



Arboricultural Impact Assessment and Method Statement for: Lower Lodge, Ston Easton

Inspected and prepared by

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Prepared for

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Report date

5th October 2022

Site address

Lower Lodge
Bristol Road
Ston Easton
Wells
BA3 4DF

Report reference

LowerLodge_AMS_102022

Project

Building extension
with new site access
and parking

Executive summary

This Arboricultural Impact Assessment and Method Statement has been prepared in order to provide Mendip District Council (**MDC**) with arboricultural information in support of a planning application for development proposals at Lower Lodge in Ston Easton.

The information within is compliant with *BS5837: 2012 Trees in Relation to Design, Demolition and Construction – Recommendations* and contains details of the direct and indirect impacts of the proposals on the trees on and adjacent to the site along with details of impact mitigation and proposed tree protection measures.

It is proposed to extend the north elevation of Lower Lodge and to construct a new driveway parallel to the west site boundary to link the building and the existing entrance to the north.

Two cherry trees and a short section of hornbeam hedge are proposed for removal to facilitate the proposals, a large, lapsed hazel coppice is proposed for re-coppicing to restore a management regime and a small squirrel damaged sycamore is proposed for removal as it will be exposed to a drastic change in wind stress by the coppicing of the hazel and is likely to fail. Three trees will require crown lifting to provide three metres clearance over the proposed driveway.

The proposed driveway is entirely within the RPA of retained trees. To prevent damage to underlying roots the driveway will be a NO DIG construction, using a Cellular Confinement Ground Protection System installed directly onto existing ground level and surfaced with a porous wearing course.

The proposed extension encroaches on 5% of the RPA of a mature beech tree, to prevent damage to underlying roots the extension will be constructed using a pile and beam foundation with a finished floor level above existing ground level.

Robust physical barriers will be used to prevent construction access to areas of the site where there are root protection areas vulnerable to ground compaction.

The site does not lie within the limits of a Conservation Area and there are no trees on or adjacent to the site that are the subject of a Tree Preservation Order.

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1.0 Instructions

- 1.1 Assured Trees are instructed by Planning Sphere to carry out a tree survey at Lower Lodge in Ston Easton and prepare an arboricultural report in support of a planning application to Mendip District Council (**MDC**) for development proposals at the site.
- 1.2 This report has been prepared by a qualified arboriculturalist in accordance with *BS5837: 2012 Trees in Relation to Design, Demolition and Construction – Recommendations* (**BS5837: 2012** hereafter) and contains the components listed in Table 1:

Component	Description
Tree survey	Including all trees, on and off site, that could potentially be impacted by the proposals.
Arboricultural Impact Assessment (AIA)	Containing details of the potential impacts of development proposals on trees on and adjacent to the site.
Arboricultural Method Statement (AMS)	Containing a clear specification for protective measures for retained trees throughout the development process.
Tree Protection Plan (TPP)	Clearly illustrating the extent and location of specified tree protection measures.
Tree work schedule	Containing details of trees to be removed and any proposed tree works.

Table 1: Report components

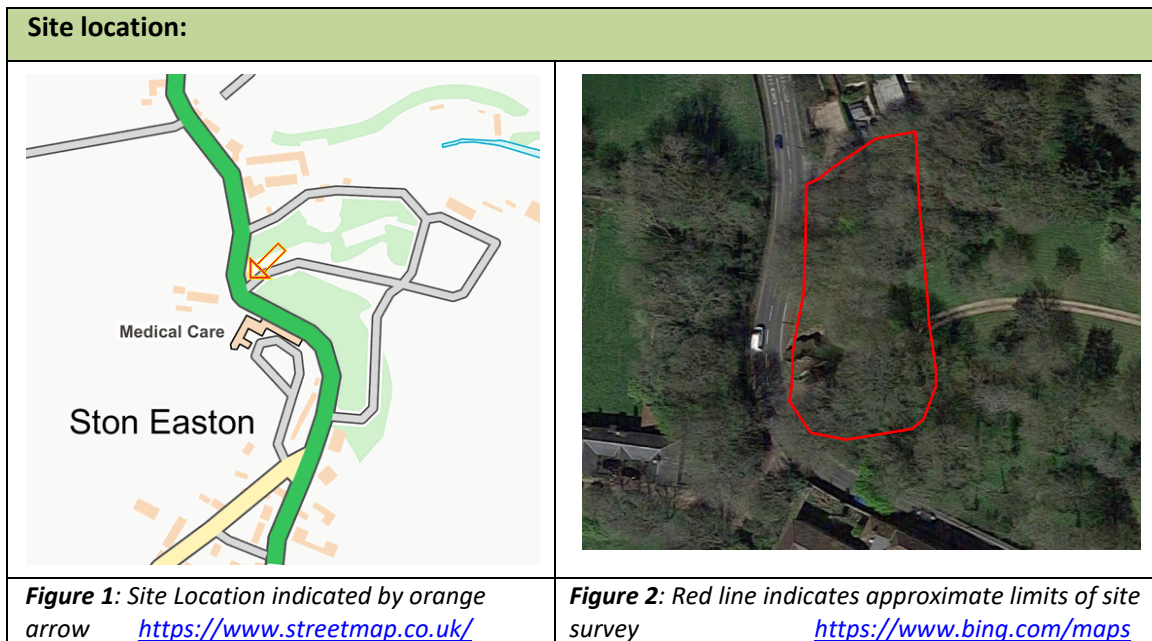
- 1.3 This report has been informed by the following documents:

Document	Reference	Supplied by
Existing site plan	2021.1340-01 May 2022	Prism Measured Surveys
Proposed Site Plan	<i>Site Plan Lower Lodge</i>	Watson, Bertram & Fell

Table 2: Documents provided

2.0 Introduction

- 2.1 Lower Lodge is located in Ston Easton on the east side of the A37 adjacent to the north access to Ston Easton Park. There are a substantial number of trees on the site comprising the western extent of a tree group within the grounds of Ston Easton Park. Access to the site is via an existing entrance and gravel parking area to the north which leads to a pedestrian path below the tree canopy to the north elevation of the building. The vehicle entrance to the south is not suitable for traffic entering the A37 due to the sharp bends limiting visibility.
- 2.2 It is proposed to extend the north elevation of the building and to construct a new driveway parallel to the west site boundary to link the building and the existing entrance to the north.



3.0 Report limitations

3.1 The tree survey was carried out from ground level on the 30th August 2022, observations were made in the context of planning and development in accordance with BS5837:2012 and specifically relate to the conditions found at the time of the survey. The survey does not constitute a detailed hazard assessment, no decay detection equipment has been used in assessing trunk condition and no samples of any kind have been taken for analysis.

4.0 Trees included in the survey

4.1 Seventeen trees, two tree groups and one hedge were identified in the survey and have been awarded category ratings in accordance with the BS5837:2012 cascade chart for tree quality assessment (table 1), a rating of **A**, **B**, **C** or **U** is allocated based on the condition of a tree or group of trees in its/their current surroundings, with **A** representing the higher quality trees, **B** the moderate quality, **C** the lower quality and **U** the trees that should be removed for arboricultural reasons. A full account of the tree survey methodology including the categorisation criteria for surveyed trees is presented at appendix C.

