### Tree Condition Report Arboricultural Impact Assessment Arboricultural Method Statement Tree Protection Plan

Land at Caverswall Castle Well Being Centre Car Park

For

Mr R Macdonald



#### 29.12.2015

Terry Merchant Chartered Forester M.Arbor.A

terry@foresterandarborist.com

#### Contents

- 1.0 Remit
- 2.0 Report Limitations
- 2.1 Statutory Obligations
- 2.2 Individual Tree Condition Survey, Arboricultural Impact Assessment, Root Protection Areas and Method Statement
- 3.0 Method statement Summary
- 3.2 Summary of Works
- 3.3 Tree protection specification

#### Appendix 1

Photo Detail: Tree condition illustration ref. Sect 2.2

#### Appendix 2

Tree Location and Protection Plan Drawings (<u>N.B. Tree locations on the Block Plan are indicative</u>)

#### Appendix 3

BS 5837 2012 Protection illustrations x2

#### Appendix 4

Appendix 4 Glossary of Arboricultural Terms

#### 1.0 Remit:

Check the condition of trees identified on the Site Drawing provided by Client within and adjacent to the proposed development area. Provide an Arboricultural Impact Assessment, Method Statement and Tree Protection Plan to BS5837 (2012) Trees in relation to design, demolition and construction – Recommendations.

#### 2.0 <u>Report limitations:</u>

The conclusion and recommendations in this report are valid for a period of one year, or a lesser period where indicated in the report. All trees are susceptible to exceptional weather events or deterioration resulting from other environmental changes in close proximity to the tree. The evaluation is based upon Visual Tree Assessment (Mattheck & Breloer 2001). Observations have been made from ground level with the aid of binoculars.

#### 2.1 <u>Statutory Obligations</u>

Bats and the Law (Woodland Management for Bats 2005)

'The Wildlife and Countryside Act 1981 makes it an offence to disturb, damage or destroy bats or their roosts. The Act applies in both England & Wales and requires consultation with the appropriate SNCO before carrying out activities which might harm or disturb bats or their roosts. The Act is amended by the CROW Act 2000. This adds *recklessness* to the

offence of damaging or destroying a place a bat uses for shelter, or disturbing a bat while using a roost.

The Conservation (Natural Habitats Regulations 1994) implements the European Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora 1992, amended August 2007 & Oct 2010. Under the regulations, damaging or destroying a breeding site or resting place is an absolute offence, regardless of whether the act of doing so may be regarded as reckless, deliberate or incidental.

**Wild Birds** (Mynors 2002) The Primary legislation affecting wild birds in England, Scotland and Wales is the Wildlife and Countryside Act 1981 (as amended). In January 2001 the Countryside and Rights of Way Act 2000 (CRoW) included amendments, which strengthened the law in England and Wales. The basic principle of the Wildlife and Countryside Act 1981 (as amended) is that all wild birds, their nests and eggs, are protected by law and some rare species are afforded special protection. There are certain exemptions to this notably in respect of wildfowl, game birds and various species that may cause damage. (Cowan 2002)

**Felling licence**: Subject to tree size, location, condition and other Statutory protection, or prior planning approval, not more than 5m<sup>3</sup> of timber can be felled in any Calendar quarter without first obtaining a Forestry Commission (FC) felling licence. Failure to obtain a licence where required is a prosecutable offence. Detailed information including exemptions can be found on the FC web site

**Conservation Area and Tree Protection Orders:** The Local Authority protects trees within the district by the use of and administration of Tree Preservation Orders (TPOs). <u>Trees can also be protected if they are within a Conservation Area.</u> TPOs are used to protect trees (including areas of woodland) where their removal would have a significant impact on the local environment and it's enjoyment by the public. TPOs prohibit the cutting down, uprooting, wilful damage or destruction of trees. Any works to a tree(s) protected by a TPO or falling within a Conservation Area first requires the consent of the Local Authority.

It is a prosecutable offence to carry out work to a tree protected by a TPO, or remove it, without the prior consent of the Local Authority. <u>Detailed</u> <u>information including exemptions can be found on the Local Authority web</u> <u>site</u>

#### 2.2 Tree Condition Survey and Arboricultural Impact Assessment (AIA)

**Inspection method:** Visual Tree Assessment (VTA) from ground level. **Location:** Land at Caverswall Castle ST11 9ED **Date:** 29.12.2015 **Protection Status:** Staffordshire Moorlands Conservation Area **Limitations:** Trees and shrubs have been identified, tagged, current height measured to the nearest metre and ultimate height assessed with reference to The Hillier Manual of Trees and Shrubs. A Visual Tree Assessment (VTA) has been carried out on trees in, or adjacent to, the development site. Refer to proposed site layout drawing for tree locations. The risk assessment and recommendations are valid for a period of one year. No detection equipment has been used other than a sounding hammer and metal probe.

NB. All trees are at risk of failure through exceptional weather conditions.

Identification No.	Tag 401	
Species	Beech Fagus sylvatica L.	
Current Height (M)	26m	
Ultimate Height (M)	26m	
Current Stem Dia (cm) at narrowest	134cm	
point below fork		
Crown clearance	2m	
Crown Spread (M)	Radius; N 11m; E 3m; S 4m; W 15m	
Growth stage	Mature	
Tree Condition:		
Root: No evidence of soil movement		
Stem: phototropic growth response		
Crown: Asymmetric development. Majo	r deadwood lower crown on west side over track. No	
evidence of recent breakouts or signification	nt dieback.	
Tree Quality Assessment: Ref.BS5837	(2012) 4.5.1 Category A1: Trees, groups or	
woodlands of particular visual importanc	e as arboricultural and/or landscape features. Large	
tree within the grounds of a Grade 1 liste	ed property.	
Water Demand NHBC 4.2-B: Moderate		
Root Protection Area RPA: for tree of	134cm diameter at narrowest point below fork (1.34 x	
12) = 16m radius (BS5837(2012) radius capped at 15m)		
Total RPA required at current stage of growth = 707m <sup>2</sup>		
Arboricultural Impact Assessment AIA:		
<ul> <li>The existing gravel surfaced drive</li> </ul>	e falls within the RPA of Tree 401 and is providing	
partial ground protection		
<ul> <li>The lowest west facing limb has</li> </ul>	limited height clearance for construction vehicle	
access.		
Electric cable to existing supported in crown.		
<ul> <li>No strip excavation is permitted within the RPA</li> </ul>		
No raising or lowering of current soils levels by >100m is permitted within the RPA		
Method Statement: Conversion of existing building to new use and construction of		
parking bays.		
Erect height limit posts and cross bar for vehicle passage beneath the west facing		
limb to protect from impact damage. High vehicles will need to be diverted to the		
existing drive between 1405 and	1 1 406	
<ul> <li>The existing Access drive is con to be porcus</li> </ul>	structed from porous materials. New material needs	
	line (all has The Albert and the Albert Orace (fine fi	
<ul> <li>Install section of Heras fence inc recommended in BS5837 (2012)</li> </ul>	Dicated on Tree Protection plan. Specification as	

