

Arboricultural Impact Assessment

Land at
Willow Cottage
Ruabon
Wrexham

Ref:
AIA/WCR/11/17

Date:
7th December 2017

Revision A
30th September 2020

Commissioned by:
Mr D. Edwards
on behalf of
Blueprint Architectural LTD
Prepared by
S. Shields

Arboricultural Impact Assessment

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This Arboricultural Impact Assessment has been prepared in accordance with the protocols, standards and procedures set out in BS 5837: 2012 'Trees in relation to design, demolition and construction';

Summary

Planning permission is being sought to develop the site to provide eight residential dwellings along with amenity space and associated infrastructure. There are a number of trees and shrubs on the site and an arboricultural assessment has been undertaken in accordance with the procedures and protocols set out in BS 5837: 2012. This assessment has identified and recorded seven individual trees and three hedgerows which are categorised as 1 category A (high value), 3 category B (moderate value) and 4 category C (low value) and 2 category U (unsuitable for retention). The proposed development will require the removal of three trees, (T1, T2 & T3) two category B and 1 Category C. Although these trees provide some amenity value they are not particularly prominent or significant in the amenity and character of the area and it is proposed to mitigate for their removal through new planting using long-lived, large canopy tree species. These will be situated in prominent locations to the front of the site. It is also recommended that the category U tree and hedge are removed. These could also be replaced with suitable new planting.

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Date	Revision		
7 th December 2017	Original	For Planning	
30 th September 2020	A	Revised Site Layout	

Instruction

- 1.1 Shields Arboricultural Consultancy received instructions from Mr D. Edwardson behalf of Blueprint Architectural LTD. The client or their agents may copy and distribute this report as required for the purpose of applying for planning permission for or preparing any documents or plans for this or future applications at this site.
- 1.2 Planning permission is being sought to develop site to provide twelve residential dwellings along with amenity space and associated infrastructure. A site layout plan ref: GO80/011 has been provided and is considered in this report.

Scope & Limitations

- 2.1 The purpose of the report is to assess the environmental and amenity values of all trees on or adjacent to the area affected by the proposed development and is based on a site assessment undertaken on 28th October 2017 by S. Shields, principal consultant Shields Arboricultural Consultancy. The report will assess the long-term contribution that the trees can make to the area and the arboricultural implications of retaining them and seek to find a satisfactory juxtaposition between the trees and the new development. The report will assess the potential impact that may arise as a result of the proposed construction works and make recommendations for protecting trees, hedges and shrubs where appropriate
- 2.2 The report is prepared in accordance with the recommendations of the British Standard Document BS 5837: 2012 'Trees in Relation to Construction'.
- 2.3 This report is not an ecological assessment and does not identify habitats or constitute a protected species survey.

