



## ARBORICULTURAL IMPACT ASSESSMENT AND METHOD STATEMENT

SITE:	1 SPRING TERRACE, RICHMOND
SURVEY DATE:	15 APRIL 2019
REPORT DATE:	15 NOVEMBER 2019
OUR REFERENCE:	212133710/4/2019
ON BEHALF OF:	Richmond Green Developments Ltd.
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## 1. INTRODUCTION

- 1.1. Harrison Arboriculture Ltd. was commissioned to provide an arboricultural report to include an arboricultural impact assessment, tree protection plan and method statement for development proposals at land to the rear of 1 Spring Terrace, Richmond by Johnathan Goater of Goater Jones on behalf of Richmond Green Developments Ltd. on 30 September 2019.
- 1.2. The site co-ordinates are 51°27'36.8"N 0°17'59.1"W which lies within the administrative area of The London Borough of Richmond Upon Thames.

## 2. TERMS OF REFERENCE

- 2.1. To provide an assessment of the trees on and around the site regarding their suitability for retention within the context of the development and which of those will have an impact upon and be impacted by the development. Methods by which those impacts can be mitigated if they are available. The report adheres to the recommendations provided in British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations' (BS 5837)
- 2.2. The report includes:

### **An Arboricultural Survey**

The survey provides a plan indicating the size and positions of the trees. They are plotted and scaled based on the Existing Tree Plan provided by Goater Jones, the final plan will be at 1:500 or larger as per RICS specification, it provides:

- Identification details and assessment of the current condition of trees within and close to the red line site.
- Recommendations for remedial works necessary and available to maintain their health and/or safety within the context of the development (for trees within the ownership of the applicants).
- Categorisation as per BS 5837 : 2012.

### **An Impact Assessment (AIA) / Constraints Plan**

Based on the tree survey and proposed layout as illustrated by The Site Context



Plan drawing reference 17018 – 111 provided by Goater Jones. The assessment provides:

- Details of tree loss and works (if any) required implementing the design.
- Identification of both above and below ground activities proposed in the vicinity of retained trees which may be potentially damaging e.g. removal of existing structures, the installation of hard surfacing, services installation and the location and dimensions of all proposed excavations or changes in ground level, including those necessary for the implementation of the recommended mitigation measures.
- The practicability of the scheme regarding access, adequate working space and provision for the storage of materials.
- Theoretical Root Protection Areas (RPA's) denoted as nominal circular areas centred on the trunk for all trees categorised A and B will be listed in the tree schedule.
- The RPA's for trees categorised C will be included in the tree schedule but will only be relevant where they are not under the ownership or management of the applicant or where they are to be retained within the development.
- Areas of conflict will be highlight on the constraints plan to allow a protection plan to be formulated

### **A Tree Protection Plan (TPP)**

This will provide:

- Recommendations for the construction and positioning of suitable tree protection. It includes barrier fencing and both permanent and temporary ground protection where appropriate based on the AIA.
- The report will include possible methods to mitigate the adverse impacts of the development. The TPP illustrates the areas within or close to the RPA's within which measures are necessary to protect the root areas of retained trees.

### **Predicted impacts plan**



- The predicted impacts plan provides information about the expected impacts of the retained trees for the period of around 5 years post development. The shade prediction is based on guidance provided by Building Research Establishment (BRE) in Site Layout Planning For Daylight and Sunlight - A guide to good practice (BRE, 1991) and the predicted canopy growth on data provided by Trees and People in the Built Environment II (TPBE II) paper - Determining tree growth in the urban forest (Rogers et al, 2014)

### **An Arboricultural Method Statement**

This will provide a precautionary approach appropriate to the proposals. It will describe the methods and sequence of tree protection that should be adopted in order to demonstrate that the operations can be undertaken with minimal risk of adverse impact on trees to be retained. It may require relevant information from other specialists. It will include some or all of the following:

- any operations proposed within the RPA (or crown spread where this is greater);
- removal of existing structures and hard surfacing;
- installation of temporary ground protection ;
- excavations and the requirement for specialised trenchless techniques ;
- installation of new hard surfacing including materials, design constraints and implications for levels;
- specialist foundations including installation techniques and the effect on finished floor levels and overall height;
- retaining structures to facilitate changes in ground levels;
- preparatory works for new landscaping;
- An auditable/audited system of arboricultural site monitoring, including a process by which adherence to the agreed methods and phasing within this report can be monitored;



- A schedule of specific site events requiring specialist arboricultural input or supervision; and
  - A list of contact details for the relevant parties.
- 2.4. The scope and limitations of the report are listed in Appendix B – Generic Information.

### **3. PROTECTION STATUS**

- 3.1. The site is situated within The Sheen Road Conservation Area and the trees are therefore protected under the law. Any works undertaken outside the remit of an approved planning application will require formal notification of the intended works for trees within Conservation Areas tree Preservation to London Borough of Richmond Upon Thames. The council then have a six week period to decide whether the works are acceptable or if not, to install a Tree Preservation Order.



## **ARBORICULTURAL IMPACT ASSESSMENT**

### **4. DEVELOPMENT / SITE APPRAISAL**

#### **Character**

- 4.1. The site consists of undeveloped land with access via Mount Ararat Road consisting of a section of land to the south east of no. 1 Spring Terrace currently serving as off road parking and storage area and an unmaintained redundant parcel of land previously used as a contractors yard to the rear of no. 2 Spring Terrace, Paradise Road, Richmond-upon Thames, TW9 1LW.

#### **Topography/surface**

- 4.2. The site slopes upward slightly from North West to south east but within the slope the ground level is broadly flat with no significant humps or dips apart from a raised border to the south east. There are a number of young Black Locust trees (*Robinia pseudoacacia*) growing adjacent to the south eastern boundary on the raised border.
- 4.3. The land to the south east of no. 2 spring terrace, unmaintained redundant parcel of land previously used as a contractors yard. It is mainly covered with grass and herbaceous growth with shrubs and trees along the north eastern boundary. A small amount of building materials are being stored close to the partition boundary.
- 4.4. The area to the rear of 1 Spring Terrace is partially gravel surface and partially concrete with areas of unsurfaced ground around the periphery.
- 4.5. The development proposal is to combine the two sections i.e. the areas to the rear of 1 and 2 Spring Terrace, and construct a partially sunken dwelling with access to the site using the existing from Mount Ararat.

