



Arboricultural Survey and Planning Integration Report

at

**Closeheath Farm,
Randle's Lane,
Knockholt,
Kent.
TN14 7NJ**

11th March, 2021



C O N T E N T S

Section	Subject	Page
	Instructions	1
	Summary	1
	Documents Supplied	2
1	Scope of Survey	2
2	Survey Method	2
3	Ecology Informative	3
4	The Site	3
5	Subject Trees	4
6	The Proposal	4
7	Arboricultural Landscape Integration	4
8	Post Development Pressure	5
9	Tree Protection Measures	5
10	Conclusions	6
11	Recommendations	7
	Appendix A Schedule of Subject Trees	
	Appendix B Site Plan – Existing Layout	
	Appendix C Site Plan – Proposed Layout	
	Appendix D BS5837 Extract – Tree Protection Fencing	
	Appendix E BS5837 Extract – Ground Protection	

The statements made in this Report do not take account of the effects of extremes of climate, vandalism or accident, whether physical, chemical or fire. Quaife Woodlands cannot therefore accept any liability in connection with these factors, nor where prescribed work is not carried out in a correct and professional manner in accordance with current good practice. The authority of this Report ceases at any stated time limit within it, or if none stated after two years from the date of the survey or when any site conditions change, or pruning or other works unspecified in the Report are carried out to, or affecting, the Subject Trees, whichever is the sooner.



Quaife Woodlands

2 Squerries Farm Cottages, Westerham, Kent. TN16 1SL
Telephone: 01959 563878 Facsimile: 01959 564854
E-mail: jq@quaife-woodlands.co.uk

ARBORICULTURAL REPORT

LOCATION	Closeheath Farm, Randle's Lane, Knockholt, Kent. TN14 7NJ	REF: AR/4023/jq
CLIENT	Residential Creations Ltd, Rushmore Hill, Knockholt, Sevenoaks, Kent. TN14 7NJ	DATE OF REPORT 11 th March, 2021
REPORT PREPARED BY	J. Quaife, AA Registered Consultant Dip.Arb.(RFS), F.Arbor.A, CEnv.	DATE(S) OF INSPECTION 18 th January, 2021
SURVEY INSPECTOR(S)	J. Quaife, AA Registered Consultant Dip.Arb.(RFS), F.Arbor.A, CEnv.	SHEET No. 1 of 9

LOCAL AUTHORITY	Sevenoaks District Council
CONTACT	Arboricultural Officer - Les Jones 01732 227289 Les.Jones@sevenoaks.gov.uk

Please note that abbreviations introduced in [square brackets] are used throughout the report.

INSTRUCTIONS

Issued by – Mr K. Love on behalf of Residential Creations Ltd, address as above.

TERMS OF REFERENCE – To survey the subject trees to assess their general condition and to provide a planning integration statement for the proposed development that safeguards the long term well being of the retained trees in a sustainable manner.

The content and format of this Report as written are for the exclusive use of the Client. It may not be sold, lent, hired out or divulged to any third party not directly involved in the subject matter without our written consent.

Summary

The proposal is to demolish the existing buildings and to build two new houses with detached garages, and an office with dedicated car parking. The existing drive entrance is to remain but with modified gates.

The significant trees and woodlands are protected with a Tree Preservation Order, and none of them are to be removed. The few trees to be removed are all minor specimens along with a small area of non-descript trees, and new trees and hedges are to be planted. The site is almost completely screened from the roads and the public footpath will have hedges planted along each side through the Planning Unit.

The protection of the retained trees can be effected in accordance with current standards and guidance, and there are no matters of post development pressure upon trees that could not be managed with routine maintenance. The proposal is sustainable in arboricultural terms.

Documents Supplied

- Topographical Survey Plan - no reference
- Crofton Design Proposed Site Layout Plan ref: 3402-19-PL202-P5, dated 22nd February, 2021
- The Ecology Partnership - Land at Randle's Lane, Knockholt, dated February, 2021

Scope of Survey

- 1.1 The survey is concerned with the arboricultural aspects of the site only.
- 1.2 With reference to the Sevenoaks District Council on-line tree protection viewer there is a Tree Preservation Order (No.22 1979) on the subject site comprising individual trees and two areas of woodland.
- 1.3 No discussions took place between the surveyor and any other party.
- 1.4 The trees were inspected on the basis of the Visual Tree Assessment method expounded by Mattheck and Breloer (The body language of trees, DoE booklet Research for Amenity Trees No. 4, 1994).
- 1.5 The survey was undertaken in accordance with British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations [BS5837] with modification.
- 1.6 This report sets out the Root Protection Area [RPA], described by the RPA radius [RPR] derived from Section 4.6 of BS5837.
- 1.7 Pruning works will be required to be in accordance with British Standard 3998:2010 Tree work - Recommendations [BS3998].
- 1.8 This report does not cover the specific arrangements that may be required in connection with the installation of underground services.
- 1.9 This report sets out the working specifications of tree protection measures, but the specifications of engineering and design features are matters for which we can only provide enough detail in principle to demonstrate the feasibility of the scheme.

