

Trees and Construction

BS5837 Arboricultural Method Statement

Site: 12 Broadlands Road, London, N6 4AN

Ref: 221344/A2/ AMS

Client: Facit Homes



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- Jan 2023 -

TABLE OF CONTENTS

Chapter	Title	Page
1	Introduction	3
2	Site & Application Information	4
3	Arboricultural Method Statement	5 - 16
	Arboricultural Inspection / Monitoring	6
	Tree Works	7
	Underground Utilities	8
	Tree Protection Fencing	9
	Ground Protection	10
	Sensitive Ground Works (within RPAs)	11 - 12
	Engineered Foundation (within RPAs)	13
	Additional Tree Protection Considerations	14
	New / Replacement Tree Planting	15
	Summary of Construction Restrictions	16
	Report Handling	16

Appendices

Caveat	I
Terms and Definitions	II
Tree data table & Tree Protection Plan	III

Revision	Description	Date
/	Tree Survey Advice (221344/A1)	17/12/2022

1. INTRODUCTION

- 1.1 Instruction: This advice has been prepared for Facit Homes (hereafter; client) and is in respect of the tree related planning considerations at 12 Broadlands Road, London, N6 4AN (hereafter; site).

It is in respect of the tree related planning conditions of granted planning application at the site and is produced in accordance with British Standard 5837 : 2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*' (hereafter; BS5837).

- 1.2 **Scope of this report:** This report has been produced in accordance with BS5837 and is intended to demonstrate how trees have been properly considered in relation to the approved application and associated plans. The objective is to provide tree protection details relating to the scheme's potential impact on trees and vice versa.

- 1.3 Following instruction the site was surveyed by Rod Benzies BSc MArborA (hereafter; Consultant) on the 23rd Jan 2023. Pursuant to the agreed brief a site assessment and a BS5837 tree survey were carried out with the production of arboricultural advice for the client in the form of the '*BS5837 Tree Survey Report*'.

The previous arboricultural advice supported the approved planning application of which, together with the tree related planning conditions, will inform this detailed arboricultural method statement / tree protection advice.

- 1.4 The details herein are subject to caveat at Appendix I, outlines relevant terms and definitions at Appendix II and constitutes the findings of the preliminary site survey, the assessment of the accepted scheme and the tree related planning conditions.

- 1.5 The tree survey and site observations were used to illustrate the site's arboricultural constraints in plan format as a 'Tree Constraints Plan' (hereafter; TCP). This is used as a base layer with the approved scheme outline as an overlay to inform this advice as a Tree Protection Plan (hereafter; TPP); the survey table and TPP are at Appendix III.

- 1.6 The initial arboricultural assessment and Tree Report referenced are as part of the planning approval notice, these outlined the arboricultural constraints which informed a TCP with tree locations, BS5837 quality categories, measured crowns and augmented RPAs (based on existing restrictions to root growth). With reference to the above detail, the overlaid scheme outline is assessed against the arboricultural constraints and tree protection recommendations detailed herein.

2. SITE & APPLICATION INFORMATION

2.1 The site is currently composed of a detached residence with driveway and parking to the front. Gardens tennis court area to the rear accessed from the side of the property. The site is accessed from Broadlands Road.

2.2 **Scheme:** A development scheme has been granted planning permission to '*Construction of a part single, part two-storey dwellinghouse (C3) with associated off street parking.*'.

It is also understood that the current construction intents relate to the new landscaping, tree works and landscape planting throughout; this is to be detailed within the client's Landscape Scheme of which this advice will act as an informative on trees.

2.3 The site requires consideration from an arboricultural perspective due to the presence of trees on and around the site; these trees are deemed to be within impacting distance of the existing property and potential construction area.

Also, the site requires consideration from an arboricultural perspective due as part of the approved layout and design as acknowledged by the council in the form of planning conditions 8.

3. ARBORICULTURAL ASSESSMENT & METHOD STATEMENT

- 3.1 The following information, as with the prior contents of this report, is to be read in conjunction with the tree survey data table and the appended Tree Protection Plan (221344/TPP/01); it is referred to as the Method Statement (hereafter; AMS).

Additionally, the recommendations of this AMS require approval by the local authority in accordance with the tree related planning conditions as illustrated on the TPP.

3.2 Arboricultural Site Monitoring / Supervision

- 3.2.1 In adherence to this AMS, the local authority will need confirmation of adherence to this AMS for tree protection, generally by '*a scheme of arboricultural supervision*'. This will require site inspections by a qualified arboriculturist during the site's development (i.e. Rod Benzies from Indigo Surveys Ltd).
- 3.2.2 Phased works will be used in conjunction with Protective Barrier Fencing (hereafter; PBF) and ground protection. The tree protection and site management will be supplemented by arboricultural supervision / inspection.
- 3.2.3 Once the PBF is in place with retained hard surfaces for RPAs (ground protection), site inspections will be required for various operations proposed to take place within RPA's of trees.

It is necessary for *regular inspections* which are *recommended monthly, as well as specific operations* to ensure this advice is adhered to and the consultant is available for onsite tree queries; this will require the council's approval as a variation on the planning condition terminology.

3.2.4 A record of each site visit will be kept and a summary letter drafted for the client, the site manager and the local authority (to be sent to the client by email for distribution).

The arboricultural supervision/monitoring is therefore recommended thus:

- Unless the below points are within consecutive months, additional inspections will be undertaken to provide a '1 month frequency' for arboricultural visits;
- Onsite observation/guidance at the time of Tree Work, PBF installation.
- Induction of site management regarding arboricultural considerations and the assignment of key personnel (site manager) responsible for maintaining the AMS;
- Installation of ground protection adequate to protect the RPA of trees and construct piled foundations within the RPA of T3, T4, T5, T6 and T7.
- Installation of driveway extension within RPA of T17 and T18.
- Installation of 'mole' machinery entrance point and completion of excavation within the RPA of T24 and T25.
- On completion of hard landscaping works, onsite observation/guidance for the removal of protective measures to sign off the site as having adhered to the AMS.

