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BS5837:2012 Tree Survey & Arboricultural Constraints Report

Dakota House

Pentwyn Baglan Road

Baglan

Port Talbot

SA12 8AH

Grid Ref. SS75376 91744

w3w: become.useful.desk

Client: Mr Robert Bowen

Consultant / Surveyor: Jack Thomas - The Arb Team

March 2024

Tree Survey &
Arboricultural Constraints Report
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Site plan(s) showing the position of the schedule trees with their colour coded BS category and the position of the root protection zone fencing.

Terms & Conditions

Section 1. Introduction

1.1 At the request of Mr Robert Bowen the following tree report has been drafted. The instructions were to survey the trees / hedges which could be affected by the proposed development and in accordance with BS5837:2012 Trees in Relation to Design, Demolition and Construction provide a report on the impact of the development on the trees / hedges. As shown on the attached site plan a total of one hedge which comprises of 13 individual conifers were the only trees that were inspected for this report.

1.2 The details of the trees / hedges are listed in the tree schedule and the terms used in the schedule with their definitions are listed in Appendix 1. Further information is available via the Tree Terms website which can be accessed via the www address listed in section 5 References.

1.3 Only the features apparent at the time of the inspection could be considered and no liability can be accepted regarding trees or their parts that were inaccessible or obscured in part or in whole. It has to be emphasised that although the health and safety of the trees is part of the assessment methodology used, this report is only intended for planning purposes, therefore it should not be construed as an assessment of tree safety. As part of this study faults may be identified and recorded but it remains the land owners / clients responsibility to take the appropriate action. The assessor / surveyor can accept no liability for damage or injury sustained as a result of the failure of any tree or its parts.

1.4 The information provided consisted of site plans showing the existing site and the proposed development.

1.5 This report does not provide information on any conflicts between existing tree roots and buildings or infrastructure.

1.6 This report has been issued as a single PDF file. The tree protection plan (TPP) may need to be printed independently to evaluate and consider any difference in its size and orientation to the report's standard A4 format.

Section 2. Inspection and General Observations.

2.1 The tree survey was completed on the 6th March 2024 and was undertaken from ground level with no climbing inspections involved. The weather conditions during the survey were dry with sunny periods and a light breeze.

2.2 Dakota House is a large detached house in an elevated location to the east of the Pentwyn Baglan Road. The 13 conifers form a hedgerow near the front boundary of the property and are located in a north to south direction. Due to its location and condition the hedgerow is a prominent and attractive feature in the local landscape.

2.3 All thirteen trees which form this hedge are in good health and condition with no visible areas of decay, disease or significant structural defects.

2.4 Root morphology. The retaining wall on the front boundary of the property provides a barrier to the extension of the trees root systems on their western side. There are no restrictions to the south, north or east.

2.5 These trees do not have any statutory protection such as a tree preservation order and are not located in a conservation area.

2.6 All 13 conifers are Leyland Cypress of the variety Castlewellan Gold. At their nearest point the trees are 12 metres from the house. Their position is shown on the site plan.

2.7 The quality rating for the trees on or affecting this site is summarised as follows.

TABLE A

BS5837 Quality category	Total number of individual trees surveyed	Total number of tree groups surveyed	Total number of woodlands surveyed	Total number of hedges surveyed	Total
A	0	0	0	0	0
B	0	0	0	1	1
C	0	0	0	0	0
U	0	0	0	0	0
Total A,B,C,U	0	0	0	0	1

2.8 Soil assessment. The site's soil was assessed by desktop analysis using the Soilsclapes website, www.landis.org.uk/soilsclapes/, which identified freely draining acid loamy soils over rock. This soil assessment should only be used as a general guide and the project engineer should undertake a detailed on site soil analysis for the foundation calculations and specifications.

Section 3. Tree and root protection area schedules.

