16 September 2015

Land adjacent to Brown Edge Close, Buxton

BS5837 Tree Quality Survey, and Development Implications

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Plan

Findings of Tree Quality Survey & Root Protection Areas (2507/P09)

Section 1: Introduction

1.1. This report has been prepared by Tyler Grange LLP on behalf of Glennmark Trading Ltd to set out the findings of a BS5837 tree survey and development implications review, undertaken to accompany a planning application for a prospective residential development at land adjacent to Brown Edge Close, Buxton (hereafter referred to as the 'site').

1.2. The Outline application relates to the proposed development of 19 No. residential dwellings, including 3 No. affordable homes on land to the east of Brown Edge Road, on the northern outskirts of Buxton, hereafter referred to as the 'site'. The application also includes the demolition of 70 and 72 Brown Edge Road. Access is sought for approval at the Outline stage.

1.3. The site is centred on Ordnance Survey (OS) grid reference SK 06309 74562 and extends to a total area of 1.4 hectares (3.5 acres). The site comprises two fields of unmanaged grassland situated to the rear of the existing properties on Brown Edge Road, and also includes the land associated with No's 70 and 72 Brown Edge Road.

1.4. The findings and recommendations included within this report are informed by survey work, which involved collecting data relating to the tree stock to ascertain the baseline arboricultural context in order to inform the proposed development. Where appropriate, recommendations for the removal of trees or tree management are made in order to facilitate development, or to improve the overall condition of the existing tree stock.

1.5. Section 3 of this report concludes with an overview of development implications, indicative tree loss and proposed mitigation measures based on the submitted illustrative layout.

Tree Survey

1.6. The tree survey was carried out on 3rd September 2015. The weather conditions were clear with a gentle breeze (approximately force 3 on the Beaufort scale).

1.7. No invasive investigations or climbing inspections were necessary to confirm visual or audible signs of defect or debility and no tissue or soil samples were undertaken. Where identified, signs of substantial defects or debility significant to the pre-development context have been recorded.

1.8. A total of 7 individual trees and 5 tree groups were surveyed, as shown on the Tree Quality Survey and Root Protection Areas plan, located to the rear of this report.

Survey Methodology

1.9. The pre-development survey and assessment was undertaken in accordance with British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' (hereafter BS5837:2012).

1.10. In accordance with the above recommendations, the tree survey included all trees within and aligning the site boundary that were over 7cm diameter at breast height (dbh). Topographical survey data was used to inform the tree survey (drawing ref. RBS-0234-001 - March 2015); however, some areas of denser tree planting have been approximately placed within groups that form cohesive arboricultural features either aerodynamically, visually, culturally or in biodiversity terms.

1.11. The tree survey involved collecting the following data:

- Tree Number / Group Reference;
- Species;
- Height and Branch Spread (in metres taken at the four cardinal points);
- Crown Clearance (in metres above the adjacent ground level);
- Age Class;
- Physiological and Structural Condition;
- Estimated Remaining Contribution (in years);
- Management Recommendations; and
- Notes.

1.12. For further clarification, please refer to the tree survey explanatory notes in **Appendix 1**.

Tree Categorisation

1.13. The quality and value of each tree or group of trees has been recorded in accordance with the Cascade Chart for Tree Quality Assessment included at **Appendix 3**. The purpose of the tree categorisation method is to identify the quality and value of the existing tree stock, allowing informed decisions to be made in conformity with BS5837:2012, concerning which trees should be removed or retained, should development occur.

1.14. Categories A, B and C deal with trees that should be a material consideration in the development process and are divided into subcategories that reflect arboricultural, landscape and cultural values. Category U trees are those which would be removed in the short term for reasons connected with their physiological or structural condition. For this reason, they should not be considered in the planning process.

- **Category Grading A**: Trees of high quality and value, which are in such a condition as to be able to make a substantial contribution from an arboricultural, landscape or cultural perspective;
- **Category Grading B**: Trees of moderate quality and value, which are in such a condition as to make a significant contribution from an arboricultural, landscape or cultural perspective;
- **Category Grading C**: Trees of low quality and value, which are currently in adequate condition to remain until new planting could be established or young trees with a stem diameter below 150mm; and
- **Category Grading U**: Trees which are 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.

1.15. The subcategories included within the Cascade Chart for Tree Quality Assessment (1, 2 and 3) are intended to reflect arboricultural, landscape and cultural values respectively.

1.16. Findings for each tree and group surveyed are illustrated on the **Tree Quality Survey and Root Protection Areas plan** contained at the rear of this report and listed within the Tree Survey Table at **Appendix 2**.

Preliminary Management Recommendations

1.17. Any recommendations made for management of the trees (e.g. tree works) prior to the proposed development are not a detailed 'specification' for tree work and should not be considered as such.

1.18. These recommendations are proposed on the basis that they are advised and undertaken by a qualified arboricultural contractor working in accordance with best practice as, for instance, embodied in BS3998:2010 Recommendations for Tree Work, or in the European Tree Pruning Guide, published in 2001 by the Arboricultural Association and who must be listed in the Arboricultural Association's Approved Contractors Directory *www.trees.org.uk*.

