

Arboricultural Assessment & Method Statement
Bicester Village Retail Outlet Centre, 50 Pringle Drive,
Bicester, Oxfordshire

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The logo for Barrell Tree Consultancy features the word "barrell" in a bold, lowercase, sans-serif font. The letter "l" is stylized with a vertical bar extending upwards. Below "barrell" is the text "TREE CONSULTANCY" in a smaller, uppercase, sans-serif font. The logo is positioned on a white background, with a dark purple rectangular block above it and a light purple rectangular block below it.

barrell
TREE CONSULTANCY

Report purpose, validation statement and tree protection plan

Report purpose

This is a BS 5837 compliant arboricultural assessment report providing sufficient information for the Local Planning Authority (“LPA”) to consider the effect of the proposed development on local character from a tree perspective. It includes an analysis of how trees will be affected and an arboricultural method statement describing how retained trees will be protected and managed during the development activity. It is fully in line with the BS 5837 advice relating to the planning application stage of the process highlighted in Table B1 reproduced below:

Stage of process	Minimum detail	Additional information
Pre-application	Tree survey	Tree retention/removal plan (draft)
Planning application	<p>Tree survey (in the absence of pre-application discussions)</p> <p>Tree retention/removal plan (finalized)</p> <p>Retained trees and RPAs shown on proposed layout</p> <p>Strategic hard and soft landscape design, including species and location of new tree planting</p> <p>Arboricultural impact assessment</p>	<p>Existing and proposed finished levels</p> <p>Tree protection plan</p> <p>Arboricultural method statement - heads of terms</p> <p>Details for all special engineering within the RPA and other relevant construction details</p>
Reserved matters/ planning conditions	<p>Alignment of utility apparatus (including drainage), where outside the RPA or where installed using trenchless method</p> <p>Dimensioned tree protection plan</p> <p>Arboricultural method statement – detailed</p> <p>Schedule of works to retained trees, e.g. access facilitation pruning</p> <p>Detailed hard and soft landscape design</p>	<p>Arboricultural site monitoring schedule</p> <p>Tree and landscape management plan</p> <p>Post-construction remedial works</p> <p>Landscape maintenance schedule</p>

Validation statement

For LPA validation purposes, this report includes:

- a **BS 5837 compliant tree survey**, including a tree protection plan showing the location of the existing trees, their categorisation, the location of the proposed pedestrian bridge and hard surfaced pathway, the trees to be removed, the new trees to be planted and the tree protection measures;
- an **arboricultural assessment** in Section 1, which describes how the development proposal will affect local character from a tree perspective;
- an **arboricultural method statement** in Section 2 describing the tree protection and management measures, and how they should be implemented; and
- two **appendices** in Section 3 setting out the background administrative information and a schedule of tree information.

Report purpose, validation statement and tree protection plan

The tree protection plan

More specifically, the tree protection plan is based on the provided information and it should only be used for dealing with the tree issues. It shows:

- the existing trees numbered, with high/moderate categories (A & B) highlighted in green triangles and low/unsuitable categories (C & U) highlighted in blue rectangles;
- the circular interpretation of root protection areas ("RPA") of category A, B and C trees (grey circles);
- the tree/s to be removed indicated by a red number and crown outline; and
- the location of the construction exclusion zone ("CEZ"), which is the area of restricted access, to be protected by temporary barriers (fencing and/or ground protection); and
- the location of the new structural tree planting.

Summary

1. The development proposal

The development proposal is to establish a new pedestrian footbridge at Bicester Village Retail Outlet Centre, 50 Pringle Drive, Bicester, Oxfordshire

2. Background administrative information

Our instructions, how we prepared this report and other relevant background information is explained in Appendix 1. All the trees that could be affected were inspected and that information is listed in Appendix 2.

3. Table 1: Summary of category B and C trees to be removed

	British Standard 5837 Category		
	A (High quality)	B (Moderate quality)	C (Low quality)
Remove	None present at site	None	1, 2, 3 and 4

Note: Tree 5 is a category U tree and is of such poor condition that it should be removed irrespective of the development proposal and as such it is not appropriate for it to be included in this summary.

4. Table 2: Summary of the impact on local character of tree removal and pruning, and proposed mitigation

	Tree number(s)	Impact on local character	Mitigation
	1, 2, 3 and 4	Limited impact and retained trees will offset any noticeable change in the locality.	New tree planting

5. Enhancement through new tree planting

In order to enhance the setting and amenity of the locality the scheme has made provision for the establishment of four semi-mature Cypress oaks (*Quercus robur 'Fastigiata'*), to the south of the new pedestrian footbridge. These new trees will have the potential to reach a significant height without excessive inconvenience to users of the footbridge or adjacent hard surfacing.

6. Overall assessment of how the development proposal will affect local character from a tree perspective

This proposal will result in the loss of a small number of trees that are all of low quality categorisation because of their poor unsustainable condition or small size. The loss of these trees will not result in any significant adverse impact on visual amenity or landscape character. There is plenty of space within the proposed changes for tree planting to be undertaken and a new planting scheme using semi-mature nursery stock is set out as part of the proposal. The size of these new trees and their future growth will significantly enhance the contribution of this part of the Bicester Village complex site to locality and more than compensate for the proposed loss of a limited number of low quality trees. The construction activity may affect retained trees if appropriate protective measures are not taken. However, if adequate precautions to protect these retained trees are specified and implemented through the arboricultural method statement included in this report, then the development proposal will have no adverse impact on the contribution of trees to character in the wider setting. Indeed, the new sustainable planting proposals will increase the potential of the site to contribute to local character well beyond the short term.

