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expert arboricultural advice

## ARBORICULTURAL METHOD STATEMENT

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Land to the rear of Brock Cottage  
Burford Road  
Brize Norton  
Oxfordshire  
OX18 3NR

March 2024

Ref: 24050

Prepared by Fiona Bradshaw MICFor; Dip.Arb (RFS); F. Arbor.A; Tech Arbor.A

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Institute of  
**Chartered Foresters**  
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## 1. INTRODUCTION

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- 1.1 Instructions have been received to compile an Arboricultural Method Statement (AMS) to provide tree protection measures for trees located on land to the rear of Brock Cottage, Brize Norton (Site Location Plan Appendix 1).
- 1.2 During February 2024 the 2021 tree survey was revised. This is a basic data collection exercise and a record of the trees condition at the time of surveying. The updated tree survey data can be viewed at Appendix 2.
- 1.3 This Arboricultural Method Statement is to provide details on the range of issues that are related to the construction of two new dwellings and is aimed at providing site specific details regarding the implementation.

## 2. SITE DESCRIPTION

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- 2.1 The site is located to rear of Brock Cottage and was a former quarry site. The site has not been recently managed and there are several trees which are growing out of the quarry walls. The site is accessed via an existing lane to the west of Brock Cottage.

## 3. TREE LEGISLATION

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- 3.1 A desk top study of information posted on West Oxfordshire District Council (WODC) website details that the site is not located within a Conservation Area. In addition, the website reveals no tree preservation orders (TPO's) are present on trees within or adjacent to the site.
- 3.2 Before undertaking any work that may be recommended within this report, it is advisable to check directly with WODC to determine whether any planning controls are in operation for trees within the site. Written consent must be obtained for works on trees subject to a TPO and in the case of a Conservation Area six weeks' notice of intent must be forwarded before undertaking any such work.

## 4. PLANNING PERMISSION

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- 4.1 Planning permission has been granted to construct two new dwellings on land to the rear of Brock Cottage.

## 5. TREE PROTECTION MEASURES

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### 5.1 Pre-commencement site meeting

- 5.1.1 It is recommended that a pre-commencement of work site meeting with the Project Manager and Project Arboriculturalist is held prior to the instigation of works to review the tree protection measures. In addition, this meeting will provide the opportunity to consider whether additional tree protection measures are necessary.

### 5.2 Construction Exclusion Zone (CEZ)

- 5.2.1 This is the area based on the root protection area (RPA) of a tree as identified by the Arboriculturalist to be protected during the development. Protection will be using barriers and/or ground protection which is fit for purpose to ensure the successful long-term retention of trees within or adjacent to the development site. The area within the Construction Exclusion Zone is to be regarded as sacrosanct, and the tree protective fencing should not be taken down or relocated at any time without the written approval of the LA.

- 5.2.2 Within the Construction Exclusion Zone (CEZ) the following prohibitions will apply:

- **NO** mechanical digging or scraping.
- **NO** hand digging (unless agreed in writing by the LA).
- **NO** storage of plant, equipment or materials.
- **NO** vehicular or plant access.
- **NO** fire lighting. **NO** earthworks.
- **NO** washing down of vehicles or machinery.
- **NO** handling, discharging or spillage of any chemical substance including cement washings.
- **NO** action likely to cause localised waterlogging.
- **NO** changing of ground levels (unless agreed in writing by the LPA).
- **NO** construction of a hard surface (unless agreed in writing by the LPA).

- 5.2.3 In addition to the above, further precautions are necessary adjacent to trees outside the CEZ:

- Materials that will contaminate the soil such as concrete mixing, diesel spillage and vehicle washings, must not be discharged within 10m of a tree stem/s. This must consider the topography of the site and the slopes to avoid toxic materials running towards a tree/s.
- Fires must not be lit in a position where their flames can extend to within 5 metres of the foliage, branches or trunk. This will depend on the size of the fire and the wind direction.
- Notice boards, telephone cables or other services should not be attached to any part of a tree/s.

### 5.3 Tree protective fencing and tree protection plan

- 5.3.1 Tree protective fencing will be installed in accordance with the detail set out on tree protection plan (Appendix 3). Fencing will be erected **prior** to any site works and must remain in situ and be fit for purpose for the duration of the development. The fencing must not be prematurely removed without prior consent of the project Arboriculturalist or the Local Planning Authority (LPA).

- 5.3.2 Scaled copies of the tree protection plan must be made available for site personnel and must be displayed in the temporary contractor's compound area on site for all site personnel to see.
- 5.3.3 The fence protection is to comprise of Heras fencing and will be based on Figure 2 'Default Specification for Protective Barrier' as recommended within the British Standard 5837:2012 (Appendix 4). Where appropriate this will be braced to withstand impacts.
- 5.3.4 To inform site personnel of the purpose of the fencing, information notices shall be fixed to the fencing at 5m intervals. These notices shall be of all-weather design and examples of the notices are at Appendix 5.
- 5.3.5 Where necessary and with the written approval of the LPA, the line of fencing may be temporarily taken down to facilitate an approved action such as the removal of an area of existing hard surface. The Project Arboriculturalist must be on site to oversee any additional and appropriately approved processes.

5.4 Ground Protection for Trees

- 5.4.1 Ground protection measures are also required to facilitate access for the works. Prior to the construction of the no dig road, it is recommended that the ground protection comprises of Duradek Mats (Appendix 6) or other similar product that is fit for purpose.
- 5.4.2 Where existing hard standing is present this may act as ground protection where this falls with the RPAs of trees.

5.5 Pre-development Tree Works

- 5.5.1 In accordance with British Standard 5837:2012 Section 8.8 recommends a tree works schedule is provided for works required to implement the development. The following tree works are required:

TREE NO.	SPECIES	PROPOSED WORKS
T1	Jacquemontii Birch	Remove to facilitate the development (cat C trees)
T3	Plum	Remove to facilitate the development (cat C trees)
T4	Sycamore	Remove to facilitate the development (cat U tree)
T5	Ash	Remove to facilitate the development (cat C trees)
G1	Leyland Cypress	Remove to facilitate the development (cat C trees)

- 5.5.3 All consented tree works as part of the planning permission must be carried out in accordance with British Standard 3998:2010 'Recommendations for Tree Works' and in compliance with good practice as promoted by the Arboricultural and Forestry Advisory Group. **All pruning works must be carried out by a suitably qualified and experienced Arboriculturalist.**
- 5.5.4 Under **NO** circumstances must site personnel undertake any tree pruning operations. All tree works must be carried out prior to any works in connection with the planning permission being implemented.

- 5.5.5 Tree works must take into consideration the timing of operations so that the avoidance of the bird nesting season (1<sup>st</sup> March – 31<sup>st</sup> August) and the main active growing period of trees can be prevented. Penalties contrary to the Wildlife and Countryside Act 1981 is an unlimited fine, up to six months imprisonment or both.