3.3 Tree Works

- 3.3.1 All approved tree works must be undertaken with the council's written permission (subject to statutory exemption) and undertaken to BS3998 by a tree service contractor who is suitably qualified, experienced and insured to for arboricultural contracting.
- 3.3.2 In accordance with the approved scheme and the tree related planning condition(s), the following tree works are recommended in conjunction with the scheme (additional tree works must only be undertaken with the full and written permission of the council):

TREE WORK SUMMARY

NUMBER	TREE REMOVALS / PRUNING WORKS	
H1, H2, T14, G15, G19 and H24	Remove	Remove in conjunction with the scheme: Replacements to be provided within the landscape scheme.
T21, T22, T24, T25, T26, T27	Remove	To be crown lifted over the driveway to allow a clearance of 5m. To be from branch tips inwards. Some trees will already have this amount of clearance.
T3, T4, T5, T6 and T7	Pruning	To be to be selectively crown raised over the proposed development and also to provide clearance for construction aids such as scaffolding. This amounts to 2m clearances and pruning to take place from branch tip inwards rather than stem outwards.
Retained trees		Protection by placement of fixed BS5837 specification Heras panels around the crown / RPA extents to have no access during construction and manually operative sensitive surface works and retained soil levels within RPAs. Ground protection to be used as indicated on the TPP within RPA's outside of PBF,

3.4 Underground utilities

3.4.1 Works to install drainage into the RPA of T18, T21, T22, T24, T25 and T26.

3.4.2 These are shown on a dedicated utilities layout plan 'S010-Utilities and Drainage Strategy-R' this shows that RPA incursion into the RPA of T24, T25 to provide mole machine access, therefore special measures for underground utilities will be required.

3.4.3 The following restrictions are recommended for underground utilities within RPAs:

- Any necessary excavations to be undertaken sensitively using either a no-dig method (e.g. Air-Spade) and/or under arboricultural supervision;
- Any exposed roots shall be packed with a clean damp sand (not builders sand) and wrapped in hessian sacking to protect them;
- Small roots which are identified (those less than 25mm diameter) may be carefully pruned back with a clean sharp tree saw; and
- Larger roots which are identified (those greater than 25mm in diameter) are to be retained and protected as they may be necessary for a tree's health and stability.

3.5 Protective Barrier Fencing (PBF) Specification

- 3.5.1 Protective barrier fencing (hereafter; PBF) is to be installed to prohibit access, exclude ground works, material storage and construction processes etc. from the exposed RPA sections of retained trees during construction.

PBF is to be used in conjunction with retained boundary wall/fence sections as well as existing hard surfaces within RPAs for site movements until construction completion (surface works within RPAs will be undertaken sensitively - detail to follow).

- 3.5.2 PBF is to be installed as illustrated on the TPP prior to site works commencing and is to remain in place until construction completion unless otherwise agreed by the council.
- 3.5.3 The PBF, due to the degree and proximity of work taking place around the trees, is to be where existing barriers do not exist or have been removed then it is to comprise of 2m tall welded mesh panels on rubber or concrete feet. Panels are to be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The panels should be supported on the inner side by stabilizer struts, which should be attached to a base plate and secured with ground pins. All weather notices should be erected at regular intervals on the weld mesh panels with words such as "Tree Protection Area - Keep out". See example on TPP. (see TPP illustration).
- 3.5.4 Tree protection signage denoting the words "TREE PROTECTION ZONE – KEEP OUT" is to be fixed onto each panel of the PBF (see TPP illustration).

3.6 Ground Protection

- 3.6.1 Supplementary ground protection will be used during construction works and are to be used in conjunction with the installation of the PBF; surface works within retained trees' RPAs are to be delayed until construction completion (T18).

At the point of PBF being installed, the enclosed RPA sections become Construction Exclusion Zones (hereafter; CEZ) to protect the trees' rooting areas during construction.

- 3.6.2 Despite PBF installation and retention of existing hard surfaces within RPAs (for the duration of works), it is still anticipated that construction related RPA incursion will occur within the RPA of T3, T4, T5, T6 and T7. It is therefore necessary to protect tree roots and their growing environment.

- 3.6.3 Where the retention of existing hard surfaces cannot be maintained or does not extend within RPAs during construction, temporary ground protection will be needed, i.e. for exposed RPAs.

Specifically, the ground is to be protected from impact where it may be subject to direct pedestrian/vehicular movements. The ground protection is to be appropriate for the intensity of the pedestrian or vehicular movements thus -

- a) For pedestrian movements within an exposed RPA, the ground protection is to consist of *"a single thickness of scaffold boards on top of a compressible layer laid onto a geotextile, or supported by scaffold"*; and
- b) For wheeled or tracked movements within an exposed RPA, the ground protection is to *"be designed by an engineer to accommodate the likely loading"*.

- 3.7 Sensitive Ground Works (within RPA of T24, T25 and T26)
- 3.7.1 Works to install the inspection chamber for rainwater and foul pipes within the RPA of T24, T25 and T26 at a depth of 1 to 2m as per 'S010-Utilities and Drainage Strategy-R'.
- 3.7.2 Any excavations necessary within a RPA or designated CEZ (as illustrated on the TPP - each RPA and the areas enclosed by PBF) must:
- Use sensitive excavation techniques to protect the tree roots and their existing growing conditions, i.e. sensitive manual excavations / air spade.
- 3.7.3 The RPA excavation area of T24, T25 and T26 is to be marked out [as per the TPP] on the hard surface and undertaken by hand with the use of manually operated (hand held) tools.
- 3.7.4 The excavations are to be preventative and carefully avoid damage to tree roots; therefore, individual 50mm layers are to be excavated at a time within an RPA/CEZ.
- 3.7.5 Any exposed roots shall be packed with a clean damp sand (not builders sand) and wrapped in hessian sacking to protect them from temperature changes and drying out.
- 3.7.6 To avoid root pulling and damage it is required to dig a trench in the location of the outer extent of the excavation and prune all roots encountered so that they do not interfere with the construction. The ends of pruned roots are to be covered in hessian sacking to prevent drying while they are exposed. Then sufficient soil can be removed to allow construction. Once the construction is complete then the remaining soil can be excavated to the required level. All work is to be undertaken by hand and under supervision by a qualified Arborist.

