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## Arboricultural Report

BS 5837:2012 Tree Survey

& Arboricultural Impact Assessment

Land at:

**Shore Road, Gurnard**

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Ref: AS/RM/0820 Rev. A



# Contents

Validation Statement for LPA Registration.....	3
1. Introduction.....	4
2. Site Visit and Tree Survey.....	5
3. Arboricultural Impact Assessment.....	6
4. Conclusions & Recommendations.....	10
Appendix 1: Tree Survey Schedule.....	i
Appendix 2: Tree Survey Notes.....	ii
Appendix 3: BS5837 Cascade Chart for Tree Categorisation.....	iii
Appendix 4: Tree Survey and Constraints Plan.....	iv



## **Validation Statement for Local Planning Authority (LPA) Registration**

This report is intended to be submitted to the Isle of Wight Council in support of a planning application. The report contains tree information relevant to the proposed development.

For LPA validation purposes, this report contains the following information:

- A full tree survey compliant to the requirements of BS5837:2012 "Trees in relation to design, demolition and construction - Recommendations", undertaken by a competent and qualified arboriculturist.
- A suitably scaled plan with north point showing the site boundaries and the tree survey information.
- An assessment of the impacts of the proposed development on the existing trees, including recommendations of which trees should be removed/retained.

## 1. INTRODUCTION

- 1.1 **Instruction:** I am instructed to survey trees that could affect or be affected by the proposal for land at Shore Rd, Gurnard. This report, in compliance with BS5837:2012 "Trees in relation to design, demolition and construction - Recommendations" (herein referred to as BS5837) is required to accompany the submission of a detailed planning application for replacement dwellings at no.24, 26 and 28. My instruction is to prepare the following information:
- A schedule of the relevant trees and all tree data as required by BS5837
  - A Tree Survey and Constraints Plan (TSCP)
  - An Arboricultural Impact Assessment (AIA)
- 1.2 **Information provided:** Drawing AS/RM/0820 TSCP is derived from the following drawing supplied to me by Neil Geddes Design:
- *1901-12 / 14 Site Survey / Proposed Site Plan* in DWG/PDF formats.
- 1.3 **Purpose and scope of this advice:** The survey & report have been produced both to assist the design process and to support the planning application. It demonstrates the site's arboricultural constraints and makes recommendations regarding the potential impact of the proposal on trees and vice versa. It focuses on all trees that may affect or be affected by the proposal, whether within the boundary or off-site.
- 1.4 **Limitations:**
- 1.4.1 The survey was a preliminary assessment undertaken from ground level, and limited by boundaries, vegetation and other features on site. Observations have been made solely for the purposes of assessment relevant to the planning process, and the report is not a condition survey or safety inspection. Where obvious risks have been observed they have been highlighted in the "preliminary management recommendations" of the tree survey schedule. Binoculars, sounding mallet and probe have been used to aid tree assessment; no invasive or non-invasive internal decay detection equipment have been used in assessing the trees.
- 1.4.2 The recommendations and conclusions in this report relate only to the conditions found on site at the time of the inspection, as trees are dynamic organisms whose health and condition can change rapidly. The findings are valid for a period of 12 months from the date of report providing the site remains as it stands at present. Any significant changes to the site which may affect the trees (such as building works, changes in levels, hydrology etc.) would require a re-assessment of the trees.
- 1.4.3 This report is intended for use solely by the above client and their agent if applicable, and not for the benefit of any third party. Any person who is not directly involved with this site shall not have any rights under or in connection with it. All rights in this report are reserved. No part of it may be reproduced in any form without the written consent of Woodside Tree Consultancy.
- 1.5 **Ecological Constraints:** The Wildlife and Countryside Act 1981 and amendments made within and subsequent to the Countryside and Rights of Way Act 2000 provides statutory protection to bats, birds and other species that inhabit or use trees. The

protection afforded to such species could impose significant constraints on the use of a particular site, as well as restrict the timing of any works that may be necessary. Any such restrictions are in addition to arboricultural constraints in this report.

