

School House Gwaun-Cae-Gurwen

BS5837:2012 Tree Survey 4th December 2023

Membership No: TE03654



Site Location: School House Gwaun-Cae-Gurwen	Report Reference: 10.23/SCH/V5
Client: Davies Richards Design Ltd	Date of Report: 4 th December 2023 Date of Site Visits: 4 th October 2023
Report Prepared By: Liz Phillips	Survey Carried Out By: Liz Phillips

RTAC, 6 COURTYARD FLATS, STABLE YARD, STACKPOLE, PEMBROKESHIRE, SA71 5DE

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1. Introduction

1.1 Site Location

1.1.1 Site Address: School House, New Road, Gwaun-Cae-Gurwen, SA18 1UN.

1.1.2 Ordnance Survey grid reference: SN704122.

1.2 Instructions

1.2.1 RTAC has been instructed to produce a report in compliance with BS5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' to inform a planning application for construction of a second detached residential property on this site. The instruction was given by Gareth Richards, Davies Richards Design Ltd.

1.3 Documents Provided

1.3.1

Document Description	Reference Number	Produced By	Date
Invalid Planning Application Notification	P2023/0685	Kate Pearce	26 th September 2023
Proposed Plans & Elevations Various Scales@A1	1886-01	DR Design	Aug '23
Topographic Survey 1:200@A1	W1405-01	3 Point Surveys	July 2023

1.3.2 No independent verification or assessment of these documents has been made by RTAC. The Topographic Survey 1:200@A1 has been used to form the basis of the plans in this report.

1.4 Scope of Report

1.4.1 The purpose of this report is to survey the trees growing within and on the boundaries of the curtilage of School House.

1.4.2 This report is concerned with the arboricultural features of the site only and including any physical features which directly affect or are affected by the trees.

1.4.3 This report is a record of the condition of the trees at the time of the survey being carried out, notwithstanding this, the purpose of this survey is to assess the trees in accordance with BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations and with respect to the proposed development and the survey is not intended to be a full tree condition or hazard survey.

1.5 Survey Methodology and Limitations

1.5.1 The survey was carried out on Wednesday 4th October 2023; the weather was overcast, windy and drizzly but visibility was sufficient for the purposes of this survey.

1.5.2 The heights and crown spreads of all accessible recorded trees were measured with an SNDWAY SW-1000A Laser Distance Meter Telescope. Stem diameters of all accessible trees recorded were measured at 1.5 metres above ground level with a diameter tape.

1.5.3 No vegetation has been removed to inspect trees and where trees are not visible or accessible because of vegetation, fences, ditches, or other obstructions a limited assessment has been carried out.

1.5.4 Observations were made using Visual Tree Assessment (VTA) methodology (Mattheck 1994). The data was recorded using Pear Technology Pocket GIS on a Panasonic Toughpad FZ-G1.

1.5.5 This survey was undertaken in accordance with BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations.

1.5.6 The trees have been categorised in accordance with the British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations as listed below:

Category A – trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category B – trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

Category C – trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

These categories are subdivided into 1. Arboricultural qualities, 2. Landscape qualities and 3. Cultural values, including conservation.

Trees not suitable for retention have been categorised as U.

See Appendix I for table of categories.

1.5.7 All observations were made from the ground. No climbing surveys were carried out.

1.5.8 No soil samples were taken.

1.5.9 No invasive decay detection techniques have been used.

1.5.10 This report is valid for one year from the date of inspection. Trees are living organisms, and no responsibility can be accepted by the surveyor for the failure of a tree or part of a tree due to adverse weather conditions, *force majeure* or other unpredictable occurrences. It is the responsibility of the tree owner to inspect and maintain his or her trees on a regular basis.

1.5.11 The tree survey was carried out by Liz Phillips TechArborA of RTAC. Liz has worked in the arboricultural industry for 14 years as a tree surgeon, surveyor, local authority tree officer and consultant.

1.6 Planning Policy

1.6.1 Planning Policy Wales Edition 11 February 2021 Chapter 6: Distinctive and Natural Places contains the following policies:

Trees, Woodlands and Hedgerows

6.4.24 Trees, woodlands, copses and hedgerows are of great importance for biodiversity. They are important connecting habitats for resilient ecological networks and make a valuable wider contribution to landscape character, sense of place, air quality, recreation and local climate moderation. They also play a vital role in tackling the climate emergency by locking up carbon, and can provide shade and shelter, a sustainable energy source and building materials. The particular role, siting and design requirements of urban trees in providing health and well-being benefits to communities, now and in the future should be promoted as part of plan making and decision taking.

6.4.25 Planning authorities should protect trees, hedgerows, groups of trees and areas of woodland where they have ecological value, contribute to the character or amenity of a particular locality, or perform a beneficial and identified green infrastructure function. Planning authorities should consider the importance of native woodland and valued trees, and should have regard, where appropriate, to local authority tree strategies or SPG. Permanent removal of woodland should only be permitted where it would achieve significant and clearly defined public benefits. Where woodland or trees are removed as part of a proposed scheme, developers will be expected to provide compensatory planting.

