Avenue.**

4.2.20. Of the fifty category 'C' trees to be removed, thirty-six are the individual specimens of the secondary woodland and as their removal is discussed in detail above, no further reference will be made to them.

4.2.21. All mature trees will be retained, with the exception of the goat willow (no. 88), which is a multi-stemmed former coppice with indifferent structure and of limited

landscape value; as such, in terms of mature tree retention the proposed scheme complies with Policy A2 of the draft Local Plan (October 2018).

4.2.22. The remaining fourteen category 'C' trees to be removed are scattered around the area of rough grass land in the southern section of the site. These are small specimens of limited value and quality. Of the fourteen, ten are young specimens, which BS 5837 states “**need not necessarily be a significant constraint on the site’s potential**”<sup>9</sup>.

4.2.23. None of the individual trees to be removed are covered by a TPO.

4.2.24. Furthermore, the proposals incorporate considerable replacement tree planting; this is shown on the Landscape Softworks Plans submitted with the application. The replacement planting includes boundary planting of semi-mature alder, hornbeam, birch, field maple and cherry, this will provide an immediate screen and provide mitigation for the removal of the secondary woodland in views from Fulbeck Avenue, Cornfield Way and Malt House Way, which will progressively reduce the magnitude of the impact of the proposed removals on the character and appearance of the site and ensure compliance with Policy A2 of the draft Local Plan (October 2018).

4.2.25. The boundary planting is complimented with extensive internal planting. A total of 149 trees comprised of 93 semi-mature trees, 37 extra-heavy standards and 19 small trees. In addition, space has been provided for ecological improvement planting, which includes feathers of English oak, hornbeam and field maple. This will improve the age class balance of the trees on site, enhance the local landscape, and re-establish a framework for the ongoing and long-term character of the site.

4.2.26. In the light of these considerations, and taking account of the numbers, sizes and locations of the trees to be retained, including those that are off-site, the felling of the trees and groups identified for removal will represent only a minor alteration to the main arboricultural features of the site.

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<sup>9</sup> Ibid. 4.5.10.

## 5. TREES TO BE PRUNED

### 5.1. Details

5.1.1. Five trees to be retained are to be pruned to facilitate implementation of the proposals. These are shown at **Table 4** below.

Tree no.	Species	Proposed works
72	English oak	Crown lift canopy to 3.5m above play area
73	English oak	Crown lift canopy to 3.5m above play area
74	English oak	Crown lift canopy to 3.5m above play area
79	English oak	Crown lift canopy to 3.5m above play area
80	English oak	Crown lift canopy to 3.5m above play area

**Table 4: Trees to be pruned to facilitate development**

### 5.2. Assessment

5.2.1. The extent of pruning proposed to the trees listed in **Table 4** is minor. Branches to be removed are small in size and will result in a maximum wound size no greater than 50mm in diameter; this will have an insignificant effect on the health and physiological condition of these trees and complies with the recommendations of British Standard BS 3998:2010, *Tree work – Recommendations*.

5.2.2. In terms of impact upon the landscape, the proposed pruning is minor in extent, and will be largely screened in views by either the remainder of the trees' canopies, or by other trees growing within or adjacent to the site. It will have a negligible effect on the appearance of the trees when viewed from outside the site itself, and accordingly will not detract from the character or appearance of the site.

5.2.3. Following the pruning specified, none of the proposed dwellings will lie within 6m of the extents of the canopies of trees to be retained, thereby providing adequate working space for construction, and a reasonable margin of clearance for future growth.

## 6. ROOT PROTECTION AREA INCURSIONS

### 6.1. Details

6.1.1. Parts of the proposed structures and hard surfacing will encroach within the RPAs of eight of the trees to be retained. These are shown in **Table 5** below.

Tree no.	Species	Incursion	Extent of incursion	% of RPA
1	English oak	Proposed footpath and parking bay	27.7m <sup>2</sup>	8.5%
9	Norway maple	Proposed retaining wall for parking bays	6m <sup>2</sup>	3%
16	Goat willow	Proposed retaining wall for cycle store	3m <sup>2</sup>	7.5%
37	English oak	Proposed parking bays	0.5m <sup>2</sup>	0.5%
43	Swamp cypress	Proposed footpath	9m <sup>2</sup>	3.5%
72	English oak	Proposed play area footpath	11m <sup>2</sup>	31%
73	English oak	Proposed play area footpath	2m <sup>2</sup>	10%
109	English oak	Proposed play area footpath	55.3m <sup>2</sup>	21%

**Table 5: Proposed incursions within RPAs**

### 6.2. Assessment

6.2.1. The potential impacts of the incursions by parts of the proposed structures and hard surfacing into the RPAs of the eight trees listed at **Table 5** can be satisfactorily mitigated in one of the following ways.

6.2.2. The incursions into the RPAs of trees nos. 9 and 16 are by proposed retaining walls and some degree of excavation will be required. The site layout was designed to ensure that no significant structures were within the RPAs of trees to be retained, however, as the construction of retaining walls is likely to include some amount of over dig, we have included a 1m over dig buffer to ensure that trees are properly protected during construction. To minimise impacts on these specimens, excavation within these RPAs will be undertaken manually, under the direct control and supervision of an appointed arboricultural consultant, so that any over dig into the RPAs is avoided, and any roots encountered can be treated appropriately.

6.2.3. The incursion into the RPA of swamp cypress no. 43 is by a concrete block footpath connecting Block 4 to the parking area and cycle store, and subject to proposed levels, some degree of excavation may be required, however this is unlikely to be greater than 350mm in depth. As studies have shown that typically as much as 90% of tree root length occurs in the upper metre of the soil<sup>10</sup>, it is highly unlikely that this incursion will result in all the roots in this area being severed. Based on a maximum excavation depth of 350mm, the 3.5% incursion into the RPA of the swamp cypress may result in a reduction of only 1.2% of roots within its RPA.

6.2.4. The incursion into the RPA of English oak no. 1 is by a self-bound gravel footpath adjacent to the internal road connecting the north and south sections of the site, and subject to proposed levels, some degree of excavation may be required. However, considering the materials and design of the footpath, required excavation depths are likely to be shallow (no greater than 300mm) so the 10% incursion into the oak's RPA may result in a reduction of only 3% of roots within its RPA.

6.2.5. The tree species impacted by incursions into their RPAs have been identified as good to moderate at tolerating root pruning and disturbance<sup>11</sup>, as shown in **Table 6**. As these specimens are of average physiological condition, there is no reason to suggest that they will not be able to tolerate the cutting of roots within these sections of their RPAs.

Species	Tolerance
English oak	Moderate
Norway maple	Moderate to good
Goat willow	Moderate to good
Swamp cypress	Good

**Table 6: Species tolerance to root pruning and disturbance**

6.2.6. The areas lost to encroachment within the RPAs of the trees nos. 1, 9, 16 and 43 can be compensated for in the surrounding areas where there is soft landscaping

<sup>10</sup> Roberts J., Jackson N., & Smith M. (2006). Tree Roots in the Built Environment. TSO.

<sup>11</sup> MATHENY, N. P. and CLARK, J. R. (1998). Trees and Development. International Society of Arboriculture.

suitable for root growth, contiguous to the RPAs. Furthermore, an additional 129m<sup>2</sup> of land to the north and south of the English oak no. 1 is to be protected during construction and development to ensure that substantial additional rooting area is available to compensate for the 27.2m<sup>2</sup> incursion into its RPA. There is likely to already be significant rooting within these areas, and as it is to remain as soft landscape, there is no prospect of this being built on in the future. Therefore, there will be no net loss of suitable rooting area, and no risk of cumulative impacts in the future, so considering the extent of incursion, the areas contiguous with the RPAs suitable for root growth, the physiological condition of the specimens, and the species tolerance to root disturbance, there is no reason to suggest that they will not be able to tolerate the cutting of roots within these small sections of their RPAs or that they will not remain viable.

6.2.7. The incursions into the RPAs of trees nos. 1, 37, 43, 72, 73 and 109 are by areas of proposed hard surfacing. These areas extend to no more than 6.5% of individual RPAs, and do not exceed the 20% maximum incursion into currently unsurfaced ground recommended in BS 583712.

6.2.8. The incursions into the RPAs of English oaks nos. 72, 73 and 109 are by the proposed woodland play glade footpaths, which provide the scheme with a naturalised play area for the future residents, full details can be found in the Landscape Masterplan submitted with the application.

6.2.9. Taking account of existing ground levels and likely proposed levels of these areas these will allow for design and construction of the footpath to be entirely above existing soil level, and accordingly no excavation will be required. Furthermore, the footpath could incorporate an appropriate cellular confinement system, filled and finished with suitable porous materials, to minimise soil compaction. To ensure no damage occurs to the roots or rooting environments of the relevant trees, installation will be undertaken under the control and supervision of the arboricultural consultant.

6.2.10. As noted at Section 1.5 above, the site overlies a sand, silt and clay soil. This means it will tolerate compaction better than a clay soil, and so compaction caused by

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<sup>12</sup> BS 5837, paragraph 7.4.2.3.

the above-soil surfacing is less likely to be severe or damaging to the trees in the long-term.

6.2.11. Implementation of measures to prevent other incursions into the RPAs of retained trees and to protect them during construction can be assured by the erection of appropriate protective fencing, as shown on the TPP at **Appendix 3**.

