WOLD & VALE
TREE CONSULTANCY

Arboricultural Survey, Impact Assessment, Method Statement and Tree Protection Plan.

Spring Cottage,
Whiteshill,
Stroud,
Gloucestershire
GL6 6JS

December 2023

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1.0 INTRODUCTION

1.1 Brief

This report is prepared by Laurence Wood of Wold and Vale Tree Consultancy on behalf of Mr Rupert Wakefield.

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The report sets out the arboricultural survey findings, tree protection measures and method statement for a proposed new build dwelling on land at Spring Cottage, Whiteshill, Stroud, following the removal of the existing dwelling. The site is located within the municipality of Stroud District Council.

This report is designed to assess the arboricultural value of the trees on or adjacent to the site and discusses their implications in terms of constraints of development, impact of the development and protection measures. As such this survey, report and tree protection plan is intended to meet the requirements of BS5837:2012.

Details of the trees are given in the Tree Schedule at Appendix 1. Appendix 2 site plans illustrate:

- Positions of individual trees & tree groups on/adjacent to site.
- A quality and value category for each tree/tree group indicating remaining contribution to the site in accordance with BS 5837:2012.
- The canopy spread of individually surveyed trees in Category A, B, C or U at the four cardinal points of the compass.
- Root protection areas (RPAs) of individual trees in Category A, B or C, calculated in accordance with BS 5837:2012.
- Tree protection plan

*Copies of the site plans are supplied with this report in .pdf and .dwg format for larger scale and reference.

1.2 Limitations

This is an assessment in terms relevant to planning and development. Observations have been made solely from a site visit and from plans provided for assessment. Any recommended tree works are to be undertaken to trees prior to commencement of the clearance and construction phase of the project.

The recommendations contained within this report (Appendix 1 - Tree Schedule) are valid for a period of one year only. Any significant alteration to the site that may affect the trees or have a bearing on the planning implications (including level changes, hydrological changes, extreme climatic events or other site works) will necessitate a re-assessment of the trees and the site.

It should be noted that this survey is not a tree safety inspection; it has been carried out in order to inform the planning process. Where clear and obvious hazards have been observed, these have been addressed in the preliminary recommendations (Appendix 1 - Tree Schedule). A full assessment of the levels of risk posed by trees would be informed by considering site use together with hazards present within a tree. Changes in site use are likely to occur during and result from any proposed development. In the light of these factors, regular tree risk assessments are advised.

This report does not consider the potential for future tree-related building subsidence or heave. If shrinkable clay soils are present on site, the guidance given in the National House Building Council (NHBC) Standards, Building Near Trees, Chapter 4.2 should be used to avert the risk of future risk of buildings near trees.

No detailed assessment of the potential conflict between future site use and the shade cast by trees has been undertaken within this report.

1.3 Documents Provided to inform the report.

- Site plans – Existing & proposed.

2.0 SURVEY SITE AND DETAILS

2.1 Survey Method

2.1.1 A survey of the site was conducted on 3rd August 2022 using the Visual Tree Assessment method. The tree survey comprised of a visual inspection conducted at ground level. No climbing inspection of the aerial parts was undertaken.

Trees are living organisms subject to seasonal growth and varying environmental conditions. The site survey was limited to observations made on a single occasion at a particular time of year and stage in the trees' life cycle and features such as the fruiting bodies of wood-decaying fungi, foliar diseases or insect infestations that might have affected the value and quality assessment may not have been apparent.

2.2 Data Collected

2.2.1 In all fourteen individual trees and one group have been recorded. Their location has been plotted on tree location plans (Appendix 2).

2.2.2 The height, diameter at breast height (DBH), and crown spread of individual trees were recorded (Appendix 1 - Tree Schedule). A description of each group is given together with any necessary comments on their condition or situation. The groups have also been categorised using the BS 5837:2012 value and quality assessment.

2.2.3 The age and the physiological and structural condition of the individual trees were assessed and any necessary comments on their condition or situation and recommendations for work were recorded.

2.2.4 The nominal Root Protection Area of each individual trees was calculated from the DBH in accordance with the formula given in Table 2 of BS5837:2012 and plotted to retained trees of A, B or C Category on plans (Appendix 2).

2.3 Value and Quality Assessment

2.3.1 Each tree/group has assigned one of four categories 'A', 'B', 'C' or 'U' according to its value and quality, and thus its suitability for retention. In descending order of value, the description of each category (based on Table 1 of BS5837: 2012) is as follows.

'A' High-quality trees of particularly good form, amenity and condition that make a substantial contribution to the landscape and are likely to continue to do so for at least the next 40 years. These trees present a significant constraint to development.

'B' Moderate-quality trees not achieving the highest category by dint of impaired condition or form, but that nevertheless make a significant contribution to the landscape and are likely to do so for at least the next 20 years. These trees present a significant constraint to development.

