

BS 5837:2012

Arboricultural Impact Assessment

**Linton House, 21 Danesbury Park Road,
AL6 9SH.**

Produced for:

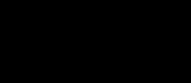
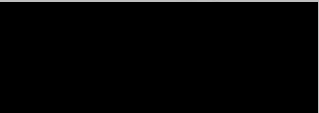
Nick Taylor

September 2023

Document Amendment History

Version	Status	Date	Amendment to this version
1	Issue	03.05.2023	
2	Issue	19.09.2023	Full BS5837 Arboricultural Report

Document Approval

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1. Introduction

1.1 Terms of Reference

Maydencroft Limited was commissioned by Gregory Phillips Architects on behalf of Nick Taylor to produce a full BS5837 Arboricultural Impact Assessment Report in support of a proposed demolition and construction project within the grounds of Linton House, 21 Danesbury Park Road, Welwyn.

The report has been produced in accordance with British Standard 5837:2012 *Trees in relation to Design, Demolition and Construction – Recommendations* and is intended to inform the planning stages of the proposed works. The report provides information on the location, quality and condition of trees on site in order to ensure that the proposed scheme complies with the requirements of BS5837:2012 with regard to minimising or, where possible, avoiding impact on the above and below ground parts of any retained trees, in particular any with existing statutory protection. It is also the aim of the report to give pragmatic advice about the removal of trees or particular surgery works where deemed necessary to the successful delivery of the scheme.

The content of this report extends to the baseline Tree Survey, Tree Constraints Plan Arboricultural Impact Assessment, Arboricultural Method Statement and Tree Protection Plan. The combination of these documents constitutes a full BS5837 Arboricultural Report.

1.2 Scope of Works

A survey of all trees within the grounds of Linton House, 21 Danesbury Park Road was carried out on Friday 14th April 2023. The extent of the survey was established by plans provided by Zac Monro and was completed using industry best practice to the standards laid out in BS5837:2012.

The survey was undertaken by the following Consultant who is a permanent employee of Maydencroft Limited.

Name	Position	Qualifications
Kurt Langley	Arboricultural Consultant	Lantra Professional Tree Inspection Level 3 Extended Diploma in Countryside Management Level 4 Diploma in Arboriculture Technician Member of the Arboricultural Association

All trees within and adjacent to the grounds of Linton House with the potential to be impacted by the proposed works were inspected using the Visual Tree Assessment (VTA) methodology, detailed in “The Body Language of Trees” (*Mattheck & Breloer*, HMSO, 1994). This level of inspection does not involve any climbing. Each individual tree was inspected separately and an assessment made of its condition. Where appropriate trees were assessed and recorded as groups. Any problems with individual trees were noted and remedial work is recommended here only where it is deemed necessary.

All trees and tree groups have been plotted using a Trimble TRC100 GPS device, plotted as precisely as possible with accuracy between 1-3m.

Details of all trees are listed in the attached tree schedule with quantitative and qualitative information included as required by BS 5837:2012 sections 4.4 to 4.6. The information has been used to create a Tree Survey Plan (Appendix C) showing the location of the trees, their crown spread and their BS5837 categorisation. A Tree Constraints Plan (Appendix D) indicates the Root Protection Areas (RPAs) for each of the trees and other constraints which may impact the works.

1.3 Site Description

The proposed 0.19ha site is located within the grounds of 21, Danesbury Park Road, Welwyn, 0.28km northwest of the A1(M). The site is situated within a rural community with several residential properties surrounding the grounds. The site holds multiple well-established semi-mature and mature trees, including a dense leylandii hedge. The front entrance to the site is located directly adjacent to the junction of The Avenue and Danesbury Park Road.



Figure 1: Proposed development site, Linton House (Source; Google Earth 2023)

1.4 Soils

The Soilsmap of the United Kingdom (developed and hosted by Cranfield University) shows that the proposed site is located within *Soilscape 8*, which is described as slightly acid loamy and clayey soils with impeded drainage. It should be noted that a site-based soil assessment was not carried out as a part of this survey.

2. Tree Survey

2.1 Designations

From reviewing the Welwyn Hatfield Borough Council online mapping service, it has been confirmed that there are currently no statutory designations affecting trees within the grounds of the proposed development site.

2.2 Tree Categories

All trees on and in close proximity to the site have been assessed and categorised in accordance with the guidelines in BS 5837:2012. The following table includes a brief summary of the categories:

Trees to be considered for retention	
Category A	Trees of high quality with an estimated remaining life expectancy of at least 40 years.
Category B	Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
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 150mm.
Trees unsuitable for retention	
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.

2.3 Root Protection Areas (RPAs)

The RPAs for the trees recorded by the tree survey have been calculated in accordance with the guidance in chapter 4.6 of BS5837:2012. For single stem trees, the RPA is equivalent to a circle with radius 12 times the stem diameter capped at a maximum of 15m.

For trees with between two to five stems, the combined stem diameter is calculated by finding the square root of the sum of the stem diameters². For trees with more than five stems, the combined stem diameter is calculated by finding the square root of the sum of the mean stem diameter² multiplied by the number of stems.

2.4 Measurements

Heights and radial spread measurements were wherever possible taken using a TruPulse Laser Measurement tool. Stem diameters were measured at 1.5m height with a diameter tape. Wound sizes and cavity depths were measured in millimetres (mm) with a ruler, tape measure or probe to allow for future monitoring.

2.5 Limitations

2.5.1 Timing of surveys

The tree survey was undertaken in spring before bud burst, which means that it is possible for health issues related to crown condition to have been missed, and seasonally-visible defects such as annual fungal fruiting bodies. This has the potential for trees to be perceived in better health and therefore awarded a higher categorisation than is strictly accurate. It is advised that any further information related to tree health and condition gained over subsequent years and seasons is used to update tree categorisation where required, with survey information and photos appended to the report as evidence.

3. Proposed Construction/Demolition

3.1 Outline Construction/Demolition Proposal

The proposed plans provided by Gregory Phillips Architects will see the demolition of a pre-existing residential building situated within the grounds of Linton House to enable the construction of a newly designed modern residential property.

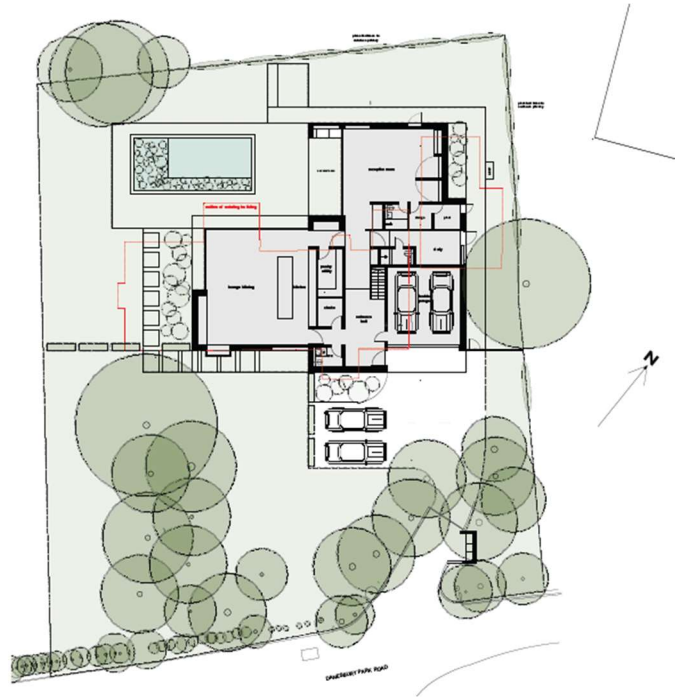


Figure 2: Proposed Site Plan (Gregory Philips Architects, 2023)

3.2 Access

Access to the site for construction and operational purposes will be gained via the pre-existing hard surfaced driveway, located directly opposite the junction of Danesbury Park Road with The Avenue. At present there are currently low hanging branches, which will require preparatory works to be undertaken before works are commenced. These works will allow for use of construction and demolition traffic and reduce the likelihood of direct impact to retained trees situated at the main entrance.