6.2.12. Accordingly, subject to implementation of the above measures, and considering the ages, current physiological condition and tolerance of disturbance of these retained trees, no significant or long-term damage to their root systems or environments will occur as a result of the proposed development.



## 7. RELATIONSHIP OF RETAINED TREES TO NEW DWELLINGS

### 7.1. Details

7.1.1. None of the proposed apartments have their main habitable rooms directly facing trees within the shadow patterns<sup>13</sup> of which they are situated; that is, where proposed dwellings are sited in an arc between the north-west and the east of retained trees and are closer to them than the current heights of these specimens.

### 7.2. Assessment

7.2.1. The proposed apartment Block 5 is located in the south section approximately 16.5m from the west site boundary. The apartments facing west directly face the off-site ash trees (nos. 11, 14, 15 and 240) growing adjacent to the west boundary. These specimens have a maximum height of 19m and as the proposed apartment block is located 20m from the trunks of the trees, it lies outside of the shadow pattern. Consequently, the apartments will not be excessively shaded.

7.2.2. The proposed apartment Blocks 2, 3 and 4 are also sited in locations close to the west boundary and have sections within the shadow patterns of the mature trees growing adjacent to the boundary. However, none of the main habitable rooms in these blocks directly face the trees on the west boundary and as such, they will not experience excessive or unreasonable shading.

7.2.3. As none of the proposed apartments have their main habitable rooms directly facing trees within the shadow patterns lie within the shadow patterns of any retained trees, they will not be shaded by retained trees to the extent that this will interfere with their reasonable use or enjoyment by incoming occupiers; which might otherwise lead to pressure to permit felling or severe pruning that the LPA could not reasonably resist.

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<sup>13</sup> BS 5837, 5.2.2, Note 1: "An indication of potential direct obstruction of sunlight can be illustrated by plotting a segment, with a radius from the centre of the stem equal to the height of the tree, drawn from due north-west to due east, indicating the shadow pattern through the main part of the day."

## 8. CONCLUSIONS

### 8.1. Summary

8.1.1. Our assessment of the impacts on trees concludes that no trees of high landscape or biodiversity value are to be removed. With the exception of the recent secondary woodland in the north section of the site, none of the main arboricultural features of the site are to be removed. The proposed removal of individuals and groups of trees will represent only a minor alteration to the main arboricultural features of the site and will not have a significant adverse impact on the arboricultural character and appearance of the local landscape. The alteration to the main arboricultural features will be mitigated through considerable replacement planting.

8.1.2. The proposed pruning is minor in extent, will not detract from the health or appearance of these trees, and complies with current British Standards.

8.1.3. The incursions into the Root Protection Areas of trees to be retained are minor, and subject to implementation of the measures recommended on the Tree Protection Plan and set out at **Appendix 1**, no significant or long-term damage to their root systems or rooting environments will occur.

8.1.4. As none of the proposed apartments or amenity space lie within the shadow patterns of any retained trees, they will not be shaded by retained trees to the extent that this will interfere with their reasonable use or enjoyment by incoming occupiers; which might otherwise lead to pressure to permit felling or severe pruning that the LPA could not reasonably resist.

### 8.2. Compliance with national planning policy

8.2.1. As the proposals will retain most of the main arboricultural features of the site, its arboricultural attractiveness, history and landscape character and setting will be maintained, thereby complying with Paragraph 127 of the National Planning Policy Framework.

8.2.2. As the proposals will not result in the loss or deterioration of any ancient woodland or any ancient or veteran trees, they comply with paragraph 175 of the NPPF.

### **8.3. Compliance with local planning policy**

8.3.1. As the proposed development will not result in the removal of trees which are of significant landscape or biodiversity value, it complies with Policy 13 of the Core Strategy 2011 and Policies CP5 and CP 19 of the Worthing Borough Draft Local Plan 2016-2033 (October 2018).

8.3.2. The proposed development will retain all mature trees of moderate quality, including tree nos. 1, 37, 109 and G3 in the northern sections of the site. However, few if any of the individuals growing adjacent to the north boundary within the secondary woodland are suitable for retention and as such, these will be removed and replaced with boundary planting to ensure that the proposal meets the requirements of Policy A2 of the Draft Local Plan (October 2018).

### **8.4. Conclusion**

8.4.1. On the basis of our assessment, we conclude that the arboricultural impact of this scheme is of low magnitude, as defined according to the categories set out in **Table 1** of this report.

# APPENDIX 1

## Protection of retained trees

### A1.1. Tree Protection Plan

A1.1.1. The TPP at **Appendix 3** shows the general and specific provisions to be taken during construction of the proposed development, to ensure that no unacceptable damage is caused to the root systems, trunks or crowns of the trees identified for retention. These measures are indicated by coloured notations in areas where construction activities are to occur either within, or in proximity to, retained trees, as described in the relevant panels on the drawing.

### A1.2. Pre-start meeting

A1.2.1. Prior to the commencement of any site clearance or construction works the developer will convene a pre-start site meeting. This shall be attended by the developer's contract manager or site manager, the fencing/boarding contractor, the groundwork contractor(s) and the arboricultural consultant. The LPA tree officer will be invited to attend. If appropriate, the tree felling/surgery contractor should also attend. At that meeting contact numbers will be exchanged, and the methods of tree protection shall be fully discussed, so that all aspects of their implementation and sequencing are made clear to all parties. Any clarifications or modifications to the TPP required as a result of the meeting shall be circulated to all attendees.

### A1.3. Protective fencing

A1.3.1. Construction exclusion zones (CEZs) will be formed by erecting protective fencing around the RPAs of all on-site trees to the specification recommended in BS 5837, Section 6.2, prior to the commencement of construction. This will consist of a scaffold framework comprising a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at maximum intervals of 3.5m. Onto this, welded mesh panels should be securely fixed with wire or scaffold clamps, as shown in **Figure 2** of that document. "**TREE PROTECTION ZONE - KEEP OUT**" or similar notices will be attached with cable ties to every third panel.

A1.3.2. The RPAs of the off-site trees will also be enforced by the erection of protective fencing to the same specification, prior to the commencement of construction, thereby safeguarding them from incursions by plant or machinery, storage and mixing of materials, or other construction-related activities which could have a detrimental effect on their root systems.

A1.3.3. The recommended positions of the protective fencing are shown by **bold blue lines** on the TPP. The precise positioning of the fencing around the trees will be considered in conjunction with any other protective hoarding/fencing which may be required around the site boundary.

A1.3.4. Within the CEZs safeguarded by the protective fencing, there will be no changes in ground levels, **no soil stripping**, and no plant, equipment, or materials will be stored. Oil, bitumen, diesel, and cement will not be stored or discharged within 10m of any trees. Areas for the storage or mixing of such materials will be agreed in advance and be clearly marked. No notice boards, or power or telephone cables, will be attached to any of the trees. No fires will be lit within 10m of any part of any tree.

#### **A1.4. Ground protection**

A1.4.1. To allow space for construction and protection from soil compaction where proposed structures are in close proximity to RPAs of trees to be retained, the ground between the protective fencing and the footprints of the proposed structures will be covered by appropriate ground boarding, in accordance with the guidelines of Section 6.2.3.3 of BS 5837. The locations where these measures will be required are marked by **pink hatching** on the TPP.

A1.4.2. For purely pedestrian traffic, scaffold boards (or similar) will be used. Scaffold boards will comply with British Standard BS 2482: 2009 *Specification for timber scaffold boards* and be at least 225mm in width and 38mm thickness; they will be butted up and attached to each other with wooden battens or metal tie straps, and laid either on an above-ground scaffold framework, or secured to the ground with steel pins above a compressible material (a 75mm deep layer of woodchips may be appropriate) laid on top of a geotextile membrane of an appropriate specification.

A1.4.3. For wheeled or tracked traffic, ground boarding will be designed by a structural engineer, to take account of the type of soil and the likely loadings. Temporary aluminium roadway ('Trakway' or similar), interlocking plastic tread boards ("Ground-Guards" or similar), or reinforced concrete slabs may be appropriate. These will also be laid on top of a compressible material above a geotextile membrane.

#### **A1.5. Manual excavation within RPAs**

A1.5.1. The first 750mm depth of excavations required within the RPAs of the trees to be retained (as shown by **bold orange lines** on the TPP) will be dug by hand, using a compressed air soil pick if appropriate, and under on-site arboricultural supervision, in order to safeguard against the possibility of unacceptable root damage being caused to these specimens. Any roots encountered of over 25mm diameter will be cut back cleanly to the face of the dig nearest to the tree, using a sharp hand saw or secateurs, and their cut ends covered with hessian to prevent desiccation.

#### **A1.6. Proposed hard surfaces within RPAs**

A1.6.1. Unacceptable damage to the roots and rooting environments of the trees to be retained during the construction of proposed hard surfaces that encroach within RPAs will be avoided by building them above existing soil level, to avoid digging and thus severing of roots; and an appropriate ground covering will be used beneath the sub-base, to prevent or minimise compaction of the soil. This will be done in accordance with Section 7.4 of BS 5837. The locations where these measures will be required are marked by red **cross-hatching** on the TPP.