Survey Method

- 2.1 The survey was conducted from ground level with the aid of binoculars.
- 2.2 No tissue samples were taken nor was any internal investigation of the subject trees undertaken.
- 2.3 No soil samples were taken.
- 2.4 The stem diameters [SD] were measured or estimated in centimetres at 1.5 metres above ground level and otherwise in accordance with Annex C of BS5837.

- 2.5 The height of each subject tree was estimated with a clinometer.
- 2.6 The crown diameters were estimated by pacing or visually where access was restricted.
- 2.7 The positions of the subject trees are plotted at Appendix B derived from the supplied plan. Please note that the attached plan is for indicative purposes only.

Ecology Informative

- 3.1 Please be aware that ecology is governed principally by;
 - the Wildlife and Countryside Act 1981 (as amended by the CRoW Act 2000),
 - the Conservation of Habitats and Species Regulations 2010,
 - the Wild Mammals (Protection) Act 1996, and
 - the Natural Environment and Rural Communities (NERC) Act 2006.
- 3.2 The proposal is supported by The Ecology Partnership report to which I defer, but with comments with regard to the ancient woodland.

The Site

- 4.1 The northern part of the site (the subject site) is the planning unit and has two broadly rectangular areas staggered to each other. The site entrance is from Randle's Lane and there is a public footpath running from the western side of the entrance southward through the middle of the site (between the rectangular areas). The subject site contains equestrian buildings, an office, and other structures in connection with construction material storage.
- 4.2 The land is level and the site has peripheral protected woodland on the western and eastern sides and the western part of the northern boundary. The north-eastern corner has younger trees and is excluded from the TPO.
- 4.3 With reference to the British Geological Survey Geology of Britain Viewer the indicated soil parent material is the Lewes Nodular Chalk Formation and the soil is chalk-with-flints. This is a shrinkable soil and therefore is susceptible to compaction which is harmful to tree roots.
- 4.4 I am not an expert on soils and although I have some working knowledge of them, if accurate soil analysis is required then a soil specialist should be contacted.

Subject Trees

- 5.1 There are 11 individual subject trees as listed and graded¹ *next page* in accordance with BS5837 in the schedule at Appendix A of which five have individual TPOs, and two areas of protected woodland as shown at Appendix B.
- 5.2 The few trees within the subject site are small and of no material merit. I have identified a few trees within the woodlands but have only annotated the main species.

- 5.3 Overall the trees are in reasonable condition and none of them presents any significant risk, although purely in terms of safety some would benefit from some remedial tree surgery to remove dead wood or minor defects as a matter of routine maintenance not directly associated with the proposal.
- 5.4 The woodland in the northern part of TPO W2 is predominantly of sweet chestnut stored coppice and although stable at present, in the longer term such coppice has a propensity for stems to fall out. However this is not a material consideration at this time.
- 5.5 The woodland along the western side and part of the northern side is within TPO W1 and is also designated as ancient woodland which can be assumed to match the TPO boundary as the boundary on Magic plan is not precise (plan extract right).
- 5.6 The north-eastern corner is of younger trees including Norway maple and sycamore and is obviously more recent growth.
- 5.7 Although they are not within the subject site, I have included the five TPO oaks to the south as they are defining features of the landscape.



The Proposal

- 6.1 The proposal is to demolish the existing buildings and to build two new houses with detached garages, and an office with dedicated car parking. The existing drive entrance is to remain but with modified gates.
- 6.2 The public footpath is to have a hedge planted each side along its length through the subject site.

Arboricultural Landscape Integration

- 7.1 There are no trees of sufficient merit to constrain the subject site, and so they are all to be removed apart from four small trees just inside the site entrance. In addition there is an ash (TA at Appendices B and C) leaning out of the woodland on the western side which is to be removed.
- 7.2 All other trees are to be retained.

¹ BS5837 Tree Category Classes

U – Existing condition is such that any existing value would be lost within 10 years and should therefore be removed for reasons of sound arboricultural management.

A – High quality and value (40+ yrs).

- 1) Mainly arboricultural values 2) Mainly landscape values 3) Mainly Cultural values including conservation.

B - Of moderate quality and value (20+ years).

- 1) Mainly arboricultural values 2) Mainly landscape values 3) Mainly Cultural values including conservation.

C – Those of low quality and value (10+ years).

Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a SD of less than 15cm could be considered for relocation.

