

**ARBORICULTURAL
IMPACT
ASSESSMENT**

Land north of Raleigh
Drive, Claygate

November 2022



Barton Hyett Associates
Arboricultural Consultants

Summary table		
Site Name:	Land north of Raleigh Drive, Claygate	
Project reference:	5014	
Site Address:	Raleigh Drive, Claygate, Esher	
Nearest Postcode:	KT10 9DF	
Central Grid reference:	TQ 14894 64274	
Local Planning Authority:	Elmbridge Borough Council	
Relevant planning policies:	Elmbridge Core Strategy 2011: CS14 - Green infrastructure; CS15 - Biodiversity; CS17 - Local character, density and design. Elmbridge Development Management Plan 2015: DM2 - Design & amenity; DM6 - Landscape & trees; DM21 - Nature conservation and biodiversity.	
Statutory Controls:	Tree Preservation Order	Conservation Area
	TPO EL:19/38 (2019) Land at Claygate House, Littleworth Road, Esher, Surrey, KT10 9PN TPO EL:20/17 (2020) Land at Claygate House, Littleworth Road, Esher, Surrey, KT10 9PN.	No
Soil Type: (Source: BGS online soils map © NERC 2022)	Superficial/Drift	Bedrock
	Deep clay to silt with Alluvium - Clay, silt, sand and gravel (eastern boundary)	London Clay Formation - Clay and silt.
Topographical Survey:	17176_01	
Site Layout:	Sketch Layout Plan 22071 - SK08E	
Notes:	Tree Preservation Order (TPO) EL:19/38 (2019) protects 6 individual trees and one group of trees at the site. TPO EL:20/17 (2020) protects one group of 6 trees (G4) at the site.	
Report author:	Ian Monger MSc, BSc (Hons), TechCert (ArborA) MArborA	
Date of issue:	20.11.2022 - Revision B - updated layout	

REPORT CONTENTS:

SECTION 1:	SUMMARY, SITE DETAILS, IMPACT ASSESSMENT AND METHOD STATEMENT
SECTION 2:	TREE SURVEY & CONSTRAINTS PLAN
SECTION 3:	COMBINED DRAFT TREE RETENTION/REMOVAL & PROTECTION PLAN
SECTION 4:	TREE SURVEY SCHEDULE & SITE IMAGES
SECTION 5:	METHODOLOGY
SECTION 6:	DESIGN GUIDANCE AND GENERIC ADVICE
SECTION 7:	PRINCIPLES FOR TREE PROTECTION ON DEVELOPMENT SITES
SECTION 8:	TREE PRESERVATION ORDERS EL:19/38 (2019) & EL:20/17 (2020)

1. INTRODUCTION

- 1.1. I am Ian Monger, an arboriculturist with 17 years of experience, and a professional member of the Arboricultural Association.
- 1.2. Barton Hyett Associates Ltd have been instructed by Claygate House Investments Ltd and MJS Investments Ltd to survey trees located at Land north of Raleigh Drive, Claygate ('the site') in accordance with the recommendations of British Standard 5837:2012 'Trees in relation to design, demolition and construction - recommendations'.
- 1.3. The scope of the instruction was to inspect trees relevant to an outline planning application at the site and provide written advice on how they inform feasibility and design options. The instruction also required an assessment of the potential impact (the Arboricultural Impact Assessment) of the proposed development on the site's arboricultural resource to be undertaken.

2. SITE DESCRIPTION

- 2.1. The site is a rectangular area of land of 2.2ha to the rear of Esher Park Gardens apartments and to the north of Raleigh Drive and Rythe Road in the suburban village of Claygate, 14 miles southwest of central London.
- 2.2. The site has gated access from the junction of Raleigh Drive and Rythe Road to the south.
- 2.3. The site is laid to grass, with trees and hedgerows along the boundaries. A tarmac path leads from the access gate and passes through the south-western part of the site to enter the rear of Esher Park Gardens. The site includes a tennis court and derelict bowling green associated with the site's former office use. The site is fairly level apart from scattered earth mounds. A ditch runs along the eastern boundary.
- 2.4. Beyond the boundary to the north and north-east of the site are paddocks. The eastern and southern boundaries meet the rear gardens of the neighbouring residential streets. The western boundary meets various fences that enclose the parking, recreation and garden facilities of the adjoining apartments.

3. TREE SURVEY FINDINGS

- 3.1. A total of 34 trees/groups of trees/hedgerows were surveyed. These are summarised in terms of their quality in accordance with the recommendations of BS5837 below, and shown in more detail on the Tree Survey and Constraints Plan (**Section 2**) and within the Tree Survey Schedule (**Section 3**).

	Total	A - High quality trees whose retention is most desirable.	B - Moderate quality trees whose retention is desirable.	C - Low quality trees which could be retained but should not significantly constrain the proposal.	U - Very poor quality trees that should be removed unless they have high conservation value.
Trees	22	4	12	6	-
Groups	10	3	4	3	-
Hedgerows	2	-	2	-	-
Total	34	7	18	9	-

Table 1: summary of arboricultural features of each BS5837 quality category

4. KEY ARBORICULTURAL FEATURES

- 4.1. No ancient or veteran trees were identified in the survey. No ancient woodland affects the site.
- 4.2. Tree Preservation Order (TPO) EL:19/38 (2019) protects 6 individual trees and one group of trees at the site. It was presumably made when development proposals for the former Claygate House were put forward. TPO EL:20/17 (2020) protects one group of 6 Lombardy poplar trees (G4 in this survey) in the south-eastern corner of the site.
- 4.3. There are a number of high-quality tree features at the site. These include the pair of oaks T5 (A1) and T6 (A2) along the northern boundary. The larger of the two (T5) has a nesting hole in the trunk at 3.5m indicating a decayed cavity. Both trees are protected by the TPO.
- 4.4. Two other oaks, T11 (A1) and T17 (A2) are high-quality because of their size and maturity. Oak T17 is located near the access in the south but is not protected by the TPO. It has a nesting hole in its trunk indicating a decayed cavity along with bright growth marks on the lower trunk indicative of a response growth to decay. As part of longer-term management of the tree, further investigation of the extent of decay is recommended.
- 4.5. G2 (A2) along the eastern boundary includes English oak, horse chestnut and common ash. The group provides dense and mature screening between the site and residential properties.
- 4.6. The two groups of protected Lombardy poplars, G4 and G8, provide tall, linear features which are clearly visible above rooftops from outside of the site.
- 4.7. Permission 2022/0576 has been granted by Elmbridge Borough Council for protected silver birch T4 to be felled due to access requirements. The tree was present at the time of my visit, but will be felled shortly.
- 4.8. A mature oak tree that once stood on the northern boundary to the west of T5 was removed a few years ago following its collapse into the site.

5. PROPOSED DEVELOPMENT

- 5.1. The development proposal is an outline planning application for up to 60 dwellings, associated landscaping and open space with vehicle access from Raleigh Drive. Appearance, landscaping, layout and scale are reserved matters. The indicative site layout is shown on the Sketch Layout Plan 22071 - SK08E.

6. IMPACT ASSESSMENT

- 6.1. The impact assessment considers the effects of any tree loss required to implement the proposed development as well as any reasonably foreseeable potentially damaging activities proposed in the vicinity of retained trees. Actual and potential impacts can include tree removal to facilitate the development, soil compaction in close proximity to trees, and direct impact damage to the canopy and roots of retained trees from construction activities. A summary of anticipated impacts resulting from the proposed development is provided below.

Trees to be removed

- 6.2. Only one young, low-quality ornamental cherry T18, a semi-mature ash T20 (and hornbeam below), a section of low-quality hazel shrubs G7 and Lawson cypress hedge H2 (B2) are proposed to be removed. These

removals are shown in the Tree Retention and Removal Plan in **Section 3**. Most of the removals are required so that the new access road and pedestrian footway can be formed.

- 6.3. The removal of boundary hedge H2 is required because the construction of the new access footway (which has been kept as far as possible away from the high-quality oak T17 on the other side of the access) could cause a significant level of root system damage. The need to cut back the hedge canopy which enters the site would also be disfiguring for this species and the cut parts would be unlikely to grow back. New hedgerow planting along this boundary could replace the screening between the two properties.

Impacts on retained trees

- 6.4. There is a minor incursion of the access road to the north of Plots 55 and 56 into the Root Protection Area (RPA) of protected oak T5. There is also an incursion by the main access road into the RPA of oak T17, which is not protected by the TPO. These elements of new surfacing can be constructed using a no-dig cellular confinement system approach, which is particularly suitable for new roads that will remain private and unadopted. The ground within these areas is relatively level and is suitable for use of such a system.
- 6.5. The approach uses a plastic cellular confinement grid, permeable geo-textile and washed gravel fill to provide a load-bearing surface that does not need to be compacted and is suitable for use by refuse vehicles and fire tenders. The structure sits above the existing soil level and acts as a stiff raft which maintains soil bulk density at levels suitable for tree root growth. The approach is a proven technical solution to constructing new surfaces near trees and, with proper technical specification and construction has been shown to allow the successful retention of trees with low to negligible impact on health and longevity. The final installation of the system can be carried out under on-site arboricultural supervision and in accordance with a details Arboricultural Method Statement (AMS) to ensure that the correct procedure is followed.
- 6.6. Although the southern elevation of Plot 5 is at the edge of the RPA of oak T17, this minor incursion is easily offset elsewhere contiguous with it. The building will require piled foundations because of the deep clay to silt soils at the site. The piled foundation will require less working space than a strip excavation and will have a negligible impact on the tree. Additional temporary ground protection and arboricultural supervision will be provided to ensure that potential impacts are avoided.
- 6.7. Some cutting-back of scrubby hazel, holly and damson group G6 (B2) will be required to provide space for Plot 6. This would have a negligible visual impact. No other facilitation pruning would be required.
- 6.8. Although details of utilities and drainage are not available at this outline design stage, there appears to be ample scope for installing new underground services outside of the RPAs of retained trees. However, further arboricultural input and assessment of the potential impacts of new services will be required at a later stage so that they can be avoided or reduced to an acceptable level. Similarly, proposed ground-level changes at the Reserved Matter stage will require further arboricultural input and assessment of potential impacts so that level changes within the RPAs of retained trees can be avoided.
- 6.9. There conceivably may be some post-development pressure from occupants for pruning the mature trees along the southern boundary. However, the existence of the TPO already provides the Local Planning Authority with a high level of control over such pressure were it to arise.

- 6.10. The proposal is feasible from an arboricultural perspective, and if carefully implemented according to an approved AMS there would be a negligible impact on the retained trees. A draft AMS is provided below for application validation purposes and a combined draft Tree Retention and Removal and Tree Protection Plan is included in **Section 3**. However, a revised/detailed AMS will need to be produced at the Reserved Matters stage once the detailed site design has been developed. The detailed AMS will also need to take the utilities, hard/soft landscaping and construction management plans into account.