Limitations

1.19. The comments made are based on observable factors present at the time of inspection and are based on maximising the trees' safe life expectancy given their existing context. Although the health and stability of trees in their current context is an integral part of their suitability for retention, it must be stressed that this report is not a tree risk assessment and should not be construed as such. While every attempt has been made to provide a realistic and accurate assessment of the trees' condition at the time of inspection, it may have not been appropriate, or possible, to view all parts or all sides of every tree to fulfil the assessment criteria of a risk assessment.

1.20. No tree is entirely safe, given the possibility that exceptionally strong winds could damage or uproot even a mechanically 'perfect' specimen. It is therefore usually accepted that hazards are only recognisable from distinct defects or from other failure-prone characteristics of the tree or the Site.

1.21. Assessment of the potential influence of trees upon buildings or other structures resulting from the effects of trees upon shrinkable load-bearing soils or the effects of incremental root or branch growth, are specifically excluded from this report.

1.22. Stem measurements were taken using a diameter tape. Where this was not possible or reasonably practical, measurements have been estimated by eye.

Un-assessable Risks

1.23. Any alteration to the application site or development proposals could change the current circumstances and may invalidate this report and any recommendations made.

1.24. The Wildlife and Countryside Act (WCA) 1981 (as amended) makes it an offence to disturb nesting birds or recklessly endanger a bat or its roost. Bats are also a European protected species and are additionally protected under the Conservation (Natural Habitats & c) Regulations 1994 and 2010 (as amended).

1.25. A lack of recommended work does not imply that a tree does not pose an unacceptable level of risk and likewise, it should not be implied that a tree will present an acceptable level of risk following the completion of any recommended work.

Section 2: Findings of the Tree Survey

Site Description

2.1. The site comprises two field parcels of unmanaged grassland and naturalised scrub, dissected by a timber post and wire fence. To the west, the site is bordered by the rear gardens of residential properties along Brown Edge Road with scattered garden trees (T1, T5) ornamental planting and fragmented hedgerows (G1); to the north a naturalised bramble clad hedgerow defines the site boundary (G2), beyond which there is an access road leading to Low Croft (residential property) with associated offsite high-canopy tree stock (T2, T3, T4). The eastern site boundary is aligned by a low dry stone wall and the railway line with self-seeded Willow and shrubby vegetation (G3). Fields and further residential development lie beyond the southern site boundary.

2.2. Tree stock at the site access off Brown Edge Road to the south west includes domestic planting and scattered ornamental trees within the curtilages of No's 70, 72 and 74 (G4, G5, T7).

Arboricultural Planning Context

2.3. Under the Town and Country Planning Act 1990 (as amended) the requirement to consider trees as part of development is a material planning consideration and will be taken into account in the determination of planning applications.

2.4. The current adopted development plan for the site consists of the saved policies of the High Peak Local Plan (adopted 2005). The new High Peak Local Plan (2014) is under Examination and until adopted the provisions of the NPPF take precedence over out-of-date local plan policies. A summary of the local planning policy context pertaining to trees, hedgerows and woodlands is provided below.

High Peak Local Plan 'saved policies' (March 2005)

Policy GD6: Landscaping

2.5. The policy states that *"Planning Permission will be granted for development provided that where appropriate, it will contain a high standard of hard and/or soft landscape treatment in keeping with the character of the area, including the integration of existing features and the use of native species suitable to the location".*

2.6. The Policy notes provide additional design guidance for the appearance and treatment of spaces between and around buildings, adding that *"protection and retention of existing trees, hedges and other site features such as dry stone walls, where appropriate, will both enhance the development and provide a greater feeling of maturity and visual integration with its setting".*

Policy OC4: Landscape Character and Design

2.7. The policy sets out a range of landscape features and characteristics that proposed development must have regard to and conserve, including "*the pattern and composition of trees and woodland", "the type and distribution of wildlife habitats"* and "*the presence and pattern of historic landscape features".*

2.8. The policy continues to state that *"Existing features which are important to the local landscape character, shall be retained, incorporated into the development and protected during construction work."*

Policy OC10: Trees and Woodland

2.9. The policy states that *"Planning Permission will be granted for development, provided that it will not result in the loss of, or materially injure the health of, a woodland (in whole or in part) or other significant individual, group or area of trees, unless required in the interests of safety, good tree management or a wider scheme of conservation and enhancement, or exceptionally, where loss or injury is accepted, adequate replacement planting, in terms of numbers, species, planting density and location, will be provided as part of the development".*

2.10. The policy adds that *"Conditions will be imposed, and/or planning obligations sought, to ensure adequate protection and management of individual, groups and areas of trees and woodlands which are important for landscape, amenity, recreation or nature conservation reasons".*

Tree Preservation Orders (TPO), Conservation Areas and Ancient Woodlands

2.11. As shown on the Derbyshire County Council online planning map, accessed on 10th September 2015, no surveyed trees are protected by Tree Preservation Orders (TPOs), nor is the site located within a Conservation Area.

2.12. At the time of writing we are currently awaiting a call-back from High Peak Borough Council to ascertain whether their records include any TPOs within or adjoining the site.

2.13. As shown at www.magic.gov.uk, accessed on 11th September 2015, there are no identified Ancient Woodlands within or adjoining the site.

