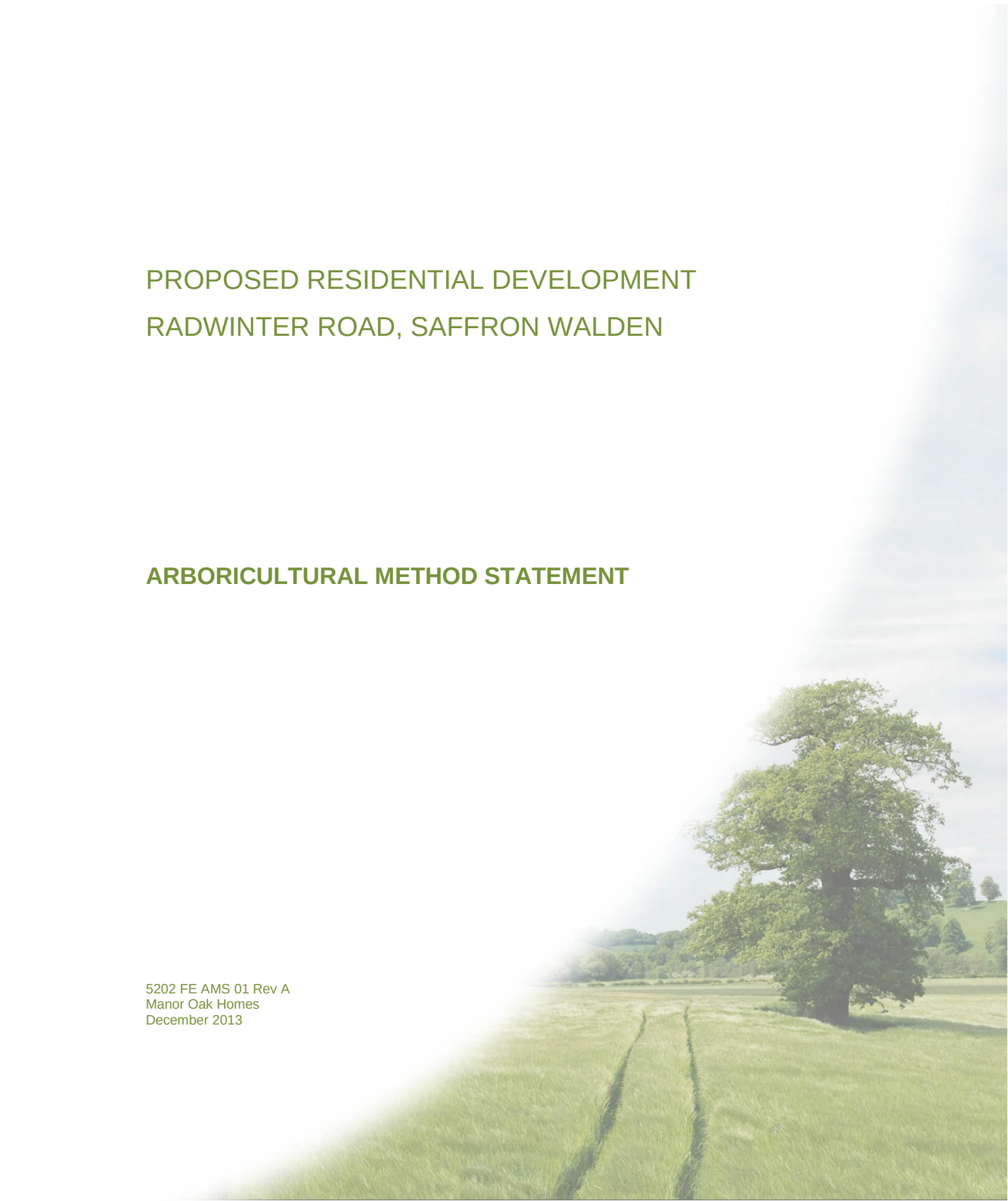
PROPOSED RESIDENTIAL DEVELOPMENT
RADWINTER ROAD, SAFFRON WALDEN

ARBORICULTURAL METHOD STATEMENT



5202 FE AMS 01 Rev A
Manor Oak Homes
December 2013

First Environment Ltd.

The Studios Sugarswell Business Park Shenington

Oxfordshire OX15 6HW

CONTENTS

1 Executive Summary

1.1 Following instructions received in August 2013, this statement has sought to inform a planning application for construction of a residential development on land adjacent to Radwinter Road, Saffron Walden. The site and proposed development have been assessed in accordance with the relevant British Standard, BS 5837:2012 'Trees in Relation to Design, Demolition and Construction'.

1.2 A total of 41no. individual trees, 10no. groups and 7no. hedges were recorded during the survey. The schedule provided in Appendix B provides a detailed record of each of these components. Appendix C provides a graphical representation of the survey data.

1.3 In order to implement the development it will be necessary to advocate the removal 24no. category 'C' trees, 1no. category 'U' tree, the clearance of 2no. category 'C' groups (G3 & G7) & 1no. category 'C' hedge (H5), and the partial removal of 1no. category 'B' group (G5), 2no. category 'C' groups (G1 & G4), 1no. category 'B' hedge (H4) and 1no. category 'C' hedge (H1).

2 Scope

2.1 Following instructions received in August 2013, this statement has sought to inform a planning application for construction of a residential development on land adjacent to Radwinter Road, Saffron Walden. The site has been addressed in accordance with the relevant British Standard, BS 5837:2012 ‘Trees in Relation to Design, Demolition and Construction’.

2.2 This report provides an informed overview of the existing tree cover, a summary of any implications arising from the proposed scheme and comments regarding the integration of existing trees into the proposed setting.

2.3 The following information in no way constitutes a health and safety survey or report. Where concerns for tree health and safety exist the necessary and appropriate tree inspections should be undertaken.

3 Survey and Explanation of Grading Categories (BS 5837:2012)

3.1 Existing tree cover pertinent to the development has been surveyed in accordance with BS 5837:2012 'Trees in Relation Design, Demolition and Construction'. The survey was conducted in October 2013 during a period of full leaf in the growing cycle of deciduous broadleaved trees.

3.1.1 This type of survey is designed to identify those trees which are likely to be affected by development of the site and inform the decision making process whereby trees are deemed suitable for retention and integration into a proposed scheme or need to be removed.

3.1.2 Trees are surveyed on an individual basis unless they form a collective feature when they are considered as a group. Groups may be defined on the basis of aerodynamic, cultural or visual features. Individual trees of particular prominence or value within a group may still be assessed as individuals.

3.1.3 For each surveyed tree/group the following information has been recorded:

i. TREE NO: Used to identify trees in the schedule and associated plans.

ii. HEIGHT: Height of tree in metres to centre of crown top or highest point.

iii. DBH: Diameter of the tree at 1.5m from ground level. Where multiple stems are present these are measured individually where practicable. This measurement is used to calculate the Root Protection Area (RPA) for each tree.

iv. CROWN SPREAD: Shown as compass points e.g. N, E, S, W. Dimensions are taken from centre of the main trunk.

v. CROWN CLEARANCE: Height of lowest branch.

vi. PHYSIOLOGY and STRUCTURE: Description of general form, including presence of physical defects, disease or decay and other appropriate details based on health, vitality and overall structural integrity.

vii. AGE CLASS: Young / Middle-aged / Mature / Over Mature / Veteran. Veteran trees are those deemed to be of significant biological, cultural or aesthetic value, usually beyond typical age range and often exhibiting significant structural defects.

