



ARBORICULTURAL REPORT

BS 5837:2012

TREE SURVEY

SITE ADDRESS:

4 Moor Park Gardens, Kingston, KT2 7UD

CLIENT:

[REDACTED]

REF No:

D2904.V1.0-TS.AMS

INSPECTION DATE:

5th of May 2022

PREPARED BY:

[REDACTED] BSc(HONS) DipArb L4
6th May 2022

REPORTS	INCLUDED
~ INITIAL TREE SURVEY~	
~ TREE SURVEY SCHEDULE~	
~ TREE CONSTRAINTS PLAN~	
~ ARBORICULTURAL IMPACT ASSESSMENT~	x
~ TREE SURVEY SCHEDULE + REQUIRED WORKS FOR THE PROPOSAL~	
~ TREE PROTECTION PLAN~	
~ ARBORICULTURAL METHOD STATEMENT~	

Issue No	Author	Issue Date	Additions/ alterations	Notes
D2904.V1.0	TB	9/05/2022	NA	

TABLE OF CONTENTS

BIBLIOGRAPHY	2
INTRODUCTION	3
1.0 TERMS AND ABBREVIATIONS	3
2.0 CONTACT DETAILS	3
3.0 BRIEF AND PURPOSE	3
4.0 PROPOSAL	4
5.0 PLANNING INFORMATION	4
6.0 DOCUMENT SOURCE	4
7.0 SITE DETAILS	5
TREE SURVEY	6
8.0 THE SCOPE OF THE SURVEY	6
9.0 TREE SURVEY METHODOLOGY	6
10.0 TREE DETAILS	6
11.0 ROOT PROTECTION AREA	8
12.0 CURRENT TREE PROTECTION STATUS	8
13.0 SUMMARY	8
ARBORICULTURAL METHOD STATEMENT	9
14.0 INTRODUCTION	9
15.0 SITE MANAGEMENT	9
16.0 GENERAL SITE PRECAUTIONS	9
17.0 STAGES CHECKLIST, SEQUENCING, INSPECTION, SUPERVISION	10
18.0 TREE WORKS	11
19.0 PROTECTED SPECIES – BATS AND BIRDS	11
20.0 TREE PROTECTIVE FENCING (TPF)	12
21.0 SITE STORAGE, PARKING, WELFARE ETC	12
22.0 GROUND PROTECTION	13
23.0 SITE ACCESS AND HARD SURFACES	14
24.0 DEMOLITION	14
25.0 FOUNDATIONS AND CONSTRUCTION	14
26.0 UNDERGROUND SERVICES	15
27.0 FINAL SOIL LEVELS	15
28.0 SOFT LANDSCAPING AND FENCING	15
29.0 GENERAL MANUAL EXCAVATION	15
30.0 AMENDMENTS	15
31.0 APPENDICES	16
Appendix 1 – Tree Survey Schedule BS5837:2012	16
Appendix 2 – Cascade chart for tree quality assessment	20
Appendix 3	22
Tree Constraints Plans	22
Tree Protection Plan	22
Appendix 4 – Tree Protection	23
Appendix 5 - Exclusion sign for CEZ	26

BIBLIOGRAPHY

BS5837:2012. "Trees in relation to design, demolition and construction – Recommendations".
 Mattheck, C., Breloer, H. (2006). "The body language of trees a handbook for the failure analysis".
 London: TSO.
www.mapapps.bgs.ac.uk/geologyofbritain/home.html

INTRODUCTION

CLIENT	Mr J Beedle
INSPECTION DATE	5th of May 2022
SITE LOCATION / S	4 Moor Park Gardens, Kingston, KT2 7UD
INSPECTED BY	Tom Butterfield BSc (HONS) DipArb L4

1.0 Terms And Abbreviations

Tree Preservation Order	TPO
Conservation Area	CA
Arboricultural Impact Assessment	AIA
Arboricultural Method Statement	AMS
British Standard 5837:2012 – Trees in Relation to Design, Demolition and Construction - Recommendations	BS5837
Root Protection Area	RPA
Root Protection Radius	RPR
Local Planning Authority	LPA
Tree Protective Fencing	TPF
Diameter of the stem at breast height (1.5 meters)	DBH
Tree Survey Schedule	TSS
Construction Exclusion Zone	CEZ
Sustainable Urban Drainage System	SUDS
Cellular Confinement System	CCS
Ground Protection	GP

2.0 Contact Details

Contact	Name	Company	Contact details	Issued
Client	Mr J Beedle CO Mr Robert Harris	/	info@rhmanagement.co.uk	
Arboricultural Consultant	Mr Tom Butterfield	Dryad Tree Specialists Ltd	tom@dryad-trees.co.uk 01483 455555	
LPA Tree Officer	Mr Ben Morgan	The Royal Borough of Kingston	ben.morgan@kingston.gov.uk	
Architect	Mr Andrew Day	d-10 architects ltd	aday@d-10architects.com	

3.0 Brief And Purpose

- 3.1 This Arboricultural report was commissioned by Mr Andrew Day on behalf of Mr J Beedle on the 27th of April 2022.
- 3.2 To survey trees likely to be affected by the development in accordance with BS5837.
- 3.3 To make preliminary management recommendations.
- 3.4 To make recommendations for effective tree protection strategies for the duration of the development.
- 3.5 To produce an Arboricultural Method Statement and Tree Protection Plan for the proposal.
- 3.6 To provide the necessary Arboricultural information for the planning requirements of the LPA (The Royal Borough of Kingston) to release and fulfil any tree-related conditions for the approval of planning permission.

4.0 Proposal

- 4.1 The proposal is:
"2 Storey side extension".

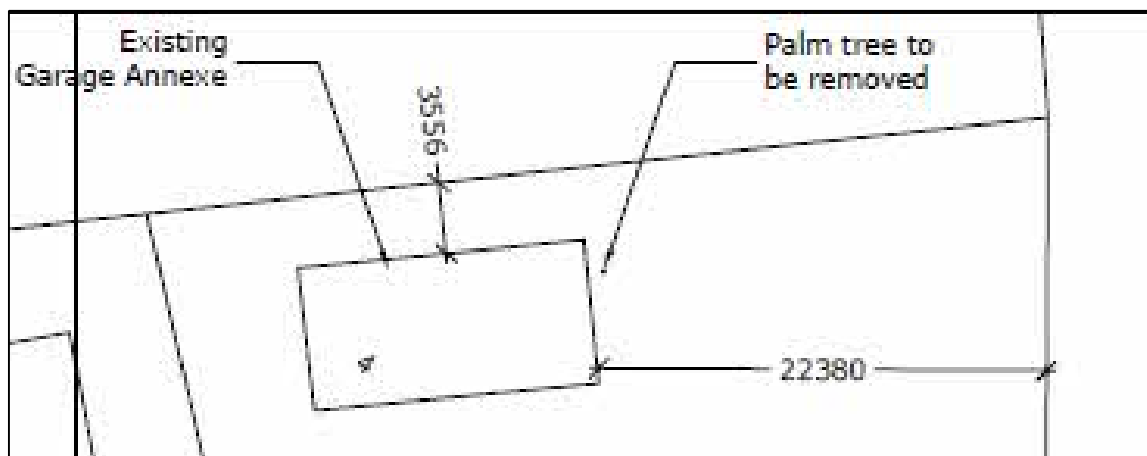


Figure 1 - Existing

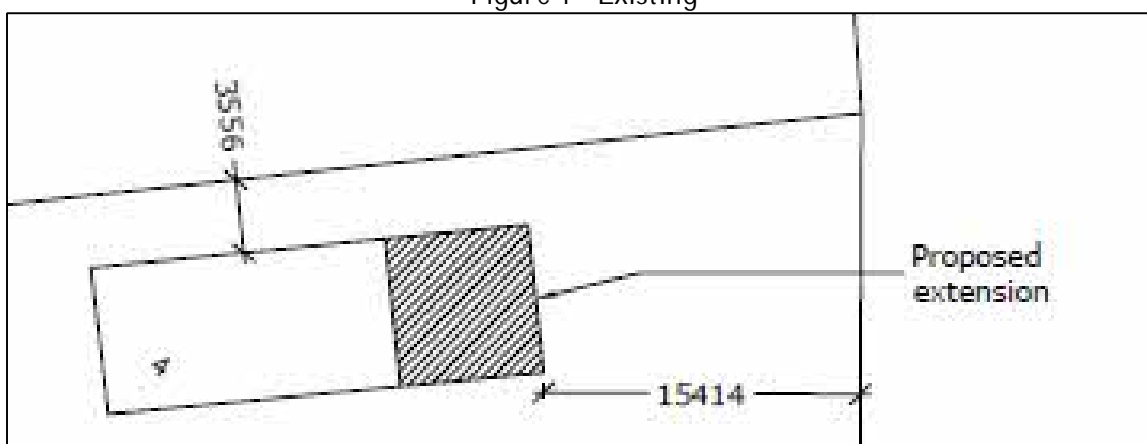


Figure 2 - Proposed

5.0 Planning Information

- 5.1 The site falls under the jurisdiction of The Royal Borough of Kingston, which is the LPA for this area.
- 5.2 A planning application was submitted to The Royal Borough of Kingston and validated on the 13th of May 2022, Ref: 21/01558/HOU.
- 5.3 Planning permission was GRANTED on the 22nd of April 2022, subject to conditions.
- 5.4 This report aims to address the Arboricultural aspect of the planning application, notably condition No. 4, so that by using appropriate Arboricultural methodologies, planning conditions may be met.

