Arboricultural Report for the Proposed Development

at

Epsom General Hospital,

Dorking Road,

Epsom, Surrey,

KT18 7EG.

Prepared for Senior Living Urban (Epsom) Ltd

RUSKINS
TREE CONSULTANCY

A trading name of RG Consultancy Ltd

Prepared by
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Our Ref 0121- 9001 Rev 1
January 2021

Contents

1.0 Introduction

1.1 This Arboricultural Report has been prepared by Ruskins Tree Consultancy (a trading name of RG Consultancy Limited) to accompany the full planning application to provide a new care community for older people arranged in two buildings, comprising 267 care residences, 10 care apartments and 28 care suites proving transitional care, together with ancillary communal and support services Use Class C2, 24 key worker units Use Class C3, children's nursery Use Class E, as well as associated back of house and service areas, car and cycle parking, altered vehicular and pedestrian access, landscaping, private amenity space and public open space at Epsom General Hospital, Dorking Road, Epsom, Surrey, KT18 7EG.

1.2 We were previously appointed to prepare the Arboricultural Reports for the prior approval application for the proposed demolition of the buildings York House, Woodcote Lodge, Rowan House, Beacon Ward, the boiler house and ancillary buildings and structures, (Planning Reference 20/01322/DEM.) The Prior Approval works have been approved, the tree removals approved as part of these works are listed in Section 5 of this report.

1.3 To inform the planning application for the development of this site the trees growing within or in close proximity to the site have been surveyed by Bartlett Consulting, this tree survey was been submitted as part of the planning application Planning Reference 19/01722/FUL.

1.4 The tree numbers used in this report refer to the tree numbers used in the Tree Condition Survey prepared by Bartlett Consulting, where appropriate we have amended the prefix from T (Tree) to G (Group)when groups are identified within the tree survey.

1.5 We have visited site on a number of occasions and have reviewed the tree survey information most recently on 7th January 2020, we also attended a site meeting on 12th of October 2020 with Jeremy Young, Tree Officer for Epsom and Ewell Borough Council.

2.0 Statutory Protection

2.1 On 8th January 2021 we carried out an online check for statutory protection (Tree Preservation Order or Conservation Area Status) at http://myeebc.epsom-ewell.gov.uk/myeebc2.aspx and no TPOs were identified and the site is not located within a Conservation Area.

2.2 We recommend that the presence of any statutory protection is re-checked prior to undertaking any tree works on site especially if being undertaken prior to determination of the planning application.

2.3 It should be noted that regardless of the presence of statutory protection, following planning permission being granted, any damage to trees shown to be retained on approved drawings (this damage includes damage to the root system of retained trees) may be a breach of planning conditions and may result in enforcement action or prosecution.

2.4 In addition to enforcement action or litigation it should be remembered that damage to trees may impact on their health and structural integrity and in the longer-term result in whole or partial tree failure, which has the potential to result personal injury and or damage to property.

2.5 Prior to any treeworks or vegetation clearance being undertaken the possible presence of nesting birds or protected species needs to be considered and if necessary specific ecological advice should be sought. Nesting birds and protected species (including bats and their roosts) are protected from disturbance under the Wildlife and Countryside Act 1981 (as amended), The Countryside and Rights of Way Act 2000 (as amended) and the Conservation of Habitat and Species Regulations 2010.

2.6 The bird nesting season is considered to run between March and August inclusive, ideally vegetation clearance works should be scheduled outside the bird nesting season. If works are scheduled between March and August, then appropriate inspections should be undertaken prior to commencing works and it should be noted that there is a risk that vegetation works will not be able to completed.

3.0 Site Description and Description of Proposed Works

3.1 The site forms part of Epsom General Hospital which occupies the land between Dorking Road, to the north and Woodcote Green Road to the south. The site extends to approximately 1.13 hectares and is located to the southern side of the Epsom Hospital site. The site contains a number of buildings, temporary structures and associated hospital infrastructure including extensive hardstanding.

3.2 The site is generally level with tarmacadam and block paving hardstanding around the buildings and extending over the majority of the site. There are small areas of open ground within the site and narrow strips of open ground to the boundaries of the site.

3.3 The site falls within the jurisdiction of Epsom and Ewell Borough Council.

3.4 Prior Planning Approval has been granted for the prior approval application for the proposed demolition of the buildings York House, Woodcote Lodge, Rowan House, Beacon Ward, the boiler house and ancillary buildings and structures, (Planning Reference 20/01322/DEM.) The Prior Approval works have been approved, the tree removals approved as part of these approved works are listed in Section 5 of this report.

3.5 The proposed development is to provide a new care community for older people arranged in two buildings, comprising 267 care residences, 10 care apartments and 28 care suites proving transitional care, together with ancillary communal and support services Use Class C2, 24 key worker units Use Class C3, children's nursery Use Class E, as well as associated back of house and service areas, car and cycle parking, altered vehicular and pedestrian access, landscaping, private amenity space and public open space

4.0 Arboricultural Background Information

4.1 For all trees but particularly those growing in urban areas, root growth is not predictable. Tree roots are opportunistic they grow most prolifically in areas where conditions are favourable and will be deflected by natural features and man-made structures, when hostile conditions are encountered root growth will be limited.

4.2 It is generally agreed that the majority of tree roots, even for a mature tree are found in the top 90cm of the soil and these roots are vulnerable to sudden changes in the rooting environment. These roots absorb the moisture and nutrients needed for growth and contrary to popular belief mature trees in the UK do not have a deep taproot that obtains moisture from great depth.