Section 1

Arboricultural assessment

This arboricultural assessment has taken account of all the recommendations set out in 5.4 of BS 5837 (reproduced courtesy of BSI below).

5.4 Arboricultural impact assessment

5.4.1 The project arboriculturist should use the information detailed in 5.2 and 5.3 to prepare an arboricultural impact assessment that evaluates the direct and indirect effects of the proposed design and where necessary recommends mitigation.

5.4.2 The assessment should take account of the effects of any tree loss required to implement the design, and any potentially damaging activities proposed in the vicinity of retained trees. Such activities might include the removal of existing structures and hard surfacing, the installation of new hard surfacing, the installation of services, and the location and dimensions of all proposed excavations or changes in ground level, including any that might arise from the implementation of the recommended mitigation measures. In addition to the impact of the permanent works, account should be taken of the buildability of the scheme in terms of access, adequate working space and provision for the storage of materials, including topsoil.

NOTE Scaled cross-sections and other drawings might be required to demonstrate the feasibility of the proposals (see Annex B).

5.4.3 As well as an evaluation of the extent of the impact on existing trees, the arboricultural impact assessment should include:

- a) the tree survey (see 4.4);
- b) trees selected for retention, clearly identified (e.g. by number) and marked on a plan with a continuous outline;
- c) trees to be removed, also clearly identified (e.g. by number) and marked on a plan with a dashed outline or similar;
- d) trees to be pruned, including any access facilitation pruning, also clearly identified and labelled or listed as appropriate;
- e) areas designated for structural landscaping that need to be protected from construction operations in order to prevent the soil structure being damaged;
- f) evaluation of impact of proposed tree losses;
- g) evaluation of tree constraints (see 5.2) and draft tree protection plan (see 5.5);
- h) issues to be addressed by an arboricultural method statement (see 6.1), where necessary in conjunction with input from other specialists.

Section 1: Arboricultural assessment

7. Table 3: The impact of tree removal on local character

Tree number(s)	Impact of tree removal
1	This tree appears to be a relatively recently planted tree associated with the formal landscaping of this part of the Bicester Village complex. Due to its size it has no significance or prominence within the locality and its loss will not result in any adverse impact.
2, 3 and 4	These trees are visible as part of a group context from surrounding vantages but are not individually prominent. The retention of trees numbered 6-12 to the immediate north will ensure that any observable impact arising from the loss of these three trees will be restricted to the short term only.

Note: 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 (specific to this site this situation relates to one tree T5). Removal of this category U tree will be a management decision; the loss will not be caused by this proposal and therefore it should not be considered as a direct impact.

8. New tree planting to mitigate tree removals

The development proposal provides an opportunity to establish new tree planting within this part of the Bicester Village complex. Four Cypress oaks of semi mature nursery stock size (minimum height of 6m at point of planting) will be established at the positions shown on the tree protection plan. The new trees would have the potential to reach a significant height without risk of causing excessive inconvenience to users of the footbridge and adjacent hard surfacing and will be sustainable into the long term, significantly improving the potential of this part of the site to contribute to local character.

9. Summary of the impact on local character

This proposal will result in the loss of a small number of trees that are all of low quality categorisation because of their poor unsustainable condition or small size. The loss of these trees will not result in any significant adverse impact on visual amenity or landscape character. There is plenty of space within the proposed changes for tree planting to be undertaken and a new planting scheme using semi-mature nursery stock is set out as part of the proposal. The size of these new trees and their future growth will significantly enhance the contribution of this part of the Bicester Village complex site to locality and more than compensate for the proposed loss of a limited number of low quality trees. The construction activity may affect retained trees if appropriate protective measures are not taken. However, if adequate precautions to protect these retained trees are specified and implemented through the arboricultural method statement included in this report, then the development proposal will have no adverse impact on the contribution of trees to character in the wider setting. Indeed, the new sustainable planting proposals will increase the potential of the site to contribute to local character well beyond the short term.

Section 2

Arboricultural method statement

This arboricultural method statement has taken account of all the recommendations set out in 6.1 of BS 5837 (reproduced courtesy of BSI below).

6.1 Arboricultural method statement

6.1.1 A precautionary approach towards tree protection should be adopted and any operations, including access, proposed within the RPA (or crown spread where this is greater) should be described within an arboricultural method statement, in order to demonstrate that the operations can be undertaken with minimal risk of adverse impact on trees to be retained.