6.0 Document Source

Document	Source	Format
Site plan	d-10 architects ltd	PDF - 3211_110A_112A
Layout plans and proposal	d-10 architects ltd	PDF - 3211_110A_112A

7.0 Site Details

- 7.1 The site is located at the end of Moor Park Gardens.
- 7.2 The site consists of a detached building with an integral garage, driveway and gardens.
- 7.3 There is a slight fall in ground level as you move towards the East of the site.
- 7.4 The soil type on-site, at a scale of 1:50,000 as revealed by the Online British Geological Society, is classified as:
Bedrock: "London Clay Formation" consisting of clay and silt.
- 7.5 The site has the potential to be located over soil that is shrinkable, indicating it could be more vulnerable to compaction and subsidence than that of non-clay soil.
- 7.6 Note – No soil samples were taken on-site to confirm these findings.



Figure 3 – Extract from BGS

TREE SURVEY

8.0 The Scope of the Survey

- 8.1 Only trees likely to be affected by the development (including neighbouring trees) were recorded in the tree survey.
- 8.2 Only trees with a DBH of 75mm or greater were surveyed in accordance with BS5837.
- 8.3 A full hazard assessment of the trees (including an assessment of decay, defects and their implications), as well as ecological implications, have not been undertaken, as it is seen to go beyond the scope of this report.
- 8.4 Observations, including any hazards, have been identified and documented in the Tree Survey Schedule with recommendations (Appendix 1).

9.0 Tree Survey Methodology

- 9.1 The trees were surveyed on the 5th of May 2022.
- 9.2 The tree survey was undertaken as to the recommendations of British Standards BS5837:2012.
- 9.3 The trees were plotted using a laser measure, rolling wheel, tape measure and landmarks such as buildings to give approximate measurements as to the locations of the trees on-site and on the map. If a more precise tree location is required, then a qualified surveyor should be instructed to perform a full topographical survey of the site.
- 9.4 The trees were assessed from ground level using Visual Tree Assessment (Mattheck et al. 1993) with the aid of binoculars and a mallet where necessary. No invasive techniques were employed to assess the structural integrity of the trees, or soil samples were taken.
- 9.5 Measurements are approximate but give a fair representation of the dimensions of the trees. Tree heights were estimated by eye, the crown spreads paced out, and the DBH's were measured with a rounded down centimetre diameter tape. Where the tree stems were not accessible, they have been estimated and a "?" placed after the figure in the Tree Survey Schedule.

10.0 Tree Details

- 10.1 The total number of trees recorded is as follows:
Individual Trees (T): Eleven (11)
Groups of Trees (G): Three (3)
- 10.2 Full details of the surveyed trees can be found in the TSS (Appendix 1), and the tree locations can be found in the Tree Constraints Plan and Tree Protection Plan (Appendix 3).
- 10.3 The quality and value of the trees on site have been categorised in accordance with BS5837, and the grading system is as follows:

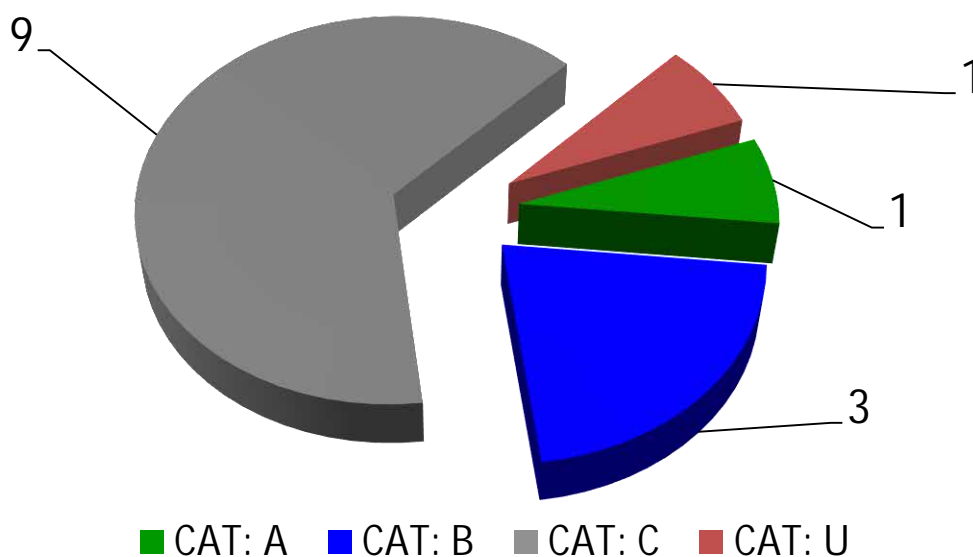


(For full details on BS5837 cascade for tree quality assessment, refer to Appendix 2)

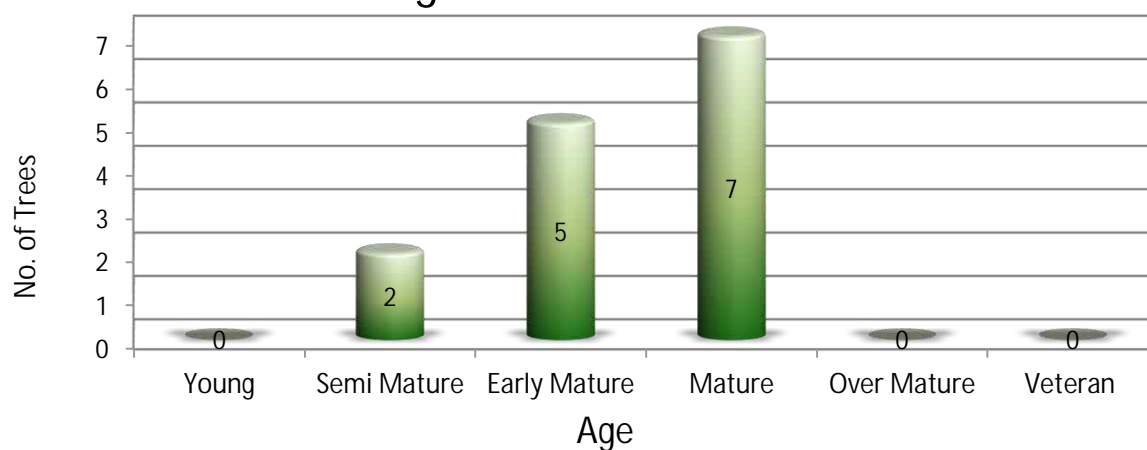
- 10.4 Quality and overview of existing tree stock:

Grade	A	B	C	U
Tree No.	1	3	9	1

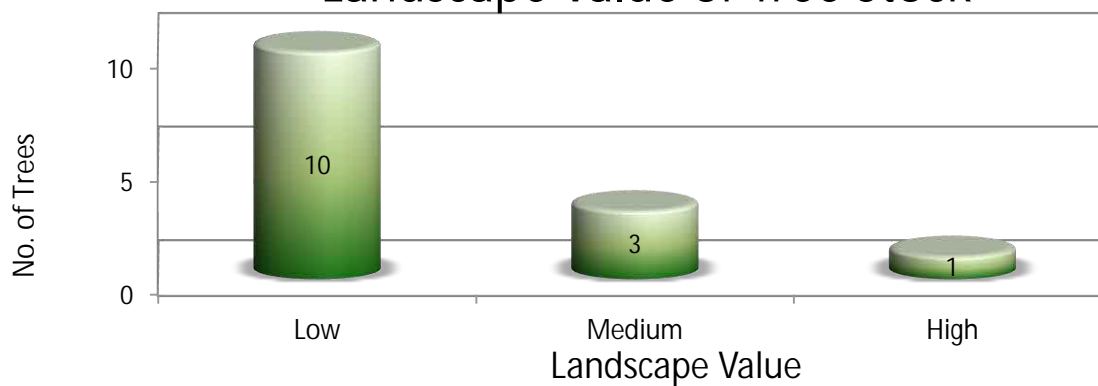
BS5837 Categorisation of Tree Stock



Age Class of Tree Stock

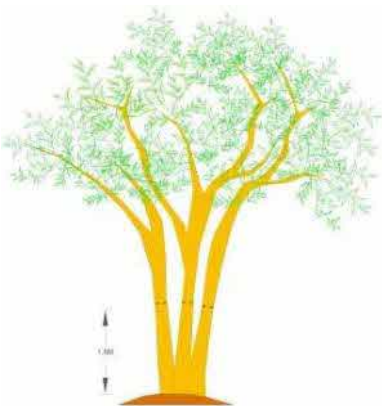


Landscape Value of Tree Stock



11.0 Root Protection Area

11.1 The RPA radius is calculated by multiplying the tree’s stem diameter at 1.5m above ground level by 12. For multi-stem trees, the RPA radius is calculated by multiplying a formulated stem diameter by 12, as shown below.