4.3 An ideal soil for tree root growth is about 50% pore space (in urban areas this is often significantly reduced), these pores, the spaces between soil particles, are filled with water and air. Construction and demolition activity can compact the soil and can dramatically reduce the amount of pore space. This not only inhibits root growth and penetration but also decreases oxygen levels within the soil and reduces the available soil moisture that is essential to the growth and function of the existing roots.

4.4 For retained trees it is essential that the structurally important roots will remain undisturbed, these important larger roots radiate outwards from the trunk, they are characterised by being relatively few in number and tapering rapidly from the base of the tree. Even for mature trees they are only 2-3m in length, at this length they are likely to be 2-5cm in diameter and they have lost their rigidity and physical strength. (See Tree Root Systems AAIS 1995).

4.5 The two main possibilities for injury to trees during and following the construction process are from direct and indirect damage.

- Direct Damage: can be defined as injury resulting from physical contact including contact with machinery or fire, and excavation of the root area.
- Indirect Damage: can be defined as injury resulting from activities that take place near the tree such as level changes, compaction of the soil, or contamination by chemical spillage in proximity to the root plate.

4.6 The British Standards Institute published BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations' this document gives clear and current best practice recommendations and guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees with structures. Where development is proposed, the standard provides guidance on how to assess the value and quality of trees and to decide which trees are appropriate for retention. The survey of trees as part of the feasibility assessment of a site is important to ensure that the trees inform the design process.

4.7 The BS Categories referred to in this report are described in detail in Appendix 1. In summary the quality of the trees resource is assessed, and the trees are divided into 4 categories based a number of factors including their condition, remaining life-expectancy, landscape, arboricultural and cultural/conservation vale,

Category U: Those in such a poor condition that they cannot realistically be retained
Category A: Trees of high quality
Category B: Trees of moderate quality
Category C Trees of low quality

4.8 The BS5837 (2012) also provides information on the protection of trees during the development process. It includes a calculator for Root Protection Areas (RPA) which aims to ensure a sufficient volume of soil and proportion of the root system is protected to maintain the health and vigour and ensure the longevity of the trees.

4.9 The Root Protection Area is not related to the canopy spread of the tree; in simple terms it is an area calculated as a multiple of the trunk diameter. For trees with a trunk diameter in excess of 1250mm the Root Protection Area is capped at a total area of 707m^2. See Attached Tree Survey Plan in Appendix 1 for further details.

4.10 The RPA is in effect a theoretical area that if all the soil and roots around the periphery of the RPA were removed, there would be sufficient area around the tree to maintain the tree in a healthy condition. The RPA does not show the expected extent of root growth but indicates an area of ground considered necessary to support the tree both at the time of surveying but into the future.

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4.11 The RPA can be adjusted to reflect growing condition of trees. The British Standard 5837 Chapter 4.6.2 states "*Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon or equivalent area should be produced, modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of the likely root distribution*").

4.13 When adjusting the Root Protection Area of trees, the Arboricultural Consultant needs to consider a number of factors, Paragraph 4.6.3 of BS5837 (2012) states that:

Any deviation in the RPA from the simple circle should take full account of the following factors whilst still providing adequate protection for the root system:

a) the morphology and disposition of the roots, when influenced by past or existing site conditions (e.g. the presence of roads, structures and underground apparatus);
b) topography and drainage;
c) the soil type and structure;
d) the likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, condition and past management.

4.14 Damage to trees (including their root systems) may impact on their health, stability and or vitality. Damage may result in the partial or complete structural failure of the tree and increases the risk of personal injury. It is therefore essential that if development is permitted this report is read by all parties and the guidelines are followed by the site agent and all contractors, particularly those undertaking groundworks on site.

4.15 Appropriate tree protection measures and appropriately specified, supervised and implemented works can significantly reduce the risk of damage to the retained trees.

5.0 Tree Removals

5.1 The Prior Approval works for the demolition works included permission for the removal of the trees listed on Table A below:

Tree No.	Species	Hgt (m)	Stem DBH (mm)	Crown spread North (m)	Crown spread East (m)	Crown spread South (m)	Crown spread West (m)	BS5837 Cat
T1	Elder	4	75	2.5	2	2	2	C1
G3	Mixed Group	6	200	3	3	3	3	U
T4	Lawson cypress	8	250	1	1	1	1	U
T5	Holly	8	270	3	2	2	2	U
T6	Laburnum	6	130	2	2	2	2	C1
G35	Row of Leyland cypress	9	200	3	2	3	3	C2
G37	Group of Lawson cypress and Sycamore	6	120	1	1	1	1	C1
T38	Silver birch	9	230	3	3	3	3	U
T40	Pear	5	270	1	1	1.5	1	C2
T41	Pear	5	340	3	3	2	3	C2
T42	Pear	4	200	2	2	2	1	C2
T43	Laburnum	3	160	1.5	1.5	1.5	1.5	C1
T44	Apple	4	120	2.5	2.5	2	2	C1
T45	Pissard Plum	5	140	2	2.5	1.5	3	C1

Table A

5.2 To allow for the proposed redevelopment of the site the trees listed below are to be removed

Tree No.	Species	Hgt (m)	Stem DBH (mm)	Crown spread N(m)	Crown spread East (m)	Crown spread South (m)	Crown spread West (m)	BS5837 Cat
T2	Yew	11	650	5	5	6	5	C1
G9	Remove 1 Sycamore	15	360	6	6	5	3	B2
G10	Row of Yews	5	150	2	2	2	2	C2
T11	Ash	15	300	8	7	4	2	C1
T12	Sycamore	14	420	4	4	7	4	C1
T36	Beech	18	770	8	7	7	7	A1
G46	Group of Yew	7	90-440	4	4	4	4	C2
T47	Field maple	6	210	3	3	3	3	C1

Table B

5.3 The trees listed in Table B were identified to be removed in the previous full planning application (Planning Reference 19/01722/FUL).

