TREE PROTECTION SCHEME

(ARB. METHOD STATEMENT & TREE PROTECTION PLAN)

CLIENT -	Mr & Mrs Holdaway
PROJECT -	Witcham House
DOC. REF -	P2192–TPS01 V1
PLANNING REF -	n/a
CREATION DATE -	25/09/2023

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PURPOSE OF DOCUMENT

This document details the methodology behind the installation of any required tree protection measures, and any demolition and construction activities with the potential to cause harm to the site's trees.

The methods outlined in this document must be implemented as per this document. Failure to do so may result in a breach of planning or significant fines.

ARBORICULTURAL DOCUMENT REGISTER

Planning Documents		Version Issued	
Document	Ref.	Current Version	Document Date
Tree Survey (BS 5837)	P2192-TS01	V4	07/03/2023
Arb. Site Plan (Existing)	P2192-ASP01	V3	07/03/2023
Arb. Site Plan (Proposed)	P2192-ASP02	V2	07/03/2023

Technical Documents		Version Issued	
Document	Ref.	Current Version	Document Date
Tree Protection Scheme	P2192-TPS01	V1	25/09/2023

1. GENERAL INFORMATION

1.1. USE OF DOCUMENT

1.1.1. This document has been produced to assist key design and construction personnel in ensuring the satisfactory protection of all important trees present within the development site.

1.2. SITE

1.2.1. The site discussed within this report is located at:

Witcham House
Headley's Lane
Witcham
Ely
CB6 2LH

2. ADMINISTRATIVE DETAILS

2.1. SCOPE OF DOCUMENT

2.1.1. This document consists of the following:

- Arboricultural Method Statement

2.1.2. Appendices included with this report are:

- Tree Protection Plan (P2192-TPP01)
- CEZ Notice
- Schedule of Arboricultural Supervision

2.2. PROJECT CONTACTS

Role	Name	Telephone	Email
Arboricultural Consultant	Jennifer Sinclair	01284 598008	jennifer@lignaconsultancy.co.uk

2.3. AUTHOR

2.3.1. Jennifer Sinclair is a technician member of the Arboricultural Association. She has worked in arboriculture for over twelve years, including supervisory roles undertaking both domestic and commercial arboricultural work. She possesses a level 3 extended diploma in arboriculture, LANTRA Professional Tree Inspection training and is currently furthering her academic knowledge by undertaking a level 6 professional diploma in arboriculture. A full CV and list of experience and CPD is available on request.

2.4. SUMMARY OF TERMS

Term	Definition
Species	The type of tree.
Stem	The main woody upright portion of a tree that is supported by the roots and supports the crown.
Branch Spread	The length of a tree's branches from stem to tip measured from the north, east, south and western sides of the crown.
BS 5837	The commonly used name for the official guidance document relating to trees and development *(BS 5837:2012 - Trees in relation to design, demolition and construction – Recommendations)*
Canopy / Crown	The branches, leaves, and reproductive structures extending from the trunk or main stems of a tree/trees.
DBH	Diameter of a tree's stem, measured as per BS 5837:2012
RPA	The root protection area (RPA) is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Facilitation Tree Works	Tree pruning/felling required in order to facilitate the implementation of the proposed development.
Tolerance	The relative tolerance the species can show to construction related activities such as root-loss, soil compaction and other development pressures.
Category (Cat.)	Categorisation of the tree's value based on the methodology shown in Appendix 1, A1.4. This rating takes into account the size, quality, condition, estimated remaining life expectancy and legal status of each tree.

2.5. LIMITATIONS

2.5.1. Any engineering solutions presented within this document are recommendations for their suitability from an arboricultural viewpoint. The architect and structural engineers should make the final decision on the suitability of the methods advised.

2.5.2. Information provided by third parties, considered in the creation of this report, is assumed to be correct.

2.6. COPYRIGHT

2.6.1. This report was prepared for use by the Clients and their contractors for planning purposes. The report and its appendices may not be copied, modified, or distributed beyond the necessary parties without the written consent of Ligna Consultancy Ltd

3. RESPONSIBILITIES

3.1. DISTRIBUTION

3.1.1. It is important to ensure everyone involved in the planning and design of the proposed development is aware of this report and has access to a copy as soon as it is released.

3.2. RESPONSIBILITIES

3.2.1. Successful implementation of tree protection measures and long-term tree retention depends on coordination between the client and key personnel involved in the development.