- 7.3 New trees are to be planted between the office car park and the drive and garage of House 2, and those trees worthy of retention east of the proposed office and car park will be retained. The species choice will be indigenous and although no decision has been made at this time I would encourage the inclusion of field maple, wild service tree and native wild apple.
- 7.4 Some minor pruning will be necessary to ease the overhang of branches toward the eastern elevation of House 2, but otherwise the retained trees can remain as they are.
- 7.5 The ancient woodland adjacent to the subject site abuts buildings and land that has been used for storage of various equipment and building materials. In addition there is a long-established manure heap from the stables north of the leaning ash TA (Appendix B).
- 7.6 Where there is open grass it is described in the Ecology Partnership report at paragraph 3.14 as 'species-poor semi-improved grassland'.
- 7.7 From paragraph 4.7 to 4.10 of The Ecology Partnership report discusses the ancient woodland status. At 4.7 it mentions the 15-metre buffer zone from the edge of the woodland. I am in an unusual position in that I was party to the discussion that gave rise to this zone on day 38 of the Bolnore Village Public Inquiry. I was representing third party objectors and there were only the single witnesses for the LPA and the appellant in the discussion. Whereas the buffer zone was established it had little direct relationship to ecology. The first part of the discussion was in respect of root protection and there was a sudden edge to the woodland in question with large mature with remnants of wire fencing nailed to them, with old pasture beyond. After discussion given that the appellant's representative actually had no idea about tree root morphology, we settled upon the BS5837 maximum RPA radius of 15 metres. When it came to ecology nobody had any idea as to how to assess it so the inspector settled upon 15 metres as a minimum. This was in regard to the site-specific circumstances of the Appeal, but it has now been adopted for every situation.
- 7.8 Please do not misunderstand me, I have no wish to compromise ancient woodland, but it does deserve to be considered in site-specific terms.
- 7.9 The current edge I have shown, which represents the edge of stems and not the crown overhang, has been encroached upon as I describe in paragraph 7.5 above.
- 7.10 Realistically the restoration of the land will be to the distinct advantage of the adjacent trees. The land will be within a domestic curtilage but that will be no worse than the current situation, (which does not appear to have adversely affected the trees in any event).
- 7.11 The element that is absent is a graded edge profile to the woodland, and the Ecology Partnership report suggests at paragraph 4.11 that one could be created with a width of 5 metres. I see no reason why this should not be a sufficient buffer as it will be pro-active to accelerate the growth with chosen species.

7.12 At paragraph 4.8 of the Ecology Partnership report repeats the list of criteria which Natural England have identified as having possible effects upon ancient woodland.

Effects from development of adjacent land:

- a) *Fragmentation and loss of ecological connections with surrounding woodland/ veteran trees and the wider natural landscape;*
- b) *Effects on the root protection area of individual trees;*
- c) *Reduction in the area of other semi-natural habitats adjoining ancient woodland;*
- d) *Increased exposure to pollutants from the surrounding area;*
- e) *Increased deposition of dust, particularly from quarries, resulting in physical and/or chemical effects;*
- f) *Impacts on local hydrology through drainage or water table levels changing;*
- g) *Increased public use near veteran trees such that safety works leading to possible damage to the tree may be needed;*
- h) *Change to the landscape context for ancient woods and veteran trees;*
- i) *Change to light pollution at night (if development includes street lighting);*
- j) *Fly tipping, garden encroachment and increased predation from cats.*

I shall take each in turn:

- a) There will be no disconnection in the terms described
- b) The root protection areas will not be harmed
- c) There will be no such reductions
- d) There will be no increase in pollutants, in fact there will a reduction from the removal of rubbish and manure
- e) There will be no such deposition, should there be any, such materials will be removed
- f) There will be no alteration to the local site hydrology
- g) There will be no public access to the woodland edge, for which there is no current restriction
- h) There will be no appreciable context alteration
- i) Lighting advice relating to bats is given in the Ecology Partnership report
- j) There will be no access for fly tipping.

Every point is negative in terms of adverse impact of the proposal upon the woodland.

Post Development Pressure

- 8.1 The concept of post development pressure is not that routine maintenance work to maintain clearances and the proportionality of trees is unacceptable. The term should more accurately be one of irresistible post development pressure where the spatial or physical relationship of a retained tree to a structure or feature demands pruning or removal that is inappropriate, but to which the local planning authority could not reasonably refuse consent.
- 8.2 The spatial relationship of the retained trees to the proposed houses and office will not cause maintenance problems due to the generous spatial qualities of the site, and both the proposed houses will have an open aspect to the south.
- 8.3 Accordingly there will be no appreciable post development pressure, and certainly none that would oblige the Council to give consent to inappropriate tree works.

