

Arboricultural Impact Assessment

Land at Ty Llanbedre, Allt y Pentref, Gwynfryn, Wrexham

Prepared for:

Dr & Mrs Unsworth

Planning Ref: P/2011/0473

Our Ref: 11/AIA/WXM/74

02 September 2011

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1.0 INSTRUCTIONS

- 1.1 We have been instructed by Dr & Mrs Unsworth to carry out an Arboricultural Impact Assessment (AIA) in order to assess the development proposal in relation to trees plotted on the plans provided, in accordance with the principles of British Standard 5837 'Trees in Relation to Construction - Recommendations' 2005.
- 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 with regard to arboricultural features in relation to the proposed residential development on land at Ty Llanbedre, Alt y Pentreff, Gwynfryn, Wrexham. As such, all significant trees on and adjoining the site have been surveyed and are listed within a Tree Survey Schedule (**Appendix 1**) and plotted on an Impact Assessment Plan (**Appendix 4**).
- 1.3 The survey was carried out on 23 August 2011 by Alistair Henderson, Principal Consultant to Tree Solutions. Our appraisal of the mechanical integrity of trees on the site is 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.
- 1.4 Six individual trees (T1 – T6) and one group (G1) were surveyed and mapped on a Preliminary Tree Constraints Plan Ref: 11/AIA/WXM/74, Drawing No: 1. All arboricultural information recorded during the survey is presented within a schedule at **Appendix 1**.
- 1.5 The preliminary tree survey and constraints plan was based on the a topographical site plan Ref: 314/1 dated July 2011 and the Arboricultural Impact Assessment is based on the proposed site layout plan Ref: 314/2 dated July 2011 undertaken by the project architect Mr Graham Williams.

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 Consultation with Wrexham County Borough Council on 01 September 2011 confirmed that no tree on or adjoining the site is subject to a Tree Preservation Order or is located within a designated Conservation Area. As such, the formal consent of the Council is not required prior to undertaking any proposed 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 is currently a steeply sloping embankment used as residential garden space. It contains two fully mature Birch trees that are in advanced decline and a small group of Birch to the eastern boundary.

3.2 Access into the site is proposed via Allt y Pentref to the south.

4.0 DEVELOPEMENT PROPOSAL

4.1 Construction of 1 detached residential dwellings with associated vehicular access and parking.

5.0 GENERAL CONSTRAINTS DATA

5.1 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 on the Impact Assessment Plan. The CEZ's are explained further as follows:

5.2 CEZ1: Root Protection Area (RPA)

5.2.1 The area, calculated in m², which shall be protected during and preserved intact after construction, in order to facilitate the healthy retention of the tree(s) 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).

5.2.2 During this Arboricultural Impact Assessment, the derived radial measure has been converted into the actual area to be protected, having due regard to prevailing site conditions and how these may have affected the trees, particularly in relation to factors affecting their likely rooting disposition.

5.2.3 The means of protecting the RPA will include the installation of tree protection fencing prior to the start of work on site, including all demolition. 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.

5.3 CEZ2: Tree Crown Protection Zone

5.3.1 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.

5.3.2 Arising from the above, the means of protecting CEZ2 includes providing an adequate separation distance between retention trees and the proposed residential dwelling. This will include tree removal and access facilitation pruning, where this is necessary and considered good arboricultural management.

6.0 SURVEY METHODOLOGY

- 6.1 For the purpose of this report we have assumed that all tree positions have been accurately plotted on the topographical site survey provided.
- 6.2 The method used in the preparation of this report is based on the principles of BS 5837: 2005.
- 6.3 Tree heights were surveyed to the nearest 1m. They can be measured with a Suunto Clinometer if required.
- 6.4 Trunk diameters were measured by use of forestry girth tape.
- 6.5 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**
- 6.6 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

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.
- 7.2.3 Root patterns are affected by topography and characteristics of the soil or substrate. Where trees are located within close proximity to existing hard standing they are unlikely to have an even distribution of lateral roots due to restrictions in root growth created by compacted sub-grades beneath. There were no underground physical barriers adjacent to any other tree surveyed, therefore, all RPA's have been plotted unmodified as full circles.