### **5. TREE CATEGORISATION**

- 5.1. The method of categorisation as provided by BS5837 can be found at Appendix A. The following is a summary of the trees present on the site and their grade.



**Category U** - Trees in such a condition that any value would be lost within 10 years, or should be removed for reasons of sound arboricultural management.

**Category A** - Trees of high quality and value: in such a condition as to make a substantial contribution, (40 years or more is recommended).

**Category B** - Trees of moderate quality and value, capable of making a significant contribution for in excess of 20 years.

**Category C** - Trees of low quality and value which might remain for a minimum of 10 years or young trees with stems of less than 150mm diameter.

Table 1 - Tree Category Summary

<b>C1</b>	<b>15</b>		<b>A</b>	<b>0</b>
<b>C2</b>	<b>0</b>		<b>B</b>	<b>0</b>
<b>C3</b>	<b>0</b>		<b>C</b>	<b>15</b>
<b>B1</b>	<b>0</b>		<b>U</b>	<b>1</b>
<b>B2</b>	<b>0</b>		<b>Total</b>	<b>16</b>
<b>B3</b>	<b>0</b>			
<b>A1</b>	<b>0</b>		<b>T</b>	<b>15</b>
<b>A2</b>	<b>0</b>		<b>G</b>	<b>0</b>
<b>A3</b>	<b>0</b>		<b>H</b>	<b>1</b>
<b>U</b>	<b>1</b>		<b>W</b>	<b>0</b>
<b>C1/B2</b>	<b>0</b>			
<b>Total</b>	<b>16</b>		<b>Total</b>	<b>16</b>

## 6. DEVELOPMENT IMPLICATIONS

- 6.1. The primary criterion, in Arboricultural terms, is the retention of as many appropriate trees as practicable, allowing development to proceed whilst providing them with space and protection both during and subsequent to the completion of the development. The following is an assessment of the likely impact of the development on trees which are worthy of retention and guidance on the type and extent of protection required to ensure their continued wellbeing within the proposed development and the future landscape.
- 6.2. Tree 2 has been categorised U and is recommended for removal despite the development.





- 6.3. All the remaining trees on the site have been categorised C. Of these trees 7, 8 and 8a are within the development footprint or so close that their retention is not viable due to loss of either or both above and below ground parts of the tree. They are to be removed and new trees planted in mitigation.
- 6.4. Trees 1 – 6 are growing on a raised bed with a retaining wall. The post development landscaping of the site will require alterations to the surface level such that their retention is not viable.
- 6.5. Tree 10 is a young tree growing in close proximity to the existing boundary wall. Future root girth increase is likely to displace the wall and therefore it is recommended for removal.
- 6.6. Although the remaining trees are a sufficient distance from the proposals that they can be retained and protected from damage during construction, they are poorly shaped and there is the potential for them to be lost due to Ash dieback in the short to medium term. Tree 13, a suppressed individual is to be removed to allow new planting. Trees 11 and 12 (Ash) are to be pruned to form a visually pleasing shape in line with the habit of the species and retained for the period immediately following the development (5 – 8 years) to provide shelter and act as nurse trees to the new specimen planting.
- 6.7. Areas adjacent to the existing wall along the south western boundary and to the south west of the access have been identified as suitable for tree planting. The areas identified should be cleared of existing building materials and debris and protected during the construction. The soil conditions should be improved to facilitate speedy establishment and to not only facilitate but also influence future root growth.

## **7. SERVICE RUNS**

- 7.1. We have not been provided with details of underground services. They will require routing well outside the protection areas of trees which are to be retained.
- 7.2. Unbroken plastic pipes should be used where services which run through the rooting areas of any new trees to prevent the ingress of roots.



## **8. SITE PARKING, SITE HUTS, MIXING AND MATERIAL STORAGE AREAS**

8.1. Because the retention of the existing trees is not viable, root protection to facilitate deliveries, material storage and contractor parking are not necessary. However, to ensure soil structure is maintained and to prevent compaction within the proposed planting areas, the boundary fence to the rear of 1 Spring Terrace will be retained throughout the development and parking and material storage will be restricted to the existing access and hard surfaces to the front (south) of the site. If an alternative location is required, this must be agreed in writing with London Borough of Richmond Upon Thames prior to any activity within the new area.

## **9. TREE PROTECTION**

9.1. Exclusion of construction activity from the unprotected recommended root protection areas from the outset will ensure those trees identified for retention are maintained in a safe and healthy condition preventing the following. They should be retained in place for the duration of the development:

- Root severance
- Damage to the bark, branches and trunks
- Compaction of the soil within the Construction Exclusion Zone
- Alterations in soil level
- Soil contamination by phytotoxic materials such as herbicides, petrol, oils, diesel, cement and concrete washings or other construction additives

### **Barrier Fence**

9.2. Tree protection barriers will be erected prior to the construction process and shall remain in place until completion of the development. Signs will be attached informing all site staff that the area is to remain fenced, examples of signage can be found at the end of this document which can be laminated for use on site.