**APPENDIX 2**  
**Tree survey schedule**



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## **Tree Survey Schedule**

**Land off Fulbeck Avenue, Worthing**

**August 2019**



# Tree Survey Schedule: Explanatory Notes

## Land off Fulbeck Avenue, Worthing

This schedule is based on a tree inspection undertaken by Finn Cullerne of SJA trees (the trading name of Simon Jones Associates Ltd.), on Friday 2nd August 2019. Weather conditions at the time were clear, dry and bright. Deciduous trees were in full leaf.

The information contained in this schedule covers only those trees that were examined, and reflects the condition of these specimens at the time of inspection. We did not have access to the trees from any adjacent properties; observations are thus confined to what was visible from within the site and from surrounding public areas.

The trees were inspected from the ground only and were not climbed, and no samples of wood, roots or fungi were taken. A full hazard or risk assessment of the trees was not undertaken, and therefore no guarantee, either expressed or implied, of their safety or stability can be given.

Trees are dynamic organisms and are subject to continual growth and change; therefore the dimensions and assessments presented in this schedule should not be relied upon in relation to any development of the site for more than twelve months from the survey date.

### 1. Tree no.

Numbers correspond with numbering on topographical survey plan.

### 2. Species.

'Common names' are given, taken from MITCHELL, A. (1978) A Field Guide to the Trees of Britain and Northern Europe.

### 3. Height.

Estimated with the aid of a hypsometer, given in metres.

### 4. Trunk diameter.

Trunk diameter measured at approx. 1.5m above ground level; or where the trunk forks into separate stems between ground level and 1.5m, measured at the narrowest point beneath the fork. Given in millimetres.

### 5. Radial crown spread.

The linear extent of branches from the base of the trunk to the main cardinal points, rounded up to the closest half metre, unless shown otherwise. For small trees with reasonably symmetrical crowns, a single averaged figure is quoted.

### 6. Crown break.

Height above ground and direction of growth of first significant live branch.

### 7. Crown clearance.

Distance from adjacent ground level to lowest part of lowest branch, in metres.

### 8. Age class.

Young: Seedling, sapling or recently planted tree; not yet producing flowers or seeds; strong apical dominance.

Semi-mature: Trunk often still smooth-barked; producing flowers and/or seeds; strong apical dominance, not yet achieved ultimate height.

Mature: Apical dominance lost, tree close to ultimate height.

Over-mature: Mature, but in decline, no crown re-trenchment

Veteran: Mature, with a large trunk diameter for species; but showing signs of veteranisation, irrespective of actual age, with decay or hollowing, and a crown showing retrenchment and a structure characteristic of the latter stages of life.

Ancient: Beyond the typical age range and with a very large trunk diameter for species; with extensive decay or hollowing; and a crown that has undergone retrenchment and has a structure characteristic of the latter stages of life.

### 9. Physiology.

Health, condition and function of the tree, in comparison to a normal specimen of its species and age.

### 10. Structure.

Structural condition of the tree – based on both the structure of its roots, trunk and major stems and branches, and on the presence of any structural defects or decay.

Very good: No significant physiological or structural defects, an upright and reasonably symmetrical structure; a particularly good example of its species.

Good: No significant physiological or structural defects, and an upright and reasonably symmetrical structure.

Moderate: No significant pathological defects, but a slightly impaired physiological structure; however, not to the extent that the tree is at immediate or early risk of collapse.

Indifferent: Significant physiological or pathological defects; but these are either remediable or do not put the tree at immediate or early risk of collapse.

Poor: Significant and irremediable physiological or pathological defects, such that there may be a risk of collapse.

Hazardous: Significant and irremediable physiological or pathological defects, with a risk of imminent collapse.

### 11. Comments.

Where appropriate comments have been made relating to:

- Health and condition
- Safety, particularly close to areas of public access
- Structure and form

### 12. Category.

Based on the British Standard "Trees in relation to design, demolition and construction - Recommendations", BS 5837: 2012, Table 1, adjusted to give a greater weighting to trees that contribute to the character and appearance of the local landscape, to amenity, or to biodiversity.

**Category U:** Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category 'U' trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning).
- Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline.
- Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality.

**Category A:** Trees of high quality with an estimated remaining life expectancy of at least 40 years.

- (1) Trees that are particularly good examples of their species, especially if rare or unusual.
- (2) Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features.
- (3) Trees, groups or woodlands of significant conservation, historical, commemorative or other value.

**Category B:** Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

- (1) Trees that might be included in category 'A', but are downgraded because of impaired condition (e.g. presence of significant though remediable defects including unsympathetic past management and minor storm damage) such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category 'A' designation.
- (2) Trees present in numbers, usually growing as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals; or trees present in numbers but situated so as to make little visual contribution to the wider locality.
- (3) Trees with material conservation or other cultural value.

**Category C:** Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

- (1) Unremarkable trees of very limited merit or of such impaired condition that they do not qualify in higher categories.
- (2) Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value, and/or trees offering low or only temporary landscape benefits.
- (3) Trees with no material limited conservation or other cultural value.

## TREE SURVEY SCHEDULE

### Land off Fulbeck Avenue, Worthing

No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio -logy	Structure	Comments	Category
1	English oak	13m	850mm ivy	N 8.7m E 7.4m S 7.2m W 5.2m	4m	1.5m	Mature	Average	Moderate	Off-site tree; desire line path running directly to the S of the ditch. The base of the tree is on a soil mound; good basal flare; no fungal activity evident; minor depression on the SE section however when sounded with an acoustic hammer there is no variance in tone. Heavily ivy-covered from ground level to the upper canopy obscuring full inspection of main unions however these appear to be tensile; dense epicormic growth; specimen is short in height and has a large canopy spread resulting in long laterals with multiple hazard beam structures and kinks, good adaptive wood response is visible. Deadwood typical of species and age. Readily visible from Fulbeck Avenue and a key component in the street scene character; essential component of the group in which it stands.	B (12)
2	English oak	14m	560mm	N 4m E 5.8m S 5.2m W 7.5m	3m	4m	Semi-mature	Average	Moderate	Directly to the N of the trunk is a dry ditch; lack of buttress rooting to the N; buttressing in all other directions. Single stem; main unions are tensile. Minor deadwood typical of species and age; no significant defects visible. Tree is a significant component of the group in which it stands; partial visibility from Fulbeck Avenue although largely screened in views by the adjacent oaks and goat willows.	B (1)
3	Norway maple	18m	790mm ivy	N 3m E 9m S 6m W 4m	1.5m	2m	Mature	Average	Indifferent	Off-site tree, growing in grounds of Northbrook Farm Caravan and Motorhome Park; Ivy-covered; no defects visible at base; twin-stemmed from 2m, tight compression fork with evidence of branch bark inclusion; significant component of group in which it stands, contributing to west site boundary tree line; woodland edge specimen with asymmetric canopy spread.	B (2)
4	Norway maple	17m	570mm	N 5m E 8m S 3m W 3m	1m	2m	Over-mature	Average	Moderate	Off-site tree, growing in grounds of Northbrook Farm Caravan and Motorhome Park: no defects visible at base; single trunk with lean, compensation buttress roots evident; tensile unions; woodland edge specimen with asymmetric canopy spread; significant component of group in which it stands, contributing to west site boundary tree line.	B (12)
5	Norway maple	14m	480mm	N 4m E 5m S 2m W 1m	1.5m	1.5m	Semi-mature	Average	Indifferent	Off-site tree, growing in grounds of Northbrook Farm Caravan and Motorhome Park; heavily ivy-covered; tight compression fork with evidence of included bark at 3m; suppressed specimen; inessential component of group in which it stands.	C (12)
6	Norway maple	18m	480mm	N 3m E 7m S 7m W 2m	0.5m	2m	Mature	Average	Indifferent	Off-site tree; leaning trunk, compensation buttress root evident; woodland edge specimen with tight compression forks and asymmetric canopy spread; significant component of group in which it stands, contributing to west site boundary tree line.	B (2)