6.4.26 Ancient woodland and semi-natural woodlands and individual ancient, veteran and heritage trees are irreplaceable natural resources, and have significant landscape, biodiversity and cultural value. Such trees and woodlands should be afforded protection from development which would result in their loss or deterioration unless there are significant and clearly defined public benefits; this protection should prevent potentially damaging operations and their unnecessary loss. In the case of a site recorded on the Ancient Woodland Inventory, authorities should consider the advice of NRW. Planning authorities should also have regard to the Ancient Tree Inventory.

6.4.27 The protection and planting of trees and hedgerows should be delivered, where appropriate, through locally specific strategies and policies, through imposing conditions when granting planning permission, and/or by making Tree Preservation Orders (TPOs). They should also be incorporated into Green Infrastructure Assessments and plans.

1.6.2 Neath Port Talbot County Borough Council's Local Development Plan (2011-2016) adopted January 2016 contains the following policy:

Policy EN 7 Important Natural Features

Development proposals that would adversely affect ecologically or visually important natural features such as trees, woodlands, hedgerows / field boundaries, watercourses or ponds will only be permitted where:

- 1. Full account has been taken of the relevant features in the design of the development, with measures put in place to ensure that they are retained and protected wherever possible; or*
- 2. The biodiversity value and role of the relevant feature has been taken into account and where removal is unavoidable, mitigation measures are agreed.*

1.7 Protected Wildlife

1.7.1 Before any treeworks are carried out, the trees should be inspected for any evidence of bats or nesting birds.

1.7.2 It is an offence under the Wildlife and Countryside Act 1981 to intentionally:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of a wild bird included in Schedule ZA1;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird,

1.7.3 It is also an offence to:

- deliberately capture, injure or kill a bat;
- damage or destroy any structure or place which any bat uses for shelter or protection;
- disturb any bat while it is occupying a structure or place which it uses for shelter or protection; or
- obstruct access to any structure or place which any bat uses for shelter or protection.

2. Site Analysis

2.1 Site Description

2.1.1 School House is a detached residential property situated on a large plot which slopes gently to the south and measures approximately 1500m². The site is bordered to the west by Ysgol Gymraeg Gwaun Cae Gurwen; the school playing fields to the north; Amman Valley Fire Station to the east and New Road to the south.

2.2 Proposed Works

2.2.1 The plot will be divided, and a separate detached residential property constructed in the eastern half which will utilise the existing access to the east. A new access from New Road will be constructed for the existing property.

3. Arboricultural Impact Assessment

3.1 Tree Constraints Plan

3.1.1 Tree survey data is in Appendix I. All site plans are in Appendix II.

3.1.2 Above Ground Constraints - current crown spread is marked on the Tree Constraints Plan (TCP). This does not indicate the ultimate crown spread of the individual trees.

3.1.3 Below Ground Constraints – the root protection area (RPA) is a circle of radius 12 x the diameter of the stem of the tree measured at 1.5 metres above ground level. For a multi-stemmed tree, the RPA is calculated using the following formula:

$$\sqrt{(\text{mean stem diameter})^2 \times \text{number of stems}}$$

3.1.4 The RPA is usually depicted as a complete circle; however, this area can be altered in shape to reflect compromised growing conditions such as the presence of buildings, watercourses, etc. In this case, only the RPAs of T1 and T2 been amended to reflect the existing site layout.

3.2 Arboricultural Impact Assessment

3.2.1 The new vehicle access from New Road and the new vehicle parking areas will be constructed over the RPAs of T1 and T2. This can be mitigated for by the use of a non-compressible geogrid such as Cellweb (see Appendix III). T2 will need to be crownlifted to 4m over the parking area.

3.3 Tree Protection Plan

3.3.1 The Tree Protection Plan is in Appendix II.

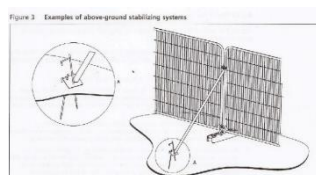
3.3.2 Any treeworks required must be carried out prior to the commencement of construction works.

3.3.3 Heras fencing as shown below will be erected in the location marked on the Tree Protection Plan.

3.3.4 The fenced off area will be designated as the construction exclusion zone (CEZ). All fencing must be in place before construction works begin and must not be moved or removed until all construction works have finished. Signage as shown below must be attached to the fencing.

3.3.5 Works within the CEZ are restricted as follows:

- No excavations to be carried out unless agreed as part of the planning permission.
- No vehicle access.
- No fires to be lit within the CEZ or within 10 metres of the crown of a tree to be retained.
- No storage of construction materials or spoil within the CEZ.
- No mixing of cement or discharge of contaminants such as fuel within the CEZ.
- Soil levels within the CEZ must not be altered unless agreed as part of the planning permission.
- No signs or lighting to be attached to trees to be retained.



