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Site: **2 The Coppice Hagley , Nr Stourbridge, DY8 2XZ**

Subject: Draft ***BS5837 Tree Constraints, Impact Assessment & Tree Protection Method Statement for extension.***

Surveyor: Jim Unwin.
Report:: Jim Unwin. (professional-CV in Appendix VI).
Dates: Inspection 6th Sept 2024. Report: Stage 1: & **Stage 2: 20th Sept 2024.**

Summary:

- **No.2's front garden contains a tall cedar T1, plus shrubs and topiaried hedge.**
- **The proposal requires hard pruning or replacement of topiary yew T3.**
- **Intervention of previously-felled cedar T2 reduces the intrusion of the proposed small extension into T1's rootzone.**
- **Section 6 below details methods to minimise impact of the extension on cedar T1.**

Contents:

Notes:

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

1. Instruction.

1.1 Mr & Mrs Collins, assisted by Mike Taylor Architects, propose a house extension.

1.2 Bromsgrove District Council will require a tree impact assessment and tree protection method statement for the proposal. Therefore, Mike has asked B J Unwin Forestry Consultancy Ltd to advise on trees for planning application purposes.

1.3 I have used a plan **2265 Template** for constraints plans.
The Proposal**: Taylor & Co 2265 Proposed Sketch Scheme Rev A of Aug 2024,** extract in section 5, shows the proposal, and guides our tree impact and tree protection Sections 5 & 6 of this report.

1.4 Therefore methodology of the report below follows *BS5837:2012 Trees in Relation to Design, Demolition & Construction*.

2. Inspection.

2.1 Jim Unwin visited the property on 6th Sept 2024, met Mr & Mrs Collins, and made an inspection in bright light conditions.

2.2 The survey was from ground level, involving visual observation (Visual Tree Assessment: Mattheck and Breloer, 1994 and Lonsdale, 1999). I measured stem diameter (wherever access was difficult, rounding up to nearest 5cm), measured or estimated height, and measured or lasered crown spread. I located trees.

3. The Site.

3.1 The survey site is the front corner of No.2, built around 2002. Terrain is not elevated and the site not particularly exposed to wind.

3.3 Geology from BGS website:-

Superficial deposits: None recorded.

Bedrock geology: Helsby Sandstone Formation - Sandstone. Sedimentary bedrock formed between 247.1 and 241.5 million years ago during the Triassic period.

Therefore, subsoil and geology at foundation depth is likely to be coarse-textured, well-drained, and without volume-change potential.

3.4 The site is edged by residential plots.

4. The Trees.

4.1 Trees on or adjacent to site:

- T1 is a tall, mature cedar. It stands next to the drive which is porous build up with a gravel-tray surface.
- T2 is the stump of a cedar felled within the past few years on the opposite side of the front drive.
- T3 is a yew trimmed to a hedge / topiary, providing screening from the road.
- T4 is a beech felled recently.

4.2 Off-site trees:-

- T5 is a broad holm oak 4m to the west at No.1.

4.3 Amenity: This could describe an attractive tree, a screening function, habitat potential, or historic/veteran tree.

- The site is set within a residential close. The cedar is a tall evergreen tree and a significant local landscape feature. .
- The site is outside any conservation area. But please check with Bromsgrove DC for any TPOs: Tel: 01527 881188 Email: bsu@bromsgroveandredditch.gov.uk Postal: Town Hall, Walter Stranz Square, Redditch, B98 8AH.

4.4 Photos below:

4.4.1 View west to trimmed yew in foreground, cedar centre and holm oak beyond.

4.4.2 View north along porous drive to holm oak left, cedar centre and trimmed yew right.

4.5 Detailed Tree Descriptions

4.5.1 Trees **on, or potentially influencing** the site, are individually described in the table below, and shown on the plans in Appendices.

Age class is described as:-

- Sap: Very young tree, or sapling, one-five years old.
- Y: Young tree less than fifteen years old and <1/3 fully grown.
- Sm: Semi-mature tree having attained 1/3 to 2/3 full stature and 1/3 to 1/2 estimated lifespan.
- Em: Early mature: tree at 2/3 to virtually full size, and halfway through its safe life.
- M: Mature: fully-grown tree with useful life expectancy.
- Lm: Late-mature: fully grown, of declining vigour, but still healthy.
- Om: Overmature tree: fully grown and starting to decline in health (but may still have years of safe life).
- Vet: Veteran: usually very old; of significant historic, habitat or cultural value.

Health & Structural condition:- Self-explanatory:- **Good, Fair, Poor or Dead.**

Remaining Contribution, in years
Prediction of safe useful life in its location, estimated as:-
<10 years, >10 years, >20 years, >40 years.

***Retention** categories*, based on BS 5837 Section 4.5, and shown in Appendix I, are:-
Retain:

A =	*High quality or value >40yrs safe life*:	Light Green*
B =	*Moderate quality or value >20yrs safe life*:	Mid Blue*
C =	*Low quality or value >10yrs safe life or young trees <150mm stem diameter*:	Grey*

Remove:

U =	*<10yrs safe life or should be removed for sound arboricultural reasons*:	Dark Red*

(*Colour marking on relevant Tree plan).

Sub-category for retention:-
1 = Arboricultural Value
2 = Landscape Value
3 = Cultural and/or Habitat Conservation Value

***BS 5837:2012 Root Protection Area*:**
The estimated area rootable soil required to sustain the tree, centred on the tree's trunk. The RPA can be a varied shape enclosing the correct rootable area: but usually shown as a circle for convenience, unless obvious constraints stop rooting.
Radius calculated as:-
Single-stem tree, radial distance **=** 12 x stem diameter at 1.5m ht.
Multi-stem trees 1-5 stems = *Square root of (sum of individual stem diameters squared).*
> 5 stems = *Square root of (average dbh squared x number of stems).*
(Area can be calculated by $\pi \times r^2$.)

 # - Denotes estimated stem diameter in mm at 1.5m height where measurement was not possible.

T = tree S = shrub H = hedge G = group HG = hedge group.

4.5.2 **No.2 The Coppice - BS5837 front-garden Inspection - BJUFC – 6th Sept 2024.**

No.	Species	Dbh (stem diam @ 1.5m ht) cm.	-Total height. - Ht of lowest branch & direction. - Est Ht in 10 yrs. m.			Crown radii m.				Age class	Health	Structural Condition	Remaining contribution Years.	Comment (All are in average to good health and condition, unless stated otherwise.)	BS5837 Retention Category.	BS 5837 Root Protection Area Radius. m.	Recommended WORK excluding development.
						N	E	S	W								
T1	Cedar	105 basal	28	10	28	8	6	7	6	Lm	F	F	>20	Big, upright, twin stems. Braced.	B1	10.5	Recommend have the brace checked for strength and adjusting every five years.
T2	Cedar stump	65 basal												Stump felled <eight years ago.	U	6.5 in theory	
T3	Yew	25 basal	3	0	3	2	3.5	4	1	Sm	F	F	>20	Golden Irish yew ? Trimmed as topiary and hedge.	C2	2.5	Trim annually.
T4	Beech stump	90 Basal												Felled 2024.	U	9.0 in theory	
T5	Holm oak	65, 70	22	8	22	9.5	3	11	10 Est.	M	F	P/F	>20	Off-site at No.1. Broad.	B2	11.5	

End of table.

4.5.3 Trees are listed in the table above, and coloured on the Tree Constraints Plans, to indicate their retention categories A,B,C,U: with the colours explained in the keys of the table (4.5.1) & plan, and Appendix I (A = best to U = remove).
This allows the site designer to plan around important trees, and ignore lesser trees.

