

Tree Survey & Preliminary Arboricultural Report (Phase 1)

Land at 57 Bryn Glas, Rhos, Wrexham

Prepared for:

Mr G Jones

Planning Ref: P/2011/0779
Ref: 11/AIA/P1/WXM/77

26 October 2011

Contents:

1.0	Instruction
2.0	Statutory Controls & Planning Policy
3.0	The Site
4.0	General Constraints Data
5.0	Planning Design Process
6.0	Juxtaposition of Trees & Structures
7.0	Survey Methodology
8.0	Summery & Analysis of Trees

<i>Appendix 1</i>	Survey Sheets
<i>Appendix 2</i>	BS 5837 Category Grading Chart
<i>Appendix 3</i>	Preliminary Impact Assessment Plan
<i>Appendix 4</i>	Tree Preservation Order Overlay Plan

1.0 INSTRUCTIONS

- 1.1 We have been instructed by Mr G Jones to assess trees on land at 57 Bryn Glas, Rhos, Wrexham in accordance with the principles of British Standard 5837 'Trees in Relation to Construction - Recommendations' 2005.
- 1.2 We are to prepare our report in a format that can be used for assisting in the design of a development layout but which can also be submitted to the Local Planning Authority (LPA) to accompany an outline planning application. As such, all-significant trees on and adjoining the site have been surveyed. This report is to be considered as a preliminary assessment of the trees in relation to the principle of development within this area of the site. It does not include any impact assessments or detailed recommendations for tree protection during and after construction.
- 1.3 The purpose of the report is to clearly identify the quality of tree stock, their contribution to public amenity and the constraints particular trees may offer to the site in terms of proposed development.
- 1.4 The survey was carried out on 18 October 2011 by Alistair Henderson, Principal Consultant to Tree Solutions. Our appraisal of the mechanical integrity of trees on the site is of a preliminary nature and sufficient only to inform the current project. The assessment of trees is carried out from ground level without invasive investigation and the disclosure of hidden defects cannot therefore be expected. Whilst the survey is not specifically commissioned to report on matters of tree safety, we report obvious defects that are significant in relation to the existing and proposed land use. We do not carry out detailed safety inspections unless specifically instructed to do so in writing and have not carried out such inspections of trees on the proposal site.
- 1.5 Two groups (G1–G2) and one hedgerow (H1) were surveyed and mapped on an Indicative Arboricultural Impact Assessment Plan Ref: 11/IAIA/WXM/77, Dwg No 1 which is at **Appendix 3**. All arboricultural information recorded during the survey is presented at **Appendix 1**.
- 1.6 A Phase 2 Arboricultural Impact Assessment and Method Statement will accompany any future detailed planning application. All impacts and protective measures will be discussed and detailed within the report.

2.0 STATUTORY CONTROLS & PLANNING POLICY

- 2.1 In terms of impacts on trees, the planning application will be assessed against Policy EC4 of the Wrexham County Borough Council Unitary Development Plan (2005) and Local Planning Guidance Note 17 'Trees & Development' (2011).
- 2.2 *All trees on site are the subject of a Tree Preservation Order. As such, the formal consent of the Council is required prior to undertaking any tree removal or pruning works.*

2.2 Protected Species

- 2.2.1 Mature trees often contain cavities, crevices and hollows that offer potential habitat for species such as bats and barn owls. Both are afforded protection under the Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), as well as The Conservation (Natural Habitats, &c) (Amendment) Regulations 2007.

2.3 Wildlife Habitats

- 2.3.1 Trees and hedgerows of most species provide valuable nesting sites for a wide range of birds and it is likely that nesting birds will be present on the site during the period March to September.

3.0 THE SITE

3.1 The site contains a detached residential dwelling set within sizeable grounds that have seen no management in the past 40 years. This has resulted in the garden areas being almost completely colonised by trees.

3.2 Vehicular access is via Bryn Glas to the north.

4.0 GENERAL CONSTRAINTS DATA

4.1 Constraints arising from retention trees are separated into three and sometimes four types of Construction Exclusion Zone (CEZ), of which CEZ1 (the Root Protection Area - RPA) is illustrated indicatively on the Tree Constraints Plan (TCP). The CEZ's are explained further as follows:

4.2 CEZ1: Root Protection Area (RPA)

4.2.1 The area, calculated in m², which should be protected during and preserved intact after construction, in order to facilitate the healthy retention of the tree or trees concerned by safeguarding a reliable quantum of functioning tree roots. This area is based on a radial measure from the centre of the stem of the tree, which is found by multiplying the stem diameter of the tree concerned, by a factor of twelve (or by a factor of ten when measuring basal diameter immediately above the root flare for multi-stemmed trees).