TABLE B

Tree no.	Species	Ht.	Stem dia. (mm)	Age	Crown spread (m)		Low branches	Cat.	Notes
					N-S	E-W			
H1	Leyland Cypress -13 trees	6.0	10,11 11,12 13,13 14,17 18,18 18,19 21	SM	15.3	4.0	0.5	B2	N/C

TABLE C

Tree no.	Species	Mean stem dia. (mm)	RPA 1 (m2)	Minimum radial protection (m)		Justification for RPA modification	Position of protective barrier
				RPA 2	Modified		
H1	Leyland Cypress	15	N/A	3.4	Yes	Standard offsetting by 20%	3.4 metres from tree centres.

Section 4. Arboricultural Impact Assessment (AIA)

4.1 This section will assess the implications, if any, that the proposed development will have on the hedgerow in the tree schedule and provide advice on arboricultural actions that will mitigate any impact resulting from the proposed development.

4.2 This information can then be used to evaluate the impact of the development on the hedge and if any remedial measures are required.

4.3 Please note that Table D of the AIA has been evaluated for the design, construction and post development phases and on the site layout that has been provided at the time that this report was drafted. Any design changes after this time may require an amendment of the AIA.

<u>TABLE D</u>	Issues	Observations	Impact
<i>Design phase</i>	Category A	There are no trees in this category.	
	Category B	With the small infringement into the RPA of two of the thirteen trees some additional precautions will be required.	
	Category C	There are no trees in this category	
	Category U	There are no trees in this category	
	Structures in RPA	A small section of the north east corner of the new garage extends into the RPA but with ground protection this is within an acceptable tolerance.	
	Services in RPA	There are no services within the RPA.	
	Changes to existing ground levels	There are no significant changes to the existing ground levels.	
<i>Construction phase</i>	Demolition	No demolition is required for this development.	
	Site access	The existing site access will be used.	
	Working areas	There are adequate working areas.	
	Site office, storage and welfare unit.	There is an adequate area for the storage of materials and a welfare unit.	
	Vehicle parking	There is an adequate area for the parking of vehicles.	
<i>Post development</i>	Tree pruning / maintenance	The trees will require pruning to maintain their form but this can be undertaken after all construction work has been completed.	
	Tree roots	The tree's roots will have a minimal impact on the construction work but post development the tree's rooting area should be inspected on an annual basis for any lifting of the ground surface.	
	Shading / periodic nuisance	There will be some shading and issues with light tree debris. General maintenance will keep this issue within acceptable limits.	

KEY - Prior to any mitigation measures

	No impact from development and no mitigation measures required.
	Some impact which will require mitigation measures.
	Low impact which may require mitigation measures.
	High impact which will require an amended design or tree removal.

4.4 The new building does infringe on a small area of the root protection area. To allow a sufficient area for the construction work ground protection is required. After the removal of the artificial grass a membrane should be laid on the soil surface with a 10cms covering of wood chippings and finally the installation of heavy duty bog mats which can then be used for the passage of materials and site staff.

4.5 The hedge provides a dense screen therefore there will be very little visual impact from this development.

Section 5. Recommendations.

5.1 To protect the trees root protection zones prior to any ground or construction work protective fencing as shown in Appendix 2 must be erected at an adequate distance from the trees. The minimum distances between the base of the main stem and the fencing are shown in Section 3, Table C under the RPA 2 column. After consultation and agreement with the local planning authority if the fence cannot be erected at the recommended distance from the tree it should be erected at the maximum distance possible and ground protection measures as stated in Appendix 3 must be implemented. When the protective fencing and ground protection has been installed weather resistant signs displaying wording such as TREE PROTECTION AREA - NO UNAUTHORISED ACCESS should be attached to the protective fencing at suitable locations. These signs must be adequate in number and prominence.

5.2 Due to its proximity to the new garage and future growth it would be advisable if this hedge is trimmed on an annual basis. Annual pruning will maintain its form and mid to late summer is the recommended period for this work.

5.3 All tree work must be completed by suitably qualified and competent arborists in accordance with the guidelines in BS3998:2010 Tree Work – Recommendations and current good practice.

5.4 No burning of waste products must be undertaken in the vicinity of retained trees. No fires should be lit where the heat could damage any part of the tree above or below ground level. If a fire is necessary wind

direction and the size of the fire should be considered. The fire must not be left unattended at any time and must be fully extinguished prior to leaving the site.