9.3. The position of the Tree Protection Fencing is shown on the Tree Protection Plan



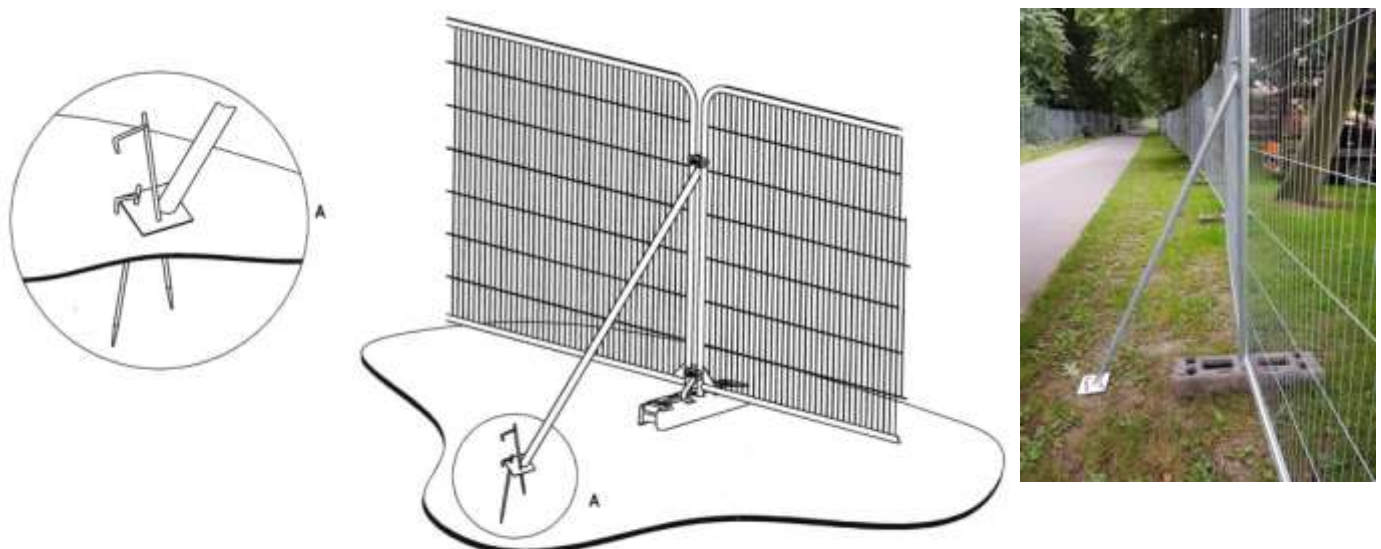
reference 212133710/4/2019 TPP appended at the end of this document. This should be constructed with weld mesh panels, at least 2m high, securely fixed with wire or scaffold clamps, to ground supports well braced to resist impacts, as per Figure 3 of BS5837: 2012 reproduced at the end of this section.

9.4. Any adjustments or removals of the tree protection measures will only be carried out following consultation and agreement with the project arboriculturalist and/or the Local Authority tree officer.

9.5. The following shall apply to the areas within the tree protection area:

- No mechanical excavation and excavation by other means only with Arboricultural supervision
- Hand digging shall only be carried out following a written method statement approved by the project arboriculturalist
- No adjustment to ground levels,
- No storage of plant or material,
- No storage or handling of any chemicals including cement washing,
- No vehicular access,
- No fires.

Figure 1 - (BS5837 Figure 3) example of fence stabilization system



a) Stabilizer strut with base plate secured with ground pins



## 10. Ground Protection

- 10.1. Ground protection will be required where construction activity or access within or across the RPA's of retained trees or areas identified for landscaping is necessary. This is to prevent root damage and soil disturbance or compaction and is required for the duration of the development. This will be temporary where incursion is to facilitate the construction and permanent where traffic over the root area is required subsequent to the completion of the development.
- 10.2. As the retention of the existing trees is not viable, ground protection to facilitate the construction is not necessary for this site. However, limited space means that construction activity over the site has a potential impact to the underlying soil structure damage. Areas which have been identified for landscape planting should be protected from compaction, specifically beyond the existing boundary fence in the rear garden of 1 Spring Terrace.
- 10.3. Should this space be required for storage or construction, temporary ground protection should be installed.

### Temporary Ground Protection

- 10.4. The principle of ground protection is to spread the weight of anything using the area to prevent rutting or soil compaction and prevent any spillage leaching into the soil. It must be fit for purpose and designed to support the expected traffic. It should consist of a rigid surface layer over a compressible base (e.g. wood chip) laid over a separation membrane typically of geotextile.

*The ground protection might comprise one of the following:*

- a. for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;*
- b. for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;*



*c. for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected. (British Standards Institution, 2012)*

- 10.5. For mobile cranes or other heavy plant an engineer designed system approved by The London Borough of Richmond Upon Thames should be constructed.

## **11. SOFT LANDSCAPING WORKS**

- 11.1. Any soft landscaping works within the development area will be in accordance with the approved landscape plan following recommendations in BS8584:2014 Trees: from nursery to independence in landscape - Recommendations and any specification of such works approved by the local planning authority.
- 11.2. The construction exclusion zone will remain off limits for all site plant and machinery unless fit for purpose ground protection is installed. Pedestrian traffic must be kept to an absolute minimum only permitted for the ground preparation and landscape installation work.
- 11.3. The landscaping works will need to be undertaken in such a way as to avoid level changes, deep digging or mechanical rotovation. Excavation of planting pits within the RPA can cause serious harm the root system of retained trees. Planting pits within the RPA of retained trees (trees 11 and 12) should be excavated by hand to avoid damage to roots greater than 25mm and masses of smaller roots.

### **POST-DEVELOPMENT MANAGEMENT: NEW PLANTINGS**

- 11.4. Regular maintenance of newly planted trees should be made for at least three years during the post-planting period and should continue for a minimum of 5 years or more during which defects and failures should be addressed. A detailed maintenance schedule covering this period should be prepared in conjunction with the landscape design proposals, and appropriate arrangements made for its implementation.
- 11.5. Maintenance operations would normally include weed control and watering as



necessary, inspection and adjustment of support systems and monitoring of growth. Formative pruning might also be required to achieve desired effects or to provide for access or clearance (British Standards Institution, 2012).

## **12. INSTALLATION OF BOUNDARY FENCES**

- 12.1. Access within the CEZ for fence construction purposes can also result in soil compaction and deterioration of the soil structure. Concrete used to support the posts is poisonous to plants and which, if not controlled, can leach into the surrounding soil.
- 12.2. Fencing will need to be designed and constructed to minimise the need for excavation and allow minor variations of up to 300mm between post spacing to allow repositioning of posts where roots which are greater than 25mm are discovered during the excavation of postholes within the RPA of retained trees.
- 12.3. Postholes within the RPA should be excavated by hand and lined with heavy gauge polythene to prevent contamination of the rooting environment.
- 12.4. Fencing should be installed during period of dry weather so as to maintain soil structure and prevent compaction of the rooting environment.
- 12.5. Where significant traffic over the RPA's is required to install the boundary fence, fit for purpose ground protection will be placed along the line of construction to prevent compaction of the rooting environment of retained trees.
- 12.6. Where tree canopies hang low along the line of the proposed fence crown raising to facilitate construction may be required. This must be undertaken by an arboriculturist.
- 12.7. Bracing any part of the boundary fence from retained trees will not be permitted under any circumstances

## **13. POST DEVELOPMENT PRESSURES**

- 13.1. Due to the nature of the proposed development no post development pressures are expected.



