

BS 5837:2012 Tree Survey, Arboricultural Impact Assessment, Arboricultural Method Statement & Tree Protection Plan



94-98 London Road
East Grinstead
RH19 1EP

27th February 2025

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1. Instruction

Usherwood Arboriculture have been instructed to provide a tree survey, arboricultural impact assessment, arboricultural method statement and tree protection plan in support of the erection of a building at the rear of 94-98 London Road, East Grinstead, RH19 1EP. The survey has been carried out in accordance with BS5837:2012, Trees in relation to design, demolition and construction-Recommendations.

Drawing No.	Title	Drawn/Written by
054-005-212	Existing Site Plan	Jonathan Talley Architects Ltd
054-005-212	Proposed Site Plan	Jonathan Talley Architects Ltd

Table 1. Key drawings and documents supplied for consideration within this report

2.Executive Summary

This document considers the impact of proposed development upon 2 individual trees and 1 tree group. 8 trees making a linear group within the application site and a single tree within a neighbouring property to the south. 8 trees comprising 1 category U cherry and 7 category C holly are to be removed and replaced with a pleached hedge comprising 7 x Cherry laurel. There will be a minor ingress of approximately 5% into the root protection area of the off-site Western red cedar. This is not expected to be detrimental to the off-site tree.

3.The Site

The application site comprises an area of land to the rear of shops with residential accommodation above on the south side of London Road. The land includes a paved area with open soil and a linear group of low value trees to the rear.

Soil conditions.

The British Geological Survey, Geology of Britain viewer describes the local bedrock geology as Ardingly Sandstone Member-Sandstone. There is no information on local superficial geology.

Legal Constraints

Trees can sometimes be the subject of a Tree Preservation Order (TPO) or a property may be situated within a designated conservation area. Both a TPO and conservation area designation require the owner/occupier or those wishing to work on trees to seek the Council's consent or provide written notice prior to carrying out any works. It is a criminal offence to carry out any works to protected trees without the Council's consent. The site is not situated within a Conservation Area or subject to a Tree Preservation Order.

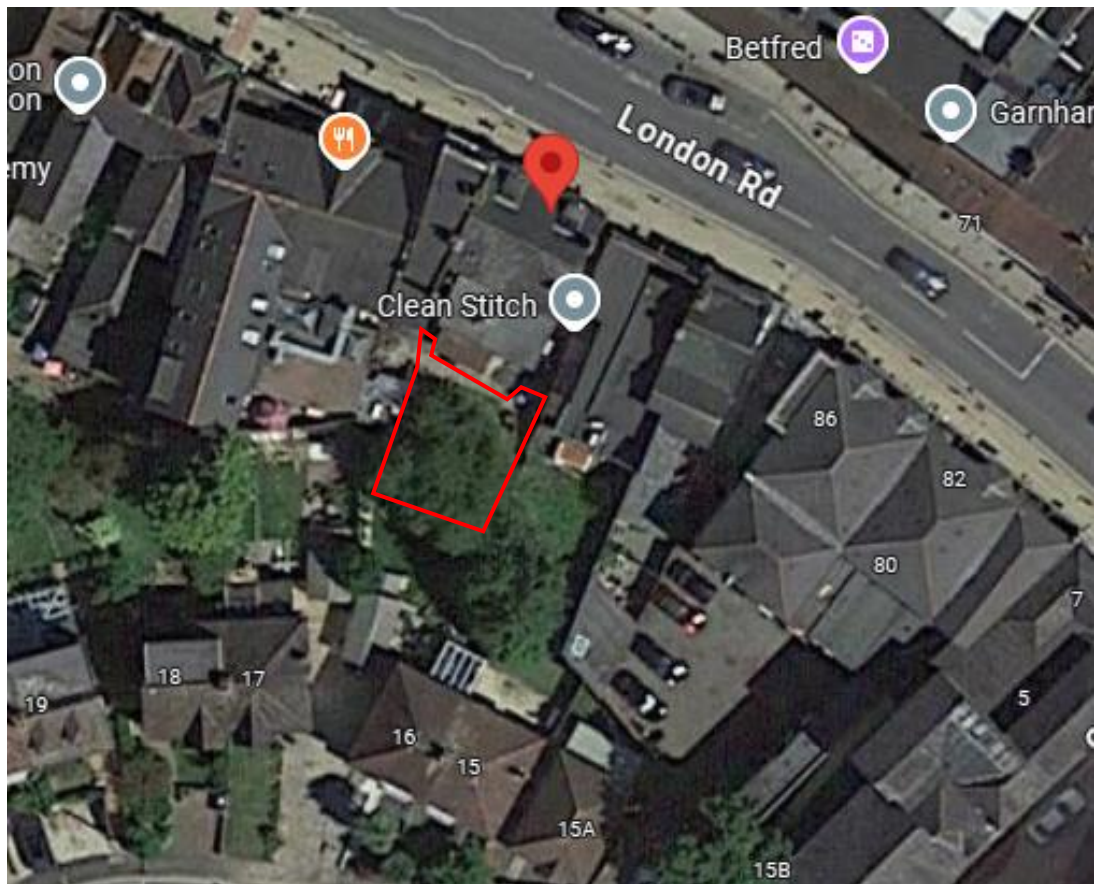


Image above, courtesy of Google Maps with the application site outlined in red.

