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BS5837 Arboricultural Report – Cloudside House, Red Lane, Cloudside, Cheshire CW12 3QQ

1 INTRODUCTION

1.1 N& J Tree Services have been commissioned by Mr Adam Gregory from Forefront Development to conduct a BS5837 arboricultural survey at the above location as per the plan provided by the client. The scope and purpose of the report is designed to accompany a planning application for development proposals at the above site. Its purpose is to assist and inform the planning process. It is produced according to the guidance and recommendations within BS 5837: 2012 - Trees in Relation to Design, Demolition and Construction.

1.2 The survey was carried out on 4th May 2017 by means of inspection from ground level by a qualified Arboricultural Consultant. Trees were assessed in accordance with *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations.*

1.3 Under the British Standard the assessment of trees is made objectively; the categorisation method identifies the quality and value of the existing tree stock.

1.4 Data for a total of 4 individual trees (T1-T4) and two groups (G1&G2) within the boundary of the development area (refer to appendix 1 tree location plan(s)). All arboricultural information recorded during the survey is presented at appendix 2).

1.5 The nature of the soils on site was not assessed during the survey. The possibility of soil movement due to tree root activity cannot be discounted.

1.6 This report provides the results of the survey and includes the following:

- A schedule of all trees located within the proposed development sites (Appendix 2);
- An assessment based on *BS 5837:2012*, of trees in terms of their potential value within any future development.
- On the basis of this assessment trees have been categorised into one of four categories: A, B, C or U ;
- An assessment, based on *BS 5837:2012*, of the requirement for protection of trees during the construction phase (Section 6);
- Advice on removal, retention and management of trees (Sections 5 & 7);
- A Tree Constraints Plan detailing tree quality categories, for all trees surveyed (appendix 2); which includes details trees to be retained and removed and data for temporary tree protection fencing alignment.

2. THE SITE AND SURROUNDINGS

2.1 The survey area is a rural setting in a typical paddock type field off red lane that currently forms the lower part of the adjacent residential property formal garden. The site coordinates are Easting: 391006 and Northing: 362548

2.2 Weather conditions during the survey were a clear sunny day with a blustery north westerly breeze.

3.0 Development Proposals

3.1 The proposed development is construction of a single detached dwelling.

4. STATUTORY PROTECTION AND GUIDANCE

National Planning Policy Framework (NPPF)

4.1 The NPPF assumes protection of all ancient woodland and veteran trees unless it can be clearly demonstrated that the need of, or benefits of, development outweigh the loss. In this respect ancient woodland is defined as an area which has been wooded continuously since at least 1600 AD and a veteran as a tree of exceptional value for wildlife, in the landscape, or culturally because of its great age, size or condition.

4.2 ***On these sites there are no ancient woodland or veteran trees.***

Tree Preservation Orders & Designations

4.3 Local authorities reserve the right to create Tree Preservation Orders (TPO) to protect the amenity value conferred to a location by a tree or group of trees. Where a TPO is in force, lopping, topping, felling, uprooting or wilful damage caused to a tree is prohibited and such actions may be prosecuted and incur an unlimited fine. Works to TPO protected trees must only be undertaken with the written consent of the local authority.

I have not formally checked to see if the trees are protected by a Tree Preservation Order.

Protected Species – Bats

4.4 Mature trees often contain cavities, crevices and hollows which are a potential habitat for roosting bats. Bats are afforded protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), as well as under Schedule 2 of the Conservation of Species and Habitats Regulations 2010, and as such causing damage to a bat roost constitutes an offence.

4.5 ***A preliminary ground level appraisal of the wildlife habitat value of each tree was undertaken as part of the arboricultural survey. No trees were noted as having features suitable to support roosting bats.***

4.6 Should the presence of a bat roost be suspected whilst undertaking works on any trees and groups on site, operations must be halted until a licensed bat handler or ecologist can provide advice.

Protected Species – Birds

4.7 Trees are a potential habitat for nesting birds, which (as well as their nests and eggs) are protected under the *Wildlife and Countryside Act 1981* (as amended). This makes it an offence to intentionally or recklessly, damage or destroy an active bird's nest or any part thereof.

4.8 Due to the suitability of the trees within the vicinity of the survey boundary for nesting birds, all tree work should ideally be undertaken outside the bird nesting season (British bird nesting season: March to August inclusive). If this is not possible then a detailed inspection of each tree should be undertaken by a qualified ecologist immediately prior to the arboricultural works. Should an active nest be found (being built, containing eggs or chicks) work must be halted until the nest becomes inactive.

