



Photograph 2 - view of T1 from rear garden, looking west.

- 3.1.4 The various trees off-site immediately to the north of the site (T3-8) must be considered due to their close proximity, both in terms of RPAs and crown spread, which partially overlap this site, however this is limited in extent to the edges of existing hard surfaced driveway and parking area .
- 3.1.5 To the southern boundary the remaining trees surveyed are all located along the southern boundary of a grass access track that runs immediately along the southern boundary of this site. This track effectively acts as a buffer between this site and trees T9-12, and G1-2. The width of this track exceeds the maximum radial RPA and crown spread of any trees located along the southern side, therefore none of these trees can be considered a direct constraint upon this site.
- 3.2 **Below ground constraints (Root Protection Areas):**
- 3.2.1 This section deals with tree roots, which can easily be overlooked during construction operations due to being hidden and often their importance, and that of the soil around them, is not fully understood. It is essential that the roots remain undamaged

during the site preparation and construction phases, as they provide the structural stability as well as transporting water and nutrient throughout the tree. Crucially they cannot perform their functions effectively if the soil structure around them is also damaged, which is why the RPA must be adequately protected.

3.2.2 The TSCP visually represents the required RPA for each tree as a magenta circle centred on each tree stem. It is quite possible, depending on soil conditions and tree species characteristics, that roots will extend beyond this zone, hence this area is the minimum zone that needs to be protected during site works.

3.2.3 The proposed layout indicates that no building works are planned to overlap any of the RPAs. Additionally, where the RPAs of trees T3-T8 overlap this site, they are restricted to existing hard standing which will be retained and incorporated into the proposed development for the same use (i.e. driveway and parking areas). As such there will be no additional impacts on the RPAs of these trees, so they will not place any additional constraints upon the development of this site.

The RPA of T1 encompasses a significant area of undeveloped land within the site, which according to the proposed layout as seen, will be retained as soft landscaping. The proposal will actually result in the dwelling footprints being further away from this tree than is currently. Therefore as long as the full extent of this RPA is adequately protected in line with BS5837, from potentially damaging actions such as storage of materials/plant, temporary site buildings, changes in levels etc., there will be no adverse impact on the RPA of T1.

3.2.4 No details are given for underground services, therefore the planning of these should take into account the TCP to avoid any potential damage to tree roots.

3.3 **Above ground constraints (branch spread & shading):**

3.3.1 Trees in close proximity to buildings can pose some constraints, both real and perceived. Actual constraints occur where branches can conflict with new elevations, either now or in future. For this reason newly planted trees as well as younger existing trees need to be fully accounted for in the design and layout planning. Other significant constraints that are often overlooked include shading, leaf litter and damage from falling branches. Perceived constraints include post-development pressure from new residents to have large trees removed or severely pruned as a result of anxiety over possible hazards.

3.3.2 This proposal is well away from any retained existing tree canopies, so canopy spreads are not considered to be a constraint on the proposed layout, either now or in the future. The largest of the trees, T1, is already in a mature age class and will not grow significantly larger than its current dimensions. Furthermore, the proposal shows that the replacement dwellings will be further away from T1 than the current footprint. Also see section 3.5 regarding recommended works to the canopy spread of this tree, as well as for clearance of canopy spreads over the driveway for T5,6 and 8.

The current shading constraints upon this site are limited to minor impacts from trees T10-12, G1 & G2 along the southern portion of the dwelling, and shading of T1

over the garden area. The proposed layout will not result in any additional shading constraints, and due to the positioning of the plots slightly to the north of the existing footprint, as well as further away from T1, any direct shading will actually be reduced. Furthermore, there is no reason why future crown management of trees along the southern track boundary cannot be carried out to restrict/reduce shading impacts, as there is evidence that this has been carried out in the past to the largest of these trees to limit their height.

3.3.3 There will continue to be indirect shading impacts from T1 over the garden area for limited periods of the day, however neither plot will be in full shade throughout the main part of the day. Furthermore, if the tree works as recommended in Appendix 1 are carried out, this will alleviate such impacts to an acceptable level without any adverse impact on the health and amenity of the tree.