7. DRAFT ARBORICULTURAL METHOD STATEMENT (AMS)

- 7.1. BS5837:2012 (Figure 1) recommends that detailed/technical design of tree protection and arboricultural methodologies should be resolved and finalised following on from the approval of the feasibility of a scheme by the Local Planning Authority.
- 7.2. In relation to the site, there are a number of aspects with the potential to impact trees that require further arboricultural input so that the final working methods can be devised. Therefore, this AMS will be updated once the information is finalised. A brief summary of the principles of tree protection on development sites is included in **Section 7**. The aspects requiring further arboricultural input are:
- Construction & Environment Management Plan (or other construction working methods) and phasing of construction
 - detailed drainage scheme
 - other utility schemes, including electricity, water and gas supplies
 - detailed hard and soft landscaping schemes.
- 7.3. The Project Site Manager shall hold the responsibility to ensure that all key contractors and all other persons working on-site have a responsibility to be aware of trees and to abide by tree protection procedures set out within the AMS.
- 7.4. The Project Arboriculturist will remain on hand in an advisory role to answer any questions relating to tree protection that may arise during construction planning or during the build phases.
- 7.5. Prior to commencing relevant works on site, all site operatives must be briefed by the Site Manager in relation to site procedures and rules that relate to retained trees as well as the content of the AMS.
- 7.6. The Project Arboriculturist will remain on hand in an advisory role to answer any questions relating to tree protection that may arise during construction planning or during the build phases.
- 7.7. The Project Arboriculturist should be consulted if any conflict with the Construction Method Statement or other approved construction schemes that may affect retained trees is identified during the planning or construction stages.
- 7.8. Should any change to the sequence of operations or details within this AMS be necessary, the Project Arboriculturist must be consulted. The Project Arboriculturist shall then evaluate any potential arboricultural impacts that could arise and specify additional tree protection/remediation measures as required. Confirmation that the proposed changes are acceptable within the context of relevant planning permission must be obtained in writing from the local planning authority prior to any new operations on site.

- 7.9. In the event of unforeseen incidents occurring that may adversely affect or threaten the welfare or security of the trees, the resident Site Manager shall inform the Project Arboriculturist at the earliest opportunity and not more than one working day following the incident.
- 7.10. The Project Arboriculturist will visit the site to inspect and assess the circumstances and make appropriate recommendations. The Local Planning Authority Tree Officer will be informed by the Project Arboriculturist of such incidents, and recommendations will be submitted for approval by the Local Planning Authority; initially verbally, and then in writing. A record of any emergency incidents and works shall be maintained by the Project Arboriculturist.
- 7.11. Incidents which may merit such contingency plans include:
- Accidental/unauthorised damage to the branches, roots or trunk of trees
 - The spillage of chemicals within or adjacent to a Root Protection Area
 - The discharge of toxins/waste within or adjacent to a Root Protection Area
 - The unscheduled breaching of a tree protective barrier or Construction Exclusion Zones.
- 7.12. The Project Arboriculturist will visit the site to inspect and assess the circumstances and make appropriate recommendations. The Local Planning Authority Tree Officer will be informed by the Project Arboriculturist of such incidents, and recommendations will be submitted for approval by the Local Planning Authority; initially verbally, and then in writing. A record of any emergency incidents and works shall be maintained by the Project Arboriculturist.
- 7.13. **Pre-commencement meeting:** A pre-commencement meeting must be held between the Project Site Manager, Project Arboriculturist and other relevant contractors before any works, including site clearance, begin on site.
- 7.14. The purpose of the meeting is to enable all relevant parties within the development team to meet, be aware of the requirements of the AMS, agree with outstanding matters and agree to a coordinated approach to the project.
- 7.15. Matters addressed:
- Identification of persons present and exchange of contact information
 - Familiarisation with the site in relation to the AMS
 - Phasing of work stages
 - Tree and hedge removals
 - Final locations of new services
 - Locations and installation of temporary tree protection barriers and temporary ground protection
 - Formation of the new no-dig access road sections, including on-site arboricultural supervision of cellular confinement system (CCS) construction
 - Installation method and timing of no-dig access road sections
- 7.16. **Tree and hedge removal:** All tree work will be carried out by a suitably qualified and experienced tree surgery contractor, and in accordance with British Standard BS3998: 2010 Tree work - recommendations.
- 7.17. The tree and hedge removals are shaded red on the Tree Retention & Removal Plan (TRR) in **Section 3**, and the work will be carried out before the installation of the tree protection barriers. The work is as follows:
- T18 ornamental cherry - fell
 - T20 common ash and hornbeam below - fell
 - G7 hazel - fell section shown and mechanically grind stumps
 - H2 Lawson cypress hedge - fell and mechanically grind stumps
- 7.18. All tree work operations must be carried out inline with the contractor's own site-specific risk assessment and method statement that shall be approved prior to commencement by the Site Manager. All arisings shall be disposed of as instructed by the Site Manager.
- 7.19. **Erect tree protection barriers and notices and temporary ground protection:** The tree protection barriers must be installed in the locations shown on the FINAL Tree Protection Plan (TPP). A draft TPP is included in **Section 3** of this report. The barriers will form Construction Exclusion Zones (CEZs).
- 7.20. The tree protection barriers must be installed in accordance with the default BS5837:2012 specification Figure 3 which is shown on the TPP. All-weather A3-sized notices as included below shall be attached to the tree protection barrier at 10-metre intervals.
- 7.21. Additional temporary ground protection may be specified on the final TPP or as directed by the Project Arboriculturist. Where specified, such protection will be of interlinked proprietary boards or cut-to-fit boards laid over 150mm well-rotted wood chip, separated from the soil with a permeable geo textile membrane. The boards can be secured in place if necessary using metal pins.
- 7.22. The Project Arboriculturist **must approve the condition and positioning of the barriers, notices and any temporary ground protection** and report to LPA Tree Officer before the commencement of further stages in the construction process. This is best carried out at the pre-commencement meeting, so barriers should ideally be installed prior to the meeting.
- 7.23. The barriers and any temporary ground protection must not be moved, altered or allowed to drift during construction activity. The barriers and ground protection will be checked at the beginning and end of each working day to ensure they remain fit for purpose of excluding any site activity and protecting the ground. They will remain in situ until all construction work on site has been completed.
- 7.24. **Cement mixing and transport:** There is a risk of ground contamination from cement mixing at the site which could harm retained trees. The designated area(s) for cement mixing and/or delivery must be provided with adequate contamination containment which includes a membrane base that will remain impermeable for the duration of cement handling and a run-off containment system (e.g. Kraken contamination containment barriers or similar with the impermeable membrane attached). Additional impermeable membranes will be provided over the route of the movement of cement to the working area.
- 7.25. The CEZs formed by the barriers and temporary ground protection are to remain completely undisturbed for the duration of all development works. No construction activity of any description including but not limited to the following must occur within this area at any time:
- No mixing of cement or disposal of liquids
 - No soil/turf stripping, raising/lowering of ground levels, deposit or excavation of soil or rubble
 - No excavations for services or installation of services

- No storage of materials, machinery fuel, chemicals or other materials of any other description
- No parking/use of tracked or wheeled machinery
- No siting of temporary structures including hard standing areas, portaloos, site huts
- Fires on site should be avoided if possible. Where they are unavoidable, they must not be lit in a position where heat could damage foliage or branches. Fires must be a minimum of 20m from the trunk of any retained tree or the centre line of any hedgerow to be retained
- No signs, cables, fixtures or fittings of any other description shall be attached to any part of a tree.

7.26. Formation of new access road sections using no-dig Cellular Confinement System (CCS): The installation of the access road sections within the Root Protection Areas (RPAs) of oaks T5 and T17 will utilise a cellular confinement system (CCS). **The system will be installed before any other ground or construction work begins at the site and will serve as construction access.**

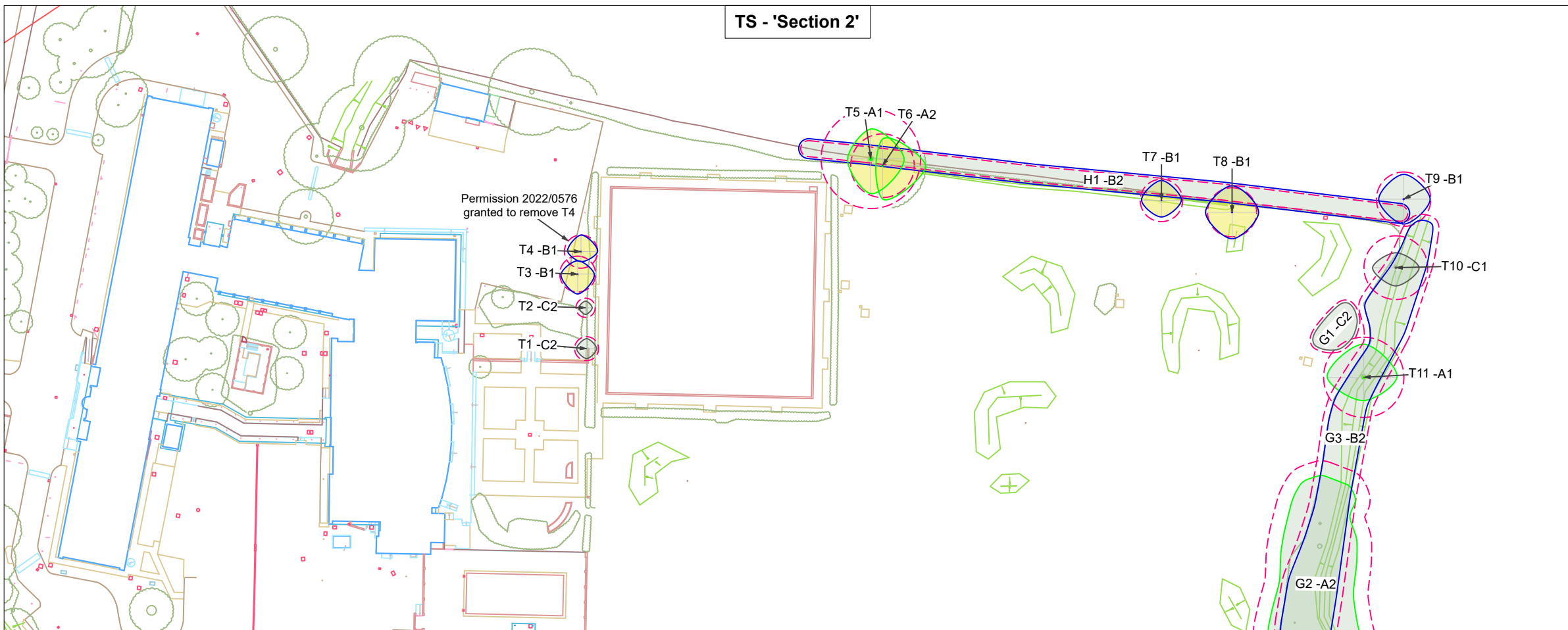
- 7.27. The existing tarmac path section through the RPA of T17 will be broken and removed by hand.
- 7.28. The CCS system supplier will specify the appropriate system and installation methods which will accompany the information below. A road engineer will provide the final technical design detail.
- 7.29. Careful planning and preparation need to take place before installation commences. This should include planning for site staff numbers, machinery and equipment, materials delivery, weather conditions, and installation method.
- 7.30. The construction of the surface will only commence once the protective barriers are in place and approved by the Project Arboriculturist.
- 7.31. The CCS uses a plastic cellular confinement grid, permeable geo-textile and washed gravel fill to provide a load-bearing surface that does not need to be compacted. The structure sits above the existing soil level and acts as a stiff raft which maintains soil bulk density at levels suitable for tree root growth. Note that the technical design should avoid the use of formal hard edging that would require excavation. Instead, it typically uses proprietary or wooden surface edging to give a retaining and visually satisfactory finish.
- 7.32. The level for the installation of the cellular confinement system will be achieved using hand tools. Areas within tree RPAs will not be mechanically scrapped, graded or tilled. There must be no vehicle movements or storage of materials over the area of open soil. Turf, other herbaceous vegetation and loose debris will be removed by hand using hand tools.
- 7.33. Any voids may be made-up by a maximum of 15cm with a no-fines (washed) gravel.
- 7.34. A porous geo-textile membrane will be laid as specified to subdue future weed growth, and the cellular membrane laid out, trimmed and secured on top.
- 7.35. The infill material must be a clean angular stone, Type 4/20mm or Type 20/40mm. Do not use M.O.T type 1 or crushed stone with fines for tree root protection. No compaction is required of the infill. Do not use a whacker plate or other means of compaction. Aggregate will be delivered and handled from the existing tarmac surface, and outside the unprotected RPA of any tree.
- 7.36. The final surface will be porous, so the best options are loose gravel, porous resin-bound stone, block paving or porous asphalt.