	BS5837:2012 Category rating			
	A	B	C	U
Trees	2	4	11	0
Groups	0	2	0	0
Hedges	0	0	1	0

Table 3: Tree categorisation quantities

5.0 Root Protection Areas

- 5.1 Below ground constraints or Root Protection Areas (RPAs) for all trees on site have been calculated in accordance with BS5837:2012. The 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 should be treated as a priority. The RPAs have been plotted onto the Tree Constraints and Tree Protection Plans as a circle centred on the base of each tree stem with a radius of 12 times the trees stem diameter measured at 1.5 metres above ground level.
- 5.2 BS5837:2012 requires that where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically the RPA should be modified to produce a polygon of an equivalent area. Table 4 contains details of all trees on site for which the RPA has been modified.

Tree No.	Species	RPA Radius	Reason for modification
T08	Beech	14.0m	The beech is growing near the west site boundary which is formed by a retaining wall with a substantial level differential to the west which will have prevented root growth beyond. The RPA has been amended to the north, east and south accordingly.
T09	Cherry	3.1m	The trees are separated from an existing compacted gravel parking area and the access road on the north site boundary by a retaining wall that will have prevented root growth into the parking area and access road. The RPAs have been amended accordingly.
T11	Lime	4.7m	
T13	Lime	6.0m	
T14	Cherry	4.0m	
T15	Cherry	4.6m	
G17	Mixed species	---	
T18	Sycamore	13.3m	The trees are separated from the A37 to the east and the access drive to the north by a retaining wall with a substantial level differential that will have prevented root growth beyond. RPAs have been amended to the south and east accordingly.
T19	Beech	11.6m	
G20	Mixed species	---	

Table 4: RPA modifications

6.0 Statutory constraints

- 6.1 A review of MDC on-line resources¹ reveals that the site does not lie within the limits of a Conservation Area and that there are no trees on or adjacent to the site that are the subject of a Tree Preservation Order (TPO). Currently it is not necessary to obtain consent from MDC to carry out tree works on the site. Tree felling however is a legally controlled activity and if tree removals are proposed on the site in excess of 5 cubic metres in volume in a calendar quarter (or 2 cubic metres if the timber is being sold) then a felling license may be required from the Forestry Commission².

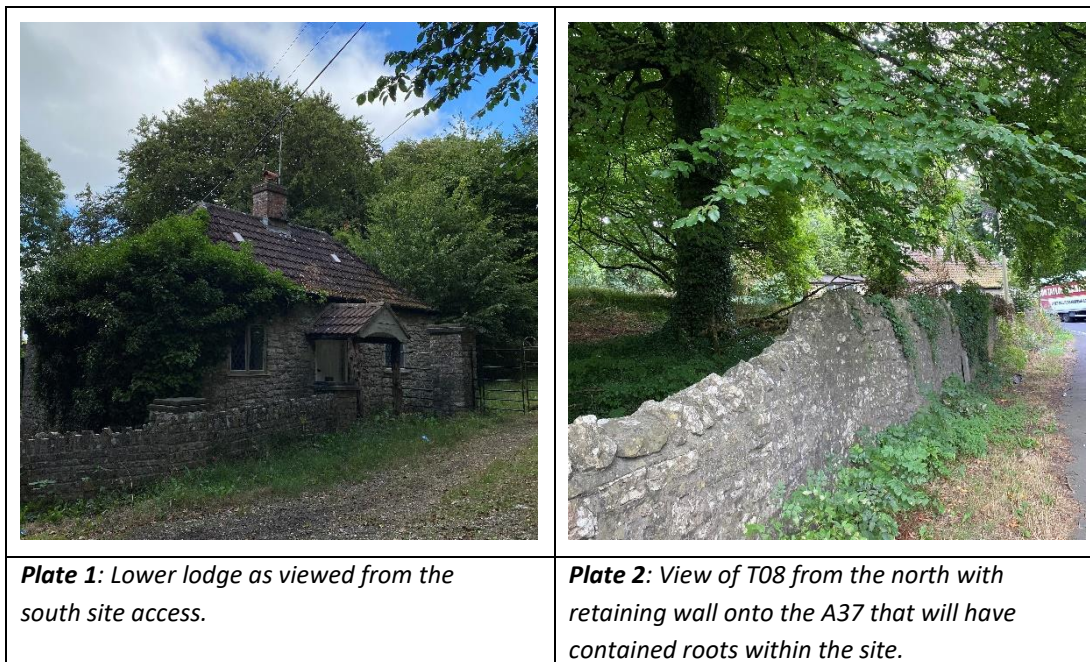
¹<https://maps.mendip.gov.uk/mycouncil.aspx>

² <https://www.gov.uk/guidance/tree-felling-overview#tree-felling-licence>

7.0 Soils

7.1 Tree growth can cause differential movement in structures on shrinkable clay soils as moisture is removed from the soil during the growing season. Soil information obtained using the British Geological Survey Data³ indicates the underlying soil at the site to be *Langport Member and Blue Lias Formation - Mudstone and limestone, interbedded* and does not indicate an underlying clay soil with a high potential for volume change however due to the potential for uncharted localised deposits of shrinkable clay, soil type should be confirmed by a suitably qualified engineer and foundations near trees should be constructed in accordance with *National House Building Council (NHBC) Chapter 4.2 Building near trees*⁴.

8.0 Site images



³ <http://mapapps.bgs.ac.uk/geologyofbritain3d/>

⁴ <https://nhbc-standards.co.uk/4-foundations/4-2-building-near-trees/>



Plate 3: View of T08 from the south with trees 09-15 in background.



Plate 4: View of retaining wall around existing gravel parking area that will have restricted root growth of adjacent trees.

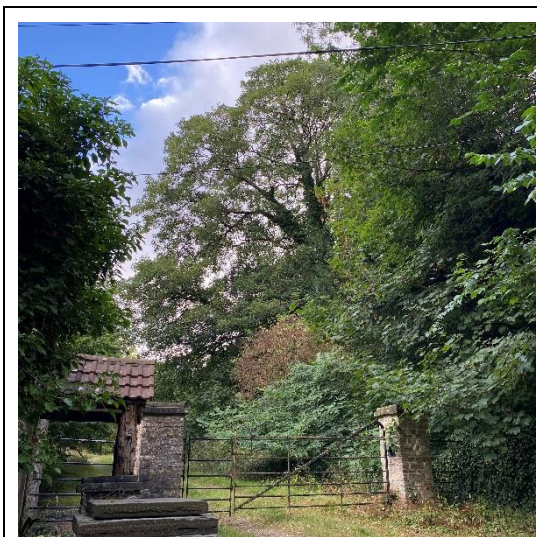


Plate 5: View of the south entrance drive with retaining wall on right that will have contained the roots of trees 18 and 19.



Plate 6: View from the north-east of trees 02-07 with T08 on right in background.

9.0 Arboricultural Impact Assessment

10.0 Tree removals and arboricultural works

10.1 **Tree removals:** Two cherry trees (T14 and T15) and a short section of hornbeam hedge (H01) are proposed for removal to facilitate the proposals as detailed in table 5. The cherries are located on the north site boundary adjacent to a short private access road, as they have limited public visibility and there is a substantial number of surrounding trees, their loss will have a minor impact on visual amenity. The hornbeam hedge (H01) is growing to the east of the lodge with limited visibility from outside of the site.

10.2 T03 is proposed for removal on arboricultural grounds as it is in poor condition with prolific squirrel damage, major dead wood and is suppressed by the adjacent hazel which is proposed for coppicing, the removal of the hazel crown would likely result in the failure of T03 due to the loss of companion support and exposure to wind stress.