3.2.2. The client and agent shall ensure that:

• The site manager and all other personnel are provided with this document.
• All planning conditions relating to underground works, services, trees, and landscaping are cleared before development commences.
• All requirements of this Tree Protection Plan are adhered to.
• The site manager is updated of any approved changes or variations to this document

3.2.3. The client and site manager shall ensure that:

• A copy of this document with the plan is easily accessible for site personnel to refer to before and during the time construction activity is taking place.
• All personnel working on the site are made aware of the tree protection plan and arboricultural method statements covering any activities they will undertake. This duty includes delegating the task of briefing personnel in the absence of the site manager.
• The tree protection measures are left in place until the construction phase of development is completed, except with the written consent of the LPA.
• Site personnel are updated of any approved changes or variations to the approved tree protection measures.
• All personnel must work in accordance with this document at all times, or in accordance with approved variation.

3.3. PROCEDURES FOR INCIDENTS

3.3.1. If any breach of the approved tree protection measures occurs the site manager must:

• The Local Planning Authority Tree officer or other Planning Officer and the Author of this report shall be notified.
• The site manager must be informed immediately.
• Swift action must be taken to halt the breach and prevent any further breach.
• Damage mitigation measures appropriate to the scale of the incident will be deployed where required.

3.4. PROHIBITED ACTIVITIES

3.4.1. The following must not be carried out under any circumstances:

• Cutting down, uprooting, damaging or otherwise destroying any retained tree.
• Lighting a fire within 10 metres of the canopy of any retained tree.
• Equipment, signage, fencing, tree protection barriers, materials, components, vehicles or structures shall not be attached to or supported by a retained tree.
• Mixing cement, chemical toilets and other use or storage of anything that would be harmful to trees shall not take place within, or close to a Root Protection Area (RPA). The distance away from the RPA must be sufficient, and the slope of the site must be such that contamination of soil in the RPA would not occur if there were spillage, seepage or displacement.
• No plant or equipment or vehicle with a hydraulic arm such as a mini digger shall be operated within striking distance of the stem and branches or the RPA of any retained tree unless otherwise specified in this report.

3.4.2. No alterations or variations shall be made to the approved tree protection measures without written approval from the LPA.

4. PHASING

4.1. PHASING OF DEVELOPMENT

4.1.1. The development should be carried out in the following order (see table 1) unless otherwise agreed in writing with the LPA. Each step should be completed before moving onto the next.

4.1.2. The general responsibilities described in section 3 of the report must be implemented for the entire time that the site is undergoing development related works. However, the additional precautions detailed in the following arboricultural guidance notes (AGN) must be implemented at the stage indicated below.

Stage	Arboricultural Guidance Note	Plan
Facilitative Tree Works	* Works should be undertaken by suitably qualified and insured arborists, in line with *'BS 3998:2010 Tree Work. Recommendations'*	Arb Site Plan (Proposed) (P2192-ASP02 V2)
Pre-Commencement	AGN1 – Installation of Tree Protection Barriers AGN2 – Installation of Temporary Ground Protection AGN3 – Installation of Stem Protection	Tree Protection Plan (P2192-TPP01 V1
Site Clearance & Demolition		
Groundworks & Installation of Foundations	AGN4 – Installation of No-Dig 3D Cellular Surfacing	Tree Protection Plan (P2192-TPP01 V1)
Construction	AGN5 – Installation of Foundations AGN6 – Installation of Pile and Raised Slab Foundations AGN7 – Installation of Access Ramp	Tree Protection Plan (P2192-TPP01 V1)
Removal of Tree Protection Measures	* Tree protection measures may be removed	
Landscaping		

Table 1 – Timing and implementation of specific arboricultural measures

5. TREE WORKS

5.1. TREE WORK REQUIREMENTS

5.1.1. The following tree work should be undertaken following acceptance of planning permission. These works should be undertaken by suitably qualified and insured arborists.

5.1.2. Work specification:

Tree Ref.	Tree Works
T5	Crown lift tertiary branches and tips to provide 4.5m clearance with the ground.
T7	Remove
T8	Reduce southwestern crown by 2-3m, and crown lift tips and tertiary branches to provide 4.5m clearance with the ground.
G2	Crown lift tertiary branches and tips to provide 4.5m clearance with the ground.

Table 2 – Facilitation Tree Works

5.1.3. The location of the trees can be seen on the Arboricultural Site Plan (P2192-ASP02). Trees selected for removal will be shown with a red canopy fill.

6. ARBORICULTURAL GUIDANCE NOTES

AGN1 – INSTALLATION OF TREE PROTECTION BARRIERS

OUTLINE

Tree protection barriers must be installed so as to ensure that damage does not occur to the rooting areas, stems, and canopies of retained trees.

