NW Bicester

An application for the exemplar phase of the
NW Bicester Eco Development proposals submitted by
P3Eco (Bicester) Limited and the A2Dominion Group

Tree Survey / Arboricultural Statement

Hyder

P3Eco Ltd

a2dominion

NW Bicester Eco development Exemplar

Tree Report incorporating Arboricultural Implications Assessment and Arboricultural Method Statement

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NW Bicester Eco development Exemplar

Tree Report incorporating Arboricultural Implications Assessment and Arboricultural Method Statement

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CONTENTS

1 SUMMARY

This report presents the results of an Arboricultural Survey conducted to BS5837:2005. It was undertaken by Cresswell Associates (a Hyder Consulting Ltd group company) for P3 Eco (Bicester) Ltd and A2Dominion Group.

The report provides a baseline survey of the existing tree cover within the proposed Exemplar development and has been prepared in order to inform the planning process. It presents the results of an arboricultural survey conducted to BS5837:2005, along with an Arboricultural Implications Assessment and an Arboricultural Method Statement.

The study area comprised land within and immediately adjacent to the proposed Exemplar development (the Exemplar development is shown on Drawing 3-1 Exemplar Layout of the Environmental Statement accompanying the planning application (Document 0505-UA001881-UP31R-01)). Tree cover within the study area was generally of average quality, and can be divided into three broad groups: (i) established hedgerows at field margins; (ii) isolated individual and small groups of trees within and adjacent to these hedgerows; and (iii) established woodland.

A total of 90 individual trees and 29 groups of trees were surveyed. Of the 90 individual trees surveyed, 9 trees were classified within BS5837 Retention Category A, representing trees of high quality and value which should be retained within any development proposals. 54 trees were classified as Category B, which represent trees which should be retained wherever possible. 20 trees were identified as Category C, which represents trees of low quality and value which could readily be relocated or replaced. Seven trees were identified for removal for reasons of sound arboricultural practice and not in relation to the development proposals. Of the 29 groups of trees surveyed, 21 were classified Category A, two Category B and six as Category C.

The proposed new development would result in the loss of a limited number of Category B trees, and the removal of sections of existing hedgerows, though it is proposed that sections of existing hedgerows would be translocated to adjacent donor sites. Adequate space for new planting has been allocated within the proposed development to provide a comprehensive new landscape scheme. New tree stock will enhance the contribution the development proposals make to the local environment and mitigate for the limited loss of existing trees. The translocation of existing hedgerows would avoid the loss of these features.

Construction works are proposed in close proximity to retained trees and hedgerows within the proposed development. The likely impact of these operations are detailed in Section 7, with appropriate measures included within Section 8 to minimise these impacts, and ensure the effective retention of all trees by means of specific construction methodologies, and design layout considerations.

2 INTRODUCTION

2.1 Background

This report presents the results of an Arboricultural Survey conducted to BS5837:2005 within the proposed Exemplar development. BS5837 guidance recommends that, before development a three-stage approach incorporating: (i) initial tree survey and report; (ii) Arboricultural Implications Assessment (AIA) and (iii) Arboricultural Method Statement (AMS) should be employed. This report fulfils all three stages in this process

The survey was conducted by Stuart Harris of Cresswell Associates (a Hyder Consulting Ltd group company), with reference to a topographical survey of the proposed development and wider area prepared by Hyder Consulting in July 2010. The AIA and AMS were informed by the Exemplar development masterplan.

The Wildlife and Countryside Act 1981 (as amended), and subsequent legislation, provides statutory protection to birds, bats, invertebrates and other species that inhabit trees, hedgerows and associated vegetation. These could impose significant constraints on the use and timing of access to the proposed development in addition to any of the tree matters considered in this report. These matters are beyond the scope of this report and are considered in detail within Chapter 7 of the Environmental Statement accompanying the planning application.

2.2 Scope and purpose of the report

This report has been prepared in order to inform the planning process in accordance with the guidelines set out in British Standard BS5837:2005 'Trees in relation to construction – recommendations' (BSi, 2005). It contains an Arboricultural Implications Assessment (AIA) which identifies, evaluates and, where appropriate, provides recommendations to mitigate the extent of impacts upon existing trees that may arise as a direct result of the development proposals, and an Arboricultural Method Statement (AMS), which details the protection measures to be adopted to protect the trees.

The report outlines the results of the tree survey, which recorded the nature, extent and condition of the existing tree cover within the proposed development. The results are illustrated on the Tree Protection Plan (TPP), which accompanies this report (See Drawings: D01-UA001881-01, D02-UA001881-01, and D03-UA001881-01 in Appendix 4).

Recommendations are also provided for arboricultural works which should be undertaken in the interests of safety, or as part of sound management practice. However, the tree survey conducted and the results presented within this report are specifically designed to meet the BS5837 standard, and are not a substitute for either a full Tree Safety Survey or Management Plan designed to provide a detailed appraisal of the risk and liability associated with responsibility for individual trees or groups of trees.

Trees within the study area have been included in the survey where there is the potential for these trees to be affected by works undertaken within the proposed development. Trees located within dense undergrowth and/or behind stock fencing, where lack of access prevented a detailed inspection, have not been closely inspected with regard to their condition and risk. Whilst these trees are included on the TPP, their location, crown spread and Root Protection Area (RPA) are based on estimated measurements.

The report is based upon a visual inspection carried out from the ground by Stuart Harris on 19th and 20th August 2010. A statement of the author's qualifications and experience is included as Appendix 2.

3 TREES IN RELATION TO CONSTRUCTION

The British Standard BS5837:2005 'Trees in relation to construction – recommendations' provides recommendations and guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees, including shrubs and hedgerows, with structures. It recognises the problems of development taking place in the vicinity of existing trees, as well as those associated with the planting of trees close to existing structures.

'Where development, including demolition, is to occur, the standard provides guidance on how to decide which trees are appropriate for retention, on the means of protecting these trees during development, including demolition and construction work, and on the means of incorporating trees into the developed landscape.' (BSi, 2005)

3.1 Root Protection Area (RPA)

The RPA is a recommendation in BS5837, and is based upon a minimum area (in m^2) calculated from the measurement of the stem diameter, and a factor of the radial distance between the tree stem and the outer extent of the main lateral roots. The resulting area is usually recorded as a generalised circle on the tree survey. In this study, the RPA of retained trees is represented by pink shaded areas.

Figure 1: Extent of RPA of single tree (groups represented by irregular polygons)

The significant figure is the equivalent available rooting area in m^2 rather than the circular shape; tree roots exploit the optimum ground conditions for their physical development dependent upon soil aeration, plant-available water, mineral elements and physical barriers to growth. As long as the total minimum area in m^2 recommended in the RPA is available to the tree, the actual shape of the area is less significant, providing it can be demonstrated that the construction process would not result in significant damage to existing roots greater than 25mm in diameter. The viable retention of trees on construction sites is dependent on the successful protection of their root systems throughout the development process from initial site clearance to installation of the new landscape.

Healthy soils contain five basic components: oxygen, organic matter, mineral matter, living organisms and moisture. A soil's porosity allows water to drain through, carbon dioxide to escape and oxygen to enter. Any activity carried out to facilitate development which encroaches upon, or any change in the environment within, the RPA of retained trees, has significant potential to adversely affect these processes.

3.2 Tree survey

The tree survey identified all trees within the proposed Exemplar development, and also those trees outside the proposed development which could be affected by the proposals; for example, where the Root Protection Area (RPA) of adjacent trees is located inside the proposed development boundary. Each tree is assessed and assigned a 'retention category' in accordance with BS5837:2005. The retention category is based upon an assessment of tree quality and value, tree condition and life expectancy.

The four retention categories – A, B, C and R – can be summarised as follows: Category A describes trees of high quality and value, where retention is highly desirable. Category B describes trees of moderate quality and value where retention is desirable. Category C trees are those of low quality and value, which add little or no contribution to the local amenity in terms of arboricultural, landscape or cultural value. Category C also includes young trees which could easily be replaced or, if appropriate, relocated. Category R trees are those trees which, for reasons of public safety or good arboricultural practice, have been identified for removal.

The location, crown spread (individual trees), retention category and the Root Protection Area (RPA) of each individual tree / group is recorded on the TPP. The crown spread of groups of trees is contained within the defined group boundary. This information illustrates where development can proceed without resulting in damage to trees.

4 METHODOLOGY

All trees within the study area were visually surveyed from ground level using the Visual Tree Assessment (VTA) technique developed by Mattheck and Broeler (1994). No climbed inspections or specialist decay detection was undertaken, and detailed survey of a number of trees was restricted due to fences and dense vegetation at ground level.

In line with the approach recommended in BS5837:2005, the following data was gathered:

- Tree number (or group number).[1, 2]
- Tree species.[1, 2]
- Age (expressed as an age class category). [1]
- Tree height (in metres). [1]
- Average height of group (in metres). [2]
- Crown height (height of crown clearance above ground in metres). [1]
- Stem diameter (measured as Diameter at Breast Height (DBH), 1.3m above ground level). [1]
- Crown spread (measured in north, south, east and west directions). [1]
- Comments and observations on overall tree position, form, health and condition, highlighting any actual or potential defects. [1]
- Recommendations for arboricultural works, along with a priority rating for completion of these works.[1, 2]

- Tree condition (split into *physiological condition* and *structural condition* to provide further clarity)[1,2]
- Life expectancy (within defined categories)[1]
- BS5837 retention category[1, 2]

Diameter measurements were obtained at 1.3m above ground level using a diameter tape. A clinometer was used to measure tree heights, and a logger's tape was used to measure crown spread in four directions (north, east, south and west). Where access was not possible, measurements were estimated.

Physiological condition was assessed by inspecting the stem, branches and foliage for signs and symptoms of disease.

The structural condition was assessed by inspecting the stem, main branches and secondary branches (using binoculars where appropriate) to look for signs of structural weakness or symptoms of decay.

Any cavities were investigated using a metal probe to assess the extent of any decay. Where this was not possible, further inspection has been recommended, where appropriate, in the form of either a climbed inspection or specialist decay detection.

Where tree defects have been highlighted, recommendations for remedial works may have also been provided and assigned to a priority scale. This scale takes into account the size and position of the tree or affected part, along with the potential target(s) based on the masterplan and patterns of usage observed at the time of survey.

All trees and groups of trees surveyed have been plotted on the TPP and their data recorded in detail within the Tree Data Schedule (Appendix 3). This includes all trees and shrubs with a diameter of 75mm or above (measured at 1.5m above ground level), along with potentially affected individuals or groups of trees on adjacent land.

An explanation of the categories and definitions used in producing the Tree Survey Schedule and undertaking the assessment of trees for the purposes of producing this report is provided in Appendix 1.

5 OVERVIEW OF STUDY AREA

5.1 Description of study area

The proposed development is 21.1 hectares in total, and primarily comprises fields in agricultural use, bounded by established hedgerows and shelter-belts containing occasional trees. There is an area of recently established plantation within the south-west of the proposed development, comprising 1m tall mixed broadleaved trees and shrubs. The River Bure and a tributary cross the proposed development and are bordered by early-mature and mature trees. A small woodland lies to the south-east of the proposed development; this is outside of the development boundary. The B4100 road runs adjacent and parallel to the two fields in the north-east of the proposed development.

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[1] Individual trees.

[2] Groups of trees and hedgerows

5.2 Topography

There is little topographical variation within northern and southern areas of the proposed development, with the periphery of these areas sloping into a depression within the centre.