No.	Species	Stem diameter	Retention category	Impact on visual amenity
T14	Cherry	330	C1	Minor
T15	Cherry	380	C1	Minor
T03	Sycamore	300	C1	Minor

Table 5: Trees proposed for removal.

10.3 **Mitigation** for tree removals will be delivered through additional planting on site. Planting plan including species, location, planting stock size and after care regime to be submitted separately to this report for approval.

10.4 **Arboricultural works:** Trees 08, 09 and 10 will require crown lifting to allow 3 metres clear crown height above the proposed driveway and parking area. It is proposed to coppice T02, a lapsed hazel coppice, to allow space for development activity, reintroduce a traditional system of crown management and enable retention in the long term.

11.0 Potential below ground impacts

11.1 **General impacts:** The most common below ground impact in a development scenario arises from the compaction of soil within the rooting area of a tree. Soil compaction prevents water ingress, creates poor drainage and reduces the availability of oxygen to roots resulting in impaired root growth or even root death. Soil compaction can arise through vehicle movements or through the storage of heavy materials on vulnerable ground such as grass.

11.2 Further below ground impacts arise through the severance of roots in order to construct foundations, install services or alter ground levels. In order to avoid compaction and/or root severance construction activity must be excluded from the RPA of retained trees through the use of robust physical barriers erected at the extent of the RPA to create a Construction Exclusion Zone (CEZ). If construction access is required within the RPA, barriers need to be set back and ground protection used in order to prevent soil compaction. Existing hard surfacing such as tarmac can be used as ground protection.

12.0 Site specific impacts

12.1 **Building extension:** The extension of the existing building to the north impacts 5% of the total amended RPA of T08. Conventional strip foundations are likely to sever significant roots and a traditional concrete floor slab will cause ground compaction and the asphyxiation of underlying roots. To prevent root damage an engineered foundation must be used within the RPA that prevents the severance of significant roots, prevents ground compaction and allows continued gaseous exchange from underlying roots. Such foundation types include pile and beam which requires a series of small diameter holes to be hand dug in order to avoid severing significant roots over 25mm in diameter. A ring beam is then formed on the piles above existing ground level onto which the extension can be constructed.

12.2 The use of pile and beam foundations is in accordance with *BS5837:2012 7.5 Special engineering for foundations within the RPA*- where in 7.5.2 it is stated that:

Root damage can be minimised by using:

- *piles, with site investigation used to determine their optimal location whilst avoiding damage to roots important for the stability of the tree, by means of hand tools or compressed air soil displacement, to a minimum depth of 600 mm;*
- *beams, laid at or above ground level, and cantilevered as necessary to avoid tree roots identified by site investigation.*

12.3 **Driveway and parking works:** It is proposed to extend the existing parking area on the north site boundary and create a driveway link along the west site boundary to Lower Lodge. The extension of the parking area will require the removal of trees 14 and 15 but has been designed to avoid the RPA of retained trees. The new driveway is within the RPA of T08, conventional driveway construction techniques will cause ground compaction and damage underlying roots therefore the driveway must be a NO DIG construction using a permanent ground protection system such as Cellweb⁵, surfaced with a porous wearing course.

⁵ <http://www.geosyn.co.uk/product/cellweb-tree-root-protection>

- 12.4 There is likely to be roots exploiting the soil to the rear of the retaining wall surrounding the existing carparking area to the north. The removal of the retaining wall within the RPA of tree 09 to achieve a continuous gradient between the parking area and the proposed driveway is likely to expose roots to damage therefore the driveway must be graded to the north leaving existing levels within the RPA of T09 unaltered.
- 12.5 The lodge and proposed driveway are surrounded by the RPA of retained trees that are vulnerable to compaction from construction activity, robust physical barriers will be required to exclude construction activity. A section of the RPA of T02 will be open to construction activity but once the hazel shrub is coppiced it will no longer be reliant on such a large network of roots and this will have a minor impact.
- 12.6 **Services:** Services are supplied to the existing house and the extension will not require additional buried services within the RPA of a retained tree. Any soakaways for the extension will be routed outside of the RPA of retained trees.
- 12.7 **Shading, leaf fall and future pressure to prune:** Primarily T08, but also other retained trees, will cast significant shade and will drop significant crown detritus over the lodge, driveway and parking area which will create a management/maintenance issue. Future owners/tenants may develop a perception of risk associated with the driveway below the crown of T08 that will require regular tree inspections to alleviate.

13.0 Arboricultural method statement

13.1 This arboricultural method statement (**AMS**) provides details and specifications for all tree protection measures and arboricultural related operations for the duration of the development process. Copies of this AMS must be kept on site and the site manager must communicate the content to all staff and contractors with duties that involve working near trees or have the potential to impact retained trees.

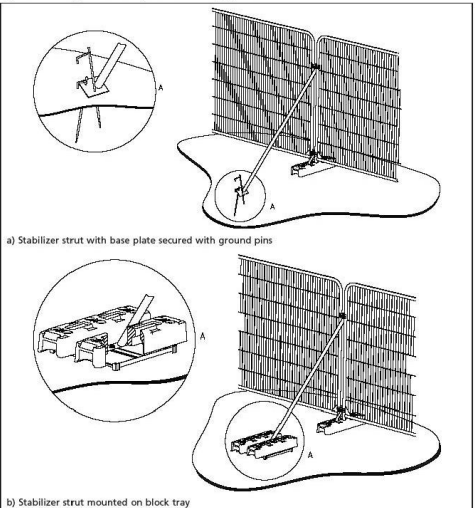

14.0 Arboricultural works

14.1 Prior to any development works on site trees T03, T14 and T15 will be removed along with hedge H01. T02 will be coppiced and trees T08, T09 and T10 will be crown lifted to allow 3 metres clear crown height above the proposed driveway and parking area. Tree works will be carried out in accordance with *BS3998:2010 Tree work Recommendations*.

15.0 Tree protection

15.1 **Barriers:** Following tree removals and before the commencement of any demolition or construction works on site, temporary protective barriers will be installed in the positions shown on the Tree Protection Plan.

15.2 The barriers will consist of 2 metre tall, welded mesh panels on rubber feet, joined with a minimum of 2 anti-tamper couplers at least 1 metre apart and will be well braced to resist impact (see figure 3-4 and Appendix D).

<p>Figure 3 Examples of above-ground stabilizing systems</p>  <p>a) Stabilizer strut with base plate secured with ground pins</p> <p>b) Stabilizer strut mounted on block tray</p>	
<p>Figure 3: Protective barriers as detailed in <i>BS5837: 2012 6.2.2.3</i>.</p>	<p>Figure 4: Example of weldmesh panel protective barriers in use.</p>

