Arboricultural Development Report

LDA Design Consulting LLP

Land off Rampton Road
Cottenham

16 June 2015
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If this report has been released electronically the appendices referred to herein can be found in the annexed zip folder/s as .pdf or .dwg files. If this report has been released in hard copy the appendices will be bound into the back of this report. Plans may be annexed separately as A1 or A2 copies where a bound-in A3 copy is not appropriate.

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Executive Summary

This report describes the extent and effect of the proposed development at Land off Rampton Road, Cottenham (“site”) on individual trees and groups of trees within and adjacent to the site.

Trees within the site were surveyed; using a methodology guided by British Standard 5837:2012 ‘Trees in relation to design, demolition and construction – Recommendations’ (“BS5837”).

Subsequently, this report has been produced, balancing the layout of the proposed development against the competing needs of trees. This report comprises all of the requisite elements of an arboricultural implications assessment, method statement and supporting plans.

Checklist for Submission to Local Planning Authority

| Tree survey | ✓ |
| Tree constraints plan | ✓ |
| Arboricultural impact assessment | ✓ |
| Arboricultural method statement | ✓ |
| Tree protection plan | ✓ |

This report and its appendices follow precisely the strategy for arboricultural appraisal intended to provide local planning authorities with evidence that trees have been properly considered throughout the development process.

It is the conclusion of this report that the overall quality and longevity of the amenity contribution provided for by the trees and groups of trees within and adjacent to the site will not be adversely affected as a result of the local planning authority consenting to the proposed development. It is considered that any issues raised in this report, or beyond the scope of it can be dealt with by planning conditions.
General Information

Client: LDA Designs

Site: Land off Rampton Road, Cottenham

The Site is located on the southern edge of Cottenham village, approximately 10km north of Cambridge and 11km north east of the A14. The Site comprises a large arable field, which is bordered by existing residential development to the north east along Rampton Road. The Site is 14.16 ha in size.

The Site is bounded to the north east by Rampton Road and a linear development of two storey houses; to the north west by a field boundary demarcated by a post and wire fence and associated gappy hedgerow; with the south east and south west boundaries located along historic field boundaries not currently delineated by any form of enclosure.

To the north of the Site is the Little North Fen lying between the Site and Rampton to the north-west, to the immediate east lies the existing settlement of Cottenham village, to the south is Oakington Road, with broad, generally low-lying arable farmland to the west.

Brief proposal description:

The application is for proposed residential development of up to 225 homes and 70 apartments with care (C2), and associated public open space. The application is submitted in outline, with all matters reserved except access.

The Development Framework illustrates the following:

- Primary access passes through attractive open green gateway before reaching development area. This in turn maintains views towards All Saints Church from the wider landscape.
- The secondary access off Rampton Road along with the pedestrian/cycle access further east provides additional links to the village centre and local facilities.
- Development comprising of primarily residential dwellings with 1.5 acres for apartments with care (C2).
- Public open spaces aligned along Site boundaries, utility easements and key views, accommodating informal footpaths and play areas with drainage features located to the north, at the lowest point of the Site.
- Proposed woodland to north and western boundary to complement the existing green edge to the village and screen the proposed development.
- New community orchard to Site’s south eastern boundary to reflect local character, provide ecological benefits and complement existing productive community land use.
- Agricultural access maintained through Site to agricultural fields north-west of the Site.

Planning application reference: N/A

Documents referred to:

<table>
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<tr>
<td>Topographical survey drawing</td>
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<td>4364 – 002 - G</td>
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<td>Landscape master plan drawing</td>
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<td>LPA pre-app comments</td>
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<td>Arbtech AIA 01 A</td>
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<td>Tree Protection Plan</td>
<td>Arbtech TPP 01</td>
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Tree Survey

Survey: An arboricultural survey to BS5837 of all trees within impacting distance of the site was undertaken by David Garrick on 14th April 2015.

Limitations: The survey was made at ground level using visual observation only. Detailed examinations, such as climbing inspections and decay detection equipment were not employed, though may form part of the survey’s management recommendations. Measurements were taken using specialist tapes, laser and GPS devices. Where this was not possible, measurements are estimated.

Scope: Pre-development tree surveys make arboricultural management recommendations based exclusively upon the individual tree or group of trees condition relative to their present context (i.e. not in relation to the proposed development).

Legal Status: No statutory protection check has been performed. BS5837 does not draw any distinction between trees subject to statutory protection, such as a Tree Preservation Order (“TPO”), and those trees without. This is principally because a detailed planning consent overrides any TPO protection. Consequently, we do not seek to offer any comparison between or infer any difference in the quality or importance of TPO trees and other trees.

* For more information on the surveyed trees please see Arbtech Consulting Ltd, Tree Survey Schedule (Appendix 1), Tree Survey Report and Tree Constraints Plan.
**Arboricultural Impact Assessment**

There are a number of issues that may need to be addressed in an arboricultural impact assessment between the trees and the proposed development, these are as follows –

- The effect and extent of the proposed development within the root protection areas (RPAs) of retained trees;
- The potential conflicts of the proposed development with canopies of retained trees; and
- The likelihood of any future remedial works to retained trees beyond which would have been scheduled as a part of usual management.

These impacts can be seen on the Arboricultural Impact Assessment drawing no. Arbtech AIA 01 A.

