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# Arboricultural Implications Report

## Proposed re-development at

### Riverhill Yard

### Old Malden Lane

### Worcester Park



**August 2023**

Ref. SJA air 23246-01a

## SUMMARY

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

S2. Our assessment of the impacts of the proposals on the existing trees concludes that no category 'A' or 'B' trees, and no trees of high landscape or biodiversity value are to be removed. The proposed removal of four category 'C' specimens, only one of which is mature, trees will represent no alteration to the main arboricultural features of the site and only a minor alteration to the overall arboricultural character and appearance of the local landscape.

S3. There will be no pruning of retained trees.

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.

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- 1. Outline arboricultural method statement**
- 2. Tree survey schedule (SJA tss 23246-01)**
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# 1. INTRODUCTION AND BACKGROUND INFORMATION

## 1.1. Instructions

1.1.1. SJAtrees has been instructed by NSS (Worcester Park) LLP to visit Riverhill Yard nursery off Old Malden Lane 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 re-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 the Royal Borough of Kingston-Upon-Thames Council (“the LPA”) and complies with local validation requirements.

1.2.2. It complies also with the recommendations of British Standard BS 5837:2012, *Trees in relation to design, demolition and construction – Recommendations* (‘BS 5837’). However, the British Standard is not a Code of Practice that consists of written rules outlining how actions or decision must be taken and it “should not be quoted as if it were a specification<sup>1</sup>”; it is a set of recommendations intended to “assist decision-making with regard to existing and proposed trees in the context of design, demolition and construction<sup>2</sup>”. It doesn’t form part of planning policy; but it is a material consideration to which weight is likely to be given.

1.2.3. The proposed re-development comprises the use of the site for a nursery for the propagation and growing of saplings; the associated storage and distribution of

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<sup>1</sup> British Standard BS 5837:2012. *Trees in relation to design, demolition and construction – Recommendations*; Foreword. *The British Standards Institution*.

<sup>2</sup> *Ibid.*, p.1, Introduction.

Christmas trees; the installation of a single storey modular office, storage containers, poly tunnels, hard and soft landscaping; and creation of a new vehicle access.

1.2.4. 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). A summary and conclusions, with regard to local planning policy, are presented in Section 7.

### **1.3. Site inspection**

1.3.1. A site visit and tree inspection were undertaken by Nigel Kirby and Tom Southgate of SJAtrees on Wednesday 31<sup>st</sup> June 2023. 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 1.86ha in size and is located on the east side of the access road, off Old Malden Lane (B284) at the junction with Cromwell and Worcester Park Road, which leads to Rokeby Sports Ground, opposite Toby Carvery, Worcester Park, as shown at **Figure 1** below. The north and east boundaries adjoin a residential property off the access road to the north. The west boundary abuts the access road which junctions with the Toby Carvery, while the south boundary abuts the Hogsmill River.



**Figure 1: Site location shown on aerial image**

1.4.2. The site is on ground that decreases by 0.75m from its western end adjacent to the access road to its eastern boundary, and currently comprises a derelict yard with some areas of associated front hard standing, portacabins, trailers, caravans and containers.

1.4.3. Historical maps and aerial photographs indicate that the site was undeveloped land since the late nineteenth century.

1.4.4. The earliest Ordnance Survey map, dated 1866, shows several trees growing along the north, south and east boundary of the site; it is possible that one of these trees, the large oak (no. 124) on the northern boundary is in the same location as one shown on that map; and is of sufficient size and age that we consider it may be one of the trees present at that time.



## **1.5. Soil type**

1.5.1. The British Geological Survey Solid and Drift Geology map of the area indicates the site overlies superficial deposits of Alluvium – clay, silt sand and gravel above a bedrock of London clay formation.

1.5.2. The class of soil in this area is recorded on the Department for Environment, Food & Rural Affairs ('Defra') Magic website as a slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils.

1.5.3. We are not aware of a site investigation or soil analysis having been undertaken; but the class of soil and the indications of the British Geological Survey map suggest that the soil is likely to be particularly susceptible to compaction.

## **1.6. Statutory controls**

1.6.1. Five of the trees on the site, one group and one woodland are covered by a tree preservation order (TPO). These are TPOs nos. 01 of 1989 and 08 of 1982 made by the Royal Borough of Kingston-Upon-Thames Council which together protect a total of 11 individual trees, two groups of trees and one woodland on and adjacent to the site. The trees protected by this TPO are identified within our tree survey schedule at **Appendix 2** and on the accompanying tree protection plan.

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.

1.7.2. There is one oak tree (no. 124.) adjacent to the north boundary which despite not being included in the Woodland Trust Ancient Tree Inventory<sup>3</sup> displays attributes

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<sup>3</sup> <https://ati.woodlandtrust.org.uk/>

consistent with it being of great age and is in a location consistent with the OS map from 1866 which would suggest it is a 'Veteran'. Ancient and veteran trees are considered to be irreplaceable habitats, and contribute to a site's biodiversity, cultural and heritage value, and the National Planning Policy Framework (see below) states that development resulting in the loss or deterioration of ancient or veteran trees should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists. Current government guidance states that ancient or veteran trees should be protected from root damage by inclusion of a buffer zone at least 15 times larger than the diameter of the trunk, or 5m from the edge of the tree's canopy if that area is larger.



## 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')<sup>4</sup> 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. In paragraph 130, 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;**

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<sup>4</sup> The National Planning Policy Framework (NPPF) (July 2021) Ministry of Housing, Communities & Local Government

**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. Paragraph 131 in this section states: **“Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users.”**

2.1.5. The section titled Planning for climate change states at paragraph 153: **“Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure.”**

2.1.6. In paragraph 174, 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;...

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;

2.1.7. In paragraph 180, under the 'Habitats and biodiversity' section, 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. Regional policy context**

2.2.1. Policy G1 'Green infrastructure' of the London Plan<sup>5</sup> states:

**"A London's network of green and open spaces, and green features in the built environment, should be protected and enhanced. Green infrastructure should be planned, designed and managed in an integrated way to achieve multiple benefits.**

**B Boroughs should prepare green infrastructure strategies that identify opportunities for cross-borough collaboration, ensure green infrastructure is optimised and consider green infrastructure in an integrated way as part of a network consistent with Part A.**

**C Development Plans and area-based strategies should use evidence, including green infrastructure strategies, to:**

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<sup>5</sup> The London Plan (March 2021); Greater London Authority

- 1) identify key green infrastructure assets, their function and their potential function**
- 2) identify opportunities for addressing environmental and social challenges through strategic green infrastructure interventions.**

**D Development proposals should incorporate appropriate elements of green infrastructure that are integrated into London’s wider green infrastructure network.”**

2.2.2. Policy G7 ‘Trees and woodlands’ of the London Plan states:

**“A London’s urban forest and woodlands should be protected and maintained, and new trees and woodlands should be planted in appropriate locations in order to increase the extent of London’s urban forest – the area of London under the canopy of trees.**

**B In their Development Plans, boroughs should:**

- 1) protect ‘veteran’ trees and ancient woodland where these are not already part of a protected site<sup>139</sup>**
- 2) identify opportunities for tree planting in strategic locations.**

**C Development proposals should ensure that, wherever possible, existing trees of value are retained.<sup>140</sup> If planning permission is granted that necessitates the removal of trees there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT or another appropriate valuation system. The planting of additional trees should generally be included in new developments – particularly large-canopied species which provide a wider range of benefits because of the larger surface area of their canopy.**

<sup>140</sup> **Category A, B and lesser category trees where these are considered by the local planning authority to be of importance to amenity and biodiversity, as defined by BS 5837:2012”.**

## **2.3. Local policy context**

2.3.1. Local planning policies are contained in the adopted Royal Borough of Kingston upon Thames Local Development Framework (April 2012).