Statutory Controls & Obligations

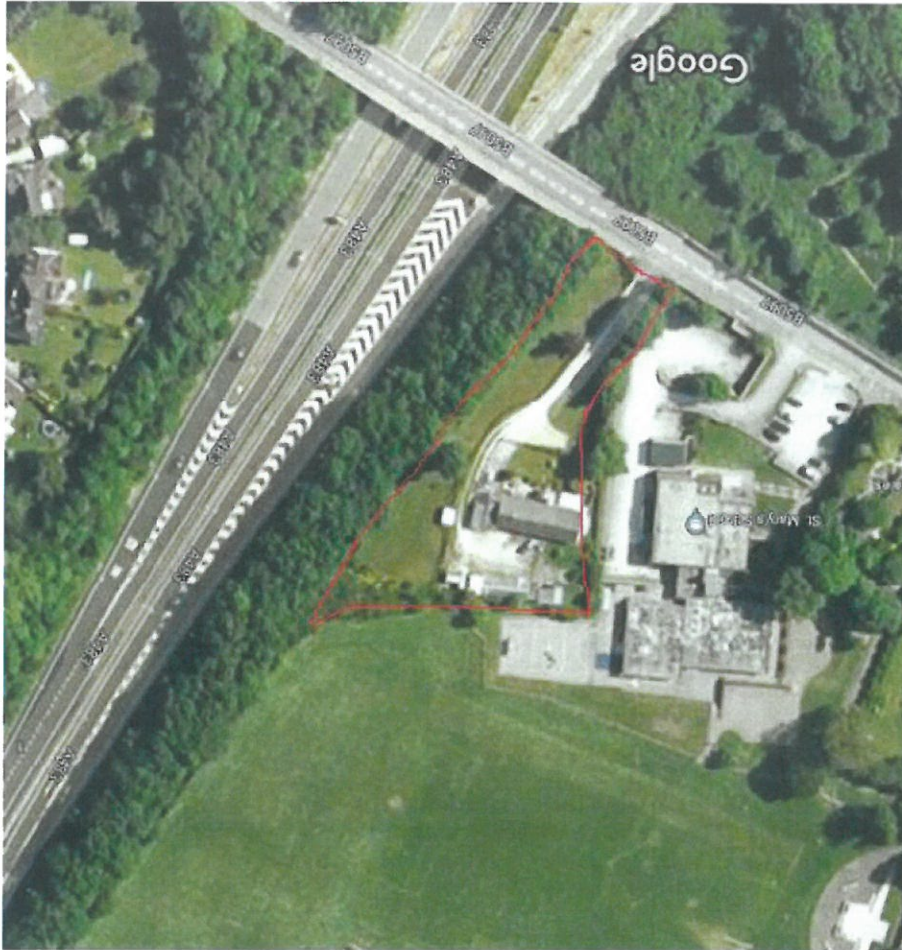
- 3.1 Forestry Act; the felling of trees is controlled by the Forestry Act, which requires that a felling licence is obtained prior to cutting down any trees. The Forestry Act does not apply to the felling of trees growing within an orchard, private garden, churchyard or public open space. The Forestry Commission has the responsibility for enforcing the Forestry Act.
- 3.2 Tree Preservation Orders & Conservation Areas; Local Authorities have specific powers under the Town & Country Planning Act 1990 as amended, to protect trees through the use of Tree Preservation Orders. Where trees are protected under such orders it is a criminal offence (subject to any exemptions for which provision may be made by the act or order) to undertake, cause or permit the cutting down, topping, lopping, uprooting, willful damage or willful destruction of trees except with the consent of the local planning authority. Similar controls apply to all trees growing within a designated Conservation Area.
- 3.3 Bats, wild birds and other protected species; The Wildlife & Countryside Act & the Conservation (Natural Habitats & C.)

Regulations make it an offence to disturb or destroy bats and bat roosts and wild birds and their nests. Other species of plant and animal are also protected. These creatures often inhabit trees and sufficient care must be taken to ensure they are not affected during forestry and arboricultural works.

Site description

4.1 The site is situated on eastern edge of the village of Ruabon, adjacent to the A483 trunk Road. The site, which extends to approximately 0.4 ha and is currently occupied by a detached residential dwelling and ancillary outbuildings and stables, shares boundaries with St Mary's School to the north and west, the A483 corridor to the east and the B5097 to the south. Access to the site is via a macadam drive adjoining the highway to the south.

4.2 There are a number of trees and hedges on and adjacent to the site, the most prominent is the woodland belt adjacent to the eastern boundary separating the site from the trunk road. There are also individual trees, including a beech and sycamore within the site and a prominent lime tree on adjacent land to the west of the site. The site is at an elevation of 115m AOD and is sheltered.



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Soils

4.3 The site is set to grass and hard standing. Soils at the site appear to be free draining with no indication of waterlogging and geological maps indicate a glacial sand and gravels over a mudstone bedrock. This type of soil is usually amenable to rooting although the areas of hard standing areas would act as a barrier to root development.

NB. This soil assessment is undertaken in situ using visual and manual techniques and is **only** for the purpose of establishing the influence of site soils on tree growth. The assessment **must not** be relied upon to inform any engineering decisions.

Development Proposal

5.1 It is proposed to develop the site to provide eight residential dwellings with detached garages, an access road, amenity space and associated infrastructure.