**Trees to be removed**

There are no (0) individually identified trees and one (1) partial group that will need to be removed and as they are in direct conflict with the proposed development.

Number of individual trees to be removed:

<table>
<thead>
<tr>
<th></th>
<th>U</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Number of groups of tree to be removed:

<table>
<thead>
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<th></th>
<th>U</th>
<th>A</th>
<th>B</th>
<th>C</th>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0 (1)</td>
</tr>
</tbody>
</table>

Canopy cover is ecologically important and the loss of canopy cover will be mitigated with planting within the development.
Arboricultural Method Statement

Details of key site personnel, including site / project manager will be submitted to the Council’s Tree Officer prior to the commencement of site works.

This method statement is to be approved and agreed to in writing by all key personnel prior to the commencement of site works.

No site personnel are to be present and no demolition, site clearance, building work or delivery of materials is to occur until the protective measures are in accordance with this method statement and the Tree Protection Plan drawing no. Arbtech TPP 01.

Protective measures should be in accordance with this method statement and the Tree Protection Plan; drawing no. Arbtech TPP 01 will remain unaltered and in situ, unless otherwise specified, for the entire duration of the construction.

Accidents and emergencies involving trees

Any accidents and emergencies involving trees shall be immediately reported to Arbtech and their advice sought and agreed to by the council.

Phasing of tree protection measures

The tree protection measures shall be phased as follows.

a) Undertake tree works
b) Install the protective measures in accordance with the approved protection plans and this method statement
c) Undertake and complete construction works
d) Undertake external landscape works to areas outside of construction exclusion zones
e) Remove protective measures
f) Undertake external landscaping works within the construction exclusion zones
g) Sign off from the company as no further involvement required
Tree Works

For reasons of public safety, all tree works referred to herein must be carried out prior to any site personnel commencing works or any building materials being delivered.

Summary of Tree Works

<table>
<thead>
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<th>No.</th>
<th>Species</th>
<th>Works</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Common hawthorn</td>
<td>Fell part of group to ground level; remove stumps</td>
<td>C₂</td>
</tr>
</tbody>
</table>

Notes

All tree work is to be undertaken in accordance with British Standard BS 3998:2010, Recommendations for tree work. All arising’s are to be removed and the site is to be left as found. Care is to be taken of the ground around retained trees to make sure that it does not become compacted as a result of tree surgery operations. No equipment or vehicles such as timber Lorries, tractors, excavators or cranes shall be parked or driven beneath the crowns of any retained trees, to prevent subsequent compaction and root death.
Tree removal

A tree should be felled in one piece only when there is no significant risk of damage to people, property or protected species (see Annex A).

Where restrictions (e.g. lack of space, buildings, other features, land ownership or use, or other trees which are to be retained) cannot be overcome, trees should be dismantled in sections.

This also applies where a tall stump is being retained but where branches are to be removed/pruned.

Extensively decayed trees can be unpredictable when they are being felled, and special precautions should therefore be taken, such as the use of a winch to guide the direction of fall.

Stump removal – stump grinding

Stump grinding should be to a minimum of 300mm deep or to extend through the base of the stump leaving the major roots disconnected if the intention is to reduce the potential for the spread of Honey fungus.

The grinding residue should be treated as arising’s and removed from site.

NOTE Mechanical destruction of a stump by stump grinding is less disruptive to the site than digging out.

The hole left by stump removal, should be filled with soil or other material. The filling should be appropriate for future site usage, and for any surface treatment that is to be installed.

Where future plant growth is desired, the backfill material should be firmed in 150 mm layers by treading, avoiding excessive compaction and destruction of the soil structure.

Stump removal - digging

Stump removal by digging out should include disposal/utilisation of woody material (see Clause 13).

NOTE Whether done by hand or machine, digging out can cause severe disturbance of the site.

Where possible, when winching out a stump, a ground or other type of anchor should be used rather than a tree to be retained. If there is no alternative to using such a tree as an anchor, appropriate protective measures should be adopted.
After stump removal

The hole left by stump removal, whether by digging out or grinding, should be filled with soil or other material. The filling should be appropriate for future site usage and for any surface treatment that is to be installed.

Where future plant growth is desired, the back fill material should be firmed in 150mm layers by treading, avoiding excessive compaction and destruction of the soil structure.
Common Birds

All common wild birds are protected under The Wildlife and Countryside Act 1981. This legislation makes it an offence to:

- Kill, injure or take wild birds.
- Take damage or destroy the nest of wild birds while it is in use or being built.
- Take or destroy the eggs of wild birds.

Certain rare breeding birds are listed on Schedule I of The Wildlife and Countryside Act 1981. Under this legislation they are afforded the same protection as common wild birds and are also protected against disturbance whilst building a nest or on or near a nest containing eggs and or unfledged young e.g. Barn Owl Tyto alba.

Bats

Bats species are afforded further protection by the Countryside and Rights of Way Act 2000; and the Natural Environment and Rural Communities Act 2006.

This legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture bats.
- Deliberately disturb bats, whether at roost or not.
- Damage, destroy or obstruct access to bat roosts.
- Possess or transport bats, unless acquired legally.
- Sell, barter or exchange bats.

A bat roost is defined by the Bat Conservation Trust publication Bat Surveys—Good Practice Guidelines as “the resting place of a bat” (BCT 2007). Generally however, the word roost is interpreted as “any structure or place, which any wild bat uses for shelter or protection.”

