

## Arboricultural Method Statement

Cala Homes Limited

Land at Fewcott Road, Fritwell

# NICHOLSONS LOCKHART GARRATT

*Leading solutions for the natural environment*

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## REVISION HISTORY

Rev	Description of change	Date	Initials
1	Original draft	09.03.2022	BJ
2	Revisions to TPP following client feedback	11.03.2022	BJ
3	Revisions to TPP to align with NLG landscaping plans	06.04.2022	BJ
4	Revisions to report and TPP	01.06.2022	BJ
5	Minor amendment to report to include gabion wall methodology	10.06.2022	BJ

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**Attachments**

Description	Reference	Version
Tree Schedule	18-1513	1
Tree Protection Plan	21-2259	7

## **PURPOSE OF DOCUMENT**

This report has been commissioned to provide details on how the retained trees will be protected and managed during the development process at Land at Fewcott Road, Fritwell. This includes a Tree Protection Plan (TPP) that provides illustrative guidance on the tree protection measures that are required for the development of the site.

This document is prepared at the clients' request in relation to an ongoing Reserved Matters planning application (Ref: 21/02180/REM).

The following explanations relate specifically to this site and they should be read in conjunction with the TPP.

A copy of this report must be kept on site and be permanently available for the duration of the development. It can be:

- Included in the tender documents to identify and quantify the tree protection and management requirements;
- Used to plan the timing of site operations to minimise the impact of trees; and
- Reference on site for practical guidance on how to protect trees.

## 1. SCOPE OF WORKS

- 1.1 The proposed development includes the erection of up to 28 residential dwellings with associated access and landscaping.
- 1.2 In order to ensure retained trees are protected during development, the following arboricultural protection measures are required:
  - Arboricultural Clerk of Works (ACoW) supervision
  - Tree Protection Fencing (TPF)
  - Permanent ground protection
  - Temporary ground protection
  - Site gradient changes
- 1.3 A total of seven individual trees, four groups of trees and two hedgerows will require complete removal. The partial removal of two further hedgerows will also be required.
- 1.4 Remedial pruning will be required on one individual tree.
- 1.5 There is no requirement for any of the following within Root Protection Areas (RPAs) of retained trees:
  - Demolition of existing buildings
  - Specific Construction Methods
  - Specific Tree Protection Measures
  - Contractors parking
  - Storage of materials
  - Landscaping
  - Fires
  - Herbicide use

## 2. ARBORICULTURAL ACTIVITIES & SEQUENCE

**Table 1: Arboricultural Activities & Sequence**

It is recommended that this sheet is removed from this report, laminated and displayed within the main site office at a visible location to all site staff.

Arboricultural Requirements	Timing & Importance	Details	AMS Report Section	Appendix No.
ACoW Supervision and Input	Level of ACoW supervision and arboricultural input will be determined at the pre-commencement meeting.	Pre-commencement meeting Installation of barriers Installation of permanent ground protection Removal of barriers	3	1 & 2
Tree Removals	Pre-construction	T4, G5, T6, T7, H8, T9, T10, G11, H13, H20*, T28, H29*, G30, G31 and T32 (*: Part of hedgerow)	4.1 & 4.2	-
Tree Pruning	Pre-construction	T12 – lift southern crown to 4.0 m above ground level. H23 – Lateral reduction of overhanging branches to provide clearance for adjacent construction works.	4.3, 4.4 & 4.5	-
Tree Protective Fencing	Fencing MUST be erected and inspected by ACoW before site works can start.	Heras 151 fencing Phased fencing around H29 and G33 for landscaping works.	5	3 & 4
Permanent Ground Protection	Installed within the RPA of T12 and T21 to create proposed parking spaces.	T12 and T21 - Three-dimensional cellular confinement system	6.2 - 6.7 (inclusive)	5 & 6
Temporary Ground Protection	Provision of working space during creation of swale and localised retaining wall	TrakMat / DuraDeck – H23	6.8 - 6.11 (inclusive)	7
Specific Construction Methods	Construction of localised retaining wall  Creation of proposed swale	Works to be carried out within the RPAs of H23	7	8

### Key Responsibilities:

It is the responsibility of the main works contractor to ensure that tree protection measures are adhered to all at times.

It is the responsibility of the main works contractor to ensure that all site personnel fully understand the protection measures of the site.

It is the responsibility of the main works contractor to ensure that the project arboriculturist is contacted if there are any issues related to trees.

### 3. ARBORICULTURAL SUPERVISION

3.1 An ACoW will be appointed by the main works contractor (MWC) to advise on the tree management for the site and to attend:

- The pre-commencement meeting before any works start;
- Regular interim visits; and
- The completion meeting at the end of development works.

3.2 Additionally, the ACoW will attend site at various intervals to inspect the following elements of tree management and protection:

- Tree pruning works;
- Installation, maintenance and removal of tree protection fencing (including reconfiguration for 'phased' element); and,
- Installation, maintenance and removal of temporary ground protection measures.

3.3 Finally, the ACoW will have a supervisory input into the following elements of development:

- Installation of permanent ground protection;
- Construction of localised retaining wall; and,
- Creation of proposed swale.

#### Sequencing and Timing

3.4 Effective tree protection relies upon following a local sequence of events and arboricultural inspection/supervision. **Table 2** provides an indication to the likely sequencing and arboricultural input requirements of the retained ACoW.

**Table 2: Sequencing and Arboricultural Input**

Stage	Action	Arboricultural Input Required
1	Pre-commencement meeting	Attend
2	Tree works	Inspect
3	Installation of tree protective fencing	Inspect
4	Installation of temporary ground protection measures	Inspect
5	Maintenance of tree protective fencing	Inspect
6	Maintenance of temporary ground protection	Inspect
7	Construction of special surfaces	Supervise
8	Construction of localised retaining wall	Supervise
9	Creation of proposed swale	Supervise
10	Completion meeting	Attend
11	Remove tree protective fencing	Inspect
12	Remove temporary ground protection	Inspect



- 3.5 The retained ACoW's initial role is to liaise with the MWC and Local Planning Authority (LPA) to ensure the tree protection measures are fit for purpose and in place before any works commence on site. Once the site is working that role will switch to monitoring compliance with arboricultural planning conditions and advising on any tree problems that arise or modifications that become necessary.
- 3.6 It is the MWCs' responsibility to ensure that details of this Arboricultural Method Statement (AMS) and any agreed amendments are known and understood by all site personnel. An AMS Briefing Statement has been prepared and attached to this document, see **Appendix 1**. This document provides summarised details of the key protection measures contained within this document. A copy of this should be made available to all staff and used in any site inductions.
- 3.7 The final details of supervision and the frequency of inspection visits will be agreed at the pre-commencement meeting. The supervision arrangement will be sufficiently flexible to allow the supervision of all sensitive works as they occur.
- 3.8 The ACoW will make a record of the visits and these will be attached to the site copy of the AMS for inspection. A further copy will be sent to the LPA. The purpose of these written records is firstly to provide proof of compliance that will allow the MWC to robustly demonstrate adherence to best practice in the event of any dispute. Secondly it will help the LPA efficiently discharge the relevant planning conditions.

#### **Pre-commencement Meeting**

- 3.9 A pre-commencement site meeting involving the land owner, representative of the development company, ACoW, contractors and engineers (as appropriate), the relevant LPA officers will be held to ensure that all aspects of the tree protection processes are understood and agreed.
- 3.10 The meeting is where the details of the programme of tree protection will be agreed and finalised, which will then form the basis of any supervision arrangements between the ACoW and the MWC.
- 3.11 The ACoW will send a record of the meeting to all parties.
- 3.12 The ACoW will request that the contractor signs a Statement of Undertaking (SoU). This document confirms that the contractor fully understands the tree protection measures required throughout the construction process and accepts full responsibility for the protection of retained trees. A copy of the signed document will be kept onsite throughout the duration of the project. A copy will also be sent to the LPA officer for reference.
- 3.13 An example of this document can be found in **Appendix 2**.

#### 4. TREE REMOVAL & PRUNING

##### Tree Removals

4.1 Trees for removal have been noted on the TPP with a dashed red circle around each location. **Table 3** provides details of trees required for removal.

**Table 3: Tree Removals**

	Category C	Category U	Total
<b>Trees</b>	T4, T6, T9, T10, T28, T32.	T7.	<b>7</b>
<b>Hedges</b>	H8, H13, H20*, H29*.		<b>4*</b>
<b>Groups</b>	G5, G31.	G11, G30.	<b>4</b>
<b>Total</b>	<b>12*</b>	<b>3</b>	<b>15*</b>
<u>Key</u> *: Partial removal of hedgerow feature			

4.2 Great care should be taken during the tree removal process to ensure that retained trees are not adversely impacted. The following methodology should be adhered to at all times:

- Any machinery used during the tree removal process will track and be sited outside the root protection area (RPA) of retained trees.
- The felling of trees will be undertaken to avoid damaging retained trees.
- The removal of stumps of felled trees will be undertaken to ensure any retained trees in close proximity remain free from harm.
- All works will be conducted in accordance with BS3998:2010 *Tree Work – Recommendations*.