Sensitive Ground Works (within RPA of T17 and T18)

- 3.7.7 Any excavations necessary within a RPA or designated CEZ (as illustrated on the TPP - each RPA and the areas enclosed by PBF) must:
- Retain the existing soil levels; and
 - Use sensitive excavation techniques to protect the tree roots and their existing growing conditions, i.e. sensitive manual excavations / air spade.
- 3.7.8 The RPA excavation areas are to be marked out [as per the TPP] on surfaces and undertaken by hand with the use of manually operated (hand held) tools.
- 3.7.9 The excavations are to be preventative and carefully avoid damage to tree roots; therefore, individual 50mm layers are to be excavated at a time within an RPA/CEZ. This is to ensure that excavations do not incur on the existing soil levels, i.e. no downward regrading of soil levels within RPAs.
- 3.7.10 Any exposed roots shall be packed with a clean damp sand (not builders sand) and wrapped in hessian sacking to protect them from temperature changes and drying out.
- 3.7.11 Small roots (those less than 25mm in diameter) may be carefully pruned back with a clean sharp tree saw. However, pruning large roots (those greater than 25mm in diameter) will require the advice of the consultant and permission of the council; these may be necessary for a tree's health and stability.
- 3.7.12 Once the surface layer material has been removed, any hessian wrapping will be removed, and roots will be surrounded/packed with a sharp sand and any existing ruts, holes or dips are to be infilled with a mix of sharp sand and high grade tree planting soil.

3.8 Engineered Foundation (under arboricultural supervision T21, T22, T24, T25, T26 and T27)

- 3.8.1 It is necessary for the client / architect to provide a specification, elevation and cross section of the proposed piled/engineered foundation which shows adequate consideration for tree root protection.
- 3.8.2 The proposal foundation excavation and installations extent (as illustrated on the TPP) will:
- Use manually operated non-mechanical tools;
 - Use either piled/hand augured/hand excavated pile foundations.
 - Connect a framework or lintel with supporting wall for the raised slab;
- 3.8.3 In relation to above, the foundation is to use piles with a frame/slab atop on which the structure is to be constructed. This will limit excavations to the ground preparations and piles/corner pads.
- 3.8.4 Following sensitive ground preparations (see; s3.7), the piles are to be marked on the ground and manually excavated using hand held non-mechanical tools. This is to confirm that no roots are present greater than 25mm diameter or move the pile/pad.
- 3.8.5 The excavations are to be preventative and carefully avoid damage to tree roots where individual 50mm layers are to be excavated. Small roots (less than 25mm diameter) may be carefully pruned back with a clean sharp tree saw. However, pruning large roots (greater than 25mm diameter) require consultant advice and council permission.
- 3.8.6 Once the extent of excavations is completed, the pile can be installed, or, the pad location can be lined and cement infilled. This concludes the manual foundation installation and then allows for the structure to be built atop which is clear of RPAs

3.9 Additional Tree Protection Considerations

- 3.9.1 It is understood that the client is also finalizing a detailed landscape scheme in order to address landscape conditions. This will also take account of this advice in respect of retained trees' RPAs, retained soil levels within RPAs and CEZs and works within fenced off sections only after construction.
- 3.9.2 General consideration for material storage, handling and pollution control is to be detailed within a 'construction management plan' and supplied by the client in addition to this advice.

The retained hard surfaces within the site will likely allow for a site cabin or material storage area to be allocated here. However, this will require measures to ensure no material/chemical run-off or leaching into soils, i.e. polythene layer beneath.

Thereafter, it is important to ensure that delivery, storage, material preparation, access etc. are all located entirely outside of retained trees' RPAs and crowns, i.e. not within the areas enclosed by PBF as per the TPP.

3.10 New / Replacement Tree Planting

- 3.10.1 The notable trees are retained and protected as part of this advice. Taking account of the predominantly low quality trees which will be removed for both health and safety purposes and in conjunction with the landscape enhancements, replacement tree planting will afford the site and wider community an increased amenity contribution in the long term.
- 3.10.2 It is necessary for the client to provide a detailed landscape scheme which demonstrates a commitment to well delivered tree planting, an enhancement to the site's landscape and biodiversity as well as a long term amenity from trees.

The landscape scheme is to illustrate the planting locations of trees and outline a detailed specification of species and stock selection, locations, volume, planting process and maintenance; an overview is included below.

- 3.10.3 New tree planting is to be based on the the trees removed and the availability of new planting space.
- 3.10.4 The selection of healthy specimens of a suitable species is necessary in order to promote and enhance biodiversity, continuity of tree cover and suit the spatial constraints of the site, favour native species of mixed ultimate scale. This could concentrate on UK grown native tree stock of mixed year round interest to further promote amenity, i.e. Rowan and Sorbus verities (Wild Service Tree), Field Maple or more ornamental stock such as Amelanchier x grandiflora, Paperbark Maple etc.

- 3.10.5 Each new tree will be illustrated on the landscape scheme in a location which suits the ultimate scale of the species. Planting pits are to be properly prepared with adequate drainage and future growth room (example design is included on the TPP) thus -
- a) A planting pit is to be excavated to a sufficient width and depth to accommodate the root-ball, allowing a minimum of 1.0m clearance, with the additional breaking up of the planting pit's sides (not base).
 - b) The tree is to be planted at the same depth as in the nursery (not above the root collar). It will have an irrigation system (≥ 5 cm diameter perforated pipe laid around the root ball 10cm below the surface) and be back-filled with high grade soil and firmed in.
 - c) The tree is to have a non-intrusive and adjustable supportive system installed in the form of either staking or above/underground guying.
 - d) A bark/wood-chip mulch is to be applied around the base of the planted tree to be at least a 2m radius and < 5 cm depth.
 - e) A suitable maintenance program, i.e. additional watering, fertilizing, weed control and mulching, is essential to ensure the tree establishes successfully.

3.11 Summary of Construction Restrictions

3.11.1 The following restrictions apply for tree protection purposes: as illustrated on the Tree Protection Plan (TPP/221344/02):

- a) No additional tree works are permitted unless further agreed in writing by the council.
- b) PBF is to be installed prior to site works commencing, i.e. the delivery of materials, site set up, site preparation and/or construction as per the TPP (appended)
- c) Once the PBF is in place the enclosed areas are to act as Construction Exclusion Zones (no access is permitted); the site cabins and materials are to be delivered using the existing access and ensure all storage is clear of tree crowns and RPAs.
- d) No chemicals or materials are to be transported or stored or used or mixed within an exposed RPA or Construction Exclusion Zone (CEZ).
- e) No fires are to be lit and no machinery, plant or vehicles are to be washed down within 10m of a tree's canopy or within a RPA or CEZ.
- f) During construction processes RPAs / CEZs may not be breached, i.e. no surface work, without the consultant's prior advice and council consent; this is with the exception of pedestrian access for sensitive landscape works within the rear garden section.
- g) No mechanical digging or scraping is permitted within a RPA / CEZ.
- h) Only following hard landscaping completion can the PBF be removed, and any remaining soft landscaping/tree planting works be undertaken.