Species Composition

2.14. A total of 19 principal tree species were recorded during the survey, namely:

- Ash *(Fraxinus excelsior)*;
- Birch *(Betula sp.);*
- Blackthorn (*Prunus spinosa*);
- Cherry *(Prunus sp.);*
- *Cotoneaster;*
- Cypress *(Cupressaceae sp.);*
- Dogwood *(Cornus sp.);*
- Goat Willow (*Salix caprea*);
- Hawthorn (*Crataegus monogyna*);
- Hazel *(Corylus avellana);*
- Cherry Laurel *(Prunus laurocerasus);*
- Norway Maple *(Acer platanoides);*

- Oak *(Quercus sp.)*;
- Pine *(Pinus sp.);*
- Poplar *(Populus sp.);*
- Privet *(Ligustrum vulgare);*
- Rowan *(Sorbus aucuparia);*
- Spruce *(Picea);*
- Sycamore *(Acer pseudoplatanus);*

Age, Health, Condition and Quality

2.15. The survey involved ground level examination of the external features of the trees. Growing conditions were noted together with the presence of dead branch wood and die-back or obvious signs of decay. Definitions and criteria for assessing a tree's physiological, structural condition and age are included in the Tree Survey Explanatory Notes at **Appendix 1**.

2.16. Of the trees surveyed the majority were found to be in a fair to good physiological and structural condition. No major health or structural issues were noted, besides the presence of age related deadwood and the naturalisation of hedgerow canopies with tracts of scrub and brambles across the northern site boundary (G2), leading to canopy conflicts between overgrown trees. Much of the off-site garden stock to the west (G1) and south (G4, G5) has been managed to varying standards, typical of the domestic context, ensuring a level of amenity and mixed maturity.

2.17. The crowns of T1, T5 and T7 have been lifted over adjoining gardens with past pruning wounds present across the stems and lower canopies with numerous flush and occluded wounds (images below).

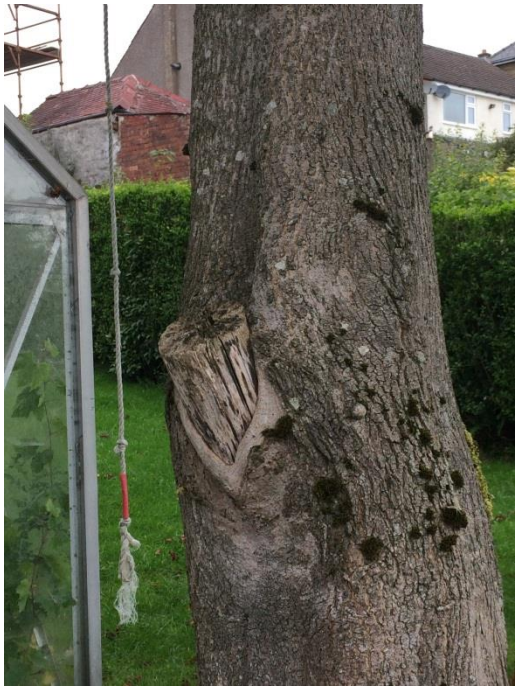


Photo 2.1 – stub to southern lower stem of T1.

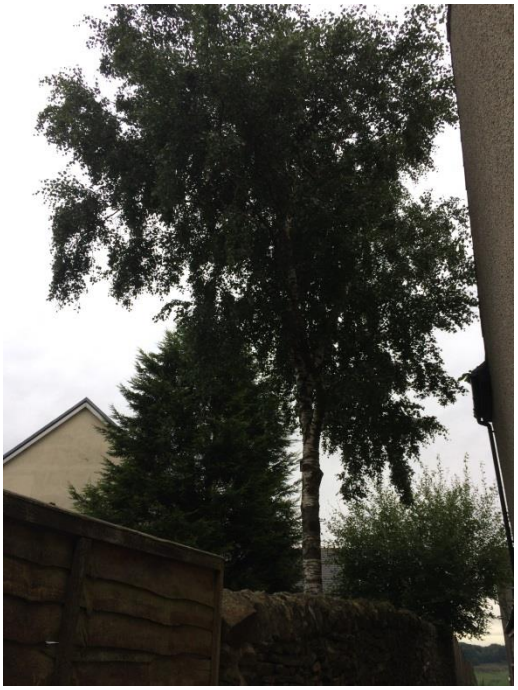


Photo 2.2 – lifted lower crown to T7.

2.18. The majority of the tree stock can be classified as young-mature in terms of age class, with scattered off-site high canopy trees of greater maturity giving a fairly broad spread of ages across the site. T5 is notably mature within the garden of No.74 Brown Edge Road adjacent to the site access, with age related defects present including lower canopy socket wounds and tears.

2.19. Much of the vegetation surveyed is dominated by Category C and B trees, considered to be of low to moderate arboricultural quality and value. The lower value tree groups (Category C) were those which are yet to become established as particular features of landscape or arboricultural merit, or that which is in a poor state of mismanagement or decline. Much of the higher value stock was associated with the trees of greater maturity, projected longevity, visual prominence or with a greater contribution in terms of screening or habitat and amenity value as high canopy garden tree planting.

2.20. No trees are considered to be Category A specimens. Whilst several mature trees were identified, the largely naturalised context and varying degrees of management within the adjoining garden plots has limited the category grading of much of the tree stock. The level of management observed during the survey is broadly un-sympathetic with stem wounds and lower canopies lifted over garden spaces. The onset of Bramble and Ivy encroachment, coupled with the presence of canopy deadwood is also a feature of northern boundary Green Infrastructure (image below).

