TREE SURVEY, ARBORICULTURAL IMPACT ASSESSMENT, PRELIMINARY ARBORICULTURAL METHOD STATEMENT AND TREE PROTECTION PLAN IN ACCORDANCE WITH BS 5837:2012

Prepared for:
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## Appendices

- **Appendix A** Location Plans and Site Layout Plan
- **Appendix B** Tree Survey Schedule & Notes
- **Appendix C** Tree Constraints Plan- TCP
- **Appendix D** Extracts from British Standard BS 5837:2012
- **Appendix E** Arboricultural Method Statement and Tree Protection Plan
INTRODUCTION

Eco-Check Consultancy were instructed by Anglia Design Architects in June 2016 to assess the trees which are plotted on the tree survey plan (Appendix C), in accordance with the principles of BS 5837: 2012 ‘Trees in Relation to Design, Demolition and Construction’

The aim of the assessment is to survey the trees that may be affected by the proposed construction of a detached garage of a new housing build to the rear of 93 Yarmouth Road, Blofield. The aim of this survey is to provide a preliminary consideration of the arboricultural implications of the proposed garage and provide information to assist with the layout and construction design taking into account the sites arboricultural constraints.

The assessment addresses the likely impact of the proposed garage on the trees and provides recommendations where necessary for the protection of the trees during construction work based on BS: 5837.

An OS Plan was provided by ‘Anglia Design’ which has been used as the basis for the Tree Constraints Plan (TCP) and an existing site layout plan was also provided (Appendix A).

The ultimate purpose of this report is to identify the quantity and quality of the tree stock, their contribution to public amenity and the constraints particular trees may offer to the site in terms of the proposed construction works.

SITE DESCRIPTION

A site location plan and outline of the proposed development is attached (See Appendix A). The National Grid Reference for the site is TG339099. Two new detached dwellings have recently been completed under planning reference 2015/0169. Permission is now being sought for the construction of a detached garage to the west of Plot 1. The position of the proposed garage falls between two mature oak trees along the west site boundary (T1 & T2). This report includes an assessment of those trees which may have a Root Protection Area (RPA) within the footprint of the proposed garage.

TREE SURVEY METHOD

All of the trees included in the report have been plotted onto the plan to show their location, trunk diameter, RPA and canopy spread. The trees were assessed on the 20th June 2016 and 3 records are included in the attached schedule (Appendix B). The schedule gives the survey findings in tabular form, which conforms to the BS 5837:2012 Standard. Appendix B gives a full explanation of the survey headings.
The details recorded during the tree survey have been collected independently of the development proposals and the categorisation of the quality and amenity value of the trees is made on purely arboricultural grounds. Trees indicated on the site survey plan provided (Appendix C) have been visually inspected. Each tree has been assessed from ground level only and no aerial inspection has been made, nor has any decay detection equipment been used.

Whilst all the significant trees have been assessed, this report does not include discussion in respect of all vegetation, including some small and insignificant trees such as shrubs, bushes, scrub and young saplings which were growing in the neighbours garden to the west of the site. However general comments are made about lower storey trees and shrubs where appropriate.

Some trees may be grouped rather than individually assessed. Trees growing as part of a group have been allocated one number and the details in the schedule will reflect averages or the dominant species.

The trees have been detailed in the tree survey schedule to include their identification number, which corresponds to their position on the site, species (English name), an estimated height, a north, south, east west measurement of the canopy spread where uneven or an average spread, an assessment of the tree’s maturity, a measured trunk diameter at 1.5m above ground, the tree’s condition, a quality grading in accordance with the guidance set out in BS 5837:2012 and some comments regarding each tree where relevant.

Included at Appendix D is a section of the BS 5837: 2012 standard that refers to the tree survey grading system at Table 1. For clarity, the grading system is summarised as follows:

- U grade – trees for removal (effective for less than 10 years)
- A grade – trees of high quality and value, effective for more than 40 years
- B grade – trees of moderate quality and value, effective for more than 20 years
- C grade – trees of low quality and value, effective for 10 years

**TREE CONSTRAINTS PLAN**

The influence the trees will have on the layout of the development is set out in the context of the Tree Constraints Plan which forms Appendix C. The AutoCAD plan provided has been used as the basis for the TCP.
Appendix C shows the position of the trees by a circle coloured according to the quality assessment category (as detailed in Appendix B). Canopy spread is shown as a hatched green circle and the RPA as a dark green circle (Category A), blue circle (Category B) and grey circle (Category C). The plan deals with constraints the trees may place on the development in two areas as follows:

- **Below Ground Constraints**

  The Root Protection Areas (RPA) for the trees is shown as a coloured circle according to its category grading. The RPA will be used to fix the boundaries of any temporary fencing needed to protect the trees during construction forming the Construction Exclusion Zone (CEZ).