4. Arboricultural Impact Assessment

4.1 Introduction

The following Arboricultural Impact Assessment (AIA) reviews the existing condition, quality and location of trees in context with the proposed demolition and construction within the grounds of Linton house. It identifies locations where it is felt highly likely that trees and tree groups will need to be removed to facilitate the project, in particular where retained trees have the potential to be affected by the demolition/development proposal and how these are to be either avoided or protected.

This chapter should be read alongside drawing **MH9018-003 Arboricultural Impact Assessment Plan** in Appendix E.

4.2 Trees to be Removed

T1, T6, T7, T9, T10, T15, T16 and **G1** will require removal to facilitate the demolition and construction phases of the proposed development site within the grounds of 21 Danesbury Park Road, Welwyn.

These removals result in the loss of the following Category trees:

	Tree	Total
Category A	-	0
Category B	T8, T15, T16	3
Category C	T1, T2, G1	3
Category U	T7, T10	2

4.3 Evaluation of the Impact of Tree Losses

The new residential property has been specifically designed to accommodate the footprint of the existing building and use the existing site access in order to minimise impact on trees, and to enable retention wherever possible. An initial Preliminary Arboricultural Impact Assessment (April 2023, Maydencroft Limited) identified the constraints posed by trees so that these could be taken into consideration through the design process.

The original tree survey identified a large number of mature and semi-mature trees within the garden to the south of the property. In combination, these trees form a dense boundary feature on the southern edge of the property which contributes to the amenity value of Danesbury Park Road and The Avenue.

The proposed targeted removals will not significantly affect this feature, and will have minimal impact on the overall amenity value of the property, as viewed from the neighbouring street scene. The retained trees in this area will also mean that the site during both construction and operation will continue to be screened from view.

The overall arboricultural impact of the proposed development with regards to tree removals is considered to be reasonable given the large number of trees present and minimal impact on site amenity, but with a requirement for mitigation planting.

4.4 Mitigation of tree losses

The loss of seven trees and 1 tree group will require mitigation through replacement planting. The proposed Landscape Scheme for the site suggests planting 11 no. pleached trees (species to be determined) along the north and east boundaries. Given the constrained nature of the site, it is felt that this proposal is reasonable, and that pleached specimens will help keep crown spread contained. The species choice should be appropriate to the site (and native, if possible), and accompanied by an appropriate specification for establishment maintenance and ongoing management. Marked for removal the arboricultural impact is moderate, this paired with the client's proposal to plant 11 pleached trees onsite will seek to help mitigate the losses required during the demolition and construction phases of the development. It should be noted that the species planted should be native and future proof and be suitably located to ensure their survivability.

4.5 Preparatory works

Before any development works are carried out there will be a requirement for preparatory works to ensure retained trees are not directly or indirectly harmed by development activities. These works include the lifting of crowns at the main entrance to allow for machinery access and movement onto and around site, along with a crown reduction and tree removals. All works are detailed in section 4.6 below.

4.6 Trees to be retained

The table below, identifies the trees that are to be retained as part of the development and identifies whether they are at risk from activities related to demolition, construction, or eventual operational use of the site

No.	Species	Location	Potential impact of works	Protection of Retained Trees	Preparatory Tree Works
T2-T5	1x Lawson cypress 2x Norway maple and 1x Wild cherry	Offsite, behind neighbouring fenceline.	Above and below ground parts of trees have potential to be impacted by construction traffic and related activities.	Tree Protection Fencing to be installed as per MH9018-004 Tree Protection Plan and Arboricultural Method Statement.	None required.
T8	Common oak	Offsite, in neighbouring garden directly to the north.	Above and below ground parts of trees have potential to be impacted by demolition of existing building and construction of new. Proximity of tree to building and presence clay soils means that potential for subsidence/heave should be considered as part of construction methodology.	Demolition activities within close proximity to T8 and associated RPA to be undertaken under Arboricultural Supervision. Where possible, existing foundations to be re-used in order to restrict ground disturbance. If new foundations need to be constructed within the RPA of T8, these should be piled foundations in order to minimise impact and to avoid future issues with subsidence/heave. Banksman to ensure machinery is kept away from overhanging branches.	None required.
T11-T14 and G2	Mixed conifer	Onsite between main access road and north boundary fenceline.	Above and below ground parts of trees have potential to be impacted by construction traffic and related activities.	Tree Protection Fencing to be installed as per MH9018-004 Tree Protection Plan and Arboricultural Method Statement. If any construction access is needed into RPAs, this will require installation of Ground Protection in accordance with Arboricultural Method Statement.	Crown lifting where required to create space for construction activities.
T17-T29 and G3	Mixed conifer/ broadleaves	Tree belt and wooded area south of existing building.	Above and below ground parts of trees have potential to be impacted by construction traffic and related activities due to proximity to the construction area.	Tree Protection Fencing and ground protection to be installed as per MH9018-004 Tree Protection Plan and Arboricultural Method Statement.	Crown lifting required at the entrance to create space for construction activities.
G4	Leyland cypress	Offsite, running parallel with south west boundary fenceline.	Above and below ground parts of trees have potential to be impacted by construction traffic and related activities.	Tree Protection Fencing to be installed as per MH9018-004 Tree Protection Plan and Arboricultural Method Statement.	None required.

5. Arboricultural Method Statement

This chapter is supported by drawing ***MH9018-004 Tree Protection Plan*** included in Appendix F of this report.

5.1 Roles and Responsibilities

It is the responsibility of all contractors and sub-contractors involved in the project to be aware of this method statement and to use it when setting out the site and carrying out any operations in the vicinity of retained trees.

Prior to the commencement of works, all site personnel should be briefed by the Site Manager or appointed Arboricultural Consultant on the importance of the retained trees and the significance, rules and restrictions around protective measures implemented. All minutes from these 'Toolbox Talks' should be retained by the Site Manager for future reference.

5.2 Timing and Order of Operations

Operations on the development site related to trees should commence in the following order to ensure that retained trees receive an appropriate level of protection from potentially harmful activities. Monitoring will take place throughout these stages in accordance with paragraph 5.7 below.

1. Preparatory tree works to include removal of trees and any crown lifting and crown reductions that are required;
2. Installation of Tree Protection Fencing;
3. Installation of ground protection;
4. Establishment of working site including storage of plant and materials outside of Construction Exclusion Zones;
5. Demolition commences;
6. Arboricultural supervision of demolition in close proximity to T8
7. Construction commences;
8. Construction of piled foundations (if required) within RPA of T8;
9. Construction completed; removal of all plant and materials from site;
10. Removal of Tree Protection Fencing and ground protection.