INSTALLATION METHODOLOGY

i) The barriers shall be installed and removed in accordance with the timing of operations in section 4.1 and laid out in accordance with the appended Tree Protection Plan.

ii) The "CEZ Notice" provided, should be used to create weather-proof notices that must be attached to the tree protection barriers at suitable intervals.

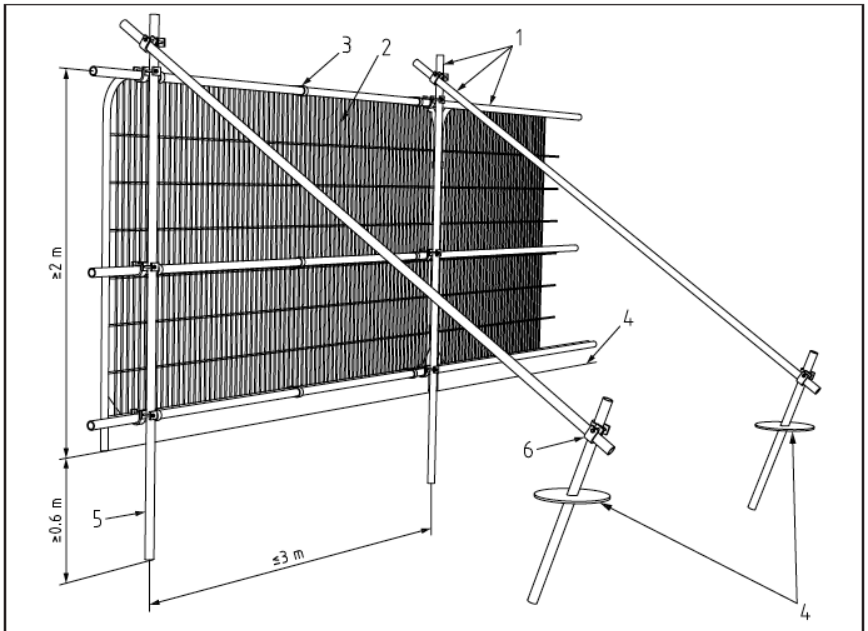
iii) If any panel or support becomes damaged, immediate reinforcement must occur by adding panels in, compliant with the specification detailed below.

iv) The default heavy-duty tree protection barrier specification is a vertical and horizontal scaffold framework, braced to resist impacts, as per *Figure 1*. The vertical tubes are spaced at a maximum interval of 3 metres and these are driven securely into the ground. Welded mesh panels are securely attached to the frame. During installation, it is important to consider the position of below ground services and structural roots, which must not be damaged. Where these constraints prevent the use of this specification, an alternative specification is given below.

v) Alternative heavy-duty tree protection barrier design - 2-metre-tall welded mesh panels standing in rubber or concrete feet joined using a minimum of two anti-tamper couplers installed, so they can only be removed from inside the protected area. The fence couplers should be at spaced least 1 metre apart, but uniformly across the whole barrier. These panels must be supported within the protected area with struts attached to a base plate secured by ground pins as per *Figure 2a*.

vi) Where the fencing is installed above retained hard surfacing and/or it is otherwise not feasible to use ground pins (e.g. due to underlying services or structural roots), the struts can be mounted on a block tray as per *Figure 2b*.

vii) Arboricultural Sign-off – Following the installation of the barriers, the project's arboricultural expert must confirm that they have been correctly laid out.



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

Figure 1 – Conventional tree protection barrier specification (source - BS 5837:2012 Section 6)