*All tree numbers referred to in this document relate to the tree numbers annotated on the Tree Protection Plan (Appendix 2).*

## 6. PHASING OF DEVELOPMENT

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6.1 The consented development works will be carried out in 2 phases:

- Pre-commencement of Works 1: Tree Works.
- Pre-commencement of Works 2: Erection of the tree protection
- Phase 1: Main Construction Phase
- Phase 2: Construction of No Dig Road

6.2 Pre-commencement Works 1 - Tree Works

6.2.1 All consented tree works to be carried out by a suitably qualified Arboriculturalist.

6.3 Pre-commencement Works 2 - Tree Protective Fencing & Ground Protection

6.3.1 Tree protection measures to be installed in accordance with the Tree Protection Plan (Appendix 3). Under no circumstances must the fence protection be altered without prior consent from the LA.

6.4 Phase 1: Main Construction Phase

6.4.1 It is recommended that construction personnel undergo an induction session prior to being allowed to work on site. At this time the Arboricultural Method Statement can be explained to all personnel and where appropriate a copy provided for their reference. In addition, a copy of the Tree Protection Plan will be placed in a readily accessible place and will be pointed out to the construction personnel before the commencement of any works in connection with this phase of the proposal.

6.4.2 Large machinery used for the construction phase must be supervised whilst in operation to avoid contact with branches and tree canopies that are within close proximity to the works.

6.4.3 Materials will be delivered on an as and when basis. However, if temporary storage of materials is required this shall be in area highlighted on the Tree Protection Plan.

6.5 Phase 1: Construction of the no dig road

6.5.1 It is recommended that construction personnel undergo an induction session prior to being allowed to work on site. At this time the Arboricultural Method Statement can be explained to all personnel and where appropriate a copy provided for their reference. In addition, it is recommended that a copy of the Tree Protection Plan is placed in a readily accessible place and be pointed out to the construction personnel before the commencement of any works in connection with this phase of the proposal.

- 6.5.2 Where the new parking bays fall within the root protection areas of retained trees this will be constructed using a no dig design and prior to the main construction phase. The use of a 'No dig' form of construction using Geoweb, or a similar product will be employed to create a structurally sound layer within close proximity to trees that dissipates load efficiently and permits the use of free drainage aggregates. The new surface must be established above the existing ground level and levels must not be raised by more than 200mm within the RPA of the adjacent trees. Please refer to Appendix 7 for construction guidance. Any marrying of levels will occur outside the RPAs of retained trees.

## 7. REMOVAL OF HARD SURFACING

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- 7.1 Any removal of existing surfacing or other excavations within the root protection area or construction exclusion area of retained trees, must be undertaken by hand to avoid any surface root damage and this will be supervised by the Project Arboriculturalist.
- 7.2 The removal of hard surfacing should be broken up with the use of hand tools or appropriate machinery, but under the supervision by the Project Arboriculturalist. Any machinery or equipment to be used will need to be light weight and either be placed on additional ground protection or needs to be undertaken from the hard standing only.
- 7.3 If the area of the zone of protection around the retained trees is to be left following the removal of the existing hard surface, before a new hard surface is laid or the area receives soft landscaping treatment, then the line of protective fencing **MUST** be correctly re-established immediately the hard surface removal work has been completed.
- 7.4 If for any reason there is a delay before the area that was previously protected by hard surfacing is left exposed and is awaiting a new surface, then a temporary surface must be implemented.

## 8. UTILITY SERVICE CONNECTIONS

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- 8.1 The siting of new service runs has not yet been confirmed. Where services fall within the root protection areas of trees all proposed service installations must be carried out in accordance with the guidelines set out in NJUG Volume 4 (Appendix 8) and in accordance with the recommendations at Section 7.7 of the British Standard 5837:2012:

### *7.7 Underground and above-ground utility apparatus*

- 7.7.1 Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and many change the local soil hydrology in a way that adversely affects the health of the tree. For this reason, particular care should be taken in the routing and methods of installation of all underground services. Wherever possible apparatus should be routed outside RPA. Where this is not possible, it is preferable to keep apparatus together in common ducts. Inspection chambers should be sited outside the RPA.*

7.7.2 *Where underground apparatus is to pass within the RPA, detailed plans showing the proposed routeing should be drawn up in conjunction with the project Arboriculturalist. In such cases, trenchless insertion methods should be used, with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected in accordance with 7.2.2, excavation using hand-held tools (see 7.7.1) might be acceptable for shallow service runs.*

- 8.3 Great care should be taken to preserve and work around roots greater than 25mm in diameter, and clusters of smaller roots avoiding damage to bark. Where it is necessary to sever roots greater than 25mm in diameter, arboricultural advice must be sought. Where smaller roots must be severed, they should be cut back cleanly using secateurs or a sharp pruning saw.
- 8.4 Back filling of trenches should be carried out using the excavated soil, which should be worked in around roots and lightly 'tamped' not compacted and respecting the original soil profile. The backfill should be left proud of surrounding levels to allow for settlement.
- 8.5 Trenches must not be left open overnight. If the trench is to remain open for any period of time during the day and the weather is hot, to prevent the roots from dying out it is advised that moist Hessian sacking is wrapped around the exposed roots and/or trench to prevent such desiccation from occurring or temperature changes. The reason for this is to reduce the potential for root tip death through lack of moisture.

## 9. VEHICULAR MOVEMENTS

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- 9.1 No vehicle movements will occur within the RPAs of the retained trees. However, where hard standing is present or where the no dig road has been constructed and acting as ground protection these areas may be accessed by vehicles.

## 10. TEMPORARY OFFICES/STORAGE COMPOUNDS

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- 10.1 The locations of these to be finalised with the project manager prior to the commencement of works. These facilities will then remain in the agreed locations throughout the construction. If alternative locations are required, these must be agreed in writing by the LPA. This will also include the delivery, storage, and movement of all these essential facilities as well as aspects such as temporary contractor parking and siting of concrete mixing.

## 11. AVOIDING DAMAGE TO STEMS & BRANCHES

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- 11.1 Care shall be taken when planning site operations to ensure that wide or tall loads or plant with booms, jibs and counterweights, can operate without coming into contact with the retained trees. Such contact could result in serious damage to them and might make their safe retention impossible. Consequently, any transit or traverse of plant in close proximity to trees should be carried out under the supervision of a banksman to ensure adequate clearance from tree is maintained at all times.



## 12. REPORTING OF DAMAGE TO TREES/FENCE PROTECTION

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- 12.1 Should any damage occur to trees noted for retention either by the above works or as the result of any other action, the damage must be reported to the site supervisor immediately. The site agent shall report up the chain of responsibility to the Arboricultural Consultant, or in their absence an appointment with an appropriately qualified Arboriculturalist, to enable remedial measures to be implemented as necessary and without delay.
- 12.2 Should protective fencing become damaged so as to impair its function in protecting trees, all works shall cease in the vicinity of the damage until the fence has been returned to standard. It shall also be recorded on the daily monitoring sheets as likewise all other issues regarding tree related issues on the site.

