

Arboricultural Impact Assessment

Cwrt Pentwmpath, Llay

Prepared for:

WALES & WEST HOUSING

Our Ref: 22/AIA/WXM/289

August 2022

Tree Solutions Ltd

T: 01244 389114

E: info@tree-solutions.co.uk

W: www.tree-solutions.co.uk

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1.0 INSTRUCTION

- 1.1 We have been instructed by Wales & West Housing to carry out an Arboricultural Impact Assessment (AIA) in order to assess the development proposal in relation to trees in accordance with the principles of British Standard 5837 'Trees in Relation to Design, Demolition & Construction - Recommendations' 2012.
- 1.2 We are instructed to prepare a report in order to provide information to assist all parties involved in the planning process to make balanced judgements regarding arboricultural features in relation to the proposed development at Cwrt Pentwmpath, Eighth Ave, Llay, Wrexham. As such, all trees within influencing distance to the development proposal both on and adjoining the site have been surveyed and are listed within a Tree Survey Schedule (**Appendix 1**) and plotted on all accompanying plans.
- 1.3 The stage 1 tree survey was carried out in July 2022 by Alistair Henderson, Principal Consultant to Tree Solutions Ltd. Our appraisal of the mechanical integrity of trees on the site is enough 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.
- 1.4 Ten individual trees (T1–T10) and one group (G1) were surveyed and mapped on a Preliminary Tree Constraints & Impact Assessment Plan Ref: 22/AIA/WXM/289, Drawing No. 1 & 2 at **Appendix 2**. All arboricultural information recorded during the survey is presented within a schedule at **Appendix 1**.
- 1.5 The Arboricultural Impact Assessment is based on the site layout plan Ref: P-105 (Rev I) provided by Munro Associates.

2.0 STATUTORY CONTROLS & PLANNING POLICY

- 2.1 We have been unable to establish if any trees are subject to a Tree Preservation Order as Wrexham Council do not display this information online. The land does not fall within a designated Conservation Area. You are advised to seek confirmation on TPO's from WCBC prior to undertaking any works to trees.

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 existing sheltered housing with vehicular access and parking area. Trees are located on and adjoining the boundaries.

4.0 DEVELOPMENT PROPOSAL

- 4.1 Replacement apartments and bungalows with associated vehicular parking.

5.0 GENERAL CONSTRAINTS DATA - CONSTRUCTION EXCLUSION ZONES (CEZ's)

5.1 GENERAL

5.1.1 The three phases of an AIA were outlined in Section 1. In addition, during the development process for retention trees, there may be three and even four constraints to consider: Construction Exclusion Zone (CEZ's):

- CEZ 1: Root Protection Area (see 5.2)
- CEZ 2: Tree Crown Protection (see 5.3)
- CEZ 3: Tree Dominance (see 5.4)
- CEZ 4: New Tree Planting Zone (see 5.5)

CEZ's are explained below:

5.2 CEZ 1: ROOT PROTECTION AREA (RPA)

5.2.1 The RPA, calculated in m², should be protected before and during any demolition/construction works. This ensures the effective retention of trees by safeguarding a reliable quantum of functioning tree roots. The RPA is based on a radial measure from the centre of the tree stem, which is calculated by multiplying the stem diameter by a factor of twelve or by the (mean stem diameter²) x number of stems for multi-stemmed trees. With the AIA 1, the RPA is only shown indicatively on the preliminary TCP, as its shape may be subject to amendment as the design progresses.

5.2.2 During the AIA 2, the derived radial measure is converted by the arboriculturalist 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. The RPA for each tree should initially be plotted as a circle centred on the base of the stem. Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution.

5.2.3 The means of protecting the RPA will include the installation of tree protective fencing prior to the start of any demolition or construction work on site. The prohibition of various activities within the RPA must be adhered to (e.g. mechanical excavation, soil stripping, fire lighting, material 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.

5.3 CEZ 2: TREE CROWN PROTECTION ZONE

5.3.1 This is the area above ground occupied by the crown (branches) of the tree, along with allowances for working space (safe working area) and if appropriate, for future growth. The extent of CEZ 2 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.

5.4 CEZ 3: TREE DOMINANCE ZONE

5.4.1 This is the area above ground dominated by the tree in relation to issues of shading, seasonal debris and safety apprehension. This area is calculated by considering the height and spread of the tree relative to the 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.

5.4.2 The purpose of identifying CEZ 3 is to protect trees from post development pressure (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.