Tree Protection Measures

- 9.1 The BS5837 gives a Root Protection Area [RPA] for each retained tree by reference to Section 4.6 in the BS. The RPA is an estimation of the area of the root system that would need to be retained to sustain the condition of the tree if all the other roots outside it were to be severed. The RPA represents a smaller proportion, (on average only a third), of a tree's root system and consequently whilst the RPA is particularly important to ensure that there are no adverse effects upon stability, if an encroachment does not reduce the overall assimilative function of the root system significantly it is unlikely to cause harm. However, as with any factor relating to trees each individual situation must be justified in site-specific terms.
- 9.2 The RPA is usually described as a circle with a radius (Root Protection Area Radius [RPR]) of the prescribed distance within which no unspecified activity should occur, though the shape and position of the RPA can be modified by an arboriculturist to meet individual site conditions according to the probable distribution of the tree roots. Intrusion into the RPA can take place only where the ground is adequately protected in accordance with the requirements of Section 6.2.3 of BS5837 or where work is carried out to an agreed design and working method.
- 9.3 Unusually I have not depicted RPAs at Appendix C as I do not consider that any of the construction and new surfacing will affect any tree adversely, nor will the demolition of existing structures. The mottled green shading represents the woodland canopy and the stems are further back.
- 9.4 The eastern elevation of House 2 is close to the woodland edge as is its garage, and so the ground between the buildings and the trees will be protected in accordance with the method at Appendix E.
- 9.5 The northern edge of the drive to House 1 is at the edge of the woodland, but the existing storage of materials in this area is to be removed and I very much doubt that any significant harm would be caused to tree roots
- 9.6 **Tree Protection Fencing** The combined zones of RPAs form the Construction Exclusion Zone [CEZ] which I have hatched in blue at Appendix C, and encompasses the zones of root protection. This will be protected by a Tree Protection Fence [TPF] comprising steel mesh panels of 1.8 metres in height ('Heras'). These panels will be mounted on blocks and braced as shown at Figure 3 of BS5837 (Appendix D).
- 9.7 **Ground Protection** Ground protection is only necessary for scaffolding where the eastern elevation of House 2 and its garage face the woodland edge.
- 9.8 **General Matters** The surface water run-off and soil drainage have not been studied. However, due to the site topography and soil type, I do not foresee any detrimental effects on the trees in hydrological terms as a result of this development.
- 9.9 I understand that the existing underground services into the site can be utilised and internally they will not be routed anywhere near to trees, but in the unlikely event that any new routes need to be installed near trees the working method can be controlled by a planning condition.

- 9.10 Any hard landscaping operations would be part of the construction works and will be planned and carried out within the construction phase tree protection measures.
- 9.11 The protection of the trees will also include recognition of other types of potentially damaging activities, such as the storage of materials (and other substances likely to be toxic to plants), parking, site-building requirements, and the use and parking of plant. Although this is only likely to apply to the construction of House 1, particular care and planning is necessary to accommodate the operational arcs of excavation and lifting machinery, including their loads, especially large building components such as beams and roof trusses. Operations like these have the potential to cause incidental damage and logistical planning is essential to avoid conflicts.
- 9.12 One of the main tree protection considerations is the logistical management of the site, but there is sufficient space outside the CEZ.

Conclusions

- 10.1 The few trees to be removed are minor specimens and their loss will have no material landscape impact. There will be some new tree and hedge planting, along with a 5-metre wide ecology buffer along the edge of the ancient woodland within the subject site, and as a consequence the arboreal landscape character of the property will be conserved in accordance with one of the fundamental design principles, including satisfactory conservation of the protected woodland and ancient woodland.
- 10.2 Such pruning requirements as may be necessary will be minor and will not cause any of the trees physiological harm, and will not adversely affect the landscape setting of the site.
- 10.3 The retained trees do not cause any significant conflicts in terms of construction activities, nor will any significant issues of post development pressure be likely to emerge that could not be managed with routine maintenance.
- 10.4 The retained trees will all be protected in accordance with current standards and guidance, particularly with logistical planning.
- 10.5 For trees to be sustainable within a development proposal they must be compatible with their surroundings, not just in terms of long-term spatial relationship but also in respect of minimising any potential conflicts to matters of routine maintenance. This proposal achieves this objective.
- 10.6 I have taken account of the information given to me and my own observations on site and I am satisfied that this scheme is arboriculturally sound and that the long-term well-being of the retained trees will be safeguarded in a sustainable manner.

