Landscape Ecology Limited
☎ 01925 574451 07738 069721
Landscape Institute
Registered practice

The Animal Trust, 31 Caia Road, Wrexham LL13 8DS

BS5837 Tree Survey



Landscape Ecology Limited
Warrington Business Centre
Gilbert Wakefield House
67 Bewsey Street
Warrington WA2 7JQ
Tel: +44 (0)1925 574451
www.landscapeecology.co.uk

The Animal Trust, 31 Caia Road, Wrexham LL13 8DS

BS5837 Tree Survey

Author Don Kernott TechArborA [redacted]

Reviewer Andrew Saunders MCIEEM [redacted]

Report No LEL_PLANA_AT_LL138DS_2025_002

Date 20th June 2023

Updated 8th October 2025

CONTENTS

1 SUMMARY 1
2 INTRODUCTION & METHODS 3
3 SITE INFORMATION 5
4 RESULTS & RECOMMENDATIONS 6
5 REFERENCES 8

Figure 1
Location Plan
Figure 2
Tree Constraints Plan
Appendix A
Tree Schedule
Appendix B
Tree Protection Fencing
Appendix C
Images of Assessed Trees
Appendix D
T6 Shadow Assessment

Cover Photo - view looking north-east from Caia Road to the access to the Animal Trust; T6 can be seen to the right of the image – see **Figure 2.**

1 SUMMARY

1.1 This report has been prepared and updated in respect of arboricultural related planning considerations for the Animal Trust, 31 Caia Road, Wrexham LL13 8DS.

1.2 All trees identified in this report provide amenity, shade and biodiversity benefits.

1.3 Tree Preservation Order (TPO) and Conservation Area checks were made via Wrexham Borough Council's website. The site does not sit within the Wrexham Town Centre Conservation Area. No information on the status of TPOs could be found, it is therefore recommended that should any works to trees be required then Wrexham Borough Council should be contacted.

1.4 All trees are in a Fair or Good structural and physiological condition as detailed in **Appendix A**.

1.5 T1 and T2 are both mature common walnuts *Juglans regia* which stand to the very north of the site. T3 is a young walnut and likely the progeny of T1 or T2; it also stands at the north of the boundary.

1.6 To the east, on 3rd Party land but adjacent to the site boundary, stand two young to semi-mature sycamore *Acer psuedoplatanus* T4 and T5.

1.7 The southern boundary along Caia Road is fronted by a sandstone wall with a predominantly holly *Ilex aquifolium* hedgerow atop. Within this hedgerow but outside the red-line boundary stands T6, a semi-mature sycamore, behind which is a narrow strip of grassland with another line of holly behind that.

1.8 The design and layout of the proposed site should where possible incorporate the components of any retained trees (crown and rooting area) and provide a suitable level of clearance to allow for their long-term safe retention.

1.9 Where trees cannot be retained due to design constraints then appropriate replacements should be considered.

1.10 If new planting is proposed, 12-14cm Heavy Standard Rootballed 3-3.5m height replacements should be adequate. Native species are generally preferred.

1.11 All construction activities including access and storage of materials shall remain outside of any retained tree Root Protection Areas (RPAs).

1.12 BS5837 compliant fencing may be required to prevent encroachment into tree RPAs. British Standards permit the reproduction of two diagrams known as Figure 2 and Figure 3 from BS5837 to ensure that the standard is complied with. These diagrams are presented in **Appendix B**.

1.13 A shadow assessment has been undertaken using ArborShadow version R4 V3.01, the results of which can be found at **Appendix D**.

1.14 The shadow assessment suggests that currently during the spring/summer period the majority of proposed photovoltaic (PV) panels are likely to be operating at full capacity.

1.15 As the shadows lengthen from September onwards, partial shading of the PV panels will increase and a moderate shade from T6 will be cast over the proposals, reducing PV performance until leaf fall opens up the canopy.

1.16 A 20% crown reduction and removal of ivy to T6 would afford some minor amelioration of the effects of shading but will not fully offset them, particularly during the period September and October.

1.17 Ongoing cyclic maintenance of T6 may be required to maintain the performance of the PV panels.

1.18 Any vegetation proposed for removal/management should be given due consideration with regards wildlife status.

1.19 All tree works should be undertaken in reference to BS3998:2010 Tree Works – Recommendations.

2 INTRODUCTION & METHODS

2.1 This report has been prepared and updated in respect of arboricultural related planning considerations for the Animal Trust, 31 Caia Road, Wrexham LL13 8DS.

2.2 As the proposal relates to proposed design and construction works, the advice is produced in accordance with British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations' (hereafter referred to as BS5837).

2.3 The scope of BS5837 is to provide guidance on how trees and other vegetation (where possible) can be integrated into construction and development design schemes. The overall aim is to ensure, where possible, the protection of amenity trees which are appropriate for retention.

2.4 This report has been produced in accordance with BS5837 and is intended to demonstrate the proposed sites' realistic arboricultural constraints and assist with the design process. The objective is to systematically assess and provide suitable recommendations regarding the potential impact of the proposals on trees[1].

2.5 Following instruction, the arboricultural consultant (Mr Donald Kernott BSc Hons MA TechArborA MCIEEM CMLI) surveyed the proposed site on Saturday 10th June 2023 and again on Friday 3rd October 2025. As instructed, trees on and around the northern edge of the indicative site boundary were assessed from ground level and plotted as individual trees.