Bats tend to re-use the same roosts; therefore legal opinion is guided by recent case law precedents, that a roost is protected whether or not the bats are present at the time. This can include for summer roosts, used for breeding; or winter roosts, used for hibernating.
Protective Measures

Protective measures are to be installed immediately following the completion of the tree works, and are to be sited and aligned in accordance with the tree protection plan (Arbtech TPP01).

The existing / proposed site boundary measures are to be retained / installed and retained for the duration of the development. If for any reason the existing / proposed boundary measures are not to be used protective barrier fencing is to be installed along the line of the boundaries as shown on Arbtech TPP 01 by the blue dashed line and is only to be removed upon the written permission of the project arborist or LPA tree officer upon the completion of the development or immediately prior to the installation of the permanent boundary measures.

No equipment, vehicles or plant shall operate beyond the tree protection fencing. Booms, hoists and rigs should be kept as far away from the canopies of retained trees at all times. Where it is necessary to operate within 5m of a tree canopy, it will be done with the utmost caution and under the control of a banks man. Damage to trees will be considered a breach of this tree protection plan, which in turn could be a breach of planning permission.
Protective Barrier Fencing

Protective barrier fencing should be appropriate for the intensity and proximity of the development to protect trees where development activity is in close proximity.

**Default specification:** To comprise either 2.4m wooden site hoarding; or a 2.3m high scaffold framework, well braced to resist impacts, with uprights to be spaced at a maximum of 3.0m intervals and driven into the ground by a minimum of 600mm. On to this, standard anti-climb welded mesh panels are to be securely fixed to each other with at least two scaffold clamps and to the scaffold frame work with wire.

Key
1. Standard scaffold poles
2. Heavy gauge 2 m tall galvanized 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
Secondary specification: To comprise of 2m tall welded mesh panels on rubber or concrete feet. Panels are to be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The panels should be supported on the inner side by stabiliser struts, which should be attached to a base plate and secured with ground pins.

Signage denoting the words “tree protection area” at 5.0m intervals should be fixed to the protective barrier fencing (See Appendix 2).

Protective fencing is to be removed ONLY with the written permission of the arboricultural consultant and approval of the local planning authority (LPA).
Site management

The site manager will be responsible for briefing and or inducting all personnel who will be working on any stage of this development and especially those who will be working within or adjacent to canopies or RPAs of retained trees; and will make them aware of, and provide a copy of this this method statement and tree protection plan drawing no. Arbtech TPP 01. This is to include but not be limited to the movement / operation of plant, excavations, unloading deliveries, mixing / pouring cement and concrete.

The site manager will be responsible for the day to day running and protection of all retained trees and for liaising with the project arborist about any tree related matters and prior to any works that may or will affect the RPAs or canopies of retained trees; this is to include but not be limited to the movement and or operation of plant, excavations, unloading deliveries, mixing, pouring and storage of all caustic materials that may cause harm to retained trees.

Any incidents of damage to retained trees or of tree protection measures will be documented by the site manager who will then report these incidents to the project arborist immediately and make sure that works within this area cease until the project arborist has had an opportunity to inspect the damage and where appropriate, agree a mitigation plan with the local planning authority tree officer.

The site manager may designate another person to take charge of briefing / inducting new site personnel or visitors in his absence.

If the site manager is replaced or is absent from site for more than five working days the project arborist will be informed and a pre start meeting will be held with the new / acting site manager.

It is the responsibility of the site manager to ensure that the planning conditions attached to the planning consent are adhered to at all times and that a monitoring regime and supervision of any works within or adjacent to the RPAs are adopted.

If at any time pruning works are required other than those previously approved, permission must be sought from the LPA tree officer and once permission is granted they are to be carried out by a suitably qualified person in accordance with BS3998:2010 Tree work – Recommendations.
Prohibition

- Mechanical digging or scraping is not permitted within a defined root protection area or within areas cordoned off by protective barrier fencing.
- No access will be permitted within the protected areas;
- No materials, equipment or debris will be stored within any of the fenced areas, or against the fencing;
- Fires are not permitted within 5.0m of any vegetation.
- Leaning objects against or attaching of objects to a tree is not permitted.
- Machinery, plant and vehicles are not permitted to be washed down within 10.0m of vegetation.
- Chemicals and materials are not to be transported, stored, used or mixed within a root protection area or within areas cordoned off by protective barrier fencing.
- Cement silos, mixing site to be situated within a bunded area to prevent pillage/leaking of chemicals harmful to trees. These areas are to be sited well clear of protected trees.
- Refuelling of plant or machinery is prohibited within 10m of the construction exclusion zones.
- It is essential that allowance should be made for the slope of the ground so that damaging materials such as concrete washings, mortar or diesel oil cannot run towards trees.
- Where machinery is to be used within 5m of retained tree canopies a banks man will be required at all times whilst setting up, moving or operating within this distance of retained trees canopies.
Demolition

Prior to the demolition of the existing site features, all tree works are to have been completed, tree protection measures are to be in place as per Arbtech Consulting Ltd. tree protection plan document no. Arbtech TPP 01 and have been signed off and a copy of the demolition method statement has been submitted and approved by the project arboriculturist and LPA tree officer, to ensure that there is no conflict with this method statement.