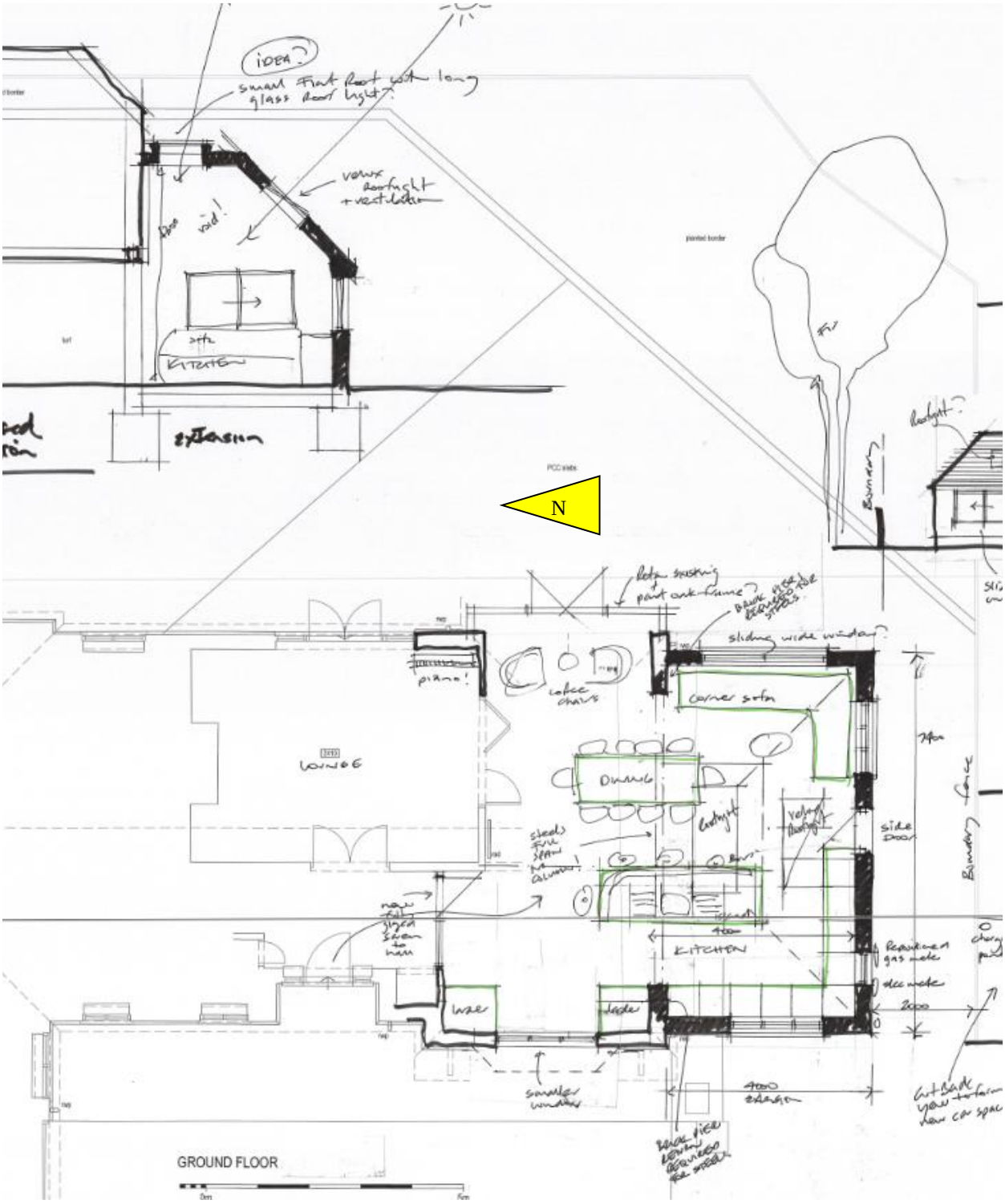
5. Proposed Development & Tree Impacts.

5.1 The proposal.

5.1.1 The proposal, **Taylor & Co 2265 Proposed Sketch Scheme Rev A of Aug 2024,** extract below, shows the development.

5.1.2 A 4m x 7.4m single-storey extension is added to the front of the house.

5.1.3 The drive and parking is unaltered.



5.2 Potential Tree Impacts (considered below).

5.2.1 There are six potential arboricultural impacts caused by development here:

- **physical contact above-ground**,
- **below-ground conflicts (roots),**
- **shading,**
- **over-bearing, and falling material,**
- **subsidence/heave, and damage from root growth,**
- **impact on amenity value.**

These are assessed below:

5.3 Physical contact with above-ground parts of trees.

5.3.1 General:-

Buildings, roads, paths and associated structures can replace trees or intrude into canopy zones. Tree removal and pruning is listed in table 6.2.3 below.

5.3.2 Specific above-ground impacts:-

- Topiary yew T3 is very close to the extension, so it might be best to remove it. Or it could be pruned hard and re-modelled to a slightly-different shape: worth a try?
- Stump T2 needs careful digging out and replacement soil adding.

5.4 Below-ground root spread.

5.4.1 General:-

BS5837 defines a tree's Root Protection Area as a circular area of 12 x stem diameter: required to maintain long-term health of a full-canopied tree. We show it as an idealised circle. Rooting areas are never symmetrical. At the discretion of an arboriculturist, where rooting is restricted on one side, the RPA can be offset to provide the same protection area. This is shown on the RPA plan.

Ground disturbance within the RPA zone should be avoided. But, the structural rootplate of a tree to resist windthrow is usually smaller than the RPA. Therefore tree stability should not be affected by some planned disturbance within the RPA.

5.4.2 Specific Rootzone Impacts:-

- The cedar's RPA is intruded by <13m^2 out of a theoretical total of 346m^2. But, the felled cedar T2 lies between the extension and T1. So it will be T2's roots under the extension, not T1. However, this is slightly countered by the presence of oak T5 just west of T1, which will have made T1 root to the east.
- Despite this minimal impact, I require hand severing of roots, see 6.6 below.

5.5 Light Interception & Shading.

5.5.1 General:-

The sun rises to about 60^0 at mid-day in mid-Summer when trees are in leaf (ratio of 16m vertical height to 10m horizontal distance).

The sun only rises to 12^0 in mid-Winter. However, in winter deciduous trees are leafless, so light interception is much reduced.

Theoretical shadows of arcs equal to estimated tree height in ten-years' time are illustrated on our Shading Plan. This is the shadow pattern for the period from May to September inclusive, from 10.00hrs to 18.00hrs daily.

5.5.2 Specific Shading Impacts:-

- No issues.

5.6 Over-bearing and Falling material.

5.6.1 General:-

Trees drop detritus in the form of flower parts, leaves, twigs, fruits or needles throughout the year. These can be an annoyance to persons living nearby. Bird droppings and honeydew from aphids can be difficult to clean off, or can spoil car paintwork. Big trees make adjacent dwellers nervous.

5.6.2 Specific Impacts:-

- No issues.

5.7 Subsidence/heave & root growth.

5.7.1 Subsoil may be coarse-textured without volume-change potential.

5.7.2 This must be assessed by an engineer. Structures near trees will need foundations designing according to NHBC Chapter 4.2, or equivalent guidance.

5.8 Amenity impact.

5.8.1 Amenity can be *visual landscape, functional landscape, habitat or heritage/historic.*

- Loss or pruning of topiary yew T3 will widen he view into the front of the house. So try to keep it if possible to maintain screening.

6. Arboricultural Method Statement in sequential order for proposed development at No.2 The Coppice site.

6.1 Supervision

6.1.1 I recommend the following arboricultural supervision on this site:

- A **pre-start site meeting** between building contractor, ground worker, Tree Officer (if he/she chooses to attend) and retained arboriculturist, to agree tree retention, tree protection and working methods.
- **Checking installation of protection fencing and temporary ground protection.**

All these could be done on one visit.

6.1.2 All inspections to be followed with emailed supervision log with action points, copied to client and tree/landscape officer.

6.2 Tree Management

6.2.1 Tree Work prior to ground work:-

Detailed in table overleaf.