2.6 Tree Preservation Order (TPO) and Conservation Area checks were made via Wrexham Borough Council's website. The site does not sit within a Wrexham Town Centre Conservation Area. No information on the status of TPOs could be found; it is therefore recommended that should any works to trees be required then Wrexham Borough Council should be contacted.

2.7 The survey data and site observations have been used to illustrate the proposed sites' arboricultural restrictions in the form of a Tree Constraints Plan (TCP); the tree survey data are presented in **Appendix A** and the TCP takes the form of **Figure 2**: both should be read in conjunction with this report.

2.8 Due to the presence of a tree (T6) along the southern boundary of the site, Wrexham Borough Council originally in 2022 recommended the report contain a 'shadow assessment' to ascertain the impact of such vegetation on proposed photovoltaic panels. The shadow assessment has been updated using ArborShadow version R4 3:01, the results of which can be found at **Appendix D**.

---

[1] Any and all information supplied by/on behalf of the client is assumed to be accurate unless otherwise informed. This advice is limited to the observations made on the date of the inspection as detailed herein and any deletion, editing or alteration will result in the advice becoming obsolete in its entirety. This advice may be considered obsolete if remedial works are undertaken on any area of the proposed site on or after the date of the survey. No liability is assumed by the author for any misuse, misinterpretation or misrepresentation of this advice. This advice is not valid in adverse or unpredictable weather conditions or for any failure due to '*force majeure*' or unpredictable events. No responsibility is assumed by the author of this advice for any legal matters that may arise as a consequence. The responsibility for any works undertaken on the basis of the recommendations of this advice does not form part of this agreement.

2.9 Constraints included the fact that two trees (T4 and T5) are located beyond but adjacent to the site boundary to the east on 3rd Party land. It was not possible to closely engage with these trees to measure stem diameter or fully assess their condition. Estimates of stem diameter have been made and these are marked with an asterisk in the schedule at **Appendix A**.

3 SITE INFORMATION

3.1 The proposed site centre is located at Grid Ref: SJ 3393 5003 (see **Figure 1**) with access off Caia Road, Wrexham LL13 8DS.



Figure 1: plan showing indicative location (outlined red) of the site at 31 Caia Road, Wrexham LL13 8DS.

3.2 The site sits approximately 700m to the south-east of Wrexham town centre.

3.3 The site is occupied by a two-storey part single-storey building with associated parking and some landscaping to the front and rear of the property. Residential dwellings are located to the immediate east and west of the site and across Caia Road to the south.

3.4 The proposed site requires consideration from an arboricultural perspective due to the presence of trees along and adjacent to the northern boundary and therefore potentially within impacting distance of any proposals.

4 RESULTS AND RECOMMENDATIONS

4.1 The following results and recommendations, as with the prior contents of this report, should be read in conjunction with the tree data table in **Appendix A** and the Tree Constraints Plan at **Figure 2**.

4.2 All trees identified in this report provide amenity, shade and biodiversity benefits.

4.3 Wrexham Borough Council (WBC) website was searched for TPOs and Conservation Areas - https://www.wrexham.gov.uk/service/conservation-areas. The site appears to sit outside of any Conservation Areas; the nearest (Wrexham Town Centre Conservation Area) being approximately 350m to the north-west. There appear to be no TPOs associated with the site, however clarification by WBC that no TPOs exist should be provided as part of any planning application process.

4.4 Policy EC4 Hedgerows, Trees and Woodland within the WBC Unitary Development Plan (WBC 2005) identifies that development proposals should provide for the conservation and management of hedgerows, trees, orchards, woodland, wildlife and other natural landscape and water features, and include new planting in order to enhance the character of the landscape and townscape. Development which results in the loss or significant damage to valuable trees, important hedgerows or ancient woodland sites will not be permitted.

4.5 Trees with TPOs or within Conservation Areas are protected. This means landowners must get consent from the relevant Local Authority before any work to a tree is undertaken.

4.6 All trees are in a Fair or Good structural and physiological condition as detailed in **Appendix A**.

4.7 T1 and T2 are both mature walnuts *Juglans regia* which stand to the very north of the site in unmanaged grassland and common nettle *Urtica dioica*. T3 is a young walnut and likely the progeny of T1 or T2 also stands at the north of the boundary.

4.8 To the east, on 3rd Party land but adjacent to the site boundary, stand two young to semi-mature sycamore *Acer psuedoplatanus* T4 and T5.

4.9 The southern boundary along Caia Road is fronted by a sandstone wall with a predominantly holly *Ilex aquifolium* hedgerow atop. Within this hedgerow but outside the red-line boundary stands T6 a semi-mature sycamore behind which is a narrow strip of grassland with another line of holly behind that.

4.10 The design and layout of the proposed site should, where possible, incorporate the components of any retained trees (crown and rooting area) and provide a suitable level of clearance to allow for their long-term safe retention.

4.11 In relation to trees to be retained as part of any proposal, there are construction/management issues which may need to be addressed in order to ensure their ongoing and safe amenity/environmental contribution.

4.12 All construction activities including access and storage of materials shall remain outside of any retained tree RPAs – see **Figure 2**.