3.1.4 Trees are categorised as per Table.1 of BS 5837:2012; these are divided between retention categories 'A' – 'U'.

3.2 **Explanation of Categories**:

i. Category 'U': Those in such a condition that any existing value would be lost within 10 years or which should, in the current context, be removed for reasons of sound arboricultural management. If within ownership, category 'U' trees should not be considered as constraints within the planning process. However, it may be desirable to seek retention of a category 'U' specimen if it is considered to have significant ecological or conservation value. Category 'U' trees are identified by dark red canopy edges on the tree plans.

ii. Category 'A': Those of high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested). These are identified by light green RPAs on the tree plans.

iii. Category 'B': Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested). These are identified by dark blue RPAs on the tree plans.

iv. Category 'C': Those of low quality and/or value: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150mm. These are identified by dark grey RPAs on the tree plans.

3.2.1 The following subcategories are applied. Trees may be allocated more than one subcategory, but this will not increase their overall value.

i. Mainly **arboricultura**l values (suffix 1)

A1: 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).

B1: Trees that might be included in the category 'A', but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and major storm damage), such that they are unlikely to be suitable for retention in the long term; or trees lacking the special quality necessary to merit the category 'A' designation.

C1: Unremarkable trees of very limited merit or such condition that they do not qualify in higher categories.

ii. Mainly **landscape** values (suffix 2)

A2: Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features.

B2: 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.

C2: 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 benefit.

iii. Mainly **cultural** values, including **conservation** (suffix 3)

A3: Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).

B3: Trees with material conservation or other cultural value.

C3: Trees with no material conservation or other cultural value.

3.3 **Note:** as a general rule and irrespective of subcategories: Category 'A' trees are considered to be of the highest priority for retention; Category 'B' of moderate priority and those of Category 'C' standing of lower priority. Onsite Category 'U' trees are given the lowest priority for retention.

4 Opportunities and Constraints for Development

4.1 The proposed site is situated on land currently used as arable fields to the south of Radwinter Road, to the east of Saffron Walden. These slope down from a high point on a ridge line to the south to the road on the north. It is not currently open to the public but does have an established and well used desire path running from the adjacent retail store to the western boundary.

4.2 The site is therefore open to mid to long distance views from the north, but largely hidden in short range views from the north and most views in other directions due to limited public access, topography and established vegetation.

4.3 A total of 41no. individual trees, 10no. groups and 7no. hedges were recorded during the survey. The schedule provided in Appendix B provides a detailed record of each of these components. Appendix C provides a graphical representation of the survey data.

4.4 There is no statutory protection covering trees on the site.

4.5 The northern boundary of the site is formed by Radwinter Road, a residential property and retail store. This boundary also has the largest amount of tree cover on or immediately adjacent to the site boundary.

4.6 The eastern boundary is formed by adjacent farm buildings and field boundary hedgerow.

4.7 The southern boundary runs through fields and is therefore open.

4.8 The western boundary abuts a mix of commercial and residential properties. It is defined by a field boundary feature. This is composed of mature trees on the southern end, but giving way to a more recently planted, establishing trees and shrubs towards the north. This likely reflects the different ages of adjacent development and possible redefining of the field system.

4.9 The majority of the site is currently subject to regular ploughing and is therefore without tree cover.

4.9.1 As previously noted the majority of the established trees grow on or adjacent to the northern part of the site. The largest individuals are located in the rear garden of a residential property. These are established ornamental specimens which provide screening benefits and are visible from high ground to the north.

4.9.2 A second arboricultural feature is present on the boundary of the retail store. This is an establishing screening belt of mixed native species behind and to the sides of the store

and associated car park. It provides a dense low level screen and is likely to be of some potential.

4.9.3 The southern boundary is treeless. However, an established field boundary hedge and small wooded area are located just beyond the site boundary. These form a significant feature and effectively enclose the site from the south.

4.9.4 A small area in the north eastern corner of the site appears to in use as rough pasture. It contains some establishing tree of no particular arboricultural merit.

4.9.5 The majority of the hedges and groups on the site are considered to be of no particular merit being either of low quality and/or value and limited visibility. 2no. hedges do run north-south through the site along internal field boundaries.

4.10 1no. individual tree, Tree No. 3 Sycamore *Acer pseudoplatanus* is considered to be worthy of category 'B' as an individual. Hedge Nos. H3 & H4 are considered to be category 'B' features due to their form and visibility. Group Nos. G5, G6 & G8 are the established trees associated with the residential property and are considered to be category 'B' features for a combination of their visibility and screening value. These trees have not been individually surveyed as no access was permitted to the property at the time of survey

4.11 4no. individual trees, Tree Nos. 4 Sycamore *Acer pseudoplatanus,* 7 Elder *Sambucus nigra* & 38-39 Hybrid Black Poplar *Populus x canadensis* are all considered to be of significantly reduced or no potential and are therefore given category 'U' as individuals.

5 Tree Protection and Removals

5.1 New developments can be greatly enhanced by the presence of appropriate trees. The retention of suitable specimens can significantly aid the integration of new structures into an existing landscape and allow a degree of continuity for both people and wildlife alike. However, care must be taken to safeguard retained stock and minimise impacts, especially disturbance to the rooting environment.

5.1.1 Construction often entails extensive groundworks such as excavation, cutting, filling and compaction. These changes can not only directly damage roots but also affect the physical and chemical properties of the soil and so impair root growth or function.

5.1.2 Our assessment of the proposed development in relation to existing trees is illustrated in Appendix A. This shows those trees that it is necessary to remove in order to implement development and those that may be retained and integrated into the site, together with appropriate protection and any special construction considerations required.

5.1.3 Our assessment is informed by tree location, current size, future requirements, root morphology and the proposed rooting environment. The tolerance of the trees to disturbance based on species, age, condition and the presence of surrounding trees and built form is also considered.

5.1.4 The **Root Protection Area** is the minimum soil surface area (in m^2) that should be left undisturbed around each tree to maintain the tree's long-term viability. In First Environment drawings RPAs are illustrated in colour to indicate the extent of the constraint posed and show the category of the relevant tree or group:

- Category 'A' trees/groups: Green RPA
- Category 'B' trees/groups: Blue RPA
- Category 'C' trees/groups: Grey RPA
- Offsite Category 'U' trees/groups: Grey RPA

5.2 **Tree Works:** In order to implement the development it will be necessary to advocate the removal 24no. category 'C' trees, 1no. category 'U' tree, the clearance of 2no. category 'C' groups (G3 & G7) & 1no. category 'C' hedge (H5), and the partial removal of 1no. category 'B' group (G5), 2no. category 'C' groups (G1 & G4), 1no. category 'B' hedge (H4) and 1no. category 'C' hedge (H1).

5.2.1 The largest number of tree losses occurs at the new entrance to the development. This is primarily due to highways requirements which dictate the location and are therefore unavoidable. The losses are mainly within category 'C' Group No. G4 and category 'B' Group No.G5. The main access road has been kinked away from the trees at the earliest possible position to minimise losses.