5.4 The tree information shown in Tables A and B is from the Tree Survey prepared by Bartlett Consulting, which was submitted as part of the planning application Planning Reference 19/01722/FUL. Where appropriate we have amended the prefix from T (Tree) to G (Group) when groups are identified within the tree survey.

5.5 The previous application (19/01722/FUL) was refused for 4 reasons, none of which referred to the proposed tree removals necessary to redevelop the site. The proposed layout has been revised to address the reasons for refusal and we have been provided with a copy of the proposed layout prepared by Marchese Partners and the proposed landscaping scheme prepared by Andy Sturgeon Design.

5.6 With the exception of G9 and T36 the trees to be removed are all relatively small, relatively poor-quality trees. Within the Bartlett Consulting Tree Survey the trees to be removed in Table B are categorised as BS5837 (2012) Category C which are trees of low quality. With regard to their age, size, quality and location the removal of these trees will not impact on the quality of the tree resource within the wider area.

5.7 G9 is a group of 3 sycamores growing to the south-western boundary of the site. The northernmost tree from this group is to be removed to facilitate the proposed development with 2 trees being retained. The group G9 is categorised as BS5837 (2012) Category B. which are trees of moderate quality. The removal of this tree which has an asymmetrical canopy and will not impact on the limited amenity value of the two retained sycamore trees growing within G9.

5.8 The beech tree T36 is located within a small area of open ground close to York House which is to be demolished as part of the approved works. T36 is categorised as BS5837 (2012) Category A, which are trees of high quality. This tree is growing in a secluded location internally within the site and it has no amenity value when viewed from the public realm. The limited impact of the removal of this tree will be mitigated by the proposed tree planting as shown in the proposed landscaping scheme prepared by Andy Sturgeon Design.

5.9 The principle of removing trees to allow for an appropriate design is supported in all relevant planning policies, planning guidance and in BS5837 (2012) which states that:

5.1.1 The constraints imposed by trees, both above and below ground (see Note to 5.2.1) should inform the site layout design, although it is recognized that the competing needs of development mean that trees are only one factor requiring consideration. Certain trees are of such importance and sensitivity as to be major constraints on development or to justify its substantial modification.

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5.10 The tree removals can be mitigated by the proposed planting within the development. The landscaping report identifies planting of 113 new trees which will significant increase in the number of trees growing trees within the site. Please refer to Landscape Drawings by Andy Sturgeon Design for further details. This planting can be secured by use of standard planning condition.

5.11 The proposed landscaping including new tree planting will enhance the quality, landscape and amenity value of this previously developed brownfield site, whilst increasing the climate change resilience, increasing the bio-diversity and improving the value of the tree resource within the wider area.

5.12 The proposed trees will be planted in suitably specified and prepared planting pits with sufficient soil volume to ensure their long-term future and appropriate maintenance to assist with their establishment. All tree planting will be subject to ongoing management to ensure the trees become successfully established.

5.13 It should be noted that the proposed new planting can be protected by the standard Landscaping Condition which ensures any trees that fail to establish within the first five years are replaced by the site owner.

5.14 It is my opinion that for the proposed redevelopment of this site the pertinent point in terms of arboriculture is '*that trees are only one factor requiring consideration'*. Clearly the proposed tree removals are a material consideration during the determination of the planning application, however the impact of the tree removals needs to be considered in conjunction with the proposed new tree planting and landscaping works and be considered alongside the wider benefits associated with the proposed development.

5.15 <u>Tree Pruning works</u>

5.16 To facilitate the proposed development one retained tree requires pruning namely the Lime T29. T29 is a mature lime tree growing to the western boundary of the site. The western boundary of the existing tarmac car parking extends to level with the centre of the trunk and has a small areas of open ground (circa 500mm) clearance around the eastern car park side of the trunk.

5.17 The main stem of is tree has historically been reduced to around 8m and has a canopy formed by co-dominant branches which originate from the old reduction point. The canopy has subsequently been managed by crown reduction works. This tree has a wound on the northern side of the lower stem, the tree has produced significant callous growth to either side of the wound, but the extent of the internal decay is unknown.

5.18 There is a vertical / longitudinal defect that extends above the wound. The tree has dense basal growth and some ivy growing up the trunk which prevent a full inspection.

5.19 To allow for the proposed development the lateral branches to eastern side of the canopy need to be reduced by approximately 3m to allow the canopy to clear the proposed building line by 2m. This level of works will not be detrimental to the health or amenity of value of this tree

5.20 Prior to undertaking pruning works we recommend that the basal growth and ivy is removed and this tree is subject to a detailed inspection of the lower cavity and main union to help determine the extent of decay / sound timber and assess the structurally integrity of the tree. Assuming the lower trunk is found to be sound and the tree is suitable for retention, we recommend the main union is inspected. When trees are 'topped' the size of the wound in the main stem and the integrity of the union of the subsequent regrowth is a potential point of structural weakness. The proposed management of this tree will be specified and based on this assessment. Any increase in the level of works above the minor pruning works outlined in paragraph 5.19 will be discussed with the Epsom and Ewell Tree officer before commencing.