2.3.2. Policy CS 8 of the Core Strategy states:

**“The Council will protect the primarily suburban character of the Borough, existing buildings and areas of high quality and historic interest from inappropriate development and will seek opportunities for sensitive enhancement in these areas and in areas of poorer environmental quality, where the character has been eroded or needs improving. It will use the Borough Character Study and Residential Design SPD to require good design and guide the assessment of development proposals and will seek to ensure that new development:**

- **recognises distinctive local features and character**
- **has regard to the historic and natural environment**
- **helps enhance locally distinctive places of high architectural and urban design quality**
- **accords with Neighbourhood ‘strategies for delivery’ set out under ‘Character, Design and Heritage’**
- **relates well and connects to its surroundings**

**Tall buildings may be appropriate in the Borough’s town centres; however, some parts of these areas will be inappropriate or too sensitive for such buildings. Relevant SPDs will provide further guidance on this matter and the Council will determine applications for such development on the basis of the criteria in the English Heritage/CABE Guidance on Tall Buildings (July 2007) and the London Plan.**

**The Council will also require higher standards of design generally to achieve a more attractive, sustainable and accessible environment.”**

2.3.3. The relevant section of Policy DM6 of the Core Strategy states:

**“The Council will:...**

**a. ensure new developments protect and promote biodiversity as part of sustainable design, through the inclusion of sustainable drainage, tree planting, soft landscaping, habitat enhancement and/or improvement, green roofs and new or improved semi-natural habitats, where appropriate...”**

2.3.4. The relevant section of Policy DM10 of the Core Strategy states:

**“The Council will expect new development to ensure that trees that are important to the character of the area or covered by Tree Preservation Orders are not adversely affected. Where trees are to be lost through development the Council will normally require the planting of two specimens for each tree lost. The Council will refuse applications that adversely impact upon the leafy character of the Borough where commensurate appropriate replacement is not provided.”**

## **2.4. Neighbourhood policy context**

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

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

2.5.1. We surveyed individual trees with trunk diameters of 75mm and above<sup>6</sup>, trees with trunk diameters of 150mm and above growing in groups or woodlands, and shrub masses, hedges and hedgerows<sup>7</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.

2.5.2. We attached numbered plastic tags to the trunks of all on-site trees surveyed as individuals. The numbers on these tags correspond with the numbers in the tree survey schedule and on the tree protection plan (at **Appendix 3**). In practical terms, this aids identification of trees on the ground, allows them to be cross-referenced with the survey schedule, and ensures that if or when it comes to site clearance or felling, the potential for mistakes to occur is limited, and the correct trees are retained.

2.5.3. The baseline information collected during the 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>6</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>7</sup> Ibid., 4.4.2.7

2.5.4. We surveyed trees as groups where they have grown together to form cohesive arboricultural features, either aerodynamically (trees that provide companion shelter), visually (e.g., avenues or screens) or culturally<sup>8</sup>. However, where it might be necessary to differentiate between specific trees within these groups, we also surveyed these individually.

2.5.5. 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.

2.5.6. 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. We 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.

## **2.6. Tree constraints**

2.6.1. In line with the NPPF's presumption in favour of sustainable development, we assessed whether any trees should be retained in the context of the proposed re-development. Our assessment of which trees might have to be retained, and which can be removed, is based on:

- whether any trees are classed as 'ancient' or 'veteran', and thereby are designated as 'irreplaceable habitats'<sup>9</sup>;
- which trees contribute to local character and history, including to the surrounding landscape setting; which trees contribute to biodiversity; and which trees help mitigate and adapt to climate change; and whose removal would thereby be unlikely to comply with national planning policy guidance;

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<sup>8</sup> Ibid., 4.4.2.3

<sup>9</sup> The National Planning Policy Framework (NPPF) (July 2021). Paragraph 180 (c).



- which trees are important to the character of the area or covered by tree preservation orders, such that their removal would be contrary to local planning policies: specifically, Policy DM10 of the Royal Borough of Kingston-Upon-Thames Council , as set out above;
- our assessment of the tree's' quality, value and remaining life expectancy, in accordance with BS5837:2012, as summarised in the notes that accompany the tree survey schedule.

2.6.2. As trees growing outside the boundaries of the site are in the control of others, we have assumed they will be retained, irrespective of their size, age or condition.

2.6.3. Whilst we have categorised trees in accordance with BS 5837, we have not used these categorisations as the main criterion of whether specimens might be removed or should be retained. Trees in categories 'A', 'B' and 'C' are all a material consideration in the development process; but the retention of category 'C' trees, being of low quality or of only limited or short-term potential, will not normally be considered necessary should they impose a significant constraint on development.

2.6.4. 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>10</sup>.

2.6.5. 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>11</sup>.

2.6.6. The 'Root Protection Areas' (RPAs)<sup>12</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,

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<sup>10</sup> BS 5837, 4.5.10.

<sup>11</sup> Ibid., 5.1.1.

<sup>12</sup> Ibid., paragraph 3.7. "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."

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.

2.6.7. To assess whether the trees identified for retention would be in a sustainable relationship 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>13</sup>.

2.6.8. Based on these principles and recommendations, the tree survey and assessment of suitability for retention informed the production of a tree constraints plan (TCP) which indicates the most suitable trees for retention, and their associated below-ground and above-ground constraints.

2.6.9. As a design tool, the TCP also indicates 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.

2.6.10. The TCP was then used to inform the siting of the proposed buildings and areas of hard surfacing during the design process. In this way, it has been ensured that the existing trees have made a significant contribution to the design of the proposed development, rather than the design having dictated which trees are to be removed.

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<sup>13</sup> Ibid., paragraph 5.2.2 Note 1.

## 2.7. Arboricultural impact assessment and tree protection plan

2.7.1. Once finalised, we assessed the arboricultural impacts of the proposed layout, and produced the tree protection plan (TPP) presented at **Appendix 3**. This is based on the proposed 'Block Plans' by Pines&Needles, drawing no. 001 July 22.

2.7.2. The TPP identifies the trees six trees to 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 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.

2.7.3. 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.

2.7.4. 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.

2.7.5. Details of the impacts identified within these categories, and our assessment of their respective significance, are analysed in Sections 4 to 6 below. 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.

Impact	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>14</sup>**

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<sup>14</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 58 individual trees, and 13 groups of trees, one hedge and one area of woodland growing within or immediately adjacent to the site. Their details can be found in the tree survey schedule at **Appendix 2**.

3.1.2. The arboricultural character of the site is formed by all the trees being located along the boundaries of the ownership. The main areas of tree density are along the southern and eastern boundaries, with the species being predominantly broadleaf with the occasional planted conifer. All species being native or naturalised and primarily planted with self-seeded re-generation beneath.

3.1.3. The most commonly found species is horse chestnut which, equally with sycamore along the southern boundary are the most dominant species of the site. Sizes range from 16m – 20m tall for the dominant specimens with an equal age range of semi-mature to mature. This is partially in keeping with the surrounding area with private, relatively small open areas bounded by tall, established wooded boundaries. However, this site is also in close proximity to densely wooded pockets of land to the northwest and east. Whilst indifferent to the surrounding area, the treed boundaries provide a sense of enclosure hidden from the wider landscape.

### 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 “*distinctive local features and character...relates well and connects with its surroundings.*” The individuals and groups of trees within or adjacent to the site, whose attributes we consider meet these criteria, are as follows:

- the veteran English oak (no. 124) growing close to the northern corner of the site; as this specimen is of considerable size and age and may be one of the trees depicted on an Ordnance Survey map dating from 1896, Sheet 270 – South London (Outline);

- the large English oak (no. 122) to the north-east of the veteran English oak (no. 124) as this specimen may also be one of the original trees forming the historic linear feature or field boundary;
- the off-site row of common lime trees (no. G16) growing on the north-eastern boundary of the Riverhill Sports Ground and adjoining the private drive leading to Surbiton Town Sports Club, in views from which the trees make a significant landscape feature lining the private driveway towards the site;
- the off-site woodland to the north-east of the site as this comprises a sizable area of trees containing tall specimens and as a whole, this is a significant arboricultural feature in the landscape; and
- the various trees forming the south-eastern boundary that line the banks of the Hogsmill River as collectively these trees form a wildlife corridor and provide a screen between the site and the adjacent industrial works.