5.3 Setting out Barriers and Construction Exclusion Zone

Setting out of tree protection fencing should take place prior to the commencement of any demolition or construction activities, including the storage of materials on site. The setting out should take place under the guidance of the project Arboricultural Consultant.

Tree Protection Barriers should be supplied and erected in accordance with chapter 6.2.2 of BS5837:2012. This states that the default specification for protective fencing should comprise a scaffold framework with vertical tubes at maximum 3m intervals secured firmly into the ground and fixed with weldmesh panels, as set out on figure 2 below. An alternative specification which would likely be acceptable would be a free-standing scaffold support framework (i.e. Heras fencing) in accordance with figure 3 below.

Figure 2 Default specification for protective barrier

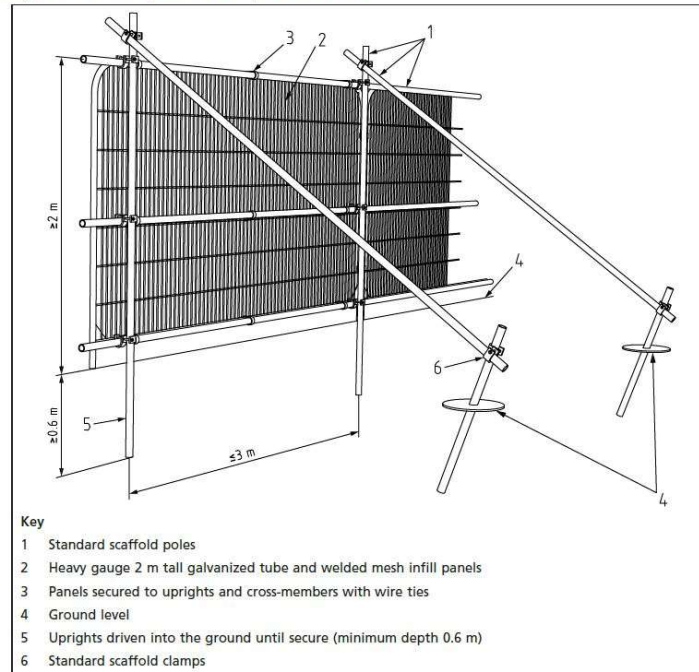
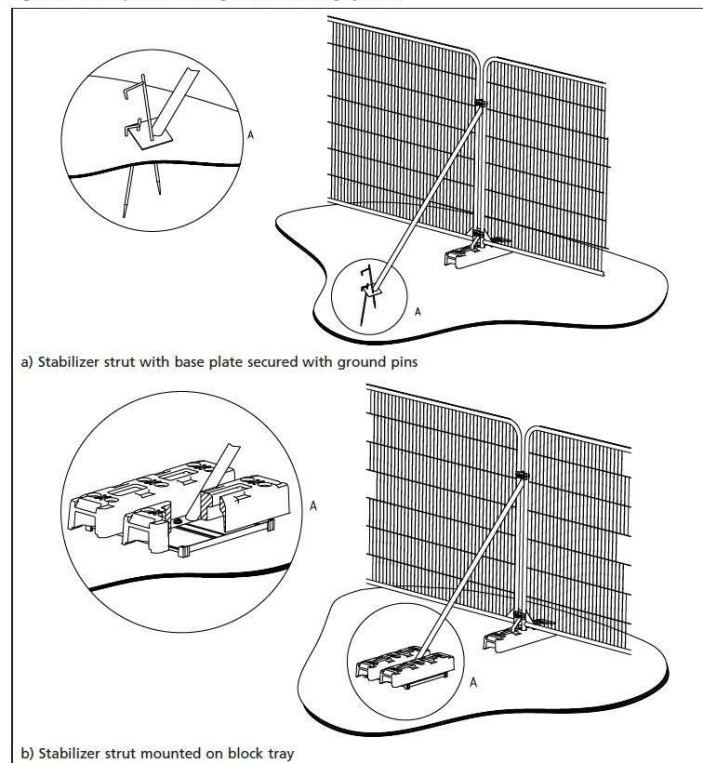


Figure 3 Examples of above-ground stabilizing systems



The barriers should be fitted with all-weather notices containing the words “**Tree Protection Area – Keep Out**” and should remain intact for the entirety of the development project. It is not anticipated that there will be any need to access the Construction Exclusion Zones during demolition or construction phases. If access is required for any reason, this should be discussed with the Arboricultural Consultant.

5.4 Preparatory Tree Works

5.4.1 TREE FELLING & SCRUB REMOVAL

Section 4.2 list all trees to be felled/removed prior to the commencement of demolition and construction. All tree works should be carried out by competent Tree Surgeons in accordance with BS3998:2010 Tree Work – Recommendations. All works must take place outside of bird nesting season and in accordance with any specific ecological recommendations included in the report/s that accompany this plan.

If during these works any trees are identified as having Potential Bat Roost Features, it is essential that works cease immediately so that the features can be thoroughly inspected by a Level 2 Licensed bat ecologist.

5.4.2 PREPARATORY TREE WORKS

The table in paragraph 4.6 list all trees that require remedial works prior to the commencement of construction. All tree works should be carried out by competent Tree Surgeons in accordance with BS3998:2010 Tree Work – Recommendations. All works must take place outside of bird nesting season and in accordance with any specific ecological recommendations included in the report/s that accompany this plan.

Any additional tree works identified during project stages should first be discussed with the project Arboricultural Consultant. It should be noted that additional consent from the LPA may be required if trees are covered by TPO designations.

5.5 Tree Roots

If during any excavation works on site the tree roots of a retained tree are exposed, these should be immediately wrapped or covered in hessian to prevent desiccation and to protect them from temperature changes. The Arboricultural Consultant should be contacted for advice. Roots smaller than 25mm diameter may be pruned back using a clean, sharp cutting tool. Roots occurring in clumps or of 25mm diameter and over should be severed only following consultation with the project Arboricultural Consultant.

Prior to backfilling, retained roots should be uncovered and surrounded with top soil or sharp builders' sand, free of contaminants and any foreign objects that may be injurious to tree roots.

5.6 Ground Protection

As the construction phase progresses, it may be necessary to install temporary ground protection to ensure that RPAs of retained trees and tree groups and woodlands outside of the Construction Exclusion Zones are not damaged. This ground protection will need to be capable of supporting any traffic using the surface without being distorted or causing compaction to underlying soils. The following guidance is included in BS5837:2012:

- (a) For pedestrian access only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top

of a compression -resistant layer (e.g. 100mm depth of woodchip), laid onto geotextile membrane;

- (b) For < 2 tonne pedestrian-operated plant, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150mm depth of woodchip) laid onto a geotextile membrane;
- (c) For 2 tonne < wheeled or tracked construction traffic, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

It should be noted that in all cases, the main objective should be to avoid compaction of the soil so that tree root functions remain unimpaired. Even a single passage of a heavy vehicle in wet conditions can cause significant levels of compaction.

5.7 Prohibited Activities

No plant, machinery, or materials should be stored within the Construction Exclusion Zones as described above and marked out on site. This also applies to any ancillary facilities associated with the construction such as welfare units.

All plant and vehicles engaged in construction works must use existing hard surfacing for all access, storage and operations where possible. Vehicular access to grass and landscaped areas should be minimised and incorporate ground protection where compaction and rutting is likely.