## **ARBORICULTURAL METHOD STATEMENT**

### **14. METHOD AND PHASING OF WORKS**

#### **PRE-COMMENCEMENT SITE MEETING**

- 14.1. It is recommended that a pre-commencement site meeting should be held prior to any works commencing on site, to agree all approved processes with the arboricultural consultant, the construction personnel and London Borough of Richmond Upon Thames. This meeting could be used to formally agree the methods of work, position of, material storage, compounds, parking and tree protection measures prior to commencement of the development and the associated clearance work.

#### **PRE-DEMOLITION/CONSTRUCTION**

- 14.2. All permitted or approved tree work will be undertaken prior to the commencement of site preparation, demolition or construction works.
- 14.3. Tree work will be carried out in accordance with the British Standard “*Recommendations for Tree Work*” BS3998:2010, by suitably qualified and experienced professional arborists. Under no circumstances shall site personnel undertake any tree pruning operations.

Because the trees on the site are situated within a Conservation Area, they are afforded statutory protection. Although not expected, should additional tree works become apparent during the development process, any works required outside the approved planning application or prior to full planning permission being granted will require a written section 211 notice to London Borough of Richmond Upon Thames. The Council have a 6 week period in which to process the notification.

- 14.4. Prior to the start of any construction, including material storage, protective barrier will be erected as per BS5837 figure 3 as illustrated in section 9.
- 14.5. It will be positioned as denoted on the tree protection plan reference 212/1337/10/4/2019 TPP.



- 14.6. Signage informing all site workers that the area is to remain protected for the duration of the development is to be attached to the fence. An example of signage can be found at the end of this document which can be printed, laminated and securely attached to the barrier fence if required.
- 14.7. The project arboriculturalist will be on hand to provide advice and/or supervision if required.

### **CONSTRUCTION**

- 14.8. All barrier fence and ground protection is to remain in serviceable and in position for the duration of the demolition of the existing building. No adjustments are to be made unless with the written agreement of the planning/arboricultural officer and/or the project arboriculturalist.
- 14.9. Temporary ground protection over the landscape planting sites should be installed prior to the start of construction.
- 14.10. Landscaping works may be necessary prior to the completion of the build. In this case prohibitions on traffic and movement over the Construction Exclusion Zones will remain in effect and activity will require additional fit for purpose temporary ground protection, no machine movements and the transport of materials into these areas will be made manually.
- 14.11. The project arboriculturalist will be on hand to provide arboricultural advice if it is needed.

### **POST CONSTRUCTION**

- 14.12. Barrier fence and temporary ground protection is to be removed.
- 14.13. Site reinstatement and landscaping will be undertaken. Prohibitions on traffic and movement over the Construction Exclusion Zones will remain in effect and activity will require additional fit for purpose temporary ground protection, no machine movements and the transport of materials into these areas will be made manually.

## **15. CONTACTS**





Organisation	Contact Name	Contact number	email
Agent	Johnathan Goater	07887 932 634	
Harrison Arboriculture	Mark Harrison	07915 847 367	mark@harrisonarboriculture.co.uk
London Borough of Richmond Upon Thames	Case officer		

## 16. DECLARATION

- 16.1. The statements in this report are based on information provided by the client. It does not take into account, the effects of extremes of climate, vandalism or accident. Harrison Arboriculture cannot accept liability in connection with these factors, nor where prescribed work is not carried out in a correct and professional manner in accordance with current good practice.
- 16.2. The authority of this report is affective for twelve months from the date of the survey or when any site conditions change, or pruning or other works unspecified in the Report are carried out to, or affecting, the subject tree(s), whichever is the sooner. It is recommended that a new survey be carried out after twelve months or following any severe weather event or change in the site.

## 17. CONCLUSION

- 17.1. It is my conclusion that although tree removals are required to facilitate the proposals, post development landscaping to include tree planting could mitigate for their loss in the long term providing a biodiversity and amenity net gain in line with National Planning Policy Framework (NPPF). The proposed development which includes planting proposals would not have adverse impacts on the long-term vitality of the retained trees and would contribute to a long term improvement in amenity of the area providing the methodology set out in this document are followed.



## APPENDIX A – TREE SCHEDULE

Site: 1 Spring Terrace, Richmond

Date: 8<sup>th</sup> October 2019

Type	Tree no	Species	Height/m	Diameter/mm	Age	Condition		Life Exp	Canopy Height/m				First Significant Branch Hgt/m	Canopy Spread/m				Comments (at survey)	Recommendations (at survey)	Category	Root protection	
						Physiological	Structural		N	E	S	W		N	E	S	W				Radius/m	Area/sqm
T	1	Robinia pseudoacacia (Locust Tree)	15	320	Semi Mature	Fair	Fair	10+	6	8	8	4	4(W)	5	4.5	5	5	Co-dominant stems. Included bark present in fork. Stem divides below 1.5m.	None required at time of inspection.	C1	3.84	46.33
T	2	Aesculus hippocastanum (Horse Chestnut)	4	100	Young	Poor	Poor	<10	1	1	1	1		1	1	1	1	Declining. Dieback in crown. Major deadwood in crown.	None required at time of inspection.	U	1.2	4.52
T	3	Syringia vulgaris (lilac)	4	90 120	Mature	Fair	Fair	10+	2	2	1.5	1.5		1	1	3	1.5	Suppressed.	None required at time of inspection.	C1	1.8	10.18
T	4	Robinia pseudoacacia (Locust Tree)	13	210	Semi Mature	Fair	Fair	10+	6	10	4	4	4(SW)	3	4	4	4.5	Previously reduced / pruned. Ivy on tree.(historically grown behind retaining wall now removed - roots exposed)	None required at time of inspection.	C1	2.52	19.95
T	5	Robinia pseudoacacia (Locust Tree)	10	140	Semi Mature	Fair	Fair	10+	6	7	6.5	3	4(W)	2.5	3	1.5	2.5	Previously reduced / pruned. Suppressed. Basal suckers.(basal suckers previously removed)	None required at time of inspection.	C1	1.68	8.87
T	6	Robinia pseudoacacia (Locust Tree)	10	140	Semi Mature	Fair	Fair	10+	6	7	6.5	3	4(W)	4	3.5	2	4.5	(narrow branch fork at 3m west)	None required at time of inspection.	C1	1.68	8.87
T	7	Acer platanoides (Norway Maple)	12	400	Early Mature	Fair	Fair	10+	8	6	5	3.5	2(N)	6	4	5	5	Basal suckers. Exudation on stem.	None required at time of inspection.	C1	4.8	72.39
T	8	Quercus ilex (Holm Oak)	8	250	Early Mature	Fair	Fair	20+	2	2	2	1.5	0.3(NE)	5	6	5	4	No significant defects noted.	None required at time of inspection.	C1	3	28.28