4. Tree Survey

Trees were assessed in accordance with recommendations and guidelines contained within British Standard 5837:2012 - 'Trees in relation to design, demolition and construction- Recommendations' henceforth referred to as BS5837. The survey was carried out in relation to the condition and quality of trees growing either within or near the boundary of the site. Where details have been omitted including the heights of crown break and the direction of the first major lateral branch, these details were not seen as being relevant to this application. Where access allowed, tree heights were measured with a Haglof electronic clinometer and trunk diameters with a diameter tape measure. Crown spreads were measured with a tape measure or paced out at the four cardinal points.

All trees were assessed from the ground utilizing the Visual Tree Assessment method as developed by Mattheck and Breloer (The Body Language of Trees, Research for Amenity Trees No 4 Department of the Environment).

This tree survey should not be treated as a hazard assessment, it has been carried out to inform the planning process with regards to the appropriate retention and protection of trees as visual and ecological assets within the landscape. However, where clear and obvious defects are observed, the relevant parties will be informed.

Tree Assessment and Categorization

Tree quality ratings have been assessed in accordance with BS5837's Table 1, Cascade chart for tree quality assessment.

U= Trees in such a condition that any existing value would be lost within 10 years and which should in the current context, be removed for reasons of sound arboricultural management. (Trees that have serious, irremediable structural defects, such that their early loss is expected due to collapse or ill health including trees that will become at risk due to the loss of other U category trees).

A = Trees of high amenity quality and value in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).

- 1) Trees that are particularly good examples of their species if rare, unusual or essential components of groups or formal or semi-formal arboricultural features.
- 2) Trees, groups of trees or woodland which provide a definite screening or softening effect to the locality in relation to views in or out of the site, or those of particular visual importance.
- 3) Trees groups or woodlands of significant conservation, historical, Commemorative or other value (e.g. veteran tree or wood pasture).

B = Trees of moderate quality and amenity value: those in such a condition as to be able to make a significant contribution (a minimum of 20 years is suggested).

- 1) Trees that might be included in the high category but are down-graded because of impaired condition (e.g. remediable defects).
- 2) Trees, groups of trees or woodland that form distinct landscape features but do not form essential components of the landscape.
- 3) Trees with clearly identifiable conservation or other cultural benefits.

C = Trees of low quality and amenity value currently in adequate condition to remain until new planting is established (a minimum of 10 years is suggested) or trees under 150 mm stem diameter.

- 1) Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.
- 2) Trees presenting groups or woodlands but not with a significantly higher landscape value and or offering low or temporary/transient screening benefit.
- 3) Trees with no conservation or other cultural benefits.

Note: Category C trees are the least suitable for retention, where they would impose a significant constraint on the development their removal for development purposes may be considered acceptable by the LPA.

5.Tree Survey Data & Appraisal

This survey concerns 2 individual trees and 1 tree group, full details of the survey data can be found in the Tree Survey Schedule at **Appendix A**. An explanation of Tree Quality category ratings is set out on the previous page.

Category A individual trees and groups of trees.

No trees have been graded as category A (trees of high quality) as part of this survey.

Category B individual trees and groups of trees.

No trees have been graded as category B (trees of moderate quality) as part of this survey.

Category C individual trees and groups of trees.

1 individual tree and 1 tree group have been graded as category C (trees of low quality) as part of this survey.

Category U individual trees and groups of trees.

1 tree has been graded as category U (trees unsuitable for retention) as part of this survey.

3 tree species have been recorded as part of this survey, their common and botanical names are set out within the table below.

Common Name	Botanical Name
Cherry	Prunus sp. Cherry
Common holly	Ilex aquifolium
Western red cedar	Thuja plicata

Table 2. Tree species recorded on site and their botanical names.

Photo of subject trees



The photo above showing T1 dead cherry, G1, a linear group comprising 7 category C holly and T2, a category C off-site Cypress. T1 and G1 are to be removed and replaced due to their condition and likelihood of impact upon their root systems from the proposed building.

6. Arboricultural Impact Assessment

The Arboricultural Impact Assessment (AIA) sets out the potential risks and threats associated with proposed construction to trees both within and near to an application site and seeks to minimise those risks through the implementation of a sound and recognised methodology set out within an arboricultural method statement.

Construction and development in general can impact trees in a number of ways, the most notable being damage to the tree's root system leading to decline and potential structural instability. BS5837 recognises this and accordingly sets out recommendations to minimise damage associated with the effects of soil compaction and root severance.

The AIA also considers the effects of tree removal on the immediate and wider environment and seeks to mitigate removal with suitable replacement planting.

A single category U dead Cherry and linear group of 7 category C Common holly will be removed in order to facilitate the proposed development.