4.13 BS5837 compliant fencing may be required to prevent encroachment into tree RPAs. British Standards permit the reproduction of two diagrams known as Figure 2 and Figure 3 from BS5837 to ensure that the standard is complied with. These diagrams are presented in **Appendix** and comprise a suggested tree protection fencing plan. However, there are other methods of fencing that could be considered more appropriate in such circumstances, and these could be reviewed as part of any construction method statement in liaison with the consultant arboriculturalist.

4.14 In the event vegetation requires removal or significant management during the bird breeding season (March to September inclusive) then a suitably qualified ecologist must be engaged to provide an appropriate level of advice. Breeding birds are protected by the Wildlife and Countryside Act 1981 (as amended).

4.15 It is recommended that all trees within and adjacent to the red line site boundary are surveyed for safety consideration on a cyclical basis (2-3 years) as a duty-of-care.

4.16 If new planting is proposed, 12-14cm Heavy Standard Rootballed 3-3.5m Height replacements should be adequate. Native species are generally preferred. Suitable species might include; small-leaved lime *Tilia cordata* 'Greenspire', common lime *Tilia* x *europaea*, rowan *Sorbus aucuparia*, hornbeam *Carpinus betulis* or fastigiate oak *Quercus robur* 'Fastigiata'. Suitable non-native species selected for their robustness might include; Callery pear *Pyrus calleryana*, Norway maple *Acer platanoides* 'Columnare', maidenhair tree *Ginkgo biloba* or sweet gum *Liquidambar styraciflua*.

4.17 Any tree sourcing, delivery, planting and maintenance to establishment shall be undertaken in accordance with BS8545:2014 Trees: From Nursery Stock to Independence in the Landscape – Recommendations.

5 REFERENCES

BS5837:2012 *Trees in relation to design, demolition and construction – Recommendations.* British Standards Institution.

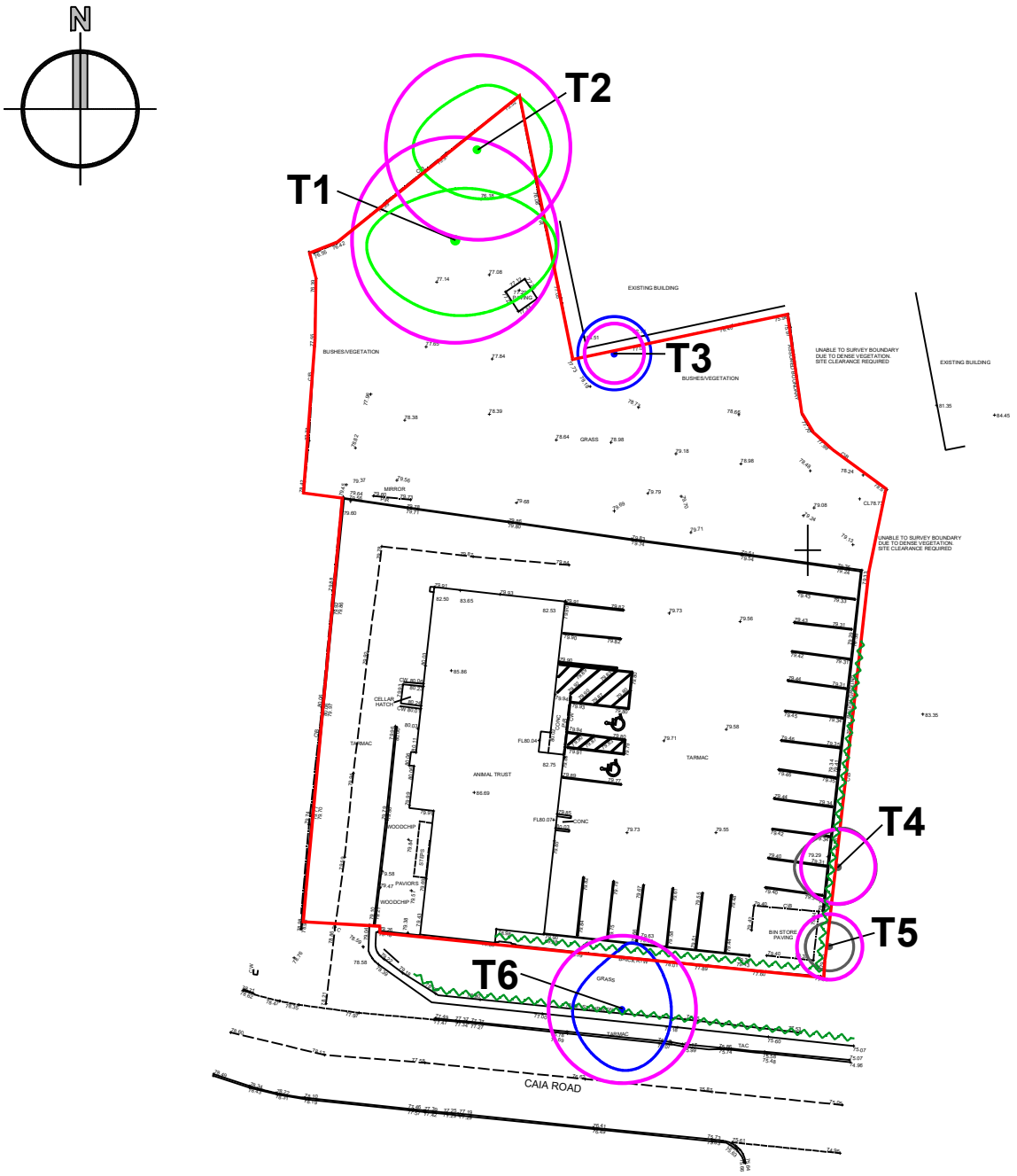
BS8545:2014 Trees: *From Nursery Stock to Independence in the Landscape – Recommendations*. British Standards Institution.