5.21 The proposed pruning works would not be detrimental to the health or longevity of the tree and the regrowth would be managed by regular cyclical pruning. This type of crown management of Lime trees is common throughout UK and they respond well to crown reduction works (where wounds are not or large diameter) as proposed

6.0 Arboricultural Impact of Proposed Works on Retained Trees

6.1 The proposed development remains similar in terms of impact on the retained trees as that outlined in *'The Arboricultural Implications Assessment Tree Protection Plan and Arboricultural Method Statement'* Reference GD 190110R2-R3 prepared by Bartlett Consulting which was submitted as part of the planning application Planning Reference 19/01722/FUL.

6.2 For the retained trees G14-T33 currently located around the edge of the car parking area to the boundary of the site the Bartlett Consulting submission for the previous planning application (Planning Reference 19/01722/FUL), off-set the circular Root Protection Areas to reflect the impact of the car parking on the root system of these trees. We consider this modification of the Root Protection Area as allowed under the BS5837 (2012) guidance is appropriate.

6.3 We have shown the amended Root Protection Area for a number of trees on this boundary on the Tree Protection Plan (See Appendix 1). For our drawing we have amended the RPA to remove the furthest 10% of the RPA under the car parking and add this to the rest of the radius of the RPA.

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6.4 This is a conservative assessment of the impact of the hardstanding but is a useful tool to see what proportion of the theoretical / unadjusted and adjusted Root Protection Area is located within the area of the proposed development

6.5 The site is a previously developed site, currently occupied by a number of hospital buildings and covered extensively with tarmacadam. There are narrow strips of open ground to the boundary of the site and close to York House. The hardstanding will have impacted on tree root growth, either during installation and/or creating conditions hostile for root growth.

6.6 The BS 5837 (2012) states that the Root Protection Area (RPA) can be adjusted to reflect the growing condition of trees. The British Standard 5837 Chapter 4.6.2 states "*Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon or equivalent area should be produced, modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of the likely root distribution*".

6.7 When adjusting the Root Protection Area of trees, the Arboricultural Consultant needs to consider a number of factors, Paragraph 4.6.3 of BS5837 (2012) states that.

Any deviation in the RPA from the simple circle should take full account of the following factors whilst still providing adequate protection for the root system:

e) the morphology and disposition of the roots, when influenced by past or existing site conditions (e.g. the presence of roads, structures and underground apparatus).
f) topography and drainage.
g) the soil type and structure.
h) the likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, condition and past management.

6.8 The car parking is of good quality tarmac with concrete edging stones and it is considered very likely that the installation of this car park was undertaken with little care for the root systems or rooting environment of the retained trees. It is therefore reasonable to assume that the rooting environment beneath the tarmac would be relatively hostile to root growth and will have impacted on the size, extent and density of the root growth beneath the car parking with root growth favouring the open ground around the edge of the car park and beyond the site boundary which is formed by a timber fence.

6.9 It is my opinion based on BS5837 (2012), the tree species characteristics and experience of other similar projects that the proposed layout allows for the protection of a sufficient proportion of the root system and rooting environment of the retained trees to ensure their successful retention.

6.10 All the trees to be retained during the Construction works will be protected by a combination of Tree Protection Fencing which will form a 'Construction Exclusion Zone', and the retention of areas of the existing hardstanding.

6.11 Any works within the 'Construction Exclusion Zone' or within the area of retained hardstanding will be undertaken following a specification and construction / landscaping methodology which is approved by the Arboricultural Clerk of Works.

6.12 It should be noted that the careful removal of the existing impermeable tarmac hardstanding around the edge of the proposed building as part of the proposed landscaping works will offer the opportunity to improve the growing conditions of the boundary vegetation.

6.13 These landscaping works will include remediation works to improve the growing conditions of the tree by decompaction and addition of organic material which will serve to improve the soil structure and soil biology. This will serve to improve the growing conditions for the planted and retained trees.

6.14 The following sections of this report outline the tree protection works during demolition works in relation to the retained trees, it is proposed as recommended in BS5837 (2012) that subject to prior approval consent being granted, the guidelines outlined in this report will prior to demolition works commencing be agreed with the demolition contractors who have been consulted in preparation of this report.

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7.0 Tree Protection Measures