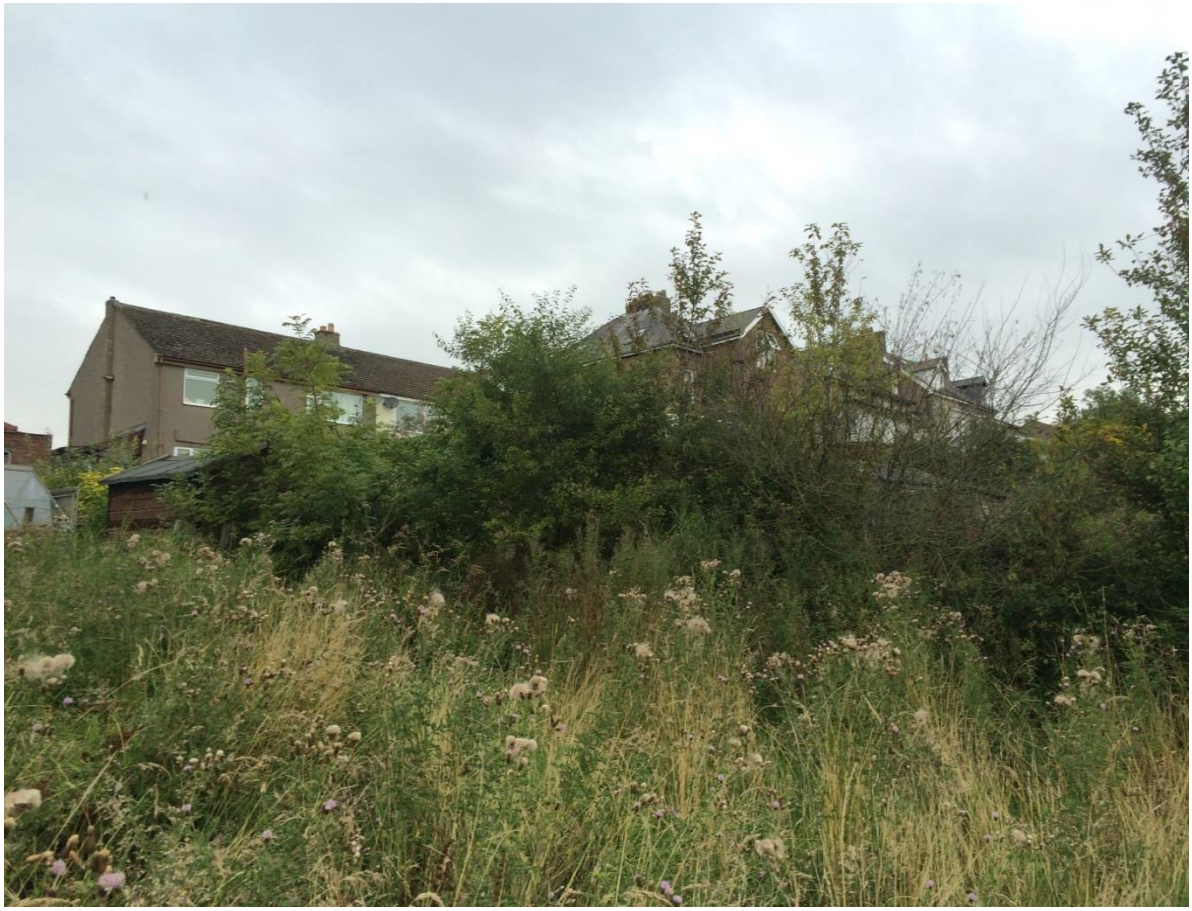


Photo 2.3 – northern boundary naturalised G2 hedgerow tree belt.

Section 3: Management and Development Implications

Root Protection Areas

3.1. The Tree Quality Survey & Root Protection Areas plan located to the rear of this report shows the approximate extent of Root Protection Areas (RPAs). The RPAs have been calculated in accordance with the methodology set out within Appendices C and D of BS5837: 2012, using the stem diameter dimensions obtained during the site visit.

3.2. The RPAs are considered to contain sufficient rooting volume to ensure the survival of the tree and should be left undisturbed in order to avoid damage to the roots or rooting environment surrounding the tree. Particular care is needed regarding the proximity of trees which may become enclosed within new development, or are disturbed by unsuitable working methods or proximity during the construction phase of a development.

3.3. Whilst the locations of RPAs must be respected, and development or excavations avoided wherever within them, regulated minor works can be undertaken within the root protection area in some cases, but this must be carried out carefully by hand, avoiding damage to roots. Appropriate protective measures should be implemented to avoid desiccation and undue disturbance of roots if a tree is to be retained. Any sudden and major alteration of the soil or surface conditions within RPAs will lead to progressive shoot and branch dieback until the roots have adapted to the altered conditions and have been able to source sufficient water and oxygen levels. If damage is progressive or so severe that the tree is unable to adapt then it is likely that the tree will ultimately die. It should be noted that in general, with increased maturity of a specimen, the ability of that tree to adapt to dramatic alterations in relation to its root system is lessened.

3.4. Where any underground services are required, no linear pipelines or service ducts should be implemented within the defined RPAs, unless it can be linked to existing underground service runs, to ensure that retained trees can be safeguarded.

Shadowing and Impacts on Future Residential Amenity

3.5. Where high canopy trees are present on and adjacent to sites such as this, the RPAs and below ground context of trees should also be considered in association with above ground constraints. The current and ultimate height of any tree also needs to be appreciated in terms of its size, dominance, shade and movement in strong winds.