Identification No.	Tag 402	
Species	Common Lime <i>Tilia x europaea L</i> .	
Current Height (M)	24m	
Ultimate Height (M)	24m	
Current Stem Dia (cm) at 1.5m	80cm Estimated (obscured by sucker growth)	
Crown clearance	3m	
Crown Spread (M)	Radius; N 4m; E 6m; S 4m; W 6m	
Growth stage	Late Mature	
Tree Condition:		
Root: No evidence of soil movement		
Stem: obscured by basal sucker growth.		
Crown: Upper crown dieback. Major dea	adwood. No evidence of recent breakouts	
Tree Quality Assessment: Ref.BS5837	(2012) 4.5.1 Category A1: Trees, groups or	
woodlands of particular visual importance as arboricultural and/or landscape features. Large		
tree within the grounds of a Grade 1 listed property.		
Water Demand NHBC 4.2-B: Moderate		
Root Protection Area RPA: for tree of 80cm diameter at 1.5m (0.8 x 12) = 9.6m radius		
Total RPA required at current stage of growth = 289m <sup>2</sup>		
Arboricultural Impact Assessment AIA:		
<ul> <li>The existing gravel surfaced drive falls within the RPA of Tree 402 and is providing</li> </ul>		
partial ground protection		
Electric cable to existing supported in crown.		
<ul> <li>No strip excavation is permitted within the RPA</li> </ul>		
<ul> <li>No raising or lowering of current soils levels by &gt;100m is permitted within the RPA</li> </ul>		
Method Statement: Conversion of existing building to new use and construction of		
parking bays.		
<ul> <li>The existing Access drive is constructed from porous materials. New material needs to be porous.</li> </ul>		
Install section of Heras fonce ind	licated on Tree Protection plan. Specification as	

 Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended

Identification No.	Tag 403	
Species	Sycamore Acer pseudoplatanus L.	
Current Height (M)	18m	
Ultimate Height (M)	22m	
Current Stem Dia (cm) at 1.5m	71cm	
Crown clearance	3m	
Crown Spread (M)	Radius; N 2m; E 7m; S 6m; W 7m	
Growth stage	Mature	
Tree Condition:		
Root: No evidence of soil movement		
Stem: wounds occluded		
Crown: Asymmetric development. No evidence of recent breakouts or dieback.		
Tree Quality Assessment: Ref.BS5837	(2012) 4.5.1 Category A1: Trees, groups or	
woodlands of particular visual importance as arboricultural and/or landscape features. Large		
tree within the grounds of a Grade 1 liste	d property.	
Water Demand NHBC 4.2-B: Moderate		
Root Protection Area RPA: for tree of 71cm diameter at 1.5m (0.71 x 12) = 8.5m radius		
Total RPA required at current stage of growth = 227m <sup>2</sup>		
Arboricultural Impact Assessment AIA:		
• The existing gravel surfaced drive falls within the RPA of Tree 403 and is providing		
partial ground protection		
Electric cable to existing supported in crown.		
No strip excavation is permitted within the RPA		
<ul> <li>No raising or lowering of current soils levels by &gt;100m is permitted within the RPA</li> </ul>		
Method Statement: Conversion of existing building to new use and construction of		
parking bays.		
<ul> <li>The existing Access drive is cons to be porous.</li> </ul>	structed from porous materials. New material needs	
<ul> <li>Install section of Heras fence ind recommended in BS5837 (2012)</li> </ul>	icated on Tree Protection plan. Specification as Fig 3 appended	

Identification No.	Tag 404
Species	Horse chestnut Aesculus hippocastanum L.
Current Height (M)	16m
Ultimate Height (M)	20m
Current Stem Dia (cm) at 1.5m	53cm
Crown clearance	4m
Crown Spread (M)	Radius; N 4m; E 6m; S 10m; W 4m
Growth stage	Mature

Root: No evidence of soil movement

**Stem:** Bleeding canker. Sulphur Tuft *Hypholoma fasiculare* fruiting bodies on deadwood canker sites.

**Crown:** Asymmetric development. No evidence of recent breakouts. Weighted over garage **Risk Assessment:** No durable heartwood. Likelihood of stem fracture in deadwood below fork at decay site. In the event of failure the tree will collapse onto the garage.

**Tree Quality Assessment:** Ref.BS5837 (2012) 4.5.1 **Category U:** 'Trees that have a serious irremediable defect such that their loss is expected due to collapse'.

Water Demand NHBC 4.2-B: Moderate

**Root Protection Area RPA:** for tree of 53cm diameter at 1.5m (0.53 x 12) = **6.4m radius** Total RPA required at current stage of growth =  $129m^2$ 

#### Arboricultural Impact Assessment AIA:

- The existing gravel surfaced drive falls within the RPA of Tree 404 and is providing partial ground protection
- No strip excavation is permitted within the RPA

• No raising or lowering of current soils levels by >100m is permitted within the RPA Method Statement: Conversion of existing building to new use and construction of parking bays.

• The tree is proposed for removal and replacement within the landscaped grounds.

Identification No.	Tag 405
Species	Silver maple Acer saccharinum L.
Current Height (M)	24m
Ultimate Height (M)	24m
Current Stem Dia (cm) at 1.5m	71cm
Crown clearance	4m
Crown Spread (M)	Radius; N 7m; E 7m; S 6m; W 5m
Growth stage	Mature

Tree Condition:

Root: No evidence of soil movement

Stem: wounds occluded. Phototropic development to east

Crown: No evidence of recent breakouts or dieback.

**Tree Quality Assessment:** Ref.BS5837 (2012) 4.5.1 Category A1: Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features. Large tree within the grounds of a Grade 1 listed property.

Water Demand NHBC 4.2-B: Moderate

**Root Protection Area RPA:** for tree of 71cm diameter at 1.5m (0.71 x 12) = **8.5m radius** Total RPA required at current stage of growth =  $227m^2$ 

Arboricultural Impact Assessment AIA:

- The existing gravel surfaced drive falls within the RPA of Tree 405 and is providing partial ground protection
- No strip excavation is permitted within the RPA

• No raising or lowering of current soils levels by >100m is permitted within the RPA Method Statement: Conversion of existing building to new use and construction of parking bays.

- The existing Access drive is constructed from porous materials. New material needs to be porous.
- Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended.

Identification No.	Tag 406	
Species	Sycamore Acer pseudoplatanus L.	
Current Height (M)	24m	
Ultimate Height (M)	24m	
Current Stem Dia (cm) at 1.5m	81cm	
Crown clearance	4m	
Crown Spread (M)	Radius; N 6m; E 6m; S 6m; W 6m	
Growth stage	Mature	
Tree Condition:		
Root: No evidence of soil movement		
Stem: wounds occluded		
Crown: No evidence of recent breakouts	or dieback.	
Tree Quality Assessment: Ref.BS5837	(2012) 4.5.1 Category A1: Trees, groups or	
woodlands of particular visual importance as arboricultural and/or landscape features. Large		
tree within the grounds of a Grade 1 listed property.		
Water Demand NHBC 4.2-B: Moderate		
Root Protection Area RPA: for tree of 81cm diameter at 1.5m (0.81 x 12) = 9.7m radius		
Total RPA required at current stage of growth = 296m <sup>2</sup>		
Arboricultural Impact Assessment AIA:		
<ul> <li>The existing gravel surfaced drive falls within the RPA of Tree 406 and is providing partial ground protection</li> </ul>		
No strip excavation is permitted within the RPA		
<ul> <li>No raising or lowering of current soils levels by &gt;100m is permitted within the RPA</li> </ul>		
Method Statement: Conversion of existing building to new use and construction of		
parking bays.		
<ul> <li>The existing Access drive is constolet to be porous.</li> </ul>	structed from porous materials. New material needs	
<ul> <li>Install section of Heras fence ind recommended in BS5837 (2012)</li> </ul>	icated on Tree Protection plan. Specification as Fig 3 appended	