Tree Protection Fencing



Tree Protection Signage



4th December 2023

School House GCG

APPENDIX

I. Survey Data

Terms used in data tables

BS5837 Survey

Tag No – corresponds to numbered metal tag attached to tree.

Species – common and Latin names are given.

Height - measured with a Suunto PM5/360 clinometer to the nearest metre unless otherwise stated.

Stem diameter - measured at 1.5 metres above ground level with a dbh (diameter at breast height) tape.

Crown spread - measured at the cardinal points to 0.5 metres.

Clear - the lowest height of the crown above ground measured in metres.

Age - NP – newly planted; Y – young, a tree in the first third of life expectancy; SM – semi-mature, a tree in the second half of life expectancy; M – mature, tree in final third of life expectancy; OM – over-mature, tree in decline; V – veteran, tree with major physiological decline, surviving beyond the typical age range for the species.

RP – root protection area; radius and area of circle.

Phys. Condition - physiological condition; poor, fair, good, dead or dangerous.

Structural condition - crown, stem and basal area.

Preliminary recommendations - recommendations for remedial works.

Cat - retention category as defined in BS5837:2012 A, B, C and U.

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 <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>			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

BS5837:2012 Tree Survey

RTAC

Client: Gareth Richards
 Project: School House GCG
 Survey Date: 04/10/2023
 Surveyor: Liz Phillips



6 Courtyard Flats
 Stable Yard
 Stackpole
 Pembrokeshire
 SA71 5DE
 Phone: 07823332279

Tree and Tag No Species		Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations			Cat ERC
			No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment			
H1	no tag											Estimated Measurements		
A Hedgerow - <i>Spp.</i>	7	1	140	N	2		SM	A: 8.9 R: 1.68	Good	C: Good S: Good B: Good	No action :: Unspecified			C.2
				E	2						Outgrown hedge of beech; hawthorn; hazel; field maple and sycamore.			>40 yrs
				S	2									
				W	2									
T1	no tag													
Wheatley Elm	17	1	880	N	6	8	SM	A: 350.4 R: 10.56	Fair	C: Fair S: Fair B: Fair	Re-inspect :: Unspecified			C.2
<i>Ulmus sarniensis</i>				E	5	8					Remove :: Epicormic growths			>40 yrs
				S	5	8								
				W	5	8					Inrolled rib to 1.5m north side; small area of dead bark at base south side with no signs of fungal fruiting bodies - a blade will penetrate this area by 1 inch; possible honey fungus - monitor this tree for any signs of decline.			
T2	no tag													
Goat Willow	10	5	688	(Eq) N	7	2	M	A: 214 R: 8.25	Good	C: Good S: Ivy B: Good	Lift crown :: Unspecified			B.2
<i>Salix caprea</i>				E	8	2					Crown lift to give 4m clearance over vehicle parking area.			>40 yrs
				S	6	1.5								
				W	4	4								
T3	no tag													
Common Beech	8	1	220	N	2	5	Y	A: 21.9 R: 2.64	Good	C: Fair S: Good B: Good	No action :: Unspecified			C.2
<i>Fagus sylvatica</i>				E	3	3					Asymmetrical crown.			>40 yrs
				S	4	3								
				W	1	6								
Age Classifications:	N	Newly planted	EM	Early Mature	Condition:			C	Crown	Stems:	Ø	Diameter		
	Y	Young	M	Mature				S	Stem		(Eq)	Equivalent stem diameter using BS5837:2012 definition		
	SM	Semi-mature	OM	Over Mature				B	Basal area	ERC:	Estimated Remaining Contributio			

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations			Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment			
T4 no tag											Estimated Measurements		
Common Beech <i>Fagus sylvatica</i>	8	1	180	N E S W	4 2 3 2	4 4 4 6	Y A: 14.7 R: 2.16	Good	C: Good S: Good B: Good	No action :: Unspecified			C.2 ----- >40 yrs
T5 no tag													
Common Beech <i>Fagus sylvatica</i>	8	1	140	N E S W	1 1 1 1		SM A: 8.9 R: 1.68	Good	C: Good S: Good B: Good	No action :: Unspecified			C.2 ----- >40 yrs
T6 no tag													
Field Maple <i>Acer campestre</i>	9	1	180	N E S W	2 1 2	7 7 7 7	Y A: 14.7 R: 2.16	Good	C: Good S: Good B: Good	No action :: Unspecified			C.2 ----- >40 yrs
T7 no tag													
Field Maple <i>Acer campestre</i>	10	1	190	N E S W	4 2 1 2	4 5 6 5	Y A: 16.3 R: 2.27	Good	C: Good S: Good B: Good	No action :: Unspecified			C.2 ----- >40 yrs
T8 no tag													
Common Beech <i>Fagus sylvatica</i>	9	1	200	N E S W	1 1 3 3	7 6 5 5	SM A: 18.1 R: 2.4	Good	C: Good S: Good B: Good	No action :: Unspecified			C.2 ----- >40 yrs
T9 no tag													
Norway Spruce <i>Picea abies</i>	11	1	240	N E S W	3 3 3 3	1 1.5 2 2	SM A: 26.1 R: 2.88	Good	C: Good S: Good B: Good	No action :: Unspecified			C.2 ----- >40 yrs
Age Classifications:	N Y SM	Newly planted Young Semi-mature	EM M OM	Early Mature Mature Over Mature	Condition:			C S B	Crown Stem Basal area	Stems:	Ø Diameter (Eq) Equivalent stem diameter using BS5837:2012 definition	ERC:	Estimated Remaining Contributio