4.2.2 During Arboricultural Phase 2, the derived radial measure is converted into the actual area to be protected, having due regard to prevailing site conditions and how these may have affected the tree(s), particularly in relation to factors affecting their likely rooting disposition. At this stage in the process however, the RPA is only shown indicatively on the Preliminary Tree Constraints Plan (TCP), as its shape may be subject to amendment as the design progresses.

4.2.3 The means of protecting the RPA will include the installation of tree protection fencing prior to the start of work on site. Various activities within the RPA are prohibited (e.g. mechanical excavation, soil stripping, fire lighting, materials storage, lowering levels and creating excessive sealed surfacing), and may include the use of temporary ground protection and/or special engineering solutions where construction is proposed near to retention trees or within the RPA. The RPA zone is indicated on the AIA plan at **Appendix 3** to this report.

4.3 CEZ2: Tree Crown Protection Zone

4.3.1 This is the area above ground occupied by the crown of the tree, along with allowances for working space and if appropriate, for future growth. The extent of CEZ2 is determined by considering the existing and future crown spread of the tree(s), bearing in mind the possibility of this being modified by an acceptable quantum of pruning.

4.3.2 Arising from the above, the means of protecting CEZ2 is likely to include providing an adequate separation distance between retention trees and new buildings and may include access facilitation pruning, where this is necessary and arboriculturally acceptable.

4.4 CEZ3: Tree Dominance Zone

- 4.4.1 This is the area above ground dominated by the tree in relation to issues of shading, seasonal debris and safety apprehension. This area is found by considering the height and spread of the tree relative to the aspect of the site and thus proposed buildings, cross-referenced with intended end use. As such, what is assessed is the likely psychological effect of the tree on the end-user.
- 4.4.2 The purpose of identifying CEZ3 is to protect trees from post-development resentment by the site's end-users, who may, if resentful of the trees, seek to procure excessive pruning treatments or even to have them removed. This is a common Planning Service concern, which has led on many occasions both to refusals of consent and to dismissed Appeals against those refusals.
- 4.4.3 The means of protecting CEZ3 is likely to include optimising the site layout and room type (especially in relation to new residential dwellings), such that any adverse psychological impacts of the trees are reduced to an acceptable minimum. Key principles include ensuring adequate separation distances between trees and new buildings, in the context of the buildings' end use relative to the location of the tree(s) and avoiding excessive obstruction by trees of critical solar access.

4.5 CEZ4: New Planting Zone

- 4.5.1 In some cases, it may be appropriate to identify and protect areas intended for new landscape planting, which can fail to establish if the soil has been heavily compacted during construction to a bulk density hostile to tree and shrub roots' survival. The means of protecting CEZ4 will either be by fencing it off prior to the start of works on site, or by soil remediation once construction has finished (and prior to the start of planting). Topsoil protection in areas destined for new planting is frequently an economy measure, saving on plant replacement and soil structure remediation.

5.0 PLANNING DESIGN PROCESS

- 5.1 The preparation of a tree survey and the resulting preliminary constraints mapping exercise, both of which should precede significant work in relation to site layout design, are only the first phase (Arboricultural Impact Assessment Phase 1) in the design process (AIA1). For tree retention in the context of new development to be successful, it is essential that this process is followed through.
- 5.2 The next stage is for site layout master planners to factor the tree constraints into draft layout proposals and for these to be referred to the Arboriculturist for further impact assessment as part of an ongoing dialogue in order to arrive at a 'best fit' scheme that achieves site viability whilst allowing for the retention of appropriate trees. This is the Design Review and application phase comprising Arboricultural Impact Assessment Phase 2 (AIA2).
- 5.3 Once a settled layout is agreed, we can then prepare a supporting statement (i.e. a development impact study) to accompany the planning application (as part of AIA2). This statement should demonstrate that the trees have been properly considered at a professional level, and that the site layout is defensible in arboricultural terms - both at the application stage and if necessary, at Appeal.
- 5.4 AIA2 also involves the Arboriculturist working as part of the design team to secure the discharge of tree related planning conditions, including any relating to levels, services and drainage, as well as to specific tree protection issues such as protective fencing etc.

6.0 JUXTAPOSITION OF TREES AND STRUCTURES

6.1 Above ground constraints

- 6.1.2 Include shading from retained trees especially to windows, the presence of branches in proximity to structures where damage may occur as well as possible nuisances such as falling leaves, honeydew and fruit. BS5837:2005 requires the consideration of such above ground constraints posed to development by the above ground parts of trees and takes into account such matters as future growth of the tree and obstruction of daylight and sunlight in accordance with published guidance including that from the Building Research Establishment (BRE).
- 6.1.3 The design and layout of any liveable rooms should be fully considered at the design stage to ensure adequate light levels are made available and to make sure that any retained trees do not appear oppressive to future occupants or give rise to safety concerns. A daylight study can be plotted on request.