6.2.2 Treework informatives, included for general information:-

6.2.2.1 Disturbance to wildlife.

It is essential to check for nesting birds, bat roosts, badgers and hibernating animals such as hedgehogs under trees, before pruning or removing trees, as negligent disturbance is an offence under the EC Habitats Directive 92/43/EEC, Countryside and Rights of Way Act 2000, Protection of Badgers Act 1992. The Conservation (Natural Habitats, & C) (Amendment) Regulations 2007 make ***any*** damage or destruction of a breeding site or resting place of a European Protected species (mainly bats in a tree context) an offence.
In general, autumn tree work: **September, October and November** is least disruptive to bats and birds. Work on very ivy-clad trees may need a formal pre-start bat assessment by a trained bat worker.

6.2.2.2 Permission

Trees could be protected by TPO, but don't lie within a Conservation Area.
Trees may be owned by third-parties.
Trees may be protected by planning conditions.
Therefore, a contractor must satisfy himself that all necessary permissions from the local planning authority or tree owners are in place before touching trees.
A Felling Licence may be needed to clear non-domestic areas.

6.2.2.3 Quality of Tree Work

All off-ground tree work should be done by insured tree surgeon with certificates in aerial chainsaw use (new designations:- NPTC 020-04, 0020-05, 0020-07, 0021-01, 0021-07; LANTRA 600/5703/8, 600/5717/8, 600/5715/5, 600/5704/X, 600/5714/2), and working to BS3998:2010, and *"Treework at Height"*, the Arboricultural Association's ICoP.
(Stumps can be left to shoot again, ground out, or grubbed out, or poisoned, depending on location.)

6.2.3 Treework for development at No.2 The Coppice:

Yew T3: Either remove, or prune hard to maintain screening from the road.

6.3 Tree Protection

6.3.1 Requirement

The most important tree-protection measure is effective protective fencing, erected as close as possible to the Root Protection Area (RPA) boundary before any other work starts on site including demolition in the vicinity of trees. It must be maintained until all work is completed, except final soft landscaping. Here tree protection is proposed for retained trees, and for areas of possible new planting where this is feasible: called **landscape protection zones**.

6.3.2 Vertical Tree Protection

6.3.2.1 Tree Protection fencing **locations** are shown on Tree Retention & Protection Plan (TRP) in Appendices.

6.3.2.2 Two **specifications** for suitable protective fencing are suggested in BS5837.
Specification for BS fencing is given in Appendix III.

6.3.2.3 Within the fenced off **CEZ** Construction Exclusion Zone: there must be:-

- no construction access,
- no storage of materials, including soil,
- no ground disturbance.

6.3.2.4 Tree protection measures will be erected **prior to commencement of any groundworks & development and any machinery brought onto site.**
Fences will be maintained throughout demolition & construction until the works are complete and the site is cleared from any machinery and equipment.
And removed only for final soft landscaping.

6.3.3 Temporary Ground Protection (TGP) within RPAs:-

6.3.3.1 IF work is required to be closer than the all-round protection zone, then the fenced off zone can be made smaller on that side, or entered temporarily, subject to permission from retained arboriculturist.
Within such zones, temporary horizontal ground protection plus temporary fencing would be essential.

6.3.3.2 **TGP is needed on current proposal. See blue shading on TRP Plan.**
Obvious options for temporary ground protection would be:-
-Butted scaffold boards or 22mm plyboard laid on bearers on 50mm depth woodchip or bark mulch (pedestrian access only).
-Temporary ground protection plates such as aluminium “Eve Trakway” or plastic interlocking-plate ground protection; both on 150mm depth of woodchip or bark mulch, as shown in Appendix IV.
- A layer of woven geo-textile under minimum 250mm depth of graded aggregate which is lifted after work.

6.4 Construction Access.

6.4.1 General points:-

- All access to use existing drive and parking.
- No pedestrian, vehicle, plant or machinery to enter RPAs without temporary ground protection, as detailed in para 6.3.3 above.

6.4.2 Site huts could be placed within RPA of trees and hedges; provided they stand elevated on stilt feet, no excavation is required for temporary services, and pedestrian and vehicle access is ground protected as detailed in 6.3.3 above.

6.5 Demolition / Excavation within RPAs:-

None needed.

6.6 Foundations within RPAs:-

6.6.1 See blue line on TRP Plan:

- Stand min-digger in extension footprint or on TGP.
- Dig towards outer edge.
- Stop 0.3m off final face and dig last 0.3m x 1m depth by hand.
- Sever roots with loppers or hand saw as exposed, to avoid ripping.
- Cover exposed face with damp hessian and sheet material immediately to prevent desiccation.
- Any deeper digging use machine as no significant roots.
- Install footings and backfill trench on tree side within two weeks of opening ground.

6.7 Drainage.

General tree protection principles must be followed.

6.7.1 Storm-water drainage: Any soak-away system must be designed to avoid significant increase and no decrease of ground water in trees' rooting zones. Divert into existing soakaways, outside RPAs, dissipate into landscaped areas, or store for greywater recycling.

6.7.2 Foul Drainage: avoid RPAs.

6.7.3 Sustainable Urban Drainage System: Any SUDS scheme, to reduce the load on local mains drainage, must not significantly add to, or reduce, the soil water in trees' root zones. Allow gradual percolation into landscaped areas ?

6.8 Service Trenches within RPAs.

6.8.1 Service trenches (electric lights, utilities, telecoms, drains etc) must be d**esigned** to run as far from trees as possible.

6.8.2 Trenches **within RPAs should be avoided.**

6.8.3 Any trenching within an RPA ideally uses a **trenchless boring** system.

6.8.4 OR, use this onerous **hand digging** method:-

- If soil is coarse-textured and friable use an air-spade to reveal roots (Appendix VI).
- No roots >25mm diameter or bundles of smaller roots must be exposed or severed without express written permission of local authority tree officer or retained arboriculturist.
- Retain roots >25mm diameter or bundles of smaller roots within service

trenches. Thread service / pipe underneath.

- Any pruning of smaller roots must use a sharp saw or loppers, and not ripped by mini-digger bucket.
- Any excavation within the RPA of a tree must be covered immediately after digging with damp hessian, topped by tarpaulin & plyboard, to prevent root desiccation.
- Hole must be backfilled within five days of opening.
- Wrap exposed roots >25mm or bundles of smaller roots with hessian, and surround by 50mm depth sand, as part of backfill medium.
- Tamp backfill material by hand thumper or whacker plate only.

6.9 Minimal-dig construction for new access drives, parking & paths

6.9.1 If roads, footpaths, cycle-ways, yards or parking are required near trees, they can be constructed in two ways:-

Conventional construction:- If outside a tree's RPA.
Minimal-dig construction:- If within a tree's RPA.

6.9.2 None needed.

6.9.3 Appendix V gives examples of materials for minimal-dig, porous, build-up, not needed on current proposal.

6.10 Tree work following construction.

6.10.1 Trees should be re-inspected at completion of construction and hard landscaping. This inspection would reveal the need for remedial tree work for the following reasons:-

-to rectify damage occurring during construction (regrettable but possible),
-to allow additional clearance.
-or complete tree removal if trees were considered too close for safe retention.

6.10.2 All additional work subject to further local authority agreement if trees are protected by planning conditions, TPO, or location within a Conservation Area.

6.11 New Planting.

6.11.1 The developed site contains trees. **New planting is not needed for this proposal, except to screen the extension from the road if the yew is removed.**

6.11.2 A useful web-based guide: ***Tree Species Selection for Green Infrastructure – A guide for specifiers by Dr Andrew Hirons & Dr Henrik Sjoman Issue 1.3 of 2019***, advises on tree selection and size.