3.12 Additional Recommendations

3.12.1 This report is released to the client for them to distribute at their discretion. The consultant is available via telecom and/or email (via the methods on the title page) for any queries relating to this report and/or any other matter relating to arboriculture.

3.12.2 This AMS and the TPP are to be approved by the council as a means of authorised tree protection measures of which all site personnel are to have access to a copy and the details herein are to be inspected as per s.3.2 for '*Arboricultural Monitoring / Supervision*'.

This concludes our advice.

Appendix I

Caveat

Any and all information supplied to Indigo Surveys Ltd by/on behalf of the client is assumed to be accurate unless otherwise informed. | This report is limited to the observations made on the date of inspection as detailed herein and any deletion, editing or alteration will result in the report being null and void in its entirety. | This report in its entirety may be deemed null and void if remedial works are undertaken on any area of the site, on or after the date of the survey. | No liability is assumed by the author or by Indigo Surveys Ltd for any misuse, misinterpretation or misrepresentation of this report. | This report is not valid in adverse or unpredictable weather conditions or for any failure due to 'force majeure' or unpredictable events. | No responsibility is assumed either by the author of this report or by Indigo Surveys Ltd for any legal matters that may arise as a consequence. | Neither the author nor Indigo Surveys Ltd will be required to attend court or give testimony as part of this agreement. | The responsibility for any works undertaken on the basis of the recommendations of this report does not form part of this agreement.

Appendix II

Terms and Definitions

“Arboriculturist” - person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.

“Competent Person” - person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.

“Topographical survey” - an accurately measured land survey undertaken to show all relevant existing site features. *A method of carrying out topographical surveys is given in RICS specification* Surveys of land buildings and utility services at scales of 1:500 and larger.

“BS5837 Tree survey” - should be undertaken by an arboriculturist to record information about the trees on or adjacent to a site. The results of the tree survey, including material constraints arising from existing trees that merit retention, should be used (along with any other relevant baseline data) to inform feasibility studies and design options. For this reason, the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for development.

“Tree categorization method” - trees should be categorised in accordance with the BS5837 cascade chart by an arboriculturist. This is to identify the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained in the event of development occurring.

“Root protection area (RPA)” - layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure is treated as a priority, shown as an arboricultural constraint in m². The radius is calculated using the BS5837 calculation method. An arboriculturist may change the shape of an RPA but not reduce its area.

“Arboricultural implications assessment” - a study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

“Arboricultural method statement” - methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.

“Tree protection plan” - a scale drawing, informed by descriptive text where necessary, based upon the finalized proposals, showing trees for retention and illustrating the tree and landscape protection measures.

Appendix III

Data Table: As appended (BS5837 Tree Survey Key & Table)

Tree Protection Plan: As appended (221344/TPP/01)

TREE SURVEY IN ACCORDANCE WITH BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'

CLIENT: Facit Homes

PROJECT REF: 221344/A1 (Tree Numbers follow previous survey 19th Oct 2020)