3.6. BS5837:2012 states that, "*An indication of potential direct obstruction of sunlight can be illustrated by plotting a segment, with a radius from the centre of the stem equal to the height of the tree, drawn from due north-west to due east, indicating the shadow pattern through the main part of the day"* (BS5837:2012 para. 5.2.2 – NOTE 1). The principal tree shadow constraints are shown on the Tree Quality Survey & Root Protection Areas plan contained to the rear of this report.

3.7. The indicative principal shading constraints posed by existing surveyed trees signifies the area within which the amenity interests of shading, available daylight and the proximity of trees for any future site occupants may be impacted upon should a tree be retained. The Arboricultural Association do not provide a definition as to what BS5837 determines to be *"the main part of the day"* and with respect to the submitted Outline development layout, the plotted extent of shadowing may, at the extremes of late afternoon mid-summer sun, cast a more elongated shade pattern to the north and east of taller canopies as the sun drops to the west; however, for the core daylight

hours, shading from the surveyed tree is not considered to represent a significant adverse impact due to the development offsets proposed.

3.8. The adverse impact of shading should also be reviewed on balance with the positive aspects of retaining a degree of canopy shade. BS5837:2012 (para. 5.3.4, a) NOTE 1) states that *"shading can be desirable to reduce glare or excessive solar heating, or to provide comfort during hot weather. The combination of shading, wind speed/turbulence reduction and evapo-transpiration effects of trees can be utilised in conjunction with the design of buildings and spaces to provide local microclimatic benefits".*

Management Recommendations

3.9. All trees that are being retained should be protected from harm during the construction phase of the development through the implementation of an appropriate fencing and protection strategy prior to undertaking development works on-site. A tree protection strategy will be required in accordance with BS 5837 during the detailed design stage.

3.10. G2 would benefit from the selected thinning of Ivy and Brambles, notably where encroachment has inhibited healthy growth. Re-stocking hedgerow gaps with native hedgerow standards, coupled with the clearance of non-natives (Cherry Laurel) along the site-side of the tree group to help to strengthen the hedgerow framework around the periphery of the development. Remnant fencing within the hedgerow should also be carefully removed by hand.

3.11. Care should be taken during the removal of any vegetation or fencing to minimise damage to retained trees or disturbance to RPAs. Temporary ground protection should be used to avoid compaction if machinery or excessive pedestrian movements are expected within RPAs of adjacent retained trees. Any vegetation thinning and removal work must also adhere to any recommendations made within other corresponding site reports and assessments, with consultation undertaken with relevant professionals in order to avoid damage to landscape or ecological features intended for retention.

3.12. Where hedgerows are to be retained, these should be cut on a two to three year rotation, preferably during January and February. As most trees and shrubs in hedges only produce flowers, nuts and berries on year-old twigs, cutting hedges every year means that they provide little food for insects, birds and mammals. Some sections of on-site hedgerows have lower canopy gaps caused by shading. To reduce this problem the lower branches and deadwood will be removed to allow more light to the understorey, and any gaps planted up with shade-tolerant species such as holly.

3.13. Any new landscape planting should be undertaken between October and March, avoiding days when the ground is frozen. Container-grown trees can be planted at any time of year, if planting is done in late spring or summer they should be watered during dry spells throughout the first growing season. Any deadwood / tree removal or management must be subject to wildlife and planning considerations / constraints. Ideally work should be timed to avoid the bird nesting season wherever possible (1st March to 31st August). If not, each tree will need to be searched for nesting birds prior to clearance. If a nest is found the tree and its immediate surroundings will need to be left undisturbed until nesting is complete.

3.14. An indicative / outline best practice management prescription, including timings, is set out in the table below as a suggested rationale for arboricultural improvements of the on-site trees and planting proposals. Any arboricultural recommendations are proposed on the basis that they are advised and undertaken by a qualified arboricultural contractor working in accordance with best practice as, for instance, embodied in BS3998: 2010 Recommendations for Tree Work, or in the

European Tree Pruning Guide, published in 2001 by the Arboricultural Association and who must be listed in the Arboricultural Association's Approved Contractors Directory (*www.trees.org.uk*).

Resource	Management principles	Rationale / Notes
Retained hedgerow	• Suitable development offset in accordance with RPA and shadowing constraints. • Management of scrub, Ivy and brambles in accordance with ecological requirements. Selected thinning where heavily encroached. • Remove any non-natives (Cherry Laurel, Rhododendron etc.) and thinning of deadwood / hanging branches. • Gapping up of defunct hedgerows with native stock planted to ensure development of a more diverse native hedgerow species mix with the removal of remnant timber fencing / barbed wire. Enhance understorey through planting of oak, Hazel, Honeysuckle, Hawthorn, Yew with the introduction of Holly to provide evergreen cover. • Removal of hanging branches, thin standing deadwood, although selected retention as hibernaculum. Removal of remnant fencing / wooded pallets.	Clearance outside bird nesting season (March to August). Objective to create / enhance understorey structure.
Retained on-site high canopy tree stock	• Target pruning of weighty leaders within canopies overhanging proposed vehicle and pedestrian routes to remove deadwood, clear hanging branches, rebalance canopies and lift crowns to avoid future vehicular strike. • Pruning cuts should, wherever possible, be made at a fork or at the main stem union to avoid stubs. Stubs can lead to dieback and finishing cuts should be kept as small as possible. Removal of larger branches should be undertaken in stages to minimise the risk of splitting and tearing the tissues and causing irreparable damage. • It is desirable to avoid pruning operations when deciduous trees are coming into leaf and in the autumn when they are losing their foliage as the trees' ability to close wounds is depleted and the tree can lose valuable energy reserves.	Prevent degradation of mature trees and enhance ground condition.