'C' Low-quality trees in adequate condition that make no particular contribution to the landscape, but that could remain until new planting could be established; or young trees of a diameter of less than 150 mm at breast height.

'U' Trees that could be removed regardless of any development proposals, either because they are dead, dying or dangerous or because their condition or situation renders them unsuitable for long-term retention (more than 10 years).

2.4 Site Description

Spring Cottage is located to the north end of Whiteshill Village approximately one and a half miles to the north of Stroud Town Centre. The site consists of a detached dwelling surrounded by woodland, established garden trees, with a driveway running through the centre of the site to a yard area to the north. To the west a wooded area falls steeply away to reveal far reaching views of adjoining valleys beyond. Entrance to the site is from Main Road to the southeast.

2.5 Quality and Value of Trees

All of the trees surveyed are well established specimens located within or immediately adjacent to the site. The entrance is characterised by the group of rather overgrown and imposing group of cypress and conifers to the west. There are a number of reasonable specimens within the garden area.

To the east of the site a number of larger specimens are located, including two ash trees showing symptoms of ash die back. Adjacent is a eucalyptus in decline and also a dead rowan. All four trees are classified as U Category specimens.

An ash tree located just across the west boundary, is a large mature specimen yet to show any symptoms of ash die back. The remainder are trees of mediocre value set back within the enclosed garden area.

Table 1 – Trees in each Quality Assessment Category

Category A Trees/Groups	Category B Trees/Groups	Category C Trees/Groups	Category U Trees/Groups
	T2, T7, T8	T1, T3-6, T13, T14, G01	T9 – T12
	3 trees	6 trees/ 1 group	4 trees
		Total	14 trees/1 group

3. CONSTRAINTS

3.1 Statutory Constraints

3.1.1 Tree Preservation Orders/Conservation Areas

Stroud District Council's online plan indicates that the site is not located within a Conservation Area. The plan indicates that there are no trees on or adjacent to the site that are covered by a Tree Preservation Order (TPO).

The client is advised to obtain written confirmation from Stroud District Council to establish the legal status of the trees prior to any works being undertaken outside the remit of an approved planning permission.

3.2 General Arboricultural Constraints

The constraints imposed by trees, both above and below ground should inform the site layout design, although it is recognised that the competing needs of development mean that trees are only one factor requiring consideration.

As trees can affect and be affected by many aspects of site operations, the project arboriculturalist should be involved in any ongoing review of layout, architectural, engineering and landscape drawings. All members of the design team should be made aware of the requirements for the successful retention of the retained trees and should make provision for these throughout the duration of the project.

3.3 Specific Arboricultural Constraints

3.3.1 Shade

The principal shadow pattern throughout the day travels from north west to due east. The woodland area to the west of the site is well established but ground levels fall steeply away and the trees are not over dominant. There will be some shading from the large ash tree in the early evening period but the tree stands as a single specimen and shading levels will remain at reasonable levels.

3.3.2 Root Protection Areas (RPAs)

RPAs have been calculated using British Standard:5837 recommendations and have been recorded for each individual tree. A plan of the RPA's can be seen in Appendix 2. All of the calculated root protection areas of A-C grade trees are located outside of the development area with the exception of T04 birch and T05 maple.

3.3.3 Service Runs

Any underground services have been routed to avoid the root protection areas. Any proposed encroachment into a root protection area must be sanctioned by a qualified and experienced arboriculturalist and agreed with the local planning authority.

3.3.4 Level Changes and Retaining Walls

Any changes in levels or slopes will comply with the constraints attached to the root protection areas. Plans to lay a patio area in the vicinity of T4 and T5 have considered the impact that this may have on the health and stabilty of retained trees and protection measures and patio foundation design have been prescribed to minimise any impact to the trees.

3.4 Wildlife Considerations

3.4.1 Bats

No attempt was made during the arboricultural survey to ascertain the presence or otherwise of bats or bat roosts. This must be considered should any remedial arboricultural works or tree removals be carried out, as bats are afforded protection under Schedules 1 and 5 of the *Wildlife and Countryside Act 1981* (as amended) and under Schedule 2 of the *Conservation of Habitats and Species Regulations 2017 (as amended)*

3.4.2 Nesting birds

No attempt was made during the survey to ascertain the presence or otherwise of nesting birds. Prior to any arboricultural works or tree removals being carried out during the nesting season (February to August), trees should be thoroughly checked for nesting birds. Birds and their nests and young are protected under Section 1 of the *Wildlife and Countryside Act 1981* (as amended).

4.0 ARBORICULTURAL IMPACT ASSESSMENT

4.1 Proposed Tree work

No trees are proposed for removal. Details of proposed tree works can be found in Appendix 1 Tree Schedule.

4.2 Impact from Development

West elevation - Trees 04 & 05 are located in the vicinity of the west elevation of the new house. They are already partly protected by an existing and retained concrete hard standing which is to be retained. T04 will be reduced in size to provide clearance and prevent damage to branching through interference of construction works. The trees will also have ground protection measures in the form of a cellular confinement pathway and protective fencing to prevent encroachment into the remaining calculated root protection areas.