3.2.2. Three individual trees (nos. 125, 153 & 156) have been assessed as category 'U'. These are trees that are unsuitable for retention, on the basis of them being 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. On-site trees that need removing solely to accommodate the proposed development are not placed in this category. Category 'U' trees are indicated on the accompanying tree locations and protection plans by **bracketed red** numbers.

3.2.3. There are five category 'A' trees (Ash no. 1, Horse chestnut no. 8, Monterey pine no. 23, and English oaks nos. 122 & 124) and seven category 'B' specimens (Horse chestnuts nos. 2, 96, 131 & 150, common alder no. 93, aspen no. 90 and English oak no. 123). The remaining 43 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 groups of trees, hedges, hedgerows and woodlands, three have been assessed as category 'A' (G6, G13, G16), none as category 'B', and the remaining eleven as category 'C'.

## 4. TREES TO BE REMOVED

### 4.1. Details

4.1.1. The veteran tree (no. 124.) will not be removed to facilitate the proposed development.

4.1.2. To accommodate the proposed development, as shown on the proposed layout plan, four individual trees (nos. 153 – 156) are to be removed because they are situated within the footprints of the proposed access arrangements or are too close to these to enable them to be retained.

4.1.3. Details of the trees to be removed, including their dimensions, age class and British Standard categorisation, are shown and listed on the TPP and at **Table** below.

Tree no.	Species	Height	Trunk diameter	Age class	BS category
153	Horse chestnut	10m	1070mm	Over-mature	U
154	Ash	10m	285mm	Semi-mature	C (2)
155	London plane	12m	960mm (over ivy)	Mature	C (1)
156	Sycamore	8m	Est. 430mm	Semi-mature	U

**Table 2: Trees to be removed**

4.1.4. No groups of trees or hedges are to be removed as part of the proposals.

### 4.2. Assessment

4.2.1. Only one of the trees to be removed is a mature specimen of species of large size: all the other trees to be cleared are semi-mature. The significance of this is threefold. Firstly, for obvious reasons mature trees tend to be larger in size and therefore are likely to be more visible and to make a greater contribution to the landscape. Secondly, mature trees are more likely to have formed associations with wildlife and to support other flora or fauna (for example, young trees infrequently contain splits, cracks or cavities that might provide roosting sites for bats); and thirdly, mature trees have a significantly greater capacity than smaller trees to actively

sequester and store carbon<sup>15</sup>. Accordingly, the removal of only one or 7.5% of the 13 mature trees on or adjacent to the site minimises the impacts on the benefits that mature trees provide in relation to smaller ones.

4.2.2. No category 'A' or 'B' trees are to be removed.

4.2.3. Two of the 43 category 'C' trees on site are to be removed: these are either of low quality, low value, or short-term potential. For these reasons, their removal will have no significant impact on the character or appearance of the area.

4.2.4. The two category 'U' trees to be removed are unsuitable for retention, irrespective of the proposed development, in that they cannot realistically be retained for longer than 10 years.

4.2.5. The proposals are for a new nursery with a range of trees, espalier trees, topiary and Christmas trees which will go some way to mitigating for the losses discussed above. However, there is scope for additional, longer-term planting to take place within the site. This will mitigate the proposed removals, 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. The establishment of the replacement planting will progressively reduce the magnitude of the impact of the proposed removals on the character and appearance of the site.

4.2.6. 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 identified for removal will represent no alteration to the main arboricultural features of the site.

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<sup>15</sup> Stephenson N. L., Das A. J., Zavala M. A. (2014) Rate of tree carbon accumulation increases continuously with tree size. *Nature*, volume 507.



## **5. TREES TO BE PRUNED**

### **5.1. Details**

5.1.1. No trees to be retained are to be pruned to facilitate implementation of the proposals.

### **5.2. Assessment**

5.2.1. As no trees are to be pruned, and none of the proposed buildings will be within 3m of the extents of the canopies of trees to be retained, there will be adequate working space for construction close to trees, and a reasonable margin of clearance for future growth.

## 6. ROOT PROTECTION AREA INCURSIONS

### 6.1. Details

6.1.1. Parts of the proposed hard surfacing will encroach within the RPAs of three of the trees to be retained. These are shown in **Table 3** below.

Tree no.	Species	Incursion	Extent of incursion	% of RPA
129	Horse chestnut	Proposed vehicular access	43.6m <sup>2</sup>	18.6%
131	Horse chestnut	Proposed vehicular access	22.8m <sup>2</sup>	12.9%
150	Horse chestnut	Proposed vehicular access	100.1m <sup>2</sup>	24.1%

**Table 3: Proposed incursions within RPAs**

### 6.2. Assessment

6.2.1. At a glance it would appear from the plans that there is an incursion into the RPA and buffer zone of the veteran trees n. 124. However, the opposite is true. The buffer zone is already significantly compromised, and the proposals will improve the situation. There is no new development in this area, it is already hard-surfacing (or at least formed of compacted 'crush'. The proposals will decompact the area to be used as plant storage before using above soil ground protection for the intended use. Some portion of the existing hard surfacing will be formalised and converted to a surface suitable for vehicular access.

6.2.2. Whilst the best thing to do might be to leave the veteran tree alone, that would render the site unviable for use and leave the land compromised in any event. Instead, the proposal represents an improvement for the environment in which the tree is growing and presents an opportunity to make use of an otherwise derelict and unattractive plot of land.

6.2.3. As no parts of the proposed buildings are within the RPAs of any of the trees to be retained, subject to the implementation of protective measures specified below and on the TPP, their construction will not cause unacceptable damage to roots or rooting environments as a result of root severance or damage, or compaction or pollution of the soil.

6.2.4. The incursions into the RPAs of trees nos. 129, 131 and 150 are by areas of proposed hard surfacing. These areas extend to no more than 25% of individual RPAs, and do not exceed the 20% maximum incursion into currently unsurfaced ground recommended in BS 5837<sup>16</sup>.

6.2.5. Taking account of the fact that these areas of RPA are already covered in compacted material the RPAs are assessed as being compromised, and hence the proposed surfacing is not assessed as 'new' hard surfacing. Existing ground levels and likely proposed levels of these areas will allow for design and construction of the replacement surfaces to be entirely above existing soil level, and accordingly no excavation will be required. Furthermore, where appropriate, new or replacement surfaces 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.

6.2.6. 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 and the installation of ground protection, as shown on the TPP at **Appendix 3**. Surrounding the site's north, east and south boundaries is an existing soil bund that will be retained. This bund is substantial enough to present a barrier to development and hence will be left in place as a tree protection measure during development and after.

6.2.7. 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.

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<sup>16</sup> BS 5837, paragraph 7.4.2.3.

## 7. CONCLUSIONS

### 7.1. Summary

7.1.1. Our assessment of the impacts of the proposals on the existing trees concludes that no category 'A' or 'B' trees, and no trees of high landscape or biodiversity value are to be removed. The proposed removal of four category 'C' specimens, only one of which is mature, trees will represent no alteration to the main arboricultural features of the site and only a minor alteration to the overall arboricultural character and appearance of the local landscape.

7.1.2. There will be no pruning of retained trees.

7.1.3. 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.

### 7.2. Compliance with national planning policy

7.2.1. As the proposals will retain all the main arboricultural features of the site, its arboricultural attractiveness, history and landscape character and setting will be maintained, thereby complying with Paragraph 130 of the National Planning Policy Framework.

7.2.2. Whilst some trees are to be removed, there is no duty in planning policy to retain all existing trees in all circumstances. Paragraph 131 of the NPPF states (*italics added for emphasis*): "**Planning policies and decisions should ensure... that existing trees are retained wherever possible**"; and thereby recognises circumstances in which it might not be possible to retain every tree. Accordingly, the proposed removal of trees does not mean that this application must thereby be refused; and does not mean it conflicts with Paragraph 131 of the NPPF.

7.2.3. As the proposals will not result in the loss or deterioration of any ancient or veteran trees, they comply with paragraph 180 (c) of the NPPF.

### **7.3. Compliance with regional planning policy**

7.3.1. As all the existing trees assessed as being features in the existing built environment will be retained, in arboricultural terms the proposed development complies with Policy G1 'Green infrastructure' of the London Plan.