5.2.2 In the north-eastern corner of the site low quality trees will be removed to allow for the creation of an attenuation basin. The affected specimens are all category 'C' specimens, Tree Nos. 12, 14,15, 19-23 False Acacia *Robinia pseudoacacia*, 13, 16-18, 24-30 Silver Birch *Betula pendula*, 31 Hawthorn *Crataegus monogyna* & 32-33 Elder *Sambucus nigra*. These are suppressed specimens which are likely to suppress better quality trees to their west which provide the majority of the screen in this area.

5.2.3 Category 'C' Hedge No. H5 will be entirely removed. This is in poor condition with many gaps and relatively low ecological value and would need extensive plantings and work to return to good form.

5.2.4 Category 'C' Tree No.37 Hybrid Black Poplar *Populus x canadensis* is located offsite adjacent to the site. The tree is removed as it is in line with an existing junction with a short section of road heading toward the site boundary. The tree is of low quality and likely reduced potential. The proposed access road which requires the removal of the tree was clearly anticipated when the junction was created and forms a logical extension of the exiting road network adjacent to the site.

5.2.5 Category 'B' Hedge No. H4 will be retained almost intact. A short length will need to be removed for the creation of a pedestrian link within the site which is otherwise effectively partitioned by the hedge.

5.3 **Protective Barriers:** To ensure retention of existing trees it will be necessary to protect the above ground structures and the underlying rooting environment from damage during construction. Such detriment commonly includes impact damage, root severance, soil compaction and soil contamination.

5.3.1 To provide adequate protection it is necessary to define a Construction Exclusion Zone around retained tree cover and protect its perimeter (as far as is practicable) from encroachment using fixed barriers, i.e. weldmesh panels on a scaffold framework as shown in BS 5837:2012 (refer to Figure. 1 below).

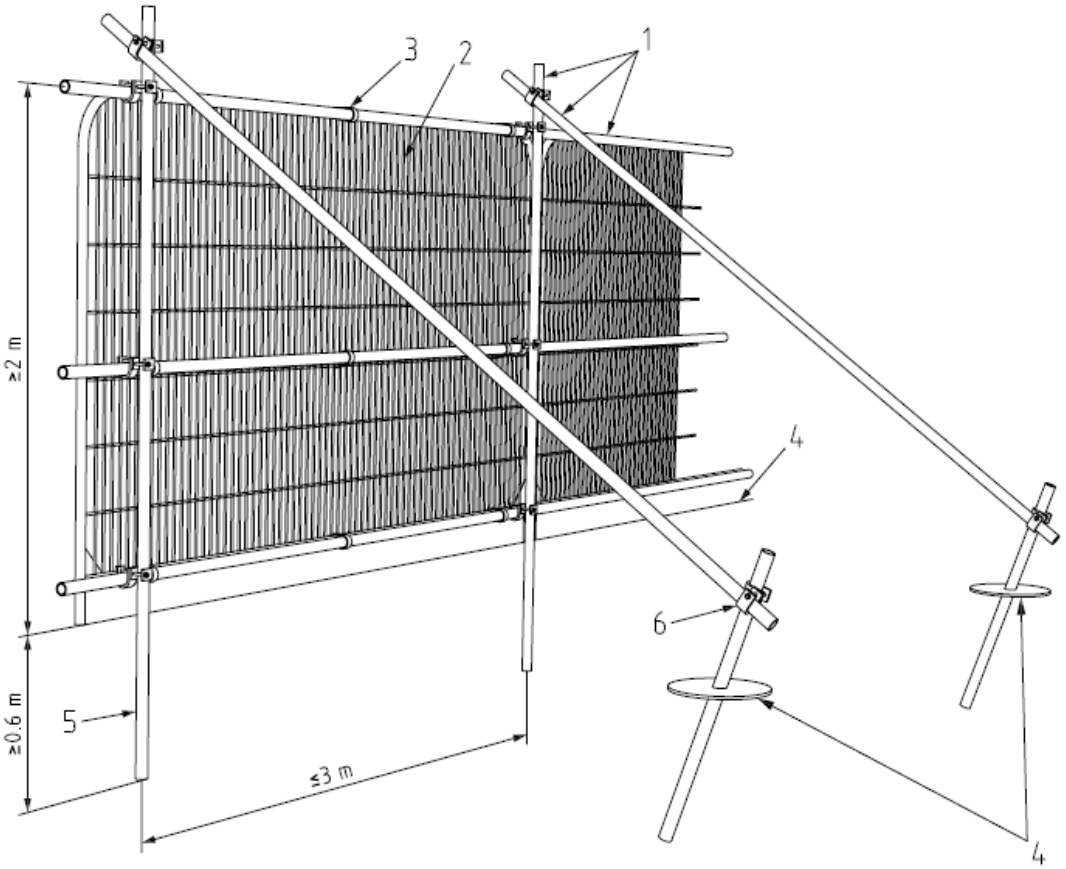
5.3.2 Barriers are to be erected before any materials or machinery is brought onto the site, before any stripping of soil commences and before construction begins. Once erected,

the area tree-side of the barrier should be treated as sacrosanct and should not be disturbed, used for storage or altered.

5.3.3 Barrier locations are shown by a **bold blue line** in Appendix A. It is advised that an arboriculturist should spray mark the barrier in order to establish the correct position for the fencing contractor.

5.3.4 Special care should be taken to ensure that activities conducted outside the Tree Protection Fencing do not affect retained trees. This includes such measures as employing a banksman when moving outsize loads. Potentially hazardous materials should be stored downhill or at the maximum possible distance from retained trees, or have a suitable protective barrier between the trees and storage area. Fires should be avoided wherever possible, or lit well away and downwind from retained trees.

Figure 1: Recommended Tree Protection Fencing Specification for this Development (Source: BS 5837:2012)



Key:
1 Standard scaffold poles
2 Heavy gauge 2m galvanised tube and welded mash inset panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into ground until secure (min 0.6m)
6 Standard scaffold clamps

5.3.5 Regular checks should be undertaken to ensure that the tree protection fencing is of the correct specification, in the correct position and functioning appropriately. We also advise that all-weather notices are erected on the fencing to provide a point of contact for arboricultural advice and to deter any relocation, removal or detriment to its intended purpose. Figure .2 (below) provides an example of such signage.

5.3.6 Tree protection fencing will remain in place until all construction activities are complete unless permission for removal is obtained from the Local Authority.

Figure 2: Tree Protection Fencing Signage (Example)

5.4 **Excavations within RPAs:** It will be necessary to manually excavate footings for proposed structures within the RPAs of Group Nos. G5 & G6. These areas have existing farm access roads within the RPAs which will need to be upgraded for use within the development context. It is our opinion that these works can be justified if undertaken with due care. **These works will require direct arboricultural supervision throughout**.

5.4.1 Precise methodology to be agreed between the site contractor and project arboriculturist. Emphasis is to be placed upon minimising extent of dig and promoting the use of hand held tools wherever possible. The supervising arboriculturist will brief

the contractor on best practice in accordance with BS 5837:2012 (Section 7.2) including advice on root pruning, the protection of exposed roots and guidance on back-filling procedures.

5.4.2 We advise that a report summarising the operations be produced upon completion. This should include a photographic record and description of the extent of root pruning, including a note of any roots pruned that were over 25mm diameter.