##### Tree Works

4.3 The details of tree works have been set out in **Table 4** below.

**Table 4: Tree Works**

Tree No	Details of Works
T12	Lift southern crown to 4.0 m above ground level to provide clearance over proposed parking spaces.
H23	Lateral reduction of overhanging branches to provide clearance for adjacent construction works.

4.4 Obvious pruning to allow the installation of the structure has been listed, but additional minor pruning may be necessary to address unanticipated local problems with individual branches. Any additional works will be assessed and authorised as necessary by the retained ACoW. Where necessary, the LPA tree officer will be notified of any additional tree works.

4.5 All pruning works will be conducted in accordance with BS3998:2010 *Tree Works – Recommendations*.

## 5. BARRIERS AND GROUND PROTECTION

### The Construction Exclusion Zone

- 5.1 The primary means of protecting the RPA of trees is through the use of barriers formed by protective fencing. The enclosed area is the Construction Exclusion Zone (CEZ). The CEZ has been marked on the TPP by orange diagonal hatching.
- 5.2 The CEZs are to be afforded protection at all times and will be protected by fencing. The type of fencing is detailed below.
- 5.3 No works will be undertaken within any CEZ that causes compaction to the soil or severance of tree roots.

### Tree Protection Fencing

- 5.4 A protective fence will be erected around the trees, prior to the commencement of any site works. This includes any materials or machinery brought onto site, development or the stripping of soil.
- 5.5 The fence is to be sited in accordance with the TPP enclosed with this method statement. This is shown as a black dashed line with diagonal orange hatching indicating the enclosed CEZ.
- 5.6 The precise form of fencing can vary provided it is fit for purpose and prevents damaging activities within the CEZ. For a proposal of this nature, the Heras 151 system of fencing will provide the necessary protection to the CEZ. Details of this fencing can be seen in **Appendix 3**.
- 5.7 All Heras fence panels will be joined using a coupling system such as the Heraslock Anti-tamper coupler, using a minimum of two clamps per panel side. Each panel will be fitted securely to a rubberised foot that will in turn be pinned to the ground using metal stakes driven a minimum of 500mm into the ground.
- 5.8 The fence will have signs attached to it stating that it defines a CEZ and that no works are permitted within the fence. No notice boards, cables or other services will be attached to any tree. An example of a fencing sign is provided in **Appendix 4**.
- 5.9 After the protective fencing has been erected, the retained ACoW will visit the site. The purpose of the visit will be to check that the fencing has been correctly installed so as to provide protection to the trees. The LPA tree officer may also be invited to inspect the tree protection measures prior to any works commencing.
- 5.10 The retained ACoW will provide a written report confirming satisfactory completion of this task. A copy of this report will be sent to the LPA.
- 5.11 The protective fencing may only be removed following completion of all construction works.

**Phased Tree Protection Fencing**

- 5.12 To allow for the completion of soft landscaping works in the north-west corner of the site, adjacent to H29 and G33, it will be necessary to reconfigure protective fencing panels beforehand. This 'phased' protective fencing is illustrated on the TPP.
- 5.13 This reconfiguration shall only be carried out immediately prior to the commencement of soft landscaping, and assumes the prior completion of construction works in this area.
- 5.14 Upon completion of the soft landscaping works, the protective fencing shall be realigned to the original configuration (i.e. as adopted during construction works).

## 6. CONSTRUCTION OF SPECIAL SURFACES

6.1 Where, due to site constraints, construction activity cannot be excluded through the use of fencing, appropriate ground protection must be installed to protect the rooting environment during the construction process.

### **Permanent Ground Protection**

6.2 Where permanent hard surfaces are required within the RPA, there must be no excavation into the soil, either through the lowering of levels and/or scraping, other than the removal of turf or other surface vegetation. All such works shall be carried out using hand tools only.

6.3 In order to protect the RPA of two individual trees (T12 and T21) permanent ground protection measures in the form of a 'No-Dig' solution will be implemented. This will be in accordance with industry best practice and in particular with reference to paragraph 7.4 of BS5837 and AA Guidance Note 12<sup>1</sup> which provides guidance as to the installation of hard surfaces within the RPA. The area directly beneath the finished hard surface and on top of the RPA will be protected by the installation of a Three-dimensional Cellular Confinement System (CCS).

6.4 The dimensions for the area protected by the CCS have been marked on the TPP, which can be identified by the green cross-hatch on the plan.

6.5 The CCS will be pinned in place and backfilled with Type 1 MOT and finished with an appropriate permeable wearing layer, to be agreed through consultation between the site engineer and Project Arboriculturist. The edgings for the surface are to be installed on top of the CCS and will comprise of timber boards staked in place and backfilled with the wearing layer as previously described.

6.6 Once the system has been installed and backfilled correctly machinery can work from on top of the system.

6.7 Details of a CCS are included in **Appendix 5**, and a methodology for installation given in **Appendix 6**. This methodology has been provided by the manufacturer and it will be the responsibility of the contractor to ensure that whatever system is used, it is installed in accordance with the latest guidelines provided by the manufacturer.

### **Temporary Ground Protection**

6.8 Where it is not practical to protect the RPA by use of fencing barriers, BS5837 allows for the fencing to be set back and the soil shielded by ground protection. A range of methods can be used including retaining existing hard surfaces or structures that already protect the soil, installing new materials, or a combination of both. Whatever the choice of method, the end result must be that the underlying soil (rooting environment) remains undisturbed and retains the capacity to support existing and new roots.

6.9 Retained trees within H23 will require temporary ground protection measures as to provide working space for the adjacent creation of a new swale and localised retaining wall. An example of temporary ground protection measures can be found in **Appendix 7**.

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<sup>1</sup> <https://trees.org.uk/Book-Shop/Products/Guidance-Note-12-The-Use-of-Cellular-Confinement-en>

- 6.10 After the temporary ground protection has been installed, the retained ACoW will visit the site. The purpose of the visit will be to check that the system is protecting the RPAs of retained trees.
- 6.11 The temporary ground protection measures are to remain in place until all construction works have been completed or following advice from the ACoW.

**Additional precautions outside the exclusion zone**

- 6.12 Any risk from activities outside RPAs but close enough to have an impact will be assessed during the day-to-day running of the site, and appropriate precautions put in place to reduce that risk.
- 6.13 It is a presumption of this report that all RPAs that have been identified for protection, but which lie outside of the protective fencing, will be protected from soil degradation at all times during construction activity.
- 6.14 Further details for working within the RPA are also provided in **Appendix 8**.

## 7. SPECIFIC CONSTRUCTION METHODS

### **Gabion Wall**

- 7.1 The installation of a localised retaining wall will require works within the RPAs of retained trees along the south-eastern site boundary (i.e. H23). This will allow for the creation of a modified swale adjacent to the boundary hedgerow.
- 7.2 Works to construct the localised gabion wall within the RPAs of retained trees shall proceed according to the following methodology:
- Prior to the commencement of works in this area, the location and shape of the retaining wall shall be marked out on site.
  - Temporary ground protection measures shall then be installed within the RPAs of retained trees to provide working space for the constructions.
  - Excavation of soil to create the graded levels shall proceed under supervision of the ACoW and in slow, incremental scrapes (i.e. 100 mm intervals).
  - All plant associated with such excavation works shall operate from areas outside the RPAs of retained trees.
  - Uncovered roots less than 25 mm in diameter may be severed, making clean cuts with suitable sharp tools such as secateurs.
  - If exposed roots are larger than 25 mm in diameter, every effort shall be made to retain these. Where such roots are to be retained, these are to be wrapped or covered with damp hessian or similar material. This must be done as soon as possible, to prevent desiccation and to protect the roots from rapid temperature changes.
  - If large roots cannot be retained, they shall be severed back to the wall of the excavation and covered with retained topsoil, but only following consultation with the ACoW.
  - Once desired levels have been reached, gabion baskets shall be installed according to engineering specifications.

### **Proposed Drainage – Swale**

- 7.3 A new swale will be created in proximity to a retained hedgerow (H23), which will require a sensitive approach to associated excavation works.
- 7.4 The following methodology will be adopted for the creation of the new swale within the RPAs of retained trees:
- Existing ground cover and vegetation shall be carefully stripped or trimmed using handheld tools as required.
  - Topsoil will then be excavated to the desired depth using handheld tools.