Report selection criteria.

Projects.

School House GCG

Date Range.

Any Date

Work types.

----> Lift crown :: Unspecified
 ----> No action :: Unspecified
 ----> Re-inspect :: Unspecified
 ----> Remove :: Epicormic growths

Latest Survey.

All surveys for the selected trees.
 ---> Last survey for each selected tree.

Work Completed.

---> Work Completed
 ---> Work Not Completed

Number of trees in selected Project(s) **10**

Number of trees in Report selection **10**

Age Classifications:

N	Newly planted	EM	Early Mature
Y	Young	M	Mature
SM	Semi-mature	OM	Over Mature

Condition:

C	Crown
S	Stem
B	Basal area

Stems: Ø Diameter
 (Eq) Equivalent stem diameter using BS5837:2012 definition
ERC: Estimated Remaining Contributio

II. Site Plans

RTAC

6 Courtyard Flats, Stable Yard, Stavkpole, SA71 5DE

07823332279 info@rtactrees.co.uk

School House Gwaun-Cae-Gurwen Tree Constraints Plan

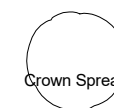
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Crown Spread



Root Protection Area



Category 'A'



Category 'B'



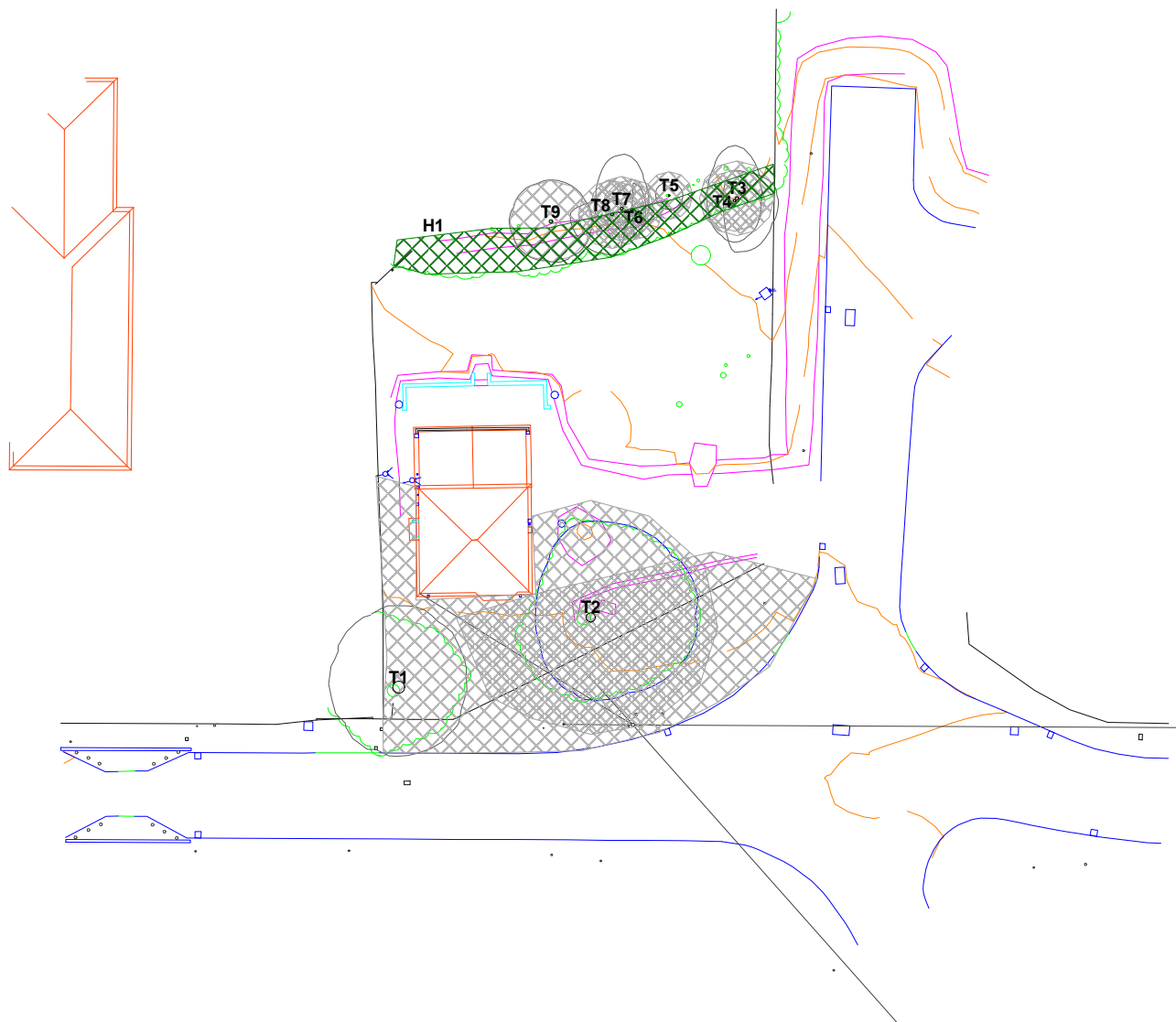
Category 'C'



