

# SJ Stephens Associates

ARBORICULTURAL, LANDSCAPE & MANAGEMENT CONSULTANTS

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# Arboricultural Impact Assessment

- Tree Survey
- Tree Protection Plan
- Preliminary Arboricultural Method Statement

## <u>At:-</u>

The Lodge Long Lane London N3 2PY

On behalf of:-The Lodge Victoria Park Ltd c/o Tal Arc Ltd 2a Crescent Road London N3 1HP

Prepared by:

Simon Stephens MA Oxon, Dip Arb(RFS), MArborA, C Env. MICFor Email: <u>simon@sjstephens.co.uk</u>

Survey Date: Report Date: Project no: 27<sup>th</sup> January 2017 6<sup>th</sup> June 2017 992

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#### 1 BACKGROUND

- 1.1 This Arboricultural Impact Assessment relates to the proposed demolition of the existing building and replacement with a new building containing six flats, and provides recommendations for the management of trees on the site. It has been instructed by Tal Arc Ltd on behalf of the owners.
- **1.2** The tree survey was undertaken, and this report has been prepared, by Simon Stephens MA Oxon, Dip Arb (RFS), MArborA, C Env, MICFor a Registered Consultant with the Arboricultural Association, with over 20 years relevant experience.
- **1.3** This survey and report have been prepared in accordance with recommendations provided in BS 5837:2012, Trees in relation to design, demolition and construction Recommendations.
- **1.4** Documentation supplied:
  - Topographical Survey
  - Tal Arc Ltd, Proposed Ground Floor Plan, drawing no: LL-PP3-O1

### 2 SURVEY DETAILS AND SCOPE

- **2.1** The site survey included trees and shrubs, within influencing distance of the proposed development, with a stem diameter over 75mm at 1.5m height, located within the area shown on the plan included as Appendix A.
- 2.2 Tree inspection took place from ground level with the use of binoculars, sounding hammer and metal probe using the Visual Tree Assessment method (Mattheck & Breloer 1994). The presence and condition of bark and stem wounds, cavities, decay, fungal fruiting bodies and any structural defects that could increase the risk of structural failure were noted.
- **2.3** The suitability of trees for inclusion in the future development was considered, in particular considering the safe useful life expectancy, and sustainability, of trees on the site after development is completed.
- 2.4 Tree details have been added to the plan received which is included as Appendix A. Tree locations have been taken from the topographical survey provided. Where not included on the topographical survey, they have been determined by measuring distances from features shown on the plan, using a laser measuring device. The following information was recorded for each tree, and is shown in the Tree Schedule included as Appendix B:
  - Number: an identity number for each tree, prefixed with a "T", which cross references locations shown on the plan with the schedule in Appendix B. Where a number of trees, normally of the same species, are located close together and are similar in character and requirements, they have been treated as a Group under a single Number, prefixed with a "G".
  - Species: common name.
  - **Tree height**: approximate height in metres.
  - Stem diameter: diameter in millimetres, taken at 1.5m above ground. Where there are a number of stems, stem diameters are recorded in the condition column.
  - **Branch spread**: approximate spread in metres to N,S,W and E of the trunk. The approximate branch spread is drawn on the plan.
  - Canopy clearance: approximate height of the canopy above ground. Where a significant, low lateral branch is present, its height and direction of growth is included in the Condition column.
  - Age class: Young, Semi-mature, Early mature, Mature, Over-mature, Veteran.
  - **Condition**: features that affect the safe useful life expectancy and amenity of the tree, including the presence of decay or any physical defect.
  - Management Recommendations: recommendations to ensure the health and safety of the tree, within the future development.
  - Estimated Remaining Contribution: <10 years, 5-15 years, 10-20 years, 15-30 years, 20-40 years, >40 years.
  - **Category grading**: tree classification taken from BS 5837:2012, Trees in relation to design, demolition and construction (see Appendix C for details), as follows:
    - Category U: Unsuitable for retention, trees with less than 10 years life expectancy, normally recommended for removal (Red)

- Category A: high quality trees, able to make a substantial contribution for at least 40 years. (Green)
- Category B: moderate quality trees, able to make a significant contribution for at least 20 years. (Blue)
- Category C: low quality, in adequate condition to remain for at least 10 years, or young trees <150mm stem diameter.(Grey/Uncoloured)