7.1 The main Tree Protection Issues are outlined below

- **A suitably experienced Arboricultural Consultant will be appointed by the developer to fulfil the role of Arboricultural Clerk of Works (ACoW) as defined in BS5837 (2012).**
- **Trees identified for removal as per the approved drawings will be clearly marked with spray paint. Any Trees works including clearance, removal or facilitation pruning will be undertaken by a suitably qualified and insured Arboricultural Contractor.**
- **Prior to any enabling / groundworks / construction (including archaeological works) commencing on site. The tree root pruning and rootball preparation works as outlined in this report will be undertaken and the Tree Protection Measures as outlined in this report will be installed.**
- **The Tree Protection Measures will include installation of a rigid barrier of Tree Protection Fencing to form a Construction Exclusion Zone, retention of hardstanding and installation of appropriate Temporary Ground Protection to allow access whilst preventing compaction of the subsoil. See Tree Protection Plan in Appendix 1.**
- **The Tree Protection / Site Logistics Plan will be on display in the site agent's office.**
- **The design and specification and construction methodology for all hard and soft landscaping works will be reviewed by the Arboricultural Clerk of Works.**
- **Any variations to the agreed construction methodology that may impact on the retained trees or the ground around the retained trees will be reviewed by the ACoW**
- **All works (including Landscaping works) within the fenced-off Tree Protection / Construction Exclusion Zone and as identified on the Tree Protection Plan (See Appendix 1), will be specified to avoid excavation, level changes and damage to the root system of the retained trees. The specifications and construction methodologies for all these works will be reviewed by the ACoW prior to works commencing.**
- **The removal or moving of Tree Protection Fencing will only be undertaken following discussion with and receipt of written confirmation from the ACoW.**

7.2 Arboricultural Clerk of Works

7.3 A suitably experienced Arboricultural Consultant will be appointed by the developer to fulfil the role of Arboricultural Clerk of Works (ACoW) as defined in BS5837 (2012).

7.4 The ACoW will be responsible for briefing the Site Manager on the tree protection issues relating to the proposed development prior to works commencing on site. This briefing will include a review of the proposed works, discussion of the construction methodology and ensuring that the tree protection measures are installed to avoid damage to the rooting system and rooting environment of the retained trees.

7.5 All site operatives will be briefed on the Tree Protection Issues as part of the induction process. The tree protection measures will be explained to all contactors and sub-contractors who will read and sign the induction forms before they undertake any works on site.

7.6 The Arboricultural Clerk of Works (ACoW) role shall be to:

a. To assess the specification and methodology of the proposed works and ensure these works have the minimum impact on the retained trees.
b. Oversee the root pruning and preparation of the rootball
c. Brief the workers on the necessity to protect the retained trees.
d. To ensure the agreed methodology is followed by direct on-site supervision.
e. To provide direction on tree protection issues as they arise.
f. To monitor and photograph the works undertaken.

7.7 Site visits will also be undertaken during the works at a maximum interval of 4 weeks, it is our experience that a mix of scheduled and unannounced site visits are best suited to ensure that the construction methodology is being followed and the correct tree protection measures are in place.

7.8 During these visits the condition of the tree will be assessed, the tree protection measures will be inspected, any changes to the proposed works will be discussed, their impact assessed and recommendations for best practice will be outlined. After each of these visits a copy of the report should be sent to the Site Agent, Local Authority Tree Officer and Client. Any remedial action undertaken will be recorded on the next visit. These reports will include photographs.

7.9 The ACoW will report any non-conformance with regards to the agreed construction methodology and will also record any accidents or incidents in relation to the protection of the trees.

7.10 To deal with any issues or incidents involving trees, the Arboricultural Clerk of Works will provide a contact number that will be answered during all the hours of works on site. The Epsom and Ewell Borough Council Arboricultural Officer will be informed of any issues relating to the trees.

7.11 Prior to any demolition works commencing the Tree Protection Fencing and Site Hoarding will be installed to protect the open ground around the retained trees. This fencing will be installed as per the Demolition Works Tree Protection Plan submitted as part of the prior approval works application (Planning Reference 2020/1337). The Tree Protection Plan is attached in Appendix 1, the fenced off area is the Demolition / Construction Exclusion Zone (CEZ). Within the RPA of retained trees the hoarding will need to be installed on above ground concrete blocks to avoid excavation

7.12 Within the fenced-off Demolition / Construction Exclusion Zone (CEZ) unless agreed with the ACoW there will be:

- No excavation by any means
- No level changes + or -
- No storage of plant or materials
- No storage or handling of any chemicals including cement washings
- No Machinery or Vehicular Access
- Underground service routes will be located outside the fenced-off area
- No fires within 10m of Tree Protection Fencing

7.13 The site offices, welfare facilities, storage areas will be located on existing hardstanding. See Tree Protection Plan in Appendix 1.

7.14 Within the theoretical Root Proteciton Area of retaiend trees during the demolition and construction works it is proposed to retain the existing hardstanding. This will help to protect any roots growing beneath the hardstanding and will provide a suitable surface for works. If necesssary to improve its loadbearing characteristics the existing hardstandng will be overlaid with temporary ground protection. See Tree Protection Plan in Appendix 1.

7.15 Any areas of exisitng open ground within the RPA of retained trees where temporary or permanent access is required the open ground will be protected by use of ‘No-Dig’ hardstanding. This will be constructed using a ‘No-Dig’ specification which does not require excavation below the existing ground level for either sub-base make-up or for the edging. The temporary hardstanding will need to be specified to prevent compaction of the underlying soil and provide a permeable and porous sub-base and surface to allow moisture to reach the ground and allow for the gaseous exchange necessary to maintain live roots. See Tree Protection Plan in Appendix 1.

7.16 If No-Dig Hardstanding is required in areas of existing open ground within the RPA of retained trees this will be built utilising a flexible cellular confinement system such as 'Protectaweb' or 'Cellweb'. This cellular confinement system will be installed to the manufacturers' specifications which are summarised below: (See Appendix 3 for further information). The final specification for any temporarty or permanent No-Dig hardstanding will be prepared by engineers in conjunction with the ACoW, when the traffic loads are known.