## 13. REPORTING OF DAMAGE TO TREES/FENCE PROTECTION

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- 13.1 Ongoing Arboricultural site monitoring for the duration of the development is recommended . Site monitoring should be undertaken by a qualified and experienced Arboriculturalist at pre-determined and agreed time intervals. It should take the form of regular inspections (i.e., monthly and/or during key operations), ongoing liaison with all personnel involved in the site development and with the LPA. Any defects requiring rectifying must be notified to the Site Agent and the Client and copied to the LPA.
- 13.2 It is recommended that the Project Arboriculturalist be present on site during the main periods of construction. Records are to be made available to the LA if required to show evidence of site monitoring (Appendix 9):
- Pre-commencement site meeting.
  - Inspection of fence and ground protection
  - Supervision of the construction of no dig road.
- 13.3 In addition it is proposed that a site logbook is kept recording all stages of the development from the installation of the fence protection to daily checks of the fencing through to the completion of the project. This should be made available to the LA if required to show evidence of site monitoring.
- 13.4 The LA's Arboricultural Officer will have free access to the site and report on any problem areas directly to the developer's Project Arboriculturalist, who will then visit the site and make recommendations to the developer on how best to rectify the situation and ensure implementation.

## 14. REMOVAL OF TREE PROTECTION

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- 14.1 When the substantial completion of the development phase has occurred, all drainage and service runs are in place, and all site machinery has been removed, and any landscaping for the principal areas of the site have been undertaken, the fence protection may be removed.

## 15. POST DEVELOPMENT TREE MANAGEMENT

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15.1 Section 8.8.3 of the British Standard 5837:2012 recommends a programme of inspection is drawn up in conjunction with an Arboriculturalist to advise on any necessary work to retained trees on the completion of the development. This may include recommendations for frequency of inspections and should take the form of a management plan which can be forwarded to interested parties regarding the site's future management.

- BS5837:2012 Section 8.8.3 NOTE 1:

Trees growing on a site before development takes place can, if adversely affected, be in decline over a period of several years before they die.

- BS5837:2012 Section 8.8.3NOTE 2:

Where the trees in question are subject to legal, planning or other regulatory controls, the appropriate authority needs to be informed and any necessary agreements obtained prior to work being undertaken.

## 16. CONCLUSIONS

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16.1 The tree protection measures have been considered in accordance with British Standard 5837:2012 'Trees in relation to Demolition, Design & Construction – Recommendations'.

16.2 Successful tree retention is achievable with the application of the tree protection measures set out in this document.

16.3 Sylva Consultancy has prepared this arboricultural method statement based on the information provided.

## 17. BIBLIOGRAPHY

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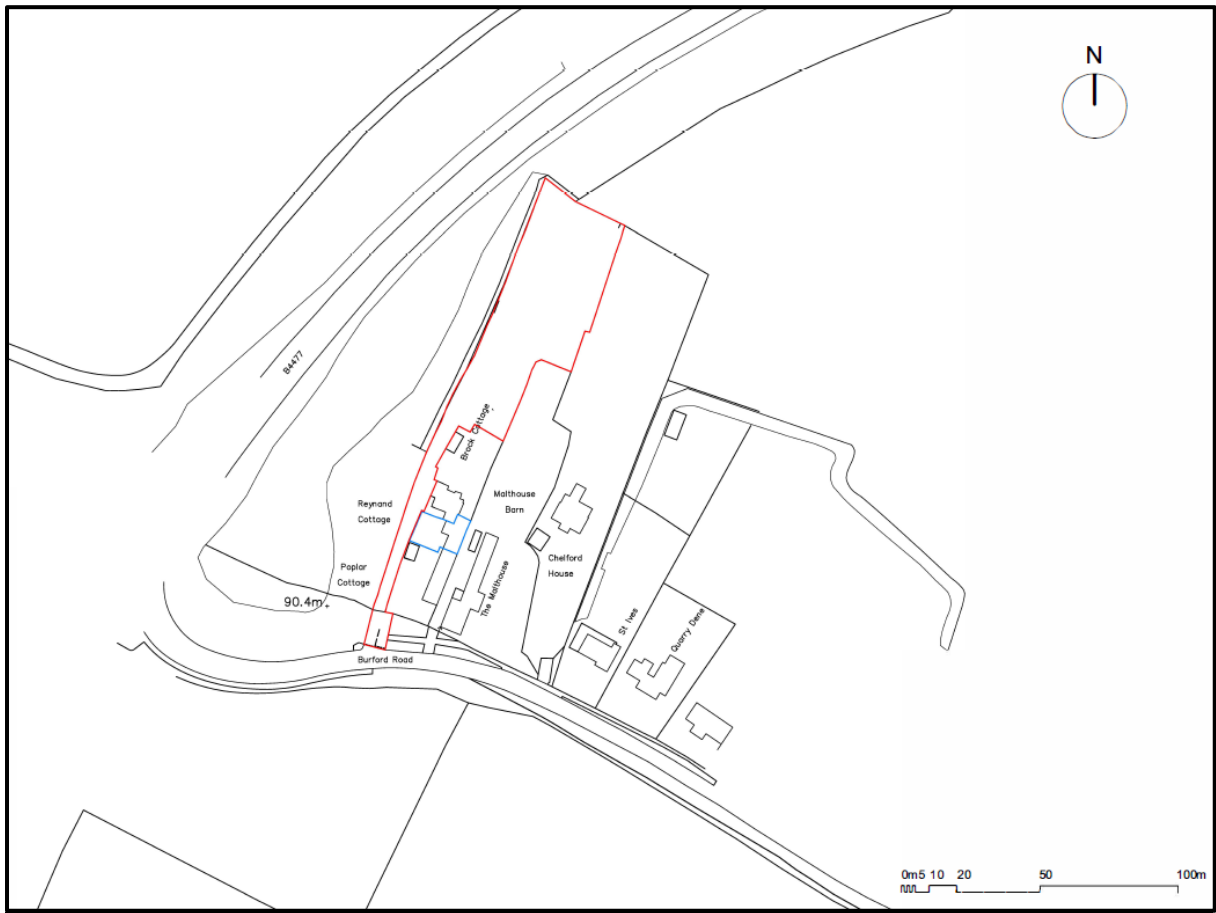
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# APPENDIX 1

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## SITE LOCATION PLAN

# SITE LOCATION PLAN



## APPENDIX 2

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### TREE SURVEY DATA

# KEY TO TREE SCHEDULE

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Tree No: Relates to individual trees, groups, hedges and woodlands as identified within the Tree Survey Schedule and Tree Constraints Plan

'T' prefixes have been used to identify individual trees.  
'G' prefixes have been used to identify groups of trees.  
'H' prefixes have been used to identify hedgerows.  
'W' prefixes have been used to identify woodlands.

Species: Common name

Height: Estimated height expressed in meters

ST: Stem diameter of the main trunk taken at 1.5m above ground level or in accordance with Annex C BS5837:2012.

Height in M of Canopy: Information of the first significant branch and direction of growth in order to inform on ground clearance.

Abbreviations: #: Estimated  
Ave: Average  
A.G.L: Above ground level  
SULE: Safe Useful Life Expectancy

Branch Spread: Estimated crown radius expressed in meters, taken for each cardinal compass point.

Age Class: Y Young - Less than one third of natural life expectancy  
MM Middle aged - One to two thirds of natural life expectancy  
M Mature - More than two thirds of natural life expectancy  
OM Over mature  
NP Newly Planted

Physiological Condition: G Good  
F Fair  
P Poor  
D Dead

## Notes:

Root Protection Area: This is a layout 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 is treated as a priority (detailed in paragraph 3.7 British Standard 5837:2012 'Trees in relation to Construction-Recommendations').