For category A, B and C trees, a subcategory has been allocated, providing information on the reasons for selection of a specific category, as follows:

- Subcategory 1: mainly arboricultural values.
- Subcategory 2: mainly landscape values.
- Subcategory 3: mainly cultural values, including conservation.
- Trees have been classified irrespective of the possible proximity to future construction. The BS 5837 category is colour coded, as indicated above, on the plan included as Appendix A.
- **Protection Distance**: the protection distance in metres required to provide the Root Protection Area recommended in BS 5837, assuming a circular area centred on the tree.
- Root Protection Area (RPA): the area in m<sup>2</sup>, as recommended in BS 5837, to provide sufficient rooting area to ensure tree survival and which, in most situations, should be fenced off to prevent root damage from construction activities.

#### **3 SURVEY LIMITATIONS**

- 3.1 No internal decay devices, or other invasive tools to assess tree condition, were used.
- **3.2** No soil excavation or root inspection was carried out.
- **3.3** This survey has not considered the effect that trees or vegetation may have on the structural integrity of future building through subsidence or heave.
- **3.4** The tree survey has been undertaken principally for planning purposes. Although any obvious structural defects have been noted, a full Tree Hazard Assessment has not been carried out.

### 4 FINDINGS AND PROPOSALS

#### 4.1 Site Overview

- 4.1.1 The proposal is to demolish the existing building and replace it with a new building containing six flats. The proposed site layout, together with tree details, is shown on the Tree Protection Plan included as Appendix A.
- 4.1.2 The existing pedestrian entrance is to be widened to allow vehicle access and grasscrete, or similar, laid. The new building is located in the same part of the site as the existing building. This proposal includes a very much smaller building than included in the previous, refused, application (ref: 16/4524/FUL).
- 4.1.3 There are two high quality trees, protected by Tree Preservation Orders, on the site. T1 is a mature field maple growing just outside the site, but leaning into it. This is an attractive tree of great character, which could develop into a future veteran. T4 is a younger yew, showing good vigour and in a prominent location on the corner of the entrance to the park, and which has the potential to grow on for a considerable period. There is also a multi-stemmed laurel, T3, which is growing over into, and adding to the overall character of the park. It is also providing good evergreen screening between the park and the site and, therefore, although it is not a high quality tree, we have suggested that it is retained. These trees are shown in the photos included in Appendix E. Other trees and hedges within the site, while providing screening, are of far less importance.

#### 4.2 Legal Protection of Trees

4.2.1 It is understood that Barnet Council have a Tree Preservation Order protecting the field maple (T1) and the yew (T5).

#### 4.3 Tree Work

- 4.3.1 Details of proposed tree works are included in the Tree Schedule included as Appendix B.
- 4.3.2 Two trees are proposed for removal, as detailed in section 5.1 below.
- 4.3.3 All tree work should be undertaken to the standards set out in BS 3998:2010 Tree work Recommendations.

#### 4.4 Tree and Root Protection

- 4.4.1 Root Protection Areas are shown for all trees in the tree schedule attached as Appendix B. They are also shown for all retained trees, as circular areas centred on the trunk, on the plan enclosed as Appendix A. This shows the distance that construction must normally be kept back from a tree, to provide the Root Protection Area recommended in BS 5837.
- 4.4.2 The Root Protection Area for the yew (T5) has been offset away from the road, since it is likely that more roots will be within the garden than under the road.
- 4.4.3 The location of Tree Protection Fencing is shown on the drawing attached as Appendix A. This provides full protection of all Root Protection Areas, other than for:
  - trees, where No-Dig Construction must be used, within areas cross hatched blue on the Tree Protection Plan, as described in section 4.5 below.
  - trees where Ground Protection Areas have been defined, as shown cross hatched in cyan on the Tree Protection Plan, and where roots must be protected as described in section 4.6 below.
- 4.4.4 Tree Protection Fencing must be from weldmesh panels, at least 2m high, securely fixed, with wire or scaffold clamps, to a rigid framework. This framework must be constructed from scaffold tubes with vertical tubes, at a maximum interval of 3m and driven into the ground at least 0.6m. The structure must be well braced to resist impacts, constructed as per Figure 2 of BS 5837:2012, which is reproduced as Appendix D.
- 4.4.5 Tree Protection Fencing must initially be erected around the outer perimeter of the No-Dig areas, where indicated "D" on the drawing, then moved to the inner perimeter, where indicated "C" as work on that particular area commences.
- 4.4.6 After erection of Tree Protection Fencing, two days notice must be given to the Local Planning Authority before any demolition, starts on site. Tree Protection Fencing must be maintained and retained for the duration of the works, or until such time as agreed in writing with the Local Planning.