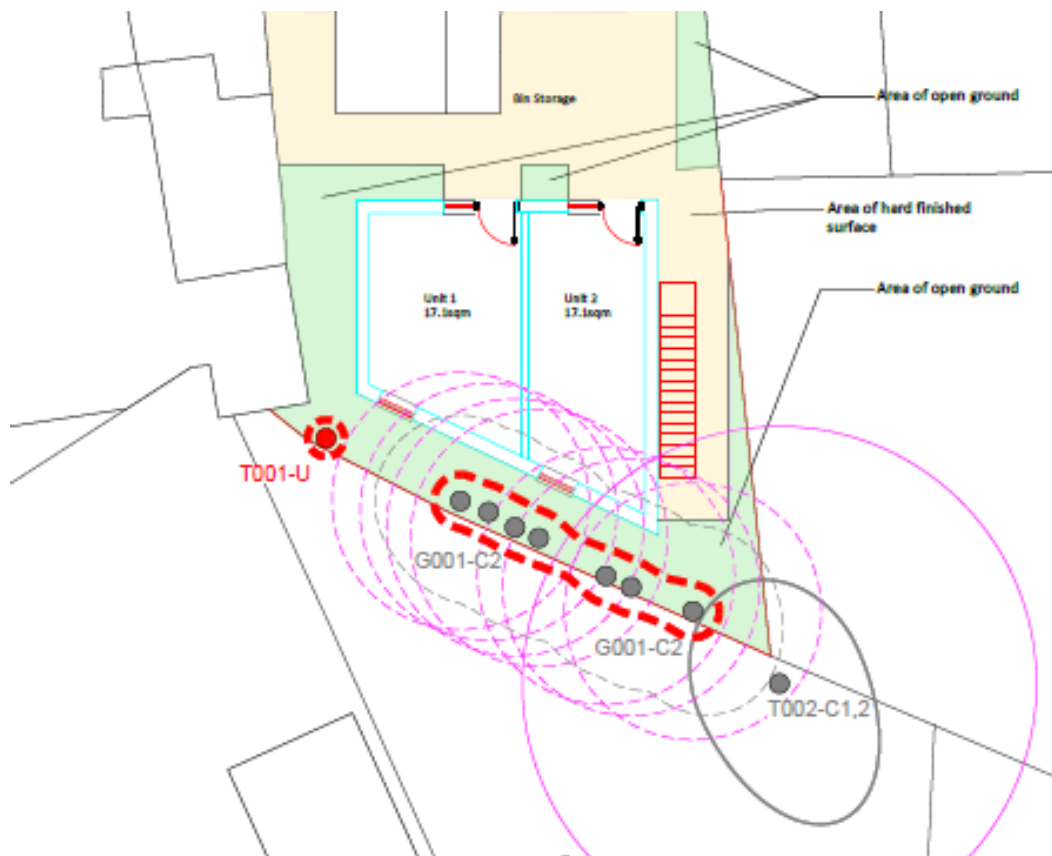


Figure 1 above is an extract from the arboricultural impact plan at appendix C. Note the average stem diameter of the 7 trees that make up G1 is approximately 250mm, equal to a circular root protection area (RPA) with a radius of 3 metres. The proposed building would encroach significantly upon the RPAs of the 7 low quality trees that are not considered a constraint to development.

Retained trees

No trees are to be retained within the site, although a single category C mature Western red cedar (**T2**) grows off-site to the immediate south. The RPA of **T2** has been generously estimated as having a combined stem diameter of 500mm equal to a circular RPA radius of 6m.

We expect a minor ingress within the estimated RPA of 5%, or 5.8m². This incursion would occur upon the outer edge of the RPA and is not expected to have any significant impact upon the off-site tree.

Root Protection Areas- General information

BS 5837 describes the root protection area (RPA) as a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.

The **Root Protection Areas (RPA)** have been calculated in accordance with Table D1 of BS5837:2012. Notional RPA's are plotted on the arboricultural impact assessment plan at **appendix C**. The RPA is defined by the formula in paragraph 4.6 from the British standard and may be refined by considering current on-site constraints to root activity such as buildings, walls, earthworks, hard paving and services.

Root Systems and compaction

Root systems can easily be damaged during construction works, leading to the sometimes-rapid decline of valuable trees. The biggest problem for trees on or close to construction sites is the compaction of soil caused by inappropriate vehicular movement and storage of materials especially where the site is founded on a compressible clay.

Numerous surveys have shown that a significant proportion of a tree's roots proliferate in the top 600-1000mm of soil. There will of course be roots that may go down to depths of 3 metres or more although these will be in the minority. Roots in the upper soil surface find it far easier to intercept moisture, acquire oxygen and perform gaseous exchange. You also find that as soil depth increases so does its strength or compaction, making it harder for roots to exploit.

Root morphology differs from species to species and is largely dependent on the soil type and ground conditions, however the fine roots responsible for moisture and nutrient uptake can last anything from 10 days to over a year (Eissenstat and Yanai, 1997), with the tree producing new fine roots on a regular basis. The larger and more structural roots are a permanent feature of the tree and convey moisture and nutrients from the soil via the fine roots, into the trunk and canopy. The larger roots are of course responsible for the tree's stability as well as being areas of carbohydrate storage. Younger trees are more able to adapt to change and have more potential energy to explore alternative rooting environments whereas more mature trees are slower to react to a changing soil environment and are adapted to expend their energy on other important functions.