- Uncovered roots less than 25 mm in diameter may be severed, making clean cuts with suitable sharp tools such as secateurs. Exposed roots larger than 25 mm in diameter must not be severed. Such roots should be wrapped or covered with damp hessian or similar material, as soon as possible, to prevent desiccation and to protect them from rapid temperature changes.
- Prior to soil regrading, all root coverings shall be removed and retained roots shall be surrounded with topsoil and compacted sharp sand, or other loose inert granular fill, before soil or other suitable material is replaced into the excavated area. The fill material shall be free of contaminants and other foreign objects potentially injurious to tree roots.

7.5 All works associated with creating the new swale, where they take place within the RPAs of retained trees, shall be carried out under supervision of the ACoW.



## **8. DEVELOPMENT**

- 8.1 Once all tree works and protective fencing have been completed, the MWC can commence the on-site preparation works and construction can begin.

### **Site Storage, Cement Mixing and Washing Points**

- 8.2 No storage of materials will take place within a CEZ.
- 8.3 No mixing or storage of materials will take place up a slope where they may leak into a CEZ. Where contours of the site create a risk of polluted water running into RPAs, precautionary measures of using heavy duty plastic sheeting and sandbags with the ability to contain accidental spillage will be put in place to prevent contamination.
- 8.4 Water will be kept readily available on site and will be used to flush spilt materials through the soil and avoid contamination of tree roots.
- 8.5 At the time of any spillage the main contractor will contact the retained ACoW for advice.

### **Contractors Parking**

- 8.6 Contractor's parking will not be within or in close proximity to a CEZ.

### **Utility Services**

- 8.7 At time of writing, details of proposed utilities were not available for review.
- 8.8 However, it is understood that there are no requirements for any service to be installed within a CEZ or RPA of any retained tree on this site.
- 8.9 Should the need for new underground services requiring excavation works within the RPAs of retained trees be identified, these shall only take place following consultation with the Project Arboriculturist and/or Local Authority.

### **Fires**

- 8.10 No fires will be lit on this site.

### **Site Gradient**

- 8.11 There will be changes in site levels towards the south-east corner of the site to create a new swale.
- 8.12 This in turn will require minor excavation works in proximity to retained trees in this area (i.e H23).
- 8.13 It is noted that these works will largely take place outside the RPAs of retained trees, or only encroach into the periphery of their RPAs.
- 8.14 As such, it is considered that implementing specific working methods for the level changes in this area would be disproportionate, given the minimal extent of encroachment that will be incurred.

### **Use of Herbicides**

- 8.15 There is no requirement of any herbicide to be used on this site.

## 9. POST DEVELOPMENT

### **Completion Meeting**

- 9.1 Upon completion of all works specified above and all procedures detailed, the ACoW will visit the site and may invite the LPA tree officer to meet on site to discuss the process and agree any final remedial works which may be required.

### **Landscaping Within the Tree Canopies**

- 9.2 The final tidying up and reinstatement can only be carried out when all the protective measures have been removed. This means great care is required by the contractors to observe tree protection measures.
- 9.3 No machines can be used within the RPAs. The use of rotavators is specifically prohibited.
- 9.4 All soil level variations required within the RPAs of retained trees to enable the agreed landscaping works must be agreed and supervised by the retained ACoW.

## **10. RESPONSIBILITIES**

- 10.1 It is the responsibility of the MWC to ensure that the planning conditions attached to planning consent area adhered to at all times and that a monitoring regime in regards to tree protection is adopted on site.
- 10.2 The MWC will be responsible for contacting the LPA at any time issues are raised related to the trees on site.
- 10.3 If at any time pruning works are required advice must be sought from the ACoW first, and if required permission obtained from the LPA and then carried out in accordance with BS3998:2010 Tree Works – Recommendations and industry best practice.
- 10.4 The MWC will ensure the build sequence is appropriate to ensure that no damage occurs to the trees during the construction processes. Protective fences will remain in position until completion of ALL construction works on the site.
- 10.5 The fencing and signs must be maintained in position at all times and checked on a regular basis by an on-site person designed that responsibility.
- 10.6 The MWC will be responsible for ensuring sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site.

## 11. CONTACTS

11.1 **Table 5** shows a list of all relevant contacts for this development. This table will be completed once the pre-commencement meeting has been undertaken.

**Table 5: Development Contacts**

Title	Name	Position	Contact
Main Works Contractor			
Agent/Architect			
LPA Tree Officer			
Site Manager/Foreman			
ACoW			
Tree Surgeon			

**THIS AMS IS NOT A CONTRACT. THE RETENTION OF A QUALIFIED ARBORICULTURALIST FOR SUPERVISION AND MONITORING MUST BE AGREED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY.**

## 12. APPENDICES

## Appendix 1: AMS Briefing Statement

### Arboricultural Method Statement – Briefing Statement

#### Fewcott Road, Fritwell

#### Purpose

The purpose of this briefing document is to ensure that all contractors, sub-contractors and any other personnel working on the Fewcott Road, Fritwell project are fully aware of the purpose of the tree protection measures that have been implemented on site.

#### Key Messages

- The protection of the retained trees and hedges on site is a critical requirement of both the client and the Local Planning Authority.
- The site has been designed with key green features being retained and protected. Any breach of the protection measures has the potential to damage those features and therefore disrupt the overall vision for the site.
- A detailed Arboricultural Method Statement has been prepared. This details the requirements for ensuring that retained trees are protected. This document is available on site at the site office and should be read and understood by all personnel working on the site.
- A Tree Protection Plan has been prepared to provide graphical illustration as to the extent of tree protection measures.
- The approved Tree Protection Fencing is Heras panels to protect areas that are being actively worked.
- All Tree Protection Fencing will have a sign attached at regular intervals to state that it is Tree Protective Fencing.
- No Tree Protection Fencing can be moved, opened, or breached in any way without the prior written approval of the project Arboriculturist.
- The area within the Tree Protective Fencing is a Construction Exclusion Zone. This means that there must be no machinery, no materials, and no personnel within the area. Unauthorised access will be a breach of planning conditions and could lead to enforcement notices from the Local Planning Authority.
- All Temporary Ground Protection will remain in place throughout the duration of the project and be installed prior to demolition/construction vehicles access the site.
- All Permanent Ground Protection will be installed under the supervision of the project Arboriculturist and constructed prior to demolition/construction vehicles accessing the site.
- No works to any tree or hedge can be undertaken by any person that has not been approved by the project Arboriculturist.

- Where additional tree works are required, there may be a requirement to obtain input and approval from: the client; the Local Planning Authority; the project Ecologist; and/or the project Landscape Consultant. If any additional works are required, as much notice as possible must be given to ensure that there are no delays to the works programme while the necessary approvals are obtained.

Project Arboriculturist:

Contact:

**Appendix 2: Statement of Undertaking**

**STATEMENT OF UNDERTAKING**

I confirm that I have read and fully understood the tree protection measures that have been detailed in the Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP) that have been provided for Fewcott Road, Fritwell. These documents have been provided to ensure that retained trees on the site are protected at all times during the construction process, and to assist the MWC/construction company maintain compliance with the planning conditions.

I will ensure that tree protection measures are in accordance with the AMS and TPP throughout the construction process. I will also ensure that all site personnel are aware of the tree protection measures that are required throughout the site.

Where issues arise from tree related matters I will consult the retained Arboricultural Clerk of Works (ACoW) before undertaking any activities that may cause damage to the protected trees.

Position: .....

Name: .....

Signature: .....

Company: .....

Date: .....

**Approved by:**

Position: .....

Name: .....

Signature: .....

Company: .....

Date: .....

Enc: Arboricultural Method Statement: 21-2173

Tree Protection Plan: 21-2259



Appendix 3: Tree Protective Fencing

# heras® 151 and 151steadfast system

Having invented the original concept of temporary fencing back in the 80's, Heras is proud of its reputation as a true innovator.

Our latest solution for securing site perimeters and protecting the public has been phenomenally successful since its launch, and offers the ultimate market leading temporary fencing system.

Our safest, most stable and most secure system ever offers you total peace of mind, and unrivalled performance.

You can be sure that by installing the Heras® 151 Steadfast System (patent pending), you are conforming fully to the latest HSE Guidelines on "Protecting the Public" from the dangers of construction sites.

Heras has campaigned widely over recent years against falling product standards, and has worked closely with senior figures across the construction industry to ensure our products meet and exceed your expectations. This latest innovative system means you should never again need to compromise on:

- Value for money
- Quality
- Performance
- Design
- Ease of installation.

All backed up with unbeatable service from our nationwide branch network – deal direct with Heras – your safety first fencing supplier.