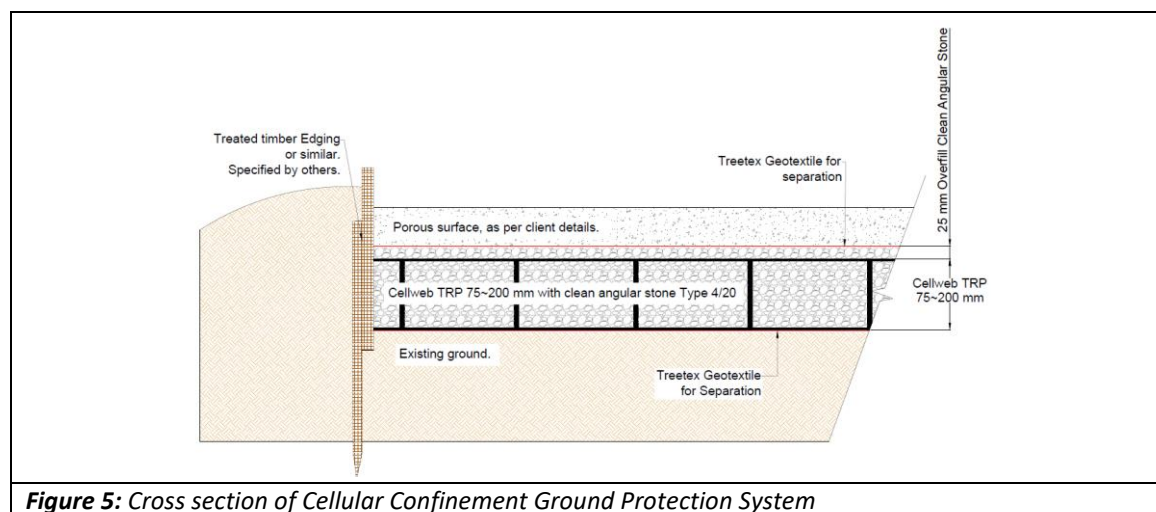
15.3 The protective barriers will create a Construction Exclusion Zone (**CEZ**) to prevent construction activity of any kind, including the storage of materials, within the unprotected RPA of retained trees. The barriers will remain in place until the completion of all development and hard landscape works. **The barriers must not be moved or altered in any way without the written consent of MDC.** If site constraints require the alteration of the barriers then the project arboriculturalist must first be consulted who will take the necessary steps to obtain appropriate consent.

15.4 All weather protective barrier site notices similar to that reproduced in Appendix E will be attached to the protective barriers to clearly identify the purpose as tree protection that must not be moved or altered.

16.0 Works within root protection areas

16.1 **Driveway construction:** Following the erection of protective barriers and prior to any construction works on site permanent ground protection will be installed in the positions shown on the Tree Protection Plan to create the proposed driveway. The ground protection will consist of a 150mm deep⁶ Cellular Confinement Ground Protection System⁷, which will be laid in strict accordance with the manufacturer’s instructions and with *Arboricultural Guidance Note 12 The use of cellular confinement systems near trees: A guide to good practice*⁸.

16.2 The system will be laid by hand, no plant, heavy equipment or machinery will be used in the laying out of the system. The Geotextile cells will then be filled with clean angular stone *Type 4/20* in accordance with the manufacturer’s installation guide (figure 5). Machinery used to fill the cells will only track on filled cells and never on the unprotected ground within the RPA.

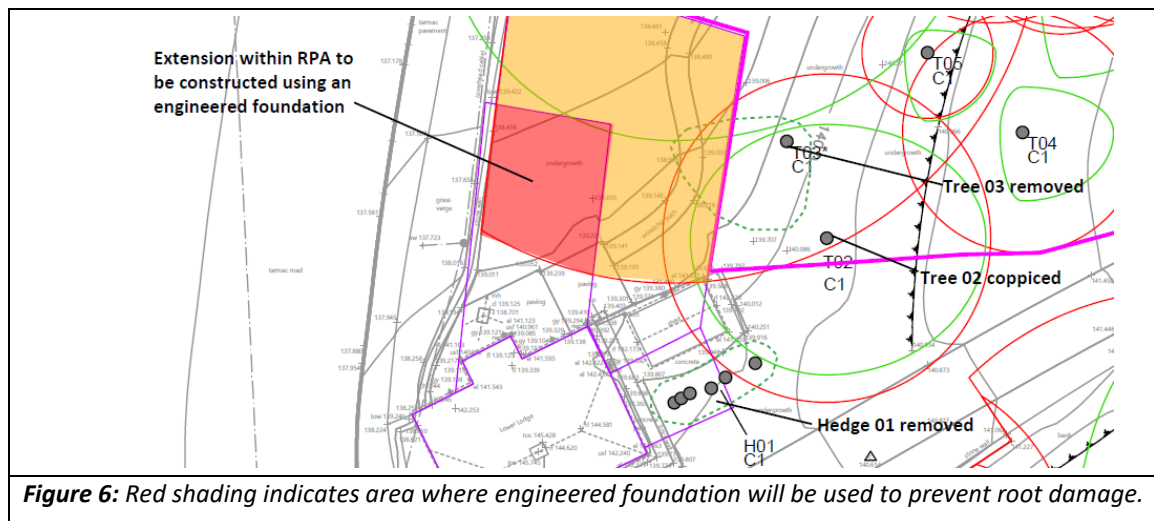


⁶ Suitable for emergency access and refuse collection applicable up to a 30t gross weight

⁷ <http://www.geosyn.co.uk/product/cellweb-tree-root-protection>

⁸ <https://www.trees.org.uk/News-Blog/Latest-News/New-guide-to-use-of-cellular-confinement-systems-n>

- 16.3 The existing parking area will be extended to the north-east taking care not to excavate into the RPA of T16. The levels between the existing parking area and the new driveway will be achieved by grading to the north and not by lowering existing ground level within the RPA of trees 08 and 09. The driveway will be surfaced with a porous wearing course as part of the landscape phase, construction traffic may use the driveway once it is filled with aggregate and before the final wearing course is applied.
- 16.4 **Lodge extension:** The proposed extension on the north elevation encroaches on a minor area (5%) of the RPA of tree 08 (figure 6), to avoid an adverse impact on T08 the extension will be constructed onto pile and beam foundations.



- 16.5 Pile holes will be hand dug to a depth of 600mm (rooting depth) taking care not to damage any roots. If roots are encountered with a diameter less than 25mm they may be pruned back to the edge of the hole with a suitable sharp tool such as secateurs. If roots are encountered with a diameter greater than 25mm they must be retained and the location of the hole adjusted accordingly. Below 600mm an auger may be used provided it will not damage any exposed roots.
- 16.6 Before the pile is formed, exposed roots must be separated from cement-based products by a layer of polythene. When the piles have been formed, a ring-beam will be constructed that supports a finished floor with a minimum of a 50mm void between the underside of the floor and existing ground level.
- 16.7 **Services:** No services are required within the RPA of a retained tree. If services are required to run within the RPA of a retained tree for unforeseen reasons, they will be installed in accordance with the National Joint Utilities Group (NJUG) Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees - Issue 2: 16th November 2007⁹.

⁹ <http://streetworks.org.uk/wp-content/uploads/V4-Trees-Issue-2-16-11-2007.pdf>

17.0 Additional precautions outside of the construction exclusion zone

- 17.1 Fires will not be lit on site, any materials whose accidental spillage would cause damage to a tree will be stored and handled well away from the outer edge of its RPA, no equipment, machinery, structure, notice boards, telephone cables or other services will be attached to or supported by a retained tree.
- 17.2 Planning of site operations will take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming into contact with retained trees. Such contact can result in serious damage to the trees and might make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees will be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times.

18.0 Access for construction works

- 18.1 Construction traffic will enter the site via the existing driveway entrances to the north and south and will not require access to the unprotected RPA of a retained tree at any time. Construction compounds, material storage areas, welfare facilities and contractor car parking will be located outside of the RPA of retained trees.