Multi-stem diameter calculations:

For Trees with 2 – 5 stems:

$$\sqrt{(S_u f e \dot{n} \ b n \ f)^2 + f S_{u f e \dot{n} \ b n \ f}^2 + (S_u f e \dot{n} \ b n \ f)^2} \ f \ s$$

For Trees with more than 5 stems:

$$\sqrt{((N \ f \ t \ w \ f e \dot{n} \ b n \ f) \ x \ o \ f \ v \ s \ n \ p \ f \ u \ s \ f) \ n \ t}$$

- 11.2 The RPA figures shown in the TSS (Appendix 1) are in meters squared, and RPR figures represent the radius in meters from the tree stem. These figures are derived from DBH calculations in accordance with section 4.6 of BS5837 Appendix D.
- 11.3 The figures should provide retained trees with sufficient rooting material to survive and remain healthy during the proposed development and beyond.
- 11.4 The RPA of each tree has been plotted as purple dashed circles on the constraints plans.

12.0 Current Tree Protection Status

Protection type	Constraints / details
Tree Preservation Order (TPO)	
Conservation Area (CA)	

- 12.1 Details checked with The Royal Borough of Kingston (LPA) via their interactive website on the 6th May 2022.
- 12.2 No additional forms of communication were initiated to confirm these findings.
- 12.3 The site is located within a Conservation Area, and the search indicated that the site is located within an area TPO, though details of the TPO were not available online.

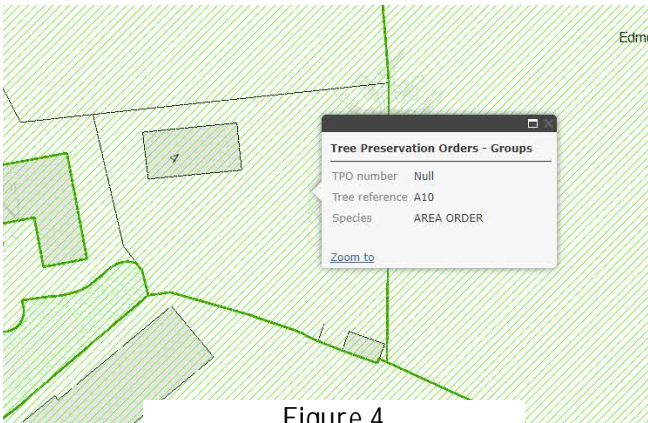


Figure 4

13.0 Summary

- 13.1 The survey revealed that 7% of the trees are of high quality (Agrade), 25% are of moderate quality (B grade), 64% are of low quality (Cgrade), and 7% are dead or dying (U grade).
- 13.2 Efforts should be made to retain A and B grade trees and C grade trees where possible.
- 13.3 Root Protection Areas of trees to be retained should be avoided during any potential development phase.
- 13.4 The site does reside within a Conservation Area and an area TPO, though the TPO details were not available online nor requested for clarification.

ARBORICULTURAL METHOD STATEMENT

14.0 Introduction

- 14.1 The AMS will demonstrate how aspects of the build that have the potential to result in the loss or damage to a tree may be mitigated, allowing retained trees an adequate level of protection.
- 14.2 To safeguard retained trees on-site during the development works, the implementation of tree protection measures is to be adhered to at all times, as detailed below. This will protect the above and below-ground parts of retained trees and preserve soil structure.
- 14.3 The basic principle is that the area inside the TPF creates a Construction Exclusion Zone (CEZ). The soil structure and roots, where any ground protection has been used, are also protected during the development process.
- 14.4 All tree protection outlined in the AMS is to be fully implemented, and Arboricultural inspections and supervision are to be carried out as detailed in this Method Statement.
- 14.5 All personnel will be made aware of the key implementation of the AMS during site induction. A copy of this Method Statement is to be made freely available to all site personnel.
- 14.6 As of 2005, Local Planning Authorities have the power to serve Temporary Stop Notices if agreed tree protection measures have been breached or not carried out sufficiently. Strictly adhering to this AMS will ensure that such costly and time-consuming action may be avoided.

15.0 Site Management

- 15.1 The site manager will be responsible for briefing and inducting all site personnel working within RPAs or canopies of retained trees, making them aware of tree constraints, and providing a copy of the Arboricultural Method Statement.
- 15.2 The induction will include movement of plant, excavation, mixing and pouring of cement and concrete.
- 15.3 The site manager will be responsible for day to day running of the site, the protection of all retained trees and liaising with the Arboricultural Consultant on arising tree matters.
- 15.4 Any incidence of damage to retained trees will be documented by the site manager, who will report the incidences to the Arboricultural Consultant immediately and cease works in this area until appropriate mitigation has been agreed with the LPA.

16.0 General Site Precautions

- 16.1 The following points will be observed at all times:
 - No mechanical digging or scraping is allowed within defined RPAs.
 - No fires are to be lit within 10m from the edge of the tree canopy.
 - No access is permitted inside the CEZ or TPF.
 - No materials, equipment or debris to be stored within the CEZ or RPAs of retained trees.
 - Notice boards, telephone cables or other services will not be attached to retained trees.
 - Materials that may contaminate the soil (cement mixer, fuel, vehicle washings) will not be permitted to operate or allow runoff into the RPAs of retained trees or soils.
 - Site operations must be carried out in such a way as to avoid damage to the aerial part of the trees.

17.0 Stages Checklist, Sequencing, Inspection, Supervision

- 17.1 Effective tree protection relies on a good understanding and implementation of the AMS with a logical sequencing of events and Arboricultural inspections/ supervision.
- 17.2 Any works that have the potential to affect trees are to be supervised by a qualified Arboricultural Consultant. Site inspection visits may be undertaken to ensure tree protection measures are being adhered to as per the AMS.
- 17.3 The Arboricultural Consultant will document each visit and inspection and communicate the details to the Client and LPA. This will provide ongoing evidence of compliance with the planning conditions.

Tree Protection Removal Notification

- 17.4 Once all of the construction works have been completed, and all material and machinery have been removed from the site, the Arboricultural Consultant and the LPA Tree Officer shall be notified, informing them of the intent to remove the tree protection measures.

Key Stages, Arboricultural Monitoring and Supervision Sign off Checklist

- 17.5 The checklist below is a guide that should be followed during the course of the development when certain Arboricultural activities are to take place.
- 17.6 Key stages within the suggested sequencing of works are as follows:

Stages Checklist (To be filled in during the project)				
Stage	Tree No.	Task / Activity	Personnel	
1	All	Issue Arboricultural Report to Client	AC	
2	All	Personnel to be briefed on the AMS as part of a site induction	C/ SM/ CON	
3	All	Carry out tree works to facilitate the development	C/ SM & CON	
4	All	Erect Tree Protection Fencing and install Ground Protection	AC to inspect	
5	All	Installation of the site set-up	C/ SM & CON	
6	T6	Manual excavation (hand dig) pile starter holes within RPA of the section of foundation - work to be supervised by Arboricultural Consultant	AC to supervise	
7	T6	Construct low invasive foundation (Pile and beam)		
8	All	Undertake and complete construction works	C/ SM & CON	
9	All	Undertake external landscaping works outside of Construction Exclusion Zone	C/ SM & CON	
10	All	Completion of Ground Works Completion of Building Works		
11	All	Removal of Machinery and materials from the site	C/ SM & CON	
12	All	Notification to Arboricultural Consultant and Tree Officer of intent to remove tree protection measures	C/ SM/ TO/ AC/ CON	
13	All	Remove Tree Protection Fence and Ground Protection	C/ SM & CON	
14	All	Undertake external landscaping works within the Construction Exclusion Zone	C/ SM & CON	
15	All	Sign off from Arboricultural Consultant	AC	
Arboricultural Consultant (AC) Client (C) Site Manager (SM) Tree Officer (TO) Contractor (CON)				

18.0 Tree Works

18.1 The tree works shown in the table below are required to facilitate the development.

Table 1: Tree Works – Facilitate the Development					
Prefix	ID	Species	BS Cat	Required works	Reason
T	4	Yucca	C3	Remove	Facilitate Development
G	5	Laurel mix	C2	Cut back and remove section to allow 2-2.5 m of clearance from the proposal	Facilitate Development
T	6	Japanese Maple	B2	Remove the lowest limb to the West, remove secondary branches and prune the remaining branches to clear from the proposed extension	Facilitate Development

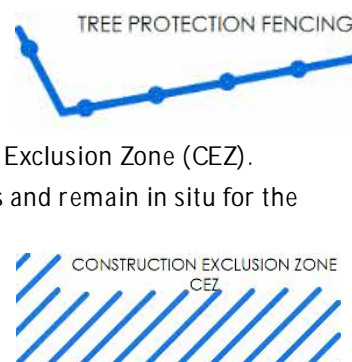
- 18.2 Felling works should be timed to avoid the main nesting season for birds between 1st March and 31st August. If the works must proceed within this time, then the ecological aspects will be risk assessed on the day by the attending Arborist or an Ecologist.
- 18.3 Stump removal within RPAs of retained trees should not be mechanically pulled out; instead should be carefully ground out with a pedestrian stump grinder.
- 18.4 If the need for additional tree pruning is required during the development, the Arboricultural Consultant will be contacted to advise on appropriate works and liaise with the LPA as required.
- 18.5 All tree works will be carried out in accordance with BS 3998:2010 'Recommendations for Tree Work' (as amended), and to current Arboricultural Best Practice standards. Tree works will be carried out by a suitably qualified and experienced Arboricultural Contractor (Arborist) holding the necessary insurance cover (£10,000,000 recommended). The contractor should carry out the relevant site-specific Risk Assessment and record such information before the commencement of tasks and work following current health and safety standards, practices and legislation. Lists of suitable contractors are available from the Arboricultural Association at www.trees.org.uk/find-a-professional/ Directory-of-Tree-Surgeons.
- 18.6 Subject to the approval of this report, tree works that facilitate the development may be undertaken without seeking additional permission.