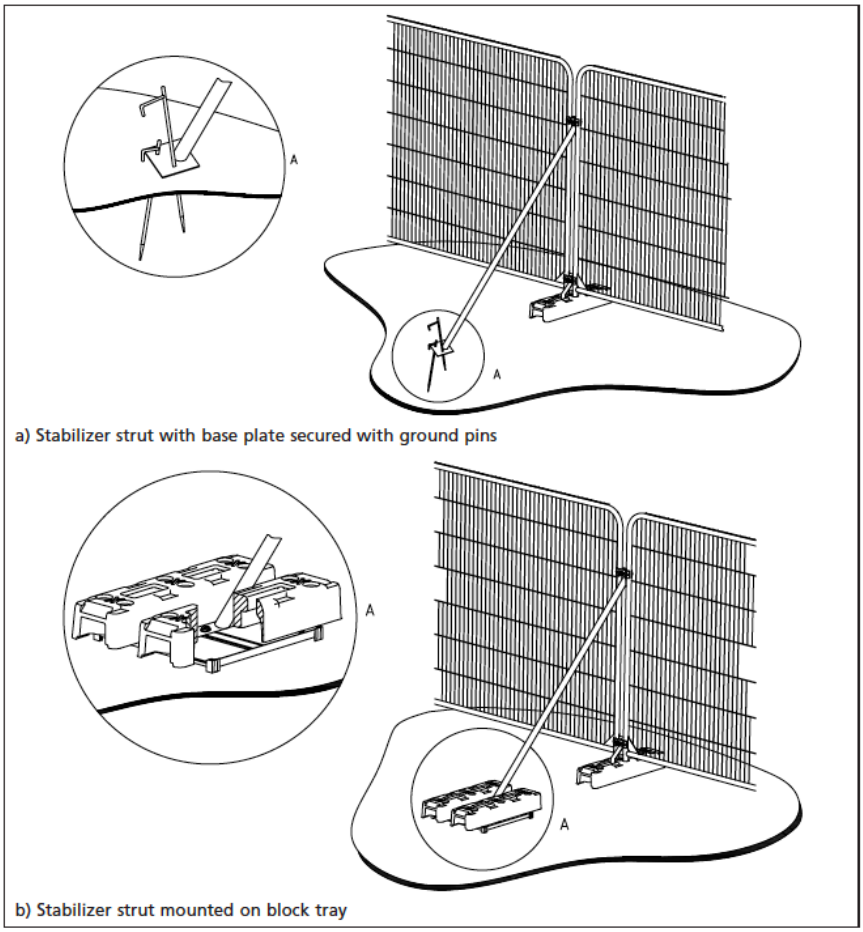


Figure 2 – Above ground stabilising systems (source - BS 5837:2012 Section 6)

AGN2 – INSTALLATION OF TEMPORARY GROUND PROTECTION

OUTLINE

Prior to the start of any construction activities, temporary ground protection measures must first be installed as per the associated Tree Protection Plan. This will prevent any construction traffic from causing compaction damage to tree roots during the construction process.

INSTALLATION METHODOLOGY

i) A geotextile membrane must be laid over the area to be protected with temporary ground protection.

ii) A compression layer of 100mm deep course building sand or woodchip must be spread over the geotextile membrane.

iii) Interlocking ground protection matting or two overlapping layers of 12mm thick plywood must then be installed atop the compressive layer.

iv) Once installed, this should be signed-off by the project's arboricultural consultant.

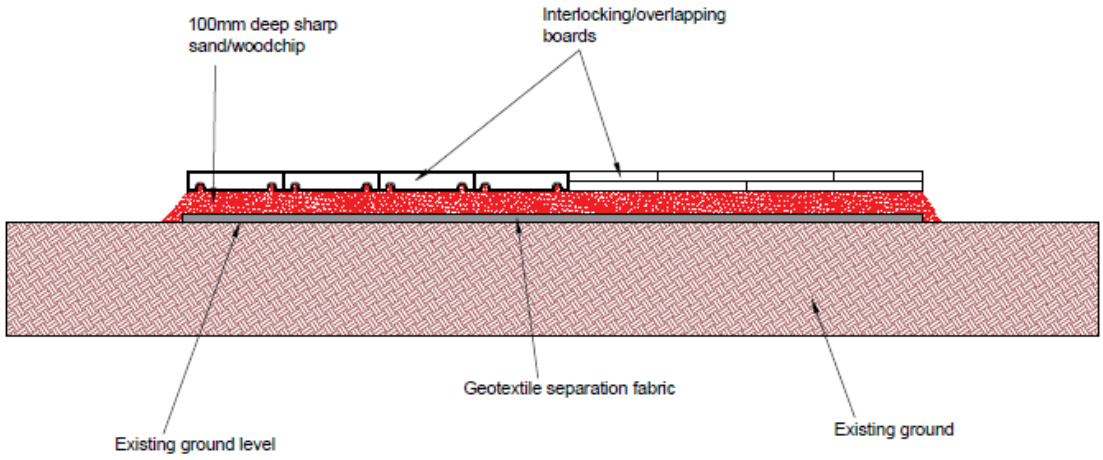


Figure 3 – Diagram of temporary ground protection setup.

AGN3 – INSTALLATION OF STEM PROTECTION

OUTLINE

Where construction work is to occur near to the stem of a retained tree, stem protection hoarding must be installed.