4.4.7 Weatherproof notices must be fixed to the Tree Protection Fencing, and maintained, stating:-

#### TREE PROTECTION AREA KEEP OUT TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND ARE SUBJECTS OF A TREE PRESERVATION ORDER (TOWN & COUNTRY PLANNING ACT 1990) CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION THE FOLLOWING MUST BE OBSERVED BY ALL PERSONS: • The Protection Fence must not be moved

- No person, machine or plant shall enter the area
  - No materials or spoil shall be deposited
    - No excavation shall occur

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

#### 4.5 No-Dig Construction Areas

- 4.5.1 The No-Dig areas, shown hatched blue on the Tree Protection Plan, must be constructed without excavation apart from the removal of turf/organic matter, which should be carried out by hand. Excavators, dumpers and other site traffic must not be allowed to track on the No-Dig areas until roots are protected.
- 4.5.2 Engineering details for the No Dig sections of car park and cycle store must avoid localised compaction, using both a two dimensional geogrid, and a three dimensional cellular confinement system as integral components of the sub-base. A typical section is shown on the Tree Protection Plan. As well as being fit for purpose, the design and methodology must protect tree roots, by ensuring the following:-
  - topsoil/turf must be removed carefully by hand to a maximum of 75mm, or less if roots are found nearer the surface.
  - following leveling with soil or sand, a permeable, non-woven geotextile membrane, must be laid.
  - a suitable two dimensional geogrid, such the TriAx Geogrid supplied by Tensar International (<u>www.tensar.co</u>.uk). or LBO220 Bi-orientated Geogrid supplied by Geosynthetics Ltd (www.geosyn.co.uk), must be laid over the entire area and underneath the edging.
  - pressure treated timber edging boards, supported by driven stakes must be used.
  - a suitable cellular confinement system must then be constructed to manufacturers instructions on top of the geogrid. Products that might be considered include Geoweb, supplied by Cooper Clarke Group Ltd (01204 862 222) or Cellweb, supplied by Geosynthetics Ltd (01455 617 139).
  - the cellular confinement system must be filled with clean (no fines), washed angular, 40/20mm, stone to provide load support, while allowing air and moisture to permeate to the root zone.

- a further permeable, non-woven geotextile membrane, such as TreetexT300, or an alternative approved product which has similar oil trapping qualities, must be laid over the cellular confinement system.
- within the drive and car park grasscrete, or similar, will then be laid to ensure permeability and maintain a "green" appearance
- a concrete base will be laid, on the same sub-base build up, for the cycle store
- removed turf/topsoil can be used to grade surrounding ground levels and to add to the grasscrete panels.
- 4.5.3 Part of the proposed building, which falls within the Root Protection Area of the laurel T3, must be constructed without excavation, using piled foundations. Engineering details must avoid localised compaction, using a three dimensional cellular confinement system as an integral component of the sub-base. A typical section is shown on the Tree Protection Plan. As well as being fit for purpose, the design and methodology must protect tree roots, by following the following construction methodology:-
  - topsoil/turf must be removed carefully by hand to a maximum of 75mm, or less if roots are found nearer the surface.
  - following leveling with soil or sand, a permeable, non-woven geotextile membrane, must be laid.
  - pressure treated timber edging boards, supported by driven stakes must be used.
  - a suitable cellular confinement system must then be constructed to manufacturers instructions on top of the geotextile. Products that might be considered include Geoweb, supplied by Cooper Clarke Group Ltd (01204 862 222) or Cellweb, supplied by Geosynthetics Ltd (01455 617 139).
  - the cellular confinement system must be filled with clean (no fines), washed angular, 40/20mm, stone to provide load support, while allowing air and moisture to permeate to the root zone. The depth of the cellular confinement system must be confirmed with the suppliers as being adequate to protect the ground during pile driving operations.
  - pile locations must be marked and trial holes dug, by hand, to a depth of 750mm. If roots over 25mm diameter are found, the pile positions must be shifted to avoid them.
  - each pile position must be sleeved using plastic piping or a polythene coated cardboard tube to prevent concrete from the pile leaching into the root zone. Piles can then be driven.
  - a further non-permeable, geotextile membrane, or heavy-duty polythene must then be laid before the reinforced concrete base is laid, which will be supported by the piles.
  - removed turf/topsoil can be used to grade surrounding ground levels.
- 4.5.4 No-Dig construction will result in an increase in levels. This has been fully taken account of in all other aspects of the design, with the finished ground floor level designed to be 200mm above existing ground levels.