No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio -logy	Structure	Comments	Category
7	Norway maple	18m	670mm	N 5m E 7m S 5m W 2m	0.5m	2m	Mature	Average	Indifferent	Off-site tree, growing in grounds of Northbrook Farm Caravan and Motorhome Park; single trunk, woodland grown with tensile forks; above average dead wood in crown; slightly sparsely foliated; essential component of group in which it stands, contributing to west site boundary tree line.	B (2)
8	Norway maple	18m	550mm	N 4m E 6m S 4m W 2m	1m	2m	Mature	Average	Moderate	Off-site tree, growing in grounds of Northbrook Farm Caravan and Motorhome Park; no defects visible at base; woodland edge specimen with tensile main unions and asymmetric canopy spread; significant component of group in which it stands, contributing to west site boundary tree line.	B (12)
9	Norway maple	18m	665mm	N 5m E 6m S 4m W 2m	1m	2m	Mature	Average	Indifferent	Off-site tree, growing in grounds of Northbrook Farm Caravan and Motorhome Park; dark lesions consistent with <i>phytophthora</i> from ground level to 2m on the trunk; tree becomes triple stemmed at 2m with tight compression forks and evidence of branch/bark inclusions; trunk has a slight lean to the E over site. Sparse canopy indicative of physiological stress. Significant component of the group in which it stands; contributes to the W site tree lined boundary.	B (2)
10	Norway maple	18m	440mm	N 4m E 7m S 4m W 2m	1m	2m	Semi-mature	Average	Moderate	Off-site tree, growing in grounds of Northbrook Farm Caravan and Motorhome Park; no defects visible at base; single trunk, woodland edge grown with tensile forks; significant component of group in which it stands, contributing to west site boundary tree line.	B (12)
11	Ash	19m	560mm	N 7m E 9m S 7m W 5m	6m	6m	Mature	Below average	Moderate	Off-site tree, growing in grounds of Northbrook Farm Caravan and Motorhome Park; No defects visible at base, single trunk; crown lifted to 6m, pruning wounds fully occluded; tensile unions; sparsely foliated; significant dieback at branch tips consistent with ash die back, of short-term potential only; significant component of group in which it stands, contributing to west site boundary tree line.	C (2)
14-15	Ash	18m	#T14 410mm #T15 600mm ivy	N 5m E 7m S 6m W 5m	6m	6m	Mature	Below average	Indifferent	Off-site trees, growing in grounds of Northbrook Farm Caravan and Motorhome Park. #15 heavily ivy-covered; single trunks with no significant defects at base; significant dieback at branch tips consistent with ash die back, of short-term potential only; significant component of group in which it stands, contributing to west site boundary tree line.	C (2)
16-17	Goat willow	13m	#T16 300mm Est #T17 350mm Est	5m	1.5m	1.5m	Semi-mature	Average	Indifferent	Trees inaccessible due to dense undergrowth; assessment made from multiple vantage points from a distance; no visibility at the base of the tree or main unions. Trees are semi-mature with good branching habits; no physiological defects or evidence of stress; no historic limb failures. Trees contributes to the W site boundary screening however are separate from the main arboricultural feature; impact on the landscape is limited due to their small size.	C (12)
37	English oak	14m	480mm ivy	N 8.3m E 5m S 6m W 7m	4m	2.5m	Semi-mature	Average	Moderate	No defects visible at base; dense ground ivy and ivy up trunk; trunk has a lean to the N; main unions are tensile. Asymmetric canopy as a result of suppression by adjacent specimens. Essential component of the group in which it stands; readily visible in views from recently built housing development to the N.	B (12)

No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio -logy	Structure	Comments	Category
38-40	Silver birch	5m	100mm Est	1.5m	2m	1m	Young	Average	Moderate	Collection of scattered birch trees located within dense scrub; of moderate quality but of low value due to small size; young specimens with stem diameters under 150mm.	C (1)
41	English oak	5m	5 stems @ 80mm	4m	0m	0m	Young	Average	Indifferent	Young tree with stem diameter below 150mm.	C (1)
42	Turkey oak	16m	800mm Est	10m	4m	4m	Mature	Average	Moderate	Off-site tree, growing in the grounds of the fishing lake; full inspection obscured by dense undergrowth; ivy-cover from ground level to 6m; main unions are tensile. Crossing branches in the canopy; slightly sparser than usual canopy density; moderate epicormic growth; large spreading canopy. Essential component of the group in which it stands; contributes to the W site boundary tree line; readily visible from within the site and Fulbeck Avenue.	B (12)
43	Swamp cypress	18m	580mm 450mm at 2m	6m	2m	3m	Mature	Average	Moderate	Off-site tree, growing in the grounds of the fishing lake; located within dense undergrowth so limited capacity to measure the canopy spreads estimated. Twin-stemmed at 2m with a U shaped tensile union; branching habit typical of species and age. Slightly sparser than usual canopy. Readily visible from within the site and Fulbeck Avenue; due to the tree's height it sticks out in the local landscape; a prominent tree in the local area.	B (12)
44	Silver birch	7m	140mm	2.5m	1m	1m	Young	Average	Moderate	Of moderate quality, but currently of low value due to small size; located within dense scrub, access not possible so all measurements estimated.	C (1)
45-49	Silver birch	5m	100mm Est	1.5m	2m	1m	Young	Average	Moderate	Collection of scattered birch trees located within dense scrub; of moderate quality but of low value due to small size; young specimens with stem diameters under 150mm.	C (1)
50	Silver birch	6m	80mm	1.5m	1m	1m	Young	Average	Moderate	Young tree with stem diameter below 150mm.	C (1)
51	Common alder	11m	290mm	2.8m	0.5m	0.5m	Semi-mature	Average	Moderate	Growing on bank edge; no defects at the base; branching habit typical of species; upper canopy visible from Fulbeck Avenue; of moderate quality, but currently of low value due to small size.	C (12)
52	English oak	13m	345mm	NE 3m SE 6.5m SW 5m NW 1.5m	2.5m	0.5m	Semi-mature	Average	Moderate	Growing on the edge of a dry culvert with buttress roots on the S and W compensating for the lack of buttress rooting on the culvert side. Main unions are tensile. Asymmetric canopy as a result of suppression by adjacent trees; inessential component of the group in which it stands but does contributing to the woodland edge in the NE site; Visible from within site.	C (12)
57-64	English oak	12m	200mm	2.5m	3m	2m	Semi-mature	Average	Moderate	Collection of semi-mature oaks with understorey of bramble and fern; all woodland grown specimens with tight compression forks. Of moderate quality; collectively of some landscape value; upper canopies visible from Fulbeck Avenue; significant components of the group in which they stand.	C (12)
65	Hawthorn	7m	230mm	N 1m E 3m S 4m W 3m	1m	0.5m	Semi-mature	Average	Moderate	Of moderate quality, but currently of low value due to small size.	C (12)

No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio - logy	Structure	Comments	Category
66	English oak	13m	170mm	2m	2.5m	4m	Semi-mature	Average	Moderate	Semi-mature woodland grown specimen of moderate quality; individually of limited value; significant component of group in which it stands; suppressing hawthorn.	C (12)
68	English oak	13m	240mm	N 1m E 2m S 4m W 2m	1m	0.5m	Semi-mature	Average	Moderate	Single trunk, woodland edge grown with tensile forks; significant component of group in which it stands; one-sided crown as suppressed by adjacent specimens.	C (12)
72	English oak	13m	290mm	N 3.2m E 3.5m S 5.5m W 4.3m	2.5m	1.5m	Semi-mature	Average	Moderate	Single trunk, woodland edge grown with tensile forks; no significant defects observed; significant component of group in which it stands; screened in views from public realm by adjacent trees.	C (12)
73-74	English oak	12m	#T73 210mm #T74 210mm	2.7m	2m	2m	Young	Average	Moderate	Single trunks, woodland grown with tight compression forks; inessential component of group in which it stands; of moderate quality, but currently of low value due to small size.	C (12)
78	English oak	13.5m	250mm	3m	2.5m	4m	Semi-mature	Average	Moderate	Single trunk, woodland grown with tight compression forks; of moderate quality, but currently of low value due to small size; significant component of group in which it stands; screened from views from public realm by adjacent trees.	C (12)
79-80	English oak	12m	#T79 160mm #T80 220mm	2.5m	2m	3m	Semi-mature	Average	Moderate	Single trunk, woodland grown with tight compression forks; of moderate quality, but currently of low value due to small size; inessential component of group in which it stands.	C (12)
81	English oak	16m	720mm	N 9.8m E 10m SE 6.8m SW 9m	4.5m	6m	Mature	Average	Moderate	Off-site tree, growing in the grounds of the fishing lake; located along boundary fence with wet and deep ditch to the SW; no defects visible at the base of the tree. Main unions are tensile. Deadwood typical of species and age; large spreading canopy overtopping many of the smaller adjacent specimens; no visible defects in the crown. Essential component of the group contributing to the character of the NE site boundary.	B (123)
88	Goat willow	9m	6 stems @ 200mm 4 stems @ 140mm	5.5m	0m	4m	Mature	Average	Indifferent	Multi-stemmed from base, tight compression forks; coppice with semi-mature regrowth; screened in views from public realm by adjacent trees; inessential component of group in which it stands.	C (1)
94	English oak	10m	280mm	4.5m	2m	3m	Semi-mature	Average	Moderate	Single trunk, woodland grown with tensile forks; significant component of group in which it stands; upper canopy may be visible from Fulbeck Avenue.	C (12)

No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio - logy	Structure	Comments	Category
104	English oak	13m	310mm	N 5.9m E 1m S 0.5m W 1.8m NW 5.6m	3m	6m	Semi-mature	Average	Indifferent	Ivy-covered; single trunk, woodland grown with tight compression forks; one-sided crown as suppressed by adjacent specimens; significant component of group in which it stands; screened from views from public realm by adjacent trees.	C (12)
109	English oak	15m	750mm ivy	N 7m NE 8.2m E 6m S 5.2m W 5.3m	5m	4m	Mature	Average	Moderate	Growing on S ditch bank; no visible defects of the base, light epicormic growth at base; main unions are tensile; deadwood typical of species, age and location; no further visible defects. Mature oak within the secondary growth woodland, form of an open grown oak so probably pre-dates woodland; essential component of group in which it stands, however is limited in views from the public realm by screening from adjacent trees.	B (23)
112-114	English oak	11m	#T112 240mm 200mm #T113 300mm #T114 240mm	3m	2.5m	3m	Semi-mature	Average	Moderate	Collection of woodland grown oaks with deadwood and branching habit reflecting this; individually of low value, however collectively are significant components of the group in which they stand; screened in views from public realm by adjacent trees#112 twin-stemmed from 0.5m, tight compression fork. T114 is leaning and has a poor form.	C (12)
117, 121, 122, 127, 128, 136- 139, 156 and 157	English oak	11m	#T117 170mm #T121 160mm #T122 280mm #T127 160mm #T128 160mm #137 270mm #T138 250mm #T139 250mm #T136 300mm #T156 250mm #T157 290mm	2m	2m	3m	Semi-mature	Average	Moderate	Collection of small, semi-mature oaks; form and branching habit typical of woodland grown trees; deadwood in lower canopies typical of woodland trees; of moderate quality but of low value due to small size and screening by adjacent trees; collectively a significant component of the group in which they stand.	C (1)