The National Geology of Britain Viewer advises that the local soil comprises a bedrock geology of Ardingly Sandstone Member-Sandstone, therefore the risk of soil compaction is considered to be moderate. However, The risk of soil compaction will be mitigated with the correct installation of tree protective fencing.

Root severance

As mentioned above, the roots are responsible for a number of functions including stability and the transport of water and nutrients. Studies have shown that trees can withstand and recover from the loss of a proportion of their root systems, especially where those roots have been removed in a single direction. It is unlikely that any significant roots will be encountered from the subject trees.

Replacement trees.

Following construction of the building, a linear group of 7 pleached trees will be planted along the rear boundary.

The pleached trees will comprise 7 x *Prunus laurocerasus* 'Caucasica'. The trees will be planted at 1.5m centres with a minimum stem girth of 8-10cm.

At the time of planting, the trees would be approximately 2.7m in height. We suggest the trees are allowed to grow to a height of approximately 3.5-4m in order to provide an attractive evergreen screen.

Full planting details can be found at appendix E of this document.

7. Arboricultural Method Statement (AMS)

The arboricultural method statement sets out a precautionary approach towards tree protection. Any operations including access proposed within the RPA (or crown spread where this is greater) will be described within an arboricultural method statement in order to demonstrate that the operations can be undertaken with minimal risk of adverse impact to retained trees.

Phase 1- Access facilitation and pre-start tree works.

- Contractor to remove **T1** and **G1**.

Phase 2- Installation of ground protection.

- Ground protection will comprise of a proprietary ground protection mat such as TrakMat laid upon a porous terram sheet and 150mm depth of woodchip mulch. This is in order to lessen the impacts of ground compaction in proximity to off-site **T2** during construction activities.
- Ground protection will be laid in the locations shown on the tree protection plan at appendix D and will remain in place until construction is complete.



Images above from a site managed by Usherwood Arboriculture and showing the three stages of ground protection installation.

Image 1- laying of geotextile membrane upon existing surface.

Image 2- hand spreading of 100-150mm depth of woodchip mulch.

Image 3- Trakmat ground protection mats directly laid upon woodchip mulch.

- In this instance, Trakmat will be substituted with closely abutted 18mm plywood boards.

Phase 3- Construction of building.

- Once tree protection measures have been installed, outside of the RPA of **T2** off-site Cypress, the building will be constructed in the standard manner without the need for specific arboricultural techniques.

- The small section of excavation and construction that takes place within the outer edge of the RPA of **T2** will be carried out under arboricultural supervision.
- The initial 600mm of excavation will be carried out with the use of hand tools only and any exposed roots cut back with sharp bypass loppers to the trench edge.
- Roots are not expected to be significant and no further specialist measures are required.

Pre-commencement meeting & site supervision.

A single site visit will be carried out following the installation of tree protection measures but prior to the commencement of works. This is in order for the project arboriculturalist to make sure that tree protection has been correctly installed and to deal with any other arboricultural issues that may arise.

A second visit will take place when excavation begins in proximity to the RPA of **T2** off-site cypress.

Results of the site visit will be shared with the LPA within 5 working days.

Additional matters.

The location or updating of underground utilities may also need to be considered, there is no further information regarding utilities at the present time. We advise any new utilities to be located outside of the RPA of existing retained trees, although where existing services that run within RPAs require modification, this may be dealt with in a separate arboricultural method statement following guidelines set out within BS5837: 2012.

General measures to be adopted in proximity to trees-

- All tree protection measures will be set in place prior to commencement of any works relating to the approved planning consent.
- No bonfires on site.
- No storage of products or mixing of materials within the RPA's of retained trees.
- No materials are to be stored within the confines of the protective fencing (CEZ).
- Storage of materials on soft ground in proximity to any other trees and hedges away from construction is to be avoided.
- No discharging of any products associated with construction near trees or hedges
- No refueling/topping up of hydraulic fluids etc. on plant machinery within or close to the RPA of trees.
- There will be no lowering or raising of soil levels within the root protection areas of retained trees except where specified and agreed by the LPA.

- There will be no excavation or trenching for the installation of services within the root protection areas of retained trees except where specified and agreed by the LPA.

8. Conclusion

The application to erect a building within the rear of 94-98 London Road requires the removal of 7 category C Common holly trees as well as a single dead cherry. None of the trees are considered to be of such a quality or visual amenity value as to be considered a constraint to development. In order to mitigate the removal of the existing holly trees, the applicant proposes to plant a replacement evergreen screen across the rear of the site comprising 7 pleached laurel trees. An Arboricultural Method Statement and Tree Protection Plan demonstrate that a single off-site tree can be adequately protected throughout all stages of development, and therefore in our opinion, this application should be considered as being arboriculturally acceptable.