**Fully Tested and Certified**

- Extensive independent testing by Sheffield Hallam University has proved the performance of the system, resisting wind speeds well in excess of gale force.
- The HSE has confirmed that the system meets all of the guidelines in the HSG 151 Publication "Protecting the Public – 'four reds move'".
- In turn, therefore, we can offer customers a certificate of compliance when they purchase this system from Heras.
- It is your responsibility to ensure the system is correctly installed and fixed. For help and advice, contact your nearest branch.

## 151 system

The key components of the Heras 151 system are as listed.

### Round Top Panel with Anti-Climb Mesh

- The strongest panel on the market, with 3 sides formed from a continuous length of tube, eliminating the top corner weld, often the weakest point in traditional panel design.

### High Visibility Orange Block

- Permanently coloured with a durable UV stabilised "hard" casing and filled with solid high density concrete.
- Effectively highlights any potential trip hazard.
- Beware of cheap imitations – painted coatings will chip and peel.

### Heraslock® Anti-Tamper Coupler

- Providing additional security, these couplers can only be removed with the use of the spudall tool.

## 151 steadfast system

The Heras 151 steadfast system incorporates all the benefits of the 151 system, with the addition of the patented...

### Heras® Steadfast Strut

- The unique design of this diver strut dramatically increases the stability of the fence.
- The strut fits neatly within the high visibility block allowing a neat and compact solution, and acts as an integrated anti-lift device.
- 3 additional fixing holes incorporated into this design allow for soil pins and handholds, dependent on ground conditions.

**Optional Extras**

- Heras® Steadfast Safety Strips, with reflective coating can be fitted in minutes to highlight site dangers.
- Front support brackets allow vastly improved performance on softer ground conditions and fit quickly and easily into the high visibility blocks.



ROUND TOP PANELS WITH ANTI-Climb MESH

1. From stabiliser.

2. High visibility footblocks.

3. Round top panel.

4. Anti-tamper coupler.

5. Optional steadfast safety strips.

6. Anti-climb round top panel with steadfast struts to increase stability.





Our latest solution for securing site perimeters and protecting the public has been phenomenally successful since its launch, and offers the ultimate market leading temporary fencing system.

Heras | The Original Name for Temporary Fencing  
www.herasreadyfence.co.uk

Heras | The Original Name for Temporary Fencing  
Telephone: 0844 472 0011

**Appendix 4: Example of Protective Fencing Signage**



(Nicholsons Lockhart Garratt is able to provide useable, weather-proof copies of this sign if required, for attaching to the protective fencing. If required, please contact us for further details).



## Appendix 5: Permanent Ground Protection



# Cellweb®TRP

## Why protect trees?

*Trees provide a wealth of benefits within the urban environment including cleaning the air, prevention of flooding and moderation of the climate.*

*As a result, within the UK it is an offence to cut down, lop, uproot, top, wilfully damage or destroy a protected tree without authorisation. Fines, if the defendant is found guilty in a Crown Court, are unlimited.*

*To minimise the environmental impact and avoid legal proceedings, we offer the independently tested Cellweb®TRP system.*



## What is Cellweb®TRP?

*Cellweb®TRP is a cellular confinement system specifically designed for tree root protection. The system creates a stable, load-bearing surface for traffic or footfall whilst eliminating damage to roots through compaction and desiccation.*

The Cellweb®TRP system comprises of three specific elements, Cellweb®TRP, Treetex™ pollution control geotextile and an infill of clean angular stone. The system has been designed to create an unparalleled solution to tree root protection applications.

Cellweb®TRP is a no-dig solution that ensures that the load placed upon it is laterally dissipated rather than transferred to the soil and roots below. The use of Treetex™ pollution control geotextile allows for drainage and separation whilst preventing contaminants from reaching the roots.

The walls of the cells are perforated and when combined with the infill of clean angular stone, enables free movement of water and oxygen, ensuring that supplies to the tree roots are maintained.



**Geosynthetics**  
Engineered Solutions

**“Creating Innovative Solutions with Outstanding Products”**



## What makes Cellweb®TRP different?

*With over 15 years of captured data and thousands of installations, the Cellweb®TRP system has developed a reputation for excellence.*

We are so confident in our system, we offer a guarantee that covers the replacement of the trees and of the system itself. With Cellweb®TRP being quick to install and having a 100% success rate it is clear to see why the Cellweb®TRP is regularly specified by tree officers and arboriculturalists across the country.

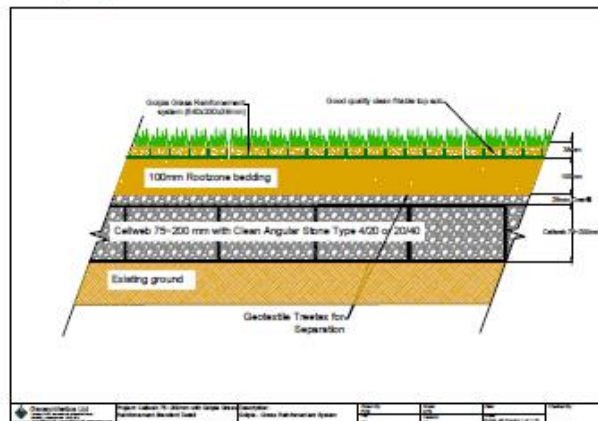
## From the drawing board to installation, we are here to help.

We have been supplying the Cellweb®TRP system since 1998 and our technical team have vast experience with tree root protection and the associated legislation.

Delivering complete peace of mind to customers is our number one priority. As part of this customer care package we offer free on site consultations, technical recommendations and on site installation guidance on all projects.

Our in-house engineering team provide site specific recommendations to ensure the solution used is cost effective and environmentally sound.

*For more information on Cellweb®TRP or Geosynthetics Limited please contact our sales office on 01455 617139 or visit [www.geosyn.co.uk](http://www.geosyn.co.uk).*



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 sales@geosyn.co.uk | Tel: 01455 617 139 | Fax: 01455 617 140 | [www.geosyn.co.uk](http://www.geosyn.co.uk)

**Appendix 6: Example Methodology for Construction of Surface**

(This document has been produced by Geosynthetics Ltd for the installation of the Cellweb Tree Root Protection System – it does not apply to other products which may serve a similar purpose).



When considering damage to tree roots, in applications of vehicular access and parking, the risk of oxygen depletion caused by compaction of subsoil's, site clearance damaging the root source and type of reinforcement are areas which need to be given due consideration.

Other risk factors are:

Creating an impermeable surface	
Causing a rise in the water table due to construction	
Increasing ground level	
Contamination of subsoil's	
1. Compaction	
When looking at site conditions and use, the following information should be considered to enable a load bearing structure capable of supporting traffic to be proposed:	
Californian Bearing ratio (CBR) – Standard test method for measuring soil strength	
Soil types	
Water table	
Maximum load (vehicles)	
Acceptable rut depth	

Reinforcement type	Cellweb Cellular Confinement 150mm deep
Type and Depth of engineered infill material	Clean, angular. Usually 40mm to 20mm.
2. Dig (site strip)	
Site stripping does damage some root structure prior to construction; however, the use of no-dig construction elevates the access road requiring edge protection.	
3. No dig	
3.1. Remove surface vegetation	Use a suitable herbicide suitable for the specific vegetation and not harmful to the tree root system
3.2. Place geotextile separation filtration layer	Use a Treetex T300 non-woven Geotextile over the prepared sub-grade. Overlap dry joints by 300mm.
	The three dimensional cell structure, is formed by ultrasonically welding polyethylene (perforated) strips / panels together to create a three dimensional network of interconnecting cells. A high degree of frictional interaction is developed between infill and the cell wall, increasing the stiffness of the system
3.4. Edge restraint	A treated timber edging is usually acceptable.



#### 4. Cellular Confinement and Backfill Material.

Expand the Cellweb 2.56m wide panels to the full 8.1 metre length. Pin the Cellweb panels with staking pins to anchor open the cells and staple adjacent panels together to create a continuous mattress. Infill the Cellweb with a no fines angular granular fill (typically 4-20mm) within each open cell. The use of cellular confinement reduces the bearing pressure on the subsoil by stabilising aggregate surfaces against rutting under wheel loads. Comparisons between cellular confinement and traditional aggregate and geogrid-reinforced structures demonstrate a 50% reduction in construction thickness of the granular material.



#### 5. Surfacing Options

##### Block Paving:

- 5.1. Lay second layer of Treetex T300 Geotextile separation fabric over the infilled Cellweb sections
- 5.2. Lay sharp sand bedding layer compacted with a vibro compaction plate to recommended depth.
- 5.3. Place block pavers as per manufacturers instructions.

##### Tarmac:

Place 25mm surcharge of the granular material above the Cellweb system and lay the bitumen base and wearing courses.

##### Loose Gravel:

- 5.4. Ensure Cellweb is completely filled.
- 5.5. Place decorative aggregate to required depth

NOTE: A treated timber edge should be provided to restrict gravel movement.