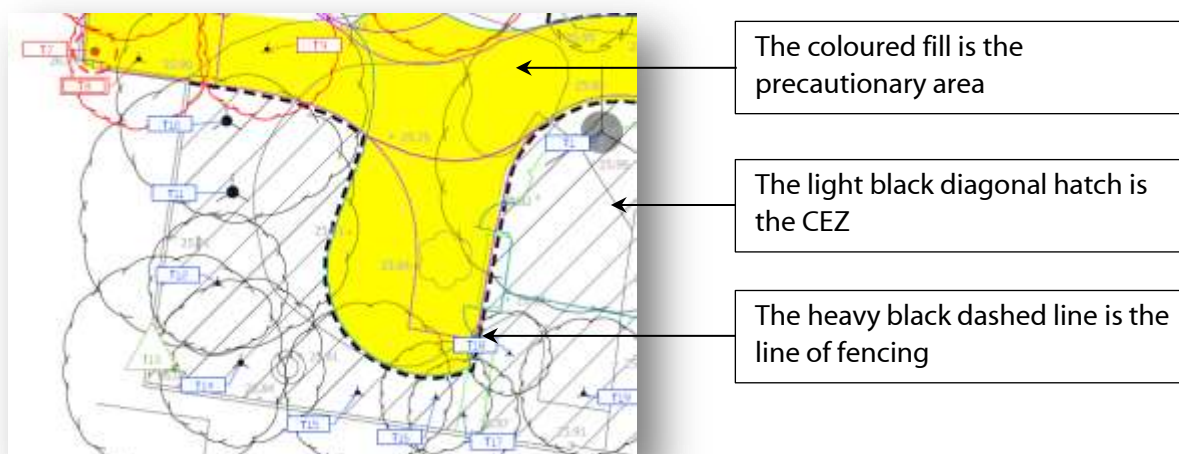
6.1.2 The arboricultural method statement should be appropriate to the proposals and might typically address some or all of the following, incorporating relevant information from other specialists as required:

- a) removal of existing structures and hard surfacing;
- b) installation of temporary ground protection (see **6.2.3**);
- c) excavations and the requirements for specialized trenchless techniques (see **7.7.2**);
- d) installation of new hard surfacing – materials, design constraints and implications for levels;
- e) specialist foundations – installation techniques and effect on finished floor levels and overall height;
- f) retaining structures to facilitate changes in ground levels;
- g) preparatory works for new landscaping ;
- h) auditable/audited system of arboricultural site monitoring, including a schedule of specific site events requiring input or supervision.

Section 2: Arboricultural method statement

10. Identification of areas to be protected

The tree protection plan (typical annotation illustrated below) shows all the areas where protective measures are necessary. The construction exclusion zone ("CEZ") boundary is shown on the plan as the heavy dashed black line, with the lighter diagonal hatching behind. If necessary, further precautionary areas outside the CEZ are shown on the plan as a coloured fill, where a high level of care is required.



11. Construction method statement (heads of terms summary)

A construction method statement is a description of how operations that may affect trees will be carried out to minimise any adverse impact on them. The details of how the site will be managed are construction and contractual matters that can only be finalised once the post-consent detailed planning begins. For that reason, at this stage in the planning process, it is only possible to list a heads of terms summary of the issues that will require more detailed consideration once consent is issued. The issues that may require further clarification on this site include:

1. The order of work on site, including demolition, site clearance and building work.
2. Erection and maintenance of security hoarding near trees.
3. Who will be responsible for protecting the trees on site.
4. Detailed proposals for inspecting and supervising the tree protection, and how problems will be reported and solved.
5. Details of facilitation pruning and access into site. What size vehicles will be used under canopies and will large machinery be lifted over trees.
6. The parking arrangements for workers and visitors.
7. A schedule of emergency contact numbers.
8. Areas for loading and unloading of materials and storage of materials and plant.
9. Where site facilities/storage/loading will be located and when will they be installed.
10. How machinery and equipment (such as excavators and their loads, concrete pumps and piling rigs) will enter, move on, work on and leave the site.
11. Wheel washing facilities near trees.
12. Measures to control the emission of dust and dirt during construction near trees.
13. Details of earthworks, grading and mounding and removal of spoil, including any planned lowering or raising of ground levels.
14. Details of piling operations.
15. Precise services locations, including the method of excavation when near trees.

Note: It is not our role as arboricultural consultants to detail the timing and implementation of these measures, although we can input into the process and will need to confirm that the final proposals will not adversely affect retained trees.

Section 2: Arboricultural method statement

12. Arboricultural supervision

An arboricultural consultant should be appointed by the developer 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; and
- further supervision visits as necessary to oversee any unexpected works that could affect trees.

More specifically, the form and purpose of the supervision should be as follows:

- **Pre-commencement meeting:** A pre-commencement meeting should be held on site before any of the site clearance and construction work begins. This would normally be attended by the site manager, the arboricultural consultant and a local planning authority ("LPA") representative. In the event that a LPA representative declines to be present, the arboricultural consultant should inform the LPA in writing of the details of the meeting. All tree protection measures detailed in this document should be fully discussed so that all aspects of their implementation and sequencing are understood by all the parties. This should include agreeing the form and location of the most appropriate combination of fencing and/or ground protection to be used as barriers for the CEZ. Any agreed clarifications or modifications to the consented details will be recorded and circulated to all parties in writing. This meeting is where the details of the programme of tree protection should be agreed and finalised, which should then form the basis of any supervision arrangements between the arboricultural consultant and the developer.
- **General site management:** It is the developer's responsibility to ensure that the details of this arboricultural method statement and any agreed amendments are known and understood by all site personnel. Copies of the agreed documents should be available on site and the site manager should brief all personnel who could have an impact on trees on the specific tree protection requirements. This should be a part of the site induction procedures and written into appropriate site management documents.
- **Ongoing supervision of operations that could affect trees:** Once the site is active, the arboricultural consultant should visit at an interval agreed at the pre-commencement site meeting. This would normally be every two to four weeks for general supervision, but could be at a longer interval if agreed between the parties. The supervision arrangement should be sufficiently flexible to allow the supervision of all sensitive works as they occur. The arboricultural consultant's initial role is to liaise with the developer and the LPA to ensure that protective measures are fit for purpose and in place before any works start on site. Once the site is working, that role should switch to monitoring compliance with arboricultural planning conditions and advising on any tree problems that arise or modifications that become necessary.