SITE: 12 Broadlands Road, London, N6 4AN

CONTACT: /

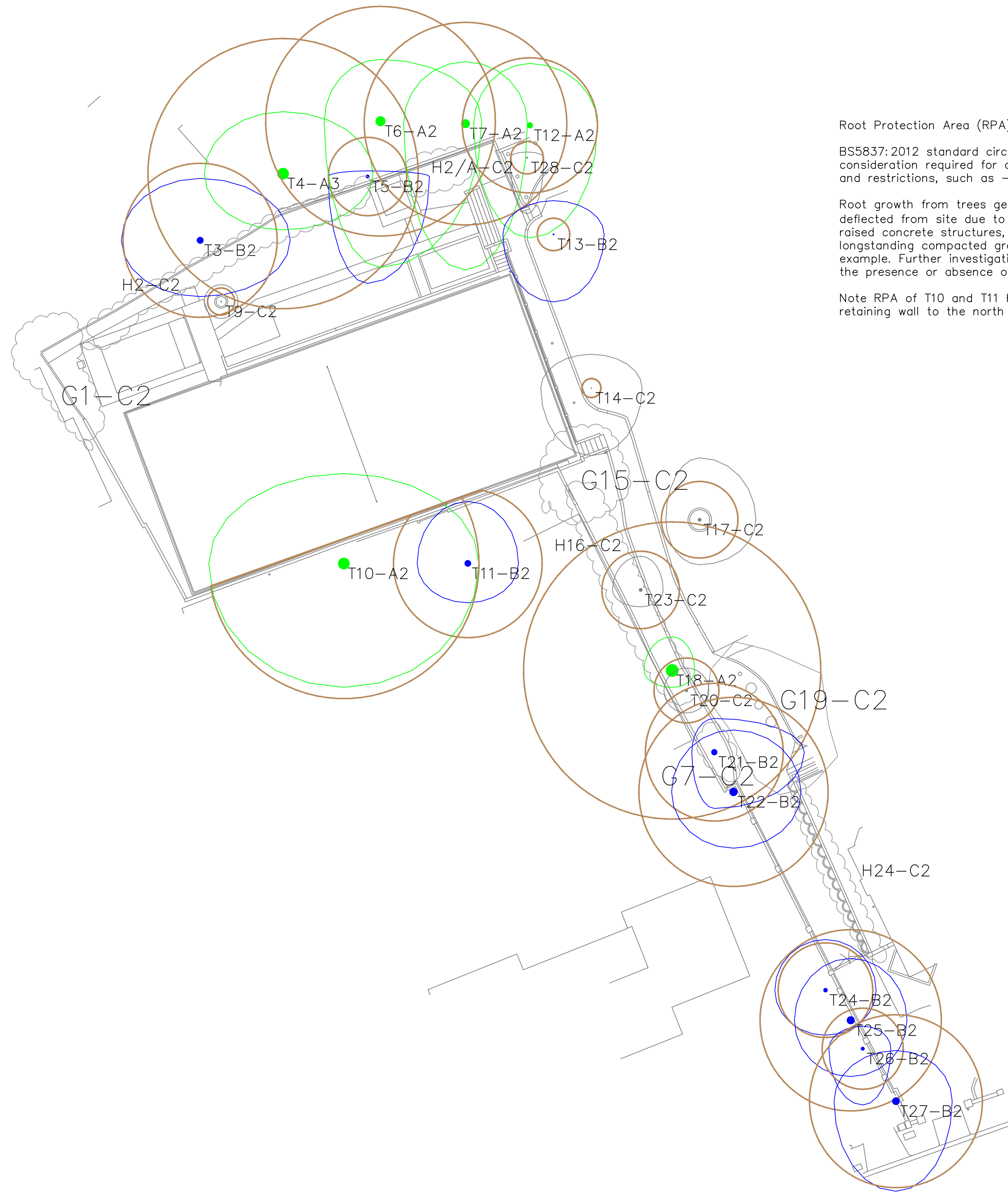
SURVEY DATE: 11 January 2022

ARB CONSULTANT: Rod benzies BSc MA ArborA

TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.	MANAGEMENT
T3	Horse Chestnut; Aesculus hippocastanum; Hippocastanaceae	M	18	5.5	5	8	7	570*	6.8	3.5 over site	4 All round	Fair	20-40	Situated in neighbouring property. Unsighted lower stem assessment restricted.. Old Storm damage in the crown. Cavies in crown	B 2	
T4	Horse Chestnut; Aesculus hippocastanum; Hippocastanaceae	M/OM	20+	5.5	5	8	7	1000*	12.0	3.5 over site	4 All round	Fair	20-40	Situated in neighbouring property. Unsighted lower stem assessment restricted.. Old Storm damage in the crown. Cavies in crown. Pollarded in the past. Pollard points at 8m with Co-dominant regrowth. Adhoc pruning over property	A 3	
T5	Lime; Tilia (species); Tiliaceae	M	16	0.5	9.5	5.5	3.5	290*	3.5	3.5 over site	4 All round	Fair	20-40	Situated in neighbouring property. On top of retaining wall. Ivy establishment on stems. Subdominant tree	B 2	
T6	Common Beech; Fagus sylvatica; Fagaceae	M/OM	18+	5.5	13	9	5	850*	10.2	3.5 over site	4 All round	Fair	20-40	Situated in neighbouring property. On top of retaining wall. Ivy establishment on stems. Subdominant tree. Unsighted lower stem assessment restricted.. Tree house in tree. On higher ground than site	A 2	
T7	Black Pine; Pinus (species); Pinaceae	M/OM	20+	5.5	13	5.5	5.5	750*	9.0	10m over site	4 All round	Fair	40+	On higher ground than site. Situated in neighbouring property. Unsighted lower stem assessment restricted.. Managed by crown love lifting	A 2	
T9	Apple; Malus (Spps); Rosaceae	EM	3.5	1.5	1.5	1.5	1.5	100	1.2	0.25	All round	Fair	10_20	Managed by regular pruning	C 2	
T10	Copper Beech; Fagus sylvatica 'Purpurea' Fagaceae	M/OM	20+	8	11	12	12	1000*	12.0	10+ m over site	1 All round	Fair	40+	Situated in neighbouring property. Grafted specimen. Managed by crown lifting over site. Pushing out existing retaining wall. A. Asymmetric unbalanced crown. Possibly pollarded in the past	A 2	
T11	Lawson Cypress; Chamaecyparis lawsoniana; Cupressaceae	M	20+	5.5	3.5	4.5	4.5	550*	6.6	1.75	1 All round	Fair	20-40	Situated in neighbouring property. Multistemmed from base	B 2	
T12	Birch; Betula (species); betulaceae	M/OM	20+	5.5	10	6	5	500*	6.0	4m over site	4 All round	Fair	40+	On higher ground than site. Situated in neighbouring property. Unsighted lower stem assessment restricted.. Managed by crown love lifting. Ivy establishment on stems	A 2	
T13	Pine; Pinus (species); Pinaceae	EM/M	16	3	6	4.5	4.5	120	1.4	1.75	3.5 All round	Fair	20-40	Leans slightly south. Good needle coverage and growth, Managed by crown lifting	B 2	
T14	Ornamental tree/shrub	Y/SM	3	3	6	4.5	4.5	70	0.8	1.75	1 All round	Fair	10_20		C 2	
T17	Magnolia; Magnolia (species); Magnoliaceae	M	6	5.5	4	5	3	200, 200	3.4	3	1 Stem splay	Fair	20-40	Multistemmed from base. Multistemmed tree 2 stems. Managed by regular pruning	C 2	
T18	London Plane; Platanus hispanica; Platanaceae	M/OM	20+	3	1.5	2	2.5	1100*	13.2	4m over site	6Stem splay	Good/ Fair	20-40	Previously Pollarded. Pollarded in the past. Pollard points at 8m with Co-dominant regrowth. Mana. Managed by regular reduction	A 2	
T20	Hybrid Holly; Ilex alterclarensis; Aquifoliaceae	EM/M	7	2	2	2	2	240	2.9	4m over site	1.25 Stem splay	Good/ Fair	20-40	Subdominant tree	C 2	

TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.	MANAGEMENT
T21	Pine; Pinus (species); Pinaceae	EM/M	20+	3	5	8	2	510	6.1	10m over site	1.25 Stem splay	Good/ Fair	20-40	Lack of root flare indicates change of levels. Multistemmed tree 2 stems. Multistemmed from 2.5m. Asymmetric unbalanced crown	B 2	
T22	Lime; Tilia (species); Tilaceae	M	4	5.5	5	6	5.5	700	8.4	10m over site	1.25 Stem splay	Good/ Fair	20-40	Situated in neighbouring property. Managed by regular pruning. Managed by regular reduction. Adhoc pruning over property	B 2	
T23	Cotoneaster; Cotoneaster (spps); Rosaceae	M	7	3	1.5	2	2.5	348	4.2	0.25	1 Stem splay	Fair	20-40	Stems tied together with strap	C 2	
T24	Lime; Tilia (species); Tilaceae	M	20+	4.5	4	4.5	4.5	350	4.2	2	1.25 Stem splay	Good/ Fair	20-40	Managed by regular reduction. Situated in neighbouring property. Behind boundary wall	B 2	
T25	Lime; Tilia (species); Tilaceae	M	20+	5.5	5	5	5	671	8.1	2	1.25 Stem splay	Good/ Fair	20-40	Managed by regular reduction. Situated in neighbouring property. Behind boundary wall	B 2	
T26	Lime; Tilia (species); Tilaceae	M	16	2	5	2.5	3	300	3.6	2	1.25 Stem splay	Good/ Fair	20-40	Managed by regular reduction. Situated in neighbouring property. Behind boundary wall. Trunk has a slight lean. Growth affected by adjacent trees	B 2	
T27	Lime; Tilia (species); Tilaceae	M	20+	4.5	8	5	5.5	640	7.7	2	1.25 Stem splay	Good/ Fair	20-40	Managed by regular reduction. Situated in neighbouring property. Behind boundary wall. Multistemmed tree 3 stems. Boundary wall built to accommodate tree stems	B 2	
G1	Leyland Cypress; x Cupressocyparis leylandii; Cupressaceae	EM/M	12	n/a	n/a	n/a	n/a	200	2.4	0	0	Fair	<10	Screen value only. Ivy establishment on stems. Managed by crown love lifting. Branches in close proximity touching or close proximity to building/structure. On high side of retaining wall, lower side on neighbouring side. Low life expectancy due to location. Lack of root flare indicates change of levels	C 2	
H2	Leyland Cypress; x Cupressocyparis leylandii; Cupressaceae	EM	3.5	n/a	n/a	n/a	n/a	90	1.1	0	0	Fair	10_20	Managed by clipping. Formal hedge denoting boundary	C 2	
H2_A	Leyland Cypress; x Cupressocyparis leylandii; Cupressaceae	M/OM	4	n/a	n/a	n/a	n/a	90	1.1	0	0	Fair	20-40	Hedge	C 2	
G7	Hybrid Holly; Ilex alterclarensis; Aquifoliaceae; Bay Laurel; Laurus nobilis; Lauraceae	M	4	n/a	n/a	n/a	n/a	200	2.4	0	0	Fair	20-40	Small tree group	C 2	
G15	Cherry; Prunus (species); Rosaceae; Lawson Cypress; Chamaecyparis lawsoniana; Cupressaceae; Ornamental tree/shrub	Y/SM	8	n/a	n/a	n/a	n/a	100	1.2	0	0	Fair	10_20	Small tree group	C 2	
H16	Leyland Cypress; x Cupressocyparis leylandii; Cupressaceae	M	4	n/a	n/a	n/a	n/a	200, 200; 140	2.9	0	0	Fair	20-40	Formal hedge denoting boundary. Managed by clipping	C 2	
G19	Lawson Cypress; Chamaecyparis lawsoniana; Cupressaceae	EM/M	18+	n/a	n/a	n/a	n/a	270 to 370	4.0	0	0	Fair	20-40	Set in formal landscaping. Overgrown hedge	C 2	
H24	Bay Laurel; Laurus nobilis; Lauraceae	M	4	n/a	n/a	n/a	n/a	90	1.1	0	0	Fair	20-40	Set in planters	C 2	

TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W	STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.	MANAGEMENT
TREE SURVEY 'KEY' - BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'													
	TPO/CA	-	On client request: presence of Tree Preservation Orders (TPO) / site location within a Conservation Area (CA) & date checked;										
	TREE REF. #	-	Tree reference number: tag or plan number (T - individual tree, G - group of trees/shrubs, H - hedge);										
	SPECIES	-	Genus, species and/or common name;										
	AGE	-	Age classification (NP - new planting, Y - young, EM - Early-Mature, SM - semi mature, M - mature, LM - late mature, OM - over mature);										
	HEIGHT (in m)	-	Approximate height of tree in metres;										
	CANOPY (in m) N - S - E - W	-	Approximate branch spread in metres of the four principal compass points;										
	STEM (in mm)	-	Stem diameter in millimetres: measured in accordance with s.4.6 of BS5837;										
	RPA (in m)	-	Circle radius of the Root Protection Area: calculated using the stem diameter (single/multiple stem variant, as outlined within BS5837);										
	CLEARANCE (in m)	-	Crown clearance in metres above the adjacent ground level;										
	1st BRANCH (in m)	-	Clearance in metres to first significant branch and direction of growth (where relevant);										
	VITALITY	-	Physiological condition typically gauged from canopy cover and annual extension growth (good, fair, poor, dead);										
	ESTIMATED REMAINING CONTRIBUTION	-	Approximate number of years a tree will continue to contribute without the need for oppressive arboricultural intervention, categorised in years as <10, 10-20, 20-40 and >40;										
	NOTES	-	Structural and physiological condition observations;										
	BS CAT.	-	BS5837 tree quality assessment category: resulting from structural/physiological condition and remaining contribution (approximate useful life expectancy); Standard retention category U : in such a condition that any existing value would be lost within 10 years; Standard retention category A : high quality and value, in such a condition as to be able to make substantial contribution of 40+ years; Standard retention category B : moderate quality and value, in such a condition as to make a significant contribution of 20+ years; Standard retention category C : low quality and value, currently in adequate condition to remain until new planting could be established 10+ years; Standard retention sub-category, mainly due to: 1 - Arboricultural values, 2 - Landscape values, 3 - Cultural values, including conservation;										
	MANAGEMENT	-	Preliminary management recommendations (as appropriate);										
	' * '	-	Within the survey schedule denotes an estimate										



Root Protection Area (RPA) Notes

BS5837:2012 standard circular RPAs are illustrated here, with consideration required for anticipated root growth influence and restrictions, such as –

Root growth from trees generally may be absent restricted or deflected from site due to the lower/higher level changes, raised concrete structures, existing foundations, hard surfaces, longstanding compacted ground and existing structures for example. Further investigation may be required to establish the presence or absence of roots.

Note RPA of T10 and T11 has been modified due to large retaining wall to the north of their respective stems.

KEY

Tree Crown Spread

Root Protection Area (RPA)

Tree Stem

T1 Tree No.

Removed Tree

Tree Condition Category

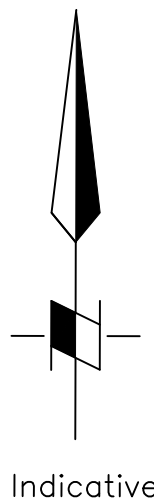
A

B

C

U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'