Grass Blocks:

5.6. Place second layer of Treetex T300 Geotextile separation fabric over the infilled Cellweb sections

5.7. Place 50/50 rootzone bedding layer to the required depth

5.8. Lay recycled Duo Block 500 Grass Protection System infilled with 50/50 rootzone mix.

5.9. Seed as per architects instructions.

(Alternatively the Grass Blocks may be infilled with gravel.)


Concrete Slab

6.0 Lay Cellweb as previous and place second layer of Treetex Geotextile directly over the filled panels.  
Pour concrete base as specified.

If you have any queries about installation please contact Geosynthetics Ltd on 01455 617139.



Appendix 7: Temporary Ground Protection Measures



—|—|—|—|—|—|—  
**PRODUCT SPECIFICATIONS**  
**DD1**

**Traction Surface:** Double-traction tread design includes two parallel traction treads positioned at 90 degrees to adjacent double traction tread sets.

**Module Size:** **Length:** 8' / 2.44 m  
**Width:** 4' / 1.22 m  
**Module Size:** 32 sq/ft / 2.973 sq/meters  
**Thickness:** ½" thick mat + 3/8" cleat

**Module Weight:** 86 lbs. / 39.01 kg.  
**Per Square Foot:** 2.69 lbs. / 43 oz. / 1.22 kg. / 1219 grams  
**Per Square Meter:** 28.60 lbs. / 12.97 kg.

**Colors:** Black, White.  
 Custom colors available (minimum order required).

**Material:** Black High-Density Polyethylene (HDPE) post-industrial recycled plastic, naturally UV resistant due to the carbon black used for color. White mats available.

<b>Test Results:</b>	<b>ASTM</b>	<b>Units</b>	<b>Typical Values</b>
<b>Melt Index</b>	D 1238	g/10min	4.9
<b>Density</b>	D 792	g/cm <sup>3</sup>	.960
<b>Tensile Strength @ Yield 50mm/min</b>	D 638	mpa (psi)	30 (4,350)
<b>Elongation @ Break 50mm/min</b>	D 638	%	1 500
<b>Flexural Modulus</b>	D 790	mpa (psi)	1 240 (180,000)
<b>Hardness, Shore D</b>	D 2240	--	70
<b>Compressive Strength:</b>		D695-02a	psi 2,843
<b>Flammability Resistance:</b>	UL-94 HB		Passed

**Tread Pattern:** **DD1:** Rugged double-traction tread on both sides

**Support Structure:** Matting incorporates multi-directional structural support (cleat design) allowing for distribution or dispersion of PSI weight factors. Not intended for bridging.


**Weight Loading:** Varies, depending on sub-surface, up to 80 tons capacity.

**Ground Surface:** DuraDeck mats are designed to be used with no ground preparation over grass, gravel, soil, concrete, asphalt, mud and sandy soil conditions.

**Connection System:** DuraDeck mats have eight holes: one in each corner and four in the center line (two on each 8ft side) to create multi-directional roadways of nearly any size or shape. Mats can be connected using metal DuraLink connectors. DuraLinks do not require tools to install.

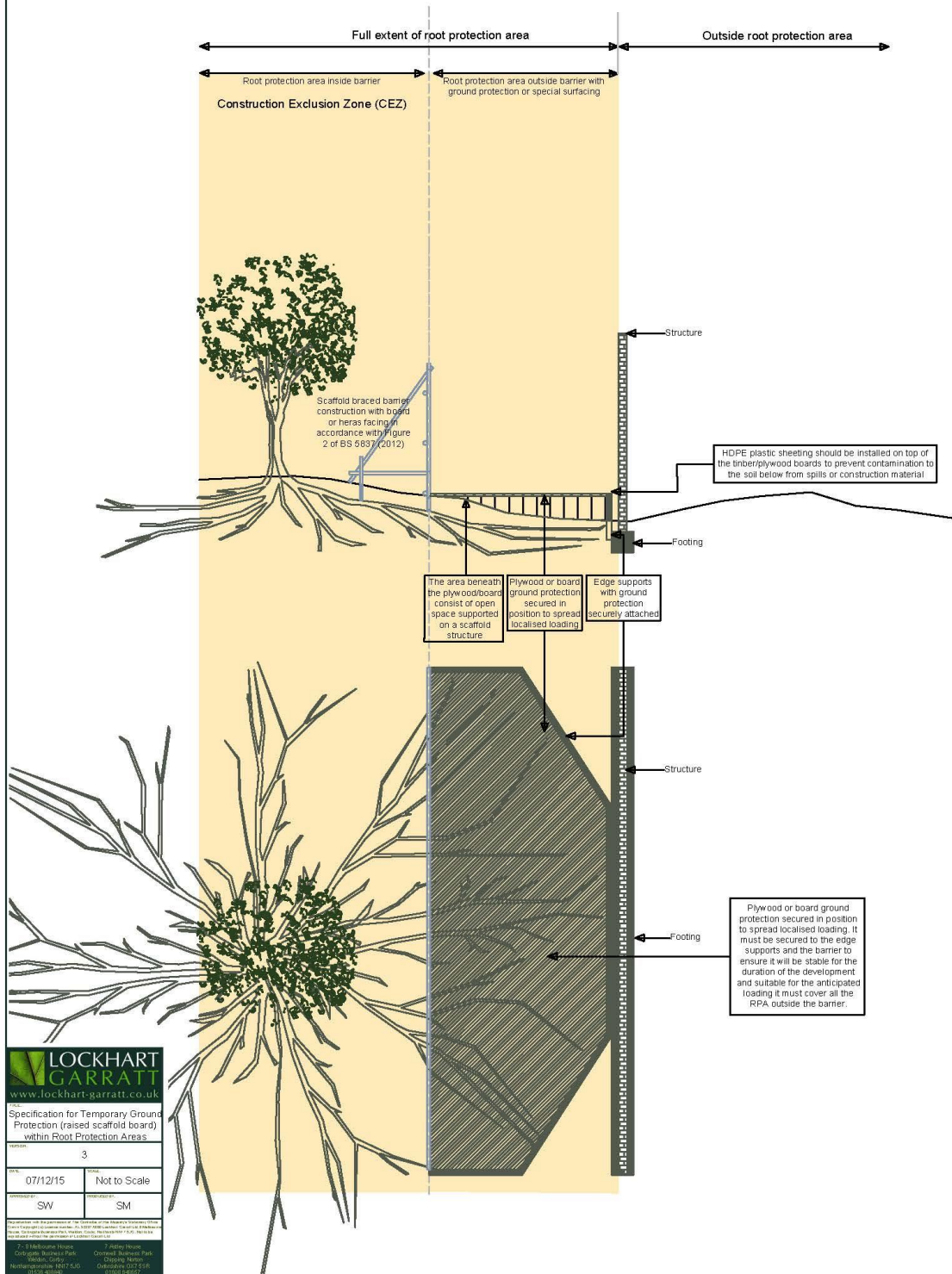
**Shipping:** Pallet maximum is 50 units (4' x 8')  
 20' Ocean Container: 250 – 4' x 8' unit order and/or equal to 29,240 lbs.  
 40' Ocean Container: 500 – 4' x 8' unit order and/or equal to 43,000 lbs.

**Warranty:** 7 years against cracking and breaking under normal use.



Signature Systems Group, LLC  
 13 Alford Drive • 10th Floor  
 New York, NY 10017  
 Tel: (212) 806-6200 • Fax: (212) 806-1177  
[www.signature-systems.com](http://www.signature-systems.com) • [www.duradeck.com](http://www.duradeck.com)

**Illustrative specification for ground protection in root protection areas using woodchips as a compressible layer beneath the ground protection surface.**  
**Note: The final design must be site specific and detailed by an engineer.**



**LOCKHART  
GARRATT**  
www.lockhart-garratt.co.uk

Specification for Temporary Ground Protection (raised scaffold board) within Root Protection Areas

Revision: 3

Date: 07/12/15

Scale: Not to Scale

Author: SW

Checker: SM

7, 8 Melbourne House, 7 Abbey House, Church, Buryton Park, Walsby, Derby, Derbyshire, DE27 5JG, Telephone: 01534 44444, 01534 44444, 01534 44444, 01534 44444

## **Appendix 8: Site Guidance for working in the RPA**

### **a) What is the purpose of this guidance?**

This guidance sets out the general principle that must be followed when working in the RPA. Where more detail is required, it will be supplemented by illustrative specifications in other appendices to this document. Before work starts on site, the purpose of this guidance is to demonstrate to the LPA that tree protection issues have been properly considered and to provide a written record of how they will be implemented.