- 1.6 **Status of the trees:** Having searched the Isle of Wight Council website Public Proposals Map on 21<sup>st</sup> August 2020, it shows that there are no Tree Preservation Orders (TPO) or Conservation Areas affecting the site.

## 2. SITE VISIT AND TREE SURVEY

- 2.1 **Site visit:** I visited the site on 20<sup>th</sup> August 2020, with the weather at the time of survey being sunny but which in no way hindered my ability to view the trees satisfactorily. All observations were made from accessible points at ground level, with all measurements except stem diameter being estimated unless otherwise indicated in the Tree Survey Schedule and Notes.
- 2.2 **Site Description:** The site is part of several existing residential plots, consisting of multiple dilapidated buildings and disused amenity space. The only vegetation on site were scattered scrub around the boundaries, although several off-site trees within an adjacent residential plot and a boat yard were included for any possible constraints. The relevant area of the site measured approximately 0.04ha as shown in Figure 1.



Figure 1. Aerial view showing area covered within this survey (Google 2020)

- 2.3 **Data Collection:** each relevant tree (above 75mm stem diameter) or group was inspected and allocated an identification number as indicated in the Tree Survey Schedule (Appendix 1) and tree survey plan (Appendix 4). They were allocated one of four categories (A, B, C or U) in line with BS5837 recommendations (see Appendix 3) as well as having the following important information collected:

- Species, Height (m) and stem diameter (mm)
- Average crown spread to the 4 cardinal points (m)
- Average canopy clearance; height and orientation of first significant branch
- Life stage, condition and preliminary management recommendations
- Remaining safe useful life expectancy; Root Protection Area calculations

## 2.4 Root Protection Areas:

- 2.4.1 In accordance with section 4.6 of BS5837, the stem diameter measurements have been used to calculate the Root Protection Area (RPA), both in terms of radial distance from the tree and as an area in m<sup>2</sup>. The RPA is the area that should ideally remain free from disturbance by adjacent construction works, as it is deemed to be the minimum area around a tree required to maintain sufficient rooting volume to sustain the tree's vitality. Therefore the adequate protection of the roots and soil structure in this area must be treated as a priority.
- 2.4.2 The calculated extent of the RPA is used to identify any design constraints within the site, and is visually represented on the Tree Survey & Constraints Plan (TSCP - Appendix 4). The TSCP shows the above-ground constraints (*i.e.* branch spread), and the below-ground constraints (the anticipated extent of significant root spread depicted as the calculated RPAs).
- 2.5 **Tree survey:** Four individual trees and one group were surveyed and assessed for their suitability for retention. Please refer to appendices 1 & 4 for details of their identity, location and assessment. Please also refer to the Tree Survey Schedule Notes (Appendix 2) and BS5837 Cascade Chart (Appendix 3) for full details.

## 3. ARBORICULTURAL IMPACT ASSESSMENT

- 3.1 **General observations:** No trees of any significance were located within the site, being limited to self-set bay scrub and several smaller shrubs. The only trees of any wider landscape value were a mature oak and field maple located on the opposite side of the stream which formed the N boundary of the site. A row of young planted birch trees on an adjacent plot were also included for reference.
- 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 nutrients 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. However, in reality the spread of roots for trees will rarely be distributed in a perfect circle as the environment below ground level is highly variable. The presence of structural foundations, pipes, impermeable surface coverings and differing soil conditions mean that tree roots will extend in to areas that offer a preferential environment; where water is most available and the soil is least compacted.
- 3.2.3 The nominal RPAs of trees T1-2 have been adjusted (offset by 20% to the north) due to the long established presence of the steep-sided stream cutting through the land on the S side of these trees. This watercourse appears to include a partially altered bank structure and forms a notable barrier to natural root spread, so I anticipate

fewer roots will be present on this side of the trees. In reality it is likely that root spread is biased in a more E-W direction along the N side of the stream bank, although for the purposes of this exercise the general 20% offset is considered reasonable to indicate the likely direction of main root development. The overall area of the RPAs have not been reduced.

