Arboricultural impact appraisal and method statement

68–70 Keymer Road, Hassocks, Sussex BN6 8QP

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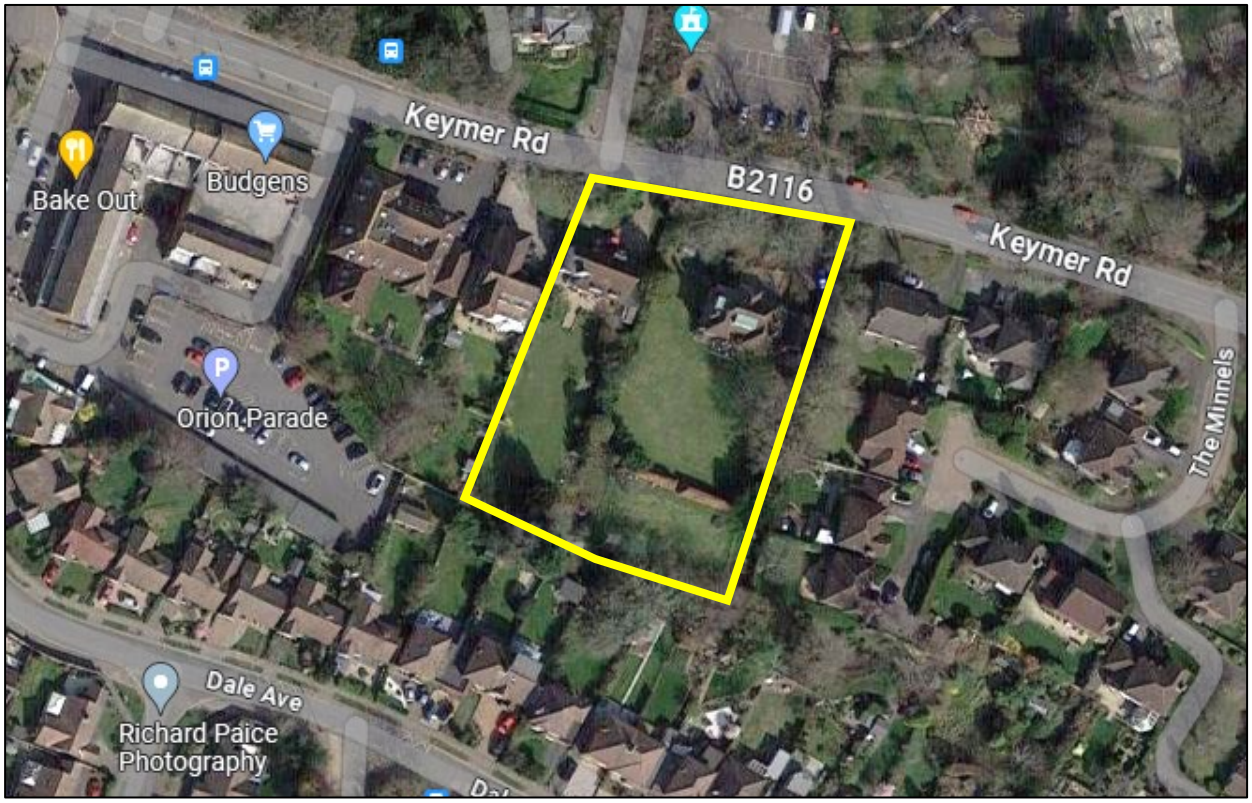
barrell
TREE CONSULTANCY

1st December 2023
23106-AIA2-LF

Site location and report purpose

Site location



This aerial image is supplied courtesy of Google. The yellow line shows the approximate site boundary and is illustrative only.

Report purpose

This arboricultural impact appraisal report provides sufficient information for the Local Planning Authority (LPA) to consider the effect of the proposed development on local character from a tree perspective. It is fully compliant with the BS 5837 advice relating to the planning application stage of the process and it meets national standard planning application validation requirements.

More specifically, the development proposal is for the demolition of existing buildings and redevelopment to form 41 units of retirement living accommodation for older people including communal facilities, access, car parking, and landscaping at 68–70 Keymer Road, Hassocks, Sussex BN6 8QP.

This report includes:

- A **Tree protection plan** illustrating tree locations, categories, the location of the proposed development, and the proposed tree protection measures.
- An **Arboricultural impact appraisal** (section 1 of the report) providing an analysis of the tree issues to assist the LPA in assessing the impact on local character.
- An **Arboricultural method statement** (section 2 of the report) describing how retained trees will be protected and managed during the development activity.
- **Appendices** (**Appendix 1** – Background administrative information and data collection; **Appendix 2** – Tree schedule and explanatory notes; and, **Appendix 3** – QR Codes for Site Guidance Notes (SGNs).
- A companion document to supplement the main report titled ***Manual for managing trees on development sites*** **(Version 3.0)**, which provides explanations of how retained trees will be managed on site in the form of SGNs covering the relevant issues.

1 Arboricultural impact assessment

1.1 Table 1: Summary of trees affected and protected by the proposal

From our review of the constraints and the proposed layout, our assessment of the impact on trees, both during and after development, and those that need protection using special precautions, is summarised in Table 1:

	British Standard 5837 Category		
	A (High quality)	**B (Moderate quality)**	**C (Low quality)**
Remove	None	None	T11, T16, T31, T32, T33, T40–T43, H44, T45, H46, T47, T48, H60, T61–T65, T67, T68, T69, T72–T78
Prune	None	None	None
Protect using special precautions See Notes below	T50, T66	T4, T6, T7, T8, T10, T49, T58	G9

T = Tree; H = Hedge; G = Group

Note on types of protection: All retained trees will be protected during development by using fencing and ground protection, and only those requiring special precautions to limit the impact of encroachment are listed in Table 1.