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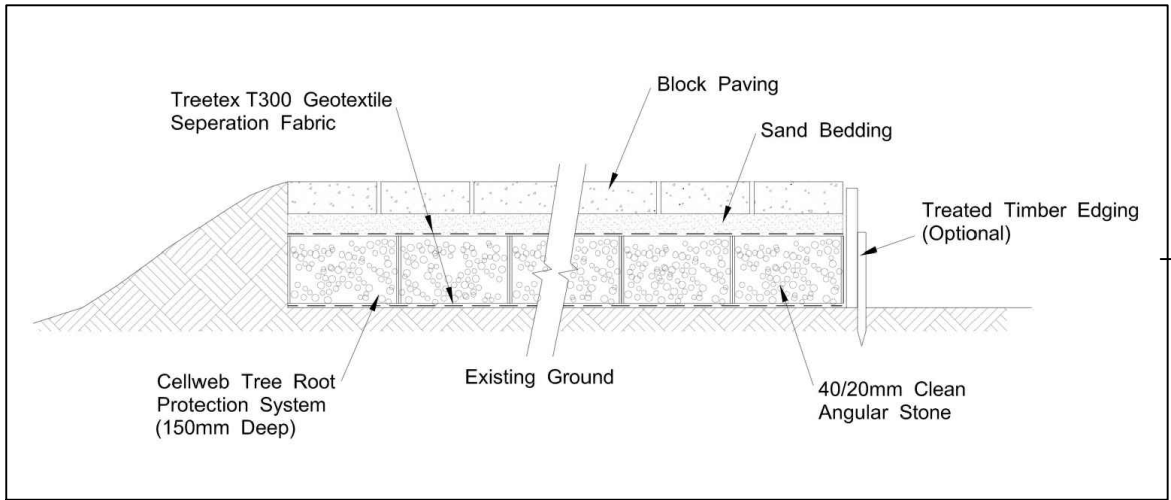
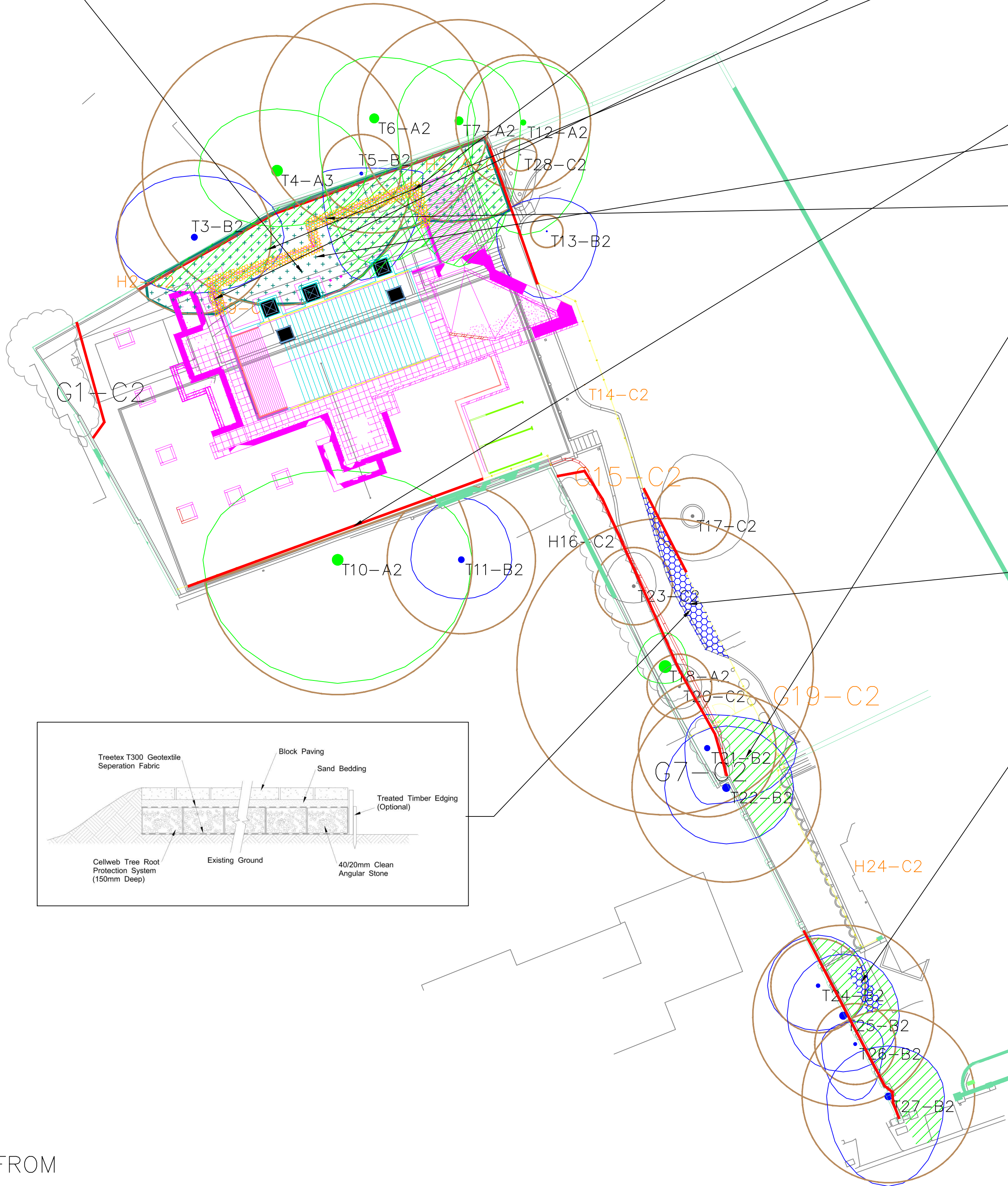
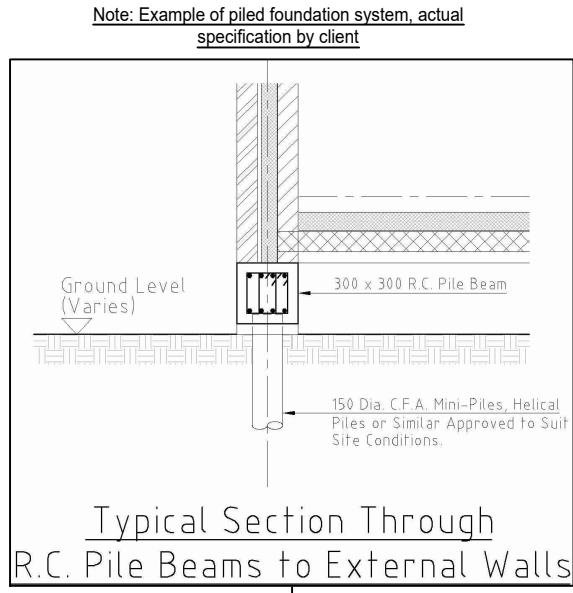
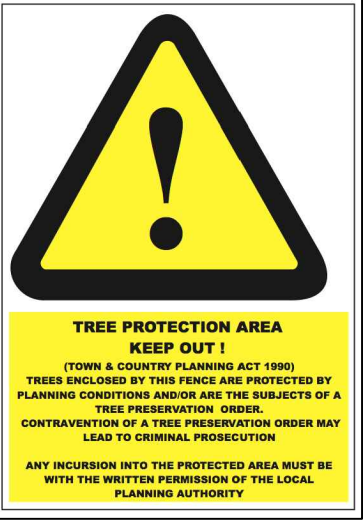
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REV.	DESCRIPTION	DWN	CHK'D	DATE		
CLIENT Facit Homes						
PROJECT 221344/A1 12 Broadlands Road London, N6 4AN						
TITLE Tree Constraints Plan						
DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RPHB	18/01/2023	AT	18/01/2023			1–250

(Mail) Second Floor, 1 Hunter's Walk, Canal Street, Chester. CH1 4EB
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Drawing Number		A1
221344/A1/TCP/01		REV.