13. Summary of the tree issues to be project managed by the supervising arboriculturist

In overview, it is anticipated that arboricultural input is likely to be needed for the following operations:

1. Pre-commencement meeting
2. Preliminary tree felling and pruning
3. Installation of CEZ barriers (fencing and/or ground protection)
4. Pollution control near retained trees
5. Installation of new structures adjacent to RPAs and within RPAs of C category trees
6. Installation of new services and/or upgrading of existing services in RPAs
7. Upgrading existing soft landscaping
8. Removal of protective measures
9. Tree planting and general landscaping

Section 2: Arboricultural method statement

14. **Table 4:** Suggested programme of arboricultural supervision during the development process

Finalising tree management details after consent, but before work starts	
Action	Arboricultural input
Review of tree protection and any emerging design issues that may affect trees with the construction team	<ul style="list-style-type: none"> • Meeting/discussion with relevant members of the developer's team to explain the extent of the tree constraints • Review working space requirements to consider barrier and ground protection adjustments to improve site functionality • Review drainage proposals and identify potential conflicts with RPAs • Review any post-consent layout changes that may affect trees • Review all works within RPAs that may affect trees • Identify any potential conflicts and work towards resolutions • Preparation of working drawings, if necessary
Review consented tree protection proposals for discussion at pre-commencement meeting	If necessary: <ul style="list-style-type: none"> • prepare revised plans and specifications • liaise with LPA to discuss modifications
Briefing landscape architect on restrictions imposed on new landscape design by RPAs	<ul style="list-style-type: none"> • Advise landscape architect of the RPA locations, the restrictions to landscaping activity that applies and the details of agreed new tree planting • Review the final landscaping proposals to identify any conflicts between tree protection and landscaping
Pre-commencement site meeting with supervising arboriculturist, site manager and the LPA representative (if appropriate)	<ul style="list-style-type: none"> • Meeting on site • Agree detail of supervision requirements, i.e. frequency of visits and reporting • Review any updated proposals • Review tree protection, if already installed
Site operations before work starts on site	
Action	Arboricultural input
Tree works carried out	<ul style="list-style-type: none"> • Review the site requirements with the tree work contractor
Installation of tree protection for agreement by the LPA	<ul style="list-style-type: none"> • If appropriate, preparation of any revised plans and specifications for agreement by the LPA • Photographs showing relevant aspect of installed tree protective measures • Liaise with the contractor installing protection until satisfactorily completed
Site preparation	<ul style="list-style-type: none"> • Liaise with the demolition contractor about tree protection
Operations that could affect trees during construction	
Action	Arboricultural input
Installation of new supports for footbridge	<ul style="list-style-type: none"> • Meeting with contractor for briefing before work starts, with further visits as necessary at the discretion of the arboricultural consultant
Removal of barriers and ground protection	<ul style="list-style-type: none"> • Meeting with contractor for briefing before work starts, with further visits as necessary at the discretion of the arboricultural consultant • NOTE: This should only be authorised once there is no risk of RPA damage from the construction activity
Installation of new services (lighting for bridge etc)	<ul style="list-style-type: none"> • Meeting with contractor for briefing before work starts, with further visits as necessary at the discretion of the arboricultural consultant
Operations that could affect trees after construction is completed	
Action	Arboricultural input
New tree planting	<ul style="list-style-type: none"> • Check tree size, species, quality, handling, site preparation and planting comply with the specification
Soft and hard landscaping	<ul style="list-style-type: none"> • Meeting with contractor for briefing before work starts, with further visits as necessary at the discretion of the arboricultural consultant
Tree planting maintenance	<ul style="list-style-type: none"> • Liaise with landscape contractor to check maintenance complies with the specification

Section 2: Arboricultural method statement

The precise order and timing of some of these operations may change due to site operating requirements, but all operations that could affect trees should remain under arboricultural supervision.

15. Tree works

In most situations, the tree works need to be carried out before the main construction activity starts. Tree works, based on our assessment of the proposal and the original site inspection, are set out in the work recommendations column of the tree schedule in Appendix 2. The location of each tree by number is shown on the tree protection plan and any to be removed are indicated with a red number and red crown outline. All tree works must be reassessed before any site activity starts as part of the standard risk management process.