9. Qualifications & Experience

I have been involved in the horticultural and arboricultural industries for over 40 years, firstly as a contractor and for the last 20 years as a Local Authority tree officer and consultant. I hold the AA Tech cert arb, and ND Arb (RFS) as well as being a Lantra accredited Professional Tree Inspector and technical member of the Arboricultural Association.

Lawrence Usherwood
Usherwood Arboriculture

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Appendix A: Tree Survey Schedule

Trees have been listed on the schedule with both their common and scientific names.

Tree height is normally measured and rounded up to the nearest metre for trees above 10 metres in height using a Haglof electronic clinometer.

Stem or trunk diameters were measured using a diameter tape in mm at 1.5 metres above ground where access allowed, otherwise diameters have been estimated.

Crown spread has been measured in metres from the trunk to the tips of the live lateral branches taken at the four-cardinal points N-E-S-W using a ground tape.

Age Class

Young - Trees in the first fifth of full life expectancy

Semi-mature - Trees in the second fifth of full life expectancy

Early-mature - Trees in the third fifth of full life expectancy

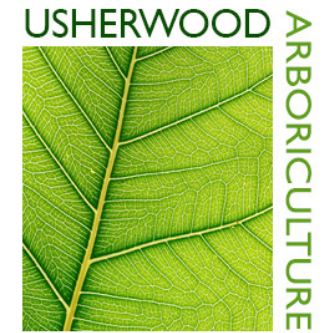
Mature - Trees in the fourth fifth of full life expectancy

Post-mature – Trees having reached full life expectancy and trees in natural decline

Veteran - Trees of interest biologically, culturally and aesthetically due to certain features and/or age.

ERCY-The estimated remaining contribution in years calculated considering the tree's species, location, current age and physiological and structural condition at the time of the survey.

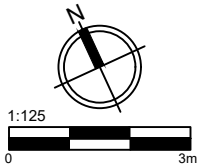
BS5837 Survey Data



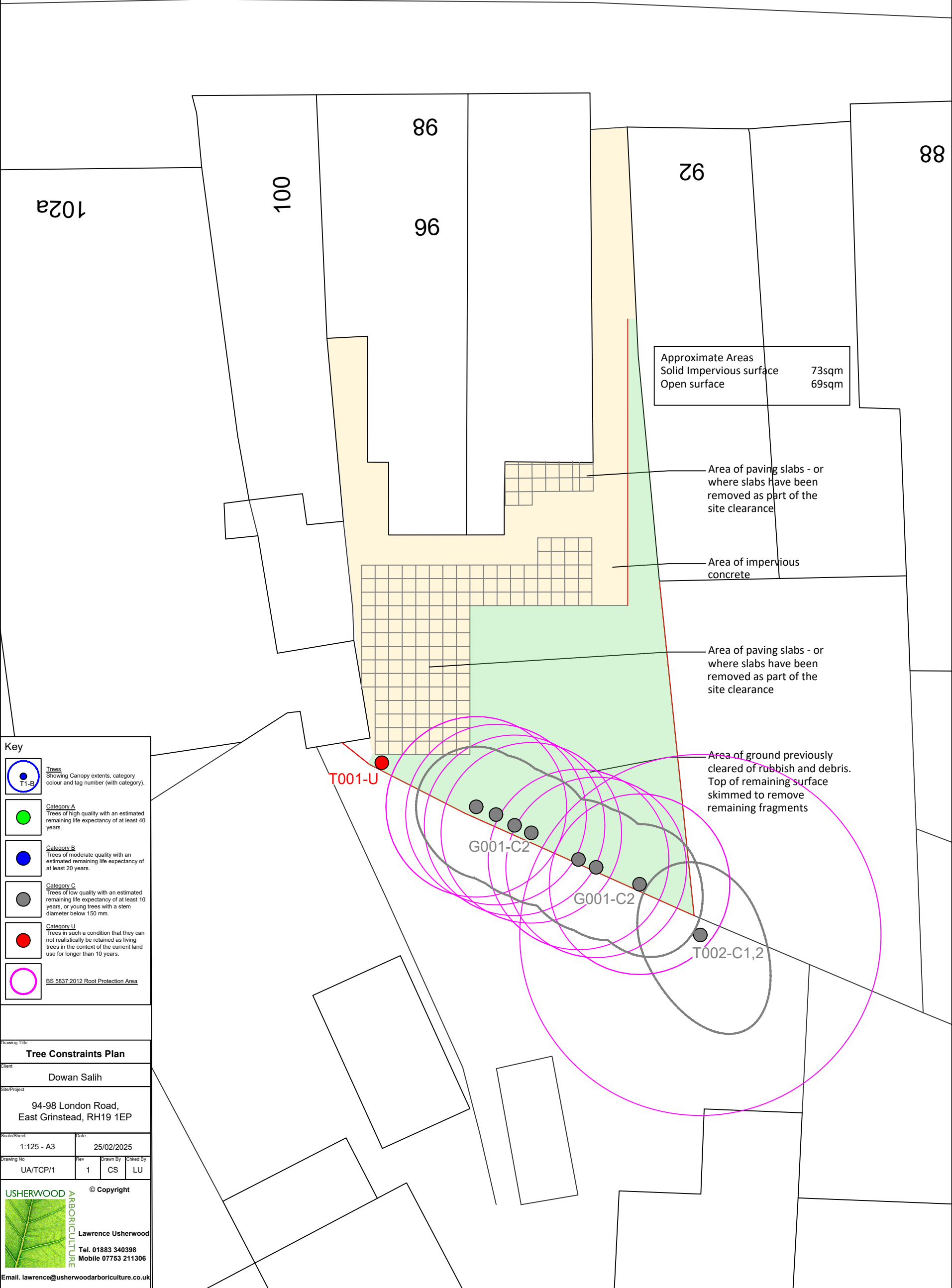
Ref.	Species	Measurements	General Observations	Category	Recommendations
G001	Common holly x7 (Ilex aquifolium)	Height (m): 8 7 stems, avg.(mm): 250 Spread (m): 2N, 2.5S, Life Stage: Early Mature Rem. Contrib.: 20+ Years	Linear group of 7 trees of generally low quality and little amenity value. I suspect these are unmanaged trees originally planted as a hedge.	C2 RPA Area: 42 sq m.	Remove to facilitate proposed development.
T001	Cherry (Prunus sp. 'Cherry')	1 stems Life Stage: Dead		U RPA No RPA.	
T002	Western red cedar (Thuja plicata)	Height (m): 11 Stem Diam(mm): 500 Spread (m): 2.5N, 2E, 3.5S, 2W Life Stage: Mature Rem. Contrib.: 20+ Years	Multi-stemmed off-site tree.	C1,2 RPA Radius: 6.0m. Area: 113 sq m.	