6.2 Below ground constraints

- 6.2.1 The below ground constraints are generally summarised as the root protection area (RPA). The shape of the RPA and its exact location will depend upon arboricultural considerations including likely tolerance of the tree to root disturbance; morphology and disposition of the roots when known influenced by past or existing site conditions; soil type and structure; and topography and drainage.
- 6.2.2 The purpose of the RPA is to prevent physical damage to tree roots and to prevent damage to the soil structure. Tree roots are damaged by soil compaction, changes in soil levels or soil contamination which could reduce tree health and/or stability.
- 6.2.3 Development within the RPA of trees can be acceptable by use of ground beams or similar positioned at or above existing ground levels. It will be important however to consider at the outset of design, that continuous open trenching will not be acceptable within the RPA. Subject to arboricultural advice, however foundations involving piles, pads or slabs, cantilevered as necessary, may be engineered to avoid conflicts with retained trees. Furthermore, the RPA can be manoeuvred around an **open grown tree** to a tolerance of 20% where considered appropriate by an arboriculturalist and where the total root protective area is not reduced. Modification in excess of 20% may be acceptable where the morphology and disposition of tree roots has been influenced by topography and drainage or by past or existing site conditions such as the presence of roads, structures and underground services. **There are no open grown trees on this site that would be applicable for a 20% modification to the RPA.**
- 6.2.4 Root patterns are affected by topography and characteristics of the soil or substrate. Where trees are growing adjacent to existing hard standing or where land levels drop and are retained by a retaining wall they are unlikely to have an even distribution of lateral roots due to restrictions in root growth created by compacted sub-grades beneath the road and or other hard standing. In such circumstances tree root distribution is predominately heavily biased towards the other side of the tree. There was no hard standing adjacent to any trees surveyed; the designated RPA's of all trees have therefore been plotted unmodified.

6.3 Hard Surfaces & Underground Services

- 6.3.1 New hard surfacing in proximity to trees should be designed by a Structural Engineer and be constructed without excavation. Where access roads or paved area are required to encroach with the RPA of retained trees, a no-dig construction technique will need to be adopted.
- 6.3.2 Drainage and service runs may need to be constructed within the rooting areas of retained trees. If this is a requirement of the development it will be necessary to retain significant roots and methods of excavation, such as thrust boring or hand digging, may need to be adopted to ensure that these impacts are acceptable.
- 6.3.3 As with foundation design, low impact construction methods for services installation are now well established and can be made the subject of a detailed method statement. For more information regarding underground services, reference should be made to the National Joint Utilities Group (NJUG) Publication No. 10. Volume 4 *'Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees'* 2007

7.0 SURVEY METHODOLOGY

- 7.1 We have been provided with a site survey drawing with tree positions plotted. For the purpose of this report we have assumed that detail on the drawing is accurate.
- 7.2 The method used in the preparation of this report is based on the principles of BS 5837: 2005.
- 7.3 Tree heights were surveyed to the nearest 1m. They can be measured with a Suunto Clinometer if required.
- 7.4 Trunk diameters were measured at 1.5m by use of forestry girth tape.
- 7.5 The category assessment (Table 1) on which the trees is based include current and long-term arboricultural, landscape, cultural and conservation values (BS5837: 2005). This table can be found at **Appendix 2**
- 7.6 For clarity, the grading system is summarised as follows:

R grade – trees for removal, effective for less than 10 years

A grade – trees of high quality and value, effective for more than 40 years

B grade – trees of moderate quality and value, effective for more than 20 years

C grade – trees of low quality and value, effective for 10 years

8.0 SUMMARY AND ANALYSIS OF TREES

- 8.1 A full description of all tree details is provided in **Appendix 1**.
- 8.2 The tree survey covers 2 groups and 1 hedgerow. There are a number of individual trees within groups 1 and 2 that are considered 'R' category, i.e. in such a condition that any existing value would be lost within 10 years and which could/should be removed for sound arboricultural reasons irrespective of any development proposal. These trees will be identified and marked on site as part of a detailed AIA in support of a detailed planning application.
- 8.3 Group 2 and H1 are considered to be 'C' category trees, which are of low quality and value or generally insignificant trees in terms of amenity or landscape value to the locale. All of H1 and the northern section of G2 will require to be removed in order to accommodate the indicative development layout. The BS states that C category trees should not be considered significant constraints to development particularly if their retention would be disproportionate to the value of the development and when new tree planting can adequately mitigate their loss.
- 8.4 Group 1 has been categorised as 'B' grade of moderate quality and value as the larger specimens do provide some degree of amenity value to the area. All trees within the group are marked for retention; there however are a number that are of poor health and vigour that require to be removed. A full and detailed management plan should be carried out as part of a detailed AIA in support of a detailed planning application.