5.4.3 Areas where manual excavation is required are shown by a **solid orange hatch** in Appendix A.

5.5 **Note regarding fence posts.** Extra precautions should be taken if it is necessary to use concrete to install fence posts situated within the RPAs of retained trees. These include:

- Post holes should be excavated by hand;
- An impermeable membrane should be used to line the hole before filling with concrete;
- No concrete is to be mixed within the RPA;
- Excess/spilt concrete should be removed upon completion of works.

6 Conclusions

6.1 To inform proposals for a residential development on land adjacent to Radwinter Road, Saffron Walden, a survey of trees likely to be influenced during construction has been undertaken in accordance with BS 5837:2012.

6.1.1 A total of 41no. individual trees, 10no. groups and 7no. hedges were recorded during the survey (refer to Appendix B and C). 1no. tree was identified as a category 'B' specimen as an individual, 4no. as category 'U' individuals, 2no. groups and 2no. hedges as category 'B' as groups; all of the remaining trees and groups warrant category 'C' status.

6.1.2 Our assessment of the proposed development in relation to existing trees is illustrated in the form a Tree Protection Plan (refer to Appendix A).

6.2 Tree removals incurred by the proposed layout amount to:

- 24no. category 'C' trees;
- 1no. category 'U' tree;
- Clearance of category 'C' Group Nos.G3 & G7 and Hedge No.H5;
- Partial clearance of category 'C' Group Nos. G1 & G4 and Hedge No.H1;
- Partial clearance of category 'B' Group No. G5 and Hedge No. H4.

6.2.1 It is our opinion that these trees should be removed either because they cannot be practicably retained, provided with adequate protection during construction or impede the implementation of an improved landscape design reflecting the proposed situation.

6.3 Installation of tree protection fencing consistent with BS 5837:2012 is specified to protect retained tree cover during construction. The positioning of the fencing is shown by a **bold blue line** in Appendix A.

6.4 Excavation within the Root Protection Area of Group Nos. G5 & G6 is considered justifiable from the arboricultural perspective. This justification is subject to the use of manual excavation techniques and direct arboricultural supervision. The location and extent of manual excavation is shown in Appendix A with a **solid orange hatch**.

6.5 It is our opinion that all of the retained tree cover can be integrated within the proposed context and is unlikely to incur foreseeable detriment during construction, dependent upon adherence to the recommendations and tree protection measures described above.

6.6 Order of works:

- Trees to be removed should be identified with spray-marker in advance of any tree works occurring on site (ideally with an appointed Site Agent and Tree Contractor in attendance);
- All tree works and removals should be undertaken prior to the erection of tree protection fencing;
- All tree protection fencing must be erected prior to the arrival of construction plant, temporary buildings or materials on site;
- All tree protection fencing should be monitored to ensure its function on a regular basis by an appointed arboriculturalist once works commence on site;
- **Arboricultural supervision is essential during manual excavation. Site managers are advised to arrange arboricultural attendance in accordance with progress on site, with at least one weeks' advance notice provided.**

Point of Contact:

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Tel: 01295 477077

Further Reading and Supporting Material:

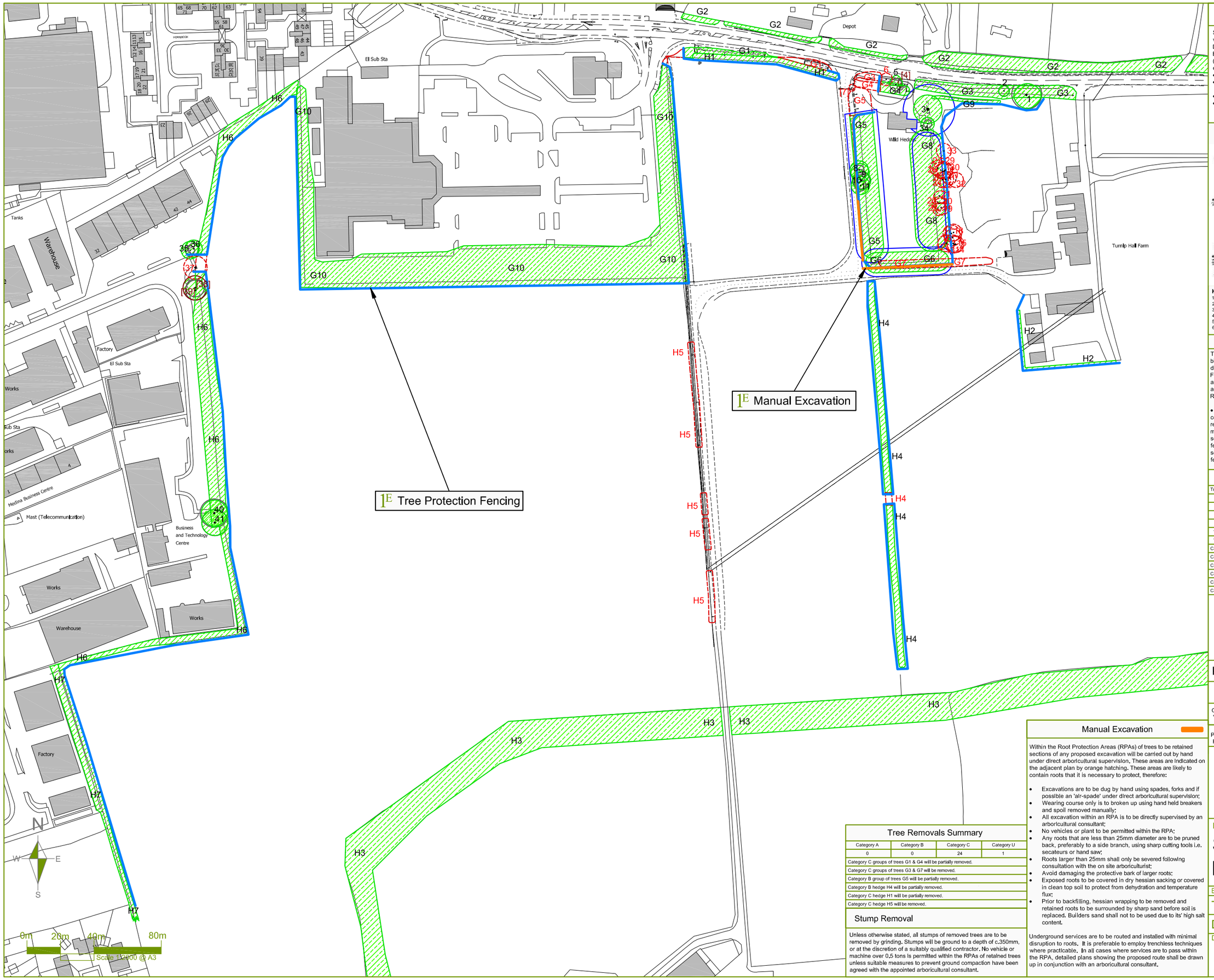
British Standards Institution Publication (2010), *BS 3998: Recommendations for Tree Work*, BSI, London

British Standards Institution Publication (2012), *BS 5837: Trees in Relation to Design, Demolition & Construction*, BSI, London

Roberts J., Jackson N. & Smith M. 2006, *Tree Roots in the Built Environment,* Research for Amenity Trees No.8, TSO, London