Type	Tree no	Species	Height/m	Diameter/mm	Age	Condition		Life Exp	Canopy Height/m				First Significant Branch Hgt/m	Canopy Spread/m				Comments (at survey)	Recommendations (at survey)	Category	Root protection	
						Physiological	Structural		N	E	S	W		N	E	S	W				Radius/m	Area/sqm
T	8a	Taxus baccata Fastigiata (Yew)	3	80	Young	Fair	Fair	20+						1	1	1	1.5	(undersize tree at 1.5 AGL - measured at base)		C1	2.54	20.27
T	9	Corylus avellana (Hazel)	4	40	Mature	Fair	Fair	10+	2.5	2.5	2.5	2.5		3	2.5	3	1.5	Multiple stems at ground level.	None required at time of inspection.	C1	0.48	0.72
T	10	Quercus ilex (Holm Oak)	6	90	Young	Good	Good	40+	2	2	2	2	1.5(N)	1	1	1	1	No significant defects noted.	None required at time of inspection.	C1	1.08	3.66
T	11	Fraxinus excelsior (Ash)	9	140 220	Semi Mature	Fair	Fair	10+	4	5		4	1.5(N)	4.5	5	1	4	Previously reduced / pruned.(historically coppiced and subsequently reduced to 2m)	None required at time of inspection.	C1	3.13	30.78
T	12	Fraxinus excelsior (Ash)	8	140 150 120 230	Semi Mature	Fair	Fair	10+	4	2	3	3	1(W)	3.5	3	3	4	Previously reduced / pruned.(historically coppiced and subsequently reduced to 2m)	None required at time of inspection.	C1	3.97	49.52
T	13	Quercus ilex (Holm Oak)	3	90	Young	Fair	Good	10+	1	1	1	1	1.3(N)	2	1	0.5	1.5	Suppressed.	None required at time of inspection.	C1	1.08	3.66
S		Tilia X europaea (Common Lime)	3.5	300	Stump	Fair	Good	10+					1.3(N)	2	2	2	2	Diameter estimated.(regrown stump)	None required at time of inspection.	U	3.6	40.72
H	14	Carpinus betulus Fastigiata (Hornbeam)	3	90	Young	Good	Good	20+										Off site. Diameter estimated.(pleached hedge)	None required at time of inspection.	C1	2.86	25.7



## Key

### 1. Tree Ref No:

This relates to the numbers on the plan. Where trees have been tagged, the tag number will be used as the tree reference number. Individual trees are not prefixed and prefixed with a G, W or H represent a group, woodland or hedge respectively.

### 2. Species:

The name given is the 'common name' by default. Where Latin names are given they are shown in italics

### 3. DBH (Diameter at breast height):

This is the stem diameter at 1.5 metres (breast height') above ground level, given in centimetres. Where trees are multi-stemmed trees the square root of the combined stem diameter is calculated.

### 4. H (Height):

The height of the tree measured where possible or estimated and recorded in metres.

### 5. Canopy Spread (Crown radius):

The average crown spread taken from the centre of the trunk to the tips of the live lateral branches given in metres. Measurements following the compass points North, East, South and West.

### 6. Canopy height:

Ave - Average Crown Height Clearance: (HaB Height above ground) — ground clearance of lowest part of canopy given in metres.

1<sup>st</sup> branch – the height of the first significant branch

### 7. Age:

Age assessment is based on growth stages rather than actual age in years and are recorded as follows

Y Young



SM Semi Mature – having reached up to 1/3 life expectancy

EM Early mature - having reached 1/3 of the expected life expectancy and is transitioning into maturity.

M Mature - over 2/3 life expectancy

OM Over-mature - fully mature, past peak condition and beginning to decline

V Veteran - trees of interest biologically, aesthetically or culturally because of significant age.

8. Physiological condition/Remarks:

Any notable diseases, symptoms or conditions observed. Any notes considered relevant are recorded here including local features which may be affected by or affect the tree

9. Overall Condition:

An assessment of the health and vigour of the tree compared to what would normally be considered typical of a healthy tree of the species. Condition categories are given as good, fair, poor or dead.

10. Life Expectancy:

An estimate of the potential worthwhile remaining contribution – future life expectancy of the tree(s) in the present setting given normal circumstances, given in years (< = less than > = greater than) categorised <10 years, 10 – 20 years, 20 – 40 years and > 40 years.

11. Cat grade: A quality assessment of the trees based on criteria detailed in BS5837:2012 Table 1

U: Trees unsuitable for retention

A: Those of high quality and value

B: Those of moderate quality and value

C: Those of low quality and value



Assessments are based on their condition on the day of inspection and cannot account for future changes in circumstances.

#### 12. Recommendations:

Preliminary management recommendations in relation to the proposed development are made where appropriate. These may include remedial tree works that are deemed necessary to improve the quality of the tree or for safety reasons. Recommended tree works will be required to be in accordance with British Standard 3998:2010 Tree Work



Table 1

<b>Category and definition</b>	<b>Criteria</b>			<b>Identification on plan</b>
<p><b>Category U</b> Those in such a condition that cannot realistically be retained as living trees in the context of the current land use for longer than 10 years</p>	<ul style="list-style-type: none"> <li>• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</li> <li>• Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</li> <li>• Trees infected with pathogens of significance to the health and/or safety of other trees nearby or very low quality trees suppressing adjacent trees of better quality</li> </ul> <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve</i></p>			DARK RED
<b>TREES TO BE CONSIDERED FOR RETENTION</b>				
<b>Category and definition</b>	<b>Criteria — Subcategories</b>			<b>Identification on plan</b>
	<b>1 Mainly arboricultural values</b>	<b>2 Mainly landscape values</b>	<b>3 Mainly cultural values, including conservation</b>	
<p><b>Category A</b> <b>Tree of high quality</b> with an estimated remaining life expectancy of at least 40 years</p>	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
<p><b>Category B.</b> <b>Trees of moderate quality</b> with an estimated remaining life expectancy of at least 20 years</p>	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage) such that they are unlikely to be suitable for retention beyond 40 years; of trees lacking the special quality necessary to merit A categorisation	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality	Trees with material conservation or other cultural benefits	MID BLUE
<p><b>Category C.</b> <b>Trees of low quality</b> with an estimated life expectancy of at least 10 years, or younger trees with a stem diameter below 150 mm</p>	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	GREY
<p>NOTE Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150 mm should be considered for relocation</p>				