19.0 Supervision and monitoring

- 19.1 Assured Trees Ltd will be responsible for the monitoring of all tree protection measures and compliance with this Arboricultural Method Statement. A pre-commencement site meeting will be held and attended by a minimum of the project arboriculturalist and site foreman, in order to fully to communicate the extent and timing of the tree protection measures detailed within this AMS. If instructed to do so a certificate of compliance will be issued to the client for the following operations:

No.	Tree protection operation
1	Attendance of pre-development site meeting between project arboriculturalist and site foreman to communicate tree protection measures detailed within AMS.
2	Erection of temporary tree protection barriers in the position shown on the Tree Protection Plan.
3	Installation of Cellular confinement ground protection system in the position shown on the Tree Protection Plan.
4	Compliance with this arboricultural method statement post construction.

Table 6: Operations for which a certificate of compliance may be produced.

20.0 Contingency plans

20.1 The occurrence of any unforeseen incidents that may adversely impact retained trees will be reported to Assured Trees as soon as practicable following the incident. Assured Trees will then advise on the appropriate course of action and will produce and maintain a record of any such incidents including any subsequent measures taken.

21.0 Programme of works

Development stage	Sequence number	Operation	Details
Pre-construction	01	Tree removals	<ul style="list-style-type: none"> Removal of H01, T03, T14 and T15. Coppicing of T02. Crown lifting of trees 08, 09 and 10 to provide 3 metres clear crown height over driveway.
	02	Site meeting	<ul style="list-style-type: none"> Pre-commencement site meeting between project arboriculturalist and site foreman to communicate tree protection measures detailed within AMS.
	03	Installation of tree protection	<ul style="list-style-type: none"> Installation of temporary tree protection barriers in the positions shown on the Tree Protection Plan. Installation of Cellular Confinement Ground Protection System to create driveway.
During construction	04	Main construction phase	<ul style="list-style-type: none"> Extension of parking area to north without impacting the RPA of T16. Construction of extension using pile and beam foundation with hand dug pile holes to 600mm. Formation of ring-beam with floor level at least 50mm above existing ground level.
	05	Hard landscape phase	<ul style="list-style-type: none"> Surfacing of driveway with porous wearing course.
Post-construction	06	Removal of tree protection	<ul style="list-style-type: none"> Removal of temporary protective barriers following completion of all construction and hard landscape works.
	07	Soft landscape works	<ul style="list-style-type: none"> Including all mitigation planting without the use of heavy plant or machinery.

Table 7: Programme of works

Appendix A: Tree Survey Schedule



Tree Survey Schedule
Client: Chris Beaver, Planning Sphere, Bath
Location: Lower Lodge, Ston Easton
Surveyor: Stuart Roberts
Date of Survey: 30 th September 2022

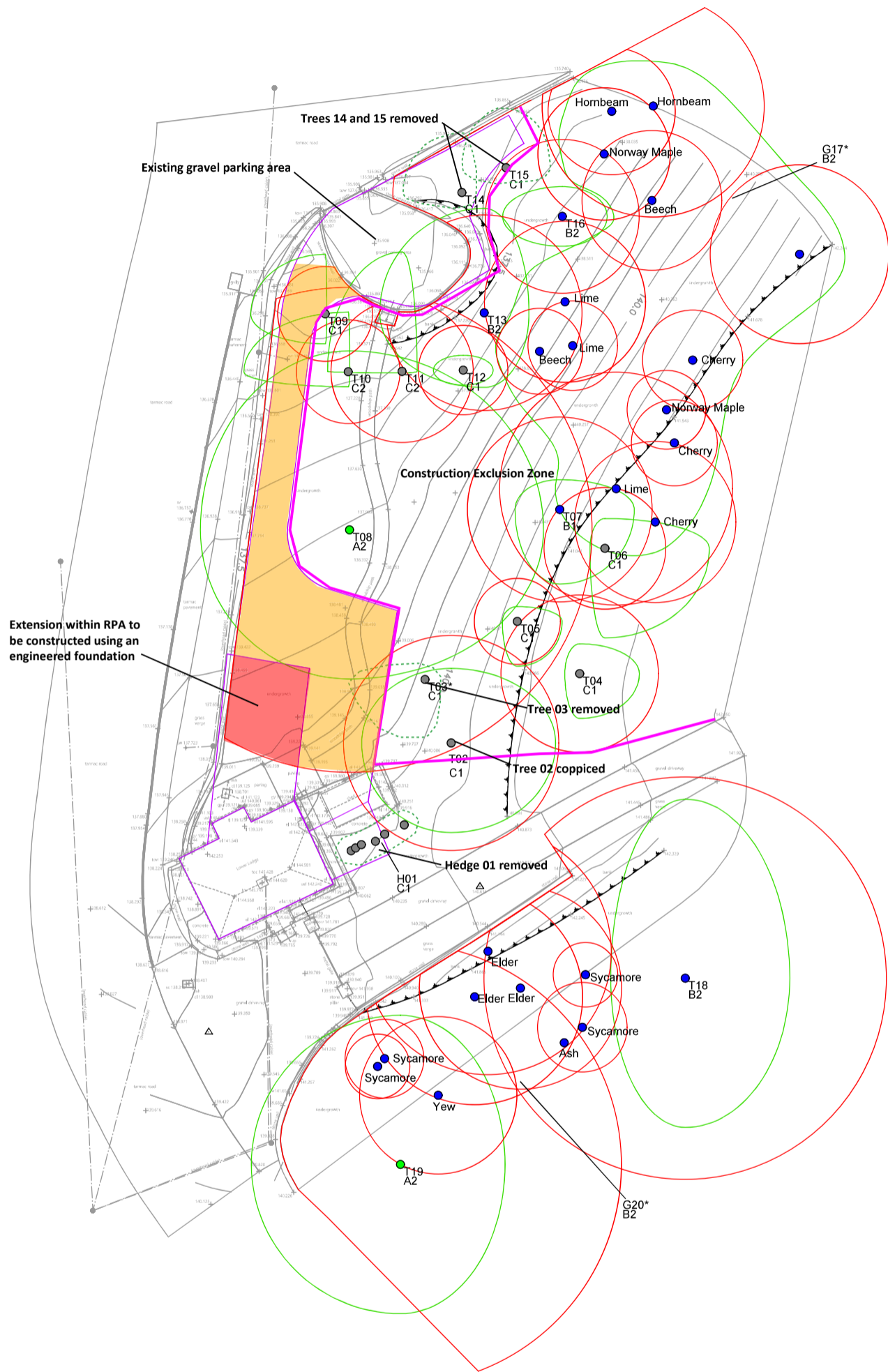
Tree Number	Single (S) or Hedge (H)	Tree Name (species)	Height (m)	Calculated Stem Diameter (mm)	Number of Stems	Crown Clearance (m)	North (m)	South (m)	East (m)	West (m)	Age Class	Physiological Condition	Structural Condition	Condition Notes	Recommendations	Estimated Remaining Life Contribution	BS Category	Root Protection Area (Radius, m)
01	H	Hornbeam	5	150	1	0	See tree constraints plan				Y	G	G	Hornbeam hedge containing 6 trees, no recent top or face management, trees now have drawn up slender crown form.	Remove to facilitate development.	40+	C1	
02	S	Hazel	11	600	10	1	5	6	7	6	M	G	G	Lapsed hazel coppice allowed to grow a full crown, major dead wood (over 50mm diameter) in lower crown.	Coppice.	20+	C1	7.2
03	S	Sycamore	8	300	1	1	1	4	1	5	Y	P	P	Young sycamore suppressed by adjacent trees with a crown bias west, severe squirrel damage in upper crown resulting in dead top and major dead wood (over 50mm diameter), prolific arboreal ivy.	None.	20+	C1	3.6
04	S	Cherry	13	440	1	1	2	3	4	1	M	F	F	Twin stem from 1.5m from a narrow fork, non-progressive stem lean and crown bias to the east, sparse crown.	None.	20+	C1	5.3
05	S	Cherry	12	240	1	4	1	3	3	1	Sm	F	F	Suppressed by adjacent trees, non-progressive stem lean and crown bias to the south-east.	None.	20+	C1	2.9
06	S	Norway maple	5	340	1	1	2	6	7	1	Sm	P	P	Central leader failed at 2.5m, lateral branches to north and south create the remaining crown with a bias to the east, suppressed by adjacent trees.	None.	10+	C1	4.1