Young trees with a stem diameter of less than 150mm: Whilst the presence of young trees of good form and vitality is generally desirable (i.e those which have the potential to develop into quality mature specimens), they need not necessarily be a significant constraint on the site's potential (detailed in paragraph 4.5.10 British Standard 5837:2012 'Trees in relation to Construction-Recommendations').

# CASCADE CHART FOR TREE QUALITY ASSESSMENT

Category and definition Criteria (including subcategories where appropriate) Identification on plan

**Trees unsuitable for retention** (see Note)

<p><b>Category U</b></p> <p>Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years</p>	<ul style="list-style-type: none"> <li>• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</li> <li>• Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</li> <li>• Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality</li> </ul> <p><i>NOTE</i> Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</p>	<p><b>Dark Red</b></p>
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<b>1 Mainly arboricultural qualities</b>	<b>2 Mainly landscape qualities</b>	<b>3 Mainly cultural values, including conservation</b>
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**Trees to be considered for retention**

<p><b>Category A</b></p> <p><b>Trees of high quality</b> with an estimated remaining life expectancy of at least 40 years</p>	<p>Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)</p>	<p>Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features</p>	<p>Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)</p>	<p><b>Light Green</b></p>
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<p><b>Category B</b></p> <p><b>Trees of moderate quality</b> with an estimated remaining life expectancy of at least 20 years</p>	<p>Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation</p>	<p>Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality</p>	<p>Trees with material conservation or other cultural value</p>	<p><b>Mid Blue</b></p>
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<p><b>Category C</b></p> <p><b>Trees of low quality</b> with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm</p>	<p>Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories</p>	<p>Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits</p>	<p>Trees with no material conservation or other cultural value</p>	<p><b>Grey</b></p>
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TREE NO.	SPECIES  <i>(Latin)</i>	Height in (M)	CALCULATED STEM DIA (MM)	BRANCH SPREAD				HEIGHT IN M OF CANOPY	AGE CLASS	PHYS. COND	COMMENTS	LIFE EXPECTANCY (EST YEARS)	BS5837:2012 CATEGORY GRADING
				N	E	S	W						



# TREE SURVEY BS5837:2012

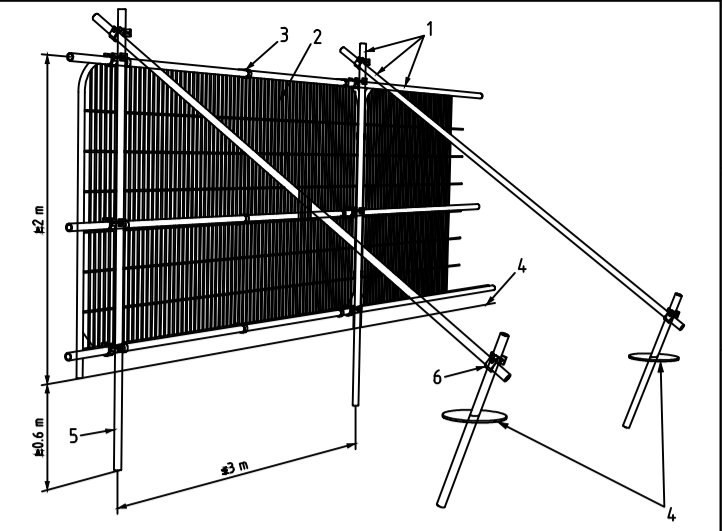
TREE NO.	SPECIES	Height in (M)	CALCULATED STEM DIA (MM)	BRANCH SPREAD				HEIGHT IN M OF CANOPY	AGE CLASS	PHYS. COND	COMMENTS	LIFE EXPECTANCY (EST YEARS)	BS5837:2012 CATEGORY GRADING
	(Latin)			N	E	S	W						
G2	Elm <i>Ulmus procera</i>	4	150	2	2	2	2	N/A	Y	F	<p><i>Preliminary Recommendations</i></p> <p>Growing on the old quarry wall and below HV cables. Average dimensions recorded. Limited SULE. <i>No Work</i></p>	10-20	C2

# ROOT PROTECTION AREA

TREE NO.	SPECIES	NO. OF STEMS	SINGLE STEM DIA (mm)	2-5 STEMS					> 5 STEMS	ROOT PROTECTION AREA - RPA (RADIUS IN M)	RPA (M <sup>2</sup> )	LIFE EXPECTANCY (EST YEARS)	BS5837:2012 CATEGORY
				STEM 1 (mm)	STEM 2 (mm)	STEM 3 (mm)	STEM 4 (mm)	STEM 5 (mm)	MEAN STEM DIA (mm)				
T1	Jacquemontii Birch	1	155							1.86	11	10-20	C2
T2	Birch	2		300	280					4.92	76	10-20	C2
T3	Plum	1	600							7.20	163	10-20	C2
T4	Sycamore	3		500	500	500				10.39	339	<10	U
T5	Ash	1	420							5.04	80	10-20	C2
T6	Sycamore	3		600	600	600				12.47	489	10-20	C2
T7	Field Maple	1	275							3.30	34	10-20	C2
T8	Field Maple	1	310							3.72	43	10-20	C2
T9	Walnut	1	1,000							12.00	452	20-40	B2
T10	Ash	3		600	600	600				12.47	489	10-20	C2
G1	Leyland Cypress	1	400							4.80	72	10-20	C2
G2	Elm	1	150							1.80	10	10-20	C2