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Tree Removals:
H1, H2, T14, G15, G19 and H24 to be removed to facilitate the scheme, replacement tree detail to be included within the landscape scheme.

Tree Pruning:
T3, T4, T5, T6 and T7 to be to be selectively crown raised over the proposed development and also to provide clearance for construction aids such as scaffolding. This amounts to 2m clearances and pruning to take place from branch tip inwards rather than stem outwards.

Protective Barrier Fencing (PBF):
Most tree protective fencing will use the existing fencing and boundary walls. Where existing barriers do not exist or have been removed then it is to comprise of 2m tall welded mesh panels on rubber or concrete feet. Panels are to be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The panels should be supported on the inner side by stabilizer struts, which should be attached to a base plate and secured with ground pins. All weather notices should be erected at regular intervals on the weld mesh panels with words such as "Tree Protection Area - Keep out". See example on TPP.

Ground Protection:
Phased temporary ground protection to the correct specification for pedestrian/vehicular etc to be used as indicated around T3, T4, T5, T6 and T7 with tree protection signs, to be fixed in place for the duration of site works for tree protection and to remain until construction completion, then to be realigned for hard landscape. See example on TPP.

Sensitive Ground Works:
Piled Foundations
Areas indicated are proposed piling locations for the proposed building. Where piling is to be installed near to trees, the smallest practical pile diameter should be used, as this reduces the possibility of striking major tree roots, and reduces the size of the rig required to sink the piles. If a piling mat is required, this should conform to the parameters for ground boarding. Use of the smallest practice piling rig is also important where piling within the branch spread is proposed, as this can reduce the need for access facilitation pruning. The pile type should be selected bearing in mind the need to protect the soil and adjacent roots from the potentially toxic effects of uncured concrete, e.g. sleeved bored piles or screw piles.

Excavation within the RPAs will be initially undertaken by hand under direct on-site arboricultural supervision to a minimum of 750mm deep of any excavation, whether for proposed foundations, hard surfacing or underground services. The soil is to be loosened with the use of a fork or pick and then cleared with the aid of an air-spade and air-vac. All roots to be cut will be cleanly severed with the use of a hand saw or secateurs. The edge of the excavation closest to the retained trees will be covered over with damp hessian to prevent drying out, and where necessary be shuttered to prevent soil collapse or contamination by concrete. If appropriate soil beneath the depth 750mm may be sheet piled, regular piled or individual piles. Any deeper excavations may be undertaken by a machine provided it works form outside of the RPA or has appropriate ground protection in place to move and work upon.

Proposed Driveway Existing vegetation may be removed with hand tools or sprayed with an approved non residual herbicide such as "Glyphosate". The new hard surfacing will be constructed using a 'No Dig' surfacing situated entirely above the existing soil surface and where needed using a proprietary cellular confinement system (GeoWeb or similar) laid over a bi-axel geo-grid (tensar TriAx or similar). Prior to this any small hollows on the surface may be filled with clean sharp sand (not builders sand) to a maximum depth of 150mm. The 'GeoWeb' is to be back filled by hand with a no-fines aggregate of 20mm - 30mm. The area of 'GeoWeb' will be covered with a permeable geotextile fabric and the finished wearing course laid on top. Edge supports of an appropriate size and strength should be set above ground level and secured with haunching or steel pins driven into the ground, the outer edge of the supports may be banked up with clean top soil. Please example on the TPP for the principle.

KEY

Tree Crown Spread

Root Protection Area (RPA)

Tree Stem

T1 Tree No.

Removed Tree

Tree Condition Category

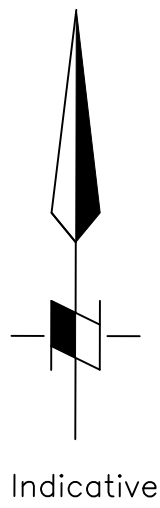
A

B

C

U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'



- Tree Protection Specification
- The tree protection measures outlined within the Arboricultural Method Statement (ref. 221344/A2 AMS) are to be adhered to as illustrated on this Tree Protection Plan (ref. 221344/A2/TPP/01), and the additional details below, thus:
- Tree works are to be completed prior to commencement of any and all site processes: no additional tree works (not specified in the method statement), or leaning against or attaching of objects to a tree, are permitted.
 - Protective Barrier Fencing (PBF), with Tree Protection Signs fixed at least every 5m (see detail and illustration on this TPP), is to be installed prior to the site works commencing.
 - Hard Surfaces within RPAs are to be retained where ongoing access is required and supplementary Ground protection is to be installed for exposed soft surfaced RPA sections for material drop-off and storage (needs to be load bearing and prevent chemical run-off or leaching into soils).
 - No chemicals or materials are to be transported or stored or used or mixed within a RPA or Construction Exclusion Zone (CEZ).
 - No fires are to be lit and no machinery, plant or vehicles are to be washed down within 10m of a tree's canopy or in a CEZ.
 - During site works RPAs and CEZs may not be breached, i.e. no surfacing works, without the prior advice of the consultant and the consent of the council.
 - No mechanical digging or scraping is permitted within a RPA or CEZ.
 - When all construction works are completed the PBF can be removed however, should be realigned consistent with the final landscape design to allow for the hard landscape improvement works to be undertaken ahead of the soft landscape shrub and tree planting works.

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	Based on TCP 221344 & L800-Landscape Plan-R-4	RB	TB	27/1/23
REV.	DESCRIPTION	DWN	CHK'D	DATE

CLIENT	Facit Homes
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PROJECT	221344/TPP/A2 12 Broadlands Road London, N6 4AN
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TITLE	Tree Protection Plan
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DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RPHB	27/01/2023	AT	27/01/2023			1-250

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221344/A2/TPP/01

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