5.4.3 The means of protecting CEZ 3 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.

5.5 CEZ 4: NEW PLANTING ZONE

5.5.1 Refer to landscape plan for details.

6.0 SURVEY METHODOLOGY

6.1 The method used in the preparation of this report is based on the principles of BS 5837: 2012.

1. Tree heights were surveyed to the nearest 1m
2. Trunk diameters were measured by use of forestry girth tape
3. The category assessment (Table 1) on which the trees is based include current and long-term arboricultural, landscape, cultural and conservation values (BS5837: 2012). This table can be found at **Appendix 1**
4. For clarity, the grading system is summarised from **Table 2** of the BS as follows:

U 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

Note: We have indicated colour coding on the drawing and therefore a monochrome copy should not be relied on.

6.2 SOIL ASSESSMENT

6.2.1 A soil assessment should be undertaken by a competent person to inform decisions relating to:

- the root protection area (RPA)
- tree protection
- new planting design; and
- foundation design to take account of retained, removed and new trees (potential soil subsidence/heave)

Tree Solutions do not undertake soil assessments and the client is advised to seek specialist advice in this respect.

7.0 JUXTAPOSITION OF TREES AND STRUCTURES

7.1 Below ground constraints

- 7.1.1 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.
- 7.1.2 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.
- 7.1.3 Root patterns are affected by topography and characteristics of the soil or substrate. Where trees are located within proximity to existing hard standing or underground physical barriers, they are unlikely to have an even distribution of lateral roots due to restrictions in root growth created by compacted sub-grades beneath. The RPA of all tree numbers 1 & 6 have been modified and are shown running around adjacent buildings and extending 2m with adjacent roads. The required RPA volume has been maintained by extending in the opposite direction or where a more favourable rooting environment exists. All other RPA's have been plotted unmodified as there were no significant underground barriers to prevent good radial root spread.

7.2 Underground Services

7.2.1 Existing infrastructure to be utilised.

8.0 DEVELOPMENT IMPACT TO TREES

- 8.1 Tree Solutions carried out a stage one preliminary tree survey and provided the project architect with a report in which all existing trees and their respective Root Protection Areas (RPA) were identified and plotted on a tree constraints and impact assessment plan. We are satisfied that the layout has taken the long-term future of the most important trees and into account and is in accordance with Wrexham County Borough Council Planning Policy EC4, SPG 17 and recommendations contained with BS5837: 2012.
- 8.2 There are no adverse impacts to retained trees as the proposed new buildings are located outside the designated RPA's and at a sufficient distance to ensure no issues with over dominance or shading that could lead to future pressure to fell or prune. The trees will continue to provide a visual amenity to the wider locale and will enhance the new development by adding an instant mature landscape.
- 8.3 Whilst there are minor incursions within the RPA of tree numbers 8 & 10 to accommodate the proposed new hard standing areas, these are located within existing hard standing area so we are confident they can be installed with no adverse impact to the future health and vitality of the trees.



P1 – T1 located off site. High quality Oak within an area of POS



P2 – Existing car park hard standing within RPA of T10

9.0 PROPOSED REVISIONS TO THE SCHEME

- 9.1 We advise that all proposed revisions having implications for trees should be referred to us for review.

10.0 CONCLUSIONS

- 10.1 BS 5837: 2012 contains clear and current recommendations for a best practice approach to the assessment, retention, and protection of trees on development sites. The proposed development has followed this guidance by:

- Seeking arboricultural advice and undertaking a phase 1 preliminary tree survey in order to inform the layout and design of the proposed development
- Respecting the constraints posed to development of the site by high or moderate quality trees
- Acting upon arboricultural advice throughout the design process in order to obtain the best development proposal whilst considering the current and future tree requirements
- No trees are to be removed and none are adversely affected by the development
- Taking the above into consideration, we can see no valid arboricultural grounds for refusal

11.0 LIMITING CONDITIONS

- Unless stated otherwise:
- Information contained in this report covers only those trees that were examined and reflects the condition of those trees at the time of the inspection.
- The inspection is limited to visual examination of the subject trees from ground level only and without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.
- This report has been prepared for the sole use and benefit of the client. Any liability of Tree Solutions shall not be extended to any third party.
- No part of this report can be reproduced without the authorisation of *Tree Solutions Ltd*.