BS3998:2010 *Tree Works – Recommendations.* British Standards Institution.

Wrexham Borough Council (2005). *Wrexham Borough Council Unitary Development Plan*. WBC.

Figure 2

Tree Constraints Plan



KEY

Indicative Site Survey Boundary

T1 Individual Tree Number

Root Protection Areas

Hedgerow

Category A Trees
Trees of a high quality with an estimated remaining life of >40 years

Category B Trees
Trees of moderate quality with an estimated remaining life of >20 years

Category C Trees
Trees of low quality with an estimated remaining life of at least 10 years or trees with stem diameter <150mm

Category U Trees
Cannot realistically be retained as living trees in context to current land use for >10 years

Drawn By	dk	05/10/25
Checked by	AS	06/10/25

Survey Date	10/06/23
Survey Updated	05/10/25
Scale	1:200

ANIMAL TRUST, 31 CAIA ROAD, WREXHAM LL13 8DS
FIGURE 2: TREE CONSTRAINTS PLAN
REPORT NO. LEL_PLANA_AT_LL138DS_2025_002

Appendix A

Tree Schedule

Tree Survey in accordance with BS5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'

KEY

TPO/CA – On client request: presence of Tree Preservation Orders (TPO) or Conservation Area (CA) designation.

Tree Ref No. - Tree reference number: tag or plan number (T - individual tree, G - group of trees/shrubs);

Species - Genus, species and/or common name;

Age - Age classification (Y - young, SM - semi mature, M - mature);

Height (in m) - Approximate height of tree in metres;

Canopy (in m) N - S - E - W - Approximate branch spread in metres of the four principal compass points;

Stem (in mm) - Stem diameter in millimetres: measured at 1.5 metres above ground level for single stem trees and ground level for multi-stemmed trees;

Clearance (in m) - Height in metres of crown clearance above the adjacent ground level;

Vitality - A measure of physiological and structural condition typically (good, fair, poor, dead);
- **G = good** – no apparent physiological or structural problems.
- **F = fair** – minor physiological or structural problems.
- **P = poor** – major physiological or structural problems.
- **D = dead**

Estimated Remaining Contribution - Approximate number of years the tree will continue to make a functional contribution without the need for oppressive arboricultural intervention, categorised in years as <10, 10-20, 20-40 and >40;

BS Categorisation - BS5837 tree quality assessment category: resulting from structural/physiological condition and remaining contribution (approximate useful life expectancy);
- Standard retention category **U**: in such a condition that any existing value would be lost within 10 years, though there may be an existing conservation value;
- Standard retention category **A**: high quality and value, in such a condition as to be able to make substantial contribution of 40+ years;
- Standard retention category **B**: moderate quality and value, in such a condition as to make a significant contribution of 20+ years;
- Standard retention category **C**: low quality and value, currently in adequate condition to remain until new planting could be established 10+ years;
- Standard retention sub-category, mainly due to: **1**- Arboricultural values, **2**- Landscape values, **3**- Cultural values, including conservation;

RPA (in m²) - Root Protection Area: calculated as a function of the stem measurement (single stem/multiple stem variant, as outlined within BS5837);

MS = main stem
t/s = twin-stemmed
m/s = multi-stemmed
g/l = ground level
DW = deadwood
u/c = upper crown
l/c = lower crown

'* ' - Within the survey schedule denotes an estimate.

BS5837:2012 Tree Schedule

Client - Animal Trust

Site - 31 Caia Road, Wrexham LL13 8DS

Tags - N/A

Ref - LEL_PLANA_AT_LL138DS_2025_002

Inspector: Mr Donald Kernott

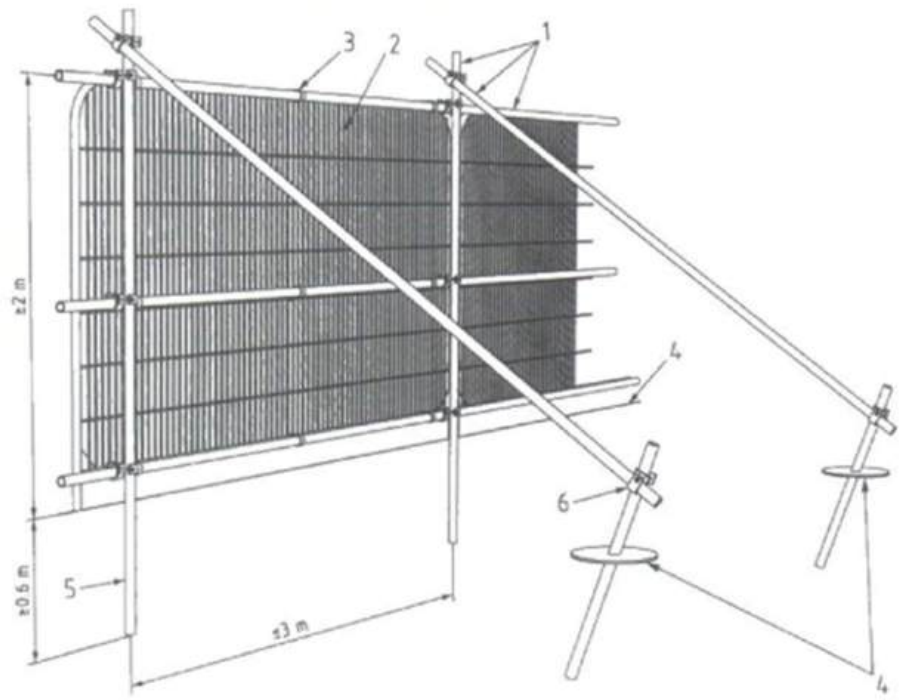
Survey Date: 10/06/2023 updated 03/10/25 with changes in red