5.0 TREE POPULATION

5.1 Data for four individual trees (T1-T4) and two groups (G1 & G2) was recorded for trees that are both growing within and / or adjacent to the development boundary. A schedule of all trees and groups in terms of species, condition, age, management recommendations and *BS 5837:2012* quality categories is provided at Appendix 2.

5.2 The tree population recorded is situated predominantly within the site proposed development boundary with identification of just one or two trees in adjacent private gardens captured.

Image 1: Showing T1 Pine

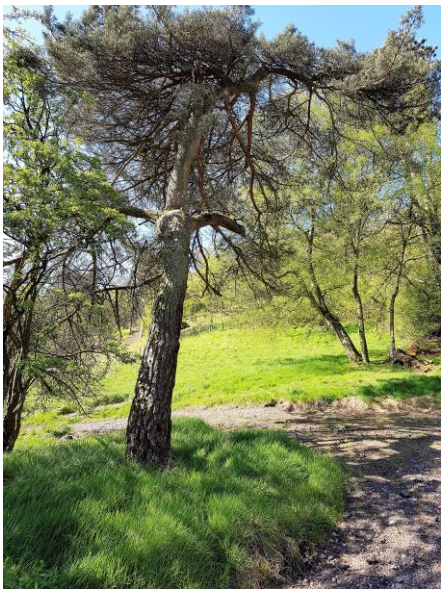




The above shows T1 category A/B pine with the small clump of thorns around its base and the existing gated entrance. The proposals appear to show the new entrance and driveway to the development as being on the opposite side of the tree and adjacent to the trunk. The RPA for this tree is calculated as being within the region of 7.5m so careful consideration would need to be given to construction methodology (i.e. no dig incorporating geotextile / cellweb etc).

In my opinion it might be more feasible in terms of tree retention if consideration could be given to utilising the existing gated entrance.

Image 2: T2 Pine



The adjacent photograph shows T2 pine which is growing at the top end of G1 thorns, it has a significant lean in the main stem and there is visible evidence of past branch / limb failure.

This tree should be removed both for reasons of poor tree health / condition and to facilitate the development proposals.

Image 3: T3 Holly



T3 Holly is multi stemmed from near to ground level and is growing outside of the prosed site development boundary line.

Image 4: Showing T4 Pine

T4 pine is situated on adjacent private land; the tree is only in fair condition being quite sparse in its lower canopy with a number of branches being dead.

The siting of the proposed development would impact into the RPA of this tree so consideration might need to be given for obtaining permission from the tree owners for removal or alternatively, due consideration given to moving the development to approx. 4.5 to 5m from the boundary fence.



Image 4: Showing G1 Thorn



G1 is a group of 7No. thorn, which are all dead or dying and removal would be advisable at this time both due to their poor condition and also to facilitate development proposals.

Image 5: Showing G2 mixed species / birch

G2 is a small copse of trees comprising birch, holly and pine. The majority of this group are outside of the proposed development area with the nearest tree being a birch at the edge of the copse (as pic).



Tree Quality Categorisation

5.3 Under *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations* trees and groups are objectively assigned a quality category designed to quantify their value within any future development. Table 1, overleaf, presents a summary of the categories presented in the British Standard.

Table 1: Summary of *BS 5837:2012* tree quality categorisation criteria

Category A	Trees of high value including those that are particularly good examples of their species and/or those that have visual importance or significant conservation or other value
Category B	Trees of moderate value including those that do not qualify as Category A due to impaired condition and/or those that collectively have higher value than they would as individuals; also trees with material conservation or other value
Category C	Trees of low value including those with very limited merit or impaired condition; trees offering transient or temporary landscape benefits
Category U	Trees with irremediable defects and anticipated early loss due to collapse; dead trees or those in immediate decline and those with infection pathogens

6.0 IMPACTS OF THE PROPOSED DEVELOPMENT

6.1 Table 2 lists the number and quality of trees that will require removal in order to facilitate the development proposals and those that can be retained. This is the result of an assessment based on the proposed site plan and discussions with the client regarding their application strategy.