All demolition work within or immediately adjacent to RPAs or canopies of retained trees is to be undertaken under the direct on-site supervision of an arboriculturist.

Existing Underground Services

Existing services within the site should be retained where ever possible. Where existing services within RPAs require upgrading, the upmost care must be taken to minimise disturbance, and where feasible trenchless techniques are to be employed, and only where necessary should open excavations be considered.
**Construction**

Prior to construction, a copy of the construction method statement should have been submitted and approved by the project arboriculturist and LPA tree officer, to ensure that there is no conflict with this method statement.

All excavations and construction work within or immediately adjacent to RPAs or canopies of retained trees is to be undertaken under the direct on-site supervision of an arboriculturist.

The proposed development does not impact upon any of the retained trees and as such will require no specialist construction methodology.

**Manual excavation**

Excavation within RPAs will be undertaken by hand under direct on-site arboricultural supervision of the required depth of the foundation; Or to a minimum of 600mm deep of any excavation, whether for proposed foundations, hard surfacing or underground services. The total depth of the manual excavation will be determined by the arboriculturist whilst on site.

The soil is to be loosened with the aid of a fork or pick axe and then cleared with the aid of an Air-spade, Air-vac and / or shovel. Any roots found will be cleanly severed by the arboricultural consultant with either a hand saw or secatuers.

Any roots found with a diameter of less than 25mm shall be cleanly severed by the arboricultural consultant. Any roots of 25mm and above shall be excavated around without damaging them; the arboricultural consultant shall decide if it’s feasible or necessary to retain the root; if not it shall be severed.

The edge of the excavation closest to the trees will be covered with damp hessian to prevent soil collapse or contamination by concrete.

Soil beneath the depth may be sheet piled, regular piled or excavated deeper. Machinery may be used for this providing that it is situated outside of the RPA or has appropriate ground protection in place to move around on and work upon.

**Concrete foundations**

Prior to concrete being poured to form the foundations within or immediately adjacent to the RPAs of retained trees the excavation is to be lined and sealed to prevent any leaching of the concrete into the soil and causing desiccation of retained roots by concrete run off.
Services

Detailed drawings of proposed underground services are not available at this time; hence it is not possible to identify any specific potential impacts associated with the scheme at this stage.

Existing services within the site should be retained where ever possible. Where existing services within RPAs require upgrading, the upmost care must be taken to minimise disturbance, and where feasible trenchless techniques are to be employed, and only where necessary should open excavations be considered.

Where new services are to be introduced into the site they should be located outside of RPAs, where they will not interfere with tree roots. If any excavations are required within the RPAs all trenches are to be excavated by hand and radially to the tree trunks under direct on-site arboricultural supervision and are to be carried out under NJUG guidelines.

Final positions of any proposed services should be verified and approved by the arboricultural consultant and local authority tree officer before implementation.

New Underground services

Trenching for installation of underground services and drainage routes could sever any roots that may be present and as such adversely affects the health of the tree. For this reason particular care should be taken in routing and methods of installation of all underground services. All underground services and drainage routes should be located so that no excavations are required within RPAs.

Where it has been impossible to keep underground services from passing through RPAs or within close proximity to trees, these sections are to be installed in one of three ways in accordance with the guidance set out in National Joint Utilities Group guidelines (NJUG 4), under on site arboricultural supervision.

Trenchless Techniques

There are three main types of trenchless techniques, these include, guided and unguided boring and pipe replacement by lining or bursting. These allow for the installation, maintenance or renewal of underground services, without the disturbance of soil in which roots are likely to be growing. Starting and receiving pits for the boring machinery are to be located outside of the RPAs of any retained trees, with the bore depth being maintained at a minimum depth of 600mm below the existing ground level. Techniques involving external lubrication of the equipment shall use no material other than water as other lubricants could contaminate the soil (e.g. oil, bentonite, etc.).
Manual Excavation

Excavation within RPAs will be undertaken by hand under direct on-site arboricultural supervision of the required depth of the foundation; Or to a minimum of 600mm deep of any excavation, whether for proposed foundations, hard surfacing or underground services. The total depth of the manual excavation will be determined by the arboriculturist whilst on site.

The soil is to be loosened with the aid of a fork or pick axe and then cleared with the aid of an Air-spade, Air-vac and or shovel. Any roots found will be cleanly severed by the arboricultural consultant with either a hand saw or secateurs.

Any roots found with a diameter of less than 25mm shall be cleanly severed by the arboricultural consultant. Any roots of 25mm and above shall be excavated around without damaging them; the arboricultural consultant shall decide if it’s feasible or necessary to retain the root, if not it shall be severed.

The edge of the excavation closest to the trees will be covered with damp hessian to prevent soil collapse or contamination by concrete.

Soil beneath the depth may be sheet piled, regular piled or excavated deeper. Machinery may be used for this providing that it is situated outside of the RPA or has appropriate ground protection in place to move around on and work upon.

Broken Trench – Hand Dug

This technique combines both trenchless techniques and manual excavation where excavation is unavoidable. Excavations should be limited to where there is clear access around and below the roots. All trenches shall be excavated by hand with the same precautions taken as for manual excavation. Open section of trench should only be large enough to allow access for linking to the next section.
Landscaping

The ratio of trees removed to trees replanted should not necessarily be 1:1. Instead, the ratio should take into consideration the available space for tree growth and development in order to ensure the trees are physically suited to the site at maturity. A specification for and notation relating to the precise alignment of replacement trees will be contained in the landscape proposals.