7.3.2. As all trees of significant value and importance to amenity will be retained, and space exists within the proposed layout for replacement planting, including of large-canopied trees, the proposed development will protect, maintain and enhance the main arboricultural features of the site. As such, it complies with Policy G7 'Trees and woodlands' of the London Plan.

### **7.4. Conclusion**

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

**APPENDIX 1**  
**Outline Arboricultural Method Statement**

# Outline arboricultural method statement

## **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, ground preparation, 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. Site clearance**

A1.3.1. No clearance of trees or other vegetation shall be undertaken until after the pre-start meeting and after the erection of the tree protection fencing (see below). If any vegetation clearance is required behind the line of the protection fencing this will be made clear at the pre-start meeting and arrangements will be made to do this prior to the fencing's erection, under the supervision of the arboricultural consultant, who will ensure it doesn't cause any soil compaction or damage to the roots of trees to be retained.

A1.3.2. Except where within the RPAs of trees to be retained, all trees and other vegetation to be removed may be cut down or grubbed out as appropriate; but within



the RPAs of trees to be retained, trees and vegetation will be cut by hand to ground level and stumps will be either left in place or ground out with a lightweight self-powered stump grinding machine. No excavators, tractors or other vehicles will enter the RPAs.

#### **A1.4. Ground preparation**

A1.4.1. No ground preparation or excavation of any kind, including topsoil stripping or ground levelling, shall be undertaken until after the pre-start meeting and after the erection of the tree protection fencing (see below).

#### **A1.5. Tree protection fencing**

A1.5.1. 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.

A1.5.2. 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.

A1.5.3. 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.

A1.5.4. 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.

## **A1.6. Ground protection**

A1.6.1. 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.

A1.6.2. 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.

## **A1.7. Proposed hard surfaces within RPAs**

A1.7.1. 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**

**Riverhill Yard, Old Malden Lane**

**SJA tss 23246-01**

**June 2023**

# Tree Survey Schedule: Explanatory Notes

## Riverhill Yard, Old Malden Lane

This schedule is based on a tree inspection undertaken by Tom Southgate and Nigel Kirby of SJAtrees (the trading name of Simon Jones Associates Ltd.), on Wednesday 21st June 2023. 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.

The numbers correspond with numbering on the SJAtrees drawings and commence at (1).

### 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

### 7. Crown clearance

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

### 8. Age class

Young: Age less than 1/3 life expectancy

Semi-mature: 1/3 to 2/3 life expectancy

Mature: Over 2/3 life expectancy

Over-mature: Mature, and in a state of decline

Veteran: Mature, with a large trunk diameter for the species; but showing signs of ancientness, irrespective of actual age, with decay or hollowing, and a crown that has undergone some retrenchment and has 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 irreparable physiological or pathological defects, such that there may be a risk of early or premature collapse.

Hazardous: Significant and irreparable 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

-Estimated life expectancy or potential

### 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, irreparable, 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 infested 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**  
**Riverhill Yard, Old Malden Lane**

No.	TPO no.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio - logy	Structure	Comments	Category
1	W1 01/ 1989	Ash	20m	720mm (over ivy est.)	8m N 8m E 11.9m S 7.7m W	6m	6m	Mature	Average	Indifferent	Off-site tree; single trunk; tensile main unions, where visible; heavily covered in dead ivy; asymmetrical crown as suppressed by adjacent specimens; aerodynamic group with meshing crowns providing companion shelter; significant component of group in which it stands; boundary individual; of moderate quality and high landscape value; of long-term potential.	A (2)
2	W1 01/ 1989	Horse chestnut	20m	est. 800mm	5m N 7m E 14m S 12m W	4m	2m	Mature	Average	Indifferent	Off-site tree; single trunk; one-sided crown as suppressed by adjacent specimens; asymmetrical crown as suppressed by adjacent specimens; storm damage in crown; essential component of group in which it stands; boundary individual; of moderate quality and high landscape value; of medium-term potential.	B (2)
3-5		Aspen	18m 18m 18m	405mm 345mm 305mm (all over ivy est.)	2m N 2m E 5m S 2.5m W	6m	3m	Semi-mature	Average	Poor	Single trunk; drawn-up and mutually suppressed; drawn-up specimen with height/diameter ratio greater than 50: at risk of failure if companion shelter removed; asymmetrical crown as suppressed by adjacent specimens; one-sided crown as suppressed by adjacent specimens; aerodynamic group with meshing crowns providing companion shelter; boundary individual; of low quality; of moderate landscape value; of medium-term potential.	C (2)
6		Aspen	18m	est. 395mm (over ivy)	0m N 0m E 6m SE 11m S 6m SW 0m W	8m	8m	Semi-mature	Average	Hazardous	Off-site tree; single trunk; heavily ivy-covered; heavily leaning trunk; asymmetrical crown as suppressed by adjacent specimens; canopy entirely offset from base; inessential component of group in which it stands; of low quality, of low landscape value, and of short-term potential only.	C (123)
7		Aspen	22m	est. 810mm	8m N 12m E 10m S 3.5m W	8m	2m	Mature	Average	Poor	Off-site tree; single trunk; significant tear-out wound on trunk; one-sided crown as suppressed by adjacent specimens; asymmetrical crown as suppressed by adjacent specimens; essential component of group in which it stands; boundary individual; hidden in all direct public views; of low quality but high landscape value; of medium-term potential.	C (2)
8		Horse chestnut	20m	est. 775mm	7m N 8m E 9m S 7m W	4m	1m	Mature	Average	Indifferent	Off-site tree; single trunk; asymmetrical crown as suppressed by adjacent specimens; aerodynamic group with meshing crowns providing companion shelter; significant component of group in which it stands; boundary individual; of moderate quality and high landscape value; of long-term potential.	A (12)
21		London plane	11m	est. 300mm	3m N 4m E 3m S 3.5m W	2m	2.5m	Semi-mature	Below average	Good	Growing at the base of a very steep section of bund; inaccessible terrain; infected with Devil's tongue (Anthracnose canker) leaf disease; sparsely foliated; of moderate quality and landscape value; of long-term potential.	B (1)
22		Horse chestnut	9.5m	est. 160mm	2m N 3m E 2.5m S 2m W	1.5m	2m	Young	Low	Indifferent	Growing at the base of a very steep section of bund; inaccessible terrain; significant infestation of Leaf miner; sparsely foliated; of low quality, of low landscape value, and of short-term potential only.	C (123)