Materials of machinery with any potential to contaminate ground must be stored outside of RPAs, even when on existing hard surfacing, and use spill mats for refuelling.

Care must be taken when planning site operations to ensure that wide or tall loads, plant with booms, jibs and counterweights can operate without coming into contact with any of the retained trees. Where possible, plant and machinery with zero tail swing should be used when in close proximity to retained trees.

Any transit or transverse of plant in close proximity to the retained trees should be conducted under the supervision of a banksman to ensure that adequate clearance from the trees is maintained at all times.

The project Arboricultural Consultant should be consulted prior to any otherwise not approved operations within the Construction Exclusion Zones.

5.8 Monitoring

It is a requirement of BS5837:2012 that activities related to, or in the vicinity of retained trees are monitored by the project Arboricultural Consultant. It is recommended that the following monitoring visitations take place:

1. Felling of trees and preparatory tree works
2. Setting out and installation of tree protection fencing and ground protection, in order to define Construction Exclusion Zones;
3. Supervision of demolition in close proximity to T8;
4. Supervision of piled foundation construction within RPA of T8;

4. Post-development monitoring visit;

It is recommended that on each monitoring visit a Works Recording Form is completed by the project Arboricultural Consultant to enable an auditable trail of visits, findings and recommendations.

5.9 Incident Procedure

In the instance of any problems discovered on site or incidences affecting and/or causing harm to retained trees, the project Arboricultural Consultant should be consulted at the earliest opportunity to provide advice about rectifying issues. Any such occurrences should be recorded in an auditable incident register.

5.10 Post-Development

It is recommended that following completion of the development, a monitoring visit is carried out by the project Arboricultural Consultant in order to carry out a thorough assessment of the newly planted and retained trees and any remedial works that may be required as a result of changes to the site and the potential indirect effects of construction.

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19th September 2023

Appendix A

TREE SCHEDULE TERMS

Tree Ref.	Code used to identify each tree on the Tree Survey Plan
Species	The common name for each tree.
Height	The height of the tree in metres.
Age Class	The age of the tree recorded as follows:
Young	Recently planted or establishing tree;
Semi-mature	Established tree which has yet to reach its full growing height;
Mature	A tree which has reached its likely maximum size;
Over-mature	A mature tree which has ceased to grow or is in decline;
Veteran	An over-mature tree of high value due to age, size and other factors.
Stems	Number of stems present (i.e. is the tree a multi-stemmed specimen).
Stem ø mm	Diameter of tree stem in millimetres, recorded at 1.5m above ground level; this figure is used to calculate the RPA.
RPA (m)	The radius of the tree's Root Protection Area in metres.
Crown Spread	The extent of the tree's crown to the north, south, east and west, in metres.
Crown Height	The height of the crown as measured from the ground to the north, south, east and west, in metres.
Condition	A general assessment of the tree's structural or physiological condition as either good, fair, poor or dead.
BS Cat	The BS 5837:2012 Category for the tree, in accordance with the table in paragraph 2.3 of this report and Appendix D.
PAIA	Preliminary Arboricultural Impact Assessment
AIA	Arboricultural Impact Assessment
AMS	Arboricultural Method Statement

Appendix B- Linton House Tree Schedule

Tree Number	Common Name	Botanical Name	Maturity	Height (m)	Number of Stems	Stem ø (mm)	RPA (m)	Crown Spread				Crown Height				Condition		Category	Comments
								North (m)	East (m)	South (m)	West (m)	North (m)	East (m)	South (m)	West (m)	Structural	Physiological		
T1	Cypress sp.	-	Semi-mature	5	4	340	4.08	1	1	1	1	0.1	0.1	0.1	0.1	Fair	Fair	C2	Located in rear garden directly adjacent to pond; Old shrub border around base; No visible defects present at time of survey.
T2	Lawson cypress	<i>Chamaecyparis lawsoniana</i>	Early-mature	6	1	290	3.48	2.5	2.2	2.5	2.5	2	2	2	2	Fair	Fair	B2	Located 0.5m northwest of boundary fence line (off site); Crown over hangs residential property; No significant defects visible at time of survey.
T3	Norway maple	<i>Acer platanoides</i>	Semi-mature	6	1	140	1.68	2	3	2.5	2	3	2.5	3	3	Fair	Fair	B2	Located 0.2m northwest of boundary fence line (off site); Crown over hangs residential property; No significant defects visible at time of survey.
T4	Wild cherry	<i>Prunus avium</i>	Semi-mature	5	2	140	1.68	2	2	2	2	3	2.5	3	3	Fair	Fair	B2	Located 0.1m northwest of boundary fence line (off site); Crown over hangs residential property; No significant defects visible at time of survey.
T5	Norway maple	<i>Acer platanoides</i>	Semi-mature	4	1	170	2.04	2	2	2	2	2	2	2	2	Fair	Fair	B2	Crimson king located 0.4m northwest of boundary fence line (off site); Birds nests within crown; Crown over hangs residential property; No significant defects visible at time of survey.
T6	Silver birch	<i>Betula pendula</i>	Young	4	1	100	1.2	1	1	1	1	2	2	2	2	Good	Fair	C2	Located directly between paved area and boundary fence line; Secondary thickening on stem will inevitably cause damage to both the paving and fence in the future; No significant defects recorded at time of survey.
T7	Buddleia	<i>Buddleja davidii</i>	Semi-mature	3	20	60	0.72	2.5	2.5	2.5	2.5	0.3	0.5	0.2	1	Fair	Fair	U	Multi-stemmed buddleia located on edge of concrete base in northern corner of the rear garden.
T8	Common oak	<i>Quercus robur</i>	Early-mature	13	2	680	8.16	6	6	6	6	3	3	3	3	Fair	Fair	B23	Twin-stemmed oak from 0.5m, located 0.1m north east of boundary fence line (private tree in neighbouring property; Crown has been reduced in the past and is now beginning to encroach on garages (0.3m gap); No significant defects present at time of survey.

Appendix B- Linton House Tree Schedule

Tree Number	Common Name	Botanical Name	Maturity	Height (m)	Number of Stems	Stem ø (mm)	RPA (m)	Crown Spread				Crown Height				Condition		Category	Comments
								North (m)	East (m)	South (m)	West (m)	North (m)	East (m)	South (m)	West (m)	Structural	Physiological		
T9	Saucer magnolia	<i>Magnolia soulangiana</i>	Early-mature	4	4	210	2.52	3.5	3.5	3.5	3.5	0.5	0.5	0.5	0.5	Fair	Fair	B2	Located 4m southeast of property, within the front garden; No visible defects at time of survey; Dense bramble and primrose present around base and under crown canopy.
T10	Norway maple	<i>Acer platanoides</i>	Young	3.5	1	75	0.9	1	1	1	1	2.5	2.5	2.5	2.5	Fair	Fair	U	Located 1m south east of building, within front garden; Crown encroaching on television aerial; No significant defects recorded; Dense bramble around base of tree.
T11	Scots pine	<i>Pinus sylvestris</i>	Mature	17	1	530	6.36	3.5	3	2	3.5	12	14	15	6.5	Fair	Fair	B2	Located on verge 0.3m east of block paved driveway; Cohesive crown with neighbouring trees; Broken hanging branch directly over driveway on west side of crown at 8m AGL.
T12	Douglas fir	<i>Pseudotsuga menziesii</i>	Mature	15	1	430	5.16	7	4.5	3.5	4	3	3.5	4	4	Fair	Fair	B2	Located 1m north east of block paved driveway; Cohesive crown with neighbouring trees; Small area of bark damage (200x50mm) on west side of stem at 1.5m AGL with small patches of resin present on stem; Holly present under canopy.
T13	Common holly	<i>Ilex aquifolium</i>	Semi-mature	5	2	190	2.28	2.5	3	2.5	3	2	2	2	2	Fair	Fair	B2	Located 2.5m east of block paved driveway; Suppressed cohesive crown; Bark damage to base of stem indicative of browsing damage.
T14	Douglas fir	<i>Pseudotsuga menziesii</i>	Mature	16	1	530	6.36	3	5	6	3	6	6	6	6	Fair	Fair	B2	Located 0.5m east of block paved driveway; Cohesive crown with neighbouring trees; Linton sign attached to south side of stem at 0.5m AGL; Holly present under canopy; No significant defects visible at time of survey.
T15	Scots pine	<i>Pinus sylvestris</i>	Mature	17	1	500	6	4	3	3	4.5	8	15	13	6	Fair	Fair	B2	Located on verge 0.4m west of block paved driveway; Cohesive crown with neighbouring trees; Street lamp 1.6m west of stem; Telephone wire running directly under canopy; String wrapped around stem at 3m AGL.