INSTALLATION METHODOLOGY

i) Plastic drainage pipe (>100mm diameter), or similar, should be loosely coiled around the stem of the tree and tied in position.

ii) A freestanding, wooden clad framework of scaffold or wood should be constructed around the tree stem; this must not be attached to the tree directly.

iii) Once erected, this should be signed-off by the project's arboricultural consultant.

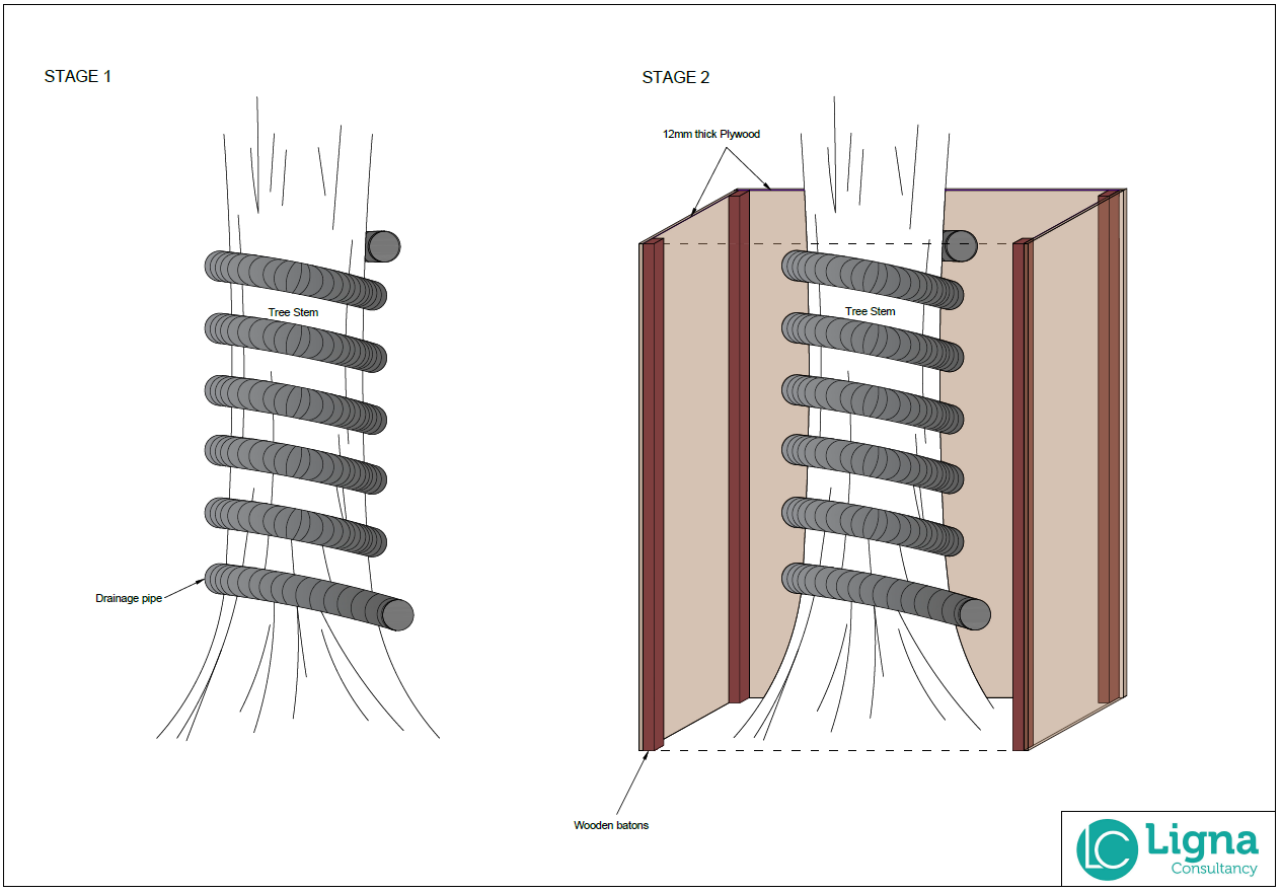


Figure 4 – Stem Protection diagram

AGN4 – INSTALLATION OF NO-DIG 3D CELLULAR SURFACING

OUTLINE

Any new surfacing required within an RPA has the potential to cause significant root loss and disturbance if traditional construction methods are used. Therefore, to avoid the need for excavation into the rooting areas, a specialist no-dig surfacing is to be used as the subbase.

A no-dig 3D cellular system allows for robust surfacing to be installed within a root protection area without harming the roots and overall health of retained trees. These systems ensure that minimal soil compaction occurs during installation and use.