Appendices

Appendix A Tree Protection Plan (FE TPP 01)

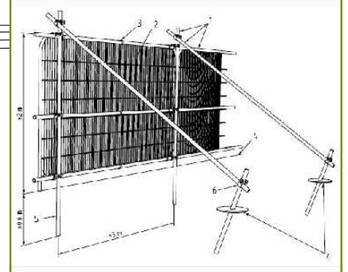


Tree Categories and Root Protection Areas (RPAs)

Surveyed trees have been assigned a category in accordance with Table 1 of BS 5837:2012 'Trees in Relation to Design, Demolition and Construction'. The category is indicated on First Environment plans by the colour of the Root Protection Area (RPA). The RPA delineates the minimum rooting area required to enable tree retention. The categories are as follows:

- Category 'A' - Tree of high quality and/or value - **Green RPA**
- Category 'B' - Tree of moderate quality and/or value - **Blue RPA**
- Category 'C' - Tree of low quality and/or value - **Grey RPA**
- Category 'U' - Tree of significantly reduced potential - no RPA unless in third party ownership, then **Grey RPA**.

Tree Protection Fencing



Key

1 Standard scaffold poles
2 Heavy gauge 2m 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 0.6m)
6 Standard scaffold clamps

As shown in BS 5837:2012, Section 6, Figure 2.

Tree Protection Fencing to be erected where indicated by the bold blue lines on the adjacent plan, prior to the commencement of any demolition or construction work.
Fencing specification to be compliant with BS 5837:2012 (illustrated above) and should be fit for the purpose of excluding construction activity and any other unacceptable disturbance from within the Root Protection Areas of retained trees, i.e:

- A scaffold framework in accordance with Figure 2 above comprising of a vertical and horizontal framework, well braced to resist impacts, with vertical tubes driven into the ground spaced at maximum intervals of 3m. Onto this, welded mesh panels should be securely fixed with wire, scaffold clamps or cable ties. If required, fence bases or feet will be secured into the ground with upright scaffold tubes. Panels supported on unsecured rubber or concrete feet are not resistant to impact and should not be used.

Tree Removal Schedule

Tree No.	Category	Species	Tree No.	Category	Species
6	C_{12}	Hawthorn	19-23	C_1	False Acacia
7	U	Elder	24-30	C_1	Silver Birch
12	C_{12}	False Acacia	31	C_1	Hawthorn
13	C_{12}	Silver Birch	32-33	C_1	Elder
14-15	C_{12}	False Acacia	37	C_{12}	Hybrid Black Poplar
16-18	C_{12}	Silver Birch			

Category C groups of trees G1 & G4 will be partially removed.
Category C groups of trees G3 & G7 will be removed.
Category B group of trees G5 will be partially removed.
Category B hedge H4 will be partially removed.
Category C hedge H1 will be partially removed.
Category C hedge H5 will be removed.

KEY:

Tree Nos.:	⊘ 3	Tree Canopies:		Category 'U' Trees:	[4]
Category 'A' RPA:		Category 'B' RPA:		Category 'C' RPA:	
Tree Protection Fencing:		Manual Excavation:			

Tree Removals Summary

Category A	Category B	Category C	Category U
0	0	24	1

Category C groups of trees G1 & G4 will be partially removed.
Category C groups of trees G3 & G7 will be removed.
Category B group of trees G5 will be partially removed.
Category B hedge H4 will be partially removed.
Category C hedge H1 will be partially removed.
Category C hedge H5 will be removed.

Stump Removal

Unless otherwise stated, all stumps of removed trees are to be removed by grinding. Stumps will be ground to a depth of c.350mm, or at the discretion of a suitably qualified contractor. No vehicle or machine over 0.5 tons is permitted within the RPAs of retained trees unless suitable measures to prevent ground compaction have been agreed with the appointed arboricultural consultant.

Manual Excavation

Within the Root Protection Areas (RPAs) of trees to be retained sections of any proposed excavation will be carried out by hand under direct arboricultural supervision. These areas are indicated on the adjacent plan by orange hatching. These areas are likely to contain roots that it is necessary to protect, therefore:

- Excavations are to be dug by hand using spades, forks and if possible an 'air-spade' under direct arboricultural supervision;
- Wearing course only is to broken up using hand held breakers and spoil removed manually;
- All excavation within an RPA is to be directly supervised by an arboricultural consultant;
- No vehicles or plant to be permitted within the RPA;
- Any roots that are less than 25mm diameter are to be pruned back, preferably to a side branch, using sharp cutting tools i.e. secateurs or hand saw;
- Roots larger than 25mm shall only be severed following consultation with the on site arboriculturist;
- Avoid damaging the protective bark of larger roots;
- Exposed roots to be covered in dry hessian sacking or covered in clean top soil to protect from dehydration and temperature flux;
- Prior to backfilling, hessian wrapping to be removed and retained roots to be surrounded by sharp sand before soil is replaced. Builders sand shall not to be used due to its' high salt content.

Underground services are to be routed and installed with minimal disruption to roots. It is preferable to employ trenchless techniques where practicable. In all cases where services are to pass within the RPA, detailed plans showing the proposed route shall be drawn up in conjunction with an arboricultural consultant.

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Project/Client:

Saffron Walden Manor Oak Homes

Based On: 57183 Layout SK07

Title: Tree Protection Plan

Drawing No: 5202 FE TPP 01

Date: 10.12.13 | Drawn: MB | Checked: xx

Note: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

Appendix B Tree Schedule (FE TS 01)

LAND AT UPLANDS, SAFFRON WALDEN

BS 5837:2012 TREE SCHEDULE

Manor Oak Homes
5202 FE TS 01
October 2013

BS 5837:2012 Tree Schedule

First Environment Consultants Ltd

Each entry will contain the following information (dependent upon access):

1. **Tree No:** Allocated tree number (a Tree Preservation Order may be signified by a 'TPO' suffix);

2. **Species:** Common names are shown;

3. **Height:** Height of each tree/group in metres to centre of upper crown or highest point;

4. **Trunk Diameter:** Measured in millimetres at 1.5m from ground level; multiple stems are measured separately and the values combined; used to calculate the Root Protection Area (RPA); measurements for the same tree are separated by '–' (e.g. 120-140-100);

5. **Crown Spread:** Measured in metres at compass points (e.g. N, E, S, W); dimensions are taken from centre of trunk to edge of canopy; 'up to' crown spreads will be shown with a repeated number;

6. **Crown Clearance:** Height in metres to lowest branch foliage from ground level;

7. **Age Class:**
   - **Young** (**Y**) (less than 1/3 through typical life expectancy for species);
   - **Middle aged** (**MA**) (from 1/3 to 2/3 through typical life expectancy for species);
   - **Mature** (**M**) (over 2/3 through typical life expectancy for species);
   - **Over mature** (**OM**) (beyond typical life expectancy for species);
   - **Veteran** (**V**) (of biological, cultural or aesthetic value, usually appears beyond typical age range for species);
   - **Various** (**VAR**) (contains more than one of the above classes);

8. **Physiology:** Considered to be one of the following: **Average** (**A**) / **Below average** (**B**) / **Low** (**L**) / or **Dead** (**D**);