Tree Survey Methodology

6.1 All trees within and adjacent to the site have been assessed where they are within 15 m of any area that may be disturbed as a result of the proposed development and have a stem diameter over 75mm at 1.5 metres. Measurements have been taken in accordance with the procedures and protocols set out in BS 5837: 2012 and the Forest Mensuration Handbook. Height measurements are approximate unless otherwise stated. Trees have been assessed as individuals,

groups or woodlands as appropriate. Where access to trees has been restricted, either as a result of their situation on private land or where vegetation or ground conditions are unfavourable, an estimation of trunk diameter has been made. This entails using a set of callipers to approximate the measurement. Estimates are rounded up to provide a margin. This technique has only been used where there is a sufficient buffer between the RPAs and any area disturbed by development. Where trees are in woodlands or groups only the outside edge trees are assessed unless there are larger trees with RPAs or crowns that would overlap the edge trees.

6.2

BS 5837: 2012 provides the framework through which tree can be categorised in terms of their health, amenity value and long-term viability for retention on a development site. There are four categories, A, B, C & U.

Category A: Trees of high quality and value in such a condition as to be able to make a substantial contribution (a minimum of 40 years)

1 Trees that are particularly good examples of their species, or essential components of groups or formal arboricultural features.

2 Trees, groups or woodlands that 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.

3 Trees, groups or woodlands of significant conservation, historical, commemorative or other value.

Category B: Trees of moderate quality and value in such a condition to make a significant contribution (a minimum of 20 years)

1 Trees that might be included in a higher category but are downgraded because of impaired condition.

2 Trees present in numbers, usually as groups of woodlands that form distinctive landscape features.

3 Trees with clearly identifiable conservation or other cultural benefits.

Category C: Trees of low quality and value currently in adequate condition to remain until new planting could be established. Trees in this category would not usually be retained if they would pose a significant constraint to development.

Category U: Trees in such a condition that their existing value would be lost within 10 years and which should, in the current context be removed for arboricultural reasons.

The most significant or valuable trees are placed in the categories, A & B. Site design should make provision to retain trees in these categories and most Local Planning Authorities will insist upon this (or in exceptional circumstances will require that significant compensation planting is incorporated into the design), whilst trees that should not be a constraint to development are recorded with a C category. Trees

categorised as U are in a poor condition and should be removed prior to the commencement of work.

6.3

Where trees are to be retained, it is necessary to ensure that they are suitably protected to avoid damage during the construction phase of the development. It is also important to consider any long term implications, such as issues with shading or leaf litter that may arise as a result of tree retention.

6.4

To ensure that trees are not adversely affected by the construction works it is necessary to:

- a. The avoidance of physical damage to the aerial parts of the trees (i.e. impact and other damage to trunk and branches)
- b. The avoidance of damage to retained trees as a result of the severance or other physical damage to their roots
- c. Preserve of the character of the soil, through the avoidance of any activity that would cause it to become compacted or otherwise disturbed or disrupted, and to avoid contamination by potentially harmful substances
- d. To ensure tree gaseous exchange is permitted between the upper layers of soil and the atmosphere
- e. To ensure adequate (but not excessive) water supply to the soil and hence to tree roots

This would normally be achieved by establishing an area, known as a construction exclusion zone (CEZ) around each tree. The CEZ is derived from the root protection area (RPA) and the crown spread of the tree. The RPA represents the area occupied by the tree's root system and is calculated for each tree based on its stem diameter and the ground conditions present taking account of and any impediment to rooting. The RPA should represent the most probable position of the tree's root system.

The CEZ must be considered sacrosanct and be maintained completely undisturbed. No construction should take place within this area and it should not be used for storage of materials or fuels. Access for vehicles machinery or personnel is prohibited and to ensure that it is not damaged by construction activity it must be suitably protected during the construction phase, using robust fencing or alternative ground protection methods, to prevent disturbance and damage occurring.

6.5

In addition to the implications that a new development may have for existing trees it is also important to assess any long-term issues or concerns that may arise as a result of retaining trees close to a new dwelling or structure. This can include problems associated with leaf litter and other debris that may fall from trees, the potential that a tree has to cause damage to a structure in the future, any on-going maintenance requirements that may arise and the level of shade that the tree may cast, it is particularly important to consider the effects of

6.6 The report assesses all trees with regard to their size, position and natural characteristics, and taking into account of their future growth makes provides recommendations as to their long-term suitability for retention.