Note on category U trees: Trees categorised as U are in such poor condition that they have been assessed as needing removal for management reasons irrespective of any development proposals. Removal of category U trees is a management decision and not caused by this proposal, so should not be considered a direct impact.

1.2 Insignificant encroachment into root protection areas (RPAs)

Trees T49, T50, and T70

There is minor encroachment into the nominal circular RPAs for these trees. However, BS 5837 (5.3.1) does allow for encroachment, if any new structures and surfacing is low impact, and if it can be demonstrated that any lost area can be compensated for elsewhere. In this situation, the encroachment is on the outer extent of the RPAs and is relatively small compared to the area that will be left undisturbed, and provision has been made to compensate for this elsewhere near the trees. In our experience, healthy trees can tolerate such minor incursions into their RPAs without any significant adverse impacts on health, and our view is that this will be the case for these trees.

In summary, if the guidance set out in the Manual accompanying this report is observed, our view is that the proposed works can be implemented near these trees without any significant adverse impact on them, and therefore local character.

1.3 The impact of tree removals on local character

Trees and hedges T11, T16, T31, T32, T33, T40–T43, H44, T45, H46, T47, T48, H60, T61–T65, T67, T68, T69, and T72–T78

These are all low-quality trees with very little potential to contribute to local character because of their poor condition and/or small size. They are insignificant in the wider setting and their loss will have no detrimental impact on local character.

1.4 The impact of tree pruning on local character

Other than pruning for normal maintenance, no trees will be pruned because of this development and so there will be no impact on local character for that reason.

1.5 The impact of works in precautionary areas

Our assessment of the impact of encroachment into RPAs that will be managed by special precautions, is as follows:

Removal of existing surfacing and replacement with new surfacing within the RPAs of T4, T6, T7, T8, T49, T50, and T58

These trees may be affected by the removal of existing surfacing and replacement with new surfacing. More specifically, it is proposed to manage the issues as follows:

1. The existing tarmac driveway will be carefully removed within the RPAs of T4 and T58, and the area returned to soft landscaping.
2. The existing tarmac driveway will be carefully removed within the RPAs of T6, T7, and T8, and the area returned to soft landscaping.
3. The existing tarmac driveway will be carefully removed, and a new parking bay installed within the RPAs of T49 and T50. We have carefully reviewed the levels in this area, and it would be feasible to install custom designed no-dig specification surfacing without causing any significant disturbance to the RPAs. From our previous experience at installing such surfacing (www.barrelltreecare.co.uk/case-studies/SurfacingNearTrees.pdf), we are confident that this can be implemented without any long term detrimental impact on tree health, with the detail to be agreed as part of a planning condition. This surfacing solution is within the advice set out in BS 5837 (8.6) and would be appropriate in this situation. The new surfacing must be installed before any construction access to prevent damage to the RPAs from the construction activity.

In all the above areas, the existing hard surfacing must be retained as ground protection until it is ready to be removed, and once those works start, any exposed soil not protected by fencing must be covered with new temporary ground protection until the main construction activity is complete.

In summary, if the guidance set out in SGN 3 *Ground protection*, SGN 7 *Excavating in RPAs* and SGN 9 *Installing/upgrading surfacing in RPAs* is observed, we believe that the proposed works can be implemented without any long-term detrimental impact on tree health, and therefore local character.

New surfacing within the RPAs of T58 and T66

There will be encroachment into the RPAs of these trees in the form of new no-dig surfacing. We have carefully reviewed the levels in these areas, and it would be feasible to install custom designed no-dig specification surfacing without causing any significant disturbance to the RPAs. From our previous experience at installing such surfacing, we are confident that this can be implemented without any long-term detrimental impact on tree health, with the detail to be agreed as part of a planning condition. Access into the CEZ to install the new surfacing within the RPA of T58 must be carefully controlled and subject to strict arboricultural supervision, and the new surfacing within the RPA of T66 must be installed before any construction access to prevent damage to the RPA from the construction activity.

In summary, if the guidance set out in SGN 7 *Excavating in RPAs*, SGN 9 *Installing/upgrading surfacing in RPAs* and SGN 12 *Landscaping in RPAs* is observed, we believe that the proposed works

can be implemented without any long-term detrimental impact on tree health, and therefore local character.

Removal of existing garage within the RPAs of trees T7, T8, G9, and T10

The existing single-storey garage will need to be demolished and removed under strict arboricultural supervision, taking care not to overly disturb any roots that may have grown beneath it.

In summary, if the guidance set out in SGN 8 *Removing surfacing and structures in RPAs* is observed, we believe that the proposed works can be implemented without any long-term detrimental impact on tree health, and therefore local character.

New low-level retaining wall within the RPAs of trees T49 and T58

These trees may be affected by the installation of a new retaining wall, and we understand that the design of it is flexible and open to amendment. Whatever the chosen specification, the design of the wall must be compliant with sections 7.2 and 7.5 of BS 5837, and then constructed in accordance with the guidance in the relevant SGNs, with the detail to be agreed as part of a planning condition.

In summary, if the guidance set out in SGN 7 *Excavating in RPAs* and SGN 10 *Installing structures in RPAs* is followed, we believe that the proposed works can be implemented without any long-term detrimental impact on the health of these trees, and therefore local character.

1.6 Post development considerations

Our assessment is that there will be no adverse impacts through future pressure to fell or severely prune retained trees once the development is completed and occupied.

1.7 New tree planting to enhance local character

New tree planting is feasible as a means of supplementing retained trees and enhancing local character, which could include heavy-standard or semi-mature specimens. The final selection of species, size, and location, would be matters to be agreed with the LPA through a planning condition. All new trees will be specified and planted in accordance with the recommendations in BS 8545 (2014) *Trees: from nursery to independence in the landscape – Recommendations*. Our preliminary assessment is that there is sufficient space for new trees to be planted in locations where they will have the potential to reach a significant height without excessive inconvenience and be sustainable into the long term, significantly improving the potential of the site to contribute to local character.