5.5 No items such as site notices or service cables should be attached to any retained tree.

5.6 To minimise any ground disturbance the removal of all stumps within the RPA's of retained trees must be undertaken by a stump grinder. Adequate ground protection with the use of bog mats to prevent soil compaction is usually required.

5.7 Soil contamination from cement mixing and washing should be avoided across the entire site. The RPA must be adequately protected from any material such as cement washings and fuels that could contaminate the soil. If due to the topography of the land there is a risk of any contamination entering the RPA's and vicinity of retained trees adequate precautions to contain all pollution e.g. heavy duty plastic sheeting and sand bags, must be implemented. To prevent any harmful materials seeping towards the RPA the topography of the land should be evaluated and taken into consideration.

5.8 Prior to any tree work the structure of the individual trees and surrounding area should be checked by a suitably competent and qualified person for protected species such as nesting birds and bats. If possible all tree work operations should be undertaken when the minimum disturbance is caused to the local wildlife.

5.9 The construction of new footpaths, parking and/or turning areas within root protection zones should be avoided. If this is unavoidable any works within these zones will require the installation of a cellular confinement system. It would be advisable to obtain the advice of a suitably qualified arborist prior to this type of work..

Section 6. Arboricultural method statement

The following section provides the sequence for the required actions.

Phase 1: Preconstruction

- The site is designed around the retained trees. This design stage must include the identification of suitable areas for the storage of materials during the construction work.
- All required tree work operations are undertaken and are completed in accordance with BS3998:2010
- As in 5.1 and Appendix 2 of this report tree protection fencing is installed around all the retained trees.
- If required storage and welfare units are installed.
- If required by the local planning authority the arboriculturist for the project inspects the site to confirm that all tree protection work has been undertaken in accordance with this report. All inspections will be adequately recorded e.g. date, time, observations.

Phase 2: Construction

- Site supervisor to be briefed by the project arboriculturist regarding the required tree protection measures e.g. tree protection plan, method statement.
- Prior to the start of any site work all site staff and subcontractors to be adequately briefed on the tree protection measures in particular the importance of the RPA and the protective fencing.
- Construction work commences.
- General working practices across the entire site should consider the risk of soil contamination, fires and the use of large machinery such as cranes in the vicinity of retained trees.

- Any unforeseen events that may affect retained trees are discussed with the project arborist and the local planning authority (LPA). Any alteration to the tree protection plan will require written authorisation from the LPA.

Phase 3: Post construction

- Tree protection fencing is removed.
- Hard and soft landscaping is undertaken in accordance with the guidelines and recommendations in BS5837:2012
- Any required tree remedial work is undertaken e.g. application of mulches, removal of damaged branches.

KEY CONTACTS

POSITION	NAME	CONTACT DETAILS
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Arboricultural Consultant	Jack Thomas	01792 885184
Architect / Designer	I. M. Design Studio	jon@imdesignstudio.co.uk
Main Contractor	TBC	

Section 7. Conclusion

7.1 If the recommendations in BS5837:2012 and this report are followed this development should not have a detrimental impact on the future health and retention of the hedgerow.

Section 8. References.

British Standard 5837 : 2012 Trees in relation to design, demolition and construction.

British Standard 3998 : 2010 Tree Work – Recommendations.

Tree surveys – A guide to good practice (2005). Fay, Dowson & Helliwell.

Principles of tree hazard assessment and management (1999). Lonsdale.