Appendix One

Tree Survey Schedule

TREE SURVEY SCHEDULE (BS5837: 2012)

Tree Solutions

Arboricultural Consultants

SITE:	CWRT PENTWMPATH, EIGHTH AVE, LLAY, WREXHAM
CLIENT:	WALES & WEST HOUSING
BRIEF:	ARBORICULTURAL IMPACT ASSESSMENT

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	JULY 2022
VIEWING CONDITIONS:	CLEAR
JOB REFERENCE:	22/AIA/WXM/289

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TREE NO. T - Tree G - Group H - Hedge	SPECIES (COMMON NAME)	AGE	HEIGHT (m) + CROWN CLEARANCE/ DIRECTION OF GROWTH (N.S.E.W)	RADIAL CROWN SPREAD (m)				STEM/ MULTI-STEM* DIA. (mm)	VITALITY	COMMENTS	MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RADIUS (m) RPA (m²)
				N	S	E	W						
T1	Oak	M	18 1E	6	7	7	5.5	990	G	- Large prominent tree - Past limb failures leaving tear out wound – not significant - Offsite tree - E.R.C. 40	No works	A2	12 443m²
T2	Oak	SM	7	1.5	3.5	4	4.5	350	G	- Low suppressed form due to location beneath T1 - E.R.C. 10	No works	C1	4.2 55m²
T3	Hawthorn	M	4 1N	1.5	2	1.5	1	200	M	- Low grade hedger plant - Entirely Ivy clad - E.R.C. 0	No works	C1	2.4 18m²
T4	Ash	SM	5 0	1.5	1.5	1.5	1.5	160	M	- Young tree within boundary hedgerow - Liable to Chalara Ash Dieback (ADB) - E.R.C. <10	No works	C1	1.9 12m²
T5	Oak	SM	4.5 2S	0	2.5	1.5	1.5	200	M	- All crown bias south - Small insignificant tree - E.R.C. 0	Remove if required	C1	2.4 55m²
T6	Cherry	M	10 1N	3	5	3	4	550	G	- Part of small, landscaped group associated with current use - E.R.C. 20	No works	B2	6.6 137m²

HEADINGS & ABBREVIATIONS

TREE NO.
SPECIES:
AGE RANGE/LIFE STAGE:
HEIGHT:
CROWN SPREAD:
CROWN CLEARANCE & DIRECTION OF GROWTH:
STEM DIA/MULTI-STEM DIA:
VITALITY:
E.R.C. = ESTIMATED REMAINING CONTRIBUTION:
BS 5837 CATEGORY & SUB-CATEGORY GRADING:
BS 5837 RADIUS & BS 5837 RPA:

REFERENCE NUMBER. REFER TO PLAN OR NUMBERED TAGS WHERE APPLICABLE (T = TREE, G = GROUP, H = HEDGE)
COMMON NAME (LATIN NAMES AVAILABLE ON REQUEST)
Y = YOUNG, SM = SEMI MATURE, EM = EARLY MATURE, M = MATURE, PM = POST MATURE
ESTIMATED AND RECORDED IN METRES. APPROXIMATELY 1 IN 10 TREES ARE MEASURED USING A CLINOMETER AND THE REMAINDER ESTIMATED AGAINST THE MEASURED TREES
MAXIMUM CROWN RADIUS MEASURED TO THE FOUR CARDINAL COMPASS POINTS FOR SINGLE SPECIMENS ONLY (MEASUREMENT FOR TREE GROUPS - MAXIMUM RADIUS OF THE GROUP)
HEIGHT IN METERS OF CROWN CLEARANCE ABOVE ADJACENT GROUND LEVEL (TO INFORM ON GROUND CLEARANCE, CROWN/STEM RATIO AND SHADING)
STEM DIAMETER - MEASURED AT APPROXIMATELY 1.5 METRES ABOVE GROUND LEVEL OR A COMBINATION OF STEMS FOR MULTI-STEMMED TREES
A MEASURE OF PHYSIOLOGICAL CONDITION. D = DEAD, MD = MORIBUND, P = POOR, M = MODERATE, G = GOOD
RELATIVE USEFUL LIFE EXPECTANCY (YEARS)
A = HIGH QUALITY AND VALUE, B = MODERATE QUALITY AND VALUE, C = LOW QUALITY AND VALUE, U = UNSUITABLE FOR RETENTION (SUB-CATEGORY REFERS TO ARBORICULTURAL, LANDSCAPE AND CULTURAL/CONSERVATION VALUES)
PROTECTIVE DISTANCE - RADIUS FROM THE CENTRE OF THE STEM TO THE LINE OF TREE PROTECTION (CONSTRUCTION EXCLUSION ZONE - CEZ) AND PROTECTIVE BARRIER ROOT PROTECTION AREA - BS 5837 (2012) ANNEX D (THE RECOMMENDATIONS STATE THAT THE RPA SHOULD BE CAPPED AT 707 M²) NOTE – ALL CALCULATIONS ROUNDED TO NEAREST DECIMAL