Any planting and maintenance must comply with: **BS 8545 "*Trees: from nursery to independence in the landscape* – Recommendations". BSI 2014.**

6.11.3 Any planting must be provided with adequate long-term soil-moisture. To remind architects and engineers, we reproduce below, Stockholm Tree Pits' (www.stockholmtreepits.co.uk) table of root volumes for a given final size of tree:

Table 1: Minimum requirements for tree pit specifications.

Mature Size of Tree*†

	Very Small (<5m)	Small (5–10m)	Medium (10–15m)	Large (15-25m)	Massive (>25m)
Recommended minimum volume of **uncompacted loam soil**	**6m³** (5m³ if shared)	**12m³** (9.5m³ if shared)	**20m³** (16m³ if shared)	**28m³** (24m³ if shared)	**36m³** (30m³ if shared)
Recommended minimum volume of **stone-based structural soil**	**8m³** (6m³ if shared)	**15m³** (12m³ if shared)	**26m³** (20m³ if shared)	**36m³** (28m³ if shared)	**45m³** (35m³ if shared)
Recommended number of **air/water inlets‡**	**1** (0.5 if shared)	**1** (0.5 if shared)	**1**	**2** (1.5 if shared)	**2**

†Fastigiate trees will require less rooting space than trees with wide canopy shapes. As a rule of thumb, one should assume that a tree with a narrow and columnar crown form would require half as much soil volume as a tree of the same height that has a wide crown.

‡Ideally the surface of the tree pit should be open, rough in texture, and protected from compaction. If there is hard surfacing above the tree pit designers must provide pathways for water ingress and gaseous exchange. This could be provided by a permeable surface over the whole of the tree pit or by using a non-permeable surface with specially designed inlets. Suitable inlets would be substantially larger than an irrigation tube and service the whole of the tree pit.

Author:

Jim Unwin

B J Unwin Forestry Consultancy.

References:

"The Body Language of Trees". Claus Mattheck and Helge Breloer. HMSO 1994.

"Principles of Tree Hazard Assessment and Management". David Lonsdale. HMSO 1999.

BS 3998: 2010 "*British Standard Recommendations for Treework*".

BS 5837: 2012 *"Trees in Relation to Design, Demolition & Construction".*

BS 8545 "*Trees: from nursery to independence in the landscape* – Recommendations". BSI 2014.

NJUG Volume 4 2007 "*Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees"*. NJUG, 30 Millbank, London,SW1P 4RD.

"Trees and Development". Nelda Matheny and James R Clark. ISA. 1998.

BS 8206:1992 "*Lighting for buildings*" .

BRE guide 209 (2002) "*Site Layout planning for daylight and sunlight*" .

NHBC Chapter 4.2, *Building Near Trees*. National House Building Council, 2021.

"*Tree Roots in the Built Environment*". J Roberts, N Jackson & M Smith. R.A.T.8, TSO (The Stationary Office), London, 2006.

"Tree Species Selection for Green Infrastructure – A guide for specifiers" Dr Andrew Hirons & Dr Henrik Sjoman Issue 1.3 2019.

"*Treework at Height"* Industry Code of Practice. Arboricultural Association. 2020.

"The use of Cellular Confinement Systems near Trees". Practice Guidance Note 12. Arb Association. Sept 2020.

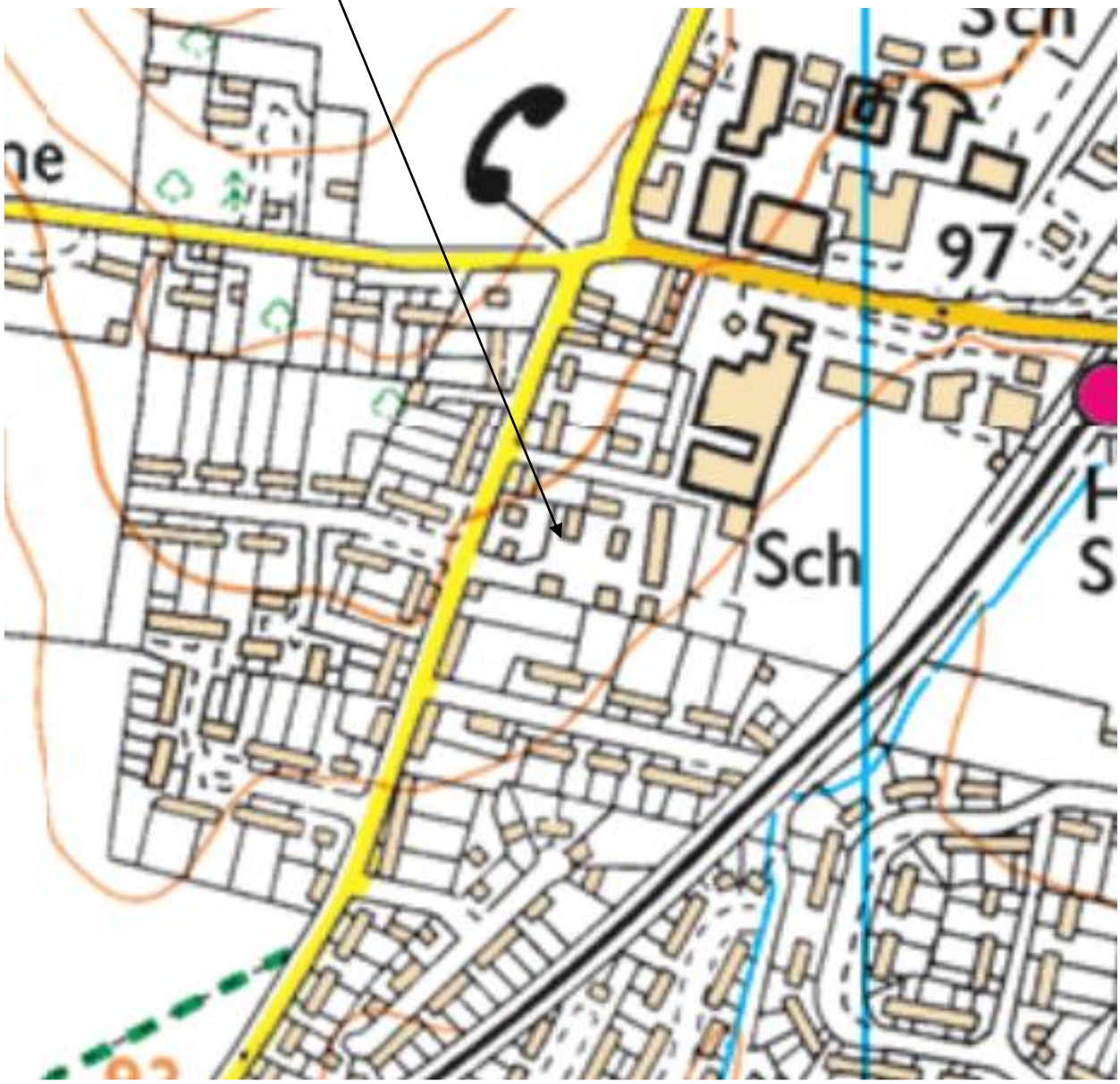
Appendix I
BS 5837 section 4.5 Tree Categorisation Method.
Table 1 overleaf:

Table 1 **Cascade chart for tree quality assessment**

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U 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	• 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) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • 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 *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see **4.5.7**.*			See Table 2
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	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)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	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	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	Trees with material conservation or other cultural value	See Table 2
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	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	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	Trees with no material conservation or other cultural value	See Table 2

Appendix II

Site location, shows local roads and public rights of way.