Appendix One

Tree Survey Schedule

BS 5837: 2005 TREE SURVEY SCHEDULE

SITE:	LAND AT 57 BRYN GLAS, RHOS, WREXHAM
CLIENT:	MR G JONES
BRIEF:	PRELIMINARY TREE SURVEY (PHASE 1)

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	18/10/2011
VIEWING CONDITIONS:	CLEAR
JOB REFERENCE:	10/PAIA/WXM/77

PAGE: 1 OF 2

Ref T - Tree G - Group H- Hedge	Species	Age	Height (m)	Crown Spread (m)	D.B.H (mm)	Vitality	Comments	Management	BS 5837 Retention Category	BS5837 RPA Radius (m)
G1	Ash Beech L. Poplar Sycamore Willow	EM	≤16 C- 1.5	As plan	≤450 (largest stem)	M/P	- Small copse of individual trees planted in 1970's with areas of subsequent scrub & natural regen. - Line of Lombardy Poplars to south inappropriate to retain in long term & a number of trees with poor structural form due to no past management & overcrowding. - Area should be surveyed in more detail as part of detailed application to remove poor quality trees leaving best stems to establish to maturity & provide attractive informal wooded garden area to plot 1 - E.R.C 20+ if appropriately managed	Undertake detailed survey & provide 20 year management plan as part of detailed planning application. Any works will require separate planning consent under TPO application	B2	5.5 92m ²

HEADINGS & ABBREVIATIONS

TREE NO.
AGE RANGE:
DBH:
CROWN SPREAD:
VITALITY:
BS 5837 RETENTION CATEGORY:
BS 5837 RPA RADIUS:
E.R.C.

REFERENCE NUMBER. REFER TO PLAN OR NUMBERED TAGS WHERE APPLICABLE
 Y = YOUNG, SM = SEMI MATURE, EM = EARLY MATURE, M = MATURE, FM = FULLY MATURE, PM = POST MATURE
 STEM DIAMETER – MEASURED AT 1.5 METRES
 MEASURED DIAMETER OF CROWN AT 4 CARDINAL COMPASS POINTS
 A MEASURE OF PHYSIOLOGICAL CONDITION. D = DEAD, MD = MORIBUND, P = POOR, M = MODERATE, G = GOOD
 RETENTION VALUE BASED ON TABLE 1 BS 5837 (2005)
 RADIUS FROM STEM TO THE LINE OF THE TREE PROTECTION AS SET OUT IN TABLE 2 OF THE STANDARD
 ESTIMATED REMAINING CONTRIBUTION (YEARS)

BS 5837: 2005 TREE SURVEY SCHEDULE

SITE:	LAND AT 57 BRYN GLAS, RHOS, WREXHAM
CLIENT:	MR G JONES
BRIEF:	PRELIMINARY TREE SURVEY (PHASE 1)

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	18/10/2011
VIEWING CONDITIONS:	CLEAR
JOB REFERENCE:	10/PAIA/WXM/77

PAGE: 2 OF 2

Ref T - Tree G - Group H- Hedge	Species	Age	Height (m)	Crown Spread (m)	D.B.H (mm)	Vitality	Comments	Management	BS 5837 Retention Category	BS5837 RPA Radius (m)
G2	Ash Willow Sycamore	EM	≤16 C- 1	As plan	≤350 Largest stem	M/P	- Predominantly poor quality self set Ash poles with structural abnormalities - E.R.C 0	Fell for development of plots 2 & 3 & retain any single stems on southern boundary that could be retained in long-term	C2	4 55m ²
H1	Leyland cypress	M	16 C- 0	8	440	M/G	- Unattractive overgrown former boundary hedge to residential garden area located to north - No management since planting leaving wide tall canopy - E.R.C 0	Fell	C1	5 88m ²

Appendix Two
BS 5837 Category Grading Chart

Table 1 — Cascade chart for tree quality assessment

TREES FOR REMOVAL				
Category and definition	Criteria			Identification on plan
<u>Category R</u> 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	- 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 R category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning). - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline. - Trees infected with pathogens of significance to the health and/or safety of other trees nearby (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality. NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree).			DARK RED
TREES TO BE CONSIDERED FOR RETENTION				
Category and definition	Criteria – Subcategories			Identification on plan
	1 Mainly arboricultural values	2 Mainly landscape values	3 Mainly cultural values, including conservation	
<u>Category A</u> 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)	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
<u>Category B</u> Those trees of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE
<u>Category C</u> Those trees 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	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	GREY
	NOTE Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150 mm should be considered for relocation.			

Appendix Three

Preliminary Impact Assessment Plan