Arborescultural Assessment

7.1 Full details of the tree surveyed are provided in appendix A, and their relative positions, crown spreads, root protection areas are indicated on the attached plans.

7.2 No checks have been undertaken to establish the status of the trees with regards to Tree Preservation Orders or Conservation Areas, however all the trees will be subject to the Forestry Act (see section 3.1) and all hedges subject to the Hedgerow regulations (see section 3.3). No trees or hedges should be felled, lopped, topped or in otherwise removed or damaged without prior permission from the relevant authority.

7.3 The survey recorded 6 individual trees, 2 groups of trees and 2 hedges which are categorised as follows:

Category	Quantity
Category A: Trees of high quality and value in such a condition as to be able to make a substantial contribution (a minimum of 40 years)	1
Category B: Trees of moderate quality and value in such a condition to make a significant contribution (a minimum of 20 years)	3
Category C: Trees of low quality and value currently in adequate condition to remain until new planting could be established. Trees in this category would not usually be retained if they would pose a significant constraint to development.	4
Category U: Trees in such a condition that their existing value would be lost within 10 years and which should, in the current context be removed for arborescultural reasons.	2

Arborescultural merits and the significance of the trees in the landscape

7.4 The most significant arborescultural element is the group of trees forming the woodland shelter belt adjacent to the east boundary of the site and the individual lime tree on adjacent land at the front of the site. There are no veteran trees or areas of ancient woodland on or adjacent to the site.

Design Considerations

7.5 The site design should seek to incorporate as many category A & B trees into the layout as possible. To achieve this, in addition to ensuring that the trees are not physically damaged it is necessary to

consider whether any retained trees could exert a negative influence over the proposed dwellings and interfere with a future owners' reasonable quite enjoyment of their property, leading to a situation where tree removal would be sought. Guidance provided in the British Standard BS 5837: 2012, advises that:

"A realistic assessment of the probable impact of any proposed development on the trees and vice versa should take into account the characteristics and condition of the trees, with due allowance for space for their future growth and maintenance requirements."

and that the following factors are given consideration:

- Shading
- Privacy and Screening
- Direct Damage
- Future Pressure for Removal
- Seasonal Nuisance

7.6 The proposed development provides an opportunity to improve the arbicultural resource on the site through new tree planting. This should be complement the existing landscape and setting.

Arbicultural Impact of the Development

Impact	Tree Removal	Facilitative	Pruning Required	RPA	Encroachment	Potential Shading	Proximity Issues
Category A							
Category B	2	(T1, T2)					
Category C	1	(T3)					
Category U	2	(T4, T5)					

7.7 The site layout will require the removal of three trees, (T1, T2 & T3) two category B and 1 Category C. Although these trees provide some amenity value they are not particularly prominent or significant in the amenity and character of the area and it is proposed to mitigate for their removal through new planting using long-lived, large canopy tree species. These will be situated in prominent locations to the front of the site. It is also recommended that the category U tree and hedge are removed. These could also be replaced with suitable new planting.

7.8 The development in a sufficient distance from all retained trees to ensure that proximity issues do not negatively impact on the proposed dwellings. The distance between the trees and the dwellings, is sufficient to ensure that they do not dominate the site or create an overbearing presence. There will be some seasonal leaf fall, but as the trees are not directly over the proposed properties, this will be limited and will not create an unreasonable future maintenance requirement.

7.9 Shading of buildings can be a problem and site should be designed to take account of existing trees, their ultimate size and density of the foliage and that garden areas should be designed to meet the normal requirement for direct sunlight for at least part of the day. Building Research Establishment guide to good practice (BR209) Site Layout Planning for Daylight and Sunlight advises that, in order to appear reasonably sunlit a dwelling should have at least one main window wall that faces within 90° of due south and that on this wall, all points on a line 2m above ground level are within 4m of a point which receives at least a quarter of the annual probable sunlight hours. The guide also advises that for gardens to appear adequately sunlit, no more than two-fifths and preferably no more than a quarter should be prevented from receiving any sunlight on 21st March.

7.10 To assess the extent to which the trees interfere with sunlight to the proposed dwellings and their gardens, an assessment was undertaken using the ArborShadown R4 software. The shadow path for March 21st and June 21st is shown on the Tree Shading Plan (ref: WCR/TSP/11/17).