TREE PROTECTION PLAN

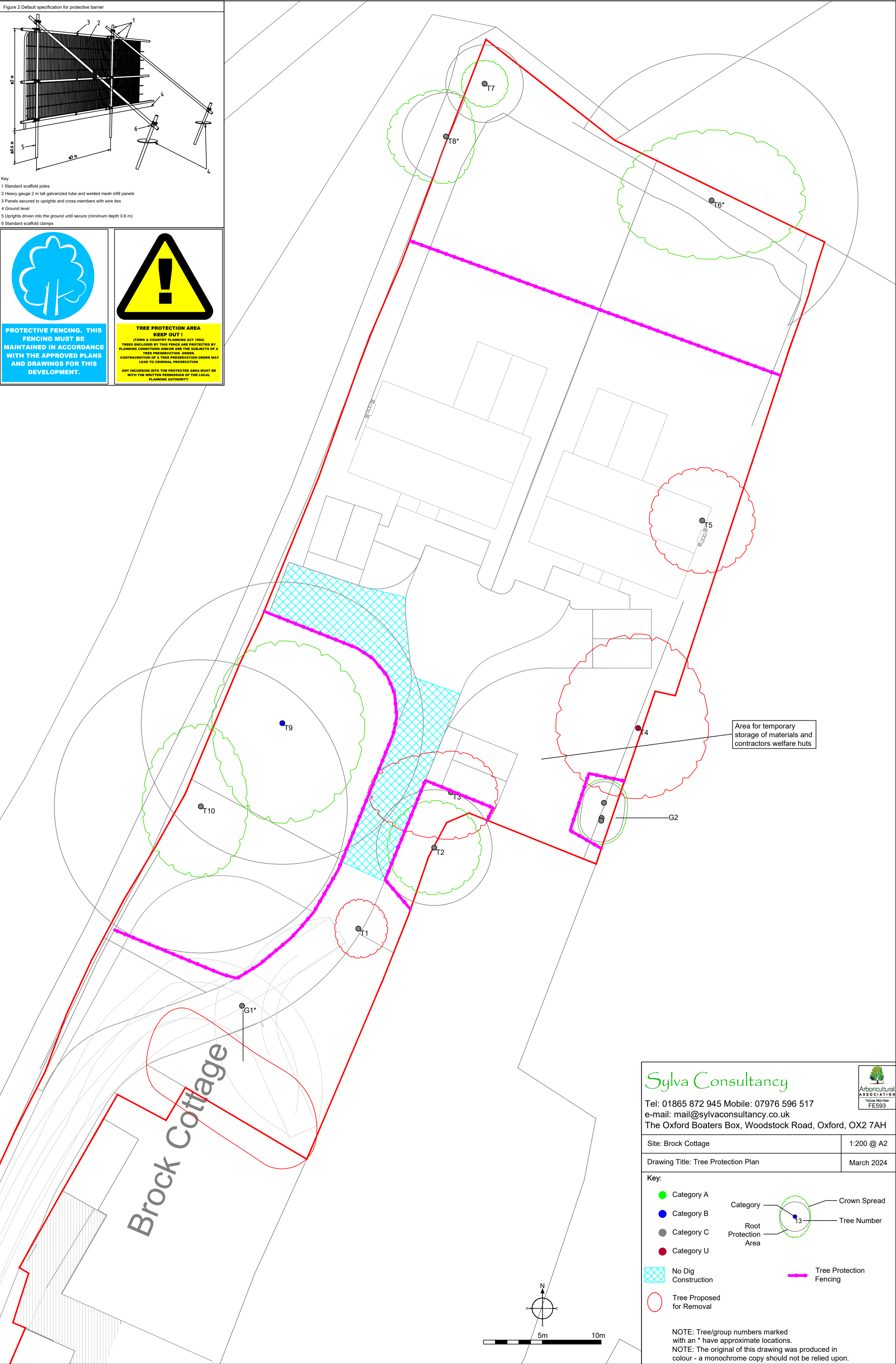
Figure 2 Default specification for protective barrier



- 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

**PROTECTIVE FENCING. THIS FENCING MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.**

**TREE PROTECTION AREA KEEP OUT!**  
 (TOWN & COUNTRY PLANNING ACT 1990)  
 TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER.  
 CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION  
 ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY



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Site: Brock Cottage 1:200 @ A2  
 Drawing Title: Tree Protection Plan March 2024

**Key:**

- Category A
- Category B
- Category C
- Category U
- No Dig Construction
- Tree Proposed for Removal
- Tree Protection Fencing

NOTE: Tree/group numbers marked with an \* have approximate locations.  
 NOTE: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