Google Earth aerial. Taken April 2021. N:

Appendix III

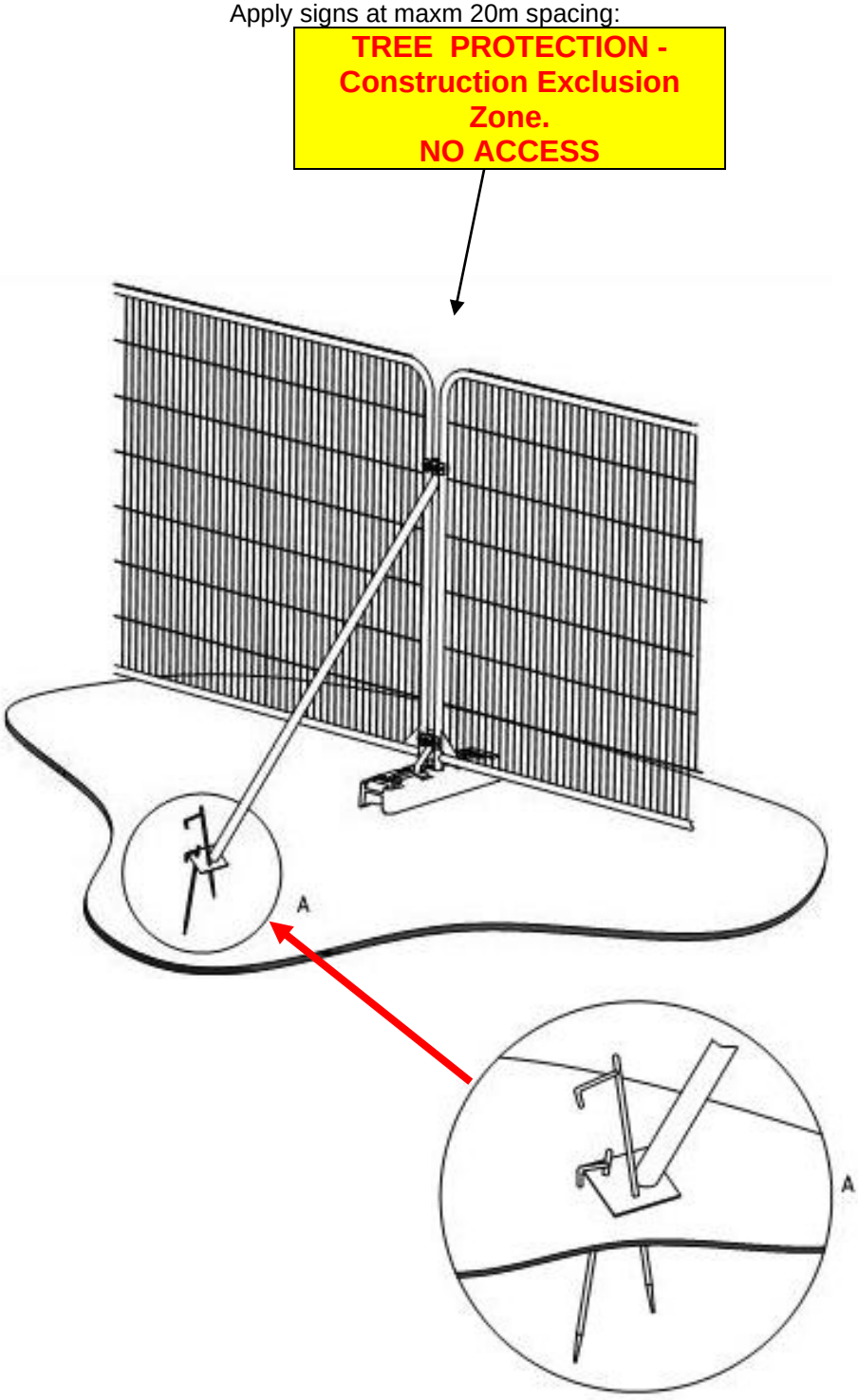
Vertical Tree Protection Fencing, from BS5837.

Vertical protective fence: location on plan:

Lightweight: in situ for < 3 months or constrained site-

Heras panels joined by two clamps, on feet, with pegged strut on each panel.

Apply signs at maxm 20m spacing:



Example of Barrier stakes & heavy-duty tape, use three strands, for tree protection on a modest site. Not needed here.

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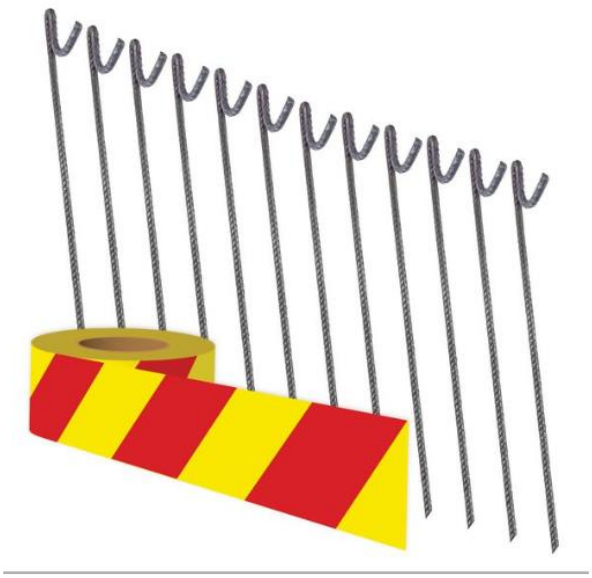
Home / Traffic & Car Park Management / Barriers & Access Management / Barrier Warning Tapes / Barrier Tape & Fence Pins Kit



Barrier Tape & Fence Pins Kit

Heavy duty, practical solution to temporary hazard barriers

- Highly visible tape with UV coating and scratch resistant ink
- Durable fence pins hold your barrier in place outdoors
- Non-adhesive tapes come in a variety of colours

› View full product information

Description Red/Yellow stripe extra strong tape & pins kit

› View all available options (7)

Appendix IV

Horizontal Ground Protection x 2 examples

Example of aluminium temporary ground protection.

EVE TRAKWAY

Roadways - Medium Duty Trakpanel

The Medium Duty Trakpanel, or 'Box' panel, is ideal for where both pedestrian and vehicle access is required. This versatile panel can be laid with either a smooth or corrugated surface uppermost. The smoother surface finish provides excellent support underfoot, whilst the construction of the panel maintains a high load bearing capacity. Due to the way these panels fit together, a smooth joint is created therefore reducing trip hazards.

The Benefits:-

Pedestrian friendly upper surface

Suitable for heavy vehicles Ideal for where both pedestrians and vehicles require safe passage.

Technical Specifications	
Dimensions	**2.5 x 3m (when installed 2.44m x 3m due to overlap)**
Weight	**274.7 kg**
Carrying Capacity	**A more pedestrian friendly roadway, this system is capable of taking any road going loads.**

The following Roadways are available.

Please select an item to view more information:

Other Roadways products:-

Heavy Duty Trakpanel-

LD20-

Roadway Ramps-

Multi-Directional Trakpanel

Example of plastic temporary ground protection.

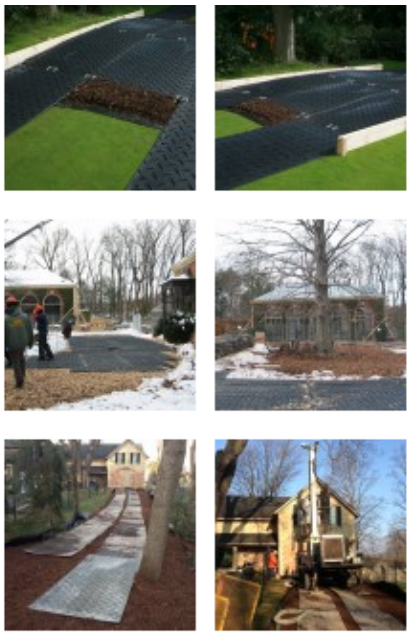
Ground-Guards Tree Root Protection

Tree root protection for construction projects

Planning Departments may often need to stipulate that site access roads will not involve any excavation because of the proximity of tree roots on the site. Furthermore, that they will also provide additional ground cushioning when passing over the immediate areas where there are tree roots beneath. This is very important to prevent compaction of the ground, and long-term damage to the soil structure, the tree roots, and ultimately, to the health of the trees themselves.