Category 'U'

0

30m



RTAC

6 Courtyard Flats, Stable Yard, Stackpole, SA71 5DE
07823332279 info@rtactrees.co.uk

School House GCG Site Layout Tree Constraints Plan

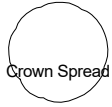
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Crown Spread



Root Protection Area



Category 'A'



Category 'B'



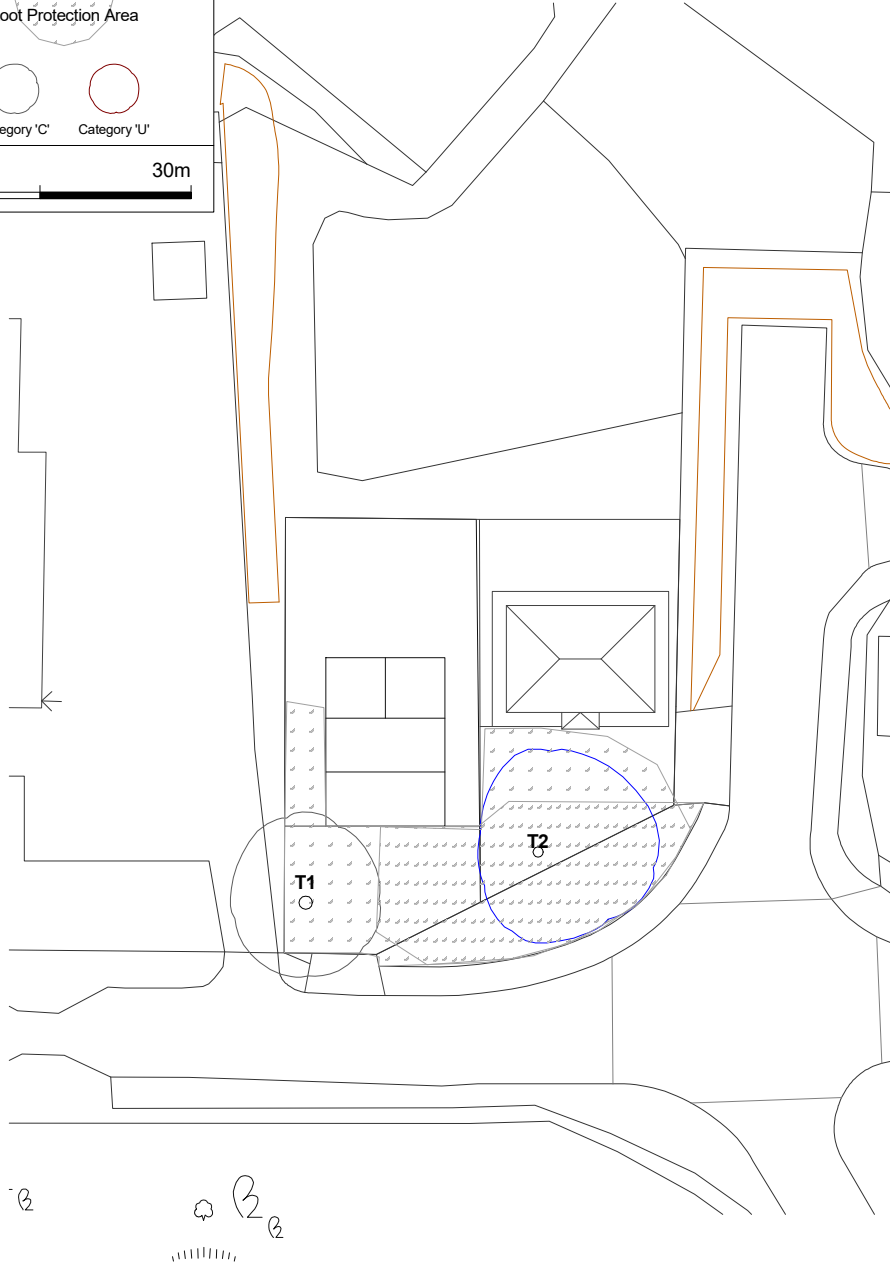
Category 'C'