9. **Structure:** Considered to be one of the following: **Good** (**G**) / **Moderate** (**M**) / **Indifferent** (**I**) / **Poor** (**P**) / or **Hazardous** (**H**);

10. **Comments:** A description of general form, including presence of physical defects, disease or decay and other appropriate details based on vitality, context, potential and overall structural integrity;

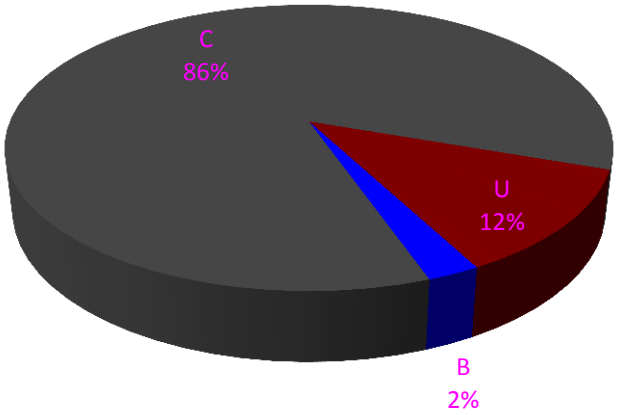
11. **BS 5837:2012 Category:** Each individual tree, group or collection is assigned a category as defined in Table 1 of BS5837:2012; (Note: a combined rating may be applied where individuals gain a higher category as part of a group or collection);
    - U: Trees recommended for removal; in such a condition that any existing contribution would be lost within 10 years; shown with a red canopy edge on First Environment plans;
    - A: Trees of high quality and value; likely to make a substantial contribution for at least 40 years; shown with a green RPA on First Environment plans;
    - B: Trees of moderate quality and value; likely to make a significant contribution for at least 20 years; shown with a blue RPA on First Environment plans;
    - C: Trees of low quality and value; could remain for at least 10 years until new planting has established; young trees with a stem diameter < 150mm; shown with a grey RPA on First Environment plans.

Note: This schedule does not constitute a health and safety survey. Appropriate additional inspections should be conducted for matters pertaining to health and safety or duty of care requirements.

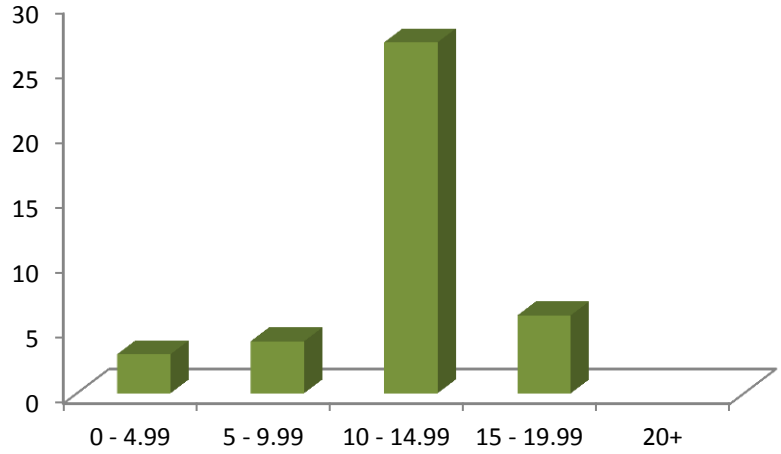
BS 5837:2012 Tree Schedule

Quick Reference Guide for Survey Data

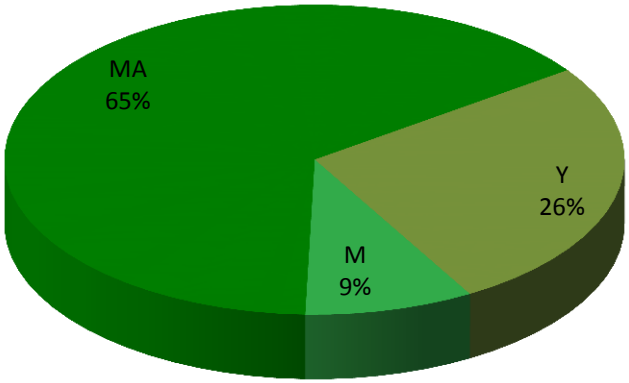
Individual Trees by Category:



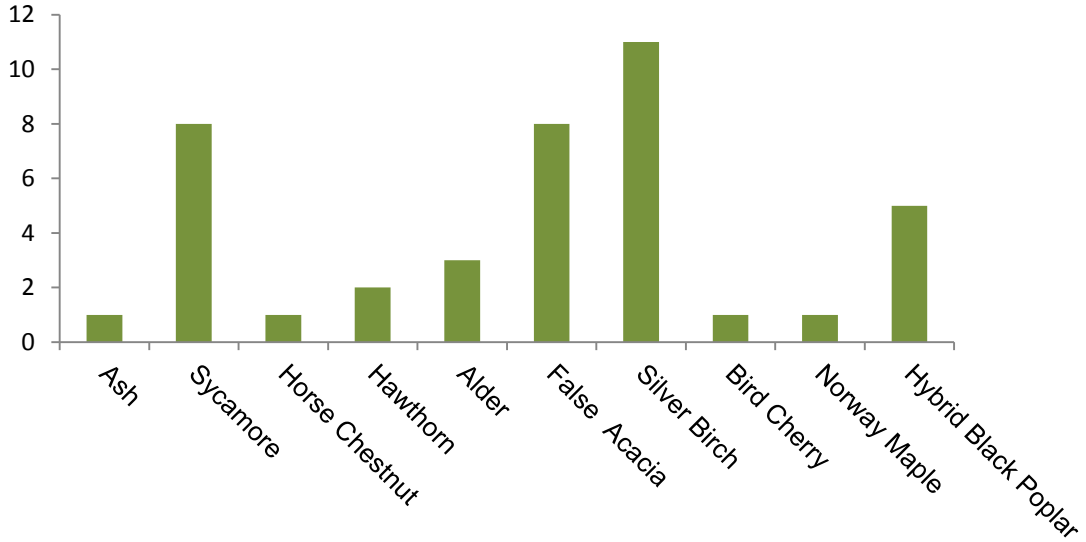
Individual Trees by Height:



Individual Trees by Age:



Individual Trees by Species:



Tree No.	Species	Height (m)	Trunk Diameter (mm)	CS N (m)	CS E (m)	CS S (m)	CS W (m)	Crown Height (m)	Physiological Condition	Structural Condition	Age Class	Comments	Category
1	Ash	12	500-220-210-360 over Ivy	6.75	8.75	8	7.5	2.5	A	I	M	Established likely self-seeded tree on N edge of drainage ditch; base forms N bank at this point; likely previously pollarded as it forms multiple stems from at/near ground level; suppressed in lower regions by adjacent vegetation; lifted/cut back from highway to N; structure and canopy typical for the species in this context; adds height and density to screen but unlikely to be of long term potential unless regularly coppiced.	C12
2	Sycamore	12	260	3.25	3.25	3.25	3.25	0	A	I	MA	Established likely self-seeded tree; some Ivy at base which obscures much of scaffold; single trunk; only a few epicormic branches low down as suppressed by adjacent now dead and Ivy covered Cherry; small crown; adds to density of screen and will be visible for short distances along adjacent highway.	C12
3	Sycamore	16	1260	8.5	8.5	8.5	8.5	4 1.5E	A	I	M	Growing within and near boundary of residential property adjacent to drainage ditch; likely originally coppiced and formed multiple stems from ground level; stems now fused to c.1.5m and tight above; only slightly divergent with height; scaffold lifted/suppressed by adjacent trees to N/S/W; established tree with structure and canopy typical for the species in this context; likely only individually visible across site to S/SE/E for short distances; adds to boundary screen; of impaired form but worthy of retention and suited to current location.	B12
4	Sycamore	10	150	5	1	0	1	2.25	A	P	Y	Growing from base of drainage ditch; single trunk with c.30° lean to S; heavily suppressed from S by more established trees; of no particular arboricultural merit and only short term potential.	U
5	Horse Chestnut	11	305	5.5	4	0.5	4	2.25	A	P	MA	Established tree growing form base of drainage ditch; single trunk; scaffold suppressed form S by more established trees; canopy largely absent to S; of poor form but does add to screen; of reduced potential.	C12
6	Hawthorn	7.5	305	3.75	3.75	3.75	3.75	0	A	I	MA	Established likely self-seeded tree growing on verge between ditch to S and road to N; regularly cut back from road sign to NW but otherwise typical for the species; visible E-W along adjacent highway.	C12
7	Elder	4.5	5 x 65	2	2	2	2	0.5	Dead				U
8	Sycamore	Up to 13	180-160	5.5	5.5	5.5	5.5	0	A	P	MA	Collection of self-seeded trees growing between fence and access road; of poor form being mutually suppressed and cut back to W from access road; visible principally to W; add to boundary screen but of reduced potential.	C12
9	Sycamore		170										C12
10	Sycamore		4 x 210										C12
11	Sycamore		290										C12

Tree No.	Species	Height (m)	Trunk Diameter (mm)	CS N (m)	CS E (m)	CS S (m)	CS W (m)	Crown Height (m)	Physiological Condition	Structural Condition	Age Class	Comments	Category
12	False Acacia	Up to 12	380	5	5	5	5	1	A	P	MA	Collection of trees growing within field; grow in close proximity; all have mutually suppressed drawn up forms; likely dependent upon companion shelter; form a single crown; low quality and reduced potential; likely visible from high ground to N/NE/S and across site to residential property to E.	C12
13	Silver Birch		245-220								MA		C12
14	False Acacia		365								MA		C12
15	False Acacia		245-100-160								MA		C12
16	Silver Birch		250								MA		C12
17	Silver Birch		320								MA		C12
18	Silver Birch		260								MA		C12
19	False Acacia	Up to 15	245	3	5.25	4.5	3.25	1.5	A	I	Y	Collection of likely self-seeded trees growing adjacent to boundary; all have drawn up form and are heavily suppressed by more established trees to W; likely only prominent in views across site to E from residential property.	C1
20	False Acacia		155								Y		C1
21	False Acacia		215-125								Y		C1
22	False Acacia		160								Y		C1
23	False Acacia		135								Y		C1
24	Silver Birch	Up to 12	345	4.75	4.75	4.75	4.75	1	A	P	MA	Collection of likely self-seeded trees growing adjacent to boundary; all have drawn up form and are heavily suppressed by more established trees to W; likely only prominent in views across site to E from residential property.	C1
25	Silver Birch		350								MA		C1
26	Silver Birch		260								MA		C1
27	Silver Birch		250								MA		C1
28	Silver Birch		230								MA		C1
29	Silver Birch		285-210								MA		C1
30	Silver Birch		320								MA		C1
31	Hawthorn	6	220	4	4	4	4	0	A	P	Y	Established likely self-seeded tree; heavily suppressed E-W by other trees; likely individually significant only for short distances.	C1
32	Elder	4	5 x 60	4.5	4.5	4.5	4.5	0	A	I	Y	Likely self-seeded trees of no particular arboricultural merit.	C1
33	Elder	4	5 x 60					0	A	I	Y		C1

Tree No.	Species	Height (m)	Trunk Diameter (mm)	CS N (m)	CS E (m)	CS S (m)	CS W (m)	Crown Height (m)	Physiological Condition	Structural Condition	Age Class	Comments	Category
34	Sycamore	10	200	4	4	4	4	3	A	I	MA	Established likely self-seeded tree growing adjacent to drainage ditch to E and garage/oil store to W; single trunk; canopy lifted over adjacent structures; softens effect of built form to W; visible only across site E/SE.	C12
35	Bird Cherry	8	225	5.25	5.25	5.25	5.25	2	A	I	MA	Pair of established ornamental plantings forming a common crown; single trunks; crown breaks between 1.75-2.25m; previously pollarded at c. 2.5m; multi-stemmed regrowth from that point; provide a dense low level screen on the frontage of commercial property.	C12
36	Norway Maple	8	275										C12
37	Hybrid Black Poplar	14	730	7	7	7	7	3	BA	P	M	Base obscured by dense Ivy; single trunk; appears to form dominant SE/NW sub-dominant stems at c. 1.8; union and lower scaffold obscured by dense Ivy; poor form with dead wood in scaffold and die back in tips of canopy not associated with the season; sparse overall appearance; showing clear signs of stress; likely of reduced potential; one of the more established trees in the vicinity and likely visible for some distance to W/S along adjacent highway, E across site and N from higher ground.	C12
38	Hybrid Black Poplar	13	450	7.25	7.25	7.25	7.25	3	L	P	MA	Pair of trees growing in close proximity and forming a common crown; single trunks; heavily mutually suppressed; significant dead wood within scaffolds; extensive die back in canopy; pair of trees which appear to be in serious decline and unlikely to have 10 year potential.	U
39	Hybrid Black Poplar	13	500								MA		U
40	Hybrid Black Poplar	15	705 over Ivy	7.75	7.75	7.75	7.75	4	BA	P	MA	Pair of trees growing at slight distance but forming a common crown; grow from within H6 which partially obscures bases; single trunks; form multiple stems between 1.2-2.5m; T41 is the more established and somewhat suppresses T40; both have dead wood within scaffolds and some die back in tips; showing signs of stress; visible across site to E and short distances from adjacent areas of business park and for longer distances to N; of no particular arboricultural merit.	C12
41	Hybrid Black Poplar	15	650 over Ivy					4			MA		C12
G1	Various	Up to 5	130	2	2	2	2	0	A	I	Y	Collection of established vegetation within and to N or drainage ditch along N boundary of site; likely to be coppiced/removed if ditch maintained and to clear maintain highways clearance; short term potential but adds density to boundary screen; species include Hawthorn, Ash, Privet, Crab Apple, Rose.	C12
G2	Various	Up to 3	Up to 65	2	2	2	2	0	A	I	Y	Species include Privet, Blackthorn, Rose, Hawthorn; established screening belt on bank between disused industrial site to N and road to S; regularly cut back from footpath and road to S; provides a dense low level screen.	C12