- 7.37. **Main construction phase:** The tree protection barriers and temporary ground protection will be checked at the beginning and end of each working day to ensure they remain fit for purpose of excluding any site activity and protecting the ground. They will remain in situ until all construction work on site has been completed.
- 7.38. During the main construction phase, **the Project Arboriculturist will be instructed to attend the site at least every two weeks** to confirm that tree protection measures are fit for purpose and other site conditions are appropriate for tree protection.
- 7.39. Alternatively, if the mobile phone signal at the site allows, the Project Arboriculturist may decide that a video call between the Project Site Manager and Project Arboriculturist, combined with site photographs, will be sufficient. If any aspect of the site in relation to trees is found to be unsatisfactory during a video call, the Project Arboriculturist will attend the site as soon as possible.
- 7.40. Following each monitoring visit/call and after each specific construction phase detailed above, the Project Arboriculturist will update a compliance report, which will be illustrated with photographs and submitted to Elmbridge Borough Council on project completion.
- 7.41. **Remove tree protection barriers and temporary ground protection:** The tree protection barriers and temporary ground protection must not be removed without the prior approval of the Project Arboriculturist. The Site Manager will ask the Project Arboriculturist to approve the removal of barriers. The Project Arboriculturist will assess site conditions and confirm that it is an appropriate stage at which to remove the barriers.
- 7.42. Five working days' written notice shall be given to the Local Planning Authority before to the removal of tree protection measures.

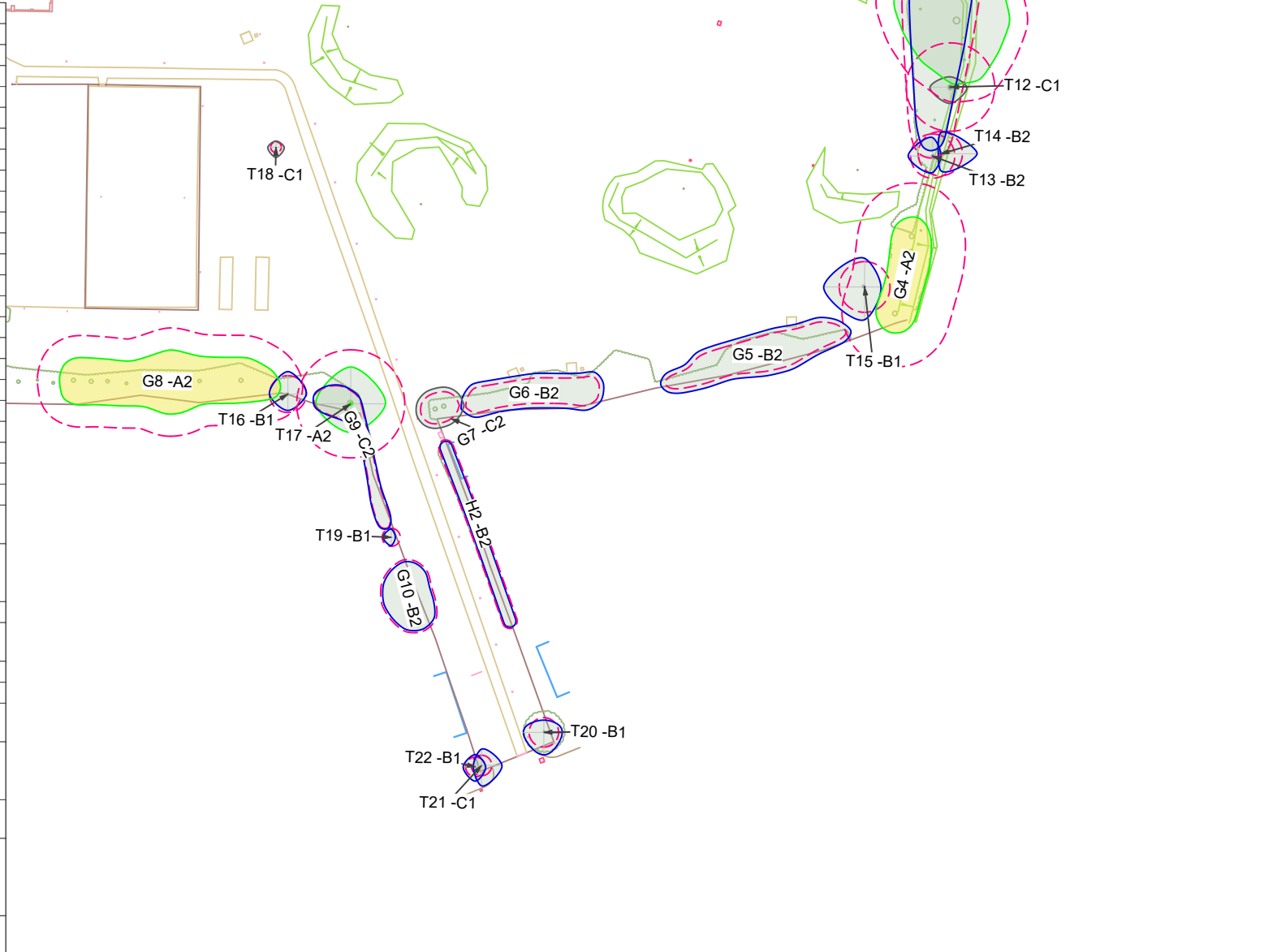
8. RECOMMENDATION AND SUMMARY

- 8.1. Subject to the implementation of the advice contained within this report, the outline proposal is acceptable from an arboricultural perspective. No-dig CCS construction of the access road surfaces at oaks T5 and T17 can be utilised so that there is a low to negligible impact on health and longevity. The final design at the Reserved Matters stage will include full technical design and specification, and installation of the system can be carried out under on-site arboricultural supervision and in accordance with the AMS to ensure that the correct procedure is followed. Further arboricultural input into the detailed design of construction management, drainage/utilities and hard and soft landscaping will also ensure that potential impacts on trees are avoided or reduced to an acceptable level.
- 8.2. The retained trees can be adequately protected during construction activities to sustain their health and longevity.
- 8.3. A detailed AMS and finalised Tree Protection Plan will need to be produced. Where the feasibility of a scheme has been agreed upon by the Local Planning Authority, this detail can be agreed and submitted at the Reserved Matters stage.

TS - 'Section 2'



Tree No	Species	Height (m)	Life Stage	RPA Radius (m)	RPA (m2)
T1	Monterey cypress	8	SM	3.6	41
T2	Monterey cypress	5	SM	2.9	26
T3	Silver birch	15	M	5.4	92
T4	Silver birch	14	M	5	80
T5	English oak	16	M	15	707
T6	English oak	14	M	9.6	290
T7	English oak	10	SM	6.4	127
T8	English oak	14	EM	7.4	174
T9	English oak	14	M	8.2	209
T10	English oak	10	M	9.6	290
T11	English oak	16	M	12.1	461
T12	English oak	10	M	10.8	366
T13	Common ash	11	M	5.4	92
T14	Common ash	11	M	5.4	92
T15	English oak	11	SM	6.2	122
T16	Sycamore	11	EM	4.5	65
T17	English oak	18	M	13.2	547
T18	Ornamental cherry	3	Y	1.3	5
T19	Lawson cypress	7	SM	2.2	15
T20	Common ash	11	SM	3.6	41
T21	Hornbeam	7	Y	2.5	20
T22	Purple cherry-plum	6	SM	2.4	18
G1	Lawson cypress	6-8	SM	2.8	24
G2	English oak, horse chestnut, common ash	12-16	M	11.4	408
G3	Hawthorn, holly, dogwood, elder, common ash, sycamore, crack willow	3-13	EM	4.8	72
G4	Lombardy poplar	22-23	M	11.3	400
G5	English oak, Lawson cypress	6-7	SM	2.4	18
G6	Hazel, holly, damson	4-7	EM	2.4	18
G7	Hazel	4.5	EM	2.4	18
G8	Lombardy poplar, sycamore, hazel, English elm, holly	4-23	M	8.4	222
G9	Holly, common yew, horse chestnut, English elm, common ash, orchard apple	4-8	SM	1.8	10
G10	Orchard apple, plum, hybrid cockspur thorn	5-6	M	4.5	65
H1	Hawthorn, elder, English oak, common ash, English elm, Turkey oak, Lawson cypress	5	M	2.4	18
H2	Lawson cypress, hawthorn, hazel	4.5	SM	1.8	10



KEY

- Category A Tree - High quality (Retention highly desirable)
- ▭ Category A - Hedgerow, Group, Woodland - High quality (Retention highly desirable)
- Category B Tree - Moderate quality (Retention desirable)
- ▭ Category B - Hedgerow, Group, Woodland - Moderate quality (Retention desirable)
- Category C Tree - Low quality (May be retained but should not constrain development)
- ▭ Category C - Hedgerow, Group, Woodland - Low quality (May be retained but should not constrain development)
- Category U Tree - Very low quality (Mostly unsuitable for retention)
- ▭ Category U - Hedgerow, Group, Woodland - Very low quality (Mostly unsuitable for retention)
- Root Protection Area (RPA) - Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and soil volume to maintain the tree's viability
- Shrub mass/offsite tree/out of scope (OOS)
- **Statutory Protection**
Tree Preservation Order (TPO): Trees under statutory protection. No tree works to be undertaken without specific consent or by relevant exception

Note: The original of this drawing was produced in colour – a monochrome copy should not be relied upon. This drawing should be interpreted with reference to the accompanying tree schedule and written advice

PROJECT TITLE
Raleigh Drive, Claygate (5014)