Table 2: Arboricultural implications of the proposed development

	A	B	C	U
Trees that can be retained	**T1**	**G2**	**T3, T4**	
Total	**1**	**5**	**2**	**nil**
Trees that require removal to facilitate development	nil	**T2**	**nil**	**G1**
Total	nil	**1**	**nil**	**7**
Trees that require removal due to disease or recognised structural defects.	nil	**nil**	**nil**	**nil**
Total	**nil**	**nil**	**nil**	**nil**

See Appendix 2, Arboricultural Data Sheets for subcategories

6.2 One individual tree (T2) could be removed due to short SULE / poor condition and to facilitate development proposals. Group G1 comprising of 7No. thorn will need to be removed both due to poor condition and to facilitate development proposals.

6.3 Where planning permission is granted, the retention schedule (where applicable) would normally form a part of that permission. Any change to this schedule would therefore be likely to require an application to vary the consent.

7.0 TREE PROTECTION REQUIREMENTS

Root Protection Areas

7.1 As per *BS 5837:2012*, the **Root Protection Area (RPA)** is calculated using each tree's diameter at 1.5 metres (refer to Appendix 1) and represents the minimum area around each tree that must be left undisturbed to ensure their survival.

7.2 Tree roots typically spread two times the width of the crown, although this figure may be significantly increased for certain species and where specific ground conditions are present. The majority of tree roots are found in the top 600 mm of soil and most of the fine roots that absorb water and nutrients are found in the top 100 mm.

7.3 The morphology of roots is influenced by past and present site conditions (the presence of roads, structures and underground services), soil type, topography and drainage. This means that a tree's roots may not be uniform in their extent and the **RPA** may not be a circular area centred on the tree stem.

7.4 On this site the majority of trees are growing in relatively homogeneous ground conditions.

Protective Fencing and Exclusion Zones

7.5 Temporary protective barrier fencing will be required to demarcate a **Construction Exclusion Zone (CEZ)** around retained trees. This must be put in place prior to the commencement of any development works, including bringing machinery or materials onto site, the erection of site huts and commencement of earthworks.

7.6 The **CEZ** acts to protect both tree roots and branches and has been extended to incorporate canopy spread where appropriate.

7.7 Protective fencing alignment in this instance can be sited at recommended distances as per BS5837 criteria.

7.8 The fencing must be fixed into the ground to withstand accidental impact from machinery and to ensure that a sufficient protective area is maintained. Details of recommended protective fencing are shown on Appendix 3.

7.9 A weatherproof notice stating 'Construction Exclusion Zone – Keep Out' must be fixed to each fencing panel. An example notice is shown on Appendix 3.

7.10 Any alteration to the fencing alignment to allow for approved activities will be made in agreement with the council's Arboricultural Officer.

7.11 The protective fencing must not be removed until the physical construction phase has been completed and all vehicles have been removed from site, to the satisfaction of the council's Arboricultural Officer.

Ground Contamination

7.12 Storage areas for liquids such as fuels, oil or paint should not be located within 10m of any trees on or within proximity to the site due to the risk of soil contamination caused by accidental spillage.

7.13 Particular care must be taken when working on or close to sloping ground to avoid unintentional run off into the rooting area of retained trees or nearby water bodies.

Underground Utility Issues

7.14 No utility drawings were provided and no assessment has been made of the juxtaposition of tree roots and the likely location of new services. It has been presumed for the purposes of this report that all utilities will be installed outside of the **Construction Exclusion Zone** .

7.15 Where the installation of services within the **Construction Exclusion Zone** of retained trees is unavoidable, appropriate work methods will be required to ensure the safe long term survival of those trees. This process will require additional consultation with a qualified Arboricultural Consultant and is likely to be more expensive than conventional trench installation.

Ground Level Changes

7.16 A rise or reduction in soil level can have major implications on the longevity and health of the trees. Minor changes (up to 100mm) can be tolerated in some cases but is heavily dependent on tree species, condition and growing environment.

7.17 Existing ground levels within the **Construction Exclusion Zone** should be respected as far as is reasonably practicable. The advice of a qualified Arboricultural Consultant should be sought if level changes are required.

8.0 MANAGEMENT RECOMMENDATIONS

Tree Work (where required)

8.1 All tree surgery including felling work should be carried out by a qualified contractor in accordance with *BS 3998:2010 Tree work – Recommendations*.