19.0 Protected Species – Bats And Birds

- 19.1 With respect to the Wildlife and Countryside Act 1981, any contractor, prior to working on these trees, must ensure that the trees do not provide a habitat for nesting birds or bats. Should nesting birds or active birds' nests be present, then work must cease until after the nesting season.
- 19.2 If the works are likely to destroy or disturb bats or their roosts, the appropriate Statutory Nature Conservation Organisation must be notified and allowed a reasonable amount of time to advise on whether the proposed work should be carried out and if so, the method to be used.

20.0 Tree Protective Fencing (TPF)

- 20.1 Tree Protective Fencing is required to ensure RPAs of retained trees and soil structures are safeguarded during the development, creating the Construction Exclusion Zone (CEZ).
- 20.2 It is essential that the barriers are erected before any construction commences and remain in situ for the duration of the construction.
- 20.3 The CEZ should be seen as sacrosanct; only authorised persons can access the area following permission from the LPA.

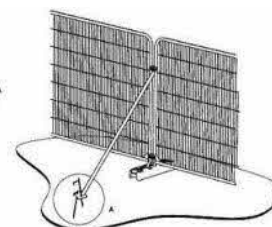


Specification for TPF:

- 20.4 The installation and specification as per BS5837 are as follows:
Secondary Specification: FENCING ON PINNED BASEPLATE.

The barrier is to consist of 2m tall welded mesh panels (Heras fencing) secured on pinned rubber or concrete feet. The weldmesh panels shall be securely fixed and joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The distance between the fence couplers shall be at least 1m and shall be uniform throughout the fence. The panels shall be supported on the inner side by stabiliser struts, attached to a base plate secured with ground pins. (Appendix 4). Weatherproof signs (Appendix 5) are to be placed on the fencing at regular intervals of no less than every 6m.

- 20.5 The locations of the TPF are illustrated in the TPP (Appendix 3) as thick blue lines.
- 20.6 The TPF will remain in place until development has completed Stage 12 (Stages Checklist); thereafter, it will be carefully dismantled only with the approval of the project Arboriculturalist and or the Local Authority Tree Officer.



Stages for Installation of Fencing:

- Hand clearance of any vegetation to allow clear working access.
- Setting out fencing points.
- Fencing is erected as per the above specification.
- Arboricultural Consultant to inspect and sign off the installation.



21.0 Site Storage, Parking, Welfare Etc

- 21.1 The site will require provision for; site storage, contractor parking, welfare facilities, temporary services/ drainage, material drop off points, etc.
- 21.2 None of the above provisions is to be located within RPAs of retained trees without the input from the project Arboricultural Consultant and the prior consent of the Local Planning Authority.

22.0 Ground Protection

- 22.1 Any soil containing roots (RPA) may be subject to compaction damage and so warrants protection.
- 22.2 Where it is anticipated, pedestrian or vehicle access will be required over the RPA of a retained tree, the protective barrier will be set back, and suitable ground protection will be installed over the RPA to minimise root damage from compaction.
- 22.3 The ground protection should be capable of supporting predicted weights without being distorted or causing compaction of the underlying soil.

Ground Protection Limitations

- 22.4 There shall be no storage or mixing of potentially hazardous materials within these areas, such as diesel fueling or cement mixing (unless specific precautions have been made that prevents runoff/ contamination into the ground from any spillage).

Ground Protection Specification & Installation – Over Soft Ground

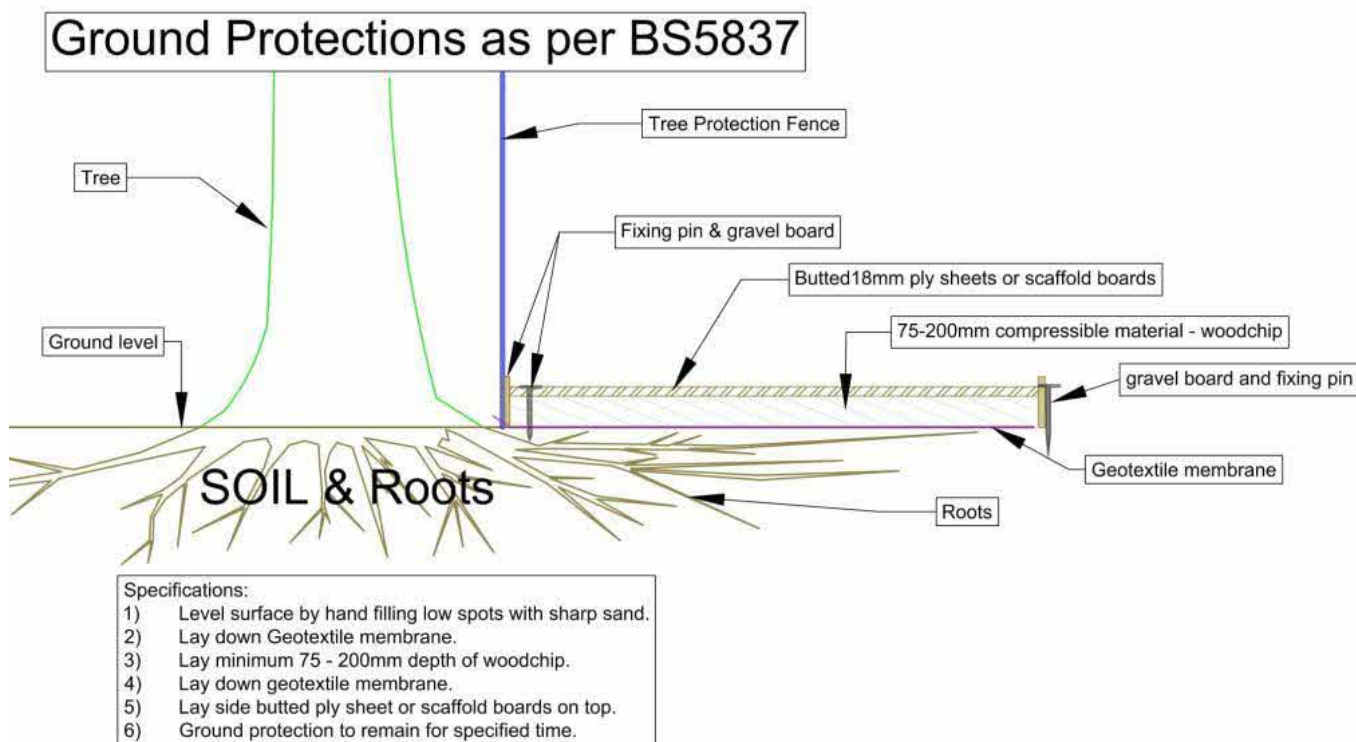
- 22.5 The area of ground protection is illustrated on the TPP as yellow shading.

- 22.6 The default installation and specification as per BS5837 are as follows:

FOR THE WEIGHT OF PEDESTRIANS, SCAFFOLDING, AND PEDESTRIAN OPERATED PLANT MACHINERY; UP TO 2 TONS:

Remove any large stones and debris by hand from the area to be protected.
Lay down a Geotextile Membrane over the ground and secure it with pins.
Lay down 100 – 200mm of compressible material (e.g. wood chip) over the membrane.
Place scaffold boards abutted or thick ply sheets (18mm) over the compressible material.

- 22.7 If heavier plant machinery (> 2 tons) is required, a proprietary system like Trakway or an equivalent product is to be specified to accommodate and dissipate the anticipated load.



23.0 Site Access And Hard Surfaces

- 23.1 There is currently good access from the driveway to the site.
- 23.2 Tree pruning has been recommended to allow adequate separation from the proposed extension and the trees to be retained.
- 23.3 If piles are to be dug during the development, a mini light-weight Piling Rig will be used that can manoeuvre under the tree's canopy without causing damage.

24.0 Demolition

- 24.1 No demolition is to be carried out within the RPAs of retained trees.
- 24.2 If demolition works are to be carried out within the RPAs of retained trees, the Arboricultural Consultant is to be contacted, and a revised AMS is to be written and approved by the LPA in accordance with BS5837.