National Joint Utilities Group Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees. Volume 4: Issue 2

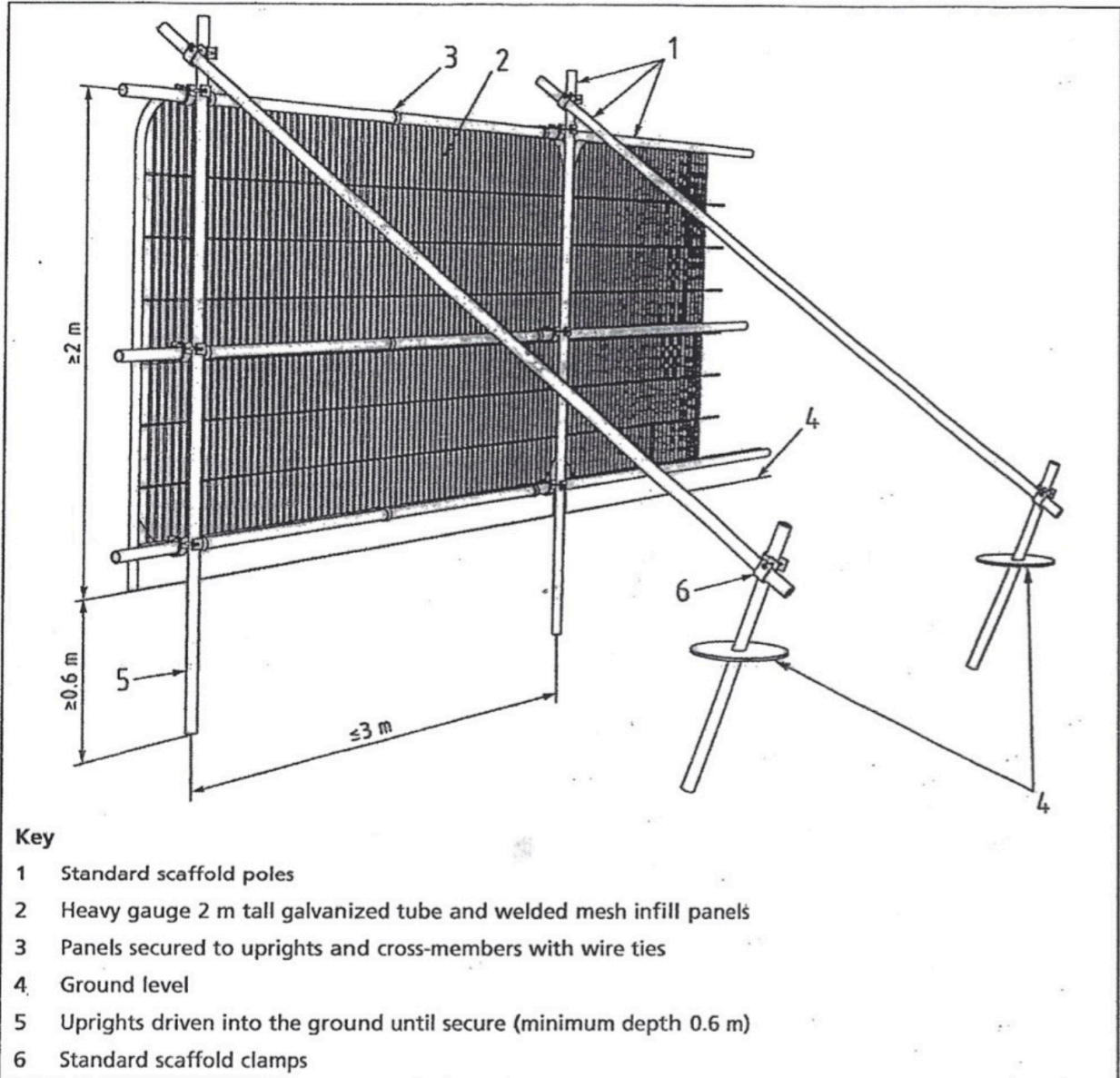
<https://treeterms.co.uk>

Appendix 1: Terms used in tree and root protection area schedules

BS5837:2012 Trees in relation to design, demolition and construction tree survey.

Tree no.	- As shown on the site plan
Tree name	- Common English name
Height	- Height in metres
Stem diameter climbing plants,	- Stem diameters measured as per BS5837:2012 recommendations. If due to climbing plants, dense vegetation or restricted access a direct measurement is not possible the diameter will be estimated. With multi stemmed trees the total number of stems are shown in square brackets.
Age class	- SM - Semi mature EM - Early mature M - Mature OM - Over mature
Crown spread	- Crown radius in metres to North, South, East and West
Low branches	- Distance to the lowest branch from ground level. - N/A - not applicable due to tree form.
RPA 1	- Recommended root protection area in square metres.
RPA 2	- Recommended root protection area radius measured from the base of the tree.
BS category	- refer Table 1 for classification and further information.