Mitigation for the removal of trees (where applicable)

NA

Post Construction Tree Care

NA

Foundation Depth Calculations (where applicable)

8.2 This report has been written in accordance with, and to satisfy the requirement of *BS 5837:2012*.

8.3 The nature of the soils on site was not assessed during the survey. The possibility of soil movement due to tree root activity cannot be discounted.

9.0 SUMMARY

9.1 A total of 4 individual trees and two groups comprising of approximately 12no. trees was recorded during the survey both within and on private land immediately adjacent to the site development area boundary.

9.2 Based on an objective assessment made in accordance with *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations* the trees were all valued as either category B, C or U features.

9.3 ***Only one category C tree (T2) and one group (G1 comprising 7no cat C trees) are advised for removal for both reasons of tree poor health / condition and to facilitate development proposals.***

9.4 I am not aware as whether any trees are subject to a Tree Preservation Order.

9.5 No trees were found to have features suitable for roosting bats.

9.6 Protective fencing that demarcates the RPA for any trees immediately adjacent to the actual development site will need to be implemented prior to any construction activity. Any excavation works required within the RPA would need to be hand dig only with due supervision from the local planning officer and / or applicants tree consultant at times of such.

SURVEY METHOD

The survey of trees was conducted from ground level only. The nature of the soils on site was not assessed. Trees are dynamic living organisms with a constantly changing structure; even trees in good condition can suffer from damage or stress. The information recorded is presented as being correct at the time of survey.

The following features of each tree, group of trees or wood may have been recorded in the Arboricultural Survey Data Sheets at Appendix 1.

Species The common name is given. The Latin name may also be given if further clarification is required.

Height Top height of tree recorded in metres.

Stem Diameter For single-stemmed trees the measurement is taken at 1.5 metres above ground level and recorded in millimetres.
For multi-stemmed trees an average all stems measured at 1.5m above ground level is used.
For tree groups a range from minimum to maximum diameters is provided based on measurements taken using one of the aforementioned methods.

No. of Stems A count of stems arising below a height of 1.5 metres.

Crown Spread The N, S, E and W branch spreads are recorded in metres to provide a representative crown shape.

Height of Lowest Branch Crown clearance above ground level recorded in metres.

Direction of Lowest Branch The direction of growth of the first significant branch from the point of attachment.

Maturity **Young** Trees than can reasonably be relocated or replaced like for like, without undue cost;
Middle Age Trees in the established growth stage of their life with the potential to continue increasing in size;
Mature Trees that have reached their ultimate size, given their location and surroundings;

Condition **Good, Fair, Poor.** An overall assessment of a tree's physiological and structural state in which factors that may increase its susceptibility to the effects of development are taken into account.

Veteran. Trees that are in such a condition as to significantly increase their biological, cultural or aesthetic value. This is characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.

Comments A brief evaluation and description of the tree with comments on form, vitality, health and any significant defects or symptoms of ill-health.

BS 5837 Tree Quality Assessment

The tree quality assessment is based on Table 1 of BS 5837:2012 (See below). Four categories (A, B, C and U) are used to denote tree quality (A= High, B = Moderate, C = Low, U= Unsuitable for retention). Subcategories (1-3) denote the specific function value of the trees and the reasoning behind the allocation of a specific category (the subcategories may be used in combination but do not accumulate collective weight).

Root Protection Area (RPA)

The RPA is allocated to ensure that a sufficient area is left undisturbed during development. It is provided as an area (m^2) and as the radius of a circle (m) typically plotted from the centre of the stem.
The RPA is calculated using a mathematical equation included in BS 5837:2012 (Section 4.6 and Table D.1) and is based on a trees stem diameter. In some cases the RPA may need to be adapted to best reflect the likely area and position of roots required to ensure survival; this may be based on criteria such as the tree's condition, species, crown spread and any barriers to growth. Any alteration must be justifiable but is made at the Arboricultural Consultants discretion.

Recommendations

Recommendations for arboricultural works, etc. are based on the **current** land use, and take into account the tree or group attributes without bias to the proposed development.

SURVEY METHOD

Estimated Remaining Contribution

An estimation of the life expectancy as healthy functioning tree. This will be influenced by species and the condition of the tree at the time of survey.

Long > 40 years
Medium 20 – 40 years
Short less than 20 years

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 *NOTE 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

British Standards Institute 2012, p.9

NOTES:
All young trees are assessed as quality category ‘C’ but this does not preclude their retention within a development.