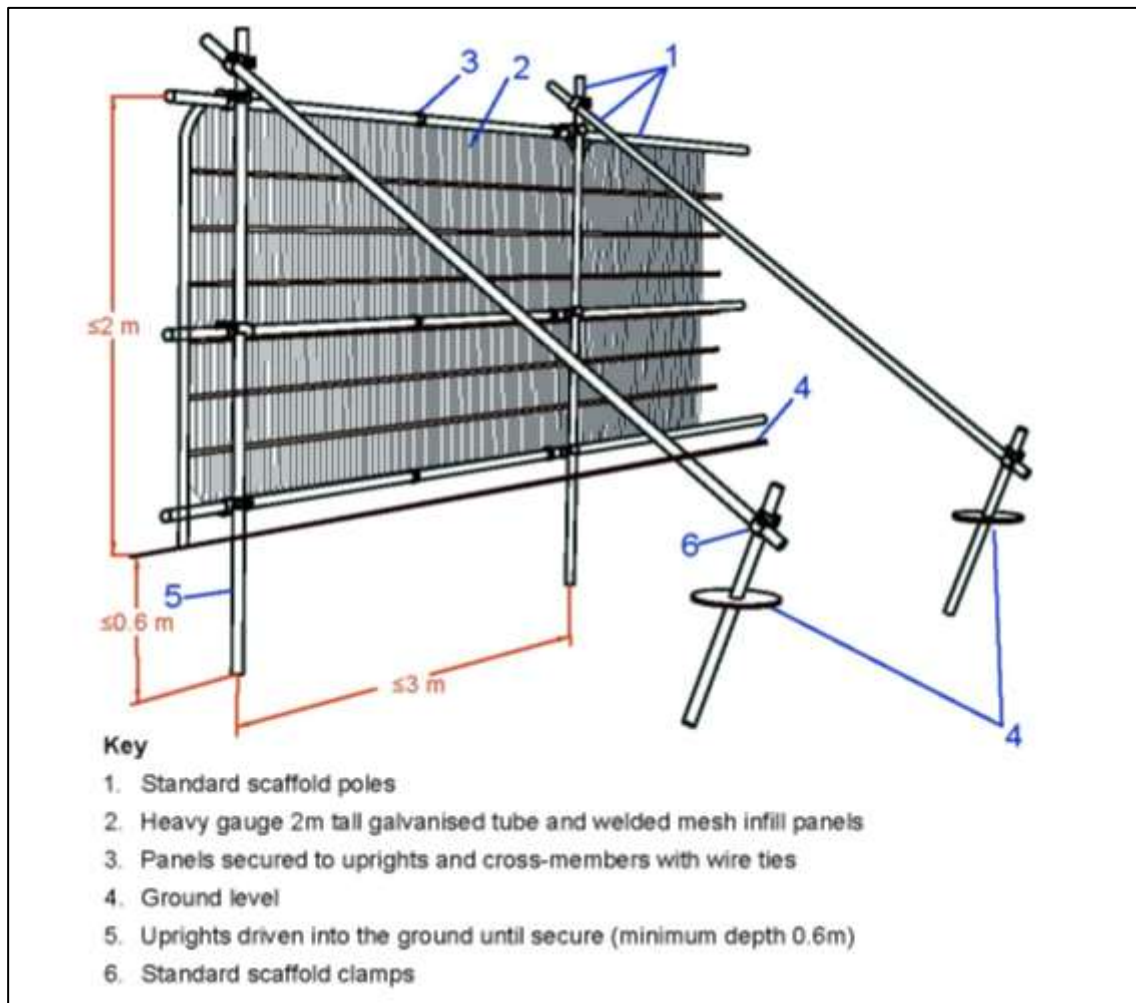
16. Primary tree protection using fencing

The CEZ is the RPA surrounding retained trees that must be protected from any disturbance by the construction activity. In practice, this can be done by any combination of fencing and ground protection, to be finalised and agreed at the pre-commencement meeting. Whether the CEZ is protected by fencing or ground protection, all the protective measures should be installed before the start of any site works that could affect trees. No protective measures should be removed or temporarily dismantled without consulting the supervising arboriculturist. Furthermore, the condition of all the protective measures should be regularly monitored to ensure they remain fit for purpose. The main means of preventing damage to trees and their RPAs in the CEZ are fencing, barriers and ground protection.

Protective fencing should be installed at the locations shown on the tree protection plan by the heavy black dashed line. If agreed with the LPA, fencing can be set back to improve access, provided the exposed ground is protected with ground protection. Various fencing options are illustrated in Fencing images 1–5. The minimum specification for the fencing should be as described in figure 2 of BS 5837 (Fencing image 1) or an equivalent design that effectively restricts access to the RPA it protects.

The precise form of the fencing can vary, provided it is fit for purpose in that it effectively restricts access and damaging activities within the RPA that it encloses. More specifically, behind the fencing, there should be no vehicular access; no fires; no storage of excavated debris, building materials or fuels; no mixing of cement; no service installation or excavation; no raising or lowering of soil levels; and no excessive cultivation for landscape planting. Any variations to these restrictions should be agreed by the supervising arboriculturist.

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Fencing image 1: Recommendations taken from figure 2 of BS 5837.



Fencing image 2: Heras fencing wired to scaffold braced posts is a robust and effective interpretation of the BS specification.



Fencing image 3: Close up of bracing detail, essential for increasing the stability of the vertical framework.

Where individual trunks or branches are vulnerable to impact damage, a framework of scaffold or wood can be constructed to provide protection (Fencing images 4 and 5).

Section 2: Arboricultural method statement



Fencing image 4: A scaffold-braced framework surrounding the trunk reduces the risk of accidental impact.



Fencing image 5: Board secured to scaffold framework adds another layer of protection for vulnerable trunks and branches

17. Primary tree protection using ground protection

Where it is not practical to protect the CEZ by the use of fencing alone, BS 5837 (6.2.3) allows for the fencing to be set back and the soil protected by ground protection. This allows improved access during construction, with the ground protection preventing damage to the CEZ outside the protection of the fencing. A range of methods can be used, including retaining existing hard surfacing or structures that already protect the soil, installing new materials, or a combination of both. Whatever the choice of method, the end result must be that the underlying soil (rooting environment) remains undisturbed and retains the capacity to support existing and new roots. Ground protection images 1–8 illustrate a range of practical surface coverings that can effectively protect CEZs of retained trees.