Due to the nature of no-dig surfacing, the FSL of the driveway will be increased by 150mm driveway. Owing to this, areas of adjacent existing surfacing will also need to be raised by 150mm, this needs to be taken into consideration by the design team.

The selected system must be installed as per the manufacturer's instructions. The following guidance is intended as an outline only.

INSTALLATION METHODOLOGY

i) Ground protection may be removed in the areas that are to be surfaced. Once removed, no machinery or vehicles may be present on the unprotected ground at any time.

ii) A geotextile membrane will be laid over the area to be surfaced (see manufacturer's recommendations).

iii) The cellular system (150mm Cellweb TRP) will be spread out and pinned into the ground. Wooden edge retention boards will then be pinned into place.

iv) The pinned down geocells must then be filled with a 40-20mm clean angular stone (see manufacturer's recommendations). This will be achieved with any machinery working forward onto the surface as it is constructed (known as "rolling out").

v) Once installed, the system will have a finishing surface added above (indicative cross section below)

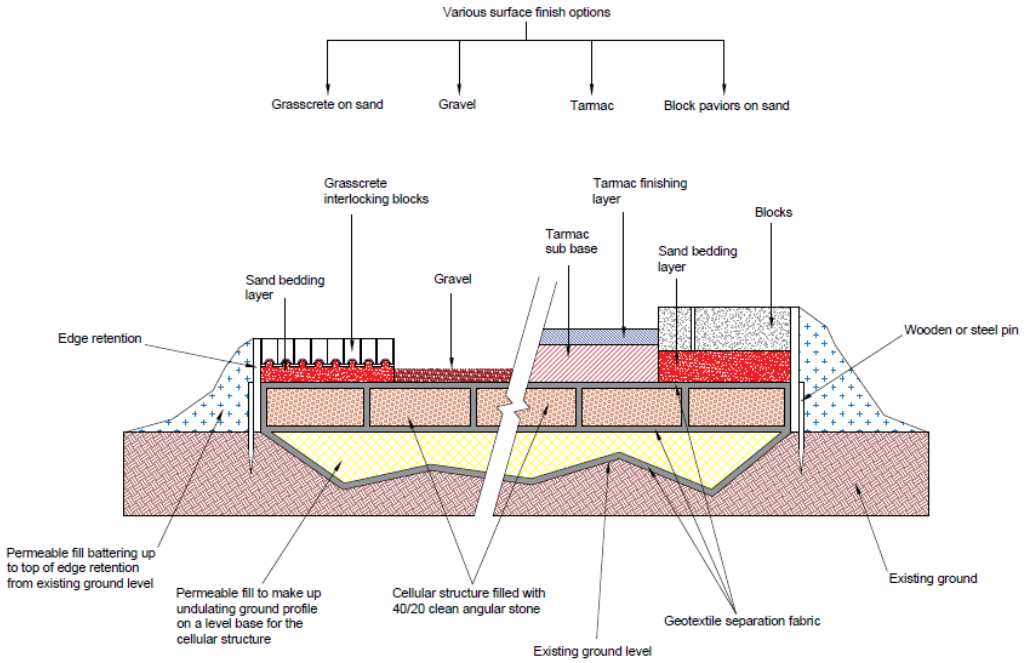


Figure 5 - Diagram showing the methodology behind the installation of three-dimensional cellular matting (Cellweb)

RECOMMENDED PRODUCTS

Product Type	Product Name	Supplier	Website
3D Cellular Confinement System	Cellweb TRP	Geosynthetics	http://www.geosyn.co.uk/product/cellweb-tree-root-protection

AGN5 – INSTALLATION OF FOUNDATIONS

OUTLINE

Owing to the positioning of the proposed extension, the excavations for the foundations will cause a moderate incursion of 5.8% in the RPA of G2's northernmost tree. Owing to the good tolerance of Tilia to root loss and disturbance specialist construction methods are not deemed necessary.

However, to prevent damage from occurring, the following methodology must be used:

INSTALLATION METHODOLOGY

i) During the excavations, should any roots >20mm in diameter be discovered, they must be pruned by the projects arboriculturalist.

ii) Prior to the casting of concrete, an impermeable membrane must be installed within the shuttering, to prevent chemical (cement) damage to any underlying roots.

iii) This activity must be done under the supervision of the scheme's arboriculturalist.