## **Appendix B – Generic information**

### **TREE SURVEY**

#### **Scope and Limitations of Survey**

1. This survey and report are concerned with the arboricultural aspects of the site only.
2. Only trees of significant stature were surveyed. Trees with a stem diameter of less than 75mm when measured at 1.5m above ground level (DBH) have been excluded unless they have particular merit that warrants comment.
3. The survey is restricted to trees that will be affected by the development within and adjacent to the site in accordance with guidelines detailed in British Standard 5837:2012 and with good practice as promoted by the Arboricultural Association and Arboricultural and Forestry Advisory Group (AFAG).
4. This survey is based on a ground level tree assessment and examination of external features only — described as the 'Visual Tree Assessment' (Mattheck and Breloer, The Body Language of Trees, DoE booklet Research for Amenity Trees No. 4, 1994). Although the structural conditions of the trees are considered and remedial action may be recommended it does not constitute a comprehensive Health and Safety report and if one is required it should be commissioned separately. No tissue samples were taken or internal investigations carried out.
5. No soil samples were taken or soil analyses carried out and the risk of tree-related subsidence to structures has not been assessed.
6. Consideration should be given to the timing of the proposed tree works to avoid the active growing period of trees. Tree work should ideally be carried out during the dormant period from November through to February and then again from June to August.
7. Although considered and wildlife habitat potential highlighted, no specific wildlife assessment has been carried out. It should be noted that The Wildlife and Countryside Act 1981, as amended by the Countryside Rights of Way Act 2000 and Conservation - Natural Habitats -Regulations 1994 provides statutory





protection to birds, bats and other species that inhabit trees.

8. The official bird nesting season runs from 1<sup>st</sup> March through to the 31<sup>st</sup> July (Natural England) depending on weather conditions, consideration must also be given to the potential for nesting birds. If tree work is to be carried out within this period the project ecologist must be consulted to:
9. Complete or advise on a pre-works survey which needs to be carried out by a suitably competent person. As a general rule, it should be assumed that birds will be nesting in trees, and it is down to contactors to assess, record and confirm that any works carried out in the management of trees and other vegetation has not disturbed actively nesting birds.
10. Ground vegetation, and therefore ground nesting birds, can often be overlooked by tree workers so additional care and controls should be taken when access and egress to the work site may also cause disturbance or damage to a nesting site. This is also true for retained trees on site as the removal of adjacent trees or remedial works on a tree may lead to an established nest being abandoned, exposed to the elements or predation. This action is also a breach of the Act and therefore could lead to prosecution.
11. Consideration should also be given to the presence of bats. A preliminary assessment of possible roost formations (British Standards Institute, 2015) has been undertaken and a full visual assessment recommended where the possible presence of bats have been identified as a serious concern, a bat survey should be undertaken by qualified and trained personnel to identify the needs of the bats (roosts, resting places etc.) and no tree works can be carried out until the 'all clear' is given, or a programme of recommendations is received in writing.
12. This report should be read in conjunction with the Tree Protection Plan. The position of all trees and existing or proposed features are based on the plans provided by the client or other instructed professionals. Where trees have been omitted from the plans provided their position has been estimated or where possible plotted by triangulation.



### **Survey Method**

1. In order to provide a systematic and consistent evaluation of the trees situated on the site, the following methodology was used in accordance with BS 5837: 2012.
2. The stem diameters of single stemmed trees were measured in millimetres at 1.5m above ground level (DBH). Multi-stemmed trees were measured at 1.5m above ground level and the RPA arrived at as per section 4.6a BS 5837:2012.
3. The height of visible trees was measured using a clinometer and estimated visually where view to the upper canopy obstructed.
4. The crown radii were measured where possible or estimated where access is restricted and are given for each cardinal point.
5. Where access to trees was obstructed or obscured, dimensions have been estimated.
6. Each tree has been assessed in terms of its arboricultural, landscape, cultural and conservation values in accordance with BS 5837: 2012 which are detailed in the Tree Schedule.