Ground protection image 1: Heavy-duty plywood set onto a compressible woodchip layer and pinned into position is suitable to spread the loading from pedestrian access.



Ground protection image 2: Spreading soil excavated from footings is an effective way of buffering the plywood surface from the wear of light vehicles.



Ground protection image 3: Plywood fixed to a wood frame is another effective method of protecting soil from pedestrian compaction.



Ground protection image 4: A scaffold framework attached to the main scaffold fencing can be used to support either scaffold planks or plywood to create an elevated platform.

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Ground protection image 5: Cellular products are a very effective means of providing ground protection where heavy vehicle use is expected. Here, it is being used to temporarily widen an existing road, to be removed once the construction is finished.



Ground protection image 6: Custom designed sectional tracks can be joined to support very heavy traffic use through sensitive areas.



Ground protection image 7: A combination of retaining existing surfacing and using temporary construction cabin accommodation can be a very effective means of preventing damage to sensitive areas.



Ground protection image 8: Steel plates can be an effective way of temporarily reinforcing weak surfacing over a construction access during the development activity.

On this site, all the precautionary areas annotated with yellow shading on the tree protection plan should be protected with ground protection while vulnerable to damage, in line with the above examples. Where appropriate, any existing hard surfacing can be retained and utilised. Any surfacing to be retained that is disrupted during the course of the construction activity can be replaced, reconditioned or upgraded as necessary. This work should be subject to arboricultural supervision.

18. Extra precautions – pollution control near retained trees

The following guidance should be applied wherever risk assessment identifies a significant risk of chemical pollution.

Spilt chemicals that can soak into RPAs will kill existing roots and may prevent new roots growing, so provision must be made to minimise the risk of contamination to soil within the normal risk management protocols for the site. This would normally include means of containing spillages and procedures for clearing them up if they occur (Pollution image 1). All cement mixing and vehicle washing points must be located outside RPAs, with provision to contain any spillages. Where the contours of the site create a risk of polluted water or toxic liquids running into RPAs, a precautionary measure of bunding or a frame, sealed with heavy-duty plastic sheeting sufficient to prevent contamination (Pollution image 2), must be used to contain accidental spillages.

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Pollution image 1: Where fuel or other chemicals are stored on site, it is now standard practice to have emergency spillage kits available to restrict the environmental impact of accidents.



Pollution image 2: Soil bunding or a supporting framework covered in heavy-duty plastic sheeting is essential where there is a risk of spillages contaminating RPAs. This specifically applies to cement mixing areas and vehicle washing facilities.

19. Installation of new services and/or upgrading of existing services in RPAs

The following guidance will be applied to all retained trees shown on the tree protection plan.

Excavation to upgrade existing services or install new services in RPAs may damage retained trees. Where possible, all services should be outside RPAs and installation in RPAs should only be chosen as a last resort. If installation within RPAs is being considered, as advised in 4.1.3 of the NJUG guidance, the decision should be made in consultation with the LPA or the supervising arboriculturist before any work is carried out. If service installation is agreed within RPAs, the NJUG protocol as set out in 4.1.3 of its guidance should be used to decide the most appropriate method. In summary, this sets out that *“Acceptable techniques in order of preference are; a) trenchless, ... b) Broken trench – hand-dug ... c) Continuous trench – hand-dug”*. If trenchless methods are to be used, there is normally a starting pit and a finishing pit that have to be dug at each end of the service run and these must be outside RPAs (Services image 1). Where a hand-digging option is agreed (Services image 2), any roots discovered during the excavations should be dealt with as explained above. Where possible, backfilled material around excavated services must not be heavily compacted, with specific advice provided in 4.1.5 of the NJUG guidance.



Services image 1: If possible, thrust boring is the preferred option for installing service routes through the RPAs of important trees, but there has to be space at the start and finish to dig substantial working pits.



Services image 2: Continuous trenches dug by hand so that important roots can be retained (with the service ducting threaded beneath) is an effective means of minimising damage (note the ground protection boards with soil piled on top on the left).

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20. Extra precautions – upgrading existing soft landscaping or replacing existing surfacing or structures with new soft landscaping

This guidance should be applied wherever new landscaping is installed near retained trees.

For the purposes of this guidance, soft landscaping includes the re-profiling of existing soil levels and covering the soil surface with new plants or an organic covering (mulch). It does not include the installation of new structures or compacted surfacing, which are considered as substantial works and covered in the preceding sections of this document.

Soft landscaping activity after construction can be extremely damaging to trees. No significant excavation or cultivation, especially by rotovators, should occur within RPAs. Where new designs require levels to be increased to tie in with new structures or the removal of an existing structure has left a void below the surrounding ground level, good quality and relatively permeable top soil should be used for the fill. It should be firmed into place, but not over compacted, in preparation for turfing or careful shrub planting. Ideally, all areas within 1m of tree trunks should be kept at the original ground level and have a mulched finish rather than grass to reduce the risk of mowing damage (Landscaping images 1 and 2).



Landscaping image 1: The RPA of this tree was not effectively protected during construction and excessive compaction of the soil meant it died soon after this turf covered up the damage.



Landscaping image 2: This tree had tarmac parking within its RPA that was removed and replaced with an organic mulch near the trunk and limited no-dig surfacing on the outer edges of its RPA.

21. Tree planting

Four new semi-mature cypress oak trees (*Quercus robur 'Fastigiata'*), will be planted at the locations illustrated on the tree protection plan.