No.	TPO no.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio -logy	Structure	Comments	Category
23		Monterey pine	22m	est. 670mm	5m N 5m E 5m S 5m W	3m	5m	Semi-mature	Average	Good	Off-site tree; stands out as an individual; essential component of the group within which it stands; of high quality and high landscape value; of long-term potential.	A (12)
90		Aspen	20m	475mm	8m N 8m E 4m S 4m W 5m NW	2m	4m	Semi-mature	Average	Moderate	In the NE corner, adjacent to stream approx. 4m E; bund comprising bricks/rubble and metalwork adjacent to W; subdominant sucker on E with a tight compression fork; tall, drawn-up single trunk; asymmetric crown as suppressed by adjacent specimens; significant component of group in which it stands; hidden in all views by adjacent trees, however provides screening of the opposite side of the river bank which is also heavily treed; of moderate quality and landscape value; of medium-term potential.	B (12)
91		Norway spruce	19m	285mm (over ivy)	4m N 4m E 2m S 1m W	2m	1m	Semi-mature	Average	Poor	Adjacent to E boundary and stream approx. 6m to E; soil bund adjacent to W up to a depth of approx. 0.25-0.5m; heavily covered in dead ivy; tall, drawn-up mutually suppressed by adjacent specimens; asymmetric crown; hidden in all direct views by adjacent trees; of low quality, of low landscape value, and of short-term potential only.	C (123)
92		Common alder	20m	455mm (over ivy)	6m N NE 4 6m E 7m S 7m W 4.6m NW	2m	2m	Semi-mature	Average	Indifferent	Adjacent to E boundary, adjacent to river; soil bund up to W up to approx. 0.5m; heavily ivy-covered from ground level into the upper extremities of crown; main crown forks unable to be inspected due to dense ivy-cover; asymmetric crown as suppressed by adjacent specimens; significant component of group in which it stands; hidden in all direct public views by adjacent trees; of moderate quality and of medium-term potential; but of low landscape value.	C (12)
93		Common alder	17m	400mm (over ivy)	4m N 5m E 6m S 6m W 2.5m NW	6m	6m	Semi-mature	Average	Indifferent	Located in/on top of bund; much rubble, soil and dead tree detritus up to the trunk; single trunk; heavily ivy-covered into upper extremities of crown; asymmetric crown as suppressed by adjacent specimens; main branch unions cannot be assessed due to dense ivy cover; significant component of group in which it stands; hidden in direct public views by adjacent trees; approximately 8m to W of stream that forms E boundary; of moderate quality and landscape value; of medium-term potential.	B (1)
94		Horse chestnut	17m	420mm 280mm 215mm	9m N NE 7 10m E 4m S 4m W NW 4	2m	2m	Semi-mature	Average	Poor	Multi-stemmed from ground level; soil bund adjacent to W; W stem buried 0.5-0.75m by bund; heavily leaning trunks to NE; significant component of group in which it stands; located on E boundary; suffering from horse chestnut leaf miner; hidden in all direct views by adjacent trees, however significant internally to site; of low quality; of moderate landscape value; of medium-term potential.	C (2)
95		Horse chestnut	20m	900mm (over ivy)	9m N 9m NE 10m E 10m S 5m W 5m NW	8m	6m	Mature	Low	Poor	Adjacent to E boundary; approx. 10m W of stream; soil bund comprising rubble piled up to trunk to a depth of approx. 3.5-4m on W; heavily ivy-covered into the upper extremities of the canopy; trunk leans E; wide-spreading heavily over-extended limbs; asymmetric crown as suppressed by adjacent specimens; suffering from horse chestnut leaf miner; slightly sparsely foliated; significant component of group in which it stands, however screened from all other views by adjacent trees; of low quality but high landscape value; of medium-term potential.	C (2)

No.	TPO no.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio - logy	Structure	Comments	Category
96		Horse chestnut	20m	580mm	6m N 4m E 10m S 6.75m SW 10m W 9m NW	2m	2m	Semi-mature	Average	Indifferent	Adjacent to E boundary, approx. 7m from edge of stream; soil bund up to N of trunk includes large pieces of concrete rubble up to a depth of 1m on NW; trunk leans slightly W; forks into two co-dominant stems at approx. 3m; suffering from horse chestnut leaf miner; asymmetric crown towards W/NW; significant component of group in which it stands, however hidden in all direct public views by adjacent trees; of moderate quality and high landscape value; of medium-term potential.	B (2)
97		Sycamore	18m	200mm x2 stems 225mm 195mm 210mm	6.5m N 4m E 4m S 5m W	5m	4m	Semi-mature	Average	Poor	Multi-stemmed from base; tight compression forks with evidence of included bark; drawn-up and mutually suppressed; ivy-covered; significant component of group in which it stands; hidden in all direct public views; adjacent to river; of low quality; of moderate landscape value; of medium-term potential.	C (2)
98		Sycamore	18m	400mm (over ivy)	7m N 1.5m E 4m S 8m W	6m	6m	Semi-mature	Average	Poor	Adjacent to E boundary up to river bank; single stem; ivy-covered from ground level; many non-occluded historic pruning wounds indicative of crown lifting; one-sided asymmetric crown as suppressed by adjacent specimens; significant component of group in which it stands; provides boundary screening along E edge of site; tall, drawn-up and mutually suppressed; of low quality; of moderate landscape value; of medium-term potential.	C (2)
99		Sycamore	17m	est. x3 stems 220mm (over ivy)	6.25m N 4m E 2m S 5m W	4m	4m	Young	Average	Poor	Multi-stemmed from base; tight compression forks with evidence of included bark; drawn-up and mutually suppressed; ivy-covered; asymmetrical crown as suppressed by adjacent specimens; aerodynamic group with meshing crowns providing companion shelter; adjacent to river; of low quality; of moderate landscape value; of medium-term potential.	C (123)
100		Sycamore	16m	210mm 270mm 245mm	6.5m N 2m E 2.5m S 8m W	6m	4m	Semi-mature	Average	Poor	Multi-stemmed from base; tight compression forks with evidence of included bark; drawn-up and mutually suppressed; aerodynamic group with meshing crowns providing companion shelter; adjacent to river; hidden in all direct public views; of low quality; of moderate landscape value and of short-term potential only.	C (2)
101		Sycamore	17m	430mm (over ivy)	5.5m N 3m E 2m S 5m W	2m	2m	Semi-mature	Average	Poor	No significant defects observed at base; drawn-up and mutually suppressed; ivy-covered; asymmetrical crown as suppressed by adjacent specimens; aerodynamic group with meshing crowns providing companion shelter; adjacent to river; tight compression fork with evidence of included bark; of low quality; of moderate landscape value and of short-term potential only.	C (2)
121		English oak	10m	410mm	3.4m N 5m E 10.4 SE 10.1m S 2m W	3m	4m S	Semi-mature	Average	Good	Asymmetrical crown as suppressed by adjacent specimens; slightly leaning trunk; growing between a high bund and the boundary chain link fence; contributes to the screening of the site; of high quality but low value; of long-term potential.	C (1)
122		English oak	18m	1115mm (over ivy)	9m N 6.5m E 11.5m SE 9m S 11m SW 9m W	4m	4m S	Mature	Average	Good	Growing on the bank that rises to the site boundary; large dominant specimen; significant component of the group within which it stands; contributes to the screening of the site; of high quality and high landscape value; of long-term potential.	A (12)



No.	TPO no.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio -logy	Structure	Comments	Category
123		English oak	14m	495mm (over ivy)	1m N 3m E 6.8 SE 6.1m S 4m W	1.5m S	2.5m S	Semi-mature	Average	Moderate	Slightly leaning trunk; heavily ivy-covered; asymmetrical crown as suppressed by adjacent specimens; contributes to the screening of the site; of moderate quality and landscape value; of long-term potential.	B (12)
124	T124 01/ 1989	English oak	17m	1585mm	7m N 8m E 8m S 8m W	2m	3.5m S	Veteran	Average	Good	Large dominant specimen; historic pollard; significant component of the group within which it stands; of moderate quality, high landscape and significant cultural value, and of long-term potential.	A (12)
125		English oak	13m	est. 1000mm	2m N 3m E 2m S 4m W	7m	6m	Mature	Dead	Hazardous	Dead tree; of low quality and no potential.	U
126		Ash	10m	310mm	3m N 3m E 4.5m S 4.5m W	2m	2m S	Young	Average	Poor	Bifurcates at 1.5m; tight compression fork with evidence of included bark; asbestos shards at base; contributes to the screening of the site; of low quality, of low landscape value, but of long-term potential.	C (123)
127		Ash	10m	325mm	3m N 3m E 1m S 1m W	2.3m E	2.5m SE	Semi-mature	Average	Poor	Twin-stemmed from 2m; tight compression fork with evidence of included bark; small self-seeded specimen; suppressed specimen; contributes to the screening of the site; of low quality, of low landscape value, but of medium-term potential.	C (123)
128		Leyland cypress	16m	630mm	3m N 3m E 3m S 3m W	1m	1m	Semi-mature	Below average	Moderate	Slightly sparse foliage; non-native species, out of character with surrounding area; contributing to the screening of the site; of moderate quality and of long-term potential; but of low landscape value.	C (1)
129		Horse chestnut	13.5m	720mm (over ivy)	7.5m N 4.75m E 3.5m S 6.5m W	2m N	2m	Mature	Average	Indifferent	Heavily leaning trunk; no evidence of root heave, swept stem form; crown significantly weighted to north; infestation of Leaf miner; notably reduced shoot extension lengths in upper apical canopy; of low quality, of moderate landscape value; of long-term potential.	C (12)
131	G1 01/ 1989	Horse chestnut	19m	625mm	6m N 3m E 4m S 6.5m W 5.75m NW	2m	2m	Semi-mature	Average	Indifferent	Growing at the base of a very steep section of bund; 2023: bund no longer present; notable individual sucker growth on N side of trunk from 0.75m; drawn-up and suppressed; slightly sparsely foliated in upper canopy extents; contributes to boundary screening; significant component of group in which it stands; of moderate quality and landscape value; of long-term potential.	B (12)
132-149		Yew	6m to 8m	110mm to 400mm (over ivy)	3.4m N 4.4m NE 3m E 3m S 3.4m W	0.3m	0.1m	Semi-mature	Average	Indifferent	Off-site trees; #146 dead; #145 of low physiological condition; row of closely growing specimens, forming a hedge or screen; some specimens are multi-stemmed from base; some heavily ivy-covered trunks and stems; of moderate landscape value; of long-term potential.	C (2)