Overview Development Implications and Design Response

3.15. Observations regarding likely tree loss have been made in response to the preparation of development parameters and an illustrative masterplan as summarised in the table below.

Reference	Quality Class	Description of Loss
G3 (partial)	C2	Removal of on-site self-seeded and naturalised Goat Willow due to conflicts with proposed garden plots.
G4	C2	Direct conflict with proposed units and plot boundaries following demolition of No's 70 and 72.

3.16. At this Outline stage, the consideration of the potential tree loss against the provision of well-considered development parameters and proposed enhancement of the existing arboricultural baseline environment via management and re-planting, suggests that beneficial effects could be achieved. G2 can be enhanced through management and strengthened with new planting to offer appropriate compensation. The southern reaches of the site will also be utilised for informal open space and new meadow planting with scattered tree cover. New trees will also be provided internally within the proposed development through the provision of new street trees, incidental landscaping and site boundary planting within proposed gardens. New site-wide green infrastructure can serve to not only enhance existing features but also to create new habitats, filter views and break up the overall development.

3.17. Whilst there is scope for ensuring a net-gain in tree cover across the site following completion of the development, the effects of localised tree loss and the full impact of scheme proposals will depend upon the detailed design approach and the delivery of a design that addresses level changes (cut and fill), the drainage regime, underground services, detailed planting proposals and microclimatic effects in more detail. This will be of particular importance in relation to T4 where level changes and banking must avoid the Root Protection Areas.

3.18. A full Arboricultural Implications Assessment (AIA), Tree Loss and Protection Plan and a corresponding Arboricultural Method Statement (AMS) can be prepared to accompany a detailed planning application, including a consideration of tree protection measures during the construction phase of the development.

Appendix 1: Tree Survey Explanatory Notes

Appendix 1: Tree Survey Explanatory Notes

Tree Numbers

'T' prefixes have been used to identify individual trees and commence with 'T1'.

'G' prefixes have been used to identify groups of trees.

Species

Species are listed by their common name, both in the schedule and in the report text.

Height and Stem Diameter

The stem diameter of single stemmed trees is measured at 1.5m above ground level and given in millimetres (mm). The diameter measurement of multi-stemmed trees is taken immediately above the root flare. Tree heights are measured in metres (m).

Crown Spread and Height of Crown Clearance

Radial crown spread is measured in metres and is listed for each of the four cardinal points. The canopy shape for individually surveyed trees depicted on the accompanying plans accurately represents the canopy spread as measured on-site.

The height crown clearance is measured above ground in metres from the attachment point of the first significant branch, or the height to which the lowest (living) branch reaches; whichever is the lower.

Age Class

The age of each tree is defined as follows:

Young - within the first third of life expectancy;

Young-Mature - within the second third of life expectancy;

Mature - within the last third of life expectancy;

Over mature - Tree in decline; and

Veteran – tree that, by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned. For the purpose of this report the term 'ancient tree' and 'veteran tree' are interchangeable.

Physiological and Structural Condition

The physiological or structural condition of each tree is defined as either; good, fair, poor or dead. For each tree, where appropriate, notes on the structural integrity are provided on form, taper, forking habit, storm damage, decay, fungi, pests, etc.

An assessment of a tree's physiological condition is defined as:

Good – fully functioning biological system showing expectant vitality for the species i.e. normal bud growth, leaf size, crown density and wound closure.

Fair – fully functioning biological system showing below average vitality i.e. reduced bud growth, smaller leaf size, lower crown density and reduced wound closure

Poor – a biological system with limited functionality showing clear physiological decline, disease or significantly below average vitality i.e. limited bud growth, small and chlorotic leaves, low crown density and limited wound closure.

An assessment of a tree's structural condition is defined as:

Good – no significant structural defects.

Fair – structural defects which could be alleviated through remedial tree surgery or arboricultural management practices

Poor – structural defects which cannot be alleviated through tree surgery or arboricultural management practices.

Estimated Remaining Contribution (ERC) in Years

The Estimated Remaining Contribution (ERC) for each tree is based on species and existing and apparent physiological and structural condition of the tree. The ERC may affect the proposed development layout, since the longer the tree is likely to live the greater the contribution it will make and the greater the need for retention.