Concrete surface area between T4 & T5

Providing the prescribed protective fencing & cellular confinement foundation for the pathway area is correctly installed and maintained throughout the duration of the project there will be little if any detrimental effect on the trees on or adjacent to the site.

New Garage near T7 -T11 - The trees are a sufficient distance from the proposed garage as not to be affected by development proposals. Providing the prescribed protective fencing is correctly installed and maintained throughout the duration of the project the proposal will have no detrimental effect on the trees.

5.0 ARBORICULTURAL METHOD STATEMENT

5.1 TREE WORK

Arboricultural best practice recommends that any tree work should conform to BS 3998 (2010) – 'Tree Work – Recommendations'[1], and all tree works should be carried out by fully qualified and insured arboriculturalists.

5.2 SPECIFICATION FOR EFFECTIVE TREE PROTECTION.

It is essential that the site manager and all construction staff should be made aware of the tree protection requirements at the site and to be fully conversant with timings and methods within this method statement to ensure suitable work practices and protection measures are executed.

Protective fencing must be fit for the purpose of preventing any construction activity (the construction exclusion zone) encroaching into the root protection areas and be appropriate to the degree and proximity of work taking place near the retained trees.

Appendix 2 Plan 3 specifies where tree protection fencing is to be located. Detail of recommended protective barrier specification (BS5837 - Fig 2 & 3) can be found at Appendix 3. Information posters (Appendix 3) to be printed to A3 size, laminated and attached at eye level to protective fencing.

Prior to construction work commencing, approved protective fencing is to be erected in the location specified, and is to be retained from the start of the project, throughout

[1] British Standards Institute (2010). BS 3998: 2010 Tree Work – Recommendations. London: BSI.

the construction process. It protects the *construction exclusion zone* and should not be removed until the completion of the project or when ready to accommodate the paved area (Tree Protection Plan Phase 2).

The following restrictions apply to the Construction Exclusion Zone (area protected by fencing) :

1. No excavation or raising of soil levels is permitted near the trees without written permission from the project arboriculturalist.
2. No materials of any kind are to be stored, dumped or discharged within the construction exclusion zone.
3. No utility trenches are to be routed near the trees or within the construction exclusion zone without written permission from the project arboriculturalist.
4. Any on site cement and concrete mixing must take place away from retained trees over a suitable hard surface to prevent soil contamination from spillage or washing out. All 'slops' from washing out to be deposited responsibly more that 10 metres away from retained trees or taken off site.
5. Potential contaminents such as diesal oil, cement and bitumen must be stored/contained away from any retained tree.
6. No fires.
7. If any roots over 25mm in diameter are encountered or damaged during excavation outside the construction exclusion zone they are to be cut cleanly back to sound wood.

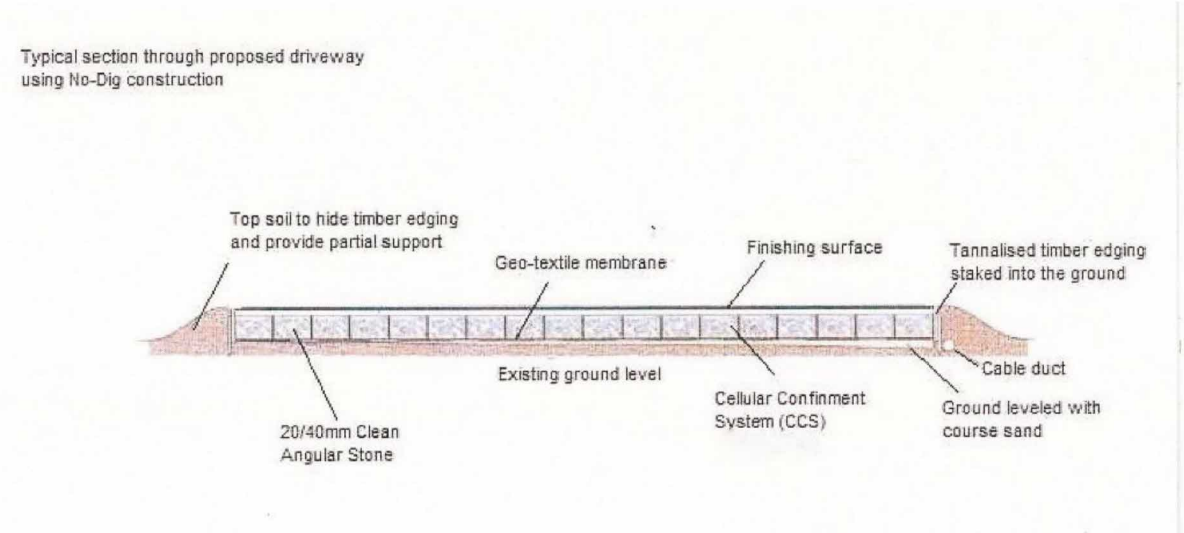
5.3 METHOD STATEMENT FOR THE APPLICATION OF CELLULAR CONFINEMENT SYSTEM

The area where the cellular confinement system will be used is indicated with turquoise hatching on the Tree Protection Plan (Appendix 2, plan 3). The use of this system avoids the requirment for digging into the soil and damaging existing roots and causing unnessary soil compaction within the root protection area of adjacent trees.