- **Above Ground Constraints**

  The branch spread of the trees has been shown by a hatched green line and gives an indication of the shadows created by trees around mid-day in the summer. This is recommended in BS 5837 but actual shade patterns vary throughout the year.

**GENERAL ARBORICULTURAL CONSIDERATIONS**

The proposed development is to include the construction of a detached garage in the north-west corner of Plot 2 of the site.

The tree survey schedule identifies trees within the site (Area marked in red Appendix 1) and which are likely to be affected by any development and to inform the layout process.

2 trees have been designated as Category B and 1 tree has been designated as Category C. The Category B trees are generally in satisfactory condition, but unimposing in the surrounding landscape and have moderate arboricultural value.

**Arboricultural Considerations**

It is of note that within the BS: 5837 there is a facility for hard standing areas, drives and parking bays, paths and terraces to be constructed within the assessed RPA. This will be subject to arboricultural assessment and implementation of specially engineered construction methods.

In addition, the RPA can be manipulated around a tree to a tolerance of 20% in normal circumstances where considered appropriate by an arboriculturalist and where the total area is not reduced. Manipulation in
excess of 20% may be acceptable where ground conditions and structures are expected to have influenced root growth.

The RPA is the area surrounding a tree, which contains sufficient rooting volume to ensure the survival of the tree. This area is measured in m² and is typically shown as a circle with the tree at the centre.

In addition, it may be acceptable to construct substantial structures within the RPA of retained trees. It will be important however, to consider at the outset of design, that continuous open trenching will not be acceptable within the RPA. However, subject to arboricultural advice, foundations involving piles, pads or slabs, cantilevered as necessary, may be engineered to avoid conflicts with retained trees. This will be provided that ground beams or similar are positioned at or above existing ground levels. This is likely to impact upon internal floor levels and ridge heights.

It is also to be recognised in design layouts that it will be appropriate to provide a realistic juxtaposition between trees identified for retention and proposed habitable development.

Consideration should be given to the potential for trees to increase in size and the implications this may have on structures or living conditions. The design will make a suitable balance between benefits that the trees offer to the scheme, the potential for understandable inconvenience, and the most efficient use of land.

**LEGAL STATUS**

The site is not located within a Conservation Area and none of the trees assessed are believed to be protected under Tree Preservation Orders. Prior notice will likely be required from the LPA before any arboricultural or construction works commence.

**TREE APPRAISAL**

As part of this survey a total of 3 trees were assessed and plotted. An accurate topographical survey was not available and so the position of the trees has been plotted with a hand-help GPS surveying unit.

It can be seen that the two mature oak trees T1 & T2 (Category B) have a Root Protection Area (RPA) within the footprint of the proposed garage. The entire footprint of the garage falls within the RPA of T2 (approximately 10% of
RPA) and the north section of the garage falls within the RPA of T1 (approximately 8% of RPA).

The root protection areas of T1 and T2 pose a significant constraint for the construction of the garage. Within the RPA it is usually not permissible to:

- Carry out ground excavations without seeking appropriate advice.
- Make any ground level changes without seeking appropriate advice.
- Store building materials or machinery.
- Dispose of waste materials and liquids.
- Site a bonfire or erect a site hut.
- Use trees as anchor points for mechanical equipment or cables.

**Construction Methodology**

At this stage no detailed construction methodology for the garage has been proposed. It would be unacceptable for open trenching for traditional foundations to take place as this would cause significant and irreversible damage to the root system of T2 and to a lesser degree T1.

It is proposed (subject to agreement with the LPA) that a piled cantilever system is used as detailed in the arboricultural method statement. The key benefit of piling, in terms of building around trees, is that they only impact a very limited area of ground and are therefore less likely to damage the root system of the tree. Piles are also less susceptible to ground movement than other foundation types, which can be an issue around trees in certain types of soil, particularly if a tree dies or is removed at a later date. Screw micro piles are often a preferred option as they require less heavy machinery, which could damage the roots during construction.