No.	TPO no.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio -logy	Structure	Comments	Category
150	G2 01/ 1989	Horse chestnut	20.5m	960mm	4.5m N 4m E 6m SE 8m S 7.5m SW 4m W 3.5m NW	5.5m	4m	Mature	Below average	Moderate	Large dominant specimen; growing at the base of a very steep section of bund - 2023 no longer present; twin stemmed from 4m; asymmetrical canopy as suppressed by adjacent individuals; notably reduced shoot extension lengths in apical canopy extents; slight die-back at branch tips; significant component of the group within which it stands; of moderate quality and high landscape value; of long-term potential.	B (2)
151		Horse chestnut	18m	960mm (over ivy)	7m N 8m E 8m S 7m W	8m	7m	Mature	Low	Indifferent	Trunk has been buried by 3m of stone crush; heavily ivy-covered; sparsely foliated; of low quality, of low landscape value, and of short-term potential only.	C (123)
152		Common lime	15m	530mm (over ivy)	3m N 4m E 3m S 2m W	8m	8m	Semi-mature	Low	Indifferent	Trunk has been buried by 2m of stone crush; sparsely foliated; significant dieback at branch tips; of low quality, of low landscape value, and of little potential.	U
153		Horse chestnut	10m	1070mm	4m N 4.3 NE 4m E 2m S 4m W	3m	2.5m	Over-mature	Average	Hazardous	Extensive decay at base; previously topped at 8m; of low quality, of low landscape value, of short-term potential.	U
154		Ash	10m	285mm	2m N 2.6 NE 3m E 3m S 3m W	3m	2.5m	Semi-mature	Below average	Poor	Area of missing bark at base, 300mm x 270mm in diameter, revealing solid sapwood; growing though metal railings causing significant deformation; minor dieback present in crown; of low quality, of low landscape value, and of short-term potential only.	C (2)
155		London plane	12m	960mm (over ivy)	3m N 5.4 NE 2m E 1m S 4m W	2m	2m	Mature	Average	Indifferent	Previously topped at 8m; heavily ivy-covered; of moderate quality and of long-term potential; but of low landscape value.	C (1)
156		Sycamore	8m	est. 430mm	0m	0m	0m	Semi-mature	Dead	Hazardous	Dead tree.	U
157		Ash	11m	255mm	4m N 3.6m NE 4m E 3m S 4m W	4m	5m	Semi-mature	Below average	Moderate	Small self-seeded specimen; three exposed areas of sapwood on trunk, consistent with those caused by mechanical damage, up to 110mm in diameter; of low landscape value, due to small size.	C (1)
158		English oak	9m	290mm	5.8m	3m	3m	Semi-mature	Average	Moderate	Two areas of exposed sapwood on trunk, consistent with mechanical damage, up to 100mm in diameter; tensile main unions; asymmetrical crown as suppressed by adjacent specimens; of low landscape value due to small size; hidden in all direct public views; inessential component of wider landscape.	C (1)

No.	TPO no.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio -logy	Structure	Comments	Category
G1		Various	4m to 8m	est. 90mm to est. 180mm	1m N 1.75m E 3.5m S 2m W	1m	1m	Young	Average	Poor	Species include aspen, ash and horse chestnut, sycamore self sown understorey; drawn-up and mutually suppressed; asymmetrical crown as suppressed by adjacent specimens; suppressed crown as overtopped by adjacent specimens; drawn-up specimen with height/diameter ratio greater than 50: at risk of failure if companion shelter removed; inessential component of wider landscape; hidden in all direct public views; of low quality, of low landscape value, and of short-term potential only.	C (123)
G2		Aspen	Up to 20m	300mm to 420mm ivy	6.5m	4m	4m	Semi-mature	Average	Poor	Individuals multi-stemmed from ground level; soil bunds rising to a level of approx. 1m; tall, drawn-up limbs; tight compression forks with bark to bark contact; asymmetric crowns as suppressed by adjacent specimens; provides boundary screening adjacent to stream, however hidden in all direct public views; of low quality; of moderate landscape value and of short-term potential only.	C (2)
G3		Sycamore	10m to 18m	est. 120mm to 270mm	4m	1m	1m	Mature	Average	Poor	Self-sown group of sycamore adjacent to river bank; heavily ivy-covered from ground level; tall, drawn-up and mutually suppressed; aerodynamic group with meshing canopies; individuals at risk of failure if companion shelter removed; provides boundary screening, however hidden in all direct views by adjacent trees, particularly those on E of river; of low quality but high landscape value; of medium-term potential.	C (2)
G4		Sycamore	Up to 18m	est. 160mm to 270mm	5m N 3m E 3m S 5m W	4m	4m	Semi-mature	Average	Poor	Adjacent to E boundary and S half; belt of self-sown individuals; tall, drawn-up and mutually suppressed; at risk of failure if adjacent individuals are removed; ivy-covered from ground level into upper extremities of the canopy; tight compression forks with bark to bark contact; provides screening of the site adjacent to river; however hidden in all other direct public views though glimpsed from SE corner and bridge adjoining main road to E; of low quality but high landscape value; of medium-term potential.	C (2)
G5		Various	18m to 21m	200mm to est. 280mm	5.5m	2m	1m	Semi-mature	Average	Poor	Species include ash, Norway maple and silver birch; mixture of self-sown individuals; silver birch adjacent to E boundary and river; tall, drawn-up and mutually suppressed; tight compression forks with bark to bark contact; provides screening of the site in views from the junction of Cromwell Road and Old Malden Lane	C (2)
G6		Various	8m to 20m	200mm to 505mm	3m N 3m E 3m S 3m W	2m	2m	Mature	Average	Indifferent	Off-site area of recent secondary woodland running adjacent to E boundary; dominant species is aspen; tall, drawn-up and mutually suppressed; provides significant boundary screening adjacent to Old Malden Road and visible from Cromwell Road	A (2)
G11		Various	Up to 6m	Up to 320mm (over ivy)	2m N 2m E 2m S 2m W	2.5m	1.5m	Semi-mature	Average	Indifferent	Species include ash, English oak, goat willow, horse chestnut, sycamore and hawthorn; group of self-seeded mutually suppressed specimens; contributing to the screening of the site; of moderate quality and of medium-term potential; but of low landscape value.	C (1)
G12		Various	Up to 8m	Up to est. 150mm	3m N 3m E 3m S 3m W	1m	1m	Young	Average	Indifferent	Species include hawthorn and ash; group of self-seeded mutually suppressed specimens; contributes to the screening of the site; of moderate quality and of long-term potential; but of low landscape value.	C (1)