# **CONSTRUCTION EXCLUSION ZONE**

## **BARRIER FENCE MUST NOT BE MOVED**

### **THE FOLLOWING IS PROHIBITED WITHIN THE PROTECTED AREA**

**No excavation, mechanical or otherwise**

**No adjustment to ground levels**

**No storage of plant or material**

**No storage or handling of any chemicals**

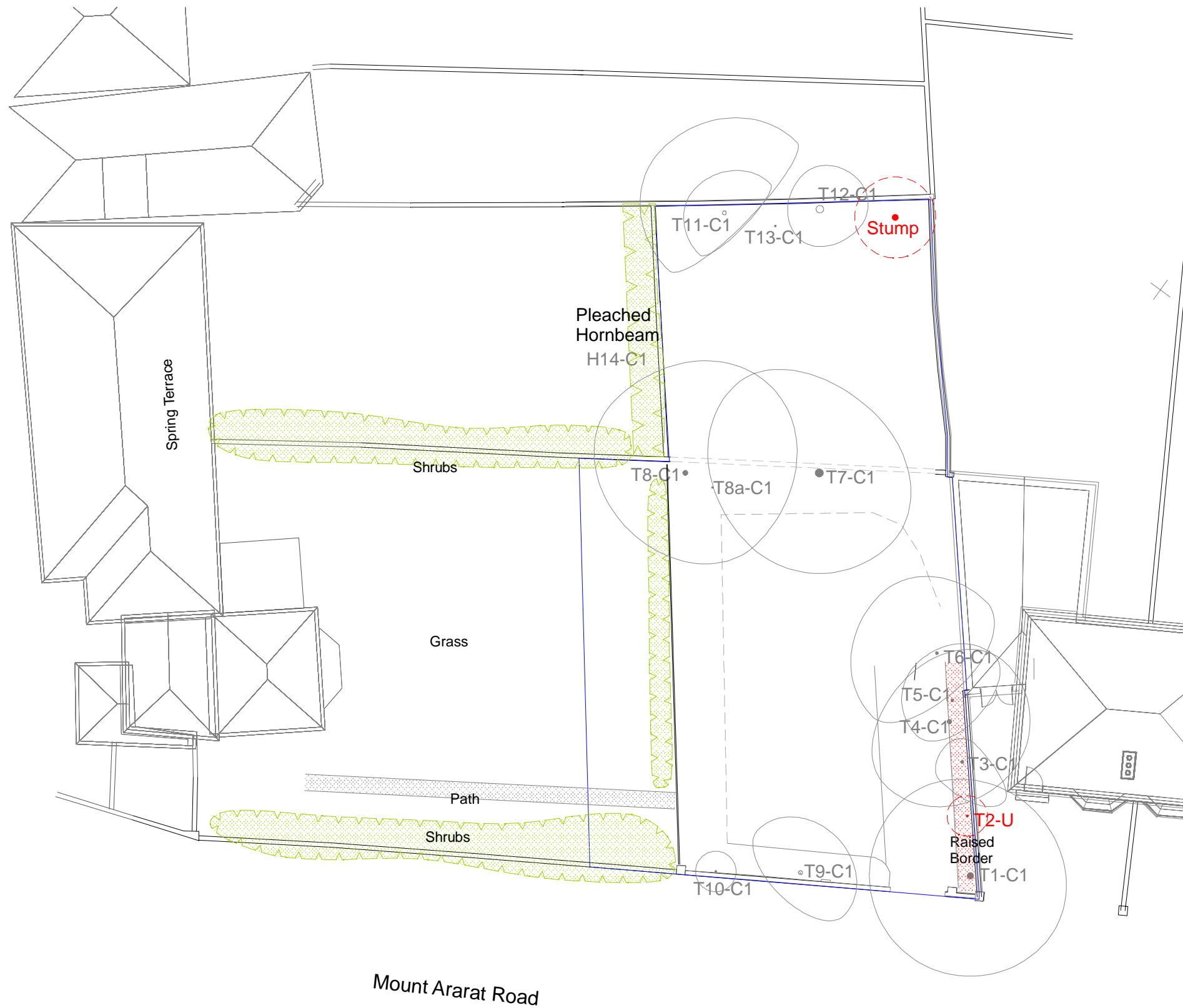
**No vehicular access**

**No fires**









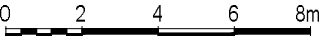
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- Wildlife and Countryside Act. (1981). London: HMSO.




**KEY**

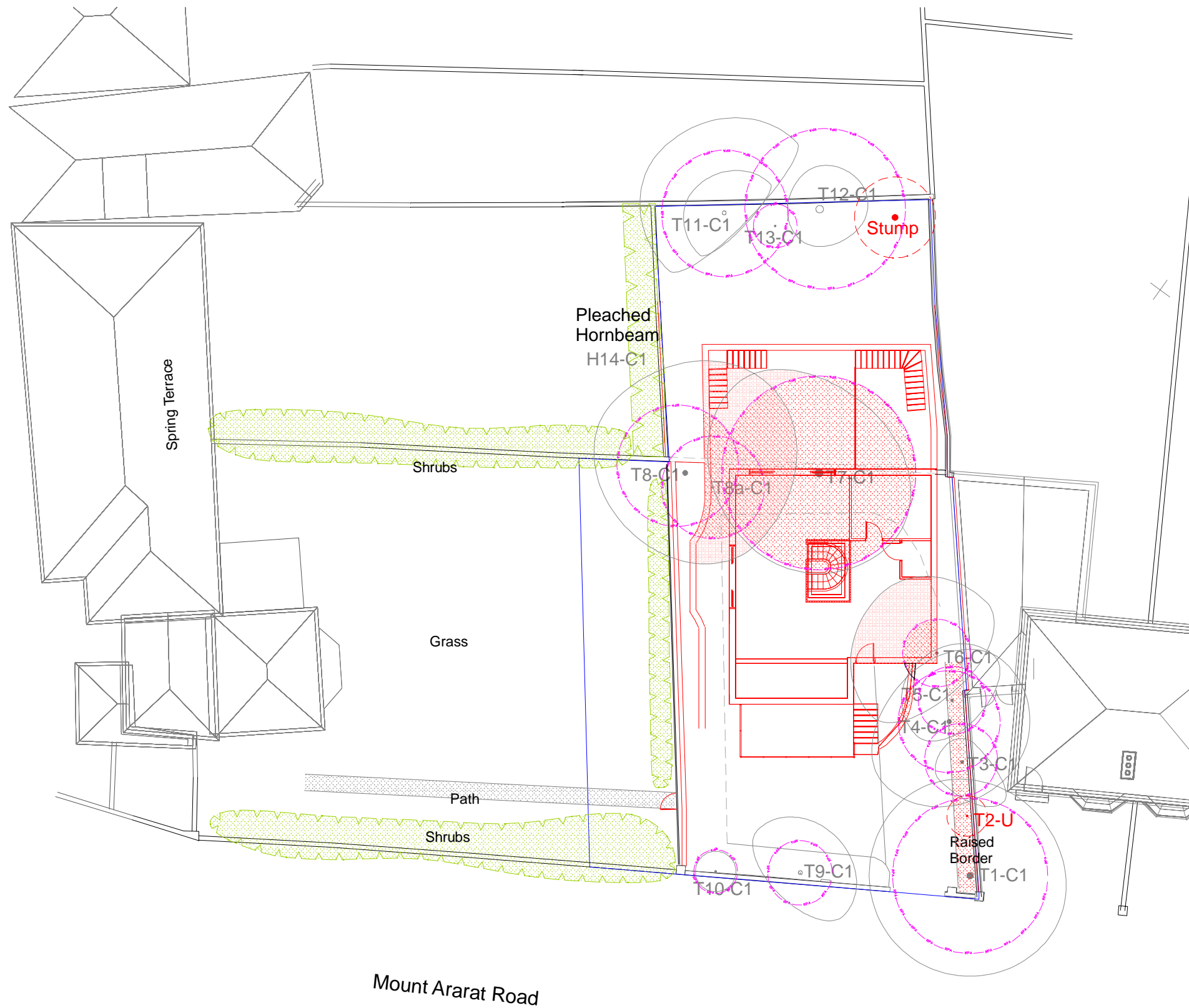
-  Category A trees - Trees of high quality and value such that they make a substantial existing and future contribution for an expected 40 years or more.
-  Category B trees - Trees of moderate quality and value such that they make a significant future contribution for an expected 20 years or more.
-  Category C trees - Trees of low quality and value which might be expected to remain for around 10 years or less or with stems of less than 150 mm diameter.
-  Category U trees - Trees of low quality and value which are considered to have little or no potential due to disease or defects.
-  Direction of the first significant branch