Landscaping around retained trees may only be carried out once all tree protection measures have been removed (planting, turfing, fencing etc.).

All excavations within the Root Protection Areas shall be undertaken by hand and without reducing current ground levels unless it is agreed in writing with the LPA. At no time is the use of a rotavator permitted within the RPAs of retained tree.

Any tree roots discovered will be left in-situ and shall not be cut or otherwise damaged. Where possible, the soil structure within the Root Protection area shall be preserved.

No works will be carried out within the RPAs of any trees if the soil moisture is of such a level that soil compaction may be likely. Should the soil become compacted or has poor structure which would hinder the development of the existing trees and plants or any new plantings the arboriculturist should be consulted about soil decompaction techniques.
Monitoring and Supervision

Where trees have been identified within this method statement and tree protection plan drawing no. Arbtech TPP 01 for retention, there should be an auditable system of arboricultural monitoring. This is to extend to arboricultural supervision whenever demolition or construction activity is to take place within or adjacent to any canopy or RPA.

The development’s tree protection measures are to be monitored and all demolition and construction works to be undertaken within or adjacent to the RPAs of retained trees are to be supervised by Arbtech Consulting Ltd (project arborists), who should be retained to record and report observations to the council at appropriate intervals.

Pre-commencement site meeting

Prior to the commencement of any works or machinery and materials arriving on site a pre-commencement site meeting involving the project arborist, land owner/agent, site manager, contractors and engineer (as appropriate) and the relevant LPA officers will be held to ensure that all aspects of the arboricultural method statement and tree protection are understood and for all parties to swap contact details (see Appendix 3).

Monitoring and supervision schedule

The initial monitoring visit will be to check that the tree protective measures are in the correct location and as specified within the approved method statement; if so to sign off their installation.

There after monitoring visits are to take place at regular intervals, to ensure that tree protection measures are in place and are functioning as designed or whenever necessary to undertake works to be carried out under arboricultural supervision. The frequency of the monitoring visits is to be determined with the LPA tree officer at the pre-commencement site meeting.

A record of all arboricultural monitoring and supervision visits will be kept and any faults will be logged, this will then be copied to the site agent, developer and local planning authority in a digital format.

If during the course of the development it is necessary for areas to be re-designed so that they would require changes to the approved arboricultural method statement or tree protection plan and so affecting retained trees the project arborist and LPA tree officer will be invited to attend a site meeting with all relevant parties. Prior to any changes being implemented these must have been approved in writing by the LPA tree officer.
Supervision

The arboricultural consultant will be required to attend site to directly supervise all demolition and construction works that are to be undertaken within or adjacent to the RPAs of all retained trees and will be advised a minimum of 72 hours prior to the commencement of any works that require his attendance, these will include:

1. Pre-commencement site meeting;
2. Location of protective measures;
3. Any excavations within or adjacent to RPAs, including foundations, hard surfacing or underground services;

Completion meeting

Once all construction works have been completed all materials and machinery has been removed from site the project arborist shall be informed and will invite the LPA tree officer to meet on site to discuss the process and discuss any final remedial works that may be required and to sign the development off so that the protective measures may be removed.
Appendix 1 – Tree Survey Schedule
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<table>
<thead>
<tr>
<th>Tree and Tag No</th>
<th>Species</th>
<th>Hght (m)</th>
<th>Stems</th>
<th>Crown</th>
<th>Age</th>
<th>RP A (m²)</th>
<th>R (m)</th>
<th>Phys Condition</th>
<th>Structural Condition</th>
<th>Preliminary Recommendations</th>
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<td>1 140</td>
<td>N 2 1</td>
<td>SM</td>
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<td>R: 1.68</td>
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<td>C: Fair</td>
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**Age Classifications:**
- N: Newly planted
- Y: Young
- SM: Semi-mature
- EM: Early Mature
- M: Mature
- OM: Over Mature
- C: Crown
- S: Stem
- B: Basal area
- Ø (Eq): Equivalent stem diameter using BS5837:2012 definition
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</table>

**Age Classifications:**
- N: Newly planted
- EM: Early Mature
- Y: Young
- M: Mature
- SM: Semi-mature
- O: Over Mature

**Condition:**
- C: Crown
- S: Stem
- B: Basal area

**Stems:**
- Ø: Diameter
- (Eq): Equivalent stem diameter using BS5837:2012 definition

**Survey Comment:**
- Hawthorn hedge
- Leylandii & Hawthorn hedge
- Leylandii hedge

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<table>
<thead>
<tr>
<th>Tree and Tag No.</th>
<th>Species</th>
<th>Hght (m)</th>
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<th>Ø (mm)</th>
<th>Spread (m)</th>
<th>Clear (m)</th>
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**Age Classifications:**
- **N:** Newly planted
- **EM:** Early Mature
- **Y:** Young
- **M:** Mature
- **SM:** Semi-mature
- **OM:** Over Mature
- **Condition:**
- **C:** Crown
- **S:** Stem
- **Stems:**
- **Ø (Eq):** Equivalent stem diameter using BS5837:2012 definition