7.2 Underground Services

- 7.2.1 We have considered the broad implications of the provision of underground services but the locations of existing and proposed were not identified on the plans supplied by the Project Architect and in this regard, our advice is of a general nature.
- 7.2.2 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
- 7.2.3 As with foundation design, low impact construction methods for services installation are now well established. 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

8.0 DEVELOPMENT IMPACT TO RETAINED TREES

8.1 On 10 July 2008, Outline Planning Consent was granted (Ref: P/2008/00423) for the erection of one detached dwelling and alteration to the existing vehicular access on the site. On 23 August 2011, Tree Solutions carried out a phase one preliminary tree survey based on the topographical site survey information provided and overlaid the proposed site layout in order to assess the likely impact of the proposal on trees on and adjoining the site. The layout has been determined by the retention categories/values of each tree and the location of their designated Root Protection Areas. As such the principles of BS5837:2005 have been adhered to. Every effort has been made to retain the best quality trees on and adjoining the site in order to maintain the mature tree cover and have minimal impact on the landscape character and setting of locale.

8.1.3 In order to accommodate the proposed development there are a number of impacts to trees as detailed below:

1. The proposed alteration/widening to the access driveway will require an unacceptable volume of incursion within the RPA of tree number 1 (Ash). The excavation and engineering work necessary to form the driveway will result in the likely severance of a significant number of anchorage roots to the tree that would render it liable to failure during inclement weather conditions. This tree is not a particularly good example of its species; it contains a number of decay cavities to the stem and an asymmetric crown form due to its close proximity to T2. The loss of this tree will have no adverse impact on the landscape character of the area as tree number 2 (Sycamore) will be retained. This tree will become a standalone feature tree on the edge of the access driveway to the new dwelling as well as provide good screening to the road to its south.
2. The siting of the proposed plot within the steep sloping embankment will require the removal of tree number 3 and 4 (Birch). We have listed these trees as 'R' category as they are rapidly reaching the end of their safe and useful life expectancy and exhibit signs of advanced decline. As such, the trees would need to be removed within the next 5 years irrespective of this development proposal. They should not therefore form a material consideration of this application.
3. Three small diameter young Birch trees within group 1 will need to be removed in order to construct the proposed new boundary retaining wall. These trees are small with a stem diameter less than 150mm and as such are insignificant to the site.

9.0 SUMMARY AND ANALYSIS OF TREES

9.1 A full description of all tree details is provided in **Appendix 1**.

9.2 The tree survey covers 6 individual trees and 1 group. Two trees (T3 & T4) have been categorised as 'R' grade i.e. in such a condition that any value would be lost within 10 years or classed as dead, dying or dangerous.

9.3 Tree numbers 1, 5, 6 and all of group 1 are considered to be 'C' category which are either of low quality and value or generally insignificant trees in terms of amenity or landscape value to the locale. The BS states that such trees could be considered for removal as part of the design process or retained until such time as new planting can be established; a minimum of 10 years is suggested. The BS also 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.

9.4 Tree number 2 (Sycamore) has been categorised as 'B' grade, i.e. of moderate quality and value due to its mature age and prominence to within this residential area. This tree has been marked for retention.

10.0 PROPOSED REVISIONS TO THE SCHEME

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

11.0 CONCLUSIONS

- 11.1 BS 5837: 2005 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 and 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

- 11.2 The protection of retained trees will be in accordance with recommendation contained within the BS and as detailed on the Tree Protection Plan at **Appendix 5**.

12.0 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.

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Appendix One

Tree Survey Schedule

BS 5837: 2005 TREE SURVEY SCHEDULE

SITE:	LAND TY LLANBEDRE, ALLT Y PENTREF, GWYNFRYN, WREXHAM
CLIENT:	DR & MRS UNSWORTH
BRIEF:	TREE SURVEY FOR ARBORICULTURAL IMPACT ASSESSMENT

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	23/08/2011
VIEWING CONDITIONS:	CLEAR
JOB REFERENCE:	11/AIA/WXM/74

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)
T1	Ash	M	17 C- 2	N: 6.5 S: 7 E: 5 W: 5	750	M	- Located on small level plateau at approx. 300mm below driveway level - Large limbs removed from main stem in past leaving decay pockets - Poor crown formation due to suppression from tree number 2 - Small decay cavity on stem to south - Ivy clad - E.R.C 10+	Fell to allow construction of access driveway	C2	9 255m ²
T2	Sycamore	M	16 C- 2	N: 4 S: 3 E: 8 W: 5	710	M	- As T1 large limbs removed in past - Has potential to form attractive specimen tree when T1 removed - E.R.C 20+	Formative prune canopy to rebalance after T1 is removed	B2	8.5 228m 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 TY LLANBEDRE, ALLT Y PENTREF, GWYNFRYN, WREXHAM
CLIENT:	DR & MRS UNSWORTH
BRIEF:	TREE SURVEY FOR ARBORICULTURAL IMPACT ASSESSMENT