All trees should be supplied, planted and maintained strictly in accordance with BS 8545. Any trees that die or progressively decline within five years will be replaced and those replacements will be maintained until independent in the landscape. More information on the supply of large trees can be found at www.hillier.co.uk, www.barcham.co.uk and www.civictrees.co.uk.

22. Structural tree soil

Structural tree soil is a man-made growing medium for trees with a high proportion of angular stone, which provides support for surfacing above while still maintaining voids that roots can grow in. It allows surfacing to be installed close to trees and for roots to establish beneath, making it suitable for growing trees in parking areas (Structural soil images 1 and 2). It is generally installed to a depth of about 1m, and filled in layers of about 300mm that can be progressively compacted to provide sufficient bearing for the new surfacing, without compromising future root growth. It is sometimes called tree sand or Amsterdam tree soil, and an internet search on either of these names will identify local suppliers. Three commercial suppliers can be found at www.landtechsoils.co.uk, www.treesand.co.uk and www.woodlandhp.co.uk.

Section 2: Arboricultural method statement



Structural soil image 1: Structural tree soil retains sufficient structure for tree roots to grow, even when compacted.



Structural soil image 2: It allows trees to be successfully established in areas of extensive hard surfacing, with very little, if any, loss of parking space.

23. Soil cells and root deflectors

It is possible to establish trees in fully paved areas using structural supports that protect the soil beneath the surface from being compacted. These are effectively large containers made of concrete or combinations of metal and plastic, which support the surface above and any loads it has to carry. They are filled with soil to provide a viable rooting environment for trees, allowing large trees to provide sustainable amenity in highly urbanised settings. Such systems also have the added advantage that they allow storage of rainwater, significantly reducing the rate of flow of water from paved areas during peak periods. One of the most widely used systems is the DeepRoot Silva Cell (www.deeproot.com) (Soil cell images 1–4), but other products are available.



Soil cell image 1: The individual Silva Cells can be assembled in layers and service ducting threaded through before filling with soil and fitting the reinforced tops.



Soil cell image 2: Drainage from adjacent buildings can be directed into Silva Cells, significantly buffering rainwater runoff from urbanised areas.

New trees planted near surfacing can cause distortion damage from root growth if the appropriate precautions are not taken. Problems of this nature can be significantly reduced by installing root deflectors around the rootballs of new trees at the time of planting (image 4 below). New roots growing out from the rootball meet the plastic profiled surface, deflecting them downwards, where they grow outwards at a lower level. Although they do eventually grow back near the surface, the onset of any damage is significantly delayed and it is usually far enough away from the trunk for remedial works to be carried out without seriously affecting the stability of the tree. However, these products are not suitable for all situations, especially on shallow soils, and so their use should always be considered very carefully in the context of individual site conditions. Try www.deeproot.com and www.greenleaftrees.co.uk, or internet search on 'root deflectors' for more information on products.

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Soil cell image 3: The finished surfacing is profiled to leave the tree pit open, ready to be filled with good quality topsoil and the new tree.



Soil cell image 4: This excavated tree shows the root deflectors that were installed when it was planted seven years previously. The product has deflected roots downwards and prevented damage to the adjacent surfacing. Note that this is a permeable sandy soil and the roots were able to grow beneath the bottom of the deflectors.

24. Removal of protection

All protective barriers must remain in place until the construction activity is finished and there is no realistic risk of damage to the protected soil surfaces.

25. Table 5: Contact details for parties involved in the development

Project partner	Contact details
Developer/Project manager	Value Retail PLC
Project architect	Lyons+Sleeman+Hoare; www.lsharch.co.uk
Project arboriculturist	Barrell Tree Consultancy; 01425 651470; info@barrelltreecare.co.uk
LPA tree officer	Not yet confirmed
LPA planning officer	Not yet confirmed

Section 3 Appendices

Appendix 1: Background administrative information, data collection and any additional relevant information

26. Table 6: Background administrative information

	Background administrative information
Report date & reference	29/06/16 – 16191-AA-PB
Tree protection plan reference	BT1
Our instructing client	Value Retail PLC
Our 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 confined to the heads of terms
Provided documents	Drawing reference 'R-N5911/201', received by email on 17 June 2016 and layout Drawing reference 'HED.979.302', received by email on 17 June 2016 and layout, drawing number Diagram titled 'SKP-304 Bridge North elevation' received in PDF format on 29 June 2016 Diagram titled 'SKP-304 Bridge view 3' received in PDF format on 29 June 2016
Report author and credentials	Phil Brophy is a Chartered Forester (www.charteredforesters.org) and an AA Registered Consultant (www.trees.org.uk), and fully qualified to undertake the assessments in this report.
Report limitations	We have not checked if the trees are protected. If any tree works are proposed before a planning consent is given, then the existence of any statutory protection must be checked with the LPA. 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, detailed consideration was given to the guidance and advice in the following technical references: <ul style="list-style-type: none"> • Climate Change Act (2008) www.legislation.gov.uk/ukpga/2008/27/contents • Town and Country Planning Act 1990 http://www.legislation.gov.uk/ukpga/1990/8/contents • National Planning Policy Framework ("NPPF"), published by the DCLG www.gov.uk/government/publications/national-planning-policy-framework--2 • BS 5837 (2012) <i>Trees in relation to design, demolition and construction – Recommendations</i>, BSI http://shop.bsigroup.com/ • BS 8545 (2014) <i>Trees: from nursery to independence in the landscape – Recommendations</i>, BSI http://shop.bsigroup.com/ • BS 3998 (2010) <i>Tree work – Recommendations</i>, BSI http://shop.bsigroup.com/ • <i>Trees in the Townscape: A Guide for Decision Makers</i>, published by the Trees & Design Action Group http://www.tdag.org.uk/ • <i>Trees in Hard Landscapes: A Guide for Delivery</i>, published by the Trees & Design Action Group http://www.tdag.org.uk/ • National Joint Utilities Group (2007) Volume 4, Issue 2: <i>Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees</i> www.njug.org.uk/publications/