**Survey Comment:**
- Leylandii hedge
- unmanaged Hawthorn hedge
- Multistemmed from base
- Twinstemmed from 1m

**Cat ERC:**
- C.2
- B.2
- C.1
- C.2
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**Age Classifications:**
- **N**: Newly planted
- **Y**: Young
- **EM**: Early Mature
- **M**: Mature
- **SM**: Semi-mature
- **OM**: Over Mature

**Condition:**
- **C**: Crown
- **S**: Stem
- **B**: Basal area

**Stems:**
- **Ø**: Diameter
- **(Eq)**: Equivalent stem diameter using BS5837:2012 definition
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**Age Classifications:**
- N: Newly planted
- Y: Young
- SM: Semi-mature
- EM: Early Mature
- M: Mature
- OM: Over Mature
- Condition:
  - C: Crown
  - S: Stem
  - B: Basal area
- Stems:
  - Ø: Diameter
  - (Eq): Equivalent stem diameter using BS5837:2012 definition

Page 5

TreeMinder 15 April 2015
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Appendix 2 – Tree Protection Notice
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Tree Protection Area

KEEP OUT

Do not move this fence

(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLODED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS
AND/OR ARE THE SUBJECT OF A TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL
PROSECUTION

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

Arbtech Consulting Limited.
Unit 3, Well House Barn, Chester Road, Chester, CH4 0DH
Also in Bedfordshire, Birmingham, Kent, Manchester, Lancashire, London, Surrey and Sussex
email@arbtech.co.uk - 01244 660558
www.arbtech.co.uk
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## Appendix 3 - Contact Details

<table>
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<tr>
<th>Name</th>
<th>Position</th>
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<tr>
<td>Arboricultural Consultant</td>
<td>Arbtech Consulting Ltd.</td>
<td>01244 661170</td>
<td><a href="mailto:email@arbtech.co.uk">email@arbtech.co.uk</a></td>
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Limitations

Arbtech Consulting Ltd has prepared this Report for the sole use of the above named Client/Agent in accordance with our terms of business, under which our services were performed. No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by us. This Report may not be relied upon by any other party without the prior and express written agreement of Arbtech Consulting Ltd. The assessments made assume that the sites and facilities will continue to be used for their current purpose without significant change. The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested. Information obtained from third parties has not been independently verified by Arbtech Consulting Ltd.

Copyright

© This Report is the copyright of Arbtech Consulting Ltd. Any unauthorised reproduction or usage by any person other than the addressee is strictly prohibited.
Tree Protection Area

KEEP OUT

Do not move this fence

Poplar Farm

Two Mill Field

Arboricultural Supervision

Arboricultural Method Statement

For the protection of the trees within the area and to ensure that they are not damaged during the construction of the development, a Tree Protection Area (TPA) has been established. The TPA is marked in blue on the plan and is protected by fencing. Any works within the TPA require prior permission from the Local Planning Authority. The fencing is to remain in place until such time as the trees are no longer protected.

LDA Design

Tree Protection Plan

Date: 12/08/15

Arbtech TPP 01

Arbtech Ltd

Land off Rampton Road
Cottenham
BS5837:2012
Trees in relation to design, demolition and construction – Recommendations

Tree Survey

LDA Design Consulting LLP

Land off Rampton Road

Cottenham

16 June 2015

Author: David Garrick
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Tree Survey Report
Land South of Rampton Road, Cottenham, Cambridgeshire, CB24 8TJ

Arbtech Consulting Limited (Arbtech) received written instruction on 24/03/15 from Nicola Longland of LDA Design Consulting LLP to attend Land South of Rampton Road, Cottenham, Cambridgeshire, CB24 8TJ to undertake an arboricultural survey to BS5837:2012 guidance to assess trees, hedges and major shrub groups growing on and within influencing distance of the site and to produce a Schedule of trees & Tree Constraints Plan.

I am David Garrick, an arboricultural surveyor at Arbtech Consulting Ltd. I undertook the tree survey on 14/04/15 and subsequently have produced this summary of my findings.

I hold an FDSc in Forestry and the LANTRA Professional Tree Inspection certificate and have professional experience in Arboriculture spanning 6 years.

The advice below and appended is underwritten by our Professional Indemnity insurance for the business practice of Arboricultural Consultancy in the sum of one million Pounds Sterling in each and every claim.

Tree Survey Executive Summary

A total of 12 individual trees, 4 groups and 9 hedges were surveyed.

During the survey I categorised the group of trees using “Table 1 – Cascade chart for tree quality assessment” of the BS5837:2012.

It is likely that arboricultural impacts can be addressed with arboricultural methodology or minor amendments to the proposal.

Individual notes on each tree’s structural and physiological condition are found in the Notes section of the survey schedule.
BS5837 Scope
This standard recognizes that there can be problems of development close to existing trees which are to be retained, and of planting trees close to existing structures. This standard sets out to assist those concerned with trees in relation to construction to form balanced judgements. It does not set out to put arguments for or against development, or for the removal or retention of trees. 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.

Definitions

Arboriculturist
An arboriculturist (or arboricultural consultant) is a person who has, through relevant education, training and experience, gained recognized qualifications and expertise in the field of trees in relation to construction.