1. Prepare the surface BY HAND by removing any existing excessive lumps/bumps. Any major protrusions such as rocks should be carefully removed. The absolute minimum

of soil disturbance should be maintained during this operation whilst strictly avoiding soil compaction and tree root damage.

2. Ensure that the prepared surface is reasonably even and fill any localised depressions with sharp sand to achieve an even surface profile. Do not roll or consolidate the area.
3. Install tanalised timber edging boards or other approved edge retention to the perimeter of the driveway where required appropriate to the total layer profile thickness. Secure with stakes at 1m centres with a graded batter of topsoil on outside where necessary. Conventional kerb edging set in concrete is NOT to be used.
4. Install a layer of porous membrane such as *Terram T1000 geotextile* across the area to be occupied by the no dig construction area over lapping adjacent rolls by a minimum of 150mm. Lightly pin the geotextile in place until the overlying layers are installed as required.
5. Open out the geocell/cell web confinement layer (75mm) and pin in place using steel fixing pins or similar approved between the edging boards. The pins hold the cells in an open and fully expanded position during the filling process. Pin spacing will vary according to the site conditions, generally 1m –2m centers on flat surfaces around the perimeter and where panels join. Drive the pins in so that they are just touching the top of the cells but do not compress the fabric. Cut the geocell/cell web to suit using a sharp knife/scissors or alternatively fold up against the edgings. Staple adjacent panels together if necessary.



6. Fill the geocell/cell web with a clean, open graded angular aggregate (5mm - 45mm) working from the entrance towards the boundaries of the site using the filled

geocell/cell web as a platform. Grade levels between conventional construction and no dig construction. Single sized, rounded aggregate or DoT Type 1 should not be used. Do not roll the surface, a light vibratory compaction plate may be permitted to settle the stone into the cells. Do not contaminate the filled cells with site debris, soil or mud.

7. Install the paved surface layer on top of the Geocell/cell web according to the manufacturer's recommendations and grade sides into garden area where necessary using topsoil against gravel board. Please refer to specific manufacturers' guidance for other surfacing materials.

Cellular confinement system providers include Cellweb (Tel: [redacted]); Terram (Tel: [redacted]) and Ground Trax (Tel: [redacted])

The purpose of using this technology is to avoid root loss and damaging the soil structure through compaction. Soil damage of this nature may disrupt the effective exchange of water and gasses in and out of the soil and inhibit root growth. Soil compaction is commonly caused by vehicular traffic or by pedestrians repeatedly walking over the same area of soil surface.

6.0 SEQUENCE OF OPERATIONS

The following is the sequence of operations to be followed prior to, during and on completion of the development. They are listed chronologically and are supplemented by the attached plans (Appendix 2). The following sequence of operations and method must be adopted by the main contractor, developer, sub-contractors and site agent.

1. Prior to arrival of plant or commencment of demolition or development - Installation of tree protecting fencing and ground protection adjacent to T04. (Tree Protection Plan - Appendix 2, Plan 3).
2. **Prior to commencement of any demolition or construction activities on site, project manager and all site operatives to be briefed on the contents of the arboricultural report, method statement and tree protection measures.**
3. Demolition phase and clearance of site.
4. Groundworks & main construction phase.
5. Completion of development and removal of plant, tools, materials.
6. Removal of tree protective fencing & final landscaping.

Appendix 1

Tree Schedule

Tree Number	Tree Species	Tree Height (m)	Number of Stems	Stem Diameter (mm)	RPA Radius (m)	N - Radius (m)	S - Radius (m)	E - Radius (m)	W - Radius (m)	1st Branch	Age Class	Physiological Condition	ULE (Years)	Tree Structural Condition and Site Notes	Proposed Tree Works	BS Category
T01	Cherry	8	1	330	3.96	4	4	4	4	2	Mature	Fair	20+ Years			C2
T02	Ash	16	1	700	8.4	7	7	6	6	4	Mature	Fair	10+ Years	Located on neighbouring property.		B1
T03	Cherry	8	1	160	1.92	4	2	4	3	1	Mature	Fair	10+ years	Low domed crown	Reduce canopy by 2m on proposed development side for clearance	C2
T04	Birch	10	1	370	4.44	5	5	4	5	3	Mature	Fair	20+ Years		Reduce canopy by 2.5m	C2
T05	Norway Maple	5	1	150	1.8	3	3	3	2	2	Early Mature	Fair	10+ Years			C2
T06	Hazel	5	1	300	3.6	3	3	3	3	1	Mature	Fair		12 stems 75mm		C2
T07	Sycamore	13	1	530	6.36	3	6	3	5	3	Mature	Fair	20+ Years	One sided to South		B2
T08	Sycamore	13	1	550	6.6	3	6	4	5	4	Mature	Fair	20+ Years	Ivy clad stem		B2