5.3 Tree/hedgerow protection status

On 16th November 2010 Jon Brewin (Tree Officer, Cherwell District Council) confirmed no trees are included within a Tree Preservation Order or are located within a Conservation Area.

Hedgerows within the proposed development fall within the protection of the Hedgerows Regulations 1997, and prior to planning permission being granted, any removal or translocation would require a Hedgerow Removal Notice to be served on Cherwell District Council.

6 SURVEY RESULTS

6.1 Individual trees

Retention Category	Tree Identifier
A	T38, T39, T40, T42, T43, T44, T72, T74, T82
B	T1, T2, T3, T4, T6, T7, T9, T12, T14 T17, T18, T19, T22, T23, T24, T25, T26, T36, T41, T45, T46, T47, T49, T50, T52, T54, T55, T56, T57, T58, T59, T60, T61, T62, T63, T64, T65, T66, T67, T68, T71, T73, T75, T76, T79, T80, T81, T83, T84, T85, T86, T87, T88, T89
C	T90, T8, T10, T11, T13, T15, T16, T20, T21, T27, T28, T30, T32, T37, T48, T51, T53, T69, T77
R	T78 ,T5, T29, T31, T33, T34, T35, T70

Table 1: Number of individual trees within BS5837 Retention Categories

6.2 Groups/hedgerows

Retention Category	Tree Identifier
A	G1, G2, G3, G4, G5, G8, G12, G13, G14, G15, G16, G17, G18, G19, G21, G22, G24, G26, G27, G28, G29
B	G9, G10, G11, G25
C	G6, G7, G20,G23
R	

Table 2: Number of groups / hedgerows within BS5837 Retention Categories

7 ARBORICULTURAL IMPACT ASSESSMENT (AIA)

7.1 Introduction

The proposed development will include construction activities such as: topsoil stripping; ground levelling; piling; heavy-lifting operations; and excavation. In addition, it is anticipated that the build-up of ground levels will be required as part of the proposals, and additional excavation and trenching for services will be required.

The proposed development will result in the loss of approximately 11 individual trees. These include T7-T11 (within Group 2), and T47-T52 (within Group 15). In addition, sections of existing hedgerows are to be translocated.

Adequate space for new planting has been allocated within the proposed development to provide a comprehensive new landscape scheme. New tree stock will significantly enhance the contribution the proposed development makes to the local environment and mitigate for the loss of existing trees. The translocation of sections of existing hedgerows and some of the trees within the recently established plantation will also minimise any loss of these features and help to increase the establishment of new vegetation.

7.2 Impact of trees on the development

All retained trees outside of the proposed development are considered to be an adequate distance from the proposed development boundary such that there will be no impact on them. This takes into account the present and anticipated mature size of all individuals.

Due to the location and species characteristics of retained trees in relation to adjacent structures, no impact from shade is anticipated. This is based on an informed assessment of the probable results of calculations in accordance with BS 8206 *Lighting for buildings Part 2 Code of practice for daylighting* (1992), and BRE Report 209 *Site layout planning for daylight and sunlight - A guide to good practice* (2003).

7.3 Impact of general construction activity

Before the commencement of works within the proposed development, protective fencing (as detailed in Section 8.2.2) should be erected to ensure maximum root protection of the retained trees.

The TPP (Appendix 4) shows the location of individual trees, and groups of trees, in relation to the proposed development. The plan indicates that the proposed development is in most cases, located outside the RPAs of retained trees. As such, no risk to individual retained trees is expected. Where there is minor incursion into the RPA of retained trees, an appropriate methodology to ensure no damage to tree roots occurs during the construction process, as described within Section 8 of this report.

It is proposed to translocate sections of existing hedgerows to provide both vehicular and pedestrian routes throughout the proposed development, and to improve sightlines at access points. An appropriate methodology to ensure these operations are carried out in a controlled manor is also included within Section 8 of this report.

The use of heavy-lifting equipment, and potentially including piling rigs, is anticipated in close proximity to retained trees within G2. Prior to the implementation of such operations a

representative from the supply company should visit the proposed development and ensure all operations can be completed without causing damage to retained trees. Should additional tree removal or pruning be required, the Local Authority tree officer should be contacted.

Any wheeled or tracked construction traffic movements should be avoided within the RPA of individual trees/groups. If this is not possible ground protection should be installed to accommodate the likely loading. This should involve the use of a proprietary system of reinforced concrete slabs/steel road plates on a compressible layer, or the use of a cellular confinement system. The type of ground protection used should be appropriate for the likely load. An appropriate methodology to ensure that no damage to tree roots occurs whilst installing ground protection is also included within Section 8 of this report.

Since works within the RPA of retained trees are required, possibly resulting in some minor root disturbance, additional remediation measures (such as soil aeration and mycorrhizal root treatment) may be recommended following assessment by an arboricultural consultant.

7.4 Impact of ground level changes and surfaces

Even minor changes in ground level within the RPA have the potential to seriously impact on tree health. Raising ground levels affects the supply of oxygen, water and nutrients to tree roots, whilst excavation may sever roots or expose roots which may subsequently die. As such, significant ground level changes should be avoided within the RPA of retained trees and groups.

7.5 Impact of underground services

The installation of underground services in connection with proposed development has significant potential to impact upon trees. Excavations in connection with the provision of services should be kept outside, or at the periphery of, the RPA of all retained trees. If this is not possible, specific arboricultural advice should be sought.

7.6 Impact of hazardous materials

Appropriate locations should be identified away from the RPA of all trees for the storage and handling of hazardous materials including petrol, diesel, cement, bitumen and limestone.

7.7 Arboricultural Supervision

Good tree protection cannot be reliably implemented without regular arboricultural input. The nature and extent of that provision will vary according to the phasing and complexity of the development operations, and also the resources available. An arboricultural consultant should always be instructed to work within the guidance of this report, and Local Planning Authority conditions should be imposed to oversee the implementation of protective measures and tree management proposals detailed in the following section.

8 ARBORICULTURAL METHOD STATEMENT

8.1 Introduction

This section of the report details best practice measures to be adopted in order to protect retained trees during the development process.

Details included within the methodology of this section shall be included within specifications and schedules of works issued to all relevant construction and landscaping contractors. The methodology should be discussed and agreed between the Local Authority tree officer, architect and relevant contractors. Any parts of the methodology which are deemed to be inaccurate or unworkable should be highlighted and addressed at an early stage, ideally before any site works commence.

A copy of this Method Statement shall be available on site at all times.

All relevant personnel working on the site shall be made aware of relevant sections that relate to their work. This includes site managers, machinery operatives, service installation contractors, scaffolders, craftsmen and labourers.

The Tree Protection Plan (TPP) accompanies this section of the report.

8.2 Pre-development works

8.2.1 Tree works

The following tree works shall be required before commencement of construction or demolition activity:

Action	Trees	Reason
Fell	T5, T29, T31, T33, T34, T35, T70	Good arboricultural practice
Fell	T7, T8, T9, T10, T11, T47, T48, T49, T50, T51 and T52.	In order to facilitate the proposed development.
Translocate	Sections within G4, G15, G16, G26, G28 and sections of hedgerows.	In order to facilitate the proposed development.

Table 3: Tree work schedule

All works to be carried out in accordance with BS3998: 1989 Recommendations for tree work, and in accordance with this method statement.

8.2.2 Hedgerow breakthrough

All areas of hedgerow breakthrough have been identified on the TPP. It is anticipated that all removed sections will be translocated to an appropriate donor site within the proposed development. Should it not be feasible to translocate all sections, the following method for hedgerow removal in the absence of translocation should be adopted:

Vegetation shall be clearly marked by the supervising arboriculturalist/ecologist. Vegetation shall be cut to near ground level using chainsaws and/or hand tools as appropriate. Where cut material extends into adjacent retained vegetation, it shall be carefully removed as far as is reasonably practicable, without damaging or disturbing retained vegetation, and with the use of appropriate pruning tools.

Cut stumps located within 3m of any retained woody plant shall be removed using a proprietary stump-grinding machine in order to avoid the likely root disturbance to adjacent vegetation which would be caused by the application of alternative methods of mechanical extraction.

8.2.3 Hedgerow and tree translocation

Hedgerow and tree translocation works will be carried out under direct arboricultural and ecological supervision.

Preparation of donor vegetation

Woody vegetation that has been selected for translocation will be clearly marked. Vegetation will be crown-reduced or pollarded (coppiced) (using chainsaws and/or hand tools as appropriate to ensure clean pruning wounds) to reduce the above ground weight and therefore the demand for water and nutrients from the crown. Pruning works will be overseen by the supervising arboriculturalist/ecologist in order that the extent of crown reduction and/or finished pollard height can be appropriately determined for each tree/shrub. Crown reduction and pollarding operations will ensure that a minimum stem height (above stem base) of at least 600mm is retained for each tree/shrub. Given the importance of the hedgerow features for use as bat flight lines, a height of 1.5m stem height will be retained. An optimum translocation pruning regime resulting in tree/shrub height of 1.5m and width of 1.2m, incorporating multiple stems where appropriate, will generally be implemented. This will ensure that the pre-translocation pruning regime maximises tree/shrub survival whilst maintaining a level of functionality as a 'wildlife corridor'.

Wherever practicable, exposed roots will be clean-sawn with a chainsaw prior to tree/shrub removal, thereby minimising root shearing damage during the translocation process. This is particularly important for the larger roots of more mature specimens. Immediately following tree/shrub removal, and prior to translocation, all accessible roots above 10mm diameter will be trimmed back (using loppers or secateurs) to produce a clean cut, whilst preserving the maximum length of root.

Receptor site preparation

All donor vegetation will be translocated into specially prepared trenches, dug to a depth sufficient to ensure that at least 85% of retained roots are situated below the existing ground level on each receptor site. Finished soil levels will be reinstated around all translocated stems to carefully match those to which the vegetation has grown accustomed prior to translocation. However, the exposed ends of any significant above-ground roots should be covered with at least 150mm lightly compacted topsoil (prepared as a 50/50 mix of donor site and receptor site topsoil). This will prevent desiccation and drought-stress in newly translocated trees, and will significantly aid root growth within the receptor site.

Where above-ground roots are not present on donor vegetation, existing soil adjacent to tree stems should not be covered following translocation, in order to maintain consistent conditions for any translocated ground flora species situated within donor vegetation.

A working methodology will be adopted that seeks to minimise any soil and moisture changes between donor and receptor sites. In addition to those detailed here, specific measures to be implemented during the translocation process are described below.

Receptor site preparation will be overseen by the supervising arboriculturalist/ecologist.

The translocation process

Once the supervising arboriculturalist/ecologist has confirmed that the donor vegetation has been sufficiently crown-reduced or pollarded (coppiced), and that the receptor site has been appropriately prepared, the individual trees and shrubs and associated ground flora will be excavated using the largest available excavator bucket, to excavate the greatest possible depth of earth in order to maximise the amount of viable root material recovered intact. Each

tree/shrub will be excavated complete with the block of soil, roots, coppiced stems and any associated ground flora. It is vital that the bucket is not 'shaken' to remove excess material, as this will denude the roots.

Following excavation and root trimming, donor vegetation will be transferred to the appropriate receptor site within the proposed development, ensuring that groups of trees and shrubs from the same donor site are established together within the same receptor site, thereby maximising habitat and environmental continuity.