1.8 Unanticipated upgrading of existing services or installation of new services

Retained trees may be adversely affected by the installation of new services and/or the upgrading of existing services if that work encroaches into their RPAs. However, it is often difficult to know the detail of service locations until the construction is in progress, and sometimes encroachment into RPAs is unavoidable. Where possible, the default approach must be to use any existing service runs and keep all new services outside RPAs. Where existing services within RPAs require upgrading, or new services must be installed in RPAs, great care must be taken to minimise any disturbance. Trenchless installation will be the preferred option, but if that is not feasible, any excavation must be carried out by hand according to the guidelines in SGN 11 *Installing services in RPAs*.

1 Arboricultural impact assessment

1.9 Summary of impact on local character

This proposal will result in the loss of 27 individual trees and three hedges that are all low-quality because of their poor condition and/or small size. All the significant boundary tree cover will remain intact, and no medium or high-quality trees will be removed. There is space for tree planting and a landscaping scheme will be feasible in response to an appropriate condition. The construction activity has the potential to adversely affect retained trees if proper protective measures are not taken. However, if adequate precautions to protect the retained trees are specified and implemented through the arboricultural method statement included in this report, then the development proposal will have no detrimental impact on the contribution of trees to local character.

For these reasons, we conclude that the proposed development would not cause an unacceptable or adverse impact on the character and appearance of the area from a tree perspective.

2 Arboricultural method statement

2.1 Site Guidance Notes (SGNs)

This section of the report identifies which trees on this site will be protected and managed, and by what means. This site-specific summary is supplemented by more detailed explanations and descriptions of specific operations set out in the accompanying *Manual for managing trees on development sites*. That document is a compilation of 12 individual SGNs addressing the following tree protection and management issues that regularly arise in the construction phase of development:

- SGN 1 *Monitoring tree protection* (https://www.barrelltreecare.co.uk/assets/Uploads/SGN-1-Monitoring-V3.pdf)
- SGN 2 *Fencing protected trees* (https://www.barrelltreecare.co.uk/assets/Uploads/SGN-2-Fencing-V3.pdf)
- SGN 3 *Ground protection* (https://www.barrelltreecare.co.uk/assets/Uploads/SGN-3-Ground-Protection-V3.pdf)
- SGN 4 *Pollution control* (https://www.barrelltreecare.co.uk/assets/Uploads/SGN-4-Pollution-V3.pdf)
- SGN 5 *Site cranes & piling rigs* (https://www.barrelltreecare.co.uk/assets/Uploads/SGN-5-Cranes-Rigs-V3.pdf)
- SGN 6 *Height restrictions* (https://www.barrelltreecare.co.uk/assets/Uploads/SGN-6-Height-V3.pdf)
- SGN 7 *Excavating in RPAs* (https://www.barrelltreecare.co.uk/assets/Uploads/SGN-7-Excavation-in-RPAs-V3.pdf)
- SGN 8 *Removing surfacing and structures in RPAs* (https://www.barrelltreecare.co.uk/assets/Uploads/SGN-8-Removing-Surfaces-V3.pdf)
- SGN 9 *Installing/upgrading surfacing in RPAs* (https://www.barrelltreecare.co.uk/assets/Uploads/SGN-9-Installing-Surfacing-V3.pdf)
- SGN 10 *Installing structures in RPAs* (https://www.barrelltreecare.co.uk/assets/Uploads/SGN-10-Structures-V3.pdf)
- SGN 11 *Installing services in RPAs* (https://www.barrelltreecare.co.uk/assets/Uploads/SGN-11-Services-V3.pdf)
- SGN 12 *Landscaping in RPAs* (https://www.barrelltreecare.co.uk/assets/Uploads/SGN-12-Landscaping-V3.pdf)

NOTE: Each individual SGN can be downloaded by using the links above and the QR Code links in Appendix 3.

2.2 Identification of areas to be protected

The tree protection plan shows the areas where protective measures are necessary. The fencing location is shown by the heavy black dashed lines, with the construction exclusion zone behind as the lighter black diagonal hatch. Precautionary areas are shown by a yellow fill, and new temporary ground protection is shown by a blue fill.

2.3 Arboricultural supervision

An arboricultural consultant will be appointed to advise on the tree management for the site and to attend:

- a pre-commencement meeting before any work starts;

- regular supervision visits to oversee the agreed tree protection, as agreed at the pre-commencement meeting; and
- further supervision visits, as necessary, to oversee any unexpected works that could affect trees.

The detail of how the arboricultural supervision will be carried out is explained in SGN 1 *Monitoring tree protection* in the accompanying Manual.

2.4 Table 2: Summary of the site operations requiring arboricultural input

For this site, arboricultural input will be needed for the following operations:

Brief operation summary	Trees affected	Location of detailed explanations
Pre-commencement meeting: Meeting on site with all parties to agree protective measures, as described in SGN 1. Will be carried out before any significant site works begin.	All retained trees	SGN 1 *Monitoring tree protection*
Tree felling: Contractor will carry out agreed works as described in Appendix 2. Will be completed before any significant site works begin.	T3, T11, T16, T31, T32, T33, T40–T43, H44, T45, H46, T47, T48, H60, T61–T65, T67, T68, T69, T72–T78	Appendix 2
Installing fencing and ground protection: Agreed tree protection measures will be installed and checked, as described in SGN 2 and SGN 3. Will be completed before any significant site works begin.	Fencing all retained trees Ground protection for T66	Tree protection plan, SGN 2 *Fencing protected trees*, and SGN 3 *Ground protection*
Pollution control near retained trees: Any pollution control measures identified during risk assessment will be installed as described in SGN 4. Will be completed before any potential pollutants arrive on site.	All retained trees	SGN 4 *Pollution control*
Regular arboricultural supervision: Provision will be made to carry out and record agreed arboricultural supervision, as described in SGN 1.	All retained trees	SGN 1 *Monitoring tree protection*
Excavating in RPAs: These operations will be carried out as described in SGN 7.	T4, T49, T50, T58, T66	SGN 7 *Excavating in RPAs*
Removing surfacing and structures in RPAs: These operations will be carried out as described in SGN 8.	T4, T6, T7, T8, G9, T10, T50, T58	SGN 8 *Removing surfacing and structures in RPAs*
Installing/upgrading surfacing in RPAs: These operations will be carried out as described in the SGN 9.	T4, T49, T50, T58, T66	SGN 9 *Installing/upgrading surfacing in RPAs*
Installing structures in RPAs: These operations will be carried out as described in SGN 10.	T49 & T58	SGN 10 *Installing structures in RPAs*
Installing services in RPAs: These operations will be carried out as described in SGN 11.	All retained trees	SGN 11 *Installing services in RPAs*
Landscaping in RPAs: These operations will be carried out as described in SGN 12.	All retained trees	SGN 12 *Landscaping in RPAs*

2 Arboricultural method statement

Brief operation summary	Trees affected	Location of detailed explanations
Removing tree protection: Protection can only be removed when there is no risk of damage to retained trees, as described in SGN 1.	All retained trees	SGN 1 *Monitoring tree protection*

The operations summarised in this table, and supplemented by the more detailed explanations set out in the SGNs and the rest of this document, form the arboricultural method statement for this site. The Site Manager will ensure that its details and any agreed amendments are known and understood by all site personnel. Copies of the agreed documents will be available on site. All personnel who could have an impact on trees will be briefed on the specific tree protection requirements as part of the site induction procedures. This requirement will be written into the site management documentation.

If unanticipated issues arise on site requiring work approved by the LPA, but not referenced in the above explanations, for example the unexpected need to install services in RPAs, or landscaping in RPAs, further guidance on how to manage them can be found in the accompanying Manual.

Appendix 1: Background administrative information and data collection

A1.1 Table 3: Background administrative information

	Background administrative information
Report date & reference	1st December 2023; 23106-AIA2-LF
Tree protection plan reference	23106-3
Instructing client	Planning Issues Limited
Instructions	Visit the site, assess the relevant trees, prepare a schedule of their details, describe the impact of the proposal on those trees and identify the tree protection issues in an arboricultural method statement with a tree protection plan.
Provided documents	• Topographical survey, drawing reference SU-01, received by email on 4th August 2023 • Layout drawing reference 20090HK_PL_002_P1, received by email on 27th November 2023
Report author and credentials	Lewis Fraser **BSc(Hons) MArborA**
Technical auditor	Jeremy Barrell is a Chartered Forester (www.charteredforesters.org) and a Registered Consultant of the Arboricultural Association (www.trees.org.uk), and is fully qualified to undertake the assessments in this report (https://www.barrelltreecare.co.uk/who-we-are/).
Report limitations	• This report does not consider ecological or archaeological issues, or any other matter beyond the assessment of the trees.
Technical references	In preparing the analysis in this report, we considered the guidance and advice in the following technical references: • Climate Change Act (2008) www.legislation.gov.uk/ukpga/2008/27/contents • Town and Country Planning Act 1990 www.legislation.gov.uk/ukpga/1990/8/contents • National Planning Policy Framework, published by the MHCLG www.gov.uk/government/publications/national-planning-policy-framework--2 • BS 5837 (2012) *Trees in relation to design, demolition and construction – Recommendations*, https://shop.bsigroup.com/ProductDetail?pid=000000000030213642 • BS 8545 (2014) *Trees: from nursery to independence in the landscape – Recommendations*, https://shop.bsigroup.com/ProductDetail?pid=000000000030219672 • BS 3998 (2010) *Tree work – Recommendations*, BSI https://shop.bsigroup.com/ProductDetail?pid=000000000030089960 • *Trees in the Townscape: A Guide for Decision Makers*, published by the Trees & Design Action Group http://www.tdag.org.uk/ • *Trees in Hard Landscapes: A Guide for Delivery*, published by the Trees & Design Action Group www.tdag.org.uk/ • National Joint Utilities Group (2007) Volume 4, Issue 2: *Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees* http://streetworks.org.uk/wp-content/uploads/2016/09/V4-Trees-Issue-2-16-11-2007.pdf
BS 5837 compliance	This report is BS 5837 compliant. *BS 5837 (2012) Trees in relation to design, demolition and construction – Recommendations* is 10 years old. Since its publication, there have been