3.3.4 Taking into consideration the above factors, the above ground arboricultural issues will not be a significant constraint on this site; therefore they are not considered further in this report.

3.4 **Trees to be retained:**

3.4.1 All surveyed trees apart from T2 are to be retained.

3.4.2 Access to the development site during preparation and construction phases must be managed to protect the existing trees being retained. Sufficient space should be available on this site for construction plant and materials outside the required protective barriers for T1, however if any conflicts are foreseen then alternative arrangements must be made, in consultation with the project arboriculturist and LPA Tree Officer.

3.4.3 Tree protection on development sites are of paramount importance if trees are to be retained successfully. The inevitable stress caused by development near existing trees can, if provision for adequate protection is not made, be a significant strain leading to severe damage and even death of a tree. It is important to note that although trees will appear healthy during and on completion of a development, the full effects of below ground damage may not become apparent for five years or more after the works have finished.

3.5 **Tree works:**

3.5.1 Various tree works are recommended in the survey schedule that are regarded as being of sound arboricultural practice. For T1 it is recommended that a crown reduction to the north and east sides of the canopy is carried out as well as a crown thin and removal of deadwood and decayed limb. This will reshape the tree, reduce foliage density and improve its overall safety without compromising its health or amenity value.

3.5.2 To aid site access, improve safety and create a well-balanced relationship between the trees and new development, some minor works are recommended for T5, 6 & 8 as specified in Appendix 1. Again these minor works will achieve the desired aims without impacting on the health and amenity of those trees.

3.6 Tree removal:

- 3.6.1 Tree T2 (low suitability for retention) would be removed to facilitate the redevelopment as it will be too close to the build line to realistically retain. Although the presumption is to retain trees of low quality (category C trees), this tree is of small size and minimal public amenity value.
- 3.6.2 In order to mitigate this loss, a suitable replacement planting could comfortably be included within the finished scheme if desired, which provides an opportunity to replace the tree with a better quality specimen in a more prominent position. Thereby contributing to a net enhancement of amenity value in the longer term.

4. Conclusions & Recommendations

- 4.1 The design proposals for the extension of the existing dwelling & a detached garage on the land at 10 Landguard Manor Road have been assessed in accordance with BS5837:2012 "Trees in relation to design, demolition and construction - Recommendations". It is my opinion that the trees identified for retention can be afforded due respect and provided with adequate protection, to ensure their safe and healthy retention during and following the development process.
- 4.2 All trees are to be retained within the scheme, except for T2. This small tree is not considered significant in terms of amenity, landscape or biodiversity value, and can be more than adequately mitigated for by new landscaping should it be required.
- 4.3 As long as a robust scheme of tree protection is provided to prevent conflict with below ground constraints, Woodside Tree Consultancy believes that the all trees highlighted within this report can be retained without undue stress on their long-term health. Once the plans have been finalised, the project arboriculturist should prepare a Tree Protection Plan to inform the contractor of the necessary protective measures before any works commence on site.