Soil excavated from the receptor site during trench preparation should be stockpiled adjacent to the trench for backfilling in three separate piles:

8.2.4 Turf and ground cover vegetation; topsoil from the upper soil horizon; and subsoil.

Wherever possible, receptor site topsoil and subsoil layers should be mixed with soil from the equivalent donor site layer prior to backfilling. This greatly increases successful establishment and accelerates post-translocation tree growth by encouraging early root proliferation beyond the zone of translocated soil.

Individual trees/shrubs should be transferred to the appropriate receptor site, in the same bucket in which they were excavated, and carefully placed into the receptor trench.

Prior to the placement of translocated vegetation, the receptor trench will be prepared by loosening the top 300mm of soil in the base of the trench. Air pockets left between the trench base and the roots of translocated vegetation can result in root stress or dieback, and may become waterlogged, further reducing the chances of survival. Gentle rocking of the translocated vegetation during installation will further reduce the likelihood of air pockets.

The supervising arboriculturalist/ecologist will advise on the precise location of translocated vegetation, ensuring the appropriate placement of below-ground roots to maximise both plant survival and future stability. This operation may have to be aided by a banksman.

The translocation process has been designed to minimise the length of time between excavation and subsequent burial. However, on windy, warm or sunny days, it may be necessary to employ additional measures to alleviate root desiccation, as follows:

- Immediately following root trimming, any exposed roots should be wrapped in lightly dampened hessian sacking until ready to be lowered into the receptor trench.
- Should receptor site soil have dried, this will need to be lightly watered prior to placement of translocated vegetation.

Once in place, the receptor trench should be carefully back-filled, using the prepared subsoil mix for initial backfill, followed by the topsoil mix. Where areas of bare soil remain, turf and ground cover material may be used to aid establishment, as directed by the supervising arboriculturalist/ecologist. Soil should be backfilled in layers of approximately 100mm, ensuring that successive layers fill all air pockets between roots, and are gently compacted using hand tools such as tampers where necessary. It is vital that both the root bark of retained vegetation and the above ground stems and branches are not damaged during this process.

8.2.5 Tree Protection Fencing

Following tree work (and prior to any other phased construction activity, including construction of site access, car parking, soil stripping, or the access of materials and additional machinery), a

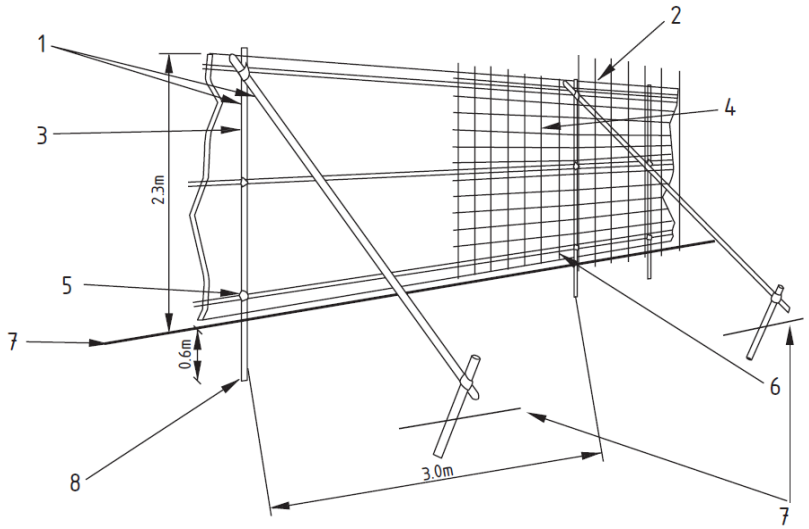
protective fencing system shall be installed in the position defined by a solid purple line on the TPP[3]. See below for details of this fencing. The purpose of this fencing is to provide protection to the RPAs of retained trees/groups and to protect trees and hedgerows prior to their translocation. Protective fencing will also be provided around translocated trees and hedgerows once installed in their receptor site locations. The type of fencing used shall be appropriate to level of adjacent construction activity and shall be agreed with the Local Authority tree officer.

Weatherproof notices shall be attached to any protective fencing displaying the words "*Construction Exclusion Zone*" and listing all restrictions which apply. All personnel must be made aware of these restrictions. A sample notice is included as Appendix 5

Protective Fencing (high risk areas)

This system involves driving scaffold poles into the ground, onto which are affixed horizontal scaffold poles and diagonal bracing struts. Anti-climb weldmesh panels are secured to this scaffold framework using standard scaffold clips or wire. The system is illustrated in diagram Figure. 2 and is based on BS5837 guidelines. This kind of system is robust enough to withstand occasional knocks by plant machinery.

Once all construction activity is completed and following a final site inspection by an arboricultural consultant or the Local Authority tree officer, protective fencing shall be removed without the need to excavate within the RPA of any tree / group. This is to allow final landscaping works.



1. Standard scaffold poles
2. Upright to be driven into ground
3. Panels secured to uprights with wire ties and where necessary standard scaffold clamps
4. Weldmesh wired to the uprights and horizontals
5. Standard clamps
6. Wire twisted and secured on inside face of fencing to avoid easy dismantling
7. Ground level
8. Approx. 0.6m driven into ground

Figure 2. Tree Protection Fencing Specification (extract from BS5837)

[3] The position of protective fencing (as defined by the solid purple line on the TPP) is representative of the position required to protect existing hedge locations. Following translocation, fencing should be relocated accordingly to provide a minimum 3m buffer (dashed purple line on the TPP).

Protective Fencing (low risk areas)

The system illustrated in Figure. 3 is adequate to define areas of protected vegetation and exclude traffic, and comprises Cleft Chestnut Pale Fence in accordance with BS 1722 Part 4: (1991). Assembled with galvanized 14 gauge (2 mm) wire, four strands per row, peeled and pointed one end. Approximate spacing of pales 75 mm.

Figure 3. Tree Protection fencing example

8.2.6 Construction Exclusion Zones (CEZ)

The Construction Exclusion Zone (CEZ) is the area identified by an arboriculturist to be protected during development, including demolition and construction work, through the use of barriers and/or ground protection fit-for-purpose to ensure the successful long-term retention of a tree. The area within the construction exclusion zone is to be regarded as sacrosanct and the fencing shall not be taken down or relocated at any time without the prior written approval of the monitoring arboriculturist or Local Authority tree officer, unless this has already been agreed as part of the planning application consent process, and is detailed in writing and shown on a plan.

All areas enclosed by protective tree fencing, shall be treated as CEZs, and the following restrictions shall apply:

- No construction activity whatsoever must occur within these areas.*
- No tree works, without the written consent from the Local Authority.
- No alterations of ground levels or conditions.
- No chemicals or cement washings.
- No excavation.
- No temporary structures.**
- No storage of soil, rubble or other materials.
- No vehicles or machinery to be used or parked.
- No fixtures (lighting, signs etc) to be attached to trees.
- No fires within 10 metres of the canopies of any tree or hedgerow.

**Other than final landscaping works.*

***Sales Cabins or site huts, provided they are of Jack Leg type, can be sited to act as ground protection for the duration of the construction.*

8.2.7 Additional protection measures outside of the protective fencing

Where it is not practical to fence off the entire RPA or canopy of individual trees/groups, the following restrictions shall apply:

- No pruning works without prior approval from the Local Authority.
- No changes in ground levels without prior agreement with the Local Authority.
- No cabins, storage of spoil or materials of any kind.*
- No discharging of chemicals including cement products.
- No fires.
- No driving of vehicles without appropriate ground protection measures as per BS5837 recommendations. This will require the use of a proprietary system of reinforced concrete slabs/steel road plates on a compressible layer, or side-butting scaffold boards on a compressible layer. The type of ground protection used shall be appropriate for the likely loading applied.
- Installation and removal of ground protection materials shall be carried out in a staged process. During installation, all plant machinery shall operate an area of installed ground protection.

**Any Sales Cabins or site huts provided they are of Jack Leg type can be sited to act as ground protection for the duration of the construction.*

8.3 Development phase

8.3.1 Excavation

Since excavation may be required within the RPAs of T19, T20 and G3, the following restrictions shall apply during these operations:

- The surface within the RPA shall be cleared of all debris and vegetation (if present) by hand only.
- With reference to the TPP (Appendix 4), the RPAs shall be measured and clearly marked on site with the use of ground pins or marker spray. All relevant personnel shall be briefed to ensure they are fully aware of the location and extent of the RPAs.
- Should roots less than 25mm in diameter be encountered, these shall be retained undamaged wherever possible, and protected from desiccation by damp hessian sacking or a similar protective material throughout the period of exposure (which should be kept to a minimum). Roots less than 10mm diameter shall be trimmed back neatly in line with the edge of the excavation trench using secateurs. Should any roots greater than 25mm diameter be exposed, excavation works shall cease immediately and an arboricultural consultant called to the site for a professional judgement.

Since all other proposed excavation is located either outside, or at the periphery of, the RPA of all other retained trees it is anticipated that few (if any) roots will be encountered and no significant arboricultural impact is expected. Accordingly, excavation outside restricted areas of the proposed development can proceed without recourse to specific tree protection measures.

8.3.2 Installation of paths

It is proposed to install pedestrian paths within, or in close proximity to, the RPA of several individual trees (T1, T2 T3, T74, and T76), and groups (G1, G5, G17, G22, G23, G24 G27 and G28). Within the RPA of retained trees/groups excavation shall be limited to minor surface levelling and the removal of vegetation. All surfacing and sub-surfacing should be contained and edged using only pegged boarding, either treated timber, bespoke steel or plastic, or interlocking plastic or wood containment structures. On no account must trenches be cut within the RPA to contain kerb haunching or concrete edge foundations. A geo-textile membrane shall be used as a base layer to contain a no-fines aggregate which shall be compacted to the minimum level required to support the final surface.

8.3.3 Changes in ground level

No significant changes in soil levels are anticipated within the RPAs of retained trees/groups.

8.3.4 General construction activity

During proposed bridge construction/installation, some of the branches of adjacent retained trees within G2 shall be in close proximity to areas of construction activity. All relevant personnel should be made aware of the location of these branches and the need to avoid causing damage to them. Prior to the implementation of such operations, a representative from the equipment supply company should visit the site and ensure all operations can be completed without causing damage to retained trees. Should additional tree removal or pruning be required the Local Authority tree officer shall be contacted and the scope of works agreed in writing.

8.4 Post-development landscape works

Where possible all protective fencing shall remain in place during landscape works. If it is necessary to carry out landscaping works within the RPA of any retained tree/group or hedgerow, the position of the RPA (as indicated on TPP Appendix 4) shall be clearly marked on site and all relevant personnel informed of their location either verbally or by the use of appropriate signage.

8.4.1 Excavation

Any excavation within the RPA of retained trees/groups to facilitate landscaping works shall be done by hand only. Excavation work shall proceed with caution, looking out for any tree roots which may be located in the RPA, and the same recommendations as contained in Section 8.3.1 above shall apply.

8.4.2 Removal and preparation of surfaces within RPA

Surfaces within the RPA of retained trees shall be cleared of all debris and vegetation (if present) by hand only, in a manner that does not damage the tree stems or roots. Any ground preparation works shall be carried out by hand only, and no rotovators or similar machines of any kind should be used. If required, uneven surfaces should be levelled using good quality imported topsoil. However increases in ground levels should be avoided.

8.4.3 Installation of hard surfaces within RPA

No construction machinery shall enter the RPA of any tree/group.