Tree Number	Single (S) or Hedge (H)	Tree Name (species)	Height (m)	Calculated Stem Diameter (mm)	Number of Stems	Crown Clearance (m)	North (m)	South (m)	East (m)	West (m)	Age Class	Physiological Condition	Structural Condition	Condition Notes	Recommendations	Estimated Remaining Life Contribution	BS Category	Root Protection Area (Radius, m)
07	S	Lime	20	517	2	4	2	5	5	3	M	G	G	Twin stem from 1.2 metres from a narrow fork, drawn up slender crown form, crown bias east.	None.	40+	B1	6.2
08	S	Beech	23	1,170	1	2	12	10	13	10	M	G	G	Mature beech near west site boundary, recent failure of large extended heavy limb to the south at a fork 2 metres out from the trunk, major dead wood (over 50mm diameter) in lower crown, low limbs to west in contact with utility lines, rooting restricted to west due to retaining wall and 600mm level differential between the site and the pavement to west. High level of public visual amenity value.	Crown lift to allow 3 metres clearance below crown to west. Prune to clear utility lines to west by 1 metre.	40+	A2	14.0
09	S	Cherry	10	260	1	2	4	2	0	5	Sm	F	F	Crown bias north-west, prolific arboreal ivy, sparse crown.	Crown lift to allow 3 metres clearance over proposed access to west.	20+	C1	3.1
10	S	Lime	12	290	1	1	4	1	0	7	Sm	G	F	Severe crown bias to the north-west, suppressed by adjacent trees.	Crown lift to allow 3 metres clearance over proposed access to west.	40+	C2	3.5
11	S	Lime	18	390	1	0	8	0	1	5	Sm	G	G	Suppressed by adjacent mature beech, severe crown bias north.	None.	40+	C2	4.7
12	S	Sycamore	18	250	1	15	1	1	2	2	Y	F	F	Drawn up slender crown form.	None.	40+	C1	3.0
13	S	Lime	20	500	1	0	7	5	3	7	Sm	G	G	Twin stem from 2.5 metres from a narrow fork with bark inclusion, significant crown bias to the north-west due to competition with adjacent trees.	None.	40+	B2	6.0

Tree Number	Single (S) or Hedge (H)	Tree Name (species)	Height (m)	Calculated Stem Diameter (mm)	Number of Stems	Crown Clearance (m)	North (m)	South (m)	East (m)	West (m)	Age Class	Physiological Condition	Structural Condition	Condition Notes	Recommendations	Estimated Remaining Life Contribution	BS Category	Root Protection Area (Radius, m)
14	S	Cherry	17	330	1	3	4	1	1	4	Sm	F	F	Sparse crown, significant crown bias north-west due to competition with adjacent trees.	Fell to facilitate development.	20+	C1	
15	S	Cherry	16	380	1	2	4	1	3	3	M	F	F	Sparse crown, significant crown bias north due to competition with adjacent trees.	Fell to facilitate development.	20+	C1	
16	S	Beech	20	430	1	3	2	2	3	4	Sm	G	G	Twin stem from 2 metres from a narrow fork with bark inclusion, drawn up crown form due to competition with adjacent trees.	None.	40+	B2	5.2
17	G	Beech, lime, cherry and hornbeam	18	500	1		See tree constraints plan				M	G	G	Woodland tree group on the east site boundary, individually trees are of limited merit but collectively form an important woodland group and landscape feature.	None.	40+	B2	6.0
18	S	Sycamore	22	1,110	1	2	12	10	7	5	M	G	G	Large mature off-site sycamore to south of access track, minor buttress damage to east, crown bias north to south, prolific arboreal ivy.	None.	40+	B2	13.3
19	S	Beech	23	970	1	3	10	10	7	10	M	G	G	Large mature off-site beech to south of an access track, rooting restricted to north and west by retaining wall with level differential beyond, Large wound on trunk at 10 metres east side with good adaptive growth, prolific arboreal ivy.	None.	40+	A2	11.6
20	G	Sycamore, elder, ash, hornbeam and beech	17	530	1	0	See tree constraints plan				M	G	G	Woodland trees below canopy of 2 mature trees, retaining wall to north restricting root growth, access track to north, ash in group have ash dieback disease with 25- 50% crown dieback.	None.	40+	B2	6.4

Table Heading	Definition
Tree Number	Tree numbers as they appear in the Tree Schedule and are marked on the Tree Protection Plan drawings.
Single or group	S for a single tree, G for a group of trees and H for a hedge
Species	The common name of the tree
Height (m)	In meters measured with a laser clinometer
Calculated stem diameter (mm)	Calculated diameter of the stem(s) measured in millimeters at 1.5 meters from ground level # indicates estimated dimensions
Number of stems	Indicates the number of stems measured to inform the Root Protection Area
Crown clearance (m)	Height in metres of crown clearance above adjacent ground level
Crown spread (m)	The spread of the crown measured in metres, taken at the four cardinal points from the trunk
Age class	(Np) Newly planted, (Y) Young, (Sm) Semi-Mature, (Em) Early mature, (M) Mature, (A) Ancient or (V) Veteran
Physiological condition	Good – tree has good health and vitality. Fair- tree has minor health and vitality problems. Poor- tree has low vitality and significant health problems. Dead- dead tree.
Structural condition	G -good P - poor F - Fair D -dead
Condition notes	Specific notes relating to the condition of the tree
Recommendations	Recommendations for tree surgery based on any physical defects found or for further investigation of defects that require a more detailed assessment
Estimated remaining contribution	In years <10, 10+, 20+ or 40+
RPA (Root Protection Area) Radius (m):	The radius of the area in square metres that will need to be protected during construction with a protective fence and/or load bearing surface
Category grading Category	<p>Category A: Trees of high quality with an estimated remaining life expectancy of at least 40 years</p> <p>Category B: Trees of moderate quality with an estimated remaining life expectancy of at least 20 years</p> <p>Category C: Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter <150mm</p> <p>Category U: Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years</p>
Tree survey schedule key	

Appendix B: Tree Protection Plan and Tree Constraints Plan



Symbol Guide

Category Crown Spread
 Root Protection Area
 Tree Number
 Category

BS5837:2012 - Tree Category

Category A Trees High Quality	Category C Trees Low Quality
Category B Trees Moderate Quality	Category U Trees Poor Quality/Remove
Removed tree	Line of protective barriers
Engineered foundation	Permanent cellular confinement ground protection system



Project Name:
Lower Lodge, Ston Easton

Drawing Title:
Tree Protection Plan

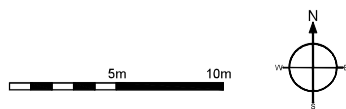
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LLSE-TPP-01