Appendix 1: Background administrative information, data collection and any additional relevant information

27. Table 7: Data collection

	Data collection
Date of site visit	23 June 2016
People present during site visit	Phillip Brophy
Weather & visibility	Dull and dry with average visibility
Limitations to observations	<ul style="list-style-type: none"> • Our inspection of the trees for the purposes of assessing their condition and work requirements is 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.
Tree location and numbering	Each tree was inspected and the numbering scheme is indicated on the tree protection plan. If appropriate, obvious groups were identified and numbered. If important trees were found on site that were not included on the provided plan, then their approximate positions and canopy extents are indicated on the plan.
Recording of tree data	For each tree and any group or hedge found on site, the information collected was recorded on the tree schedule in Appendix 2 and the tree protection plan.
Compliance of data collection with BS 5837	The data collection is fully compliant with the advice in subsection 4.4.2 of BS 5837. When collecting this information, specific consideration was given to any low branches that may influence future use, age class, physiological condition, structural condition and remaining contribution. Where appropriate, crown spreads were also noted where they differed from those shown on the provided land survey.
Calculation of RPAs	Following the recommendations in Table D1 of BS 5837, the diameter of each tree was rounded up to the next 2.5cm increment, with the radius of a nominal circle and the resultant RPA taken directly from that table. This information is listed for each tree in the tree schedule in Appendix 2.

Appendix 2: Tree schedule and explanatory notes

NOTE: Colour annotation is 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) @ 1.5m	Maturity	Low Branches	Category	Notes	Tree Works	RPA radius (m)	RPA area (m2)
All retained trees								Carry out safety check and lift over site to 3-4m as necessary.		
T1	Cypress oak	10	20	Young	-	C	Relatively new planting and part of formal landscape associated with adjacent car park area	Fell	2.4	18
T2	Willow	13	52.5	Mature	-	C	Asymmetric canopy due to adjacent trees. Evidence of past canopy reduction.	Fell	6.3	125
T3	Willow	13	55	Mature	-	C	Asymmetric canopy due to adjacent trees. Evidence of past canopy reduction. Ivy present.	Fell	6.6	137
T4	Willow	13	60	Mature	-	C	Twin stem form	Fell	7.2	163
T5	Willow	13	50	Mature	-	U	Twin stem at 1m, decay noted within stem and at base	Fell	6.0	113
T6	Willow	13	70	Mature	-	C	Multi stemmed form from 1.3m above ground level, ivy clad and evidence of past canopy reduction.	-	8.4	222
T7	Willow	13	45	Mature	-	C	Poor structural form, ivy clad	-	5.4	92
T8	Willow	13	45	Mature	-	C	Poor structural form. Suppressed by adjacent trees	-	5.4	92
T9	Willow	13	42.5	Mature	-	C	Twin stem at 0.5m, past reduction of canopy evident	-	5.1	82
T10	Willow	13	72.5	Mature	-	C	Suppressed by adjacent tree	-	8.7	238
T11	Willow	13	47.5	Mature	-	C	-	-	5.7	102

Appendix 2: Tree schedule and explanatory notes

Tree No	Species	Height (m)	Diameter (cm) @ 1.5m	Maturity	Low Branches	Category	Notes	Tree Works	RPA radius (m)	RPA area (m ²)
T12	Willow	13	100	Mature	-	B	Marginal category B tree due to expectant need for onward management, four distinct stems at ground level	-	12.0	452

Appendix 2: Tree schedule and explanatory notes

Explanatory Notes

- **Abbreviations:**

RPA : Root protection area

- **Botanical tree names:**

Cypress oak : *Quercus robur* 'Fastigiata'

Willow : *Salix* sp

- **BS 5837 (2012) compliance:** All data has been collected based on the recommendations set out in subsection 4.4 of BS 5837.
- **Tree inspections 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 spread dimensions are not listed in the tree schedule because they are illustrated on the land survey base to all the plans in this document. Where crown spreads of significant trees on site are found to deviate from those shown on the provided land survey, we have noted it in the text of the report and annotated it on our plans.
- **Dimensions:** All dimensions are estimated unless annotated with a '*'.
- **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 and recorded in 2.5cm increments as advised in BS 5837 Table D1. It is measured with a diameter tape unless access is restricted, direct measurement is not possible because of ivy on the trunk or the tree is assessed as poor quality. The point of measurement and the adjustments for stem variations are as advised in Figure C1 of BS 5837.
- **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, 4.4.2.5h), and so these are not listed separately in the schedule. Additionally, the category accounts for the remaining contribution (BS 5837, 4.4.2.5i) 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.

Appendix 2: Tree schedule and explanatory notes

- **Tree works:** The recommended tree works are based on the quick visual check level of inspection and only intended to address significant hazards identified during that inspection.
- **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.



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