Material not suitable for bearing the new hard surface shall be removed using hand tools only, excavators shall not be used.

Where the finished sub-grade level is uneven, gullies shall be filled with coarse sand or gravel to achieve the desired level. The sub-base layer shall be compacted to the minimum level required to support final surface materials. It shall comprise no-fines aggregate and cement mix to limit compaction, and maintain water permeability and gaseous exchange. Paving shall be dry bedded onto the sub-base, and joints shall not be sealed.

8.4.4 Hazardous materials

Any mixing of cement-based materials is to take place outside the RPAs of all trees. Provision shall be made to ensure that the mixing area is contained so that no water runoff enters the RPAs of any trees. All mixers and barrows shall be cleaned within this dedicated mixing area.

All other chemicals hazardous to tree health, including petrol and diesel, are to be stored in suitable containers as specified by COSHH Regulations (2002), and kept away from the RPAs.

REFERENCES

British Standards Institution (2005) BS5837:2005 Trees in relation to construction – Recommendations. BSi, London, UK

British Standards Institution BS 8206 Lighting for buildings Part 2 Code of practice for daylighting (1992)

Mattheck, C. and Broeler, H. (1994) The Body Language of Trees: A Handbook for Failure Analysis Research for Amenity Trees No.4. DETR, London, UK

Stace, C. (1997) New Flora of the British Isles (Second Edition). Cambridge University Press, Cambridge, UK

LITTLEFAIR, P. BRE Report 209. *Site layout planning for daylight and sunlight: a guide to good practice*. 1991. BUILDING RESEARCH ESTABLISHMENT (BRE)

GREAT BRITAIN. The Hedgerows Regulations 1997. London: Office of Public Sector Information (formerly The Stationery Office).

APPENDICES

APPENDIX 1

Explanation of Terms used in Tree Data Schedule

Numbering

Each tree, group of trees or hedgerow is given an individual reference, made up of sequential numbers prefixed by a letter where:

- T= Individual Tree
- G = Group of Trees/Hedgerow

Species

Tree names and other plant names follow Stace (1997) and are provided as both common (English) and scientific (Latin) species names.

Age Class

Trees are assigned to one of five age classes as follows:

Young	Tree in establishment stage, normally up to 10 years old
Semi-mature	Establishing tree with potential for significant growth both in terms of tree height and crown spread
Early-mature	Established tree, typically having attained at least 70% of likely mature height and crown spread
Mature	Full height and crown spread attained
Over-mature	Extensive decline in physiological functions and/or structural integrity
Veteran	A tree that shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species

Crown Height

Height of crown clearance above adjacent ground level in metres.

Stem Diameter

Measured in millimetres at 1.5m above ground level. On multi-stemmed trees this measurement is taken immediately above the root flare of the tree.

Crown Spread

Radial crown spread measured in four compass directions (north, east, south, and west) using magnetic north.

Notes

This section provides details, where relevant, pertaining to the tree's position, form, pruning history and an account of any significant defects observed. Any access restrictions are also noted here.

Recommendations

These are normally based upon remedial action to address any observed defects. These may be recommended for tree safety reasons, or for reasons of good arboricultural practice and tree management.

Priority Scale

A priority is assigned to any works recommended in the preceding section as follows:

Urgent	Works should be carried out immediately, ideally within 1 week maximum
Very High	To be carried out ideally within 1 month
High	To be carried out ideally within 3 months
Moderate	To be carried out ideally within 1 year
Low	To be carried out ideally within 4 years

Inspection Frequency

An interval of either 6 months, 12 months, 18 months or 3 years has been allocated before the next inspection is due. Seasonal considerations should also be factored in to these guidelines for re-inspection. In summer, tree foliage colour and condition is readily observable. In winter, clear vision into the upper crown junctions may be obtained in those specimens where dense foliage obscures this view during the summer. An autumn inspection should be conducted in cases where fungal infection is suspected, when the fruiting bodies of many fungal species are more likely to be observed.

Physiological Condition

Normal	Healthy tree with no symptoms of significant disease
Fair	Tree with early signs of disease, small defects, decreased life expectancy, or evidence of less than average vigour for the species
Poor	Significant disease present, limited life expectancy, or with very low vigour for the species and evidence of physiological stress
Very Poor	Tree is in advanced stages of physiological failure and is dying

Structural Condition

Good	No significant structural defects observed
Fair	Some structural defects observed but these do not necessitate remedial action at present
Poor	Significant defects observed resulting in a tree which is likely to require either monitoring or remedial action
Very Poor	Major defects which compromise the safety of the tree. Remedial works or tree removal are likely to be required in the majority of target locations

Life Expectancy or Estimated Remaining Contribution (ERC)

The estimated number of years before the tree may require removal is expressed as one of the following categories: (i) <10 years; (ii) 10-20 years; (iii) 20-40 years; (iv) 40+ years.

BS5837 Retention Category

Each tree, group of trees or hedgerow is assigned to a retention category where:

A	Trees of high quality and value, retention is highly desirable
B	Trees of moderate quality and value where retention is desirable
C	Trees of low quality and value, or young trees with a stem diameter <150mm. Category C trees may be retained, replaced or in the case of younger trees, relocated
R	Trees unsuitable for retention or trees which should be removed

APPENDIX 2

Author's Qualifications and Experience

Stuart Harris N.D.Arb, N.C.H.Arb

Stuart Harris is a professional arboriculturalist specialising in trees, woodlands and forestry. He holds a current Arboricultural Association/LANTRA Awards certificate in 'Professional Tree Inspection' and has conducted a wide range of tree safety assessments over a period of 10 years. He has over 25 years professional experience in relation to trees and woodlands encompassing technical, strategic and practical roles in tree and woodland maintenance and management, tree surgery, and tree safety assessment. His career experience spans the public and private sectors including roles within the Royal Botanic Gardens Kew, Local Authorities and private consultancies.

APPENDIX 3

Tree Data Schedule

Reference	Age & Species	Height (m)	Crown Ht (m)	Diameter (mm)	Crown Spread N (m) W E S	Tree Notes	Recommendations	Priority / Inspection Freq (yrs)	Physio Cond / Struct Cond	Life Expectancy	BS5837 Retention Category
T1	Mature **Common Ash** *Fraxinus excelsior*	**20**	**3**	**700**	N **4** W **5** E **4** S **4**	**Position:** Situated within G2 **Form:** Twin-stemmed at 2m, with a sparse, slightly unbalanced crown **History:** No significant pruning **Defects:** Minor deadwood throughout crown. Acceptable condition at present **Other:**	No action required	n/a 1.5	Poor Poor	20 to 40	B
T2	Over-mature **Crack Willow** *Salix fragilis*	**10**	**1.5**	**800**	N **3** W **3** E **3** S **3**	**Position:** Situated within G2 **Form:** Multi-stemmed at 3m, with a well-balanced crown **History:** Previously pollarded tree **Defects:** Major cavity/decay on main stem. **Other:**	Monitor cavities	Moderate 1.5	Normal Poor	20 to 40	B
T3	Semi-mature **Crack Willow** *Salix fragilis*	**11**	**1.5**	**200**	N **2** W **2** E **2** S **2**	**Position:** Situated within G2 **Form:** Single-stemmed and slightly leaning, with a sparse, slightly unbalanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T4	Early-mature **Aspen** *Populus tremula*	**21**	**3**	**600**	N **5** W **5** E **5** S **5**	**Position:** Situated within G2 **Form:** Single-stemmed and slightly leaning, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T5	Early-mature **Crack Willow** *Salix fragilis*	**4**	**1.5**	**400**	N **2** W **6** E **0** S **0**	**Position:** Situated within G2 **Form:** Single-stemmed and very leaning, with a very unbalanced crown **History:** No significant pruning **Defects:** Significant cavity/decay on main stem. **Other:** Heavy lean to west	Remove tree	Low n/a	Very poor Very poor	<10	R
T6	Semi-mature **Common Ash** *Fraxinus excelsior*	**10**	**1.5**	**250**	N **2** W **4** E **2** S **4**	**Position:** Situated within G2 **Form:** Single-stemmed and vertical, with a dense, slightly unbalanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T7	Early-mature **Crack Willow** *Salix fragilis*	**14**	**2.5**	**400**	N **4** W **4** E **3** S **4**	**Position:** Situated within G2 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T8	Early-mature **Crack Willow** *Salix fragilis*	**15**	**2.5**	**500**	N **4** W **4** E **4** S **4**	**Position:** Situated within G2 **Form:** Twin-stemmed at 0m, with a well-balanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	20 to 40	C

Reference	Age & Species	Height (m)	Crown Ht (m)	Diameter (mm)	Crown Spread N (m) W E S	Tree Notes	Recommendations	Priority / Inspection Freq (yrs)	Physio Cond / Struct Cond	Life Expectancy	BS5837 Retention Category
T9	Early-mature **Aspen** *Populus tremula*	**20**	**3**	**650**	N **5** W **5** E **5** S **5**	**Position:** Situated within G2 **Form:** Single-stemmed and vertical, with a dense, well-balanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T10	Mature **Common or Black Elder** *Sambucas nigra*	**4**	**1.5**	**190**	N **3** W **3** E **0** S **2**	**Position:** Situated within G2 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	20 to 40	C
T11	Young **Aspen** *Populus tremula*	**9**	**3**	**140**	N **0** W **2** E **0** S **2**	**Position:** Situated within G2 **Form:** Single-stemmed and slightly leaning, with a slightly unbalanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	C
T12	Early-mature **Common Ash** *Fraxinus excelsior*	**14**	**2**	**280**	N **2** W **4** E **4** S **4**	**Position:** Situated within G2 **Form:** Twin-stemmed at 2m, with a well-balanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T13	Early-mature **Crack Willow** *Salix fragilis*	**12**	**3.5**	**220**	N **3** W **3** E **3** S **3**	**Position:** Situated within G2 **Form:** Single-stemmed and vertical, with a sparse well-balanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Poor Normal	10 to 20	C
T14	Early-mature **Crack Willow** *Salix fragilis*	**12**	**2**	**400**	N **5** W **5** E **4** S **4**	**Position:** Situated within G2 **Form:** Twin-stemmed at 2m, with a well-balanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	20 to 40	B
T15	Mature **Crack Willow** *Salix fragilis*	**9**	**3**	**600**	N **3** W **4** E **5** S **4**	**Position:** Situated within G2 **Form:** Single-stemmed and slightly leaning, with a well-balanced crown **History:** No previous pruning **Defects:** Minor cavity/decay on main stem. Acceptable condition at present **Other:**	Monitor cavity	Low 1.5	Normal Poor	10 to 20	C
T16	Early-mature **Crack Willow** *Salix fragilis*	**15**	**4**	**300**	N **4** W **3** E **2** S **0**	**Position:** Situated within G2 **Form:** Single-stemmed and vertical, with a slightly unbalanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	20 to 40	C