Appendix B- Linton House Tree Schedule

Tree Number	Common Name	Botanical Name	Maturity	Height (m)	Number of Stems	Stem ø (mm)	RPA (m)	Crown Spread				Crown Height				Condition		Category	Comments
								North (m)	East (m)	South (m)	West (m)	North (m)	East (m)	South (m)	West (m)	Structural	Physiological		
T16	Scots pine	<i>Pinus sylvestris</i>	Mature	17	1	440	5.28	3	2.5	3	3.5	10	13	12	4	Fair	Fair	B2	Located on verge 0.4m west of block paved driveway; Cohesive crown with neighbouring trees; Telephone wire running directly under canopy; Small amount of ivy at base and on lower stem.
T17	Scots pine	<i>Pinus sylvestris</i>	Mature	17	1	560	6.72	6	5	4.5	4	10	3	2.5	3.5	Fair	Fair	B2	Located on verge 1.3m west of block paved driveway; Cohesive crown with neighbouring trees; Telephone wire running directly under canopy; Small amount of ivy at base and on lower stem; Multiple dead branches within the lower canopy and directly between over driveway; Birds nest present within canopy.
T18	Douglas fir	<i>Pseudotsuga menziesii</i>	Mature	18	1	500	6	2.5	4	7	5	2.5	12	7	2.5	Fair	Fair	B2	Located on verge 2m west of retaining wall to driveway; Cohesive crown with neighbouring trees; No significant defects visible at time of survey.
T19	East asian cherry	<i>Prunus serrulata</i>	Early-mature	4	1	270	3.24	6	4	4.5	4	1	2	0.5	2.5	Fair	Fair	B2	Prunus serrulata located within the front garden, 4m north west of conifers screen; Rope swing situated on main north west limb; Surface root damage visible on west side of stem.
T20	Scots pine	<i>Pinus sylvestris</i>	Mature	14	1	490	5.88	4	4	5.5	3	10	11	12	13	Fair	Fair	B2	Located 2m north west of conifer screen, within front garden; Cohesive crown with neighbouring trees; Small section of bark wounding on west side of stem at 8m AGL.
T21	Scots pine	<i>Pinus sylvestris</i>	Early-mature	13	1	320	3.84	1	2	3	2	12	12	6	10	Fair	Fair	B2	Located 2.5m north west of conifer screen, within front garden; Cohesive crown with neighbouring trees; Asymmetric crown formation.
T22	Scots pine	<i>Pinus sylvestris</i>	Early-mature	14	1	380	4.56	4	4	3.5	2	12	12	13	5	Fair	Fair	B2	Located within avenue of scots pine, within front garden; Evidence of historic tear-out wound on west side of stem at 7m AGL; Cohesive crown with neighbouring trees; Asymmetric crown formation.

Appendix B- Linton House Tree Schedule

Tree Number	Common Name	Botanical Name	Maturity	Height (m)	Number of Stems	Stem ø (mm)	RPA (m)	Crown Spread				Crown Height				Condition		Category	Comments
								North (m)	East (m)	South (m)	West (m)	North (m)	East (m)	South (m)	West (m)	Structural	Physiological		
T23	Scots pine	<i>Pinus sylvestris</i>	Early-mature	15	1	290	3.48	1	4	3	3.5	14	4	12	13	Fair	Fair	B2	Located within avenue of scots pine, within front garden; Cohesive crown with neighbouring trees; No significant defects present at time of survey
T24	Scots pine	<i>Pinus sylvestris</i>	Mature	17	1	630	7.56	8	7.5	3.5	3	5	1.5	10	9	Fair	Fair	B2	Located within avenue of scots pine, within front garden; Cohesive crown with neighbouring trees; No significant defects present at time of survey; Two birds nests present within crown.
T25	Scots pine	<i>Pinus sylvestris</i>	Mature	16	1	530	6.36	6	2	4	7	2.5	14	8	2	Fair	Fair	B2	Located within avenue of scots pine, within front garden; Cohesive crown with neighbouring trees; One broken hanging branch in west side of crown at 4m AGL.
T26	Scots pine	<i>Pinus sylvestris</i>	Mature	15	1	470	5.64	3	4	3.5	5	14	12	2	1.6	Fair	Fair	B2	Located within avenue of scots pine, within front garden; Cohesive crown with neighbouring trees; No significant defects present at time of survey; One Bird nest present in crown.
T27	Scots pine	<i>Pinus sylvestris</i>	Mature	14	1	420	5.04	2	5	3	5.5	11	13	1.5	6	Fair	Fair	B2	Located within avenue of scots pine, within front garden; Cohesive crown with neighbouring trees; Asymmetric crown formation; Historic tear-out wound on south side of stem leaving a large broken hanging branch in crown.
T28	Scots pine	<i>Pinus sylvestris</i>	Mature	14	1	460	5.52	2	3	4	6	12	10	6	2.2	Fair	Fair	B2	Located 3m north west on conifer screen, within front garden, part of Scots pine avenue; Cohesive crown with neighbouring trees; No significant defects visible at time of survey.
T29	Common lilac	<i>Syringa vulgaris</i>	Semi-mature	3.5	6	100	1.2	2	2	2	2	0.1	0.1	0.1	0.1	Fair	Fair	C2	Located 4.5m south east of building, within the front garden; Multi-stemmed, previously crown reduced to 1.6m in height with new regrowth now making up the canopy.
G1	Cypress sp.	-	Young	3	4	160	1.9	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	Poor	Poor	C2	Group of four cypress located 1.5m southeast of block paved driveway; Crowns declining on all four trees within group, one of which has less than 10% living crown remaining.