An effective means of protecting tree roots is to use a double layer of Ground-Guards. Panels with 150mm of wood chips sandwiched in-between which creates a suitably cushioned roadway for this purpose.

The Ground-Guards system is so durable and versatile that whatever your need, the team will be delighted to work with you to provide an effective solution. Please just call our team on 0113 267 6000 for friendly advice on any difficult site conditions that you need assistance with.



Appendix V

Two Examples of 3-dimensional cellular confinement build up for minimal-dig roading or parking.

Cellweb® TRP is a 3D cellular confinement tree root protection system. The system provides a 'no dig' solution for the construction of new hard surfaces within root protection areas (RPAs). Cellweb® TRP has been designed and independently tested to comply with recommendations made in Arboricultural Practice Note 12 and BS 5837 2012 – Trees in relation to design, demolition and construction.

Cellweb® TRP Key Functions

Cellweb® is a 'no dig' solution which is constructed directly on the existing ground surface. This eliminates the requirement for excavation, preventing root severance.

Cellweb® is a completely porous system allowing continued water permeation and gas exchange between the rooting environment and atmosphere.

Cellweb® spreads point loads, minimising increases in soil compaction within the rooting environment. This maintains an open graded soil structure allowing continued root growth, water, gas and nutrient migration.

The Cellweb® TRP system comprises the following three components

Treetex™ Geotextile. Following minimal ground preparation the Treetex™ is laid onto the existing ground and top soil. This acts as a separation layer, separating the system above from the soil and rooting environment below. Treetex™ performs as a hydrocarbon pollution control measure in accordance with BS5837, holding 1.7lt of oil per square meter.

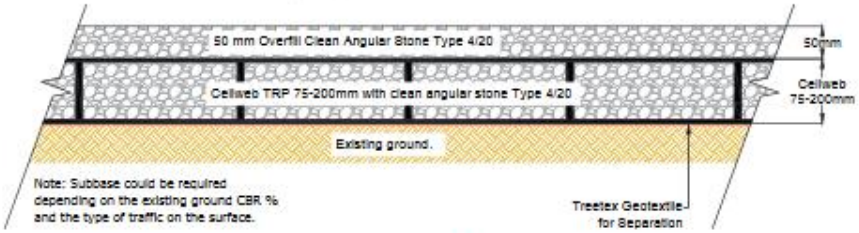
Cellweb® 3D Cellular Confinement. The Cellweb® is installed on top of the Treetex™ layer. This is fixed to the ground using ten steel J pins per panel. The panels can be cut to the required shape and adjoining panels can be connected using heavy duty staples or cell ties.

4-20mm Clean Angular Stone. The expanded Cellweb® is infilled with a 4-20mm clean angular stone. The confined angular stone locks together to produce a rigid stone mattress, while maintaining air pockets for continued water permeation and gas exchange. The low fines content of the stone prevents the Treetex™ layer from becoming blocked over time.

Which depth of Cellweb® TRP?

The Cellweb® System is provided in four different depths; 200mm, 150mm, 100mm and 75mm. The depth required is determined by the proposed traffic loadings and the site ground conditions. Geosynthetics in house engineering department can provide a free site specific technical recommendation. For free technical and engineering support please contact Geosynthetics Ltd 01455 617139 or the full installation guide can be found on our website www.geosyn.co.uk.

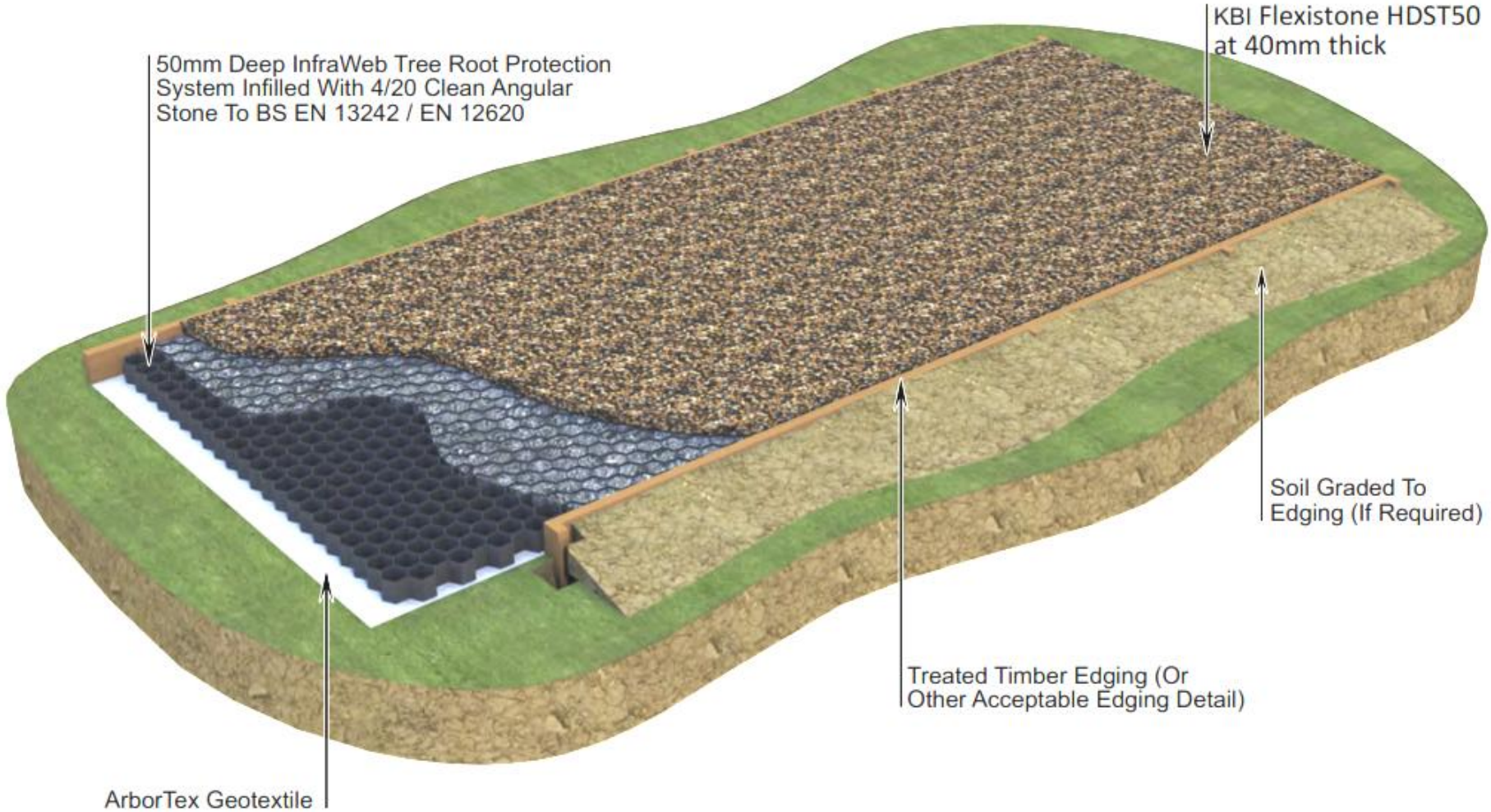
Indicative Cellweb with overfill



Web: www.geosyn.co.uk | Tel: 01455 617139
Fax: 01455 617140 | Email: Sales@geosyn.co.uk

Geosynthetics
Engineered Solutions

InfraWeb TRP 50 Section - Tree Root Protection c/w Flexistone HDST50 at 40mm thick for pedestrian and cycleway use only