- No excavation is to be undertaken without agreement and supervision by the Arboricultural Consultant. This will be restricted to the removal of the existing loose soil, organic matter. Excavation will not exceed 100mm below ground level or depth of existing hardstanding and any root free sub-base . An air-spade should be used for any excavations in the existing open ground.
- During installation of the hardstanding all operations will be carried out using machinery located on existing hardstanding or working off temporary ground protection or the installed ground protection.
- Install 'Protectaweb'/ 'Cellweb' or similar as per manufacturers specifications, we recommend in addition a permeable geotextile membrane is used to help dissipate loads and aid the recovery of material at the end of the project.
- The cellular system is spread out and the cells filled with clean angular stones sizes 20-40mm, this fill must contain no fines. Crushed concrete or MOT Type 1 is not a suitable fill material.
- The temporary surface finish must be permeable to moisture penetration.
- If necessary 2 layers of cellular confinement system can be utilised. These layers should be separated by a permeable geotextile membrane. This allows the upper layer to be used as a sacrificial layer which can be removed and replaced if it becomes filled with mud and spoil.
- On completion of the project this hardstanding will be removed carefully working out of the site with all machinery located on the temporary hardstanding.

7.17 The detailed design of the hardstanding and any other temporary works will be reviewed and approved by the ACoW prior to works commencing on site.

7.18 For new areas of proposed open ground within the RPA of retained trees the existing hardstanding will be broken up and carefully removed, with all the machinery located on the hardstanding no machinery will access the open ground in proximity to retained trees. The machinery will work carefully pulling the hardstanding away from any retained trees, no spoil will be stored on the open ground within the RPA of retained trees.

7.19 The underground services and drainage will be designed to be located outside the Root Protection Area of retained trees, if new underground services are proposed within the theoretical Root Protection Areas of the retained trees, the installation of services will follow the guidelines in NJUG 10. Prior to any works commencing on site a detailed specification and method statement based on site investigation will be prepared others and reviewed and approved by the Arboricultural Clerk of Works.

7.20 To avoid damage to the root system of retained trees a detailed specification for the proposed works to the entrance and access driveway, for underground services and all hardstanding and landscaping works will be prepared prior to works commencing on this site. This specification will be approved by the Arboricultural Clerk of Works.

7.21 Dismantling the protection barriers will be required to allow completion of final landscaping. The removal of the Tree Protection Fencing is not an opportunity for machinery to access the previously fenced off area. During the landscaping soils levels will not be raised above that existing by greater than 100mm and not at all within 5m of the trunk. Supervision of this exercise and control of the landscaping thereafter will be administered by the appointed ACoW.

7.22 Post-construction prior to the landscape works commencing we recommend that the areas of retained open ground garden are subject to a full programme of soil amelioration. These works will involve decompaction works, increasing the organic content of the soil, introducing zeolites thus increasing the habitat within the soil for bacteria, fungi and micro-organisms and significantly improving the soil ecosystem. These works will markedly improve the growing conditions for the retained trees and also improve the growing conditions for the proposed landscape planting.

8.0 Conclusion

8.1 The British Standard BS5837:2012 contains clear and current recommendations for a best practice approach to the assessment, retention and protection of trees on development sites. This application has and will continue to follow this guidance by:

- Seeking arboricultural advice to inform the layout and design of the proposed development.
- Assessing the quality of the trees and considering the benefits and constraints to development of the site in relation to the quality of the tree resource.
- Continuing to take advice on all aspects to the proposal that may impact upon trees.

8.2 The proposed tree removals do not involve the removal of any trees that are subject to statutory protection.

8.3 With regard to the previously developed nature of the site it is our opinion that the retained vegetation is located a sufficient distance from the proposed development to be successfully protected and can be successfully retained within the proposed development. The proposed landscaping works will serve to increase the amount of open ground around the trees and replace areas of existing non-permeable hardstanding with porous and permeable hardstanding.

8.4 The proposed landscaping scheme will serve to mitigate the impact of the proposed tree removals and will improve the age and species diversity of the tree resource within the site. The landscape design prepared by Andy Sturgeon Design identifies planting of over 113 new trees which will result in a significant increase in the number of trees growing within the site. Please refer to Landscape Planning Report by Andy Sturgeon Design for further details. This planting can be secured by use of standard planning condition.

8.5 The protection of retained trees during the proposed development works can be achieved by continuing to follow the recommendations in BS5837:2012 and by use of standard planning conditions. All works and the Construction Methodology will be reviewed by the Arboricultural Clerk of Works and a detailed site-specific Arboricultural Method Statement will be prepared prior to any works commencing on site.

8.7 The Arboricultural Method Statement will include details of the following:

- Provision of Arboricultural Site Supervision during proposed works
- All tree protection measures (Tree Protection Fencing and Temporary Ground Protection).
- All temporary works (Site Facilities)
- All Works within the Root Protection Areas of the retained trees including excavations construction of hardstanding and landscaping works.

And

- Actions to maintain favourable conditions for retained trees during the proposed works, mulching and irrigation of soil around retained trees.