Identification No.	G1 (4x trees not tagged)	
Species	Common Lime <i>Tilia x europaea L.</i>	
Current Height (M)	18m	
Ultimate Height (M)	18m	
Current Stem Dia (cm) at 1.5m	80cm Estimated (obscured by sucker growth)	
Crown clearance	3m	
Crown Spread (M)	Radius; N 5m; E 5m; S 5m; W 5m	
Growth stage	Late Mature	
Tree Condition:		
Root: No evidence of soil movement		
Stem: obscured by basal sucker growth.		
Crown: Upper crown dieback. Major deadwood. No evidence of recent breakouts		
Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category A1: Trees, groups or		
woodlands of particular visual importance as arboricultural and/or landscape features. Large		
tree within the grounds of a Grade 1 listed property.		
Water Demand NHBC 4.2-B: Moderate		
Root Protection Area RPA: for tree of 80cm diameter at 1.5m (0.8 x 12) = 9.6m radius		
Total RPA required at current stage of growth = 289m <sup>2</sup>		
Arboricultural Impact Assessment AIA:		
<ul> <li>The existing gravel surfaced drive falls within the RPA of G1 and is providing partial ground protection</li> </ul>		
Basal sucker growth is providing protection from impact damage.		
No strip excavation is permitted within the RPA		
• No raising or lowering of current soils levels by >100m is permitted within the RPA		
Method Statement: Conversion of existing building to new use and construction of		
parking bays.		
<ul> <li>The existing Access drive is constructed from porous materials. New material needs to be porous.</li> </ul>		
<ul> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>		

Identification No.	G2 (7x trees not tagged)	
Species	Beech Lime and Sycamore	
Current Height (M)	22m	
Ultimate Height (M)	22m	
Current Stem Dia (cm) at 1.5m	71cm Averaged	
Crown clearance	4m	
Crown Spread (M)	Radius; N 6m; E 6m; S 6m; W 6m	
Growth stage	Mature	
Tree Condition:		
Root: No evidence of soil movement		
Stem: wounds occluded		
Crown: No evidence of recent breakouts or dieback.		
Tree Quality Assessment: Ref.BS5837	(2012) 4.5.1 Category A1: Trees, groups or	
woodlands of particular visual importance as arboricultural and/or landscape features. Large		
tree within the grounds of a Grade 1 lister	d property.	
Water Demand NHBC 4.2-B: Moderate		
<b>Root Protection Area RPA:</b> for tree of 71cm diameter at 1.5m (0.71 x 12) = <b>8.5m radius</b> Total RPA required at current stage of growth = $227m^2$		
Arboricultural Impact Assessment AIA:		
<ul> <li>The existing gravel surfaced drive falls within the RPA of G2 and is providing partial ground protection</li> </ul>		
No strip excavation is permitted within the RPA		
No raising or lowering of current soils levels by >100m is permitted within the RPA		
Method Statement: Conversion of existing building to new use and construction of		
parking bays.		
<ul> <li>The existing Access drive is constructed from porous materials. New material needs to be porous.</li> </ul>		
<ul> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>		

Identification No.	Tag 407
Species	Sycamore Acer pseudoplatanus L.
Current Height (M)	16m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	31cm
Crown clearance	3m
Crown Spread (M)	Radius; N 4m; E 4m; S 2m; W 4m
Growth stage	Early-Mature
Tree Condition:	

Root: No evidence of soil movement

Stem: wounds occluded. Basal shoots

Crown: No evidence of recent breakouts or dieback.

**Tree Quality Assessment:** Ref.BS5837 (2012) 4.5.1 <u>Category B2:</u> Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating'.

Water Demand NHBC 4.2-B: Moderate

**Root Protection Area RPA:** for tree of 31cm diameter at 1.5m (0.31 x 12) = **3.7m radius** Total RPA required at current stage of growth =  $43m^2$ 

Arboricultural Impact Assessment AIA:

• The proposed new building conversion and hard surfacing falls within the RPA

• No strip excavation is permitted within the RPA

• No raising or lowering of current soils levels by >100m is permitted within the RPA

Method Statement: Conversion of existing building to new use and construction of parking bays.

• The tree is proposed for removal and replacement within the landscaped grounds.

Identification No.	Tag 408
Species	Sycamore Acer pseudoplatanus L.
Current Height (M)	16m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	31cm
Crown clearance	2m
Crown Spread (M)	Radius; N 2m; E 4m; S 4m; W 4m
Growth stage	Farly-Mature

Root: No evidence of soil movement

Stem: wounds occluded. Basal shoots

Crown: No evidence of recent breakouts or dieback.

**Tree Quality Assessment:** Ref.BS5837 (2012) 4.5.1 <u>Category B2:</u> Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating'.

Water Demand NHBC 4.2-B: Moderate

**Root Protection Area RPA:** for tree of 31cm diameter at 1.5m (0.31 x 12) = **3.7m radius** Total RPA required at current stage of growth =  $43m^2$ 

#### Arboricultural Implication Assessment AIA:

- The proposed new parking bay falls within the RPA
- No new trench excavation or change in soil levels should take place within the RPA.
- All new underground services are to be routed outside of the RPA
- A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA
- The protective barrier cannot be positioned at the perimeter of the RPA
- Refer to method statement below for protective measures during construction.

## Method Statement: Conversion of existing building to new use and construction of parking bays.

- Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA
- The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.
- Ramping on and off the above-ground CCS section must be constructed outside of the RPA
- The CCS should be designed by an engineer to carry the maximum anticipated loading for site construction traffic and future use
- The CCS must be constructed before vehicles cross the RPA using the 'rolling out' system of installation.
- The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)
- No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots
- Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended

Identification No.	Tag 409		
Species	Sycamore Acer pseudoplatanus L.		
Current Height (M)	18m		
Ultimate Height (M)	22m		
Current Stem Dia (cm) at 1.5m	24 + 28 + 40 + 50cm		
Crown clearance	2m		
Crown Spread (M)	Radius: N 6m: E 6m: S 6m: W 6m		
Growth stage	Mature		
Tree Condition:	Tree Condition:		
Root: No evidence of soil movement			
Stem: wounds occluded. Multiple stems			
Crown: No evidence of recent breakouts	or dieback.		
Tree Quality Assessment: Ref.BS5837	(2012) 4.5.1 Category B2: Trees present in		
numbers, usually growing as groups or w	oodlands, such that they collect a higher collective		
rating'.			
Water Demand NHBC 4.2-B: Moderate			
<b>Root Protection Area RPA:</b> $\sqrt{(0.24^2 + 1)^2}$	0.28 <sup>2</sup> + 0.40 <sup>2</sup> + 0.50 <sup>2</sup> ) x12 = <b>8.9m</b> radius		
Total RPA required at current stage of gr	$owth = 248m^2$		
Arboricultural Implication Assessmen	t AIA:		
<ul> <li>The proposed new parking bay factors</li> </ul>	alls within the RPA		
• No new trench excavation or change in soil levels should take place within the RPA.			
All new underground services are to be routed outside of the RPA			
• A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface			
is proposed for the new parking bay within the RPA			
The protective barrier cannot be positioned at the perimeter of the RPA			
Refer to method statement below for protective measures during construction.			
Method Statement: Conversion of existing building to new use and construction of			
parking bays.			
<ul> <li>Stone rubble piled within the RP.</li> </ul>	A must be removed by hand, or machinery operating		
from outside of the RPA			
The protective barrier should be sited at the edge of the CCS nearest the tree and			
secured to prevent impact damage.			
<ul> <li>Ramping on and off the above-ground CCS section must be constructed outside of</li> </ul>			
the RPA			
The CCS should be designed by an engineer to carry the maximum anticipated			
loading for site construction traffic and future use			
The CCS must be constructed before vehicles cross the RPA using the 'rolling out'			
system of installation.			
The permeable surface should be protected with a temporary sacrificial surface laid			
over a geotextile separator to ensure permeability is retained (i.e. interstices should			
not become blocked by the passage of construction vehicles)			
<ul> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The</li> </ul>			
CCS edge must be supported by above-ground retaining boards/blocks secured with			
road pins to minimise damage to the lateral roots			
Install section of Heras fence ind	icated on Tree Protection plan. Specification as		
recommended in BS5837 (2012) Fig 3 appended			

Identification No	Tog 410		
Species	Tag 410 Sucamora Acar psaudoplatanus I		
Species Current Height (M)	14m		
Ultimate Height (M)	14111 22m		
Current Stom Dia (cm) at 1 5m	22111 22 + 22cm		
Crown clearance	22 + 22011 2m		
Crown Spread (M)	200 Padius: N 2m: E 1m: S 1m: W/ 2m		
Growth stage	Farly-Mature		
Tree Condition:	Lany-Mature		
<b>Root:</b> No evidence of soil movement			
Stem: Basal shoots. Multiple stems			
<b>Crown:</b> No evidence of recent breakouts	. Upper Crown dieback.		
Tree Quality Assessment: Ref.BS5837	(2012) 4.5.1 Category B2: Trees present in		
numbers, usually growing as groups or w	voodlands, such that they collect a higher collective		
rating'.			
Water Demand NHBC 4.2-B: Moderate			
<b>Root Protection Area RPA:</b> $\sqrt{(0.22^2 + )}$	0.22 <sup>2</sup> ) x12 = <b>3.7m</b> radius		
Total RPA required at current stage of gr	owth = $43m^2$		
Arboricultural Implication Assessmen	t AIA:		
<ul> <li>The proposed new parking bay factors</li> </ul>	The proposed new parking bay falls within the RPA		
<ul> <li>No new trench excavation or cha</li> </ul>	• No new trench excavation or change in soil levels should take place within the RPA.		
<ul> <li>All new underground services are to be routed outside of the RPA</li> </ul>			
• A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface			
is proposed for the new parking bay within the RPA			
<ul> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> </ul>			
<ul> <li>Refer to method statement below for protective measures during construction.</li> </ul>			
Method Statement: Conversion of existing building to new use and construction of			
parking bays.			
<ul> <li>Stone rubble piled within the RPA</li> </ul>	A must be removed by hand, or machinery operating		
trom outside of the RPA			
<ul> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and</li> </ul>			
secured to prevent impact damage.			
<ul> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RBA</li> </ul>			
IIIE REA The CCS should be designed by an engineer to carry the maximum anticipated			
<ul> <li>The UCS should be designed by an engineer to carry the maximum anticipated loading for site construction traffic and future use</li> </ul>			
<ul> <li>The CCS must be constructed before vehicles cross the DDA using the 'rolling out'</li> </ul>			
<ul> <li>The CCS must be constructed before vehicles closs the RPA using the folling out system of installation</li> </ul>			
<ul> <li>The permeable surface should be protected with a temporary sacrificial surface laid</li> </ul>			
over a geotextile separator to ensure permeability is retained (i.e. interstices should			
not become blocked by the passage of construction vehicles)			
<ul> <li>No excavation for haunching is p</li> </ul>	ermitted on side of the CCS closest to the tree. The		
CCS edge must be supported by above-ground retaining boards/blocks secured with			
road pins to minimise damage to the lateral roots			
Install section of Heras fence ind	icated on Tree Protection plan. Specification as		
recommended in BS5837 (2012)	Fig 3 appended		
· · ·			