Reference	Age & Species	Height (m)	Crown Ht (m)	Diameter (mm)	Crown Spread N (m) W E S	Tree Notes	Recommendations	Priority / Inspection Freq (yrs)	Physio Cond / Struct Cond	Life Expectancy	BS5837 Retention Category
T17	Mature **Aspen** *Populus tremula*	**18**	**3**	**600**	N **6** W **6** E **6** S **5**	**Position:** Situated within G2 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No previous pruning **Defects:** Ivy prevented detailed inspection. **Other:**	Remove ivy and resurvey	Low 1.5	Normal Normal	40+	B
T18	Over-mature **Common Ash** *Fraxinus excelsior*	**14**	**2**	**1000**	N **7** W **7** E **7** S **7**	**Position:** Situated within G3, overhanging the site boundary **Form:** Multi-stemmed at 1m, with a well-balanced crown **History:** Previously pollarded tree **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T19	Over-mature **Common Ash** *Fraxinus excelsior*	**12**	**2.5**	**800**	N **6** W **4** E **2** S **4**	**Position:** Situated within G3, overhanging the site boundary **Form:** Multi-stemmed at 1m, with a well-balanced crown **History:** Previously pollarded tree **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T20	Mature **Common Ash** *Fraxinus excelsior*	**11**	**3**	**500**	N **5** W **4** E **4** S **4**	**Position:** Situated within G3, overhanging the site boundary **Form:** Multi-stemmed at 1m, with a sparse well-balanced crown **History:** Recently pollarded tree **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Poor Normal	20 to 40	C
T21	Mature **Common Hawthorn** *Crataegus monogyna*	**5**	**1**	**200**	N **2** W **2** E **2** S **2**	**Position:** Situated within G3 **Form:** Twin-stemmed at 0m, with a well-balanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	C
T22	Mature **Common Ash** *Fraxinus excelsior*	**13**	**3.5**	**550**	N **4** W **2** E **4** S **2**	**Position:** Situated within G3 **Form:** Twin-stemmed at 0m, with a well-balanced crown **History:** No significant pruning **Defects:** Ivy prevented detailed inspection. **Other:**	Remove ivy and resurvey	Moderate 1.5	Normal Normal	40+	B
T23	Young **Lime** *Tilia sp.*	**4**	**1.5**	**140**	N **2** W **2** E **2** S **2**	**Position:** Situated within G4, overhanging the site boundary **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T24	Semi-mature **Common Ash** *Fraxinus excelsior*	**4**	**1.5**	**160**	N **2** W **2** E **2** S **2**	**Position:** Situated within G5, overhanging the site boundary **Form:** Multi-stemmed at 2m, with a well-balanced crown **History:** Previously topped tree **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B

Reference	Age & Species	Height (m)	Crown Ht (m)	Diameter (mm)	Crown Spread N (m) W E S	Tree Notes	Recommendations	Priority / Inspection Freq (yrs)	Physio Cond / Struct Cond	Life Expectancy	BS5837 Retention Category
T25	Young **Lime** *Tilia sp.*	**4**	**2**	**140**	N **2** W **2** E **2** S **2**	**Position:** Situated within G5, overhanging the site boundary **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:** 0	No action required 0	n/a 3	Normal Normal	40+	B
T26	Young **Lime** *Tilia sp.*	**4**	**1.5**	**140**	N **2** W **2** E **2** S **2**	**Position:** Situated within G5, overhanging the site boundary **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T27	Young **Goat Willow** *Salix caprea*	**5**	**1.5**	**200**	N **2** W **2** E **2** S **2**	**Position:** Situated west of G1 **Form:** Multi-stemmed at 1m, with a well-balanced crown **History:** Previously pollarded tree **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Poor	<10	C
T28	Mature **Crack Willow** *Salix fragilis*	**9**	**1**	**280**	N **3** W **3** E **3** S **3**	**Position:** Situated west of G1 **Form:** Multi-stemmed at 2m, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Poor Poor	10 to 20	C
T29	Early-mature **Crack Willow** *Salix fragilis*	**4**	**0**	**170**	N **4** W **1** E **1** S **0**	**Position:** Situated west of G1 **Form:** Single-stemmed and very leaning, with a very unbalanced crown **History:** No significant pruning **Defects:** Significant cavity/decay on main stem. Acceptable condition at present **Other:**	Remove tree	Low n/a	Poor Very poor	<10	R
T30	Semi-mature **Goat Willow** *Salix caprea*	**7**	**0.5**	**240**	N **2** W **2** E **3** S **2**	**Position:** Situated west of G1 **Form:** Single-stemmed and vertical, with a sparse well-balanced crown **History:** No significant pruning **Defects:** Minor cavity/decay on main stem. **Other:**	No action required	n/a 3	Poor Poor	<10	C
T31	Early-mature **Crack Willow** *Salix fragilis*	**6**	**1**	**190**	N **3** W **3** E **2** S **2**	**Position:** Situated west of G1 **Form:** Single-stemmed and vertical, with a sparse, slightly unbalanced crown **History:** No previous pruning **Defects:** Minor cavity/decay on main stem. **Other:**	Remove tree	Low n/a	Poor Poor	<10	R
T32	Semi-mature **Crack Willow** *Salix fragilis*	**3**	**0**	**150**	N **1** W **1** E **3** S **1**	**Position:** Situated west of G1 **Form:** Single-stemmed and very leaning, with a sparse, very unbalanced crown **History:** No previous pruning **Defects:** Major broken branches throughout crown. **Other:**	Remove broken branches	Low 3	Normal Poor	10 to 20	C

Reference	Age & Species	Height (m)	Crown Ht (m)	Diameter (mm)	Crown Spread N (m) W E S	Tree Notes	Recommendations	Priority / Inspection Freq (yrs)	Physio Cond / Struct Cond	Life Expectancy	BS5837 Retention Category
T33	Early-mature **Crack Willow** *Salix fragilis*	**8**	**1.5**	**220**	N **1** W **2** E **4** S **2**	**Position:** Situated west of G1 **Form:** Twin-stemmed at 1m, with a sparse, very unbalanced crown **History:** No previous pruning **Defects:** Significant deadwood throughout crown. **Other:**	Remove tree	Low n/a	Very poor Very poor	<10	R
T34	Dead **Unknown** *0*	**6**	**10**	**190**	N **2** W **2** E **2** S **2**	**Position:** Situated west of G1 **Form:** Single-stemmed and vertical, with a sparse well-balanced crown **History:** No previous pruning **Defects:** Dead tree. **Other:**	Remove tree	Low n/a	Dead Dead	<10	R
T35	Early-mature **Crack Willow** *Salix fragilis*	**5**	**1**	**170**	N **1** W **1** E **1** S **1**	**Position:** Situated west of G1 **Form:** Single-stemmed and vertical, with a slightly unbalanced crown **History:** No previous pruning **Defects:** Major deadwood throughout crown. **Other:**	Remove tree	Low n/a	Very poor Very poor	<10	R
T36	Early-mature **Grey Poplar** *Populus canescens*	**10**	**4**	**380**	N **6** W **3** E **5** S **4**	**Position:** Situated north of G8 **Form:** Single-stemmed and vertical, with a dense, well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T37	Semi-mature **Crack Willow** *Salix fragilis*	**7**	**2.5**	**150**	N **3** W **1** E **1** S **1**	**Position:** Situated north of G8 **Form:** Single-stemmed and vertical, with a sparse well-balanced crown **History:** No significant pruning **Defects:** Significant deadwood throughout crown. Acceptable condition at present **Other:**	No action required	n/a 1.5	Poor Poor	<10	C
T38	Mature **Field Maple** *Acer campestre*	**6**	**1.5**	**510**	N **4** W **4** E **4** S **4**	**Position:** Situated north of G8 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	A
T39	Semi-mature **Common Beech** *Fagus sylvatica*	**11**	**0**	**200**	N **4** W **2** E **4** S **4**	**Position:** Situated within G10, overhanging the site boundary **Form:** Single-stemmed and vertical, with a dense, well-balanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	A
T40	Mature **Sessile Oak** *Quercus petraea*	**13**	**1.5**	**690**	N **6** W **6** E **6** S **6**	**Position:** Situated south of G11, overhanging the site boundary **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	A

Reference	Age & Species	Height (m)	Crown Ht (m)	Diameter (mm)	Crown Spread N (m) W E S	Tree Notes	Recommendations	Priority / Inspection Freq (yrs)	Physio Cond / Struct Cond	Life Expectancy	BS5837 Retention Category
T41	Over-mature **Field Maple** *Acer campestre*	**7**	**2**	**320**	N **4** W **5** E **2** S **5**	**Position:** Situated within G13 **Form:** Single-stemmed and vertical, with a slightly unbalanced crown **History:** Previously topped tree **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T42	Over-mature **Field Maple** *Acer campestre*	**11**	**2**	**440**	N **4** W **2** E **4** S **4**	**Position:** Situated within G13 **Form:** Single-stemmed and vertical, with a slightly unbalanced crown **History:** No significant pruning **Defects:** Major deadwood throughout crown. Acceptable condition at present **Other:**	No action required	n/a 3	Normal Normal	40+	A
T43	Over-mature **Common Horse Chestnut** *Aesculus hippocastanum*	**20**	**2**	**1300**	N **9** W **8** E **12** S **10**	**Position:** Situated in the interior of the site **Form:** Multi-stemmed at 3m, with a well-balanced crown **History:** No significant pruning **Defects:** Leaf miner. Acceptable condition at present **Other:**	Monitor disease/decay	Low 1	Poor Normal	40+	A
T44	Over-mature **Common Horse Chestnut** *Aesculus hippocastanum*	**20**	**1.5**	**1150**	N **11** W **10** E **10** S **11**	**Position:** Situated east of G15 **Form:** Multi-stemmed at 4m, with a well-balanced crown **History:** No significant pruning **Defects:** Leaf miner. Significant cavity/decay on major limb(s) **Other:**	Monitor disease/decay	Low 1	Poor Normal	40+	A
T45	Semi-mature **Norway Maple** *Acer platanoides*	**10**	**2**	**220**	N **4** W **4** E **4** S **4**	**Position:** Situated within G15 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T46	Semi-mature **Norway Maple** *Acer platanoides*	**8**	**2.5**	**210**	N **4** W **4** E **4** S **4**	**Position:** Situated within G15 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T47	Semi-mature **Norway Maple** *Acer platanoides*	**11**	**2**	**200**	N **4** W **4** E **4** S **4**	**Position:** Situated within G15 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T48	Semi-mature **Norway Maple** *Acer platanoides*	**8**	**0.5**	**170**	N **2** W **2** E **2** S **2**	**Position:** Situated within G15 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	C

Reference	Age & Species	Height (m)	Crown Ht (m)	Diameter (mm)	Crown Spread N (m) W E S	Tree Notes	Recommendations	Priority / Inspection Freq (yrs)	Physio Cond / Struct Cond	Life Expectancy	BS5837 Retention Category
T49	Semi-mature **Common Hornbeam** *Carpinus betulus*	**5**	**0.5**	**140**	N **2** W **2** E **1** S **2**	**Position:** Situated within G15 **Form:** Single-stemmed and vertical, with a slightly unbalanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T50	Semi-mature **Norway Maple** *Acer platanoides*	**8**	**1.5**	**180**	N **2** W **2** E **2** S **2**	**Position:** Situated within G15 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T51	Semi-mature **Common Beech** *Fagus sylvatica*	**6**	**2.5**	**150**	N **2** W **2** E **1** S **1**	**Position:** Situated within G15 **Form:** Single-stemmed and vertical, with a sparse, slightly unbalanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	Monitor crown condition	Low 3	Poor Normal	<10	C
T52	Early-mature **Field Maple** *Acer campestre*	**9**	**2**	**220**	N **3** W **3** E **3** S **3**	**Position:** Situated within G15 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T53	Semi-mature **Norway Maple** *Acer platanoides*	**9**	**1.5**	**260**	N **2** W **3** E **2** S **3**	**Position:** Situated within G15 **Form:** Single-stemmed and slightly leaning, with a sparse, slightly unbalanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Poor Normal	40+	C
T54	Early-mature **Field Maple** *Acer campestre*	**9**	**1**	**210**	N **3** W **3** E **3** S **3**	**Position:** Situated within G15 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T55	Semi-mature **Norway Maple** *Acer platanoides*	**9**	**2**	**240**	N **3** W **3** E **3** S **3**	**Position:** Situated within G15 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T56	Semi-mature **Common Ash** *Fraxinus excelsior*	**7**	**2**	**160**	N **2** W **2** E **2** S **2**	**Position:** Situated within G15 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B