Once the site work has started, this guidance is specifically for the site personnel to help them understand what has been agreed and explain what is required to fully meet their obligations to protect trees. All personnel working in the RPA must be properly briefed about their responsibilities towards important trees based on this guidance.

### **b) What are the RPAs?**

RPAs are the areas surrounding important trees where disturbance must be minimised if they are to be successfully retained. All RPAs close to the construction area are identified on the Tree Protection Plan attached to this report. Damage to roots re degradation of the soil through compaction and/or excavation within the RPA will damage the tree. Any work operations within the RPA must be carried out with great care if trees are to be successfully retained.

### **c) When should this guidance be followed?**

Anyone entering a RPA must follow this guidance if the trees are to be retained unharmed. Anyone working in a RPA must take care to minimise excavation into existing soil levels and limit any fill or covering that may affect soil permeability. There are two main scenarios where this guidance must be followed when entering and working within a RPA:

- i. Removal of existing surfaces/structures and replacement with new surfaces, structures or landscaping.
- ii. Preparation and installation of new surfacing structures and/or landscaping.

### **d) Where does this guidance apply?**

This guidance should always be read in conjunction with the site plans illustrating the areas where specific precautions are necessary. Each area where precautions are required is annotated on the plans as identified on their keys. All plans are illustrative and are intended to be interpreted in the context of the site conditions when the work commences. All protective measures should be installed according to the prevailing site conditions and agreed as satisfactory by the appropriate supervising officer before any demolition or construction works commence.

### **e) What references is this guidance based on?**

This guidance is based in the assumption that the minimum general standards for development issues are those set out in BS5837 (2012): Trees in relation to design, demolition and construction – Recommendations, and the NJUG Vol.4 Issue 1: Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.

**f) Preventing adverse impact to the RPA beyond the immediate work area**

Any part of the RPA beyond the agreed work area must be isolated from the work operations by protective barriers or ground protection to at least the minimum standard described in BS5837 for the duration of the work.

**g) Excavation and dealing with roots**

All excavation must be carried out carefully using spades, forks and trowels, taking care not to damage the bark and wood of any roots. Specialist tools for removing soil around roots using compressed air may be an appropriate alternative to hand digging, if available. All soil removal must be undertaken with care to minimise the disturbance of roots beyond the immediate area of excavation. Where possible, flexible clumps of small roots, including fibrous roots, should be retained if they can be displaced temporarily or permanently beyond the excavation without damage.

If digging by hand, a fork should be used to loosen the soil and help locate any substantial roots. Once the roots have been located the trowel should be used to clear the soil away from them without damaging the bark. Exposed roots that are to be removed should be cut cleanly with a sharp saw or secateurs 10-20cm behind the final face of the excavation.

Roots temporarily exposed must be protected from direct sunlight, drying out and extreme temperatures by appropriate covering. Roots 2.5-10cm in diameter should only be cut in exceptional circumstances. Roots greater than 10cm in diameter should only be cut after consultation with the appropriate supervisory officer.

**h) Arboricultural supervision**

Any work within the RPA requires a high level of care. Qualified arboricultural supervision is essential to minimise the risk of misunderstanding and misinterpretation. Site personnel must be properly briefed before any works commence.

Ongoing work must be inspected regularly, and on completion, the work must be signed off by the arboriculturist to confirm compliance by the contractor. In the context of this guidance, an appropriate supervising officer would be an arboriculturist.

**Installation of new surfaces in RPAs**

**a) Basic Principles**

New surfacing is potentially damaging to trees because it may require changes to existing ground levels. This can result in damage to the soil structure affect the efficient exchange of water and gases in and out of the soil. Mature and over mature trees are much more likely to suffer as a result of these changes. These impacts can be minimised by reducing the extent of changes within the RPA. The most suitable surface will be one that is permeable (allowing the movement of water and gas), load bearing (to avoid compaction) and requires little or no excavation (to limit root damage). The actual specification is an engineering issue that needs to be addressed by a suitably qualified professional, and is beyond the scope of this report.

**b) Establish the depth of excavation and surface gradient**

The precise location and depth of roots within the soil is unpredictable and can only be established once digging has commenced. Ideally, all RPAs should be no-dig, but this is often not possible on undulating surfaces. New surfacing normally requires an evenly graded sub-base layer, which can be made up to high points with granular, permeable fills such as crushed stone or sharp sand. This sub-base must not be compacted. Some limited excavation may be required to achieve this, and this is not necessarily damaging to trees if it is done carefully and no large roots are cut. The top 5mm of soil on grass surfaces is unlikely to contain any tree roots and therefore the removal of this will not impact the tree. It may be possible to dig deeper than this depending on local conditions, but this would need to be assessed by the retained ACoW.

On undulating surfaces, finished gradients/levels must be planned with sufficient flexibility so as to allow changes to occur if the excavation of high points reveals unexpected large roots. If roots are less than 25mm in diameter, it would normally be acceptable to cut these. However, for roots over 25mm diameter, cutting them may cause damage to the tree and further excavation may not be possible. In this case, the surrounding levels must be adjusted to take account of these high points, by filling with suitable material. If this is not possible and it is necessary to cut larger roots, discussions should be held with the retained ACoW before any final decision is made.

**c) Base and finish layer**

Once the sub-base layer is finished, the load-spreading surface is installed on top, without compaction. Generally, the load-spreading surface will normally be cellular and filled with crushed stone – care must be taken as different products produce different results, and the detail must be confirmed prior to installation. Suitable finishes included washed gravel, permeable tarmac or permeable block paving. For lightly loaded surfaces such as pedestrian footpaths, preformed concrete slabs may be appropriate if the sub base is prepared as detailed above.

**d) Edge Retention**

Conventional kerb retention set in concrete trenches is likely to cause damage to the roots and should be avoided. Effective edge retention within the RPA must be custom designed to avoid significant excavation in to existing soil surfaces. Generally, the use of pre-formed edging secured by metal pins or wooden pegs will be sufficient to ensure minimal impact on the trees.

**e) Installing new surfacing on top of existing surfacing**

It may be possible/preferable in some instances to use existing surfaces as the base for a new surface. This will not normally result in any significant excavation that could damage the roots, so no special precautions are required. However, if large roots appear above the existing surface, then the precautions and procedures detailed above must be followed.

# NICHOLSONS LOCKHART GARRATT

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BS5837: 2012 Tree Survey

<b>Client:</b> Cala Homes (Chiltern) Ltd	<b>Reference:</b> 18-1513
<b>Site:</b> Land off Fewcott Road, Fritwell	<b>Date of survey:</b> 04/09/2015
<b>Surveyor:</b> Steve Westmore	

**\*This schedule has been updated following additional site visits on 09/06/16 and 21/09/18.**

Key to Notations		Age Class	Definition	Category Grading	ULE	Sub category
<b>Stem Dia:</b>	Stem diameter (mm) at 1.5m above ground level	Y	Young	1st 1/3rd of life expectancy		
<b>C.C.</b>	Height of crown clearance above ground level	EM	Early Mature	2nd 1/3rd of life expectancy	A	High Quality & Value
<b>L.B.</b>	Lowest branch height in meters	M	Mature	Final 1/3rd of life expectancy	B	Moderate Quality & Value
<b>D.L.B.</b>	Direction of Lowest Branch	OM	Over Mature	Beyond life expectancy & in natural decline	C	Low Quality & Value
<b>U.L.E.</b>	Useful Life Expectancy of tree in years	V	Veteran	Great age & poss. high conservation value	U	Dead, dying or dangerous
<b>Physiological condition</b>	Good	No significant health problems		Fair	Symptoms of health that can be remediated	
<b>Structural condition</b>	Good	No significant defects		Fair	Significant defects that can be remediated	
				Poor	Significant ill health	
				Poor	Significant defects with no remedy	