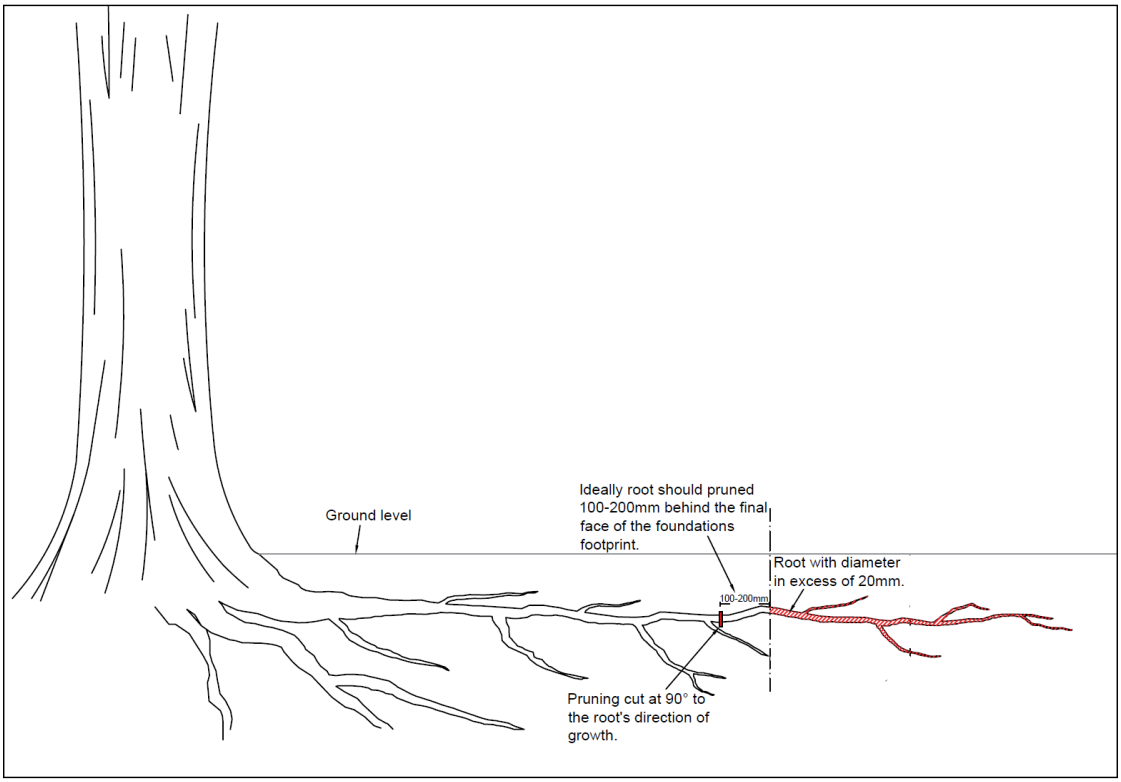


Figure 6 - Root pruning diagram

AGN6 – INSTALLATION OF PILE & RAISED SLAB FOUNDATION

OUTLINE

The new outbuilding will be based upon a pile and raised slab foundation.

This foundation type will require negligible levels of excavation (pile boring). The inclusion of a Dufaylite clay board void former beneath the slab will allow for continued gas exchange between the air and ground.

It should however be noted that the installation of the piles and slab have the potential to result in ground compaction and chemical damage to nearby roots.

To prevent damage to the roots of nearby trees, the following methodology must be used:

INSTALLATION METHODOLOGY

Installation of Piles

i) When operating within the RPA of a retained tree, any machinery involved in the installation of the piles must be situated upon existing surfacing or ground protection matting.

ii) While situated atop the surfacing/matting, the pile boreholes can be excavated.

iii) Once excavated, an impermeable liner must be installed around the perimeter of the upper 1m of the borehole prior to the pouring of cement.

iv) This activity must be done under the supervision of an arboriculturist.

Installation of Slab

i) The ground protection matting within the footprint of the building may be carefully removed. Once removed, no vehicles or machinery are permitted to be present on unprotected ground.

ii) The Dufaylite clay board void former will be laid atop the existing ground level, and the floor's shuttering installed.

iii) To prevent chemical damage to any underlying tree roots, an impermeable membrane will be laid within the shuttering.

iv) The slab foundation will then be cast.

AGN6 – INSTALLATION OF ACCESS RAMP

OUTLINE

The new outbuilding requires an access ramp, this has the potential to cause damage to the surrounding trees and their rooting areas if done incorrectly.

To avoid causing damage, the ramp will be constructed using the following methodology.