	Background administrative information
	significant advancements in technology and thinking, informed by a decade of practical experience of putting principles into practice. In the document Foreword, it states: "*Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations*". This statement provides the opportunity for practitioners to claim compliance while moving best practice forward in the context of emerging technology, ideas, and experience. Although much of the BS 5837 content remains relevant and useful for managing trees in a planning context, there are now several aspects that are dated, and it is no longer appropriate to rigidly apply them to current planning submissions. Barrell Tree Consultancy (BTC) specialises in managing trees on development sites and retains a complete paper archive of every project it has carried out since starting business in 1980, with a digital data base listing those from 2004. In the decade since BS 5837 was published (April 2012), interrogation of the BTC archive confirms that we have been involved in a total of 3,884 projects, of which we estimate that about 3,845 were development related, and it is that depth of experience that informs the following statements on BS 5837 compliance. All BTC reports are prepared to be BS 5837 compliant and, although explanations are not explicitly required to claim compliance, the justifications for any deviations from its recommendations are set out below, referenced by the BS clause number: 1. **4.3 – soil assessment:** All BTC consultants have basic training relating to soil assessment and regularly deal with soil issues during their daily work, but none are soil specialists and BTC has no specialist investigation equipment for carrying out the type of soil assessment listed in this BS clause. In a modern development context, it is not for arboricultural consultants to demand or carry out professional soil investigations, and BTC does not do that. However, we will review soil information provided from appropriate specialists, if available, and incorporate that into our assessments. 2. **4.4.2.1 – tagging trees:** In some instances, it is not appropriate to tag trees, e.g., sensitive species, trees that are easily identified without a tag, inadequate access, project confidentiality, client instructions to the contrary, etc, and so although there will be a presumption to tag trees where feasible and appropriate, that may not be possible or necessary in every instance. 3. **4.4.2.5 *e*) – branch spread:** BTC only work from provided topographical surveys and where the branch spreads are shown correctly on those surveys, there is not normally any practical need to regurgitate that information in a schedule. Additionally, in closely spaced groups or in treacherous terrain, it is sometimes not safe or realistically possible to collect this data for every tree. For these reasons, BTC normally only collects crown spread data to the four cardinal points where the provided topographical survey is assessed as unreliable, or where a full canopy cover assessment is requested, and it is both safe and practically feasible to do so. 4. **4.4.2.5 *f*) – branch and canopy height:** In the absence of any definition of '*canopy*' or '*significant*' relating to branches in the *Terms and*

	Background administrative information
	definitions clause, and the lack of any practical guidance for reliably assessing these characteristics, BTC has adopted the following default position. We will only identify the height and orientation of branches where they have the potential to be damaged by vehicular access, i.e., below a height of 6 m, or where their removal would be beyond what the tree could tolerate during normal maintenance management, i.e., the branch removal would significantly adversely affect the health of the tree and potentially compromise its current safe useful life expectancy. 5. **4.4.2.5 *g*) – life stage:** BS 5387 offers examples, but no definitions of what those examples mean. In the absence of a specific BS 5837 recommendation, BTC has reviewed the concept of maturity in a planning context, taking maturity to be a simplistic indication of a tree's ability to cope with change and its potential for further growth. For the purposes of development site advice, BTC conceptualises useful life-stage descriptions as; **young** indicating a potential to significantly increase in size and a high ability to cope with change; **maturing** indicating some potential to increase in size and a medium ability to cope with change; and, **mature** indicating little potential to increase in size and low ability to cope with change. 6. **4.4.2.5 *i*) – estimated remaining contribution:** BTC accepts the category recommendations in Table 1 on the remaining contribution in the context of category, i.e., greater than 40 years for A trees, greater than 20 years for B trees, at least 10 years for C trees, and less than 10 years for U trees, and so this is also not listed separately in the schedule. 7. **4.5.4 – subcategories:** BTC adopts a presumption that all trees are subcategory 1 (Mainly arboricultural qualities) unless noted to the contrary, and so for conciseness and to avoid complication, the subcategory is not listed in the schedule unless it is 2 or 3. 8. **Table 2 and 4.4.2 – colour coding:** The colours included in this table take no account of the inability of some people to distinguish between red and green, which is not helpful to people suffering with this form of colour blindness. To address this discriminatory failing with the BS approach, BTC has adopted a more intuitively obvious regime of green and blue colours, which can be easily distinguished by colour-blind people, with the best category A and B trees (High and moderate quality) being green, and the lower category C and U trees (Low quality and unsuitable for retention) as blue. The differentiation between the two categories in each colour is provided by symbols rather than using different colours. This is clearly shown on the plan key, so there can be no doubt about what category a tree is, which is an intuitive approach to avoiding discrimination of colour-blind people. In any event, the tree category is now included next to each number, so there can be no question about the category and BS 5837 compliance. 9. **5.2.1 – RPAs:** This clause recommends that the RPAs for category A, B, and C trees are shown as the existing constraints on the plans used in the "*concept and design*", i.e., the tree constraints plan. However, the BS

	Background administrative information
	does not explicitly recommend that all those constraints are shown on the tree protection plan, which is logical because only category A (High quality), and category B (Moderate quality) trees can realistically be material constraints, with category C (Low quality) and category U (Unsuitable for retention) trees obviously unsuitable to be determinative of the final design. Although it is not a BS recommendation to include the RPAs of category C trees on the tree protection plan because they cannot be material constraints, it is sometimes helpful as an informative to be able to see them if category C are planned for retention to assess if that is feasible. For that reason, BTC tree protection plans show the RPAs of category C trees as a thin grey line rather than the thicker grey line denoting category A and B RPAs. 10. **5.2.2 Notes 1 and 2 – shading:** These notes offer general information on how shading can be assessed, which is presented in italics. The implications of the convention of using italics within the BS is set out in the Foreword as: "*Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.*" Our interpretation of that statement is that the application of Notes 1 and 2 is not part of the BS recommendations, and is not necessary for BS 5837 compliance. In our experience, the assessment of daylight issues is a specialist discipline and way beyond our expertise as arboriculturists, and so we would defer to an appropriate specialist, where any detailed guidance is required.