Tree No.	Tag No.	Species	Botanical Name	H (m)	Stem Dia.	No of Stems	Branch Spread (m)				CC (m)	LB (m)	DLB (m)	Age	PC	SC	Comments	Recommendations	ULE	Cat.	RPA (m2)	RPA Radial distance (m)
							N	E	S	W												
1	G1	Hawthorn (Group)	<i>Crataegus spp.</i>	6.5	190	1	3	3	3	2	-	-	North	EM	Fair	Fair	Offsite group of x1 hawthorn, x2 elm and x1 elder - unable to take accurate measurements. All ivy clad and widely spaced and provides marginal low level screening value.	None.	10-20	C2	18	2
2	T2	Sycamore	<i>Acer pseudoplatanus</i>	13.5	260	1	6	7	7	6	2	-	North	M	Good	Fair	Offsite tree of x14 stems from old coppice stool. Prominent boundary tree with debris and farm machinery stored at base south (within site).	Remove debris from beneath canopy and consider decompaction measures to improve rooting environment.	40+	B1	28	3
3	T3	Elm	<i>Ulmus sp.</i>	6	90	1	1	1	1	2	2	3	East	Y	Fair	Fair	Offsite tree of little significance.	None.	10-20	C1	5	1
4	T4	Elm	<i>Ulmus sp.</i>	5.5	158	3	3	3	3	3	3	1	East	EM	Fair	Fair	Unable to access - all measurements estimated. Insignificant tree with debris stored at base.	None.	10-20	C1	10	2
5	G5	Apple (Group)	<i>Malus spp.</i>	6	200	1	3	3	3	3	2	-	South	M	Fair	Poor	Linear group of x2 elder, x1 hawthorn and x3 crab apple. Majority ivy clad and leaning due west. Group forms marginal low quality screen to neighbouring site. Overall little retention value.	If retained, remove x2 dead elder at northern end.	10-20	C2	18	2
6	T6	Sycamore	<i>Acer pseudoplatanus</i>	11.5	418	3	4	4	4	4	3	1	South	M	Good	Fair	x3 stems from base with included union. Debris stored at base and unlikely to be suitable for retention due to structural defects.	If retained remove debris from around base of tree.	10-20	C1	82	5
7	T7	Elder	<i>Sambucus nigra</i>	3.5	292	3	3	2	2	3	2	1	North	M	Poor	Fair	Multi stemmed from base and suppressed by larger tree due east.	Remove.	>10	U	41	4
8	H8	Elder	<i>Sambucus nigra</i>	2.5	150	1	2	2	2	2	-	-	South	M	Fair	Poor	Linear hedge of elder and hawthorn. Not actively managed and densely ivy clad. Generally poor and forms partial/low level screen to neighbouring site.	Remove and replace.	10-20	C2	10	2
9	T9	Hawthorn (Common)	<i>Crataegus monogyna</i>	5.5	203	3	3	3	3	3	2	1	West	M	Good	Fair	Offsite tree - all measurements estimated. Multi stemmed from base.	None.	20-40	C1	18	2
10	T10	Sycamore	<i>Acer pseudoplatanus</i>	10	247	3	3	3	4	4	2	1	East	M	Good	Fair	Offsite tree - all measurements estimated. Stem bifurcates at 1.5m with included union, retention category down graded due to structural defects but otherwise reasonable quality tree.	None.	10-20	C1	28	3
11	G11	Elder	<i>Sambucus nigra</i>	5.5	230	1	4	3	3	3	1	2	East	M	Poor	Poor	Offsite group - all measurements estimated. Western tree has partially failed and group is overall poor.	None.	>10	U	23	3
12	T12	Ash (Common)	<i>Fraxinus excelsior</i>	16	636	3	6	6	6	6	3	1	East	M	Good	Fair	Offsite tree - all measurements estimated. Stem trifurcates at base and is partially ivy clad. Tree is growing on old boundary wall.	None.	20-40	B1	177	8
13	H13	Blackthorn	<i>Prunus spinosa</i>	2	0	1	2	2	2	2	-	-	South	EM	Fair	Fair	Linear hedgerow which hasn't been managed. Group provides marginal habitat value and green corridor network.	None.	20-40	C3	-	-

BS5837: 2012 Tree Survey

Key to Notations												
Stem Dia:		Age Class		Definition			Category Grading					
Stem diameter (mm) at 1.5m above ground level		Y	Young	1st 1/3rd of life expectancy			Category					
C.C. Height of crown clearance above ground level		EM	Early Mature	2nd 1/3rd of life expectancy			A	High Quality & Value	40+	1	Mainly arboricultural value	
L.B. Lowest branch height in meters		M	Mature	Final 1/3rd of life expectancy			B	Moderate Quality & Value	20-40	2	Mainly landscape value	
D.L.B. Direction of Lowest Branch		OM	Over Mature	Beyond life expectancy & in natural decline			C	Low Quality & Value	10-20	3	Mainly cultural value	
U.L.E. Useful Life Expectancy of tree in years		V	Veteran	Great age & poss. high conservation value			U	Dead, dying or dangerous	<10			
Physiological condition		Good	No significant health problems			Fair	Symptoms of health that can be remediated			Poor	Significant ill health	
Structural condition		Good	No significant defects			Fair	Significant defects that can be remediated			Poor	Significant defects with no remedy	

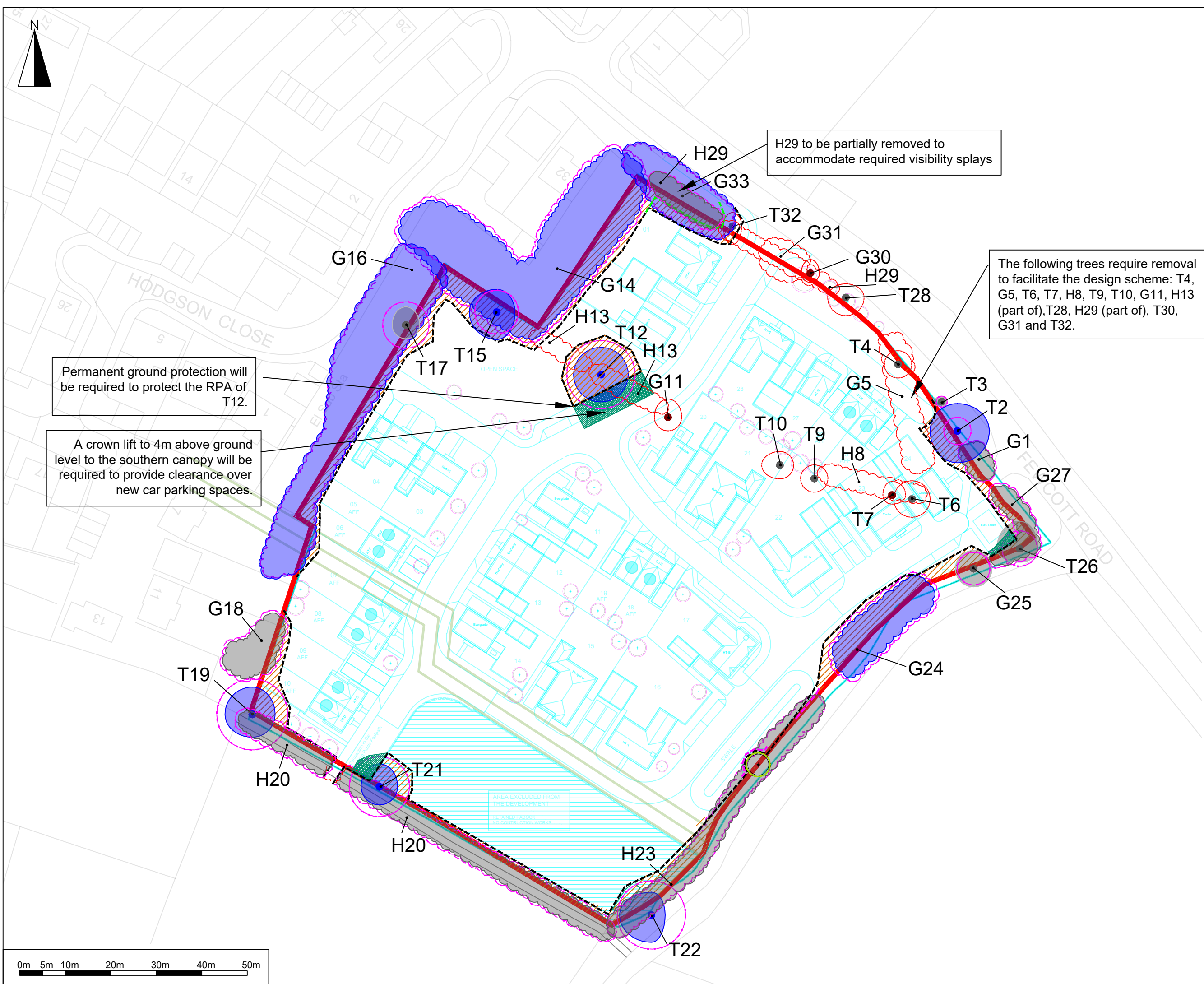
Tree No.	Tag No.	Species	Botanical Name	H (m)	Stem Dia.	No of Stems	Branch Spread (m)				CC (m)	LB (m)	DLB (m)	Age	PC	SC	Comments	Recommendations	ULE	Cat.	RPA (m2)	RPA Radial distance (m)
							N	E	S	W												
14	G14	Hawthorn (Group)	<i>Crataegus spp.</i>	7	220	1	3	3	3	3	1	-	South	M	Good	Fair	Offsite group of hawthorn and elder that forms edge of small shelterbelt and habitat area. Evidence of compaction at base from horses but otherwise good quality group.	None.	20-40	B2	23	3
15	T15	Ash (Common)	<i>Fraxinus excelsior</i>	11.5	410	1	5	4	6	6	2	4	South	M	Fair	Good	Offsite tree - all measurements estimated.	None.	20-40	B1	72	5
16	G16	Hawthorn (Group)	<i>Crataegus spp.</i>	7	170	1	3	3	3	3	2	2	East	EM	Good	Good	Offsite group - all measurements estimated. Mixed species of hawthorn, elder, elm, ash, field maple, sycamore, cherry, hazel and blackthorn. Trees share mutual canopy and provides good vegetative screen to new offsite properties.	Provide minimum 3.5m buffer for future root growth.	40+	B2	14	2
17	T17	Ash (Common)	<i>Fraxinus excelsior</i>	9.5	430	1	4	3	3	3	2	4	East	M	Fair	Fair	Offsite tree - all measurements estimated. Stunted growth for species and age.	None.	10-20	C1	82	5
18	G18	Sycamore	<i>Acer pseudoplatanus</i>	7	140	1	2	2	2	2	1	1	East	EM	Good	Fair	Offsite group - all measurements estimated. Consists of sycamore, birch and hawthorn. Tress shares mutual canopy and provides partial screen to new offsite properties.	Provide minimum 3.5m buffer for future root growth.	10-20	C2	10	2
19	T19	Sycamore	<i>Acer pseudoplatanus</i>	16	658	2	7	6	5	6	2	1	East	M	Good	Fair	Tree on corner of site. Good example of species but evidence of included bark at stem union. Downgraded due to structural defect.	None.	40+	B1	191	8
20	H20	Hawthorn (Group)	<i>Crataegus spp.</i>	5	130	1	2	2	2	2	-	-	North	EM	Fair	Fair	Linear hedgerow of hawthorn, blackthorn, elder, apple and sycamore. Numerous gaps and unmanaged.	Hedgerow management regime needed and supplementary planting.	10-20	C2	7	2
21	T21	Sycamore	<i>Acer pseudoplatanus</i>	14	550	1	6	5	4	4	2	2	West	M	Good	Fair	Electric fence attached to tree and open cavity at base north to 1.5m with significant reaction wood. Otherwise fairly prominent tree.	If retained reinspect for health and safety purposes.	20-40	B1	137	7
22	T22	Ash (Common)	<i>Fraxinus excelsior</i>	12	616	3	5	3	6	7	1	1	West	M	Good	Fair	Offsite tree - all measurements estimated. Tree is located east of ditch and canopy extends into site. Stem trifurcates at 1m. Evidence of x2 hanging branches at 5m west.	Remove hanging branch and provide offset to accommodate root growth.	20-40	B1	177	8
23	H23	Blackthorn	<i>Prunus spinosa</i>	5	160	1	3	3	3	3	1	-	North	M	Good	Fair	Boundary group of blackthorn and hawthorn that forms dense screen to offsite access drive. Provides dense habitat corridor.	Consider hedgerow management plan.	20-40	C2	10	2
24	G24	Sycamore	<i>Acer pseudoplatanus</i>	7	270	1	3	3	3	3	1	1	North	EM	Good	Fair	Offsite group - all measurements estimated. Consists of sycamore, ash, hawthorn, field maple, elm and blackthorn. Soil banded at base north and shares mutual canopy. Provides vegetative screen offsite.	Remove soil bund to benefit root spread.	20-40	B2	34	3
25	G25	Sycamore	<i>Acer pseudoplatanus</i>	6	309	3	4	4	4	4	-	1	West	M	Fair	Fair	Offsite group - all measurements estimated. Historically pollarded at 1.5m (?).	None.	20-40	C2	41	4