DRAWING TITLE
Tree Survey & Constraints Plan

SCALE: **1:1,500 @ A3** DRAWING NUMBER: **BHA_5014_01**

DRAWN BY: **IM** APPROVED BY: **RH** REVISION: **A** SHEET: **-** DATE: **07/11/2022**

TOPOGRAPHICAL SURVEY: **17176_01A**

CLIENT: **Greatwave Group**

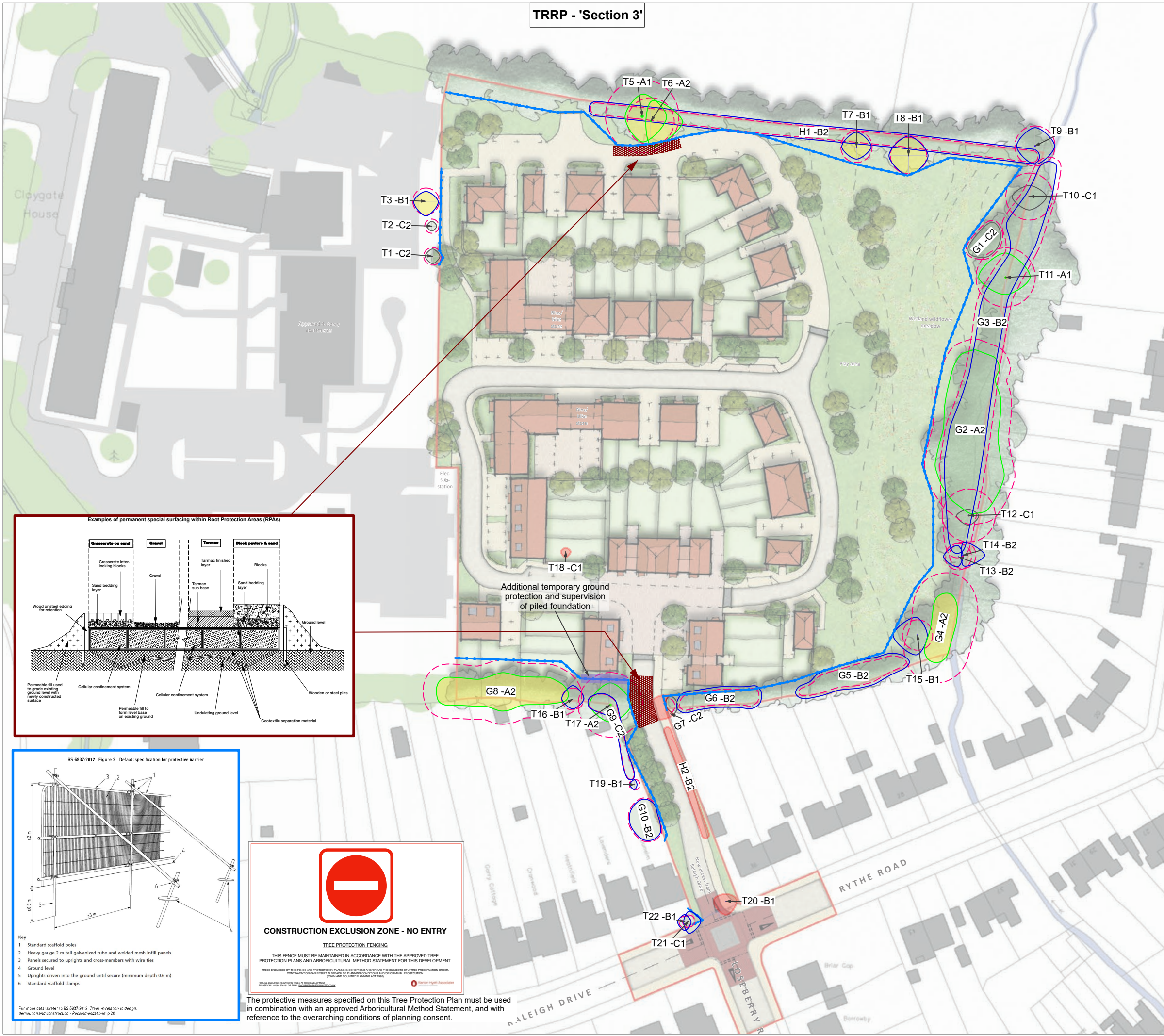
COORDINATE SYSTEM / DATUM: **British National Grid / Newlyn Datum (AOD)**

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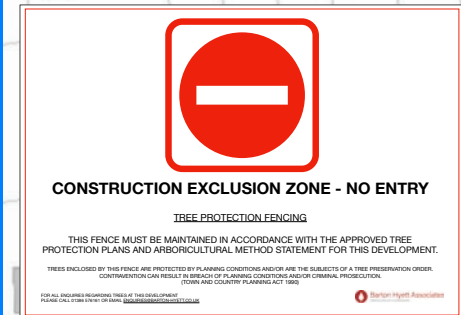
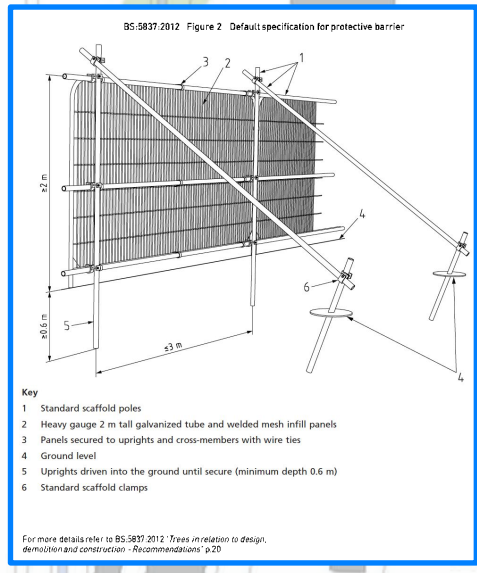
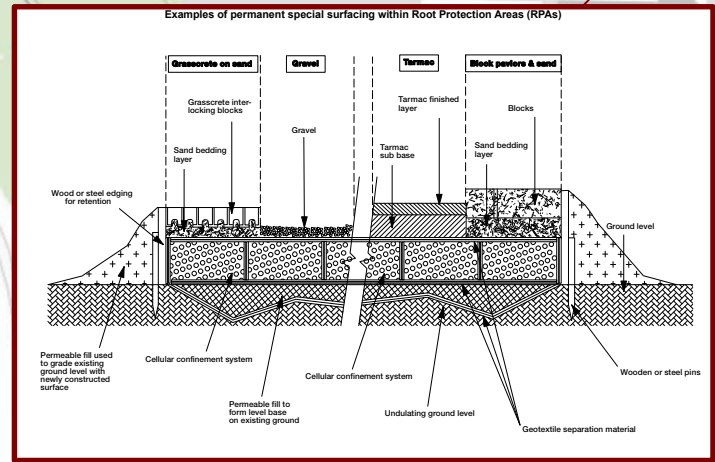
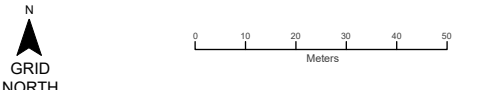
Tel: 01386 576161 Website: www.barton-hyett.co.uk
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TRRP - 'Section 3'



- KEY**
- Category A Tree - High quality (Retention highly desirable)
 - Category A - Hedgerow, Group, Woodland - High quality (Retention highly desirable)
 - Category B Tree - Moderate quality (Retention desirable)
 - Category B - Hedgerow, Group, Woodland - Moderate quality (Retention desirable)
 - Category C Tree - Low quality (May be retained but should not constrain development)
 - Category C - Hedgerow, Group, Woodland - Low quality (May be retained but should not constrain development)
 - Category U Tree - Very low quality (Mostly unsuitable for retention)
 - Category U - Hedgerow, Group, Woodland - Very low quality (Mostly unsuitable for retention)
 - Root Protection Area (RPA) - Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and soil volume to maintain the tree's viability
 - Shrub mass/offsite tree/out of scope (OOS)
 - Tree / Hedgerow / Group to be removed
- Protection Measures**
- Tree Protection Barrier to specification in Figure 2 of BS5837:2012
 - Cellular Confinement System construction of areas of new access surfacing within tree Root Protection Areas. Full specification will be provided in detailed Arboricultural Method Statement (AMS) once Reserved Matters are finalised and following further ground investigations. Installation would be carried out under on-site arboricultural supervision

Note: The original of this drawing was produced in colour – a monochrome copy should not be relied upon. This drawing should be interpreted with reference to the accompanying tree schedule and written advice



The protective measures specified on this Tree Protection Plan must be used in combination with an approved Arboricultural Method Statement, and with reference to the overarching conditions of planning consent.

PROJECT TITLE **Raleigh Drive, Claygate**

DRAWING TITLE **DRAFT Tree Retention/Removal & Protection Plan**

SCALE	1:1500 @ A3	DRAWING NUMBER	BHA_5014_02
DRAWN BY	SD	APPROVED BY	RH
REVISION	B	SHEET	-
DATE	20/11/2022		

LAYOUT USED WITHIN DRAWING **22071 - SK08E Proposed Site Plan**

CLIENT **Greatwave Group**

COORDINATE SYSTEM / DATUM **British National Grid / Newlyn Datum (AOD)**

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INDIVIDUAL TREES

Ref	Species	On/off site	Top Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. low crown height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	TPO?
T1	Cypress (Monterrey)	Off	8.0	1	Yes	300	3.0-3.0-3.0-3.0	2.5	2.0	None	SM	None	No significant visible defects.	Good	Good	20+	C2	3.6	41	-
T2	Cypress (Monterrey)	Off	5.0	1	Yes	240	2.0-2.0-2.0-2.0	2.0	2.0	None	SM	None	No significant visible defects.	Good	Good	20+	C2	2.9	26	-
T3	Birch (Silver)	On	15.0	1	Yes	450	4.0-5.0-6.0-5.0	2.0	4.5	S	M	None	Exudate on trunk at 2.5m east.	Good	Good	20+	B1	5.4	92	TPO EL19/38 T13
T4	Birch (Silver)	On	14.0	1	Yes	420	5.0-5.0-3.0-4.0	2.0	3.5	S	M	None	No significant visible defects.	Good	Good	20+	B1	5.0	80	TPO EL19/38 T12
T5	Oak (English)	On	16.0	1	Yes	1300	9.0-10.0-10.5-7.0	4.0	6.0	S	M	None	Nesting hole in trunk at 3.5m south indicating cavity. Deadwood previously removed.	Good	Good	40+	A1	15.0	707	TPO EL19/38 T9
T6	Oak (English)	On	14.0	1	Yes	800	8.0-13.0-10.0-2.0	2.0	5.5	E	M	None	Tree has grown asymmetrically. Torsional branch split at 8m SE.	Good	Fair	40+	A2	9.6	290	TPO EL19/38 T8
T7	Oak (English)	On	10.0	1	None	530	6.0-6.0-5.0-6.0	1.0	1.5	SE	SM	None	No significant visible defects.	Good	Good	40+	B1	6.4	127	TPO EL19/38 T7
T8	Oak (English)	On	14.0	1	None	620	8.0-8.0-8.0-8.0	2.0	3.0	None	EM	None	No significant visible defects.	Good	Good	40+	B1	7.4	174	TPO EL19/38 T6
T9	Oak (English)	Off	14.0	1	Yes	680	7.5-8.0-7.5-7.5	4.0	4.0	W	M	None	No significant visible defects.	Good	Good	40+	B1	8.2	209	-
T10	Oak (English)	On	10.0	1	Yes	800	4.5-7.0-5.5-7.0	3.5	3.0	None	M	None	Tree has only 5% live growth remaining.	Poor	Fair	<10	C1	9.6	290	-
T11	Oak (English)	Off	16.0	1	Yes	1010	10.0-10.0-7.0-11.0	3.5	5.0	W	M	None	Branch tear wounds. Deadwood previously removed.	Good	Good	40+	A1	12.1	461	-
T12	Oak (English)	On	10.0	1	Yes	900	2.5-4.0-4.0-5.0	4.0	4.0	W	M	None	Dead standing weathered tree.	Poor	Poor	<10	C1	10.8	366	-
T13	Ash (Common)	On	11.0	1	Yes	450	4.5-2.0-4.0-6.0	4.5	4.5	W	M	None	Lower branches removed. Ash Dieback Class 1.	Fair	Good	10+	B2	5.4	92	-
T14	Ash (Common)	On	11.0	1	Yes	450	5.0-9.0-4.0-0.5	6.0	7.0	S	M	None	Lower branches removed. Ash Dieback Class 1.	Good	Good	20+	B2	5.4	92	-
T15	Oak (English)	On	11.0	1	None	520	7.0-4.0-8.0-10.0	0.5	1.0	W	SM	None	Low spreading tree.	Good	Good	40+	B1	6.2	122	-