No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio - logy	Structure	Comments	Category
132	English oak	18m	730mm	N 6m E 8.5m S 7m W 9.5m	2m	3m	Mature	Average	Moderate	Off-site tree, growing on steep boundary between the site and fishing lake; Ivy-covered from ground level to upper canopy; no visible defects at the base; unions are tensile. Deadwood for species and age; moderate epicormic growth; slightly sparse upper canopy. Essential component of the group in which it stands; contributing to the boundary tree line; screened in views from the public realm by adjacent specimens.	B (1)
160	English oak	18m	510mm ivy	N 3m E 6m S 5m W 5m	2m	3m	Mature	Average	Moderate	Off-site tree, growing in the grounds of the fishing lake; single trunk, woodland grown with tight compression forks; heavily ivy-covered; main unions are tensile; no significant defects observed; largely screened from views from public realm by adjacent trees; significant component of group in which it stands.	B (1)
161- 162	English oak	18m	#T161 610mm #T162 530mm	N 5m E 6m S 5m W 4m	4.5m	5m	Mature	Average	Moderate	Off-site tree, growing in the grounds of the fishing lake; single trunks, woodland grown specimens with tight compression forks; both ivy-covered; main unions are tensile; no significant defects observed; largely screened from views from public realm by adjacent trees; significant component of group in which it stands. #161 Upper canopy readily visible from recent residential development to the N.	B (1)
163	English oak	18m	429mm	NE 5m SE 3m SW 2m NW 6m	4.5m	5m	Mature	Average	Moderate	Off-site tree, growing in the grounds of the fishing lake; single trunk, woodland grown with tight compression forks; ivy-covered; no significant defects observed; largely screened from views from public realm by adjacent trees; significant component of group in which it stands.	B (1)
164	English oak	18m	570mm ivy	N 7m E 6m S 3m NW 5.5m	3m	4m	Mature	Average	Moderate	Off-site tree, growing in the grounds of the fishing lake; growing on ditch bank; heavily ivy-covered and no visible defects at the base of the tree. Single trunk; main unions are tensile; no visible defects in crown. Essential component of the group in which it stands; readily visible from the residential development to the N.	B (12)

No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio -logy	Structure	Comments	Category
165-173	English oak	12m	#T165 210mm #T166 190mm #T167 200mm #T168 300mm #T169 290mm #T170 220mm #T171 200mm #T172 220mm #T173 180mm	2m	2m	3m	Semi-mature	Average	Moderate	Collection of semi-mature oaks; all typical of woodland grown specimens; of moderate quality but of low landscape value; largely screened in views from public realm by adjacent trees.	C (12)
175	English oak	12m	220mm	2.5m	2m	3m	Semi-mature	Average	Moderate	Small semi-mature woodland grown oak; minor deadwood in lower canopy; mixed tensile and compressive forks; no further defects visible; mutually suppressed; screening in views from public realm by adjacent trees.	C (1)
236	Goat willow	7m	4 stems @ 160mm 2 stems @ 110mm	E 4.6m W 3m	0m	1m	Semi-mature	Average	Indifferent	Multi-stemmed from base, tight compression forks; coppice with semi-mature regrowth; visible from Fulbeck Avenue but limited impact due to small size.	C (1)
237	Goat willow	7m	4 stems @ 100mm 3 stems @ 120mm	5m	0m	1m	Semi-mature	Average	Indifferent	Multi-stemmed from base, tight compression forks; coppice with semi-mature regrowth; inessential component of group in which it stands; screened from views from public realm by adjacent trees.	C (1)
238	Grey poplar	14m	400mm Est	6m	2m	2m	Semi-mature	Average	Indifferent	Inaccessible due to dense undergrowth, all measurements estimated, inspection made from multiple distance vantage points; base of tree and main unions not visible. Branching habit typical of species and age. No physiological defects visible in the upper crown. Inessential component of the landscape; of some limited screening value.	C (12)
240	Ash	16m	350mm	5m	3m	5m	Semi-mature	Below average	Indifferent	Significant dieback at branch tips consistent with ash die back, of short-term potential only; inessential component of group in which it stands.	C (12)



No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio -logy	Structure	Comments	Category
241	English oak	17m	960mm	N7m E9m S9m W10.5m	4m	5m	Mature	Average	Moderate	Off-site tree; growing approx. 25m to the W of site, no visible defects at the base; main unions are tensile; large spreading canopy; prominent in the local landscape, readily visible from residential development from the N.	B (12)
G1	Ash	6m	Avg 130mm	3m	1m	1m	Semi-mature	Below average	Indifferent	Group of ash adjacent to Fulbeck Avenue; die back consistent with ash die back; of short-term potential only.	C (1)
G2	Various	18m	Avg 600mm	6m	5m	3m	Mature	Average	Moderate	Off-site group of trees growing along the W site boundary comprised of predominantly ash and Norway maple with crack willow, poplar and hawthorn also present with an understorey of bramble, ground ivy and hawthorn. Individually of variable quality however as a group the landscape function is significant; readily visible from Fulbeck Avenue and surrounding roads; is the main arboricultural feature; significant feature in the local landscape; the ash contained within have tip dieback consistent with ash dieback therefore these may be of only short term potential and this may fragment the group; visually however the regeneration of Norway maple should fill that gap in time.	A (2)
G3	English oak	18m	Avg 600mm	8m	4m	4m	Mature	Average	Moderate	Off-site group; comprises mature trees growing between the ditch running along the NE site boundary and the lake; it is a row of mature oaks with an understorey of hawthorn, elm with a ground cover of bramble and ground ivy. Moderate quality specimens that define the NW site boundary. Readily visible from the fishing lakes to the W but screened in views from the public realm by adjacent specimens.	B (12)
G4	English oak	8m	Avg 150mm	2m	2m	2m	Semi-mature	Average	Moderate	Small group of oaks within the secondary woodland; all small semi-mature specimens with moderate quality but of low landscape impact; some of which the very tops of crown visible from Fulbeck Avenue.	C (12)
W1	Various	11m	250mm	2m	2m	3m	Semi-mature	Average	Moderate	Secondary woodland compartment dominant in oak; all specimens semi-mature; outer perimeters defined by oak, however goat willow sections along the ditch to the W; ground cover of nettle, grass, fern, bramble; some understorey of regeneration growth especially along the bank, this is largely of elm and goat willow; mature oaks that comprise G3 and define the W boundary.	B (1)
W2	Various	12m	300mm	4m	0.5m	2m	Semi-mature	Average	Indifferent	Secondary woodland compartment dominant in goat willow; larger area dominated by goat willow with some elm and birch; understorey of hawthorn, field maple; ground cover of bramble and grass. Individuals of varying quality, larger goat willows tend to be multi-stemmed with tight compression forks and at risk of failure if released from companion support. Compartment comprised of short-lived species so of medium-term potential only. Woodland creates a green mass visible from Fulbeck avenue.	C (12)
W4	Various	6m	150mm	1m	1m	1m	Young	Average	Indifferent	Area of dense undergrowth comprised of blackthorn and plum; some small standards of willow and birch; scrub land growth of limited quality and value	C (12)

No.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio - logy	Structure	Comments	Category
W5	Various	12m	290mm avg	2.5m	0.5m	2m	Semi-mature	Average	Indifferent	Secondary woodland compartment comprised of larger goat willow with birch, elm and a single crab apple; understorey of bramble; trees individually of limited quality and value, typical of woodland grown specimens at risk of failure if released from companion support; woodland canopy visible from Fulbeck Avenue but of limited impact due to short canopy heights.	C (12)
W6	Various	12m	300mm	4m	0.5m	2m	Semi-mature	Average	Indifferent	Secondary woodland compartment dominant in English oak with hawthorn and goat willow; ground cover of grass and bramble; individuals of moderate quality but individually of limited value due to small size; collectively forms a green mass visible from Fulbeck Avenue and from the south site.	C (12)

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RPA

Tree No.	RPA radius	RPA	Location co-ordinates	Location co-ordinates	Potential	Count	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	RR Orient	RR Dist	RR Item	Ult. Ht	Qual	Value	Cultural
1	10.2m	326.9m <sup>2</sup>			>40 yrs	1	850								24m	Moderate	Moderate	Material
2	6.7m	141.9m <sup>2</sup>			>40 yrs	1	560								24m	Moderate	Low	No
3	9.5m	282.3m <sup>2</sup>			>40 yrs	1	790								21m	Low	Moderate	No
4	6.8m	147.0m <sup>2</sup>			>40 yrs	1	570								21m	Moderate	Moderate	No
5	5.8m	104.2m <sup>2</sup>			>40 yrs	1	480								21m	Low	Low	No
6	5.8m	104.2m <sup>2</sup>			>40 yrs	1	480								21m	Low	Moderate	No