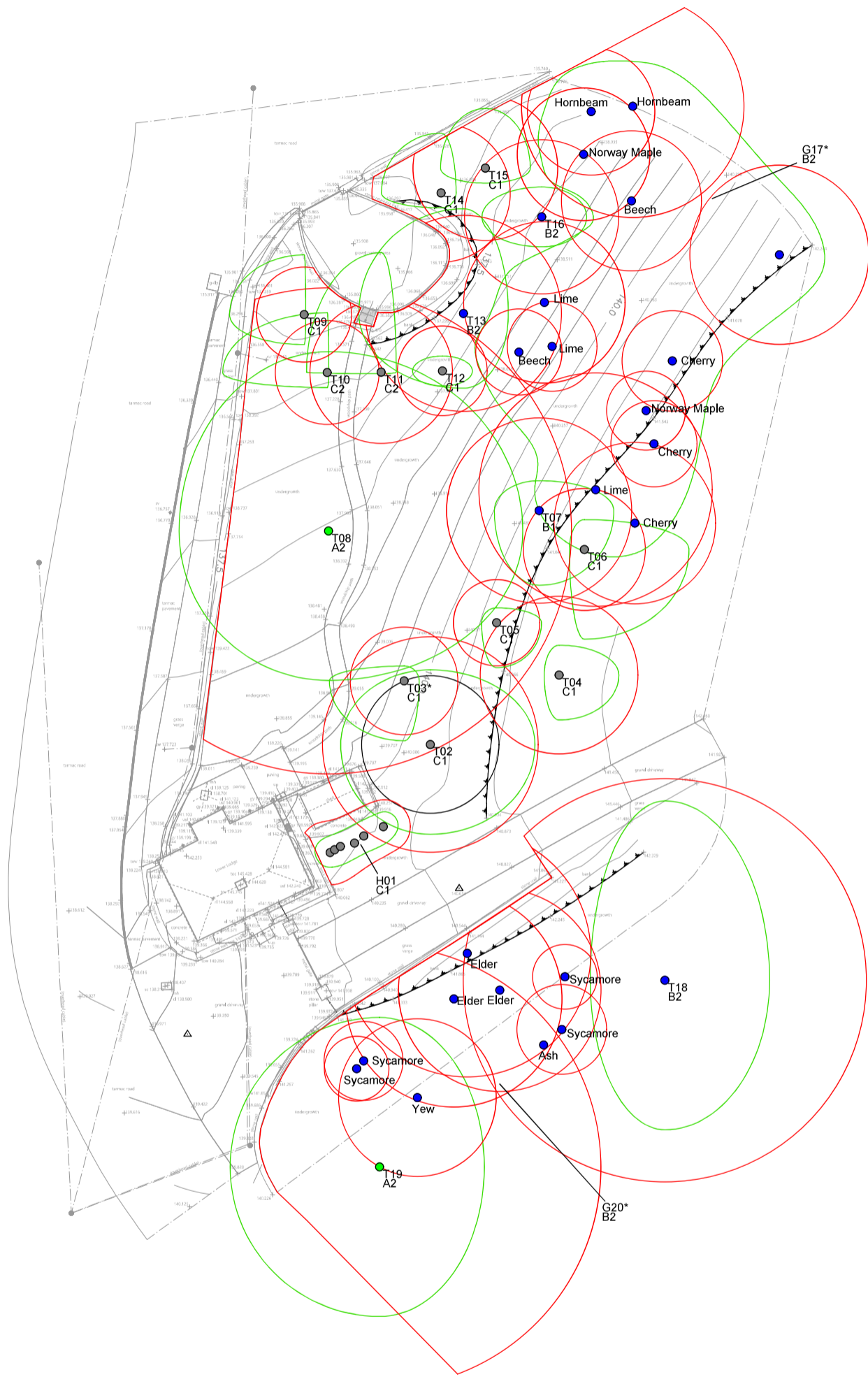
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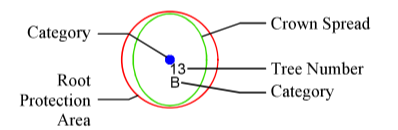
Date:
October 2022

Scale:
1:250 at A2





Symbol Guide



BS5837:2012 - Tree Category

- | | |
|--------------------------------------|---|
| Category A Trees
High Quality | Category C Trees
Low Quality |
| Category B Trees
Moderate Quality | Category U Trees
Poor Quality/Remove |

NOTE: Tree/group numbers marked with an * have approximate locations.



ASSURED TREES

Project Name:
Lower Lodge, Ston Easton

Drawing Title:
Tree Constraints Plan

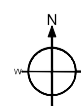
Drawing Number:
LLSE-TCP-01

Client:
-

Agent:
-

Date:
September 2022

Scale:
1:250 at A2



Appendix C: Tree survey methodology

Baseline survey

A site visit was undertaken by qualified arboriculturalist Stuart Roberts. The inspection took place from ground level and employed the Visual Tree Assessment method (Mattheck and Breloer, 1994).

Category ratings: In accordance with the BS5837:2012 Cascade chart for tree quality assessment, a rating of A, B, C or U is allocated based on the condition of a tree or group of trees in its/their current surroundings. No consideration is given to any specific development proposal when allocating category ratings, category definitions are detailed below:

Category	Criteria
A	<i>Those trees or groups which have high quality and value, are in good structural and physiological condition and are expected to have a useful life expectancy of at least another 40 years- indicated in green on the associated plans</i>
B	<i>Those trees or groups which would be considered as category A trees but which are of lower value, poorer structural condition, or which are expected to have a useful life expectancy of a minimum of 20 years- indicated in blue on the associated plans</i>
C	<i>Those trees or groups which are of low quality and value, trees currently in adequate condition to remain until new planting is established or are young trees with a stem diameter less than 150mm. Category C trees are expected to have a life expectancy of a minimum of 10 years- indicated in grey on the associated plans</i>
U	<i>Trees or groups in such a condition that any existing value would be lost within ten years and which should, in the current context, be removed for reasons of sound arboricultural management- indicated in red on the associated plans</i>

BS5837:2012 Tree categorisation criteria

Sub categories are awarded in accordance with the following criteria:

Sub category	Inclusion criteria
1	<i>Trees with arboricultural value</i>
2	<i>Trees with landscape value</i>
3	<i>Trees with cultural or conservation (ecological) value</i>

BS5837:2012 Tree sub-category criteria

Root protection areas

Below ground constraints or Root Protection Areas (**RPAs**) for all trees included in the site survey are calculated in accordance with *BS5837:2012 4.6.1*. The 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 should be treated as a priority. The RPAs have been plotted onto the Tree Constraints Plan and Tree Protection Plan as a circle centred on the base of each tree stem with a radius of 12 times the trees stem diameter measured at 1.5 metres above ground level.

BS5837:2012 4.6.2 requires that where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically the RPA should be modified to produce a polygon of an equivalent area. Any trees on site identified as requiring a modification to their RPA are indicated within the AIA.