<10 - Unsuitable for retention

10 - 20 - Can be retained in the short term

20 – 40 - Will continue to offer benefits for the foreseeable future

40+ - Good longevity potential

Appendix 2: Tree Survey Table

No	Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height of Crown Clearance (m)	Age Class	Physiological Condition	Structural Condition	Estimated Remaining Contribution (Years)	Category Grading	Preliminary Management Recommendations	Root Protection Area msq (and RPA radius in metres from stems)
				N	S	E	W								
G1	Cherry, Cherry Plum, Privet, Cotoneaster, Cypress, Pine, Sycamore	1 – 8	Up to 200	n/a	n/a	n/a	n/a	n/a	Y – YM	Fair – Good	Fair	20 - 40	C2	n/a – off-site trees within adjoining residential curtilage.	Up to **2.4m** development offset from larger stems
Notes: Western boundary residential curtilage. Fragmented hedgerows and scattered garden trees forming a variegated edge. Mixed management and planting styles, typical of domestic context. Observed from site-side only.															
T1	Norway Maple	11	Approx. 300	3	3	3	3	3	YM	Fair – Good	Fair – Good	20 - 40	B1	n/a – off-site tree within adjoining residential curtilage.	40.7m² (**3.6m** radius from stem)
Notes: Off-site maple within adjoining garden. Crown lifted to 3m with dense and rounded mid to upper canopy. Rope swing within western lower canopy with past pruning (flush cuts and occluded wounds) present throughout. Decayed stud to south of stem at 1.5m. Observed from site-side only.															
G2	Dogwood, Hawthorn, Ash, Goat Willow, Hazel, Poplar, Blackthorn, Birch, Privet, Oak, Cherry, Rowan, Sycamore	4 - 6	Av. 70 - 100	n/a	n/a	n/a	n/a	n/a	Y to YM	Fair	Fair – Good	20 - 40	B2	Remedial pruning to remove dead branches, stubs, broken and rubbing branches along site-side. Remove deadwood >50mm dia, or more than 0.5m long. Re-stock with native hedgerow standards to maintain screening.	Up to **1.2m** development offset from larger stems
Notes: Naturalised northern boundary hedgerow tree stock and scattered garden planting. Unmanaged form with leggy, young and gappy tracts of Bramble clad vegetation with basal scrub and remnant fencing throughout. Standing deadwood present.															
T2	Goat Willow	12	Multi-stem 400 + 90 (approx.)	5	5	4	6	0.5	YM	Fair – Good	Fair – Good	20 – 40	B1	n/a – off-site tree within adjoining residential curtilage.	76m² (**4.9m** radius from stem)
Notes: Multi-stemmed Willow beyond northern site boundary. Ivy clad with bifurcated form. High canopy specimen within adjoining garden. Privet hedgerow and ornamental planting to base. Minor dieback and deadwood. Observed from site-side only.															
T3	Sycamore	12	Approx 450	5	5	5	5	0.5	M	Fair – Good	Fair – Good	20 – 40	B1	n/a – off-site tree within adjoining residential curtilage.	91.6m² (**5.4m** radius from stem)
Notes: Large offsite Sycamore beyond northern site boundary. Observed from site-side only. Lower canopy pruning wounds where crown lifted, otherwise good maturity and a dense and rounded form.															

No	Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height of Crown Clearance (m)	Age Class	Physiological Condition	Structural Condition	Estimated Remaining Contribution (Years)	Category Grading	Preliminary Management Recommendations	Root Protection Area msq (and RPA radius in metres from stems)
				N	S	E	W								
T4	Silver Birch	14	Multi-stem 400, 100 + 150 (approx.)	6	6	5	5	0	M	Fair – Good	Fair –Good	20 – 40	B1	n/a – off-site tree within adjoining residential curtilage.	87.1m² (**5.3m** radius from stem)
Notes: Offsite mature Birch with dense and weighty canopy. Multi-stemmed form with shrubby trees and ornamental planting to base. Observed from site-side only.															
G3	Goat Willow	3	70	n/a	n/a	n/a	n/a	0	Y	Fair	Fair	10 – 20	C2	-	**0.8m** development offset from stems.
Notes: Stands of naturalised and self-seeded Goat Willow. Typical bushy form along rail line embankment.															
G4	Cypress, Ash, Cherry Laurel, Spruce	4 - 10	Av. c.70	n/a	n/a	n/a	n/a	0	YM	Fair	Fair	10 – 20	C2	-	**0.8m** development offset from stems.
Notes: Ornamental planting within and defining residential curtilages of No. 70 and 72 Brown Edge Close. Typical form and management for garden setting.															
G5	Sycamore, Ash, Spruce	6 – 8	200 – 450	n/a	n/a	n/a	n/a	n/a	Y to M	Fair – Good	Fair	10 – 20	C2 / B2	n/a – off-site trees within adjoining residential curtilage.	Up to **4.8m** development offset from larger stems
Notes: Lopped Sycamore and Ash trees with tracts of self-seeded infill. Weak screen aligning concrete wall at the edge of rear garden to No.74 Brown Edge Close. Cut back from overhead wires.															
T5	Ash	14	c.500	4	4	4	6	2	M	Fair	Fair – Good	20 – 40	B1	n/a – off-site tree within adjoining residential curtilage.	113.1m² (**6m** radius from stem)
Notes: 60 – 70 year old Ash to rear garden of No.74 Brown Edge Close. Bifurcated at 2m with sizeable occluded pruning wound where stem has been reduced. Lower canopy lifted over adjoining garden with steep level change to east of stem.															
T6	Sycamore	14	500	4	7	4	5	3	M	Fair	Fair – Good	20 – 40	B1	n/a – Off-site specimen.	113.1m² (**6m** radius from stem)
Notes: Off-site roadside Sycamore. Mature specimen bound by hardstanding. Crown lifted over pavement.															
T7	Silver Birch	14	300	6	4	4	5	3.5	YM	Fair	Fair – Good	20 – 40	B1	Reduce southern crown to achieve a clearance of 1m from adjoining property.	40.7m² (**3.6m** radius from stem)
Notes: Clear stem Silver Birch within garden of No.70. Past pruning wounds present with bird box at 3m on north face of stem. High canopy specimen with dense mid to upper canopy. Canopy conflicts with adjacent property to south requiring a crown reduction if retained. Approximately 30 years old.															