INSTALLATION METHODOLOGY

i) The proposed ramp will utilise the existing surfacing as its subbase.

ii) Prior to the adding of any additional materials, a permeable membrane will be installed first.

iii) The edging boards required will use small size metal stakes manually driven into the ground.

7. APPENDICES

7.1. APPENDICES

7.1.1. The following appendices should be used in conjunction with this document:

Appendix	Document	Reference
1	Tree Protection Plan	P2192-TPP01 V1
2	CEZ Notice	n/a
3	Schedule of Arboricultural Supervision	n/a

APPENDIX 1
TREE PROTECTION PLAN

Use of This Document

This document should be **viewed in conjunction with the relevant arboricultural method statement** and must be implemented as stated for the duration of the site's development. Failure to do so may result in a breach of planning, and damage to protected trees; potentially resulting in fines. Any queries regarding the trees on site should be addressed by Ligna Consultancy Ltd: 01284 598008 / info@lignaconsultancy.co.uk

Root Protection Areas

The enforcement of root protection areas (RPAs) is vital for the successful retention of a site's trees during the development process. RPAs that are not covered by ground protection must not be subjected to the following activities unless otherwise stated within the Tree Protection Plan or Arboricultural Method Statement:

- materials storage
- pedestrian / vehicular movement
- excavation or soil level increase
- installation of new surfacing
- car parking
- mixing of cement
- any other infringement

Should any issues arise from the enforcement of root protection areas restricting necessary site works, the site manager should be informed, and the project's arboriculturalist contacted.

Incursions within RPAs

Excavation

Arb. Sensitive Demolition / Removal

Specialist Foundations/Surfacing and Site Features

Specialist Foundations

Pile / Screw Pile

Cellweb TRP

Demolished Building

Tree Protection Measures (Refer to Technical Specification)

Barriers - Stake and Mesh

Barriers - Metal Fencing

Stem Protection

Temporary Ground Protection

CEZ

Ligna Consultancy

Project:	Witcham House
Client:	Mr & Mrs Holdaway
Drawing:	Tree Protection Plan
Drawing Ref:	P2192-TPP01
Rev:	V1
Date:	21/09/2023
Scale:	1:200 - A2
Drawn By:	J. Sinclair
Based on:	Proposed Site Plan

All dimensions should be checked on site. No dimensions to be scaled from this drawing. Please notify us of any discrepancies found. Ligna Consultancy Ltd. cannot be held responsible for inaccuracies in the base drawing in which this plan is based. This drawing is designed to reflect the principles of the layout or design only, and relates only to the protection of retained trees.

An architect or structural engineer should be contacted over any matters of construction, detailing or specification and for any standards or regulatory requirements relating to proposed structures, hard surfacing or underground services.

This drawing was produced in colour - a monochrome copy should not be relied upon.

APPENDIX 2
CEZ NOTICE

NO ENTRY

CONSTRUCTION EXCLUSION ZONE

This area contains trees which must be protected as part of the planning permission. Additional legal protection may also apply e.g. a Tree Preservation Order.

Removing or damaging trees in this area may be a breach in planning permission. Damage to protected trees may lead to a criminal conviction and / or a fine.

Should any issues arrive regarding the tree protection or its layout, please contact Ligna Consultancy Ltd for advice:

info@lignaconsultancy.co.uk
01284 598008

APPENDIX 3
SCHEDULE OF SUPERVISION

APPENDIX 3 – SCHEDULE OF ARBORICULTURAL SUPERVISION

Date: **Planning Ref:**

This statement is to confirm that …… of …….. has undertaken the following supervision activities for the development at Witcham House; ensuring that any deviation from the approved tree protection scheme is recorded and appropriate action is undertaken.

Liability for any failure of compliance will remain with the client.

Arboricultural Sign-Off

The correct installation of the approved tree protection measures must be confirmed by the project's arboriculturalist in the table below. No further demolition or construction activities may occur until approval has been given by the project's arboriculturalist.

Failure to abide by the following schedule may result in a breach of planning. Any deviation from the agreed upon protection measures must be reported to the project arboriculturalist immediately.

Activity	Remote Supervision	Date	Protection Measures Compliant	Remedial Action Required
Pre-commencement site meeting	YES			
Sign-off of correct installation of tree protection measures (pre-construction)	YES			
Positioning and Installation of Foundations	NO			
Installation of Pile and Slab Foundations	NO			
Installation of Access Ramp	YES			

Note – Remote video call or photographic supervision may be suitable in some instances. Where this is suitable, 'Yes' will be displayed in the 'Remote Supervision' column in the table above.

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