Tree Number	Tree Species	Tree Height (m)	Number of Stems	Stem Diameter (mm)	RPA Radius (m)	N - Radius (m)	S - Radius (m)	E - Radius (m)	W - Radius (m)	1st Branch	Age Class	Physiological Condition	ULE (Years)	Tree Structural Condition and Site Notes	Proposed Tree works	BS Category
T09	Ash	17	1	400	0	3	4	4	4	3	Mature	Poor	<10 years	Ash dieback	Regular risk assessment advised	U
T10	Ash	15	2	636	0	3	5	5	4	2	Mature	Fair	<10 years	Ash dieback symptoms, ivy clad stems	Regular risk assessment advised	U
T11	Eucalyptus	12	1	270	0	3	3	3	3	3	Mature	Poor	<10 years	In decline	Regular risk assessment advised	U
T12	Rowan	9	2	523	0	3	3	3	3	1	Over Mature	Dead	Dead	Dead	Regular risk assessment advised	U
T13	Cherry	5	1	220	2.64	5	3	3	5	1	Mature	Fair	10+ Years	Low domed		C2
T14	Cypress	18	1	1000	12	6	6	6	6	1	Over Mature	Fair	10+ Years	Large overgrown cypress		C2
G01	Pine, cypress, spruce	10	8								Mature	Fair	20+ Years	Cypress becoming overgrown		C2

Tree Schedule - KEY

Tree Number Tree numbers relate to those marked on the Tree Constraints Plan and Tree Protection Plan. 'G' prefixes have been used to identify groups of trees. **Tree Species** Species are listed by their common name, both in the schedule and in the report text. **Tree Height** Tree heights are estimated in metres (m). **Number of Stems** The number of stems – either 1, 2, 3, 4, 5 or MS (Multi stemmed)	**Stem Diameter** The stem diameter of single stemmed trees is taken at 1.5m above ground level and given in millimetres (mm). The diameter measurement of multi-stemmed trees is measured in accordance with B.S.5837:2012. Measurements in bold are estimates if access to tree trunk is restricted. **RPA Radius** The calculated root protection area radius measured in centimetres and calculated from the measured stem diameter. **Crown Spread** Radial crown spread is given in metres and is listed for each of the four cardinal points N, S, E and W. The canopy shape for individually surveyed trees is depicted on the accompanying plans.	**Age Class** (Y) Young, (SM) Semi Mature, (EM) Early Mature, (M) Mature, (OM) Over mature, (V) Veteran **Physiological Condition** (G) Good, (F) Fair, (P) Poor, (D) Dead. **U.L.E (Years)** Useful Life Expectancy. Anticipated future contribution to amenity in years.	**Tree Structural Condition and site notes** Observations on form, condition and structural integrity. Site notes record growth conditions or root constraints where necessary. **Proposed Tree Works** Recommended works to be carried out prior to construction and to B.S 3998 standard. **B.S. Category** As defined within British Standard 5837:2012. Categories A (high quality) B (moderate quality), C (low quality) are trees that should be considered for retention. Category U trees are unsuitable for retention.

Appendix 2

Plans

1. Tree Constraints Plan - Location, Canopy Area and British Standard Category
2. Tree Constraints Plan - Location, Calculated Root Protection Areas and British Standard Category
3. Tree Protection Plan

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Site:
Spring Cottage, Whiteshill