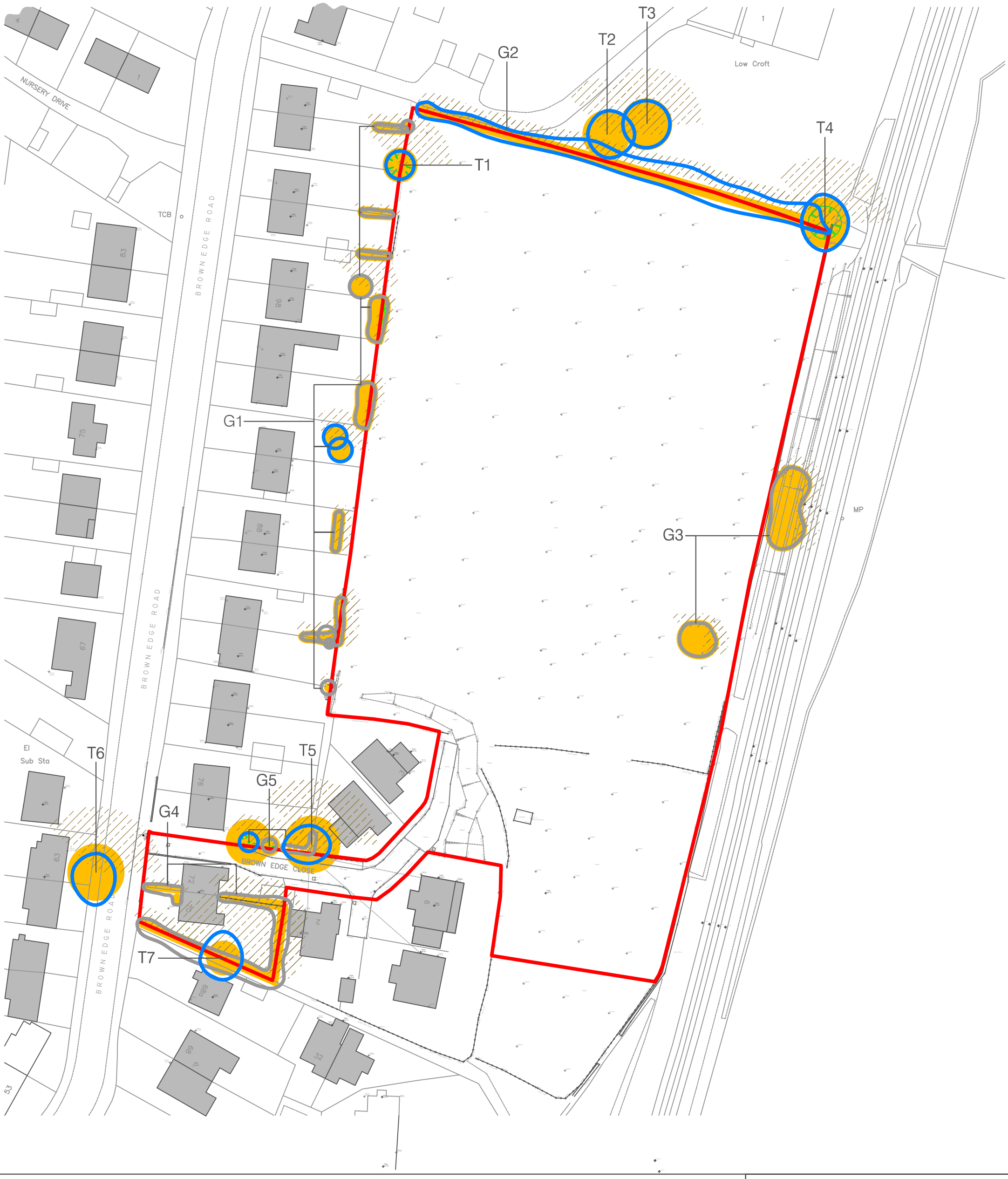
Appendix 3: BS 5837:2012 Cascade Chart for Tree Quality Assessment

Appendix 3: BS 5837:2012 Cascade Chart for Tree Quality Assessment

TREES FOR REMOVAL				
Category and Definition	**Criteria**			**Identification on Plan**
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 (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 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)			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 **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)	LIGHT GREEN
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 remedial 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 benefits.	MID BLUE
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 150mm	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 temporary/transient landscape benefit.	Trees with no material conservation or other cultural value.	GREY

Plan

Findings of Tree Quality Survey & Root Protection Areas (2507/P09)



Site Boundary

Category B - Trees of moderate quality and value

Category C - Trees of low quality and value

BS5837 Calculated Tree Shadow Constraints

Approximate Extent of BS5837 Calculated Root Protection Areas (RPAs)

Revision

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Findings of BS5837 Tree Quality Survey and Root Protection Areas

N

0m 10m 20m

1:750 @ A3

Project	Land adjacent to Brown Edge Close, Buxton
Drawing No	2507/P09
Date	September 2015