Appendix B: Tree Survey Plan-

General Notes
Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements.
Depictions of tree canopies are based on measurements taken to four cardinal compass points.
No liability of any kind is accepted for any omissions or inaccuracies in respect of this plan.
The original of this drawing was produced in colour; a monochrome copy should not be relied upon.
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London Road



Key

- Trees**
Showing Canopy extents, category colour and tag number (with category).
- Category A**
Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- Category B**
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- Category C**
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm.
- Category U**
Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
- BS 5837:2012 Root Protection Area**

Drawing Title
Tree Constraints Plan

Client
Dowan Salih

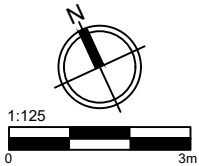
Site/Project
94-98 London Road,
East Grinstead, RH19 1EP

Scale/Sheet 1:125 - A3	Date 25/02/2025		
Drawing No UA/TCP/1	Rev 1	Drawn By CS	Checked By LU

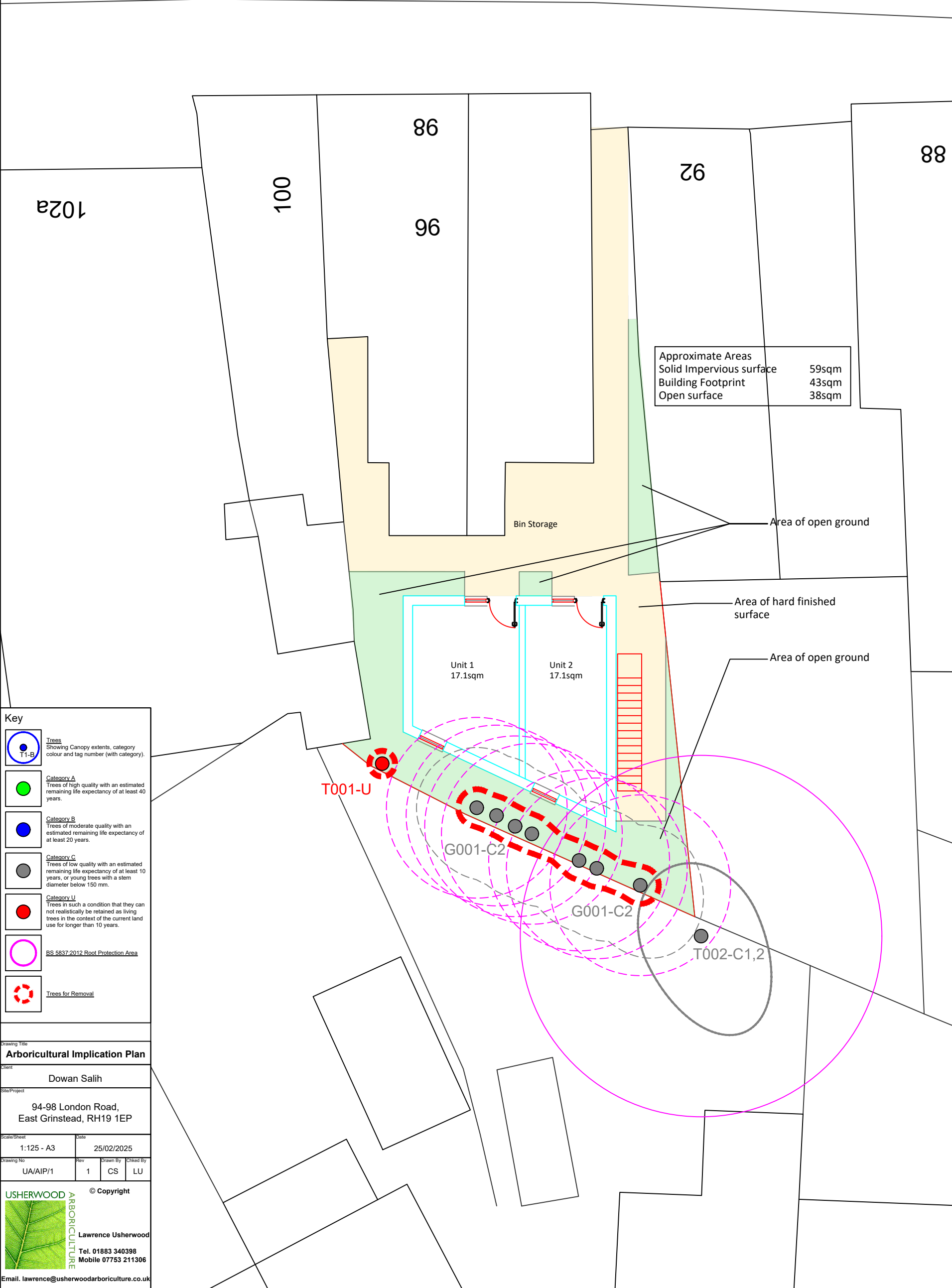
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Appendix C: Arboricultural Impact Plan