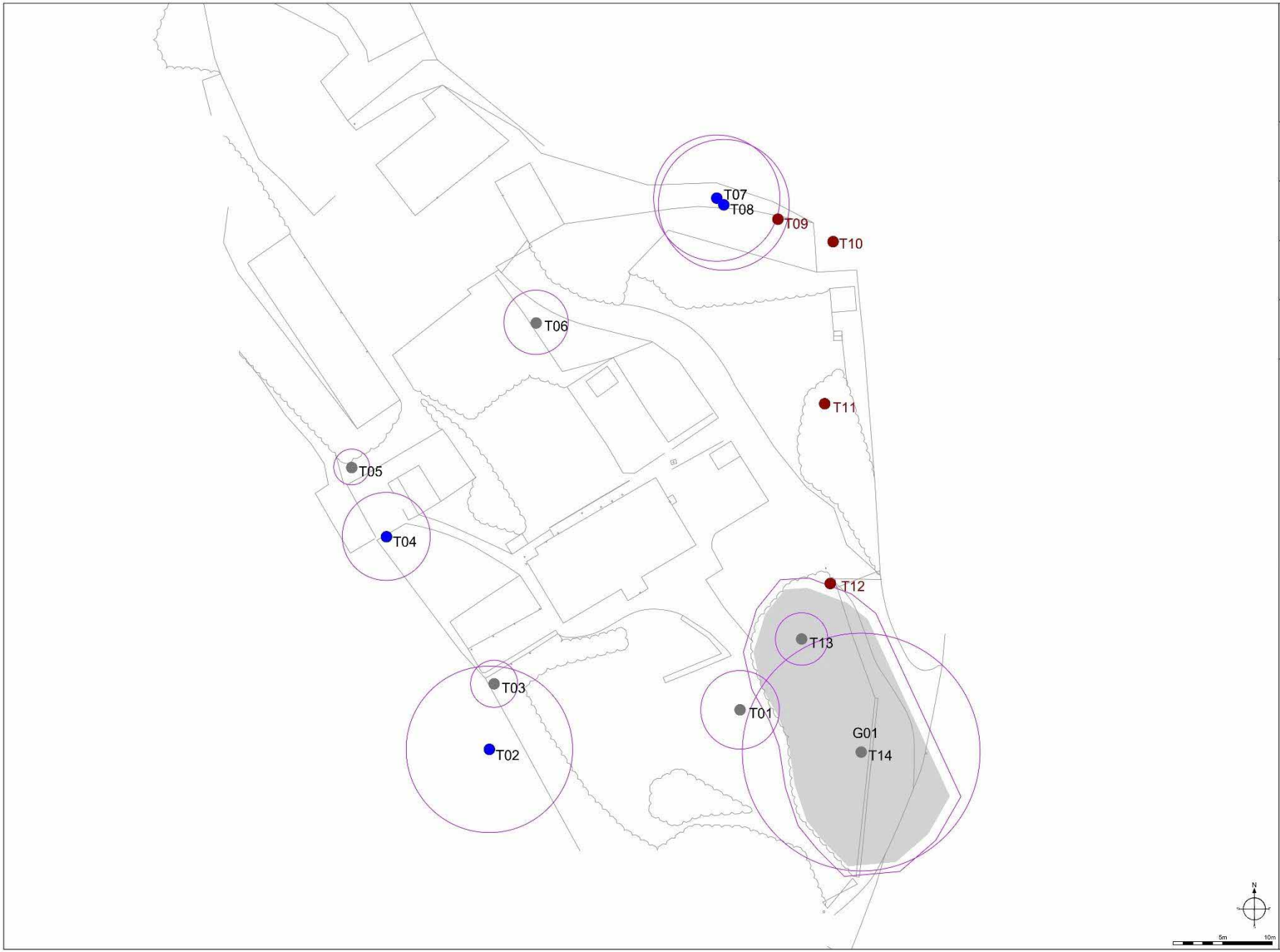
Drawing Title:
Tree Canopy and BS
Category plan

Scale:
1-250@A2

Date:
August 2022
Rev A

Key:

- Category A
- Category B
- Category C
- Category U
- Crown Spread
- T07 — Tree Number