7.11 Analysis of the shadow paths indicate that the layouts allow for significantly better sun lighting than the minimum requirement as advised in the guidance, with the shading only affecting dwellings and their gardens for a short period of time in the morning.

Arboricultural Operations

Permission to remove any tree must be obtained from the Local Planning Authority and must not be undertaken until all pre-commencement conditions have been discharged.

8.1 Tree removal and pruning will be required, subject to a grant of planning permission, to implement this development. It is recommended that the work should be undertaken by a suitably qualified person, holding public liability insurance for the sum of £5,000. All operators must hold relevant NPTC certificates. A site-specific risk assessment must be prepared and operators must work to a health and safety method statement. The use of Arboricultural Association Approved Contractors www.trees.org.uk/find-a-professional/Directory-of-Tree-Surgeons is recommended.

8.2 The contractor undertaking the work is responsible for any loss or damage arising as a result of the operations and agrees to indemnify the owner against such occurrences.

8.3 All tree protection measure specified in the following section and shown on the accompanying TFP are to be fully installed prior to the commencement of the arboricultural works. Where access is required to the trees, then suitable ground protection must be used in lieu of the tree protection fences.

Arboricultural Method Statement

- 9.1 This arboricultural method statement (AMS) sets out the details of tree protection measures afforded to the retained trees on and adjacent to the site.
 - 9.2 This document should be read in conjunction with the Tree Protection Plan (TPP) ref: WCR/TPP/11/17-Rev A. The TPP indicates the construction exclusion zone (CEZ) that must be maintained around each retained tree. These areas must remain undisturbed during the construction process and must be protected using suitable fencing as specified.
 - 9.3 Copies of the TPP & the AMS must be available on site and all tree protection requirements explained to all persons undertaking activities on the site during the site induction process.
 - 9.4 All tree protection measures must be installed and inspected prior to bringing onto the site any plant, materials or equipment or undertaking any construction works or demolition or any arboricultural works. The LPA must be informed in writing once the tree protection measures are installed.
 - 9.5 The site is to be inspected by the consulting arboriculturalist in accordance with the schedule of inspections.
 - 9.6 All measurements are given in metric using standard abbreviations.
- Fencing and Ground Protection*
- 9.7 The TPP indicates the position all protective fences.
 - 9.8 Protective fencing will comprise 'herres' fencing panels which are to be fixed and braced securely or as agreed with the Local Planning Authority.
 - 9.9 No ground protection is specified for this site.
 - 9.10 The protective fencing and ground protection must be inspected on installation and will remain in place until completion of the construction phase and then only removed with the consent of the LPA.
 - 9.11 Other than works approved in writing by the LPA, no works including storage or dumping of materials shall take place within the exclusion zones defined by the protective fencing.
- General Precautions*
- 9.12 No materials that are likely to have an adverse effect on tree health such as oil, bitumen or cement will be stored or discharged within 10m of the trunk of a tree that is to be retained or within any part of the CEZ. An emergency spill kit of appropriate capacity and suitable for use with all fuels, oils and chemicals brought on to site must be available at all times.
 - 9.13 No fires will be lit within 20m of the trunk of any tree that is to be retained.

- 9.14 Storage and mixing areas must be outside the CEZ and must be identified prior to the commencement of the construction work. Contractor parking should be in areas indicated on the TFP.
- 9.15 Access to the work area is via the main site entrance and must not traverse the CEZ.
- 9.16 All service and drainage routes, below or above ground must avoid the CEZ. All services are to be installed in accordance with NJUG volume 4 Guidelines.
- 9.17 To ensure that all tree protection measures are properly installed it is recommended that the site be monitored by Shields Arbicultural Consultancy to the following schedule. Details of the findings and photographic evidence of the site inspection visits will be reported to the LPA by email within 24 hrs of the visit.

Schedule of Inspection

1. On completion of erection of fencing and installation of ground protection prior to commencement of development works
2. Monthly throughout the project
- 9.18 Prior to the commencement on site of any work, a competent person is to be appointed to monitor the day to day activities on site. In the case of a tree being damaged or where an unexpected event arises it will be for this person to contact Shields Arbicultural Consultancy to seek advice on contingency measures.

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