Species         Sycamore Acer pseudoplatanus L.           Current Height (M)         16m           Utimate Height (M)         22m           Current Stem Dia (cm) at 1.5m         25 + 30cm           Crown Clearance         4m           Crown Spread (M)         Radius; N 1m; E 1m; S 5m; W 4m           Growth stage         Early-Mature           Tree Condition:         Root: No evidence of soil movement           Stem: Multiple stems         Cree Quality Assessment: Ref. BS5837 (2012) 4.5.1 Category B2; Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating'.           Water Demand NHBC 4.2-B: Moderate         Root Protection Area RPA: \ (0.25 <sup>2</sup> + 0.30 <sup>2</sup> ) x12 = 4.7m radius           Total RPA required at current stage of growth = 69m <sup>2</sup> Arboricultural Implication Assessment AIA:           • The proposed new parking bay falls within the RPA         • No new trench excavation or change in soil levels should take place within the RPA.           • All new underground services are to be routed outside of the RPA         • A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA           • All new trench excavation of existing building to new use and construction.           Method Statement: Conversion of existing building to new use and construction of parking bays.           • Stone rubble piled within the RPA must be removed by hand, or machinery opera	Identification No.	Tag 411	
Current Height (M)         16m           Ultimate Height (M)         22m           Current Stem Dia (cm) at 1.5m         25 + 30cm           Crown clearance         4m           Crown Spread (M)         Radius; N 1m; E 1m; S 5m; W 4m           Growth stage         Early-Mature           Tree Condition:         Root: No evidence of soil movement           Stem: Multiple stems         Crown: Asymmetric development. No evidence of recent breakouts.           Tree Quality Assessment: Ref. BS5837 (2012) 4.5.1 Category B2; Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating.           Water Demand NHBC 4.2-B: Moderate         Root Protection Area RPA: √ (0.25 <sup>2</sup> + 0.30 <sup>2</sup> ) x12 = 4.7m radius           Total RPA required at current stage of growth = 69m²         Arboricultrall Implication Assessment AlA:           • The proposed new parking bay falls within the RPA         • No new trench excavation or change in soil levels should take place within the RPA.           • All new underground services are to be routed outside of the RPA         • A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA           • The protective barrier cannot be positioned at the perimeter of the RPA           • Refer to method statement below for protective measures during construction.           Method Statement: Conversion of existing building to new use and construction of parking bays	Species	Sycamore Acer pseudoplatanus L.	
Ultimate Height (M)         22m           Current Stem Dia (cm) at 1.5m         25 + 30cm           Crown Clearance         4m           Crown Spread (M)         Radius; N 1m; E 1m; S 5m; W 4m           Growth stage         Early-Mature           Tree Condition:         Rod:us; N 1m; E 1m; S 5m; W 4m           Root: No evidence of soil movement         Stem: Multiple stems           Crown: Asymmetric development. No evidence of recent breakouts.         Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating:           Water Demand NHBC 4.2-B: Moderate         Root Protection Area RPA: $\sqrt{(0.25^2 + 0.30^2) \times 12 = 4.7m}$ radius           Total RPA required at current stage of growth = 69m <sup>2</sup> Arboricultural Implication Assessment AIA:           • The proposed new parking bay falls within the RPA         No new trench excavation or change in soil levels should take place within the RPA.           • All new underground services are to be routed outside of the RPA         A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA           • The protective barrier cannot be positioned at the perimeter of the RPA           • Refer to method statement below for protective measures during construction.           Method Statement: Conversion of existing building to new use and construction of parking bays.           • Stone rubble piled within the RPA must be removed by	Current Height (M)	16m	
Current Stem Dia (cm) at 1.5m         25 + 30cm           Crown clearance         4m           Crown Spread (M)         Radius; N 1m; E 1m; S 5m; W 4m           Growth stage         Early-Mature           Tree Condition:         Root: No evidence of soil movement           Stem: Multiple stems         Crown Symmetric development. No evidence of recent breakouts.           Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2;         Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating.           Water Demand NHBC 4.2-B: Moderate         Root Protection Area RPA: √ (0.25² + 0.30²) x12 = 4.7m radius           Total RPA required at current stage of growth = 69m²         Arboricultural Implication Assessment AAI:           • The proposed new parking bay falls within the RPA         • No new trench excavation or change in soil levels should take place within the RPA.           • Al - dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA           • The protective barrier cannot be positioned at the perimeter of the RPA           • Refer to method statement below for protective measures during construction.           Method Statement: Conversion of existing building to new use and construction of parking bays.           • Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA           • The protective barrier should be sited at	Ultimate Height (M)	22m	
Crown clearance         4m           Crown Spread (M)         Radius; N 1m; E 1m; S 5m; W 4m           Growth stage         Early-Mature           Tree Condition:         Root: No evidence of soil movement           Stem: Multiple stems         Crown: Asymmetric development. No evidence of recent breakouts.           Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2; Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating'.           Water Demand NHBC 4.2-B: Moderate         Root Protection Area RPA: √ (0.25² + 0.30²) x12 = 4.7m radius           Root Protection Area RPA: √ (0.25² + 0.30²) x12 = 4.7m radius         Total RPA required at current stage of growth = 69m²           Arboricultural Implication Assessment AIA:         • The proposed new parking bay falls within the RPA           • No new trench excavation or change in soil levels should take place within the RPA.           • All new underground services are to be routed outside of the RPA           • A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA           • The protective barrier cannot be positioned at the perimeter of the RPA           • The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.           • Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA           • The protective barrier should be sited a	Current Stem Dia (cm) at 1.5m	25 + 30cm	
Crown Spread (M)         Radius; N 1m; E 1m; S 5m; W 4m           Growth stage         Early-Maure           Cree Condition:         Rod:: No evidence of soil movement           Stem: Multiple stems         Crown: Asymmetric development. No evidence of recent breakouts.           Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2; Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating;           Water Demand NHBC 4.2-B: Moderate         Root Protection Area RPA: √ (0.25 <sup>2</sup> + 0.30 <sup>2</sup> ) x12 = 4.7m radius           Total RPA required at current stage of growth = 69m <sup>2</sup> Arboricultural Implication Assessment AIA:         • The proposed new parking bay falls within the RPA           • No new trench excavation or change in soil levels should take place within the RPA.         • All new underground services are to be routed outside of the RPA           • A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA         • The protective barrier cannot be positioned at the perimeter of the RPA           • Refer to method statement below for protective measures during construction.         Method Statement: Conversion of existing building to new use and construction of parking bays.           • Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA         • The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.           • Ramping on and o	Crown clearance	4m	
Growth stage         Early-Mature           Tree Condition:         Root: No evidence of soil movement           Stem: Multiple stems         Crown: Asymmetric development. No evidence of recent breakouts.           Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2; Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating'.           Water Demand NHBC 4.2-B: Moderate         Root Protection Area RPA: √(0.25² + 0.30²) x12 = 4.7m radius           Total RPA required at current stage of growth = 69m²         Arboricultural Implication Assessment AIA:           • The proposed new parking bay falls within the RPA         • No new trench excavation or change in soil levels should take place within the RPA.           • All new underground services are to be routed outside of the RPA         • A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA           • The protective barrier cannot be positioned at the perimeter of the RPA           • Refer to method statement below for protective measures during construction.           Method Statement: Conversion of existing building to new use and construction of parking bays.           • Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA           • The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.           • Ramping on and off the above-ground CCS section must be constructed outside of the RP	Crown Spread (M)	Radius; N 1m; E 1m; S 5m; W 4m	
<ul> <li>Tree Condition:</li> <li>Root: No evidence of soil movement</li> <li>Stem: Multiple stems</li> <li>Crown: Asymmetric development. No evidence of recent breakouts.</li> <li>Tree Quality Assessment: Ref. BS6837 (2012) 4.5.1 Category B2: Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating.</li> <li>Water Demand NHBC 4.2-B: Moderate</li> <li>Root Protection Area RPA: \(0.25<sup>2</sup> + 0.30<sup>2</sup>) x12 = 4.7m radius</li> <li>Total RPA required at current stage of growth = 69m<sup>2</sup></li> <li>Arboricultural Implication Assessment AIA: <ul> <li>The proposed new parking bay falls within the RPA</li> <li>No new trench excavation or change in soil levels should take place within the RPA.</li> <li>All new underground services are to be routed outside of the RPA</li> <li>A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA</li> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> <li>Refer to method statement below for protective measures during construction.</li> </ul> </li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site constructed before vehicles cross the RPA using the 'rolling out' system of insitallation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (ic. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunc</li></ul>	Growth stage	Early-Mature	
<ul> <li>Root: No evidence of soil movement</li> <li>Stem: Multiple stems</li> <li>Crown: Asymmetric development. No evidence of recent breakouts.</li> <li>Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2; Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating;</li> <li>Water Demand NHBC 4.2-B: Moderate</li> <li>Root Protection Area RPA: √(0.25<sup>2</sup> + 0.30<sup>2</sup>) x12 = 4.7m radius</li> <li>Total RPA required at current stage of growth = 69m<sup>2</sup></li> <li>Arboricultural Implication Assessment AIA: <ul> <li>The proposed new parking bay falls within the RPA</li> <li>No new trench excavation or change in soil levels should take place within the RPA.</li> <li>All new underground services are to be routed outside of the RPA</li> <li>A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA</li> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> <li>Refer to method statement below for protective measures during construction.</li> </ul> </li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The promeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side</li></ul>	Tree Condition:		