Data presentation

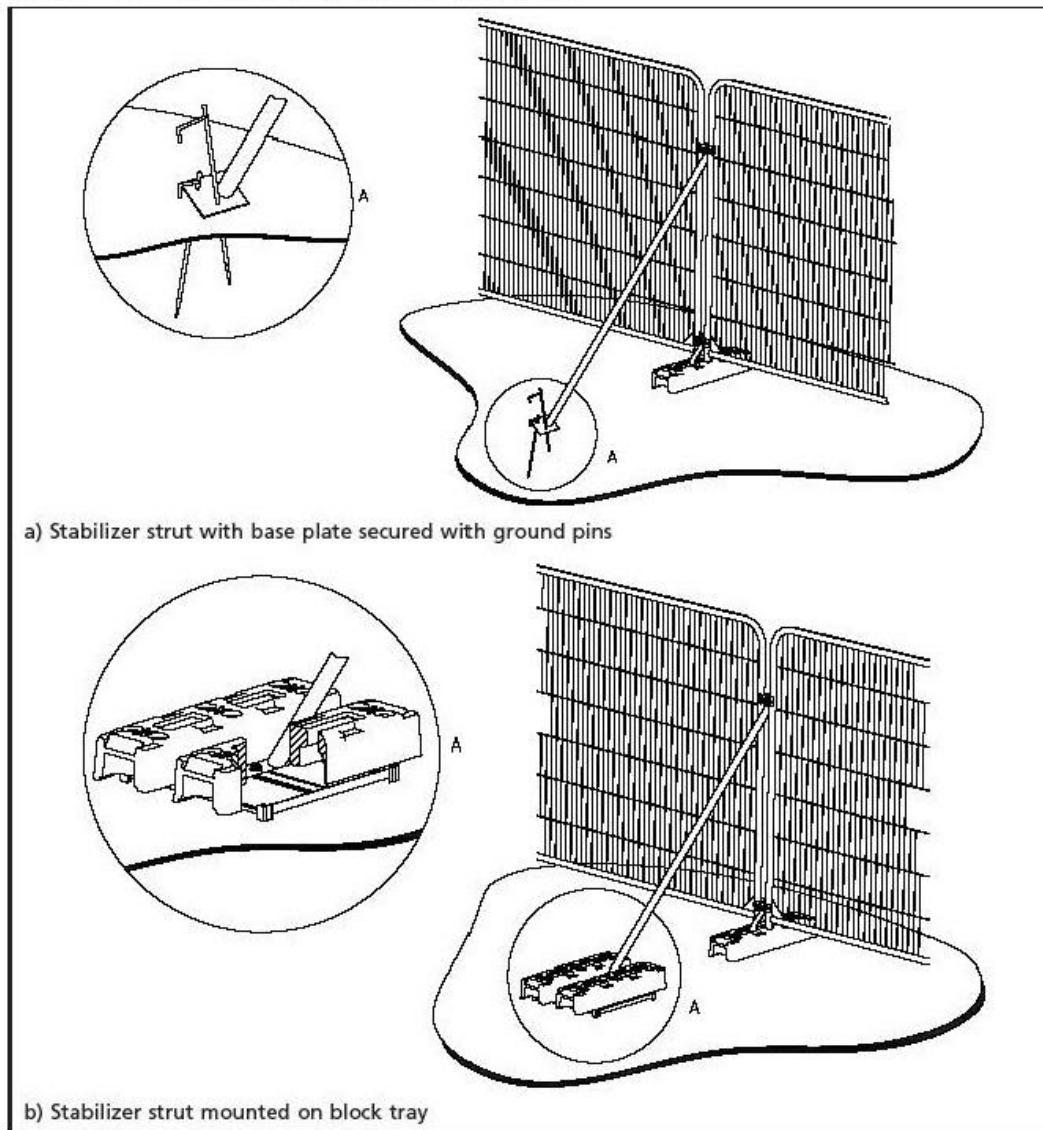
Data collected regarding the individual trees or groups is presented in the Tree Survey Schedule in Appendix A in accordance with *BS5837: 2012*. Trees have not been physically tagged but have been assigned individual numbers that are used to identify a tree, group or hedgerow throughout the report, within the Tree Survey Schedule and on the associated plans. The following information has been collected for each tree in the survey:

- Tree or group number
- Single or group category
- Common and scientific name of species
- Height in metres
- Number of stems
- Stem diameter
- Clearance of crown from ground level in metres
- Radius of crown
- Age class
- Physiological condition
- Estimated remaining contribution in years
- Structural condition
- Preliminary management recommendations
- Tree categorisation
- **Root Protection Area (RPA)**

For tree groups one record has been created in the tree survey schedule prefixed with 'G' and the species and accurate calculated root protection area of the individual trees within the group have been recorded on the Tree Constraints and Tree Protection Plans.

Appendix D: Protective fencing specification

Figure 3 Examples of above-ground stabilizing systems



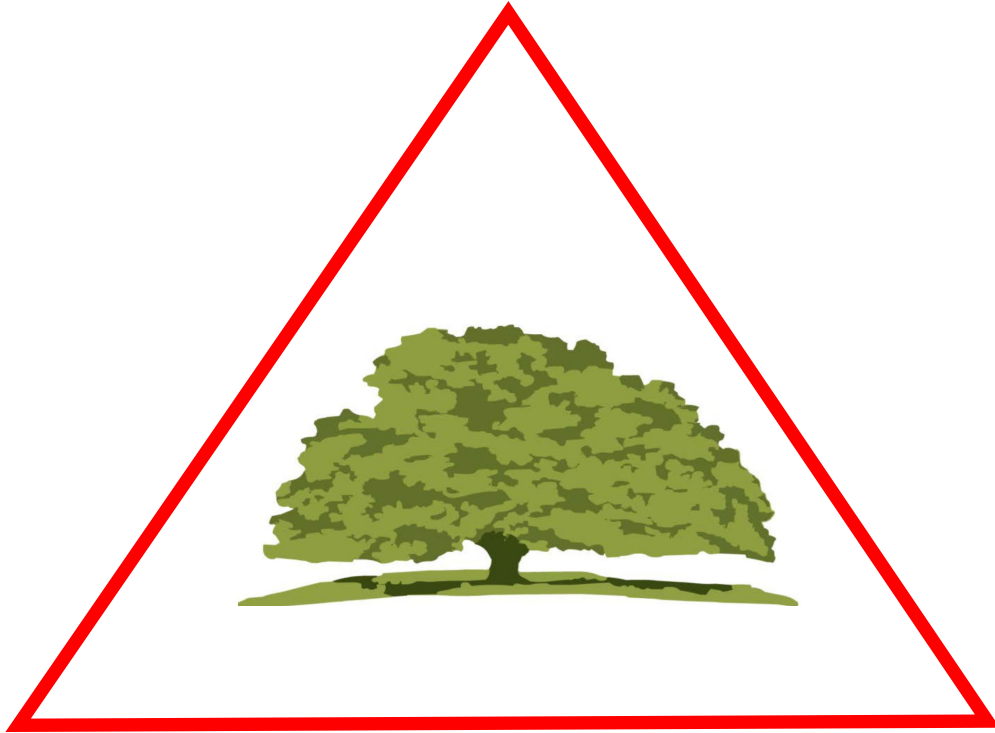
Barriers must be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree(s).

Barriers shall consist of 2 metre tall, welded mesh panels on rubber feet joined with a minimum of 2 anti-tamper couplers so that they can only be removed from the inside (tree side) of the fence, be at least 1 metre apart and be uniform throughout the fence. The panels must be supported on the inside by stabiliser struts secured with ground pins or where this is not feasible mounted on a block tray (figure b).

Appendix E: Example tree protection warning sign

TREE PROTECTION

No access past this point for construction activity



**TREES ENCLOSED BY THESE BARRIERS ARE LEGALLY
PROTECTED BY PLANNING CONDITION**

**THIS BARRIER MUST NOT BE MOVED OR ALTERED
WITHOUT THE WRITTEN PERMISSION OF THE LOCAL
PLANNING AUTHORITY**

**DO NOT ACCESS OR STORE MATERIALS IN THE AREA
BEHIND THIS BARRIER**