Ref	Species	On/off site	Top Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. low crown height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	TPO?
T16	Sycamore	On	11.0	1	Yes	380	5.5-4.5-4.0-4.5	2.0	3.5	N	EM	None	No significant squirrel damage evident.	Good	Good	40+	B1	4.5	65	-
T17	Oak (English)	On	18.0	1	Yes	1100	9.0-8.5-7.0-8.5	5.0	7.5	E	M	None	Nesting hole at 5m east on trunk indicating cavity. Bright growth marks on lower bole suggest response growth to decay. Further investigation advised. Deadwood previously removed.	Good	Fair	40+	A2	13.2	547	-
T18	Cherry (Ornamental flowering)	On	3.0	1	Yes	100	1.5-2.0-2.5-2.0	1.0	0.5	None	Y	None	Staked tree poorly established.	Fair	Good	10+	C1	1.3	5	-
T19	Cypress (Lawson)	On	7.0	1	Yes	180	2.0-1.0-2.0-2.0	2.0	2.5	S	SM	None	Ornamental garden tree.	Good	Good	40+	B1	2.2	15	-
T20	Ash (Common)	On	11.0	1	Yes	300	3.0-4.5-5.5-5.0	2.0	5.0	SW	SM	None	Smaller down and hornbeam growing blows crown and extending further east and south.	Good	Good	20+	B1	3.6	41	-
T21	Hornbeam	On	7.0	2	Yes	210	4.0-5.0-5.0-2.0	2.0	2.0	None	Y	None	Outgrown hedge tree.	Good	Good	20+	C1	2.5	20	-
T22	Plum (Purple)	Off	6.0	1	Yes	200	3.0-2.5-3.5-3.0	2.5	2.5	None	SM	None	Ornamental garden tree.	Good	Good	20+	B1	2.4	18	-

GROUPS OF TREES

Ref	Species	On/off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. Crown radius (m)	Avg. low crown height (m)	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	TPO?
G1	Lawson cypress	On	6-8	5	Yes	230	2.0	0.0	SM	None	Low amenity value.	Fair	Good	20+	C2	2.8	-
G2	English oak; horse chestnut; common ash	On	12-16	9	Yes	950	7.0	4.0	M	None	Group includes 5 mature oaks.	Good	Good	40+	A2	11.4	-
G4	Lombardy poplar	On	22-23	6	None	940	3.0	5.0	M	None	Linear planting.	Good	Good	40+	A2	11.3	TPO EL 20/17 G1
G3	Hawthorn, holly; dogwood; elder; common ash; sycamore; crack willow	On	3-13	40	Yes	400	3.0	0.0	EM	None	Outgrown remnant hedgerow with natural regeneration.	Good	Good	40+	B2	4.8	-
G5	English oak; Lawson cypress	On	6-7	10	None	200	3.5	0.5	SM	None	Mainly young and semi-mature oaks and a short section of outgrown cypress hedge. One off-site oak may be pollarded mature oak but climbing plant obscures trunk. Oaks have squirrel damage. Snowberry growth obscures stems.	Good	Fair	20+	B2	2.4	-
G6	Hazel; holly; damson	On	4-7	10	Yes	200	3.5	0.0	EM	None	Dense scrubby group with bramble and wisteria.	Good	Good	20+	B2	2.4	-
G7	Hazel	On	4.5	2	Yes	200	3.5	0.0	EM	None	Shrubs have died back or been cut and now overrun with ivy. Could be recoppiced.	Fair	Fair	20+	C2	2.4	-
G8	Lombardy poplar; sycamore; hazel; English elm; holly	On	4-23	10	Yes	700	3.0	0.0	M	None	Eastern part of a longer boundary planting of Lombardy poplars. Shrubby growth below with one semi-mature sycamore.	Good	Good	40+	A2	8.4	TPO EL19/38 G20
G9	Holly; common yew; horse chestnut; English elm; common ash; orchard apple.	Off	4-8	10	Yes	150	2.0	0.0	SM	None	Scrubby boundary group with heavy ivy cover. Dieback in holly and elms. Early Ash Dieback symptoms.	Fair	Fair	20+	C2	1.8	-
G10	Orchard apple; plum; hybrid cockspur thorn.	Off	5-6	3	Yes	380	4.0	1.0	M	None	Southernmost tree is mature apple. Others are semi-mature.	Good	Good	40+	B2	4.5	-

HEDGEROWS

Ref	Species	On/off site	Avg. Height (m)	Avg. width (m)	Avg. Stem diam (mm)	Avg. low crown height (m)	Life Stage	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H1	Hawthorn; elder; English oak; common ash; English elm; Turkey oak; Lawson cypress	On	5.0	6.0	200	0.0	M	Predominantly mature hawthorn hedgerow with young natural regeneration. Ashes have Ash Dieback Class 2.	Good	Good	40	B2	2.4
H2	Lawson cypress; hawthorn; hazel	On	4.5	3.0	150	0.0	SM	Previously cut at 2m height.	Good	Good	20	B2	1.8



IMAGE 1: View along the existing access from Raleigh Drive, looking south.



IMAGE 2: View along the existing access from Raleigh Drive, looking north.



IMAGE 3: View of oak T17 and the location of the proposed no-dig access road, looking north-west.



IMAGE 4: View across the site from oak T17, looking north-west.



IMAGE 5: View of protected Lombardy poplar group G8, looking south-west.



IMAGE 6: View along protected Lombardy poplar group G8, looking west.



IMAGE 7: View across the site, looking north.



IMAGE 8: Detail of protected oaks T5 and T6, looking north.



IMAGE 9: View along the northern site boundary, looking west.



IMAGE 10: View along the eastern site boundary, looking south.



IMAGE 11: View of the south-eastern corner of the site, looking east towards protected poplars G4.



IMAGE 12: View of the south-eastern corner of the site, looking south-east.

- The tree survey was carried out with reference to the methodology set out in BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.
- Trees were surveyed individually or as groups where it was considered that they had grown together to form cohesive arboricultural features either aerodynamically (trees that provide companion shelter), visually (e.g. avenues or screens) or culturally (including for biodiversity). However, where it was considered that there was an arboricultural need to differentiate between attributes trees within groups and / or woodlands were also surveyed as individuals.
- The full tree survey findings are recorded in the following tree survey schedule.
- Within the tree survey schedule, each surveyed TREE (T), GROUP (G), HEDGEROW (H), WOODLAND (W) or SHRUB MASS on or adjacent to the site is given a reference number which refers to its position on the tree survey and constraints plan.
- TREE SPECIES are listed by common name.

The **DIMENSIONS** taken are:

- STEM-No. Indicates the number of main stems (i.e. whether the trunk divides at or below 1.5m; (Used in the calculation of RPA.) "m-s" = Multi-stemmed.
- STEM DIAMETER (measured in millimetres), obtained from the girth measured at approx. 1.5m. For trees with 2 to 5 sub-stems a notional figure is derived from the sum of their cross-sectional areas. For multi-stemmed trees, the notional diameter may be estimated on the basis of the average stem size x the number of stems. (A notional diameter may be estimated where measurement is not possible.)
- HEIGHT (measured in metres), recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- The CROWN SPREAD, taken at the four cardinal points to derive an accurate representation of the tree crown, recorded up to the nearest half metre for dimensions up to 10m and to up the nearest whole metre for dimensions over 10m.
- CROWN CLEARANCES are expressed both as existing height above ground level of first significant branch along with its direction of growth (e.g. 2.5m-N), and also in terms of the overall crown e.g. the average height of the crown above ground level. Measurements are recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- ESTIMATES. Where any measurement has had to be estimated, due to inaccessibility for example, this is indicated by a "#" suffix to the measurement as shown in the tree survey schedule.

LIFE STAGE is defined as follows:

- Y Young: Normally stake dependent, establishing trees. Should be growing fast, usually primarily increasing in height more than spread but as yet making limited impact upon the landscape.
- SM Semi-mature: Established young trees, normally of good vigour and still increasing in height but beginning to spread laterally. Beginning to make an impact upon the local landscape and environment. Semi-Mature (still capable of being transplanted without preparation, up to 30cm girth and not yet sexually mature).

- EM Early-mature: Not yet having reached 75% of expected mature size. Established young trees, normally of good vigour and still increasing in height but beginning to spread laterally. Beginning to make an impact upon the local landscape and environment.
- M Mature: Well-established trees, still growing with some vigour but tending to fill out and increase spread. Bark may be beginning to crack and fissure. In the middle half of their safe, useful life expectancies.
- LM Late-Mature: In full maturity but possibly beyond mature and in a state of natural decline). Still retaining some vigour but any growth is slowing.
- A Ancient: A tree that has passed beyond maturity and is old/aged compared with other trees of the same species. Typically having a very wide trunk and a small canopy.

PHYSIOLOGICAL CONDITION (HEALTH & VITALITY):

Essentially a snapshot of the general health of the tree based upon its general appearance, it's apparent vigour and the presence or absence of symptoms associated with poor health, physiological stress etc. (Fungal infections may be recorded here but decay giving rise to structural weakness would be recorded under 'Structural Condition' – see next parameter):

- Good: No significant health issues.
- Fair: Indications of slight stress or minor disease (e.g. the presence of minor dieback/deadwood or of epicormic shoot growth).
- Poor: Significant stress or disease noted; larger areas of dieback than above.
- Dead: (or Moribund).

STRUCTURAL CONDITION:

Defects affecting the structural stability of the tree including decay, significant dead wood, root-plate instability or significant damage to structural roots, weak forks (e.g. those where bark is included between the members) etc. Classified as:

- Good: No obvious structural defects: basically sound.
- Fair: Minor, potential or incipient defects.
- Poor: Significant defect(s) likely to lead to actual failure in the medium to long-term.
- Dead: (or Moribund).

ESTIMATED REMAINING CONTRIBUTION:

An estimate of the length of time in years that a tree might be expected to continue to make a useful contribution to the locality at an acceptable level of risk (based on an assumption of continued routine maintenance):

- Less than 10 years
- 10+ years
- 20+ years
- 40+ years

SPECIAL IMPORTANCE:

Trees that are particularly notable as high value trees such as ancient trees/woodland or veteran trees. Such trees may be regarded as the principal arboricultural features of a site and pose a significant constraint to potential development.