Appendix 2



Appendix 3

Ground protection

Where the construction working area or temporary access for the construction work within the RPA is justified the protective fencing should be positioned accordingly. If there is existing hard surfacing that is not going to be utilised in the finished design it should not be removed at the ground work or demolition phase but should be retained as temporary ground protection.

If there is no existing hard surfacing the exposed RPA will require temporary ground protection which must be installed before any site work begins. This temporary ground protection must be adequate and capable of supporting any vehicle or pedestrian traffic without any distortion and compaction of the underlying ground.

The following specifications can be utilised for the different scenarios.

- (i) For pedestrian traffic only and to provide a suspended walkway a single thickness of scaffolding boards can be placed above a scaffold frame or alternatively the scaffold boards can be laid on a 100mm depth of compression resistant material such as wood chippings. Prior to the spreading of the wood chippings a geotextile membrane should be laid on the original ground surface.
- (ii) For pedestrian operated plant / machinery up to a maximum weight of 2 tonnes inter linked ground protection boards should be placed on a 150mm depth of compression resistant material such as wood chippings. As in (i) above prior to the spreading of the wood chippings a geotextile membrane should be laid on the original ground surface.
- (iii) For construction machinery in excess of 2 tonnes a system which utilises precast reinforced concrete slabs or similar material will be required. In conjunction with arboricultural advice this system will need an engineering specification to ensure that the maximum loading is taken into consideration.

The objective of every system should be to prevent any ground compaction which will ensure that tree roots have suitable soil conditions for healthy and active growth.

Installation of roads, driveways and footpaths

Tree roots are vital to a tree's health and anchorage and are usually located in the upper metre of the ground with the majority in the upper 600mm. The nutrient and water absorbing roots can be near the surface and are small and difficult to see but are very easily damaged.

Any ground disturbance and excavations can have an adverse effect on these roots. Any conventional work to install roads, driveways and footpaths in the vicinity of retained trees should be outside the RPA's of trees. If this is not possible a no dig cellular confinement system or similar installation must be used. This system must be correctly designed and planned and all work must be undertaken by contractors who have the necessary experience and expertise. The work should also be supervised by a suitably qualified arboriculturist.

If required and prior to any work surface vegetation can be treated with an appropriate herbicide that will not leach into the soil and affect the tree roots. All herbicides must be applied in accordance with the manufacturers guidance and current good practice.

Loose organic matter and a thin layer of turf can be removed from the soil surface but this work should be undertaken with care and only hand tools should be used. Prior to the installation of the cellular confinement system if any uneven surfaces require levelling a suitable and inert material such as a washed no fines gravel should be used.

The final surface should allow moisture to percolate into the ground. Suitable surfaces include washed gravel, paving slabs or block pavers with built in infiltration.. Porous asphalt and resin bonded gravels will initially provide good levels of porosity but will in time become blocked by dust which will reduce their porosity significantly.