Tree Survey
A tree survey should be undertaken by an arboriculturist and should record information about the trees on a site independently of and prior to any specific design for development. As a subsequent task, and with reference to a design or potential design, the results of the survey should be included in the preparation of a tree constraints plan, which should be used to assist with site layout design.

Tree Constraints Plan
A TCP is a plan, typically delivered as an AutoCAD drawing (.dwg file format), prepared by an arboriculturist for the purposes of layout design showing the root protection area and representing the effect that the mature height and spread of retained trees will have on layouts through shade, dominance, etc.

Root Protection Area
An RPA is a layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of the tree, shown in plan form in m².

Construction Exclusion Zone (also termed Tree Protection Zone)
A construction exclusion or tree protection zone is an area based on the RPA (in m²), identified by an arboriculturist, to be protected during development, including demolition and construction work, by the use of barriers and/or ground protection fit for purpose to ensure the successful long-term retention of a tree.
Arboricultural Impact Assessment
This is a study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

Tree Protection Plan
A TPP is a plan, typically delivered as an AutoCAD drawing (.dwg file format), prepared by an arboriculturist showing the finalized layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement, which can be shown graphically.

Arboricultural Method Statement
This is a methodology for the implementation of any aspect of development that has the potential to result in loss of or damage to a tree. The AMS is likely to include details of an on-site tree protection monitoring regime.

Methodology
The methodology used to assess the trees was the British Standard 5837:2012 ‘Trees in Relation to Construction’ tree survey method. The aim of the survey is to establish which trees are moderate and good quality; suitable for retention and justifying protection. And, which trees are low or poor quality; either undesirable or unsuitable to retain and protect.

The tree survey includes all trees included in the land survey red line boundary plan, as well as any that may have been missed, and it should categorize trees or groups of trees, including woodlands for their quality and value within the existing context, in a transparent, understandable and systematic way. Where the arboriculturist has deemed it appropriate, the trees have been tagged with small metal or plastic tags, placed as high as is convenient on the stem of each tree.

Whilst master plan proposals for the development of the site might be available, the trees have been surveyed without taking these into consideration. All detailed design work on site layout should take into consideration the results of the tree survey (and the TCP).

Trees forming groups and areas of woodland (including orchards, wood pasture and historic parkland) are identified and considered as groups where the arboriculturist has determined that this is appropriate, particularly where they contain a variety of species and age classes that could aid long-term management. It is often expedient to assess the quality and value of such groups of trees as a whole, rather than as individuals. However, an assessment of individuals within any group has been undertaken if they are open-grown or if there is a need to differentiate between them.
The quality and value of each tree or group of trees has been recorded by allocating it to one of the four categories; A, B, C, or U (highest to lowest quality respectively). The categories are differentiated on the tree survey plan by colour, or by suffixing the category adjacent to the tree identification number on the TCP.

The survey schedule lists all the trees or groups of trees. The following information is also provided:

I. reference number (to be recorded on the tree survey plan);
II. species (common or scientific names);
III. height in metres (m);
IV. stem diameter in millimetres (mm) at 1.5 m above adjacent ground level or immediately above the root flare for multi-stemmed trees;
V. branch spread in metres taken at the four cardinal compass points;
VI. height of crown clearance above adjacent ground level in metres (m);
VII. age class (Newly planted, Young, Semi-mature, Early mature, Mature, Over mature);
VIII. physiological condition (e.g. good, fair, poor, decline and dead);
IX. structural condition (e.g. good, fair, poor and ivy);
X. preliminary management recommendations, including further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat; and
XI. The retention category referring to the quality and useful contribution in years; U = <10yrs; A = >40yrs; B = >20yrs; C = >10yrs. The retention sub category referring to the type of amenity; 1 = Arboricultural; 2 = Landscape; 3 = Cultural including conservation.

Recommendations

With the benefit of making an assessment of your planning proposals, we make the following recommendation to ensure that no conditions relating to arboriculture are attached to any planning consent secured; obtain an arboricultural report to include:

a) An arboricultural impact assessment (AIA);

b) An arboricultural method statement (AMS); and

c) A tree protection plan drawing (TPP).
Limitations
Trees were inspected from using visual observation from ground level only. Trees were not climbed or inspected below ground level. Inaccessible trees will have best estimates made about the location, physical dimensions and characteristics. Trees have been grouped where BS5837 guides us that it is expedient to do so. Trees have been excluded from the survey if they are found by us to be sufficiently far away from the proposed developable area or if they are outside of the red line boundary plan showing the expectations of our Client for the extent of the survey. BS5837 does not draw any distinction between trees subject to statutory protection, such as a Tree Preservation Order (“TPO”), and those trees without. This is principally because a detailed planning consent overrides any TPO protection. Consequently, we do not seek to offer any comparison between or infer any difference in the quality or importance of TPO trees and other trees.

Appendices
The following documents were released to the Client as appendices to this report:

- Survey Schedule (PDF)
- Tree Constraints Plan drawing (PDF)

If you require clarification of information contained herein, please do not hesitate to contact us via 01244 660558.