* denotes unable to access - all data estimated without close inspection

Tree No	Species	Grid Reference/What3Words	Estimated Height (m)	Stem dia. (mm)	Crown Spread (m)	Height of Crown Clearance (m)	Age Class	Structural Condition	Physiological Condition	Additional Notes	Estimated Remaining Contribution (years)	Retention Category	RPA (m^2)	Radius of Nominal Circle
T1	common walnut *Juglans regia*	SJ 33924 50085 **W3W:** causes.ended.round	15	690	N 4 S 6 E 8 W 7	2	M	Good	Fair	light ivy N aspect on MS crown exhibiting decline throughout when compared with T2/T3 includes some bark loss on branch extending N @ approx. 9m wound on stem E on S aspect @ approx. 4m - occlusion present	>40	A	220	8.28
T2	common walnut	SJ 33922 50086 **W3W:** asking.neck.piper	13	620	N 5 S 4 E 6 W 5	3	M	Good	Good	minor DW to l/c minor ivy WMS to l/c elder growing at base	>40	A	166	7.44
T3	common walnut	SJ 33934 50066 **W3W:** spices.into.crib	6	200	N 3 S 3 E 3 W 3	2	Y	Good	Good	common plum *Prunus domestica* under & shrub to E brick built single-storey structure behind palisade fence approx. 2m N	>20	B	18	2.4
T4	sycamore *Acer psuedoplatanus*	SJ 33948 50026 **W3W:** lamp.smile.beside	8	250*	N 3 S 3 E 3 W 3.5	3	Y-SM	Good	Good	3rd Party land behind laurel hedge	>20	C	28	3
T5	sycamore	SJ 33949 50020 **W3W:** rescue.acted.eager	6	210*	N 2 S 2 E 2 W 2	3	Y-SM	Good	Good	dense ivy to mid-crown 3rd Party land behind laurel hedge	>20	C	19	2.64
T6	sycamore	SJ 33939 50018 **W3W:** urban.brave.others	9	490	N 5 S 5 E 4 W 4	3	SM	Fair	Fair	dense ivy to u/c canopy foliage not dense producing plenty of keys street tree with holly hedge under	>20	B	109	5.94