Tree No.	RPA radius	RPA	Location co-ordinates	Location co-ordinates	Potential	Count	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	RR Orient	RR Dist	RR Item	Ult. Ht	Qual	Value	Cultural
7	8.0m	203.1m <sup>2</sup>			>40 yrs	1	670								21m	Low	Moderate	No
8	6.6m	136.8m <sup>2</sup>			>40 yrs	1	550								21m	Moderate	Moderate	No
9	8.0m	200.1m <sup>2</sup>			>40 yrs	1	665								21m	Low	Moderate	No
10	5.3m	87.6m <sup>2</sup>			>40 yrs	1	440								21m	Moderate	Moderate	No
11	6.7m	141.9m <sup>2</sup>			>40 yrs	1	560								23m	Low	Moderate	No
14-15	4.9m 7.2m	76.0m <sup>2</sup> 162.9m <sup>2</sup>			>40 yrs	2	410	600							23m	Low	Moderate	No
16-17	3.6m 4.2m	40.7m <sup>2</sup> 55.4m <sup>2</sup>			>40 yrs	2	300	350							10m	Low	Moderate	No
37	5.8m	104.2m <sup>2</sup>			>40 yrs	1	480								24m	Moderate	Moderate	No

Tree No.	RPA radius	RPA	Location co-ordinates	Location co-ordinates	Potential	Count	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	RR Orient	RR Dist	RR Item	Ult. Ht	Qual	Value	Cultural
38-40	1.2m	4.5m <sup>2</sup>			>40 yrs	3	100								20m	Moderate	Low	No
41	2.1m	14.5m <sup>2</sup>			>40 yrs	1	80	80	80	80	80				24m	Low	Low	No
42	9.6m	289.5m <sup>2</sup>			>40 yrs	1	800								24m	Moderate	Moderate	Material
43	8.8m	243.8m <sup>2</sup>			>40 yrs	1	580	450							25m	Moderate	Moderate	No
44	1.7m	8.9m <sup>2</sup>			>40 yrs	1	140								20m	Moderate	Low	No
45-49	1.2m	4.5m <sup>2</sup>			>40 yrs	5	100								20m	Moderate	Low	No
50	1.0m	2.9m <sup>2</sup>			>40 yrs	1	80								20m	Moderate	Low	No
51	3.5m	38.0m <sup>2</sup>			>40 yrs	1	290								18m	Moderate	Low	No
52	4.1m	53.8m <sup>2</sup>			>40 yrs	1	345								24m	Moderate	Low	No
57-64	2.4m	18.1m <sup>2</sup>			>40 yrs	8	200								24m	Moderate	Low	No
65	2.8m	23.9m <sup>2</sup>			>40 yrs	1	230								12m	Moderate	Low	No

Tree No.	RPA radius	RPA	Location co-ordinates	Location co-ordinates	Potential	Count	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	RR Orient	RR Dist	RR Item	Ult. Ht	Qual	Value	Cultural
66	2.0m	13.1m <sup>2</sup>			>40 yrs	1	170								24m	Moderate	Low	No
68	2.9m	26.1m <sup>2</sup>			>40 yrs	1	240								24m	Moderate	Low	No
72	3.5m	38.0m <sup>2</sup>			>40 yrs	1	290								24m	Moderate	Low	No
73-74	2.5m 2.5m	20.0m <sup>2</sup> 20.0m <sup>2</sup>			>40 yrs	2	210	210							24m	Moderate	Low	No
78	3.0m	28.3m <sup>2</sup>			>40 yrs	1	250								24m	Moderate	Low	No
79-80	2.5m 2m				>40 yrs	2	160	220							24m	Low	Low	No
81	8.6m	234.5m <sup>2</sup>			>40 yrs	1	720								24m	Moderate	Moderate	Material
88	6.7m	140.1m <sup>2</sup>			20-40 yrs	1	200	200	200	200	200				10m	Low	Low	No
94	3.4m	35.5m <sup>2</sup>			>40 yrs	1	280								24m	Moderate	Low	No

Tree No.	RPA radius	RPA	Location co-ordinates	Location co-ordinates	Potential	Count	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	RR Orient	RR Dist	RR Item	Ult. Ht	Qual	Value	Cultural
104	3.7m	43.5m <sup>2</sup>			>40 yrs	1	310								24m	Low	Low	No
109	9.0m	254.5m <sup>2</sup>			>40 yrs	1	750								24m	Moderate	Low	Material
112-114	3.7m 3.6m 2.9m	44.2m <sup>2</sup> 40.7m <sup>2</sup> 26.1m <sup>2</sup>			>40 yrs	3	240	200	300	240					24m	Moderate	Low	No
117, 121, 122, 127, 128, 136- 139, 156 and 157	2.0m 1.9m 3.4m 1.9m 1.9m 3.2m 3.0m 3.0m 3.6m 3.0m 3.5m	13.1m <sup>2</sup> 11.6m <sup>2</sup> 35.5m <sup>2</sup> 11.6m <sup>2</sup> 11.6m <sup>2</sup> 33.0m <sup>2</sup> 28.3m <sup>2</sup> 28.3m <sup>2</sup> 40.7m <sup>2</sup> 28.3m <sup>2</sup> 38.0m <sup>2</sup>			>40 yrs	11	170	160	280	160	160				24m	Moderate	Low	No

<b>Tree No.</b>	<b>RPA radius</b>	<b>RPA</b>	<b>Location co-ordinates</b>	<b>Location co-ordinates</b>	<b>Potential</b>	<b>Count</b>	<b>Stem 1</b>	<b>Stem 2</b>	<b>Stem 3</b>	<b>Stem 4</b>	<b>Stem 5</b>	<b>RR Orient</b>	<b>RR Dist</b>	<b>RR Item</b>	<b>Ult. Ht</b>	<b>Qual</b>	<b>Value</b>	<b>Cultural</b>
132	8.8m	241.1m <sup>2</sup>			>40 yrs	1	730								24m	Moderate	Low	No
160	6.1m	117.7m <sup>2</sup>			>40 yrs	1	510								24m	Moderate	Low	No
161-162	7.3m 6.4m	168.3m <sup>2</sup> 127.1m <sup>2</sup>			>40 yrs	2	610	530							24m	Moderate	Low	No
163	5.1m	83.3m <sup>2</sup>			>40 yrs	1	429								24m	Moderate	Low	No
164	6.8m	147.0m <sup>2</sup>			>40 yrs	1	570								24m	Moderate	Moderate	No



Tree No.	RPA radius	RPA	Location co-ordinates	Location co-ordinates	Potential	Count	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	RR Orient	RR Dist	RR Item	Ult. Ht	Qual	Value	Cultural
165-173	2.5m 2.3m 2.4m 3.6m 3.5m 2.6m 2.4m 2.6m 2.2m	20.0m <sup>2</sup> 16.3m <sup>2</sup> 18.1m <sup>2</sup> 40.7m <sup>2</sup> 38.0m <sup>2</sup> 21.9m <sup>2</sup> 18.1m <sup>2</sup> 21.9m <sup>2</sup> 14.7m <sup>2</sup>			10-20 yrs	9	210	190	200	300	290				24m	Moderate	Low	No
175	2.6m	21.9m <sup>2</sup>			>40 yrs	1	220								24m	Moderate	Low	No
236	4.2m	55.8m <sup>2</sup>			20-40 yrs	1	160	160	160	160	110				10m	Low	Low	No
237	3.4m	37.3m <sup>2</sup>			20-40 yrs	1	100	100	100	100	120				10m	Low	Low	No
238	4.8m	72.4m <sup>2</sup>			>40 yrs	1	400								25m	Low	Low	No
240	4.2m	55.4m <sup>2</sup>			10-20 yrs	1	350								23m	Low	Low	No

Tree No.	RPA radius	RPA	Location co-ordinates	Location co-ordinates	Potential	Count	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	RR Orient	RR Dist	RR Item	Ult. Ht	Qual	Value	Cultural
241	11.5m	416.9m <sup>2</sup>			>40 yrs	1	960								24m	Moderate	Moderate	No
G1	1.6m	7.6m <sup>2</sup>			10-20 yrs	1g	130								23m	Low	Low	No
G2	7.2m	162.9m <sup>2</sup>			>40 yrs	1g	600								21m	Moderate	High	Material
G3	7.2m	162.9m <sup>2</sup>			>40 yrs	1g	600								24m	Moderate	Moderate	No
G4	1.8m	10.2m <sup>2</sup>			>40 yrs	1g	150								24m	Moderate	Low	No
W1						1g									24m			
W2						1g												

<i>Tree No.</i>	<i>RPA radius</i>	<i>RPA</i>	<i>Location co-ordinates</i>	<i>Location co-ordinates</i>	<i>Potential</i>	<i>Count</i>	<i>Stem 1</i>	<i>Stem 2</i>	<i>Stem 3</i>	<i>Stem 4</i>	<i>Stem 5</i>	<i>RR Orient</i>	<i>RR Dist</i>	<i>RR Item</i>	<i>Ult. Ht</i>	<i>Qual</i>	<i>Value</i>	<i>Cultural</i>
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<i>Just. Rem.</i>	<i>MAF</i>	<i>Prob. Age</i>	<i>No. Conifer s</i>	<i>No. Broadl eaves</i>
No		0	1	0
No		0	1	0
No		0	1	0
No		0	1	0
No		0	1	0
No		0	1	0