Recommendations

11.1 The successful integration of the proposal with retained trees will need to take account of the following points:

- i) Plan of underground service routes.
- ii) Implementation of the tree protection as set out in this Report.
- iii) Site logistics plan to include storage, plant parking/stationing, materials handling.
- iv) Site supervision – Following an induction meeting conducted by the project arboriculturist with all those involved in attendance, an individual, e.g. the Site Agent, will be nominated to be responsible for all arboricultural matters on site.
This person must:
 - a) be present on site for the majority of the time,
 - b) be aware of the arboricultural responsibilities,
 - c) have the authority to stop any work that is causing, or has the potential to cause harm to any tree,
 - d) be responsible for ensuring that all site operatives are aware of their responsibilities toward trees on site and the consequences of any failure to observe those responsibilities,
 - e) make immediate contact with the local authority and/or the project arboriculturist in the event of any tree related problems occurring, whether actual or potential.

11.2 As a matter of course these points will be resolved in consultation with and subject to the approval of the planning authority through their Arboricultural Officer.

11.3 The sequence of works should be as follows:

- i) initial tree removal and pruning as may be necessary
- ii) installation of TPF
- iii) demolition
- iv) installation of underground services as may be necessary
- v) main construction, including hard landscaping
- vi) removal of TPF
- vii) soft landscaping, including tree and buffer planting

KEY

Pre: Prefix: **T** = Tree **G** = Group **H** = Hedge

No Tree reference number.

Ht Tree Height in metres.

SD Stem diameter in centimetres at 1.5 metres above ground level and otherwise in accordance with Annex C of BS5837.

* Estimated. **m** Multi-stemmed (bracketed number is single-stem equivalent diameter).

N-S-E-W Branch spread in metres to the four compass points – \emptyset average crown diameter.

CrB Height in metres of crown clearance above adjacent ground level.

AC Age Class **Y** – Young. **E** – Early mature. **M** – Mature. **O** – Over-mature. **V** – Veteran.

PC Physiological Condition **G** – Good **F** – Fair **P** – Poor **D** – Dead

SC Structural Condition **G** – Good **F** – Fair **P** – Poor **D** – Dead

BS Category grading

U – Existing condition is such that any existing value would be lost within 10 years and should therefore be removed for reasons of sound arboricultural management.

A – High quality and value (40 + yrs).

1) Mainly arboricultural values 2) Mainly landscape values 3) Mainly cultural values incl. conservation.

B - Moderate quality and value (20+ years).

1) Mainly arboricultural values 2) Mainly landscape values 3) Mainly cultural values incl. conservation.

C – Low quality and value (10+ years).

Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a SD of less than 15cm should be considered for relocation.

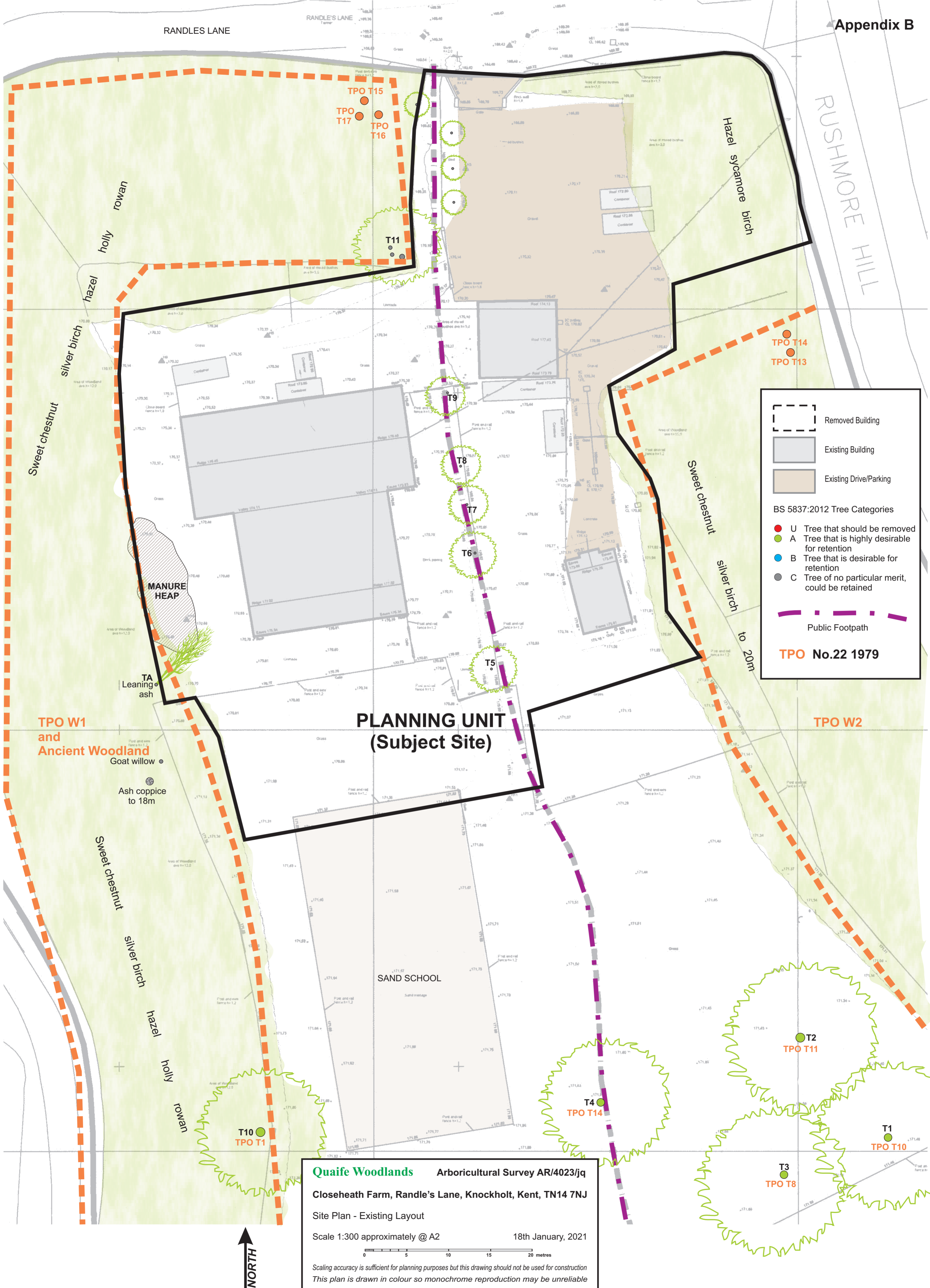
Rad Root Protection Radius in metres.