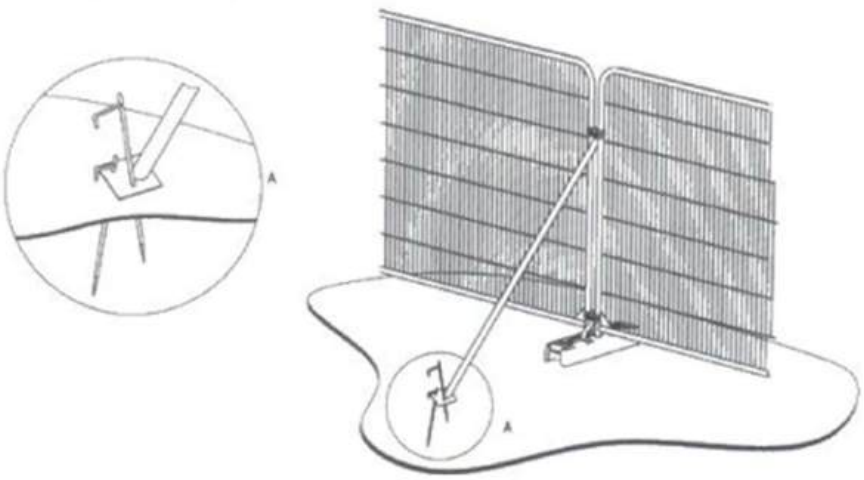
Appendix B

Tree Protection Fencing

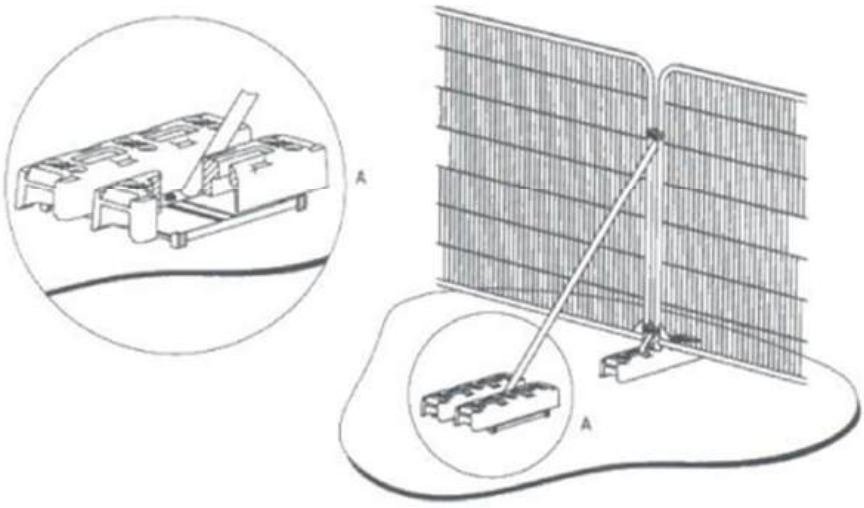


Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

Appendix C

Images of Assessed Trees (2025)



Image 1: showing T1 a common walnut *Juglans regia* to the north of the site. Note the decline of the crown when compared with T2 behind T1.



Image 2: showing the young walnut T3 on the north boundary.



Image 3: showing T4 and T5 on the east boundary of the site.



Image 3: showing T6 fronting the site along Caia Road.

Appendix D

T6 Shadow Assessment

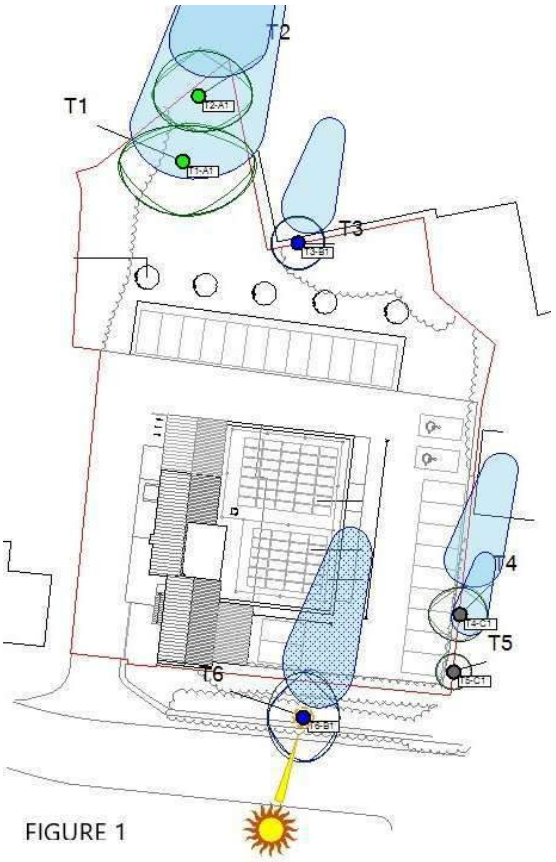


FIGURE 1

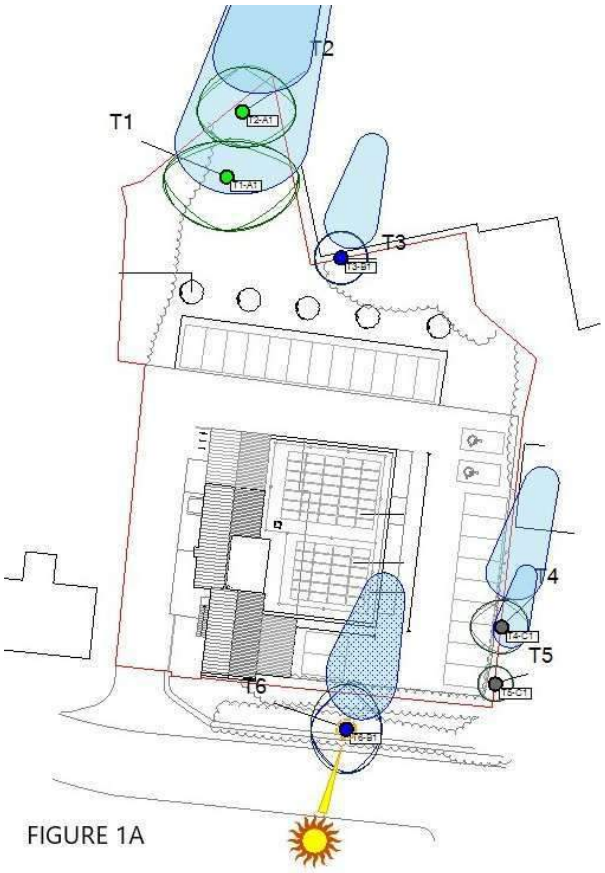


FIGURE 1A

Figure 1: February 13:00hrs: shows shadow partially extending over the roof of the proposal where the photovoltaic panels (PV) will be sited. T6 will not be in leaf during the month of February therefore a reasonable amount of light will be captured by the PVs, although the ivy may be limiting PV performance to an extent. **Figure 1A: February 13:00hrs:** showing T6 shadow with a 20% crown reduction.