BS5837: 2012 Tree Survey

Key to Notations												
		Age Class		Definition			Category Grading					
Stem Dia:	Stem diameter (mm) at 1.5m above ground level	Y	Young	1st 1/3rd of life expectancy			Category					
C.C.	Height of crown clearance above ground level	EM	Early Mature	2nd 1/3rd of life expectancy			A	High Quality & Value	40+	1	Mainly arboricultural value	
L.B.	Lowest branch height in meters	M	Mature	Final 1/3rd of life expectancy			B	Moderate Quality & Value	20-40	2	Mainly landscape value	
D.L.B.	Direction of Lowest Branch	OM	Over Mature	Beyond life expectancy & in natural decline			C	Low Quality & Value	10-20	3	Mainly cultural value	
U.L.E.	Useful Life Expectancy of tree in years	V	Veteran	Great age & poss. high conservation value			U	Dead, dying or dangerous	<10			
Physiological condition	Good	No significant health problems			Fair	Symptoms of health that can be remediated			Poor	Significant ill health		
Structural condition	Good	No significant defects			Fair	Significant defects that can be remediated			Poor	Significant defects with no remedy		

Tree No.	Tag No.	Species	Botanical Name	H (m)	Stem Dia.	No of Stems	Branch Spread (m)				CC (m)	LB (m)	DLB (m)	Age	PC	SC	Comments	Recommendations	ULE	Cat.	RPA (m2)	RPA Radial distance (m)
							N	E	S	W												
26	T26	Ash (Common)	<i>Fraxinus excelsior</i>	7.5	321	3	6	4	3	5	2	1	West	M	Fair	Fair	Offsite tree - all measurements estimated. Debris stored at base and stem trifurcates at base with an uneven canopy.	None.	10-20	C1	48	4
27	G27	Hawthorn (Group)	<i>Crataegus spp.</i>	4	180	1	3	3	3	3	1	-	North	EM	Fair	Poor	Offsite group which is widely spaced. Consists of hawthorn, elder and elm. Debris stored at base and growing on bank of ditch. Overall little retention value.	None.	10-20	C2	14	2
29	T28	Hazel (Common)	<i>Corylus avellana</i>	4	176	7	3	4	4	4	-	-	North	M	Fair	Fair	Multi stemmed from base and insignificant tree.	None.	10-20	C1	14	2
30	H29	Elm (Group)	<i>Ulmus spp.</i>	3	75	1	2	2	2	2	-	-	South	M	Fair	Poor	Understorey hedgerow, dominated by elm with some elder and blackthorn. Varies in height and several gaps with little evidence of proactive management.	If retained, recommend supplementary planting to fill gaps.	10-20	C2	3	1
31	G30	Elm (Group)	<i>Ulmus spp.</i>	5	80	1	3	2	2	2	1	-	North	OM	Poor	Poor	x1 elm and x1 elder that are dead and located within hedgerow.	Consider removal as good arboricultural practice.	>10	U	3	1
32	G31	Ash (Group)	<i>Fraxinus spp.</i>	9	100	1	4	4	4	4	2	-	North	EM	Fair	Fair	x2 elm and x2 ash that forms more significant group within hedgerow and all multi stem from base. Measurements averaged.	None.	10-20	C2	5	1
33	T32	Elm	<i>Ulmus sp.</i>	8	110	1	3	2	4	2	1	1	North	EM	Fair	Fair	Unable to access - all measurements estimated. Dense ivy covered stem and slightly asymmetric canopy and slightly removed from larger group due west.	None.	10-20	C1	5	1
34	G33	Field maple	<i>Acer campestre</i>	9	200	1	5	4	4	5	1	-	North	EM	Fair	Good	Small linear group of field maple, sycamore, ash and elm. Majority multi stemmed from base - measurements averaged. Prominent trees along road edge.	Recommend retention wherever possible.	20-40	B2	18	2



H29 to be partially removed to accommodate required visibility splays

The following trees require removal to facilitate the design scheme: T4, G5, T6, T7, H8, T9, T10, G11, H13 (part of), T28, H29 (part of), T30, G31 and T32.

Permanent ground protection will be required to protect the RPA of T12.

A crown lift to 4m above ground level to the southern canopy will be required to provide clearance over new car parking spaces.

- Legend:**
- Site Boundary
  - Category A Trees (Stem and Canopy Spread)
  - Category B Trees (Stem and Canopy Spread)
  - Category C Trees (Stem and Canopy Spread)
  - Category U Trees (Stem and Canopy Spread)
  - Root Protection Area
  - Trees to be Removed
  - Construction Exclusion Zone (area required to protect retained trees roots and canopy)
  - Tree Protection Fence during construction works
  - Tree Protection Fence during landscape works
  - Temporary ground protection during swale construction
  - Permanent Ground Protection
  - Existing Layout
  - Proposed Layout

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*Leading solutions for the natural environment*

TITLE:	Tree Protection Plan	
LAYOUT:	Site Overview	
PROJECT/SITE:	Land off Fewcott Road, Fritwell	
CLIENT:	Cala Homes Ltd	
MAP REF:	21-2259	
REVISION:	D7	
DATE:	07.06.22	SCALE: 1:750@A3
APPROVED BY:	BJ	PRODUCED BY: JHA

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