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BS5837 Arboricultural Report **7 Watt Place Cheadle Staffordshire**

1 INTRODUCTION

- 1.1 N&J Tree Services have been commissioned by Mr Adam Gregory to conduct a BS5837 arboricultural survey of the above site and to provide relevant information that is to be transposed onto a Tree Constraints Plan that includes the root protection area (RPA) for each tree.
- 1.2 The survey was carried out on 2nd August 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*. The weather was a dull day with a light south westerly breeze and drizzle.
- 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 three individual trees and one area of herbaceous vegetation was captured. The location of the trees is shown on the aerial plan (appendix 1). 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 / protection Plan detailing tree quality categories, for all trees surveyed (architects drawing); which includes details trees to be retained and / or removed and temporary tree protection fencing alignment (CEZ / Construction Exclusion Zone) to be submitted at times plans have been finalised.
- 2.2 Weather conditions during the survey were broken cloud with a light easterly breeze.



2. THE SITE AND SURROUNDINGS

2.1 The survey area is a small residential rear garden plot belonging to the adjacent terraced property; the site is situated just on the outskirts of Cheadle Town centre, with a similar neighbouring property to the north, Watt Place runs along the south and west perimeter, with Lid Lane to the east.

2.2

Image 1: Showing subject site when looking north along Watt Place



3.0 DEVELOPMENT PROPOSALS

3.1 At this stage I am not aware of the development proposals.

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 ***There are no ancient woodland or veteran trees within the development boundary.***

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 am advised that the trees are situated within a Conservation Area so statutory constraints would apply, where any pruning works would require an application for the works.

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. 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.
- 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.***

Protected Species – Birds

- 4.6 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.
- 4.7 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 As referred to above, the trees comprise 2No. ash and 1No magnolia within the site boundary, with only minor hedge / shrub vegetation situated along the site perimeter in the garden area. G1 being a length of herbaceous shrub and plants along the western perimeter wall comprising of viburnum, spiraea, buddleia, laurel and an ornamental cypress conifer species. G2 (eastern perimeter wall) has viburnum, laurel and a small fruiting apple.



Data for the trees was recorded and included within the schedule, which details species, condition, age, management recommendations and *BS 5837:2012* quality categories is provided at Appendix 2.

- 5.2 The tree population recorded is confined within the site boundary predominantly within the formal residential garden location.

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, below 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 usually the result of an assessment based on the proposed site plan and discussions with the client regarding their application strategy; however in this instance I am not aware of the proposals.

Table 2: Arboricultural implications of the proposed development

	A	B	B/C	C	U
Trees that can be retained			T1 T2, T3		
Total			3		
Trees that require removal to facilitate development	Nil	Nil	Nil	Nil	Nil
Trees that require removal due to disease or recognised structural defects.	Nil	Nil	Nil	Nil	Nil
Total					

See Appendix 2, Arboricultural Data Sheets for subcategories

- 6.2 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 2) 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 will be shown on the *client's tree constraints / protection plan*.
- 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 advised by the clients architect that all existing utilities will be utilised, which are 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 would be required to ensure the safe long term survival of the trees. This process (if applicable) would 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 three individual trees and two groups of shrub / herbaceous type vegetation were recorded during the survey within the site development area
- 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 valued as category B/C features.
- 9.3 The tree population recorded is confined to the proposed Watt Place development site.
- 9.4 It is not known if any trees will need to be removed at this time *to facilitate the development proposals*.
- 9.5 The trees are identified as being protected / included within a Conservation Area.
- 9.6 No trees were found to have features suitable for roosting bats.
- 9.7 Protective fencing that demarcates the RPA for T1, T2 and T3 will need to be implemented prior to any demolition or construction activity as per architects final tree constraints / protection plan. Any excavation works required within the RPA of any tree should be hand dig only.

10.0 CONCLUSION

- 10.1** *Any demolition and subsequent development activity should ideally be designed to fall outside of the Root Protection Area (RPA), with no incursion into the RPA required at all for any part of the demolition and / or construction phase of the works.*
- 10.2** *Any proposals that include working within the RPA would require a detailed methodology and include hand digging and possibly supervision at the time of the works either by the local authorities' tree officer or a suitably qualified or experienced consultant / tree surgeon.*

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 2.

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 that 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 (m²) 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	<ul style="list-style-type: none"> • 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 <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i></p>			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.