CLIENT	Richmond Green Developments Ltd.
SITE	1 Spring Terrace, Richmond
DRAWING	Arboricultural Survey
DRAWING NO.	212133710/4/2019 AS
SCALE	1:200 @ A3
DATE	14 October 2019
DRAWN BY	M.Harrison

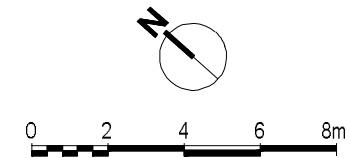
**Harrison Arboriculture Ltd.**

  
 Telephone - 07915 847 367  
 email: admin@harrisonarboriculture.co.uk



**KEY**

-  Below Ground Conflict
-  Above Ground Conflict
-  The root protection area is the theoretical area considered necessary to provide sufficient room for the root growth required to support the tree - activity impacting the soil should be avoided.

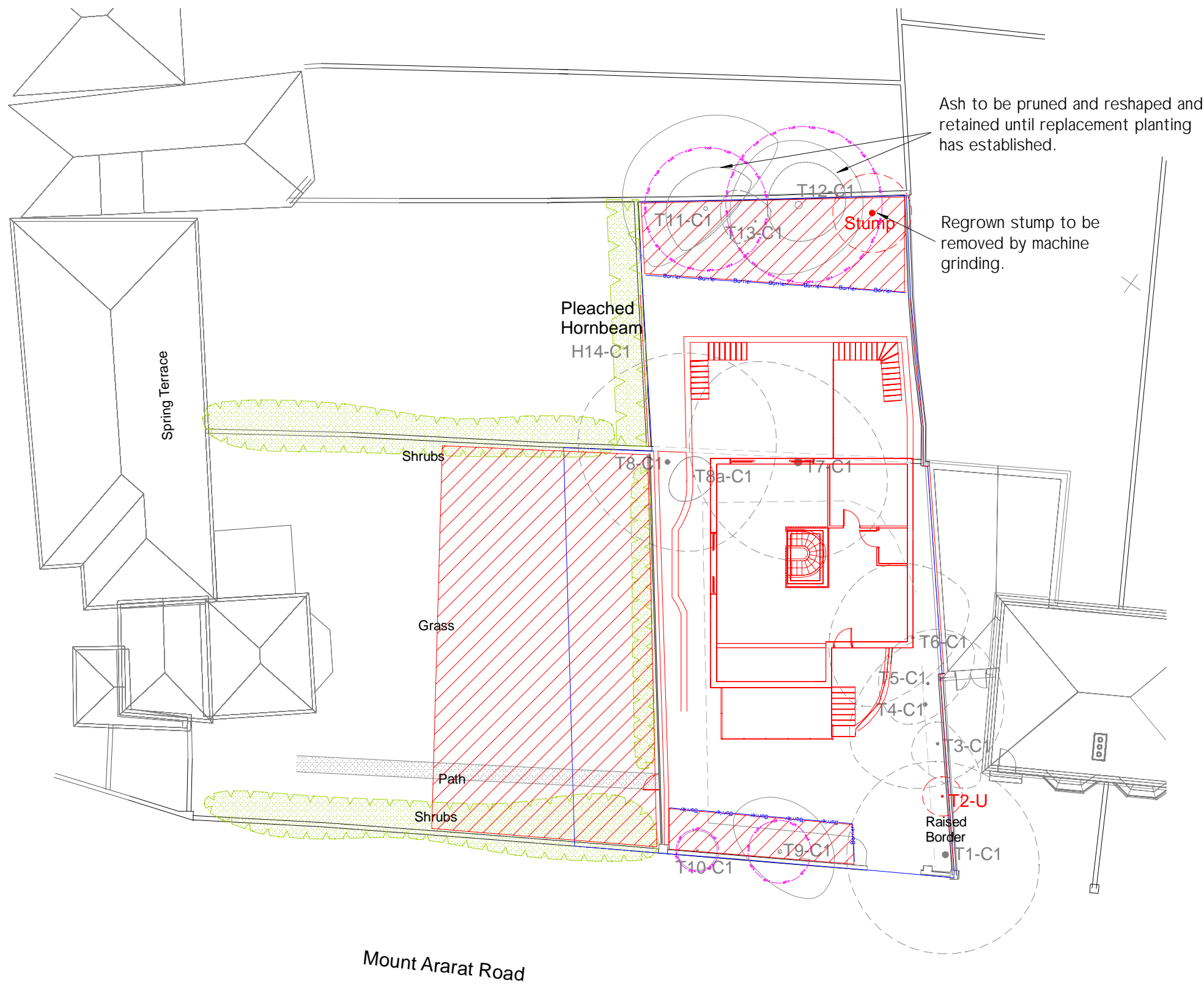


CLIENT	Richmond Green Developments Ltd.
SITE	1 Spring Terrace, Richmond
DRAWING	Arboricultural Impacts Assessment
DRAWING NO.	212133710/4/2019 IA
SCALE	1:200 @ A3
DATE	14 October 2019
DRAWN BY	M.Harrison

**Harrison Arboriculture Ltd.**



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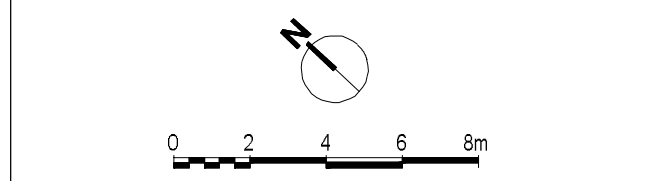


**KEY**

- Root protection area - the theoretical area considered necessary to provide sufficient room for the root growth required to support the tree - activity impacting the soil should be avoided.
- Trees to be removed
- Barrier fence to be installed as per BS5837, section 6, Figure 2.

a) Stabilizer strut with base plate secured with ground pins

- The construction exclusion zone (CEZ) is the area within the root protection area. Access into this area should be prohibited for the duration of the project unless suitably protected to prevent any construction activities including storage.



CLIENT	Richmond Green Developments Ltd.
SITE	1 Spring Terrace, Richmond
DRAWING	Tree Protection Plan
DRAWING NO.	212133710/4/2019 TPP
SCALE	1:200 @ A3
DATE	14 October 2019
DRAWN BY	M.Harrison

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