Yours Sincerely,

David Garrick

Arboricultural Surveyor
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Appendix 1: Schedule of Trees
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### BS5837:2012 Tree Survey

**Client:** LDA Design Consulting LLP  
**Project:** Land South of Rampton Rd, Cottenham  
**Survey Date:** 14/04/2015  
**Surveyor:** David Garrick

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<th>Stems</th>
<th>Ø (mm)</th>
<th>Crown</th>
<th>Age</th>
<th>RP A (m²) R (m)</th>
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<th>Preliminary Recommendations</th>
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| G1             | Common Hawthorn  
*Crataegus monogyna* | 4 | 1 | 140 | N 2 | 1 | SM | A: 8.9 R: 1.68 | Fair | C: Fair  
S: Fair  
B: Fair | | | C.1 | 20 to 40 yrs |
| G2             | Common Hawthorn  
*Crataegus monogyna* | 4 | 1 | 140 | N 2 | 1 | SM | A: 8.9 R: 1.68 | Fair | C: Fair  
S: Fair  
B: Fair | | | C.1 | 20 to 40 yrs |
| G3             | Common Hawthorn  
*Crataegus monogyna* | 4 | 1 | 140 | N 2 | 1 | SM | A: 8.9 R: 1.68 | Fair | C: Fair  
S: Fair  
B: Fair | | | C.1 | 20 to 40 yrs |
| G4             | Apple  
*Malus Unknown* | 3 | 2 | 177 (Eq) | N 2 | 1 | SM | A: 14.2 R: 2.12 | Fair | C: Fair  
S: Fair  
B: Fair | | Linear group of Malus domestica along property boundary | | C.2 | 20 to 40 yrs |

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**Age Classifications:**  
N: Newly planted  
Y: Young  
SM: Semi-mature  
EM: Early Mature  
M: Mature  
OM: Over Mature  
C: Crown  
S: Stem  
B: Basal area  
(Eq): Equivalent stem diameter using BS5837:2012 definition  

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TreeMinder  
15 April 2015
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**Age Classifications:**
- **N:** Newly planted
- **Y:** Young
- **EM:** Early Mature
- **M:** Mature
- **SM:** Semi-mature
- **OM:** Over Mature

**Condition:**
- **C:** Crown
- **S:** Stem
- **B:** Basal area

**Stems:**
- **Ø:** Diameter (Eq): Equivalent stem diameter using BS5837:2012 definition

**Survey Comment:**
- Hawthorn hedge
- Leylandii hedge

**Cat ERC:**
- C.2
- B.2

**Date:** 15 April 2015

TreeMinder
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<tr>
<td>10</td>
<td>Silver Birch</td>
<td>11</td>
<td>1</td>
<td>440</td>
<td>N 3</td>
<td>2</td>
<td>M: A: 87.6</td>
<td>Fair</td>
<td>C: Fair</td>
<td>Minor deadwood in crown.</td>
<td></td>
<td>B.1</td>
<td>20 to 40 yrs</td>
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<td>Betula pendula</td>
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<td></td>
<td></td>
<td>E 4</td>
<td>2</td>
<td>R: 5.28</td>
<td></td>
<td>S: Good</td>
<td>B: Good</td>
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<td></td>
<td></td>
<td></td>
<td>S 4</td>
<td>2</td>
<td></td>
<td></td>
<td>S: Good</td>
<td>B: Good</td>
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<td></td>
<td></td>
<td>W 4</td>
<td>2</td>
<td></td>
<td></td>
<td>B: Good</td>
<td></td>
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**Age Classifications:**
- **N:** Newly planted
- **Y:** Young
- **EM:** Early Mature
- **M:** Mature
- **OM:** Over Mature
- **C:** Crown
- **S:** Stem
- **B:** Basal area

**Condition:**
- **C:** Crown
- **S:** Stem
- **B:** Basal area

**Ø Diameter:** Equivalent stem diameter using BS5837:2012 definition
| Tree and Tag No | Species               | Hght (m) | Stems No | Ø (mm) (Eq) | Spread (m) | Clear (m) | Age | RP A (m²) | R (m) | Phys Condition | Structural Condition | Preliminary Recommendations | Survey Comment                                         | Cat ERC |
|----------------|-----------------------|----------|----------|-------------|------------|-----------|-----|-----------|-------|---------------|------------------------|-----------------------------------------------|-----------|
| 11             | Robinia               | 10       | 2        | 430         | N 4        | 3         | SM  | A: 83.7   | R: 5.16 | Fair          | Fair                  |                                                                                     | B.1       |
|                | Robinia pseudoacacia |          |          |             | E 4        | 3         |      |           |       |               |                        |                                                                                     |           |
|                |                       |          |          |             | S 4        | 2         |      |           |       |               |                        | Tree is on neighbouring property. minor deadwood in crown                           |           |
|                |                       |          |          |             | W 4        | 4         |      |           |       |               |                        |                                                                                     |           |
| 12             | Common Oak            | 9        | 1        | 330         | N 2        | 2         | Y   | A: 49.3   | R: 3.96 | Good         | Good                  |                                                                                     | B.1       |
|                | Quercus robur         |          |          |             | E 4        | 2         |      |           |       |               |                        |                                                                                     |           |
|                |                       |          |          |             | S 4        | 2         |      |           |       |               |                        |                                                                                     |           |
|                |                       |          |          |             | W 4        | 2         |      |           |       |               |                        |                                                                                     |           |

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<td>EM</td>
<td>Y</td>
<td>M</td>
<td>SM</td>
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TreeMinder

15 April 2015
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Appendix 2: Tree Constraints Plan
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Limitations

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