An *ancient* tree is one that has passed beyond maturity and is very old compared with other trees of the same species. Very few trees reach the ancient life-stage.

Veteran trees are often very old but not necessarily so; they may be regarded as ‘survivors’ that have developed some of the characteristic features of an ancient tree but have not necessarily lived as long. All ancient trees are veterans but not all veteran trees are ancient.

An ancient woodland is an area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland (ASNW), plantations on ancient woodland sites (PAWS) and ancient replanted woodland (ARW)

QUALITY CATEGORY:

Trees are classed as category U, A, B or C, based on criteria given in BS5837:2012; summary definitions as follows (see BS5837 for further details). Categories A, B and C are further characterised by the use of sub-categories, which attempt to identify what aspect of the tree is the main source of its perceived value, These are:

- (1) arboricultural qualities
- (2) landscape qualities, and
- (3) cultural, historic or ecological/conservation qualities.

Examples of these qualities for each of the three categories are given below, although these are indicative only.

Note: This is NOT a health and safety classification; the classification does not take into account any requirement for remedial tree care or ongoing maintenance apart from that which may affect the trees’ general suitability for retention.

CATEGORY A: HIGH QUALITY:

Trees or groups whose retention should be given a particularly high priority within the design process. Normally with an expected useful life expectancy of at least 40 years.

- A1: Notably fine specimens; rare or unusual specimens; essential component trees within groups, semi-formal or formal plantings (e.g. dominant trees within an avenue etc.).
- A2: Trees, groups or woodlands of particular visual importance as landscape features.
- A3: Trees, groups or woodlands of particular significance by virtue of their conservation, historical, commemorative or other value (e.g. veteran trees or wood pasture.)

CATEGORY B: MODERATE QUALITY:

Trees or groups of some importance with a likely useful life expectancy in excess of 20 years. Their retention would be desirable; selective removal of certain individuals may be acceptable but only after full consideration of all alternative courses of action.

- B1: Fair quality but not exceptional; good specimens showing some impairment (e.g. remediable defects, minor storm damage or poor past management.)
- B2: Acceptable trees situated such as to have little visual impact within the wider locality. Also numbers of trees, perhaps in groups or woodlands, whose value as landscape features is greater collectively than would warrant as individuals (such that the selective removal of an individual would not impact greatly upon the trees’ overall, collective value).
- B3: Trees, groups or woodlands with clearly identifiable conservation or other cultural benefits.

CATEGORY C: LOW QUALITY:

Trees or groups of rather low quality, although potentially capable of retention for at least approx. 10 years. Also small trees with stems below 15cm diameter.

Potentially retainable, but not of sufficient value to be regarded as a significant planning constraint.

- C1: Unremarkable trees of very limited merit or of significantly impaired condition.
- C2: Trees offering only low or short-term landscape benefits; also secondary specimens within groups or woodlands whose loss would not significantly diminish their landscape value.
- C3: Trees with extremely limited conservation or other cultural benefit.

CATEGORY U:

Trees likely to prove to be unsuitable for retention for longer than 10 years should any significant increase in site usage arise as a result of development.

E.g. dead or moribund trees; those at risk of collapse or in terminal decline; trees that will be left unstable by other essential works such as the removal of nearby category U trees; trees infected by pathogens that could materially affect other trees; low quality trees that are suppressing better specimens.

(Category U trees may have conservation values that it might be desirable to preserve. This category may also include trees that should be removed irrespective of any development proposals.)

ROOT PROTECTION AREA (RPA):

These are normally represented as a circle centred on the base of each tree stem with a radius of 12 times stem diameter, measured at 1.5m above ground level. The shape of the RPA may be altered where site conditions dictate that there are sound reasons to do so.

VETERAN OR ANCIENT TREE BUFFER (VTB/ATB)

In line with the Standing Advice produced by the Forestry Commission and Natural England this is a buffer zone (in metres) around an ancient or veteran tree that should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree’s canopy if that area is larger than 15 times the tree’s stem diameter.

ANCIENT WOODLAND BUFFER (FOR ASNW, PAWS OR ARW)

In line with the Standing Advice produced by the Forestry Commission and Natural England this is a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, a larger buffer zone may be required.

THE IMPORTANCE OF TREES

Wider benefits:

There is a growing body of evidence that trees bring a wide range of benefits to the places people live.

Some *Economic* benefits of trees include:

- Trees can increase property values
- As trees grow larger, the lift they give to property values grows proportionately
- They can improve the environmental performance of buildings by reducing heating and cooling costs, thereby cutting bills
- Mature landscapes with trees can be worth more as development sites
- Trees create a positive perception of a place for potential property buyers
- Urban trees improve the health of local populations, reducing healthcare costs

Some *Social* benefits of trees include:

- Trees help create a sense of place and local identity
- They benefit communities by increasing pride in the local area
- They can create focal points and landmarks
- They have a positive impact on people's physical and mental health
- They can have a positive impact on crime reduction

Some *Environmental* benefits of trees include:

- Urban trees reduce the 'urban heat island effect' of localised temperature extremes
- They provide shade, making streets and buildings cooler in summer
- They help remove dust and particulates from the air
- They help to reduce traffic noise by absorbing and deflecting sound
- They help to reduce wind speeds
- By providing food and shelter for wildlife they help increase biodiversity
- They can reduce the effects of flash flooding by slowing the rate at which rainfall reaches the ground
- They can help remediate contaminated soil

On new development sites:

Trees bring many benefits to new development. Where retained successfully they can form important and sustainable elements of green infrastructure, contribute to urban cooling and reduce energy demands in buildings. Their importance is acknowledged in relation to adaptation to the effects of climate change. Other benefits brought by trees include:

- increasing property values;
- visual amenity
- softening, complementing and adding maturity to built form
- displaying seasonal change
- increasing wildlife opportunities in built-up areas
- contributing to screening and shade
- reducing wind speed and turbulence

NATIONAL PLANNING POLICY

The National Planning Policy Framework 2021 (NPPF paragraph 180) states that, when determining planning applications, local planning authorities should apply the following principle:

c) 'development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.'

In this respect the following definitions apply:

'Ancient woodland: An area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites (PAWS)', and

'Ancient or veteran tree: A tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient, but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage.'

Note: Further information from the National Planning Policy Guidance Suite and Standing Advice is provided in the design guidance section.

Other paragraphs of the NPPF 2021 of relevance to this report are:

Paragraph 131: *'Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users.'*

Paragraph 174: *'Planning policies and decisions should contribute to and enhance the natural and local environment by:*

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland.'

STATUTORY CONTROLS

Statutory tree protection

Works to trees which are covered by Tree Preservation Orders (TPOs) or are within a Conservation Area (CA) require permission or consent from the Local Planning Authority. Where information is available on any Statutory designations such as this they are identified within the summary table in Section 1 and on the Tree Survey and Constraints Plan at Section 2.

Notwithstanding specific exceptions and in general terms, a TPO prevents the cutting down, uprooting, topping, lopping, wilful damage or wilful destruction of protected trees or woodlands without the prior written consent of the LPA.

Penalties for contravention of a TPO tend to reflect the extent of damage caused but can, in the event of a tree being destroyed, result in a fine of up to £20,000 if convicted in a Magistrates' Court, or an unlimited fine if the matter is determined by the Crown Court.

Similarly, and again notwithstanding specific exceptions, it is an offence to carry out any works to a tree in a Conservation Area with a trunk diameter greater than 75mm diameter at 1.5 height without having first provided the LPA with 6 weeks written notification of intent to carry out the works.

On many non-residential sites (excluding specific exemptions) there is also a statutory restriction relating to tree felling that relates to quantities of timber that can be removed within set time periods. In basic

terms, it is an offence to remove more than 5 cubic metres of timber in any one calendar quarter without having first obtained a felling licence from the Forestry Commission.

Any proposed tree works that are planned to be carried out on site must be carried out in accordance with the statutory controls outlined. Therefore, we recommend that a further check is made with the LPA before any tree works are carried out.

Statutory Wildlife Protection

Although preliminary visual checks from ground level of likely wildlife habitats are made at the time of surveying, detailed ecological assessments of wildlife habitats are not made by the arboriculturist and fall outside of the scope for this report.

Trees which contain holes, splits, cracks and cavities could potentially provide a habitat for protected species such as bats in addition to birds and small mammals. It is advised that in some instances specialist ecological advice may be required. This may result in tree works being carried out following a detailed climbing inspection to the tree to ensure that protected species or their nests/roosts are not disturbed. If any are found, the site manager, site owner or consulting arboriculturist should be informed and appropriate action taken as recommended by the appointed Ecologist or Natural England.

It is advised that tree/hedgerow works are carried out with the understanding that birds will generally nest in trees, hedges and shrubs between March and August. This time period only provides an indication of likely nesting times and as such diligence is required when undertaking tree works at all times.

Irrespective of the time of year and other than any actions approved under General Licence, it is an offence to intentionally kill, injure or take any wild bird or to intentionally take, damage or destroy the nest or eggs of any wild bird. Ideally, tree operations should be avoided during the likely bird nesting period. However, any tree works should always only be carried out following a preliminary visual check of the vegetation.

For information, the Wildlife and Countryside Act 1981 (as amended), The Countryside and Rights of Way Act 2000 (as amended) and the Conservation of Habitat and Species Regulations 2010, form the basis of the statutory legislation for flora and fauna in England and Wales. A different legislative framework applies in Scotland and Northern Ireland.

Any proposed tree works that are planned to be carried out on site must be carried out in accordance with any relevant statutory controls, outlined above.

DESIGN GUIDANCE

Approach

The approach adopts the guidelines set out in the British Standard BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations. The process is broken down to coordinate with the key elements within both the RIBA Plan of Work (2013) and British Standard 5837:2012 as set out in the table below:

Information Stage	RIBA Stage	BS5837:2012
Stage A – Tree Survey	2: Concept	4: Feasibility
Stage B – Arboricultural Impact Assessment	3: Developed design	5: Proposals
Stage C – Arboricultural Method Statement	4: Technical design	6: Technical Design
Stage D – Arboricultural Site Supervision	5: Construction	7: Demolition and construction

A hierarchical approach is adopted in order to achieve optimum use of the site and location of built structures. This is set out below:

Avoid

The starting point of Site layout design should be to avoid the RPA of retained trees and provide suitable clearance from above ground constraints [tree canopies]. Where possible building lines should be at least 2m outside the RPA to provide working space for construction. However, protection measures can be taken if such clearance is not achievable.

Mitigate

Where intrusion within the RPA is unavoidable then its impact on the tree can be mitigated by specialist measures:

Foundations that avoid trenching e.g. screw piles, suspended floor slabs or casting at ground level for lightweight structures such as bin and cycle stores.

Limited use may be made for parking, drives or hard surfaces within the root protection areas, subject to advice from a qualified arboriculturist. Cellular confinement systems that enable hard surfaces to be built above existing soil levels are acceptable methods subject to site-specific soil conditions.

Service runs that cannot be routed outside the RPA(s) can be installed by, for example, thrust boring, directional drilling, air excavation or hand digging. These operations often require supervision by the project arboriculturist.

Compensate

Replacement planting can ensure the continuity of tree cover where tree removal is unavoidable or desirable. Off-site provision may be considered in some circumstances but this will require negotiation with the local planning authority.