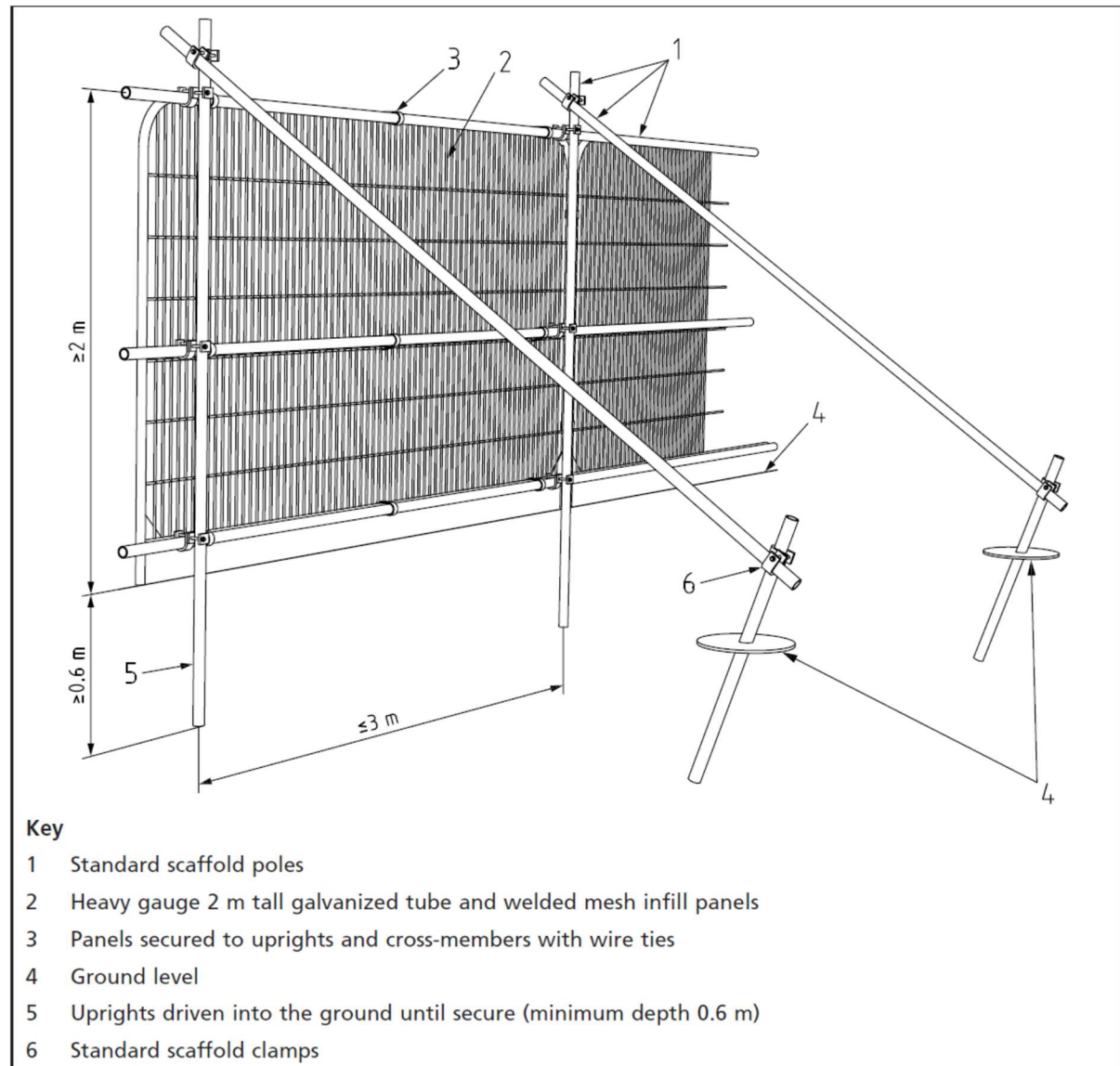
## APPENDIX 4

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### TREE PROTECTION DETAIL

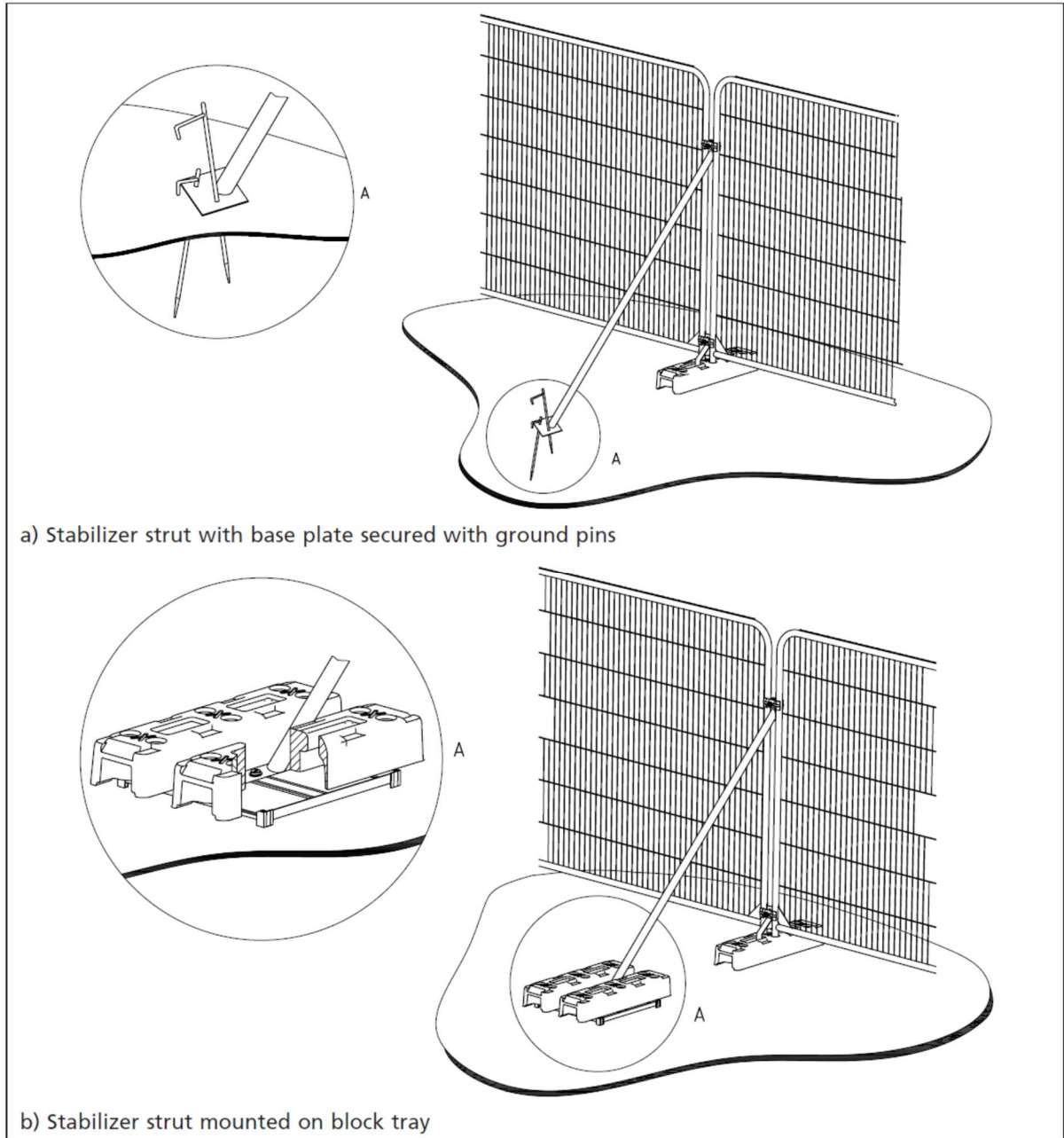
# TREE PROTECTION DETAIL

Figure 2: Default Specification of protective barrier BS5837:2012



# TREE PROTECTION DETAIL

Figure 3: Example of above ground stabilizing system BS5837:2012



### ARBORICULTURAL INFORMATION





**PROTECTIVE FENCING. THIS  
FENCING MUST BE  
MAINTAINED IN ACCORDANCE  
WITH THE APPROVED PLANS  
AND DRAWINGS FOR THIS  
DEVELOPMENT.**



**TREE PROTECTION AREA  
KEEP OUT !**

**(TOWN & COUNTRY PLANNING ACT 1990)  
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY  
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A  
TREE PRESERVATION ORDER.  
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY  
LEAD TO CRIMINAL PROSECUTION**

**ANY INCURSION INTO THE PROTECTED AREA MUST BE  
WITH THE WRITTEN PERMISSION OF THE LOCAL  
PLANNING AUTHORITY**

## *Common causes of Tree Death*

The use of properly positioned protective fencing can prevent tree deaths occurring.

Damage to major limbs must be avoided: Ragged wounds speed infection

Parking of heavy vehicles and cars must not be allowed near the root area. Compaction and oil contamination result.

Fires should not be lit in the vicinity of trees. Burning by flames causes dieback and disease

Lowering ground levels severs roots causing severe dieback

Raising ground levels even for only a few weeks and by only several centimetres can suffocate roots, causing severe dieback

Trenches dug within root area sever roots, causing instability and crown dieback

Attachment of signs, fences, cables and winches to a tree causes direct damage and promotes decay

Protective fencing must be erected at the recommended distance

Spilling of diesel oil, chemicals and cement close to root area causes root death

Storage of materials within root area causes compaction and root suffocation

*Please use copies of this as an on-site poster for personnel*

SylvaTree



## Construction and Trees



### Why Is Fencing Erected Around Trees?

1. The major cause of damage to trees on construction sites is due to **soil compaction**.
2. Roots use the spaces between soil particles to obtain Oxygen, Water and Nutrients.
3. Heavy plant and machinery compresses (compacts) the soil, squashing out the air spaces and preventing root function.
4. A compacted soil structure will stay compacted.
5. Consequently the tree suffers and will show signs of branch die-back.
6. Symptoms such as die-back may take several years to appear.
7. Soil compaction over roots can be prevented by maintaining a fenced exclusion zone over the tree roots.
8. The exclusion zone distance is calculated using British Standard 5837.
9. Protective Fencing is installed at the calculated distance.
10. Protective Fencing is a condition of planning approval, if it is removed or repositioned the construction firm is in breach of a condition and may be subjected to legal action.

Sylvatree

TECHNICAL SPECIFICATION OF DURADEK MATS



**PRODUCT SPECIFICATIONS**  
**DD2**

**Traction Surface:**

**Side 1: Double-traction tread design includes two parallel traction treads positioned at a 90-degree angle to adjacent double traction tread sets.**

**Side 2: Pedestrian friendly alternating cross shaped traction design.**

**Module Size:**     **Length:** 8' / 2.44 m  
                           **Width:** 4' / 1.22 m  
                           **Module Size:** 32 sq/ft / 2.973 sq/meters  
                           **Thickness:** ½" thick mat + 3/8" cleat

**Module Weight:** 86 lbs. / 39.01 kg.  
                           **Per Square Foot:** 2.69 lbs. / 43 oz. / 1.22 kg. / 1219 grams  
                           **Per Square Meter:** 28.60 lbs. / 12.97 kg.