<i>Just. Rem.</i>	<i>MAF</i>	<i>Prob. Age</i>	<i>No. Conifer s</i>	<i>No. Broadl eaves</i>
No		0	1	0
No		0	1	0
No		0	1	0
No		0	1	0
No		0	1	0
No		0	1	0
No		0	5	4
No		0	1	1

<b>Just. Rem.</b>	<b>MAF</b>	<b>Prob. Age</b>	<b>No. Conifer s</b>	<b>No. Broadl eaves</b>
No		0	1	0
No		0	1	1
No		0	1	0
No		0	1	2
No		0	1	0
No		0	1	0
No		0	1	0
No		0	1	0
No		0	1	0
No		0	1	0
No		0	3	2

<b>Just. Rem.</b>	<b>MAF</b>	<b>Prob. Age</b>	<b>No. Conifers</b>	<b>No. Broadleaves</b>
No		0	1	0
No		0	1	0
No		0	1	0
No		0	1	0
No		0	4	4
No		0	1	0
No		0	1	0
No		0	1	0
No		0	1	0

<i>Just. Rem.</i>	<i>MAF</i>	<i>Prob. Age</i>	<i>No. Conifer s</i>	<i>No. Broadl eaves</i>
No		0	1	0
No		0	1	1
No		0	1	0
No		0	1	1



<i>Just. Rem.</i>	<i>MAF</i>	<i>Prob. Age</i>	<i>No. Conifers</i>	<i>No. Broadleaves</i>
No		0	1	0
No		0	1	1
No		0	1	0
No		0	1	0
No		0	1	0

<b>Just. Rem.</b>	<b>MAF</b>	<b>Prob. Age</b>	<b>No. Conifer s</b>	<b>No. Broadl eaves</b>
No		0	1	0
No		0	1	0
No		0	1	0
No		0	1	0
No		0	1	2
No		0	1	0

<i>Just. Rem.</i>	<i>MAF</i>	<i>Prob. Age</i>	<i>No. Conifer s</i>	<i>No. Broadl eaves</i>
No		0	5	6
No		0	1	0
No		0	1	0
No		0	1	0
No		0	1	0
No		0	1	0
No		0		

<i>Just. Rem.</i>	<i>MAF</i>	<i>Prob. Age</i>	<i>No. Conifer s</i>	<i>No. Broadl eaves</i>
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## Root Protection Areas (RPAs)

Root Protection Areas have been calculated in accordance with paragraph 4.6.1 of the British Standard 'Trees in relation to design, demolition and construction – Recommendations', BS 5837:2012. This is the minimum area which should be left undisturbed around each retained tree. RPAs are portrayed initially as a circle of a fixed radius from the centre of the trunk; but where there appear to be restrictions to root growth the circle is modified to reflect more accurately the likely distribution of roots.

<b>Tree No.</b>	<b>Species</b>	<b>RPA</b>	<b>RPA Radius</b>
1	English oak	326.9m <sup>2</sup>	10.2m
2	English oak	141.9m <sup>2</sup>	6.7m
3	Norway maple	282.3m <sup>2</sup>	9.5m
4	Norway maple	147.0m <sup>2</sup>	6.8m
5	Norway maple	104.2m <sup>2</sup>	5.8m
6	Norway maple	104.2m <sup>2</sup>	5.8m
7	Norway maple	203.1m <sup>2</sup>	8.0m
8	Norway maple	136.8m <sup>2</sup>	6.6m
9	Norway maple	200.1m <sup>2</sup>	8.0m
10	Norway maple	87.6m <sup>2</sup>	5.3m
11	Ash	141.9m <sup>2</sup>	6.7m
14-15	Ash	76.0m <sup>2</sup>	4.9m
		162.9m <sup>2</sup>	7.2m
16-17	Goat willow	40.7m <sup>2</sup>	3.6m
		55.4m <sup>2</sup>	4.2m
37	English oak	104.2m <sup>2</sup>	5.8m
38-40	Silver birch	4.5m <sup>2</sup>	1.2m
41	English oak	14.5m <sup>2</sup>	2.1m
42	Turkey oak	289.5m <sup>2</sup>	9.6m
43	Swamp cypress	243.8m <sup>2</sup>	8.8m
44	Silver birch	8.9m <sup>2</sup>	1.7m
45-49	Silver birch	4.5m <sup>2</sup>	1.2m
50	Silver birch	2.9m <sup>2</sup>	1.0m
51	Common alder	38.0m <sup>2</sup>	3.5m
52	English oak	53.8m <sup>2</sup>	4.1m
57-64	English oak	18.1m <sup>2</sup>	2.4m
65	Hawthorn	23.9m <sup>2</sup>	2.8m
66	English oak	13.1m <sup>2</sup>	2.0m
68	English oak	26.1m <sup>2</sup>	2.9m
72	English oak	38.0m <sup>2</sup>	3.5m
73-74	English oak	20.0m <sup>2</sup>	2.5m
		20.0m <sup>2</sup>	2.5m
78	English oak	28.3m <sup>2</sup>	3.0m
79-80	English oak		2.5m 2m
81	English oak	234.5m <sup>2</sup>	8.6m
88	Goat willow	140.1m <sup>2</sup>	6.7m
94	English oak	35.5m <sup>2</sup>	3.4m
104	English oak	43.5m <sup>2</sup>	3.7m
109	English oak	254.5m <sup>2</sup>	9.0m
112-114	English oak	44.2m <sup>2</sup>	3.7m
		40.7m <sup>2</sup>	3.6m
		26.1m <sup>2</sup>	2.9m
132	English oak	241.1m <sup>2</sup>	8.8m

117, 121, 122, 127, 128, 136- 139, 156 and 157	English oak	13.1m <sup>2</sup>	2.0m
		11.6m <sup>2</sup>	1.9m
		35.5m <sup>2</sup>	3.4m
		11.6m <sup>2</sup>	1.9m
		11.6m <sup>2</sup>	1.9m
		33.0m <sup>2</sup>	3.2m
		28.3m <sup>2</sup>	3.0m
		28.3m <sup>2</sup>	3.0m
		40.7m <sup>2</sup>	3.6m
		28.3m <sup>2</sup>	3.0m
38.0m <sup>2</sup>	3.5m		
160	English oak	117.7m <sup>2</sup>	6.1m
161-162	English oak	168.3m <sup>2</sup>	7.3m
		127.1m <sup>2</sup>	6.4m
163	English oak	83.3m <sup>2</sup>	5.1m
164	English oak	147.0m <sup>2</sup>	6.8m
165-173	English oak	20.0m <sup>2</sup>	2.5m
		16.3m <sup>2</sup>	2.3m
		18.1m <sup>2</sup>	2.4m
		40.7m <sup>2</sup>	3.6m
		38.0m <sup>2</sup>	3.5m
		21.9m <sup>2</sup>	2.6m
		18.1m <sup>2</sup>	2.4m
		21.9m <sup>2</sup>	2.6m
14.7m <sup>2</sup>	2.2m		
175	English oak	21.9m <sup>2</sup>	2.6m
236	Goat willow	55.8m <sup>2</sup>	4.2m
237	Goat willow	37.3m <sup>2</sup>	3.4m
238	Grey poplar	72.4m <sup>2</sup>	4.8m
240	Ash	55.4m <sup>2</sup>	4.2m
241	English oak	416.9m <sup>2</sup>	11.5m
G1	Ash	7.6m <sup>2</sup>	1.6m
G2	Various	162.9m <sup>2</sup>	7.2m
G3	English oak	162.9m <sup>2</sup>	7.2m
G4	English oak	10.2m <sup>2</sup>	1.8m

**APPENDIX 3  
TREE PROTECTION PLAN**

**Arboricultural Impacts: Summary**  
(For details, see below)

Impact	No. of Trees
Trees to be removed	51
Groups of trees to be removed	2
Woodland compartments to be removed	4
Woodland compartments to be partially removed	2
TPO trees to be removed	0
Trees to be pruned	5
Trees where manual excavation needed within RPAs	6
Trees where above soil surfacing needed within RPAs	3
Trees with proposed underground services within RPAs	0