25.0 Foundations And Construction

Side Extension – Arboricultural Supervision Required

- 25.1 The proposed extension resides within the RPA of a Japanese Maple (T6). The Client has indicated the foundation will be constructed using a pile and beam style. This is a favourable option to use over the small section of the RPA of T6, as it will minimise the excavations required.
- 25.2 The existing building sits at a higher ground level than the RPA, so constructing above ground level within the RPA is not an issue.
- 25.3 The foundation will be installed using a pile and beam style with the beams set above the existing ground level.
- 25.4 The only excavations necessary within the RPA will be that of the pile starter holes. These will be carried out under Arboricultural supervision.
- 25.5 Excavated or driven piles may be used.
- 25.6 Pile Excavation / Installation:
- 25.7 This type of construction uses a piling rig that excavates or drives piles into the ground to create the foundation. Concrete beams are cast or set above the ground level, which is supported by the piles, creating a suspended ground beam.
- 25.8 A mini piling rig should be used that is small enough so it will not cause damage to aerial sections of the surrounding trees and be light enough that it can be located on the ground protection when over the RPA of trees without damaging the ground protection.
- 25.9 Each hole within the RPA is to have a starter hole dug by hand down to a depth of 600mm under the direct supervision of the Arboricultural Consultant.
- 25.10 Roots encountered will be carefully pruned using a sharp tool/ saw to ensure any root damage is minimised.
- 25.11 The piles may then be drilled or driven to their maximum depths.
- 25.12 If using driven piles, anti-heave sleeves are to be installed in the top 1-1.5 meters to allow for slight root and soil movement.
- 25.13 If installing drilled piles, on completion of the pile holes drilling/ excavation, each pile is to have the top 1 meter lined with a membrane or heave sleeve before filling that will prevent Lime leaching into the surrounding soils.
- 25.14 NO cement/ concrete is to come in contact with soil within the RPA at any time.
- 25.15 The filling of the piles is to be monitored by the contractors and not be allowed to overfill, which could cause contamination of the surrounding soils.
- 25.16 During the installation of the ground beam, the soils shall be protected from Lime leaching by using a suitable barrier like DPM to line the shuttering.

26.0 Underground Services

- 26.1 Existing services are to be used.
- 26.2 No new subterranean services are to be installed within RPAs of retained trees.
- 26.3 If new subterranean services are to be installed within the RPAs of retained trees, then the Arboricultural Consultant is to be contacted, and a revised AMS is to be written and approved by the LPA in accordance with BS5837.

27.0 Final Soil Levels

- 27.1 Final soil levels are to remain the same as the original soil level within the RPAs of retained trees.
- 27.2 The ground within the RPAs is not to be mechanically scraped or altered at any time.
- 27.3 If final soil levels are to change within RPAs of retained trees, the Arboricultural Consultant is to be contacted, and a revised AMS is to be written and approved by the LPA in accordance with BS5837.

28.0 Soft Landscaping and Fencing

- 28.1 Landscaping outside of the Tree Protection Fencing may take place at any time during the development.
- 28.2 All landscaping within the Tree Protection Fencing (CEZ) may take place following the completion of Stage 12 (Stages Checklist).
- 28.3 The ground within the RPAs is not to be mechanically scraped at any time.
- 28.4 The clearance of any vegetation and ground within the RPAs shall be carefully carried out by hand.
- 28.5 Vehicles shall not be allowed to track over the RPAs of retained trees.

Other

- 28.6 No additional landscaping is to take place within RPAs of retained trees.
- 28.7 If additional landscaping is required within the RPAs of retained trees, the Arboricultural Consultant is to be contacted, and a revised AMS is to be written and approved by the LPA in accordance with BS5837.

29.0 General Manual Excavation



- 29.1 Manual excavations within RPAs of retained trees are to be carried out by hand to an agreed depth under the supervision of the attending Arboricultural Consultant.
- 29.2 The soil is to be loosened with a pickaxe or fork and then removed with an air-spade, shovel or trowel.
- 29.3 Any roots encountered smaller than 25mm in diameter may be carefully pruned, leaving the smallest wound possible.
- 29.4 Any roots encountered larger than 25mm in diameter shall be carefully excavated around to avoid causing damage to the protective bark. The Arboricultural Consultant is to decide whether it is feasible to remove or retain the root.
- 29.5 Any roots revealed shall be covered with hessian to avoid desiccation.
- 29.6 All arising spoil is to be removed from the RPA straight away, and compaction of the exposed soil is to be avoided at all costs (No walking or tracking over).
- 29.7 Lime leaching protection - If contaminating materials (cement/ concrete) are to be used, then a suitable plastic membrane is to be placed between it and the soil to prevent Lime leaching of the soil and contact with the roots.

30.0 Amendments

- 30.1 Issues may arise during the development phase that may require amendments to the previously agreed tree protection strategy. Any amendments to the AMS will be discussed with the Arboricultural Consultant and approved in writing by the LPA before implementation.
- 30.2 Copies of all amendments will be attached to the site copy of the AMS to provide a record of what has been agreed upon and altered.

31.0 Appendices

Appendix 1 – Tree Survey Schedule BS5837:2012

Site: 4 Moor Park Gardens, Kingston, KT2 7UD
 Client: Mr J Beedle
 Survey Date: 5th of May 2022
 Ref No: D2904.V1.0-TS.AMS
 LPA: The Royal Borough of Kingston
 Weather: Sunny
 Inspector: Tom Butterfield BSc (HONS) DipArb L4

Tree Survey Schedule With Required Works



Dryad Tree Specialists Ltd,
 Oak Hill,
 Wood Street Village,
 Guildford, GU3 3ET.
www.dryad-trees.co.uk
branchline@dryad-trees.co.uk

Prefix	ID	Species	No. Trees	No. Stem	HT (m)	Crown Spread (m)				LB/ Bear	LB/ Ht (m)	DBH (mm)	Age	Landscape	RPR (m)	RPA (m ²)	Vitality	Structure	BS Cat	Life (yrs)	Notes and Observations	Preliminary Management Recommendations	Required Works	Reason
						N	E	S	W															
NT	1	False acacia	1	1	12	4	3.5	3.5	5	S	5	360	M	M	4.3	58.6	Fair	Poor	U	<10	Extensive basal stem decay. Stem bifurcation at 2m. Reduced in the past	Remove	/	Health and Safety
T	2	Apple	1	1	4.5	1.5	3	2.5	1.5	E	2	180	M	L	2.2	14.7	Good	Good	C2	10+	Apple tree. Crown bias towards the East	/	/	/
T	3	Japanese Maple	1	3	3.5	0.5	3.5	3.5	3.5	S	2	140, 110, 110	M	L	2.5	19.8	Good	Good	C1	10+	Growing close to the existing building. Asymmetrical crown with a bias towards South. Multi-stem from ground level	/	/	/
T	4	Yucca	1	1	5	1.5	1.5	1.5	1.5	N	3	190	EM	L	2.3	16.3	Good	Fair	C3	10+	Growing close to the existing building. Leans towards the South East	/	Remove	Facilitate Development
G	5	Laurel mix	/	/	5	2.5	2.5	2.5	2.5	N	0	200	EM	L	2.4	18.1	Good	Fair	C2	10+	Sections of Cherry Laurel and Portuguese Laurel. Section adjacent to the existing building has been reduced in height and spread. The remainder has been left to grow. Provides screening from the North	/	Cut back and remove section to allow 2-2.5 m of clearance	Facilitate Development
T	6	Japanese Maple	1	1	5	3.5	5	4.5	5	W	1	360	M	L	4.3	58.6	Good	Good	B2	20+	Growing adjacent to the pond. Minor decaying cavity at 0.5m above ground level on the West side	/	Remove the lowest limb to the West, remove secondary branches and prune remaining branches to clear the proposed extension	Facilitate Development

Prefix	ID	Species	No. Trees	No. Stem	HT (m)	Crown Spread (m)				LB/Bear	LB/Ht (m)	DBH (mm)	Age	Landscape	RPR (m)	RPA (m ²)	Vitality	Structure	BS Cat	Life (yrs)	Notes and Observations	Preliminary Management Recommendations	Required Works	Reason
T	7	Ginkgo	1	1	11	3	4	3	4	W	4	470	EM	M	5.6	99.9	Good	Fair	C1	20+	The lowest stem leans towards the East, Phototropic stem correction. The main stem bifurcates at 2.5m with a slightly tight union. Some tight stem bifurcation further up the stem	/	/	/
G	8	Cherry Laurel	/	/	5	2.5	2.5	2.5	0.5	N	0	250	M	L	3.0	28.3	Good	Fair	C3	10+	Line of mainly Cherry Laurel. The majority has been reduced in height. Provides screening from the East	/	/	/
T	9	Silver Birch	1	1	10	2.5	2	3.5	4.5	N	3	260	M	M	3.1	30.6	Good	Good	B3	40+	Slight stem lean towards the South West	/	/	/
T	10	Palm	1	1	4.5	1.5	2	2	2	N	2.5	210	SM	L	2.5	20.0	Good	Good	C3	10+	Growing within the waterfall area of the pond	/	/	/
T	11	Ginkgo	1	1	9	3	2.5	3	2.5	N	4	220	SM	L	2.6	21.9	Good	Good	B3	20+	Relatively young tree. Single stem	/	/	/
NT	12	Oak	1	1	17	5.5	7.5	10	8.5	N	3	1110	M	H	13.3	557.4	Good	Good	A2	40+	Off-site tree. Crown bias towards the South	/	/	/
G	13	Yew	2	/	2	1	1	1	1	N	0	100	EM	L	1.2	4.5	Good	Good	C2	10+	Two trees regularly trimmed to shape	/	/	/
T	14	Japanese Maple	1	3	4.5	3.5	3.5	1.5	2	N	1	140, 80, 100	EM	L	2.3	16.3	Good	Fair	C1	10+	Triple stem from near ground level. Crown bias towards the North	/	/	/