#### 4.6 Ground Protection Areas

- 4.6.1 Ground Protection Areas are shown hatched cyan on the Tree Protection Plan.
- 4.6.2 One section consists of the existing tarmac path, which is within the Root Protection Area of the yew, T5, which is to be replaced with soft landscaping. This path must be broken up and removed by hand. Immediately after removal, good quality topsoil, supplied to BS3882:2007, must be laid.
- 4.6.3 Adjacent to the new building, where pedestrian movement and erection of scaffolding will take place within the Root Protection Areas of trees, the ground between the Tree Protection Fencing and the building must be protected by either 25mm plywood or side butting scaffold boards, on top of a compressible layer of sand or woodchips, laid onto a geotextile. Alternatively, scaffold boards can be fixed on a driven scaffold frame, so as to form a suspended walkway.

#### 4.7 Services

- 4.7.1 The proposed route for incoming services is shown on the Tree Protection Plan and is well away from the Root Protection Area of any retained trees.
- 4.7.2 Three soakaways for rainwater will be included. One will be in the north-west corner of the site and two will be under the driveway / parking area. The precise size and location will be determined post-planning and included in the detailed Arboricultural Method Statement, to be approved before construction work starts, however all three will be well away from the Root Protection Areas of any retained trees.

#### 4.8 General measures

- 4.8.1 No construction activity whatsoever must be allowed within Root Protection Areas, other than that specifically described above. On no account must these areas be used for routing of underground services, storage of materials or on-site parking.
- 4.8.2 No mixing of cement, or concrete, or storage of fuel must take place within 10m of retained trees, nor in any position where the slope of the ground could lead to contamination of the Root Protection Area.
- 4.8.3 Fires must not be lit in a position where their flames could extend to within 10m of foliage, branches or trunk.

- 4.8.4 Landscape works carried out within Root Protection Areas must be undertaken with great care so as not to damage shallow roots. Tractor mounted rotovators or other heavy mechanical cultivation should not be used within the Root Protection Areas.
- 4.8.5 A copy of the Tree Protection Plan must be kept on site and should be fully understood by the Site Agent.

#### 4.9 Bat roosts

4.9.1 The current legislation makes it a criminal offence to disturb, damage or destroy any bat roost or hibernation area. Contractors must be reminded of their responsibilities and should contact the relevant authorities if any signs of bats are found.

#### 4.10 Birds

4.10.1 The current legislation makes it a criminal offence to disturb nesting birds. The nesting season is generally assumed to be from 1<sup>st</sup> March to 31<sup>st</sup> July, however this can vary depending on species and location. During these months a careful inspection must be made before work commences and works must be postponed if active nests are found.