Reference	Age & Species	Height (m)	Crown Ht (m)	Diameter (mm)	Crown Spread N (m) W E S	Tree Notes	Recommendations	Priority / Inspection Freq (yrs)	Physio Cond / Struct Cond	Life Expectancy	BS5837 Retention Category
T57	Mature **Common Hawthorn** *Crataegus monogyna*	**5**	**0.5**	**300**	N **2** W **2** E **2** S **2**	**Position:** Situated within G15 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. Minor deadwood throughout crown **Other:**	No action required	n/a 3	Normal Normal	40+	B
T58	Semi-mature **Common Ash** *Fraxinus excelsior*	**6**	**3**	**190**	N **2** W **2** E **2** S **2**	**Position:** Situated within G15 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T59	Early-mature **Field Maple** *Acer campestre*	**6**	**2**	**180**	N **2** W **2** E **2** S **2**	**Position:** Situated in the interior of the site **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T60	Semi-mature **Common Ash** *Fraxinus excelsior*	**7**	**2.5**	**180**	N **2** W **2** E **2** S **2**	**Position:** Situated within G16 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T61	Early-mature **Field Maple** *Acer campestre*	**6**	**2**	**160**	N **2** W **2** E **2** S **2**	**Position:** Situated within G16 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T62	Mature **Field Maple** *Acer campestre*	**7**	**1.5**	**350**	N **3** W **3** E **2** S **3**	**Position:** Situated within G16 **Form:** Multi-stemmed at 1m, with a well-balanced crown **History:** No significant pruning **Defects:** Ivy prevented detailed inspection. **Other:**	Remove ivy and resurvey	Low 3	Normal Normal	40+	B
T63	Mature **Field Maple** *Acer campestre*	**10**	**0.5**	**600**	N **4** W **3** E **3** S **3**	**Position:** Situated within G18, overhanging the site boundary **Form:** Multi-stemmed at 1m, with a well-balanced crown **History:** No previous pruning **Defects:** Vegetation prevented detailed inspection. **Other:**	Remove vegetation and resurvey	Low 3	Normal Normal	40+	B
T64	Mature **Field Maple** *Acer campestre*	**8**	**0.5**	**300**	N **3** W **3** E **2** S **3**	**Position:** Situated within G18, overhanging the site boundary **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B

Reference	Age & Species	Height (m)	Crown Ht (m)	Diameter (mm)	Crown Spread N (m) W E S	Tree Notes	Recommendations	Priority / Inspection Freq (yrs)	Physio Cond / Struct Cond	Life Expectancy	BS5837 Retention Category
T65	Over-mature **Field Maple** *Acer campestre*	**6**	**0.5**	**600**	N **3** W **3** E **2** S **3**	**Position:** Situated within G18, overhanging the site boundary **Form:** Multi-stemmed at 1m, with a well-balanced crown **History:** No significant pruning **Defects:** Major cavity/decay on main stem. Acceptable condition at present **Other:**	No action required	n/a 3	Normal Normal	40+	B
T66	Semi-mature **Common Ash** *Fraxinus excelsior*	**6**	**2**	**150**	N **2** W **2** E **2** S **2**	**Position:** Situated within G18, overhanging the site boundary **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T67	Early-mature **Sessile Oak** *Quercus petraea*	**7**	**1.5**	**350**	N **4** W **5** E **3** S **3**	**Position:** Situated within G18, overhanging the site boundary **Form:** Multi-stemmed at 1m, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Poor	40+	B
T68	Mature **Field Maple** *Acer campestre*	**10**	**0.5**	**500**	N **3** W **4** E **3** S **3**	**Position:** Situated south of G18, overhanging the site boundary **Form:** Twin-stemmed at 1m, with a slightly unbalanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T69	Over-mature **Field Maple** *Acer campestre*	**8**	**2**	**550**	N **3** W **3** E **4** S **3**	**Position:** Situated within G18, overhanging the site boundary **Form:** Single-stemmed and slightly leaning, with a sparse, slightly unbalanced crown **History:** No significant pruning **Defects:** Major cavity/decay on main stem. Acceptable condition at present **Other:**	Monitor cavity	Low 1.5	Normal Poor	10 to 20	C
T70	Mature **Common or Black Elder** *Sambucas nigra*	**4**	**0.5**	**160**	N **1** W **1** E **1** S **1**	**Position:** Situated within G19 **Form:** Single-stemmed and slightly leaning, with a sparse, slightly unbalanced crown **History:** No previous pruning **Defects:** Major deadwood throughout crown. **Other:**	Remove tree	Low n/a	Very poor Poor	<10	R
T71	Mature **Common Hawthorn** *Crataegus monogyna*	**9**	**0.5**	**270**	N **2** W **3** E **3** S **2**	**Position:** Northern edge of G20 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T72	Mature **Sessile Oak** *Quercus petraea*	**11**	**3**	**800**	N **5** W **5** E **5** S **5**	**Position:** Northern edge of G21 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	A

Reference	Age & Species	Height (m)	Crown Ht (m)	Diameter (mm)	Crown Spread N (m) W E S	Tree Notes	Recommendations	Priority / Inspection Freq (yrs)	Physio Cond / Struct Cond	Life Expectancy	BS5837 Retention Category
T73	Mature **Field Maple** *Acer campestre*	**10**	**1**	**500**	N **3** W **3** E **3** S **3**	**Position:** Adjacent to the northern site boundary, overhanging the site boundary **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Vegetation prevented detailed inspection. **Other:**	Remove vegetation and resurvey	Low n/a	Normal Normal	40+	B
T74	Early-mature **Common Horse Chestnut** *Aesculus hippocastanum*	**13**	**0.5**	**510**	N **5** W **5** E **5** S **5**	**Position:** Situated within G25, overhanging the site boundary;a road **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Leaf miner. Acceptable condition at present **Other:**	Monitor crown condition	Low 1	Normal Normal	40+	A
T75	Mature **Common Ash** *Fraxinus excelsior*	**11**	**0.5**	**500**	N **4** W **6** E **4** S **4**	**Position:** Situated within G25, overhanging a car park;the site boundary **Form:** Single-stemmed and vertical, with a sparse, slightly unbalanced crown **History:** No significant pruning **Defects:** Vegetation prevented detailed inspection. **Other:**	Remove vegetation and resurvey	Moderate 1	Normal Normal	40+	B
T76	Mature **Field Maple** *Acer campestre*	**9**	**4**	**500**	N **4** W **3** E **4** S **4**	**Position:** Situated within G25, overhanging a car park;the site boundary **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Vegetation prevented detailed inspection. **Other:**	Remove vegetation and resurvey	Moderate 1	Normal Normal	40+	B
T77	Early-mature **Common Ash** *Fraxinus excelsior*	**12**	**3**	**500**	N **3** W **4** E **3** S **2**	**Position:** Situated within G25, overhanging the site boundary **Form:** Single-stemmed and vertical, with a sparse, slightly unbalanced crown **History:** No significant pruning **Defects:** Vegetation prevented detailed inspection. **Other:**	Remove vegetation and resurvey	Moderate 1	Poor Normal	20 to 40	C
T78	Mature **Field Maple** *Acer campestre*	**9**	**4**	**500**	N **3** W **3** E **3** S **3**	**Position:** Situated within G25, overhanging the site boundary **Form:** Single-stemmed and vertical, with a slightly unbalanced crown **History:** No significant pruning **Defects:** Vegetation prevented detailed inspection. **Other:**	Remove vegetation and resurvey	Moderate 1	Normal Normal	20 to 40	C
T79	Mature **Common Ash** *Fraxinus excelsior*	**11**	**3.5**	**500**	N **4** W **4** E **4** S **4**	**Position:** Situated within G25, overhanging the site boundary **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Vegetation prevented detailed inspection. **Other:**	Remove vegetation and resurvey	Moderate 1	Normal Normal	40+	B
T80	Mature **Common Ash** *Fraxinus excelsior*	**14**	**3**	**500**	N **7** W **5** E **5** S **5**	**Position:** Situated within G25, overhanging the site boundary **Form:** Multi-stemmed at 1m, with a slightly unbalanced crown **History:** No previous pruning **Defects:** Vegetation prevented detailed inspection. **Other:**	Remove vegetation and resurvey	Moderate 1	Normal Normal	40+	B

Reference	Age & Species	Height (m)	Crown Ht (m)	Diameter (mm)	Crown Spread N (m) W E S	Tree Notes	Recommendations	Priority / Inspection Freq (yrs)	Physio Cond / Struct Cond	Life Expectancy	BS5837 Retention Category
T81	Mature **Field Maple** *Acer campestre*	**11**	**3.5**	**500**	**4** N **4** W **4** E **4** S	**Position:** Situated on third-party land north of G26, overhanging the site boundary **Form:** Multi-stemmed at 1m, with a well-balanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T82	Mature **Common Ash** *Fraxinus excelsior*	**11**	**3**	**580**	**6** N **6** W **6** E **6** S	**Position:** Situated within G25, overhanging a road;the site boundary **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Ivy prevented detailed inspection. **Other:**	Remove ivy and resurvey	Moderate 1.5	Normal Normal	40+	A
T83	Semi-mature **Field Maple** *Acer campestre*	**6**	**2**	**160**	**2** N **2** W **2** E **2** S	**Position:** Situated within G27 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No previous pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T84	Semi-mature **Lime** *Tilia sp.*	**5**	**1**	**150**	**2** N **2** W **2** E **2** S	**Position:** Situated on third-party land east of the site boundary **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T85	Semi-mature **Common Horse Chestnut** *Aesculus hippocastanum*	**5**	**1.5**	**180**	**2** N **2** W **2** E **2** S	**Position:** Situated within G29 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Leaf miner. Acceptable condition at present **Other:**	No action required	n/a 3	Normal Normal	40+	B
T86	Semi-mature **Lime** *Tilia sp.*	**5**	**1.5**	**150**	**2** N **2** W **2** E **2** S	**Position:** Situated within G29 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T87	Semi-mature **Sessile Oak** *Quercus petraea*	**5**	**2**	**150**	**2** N **2** W **2** E **2** S	**Position:** Situated within G29 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B
T88	Semi-mature **Common Ash** *Fraxinus excelsior*	**5**	**1.5**	**140**	**2** N **2** W **2** E **2** S	**Position:** Situated within G29 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Acceptable condition at present. **Other:**	No action required	n/a 3	Normal Normal	40+	B