Tree Survey Schedule Key

Tree Survey Schedule Key and Notes

Prefix	T	Refers to:		ID	Refers to a unique identification number or tag number for the given tree or group. Corresponds to the Tree Constraints Plan and Tree Survey Schedule
	NT	Tree			
	G	Neighbouring Tree			
	NG	Group			
	W	Neighbouring Group			
	H	Woodland Hedge			
No. Trees	Refers to the number of trees in a group				
No. Stem	Refers to the number of stems per individual tree				
Height	Describes the approximate height of the tree from ground level or buttress flare in meters				
Crown Spread	Refers to the radius of the canopy in meters from the stem of the tree in the directions of North, East, South and West				
LB/Bear	Lowest Branch Bearing: Refers to the directions of the lowest point of the canopy in meters				
LB/Ht(m)	Lowest Branch Height: Refers to the ground clearance from the ground level to the height of the lowest point of the canopy in meters				
DBH	Diameter at Breast Height. Stem diameter of the tree trunk measured in millimetres. If the tree is multi-stemmed, each diameter is recorded in the survey and a final DBH is calculated in accordance with BS5837				
Age	Y	Young	Refers to the age class of the tree:		
	SM	Semi-Mature	Young = Usually less than 10 years old		
	EM	Early Mature	Semi-Mature = Significant future growth to be expected, both in height and crown spread (typically below 30% of life expectancy)		
	M	Mature	Early Mature = Full height almost attained. Significant growth may be expected in terms of crown spread (typically 30-60% of life expectancy)		
	OM	Over Mature	Mature = Full height attained. Crown spread will increase but growth increments will be slight (typically 60% or more of life expectancy)		
	V	Veteran	Over Mature = A level of maturity whereby significant management may be required to keep the tree in a safe condition		
			Veteran = A level of maturity whereby the crown has undergone natural or aided regression (veteranisation), significant management may be required to keep the tree in a safe condition. Typically contributes richly to ecological diversity		
RPR	The radius of the Root Protection Radius given in meters. The minimum area of ground requiring protection thorough developments				
RPA	The radius of the Root Protection Area given in meters. The minimum area of ground requiring protection thorough developments				
Vitality			Refers to the vitality of the tree:		
	G	Good	Having above average vitality		
	F	Fair	Having average vitality		
	P	Poor	Having well below average vitality is struggling to survive and may be dying		
	D	Dead	Tree is dead		
Structure			Refers to the structure of the tree:		
	G	Good	Tree presents no significant structural defects		
	F	Fair	Tree presents some structural defects, unlikely to lead to high priority works		
	P	Poor	Tree presents significant structural defects that may lead to high priority works		
	D	Dead	Tree is dead		
Landscape			Refers to the Landscape contribution value of the tree:		
	H	High	Exceptional or very attractive specimen, observable by a significant number of people and locations		
	M	Medium	Attractive specimen, Medium potential to be observable by many people or vice versa		
	L	Low	Unattractive specimen or largely hidden from view		
BS CAT	Retention category refers to the BS5837, (See Appendix 2) list quality and value.				
	“A”-high, “B”-moderate, “C”-Low and “U”-Remove.				
	List retentions criteria. “1”- Arboricultural, “2”-Landscape and “3”- Cultural / Conservational				
Life Exp	Life Expectancy: An estimated useful remaining contribution in years before the tree requires removal. Classed as (<10), (>10), (20+), (40+)				
Reasons	Refers to the reason a recommendation is made. Typically to facilitate the development, access, good Arboricultural practice or Health and Safety				

Appendix 2 –Cascade chart for tree quality assessment

BS 5837:2012. Trees in relation to design, demolition and construction - Recommendations				
Cascade Chart for tree quality assessment				
Trees to be considered for retention (see Note)			Identification on Plan	
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	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] Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline 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 NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.			Dark Red RGB Code: 127-000-000
1 Mainly Arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	Identification on Plan	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or 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 RGB Code: 000-255-000
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition [e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage]. such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the cate or A destination	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	Mild Blue RGB Code: 000-000-255
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	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 collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	Grey RGB code: 091-091-019

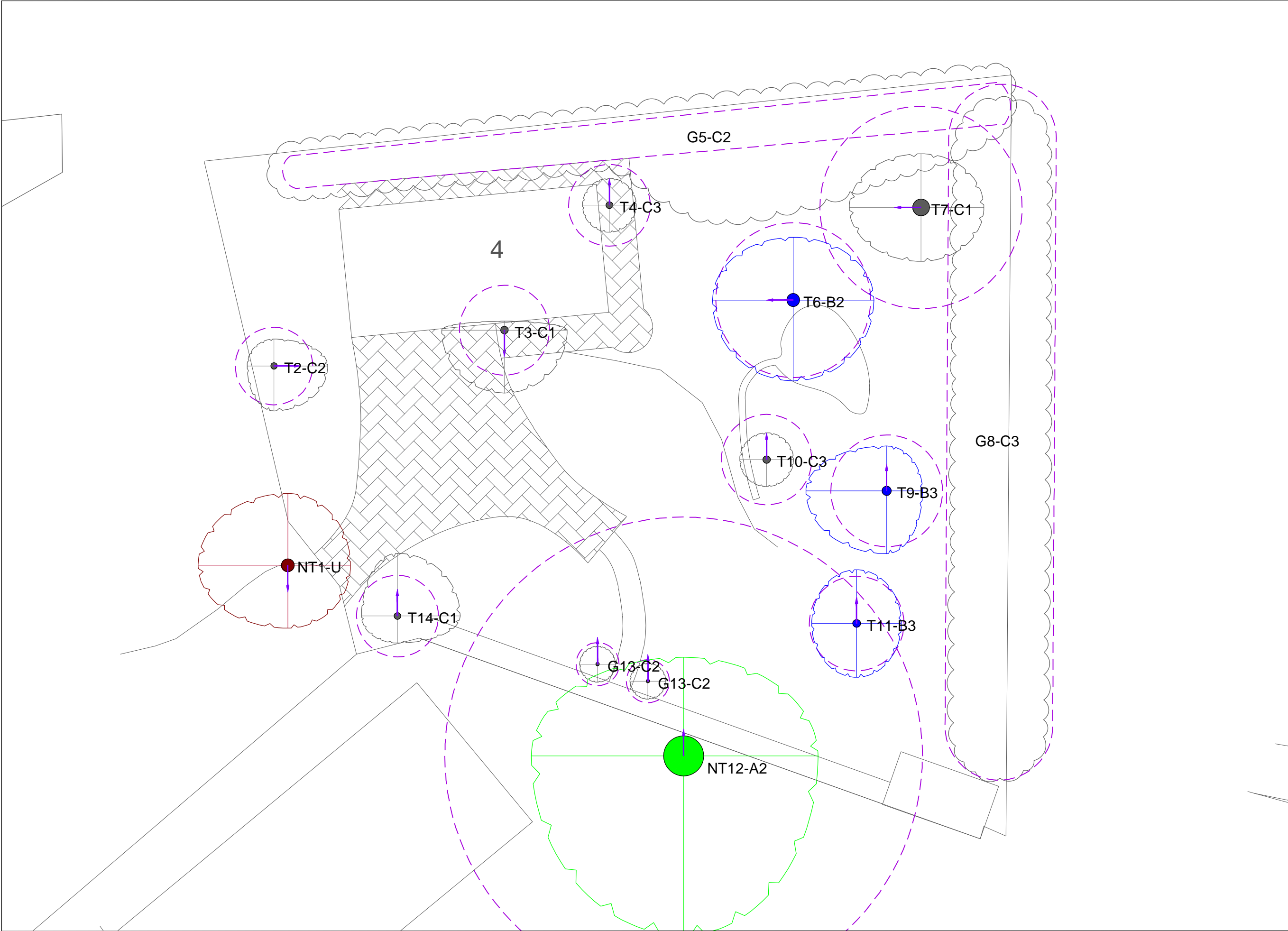
Appendix 3







Tree Constraints Plans

Tree Protection Plan

D2904.V1.0.A1.TCP (Tree Constraints Plan)

D2904.V1.0.A1.TPP



Notes:	
BS5837 Tree Retention Categories	
 CATEGORY A Trees of a high quality with an estimated remaining life expectancy of at least 40 years	 CATEGORY B Trees of a moderate quality with an estimated remaining life expectancy of at least 20 years
 CATEGORY C Trees of a low quality with an estimated remaining life expectancy of at least 10 years	 CATEGORY U Tree of poor condition that cannot be realistically retained as living trees in the context of the current land use for longer than 10 years
 ROOT PROTECTION AREA Precautinary areas - soil structure must be protected.	 EXISTING DRIVEWAY / PATIO / HARD STANDING



Dryad Tree Specialists

Oak Hill
Wood Street Village
Guildford
GU3 3ET
(01483) 455 555
www.dryad-trees.co.uk

CLIENT:

Mr J Beedle

SITE:

Plot 4 Moor Park Gardens,
Coombe Lane West, KT2 7UD

TITLE:

Tree Constraints Plan

SCALE AT A3:

1:200

DATE:

06/05/2022

DRAWN:

Tom E

PROJECT NO:

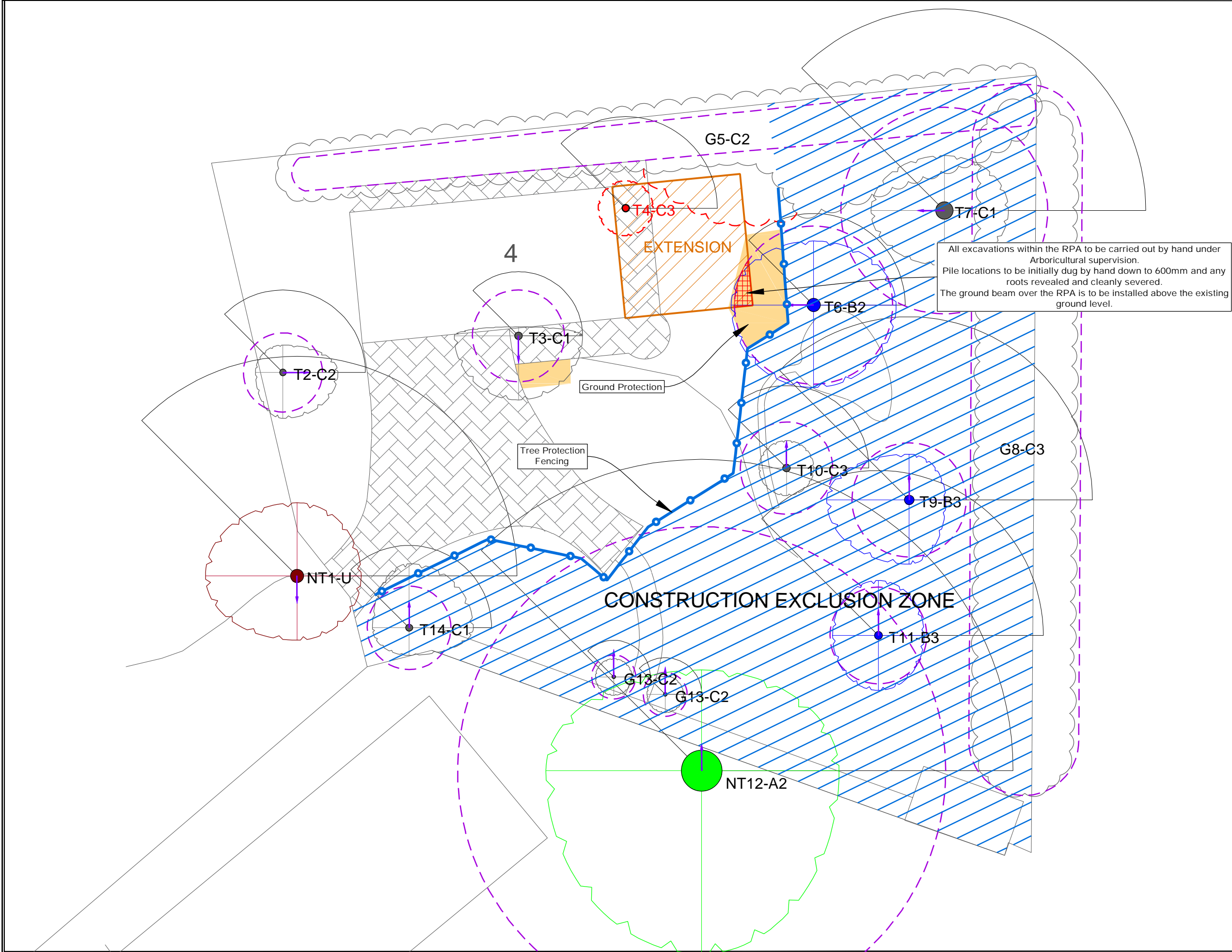
D2904.V1.0

DRAWING NO:

D2904.V1.0-A3-TC-P

REVISION:

1.0



Notes:	
BS5837 Tree Retention Categories	
CATEGORY A Trees of a high quality with an estimated remaining life expectancy of at least 40 years	CATEGORY B Trees of a moderate quality with an estimated remaining life expectancy of at least 20 years
CATEGORY C Trees of a low quality with an estimated remaining life expectancy of at least 10 years	CATEGORY U Tree of poor condition that cannot be realistically retained as living trees in the context of the current land use for longer than 10 years
ROOT PROTECTION AREA Precinctory area - soil structure must be protected	TREES / GROUPS TO REMOVE PRIOR TO DEVELOPMENT COMMENCING
GROUND PROTECTION	EXISTING DRIVEWAY (PATIO / HARD STANDING)
MANUAL EXCAVATION HAND DIG	CONSTRUCTION EXCLUSION ZONE
TREE SHADOW	TREE PROTECTION FENCING

Additional information
The Warning sign below is to be attached to the Tree protective fencing once erected

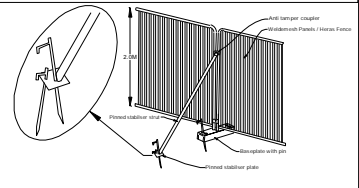
**-TREE PROTECTION AREA-
-KEEP OUT!!-
----Do NOT Move This Fence----**

(Town & Country Planning Act 1990)

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE SUBJECT OF A TREE PRESERVATION ORDER. CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION. ANY ENCROACHMENT INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY.

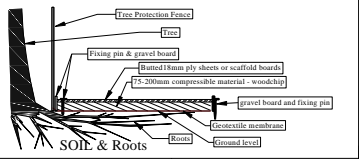
TREE PROTECTION FENCING (TPF)

Secondary Specification - Protective fencing shall consist of a heras fencing framework in accordance with figure 3 of British Standard 5837 (2012) comprising 2m tall welded mesh (Heras fencing) panels on rubber or concrete feet. The weldmesh panels shall be securely fixed and joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The distance between the fence couplers shall be at least 1m and shall be uniform throughout the fence. The panels shall be supported on the inner side by stabilizer struts, attached to a base plate secured with ground pins.



GROUND PROTECTION

For pedestrian and vehicle weights up to 2000KG within the RPA the installation ground protection shall be in the form of a single thickness of scaffold boards ply board on top of a compressible layer of woodchip (100 - 200mm deep) is onto a geotextile or supported by scaffold. For heavier traffic a proprietary sys such as GreenTrek Ground-Guards (heavy duty plastic ground protection mats clipped together) laid above 150mm deep layer of compressible woodchip pre-cast reinforced concrete slabs. No storage or mixing of potentially hazardous materials within these areas, such as diesel fueling or cement mixing (unless specific precautions have been made that prevents runoff / contamination the ground from any spillage).



General Site precautions

The following points will be observed at all times:

- No mechanical digging or scripting is allowed within defined RPA.
- No fires to be lit on site.
- No access permitted inside the CEZ or TPF.
- No materials, equipment or debris to be stored within the CEZ or RPAs of retained trees.
- Noise boards, telephone cables or other services will not be attached to retained trees.
- Materials that may contaminate the soil (cement mixer, fuel, vehicle washings) will not be permitted to operate or allow run off into the RPAs of retained trees or soils.
- Site operations will avoid damage to the aerial part of the tree.

Dryad Tree Specialists
Oak Hill
Wood Street Village
Guildford
GU3 3ET
(01483) 455 555
www.dryad-trees.co.uk

CLIENT:	Mr J Beedle		
SITE:	Plot 4 Moor Park Gardens, Coombe Lane West, KT2 7UD		
TITLE:	Tree Protection Plan		
SCALE AT A3:	DATE:	DRAWN:	REVISION:
1:200	01/05/2022	Turt B	
PROJECT NO:	DRAWING NO:		
D2904.V1.0	D2904.V1.0-A3-TPP	1.0	