<ul> <li>Stem: Multiple stems</li> <li>Crown: Asymmetric development. No evidence of recent breakouts.</li> <li>Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2: Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating'.</li> <li>Water Demand NHBC 4.2-B: Moderate</li> <li>Root Protection Area RPA: √(0.25<sup>2</sup> + 0.30<sup>2</sup>) x12 = 4.7m radius</li> <li>Total RPA required at current stage of growth = 69m<sup>2</sup></li> <li>Arboricultural Implication Assessment IAI: <ul> <li>The proposed new parking bay falls within the RPA</li> <li>No new trench excavation or change in soil levels should take place within the RPA.</li> <li>All new underground services are to be routed outside of the RPA</li> <li>A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA</li> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> <li>Refer to method statement below for protective measures during construction.</li> </ul> </li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The premeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS ed</li></ul>	Root: No evidence of soil movement		
<ul> <li>Crown: Asymmetric development. No evidence of recent breakouts.</li> <li>Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 <u>Category B2</u>: Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating.</li> <li>Water Demand NHBC 4.2-B: Moderate</li> <li>Root Protection Area RPA: √(0.25<sup>2</sup> + 0.30<sup>2</sup>) x12 = 4.7m radius</li> <li>Total RPA required at current stage of growth = 69m<sup>2</sup></li> <li>Arboricultural Implication Assessment AIA: <ul> <li>The proposed new parking bay falls within the RPA</li> <li>No new trench excavation or change in soil levels should take place within the RPA.</li> <li>All new underground services are to be routed outside of the RPA</li> <li>A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA</li> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> <li>Refer to method statement below for protective measures during construction.</li> </ul> </li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS must be constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The premeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to</li></ul>	Stem: Multiple stems	idea a of a continue has the	
<ul> <li>The duality Assessment. Ref.B53637 (2012) 4.5.1 <u>Category 62</u>, Thes present informumbers, usually growing as groups or woodlands, such that they collect a higher collective rating.</li> <li>Water Demand NHBC 4.2-B: Moderate</li> <li>Root Protection Area RPA: √ (0.25<sup>2</sup> + 0.30<sup>2</sup>) x12 = 4.7m radius</li> <li>Total RPA required at current stage of growth = 69m<sup>2</sup></li> <li>Arboricultural Implication Assessment AIA: <ul> <li>The proposed new parking bay falls within the RPA</li> <li>No new trench excavation or change in soil levels should take place within the RPA.</li> <li>All new underground services are to be routed outside of the RPA</li> <li>A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA</li> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> <li>Refer to method statement below for protective measures during construction.</li> </ul> </li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damag</li></ul>	<b>Crown:</b> Asymmetric development. No ev	(Idence of recent breakouts.	
<ul> <li>Note that the second second</li></ul>	numbers, usually growing as groups or w	(2012) 4.5.1 Calegory Bz. Trees present in	
<ul> <li>Water Demand NHBC 4.2-B: Moderate</li> <li>Root Protection Area RPA: √(0.25<sup>2</sup> + 0.30<sup>2</sup>) x12 = 4.7m radius</li> <li>Total RPA required at current stage of growth = 69m<sup>2</sup></li> <li>Arboricultural Implication Assessment AIA: <ul> <li>The proposed new parking bay falls within the RPA</li> <li>No new trench excavation or change in soil levels should take place within the RPA.</li> <li>All new underground services are to be routed outside of the RPA</li> <li>A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA</li> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> <li>Refer to method statement below for protective measures during construction.</li> </ul> </li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> </ul>	rating'	voodiands, such that they collect a higher collective	
<ul> <li>Root Protection Area RPA: √(0.25<sup>2</sup> + 0.30<sup>2</sup>) x12 = 4.7m radius</li> <li>Total RPA required at current stage of growth = 69m<sup>2</sup></li> <li>Arboricultural Implication Assessment AIA: <ul> <li>The proposed new parking bay falls within the RPA</li> <li>No new trench excavation or change in soil levels should take place within the RPA.</li> <li>All new underground services are to be routed outside of the RPA</li> <li>A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA</li> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> <li>Refer to method statement below for protective measures during construction.</li> </ul> </li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site construction traffic and future use</li> <li>The CCS must be constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul> <th>Water Demand NHBC 4 2-B: Moderate</th> <th></th>	Water Demand NHBC 4 2-B: Moderate		
<ul> <li>Total RPA required at current stage of growth = 69m<sup>2</sup></li> <li>Arboricultural Implication Assessment AIA: <ul> <li>The proposed new parking bay falls within the RPA</li> <li>No new trench excavation or change in soil levels should take place within the RPA.</li> <li>All new underground services are to be routed outside of the RPA</li> <li>A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA</li> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> <li>Refer to method statement below for protective measures during construction.</li> </ul> </li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on Side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> </ul>	<b>Root Protection Area RPA:</b> $\sqrt{(0.25^2 + 10.25^2)}$	0.30 <sup>2</sup> ) x12 = <b>4.7m</b> radius	
<ul> <li>Arboricultural Implication Assessment AIA: <ul> <li>The proposed new parking bay falls within the RPA</li> <li>No new trench excavation or change in soil levels should take place within the RPA.</li> <li>All new underground services are to be routed outside of the RPA</li> <li>A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA</li> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> <li>Refer to method statement below for protective measures during construction.</li> </ul> </li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	Total RPA required at current stage of gr	$rowth = 69m^2$	
<ul> <li>The proposed new parking bay falls within the RPA</li> <li>No new trench excavation or change in soil levels should take place within the RPA.</li> <li>All new underground services are to be routed outside of the RPA</li> <li>A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA</li> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> <li>Refer to method statement below for protective measures during construction.</li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	Arboricultural Implication Assessmen	t AIA:	
<ul> <li>No new trench excavation or change in soil levels should take place within the RPA.</li> <li>All new underground services are to be routed outside of the RPA</li> <li>A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA</li> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> <li>Refer to method statement below for protective measures during construction.</li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site construction traffic and future use</li> <li>The CCS must be constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	<ul> <li>The proposed new parking bay f</li> </ul>	alls within the RPA	
<ul> <li>All new underground services are to be routed outside of the RPA</li> <li>A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA</li> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> <li>Refer to method statement below for protective measures during construction.</li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	<ul> <li>No new trench excavation or cha</li> </ul>	ange in soil levels should take place within the RPA.	
<ul> <li>A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA</li> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> <li>Refer to method statement below for protective measures during construction.</li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	<ul> <li>All new underground services are</li> </ul>	e to be routed outside of the RPA	
<ul> <li>is proposed for the new parking bay within the RPA</li> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> <li>Refer to method statement below for protective measures during construction.</li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	A 3-dimensional No-Dig cellular	confinement system (CCS) with a permeable surface	
<ul> <li>The protective barrier cannot be positioned at the perimeter of the RPA</li> <li>Refer to method statement below for protective measures during construction.</li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	is proposed for the new parking l	bay within the RPA	
<ul> <li>Refer to method statement below for protective measures during construction.</li> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	• The protective barrier cannot be	The protective barrier cannot be positioned at the perimeter of the RPA	
<ul> <li>Method Statement: Conversion of existing building to new use and construction of parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site construction traffic and future use</li> <li>The CCS must be constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	<ul> <li>Refer to method statement below</li> </ul>	v for protective measures during construction.	
<ul> <li>parking bays.</li> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	Method Statement: Conversion of exis	sting building to new use and construction of	
<ul> <li>Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA</li> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site construction traffic and future use</li> <li>The CCS must be constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	parking bays.		
<ul> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site construction traffic and future use</li> <li>The CCS must be constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	<ul> <li>Stone rubble piled within the RPA from outside of the RPA</li> </ul>	A must be removed by hand, or machinery operating	
<ul> <li>Ramping on and off the above-ground CCS section must be constructed outside of the RPA</li> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site construction traffic and future use</li> <li>The CCS must be constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	<ul> <li>The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.</li> </ul>		
<ul> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site construction traffic and future use</li> <li>The CCS must be constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	Ramping on and off the above-ground CCS section must be constructed outside of the RPA		
<ul> <li>The CCS must be constructed before vehicles cross the RPA using the 'rolling out' system of installation.</li> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	<ul> <li>The CCS should be designed by an engineer to carry the maximum anticipated loading for site construction traffic and future use</li> </ul>		
<ul> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	<ul> <li>The CCS must be constructed before vehicles cross the RPA using the 'rolling out' system of installation</li> </ul>		
<ul> <li>not become blocked by the passage of construction vehicles)</li> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	<ul> <li>The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should</li> </ul>		
<ul> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	not become blocked by the passage of construction vehicles)		
<ul> <li>Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended</li> </ul>	<ul> <li>No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots</li> </ul>		
	<ul> <li>Install section of Heras fence ind recommended in BS5837 (2012)</li> </ul>	licated on Tree Protection plan. Specification as Fig 3 appended	