RPA Root Protection Area in square metres.

Arboricultural Survey AR/4023/jq – Closeheath Farm, Randle's Lane, Knockholt, Kent. TN15 7XX Appendix A

No	Species	Ht	SD	N E S W	CrB	AC	PC	SC	BS	RPA	Rad	TPO	Observations
T1	Oak	26	82	14Ø	6.0	M	G	G	A	64	4.5	T10	Minor dead and dying wood
T2	Oak	25	98	13 13 13 3.5	5.0	M	G	G	A	64	4.5	T11	Minor dead and dying wood
T3	Oak	26	75	9 9 9 10	6.0	M	G	G	A	64	4.5	T8	Minor dead and dying wood
T4	Oak	17	68	8 8 9 8	3.0	M	F	G	B	64	4.5	T14	Minor dead and dying wood
T5	Rowan	7	16	6Ø	1.5	E	G	G	C	20	2.5	-	Forked x 2 at 1.5m
T6	Whitebeam	7	22	7Ø	1.5	E	G	G	C	79	5.0	-	Forked x 5 at 1.6m
T7	<i>Malus</i> sp	6	22	6Ø	0.8	E	G	G	C	64	4.5	-	Forked x 4 at 1.6m, lower stem scar
T8	<i>Malus</i> sp	4.5	11	4.5Ø	0.5	E	G	G	C	707	15.0	-	
T9	<i>Malus</i> John Downie	3	10	3.5Ø	0.5	E	G	G	C	95	5.5	-	
T10	Oak	24	80*	14Ø	5.0	M	G	G	B	64	4.5	T1	Within the woodland
T11	Goat willows x 3	12	<32	13Ø	1.5	E	G	G	C	50	4.0	-	

**N.B. TPO trees T1, T13, T14, T15, T16, T17 are within the Woodland TPOs and are not surveyed
Similarly, trees without numbers on the plans are not formally surveyed**



Legend

- Removed Building
- Existing Building
- Existing Drive/Parking

BS 5837:2012 Tree Categories

- U Tree that should be removed
- A Tree that is highly desirable for retention
- B Tree that is desirable for retention
- C Tree of no particular merit, could be retained