Peter Wilkins BA (Hons) MArborA MIEnvSc

Ruskins Tree Consultancy (a trading name of R G Consultancy Limited) 12th January 2021

Appendix 1

Tree Protection Plan

Tree Protection Fencing Information

Tree Protection Fencing Notice

Tree Protection Fencing Specification

Schedule of Tree Works

NORTH

T33 Ash

G34 Lawson cypress x 5

G34 Lawson cypress x 5

G34 Lawson cypress x 5

T32 Ash x 7

T32 Ash x 7

T32 Ash x 7

T32 Ash x 7

T32 Ash x 7

T32 Ash x 7

T32 Ash x 7

T31 Lime

T30 Lime

T29 Lime

T28 Ash

T26 Austrian Pine

T25 Hybrid Poplar

T24 Ash

T23 Horse chestnut

T22 Bird Cherry

T21 Holm Oak

T20 Ash

T19 Rowan

T18 Apple

T17 Ash

T16 Holm Oak

T15 Sycamore

T1 Lawson cypress

G9 Group of Field maples

G14 Group of Field maples

G14 Group of Field maples

G14 Group of Field maples

G14 Group of Field maples

G14 Group of Field maples

G5 Group of Lawson cypress

G5 Group of Lawson cypress

G5 Group of Lawson cypress

G5 Group of Lawson cypress

G5 Group of Lawson cypress

T27 Silver birch

FFL +59.30

FFL +59.30

FFL +59.30

1:12

GENERAL NOTES.

All dimensions to be checked prior to commencement of any works, and/or preparation of any shop drawings on site.
Any dimensional discrepancies and alterations to be referred to the designer.

DO NOT SCALE FROM THIS DRAWING.

0m 5m 10m 20m

Scale 1:100 @A0

Tree Protection Plan

Tree Protection Zone
Demolition Exclusion Zone for Prior Approval Demolition Works
Fence-off these areas with rigid immovable hoarding secured to concrete blocks. Prior to any works commencing on site, the tarmac is to be retained within these fenced-off areas, for the duration of demolition works. No access into the fenced-off area for construction workers during enabling, demolition works. All works within these areas to follow guidelines as outlined in the Arboricultural Method Statement and to be approved by the Arboricultural Clerk of Works.

Existing Hardstanding within this hatched area is to be retained undisturbed during prior approval demolition works.
This hardstanding will, if necessary, be protected from damage/degradation by laying of suitable sheet material or by surcharging the existing surface with a suitable materid.
All works within these areas to follow guidelines as outlined in the Arboricultural Method Statement and to be approved by the Arboricultural Clerk of Works.

Tree to be retained
Reduced Tree Canopy T29

Extent of Tree Canopy
Theoretical Root Protection Area RPA (BS5837)
Adjusted RPA showing 10% off-set
BS5837 Category (See Below)
Tree Survey Number
Tree Name

Adjusted RPA showing 10% off-set shown for selected trees

BS 5837 Category

(See Barfetts Consultancy Tree Survey 04/12/2319 for Details).

Category U Red Stem Disc
Those in such a condition that any existing value would be lost within 10 years and which should in the current context, be removed for reasons of sound arboricultural management.

Category A Green Stem Disc
Those of high quality and value: -
in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).

Category B Blue Stem Disc
Those of moderate quality and value: -
those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)

Category C Grey Stem Disc
Those of low quality and value: - currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150 mm.

Epsom General Hospital,
Surrey, KT18 7EG.
Dorking Road, Epsom.

Tree Protection Plan
For
Senior Living Urban (Epsom) Ltd

Ruskins Tree Consultancy
01277 849990 info@ruskins-tree-consultancy.co.uk
www.ruskins-tree-consultancy.co.uk

Scale	1:200 @ A0	Drawn by	PW
Date	12/01/2021	Checked by	*
Project No.	0121-9001		
Dwg. No.	TPP 1		

Tree Protection Plan Information

Prior to any demolition / remediation / enabling works, site scrape or groundworks commencing Tree Protection Fencing will be installed in accordance with this Tree Protection Plan.

Within the fenced-off Construction Exclusion Zones there will be:

- **No Pedestrian, Machinery or Vehicular Access.**
- **No level changes + or -**
- **No storage of plant or materials.**
- **No storage or handling of any chemicals including cement washings.**
- **Any works within the Fenced off areas will be subject to Arboricultural Supervision.**
- **No Fires within 10m of the Tree Protection Fencing.**
- **Clear Tree Protection Signs will be attached at 5m intervals along the fencing.**

TREE PROTECTION AREA

PLEASE KEEP OUT

The trees / hedgerows in this area are protected by Planning Conditions and maybe protected by Statutory Protection including Tree Preservation Orders. Any works in this fenced-off area may result in damage to the above ground parts or root systems of this vegetation.

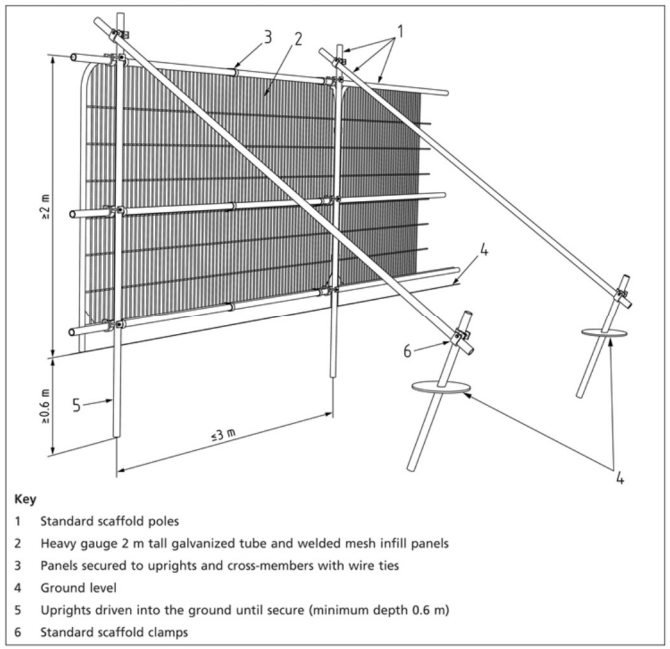
Damage to trees may lead to enforcement action and or a criminal prosecution.