Category 'U'

0

30m



RTAC

6 Courtyard Flats, Stable Yard, Stackpole, SA71 5DE
07823332279 info@rtactrees.co.uk

School House GCG Site Layout Tree Protection Plan

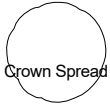
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Crown Spread



Root Protection Area



Category 'A'



Category 'B'



Category 'C'



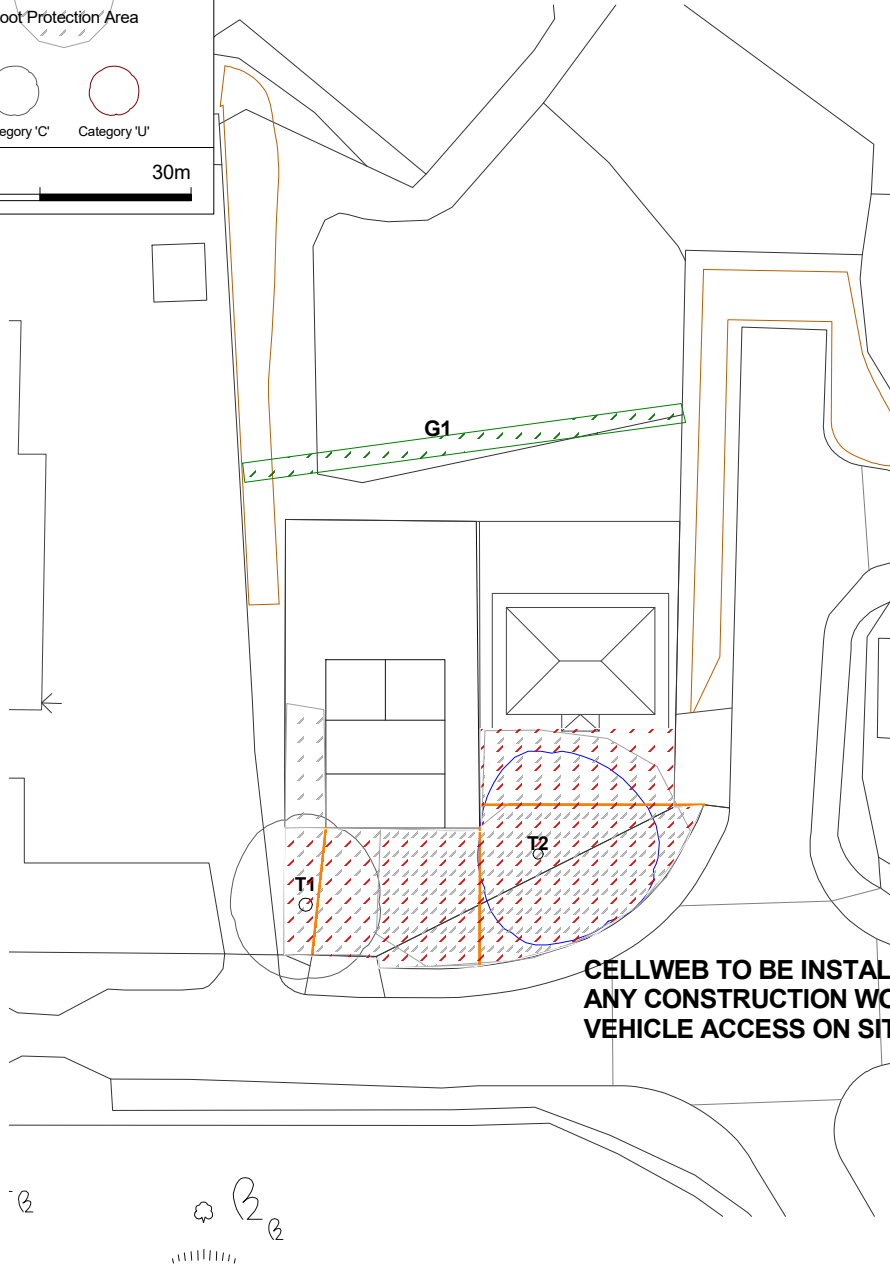
Category 'U'

0 30m

HERAS FENCE



CELLWEB



CELLWEB TO BE INSTALLED BEFORE
ANY CONSTRUCTION WORKS OR
VEHICLE ACCESS ON SITE



4th December 2023

School House GCG

III. Cellweb

Cellweb® TRP Installation Guide



Step 1: Prepare Surface



Step 2: Lay out Treetex™



Step 3: Lay out Cellweb® TRP

- Cellweb® TRP is a NO DIG tree root protection measure and it is recommended that no excavation be performed without prior approval and guidance from the Local Authority Arboricultural Officer.
- Soil compaction from vehicles, machinery and materials is to be strictly prohibited during construction within Root Protection Areas (RPAs).
- Approval must be obtained from the Local Authority that the design and the method of construction is acceptable.
- Further information is available from the following two documents;
 - British Standard BS5837: 'Trees in Relation to Design, Demolition and Construction' (2012).
 - Arboricultural Advisory and Information Service: Practice note 12 – 'Through the Trees to Development' (APN12).