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TREE CONSULTANCY

Site:
Spring Cottage, Whiteshill

Drawing Title:
RPA and BS Category plan

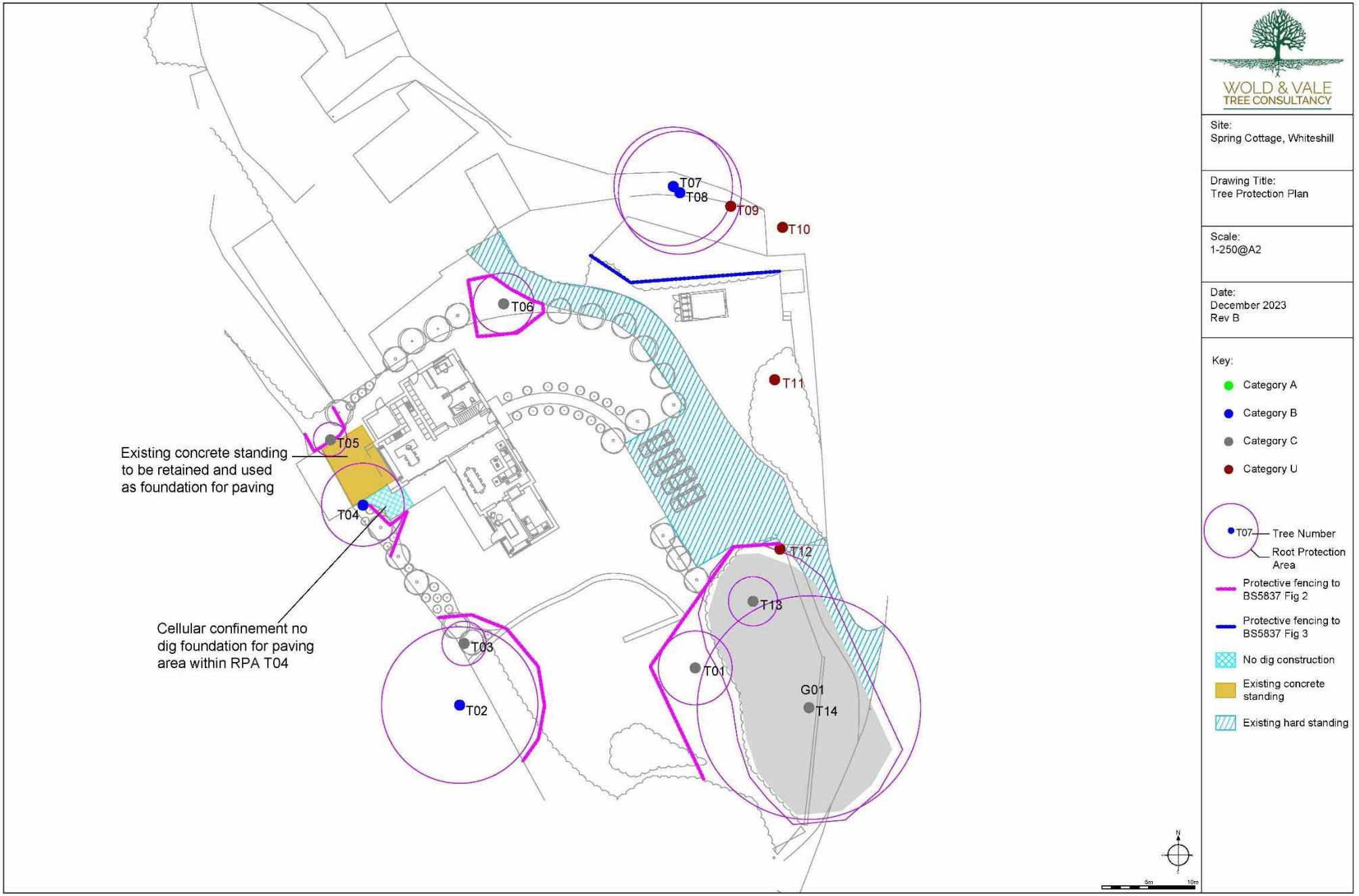
Scale:
1-250@A2

Date:
August 2022
Rev A

Key:

- Category A
- Category B
- Category C
- Category U

T07 — Tree Number
Root Protection Area

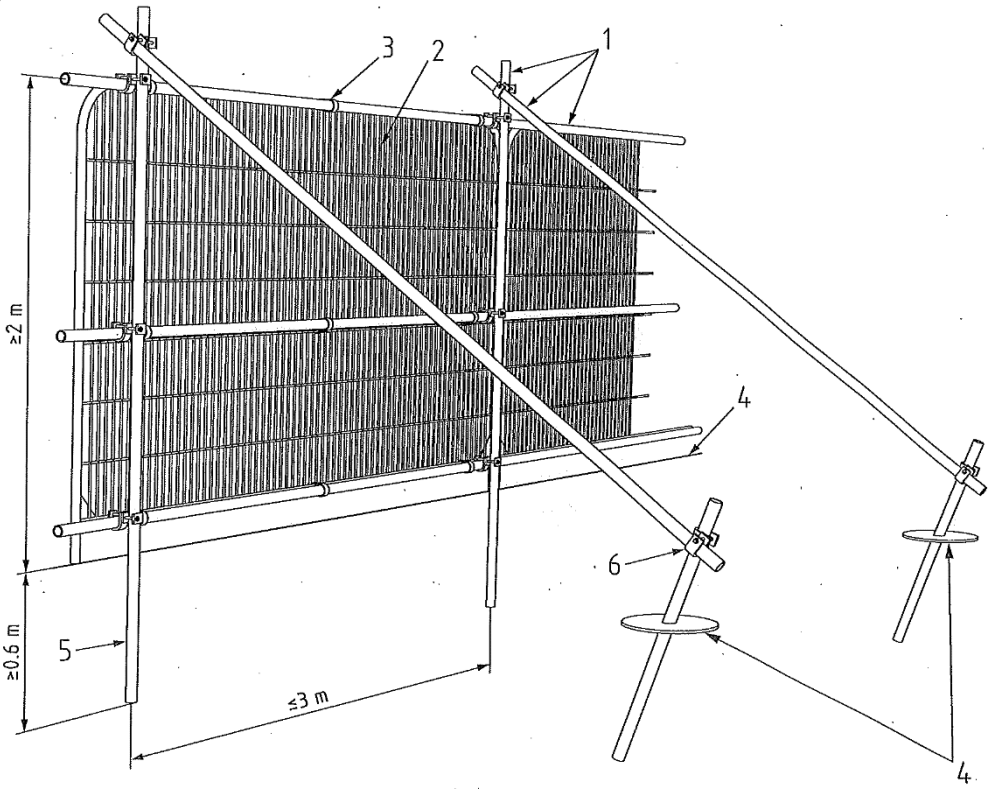

T07
T08
T09
T10
T06
T11
T05
Existing concrete standing to be retained and used as foundation for paving
T04
T12
T13
Cellular confinement no dig foundation for paving area within RPA T04
T03
T01
G01
T14
T02
N
5m
10m
WOLD & VALE TREE CONSULTANCY
Site:
Spring Cottage, Whiteshill
Drawing Title:
Tree Protection Plan
Scale:
1-250@A2
Date:
December 2023
Rev B
Key:
Category A
Category B
Category C
Category U
T07
Tree Number
Root Protection Area
Protective fencing to BS5837 Fig 2
Protective fencing to BS5837 Fig 3
No dig construction
Existing concrete standing
Existing hard standing