Considerations:

For proposed residential developments, consideration must be given to numerous factors future tree growth and orientation.

Tree constraints

Root Protection Areas:

With reference to BS5837:2012, a root protection area (RPA) is defined as “a 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 should be treated as a priority”. **“The default position [when considering design layout in relation to RPAs] should be that structures are located outside the RPAs of trees to be retained”.**

BS5837:2012 states (4.6.2) that, “where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced.” The BS goes on to state that, “modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution,” and that any deviation from the original circular plot should take into account:

- Morphology and disposition of roots;
- topography and drainage;
- soil type and structure;
- the likely tolerance of the tree to root damage/disturbance.

Additional buffer zones beyond the RPA:

The following text is taken from the Standing Advice produced by the Forestry Commission and Natural England as included in the National Planning Policy Guidance:

‘A buffer zone’s purpose is to protect ancient woodland and individual ancient or veteran trees. The size and type of buffer zone should vary depending on the scale, type and impact of the development’.

Ancient woodland buffer:

‘For ancient woodlands, you should have a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, you’re likely to need a larger buffer zone. For example, the effect of air pollution from development that results in a significant increase in traffic’.

Ancient and veteran tree buffer:

‘A buffer zone around an ancient or veteran tree should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree’s canopy if that area is larger than 15 times the tree’s diameter’.

Above ground:

Above ground constraints posed by trees describe the capacity for trees to have an overbearing or dominating effect on new developments; usually post occupancy. Typical above ground constraints include a number or combination of inconveniences including shading, branch spread, movement of trees during strong winds and so on. If not adequately considered, above ground constraints can lead to repeated requests to fell or heavily prune retained and protected trees.

Shade:

Adverse shading and blocked views from windows raise concerns for incoming residents, which may lead to pressure to fell or remove trees in the future. Wherever possible it is advisable to arrange fenestration away from tree canopies to lessen the conflict, or increase window size to accommodate ambient light.

Conversely, appropriate designed development can use existing or new trees to create necessary and welcome shade and screening.

As part of the adopted approach the above considerations and constraints are assessed cumulatively in order to provide clear and site-specific advice on the areas of a site most suitable for the location of development.

Dependent on the site and nature of the proposed development, the Tree Survey and Constraints Plans may show the following:

Recommended Developable area - an advisory area defined in order to minimise arboricultural impacts using standard approaches to construction. Restricting proposed development to this area will limit the risk of harm to retained trees and of the Local Planning Authority objecting to the proposed development. It may be possible to propose development outside of this area but specific ‘low impact’ construction techniques may be needed recommended.

Recommended Buffer to development - similar to the Recommend Developable Area but defined as a line marking a suitable buffer to retained trees. More commonly used on large sites or sites where the presence of trees is localised.

Tree Opportunities

Depending on the scale of developments existing trees can often provide opportunities to enhance the existing arboricultural resource of a site by bringing it into good management or by putting in place remedial measures e.g. soil amelioration.

Appropriately designed new tree planting is extremely important in maintaining healthy and sustainable tree populations. For the reasons highlighted, new trees can bring many benefits to new developments. It is critical to the establishment of new tree planting that the locations, species and specification of new trees is appropriate. Subsequently the sourcing of high-quality stock, suitable planting and the provision of post planting maintenance are essential to allow new trees to establish and to allow them to mature.

HOW TREE DAMAGE CAN OCCUR

Above the ground

Damage can occur as a result of knocks and scuffs, breakages of branches and/or tree trunks. This is often but not always associated with machine operations, groundworks excavations, tele handlers, high sided vehicles and crane use. Other forms of above ground damage include fixings to trunk and unauthorised cutting back of branches. Wounds will harm a tree's health and shorten its life by letting in disease-causing organisms.

Below the ground

It is often not appreciated that the majority of most tree roots are generally located within the top 600mm of the ground. On this basis it needs to be understood that damage to roots can occur in three ways:

- Root severance can occur as a result of, for example, soil stripping during site clearance or excavations.
- Root dieback and death can result from compaction of the soil. Compaction can occur as a result of vehicle weight, weight of stored materials or increased pedestrian access. Compaction crushes out soil pore space and prevents tree respiration from occurring (respiration requires gas exchange between the ground and the atmosphere). Compacted soil is denser and therefore inhibits/prevents any further new root growth.
- Pollution of the soil with chemicals such as oil or cement washings can destroy the soil environment, making it inhospitable for the tree cause causing it stress.

The effects of these impacts can be disfiguring to a tree's appearance and also weaken a tree making it more liable to attack by pest and diseases. In addition, root damage or death results in corresponding decline above the ground with dieback occurring within the tree crown.

The effects of damage to trees generally take some time to become fully apparent. In many cases, damaged trees decline slowly after the completion of a new development, until they eventually need to be removed due to ill health.

Tree protection barriers and load distributing 'no-dig' paths are specified in order to prevent soil compaction from taking place.

GENERAL SITE RULES FOR TREE PROTECTION

Do not independently carry out any activity that is at odds with the site scheme of tree protection. This is contained within an approved Arboricultural Method Statement (AMS) and accompanying Tree Protection Plan.

In simple terms: do not carry out any work within any Construction Exclusion Zone (CEZ) without prior liaison with the Project Arboriculturist and written authorisation from the Local Planning Authority.

Within the CEZ:

- No mixing of cement
- No soil/turf stripping, raising/lowering of ground levels (unless advised), deposit or excavation of soil or rubble
- No excavations for services or installation of services
- No storage of materials, machinery fuel, chemicals or other materials of any other description
- No parking/use of tracked or wheeled machinery
- No siting of temporary structures including hard standing areas, portaloos, site huts
- No lighting of fires or disposal of liquids
- Fires on site should be avoided if possible. Where they are unavoidable, they must not be lit in a position where heat could damage foliage or branches. Fires must be a minimum of 20m from the trunk of any retained tree or the centre line of any hedgerow to be retained
- No signs, cables, fixtures or fittings of any other description shall be attached to any part of a retained tree

Elmbridge Borough Council
Tree Preservation Order EL:19/38
(2019)

The Elmbridge Borough Council, in exercise of the powers conferred on them by section 198 of the Town and Country Planning Act 1990 make the following Order on Land at Claygate House, Littleworth Road, Esher, Surrey, KT10 9PN

Citation

1. This Order may be cited as Tree Preservation Order EL:19/38

Interpretation

2. (1) In this Order "the authority" means the Elmbridge Borough Council.
(2) In this Order any reference to a numbered section is a reference to the section so numbered in the Town and Country Planning Act 1990 and any reference to a numbered regulation is a reference to the regulation so numbered in the Town and Country Planning (Tree Preservation)(England) Regulations 2012.

Effect

3. (1) Subject to article 4, this Order takes effect provisionally on the date on which it is made.
(2) Without prejudice to subsection (7) of section 198 (power to make tree preservation orders) or subsection (1) of section 200 (tree preservation orders: Forestry Commissioners) and, subject to the exceptions in regulation 14, no person shall—
(a) cut down, top, lop, uproot, wilfully damage, or wilfully destroy; or
(b) cause or permit the cutting down, topping, lopping, uprooting, wilful damage or wilful destruction of, any tree specified in the Schedule to this Order except with the written consent of the authority in accordance with regulations 16 and 17, or of the Secretary of State in accordance with regulation 23, and, where such consent is given subject to conditions, in accordance with those conditions.

Application to trees to be planted pursuant to a condition

4. In relation to any tree identified in the first column of the Schedule by the letter "C", being a tree to be planted pursuant to a condition imposed under paragraph (a) of section 197 (planning permission to include appropriate provision for preservation and planting of trees), this Order takes effect as from the time when the tree is planted.

Dated 11/09/2019

Signed on behalf of the Elmbridge Borough Council



.....
Strategic Director

Authorised by the Council to sign in that behalf

CONFIRMATION OF ORDER

This Order was confirmed by Elmbridge Borough Council without modification on the _____ OR, This Order was confirmed by the Elmbridge Borough Council subject to the modifications shown in red thereon, on the _____.

Signed on behalf of the Elmbridge Borough Council

.....
Strategic Director
Authorised by the Council to sign in that behalf

DECISION NOT TO CONFIRM ORDER

A decision not to confirm this Order was taken by the Elmbridge Borough Council on the _____.

Signed on behalf of the Elmbridge Borough Council

.....
Strategic Director
Authorised by the Council to sign in that behalf

VARIATION OF ORDER

This Order was varied by the Elmbridge Borough Council on the _____ by a variation order under reference number _____ a copy of which is attached.

Signed on behalf of the Elmbridge Borough Council

.....
Strategic Director
Authorised by the Council to sign in that behalf

REVOCATION OF ORDER

This Order was revoked by the Elmbridge Borough Council on the _____.

Signed on behalf of the Elmbridge Borough Council

.....
Strategic Director
Authorised by the Council to sign in that behalf

SCHEDULE

Specification of trees

Trees specified individually (encircled in black on the map)

<i>Reference on map</i>	<i>Description</i>	<i>Situation</i>
T1	Chestnut	Land at Claygate House, Littleworth Road, Esher, Surrey, KT10 9PN (see TPO map TP3693 for greater detail. Trees marked with 'x' on the map are excluded from the Order.)
T2	Chestnut	
T3	Pine	
T5	Giant Sequoia	
T6	Oak	
T7	Oak	
T8	Oak	
T9	Oak	
T10	Oak	
T11	Oak	
T12	Birch	
T13	Birch	
T14	Oak	
T15	Pine	
T16	Birch	
T17	Birch	
T18	Cedar	
T19	Cedar	

Trees specified by reference to an area (within a dotted black line on the map)