- 3.2.4 The proposed layout shows that the footprint for no.24 will fractionally abut the edge of the RPA for T1 where its N elevation runs along the stream bank. Although this dwelling would not encroach into the RPA of T1, it should be noted that the structure will utilise a piled foundation design regardless, due to the natural constraints of the site. Therefore as no traditional strip footing excavations will be used, it is considered that the design will accord with BS5837 recommendations to minimise disturbance on the edge of the RPA. All other significant construction for this scheme will be clear of any nearby retained trees and their RPAs.
- 3.2.5 To ensure that all RPAs are adequately protected from other potentially damaging actions such as storage of materials/plant, temporary site buildings, changes in levels etc., the full extent of RPAs not covered by existing hard surfacing should have protective fencing and/or temporary ground protection erected in line with BS5837 for the duration of site works. It is possible that details pertaining to the placement of protective barriers will be required as a condition of any planning approval.
- 3.2.6 The planning for any new underground services must also take into account the TCP to avoid any damage to the tree roots.

### 3.3 **Above ground constraints (branch spread):**

- 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. However it should also be remembered that a degree of shading can be desirable to reduce glare and provide comfort during hot weather.
- 3.3.2 The canopy of T1 currently overhangs and touches the corner of the existing structure at no. 24, as shown in Figure 2, which had the dwelling been in use would already require pruning back to achieve reasonable clearance. This tree has a growth habit which is biased to the SE, particularly with lower canopy epicormic branching that has grown unmanaged over recent years. The replacement dwelling will result in a slight increase in overlap with the current crown spread, although this scheme does not encroach further towards the tree than a previously approved re-development of this site, which would have required the same level of facilitation pruning had the development been undertaken (P/01239/12). As the development will result in a small additional conflict with the existing crown spread of T1, details of proposed facilitation pruning are provided in section 3.5 below.



Figure 2. Existing conflict between T1 and no. 24 Shore Road

- 3.3.3 In terms of shading, it is not considered that the replacement scheme will result in any greater impact from that currently experienced, which due to the northerly position of the only larger trees in proximity to the site means that tree shading will not be a significant conflict.
- 3.4 **Trees to be retained:**
- 3.4.1 The larger and off-site trees will be retained within the scheme. Access to the site during preparation and installation phases must be managed to protect the existing trees. Sufficient space should be available for construction plant and materials outside the RPAs. However if any conflicts are foreseen then alternative arrangements must be made, in consultation with the project arboriculturist and local authority.
- 3.4.2 Tree protection on development sites is of paramount importance if trees are to be retained successfully. The stress caused by development near existing trees can, if provision for adequate protection is not made, be a significant strain leading to severe damage or death. 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 works have finished.
- 3.5 **Tree works:** As discussed between the LPA Tree Officer and architect on site, the crown of T1 is to be raised to 4m, to be above the height of the new balcony, with any overhanging foliage above this being trimmed back to clear the roof line. The crown lift should leave a clear trunk to 4m, to avoid potential future conflicts resulting from possible loss of light/nuisance issues where otherwise small diameter foliage growth would occur in close proximity to the balcony. This work will not result in any detrimental impact upon the health or amenity value of T1, as no large pruning wounds would result, but nonetheless all work must be carried out by insured arboricultural contractors in accordance with BS3998:2010.



3.6

**Tree removal:** T3-4 as well as some smaller scrub/bushes would be removed to facilitate the redevelopment. These trees consist of self-set bay and minor shrub growth, and are all low quality vegetation with no significant wider public amenity value, as shown in Figure 4 below. In order to mitigate these losses, a suitable landscaping scheme could provide an opportunity to replace the scrub with better quality specimens; thereby contributing to a net enhancement of amenity value in the longer term.