General Notes
Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements.
Depictions of tree canopies are based on measurements taken to four cardinal compass points.
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London Road



Key

- Trees**
Showing Canopy extents, category colour and tag number (with category).
- Category A**
Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- Category B**
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- Category C**
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm.
- Category U**
Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
- BS 5837:2012 Root Protection Area**
- Trees for Removal**

Drawing Title
Arboricultural Implication Plan

Client
Dowan Salih

Site/Project
94-98 London Road,
East Grinstead, RH19 1EP

Scale/Sheet
1:125 - A3

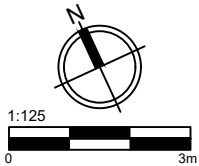
Date
25/02/2025

Drawing No	Rev	Drawn By	Checked By
UA/AIP/1	1	CS	LU

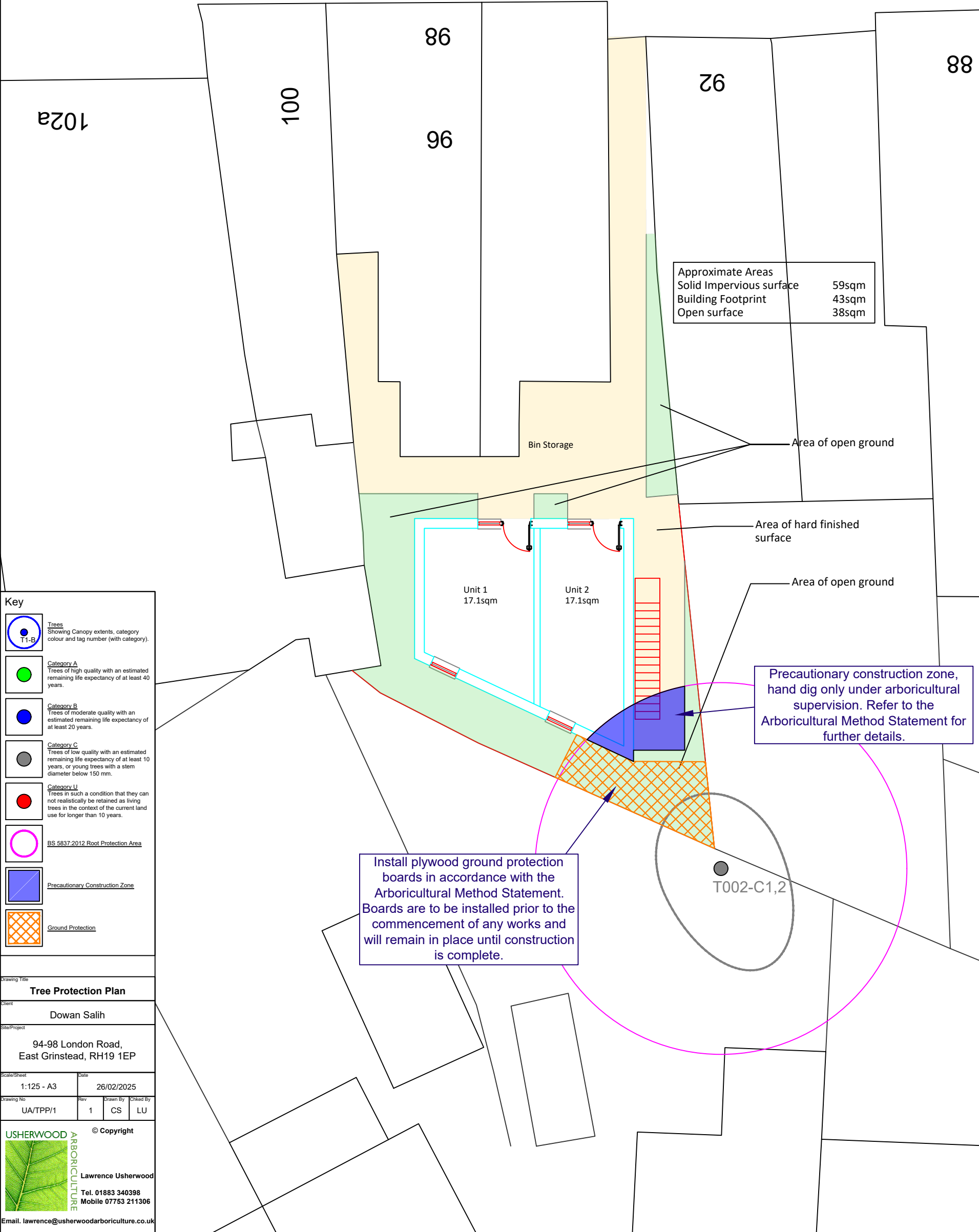
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Appendix D: Tree Protection Plan