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Woodside Tree Consultancy

25th February 2016

Appendix 2 - Tree Survey Explanatory Notes

- 1 **Height** describes the estimated height of the tree from ground level, to nearest 0.5m (nearest 1m where total height exceeds 10m). Where practicable a clinometer is used to aid accuracy.
- 2 **Stem diameter** is the diameter of the main stem(s) measured in millimetres (to nearest 10mm) at 1.5m above ground level in accordance with Annex C of BS 5837:2012. Stem diameter may be estimated where access is restricted or the trunk is covered in ivy. Estimated dimensions are suffixed with a hash (#).
- 3 **Branch spread** refers to the approximate crown radius in metres (rounded up to nearest 0.5m) from the centre of the trunk at the four cardinal points.
- 4 **Crown clearance** is the average height in metres (to nearest 0.5m) of crown clearance above adjacent ground level. Where access is restricted this may be estimated.
- 5 **Height & direction of first limb** in metres above ground level where relevant; section 4.4.2.5 of BS5837 states this should be recorded to fully inform on potential ground clearance issues.
- 6 **Age Class** is as follows: **Y** = young trees up to 10 years old; **SM** = semi-mature trees less than 1/3 life expectancy; **EM** = early-mature trees 1/3 to 2/3 life expectancy; **M** = mature trees over 2/3 life expectancy; **OM** = over-mature trees in decline; **V** = veteran tree possessing certain attributes relating to veteran trees.
- 7 **Physiological Condition** is either: **Good** (trees with only a few minor defects and in good overall health); **Fair** (trees with minor, but rectifiable, defects or in the early stages of stress from which it may recover); **Poor** (trees with major structural and/or physiological defects such that it is unlikely the tree will recover in the long term); **Dead** (this could also apply to trees that are dying and unlikely to recover). This part of the assessment is essentially a snapshot of the trees' general health based on its appearance, vigour, and presence of any potential symptoms of poor health.
- 8 **Structural Condition** includes consideration of a range of factors including the presence of fungal fruiting bodies, cavities, decay and damage, condition/movement of soil around the tree base, growth habit, biomechanical related defects.
- 9 **Preliminary Management Recommendations** are focused on what is relevant in terms of the proposed development, as well as any obvious major issues that need addressing. The survey is not a condition or safety inspection so should not be relied upon as such.
- 10 **Estimated Remaining Contribution** is the approximate number of years the tree will continue to make a beneficial contribution without the need for oppressive arboricultural intervention, categorised as <10, 10-20, 20-40 and >40.
- 11 **BS Category Rating** refers to BS 5837:2012 Table 1. This relates to tree/group quality and value, where **A** are trees of high quality with an estimated remaining life expectancy of at least 40 years, **B** are trees of moderate quality with an estimated remaining life expectancy of at least 20 years, **C** are trees of lower quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. Category **U** relates to 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. The sub-category refers to the value type, where **1** is mainly arboricultural, **2** is mainly landscape and **3** is mainly cultural including conservation, historic and commemorative.
- 12 **Root Protection Radius** is a radial distance measured from the trunk centre, giving the radius of an equivalent circle. It is calculated using the formulae described in paragraph 4.6.1 of BS 5837: 2012 and is indicative of the minimum rooting area that should remain undisturbed in order for a tree to be successfully retained.
- 13 **RPA** area is the minimum area in m² which should remain undisturbed (up to a maximum area equal to a circular radius of 15m).

Appendix 3 - BS5837 Cascade Chart for Tree Categorisation

Category & definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention				
<p>Category U</p> <p>Trees in such a condition that they cannot realistically be retained as living trees in the context of current land use for >10yrs</p>	<p>Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees;</p> <ul style="list-style-type: none"> Trees that are dead or showing signs of significant, immediate and irreversible decline; Trees infested with significant pathogens affecting health or safety, or very low quality trees suppressing trees of better quality. <p>NOTE: these trees can have existing or potential conservation value making retention desirable</p>			DARK RED
Trees to be considered for retention				
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
<p>Category A</p> <p>Trees of high quality with an estimated remaining life expectancy of >40yrs</p>	Particularly good examples of their species, esp. if rare or unusual. Those that are essential components of groups or formal or semi-formal arboricultural features (e.g. principal avenue trees)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).	LIGHT GREEN
<p>Category B</p> <p>Trees of moderate quality with an estimated remaining life expectancy of >20yrs</p>	Trees that might be included in category A but are downgraded because of impaired condition such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit category A designation.	Trees present in numbers, usually growing as groups or woodlands such that they attract a higher collective rating that they might as individuals. Trees occurring as collectives but situated so as to make little visual contribution to the area.	Trees with material conservation or other cultural value.	MID BLUE
<p>Category C</p> <p>Trees of low quality with an estimated remaining life expectancy of >10 years, or young trees with a stem diameter <150mm</p>	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.	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.	Trees with no material conservation or other cultural value.	GREY