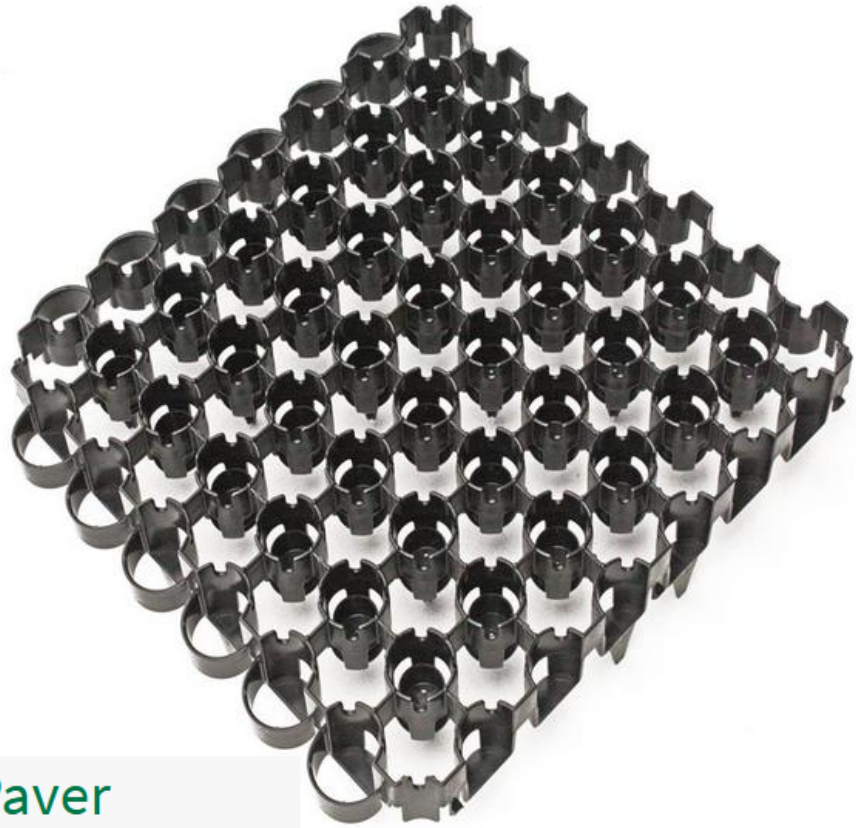
KBI
Sustainable Porous Paving Solutions

KBI
Longfields Court
Middlewoods Way
Wharncliffe Business Park
Barnsley
South Yorkshire
S71 3GN
+44 (0) 1422 242880
http://www.kbiuk.co.uk

InfraWeb TRP 50 Section - Tree Root Protection c/w Flexistone HDST50 at 40mm thick for pedestrian and cycleway use only

Date: 29/12/2016
Drawn By: NLG Design
Revision: A
Drawing Number: TRP50HDST50

Trays for strengthening gravelled or grassed areas over tree roots.
Or for <u>surfacing</u> porous, minimal-dig, build-up.
GOPLPA 40mm thick or 85mm thick Bodpave, below.



Bodpave 85 Plastic Paver

PRODUCT CODE: 150WW4080-PRO

Bodpave® 85 porous pavers can be installed with either a grass or gravel filled surface. Bodpave® 85 pavers/grids are strong interlocking 100% recycled cellular porous plastic paving grid systems for grass reinforcement, ground stabilisation and gravel retention for regular trafficked surfaces (pedestrian and vehicles) BodPave® 85 permeable pavers are manufactured in the UK from UV Stabilised 100% recycled HDPE and are very strong, chemically inert and non-toxic. Bodpave® 85 porous paving provides a durable, safe and environmentally friendly surface for trafficked areas with a very low carbon footprint. BodPave® 85 is a cost effective solution to worn and rutted grassed areas, displaced gravel and for source control of surface water run-off. Bodpave® 85 offers a load bearing capacity of up to 400t/m^2, will cope with static axle loads up to 60kN.

Appendix VI

Example of Air-spade.

Courtesy of Ruskins Trees & Landscapes

Appendix VII

- B J UNWIN FORESTRY CONSULTANCY Ltd. -

Head office: **Parsonage Farm, Longdon, Tewkesbury, Gloucestershire. GL20 6BD.**
Tel / Fax: 01684 833538. Home Tel: 01684 833795. Mob: 07860376527. **E-mail: Jim@bjunwin.co.uk**
Satellite Offices: - Haley Ridge, Highcliffe**, Nr. Wadebridge, Cornwall**, PL27 6TN.
-105 Charfield Court, 2 Shirland Road, **London**, W9 2JR.
Principal: **Jim Unwin BScFor, MICFor, FArborA, CEnv.**
Chartered Forester - ICF Registered Consultant -
Fellow of the Arboricultural Association - Chartered Environmentalist.

From:	**Jim Unwin**	*To:*	**Prospective Client**
Date:	**Sept 2024**	*No. of pages:*	**2**
Subject:	**Professional CV**		

Below are set out **B J Unwin Forestry Consultancy**'s competences and experience.

Insurance:-
£5m Public Liability & **£2m Professional Indemnity (renewed June)**.

Personnel:-
B J Unwin (born 1956) started his forestry career as a tree surgeon and landscape contractor in 1975. He studied forestry at Aberdeen University from 1977 to 1981, worked for Unilever as a Forestry Manager in the Solomon Islands from 1981 to 1983. Since then he has been based in Gloucestershire assisting clients to manage their woodland, trees and vegetation throughout Southern Britain, and occasionally in northern England, Scotland and Northern Ireland.
In the mid-1980s to mid-1990s for a period of about ten years he taught chainsaw, tree felling and tree surgery courses at Worcestershire Agricultural College on a part-time basis. He was assessed and passed as a LANTRA **Assessor** in these skills, and held NPTC certificates of competence in chainsaw use on the ground and up trees.
He now works as a tree consultant / adviser to a range of clients listed below.
For tree decay testing we have a **PICUS II ULTRASOUND** tomograph with electronic callipers and a **RESISTOGRAPH-R400** micro-drill.
A secretary/ plan technician assists; plus calling in extra help as required (eg ecologist or arboricultural assistant). On bigger projects he regularly works as a part of a multi-disciplinary team.

Current BJUFC qualifications are:-
BSc Forestry Hons 1st Class, Aberdeen 1981.
Chartered Forester No. 0330064, 1986.
Fellow of the Arboricultural Association, 1995.
Licensed Subsidence Risk Assessor, 1997-2001 (scheme closed in 2001).
Completed Training in September 2002 to Prepare Native Woodland Plans for CCW and FC in Wales.
Arboricultural Association Registered Consultant No. 42, from 2004 to May 2021.
LANTRA certificate for Arboriculture and Bats, BJU in 2005.
Examined and approved to submit Welsh WGS as Management Planner and PAWS Assessor, 2006.
Joined Utilities Vendor DataBase, Supplier No: 88101 in Feb 2006 (left 2010).
Training and Certification in basic CAD operation 2006.
Chartered Environmentalist April 2008.
Woodfuel Production and Supply : LANTRA Certificate of Training Dec 2008.
Training in CAVAT amenity tree asset valuation October 2010.
Company Safety Policy:- We were successfully assessed by Safety Management Advisory Services (SMAS) for many years as meeting CDM Regs 2015 Core Criteria Stage 1, as a ***Worksafe Consultant No. 75950.*** expired 09/2020. Not renewed.
CITB *Health, Safety & Environment Test for Managers & Professionals* passed 22/01/2015.
First-aid at work June 2013.
DBS Basic Certificate P0003GX9B7C dated 28th Nov 2022 Certificate 001100238741.
ROSPA Routine Playground Inspection Certificate valid from 20/10/2022 to 20/10/2025.