Reference	Age & Species	Height (m)	Crown Ht (m)	Diameter (mm)	Crown Spread N W (m) E S	Tree Notes	Recommendations	Priority / Inspection Freq (yrs)	Physio Cond / Struct Cond	Life Expectancy	BS5837 Retention Category
T89	Semi-mature **Common Horse Chestnut** *Aesculus hippocastanum*	**5**	**1.5**	**200**	**3** N **3** W **3** E **3** S	**Position:** Situated within G29 **Form:** Single-stemmed and vertical, with a well-balanced crown **History:** No significant pruning **Defects:** Missing bark on main stem. Leaf miner **Other:**	No action required	n/a 3	Normal Normal	40+	B
T90	Over-mature **Crack Willow** *Salix fragilis*	**10**	**1**	**700**	**3** N **4** W **5** E **4** S	**Position:** Situated within G2 **Form:** Single-stemmed and very leaning, with a very unbalanced crown **History:** Previously pollarded tree **Defects:** Significant cavity/decay on main stem. **Other:**	Monitor cavity	Moderate 1.5	Normal Very poor	10 to 20	C

Reference	Average Height (m)	Species		Tree Notes	Recommendations	Life Expectancy	BS5837 Retention Category
G1	10	**English Elm** **Hazel** **Common Ash** **Elder** **Aspen** **Common Horse Chestnut** **Crack Willow** **Field Maple** **Dogwood** **Hazel**	*Ulmus procera* *Corylus avellana* *Fraxinus excelsior* *Sambucus nigra* *Populus tremula* *Aesculus hippocastanum* *Salix fragilis* *Acer campestre* *Cornus sanguinea* *Corylus avellana*	Neglected mixed group adjacent to existing stream bed (dry) containing various semi-/early-/over-mature trees and mixed species under-story.	No Action Required	40+	A
G2	13	**English Elm** **Hazel** **Common Ash** **Elder** **Aspen** **Common Horse Chestnut** **Crack Willow** **Field Maple** **Dogwood**	*Ulmus procera* *Corylus avellana* *Fraxinus excelsior* *Sambucus nigra* *Populus tremula* *Aesculus hippocastanum* *Salix fragilis* *Acer campestre* *Cornus sanguinea*	Neglected mixed group adjacent to existing stream bed (dry)containing various semi-/early-/over-mature trees and mixed species under-story. Standing dead trees (Elm) Significant trees plotted individually (T1-T17)	No Action Required	40+	A
G3	6	**English Elm** **Common Ash** **Aspen** **Crack Willow** **Field Maple** **Dogwood** **Blackthorn** **Dog Rose** **Wayfaring-Tree** **Hawthorn** **Crab Apple**	*Ulmus procera* *Fraxinus excelsior* *Populus tremula* *Salix fragilis* *Acer campestre* *Cornus sanguinea* *Prunus spinosa* *Rosa canina* *Viburnum lantana* *Crataegus monogyna* *Malus sylvestris*	Neglected hedge-line containing various mature and over-mature examples of Ash and Field Maple. Standing dead trees (Elm) Significant trees plotted individually (T18-22) Historic management as hedge with mature Elm standards indicated by plant physiology.	No Action Required	40+	A
G4	4	**English Elm** **Common Ash** **Field Maple**	*Ulmus procera* *Fraxinus excelsior* *Acer campestre*	Maintained hedge-line containing semi-mature Ash	No Action Required	40+	A

Reference	Average Height (m)	Species		Tree Notes	Recommendations	Life Expectancy	BS5837 Retention Category
		Dogwood **Blackthorn** **Dog Rose** **Hawthorn** **Elder**	*Cornus sanguinea* *Prunus spinosa* *Rosa canina* *Viburnum lantana* *Sambucus nigra*	standards (T24-T26).			
G5	4	**English Elm** **Dogwood** **Blackthorn** **Dog Rose** **Hawthorn** **Elder** **Wayfaring-Tree**	*Ulmus procera* *Cornus sanguinea* *Prunus spinosa* *Rosa canina* *Viburnum lantana* *Sambucus nigra Viburnum lantana*	Maintained hedge containing three semi-mature Ash standards.	No Action Required	40+	A
G6	1	**Hazel** **Sessile Oak** **Cherry** **Gorse**	*Corylus avellana* *Quercus petraea* *Prunus sp.* *Ulex europaeus*	Recently planted, shelter-belt containing mainly Hazel. 8 rows at 1.5m spacing.	No Action Required	40+	C
G7	7	**English Elm** **Common Ash** **Field Maple** **Blackthorn** **Hawthorn**	*Ulmus procera* *Fraxinus excelsior* *Acer campestre* *Prunus spinosa* *Crataegus monogyna*	Neglected hedge-line in poor physiological condition. Standing dead trees (Elm) Individual specimens of Ash and Field Maple.	No Action Required	10-20	C
G8	9	**English Elm** **Common Ash** **Dogwood** **Blackthorn** **Dog Rose** **Hawthorn** **Elder** **Hazel**	*Ulmus procera* *Fraxinus excelsior* *Cornus sanguinea* *Prunus spinosa* *Rosa canina* *Crataegus monogyna* *Sambucus nigra* *Corylus avellana*	Neglected mature/over-mature hedge-line. Standing dead trees (Elm)	No Action Required	40+	A

Reference	Average Height (m)	Species		Tree Notes	Recommendations	Life Expectancy	BS5837 Retention Category
G9	4	**Common Ash** **Hazel** **Wayfaring-Tree**	*Fraxinus excelsior* *Corylus avellana* *Viburnum lantana*	Pocket of recent planting (well established)	No Action Required	40+	B
G10	7	**English Elm** **Hawthorn** **Elder**	*Ulmus procera* *Crataegus monogyna* *Sambucus nigra*	Neglected mature/over-mature hedge-line. Standing dead trees (Elm)	No Action Required	10-20	C
G11	6	**Hawthorn** **Elder**	*Crataegus monogyna* *Sambucus nigra*	Isolated small mature/over-mature group.	No Action Required	20-40	C
G12	7	**English Elm** **Hawthorn** **Elder**	*Ulmus procera* *Crataegus monogyna* *Sambucus nigra*	Neglected mature/over-mature hedge-line. Standing dead trees (Elm)	No Action Required	40+	A
G13	7	**English Elm** **Hawthorn** **Elder** **Field Maple** **Blackthorn**	*Ulmus procera* *Crataegus monogyna* *Sambucus nigra* *Acer campestre* *Prunus spinosa*	Neglected mature/over-mature hedge-line. Standing dead trees (Elm) Containing individual Field Maple (T41, T42).	No Action Required	40+	A
G14	6	**Hawthorn** **Elder** **Field Maple** **Blackthorn**	*Crataegus monogyna* *Sambucus nigra* *Acer campestre* *Prunus spinosa*	Neglected mature/over-mature hedge-line.	No Action Required	40+	A

Reference	Average Height (m)	Species		Tree Notes	Recommendations	Life Expectancy	BS5837 Retention Category
		Dogwood **Dog Rose**	*Cornus sanguinea* *Rosa canina*				
G15	5	**English Elm** **Common Ash** **Field Maple** **Dogwood** **Blackthorn** **Dog Rose** **Wayfaring-Tree** **Hawthorn** **Crab Apple** **Beech** **Hornbeam** **Scots Pine** **Norway Maple**	*Ulmus procera* *Fraxinus excelsior* *Acer campestre* *Cornus sanguinea* *Prunus spinosa* *Rosa canina* *Viburnum lantana* *Crataegus monogyna* *Malus sylvestris* *Fagus sylvatica* *Carpinus betulus* *Pinus sylvestris* *Acer platanoides*	Neglected hedge-line Containing individual trees (T45-T58).	No Action Required	40+	A
G16	4	**English Elm** **Hawthorn** **Elder** **Field Maple** **Blackthorn** **Dog Rose**	*Ulmus procera* *Crataegus monogyna* *Sambucus nigra* *Acer campestre* *Prunus spinosa* *Rosa canina*	Early-mature hedge-line. Containing individual trees (T60-T62).	No Action Required	40+	A
G17	6	**English Elm** **Hawthorn** **Elder** **Field Maple** **Blackthorn** **Common Ash**	*Ulmus procera* *Crataegus monogyna* *Sambucus nigra* *Acer campestre* *Prunus spinosa* *Fraxinus excelsior*	Early-mature hedge-line Standing dead trees (Elm)	No Action Required	40+	A

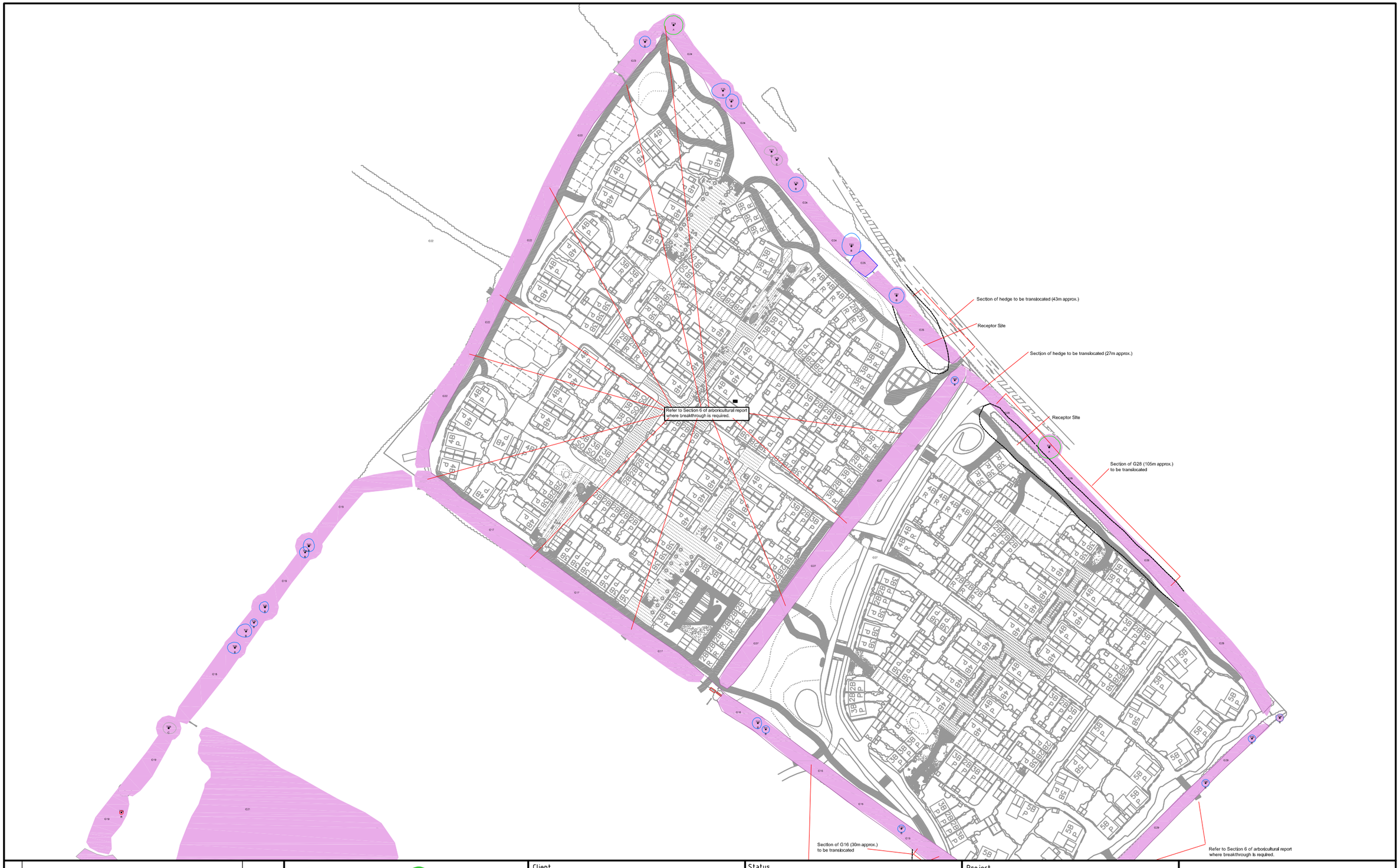
Reference	Average Height (m)	Species		Tree Notes	Recommendations	Life Expectancy	BS5837 Retention Category
G18	6	**English Elm** **Hawthorn** **Elder** **Field Maple** **Blackthorn** **Common Ash** **Dog Rose** **Dogwood** **Sessile Oak** **Cherry Plum**	*Ulmus procera* *Crataegus monogyna* *Sambucus nigra* *Acer campestre* *Prunus spinosa* *Fraxinus excelsior* *Rosa canina* *Cornus sanguinea* *Quercus petraea* *Prunus cerasifera*	Mature hedge-line Containing individual trees (T63-T68).	No Action Required	40+	A
G19	10	**Hawthorn** **Elder** **Field Maple**	*Crataegus monogyna* *Sambucus nigra* *Acer campestre*	Woodland edge containing mature trees and Elder under-story	No Action Required	40+	A
G20	6	**English Elm** **Elder**	*Ulmus procera* *Sambucus nigra*	Neglected mature/over-mature hedge-line. Standing dead trees (Elm)	No Action Required	10-20	C
G21	12	**English Elm** **Sycamore** **Hawthorn** **Elder** **Field Maple** **Blackthorn** **Common Ash** **Dog Rose** **Dogwood** **Sessile Oak** **Cherry Plum**	*Ulmus procera* *Acer pseudoplatanus* *Crataegus monogyna* *Sambucus nigra* *Acer campestre* *Prunus spinosa* *Fraxinus excelsior* *Rosa canina* *Cornus sanguinea* *Quercus petraea* *Prunus cerasifera*	Woodland block of approximately 2ha. Predominantly early-mature even aged with Elder and Hawthorn under-story. Isolated examples of over-mature Field Maple. Containing individual tree (T72).	No Action Required	40+	A
G22	5	**English Elm** **Common Ash** **Field Maple** **Dogwood**	*Ulmus procera* *Fraxinus excelsior* *Acer campestre* *Cornus sanguinea*	Shelter-belt/mature hedge-line	No Action Required	40+	A