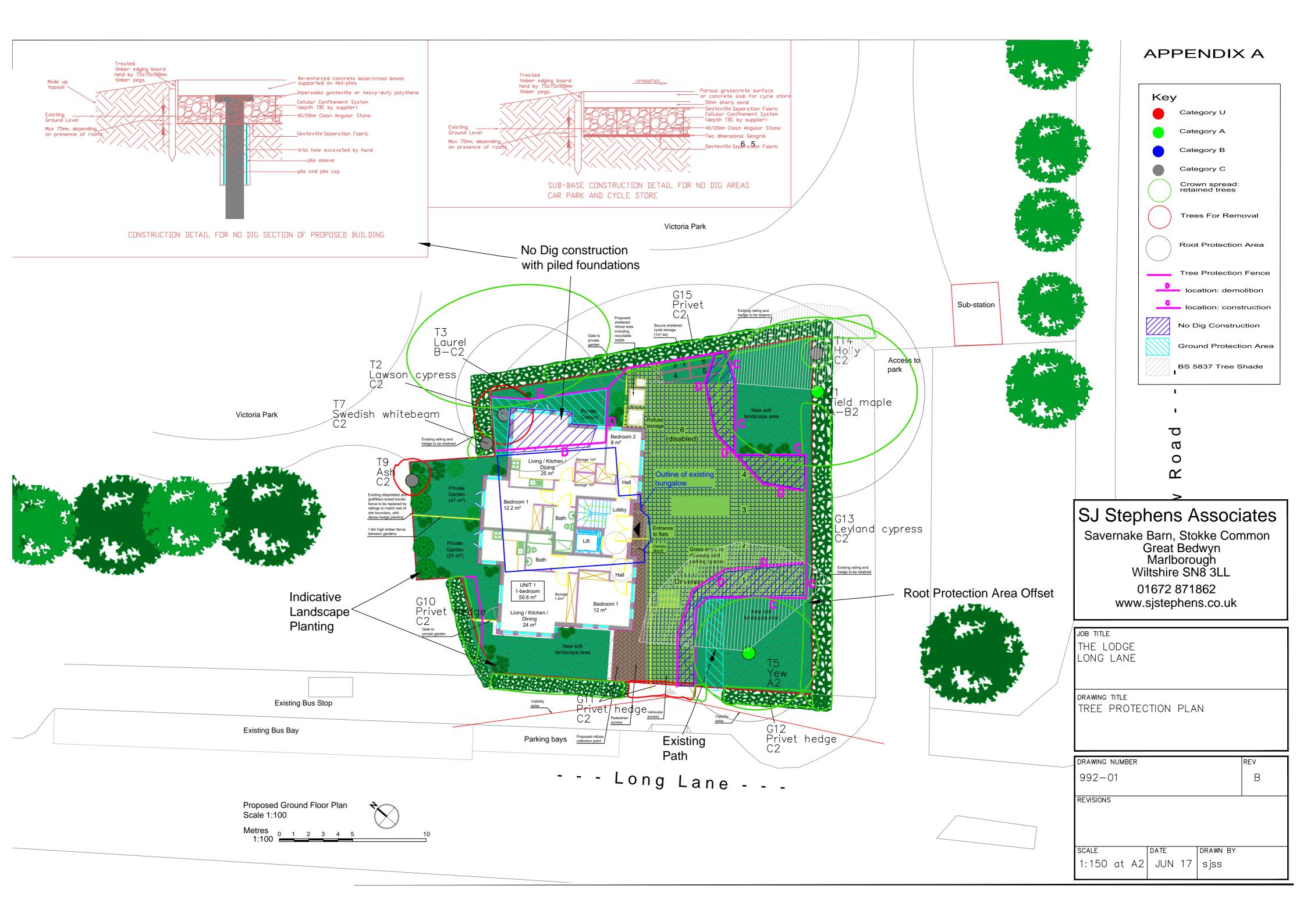
#### 4.11 Arboricultural Supervision

- 4.11.1 A qualified Arboricultural Consultant must be retained during the period of construction to carry out the following:
  - to prepare a detailed Arboricultural Method Statement, after input and agreement from the contractor, to be approved by the Local Planning Authority before work on site commences. This must include detailed engineering sections for the No-Dig section of the building, together with details of services, drainage and contractors facilities.
  - to inspect Tree Protection Fencing once erected, prior to construction or demolition starting on site.
  - to inspect as the construction of the No-Dig sections commences.
  - to advise on any issues at the request of the local planning authority, the developer or contractor.

The details of each site visit must be recorded using a site visit proforma, with copies circulated to the contractor, developer and the local authority Tree Officer.