It is proposed that an air-spade be utilised to excavate the soil within the proposed pilings. This is essentially a high-powered jet of air that allows soil to be removed from around tree roots without the risk of damaging the root bark or severing a root. Once main roots have been exposed then piles can easily be set out on site to fit between them. Where necessary root pruning may be required.

Ground protection measures will be required for earthworks and construction to avoid unwanted disturbance and ground compaction within the RPA.
CONCLUSIONS

- It can be seen that the proposed garage infringes the RPA of two Category B mature oak trees (T1 & T2) and that an area of the RPA will also be encroached by machinery during construction works.

- Traditional open trenched foundations will not be acceptable due to the impacts on the root systems of both trees. Subject to agreement with the tree officer at Broadland District Council a piled cantilever construction methodology may be acceptable with excavation to utilise an air-spade as detailed in the AMS.

- There are no envisaged problems with the current branch spreads but some pruning of lower branches may be required to maintain clearance from the garage and recent constructed dwellings.

- It is recommended that a detailed construction and arboricultural method statement be produced pending provisional consent and approval of the application as outlined.

REFERENCES


Tree Preservation Orders, A Guide to the Law and Good Practice (2005). Department for Communities and Local Government


NJUG 4 Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees. Issued 16 November 2007.

LIMITATIONS

No assessment of the soils or wood tissue has been sent for laboratory analysis unless specifically stated. Our assessments are based on professional experience and expert observation at the time of the inspection. No liability can be assumed to rest with Eco-Check Consultancy should conditions alter after our inspections.

Prior to the implementation of any works we strongly recommend that the Local Authority be consulted to obtain any necessary consent. We must be informed immediately of any alterations to plans or site features upon which we have based our assessments and or advice. This may affect the report and or any recommendations.

We recommend that your trees should be inspected regularly by professionals as part of prudent tree management programme. This report has been prepared for the sole use and benefit of the client. Any liability of Eco-Check Consultancy shall not be extended to any third party. No part of this report is to be reproduced without prior authorisation.
Eco-Check Consultancy Ltd - Preliminary Arboricultural Implications Assessment including Tree Survey Data, a Tree Constraints Plan as Prescribed in BS 5837:2012 “Trees in Relation to Design, Demolition and Construction”.
## APPENDIX B

### Tree Survey Schedule

<table>
<thead>
<tr>
<th>Tree No</th>
<th>Species</th>
<th>Ht (m)</th>
<th>DBH (mm)</th>
<th>Canopy Radius (m)</th>
<th>Crown Clearance Height (m)</th>
<th>RPA radius (m)</th>
<th>RMA (m)</th>
<th>Condition</th>
<th>Cat</th>
<th>AGE</th>
<th>Estimated Remaining Years</th>
<th>Works Required</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Oak</td>
<td>13</td>
<td>779</td>
<td>2</td>
<td>9.2</td>
<td>275</td>
<td></td>
<td>Growing close to boundary fence, straight and even growth, previous pruning marks,</td>
<td>B2</td>
<td>M</td>
<td>40+</td>
<td>No works required</td>
<td>4</td>
</tr>
<tr>
<td>T2</td>
<td>Oak</td>
<td>14</td>
<td>1081</td>
<td>2</td>
<td>12</td>
<td>510</td>
<td></td>
<td>Large specimen growing on boundary, vigorous growth, basal scrotum, decay cavity, storm damage, fair.</td>
<td>B2</td>
<td>M</td>
<td>40+</td>
<td>No works required</td>
<td>4</td>
</tr>
<tr>
<td>T3</td>
<td>White Willow</td>
<td>11</td>
<td>795</td>
<td>3</td>
<td>9.5</td>
<td>285</td>
<td></td>
<td>Uneven canopy with heavy lean to north-east, pruning marks evident and some basal rot present, canopy top been cut</td>
<td>C</td>
<td>M</td>
<td>20-40</td>
<td>No works required</td>
<td>4</td>
</tr>
</tbody>
</table>

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Eco-Check Consultancy Ltd- Preliminary Arboricultural Implications Assessment including Tree Survey Data, a Tree Constraints Plan as Prescribed in BS 5837:2012 “Trees in Relation to Design, Demolition and Construction”.
Categories

Below is an explanation of the categories used in the attached Tree Survey.