Installation Method

1. Prepare the Surface

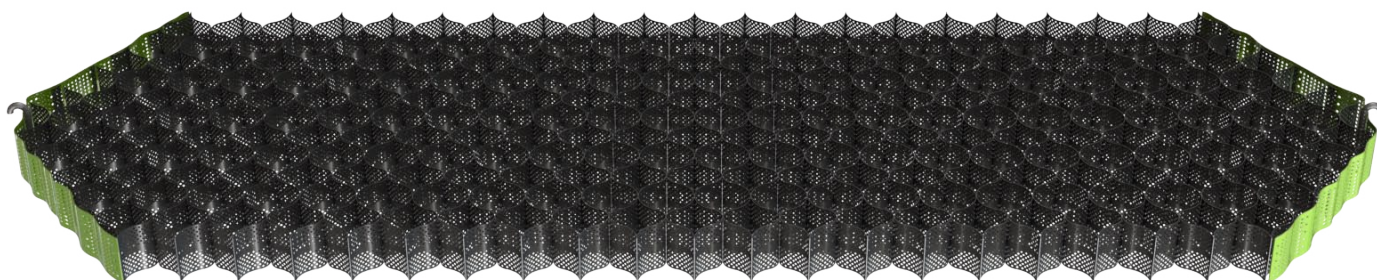
- Remove the surface vegetation using appropriate hand held tools or herbicide (see Note 1).
- Remove any surface rocks, debris and organic material.
- Create a level surface by filling any hollows with clean angular stone or sharp sand.
- Do not level off high spots or compact the soil through rolling.

2. Lay out the Treetex™ Non-Woven Geotextile

- Lay out the Treetex™ over the prepared area, overlaying the edges of the required area by 300mm.
- Overlap any joins by 300mm minimum or more, depending on soil structure (see Note 2).

3. Lay out the Cellweb® TRP Cellular Confinement System

- Lay out the collapsed Cellweb® TRP on-top of the Treetex™.
- Place one of the supplied J pins into the centre cell at the end of the panel and secure into the ground.



Cellweb® TRP - Installation Guide

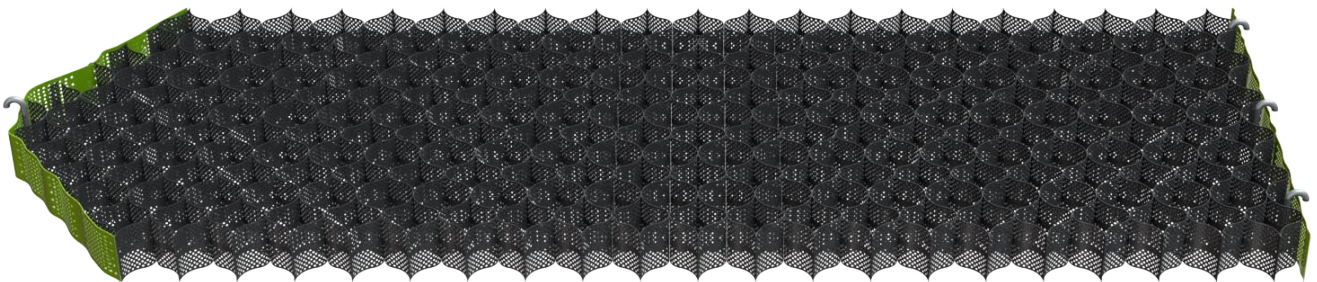


Step 3: Pinning Cellweb® TRP

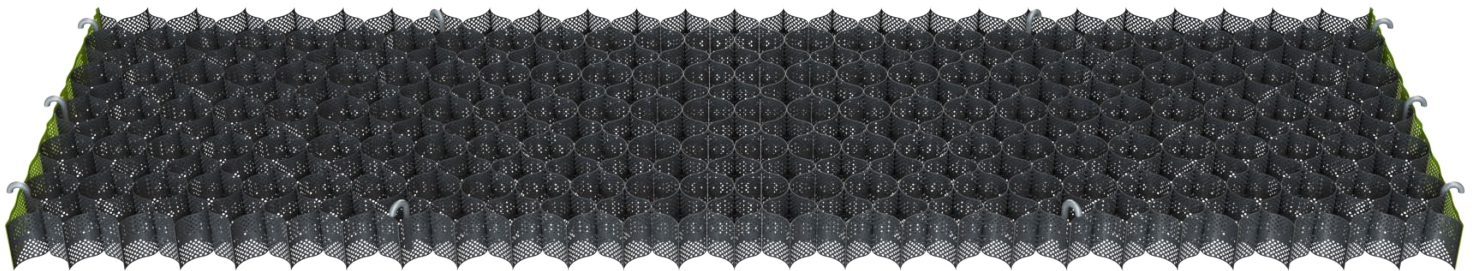


Step 3: Stapling Cellweb® TRP

- Pull out the Cellweb® TRP to its full 8.1m length and secure its length with another J pin.