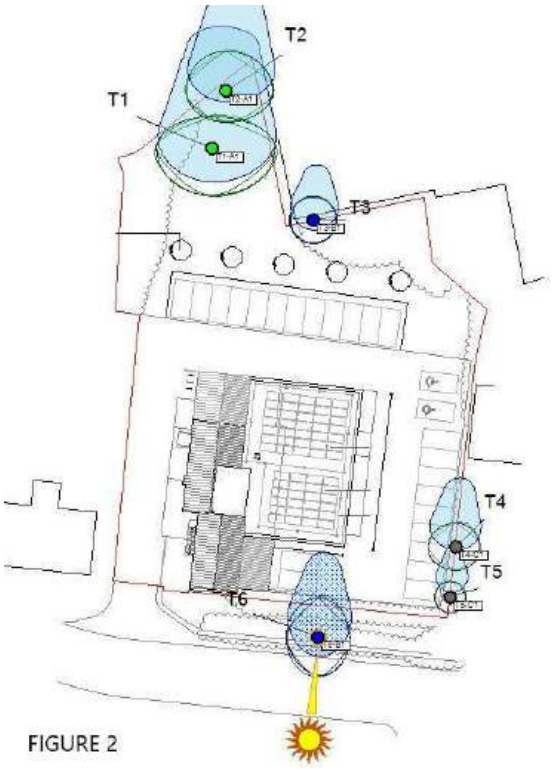


FIGURE 2

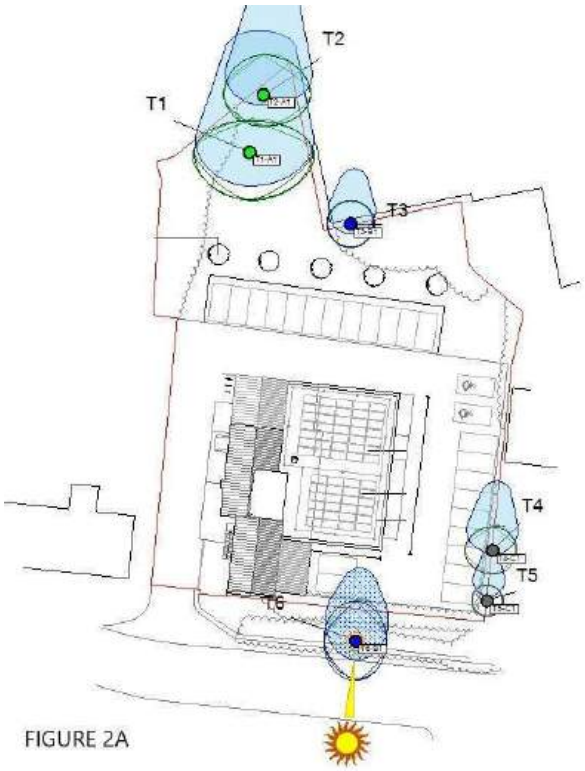
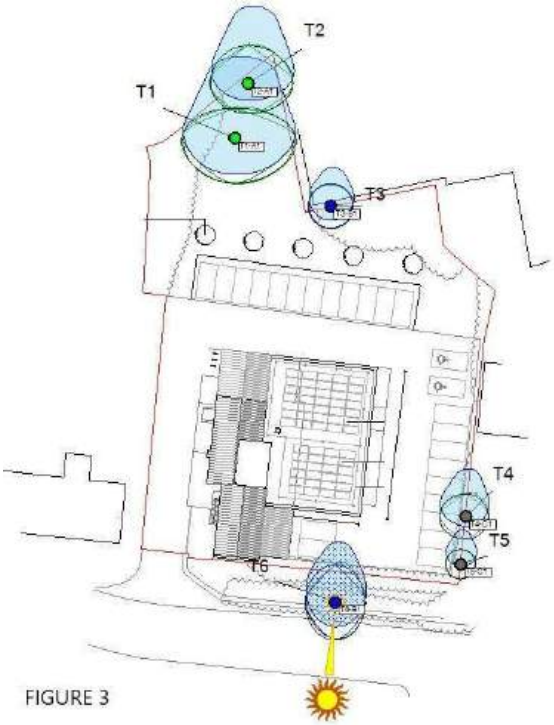


FIGURE 2A

Figure 2: April 13:00hrs: shows no extension of shadow over the roof of the proposal where the photovoltaic panels (PV) will be sited. T6 will only be budding during the month of April therefore a reasonable amount of light is likely to be captured the PVs; the ivy is unlikely to be limiting PV performance. **Figure 2A: April 13:00hrs:** showing T6 shadow with a 20% crown reduction.



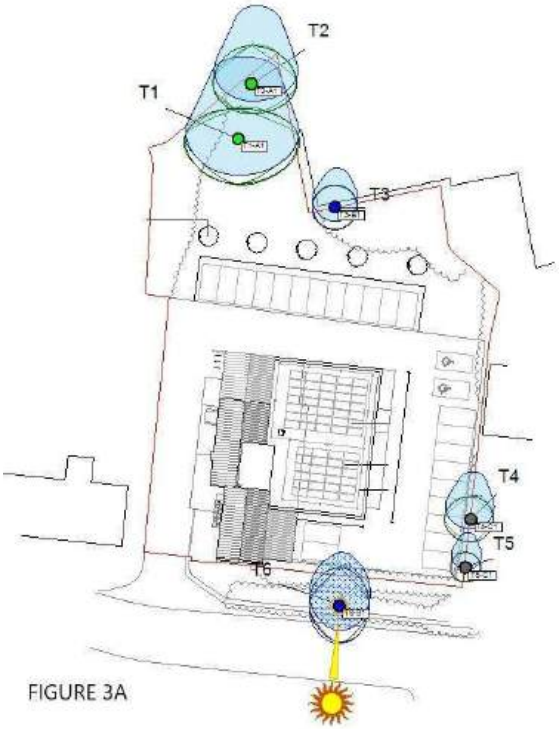


Figure 3: June 13:00hrs: shows no extension of shadow over the roof of the proposal where the photovoltaic panels (PV) will be sited. T6 will be in full leaf during the month of June, however PV panels are unlikely to be shaded. **Figure 3A: June 13:00hrs:** showing T6 shadow with a 20% crown reduction.