Identification No.	Tag 412
Species	Sycamore Acer pseudoplatanus L.
Current Height (M)	22m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	72cm
Crown clearance	4m
Crown Spread (M)	Radius; N 7m; E 7m; S 7m; W 7m
Growth stage	Mature
Tree Condition:	

**Root:** No evidence of soil movement

**Stem:** wounds occluded. Lighting cable attached to stem

**Crown:** No evidence of recent breakouts or dieback.

**Tree Quality Assessment:** Ref.BS5837 (2012) 4.5.1 <u>Category B2:</u> Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating'.

Water Demand NHBC 4.2-B: Moderate

**Root Protection Area RPA:** for tree of 71cm diameter at 1.5m  $(0.72 \times 12) = 8.6m$  radius Total RPA required at current stage of growth =  $232m^2$ 

#### Arboricultural Implication Assessment AIA:

- The proposed new parking bay falls within the RPA
- No new trench excavation or change in soil levels should take place within the RPA.
- All new underground services are to be routed outside of the RPA
- A 3-dimensional No-Dig cellular confinement system (CCS) with a permeable surface is proposed for the new parking bay within the RPA
- The protective barrier cannot be positioned at the perimeter of the RPA
- Refer to method statement below for protective measures during construction.

## Method Statement: Conversion of existing building to new use and construction of parking bays.

- Stone rubble piled within the RPA must be removed by hand, or machinery operating from outside of the RPA
- The protective barrier should be sited at the edge of the CCS nearest the tree and secured to prevent impact damage.
- Ramping on and off the above-ground CCS section must be constructed outside of the RPA
- The CCS should be designed by an engineer to carry the maximum anticipated loading for site construction traffic and future use
- The CCS must be constructed before vehicles cross the RPA using the 'rolling out' system of installation.
- The permeable surface should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure permeability is retained (i.e. interstices should not become blocked by the passage of construction vehicles)
- No excavation for haunching is permitted on side of the CCS closest to the tree. The CCS edge must be supported by above-ground retaining boards/blocks secured with road pins to minimise damage to the lateral roots
- Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended

Identification No.	Tag 413
Species	Sycamore Acer pseudoplatanus L.
Current Height (M)	17m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	29cm
Crown clearance	4m
Crown Spread (M)	Radius; N 5m; E 4m; S 0m; W 0m
Growth stage	Early-Mature

Root: No evidence of soil movement

Stem: Asymmetric development. Lighting cable attached to stem

Crown: No evidence of recent breakouts or dieback.

**Tree Quality Assessment:** Ref.BS5837 (2012) 4.5.1 Category B2: Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating'.

Water Demand NHBC 4.2-B: Moderate

**Root Protection Area RPA:** for tree of 29cm diameter at 1.5m (0.29 x 12) = **3.5m radius** Total RPA required at current stage of growth =  $38m^2$ 

#### Arboricultural Impact Assessment AIA:

- The proposed car parking bay falls outside the RPA
- No strip excavation is permitted within the RPA
- No raising or lowering of current soils levels by >100m is permitted within the RPA

Method Statement: Conversion of existing building to new use and construction of parking bays.

 Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended

Identification No.	Tag 414
Species	Sycamore Acer pseudoplatanus L.
Current Height (M)	18m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	28 + 30 + 31 + 31cm
Crown clearance	4m
Crown Spread (M)	Radius; N 6m; E 3m; S 5m; W 2m
Growth stage	Mature

Tree Condition:

Root: No evidence of soil movement

Stem: wounds occluded. Multiple stems

Crown: No evidence of recent breakouts or dieback.

**Tree Quality Assessment:** Ref.BS5837 (2012) 4.5.1 <u>Category B2:</u> Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating'.

Water Demand NHBC 4.2-B: Moderate

**Root Protection Area RPA:**  $\sqrt{(0.28^2 + 0.30^2 + 0.31^2 + 0.31^2)} \times 12 = 7.2m$  radius Total RPA required at current stage of growth =  $163m^2$ 

#### Arboricultural Impact Assessment AIA:

- The proposed car parking bay falls outside the RPA
- No strip excavation is permitted within the RPA
- No raising or lowering of current soils levels by >100m is permitted within the RPA

Method Statement: Conversion of existing building to new use and construction of parking bays.

• Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended

Identification No.	Tag 415
Species	Sycamore Acer pseudoplatanus L.
Current Height (M)	15m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	25cm
Crown clearance	3m
Crown Spread (M)	Radius; N 4m; E 3m; S 0m; W 0m
Growth stage	Early-Mature

Root: No evidence of soil movement

Stem: Asymmetric development. L

Crown: No evidence of recent breakouts. Crown dieback.

**Tree Quality Assessment:** Ref.BS5837 (2012) 4.5.1 <u>Category B2:</u> Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating'.

Water Demand NHBC 4.2-B: Moderate

**Root Protection Area RPA:** for tree of 25cm diameter at 1.5m (0.25 x 12) = **3m radius** Total RPA required at current stage of growth =  $28m^2$ 

#### Arboricultural Impact Assessment AIA:

- The proposed car parking bay falls outside the RPA
- No strip excavation is permitted within the RPA

• No raising or lowering of current soils levels by >100m is permitted within the RPA Method Statement: Conversion of existing building to new use and construction of parking bays.

Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended

Identification No.	Tag 416
Species	False acacia Robinia pseudoacacia L.
Current Height (M)	16m
Ultimate Height (M)	16m
Current Stem Dia (cm) at 1.5m	55cm
Crown clearance	4m
Crown Spread (M)	Radius; N 5m; E 4m; S 4m; W 4m
Growth stage	Late Mature

#### Tree Condition:

Root: No evidence of soil movement

Stem: Hollow

**Crown:** Major deadwood. No evidence of recent breakouts. Reducing twig density indicative of declining vigour.

**Tree Quality Assessment:** Ref.BS5837 (2012) 4.5.1 <u>Category B2:</u> Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating'.