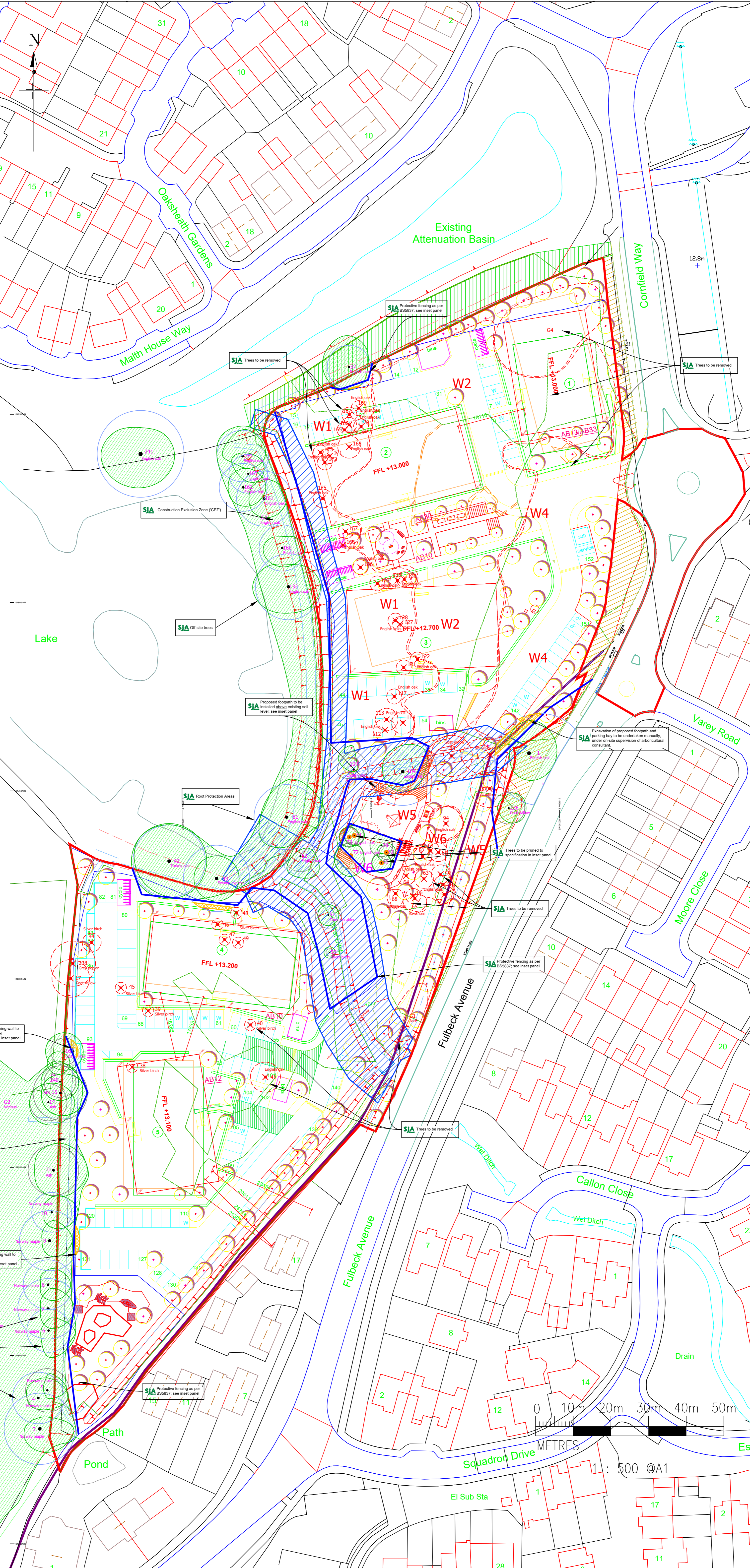
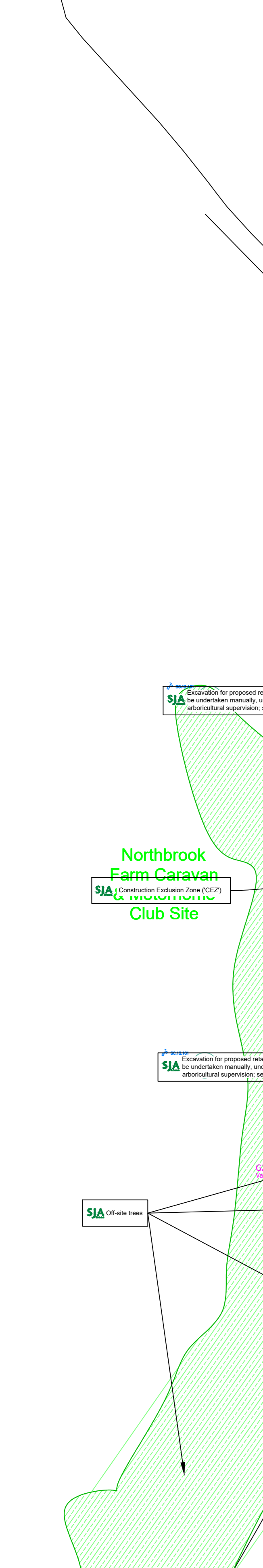
Trees to be Removed		
No.	Species	Category
2	English oak	B (1)
16-17	Goat willow	C (12)
38-40	Silver birch	C (1)
41	English oak	C (1)
44	Silver birch	C (1)
45-49	Silver birch	C (1)
237	Goat willow	C (1)
238	Grey poplar	C (12)
G1	Ash	C (1)
G4	English oak	C (12)
W1	Various	B (1)
W2	Various	C (12)
W4	Various	C (12)
W5	Various	C (12)
W6	Various (To be partially removed)	C (12)

Total numbers of trees to be removed			
Category	No. of trees	Category	No. of trees
A	0	B	1
C	50	U	0

Trees to be pruned		
No.	Species	Works (Outline only)
72	English oak	Crown lift to 3.5m above woodland play glade
73	English oak	Crown lift to 3.5m above woodland play glade
74	English oak	Crown lift to 3.5m above woodland play glade
79	English oak	Crown lift to 3.5m above woodland play glade
80	English oak	Crown lift to 3.5m above woodland play glade

Trees that require manual excavation within RPAs		
No.	Species	Type of structure
1	English oak	Proposed footpath and parking bay
9	Norway maple	Proposed retaining wall
16	Goat willow	Proposed retaining wall
37	English oak	Proposed parking bays
43	Swamp cypress	Proposed footpath

Trees that require above soil surfacing within RPAs		
No.	Species	Type of structure
72	English oak	Proposed play area footpath
73	English oak	Proposed play area footpath
109	English oak	Proposed play area footpath



**Protective Fencing**

To be erected prior to the commencement of all works on site, and retained in place throughout construction. To comprise either 2.4m wooden site hoarding, or a 2m high scaffolding framework, with uprights at maximum 3m spacings, every other one braced to the ground with 45 degree struts; supporting standard anti-climb 'Heras' welded mesh panels secured with anti-lift devices to concrete or plastic bases pinned to the ground by scaffold uprights sunk to a minimum depth of 600mm; individual panels fixed to each other with at least 2 clamps and to scaffolding with heavy-duty cable ties. 'TREE PROTECTION ZONE - KEEP OUT' or similar notices to be attached to every fifth panel.

TREE PROTECTION FENCING as shown in BS 5837: 2012, Section 6.2.2 & Figure 2.

**Manual Excavation**

Within root protection areas the first 750mm depth of any excavation, whether for proposed foundations, hard surfacing, or underground services shall be undertaken by hand under arboricultural supervision. The soil will be loosened with a pick or fork, and then will be cleared from roots with a compressed air pick. All roots will be cut cleanly with a hand saw or secateurs. The edge of the excavation closest to the trees will be covered with hessian sacking to prevent drying out, and if necessary be shuttered with an appropriate material to prevent soil collapse. Where appropriate, the soil beneath this depth may be sheet piled, and deeper excavation may be undertaken by a machine provided it works from outside the root protection areas.

**Above Soil Surfacing**

Proposed hard surfacing within root protection areas (RPAs) of retained trees to be constructed in accordance with section 7.4 of BS 5837: 2012. Trees in relation to design, demolition and construction - Recommendations. Other than the careful removal, using hand tools, of any turf layer, surfaces will be installed above existing soil level, or no deeper than the base of any existing surfacing if it is replacing, so that the soil is not disturbed and no roots are severed, and an appropriate ground covering, possibly using a geogrid, a geoweb, or a combination of the two will be placed beneath the sub-base to minimise compaction of the soil in which tree roots are growing. Edge supports will also be installed above existing soil level.

**Arboricultural Supervision**

The arboricultural consultant will directly supervise all construction works that have to be undertaken within root protection areas. These include:

1. Location of protective fencing.
2. Construction of above-ground hard surfacing.
3. All excavations, whether for proposed foundations, hard surfacing, or underground services.

**SJA trees ARBORICULTURAL PLANNING CONSULTANTS**

Project: Land adjacent to Fulbeck Avenue, Worthing

Client: Boklok Housing Ltd

Drawing: TREE PROTECTION PLAN

Drawing no: SJA TPP 19279-041a

Based on: 6783 101 P4 Site Plan

Drawn by: FJC Date of Issue: Jan 2020 Scale: 1:500 @A1

Checked by: Tel: (01737) 813058 sja@sjatrees.co.uk

Tree nos.: 1 Canopies of trees to be retained Category 'A' RPA: 2 Trees to be removed Category 'B' RPA: 1 Category 'C' RPA: 1 Trees to be pruned: 5 Manual excavation: 3 Above soil surfacing: 3

For further information refer to the SJA/Arboric Survey Schedule. Do not scale from this drawing; please check all dimensions on site, and notify us of any discrepancies. SJA/Arboric (the trading name of Simon Jones Associates Ltd.) cannot be held responsible for inaccuracies in the topographical plan on which this drawing is based. © Simon Jones Associates Ltd. 2019. This drawing is copyright and may not be used or changed without the written consent of SJA/Arboric. This drawing is based on the proposed layout plan shown and referred to above. SJA/Arboric authorises its reproduction, without amendment, by the Local Planning Authority (LPA), and its posting on the LPA website, to assist in consideration of this application only. This drawing is designed to reflect only the principles of layout and for design insofar as these relate to the protection of trees to be retained, and should NOT be used as a definitive engineering or construction method statement. Reference should be made to the architect or structural engineer, as appropriate, over any matters of construction detail or specification, or any regulatory requirements relating to proposed structures, hard surfaces or underground services.