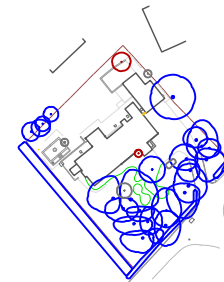
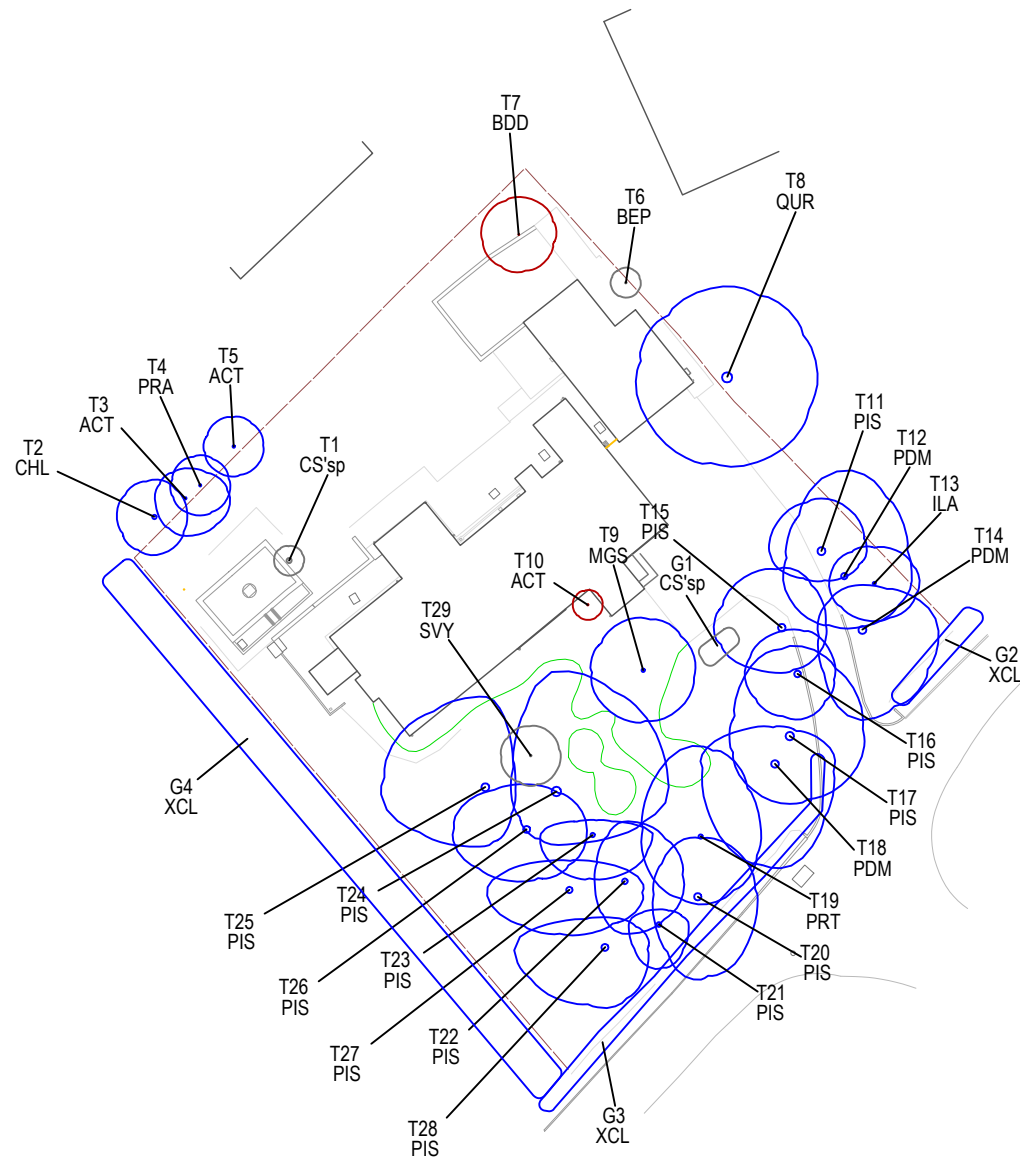
Appendix B- Linton House Tree Schedule

Tree Number	Common Name	Botanical Name	Maturity	Height (m)	Number of Stems	Stem ø (mm)	RPA (m)	Crown Spread				Crown Height				Condition		Category	Comments
								North (m)	East (m)	South (m)	West (m)	North (m)	East (m)	South (m)	West (m)	Structural	Physiological		
G2	Leyland cypress	<i>X Cupressocyparis leylandii</i>	Mature	14	3	450	5.4	4	4	4	4	4	4	4	4	Fair	Fair	B2	3x trees within group, located on top of mud bank 2.5m north west of Danesbury Park Road; Cohesive crown within group; No significant defects recorded at time of survey.
G3	Leyland cypress	<i>X Cupressocyparis leylandii</i>	Early-mature	12	1	280	3.4	4	4	4	4	0.2	0.2	4	0.2	Fair	Fair	B2	30x trees within group, located on top of mud bank; Planted to provide a screen; Low branches directly over driveway entrance; Street light situated within group; Evidence of branch damage indicative of vehicular damage over roadside; Cracks in retaining wall on west side of driveway entrance; 2x holly present within group 4m north east of south west boundary fence line (low vigour due to suppressed growth).
G4	Leyland cypress	<i>X Cupressocyparis leylandii</i>	Semi-mature	3.5	1	200	2.4	2	2	2	2	1.8	1.8	1.8	1.8	Fair	Fair	B2	Approximately 20 offsite trees forming tree belt/ hedgerow along the southwest boundary of the site; Some small gaps in the northern section of the group.

1:500



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KEY

Tree categories based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations



Category A Tree

Trees of High Quality with an estimated remaining life expectancy of at least 40 years.



Category B Tree

Trees of Moderate Quality with an estimated remaining life expectancy of at least 20 years.



Category C Tree

Trees of Low Quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.



Category U Tree

Trees in such condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Tree Key

ACT	- Norway Maple	PDM	- Douglas fir
BDD	- Buddleia	PIS	- Scots pine
BEP	- Silver birch	PRA	- Wild cherry
CHL	- Lawsons cypress	PRT	- Prunus serrulata
CS'sp	- Cypress species	QUR	- Common oak
ILA	- Common holly	SVY	- Common lilac
MGS	- Saucer magnolia	XCL	- Lawsons cypress