Tree No.	Species	Height (m)	Trunk Diameter (mm)	CS N (m)	CS E (m)	CS S (m)	CS W (m)	Crown Height (m)	Physiological Condition	Structural Condition	Age Class	Comments	Category
G3	Various	Up to 4	Up to 100	2	2	2	2	0	A	I	MA	Collection of likely self-seeded vegetation growing on verge between road to N and ditch to S; species include Elder, Cherry, Privet, Dogwood, Rose; likely subject to regular clearance (some recently cut down and dragged to ditch edge); of poor form but provide a temporary low level screen.	C12
G4	Various	Up to 16	Up to 360-245	3	3	3	3	2	A	I	MA	Established Beech hedge on front boundary of residential property with some self-seeded Sycamore; tall drawn up feature which does not appear to be regularly trimmed/faced; provides a screen on the front boundary but of poor form.	C12
G5	Various	Up to 16	Up to 800	6.75	6.75	6.75	6.75	0	A	I	M	Collection of established ornamental plantings near W boundary of residential property and hedge like vegetation below; ornamental trees are typical for the species in this context and provide added height to screen and individual features; grow 4-7m from boundary; species include Lawson Cypress, Corsican Pine, Ash, Scots Pine, Horse Chestnut; likely visible for some distance across site and beyond to S/W and from high ground to N; understorey grows along fence line; poorly maintained hedge predominantly of Hawthorn but with Sycamore also present that provides low level screen; individually of some merit but value arises principally from their collective benefits.	B12
G6	Various	Up to 15	Up to 690	7.5	7.5	7.5	7.5	0	A	I	MA	Collection of established ornamental plantings near S boundary of residential property; species include Horse Chestnut, Sycamore, Beech, Copper Beech, False Acacia; structures and canopies suppressed within line but typical for the species in this context; no clear visual indications of ill health or pathogens; visible for some distance to S across site and likely from high ground to N; screen residential property; individually category 'C' but upgraded for their collective merits.	B12
G7	Various	Up to 5	Up to 100	3.5	3.5	3.5	3.5	0	A	P	Y	Species include Hawthorn, Elder, Cherry; collection of established but poorly maintained specimens forming hedge along boundary of residential property; heavily suppressed from N by adjacent trees; some gaps present where specimens have been lost; requires gapping up and more frequent trimming to increase density; does provide some screening benefits.	C12
G8	Various	Up to 18	Up to 700	6	6	6	6	2	A	I	M	Species include Walnut, Box Elder, False Acacia, Silver Birch, Horse Chestnut with understorey of Yew, Rowan, Cypress, Laurel and Lilac; collection of established ornamental plantings in rear garden of residential properties; structures and canopies typical for the species in this context; some suppression within collection; Horse Chestnut heavily infested by leaf miner and with indications of *Phytophthora* infection particularly to N of line; individually of value in their current setting; likely visible for some distance across site and beyond to E/S and from high ground to N; collectively form a significant arboricultural feature.	B12
G9	Hawthorn	7	Up to 95	2.5	2.5	1.5	2.5	0	A	I	MA	Established hedgerow on N site boundary; irregularly maintained to S/N; provides low level screening benefits between site to S and highway to N.	C12

Tree No.	Species	Height (m)	Trunk Diameter (mm)	CS N (m)	CS E (m)	CS S (m)	CS W (m)	Crown Height (m)	Physiological Condition	Structural Condition	Age Class	Comments	Category
G10	Various	Up to 10	Up to 230	4	4	4	4	0.5 N	A	I	Y	Establishing dense screening belt around Tesco store site; appears to be a native species mix including Ash, Hornbeam, English Oak, Silver Birch; stakes and ties still present which should have been removed; closely planted leading to drawn up forms and mutual suppression; structures and canopies typical for the species in this context; provides a dense screen around store; likely visible for only short distances from within and immediately adjacent to site except to N where it will be seen in long distance views.	C12
H1	Hawthorn	5.5	Up to 95	2.5	2.5	1.5	2.5	0	A	I	Y	Establishing hedgerow on N site boundary; regularly maintained to S but less so to N; still establishing but does provide low level screening benefits between site to S and highway to N.	C12
H2	Various	Up to 4.5	Up to 235	1.5	1.5	1.5	1.5	0	A	I	MA	Established and regularly maintained field boundary hedgerow; species include Hawthorn, Plum, Elder, Blackthorn; provides low level screen between site to W/S and commercial area to N/E; visible principally within site.	C12
H3	Various	Up to 6	Up to 180	2.5	2.5	2.5	2.5	0	A	I	MA	Species include Hawthorn, Blackthorn, Elder, Rose, Privet, Apple, Goat Willow; established, dense field boundary hedge with thicker section in middle; some larger trees present to W but at some distance from site boundary and not likely to be affected, regularly cut back from fields/access road; significant feature which will be visible for long distances to N/E/W.	B12
H4	Various	Up to 4	Up to 100	1.5	1.5	1.5	1.5	0	A	I	MA	Species include Hawthorn, Blackthorn, Privet, Elder, Rose; established and regularly maintained field boundary hedgerow; height limited by overhead power lines; provides a dense low level screen between fields; likely individually visible for long distances to N; well suited to the location and with significant visibility and good quality.	B12
H5	Blackthorn	Up to 3	Up to 65	1	1	1	1	0	A	I	MA	Established and regularly maintained field boundary hedgerow; many gaps present, some of which are quite large; provides low level broken screen between fields; likely visible principally within site and from long distances to N; requires gapping up.	C12
H6	Various	3 to 8	Up to 185	2	2	2	2	0	A	I	Y	Establishing belt of vegetation; unlikely to be old field boundary due to species mix; primarily Elder, Dogwood, Lilac with some invasive Elm and Sycamore; low level feature which provides a dense low level screen; becomes narrower towards S end and begins to include establishing planted trees; cut back from field to E and road/commercial units to W; could be improved by additional plantings.	C12
H7	Various	Up to 9	Up to 160	3.5	3.5	3.5	3.5	0	A	I	Y	Collection of establishing trees and remains of field boundary hedge; species include Hawthorn, Goat Willow, Blackthorn, Silver Birch, Field Maple; original hedge has been improved at top of bank with additional plantings adjacent to commercial units on N end; becomes more of an established hedge towards S; provides a dense screen on site boundary and is likely visible for some distances N/W from residential properties and across site to E.	C12

Appendix C Tree Location Plan (FE TL 02)

Tree Categories and Root Protection Areas (RPAs)

Surveyed trees have been assigned a category in accordance with Table 1 of BS 5837:2012 'Trees in Relation to Design, Demolition and Construction'. The category is indicated on First Environment plans by the colour of the Root Protection Area (RPA).The RPA delineates the minimum rooting area required to enable tree retention. The categories are as follows:

- Category 'A' - Tree of high quality and/or value - **Green RPA**
- Category 'B' - Tree of moderate quality and/or value - **Blue RPA**
- Category 'C' - Tree of low quality and/or value - **Grey RPA**
- Category 'U' - Tree of significantly reduced potential - no RPA unless in third party ownership, then **Grey RPA**.

KEY:

Tree Nos.:	⊘ 3	Tree Canopies:		Category 'U' Trees:	[4]
Category 'A' RPA:		Category 'B' RPA:		Category 'C' RPA:	

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Project/Client:

Saffron Walden
Manor Oak Homes

Based On: Topo

Title: Tree Location Plan

Drawing No: 5202 FE TL 02

Date: 10.10.13 | Drawn: MB | Checked: xx

Note: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

N
W E
S

0m 20m 40m 80m
Scale 1:2000 @ A3