General Notes
Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements.
Depictions of tree canopies are based on measurements taken to four cardinal compass points.
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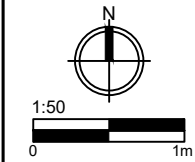


London Road



Appendix E: Tree Planting Plan

General Notes
Do not scale off drawing.
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Unit 1
17.1sqm

Unit 2
17.1sqm



Pleached Laurel hedging planted at 1.5m centres. 8-10cm stem girth with a height at planting of 2.7m. Plants will be container grown or root-balled stock and planted following construction of the building.

1.5m

Planting and Management

- Pleached Laurel trees will be planted in 1000mm x 1000mm x 500mm deep tree pits.
- Planting pits will be backfilled with a mix of the existing garden soil and approximately 20% organic matter such as a good quality tree and shrub compost.
- The planting pits will be mulched around each tree with approximately 80mm depth of composted woodchip mulch. Mulch will be kept away from the immediate trunk to avoid stem scorch.
- Trees will be supported by 2 stakes and rubber ties fastened no more than a third of the way up the stem.
- Supports will be checked on a regular basis to ensure they are supporting and not damaging the tree stem.
- Trees will be watered on a weekly basis between mid-April and the end of September for the for the first three years or until successfully established in the landscape.
- Each tree should receive approximately 20 litres of water each, applied slowly to the mulched area around the trunk.
- Pleached trees need to be maintained in the same way as a hedge. Forward facing growth should be carefully cut back to form a visually impermeable screen and trees should be encouraged to achieve the desired finished height of approximately 3.5m-4m. Trees may then be maintained at the desired height.

Drawing Title			
Proposed Landscape Planting			
Client			
Dowan Salih			
Site/Project			
94-98 London Road, East Grinstead, RH19 1EP			
Scale/Sheet		Date	
1:50 - A3		27/02/2025	
Drawing No	Rev	Drawn By	Chkd By
UA/PLP/1	1	CS	LU
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Email. lawrence@usherwoodarboriculture.co.uk			

Appendix F: Site Supervision Example

Date: _____ Time: _____ Site:		Planning application reference:	
Those present in addition to project arboriculturalist: Client /Agent: Project / Site manager: LPA arboricultural officer: Other (specify):			
	Yes	No	Action Required?
Tree Protection measures located in accordance with TPP?			
Any disturbance within construction exclusion zone?			
Any materials stored within construction exclusion zone?			
Any evidence of damage to tree roots, stems or canopies?			
Any works programmed before next planned site visit that may affect retained trees?			
Notes: 			
Signed:		Date:	

When is site supervision necessary-

Site supervision is normally specified where construction and development activity take place within or adjacent to the root protection area (RPA) of retained trees as calculated within the Arboricultural Impact Assessment (AIA) and described within the Arboricultural Method Statement (AMS).

The AMS will note where site supervision is recommended, and the local planning authority may require the provision of site supervision as a condition of planning consent.

Site supervision may cover several actions as set out below. The conclusions of each of the actions will be documented and shared with the client and local authority tree officer.

- Initial site meeting.
- Toolbox talk with all operatives having responsibility for works in proximity to trees.
- Correct installation of tree protection systems including fencing, ground protection, CCS, site huts etc.
- Technical supervision including excavation/trenching within RPAs, piling, installation of services, installation of lightweight structures such as bin and bike sheds, and installation of load bearing surfaces.

Reporting systems and site notes-

Additional notes taken during supervision of works within or close to the RPAs of retained trees.

Information will include the following-

- Date of works
- Description of works
- Operatives present
- Photographic records
- Scaled Section diagram and/or plan, showing location, size, and condition of any exposed roots.

Information will be shared with the client and local authority tree officer.