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	23/08/2011
VIEWING CONDITIONS:	CLEAR
JOB REFERENCE:	11/AIA/WXM/74

PAGE: 2 OF 2

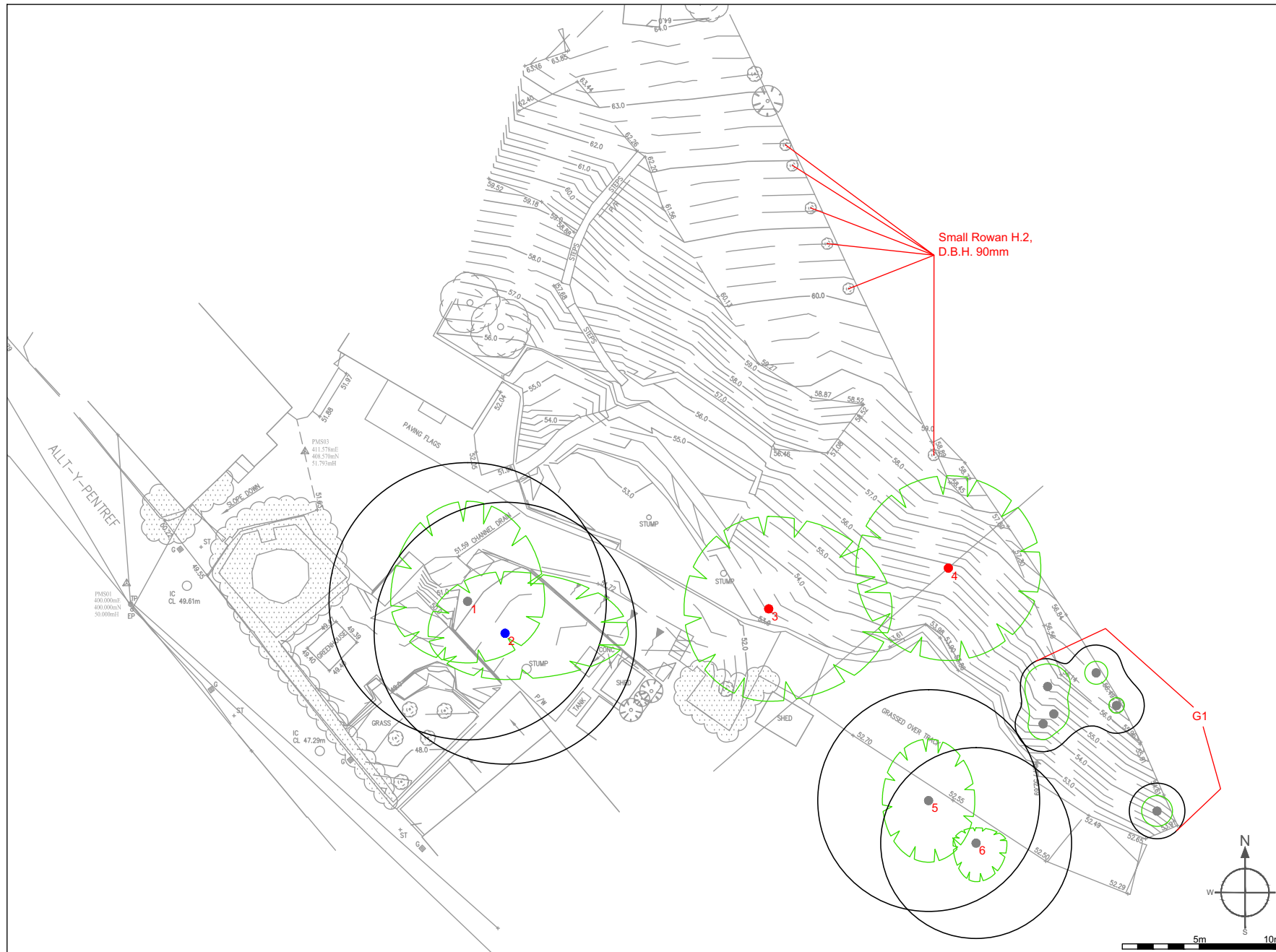
Ref T - Tree G - Group H- Hedge	Species	Age	Height (m)	Crown Spread (m)	D.B.H (mm)	Vitality	Comments	Management	BS 5837 Retention Category	BS5837 RPA Radius (m)
T3	Birch	FM	15 C- 0	N: 6 S: 6 E: 8 W: 5.5	420	MD	- In advanced decline - E.R.C 0	Fell	R	N/A
T4	Birch	FM	6 C- 1	N: 6 S: 6 E: 6 W: 6	310	P	- In advanced decline - E.R.C 0	Fell	R	N/A
T5	Willow (S. caprea)	FM	8 C- 2.5	N: 4 S: 4 E: 3 W: 3	600	M	- Insignificant low canopy tree beyond site boundary & unaffected by any development - E.R.C 10	N/A	C1	7 163m ²
T6	Birch	M	8 C- 2.5	N: 1 S: 2.5 E: 2 W: 1.5	520	M/P	- Poor quality tree in decline - E.R.C <10	N/A	C1	6 122m ²
G1	Birch	Y/SM	6 C- 1	As Plan	≤150	G	- Small group of tree with no visual significance to locale - E.R.C 10	N/A	C1	2 10m 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
Category R 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	
Category A 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
Category B 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
Category C 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 Tree Constraints Plan