Public Footpath

TPO No.22 1979

**PLANNING UNIT
(Subject Site)**

**TPO W1
and
Ancient Woodland**

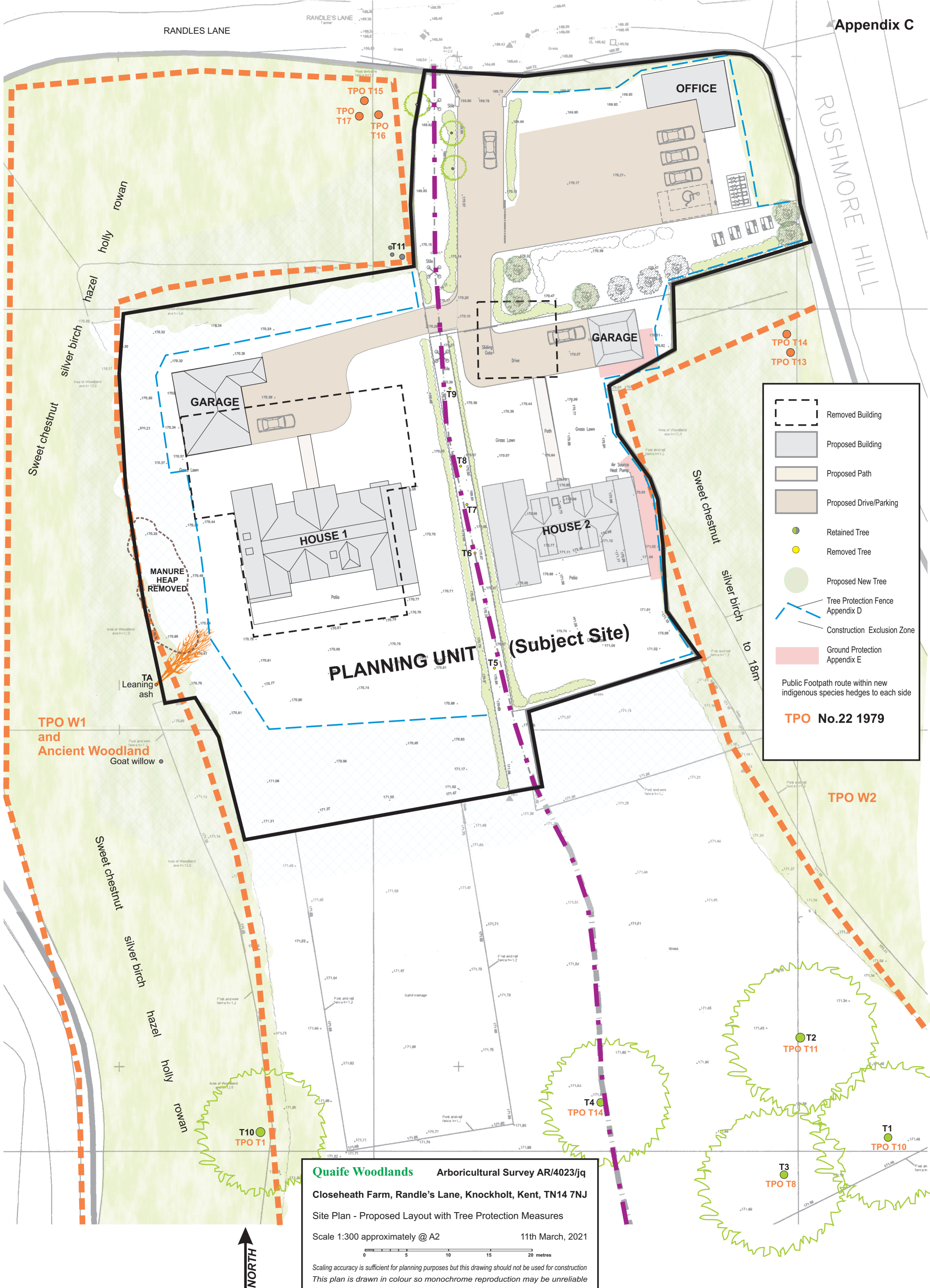
TPO W2

Quaife Woodlands Arboricultural Survey AR/4023/jq
 Closeheath Farm, Randle's Lane, Knockholt, Kent, TN14 7NJ
 Site Plan - Existing Layout
 Scale 1:300 approximately @ A2
 18th January, 2021

0 5 10 15 20 metres

*Scaling accuracy is sufficient for planning purposes but this drawing should not be used for construction
 This plan is drawn in colour so monochrome reproduction may be unreliable*





	Removed Building
	Proposed Building
	Proposed Path
	Proposed Drive/Parking
	Retained Tree
	Removed Tree
	Proposed New Tree
	Tree Protection Fence Appendix D
	Construction Exclusion Zone
	Ground Protection Appendix E
Public Footpath route within new indigenous species hedges to each side	
TPO No.22 1979	

Quaife Woodlands Arboricultural Survey AR/4023/jq
 Closeheath Farm, Randle's Lane, Knockholt, Kent, TN14 7NJ
 Site Plan - Proposed Layout with Tree Protection Measures
 Scale 1:300 approximately @ A2 11th March, 2021

0 5 10 15 20 metres

Scaling accuracy is sufficient for planning purposes but this drawing should not be used for construction
 This plan is drawn in colour so monochrome reproduction may be unreliable