No

Identifies the tree on the drawing.

Species

Common names are given to aid understanding for the wider audience.

BS 5837 Main Category

Using this assessment (BS 5837:2012, Table 1), trees can be divided into one of the following simplified categories, and are differentiated by cross-hatching and by colour on the attached drawing:

Category A - Those of high quality with an estimated remaining life expectancy of at least 40 years;

Category B - Those of moderate quality with an estimated remaining life expectancy of at least 40 years;

Category C - Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm;

Category U - Those trees in such condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

BS 5837 Sub Category

Table 1 of BS 5837:2012 also requires a sub category to be applied to the A, B, C, and U assessments. This allows for a further understanding of the determining classification as follows:

Sub Category 1 - Mainly arboricultural qualities;

Sub Category 2 - Mainly landscape qualities;

Sub Category 3 - Mainly cultural values, including conservation.

Please note that a specimen or landscape feature may fulfil the requirements of more than one Sub Category.

DBH (mm)

Diameter of main stem in millimetres at 1.5 metres from ground level. Where the tree is a multi-stem, the diameter is calculated in accordance with item 4.6.1 of BS 5837:2012.

Age

Recorded as one of seven categories:

Y Young. Recently planted or establishing tree that could be transplanted without specialist equipment, i.e. less than 150 mm DBH.

S/M Semi-mature. An established tree, but one which has not reached its prospective ultimate height.

E/M Early-mature. A tree that is reaching its ultimate potential height, whose growth rate is slowing down but if healthy, will still increase in stem diameter and crown spread.

M Mature. A mature specimen with limited potential for any significant increase in size, even if healthy.

O/M Over-mature. A senescent or moribund specimen with a limited safe useful life expectancy. Possibly also containing sufficient structural defects with attendant safety and/or duty of care implications.

V Veteran. An over-mature specimen, usually of high value due to either its age, size and/or ecological significance.

D Dead.
Height  
Recorded in metres, measured from the base of the tree.

Crown Base  
Recorded in metres, the distance from ground and aspect of the lowest branch material.

Lowest Branch  
Recorded in metres, the distance from ground and aspect of the emergence point of the lowest significant branch.

Life Expectancy  
Relates to the prospective life expectancy of the tree and is given as 4 categories:

1 = 40 years+;
2 = 20 years+;
3 = 10 years+;
4 = less than 10 years.

Crown Spread  
Indicates the radius of the crown from the base of the tree in each of the northern, eastern, southern and western aspects.

Minimum Distance  
This is a distance equal to 12 times the diameter of the tree measured at 1.5 metres above ground level for single stemmed trees and 12 times the average diameter of the tree measured at 1.5 metres above ground level tree for multi stemmed specimens. (BS 5837:2012, section 4.5).

RPA  
This is the Root Protection Area, measured in square metres and defined in BS5837:2012 as 'a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure is treated as a priority'. The RPA is shown on the drawing. Ideally this is an area around the tree that must be kept clear of construction, level changes of construction operations. Some methods of construction can be carried out within the RPA of a retained tree but only if approved by the Local Planning Authority’s tree officer.

Water Demand  
This gives the water demand of the species of tree when mature, as given in the NHBC Standards Chapter 4.2 ‘Building Near Trees’.

Visual Amenity  
Concerns the planning and landscape contribution to the development site made by the tree, hedge or tree group, in terms of its amenity value and prominence on the skyline along with functional criteria such as the screening value, shelter provision and wildlife significance. The usual definitions are as follows:

Low  
An inconsequential landscape feature.

Moderate  
Of some note within the immediate vicinity, but not significant in the wider context.

High  
Item of high visual importance.

Problems/Comments  
May include general comments about growth characteristics, how it is affected by other trees and any previous surgery work; also, specific problems such as deadwood, pests, diseases, broken limbs, etc.

Work Required (TS)  
Identifies the necessary tree work to mitigate anticipated problems and deal with existing problems identified in the “Problems/Comments” category.

Work Required (AIA)  
Identifies the tree work specifically necessary to allow a proposed development to proceed.
This gives a priority rating to each tree allowing the client to prioritise necessary tree works identified within the Tree Survey.