Client Nick Taylor

Project Linton House

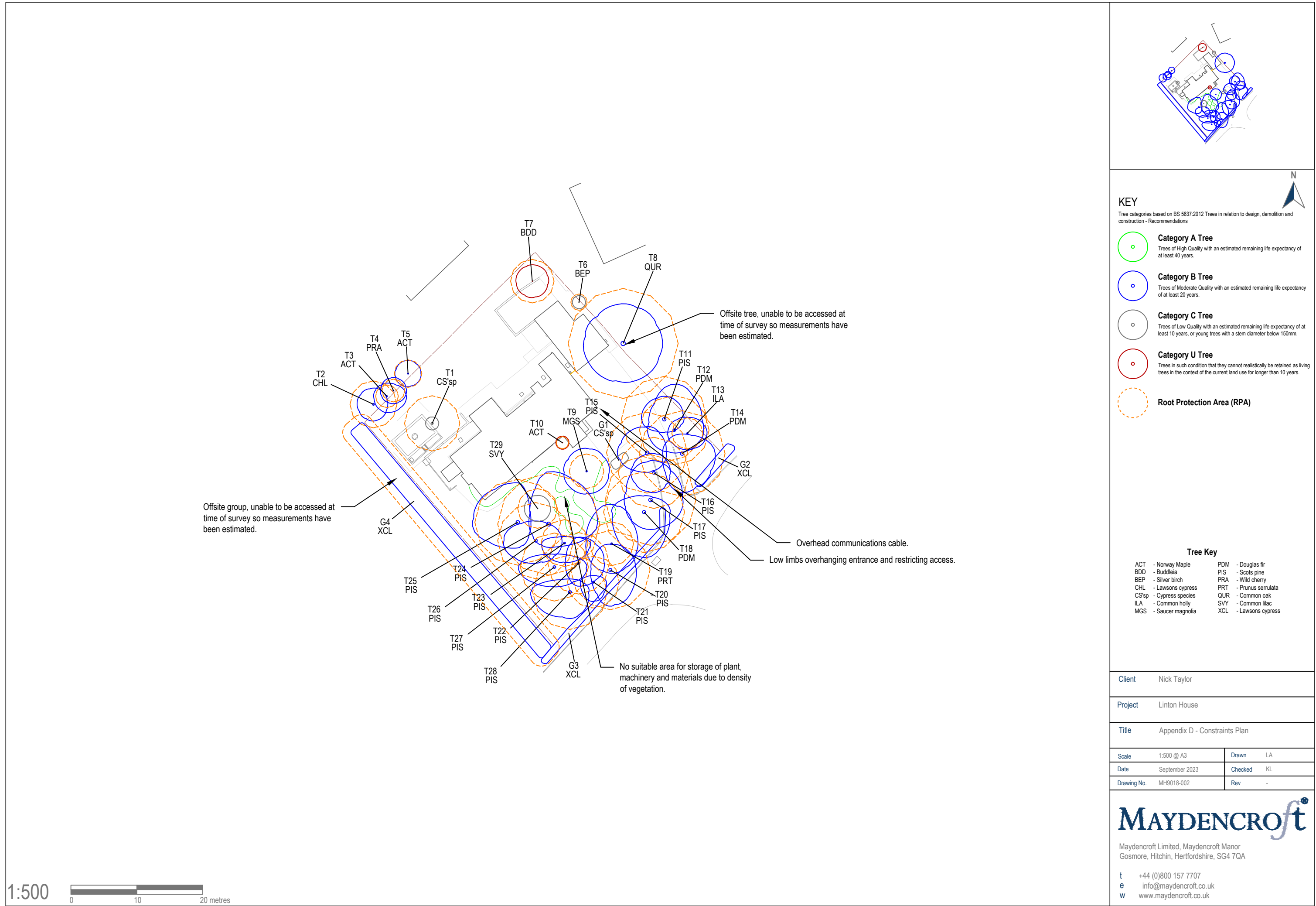
Title Appendix C - Tree Survey

Scale	1:500 @ A3	Drawn	LA
Date	September 2023	Checked	KL
Drawing No.	MH9018-001	Rev	-

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Root Protection Area (RPA)

Tree Key

ACT	- Norway Maple	PDM	- Douglas fir
BDD	- Buddleia	PIS	- Scots pine
BEP	- Silver birch	PRA	- Wild cherry
CHL	- Lawsons cypress	PRT	- Prunus serrulata
CS'sp	- Cypress species	QUR	- Common oak
ILA	- Common holly	SVY	- Common lilac
MGS	- Saucer magnolia	XCL	- Lawsons cypress

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Title Appendix D - Constraints Plan

Scale 1:500 @ A3 Drawn LA

Date September 2023 Checked KL

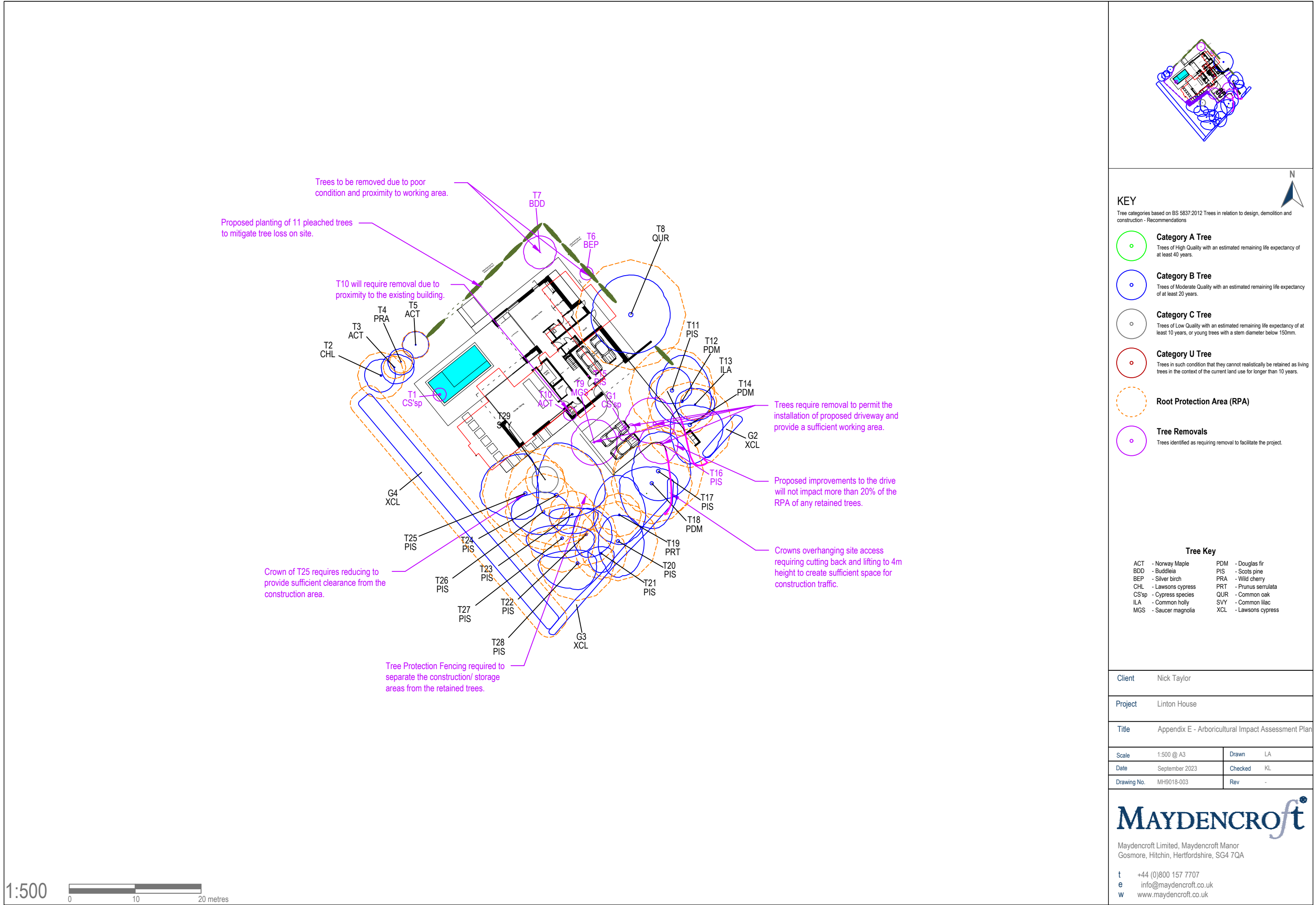
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KEY

Tree categories based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations



Category A Tree

Trees of High Quality with an estimated remaining life expectancy of at least 40 years.