A1.2 Table 4: Data collection

	Data collection
Date of site visit	11th August 2023
People present during site visit	Lewis Fraser
Weather & visibility	Dull, still, and dry, with good visibility
Limitations to observations	• The inspection of the trees for the purposes of assessing their condition and work requirements was made on the basis that they will be annually inspected in the future to identify any changes in condition and review the original recommendations. For these reasons, the tree assessment advice only remains valid for one year from the date that the trees were last inspected. • All observations were of a preliminary nature and did not involve any climbing or detailed investigation beyond what was visible from accessible points at ground level. • Observations of trees outside the site boundaries are confined to what was visible from within the site. • All dimensions were estimated unless otherwise indicated.
Statutory protection	Our enquiries through the LPA website indicated that there are three tree preservation orders, LPA references: KY/03/TPO/88, KY/02/TPO/93, and KY/01/TPO/97, on at least 13 of the trees along the northern and eastern boundaries. However, the detail is not clear from the website exactly which trees are covered by KY/03/TPO/88, and so if any tree works are proposed before a planning consent is issued, then further investigations with the LPA will be necessary to establish the full extent of the trees that are protected. There

Appendix 1: Background administrative information and data collection

	Data collection
	are no obvious ancient woodland designations within the survey area, and the site is not within a Conservation Area.
Tree location and numbering	Each tree, hedge, and group, was inspected and the numbering scheme is indicated on the tree constraints plan. Where we found trees on site that were larger than the BS 5837 threshold for inclusion, but were not included on the provided plan, we have illustrated their approximate positions and canopy spreads on the plan.
Crown spreads	We estimated crown spreads according to the guidance in BS 5827, i.e., to the four cardinal compass points, with an approximate extrapolation illustrated on the constraints plan as the green outline. These radial spreads were estimated to the nearest metre and represent our assessment of the viable crown dimensions that would be retainable after normal management. For clarification, the viable crown spread is the size of the main body of the crown, and not necessarily the furthest extent of odd branches that extend out beyond this core of the crown.
Recording of tree data	For each identified tree, hedge, and group, the information collected was recorded on the tree schedule in Appendix 2 and the tree protection plan.
Calculation of RPAs	The RPAs were calculated as recommended in BS 5837, and the nominal RPA radius for each tree is listed in the tree schedule in Appendix 2. Where appropriate, RPAs for trees on the site were adjusted as recommended in BS 5837 and illustrated on the plan.

Appendix 2: Tree schedule and explanatory notes

NOTE: Colour annotation is A & B trees with green background; C & U trees with blue background; trees to be removed in red text.

Tree No	Species	Height (m)	Diameter (cm) @ 1.5 m	Maturity	Low Branches	Category	Notes	Tree Works	RPA Radius (m)
All retained trees & hedges								Carry out safety check and lift over site to 3–4 m as necessary.	
T1	Beech	10	35	Maturing		C	Marginal B category, ivy clad, asymmetric crown, screening value		4.2
T2	Laburnum	3	10	Young		C	Small young tree		1.2
T3	Lime	12	80	Mature		U	Significant stem decay from historic storm damage, imbalanced crown, habitat value	Fell for management	
T4	Lime	14	37.5*	Maturing		B	Slightly asymmetric crown		4.5
H5	Yew	2	10	Maturing		C	Managed boundary hedge		1.2
T6	Beech	12	35	Maturing		B	Marginal B category, ivy clad, slightly asymmetric crown, screening value		4.2
T7	Beech	12	40	Maturing		B	Marginal B category, ivy clad, slightly asymmetric crown, screening value		4.8
T8	Beech	14	35	Maturing		B	Marginal B category, slightly asymmetric crown, close to existing garage, screening value		4.2
G9	Yew, beech	3	20	Young		C	Several small trees between garage flank wall and boundary fence		2.4
T10	Beech	16	60*	Mature		B	Ivy clad, slightly asymmetric crown		7.2
T11	Beech	4	10	Young		C	Small young tree	Fell for development	1.2

Appendix 2: Tree schedule and explanatory notes

Tree No	Species	Height (m)	Diameter (cm) @ 1.5 m	Maturity	Low Branches	Category	Notes	Tree Works	RPA Radius (m)
T12	Beech	20	40*	Maturing		B	Slightly asymmetric crown, suppressed by adjacent trees		4.8
T13	Beech	20	70	Mature		A			8.4
T14	Portugal laurel	5	20	Maturing		C	Overgrown shrub		2.4
T15	Oak	18	67.5*	Mature		A	Marginal A category, slightly asymmetric crown, localised trunk decay at about 8 m north		8.1
T16	Horse chestnut	15	95	Maturing		C	Root buttress damage, bleeding canker on trunk, large cavity at about 2 m south with decay, storm damage throughout crown, sparse foliage, large dead branches throughout	Fell for development	11.4
H17	Yew	2	10	Young		C	Intermittent boundary hedge		1.2
T18	Yew	6	75*	Mature		A			9
T19	Bay	6	25	Maturing		C	Small tree, multi-stemmed		3
T20	Copper beech	16	70	Mature		B	Offsite, many lower branches historically removed		8.4
T21	Hazel	4	25	Maturing		C	Lapsed coppice, multiple stems		3
T22	Oak	10	50*	Maturing		B	Marginal B category, three stems, screening value		6
T23	Hazel	6	50	Mature		C	Lapsed coppice, multiple stems, ivy clad, asymmetric crown, screening value		6
T24	Horse chestnut	8	40	Mature		C	Three stems, ivy clad, poor form, screening value		4.8
T25	Horse chestnut	8	30	Maturing		C	Ivy clad, poor form, heavily suppressed by adjacent trees, screening value		3.6