1 Urgent – works required immediately;
2 Works required within 6 months;
3 Works required within 1 year;
4 Re-inspect in 12 months;
0 Remedial works as part of implementation of planning consent.
Eco-Check Consultancy Ltd - Preliminary Arboricultural Implications Assessment including Tree Survey Data, a Tree Constraints Plan as Prescribed in BS 5837:2012 “Trees in Relation to Design, Demolition and Construction”.

APPENDIX C

Tree Constraints Plan -TCP
### APPENDIX D

**BS5837:2012 Table 1 — Cascade chart for tree quality assessment**

<table>
<thead>
<tr>
<th>Category and definition</th>
<th>Criteria (including subcategories where appropriate)</th>
<th>Identification on plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trees unsuitable for retention (see Note)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Category U</strong></td>
<td>Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unable after removal of other category U trees (e.g., where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 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</td>
<td></td>
</tr>
<tr>
<td><strong>NOTE</strong></td>
<td><strong>Category U trees can have existing or potential conservation value which it might be desirable to preserve; see BS5837:2012 4.5.7.</strong></td>
<td></td>
</tr>
</tbody>
</table>

| **Trees to be considered for retention** | | |
| **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) | | |
| **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 category A designation | | |
| **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 150 mm | | |
| | Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories | | |

<table>
<thead>
<tr>
<th>1 Mainly arboricultural qualities</th>
<th>2 Mainly landscape qualities</th>
<th>3 Mainly cultural values, including conservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features</td>
<td><strong>Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or woodland)</strong></td>
<td><strong>Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or woodland)</strong></td>
</tr>
<tr>
<td>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</td>
<td><strong>Trees with material conservation or other cultural value</strong></td>
<td><strong>Trees with material conservation or other cultural value</strong></td>
</tr>
<tr>
<td>Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories</td>
<td><strong>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</strong></td>
<td><strong>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</strong></td>
</tr>
</tbody>
</table>

**FLAC Note**
The original contents of the column *Identification on plan* have been replaced by FLAC in the version above; spot colours to RGB codes given in BS5837:2012 Table 2.

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Eco-Check Consultancy Ltd - Preliminary Arboricultural Implications Assessment including Tree Survey Data, a Tree Constraints Plan as Prescribed in BS 5837:2012 “Trees in Relation to Design, Demolition and Construction”.
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<tr>
<td><strong>Arboricultural Method Statement</strong></td>
</tr>
<tr>
<td><strong>Arboriculturist</strong></td>
</tr>
<tr>
<td><strong>Competent Person</strong></td>
</tr>
<tr>
<td><strong>Construction</strong></td>
</tr>
<tr>
<td><strong>Construction Exclusion Zone</strong></td>
</tr>
<tr>
<td><strong>Root Protection Area (RPA)</strong></td>
</tr>
<tr>
<td><strong>Service</strong></td>
</tr>
<tr>
<td><strong>Stem</strong></td>
</tr>
<tr>
<td><strong>Structure</strong></td>
</tr>
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<td><strong>Tree Protection Plan</strong></td>
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<td><strong>Veteran Tree</strong></td>
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Appendices

Annex A  Signage for Tree Protective Fencing and Ground Protection Mats
Annex B  Specification for Air-spade excavation, Root Pruning and Piling
Annex C  Advisory Information
1. **Introduction**

1.1 This method statement has been prepared for submission to Broadland District Council in connection with planning application 2015/0169.

1.2 This document sets out the methodology for all proposed works that have the potential to affect any trees within the proposed working areas. Compliance with this method statement will be a requirement of all relevant contracts associated with the development proposals.

1.3 Copies of this method statement will be made available for inspection on site and will be forwarded to all contractors actively participating in the development works.

2. **Site Supervision and Reporting**

2.1 For the duration of the development a qualified arboriculturist will be appointed by the developer to supervise all arboricultural aspects of the works. The supervising arboriculturist must be approved by the local planning authority (LPA) at the commencement of works.

2.2 The supervising arboriculturist will be the point of contact between the developer and the LPA. Their primary responsibility will be to ensure that all arboricultural conditions of the planning permission are implemented and to advise on any further issues that arise during the development process.