**Colors:**             Black, White.  
                           Custom colors available (minimum order required).

**Material:**         Black High-Density Polyethylene (HDPE) post-industrial recycled plastic, naturally UV resistant due to the carbon black used for color. White UV-stabilized mats available.

	<b>Values</b>	<b>ASTM</b>	<b>Units</b>	<b>Typical</b>
<b>Test Results:</b>	<b>Melt Index</b>	D 1238	g/10min	4.9
	<b>Density</b>	D 792	g/cm <sup>3</sup>	.960
	<b>Tensile Strength</b>	D 638	MPa (psi)	29 (4 200)
	<b>@ Yield 50mm/min</b>			
	<b>Elongation @ Break</b>	D 638	%	1 500
	<b>50mm/min</b>			
	<b>Flexural Modulus</b>	D 790	MPa (psi)	1 280 (185 000)
	<b>Hardness, Shore D</b>	D 2240	--	65
	<b>Compressive Strength:</b>		D695-02a	psi    2,843
	<b>Flammability Resistance:</b>	UL-94 HB		Passed

**Weight Loading:**         Varies, depending on sub-surface, up to 80 tons capacity.



Signature Systems Group, LLC  
 50 East 42<sup>nd</sup> Street • 14th Floor  
 New York, NY 10017  
 Toll Free: 800-569-2751 • 212-953-1116 • Fax: 212-953-1117  
 Flooring: [www.eventdeck.com](http://www.eventdeck.com) • Fencing: [www.signaturefencing.com](http://www.signaturefencing.com)

# DuraDeck



**Ground Surface:** DuraDeck mats are designed to be used with no ground preparation over grass, gravel, soil, concrete, asphalt, mud and sandy soil conditions.

**Connection System:** DuraDeck mats have eight holes: one in each corner and four in the center line (two on each 8ft side) to create multi-directional roadways of nearly any size or shape. Mats can be connected using metal DuraLink connectors. DuraLinks do not require tools to install.

**Shipping:** Pallet maximum is 50 units (4' x 8')  
20' Ocean Container: 250 – 4' x 8' unit order and/or equal to 29,240 lbs.  
40' Ocean Container: 500 – 4' x 8' unit order and/or equal to 43,000 lbs.

**Warranty:** 7 years against cracking and breaking under normal use.



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Flooring: [www.eventdeck.com](http://www.eventdeck.com) • Fencing: [www.signaturefencing.com](http://www.signaturefencing.com)

### EXAMPLE OF A NO DIG CONSTRUCTION



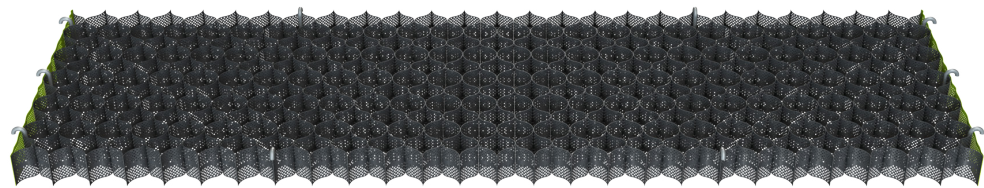
# Cellweb®TRP

## Why protect trees?

*Trees provide a wealth of benefits within the urban environment including cleaning the air, prevention of flooding and moderation of the climate.*

*As a result, within the UK it is an offence to cut down, lop, uproot, top, wilfully damage or destroy a protected tree without authorisation. Fines, if the defendant is found guilty in a Crown Court, are unlimited.*

*To minimise the environmental impact and avoid legal proceedings, we offer the independently tested Cellweb®TRP system.*



## What is Cellweb®TRP?

*Cellweb®TRP is a cellular confinement system specifically designed for tree root protection. The system creates a stable, load-bearing surface for traffic or footfall whilst eliminating damage to roots through compaction and desiccation.*

The Cellweb®TRP system comprises of three specific elements, Cellweb®TRP, Treetex™ pollution control geotextile and an infill of clean angular stone. The system has been designed to create an unparalleled solution to tree root protection applications.

Cellweb®TRP is a no-dig solution that ensures that the load placed upon it is laterally dissipated rather than transferred to the soil and roots below. The use of Treetex™ pollution control geotextile allows for drainage and separation whilst preventing contaminants from reaching the roots.

The walls of the cells are perforated and when combined with the infill of clean angular stone, enables free movement of water and oxygen, ensuring that supplies to the tree roots are maintained.



**Geosynthetics**  
Engineered Solutions

“Creating Innovative Solutions with Outstanding Products”





# What makes Cellweb®TRP different?

*With over 15 years of captured data and thousands of installations, the Cellweb®TRP system has developed a reputation for excellence.*

We are so confident in our system, we offer a guarantee that covers the replacement of the trees and of the system itself. With Cellweb®TRP being quick to install and having a 100% success rate it is clear to see why the Cellweb®TRP is regularly specified by tree officers and arboriculturalists across the country.

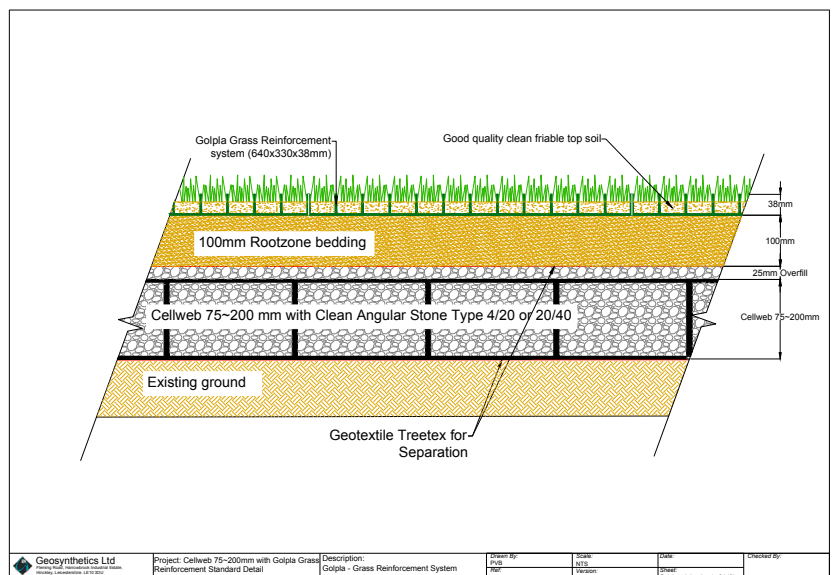
# From the drawing board to installation, we are here to help.

We have been supplying the Cellweb®TRP system since 1998 and our technical team have vast experience with tree root protection and the associated legislation.

Delivering complete peace of mind to customers is our number one priority. As part of this customer care package we offer free on site consultations, technical recommendations and on site installation guidance on all projects.

Our in-house engineering team provide site specific recommendations to ensure the solution used is cost effective and environmentally sound.