## **5 ARBORICULTURAL IMPACT ASSESSMENT**

- **5.1** The following trees / tree groups, categorized as per BS 5837 (see Appendix C for details), are proposed for removal:
  - Category C low quality: 2 trees
    - T2 an 1.5m Lawson cypress showing poor structure.
    - T9 a low quality, three stemmed, 6m tall ash.
- **5.2** Neither of the trees to be removed has any particular merit, and new trees will be included in the landscape plan, which will mitigate for their loss.
- **5.3** Protection measures have been specified to protect all retained trees, including No-Dig construction for sections of the car park and building. New hard surfacing will cover approximately 16m2, or 12.5%, of the un-surfaced part of the Root Protection Area of the field maple, T1. This is well within the 20% maximum recommended in BS5837.
- **5.4** New hard surfacing will also cover 14m2 or approximately 20% of the Root Protection Area of the yew, T5. Although this is the maximum recommended in BS5837, since new surfacing will be permeable, it is unlikely to affect the long-term health of the tree.
- 5.5 There is a possible risk of root damage to the laurel during the pile driving operation. However, laurel tend to be resilient and, providing the recommendations provided are followed, they are unlikely to be seriously affected.
- 5.6 Although preservation of Root Protection Areas is deemed to protect tree roots, in some cases buildings may need to be set further back from trees to ensure their future sustainability. If large trees are too close to buildings, future occupiers may be likely to seek their reduction, or removal, if they are cutting out excessive sunlight or providing a claustrophobic or threatening environment. Section 5.2.2 of BS 5837:2012 states that "an indication of potential direct obstruction of sunlight can be illustrated by plotting a segment with a radius from the centre of the stem equal to the height of the tree, drawn from due North West to due East, indicating the shadow pattern through the main part of the day."
- **5.7** Shading patterns for key trees have been shown on the plan. This shows that the building is outside potential shading areas.
- **5.8** Provided the recommendations in this report are followed, the arboricultural impact of this development is considered acceptable, with no significant trees being removed, protection measures specified for all retained trees and arboricultural supervision included to assist with implementation.



The Lodge, Long Lane

Appendix B BS 5837: 2012 Tree Schedule

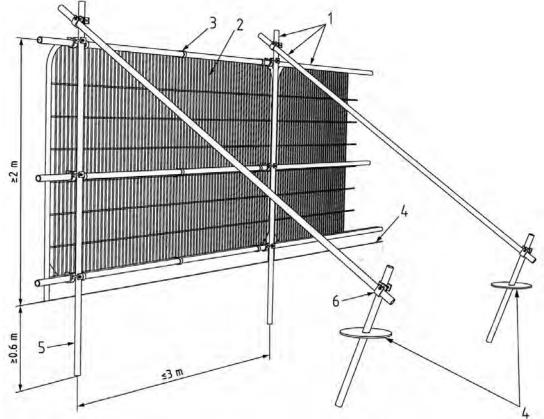


Category and definition	Criteria (including subcategories where appropriate)	ppropriate)		Identification on plan
Trees unsuitable for retention (see Note)	(see Note)			
Category U Those in such a condition that they cannot realistically	<ul> <li>Trees that have a serious, irremediab including those that will become unv reason, the loss of companion shelte</li> </ul>	Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)	is expected due to collapse, (e.g. where, for whatever	See Table 2
be retained as living trees in	Trees that are dead or are showing s	Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline	e overall decline	
the context of the current land use for longer than 10 wears	Trees infected with pathogens of significance to the heal quality trees suppressing adjacent trees of better quality	Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality	trees nearby, or very low	
	NOTE Category U trees can have existing see 4.5.7.	NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.	jht be desirable to preserve;	
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention	ention			
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below	category A designation Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

## British Standard BS 5837:2012 Default specification for protective barrier

#### Figure 2

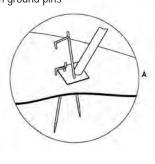
- Key
- Standard scaffold poles
   Heavy gauge 2 m galvanised
- tube and welded mesh infill panels
- 3 Panels secured to uprights and cross-members with wire ties
- 4 Ground level
- 5 Uprights driven into the ground until secure (minimum depth 0.6 m)
- 6 Standard scaffold clamps



#### Examples of above-ground stabilising systems

Figure 3a

Stabiliser strut with base plate secured with ground pins



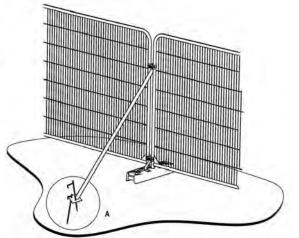
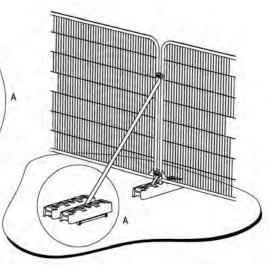


Figure 3b Stabiliser strut mounted on block tray



SJ Stephens Associates Ltd

## Appendix Ei)



## Appendix Eii)