Water Demand NHBC 4.2-B: Moderate

**Root Protection Area RPA:** for tree of 55cm diameter at 1.5m (0.55 x 12) = **6.6m radius** Total RPA required at current stage of growth =  $137m^2$ 

#### Arboricultural Impact Assessment AIA:

- The proposed car parking bay falls outside the RPA
- No strip excavation is permitted within the RPA
- No raising or lowering of current soils levels by >100m is permitted within the RPA

Method Statement: Conversion of existing building to new use and construction of parking bays.

• Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended

Identification No.	G3 10x trees (Multiple Sycamore, Ash and Damson
	bordering the disused tennis court (trees not tagged)
Species	Sycamore, Ash, Damson
Current Height (M)	17m (Tallest tree)
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	62cm (largest tree)
Crown clearance	4m
Crown Spread (M)	Radius; N 5m; E 5m; S 5m; W 5m largest tree
Growth stage	Early-Mature and mature

Root: No evidence of soil movement

Stem: wounds occluded

Crown: No evidence of recent breakouts or dieback.

**Tree Quality Assessment:** Ref.BS5837 (2012) 4.5.1 <u>Category B2:</u> Trees present in numbers, usually growing as groups or woodlands, such that they collect a higher collective rating'.

Water Demand NHBC 4.2-B: Moderate

**Root Protection Area RPA:** for tree of 62cm diameter at 1.5m (0.62 x 12) = **7.4m radius** Total RPA required at current stage of growth =  $172m^2$ 

#### Arboricultural Impact Assessment AIA:

- The proposed car parking bay falls outside the RPA
- No strip excavation is permitted within the RPA

• No raising or lowering of current soils levels by >100m is permitted within the RPA Method Statement: Conversion of existing building to new use and construction of parking bays.

• Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended

Identification No.	G4 (Multiple Beech, Lime and Sycamore lining the
	access drive from the West Lodge (trees not tagged)
Species	Beech Lime and Sycamore
Current Height (M)	20m
Ultimate Height (M)	22m
Current Stem Dia (cm) at 1.5m	71cm Averaged
Crown clearance	4m
Crown Spread (M)	Radius; N 6m; E 6m; S 6m; W 6m
Growth stage	Mature

Tree Condition:

Root: No evidence of soil movement

Stem: wounds occluded

Crown: No evidence of recent breakouts or dieback.

**Tree Quality Assessment:** Ref.BS5837 (2012) 4.5.1 Category A1: Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features. Large tree within the grounds of a Grade 1 listed property.

Water Demand NHBC 4.2-B: Moderate

**Root Protection Area RPA:** for tree of 71cm diameter at 1.5m (0.71 x 12) = **8.5m radius** Total RPA required at current stage of growth =  $227m^2$ 

#### Arboricultural Impact Assessment AIA:

- The existing gravel surfaced drive falls within the RPA of G4 and is providing partial ground protection
- No strip excavation is permitted within the RPA

# • No raising or lowering of current soils levels by >100m is permitted within the RPA Method Statement: Conversion of existing building to new use and construction of parking bays.

- The existing Access drive is constructed from porous materials. New material needs to be porous.
- Install section of Heras fence indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended.

#### General Arboricultural Method Statement ref. BS 5837 (2012)

3.0 The root protection area (RPA) recommendation in BS 5837 2012 (Trees in relation to design, demolition and construction - Recommendations), is based upon a minimum area (in m<sup>2</sup>) calculated from the measurement of the stem diameter and a factor of the radial distance between the tree stem and the outer extent of the main lateral roots. The resulting area is usually recorded as a generalised circle on the tree survey. However the significant figure is the equivalent available rooting area in m<sup>2</sup> rather than the circular shape; tree roots exploit the optimum ground conditions for their physical development dependant upon soil aeration, plant-available water, mineral elements and physical barriers to growth. Providing the total minimum area in m<sup>2</sup> recommended in the RPA is available to the tree, the actual shape of the area is less significant, providing it can be demonstrated that the construction process will not result in significant damage to existing roots greater than 25mm in diameter. 'The viable retention of trees on construction sites is dictated by the successful protection of their root systems throughout the development process from initial site clearance to installation of the new landscape. Healthy soils contain five basic components: oxygen, organic matter, mineral matter, living organisms and moisture. A soil's porosity allows water to drain through, carbon dioxide to escape and oxygen to enter. Construction vehicles operating on exposed soils, particularly in wet conditions, compact the soil pores and prevent these processes from occurring' (Cowan 2005)

**3.1** The Tree Protection Plan (TPP) and method statement details how the construction work will be carried out in proximity to the retained trees, protective barrier specification, timing of work, other mitigation measures where required and supervision of the protection measures during construction.

#### 3.2 <u>Summary of works</u>

**Drainage and Utilities:** Follow recommendation in the NJUG Volume 4 Code of practice relating to work in proximity to tree roots within the RPA; specifically the avoidance of trench excavations within the RPA. Any drainage or service related works to be carried out within the Root Protection Area must be subject to the prior written approval of the LPA of a method statement detailing how such works are to be carried out and monitored, so as to avoid undue damage to the tree.

**Site Compound, construction materials, soil/demolition debris storage mixing of concrete and washings:** Must be located outside of the Root Protection Areas. Vehicle movements, storage of vehicles or heavy machinery, lighting of fires and no excavations or alterations of ground level is permitted within the protective barrier or areas of temporary ground protection

Method of work for individual trees <u>retained</u> in proximity to construction works or access to the works: refer to the work method described for each retained tree ref. section 2.2 of the report.

#### 3.3 Protective Fencing

- Protective barriers should be erected with verticals positioned to avoid the lateral roots of the larger trees. Refer to BS 5837 (2012) figure 3 Protective barrier for details of the recommended specification.
- Protective barrier should be erected and then approved by the Local Planning Authority before the start of demolition and construction works on site, including the installation of temporary site office, storage and welfare facilities if required
- The barrier and ground protection shall be maintained in a satisfactory condition throughout the duration of development. There is to be no access or operations of any kind within the barrier, nor repositioning of the barrier even temporarily, without the prior written approval of the LPA.

**Appendix 1** Photo Detail: Tree condition illustration ref. Sect 2.2



















Appendix 2 Tree Location and Root protection area

Appendix 3 BS 5837 2012 Protection illustrations

**Appendix 4** Appendix 4 Glossary of Arboricultural Terms

#### Appendix 2, 3 & 4 are supplied as separate individual pages

Biddle P G (1998) *Tree root damage to buildings Vol 1.* Willowmead Publishing Ltd
Opik H & Rolfe S (2005) *The Physiology of Flowering Plants* Cambridge
Lonsdale D, (1999) *Principles of Tree Hazard Assessment and Management* HMSO
Mattheck & Breloer (1994) *The body language of trees DTR* TSO
Mattheck C, (2007) Updated Field Guide for Visual Tree Assessment
Forschungszentrum Karlsruhe GmbH
Roberts J, Jackson N, Smith M (2006) *Tree Roots in the Built Environment* TSO
Strouts & Winter, (1994) *Diagnosis of ill-health in trees D.o.E* HMSO
Weber & Mattheck (2001) *Manual of Wood Decays in Trees* Arboricultural
Association
White, White & Walters (2005) *Trees; A field Guide to the trees of Britain and Northern Europe.* Oxford

**Arb Implication Assessment:** T F Merchant Chartered Forester M.Arbor.A **Date:** 5.1.2016