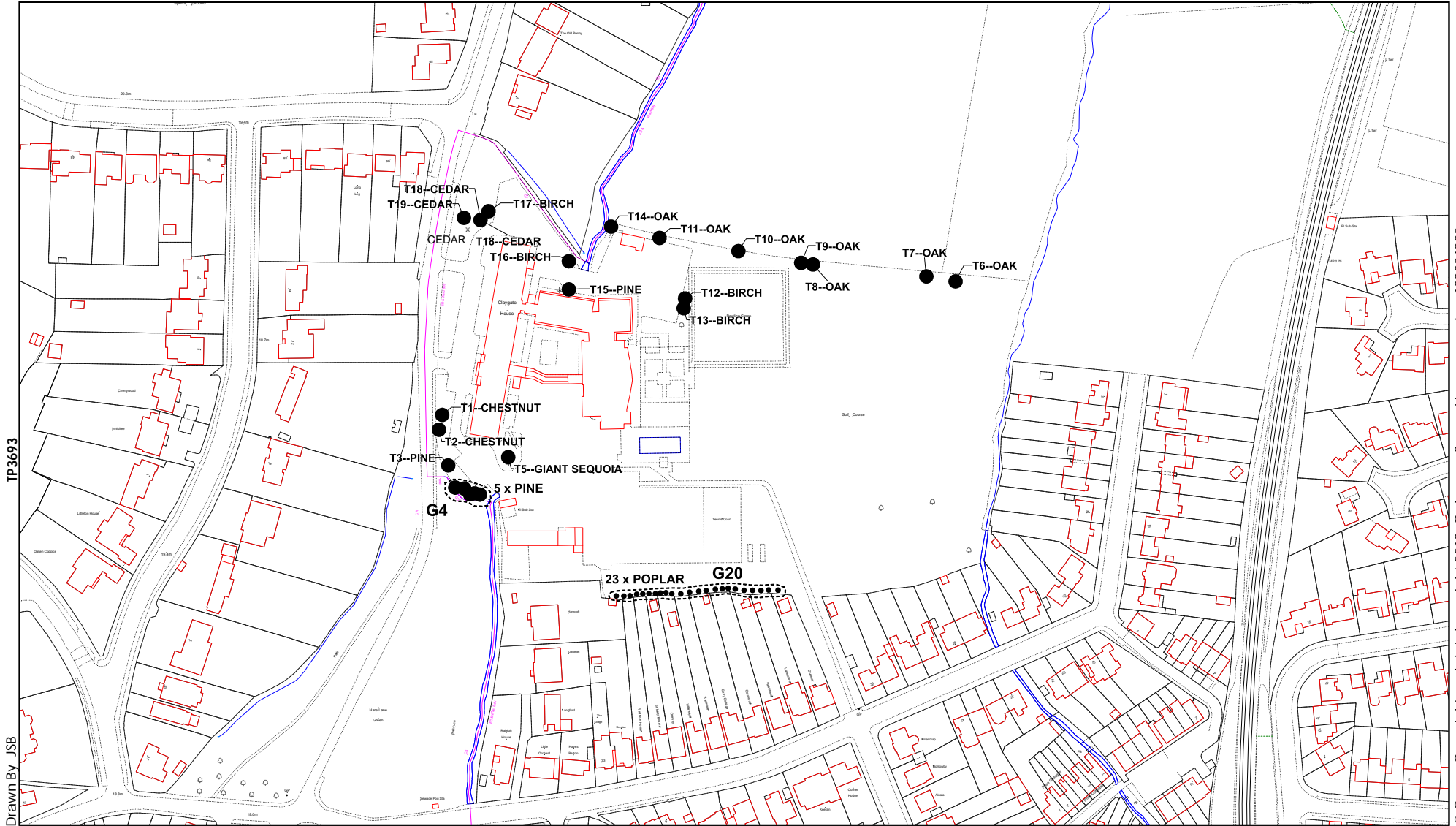
<i>Reference on map</i>	<i>Description</i>	<i>Situation</i>
None		

Groups of trees (within a broken black line on the map)

<i>Reference on map</i>	<i>Description</i>	<i>Situation</i>
G4	Pine x5	
G20	Poplar x23	

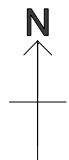
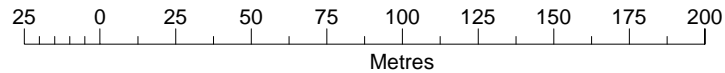
Woodlands (within a continuous black line on the map)

<i>Reference on map</i>	<i>Description</i>	<i>Situation</i>
None		



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Map Referred to in and Forming Part of
Tree Preservation Order EL:19/38
Land at Claygate House, Littleworth Road, Esher, Surrey KT10 9PN



R. Lee
Strategic Director

Head of Planning Services



Civic Centre, High Street, Esher, Surrey, KT10 9SD

Elmbridge Borough Council
Tree Preservation Order EL:20/17
(2020)

The Elmbridge Borough Council, in exercise of the powers conferred on them by section 198 of the Town and Country Planning Act 1990 make the following Order on Land at Claygate House, Littleworth Road, Esher, Surrey, KT10 9PN

Citation

1. This Order may be cited as Tree Preservation Order EL:20/17

Interpretation

2. (1) In this Order “the authority” means the Elmbridge Borough Council.
(2) In this Order any reference to a numbered section is a reference to the section so numbered in the Town and Country Planning Act 1990 and any reference to a numbered regulation is a reference to the regulation so numbered in the Town and Country Planning (Tree Preservation)(England) Regulations 2012.

Effect

3. (1) Subject to article 4, this Order takes effect provisionally on the date on which it is made.
(2) Without prejudice to subsection (7) of section 198 (power to make tree preservation orders) or subsection (1) of section 200 (tree preservation orders: Forestry Commissioners) and, subject to the exceptions in regulation 14, no person shall—
 - (a) cut down, top, lop, uproot, wilfully damage, or wilfully destroy; or
 - (b) cause or permit the cutting down, topping, lopping, uprooting, wilful damage or wilful destruction of, any tree specified in the Schedule to this Order except with the written consent of the authority in accordance with regulations 16 and 17, or of the Secretary of State in accordance with regulation 23, and, where such consent is given subject to conditions, in accordance with those conditions.

Application to trees to be planted pursuant to a condition

4. In relation to any tree identified in the first column of the Schedule by the letter “C”, being a tree to be planted pursuant to a condition imposed under paragraph (a) of section 197 (planning permission to include appropriate provision for preservation and planting of trees), this Order takes effect as from the time when the tree is planted.

Dated 08/04/2020

Signed on behalf of the Elmbridge Borough Council



.....
Strategic Director

Authorised by the Council to sign in that behalf

CONFIRMATION OF ORDER

This Order was confirmed by Elmbridge Borough Council without modification on the 08/09/2020.

Signed on behalf of the Elmbridge Borough Council



.....
Strategic Director
Authorised by the Council to sign in that behalf

DECISION NOT TO CONFIRM ORDER

A decision not to confirm this Order was taken by the Elmbridge Borough Council on the _____ .

Signed on behalf of the Elmbridge Borough Council

.....
Strategic Director
Authorised by the Council to sign in that behalf

VARIATION OF ORDER

This Order was varied by the Elmbridge Borough Council on the _____ by a variation order under reference number _____ a copy of which is attached.

Signed on behalf of the Elmbridge Borough Council

.....
Strategic Director
Authorised by the Council to sign in that behalf

REVOCATION OF ORDER

This Order was revoked by the Elmbridge Borough Council on the _____ .

Signed on behalf of the Elmbridge Borough Council

.....
Strategic Director
Authorised by the Council to sign in that behalf

SCHEDULE

Specification of trees

Trees specified individually (encircled in black on the map)

<i>Reference on map</i>	<i>Description</i>	<i>Situation</i>

Trees specified by reference to an area (within a dotted black line on the map)

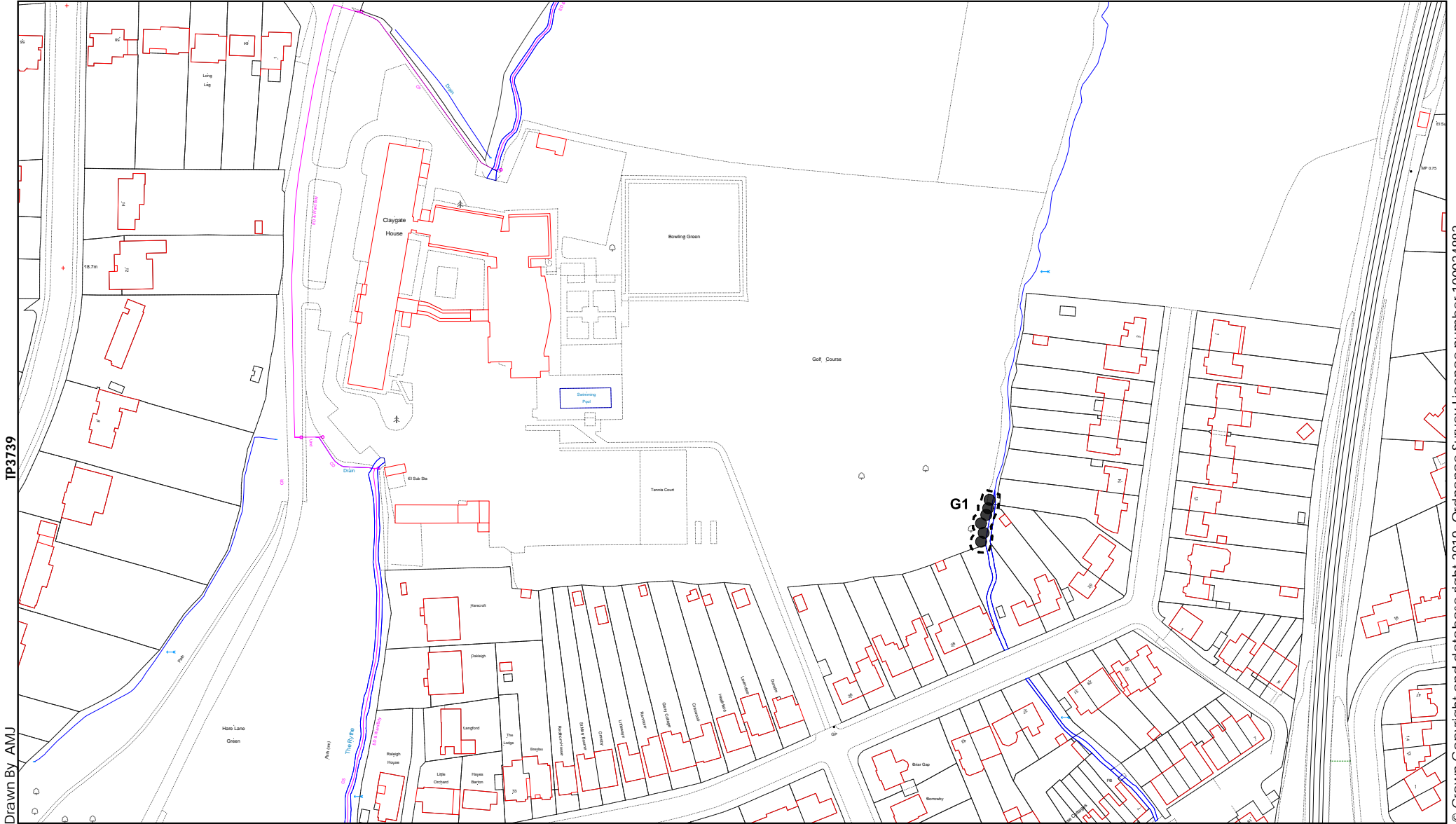
<i>Reference on map</i>	<i>Description</i>	<i>Situation</i>
None		

Groups of trees (within a broken black line on the map)

<i>Reference on map</i>	<i>Description</i>	<i>Situation</i>
G1	POPLAR x6	Land at Claygate House, Littleworth Road, Esher, Surrey, KT10 9PN (see TPO map TP3670 for greater detail. Trees marked with 'x' on the map are excluded from the Order.)

Woodlands (within a continuous black line on the map)

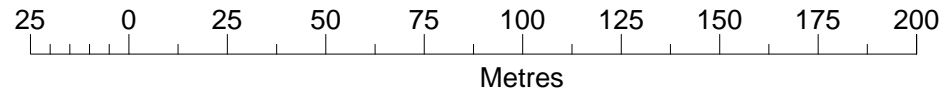
<i>Reference on map</i>	<i>Description</i>	<i>Situation</i>
None		



IP3739

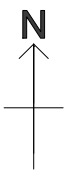
Drawn By: AMJ

Map Referred to in and Forming Part of
Tree Preservation Order EL:20/17
Land at Claygate House, Littleworth Road, Esher, KT10 9PN



R. Lee
Strategic Director

Head of Planning Services



Civic Centre, High Street, Esher, Surrey, KT10 9SD