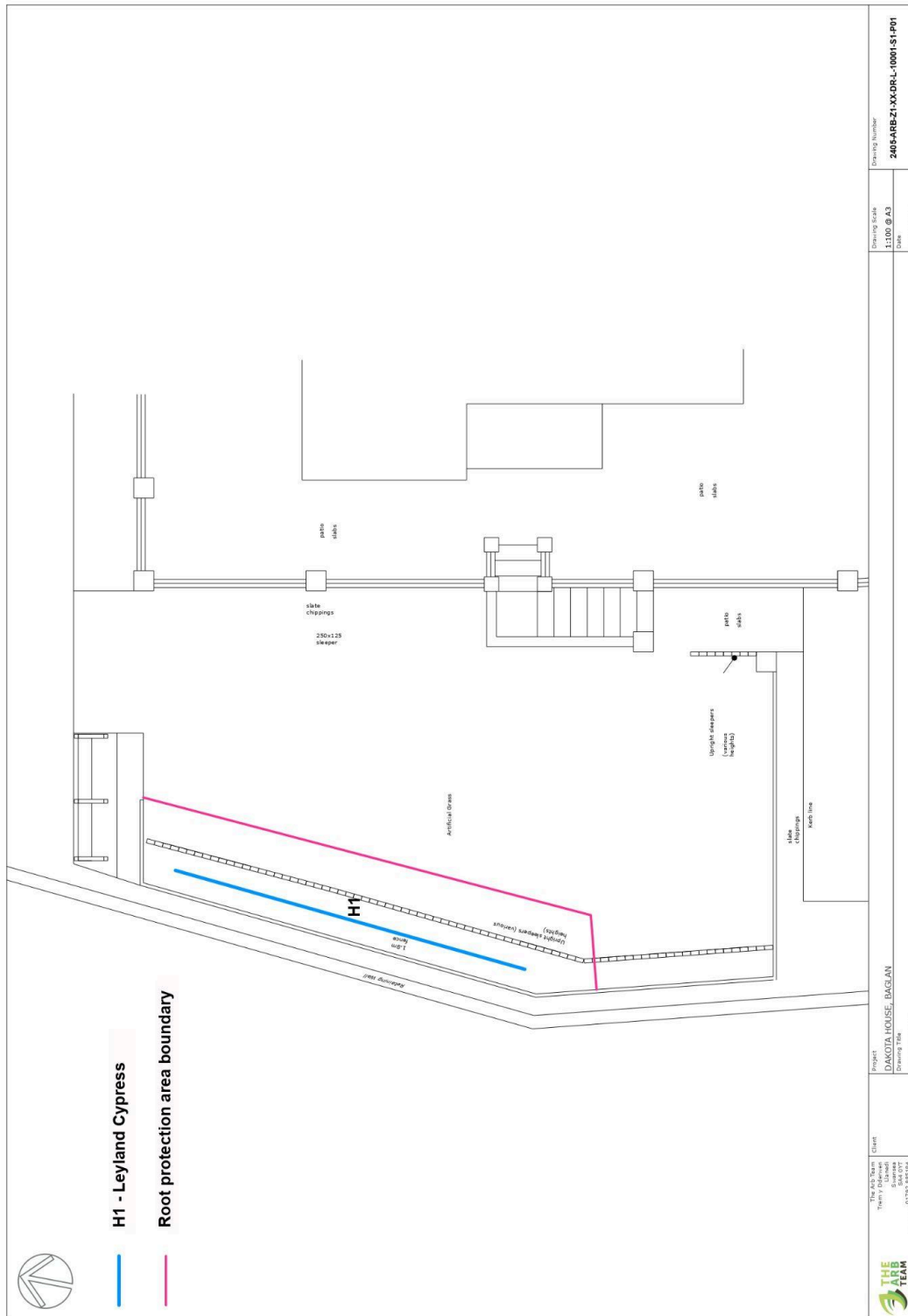
A correctly installed cellular confinement system will prevent soil compaction, allow gaseous diffusion between the atmosphere and the soil and allow moisture into the ground. Further information on the specification and installation of cellular confinement systems is available in the Arboricultural Association Guidance Note 12 *The use of cellular confinement systems near trees: A guide to good practice*. Additional advice is also available from manufacturers and suppliers such as Greenfix (Geoweb), Terram (Geocell) and Geosynthetics (Cellweb).

Prior to and during installation the ground directly adjacent to the new structure must be adequately protected from any disturbance or compaction. This protection is provided by following the advice in the 'Ground protection' section above and correct working practices which will roll out the new surface and avoid any direct contact with the existing ground.

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, irreparable, 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 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;		
Trees to be considered for retention		
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	1 Mainly arboricultural qualities 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) 2 Mainly landscape qualities Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features 3 Mainly cultural views including conservation Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	
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 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 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	
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	

Site and tree location plan



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