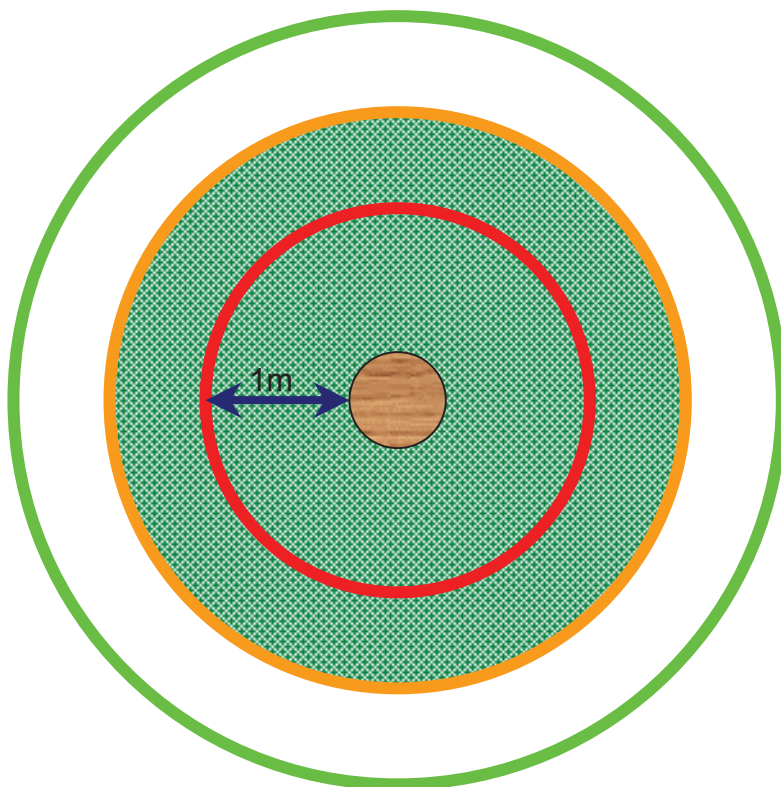
*For more information on Cellweb®TRP or Geosynthetics Limited please contact our sales office on 01455 617139 or visit [www.geosyn.co.uk](http://www.geosyn.co.uk).*



## APPENDIX 8

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### NJUG VOLUME 4

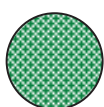


**TREE PROTECTION ZONE**

Key to Diagram



Trunk of Tree



Spread of canopy or branches



**PROHIBITED ZONE – 1m from trunk.** Excavations of any kind must not be undertaken within this zone unless full consultation with Local Authority Tree Officer is undertaken. Materials, plant and spoil must not be stored within this zone.



**PRECAUTIONARY ZONE – 4 x tree circumference.** Where excavations must be undertaken within this zone the use of mechanical excavation plant should be prohibited. Precautions should be undertaken to protect any exposed roots. Materials, plant and spoil should not be stored within this zone. Consult with Local Authority Tree Officer if in any doubt.



**PERMITTED ZONE – outside of precautionary zone.** Excavation works may be undertaken within this zone however caution must be applied and the use of mechanical plant limited. Any exposed roots should be protected.

## DAMAGE TO TREES

Tree roots keep a tree healthy and upright. Most roots are found in the top 600mm of soil and often grow out further than the tree's height. The majority of these roots are very fine; even close to a tree few will be thicker than a pencil. Most street tree roots grow under the footway but may also extend under the carriageway. If roots are damaged the tree may suffer irreversible harm and eventually die.

## PROTECTING ROOTS - DO'S and DON'TS

There are three designated zones around a tree each of which has its own criteria for working practices.

### THE PROHIBITED ZONE

- Don't** excavate within this zone.
- Don't** use any form of mechanical plant within this zone
- Don't** store materials, plant or equipment within this zone.
- Don't** move plant or vehicles within this zone.
- Don't** lean materials against, or chain plant to, the trunk.
- Do** contact the local authority tree officer or owner of the tree if excavation within this zone is unavoidable.
- Do** protect any exposed roots uncovered within this zone with dry sacking.
- Do** backfill with a suitable inert granular and top soil material mix as soon as possible on completion of works.
- Do** notify the local authority tree officer or the tree's owner of any damage.

### THE PRECAUTIONARY ZONE

- Don't** excavate with machinery. Where excavation is unavoidable within this zone excavate only by hand or use trenchless techniques.
- Don't** cut roots over 25mm in diameter, unless advice has been sought from the local authority tree officer.
- Don't** repeatedly move / use heavy mechanical plant except on hard standing.
- Don't** store spoil or building material, including chemicals and fuels, within this zone.
- Do** prune roots which have to be removed using a sharp tool (e.g. secateurs or handsaw). Make a clean cut and leave as small a wound as possible.
- Do** backfill the trench with an inert granular material and top soil mix. Compact the backfill with care around the retained roots. On non highway sites backfill only with excavated soil.
- Do** protect any exposed roots with dry sacking ensuring this is removed before backfilling.
- Do** notify the local authority tree officer or the tree's owner of any damage.

### THE PERMITTED ZONE

- Don't** cut roots over 25mm in diameter, unless advice has been sought from the local authority tree officer.
- Do** use caution if it is absolutely necessary to operate mechanical plant within this zone.
- Do** prune roots which have to be removed using a sharp tool (e.g. secateurs or handsaw). Make a clean cut and leave as small a wound as possible.
- Do** protect any exposed roots with dry sacking ensuring this is removed before backfilling.
- Do** notify the local authority tree officer or the tree's owner of any damage.

SITE MONITORING & SUPERVISION PROFORMA

# SITE SUPERVISION PROFORMA

## ARBORICULTURAL SUPERVISION RECORDING

<b>Client:</b>		<b>Planning Ref:</b>	
<b>Local Authority:</b>		<b>Date:</b>	
Site Address			
Proposal:			
<b>Visit Checklist</b>	<b>Y/N</b>		<b>Y/N</b>
Tree Protection Fencing in place		Tree protection as approved	
Ground Protection in place		Ground Protection as approved	
Tree or Ground protection breached		Trees damaged	
Site Agent briefed by AC		Photographs taken	
AC briefed by Site Agent			
LPA informed			
Remedial action required			
<b>Comments</b>			
<b>Recommendations</b>			
<b>Outcome</b>			
<b>1</b>			
<b>2</b>			
<b>3</b>			
<b>4</b>			
<b>5</b>			

<b>Signed</b>		<b>Print name</b>	
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<b>Date</b>	
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## APPENDIX 10

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### QUALIFICATIONS

# QUALIFICATIONS

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## Fiona Bradshaw

MicFor; RFS Dip Arb;F. Arbor.A; Tech Cert (Arbor.A)

I have over 25 years' experience of arboriculture and I am the principal consultant at Sylva Consultancy. I hold the Royal Forestry Society's Professional Diploma in Arboriculture and the Arboricultural Associations Technicians Certificate. I am a Fellow member of the Arboricultural Association and a professional member of the Institute of Chartered Foresters, of which I am also a registered Consultant.

I have the benefit of both a local authority and private practice background and I am frequently instructed to provide advice and assistance relating to trees and the planning process. I am also experienced at compiling expert reports, providing evidence and also appearing as an expert witness at Public Inquires.

I am committed to my continued professional development which is reflected in my regular attendance of seminars and workshops.