No.	TPO no.	Species	Height	Trunk diameter	Radial crown spread	Crown break	Crown clearance	Age class	Physio - logy	Structure	Comments	Category
G13		English oak	Up to 16m	Up to est. 450mm	5m N 5m E 5m S 5m W	2.5m	2m	Semi-mature	Average	Good	Off-site group of trees; contributing to the screening of the site; of high quality and high landscape value; of long-term potential.	A (12)
G14		Goat willow	Up to 7m	Up to x4 stems est. 140mm	5m N 5m E 5m S 5m W	1m	1m	Young	Average	Poor	Group of self-seeded, multi-stemmed specimens with heavily leaning trunks; contributing to the screening of the site; of low quality, of low landscape value, and of short-term potential only.	C (123)
G15		Ash	Up to 8m	Up to 100mm	2m N 2m E 2m S 2m W	1.5m	1m	Young	Average	Indifferent	Group of small self-seeded specimens; growing on a very steep section of bund; much dangerous fly-tipped waste at base; contributing to the screening of the site; of moderate quality and of long-term potential; but of low landscape value.	C (1)
G16	T1 - T10 08/ 1982	Common lime	Up to 15m	Up to est. 260mm	4m N 4m E 4m S 4m W	4m	5m	Semi-mature	Average	Moderate	Off-site row of closely growing specimens forming a screen; category 'A' group comprising category 'B' and 'C' trees due to mutual suppression and multi-stemmed form; of moderate quality and high landscape value; of long-term potential.	A (2)
G17		Various	Up to 5m	Up to est. 85mm	2m N 2m E 2m S 2m W	0.3m	0.1m	Young	Average	Indifferent	Species include ash, hawthorn and sycamore; group of small self-seeded specimens; of only low-level screening value; of moderate quality and of long-term potential; but of low landscape value.	C (1)
H21		Laurel	Up to 2m	Up to est. 75mm	0.5m N 0.5m E 0.5m S 0.5m W	0.2m	0.1m	Young	Average	Indifferent	Off-site row of closely planted specimens, designed to form a hedge; of only low-level screening value; of moderate quality and of medium-term potential; but of low landscape value.	C (1)
W1	W1 01/ 1989	Various	17m to 22m	est. 290mm to est. 750mm	6m	4m	2m	Semi-mature	Average	Indifferent	Species include ash, horse chestnut and aspen. Small area of recent secondary woodland; group of drawn-up, mutually suppressed specimens; aerodynamic group with meshing crowns providing companion shelter; no evidence of recent pruning or management; east extent abuts river; essential component of group in which it stands; of moderate quality and landscape value; of long-term potential.	B (12)

## 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	Ash	234.5m <sup>2</sup>	8.6m
2	Horse chestnut	289.5m <sup>2</sup>	9.6m
3-5	Aspen	74.2m <sup>2</sup> 52.3m <sup>2</sup> 40.7m <sup>2</sup>	4.8m 4.08m 3.6m
6	Aspen	70.6m <sup>2</sup>	4.7m
7	Aspen	296.5m <sup>2</sup>	9.7m
8	Horse chestnut	271.7m <sup>2</sup>	9.3m
21	London plane	40.7m <sup>2</sup>	3.6m
22	Horse chestnut	11.6m <sup>2</sup>	1.92m
23	Monterey pine	203.1m <sup>2</sup>	8.04m
90	Aspen	102m <sup>2</sup>	5.7m
91	Norway spruce	36.6m <sup>2</sup>	3.4m
92	Common alder	93m <sup>2</sup>	5.4m
93	Common alder	72m <sup>2</sup>	4.8m
94	Horse chestnut	136.2m <sup>2</sup>	6.6m
95	Horse chestnut	366.8m <sup>2</sup>	10.8m
96	Horse chestnut	152.7m <sup>2</sup>	6.9m
97	Sycamore	96m <sup>2</sup>	5.5m
98	Sycamore	72m <sup>2</sup>	4.8m
99	Sycamore	65m <sup>2</sup>	4.6m
100	Sycamore	80m <sup>2</sup>	5m
101	Sycamore	52.1m <sup>2</sup>	4.07m
121	English oak	76.1m <sup>2</sup>	4.9m
122	English oak	562.5m <sup>2</sup>	13.4m
123	English oak	99.9m <sup>2</sup>	5.64m
124	English oak	1775.4m <sup>2</sup>	23.77m
125	English oak	452.4m <sup>2</sup>	12.0m
126	Ash	43.5m <sup>2</sup>	3.72m
127	Ash	47.8m <sup>2</sup>	3.9m
128	Leyland cypress	179.4m <sup>2</sup>	7.6m
129	Horse chestnut	234.5m <sup>2</sup>	8.6m
130	Horse chestnut	83.6m <sup>2</sup>	5.16m
131	Horse chestnut	176.7m <sup>2</sup>	7.5m
132-149	Yew	79.8m <sup>2</sup>	5.04m
150	Horse chestnut	416.9m <sup>2</sup>	11.5m
151	Horse chestnut	416.9m <sup>2</sup>	11.52m
152	Common lime	127.1m <sup>2</sup>	6.36m
153	Horse chestnut	517.9m <sup>2</sup>	12.8m
154	Ash	36.8m <sup>2</sup>	3.4m
155	London plane	416.9m <sup>2</sup>	11.5m

<b>Tree No.</b>	<b>Species</b>	<b>RPA</b>	<b>RPA Radius</b>
156	Sycamore	83.6m <sup>2</sup>	5.16m
157	Ash	29m <sup>2</sup>	3m
158	English oak	38.2m <sup>2</sup>	3.5m
G1	Various	14.7m <sup>2</sup>	2.16m
G2	Aspen	72.4m <sup>2</sup>	4.8m
G3	Sycamore	28.3m <sup>2</sup>	3.0m
G4	Sycamore	28.3m <sup>2</sup>	3.0m
G5	Various	21.9m <sup>2</sup>	2.64m
G6	Various	115.4m <sup>2</sup>	6.0m
G11	Various	46.3m <sup>2</sup>	3.84m
G12	Various	10.2m <sup>2</sup>	1.8m
G13	English oak	91.6m <sup>2</sup>	5.4m
G14	Goat willow	8.9m <sup>2</sup>	1.68m
G15	Ash	7.1m <sup>2</sup>	1.5m
G16	Common lime	30.6m <sup>2</sup>	3.12m
G17	Various	7.1m <sup>2</sup>	1.5m
H21	Laurel	7.1m <sup>2</sup>	1.5m
W1	Various	254.5m <sup>2</sup>	9.0m

**APPENDIX 3**  
**Tree Protection Plan**



### Arboricultural Impacts: Summary

(For details, see below)

Impact	No. of Trees
Trees to be removed	4
Groups of trees to be removed	0
TPO trees to be removed	0
Trees to be pruned	0
Trees where supervised demolition needed within RPAs	0
Trees where manual excavation needed within RPAs	0
Trees where above soil surfacing needed within RPAs	3
Trees with proposed underground services within RPAs	0

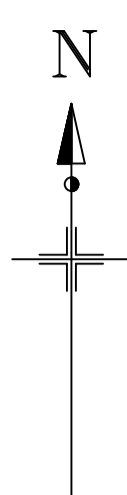
Trees to be Removed			
No	Species	Category	
153	Horsechestnut	U	
154	Ash	C (1)	
155	London plane	C (1)	
156	Sycamore	U	