Reference	Average Height (m)	Species		Tree Notes	Recommendations	Life Expectancy	BS5837 Retention Category
		Blackthorn **Wayfaring-Tree** **Hawthorn** **Crab Apple** **Cherry Plum** **Elder**	*Prunus spinosa* *Viburnum lantana* *Crataegus monogyna* *Malus sylvestris* *Prunus cerasifera* *Sambucus nigra*				
G23	10	**Field Maple**	*Acer campestre*	Group of 4 trees.	No Action Required	10-20	C
G24	7	**English Elm** **Hawthorn** **Elder** **Field Maple** **Blackthorn** **Common Ash**	*Ulmus procera* *Crataegus monogyna* *Sambucus nigra* *Acer campestre* *Prunus spinosa* *Fraxinus excelsior*	Mature hedge-line/shelter-belt Containing individual trees (T74-T80).	No Action Required	40+	A
G25	11	**Common Ash**	*Fraxinus excelsior*	Group of 3 early-mature trees	No Action Required	40+	B
G26	4	**English Elm** **Field Maple** **Blackthorn** **Hawthorn** **Crab Apple**	*Ulmus procera* *Acer campestre* *Prunus spinosa* *Crataegus monogyna* *Malus sylvestris*	Maintained hedge-line Containing individual tree (T81).	No Action Required	40+	A
G27	4	**English Elm** **Field Maple** **Blackthorn** **Hawthorn**	*Ulmus procera* *Acer campestre* *Prunus spinosa* *Crataegus monogyna*	Maintained hedge-line	No Action Required	40+	A

Reference	Average Height (m)	Species		Tree Notes	Recommendations	Life Expectancy	BS5837 Retention Category
		Crab Apple	*Malus sylvestris*				
G28	4	**English Elm** **Field Maple** **Dogwood** **Blackthorn** **Hawthorn**	*Ulmus procera* *Acer campestre* *Cornus sanguinea* *Prunus spinosa* *Crataegus monogyna*	Containing individual tree (T84).	No Action Required	40+	A
G29	5	**English Elm** **Hawthorn** **Elder** **Blackthorn** **Dog Rose** **Crab Apple**	*Ulmus procera* *Crataegus monogyna* *Sambucus nigra* *Prunus spinosa* *Rosa canina* *Malus sylvestris*	Containing individual trees (T86-T89).	No Action Required	40+	A

APPENDIX 4

Tree Protection Plan



Issue	Description	Date

Trees to be removed

Position of protective tree fence

Root Protection Area

Canopy extent of Category A tree

Canopy extent of Category B tree

Canopy extent of Category C tree

Canopy extent of Category R tree

Client

a2dominion

P3Eco Ltd

Status

Scales	1:2000	Author S.HARRIS
Original Size	A3	Checker
Height Datum		Approver
Grid	GRID	© Copyright reserved

Filename:

Project

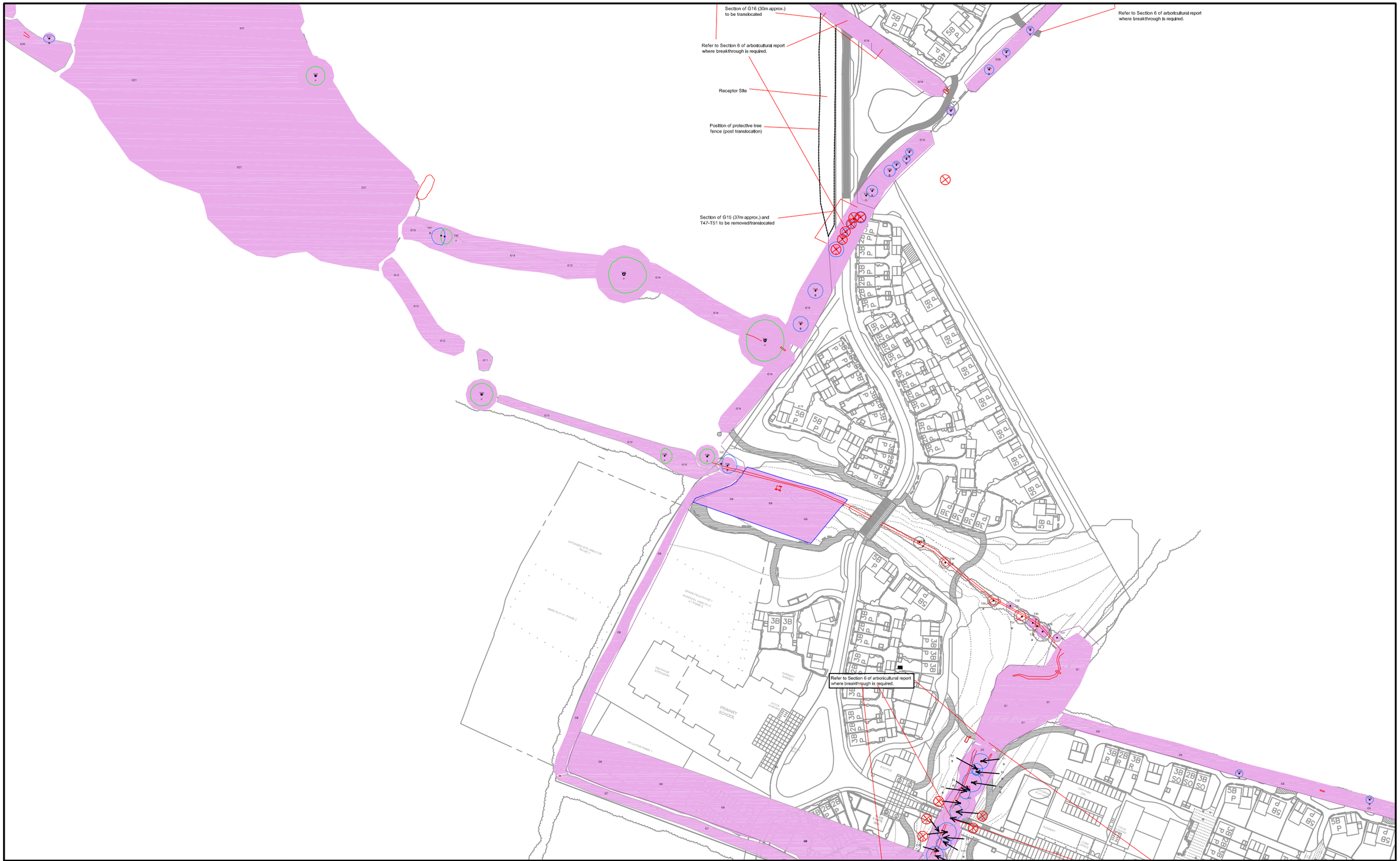
BICESTER
ECO DEVELOPMENT
ENVIRONMENTAL STATEMENT

Title

TREE PROTECTTION PLAN
SHEET 1 OF 3

Hyder Consulting (UK) Limited
29, Bressenden Place
London
SW15 5DZ
Tel: +44 (0)870 000 3006
Fax: +44 (0)870 000 3906

DRAWING.	Project No.	Issue
D01	UA001881	01



Issue	Description	Date

Trees to be removed

Position of protective tree fence

Root Protection Area

Canopy extent of Category A tree

Canopy extent of Category B tree

Canopy extent of Category C tree

Canopy extent of Category R tree

Client

azdominion

P3Eco Ltd

Status

Scales	1:2000	Author S.HARRIS
Original Size	A3	Checker
Height Datum		Approver
Grid	GRID	© Copyright reserved
Filename:		

Project

BICESTER
ECO DEVELOPMENT
ENVIRONMENTAL STATEMENT

Title

TREE PROTECTTION PLAN
SHEET 2 OF 3

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DRAWING.	Project No.	Issue
D02	— UA001881 —	01

Issue	Description	Date

Trees to be removed

Position of protective tree fence

Root Protection Area

Canopy extent of Category A tree

Canopy extent of Category B tree

Canopy extent of Category C tree

Canopy extent of Category R tree

Client

a2dominion

P3Eco Ltd

Status

Scales	1:2000	Author	S.HARRIS
Original Size	A3	Checker	
Height Datum		Approver	
Grid	GRID	© Copyright reserved	
Filename:			

Project

BICESTER
ECO DEVELOPMENT
ENVIRONMENTAL STATEMENT

Title

TREE PROTECTTION PLAN
SHEET 3 OF 3

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DRAWING.	Project No.	Issue
D03	— UA001881 —	01

APPENDIX 5

CEZ Sign

TREE PROTECTION AREA

KEEP OUT

THE FOLLOWING RESTRICTIONS APPLY:-

- THE PROTECTIVE FENCE MUST NOT BE REMOVED
- NO PERSON SHALL ENTER THIS AREA
- NO MACHINE OR PLANT SHALL ENTER THIS AREA
- NO STORAGE OF MATERIALS OR SPOIL
- NO EXCAVATION

NO ACCESS WITHOUT WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

Hyder Consulting (UK) Limited,
The Mill, Brimscombe Port,
Stroud, Glos GL5 2QG, Tel: 01453 731 231
ww.hyderconsulting.com

Hyder