Appendix 4 – Tree Protection

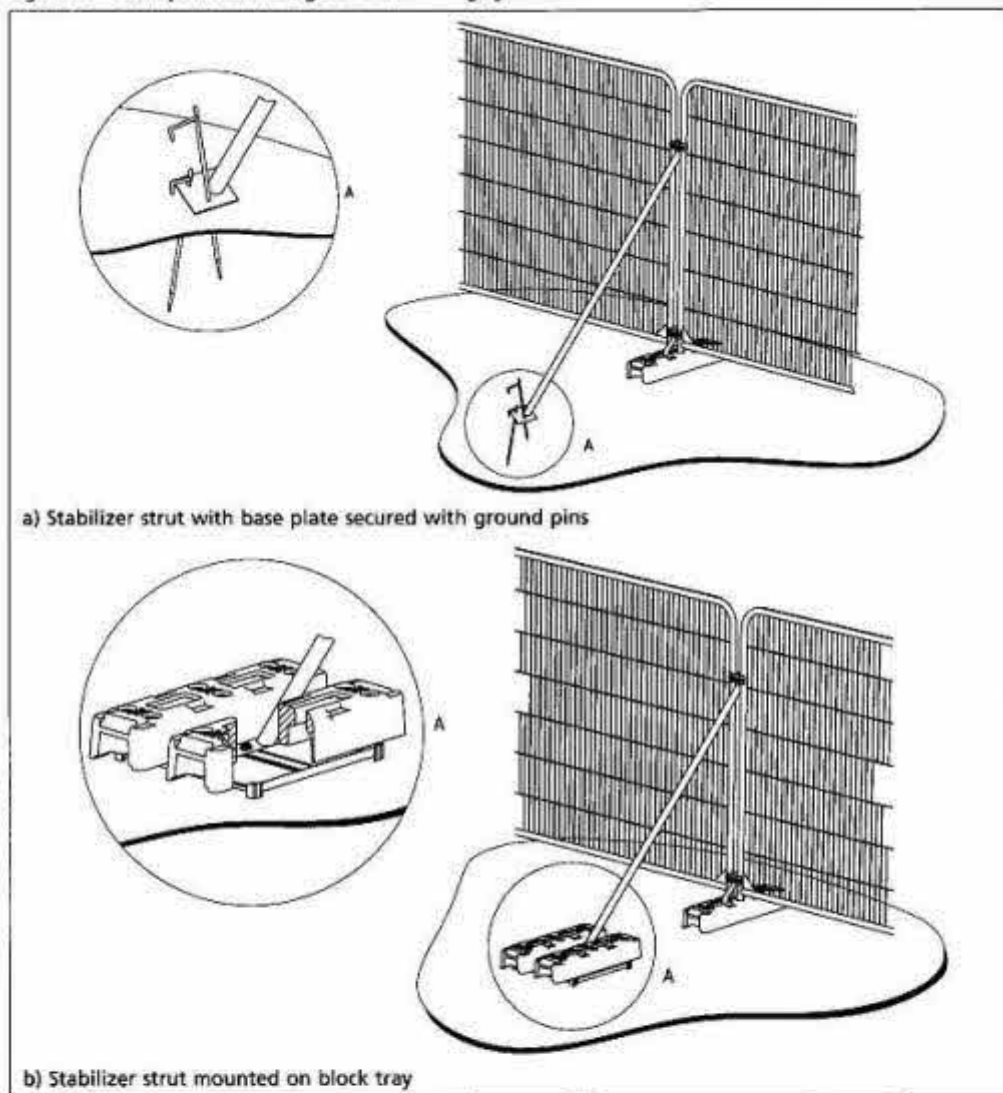
Tree Protection Fencing

HERAS FENCING ON PINNED BASEPLATE

BRITISH STANDARD

BS 5837:2012

Figure 3 Examples of above-ground stabilizing systems



6.2.3 Ground protection during demolition and construction

6.2.3.1 Where construction working space or temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable existing hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate.

Ground Protection

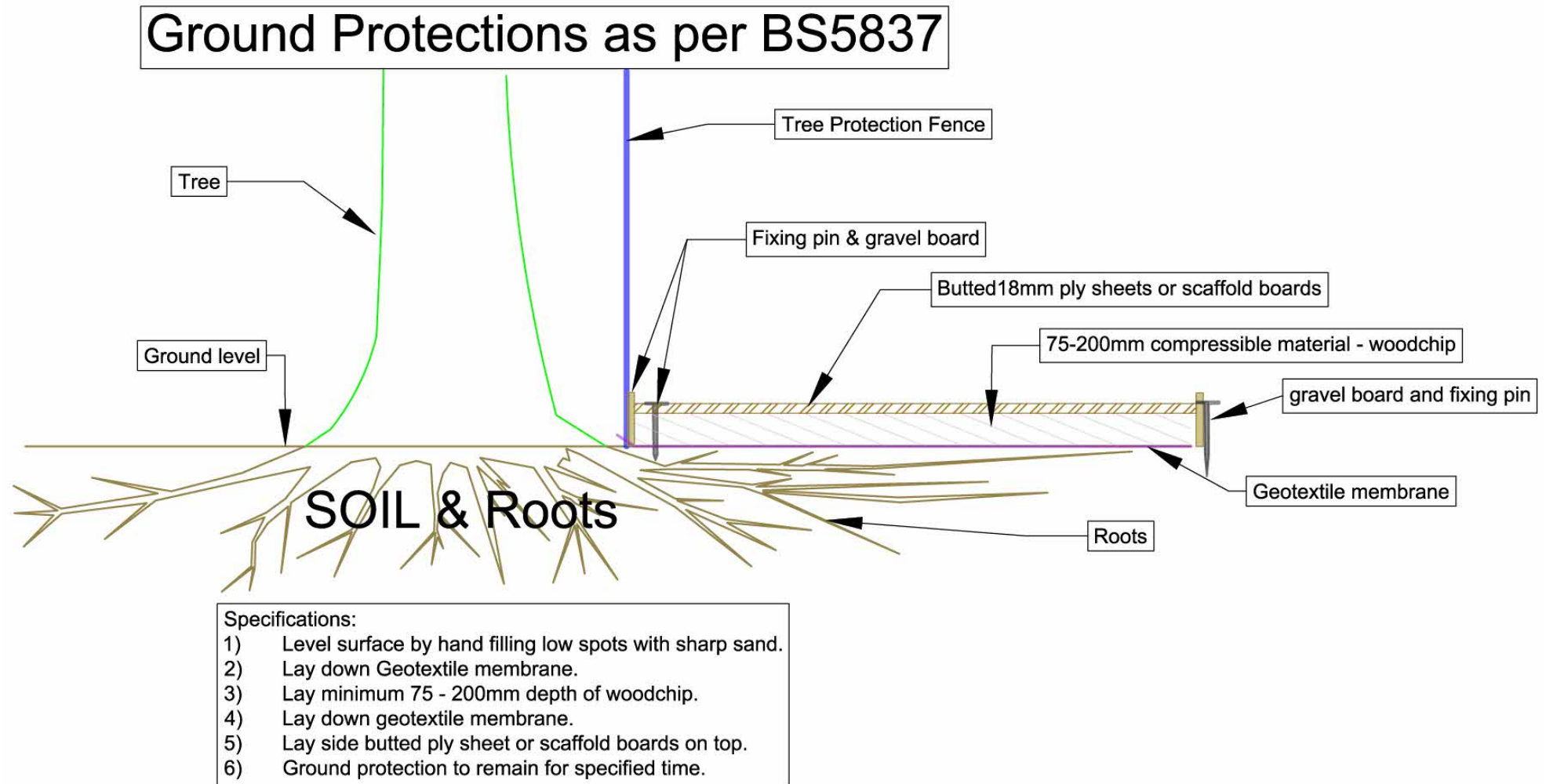


Figure 5 - Illustration showing the effects of not using ground protection against using ground protection

Appendix 5 - Exclusion sign for CEZ

TREE PROTECTION AREA



KEEP OUT!



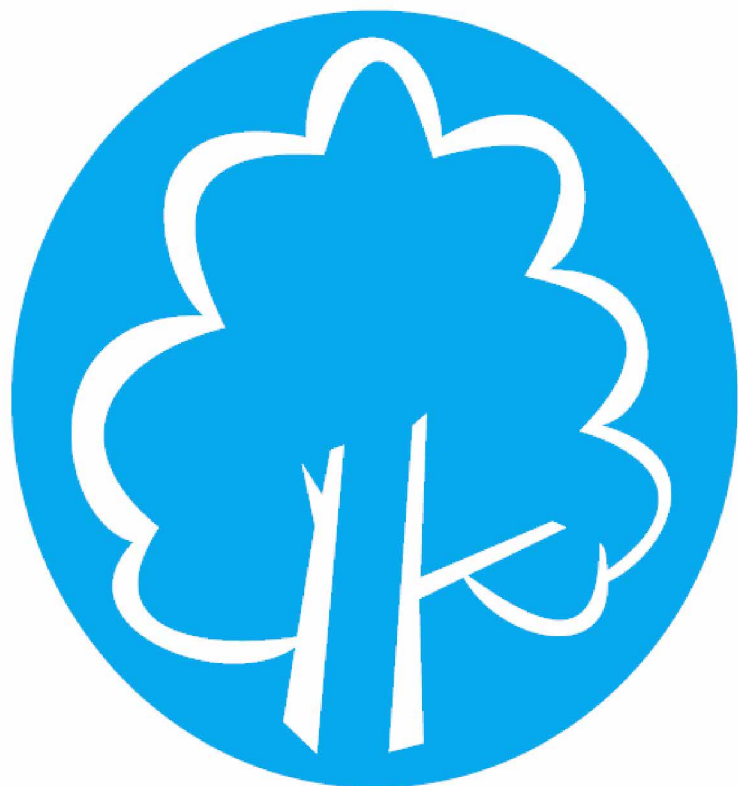
DO NOT MOVE THIS FENCE!

(TOWN & COUNTRY PLANNING ACT 1990)

**TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR
ARE SUBJECT OF A TREE PRESERVATION ORDER.**

**CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL
PROSECUTION.**

**ANY ENCROACHMENT INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN
PERMISSION OF THE LOCAL PLANNING AUTHORITY.**



**PROTECTIVE FENCING. THIS
FENCING MUST BE
MAINTAINED IN ACCORDANCE
WITH THE APPROVED PLANS
AND DRAWINGS FOR THIS
DEVELOPMENT.**



**TREE PROTECTION AREA
KEEP OUT !**

(TOWN & COUNTRY PLANNING ACT 1990)

**TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A
TREE PRESERVATION ORDER.**

**CONTRAVENTION OF A TREE PRESERVATION ORDER MAY
LEAD TO CRIMINAL PROSECUTION**

**ANY INCURSION INTO THE PROTECTED AREA MUST BE
WITH THE WRITTEN PERMISSION OF THE LOCAL
PLANNING AUTHORITY**