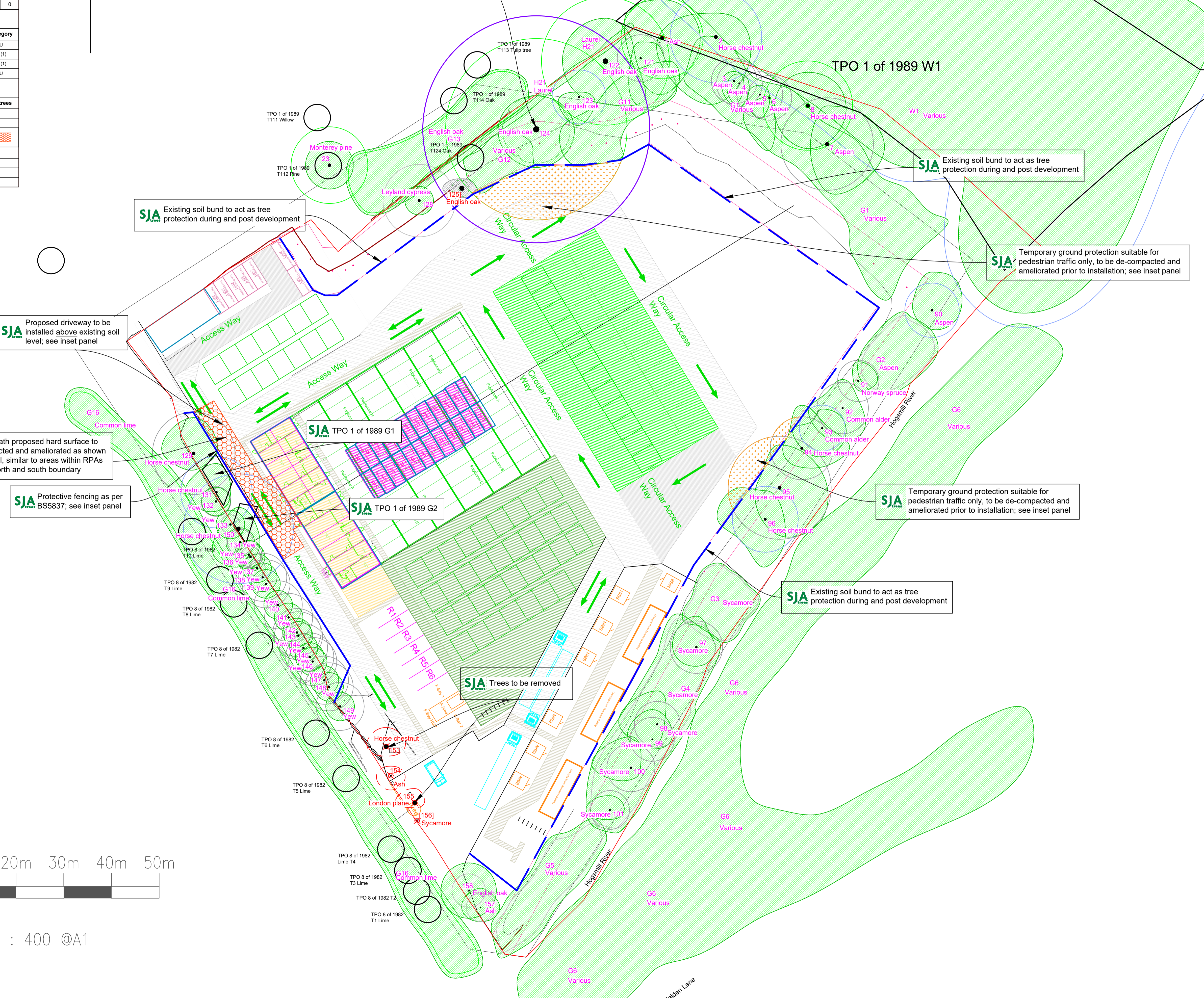
Total numbers of trees to be removed			
Category	No. of trees	Category	No. of trees
A	0	B	0
C	2	U	2

Trees that require above soil surfacing within RPAs		
No.	Species	Type of structure
129	Horse chestnut	Proposed vehicular access
131	Horse chestnut	Proposed vehicular access
150	Horse chestnut	Proposed vehicular access



**SJA** On-line map shows TPO T124 on an oak tree on the north western boundary of the site but there is a 15m discrepancy between the TPO plan and the situation on site



### Protective Fencing

To be erected prior to the commencement of all works on site, and retained in place throughout construction. To comprise 2m tall 'Heras' welded mesh panels on rubber or concrete feet. The panels shall be joined together with two anti-tamper couplers, installed so that they can only be removed from inside the fence. Distance between the couplers should be at least 1m and should be uniform throughout the fence. Panels should be supported (where possible) on the inner side by stabilizer struts, which should normally be attached to a base plate secured with ground pins (see Figure 3a below). Where the fencing is to be erected on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts shall be mounted on a block tray (see Figure 3b) 'TREE PROTECTION ZONE - KEEP OUT' or similar notices to be attached to every fifth panel.

Figure 3: Examples of above-ground stabilizing systems

1) Stabilizer strut with baseplate secured with ground pins

2) Stabilizer strut mounted on block tray

### TREE PROTECTIVE FENCING as shown in BS 5837: 2012, Section 6.2.2 & Figure 3.

#### 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.

#### Soil De-compaction & Mycorrhizal Inoculation.

Within the area(s) indicated by the light orange cross hatching, the ground will be de-compacted and aerated by injecting compressed nitrogen gas into the soil to a depth of 300mm - 600mm on a 1m grid spacing to create fissures enabling improved vertical movement of air and water. At the same time, a soil ameliorant such as 'BioChar', 'CarbonGold' or similar will be introduced into the soil to promote fresh root growth. Following de-compaction, holes will be backfilled with an appropriate medium such as sharp sand, perlite or vermiculite to maintain the movement of air and water through the soil. Following de-compaction the ground will be covered with suitable ground protection for pedestrian use only as shown in the 'Ground Protection' inset panel.

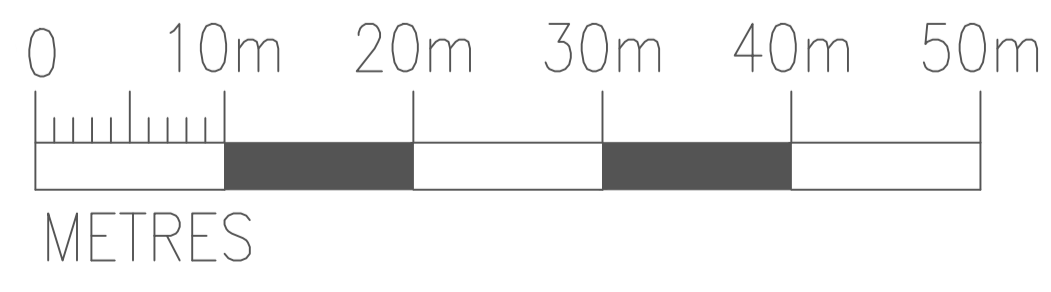
#### Ground Protection

To be installed prior to commencement of demolition or construction works, at same time as erection of protective fencing. For purely pedestrian traffic: scaffold boards or similar, of at least 35mm thickness, butted together and attached to each other with wooden battens or steel tie straps, laid either on an above ground scaffold framework, or on a compressible material (a 75mm deep layer of woodchips may be appropriate) above a biaxial geotextile grid ('geogrid' - 'Tensar' or similar) and pinned to the ground with steel pins to prevent movement or interlocking polyethylene tread boards ('Ground-Guards' or similar), laid on an appropriate compressible layer above a biaxial geotextile grid - to be designed by a structural engineer to accommodate likely loadings.

#### 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 and ground protection.
2. Lifting/excavation of existing hard surfaces.
3. Construction of above-ground hard surfacing.
4. All excavations, whether for proposed foundations, hard surfacing, or underground services.



1 : 400 @A1

**SJA trees ARBORICULTURAL PLANNING CONSULTANTS**

**Project:** Riverhill Nursery

**Client:** NSS (Worcester Park) LLP

**Drawing:** TREE PROTECTION PLAN

**Drawing no:** SJA TPP 23246-041a

**Based on:** Block Plans 001 July 2022

**Drawn by:** NHK **Date of Issue:** Aug 2023 **Scale:** 1: 400 @ A1

**Checked by:** FPS **Tel:** (01737) 813058 **sjatrees.co.uk**

Tree nos.:	● 124	Category 'U' trees:	● [156]	Canopies of trees to be retained:	
Category 'A' RPA:		Category 'B' RPA:		Category 'C' RPA:	
Trees to be removed:		Protective fencing:		Soil bund acting as protection:	
Above soil surfacing:		Soil de-compaction:		TPO tree locations:	

For further information refer to the SJA Trees Survey Schedule. Do not scale from this drawing; please check all dimensions on site, and notify us of any discrepancies. SJA Trees (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. 2023. This drawing is copyright and may not be used or changed without the written consent of SJA Trees. This drawing is designed to reflect only the principles of layout and/or design insofar as these relate to the protection of trees to be retained, and should NOT be read 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 engineering standards or regulatory requirements relating to proposed structures, hard surfacing or underground services.