- Now measure its width to 2.56m and secure in each of the corners with the J pins.
- Use 10 pins per panel to create a panel measuring 8.1m x 2.56m.



- This will produce a cell size of 259mm x 224mm which is the required cell diameter. Each cell must be fully extended and under tension.
- Staple adjacent panels together at each cell (see Note 3).
- If a curved path or shape is required, this should be cut when the Cellweb® TRP panel is pinned out to 8.1 x 2.56m, ensuring complete cells remain. Do not try to curve or bend the Cellweb® TRP panels into place.
- All cells must be fully opened to the required diameter.

Cellweb® TRP - Installation Guide



Step 4: Clean Angular Stone



Step 5: Edge Restraints



Step 6: Surface Options

4. Infill the Clean Angular Stone

- The infill material must be a clean angular stone, Type 4/20mm or Type 20/40mm (see Note 4).
- Do not use M.O.T type 1 or crushed stone with fines for tree root protection.
- Infill the Cellweb® TRP cells with the clean angular stone, working towards the tree and using the infilled panels as a platform.
- Minimum 25mm overfill of clean angular stone when used in conjunction with a hard surface.
- No compaction is required of the infill. Do not use a whacker plate or other means of compaction.
- Encourage settlement of the stone with the use of a light roller or with 2-3 passes of the construction plant used for installation.
- If the clean angular stone is being used as the final surface; regular maintenance will be required to ensure a minimum overfill of 50mm.

5. Edge restraints

- Excavations for kerbs and edgings should be avoided within the RPAs.
- Where edging is required for footpath and light structures, a peg and treated timber board edging is acceptable
- Other options include wooden sleepers, kerb edging constructed on-top of the Cellweb® TRP system, plastic and metal edging etc.

6. Surface options

- All surfaces in Root Protection Areas must be porous. Surfaces can include block paving, asphalt, loose gravel, grass and gravel retention systems (e.g Golpla), resin bound gravel, concrete etc.

NOTES

1. **Herbicide:** According to BS5837:2012 "The use of herbicides in the vicinity of existing trees should be appropriate for the type of vegetation to be killed, and all instructions, warnings and other relevant information from the manufacturers should be strictly observed and followed. Care should be taken to avoid any damaging effects upon existing plants and trees to be retained, species to be introduced, and existing sensitive habitats, particularly those associated with aquatic or drainage features."
2. **Geotextile:** We recommend the installation of a Treetex™ under the Cellweb® TRP, or under the sub-base, if installed. The overlapping between adjacent rolls of Geotextile should be: CBR > 3%: 300mm minimum, CBR between 1% and 3%: 500mm minimum. CBR ≤ 1%: 750mm minimum.
3. **Staples:** Number of staples per join: 200mm: 5 staples. 150mm: 4 staples. 100mm: 3 staples. 75mm: 3 staples.
4. **Granular Fill:** Open graded sub-base, clean angular stone Type 4/20 or Type 20/40. Please refer to BS7533-13:2009 and to the Design Manual for Roads and Bridges (DMRB), Volume 4 Geotechnics and Drainage, Section 1 Earthworks, HA44/91, Volume 7 – IAN 73/06 Design Guidance for road pavement foundations and Manual of Contract Documents for Highway Works (MCHW), Volume 1 Specification for Highway Works for the construction and maintenance of the fill material.

IV. Photographs



T1 and T2



T2 inrolled rib



T2 decay at base



Outgrown hedgerow on north boundary

V. Qualifications

Qualifications:

AA Technicians Certificate 2009
BSc. Heritage Conservation 2ii
Electrical Arboriculture Units 1 and 2a
NVQ Level 2 Environmental Conservation
NPTC CS 30, 31, 39, climb trees and perform aerial rescue

CPD:

Bats and Arboriculture: A Practitioner's guide
BS 5837:2012. Tree Surveying and Categorisation
Subsidence 1 day workshop
Assessment of Tree Forks: Assessment of Junctions for Risk Management
The Hollow Tree – Arboriculture
Introduction to Soils

VI. Bibliography

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Assessment of Tree Forks: Assessment of Junctions for Risk Management (2016) Slater in association with Myerscough College; The Arboricultural Association.

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