Appendix 2: Tree schedule and explanatory notes

Tree No	Species	Height (m)	Diameter (cm) @ 1.5 m	Maturity	Low Branches	Category	Notes	Tree Works	RPA Radius (m)
T26	Horse chestnut	8	45	Mature		C	Offsite on other side of stream, ivy clad, sparse foliage, dying		5.4
T27	Horse chestnut	8	40	Mature		C	Offsite on other side of stream, trunk decay		4.8
T28	Hazel	4	25	Maturing		C	Lapsed coppice, multiple stems		3
T29	Holly	3	15	Young		C	Co-dominant stems, small tree on boundary		1.8
T30	Holly	6	25	Maturing		C	Suppressed by adjacent trees, screening value		3
T31	Apple	2	10	Young		C	Small young tree	Fell for development	1.2
T32	Apple	3	25	Maturing		C	Sparse foliage, asymmetric crown, small tree	Fell for development	3
T33	Pear	4	20	Maturing		C	Small young tree	Fell for development	2.4
T34	Ash	10	20	Young		C	Tall and thin, early symptoms of ash dieback disease		2.4
T35	Hazel	3	15	Young		C	Small young tree		1.8
T36	Horse chestnut	16	45*	Maturing		B	Marginal B category, ivy clad, on edge of stream		5.4
T37	Holly	2	10	Young		C	Small young tree		1.2
T38	Holly	2	10	Young		C	Small young tree		1.2
T39	Monterey cypress	16	40	Maturing		C	Offsite, leaning from historic root plate movement		4.8
T40	Pear	4	15	Young		C	Small young tree	Fell for development	1.8
T41	Bay	8	25	Maturing		C	Multiple stems, small tree	Fell for development	3
T42	Yew	3	10	Young		C	Small young tree, sparse foliage	Fell for development	1.2
T43	Variegated holly	6	25	Maturing		C	Small tree, thinning crown	Fell for development	3
H44	Beech	3	10	Maturing		C	Managed hedge	Fell for development	1.2
T45	Cypress	2	10	Young		C	Small young tree	Fell for development	1.2

Appendix 2: Tree schedule and explanatory notes

Tree No	Species	Height (m)	Diameter (cm) @ 1.5 m	Maturity	Low Branches	Category	Notes	Tree Works	RPA Radius (m)
H46	Yew, Portugal laurel, holly, elm	3	15	Maturing		C	Managed boundary hedge comprising mostly ornamental shrub planting	Fell for development	1.8
T47	Oak	6	15	Young		C	Small young tree, poor form, growing out and away from adjacent cedar	Fell for development	1.8
T48	Western red cedar	12	50*	Maturing		C		Fell for development	6
T49	False acacia	16	32.5*	Maturing		B	Marginal B category, slightly asymmetric crown		3.9
T50	Lime	22	85*	Mature		A			10.2
T51	Yew	3	15	Young		C	Small young tree		1.8
T52	Beech	22	65	Mature		A	Marginal A category, slightly asymmetric crown		7.8
T53	Beech	8	30	Maturing		C	Ivy clad, heavily suppressed by adjacent trees		3.6
T54	Beech	16	60*	Maturing		B	Marginal B category, poor form, ivy clad, sparse foliage		7.2
T55	Horse chestnut	16	45*	Maturing		B	Slightly asymmetric crown		5.4
T56	Yew	3	10	Young		C	Small young tree		1.2
T57	Yew	3	10	Young		C	Small young tree		1.2
T58	Horse chestnut	18	80*	Mature		B	Co-dominant stems at 2 m, ivy clad, slightly asymmetric crown, stem decay at secondary crown break		9.6
H59	Holly	1	10	Young		C	Managed hedge		1.2
H60	Laurel	2	10	Young		C	Boundary hedge	Fell for development	1.2
T61	Oak	4	10	Young		C	Small young tree	Fell for development	1.2
T62	Yew	2	10	Young		C	Small young tree	Fell for development	1.2
T63	Lawson cypress	14	45	Maturing		C	Poor form, weak unions throughout crown	Fell for development	5.4

Appendix 2: Tree schedule and explanatory notes

Tree No	Species	Height (m)	Diameter (cm) @ 1.5 m	Maturity	Low Branches	Category	Notes	Tree Works	RPA Radius (m)
T64	Beech	6	20	Young		C	Small and suppressed, asymmetric crown	Fell for development	2.4
T65	Copper beech	12	15	Young		C	Tall and thin	Fell for development	1.8
T66	Oak	20	100	Mature		A	Offsite		12
T67	Monterey cypress	8	65*	Maturing		C	Historically topped, sparse and browning foliage	Fell for development	7.8
T68	Hawthorn	2	10	Young		C	Small young tree	Fell for development	1.2
T69	Ash	5	10	Young		C	Tall and thin	Fell for development	1.2
T70	Yew	8	40	Maturing		B	Slightly asymmetric crown		4.8
T71	Hazel	4	40	Mature		C	Lapsed coppice, multiple stems, asymmetric crown		4.8
T72	Willow	6	15	Young		C	Small young tree	Fell for development	1.8
T73	Cherry	2	10	Young		C	Small young tree	Fell for development	1.2
T74	Crab	3	10	Young		C	Small young tree	Fell for development	1.2
T75	Cherry	3	15	Young		C	Small young tree	Fell for development	1.8
T76	Portugal laurel	5	60	Mature		C	Overgrown shrub	Fell for development	7.2
T77	Birch	4	10	Young		C	Small young tree	Fell for development	1.2
T78	False acacia	4	15	Young		C	Small young tree, asymmetric crown	Fell for development	1.8

Appendix 2: Tree schedule and explanatory notes

Explanatory Notes

- **Abbreviations:**
  - G: Group
  - H: Hedge
  - T: Tree

- **Botanical tree names:**

Apple	: *Malus* sp
Ash	: *Fraxinus excelsior*
Bay	: *Laurus nobilis*
Beech	: *Fagus sylvatica*
Birch	: *Betula* sp
Cherry	: *Prunus* sp
Copper beech	: *Fagus sylvatica* 'Purpurea'
Crab	: *Malus* sp
Cypress	: *Cupressus* sp
Elm	: *Ulmus* sp
False acacia	: *Robinia pseudoacacia*
Hawthorn	: *Crataegus monogyna*
Hazel	: *Corylus avellana*
Holly	: *Ilex aquifolium*
Horse chestnut	: *Aesculus hippocastanum*
Laburnum	: *Laburnum* sp
Laurel	: *Prunus laurocerasus*
Lawson cypress	: *Chamaecyparis lawsoniana*
Lime	: *Tilia* sp
Monterey cypress	: *Cupressus macrocarpa*
Oak	: *Quercus robur*
Pear	: *Pyrus* sp
Portugal laurel	: *Prunus lusitanica*
Variegated holly	: *Ilex aquifolium* 'Variegata'
Western red cedar	: *Thuja plicata*
Willow	: *Salix* sp
Yew	: *Taxus baccata*