Legend

Root Protection Area
Modified to Account for
Site Features



- Category A (High Quality)
- Category B (Moderate Quality)
- Category C (Low Quality)
- Category R (Dead/Dying)

Client:

Mr J. Unsworth

Project:

Land at Ty Llanbedr, Allt Y Pentref, Gwynfryn, Wrexham

Title:

Tree Constraints Plan

Scale:

1:250 @ A3

Date:

August 2011

Drawn By:

LI

Revision:

-

Job Ref:

11/AIA/WXM/74

Drawing No:

01

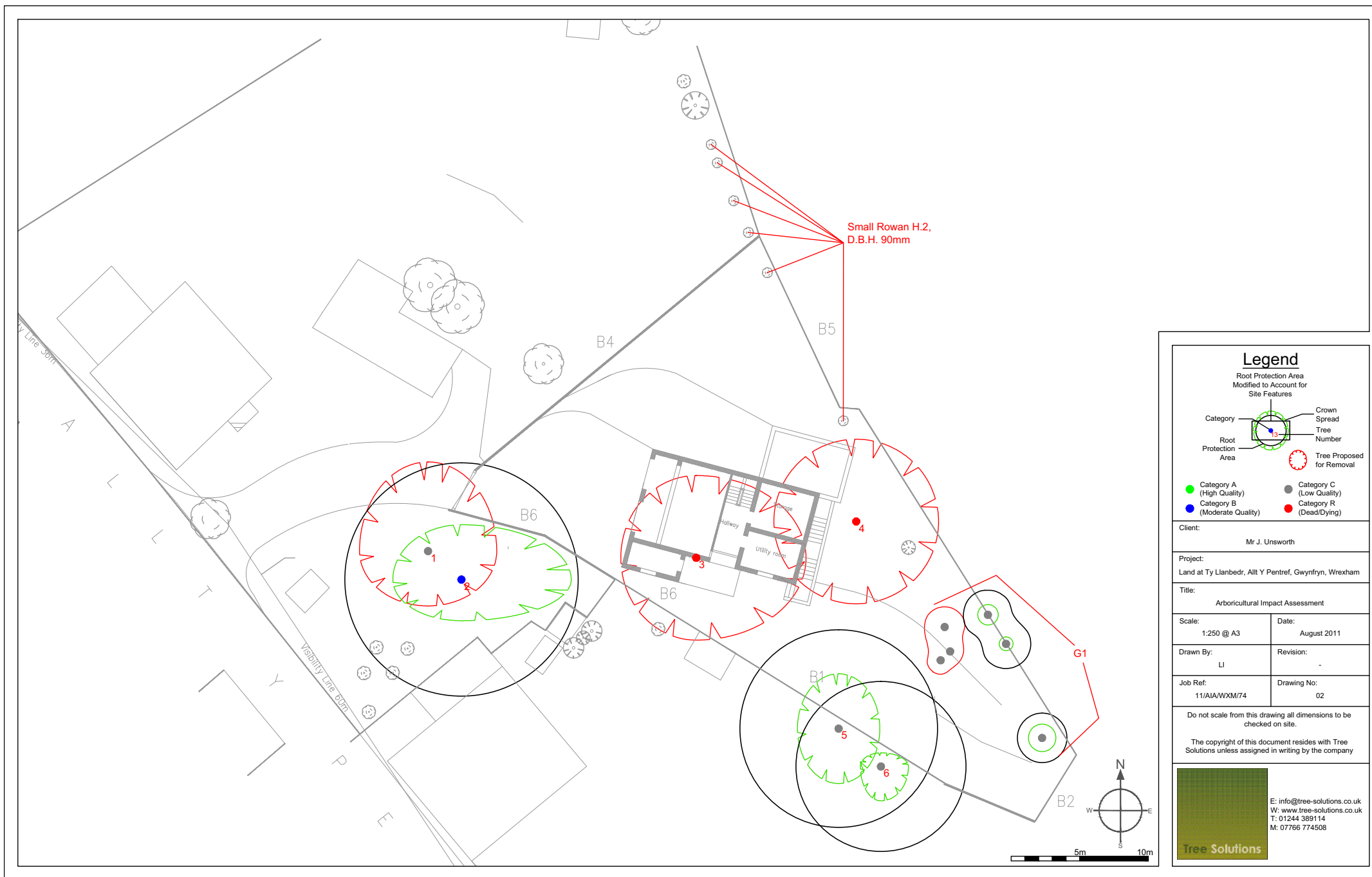
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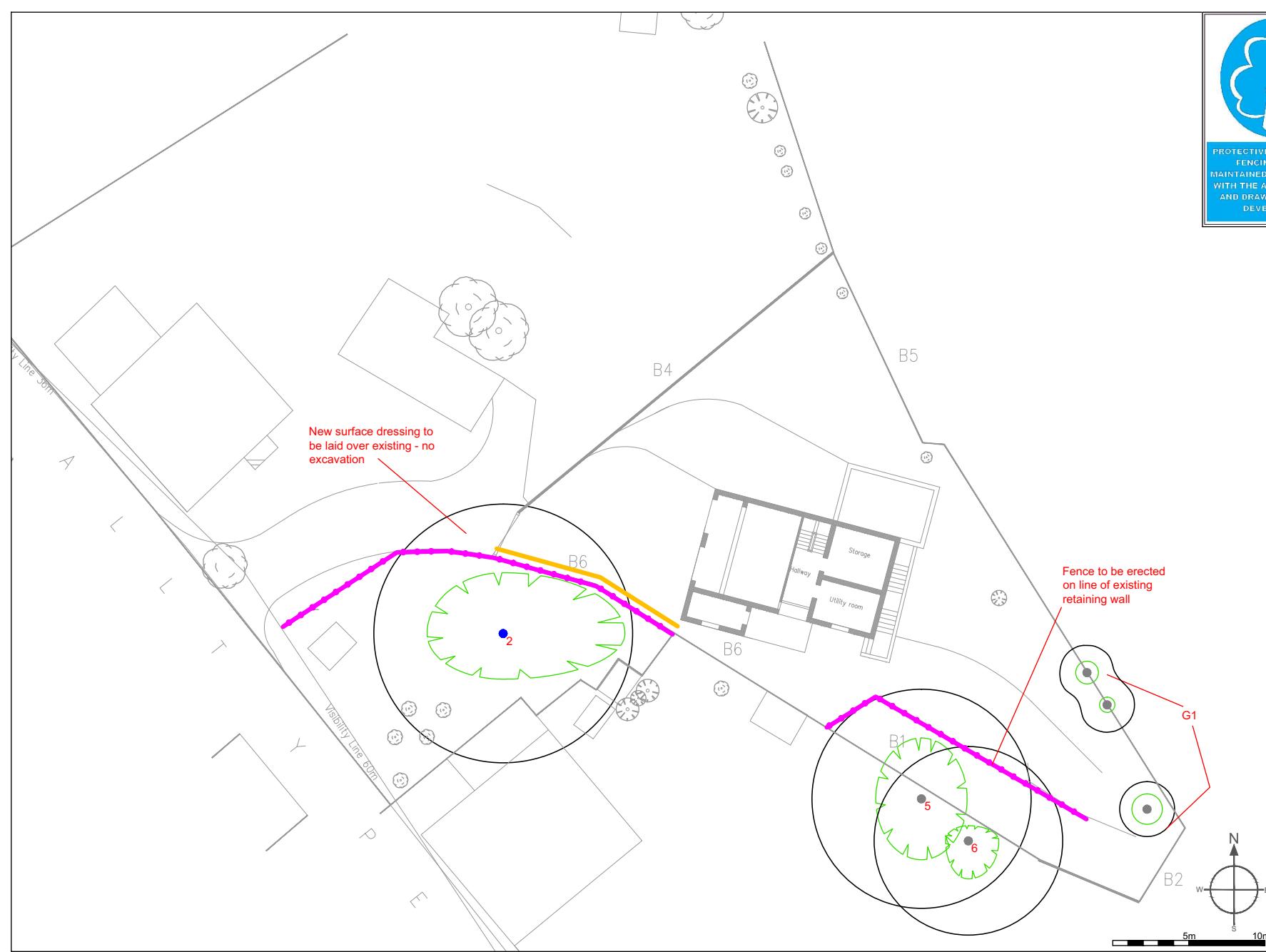