TREE SURVEY SCHEDULE (BS5837: 2012)

Tree Solutions

Arboricultural Consultants

SITE:	CWRT PENTWMPATH, EIGHTH AVE, LLAY, WREXHAM
CLIENT:	WALES & WEST HOUSING
BRIEF:	ARBORICULTURAL IMPACT ASSESSMENT

SURVEYOR:	A. HENDERSON
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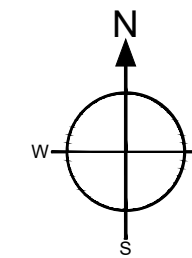
TREE NO. T - Tree G - Group H - Hedge	SPECIES (COMMON NAME)	AGE	HEIGHT (m) + CROWN CLEARANCE/ DIRECTION OF GROWTH (N.S.E.W)	RADIAL CROWN SPREAD (m)				STEM/ MULTI-STEM* DIA. (mm)	VITALITY	COMMENTS	MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RADIUS (m) RPA (m²)
				N	S	E	W						
T7	Sycamore	EM	15	3	4	2.5	4	350 210 (408)	G	- Located offsite with no access to survey - Twin stem from base - E.R.C. 20	• 3 rd party tree – N/A	B2	5 75m²
T8	Sycamore	EM	16	7	3	4	3.5	500 400 (640)	G	- As T13 - Roots displacing footpath	• 3 rd party tree – N/A	B2	7.7 185m²
T9	Sycamore	EM	13	3	4.5	4.5	3	360	G	- Offsite tree with no access to survey - Forms closed canopy with T22 - E.R.C. 20	• 3 rd party tree – N/A	B2	4.3 59m²
T10	Sycamore	EM	14	4	4	3.5	3.5	350x4 (700)	G	- Multi-stem from past coppice - E.R.C. 20	• No works	B2	3.6 41m²
G1	Holly Hawthorn	M	9 0	2	2	2	3	≤200	G	• Overgrown hedge	• No works	C2	8.4 222m²

Table 1 Cascade chart for tree quality assessment

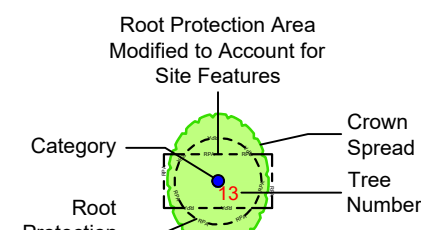
Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	- Trees that have a serious, 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 (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline - Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>NOTE</i> Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.			See Table 2
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	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)	See Table 2
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	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/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

Appendix Two

Tree Constraints Plan



Legend



- Category A (High Quality)
- Category B (Moderate Quality)
- Category C (Low Quality)
- Category U (Dead/Dying/In Decline)

NOTE: Tree/group numbers marked with an * have approximate locations.

Client: Wales & West Housing

Project: Cwrt Pentwmpath, Eighth Avenue, Llay, Wrexham

Title: Preliminary Tree Constraints Plan

Scale: 1:250 @ A1 Date: July 2022

Drawn By: NB Revision: A

Job Ref: 22/AIA/WXM/289 Drawing No: 01

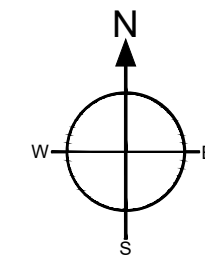
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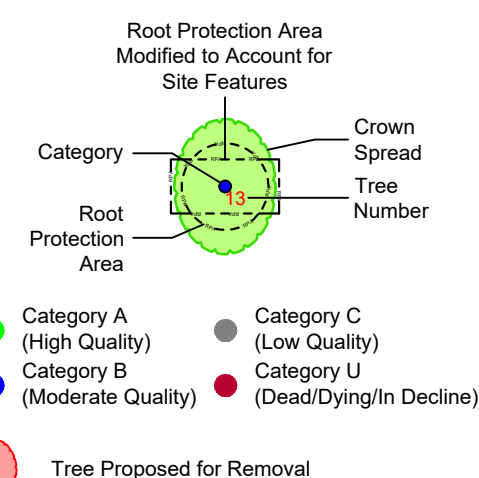


Appendix Three

Impact Assessment Plan



Legend



NOTE: Tree/group numbers marked with an * have approximate locations.

Client: Wales & West Housing

Project: Cwrt Pentwmpath, Eighth Avenue, Llay, Wrexham

Title: Arboricultural Impact Assessment

Scale: 1:250 @ A1 Date: July 2022

Drawn By: NB & AM Revision: -

Job Ref: 21/AIA/WXM/289 Drawing No: 02

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