Any works in this area must be undertaken as per the Arboricultural Report or with permission from the Local Planning Authority Tree Officer. For more information please contact info@ruskins-tree-consultancy.co.uk

Tree Protection Fencing location to be based on this Tree Protection Plan, not the tree canopy spread or height of the tree.

Tree Protection Fencing Specification

Figure 2 **Default specification for protective barrier**



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

From BS5837 (2012) 'Trees in relation to design, demolition and construction – Recommendations' based on their condition, quality and future potential.

For further information on any tree issues please contact info@ruskins-tree-consultancy.co.uk

TREE PROTECTION AREA

PLEASE KEEP OUT

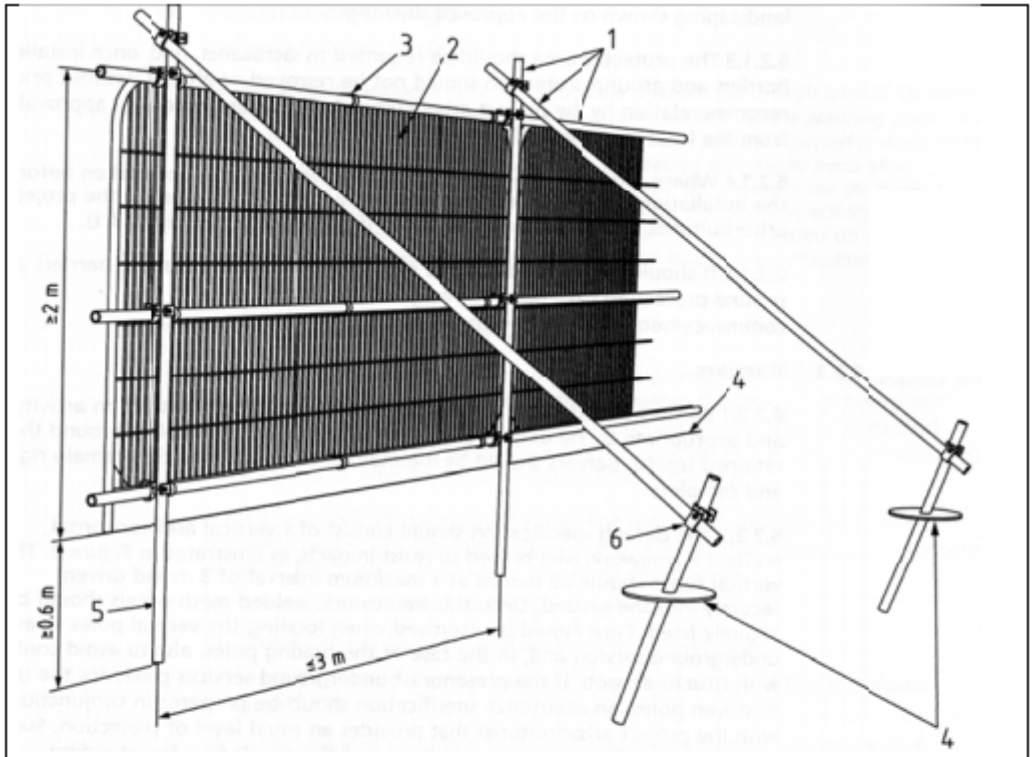
The trees in this area are protected by Statutory Protection and / or Planning Conditions. Any works in this fenced off area may result in damage to the above ground parts or root system of these trees.

Damage to these trees is a criminal offence and breach of the planning consent and may lead to a criminal prosecution. and / or enforcement action.

Any works in this area must be undertaken as per the Arboricultural Report.

Please contact info@ruskins-tree-consultancy.co.uk **for further information.**

Tree Protection Fencing Specification



Key

1. Standard scaffold poles.
2. Heavy gauge 2 metre tall galvanised tube and welded mesh infill panels
3. Panels secured to uprights and cross members with wires ties
4. Ground level
5. Uprights driven into the ground until secure (minimum depth 0.6 metres)
6. Standard scaffold clamps

Figure 2: BS5837:2012 Default specification for protective barrier

Schedule of Tree Works

Tree No.	Species	Proposed Works
T2	Yew	Remove to allow for proposed development
G9	Remove 1 Sycamore	Remove one trees from group of 3 to allow for proposed development
G10	Row of Yews	Remove to allow for proposed development
T11	Ash	Remove to allow for proposed development
T12	Sycamore	Remove to allow for proposed development
T29	Lime	Sever ivy and carefully remove basal growth. Undertake detailed inspection of cavity in main stem and climbing inspection / MEWP of the main union. Reduce lateral extent of canopy to eastern side by up to 3m subject to results of inspections
T30	Lime	Sever ivy and carefully remove basal growth
T31	Lime	Sever ivy and carefully remove basal growth
T36	Beech	Remove to allow for proposed development
G46	Group of Yew	Remove to allow for proposed development
T47	Field maple	Remove to allow for proposed development