- **BS 5837 (2012) compliance:** All data has been collected based on the recommendations set out in subsection 4.4 of BS 5837.
- **Tree checks and site limitations:** Each tree was subjected to a quick visual check level of inspection. Where there is restricted access to the base of a tree, its attributes are assessed from the nearest point of access. Climbing inspections are not carried out during this level of inspection and, if heavy ivy is present, tree condition is assessed from what can be seen from the ground. A separate note is recorded if further investigation may be required to clarify its status.
- **Crown spreads:** Crown radial spreads were estimated to the nearest metre and represent our assessment of the viable crown dimensions that would be retainable after normal management. For clarification, the viable crown spread is the size of the main body of the crown, and not necessarily the furthest extent of odd branches that extend out beyond this core of the crown.
- **Dimensions:** All dimensions are estimated unless otherwise indicated with an asterix (*) after the figure.
- **Species:** Species identification is based on visual observations. Where there is some doubt over tree identity, sp is noted after the genus name to indicate that the species cannot be reliably identified at the time of the survey. Where there is more than one species in a group, only the most frequent are noted and not all the species present may be listed.
- **Height:** Height is estimated to provide a broad indication of the size of the tree.
- **Trunk diameter:** Trunk diameter is estimated or measured (with a diameter tape), at the discretion of the consultant. Estimates may be made where access is restricted, direct measurement is prevented because of ivy

on the trunk, or the tree is assessed as low quality. The point of measurement and the adjustments for stem variations are as advised in Figure C1 of BS 5837. Individual diameters for multiple stems are recorded in the notes, with the calculated cumulative diameter recorded in the diameter column.

- **Maturity:** In planning context, maturity provides a simplistic indication of a tree's ability to cope with change and its potential for further growth. For the purposes of this report, young indicates a potential to significantly increase in size and a high ability to cope with change, maturing indicates some potential to increase in size and a medium ability to cope with change, and mature indicates little potential to increase in size and limited ability to cope with change.
- **Low branches:** Any low branches that would not be feasible for removal during normal management and should be considered as a design constraint are noted here and explained in the notes.
- **Category:** Our assessment automatically considered tree physiological/structural condition (BS 5837, 4.4.2.5*h*), and so these are not listed separately in the schedule. Additionally, the category accounts for the remaining contribution (BS 5837, 4.4.2.5*i*) as greater than 40 years for A trees, greater than 20 years for B trees, at least 10 years for C trees and less than 10 years for U trees, so this is also not listed separately in the schedule. Category A, B and C trees are automatically listed as sub-category 1 unless otherwise stated.
- **Notes:** Only relevant features relating to physiological or structural condition and low branches that may help clarify the categorisation are recorded. If there are no notes, then the presumption should be that no relevant features were observed.
- **Tree works:** The following points should be considered before carrying out any works:
  1. **Reporting during work operations:** In the context of the preliminary nature of the tree inspection, any defects that may affect tree safety discovered by the contractor when carrying out the work recommendations should be reported to the supervising officer. Modification to the schedule of works may be required because of these reports. The contractor should be specifically instructed on this point.
  2. **Implementation of works:** All tree works should be carried out to BS 3998 *Recommendations for Tree Work* as modified by more recent research. It is advisable to select a contractor from the local authority list and preferably one approved by the Arboricultural Association. Their Register of Contractors is available free from The Malthouse, Stroud Green, Standish, Stonehouse, Gloucestershire GL10 3DL; phone 01242 522152; website www.trees.org.uk.
  3. **Statutory wildlife obligations:** The Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000 provides statutory protection to birds, bats and other species that inhabit trees. All tree work operations are covered by these provisions and advice from an ecologist must be obtained before undertaking any works that might constitute an offence.
  4. **Stumps:** Stumps to be removed within the RPAs of retained trees should be ground out with a stump grinder to minimise any disturbance unless otherwise authorised by the supervising officer.
- **RPAs:** The RPAs were calculated as recommended in BS 5837, and the nominal RPA radius for each tree listed, irrespective of any modifying factors. Where appropriate, RPAs for trees on the site may have been adjusted as recommended in BS 5837 and illustrated on the plan.
- **Future tree safety inspections:** Due to the time that may elapse between the original survey and the start of development, all trees should be re-inspected as part of the standard risk management process before any works start on site. Our assessment of the trees was carried out on the basis that a re-inspection would be carried out within a year of the assessment visit and our advice on tree condition must be reviewed annually from the date of that visit.

Appendix 3: QR Codes for SGNs (Scan with reader to download)

SGN 1 *Monitoring tree protection*	SGN 2 *Fencing protected trees*	SGN 3 *Ground protection*
SGN 4 *Pollution control*	SGN 5 *Site cranes & piling rigs*	SGN 6 *Height restrictions*
SGN 7 *Excavating in RPAs*	SGN 8 *Removing surfacing and structures in RPAs*	SGN 9 *Installing/upgrading surfacing in RPAs*
SGN 10 *Installing structures in RPAs*	SGN 11 *Installing services in RPAs*	SGN 12 *Landscaping in RPAs*

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