2.3 In addition to the above, the supervising arboriculturist will also be responsible for:

- Induction of all contracting staff and raising of personnel awareness over the arboricultural implications of the development.
- Identification of individual responsibilities and key personnel within the workforce.
- Timing and methods of site visiting and record keeping, including updates.
- Procedures for dealing with variations and incidents.
- Procedures for reporting to the LPA over all arboricultural issues.
3. **Programme of Works**

3.1 All excavation, root pruning, formative pruning and any other arboricultural works approved as part of the development consent will be carried out prior to any other site works.

3.2 Measures for the protection of retained trees will be implemented on completion of the above tree works as detailed below (Section 4). All fencing erected for protection of trees will be maintained for the entire duration of construction works.

3.3 On completion of the development, the protective fencing will only be removed with the consent of the LPA to permit completion of the scheme. Note that permission for any additional tree works not included in the original development consent will need to be obtained through application to the LPA.

4. **Works to Existing Trees**

4.1 All proposed tree works will be implemented in accordance with the approved plans and details. The tree works specification is detailed in **Appendix B**. Works will be carried out to the current arboricultural industry best practice and at a minimum in accordance with 'BS 3998:2010 - Recommendations for Tree Work'.

4.2 Written notice shall be given to the LPA prior to carrying out the approved tree works and any operations that present a particular risk to trees (e.g. demolition, excavation or piling etc. within or close to trees). A site meeting with the LPA's Tree Officer may be arranged at this time.

4.3 Any additional tree works identified as being necessary during the course of the development will only be carried out with the consent of the LPA.

5. **Securing of Tree Structure and Root Protection Areas (RPA)**

5.1 Before the commencement of any works on site (other than any preliminary tree works as detailed above) protective fencing will be erected. The LPA will be notified in writing once the fencing is in place.

5.2 The fencing will comprise a minimum of 2.3 meter high stout barrier fencing (Heras) or scaffold framework supporting weld-mesh fencing as detailed below:
5.3 All-weather notices will be displayed on the protective fencing identifying them as tree protection measures (example notice in Appendix A).

5.4 Other than works detailed within this method statement or approved in writing by the LPA, no works (including any vehicular movements, storage or dumping of materials, stripping of soil) will take place within the exclusion zones defined by the protective fencing. This is to reduce to a minimum compaction of the root systems.

6. Works within the RPA

6.1 No excavation works will be undertaken within the Root Protection Areas as indicated in Appendix D other than using the proposed piled construction.

6.2 Excavation works will be undertaken with the use of ‘Microlite Excavator’ or similar to avoid the use of heavy plant machinery which may otherwise cause unwanted ground compaction within the RPA. Any excavated soil will be stored outside of the RPA.

6.3 In the event that any root systems are encountered within the piled excavation area they will be pruned by a suitably qualified arboriculturalist following the methodology in Appendix B.
7. **General Precautions**

7.1 No materials that are likely to have an adverse effect on tree health such as oil, bitumen or cement will be stored or discharged within the RPA.

7.2 Allowance will be made for any slope of the ground to ensure that damaging materials such as concrete washings, mortar or diesel oil is prevented from running towards trees. Protective sheeting must be used in and around any areas of concrete mixing to protect the soil in the event of spillage.

7.3 No fires will be lit in a position where their flames can extend to within 5 metres of the foliage, branches or trunk of any tree that is to be retained.

7.4 Notice boards, telephone cables or other services will not be attached to any part of the trees to be retained.
Appendix A

Eco-Check Consultancy Ltd- Preliminary Arboricultural Implications Assessment including Tree Survey Data, a Tree Constraints Plan as Prescribed in BS 5837:2012 “Trees in Relation to Design, Demolition and Construction”.

PROTECTIVE FENCING. THIS FENCING MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.
Eco-Check Consultancy Ltd - Preliminary Arboricultural Implications Assessment including Tree Survey Data, a Tree Constraints Plan as Prescribed in BS 5837:2012 “Trees in Relation to Design, Demolition and Construction”.
Appendix B

Notes:

<table>
<thead>
<tr>
<th>Tree No</th>
<th>Species</th>
<th>Ft (m)</th>
<th>DBH (mm)</th>
<th>Canopy Radius (m)</th>
<th>Crown Clearance Height (m)</th>
<th>RFA radius (m)</th>
<th>Rfa m³</th>
<th>Condition</th>
<th>Cat</th>
<th>AGE</th>
<th>Estimated Remaining Years</th>
<th>Works Required (TS)</th>
<th>Priority (TS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T3</td>
<td>Oak</td>
<td>13</td>
<td>779</td>
<td></td>
<td></td>
<td>374</td>
<td>9.3</td>
<td>Growing close to boundary fence, straight and even growth, previous pruning works.</td>
<td>B2</td>
<td>M</td>
<td>40+</td>
<td>No works required</td>
<td>4</td>
</tr>
<tr>
<td>T2</td>
<td>Oak</td>
<td>14</td>
<td>1082</td>
<td></td>
<td></td>
<td>329</td>
<td>13</td>
<td>Large specimen growing on boundary, vigorous growth, root bound, decay cavity, storm damage, fan</td>
<td>B2</td>
<td>M</td>
<td>40+</td>
<td>No works required</td>
<td>4</td>
</tr>
<tr>
<td>T3</td>
<td>White Willow</td>
<td>11</td>
<td>736</td>
<td></td>
<td></td>
<td>286</td>
<td>9.5</td>
<td>Unusual canopy with heavy lean to northeast. Pruning works evident and some lateral not present, creeping ivy has been cut</td>
<td>C</td>
<td>M</td>
<td>20-40</td>
<td>No works required</td>
<td>4</td>
</tr>
</tbody>
</table>

Piled Cantilever-

Alternative beam/cap layouts

Piles and floating ground slab
Piles and suspended ground slab (left) and piles and flat slab construction (right)

Piled suspended slab and beam
**Air Spade Excavation** -

- Preparing the Soil Water- Water the soil area around the tree (within 4 feet of the trunk) one or two days prior to the Air-Spade work being done. This will soften the soil and expedite the process.

- Clearing the Work Area- The work area around the tree will need to be prepared. Prior to the movement of soil, remove any gravel or loose soil from around the base of the tree. This work area is typically one to two feet from the base of the tree.

- Backfilling the Excavated Area- When excavating a root flare or root crown the void created can sometimes be quite deep. Medium to large stones can be used to backfill the area insuring greater air circulation around the base.

**Root Pruning** -

Any exposed tree roots within the areas of excavation for the piles foundations the proposed garage that are encountered should be cleaned, cut and trimmed to allow quicker recovery and re-growth of the root system.

Root pruning is a very specialized operation that should only be undertaken with the support and supervision of an arboriculturalist or tree surgeon.

Severance of root stems greater than 25mm diameter should be avoided where possible.

Pruning of buttress or other major roots can make the tree unstable. Severance of more than 30% of a tree’s root system is quite likely to cause slow dieback and eventual death of a mature tree.
APPENDIX C

Additional Advisory Information

C.1 Trees are living organisms the health, condition and structural integrity of which is liable to change, possibly within very short time-scales. I would therefore recommend that regular inspections of the trees are undertaken on an annual basis by an appropriately qualified and experienced arboriculturalist.

C.2 No absolute guarantee can be given on the structural integrity of any tree. Extreme climatic conditions can, on occasions, cause damage to trees which appear to be healthy and sound. If for any reason you have reason to doubt the health and/or condition of any tree I would recommend that you immediately seek the advice of an appropriately qualified and experienced arboriculturalist.

C.3 Any tree works specified in this method statement should only be carried out by an appropriately qualified, experienced, equipped and insured arborist (tree work contractor). The works should be carried out in line with current industry best practice and at a very minimum to the standards detailed in BS5837:1989 'Tree Work'.

C.4 Where trees are covered by a Tree Preservation Order or located in a Conservation Area it will be necessary to consult the local planning authority to gain their consent before any pruning works other than certain exemptions can be carried out. The works specified within this document are those submitted in support of the original planning application and it is likely that they are included within any consent for the re-development of the site. However, there are possible exceptions to this and approval for the works should be confirmed with the local planning authority before carrying out works to any protected trees on the site.

C.5 The Wildlife and Countryside Act 1981 makes it an offence to kill, injure or take any wild bird and to take, damage or destroy any nest that is either in use or being built. It is also an offence to take or destroy wild bird eggs of any species. The Act also affords protection to bats making it illegal to intentionally injure or kill a bat, or to damage, disturb or obstruct access to a roost. No works to trees should therefore be authorised or carried out that would be likely damage, disturb or destroy any species protected by the Wildlife and Countryside Act.