**Extract from British Standard 5837: 2012
Trees in relation to design, demolition and construction
- Recommendations**

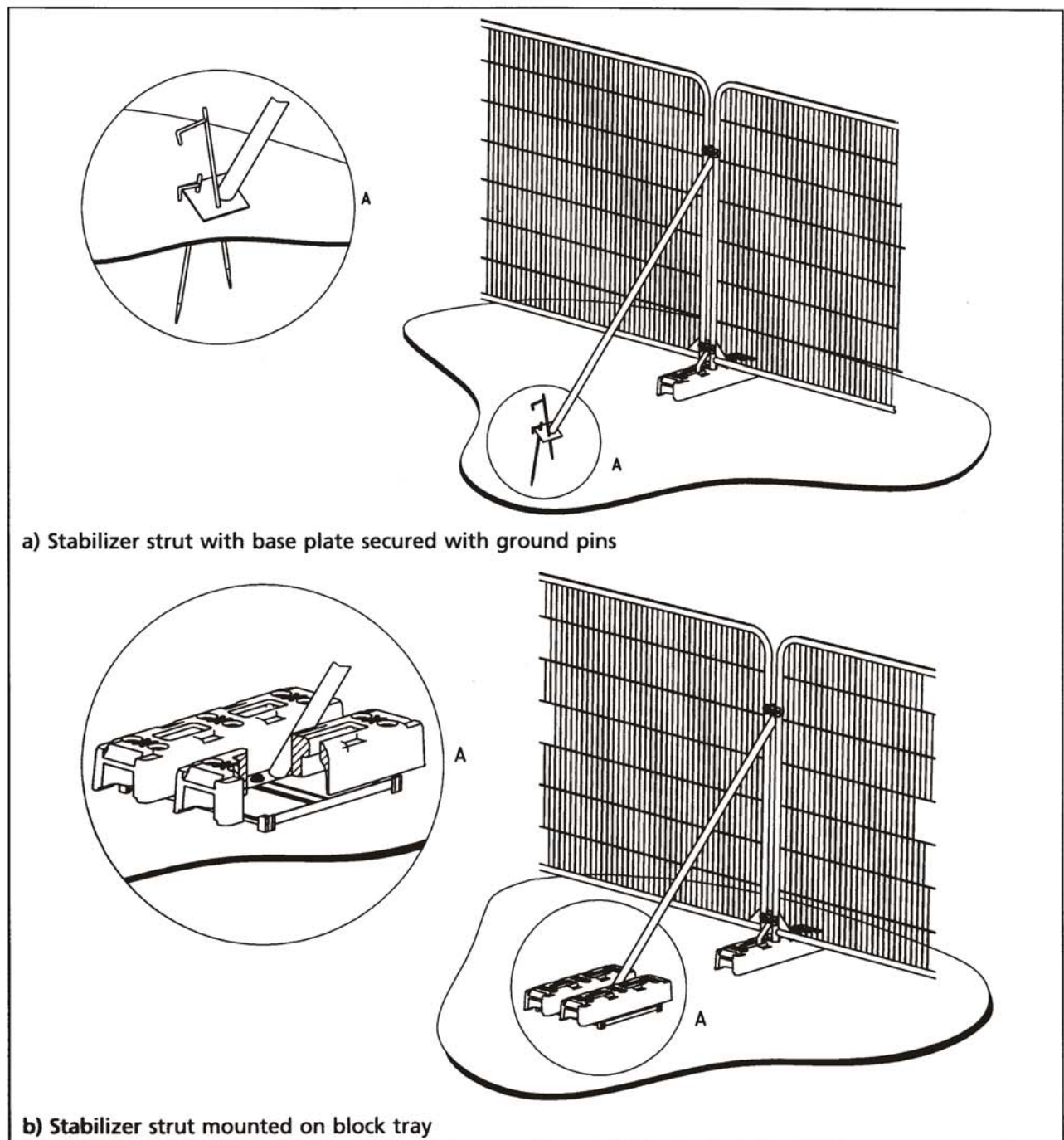
Figure 3. **Lighter support specification for Tree Protection Barrier**
This can be used where the fence is not under site work pressure but the RPA needs protection from other access.

BRITISH STANDARD

BS 5837:2012

Tree Protection Fencing

Figure 3 **Examples of above-ground stabilizing systems**



Extract from British Standard 5837: 2012 Trees in relation to design, demolition and construction - Recommendations

Ground Protection

6.2.3.3 New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.

NOTE The ground protection might comprise one of the following:

- a) *for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;*
- b) *for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;*
- c) *for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.*

6.2.3.4 The locations of and design for temporary ground protection should be shown on the tree protection plan and detailed within the arboricultural method statement (see 6.1).

6.2.3.5 In all cases, the objective should be to avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.

Scaffolding

Where scaffolding is to be erected within an RPA of a retained tree, it may be necessary to place the feet directly onto the ground to achieve a stable working structure. The collective footprint of the scaffolding footings on the soil will represent a minor proportion of the RPA and will not be a significant factor in terms of ground compaction.