Category B Tree

Trees of Moderate Quality with an estimated remaining life expectancy of at least 20 years.



Category C Tree

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Category U Tree

Trees in such condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.



Root Protection Area (RPA)



Tree Removals

Trees identified as requiring removal to facilitate the project.

Tree Key

ACT	- Norway Maple	PDM	- Douglas fir
BDD	- Buddleia	PIS	- Scots pine
BEP	- Silver birch	PRA	- Wild cherry
CHL	- Lawsons cypress	PRT	- Prunus serrulata
CS'sp	- Cypress species	QUR	- Common oak
ILA	- Common holly	SVY	- Common lilac
MGS	- Saucer magnolia	XCL	- Lawsons cypress

Client Nick Taylor

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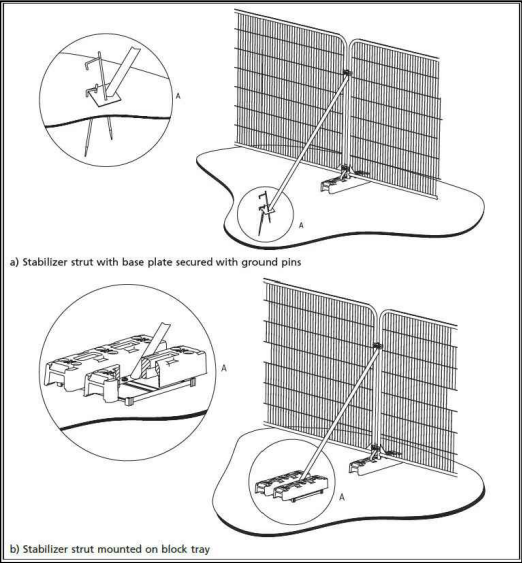
Title Appendix E - Arboricultural Impact Assessment Plan

Scale	1:500 @ A3	Drawn	LA
Date	September 2023	Checked	KL
Drawing No.	MH9018-003	Rev	-

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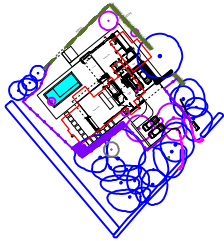
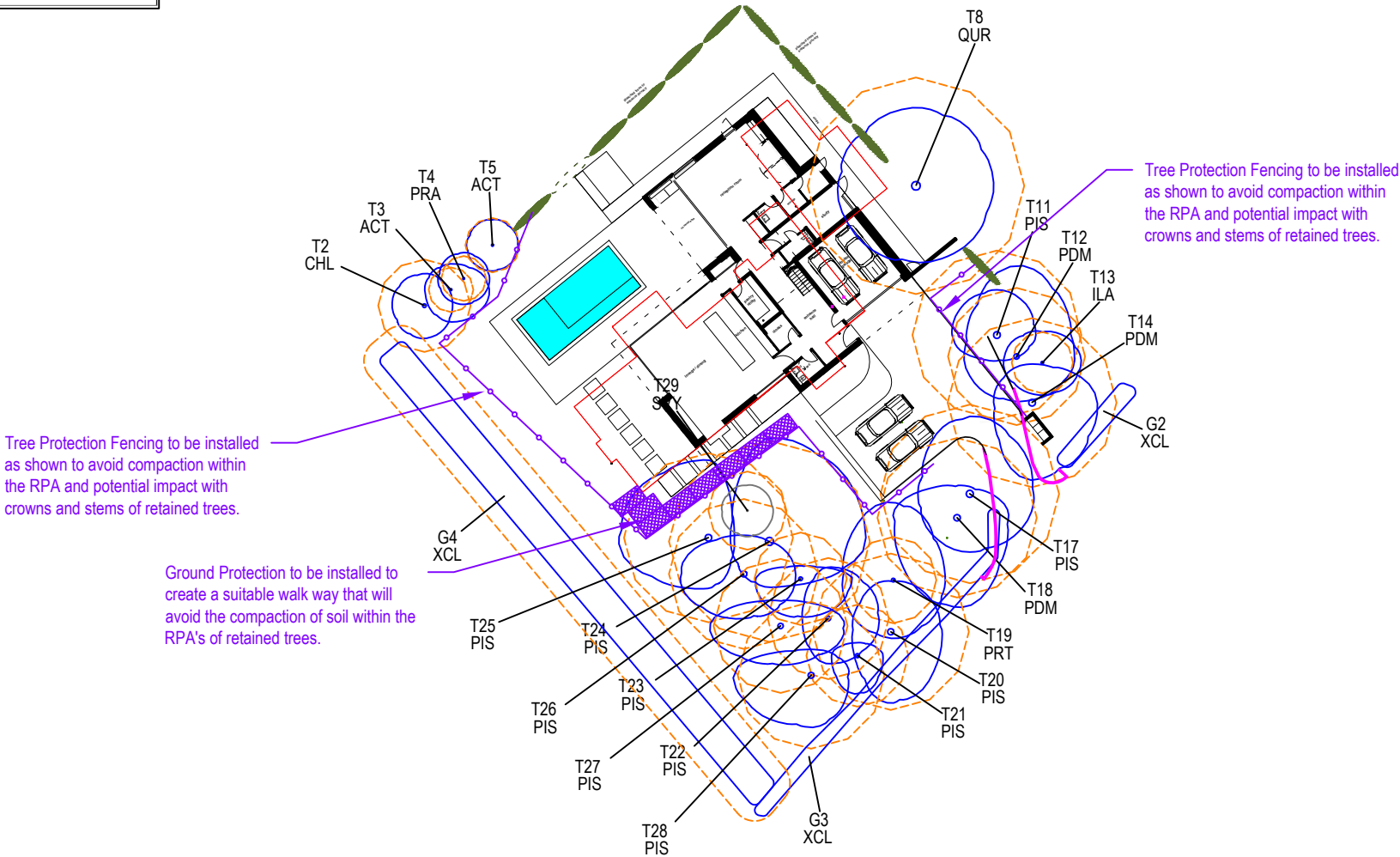
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SETTING OUT BARRIERS & CONSTRUCTION EXCLUSION ZONES

Construction Exclusion Zones are to be established around retained trees where specified. Setting out of fencing must take place prior to the commencement of any demolition or storage of materials on site. The setting out should take place under the guidance of the project Arboricultural Consultant.

Tree Protection Barriers should be supplied and erected in accordance with chapter 6.2.2 of BS5837:2012. This states that the default specification for protective fencing should comprise a scaffold framework with vertical tubes at maximum 3m intervals secured firmly into the ground and fixed with weldmesh panels.. An alternative specification would be a free standing scaffold support framework in accordance with figure 1 (left).



KEY

Tree categories based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations

- Category A Tree**
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Trees of Low Quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.
- Category U Tree**
Trees in such condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Root Protection Area (RPA)

Tree Protection Fencing

Ground Protection

Tree Key

- | | |
|------------------------|------------------------|
| ACT - Norway Maple | PDM - Douglas fir |
| BDD - Buddleia | PIS - Scots pine |
| BEP - Silver birch | PRA - Wild cherry |
| CHL - Lawsons cypress | PRT - Prunus serrulata |
| CS'p - Cypress species | QUR - Common oak |
| ILA - Common holly | SVY - Common lilac |
| MGS - Saucer magnolia | XCL - Lawsons cypress |

Client Nick Taylor

Project Linton House

Title Appendix F - Tree Protection Plan

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