Current clients and typical work include:-

Varied private, corporate, local authority etc clients, with some specific examples below.	I do most types of tree consultancy, often safety related. Some trees I have inspected over nearly 50 years ! Plus I can draw on decades of woodland management (silvicultural) experience, which gives me a holistic approach, particularly in urban forestry situations.
English Heritage	Tree safety inspection contract 2007-2013 for East Midlands, East Anglia, London and SE England. Tree safety inspection contract for West of England & Midlands 2008 - 2021.
Planning Inspectorate (**PINS**) & Dept for Communities and Local Government. 2000-2017.	**Arboricultural Inspecting Officer** in South-West England, South East England, West Midlands and East Midlands; advising the First Secretary of State on TPO appeals since 2000. Contract with DCLG expired April 2008 when transferred to PINS. Contract continued with PINS, as Non-Salaried **Arboricultural Inspector, determining TPO appeals and High Hedge appeals.** **All non-salaried inspectors released in 2017.**
Architects / Developers / Planning Appeals	Complete Tree Constraints, Impact Assessment & Tree Protection advice for planning, working with other professionals to input arboriculture into more complex development schemes. Recent assignments in Liverpool to Cornwall, Kent, Norfolk & London. All using BS5837:2012. FULL CAD CAPABILITY.
Amey Mouchel Ltd	Overseeing Amey Tree Officer on motorway and trunkroad tree inspections throughout Midlands and Marches to 2012. Amey Mouchel are agents for Highways Agency.
CRH Tarmac Ltd, + Midland Quarry Products + Quarryplan (in Northern Ireland).	Since 1990 working with Estates staff, quarry managers and Landscape / ecological consultancies organising and managing contracts for tree and woodland planting both pre- and post- quarrying. Also preparing landscape restoration schemes for straightforward sites plus landscape management on sites throughout southern England, East Anglia and south and south-west Wales. (Commendations for Land Restoration and Environmental improvements from Spelthorne Borough Council 2003.) Also in England & Northern Ireland ongoing tree consultancy for Quarryplan.
Land Agents	Assisting Bruton Knowles clients' with woodland management and other tree issues since 1984. We also assist clients of Fisher German and Savills on a regular basis.
Tarmac Central now CRH Tarmac Ltd.	1988-2018 woodland management of Hopwas Hays Wood, Tamworth.
Rural estates in Herefordshire, Worcestershire and Gloucestershire, plus private woodland owners in southern England and Wales.	Since 1983 woodland management, tree management, hedgerow management. Many are Ancient woodlands and SSSI's requiring detailed ecological management plans produced in consultation with ecologists. About forty Farm Woodland Premium Schemes and about twenty Native Woodland Plans prepared to date in England and Wales. On-going EWGS grant applications. Input into Tir Gofal (and its successor) and Stewardship schemes. Better Woods for Wales (BWW) applications.
British Waterways	Ten-year Tree and Vegetation Management Plans along canals and around reservoirs in London, Hertfordshire, Berkshire, Birmingham, Staffordshire, Worcestershire, Gloucestershire, Shropshire, Llangollen Canal, etc: plus help in dispute with riparian owners. This work ceased around 2011.
Stroud District Council	Management of 49Ha woodland since 1989 on FC schemes plus grassland on DEFRA Stewardship Schemes, including HLS. Retired Nov07.
One–off clients	Since 1983 assisting tree owners, developers, lawyers etc throughout southern or midland Britain, including Wales, on a wide range of tree-related issues including planning, planning appeals, subsidence, health & safety, disputes, vegetation control, expert witness, valuation of woodlands, standing and felled timber, Christmas trees etc, and tree and landscape planting schemes. High Hedge issues and BS5837 are topics.
Malvern Hills District Council. South Oxfordshire District Council	BJU Stand-in part-time Consultant Tree Officer Summer 2003. JF-D stand in Consultant Tree Officer summer 2009 to spring 2010.
Golf course & leisure facilities	Assistance with development of Carden Park golf course in Cheshire. Management advice for trees on other golf courses: Eg Ross Golf Club, Swindon Golf Club .
Farm management	Management of own 95Ha farmland since 1985.

Please do not hesitate to ask for further information. B J Unwin END.

Appendix VIII

Constraints plan:-

- **Tree Crowns**

***Retention categories*, based on BS 5837 Table 1:-**

A = *High quality & Value (>40yrs life)*: Green.

B = *Moderate quality & Value (>20yrs life)*: Blue.

****C = *Low quality & Value (>10yrs life)*: Grey.**

U = *Trees to be removed (<10yrs life)*: Red.

****PLEASE NOTE. FOR CLARITY, C-CATEGORY TREES MAY NOT BE COLOURED.**

and

- **Root Protection Areas**

RPA = circles.
See Tree Table for dimensions.

and

- **Theoretical Shading**

= quadrant of tree height in ten years' time from north west (mid-morning) to due east (evening).
This is a shadow pattern for 1 x tree height from 10.00-18.00hrs from May to September.

0 1 2 3 4 5m 10m 15m

Scale Bar

11

9a

15

2

3

1

6

Shrubs.

Porous paving.

Shrubs.

Porous gravel drive.

Shrubs.

T5

T1

T2

T3

T4

Hedge.

THE COPPICE

Key:

Tree trunk, number and Tree Crown Spread

T1

Root Protection Areas (RPA)

Retention categories, based on BS 5837 Table 1:-

A = High quality & Value (>40yrs life): Green

B = Moderate quality & Value (>20yrs life): Blue

C = Low quality & Value (>10yrs life): Grey

U = Trees to be removed (<10yrs life): Red

Theoretical shading

Theoretical shading = quadrant of tree height from north west to due east for estimated tree height in ten years' time. Applies to retention category A, B and C trees only.

Client: Mr & Mrs Collins	
Site: 2 The Coppice, DY8 2XZ	
Drawing Title: Tree Constraints Plan	
Scale: 1: 200 @ A3	Dwg No: 2TC-TC-Sept24
Drawn by: BJU Date: 20th Sept 2024	North

B. J. Unwin Forestry Consultancy Ltd
Parsonage Farm, Longdon, Tewksbury, GL20 6BD.
Tel: 01684 833538 Mob: 07860 376527
Email: jim@bjunwin.co.uk
Web: www.bjunwin.co.uk

Appendix IX

Tree retention & Tree Protection Plan.

(TRP)

0 1 2 3 4 5m 10m 15m

Scale Bar

11

9a

15

2

3

1

6

CEZ

Shrubs.

Porous paving.

CEZ

Shrubs.

Porous gravel drive.

Shrubs.

CEZ

7.4x4 extension

T5

T1

T2

T3

T4

Hedge.

THE COPPICE

Temporary ground protection.
See 6.3.3 of tree report.

Hand sever roots.
See 6.6 of tree report.

Key:

Tree trunk, number and Tree Crown Spread — T1

Tree Protection Fence

Construction exclusion zone — CEZ

Root Protection Areas

Trees removal for safety — T1

Trees removed for development — T1

Hand sever roots

Minimal dig

Temporary ground protection

Note: New underground services may require changes to this tree retention & protection plan.

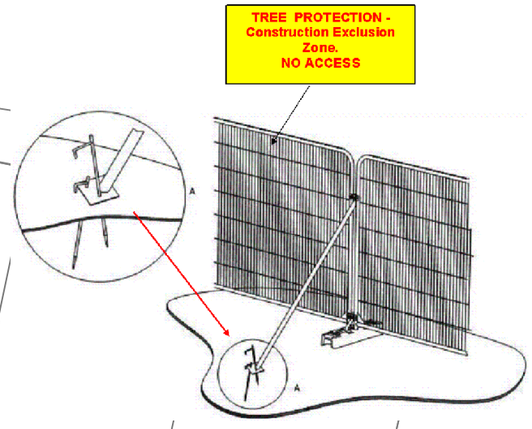
Vertical Tree Protection Fencing, from BS5837.

Vertical protective fence: location on plan:

Lightweight: in situ for < 3 months or constrained site-

Heras panels joined by two clamps, on feet, with pegged strut on each panel.

Apply signs at maxm 20m spacing:



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END.