Appendix 3

Protective Barrier Specification

Figure 2 and Figure 3 taken from BS5837:2012 Trees in Relation to Construction – Recommendations illustrating the system to be employed for ensuring an adequate Construction Exclusion Zone about retained trees.

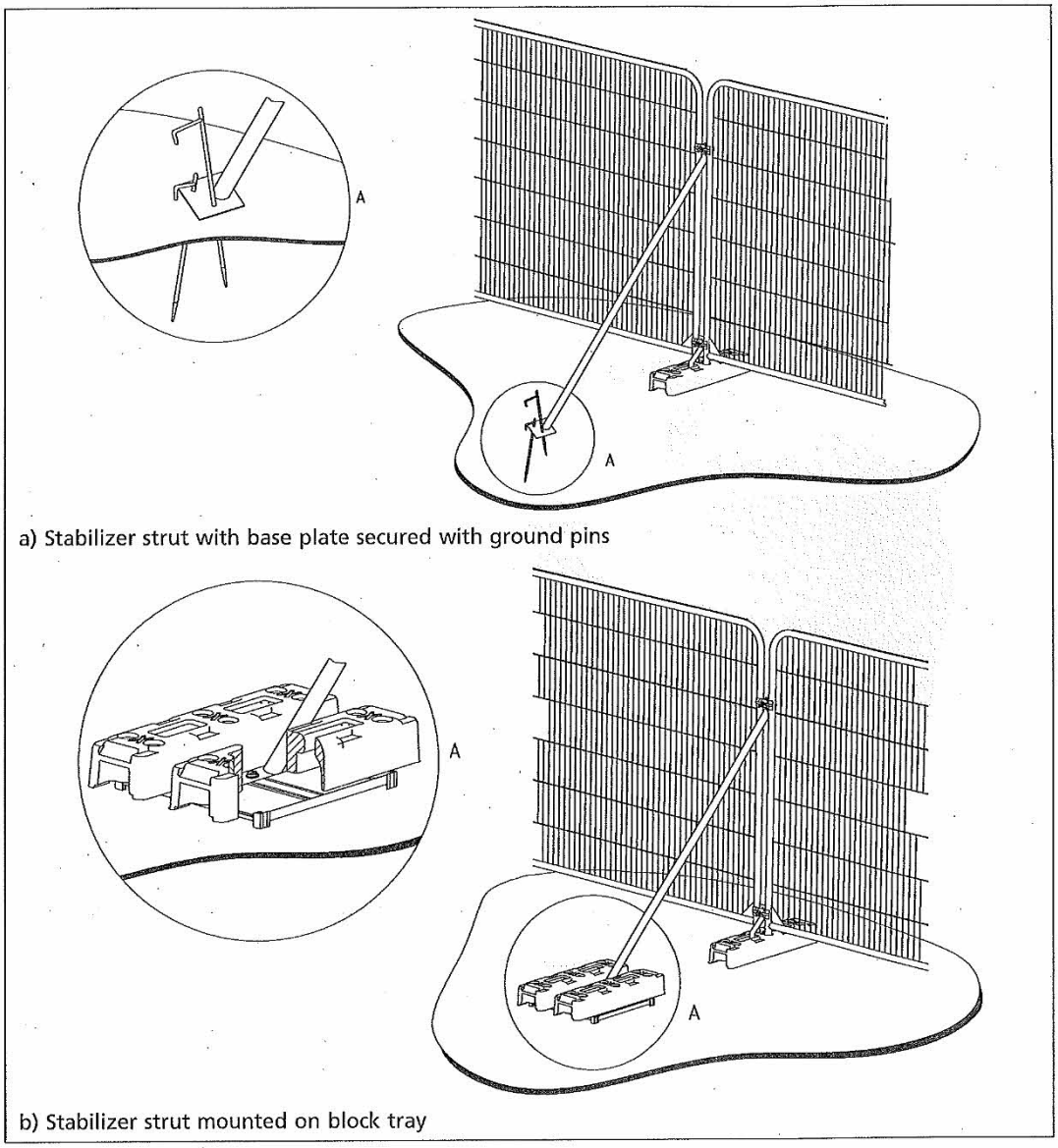
Figure 2 **Default specification for protective barrier**



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

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



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

Information Posters for Tree Protection Fencing