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Appendix Four
Arboricultural Impact Plan



Appendix Five
Tree Protection Plan



Legend

Root Protection Area Modified to Account for Site Features

Category

- Category A (High Quality)
- Category B (Moderate Quality)
- Category C (Low Quality)
- Category R (Dead/Dying)

2.0M high Heras fencing mounted on scaffold tubes (driven in to the ground) and secured with steel clips.

Trial trench to be hand dug in this location to depth of new driveway foundation and inspected by LPA Tree Officer for presence of significant roots. If significant number of large roots encountered an Arboricultural Method Statement to be submitted to LPA for approval detailing 'No-Dig' foundation design.

Client: Mr J. Unsworth

Project: Land at Ty Llanbedr, Allt Y Pentref, Gwynfryn, Wrexham

Title: Tree Protection Plan

Scale: 1:250 @ A3

Date: August 2011

Drawn By: LI

Revision: -

Job Ref: 11/AIA/WXM/74

Drawing No: 03

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Appendix Six
Proposed New Screen Planting Plan

Appendix Seven

Photographs



Photo 1 – Base of tree number 3 with advanced decay from past limb loss



Photo 2 – Multi-stemmed base of tree number 4 from past coppice



Photo 3 – Decay cavity on stem of tree number 1 (Ash)

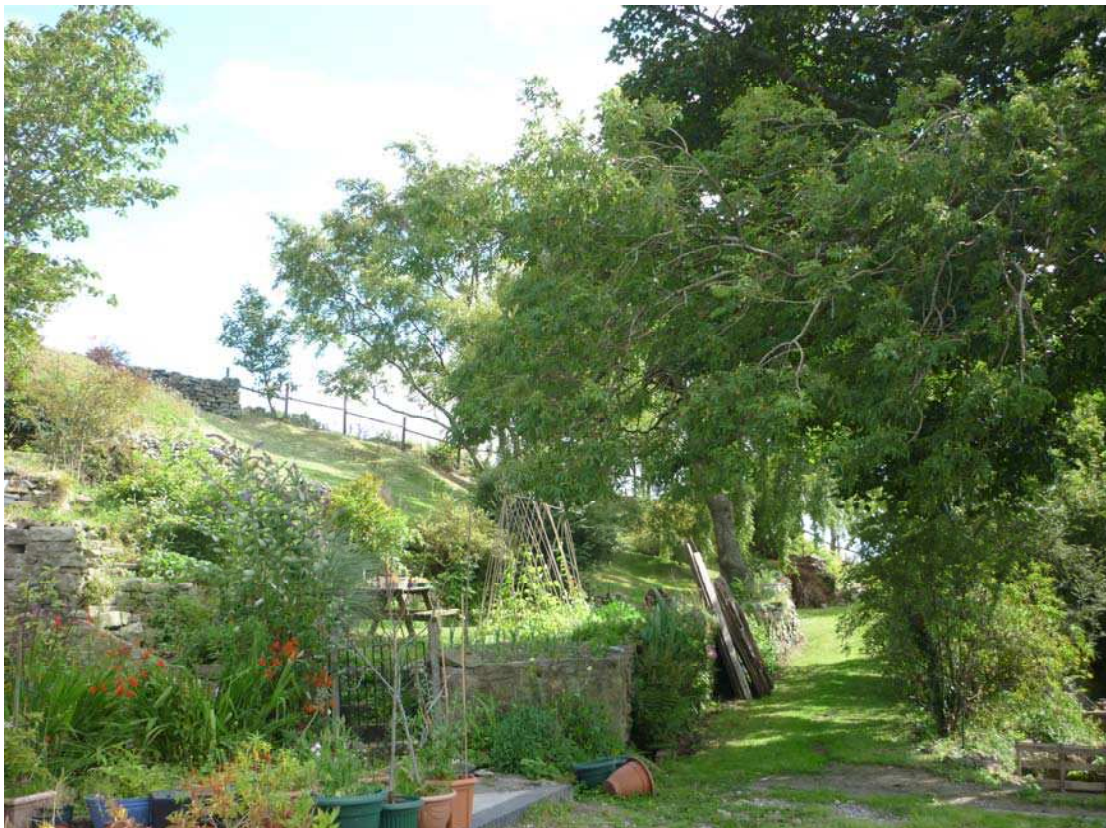


Photo 4 – Proposed development area on steep sloping embankment with existing retaining wall and location of proposed new access driveway

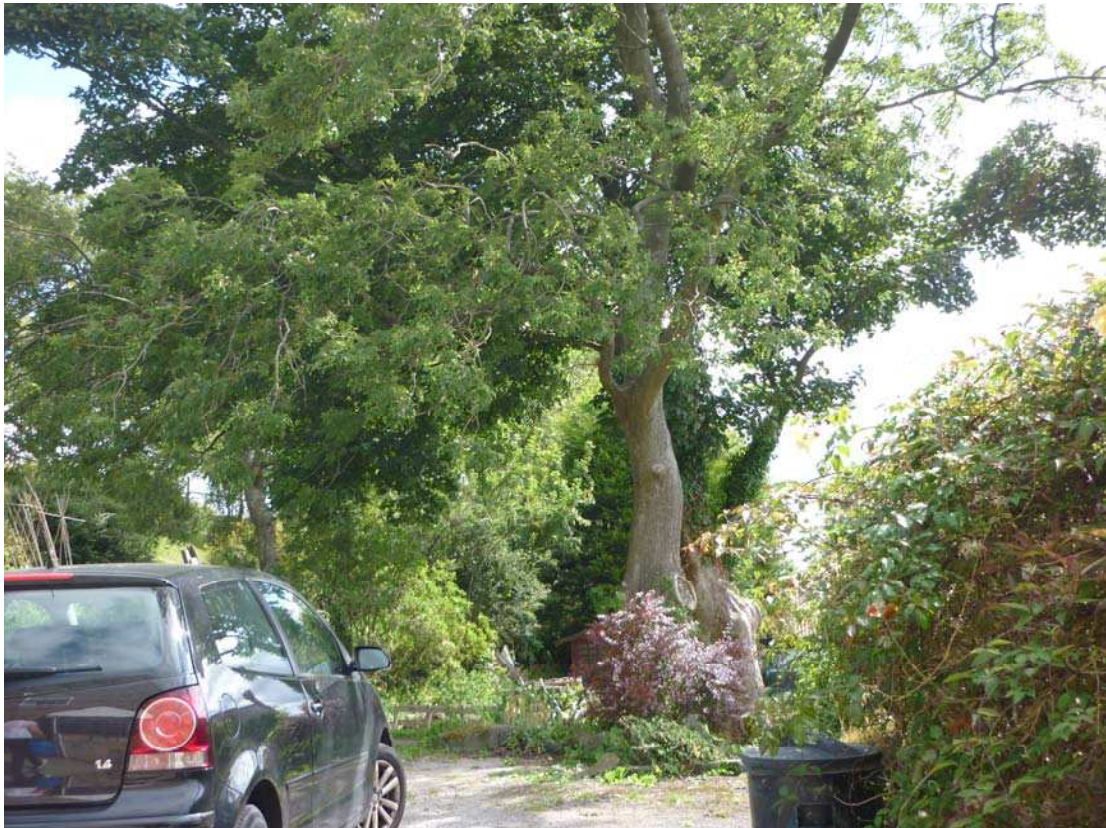


Photo 5 – Tree number 1 (Ash) to be removed in order to facilitate the required alteration/widening of the existing driveway



Photo 6 – Existing hard standing to form proposed shared access