Figure 4. Views of T3 (left) and T4 (right); both poor quality bay scrub to be removed as part of the redevelopment proposals

#### 4. CONCLUSIONS & RECOMMENDATIONS

- 4.1 The design proposals for replacement dwellings on land at Shore Road, Gurnard have been assessed in accordance with BS5837:2012 "Trees in relation to design, demolition and construction - Recommendations". It is my opinion that retained trees 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 As long as a robust scheme of tree protection is provided during the development phase, I believe that the trees can be retained without undue stress on their long-term health.
- 4.3 The limited vegetation removals recommended to facilitate the proposals are not considered significant in terms of amenity, landscape or biodiversity value, and can be more than adequately mitigated for by new landscaping if required.

*Andrew Southcott*

24<sup>th</sup> August 2020 (revised 30.11.20)

## Appendix 1 - BS5837: 2012 Tree Survey Schedule

Tree No.	Species	Height (m)	Stem Diameters (mm)								Branch Spread (m)				Crown Clearance (m)	Height & direction of 1st signif. limb	Age Class	Physiological Condition	Structural Condition	Preliminary Management Recommendations	Est. Remaining Contribution (yrs)	BS5837 Category Rating	Root Protection Radius (m)	RPA (m <sup>2</sup> )			
			Single Stem	2-5 stems					5> stems		N	E	S	W													
				Stem 1	stem 2	stem 3	stem 4	stem 5	Mean Dia.	No. Stems																	
1	Oak	10	400									2	3	5	5	2	5.5w	M	F	Asymmetrical, epicormic branching, deadwood (dwd).	Max. 2m crown reduction on S side for clearance of no. 24.	20-40	B2	4.8	72.4		
2	Field maple	8		280	200	170						2.5	4	4	4	3	0r	M	F	Multi stem, decay pockets & limb stubs, dwd.		20-40	B2	4.6	66.6		
3	Bay	6							80	8	2	2.5	3	2	2	-	SM	F	Small multi stem self-set scrub near stream edge, visually poor with tight, fused stems.	Recommend fell & replant.	10-20	C2	2.7	23.2			
4	Bay	7.5		140	130						2	1	2	2	2	-	SM	P	Visually poor, tight to building edge, pruned back, self-set scrub.	Recommend fell & replant.	<10	U	-	-			
G1	3x silver birch	av. 9	Various as plotted on TSCP #											2.5	1.5	2.5	1.5	1	2.5r	Y	F	Group of small off-site garden landscaping, central tree good growth with weaker outer trees, plotted for any possible constraints.		10-20	C2	Various as plotted on TSCP #	



## 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 m<sup>2</sup> 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
<b>Trees unsuitable for retention</b>				
<b>Category U</b>  Trees in such a condition that they cannot realistically be retained as living trees in the context of current land use for >10yrs	<ul style="list-style-type: none"> <li>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;</li> <li>Trees that are dead or showing signs of significant, immediate and irreversible decline;</li> <li>Trees infected with significant pathogens affecting health or safety, or very low quality trees suppressing trees of better quality.</li> </ul> <p><i>NOTE: these trees can have existing or potential conservation value making retention desirable</i></p>			<b>DARK RED</b>
	<b>1 Mainly arboricultural qualities</b>	<b>2 Mainly landscape qualities</b>	<b>3 Mainly cultural values, including conservation</b>	
<b>Trees to be considered for retention</b>				
<b>Category A</b>  Trees of <b>high quality</b> with an estimated remaining life expectancy of >40yrs	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).	<b>LIGHT GREEN</b>
<b>Category B</b>  Trees of <b>moderate quality</b> with an estimated remaining life expectancy of >20yrs	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 than 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.	<b>MID BLUE</b>
<b>Category C</b>  Trees of <b>low quality</b> with an estimated remaining life expectancy of >10 years, or young trees with a stem diameter <150mm	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.	<b>GREY</b>



**Appendix 4 - Tree Survey and Constraints Plan**  
(please see attached plan - drawing no. AS/RM/0820 TSCP)