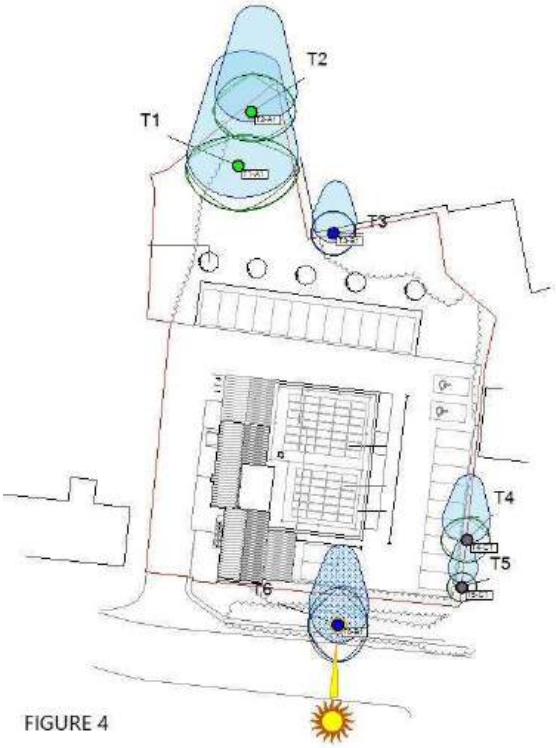


FIGURE 4

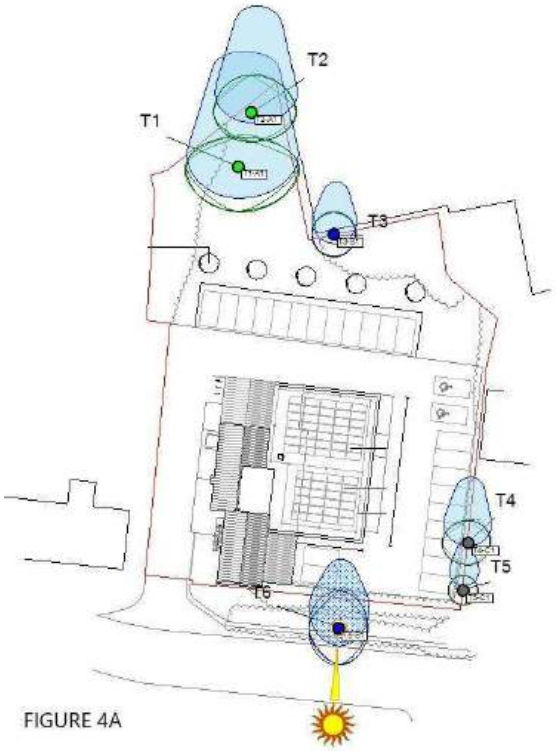


FIGURE 4A

Figure 4: August 13:00hrs: shows no extension of shadow over the roof of the proposal where the photovoltaic panels (PV) will be sited. T6 will be in full leaf during the month of June, however PV panels are unlikely to be shaded. **Figure 4A: August 13:00hrs:** showing T6 shadow with a 20% crown reduction.

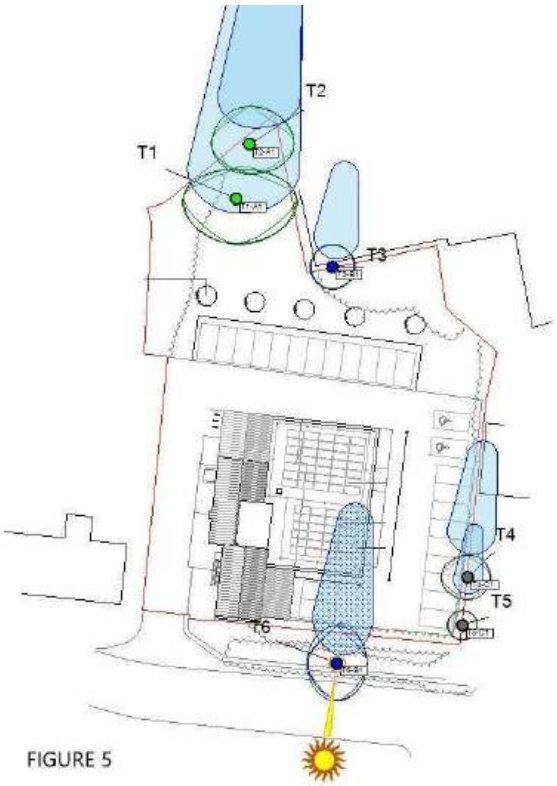


FIGURE 5

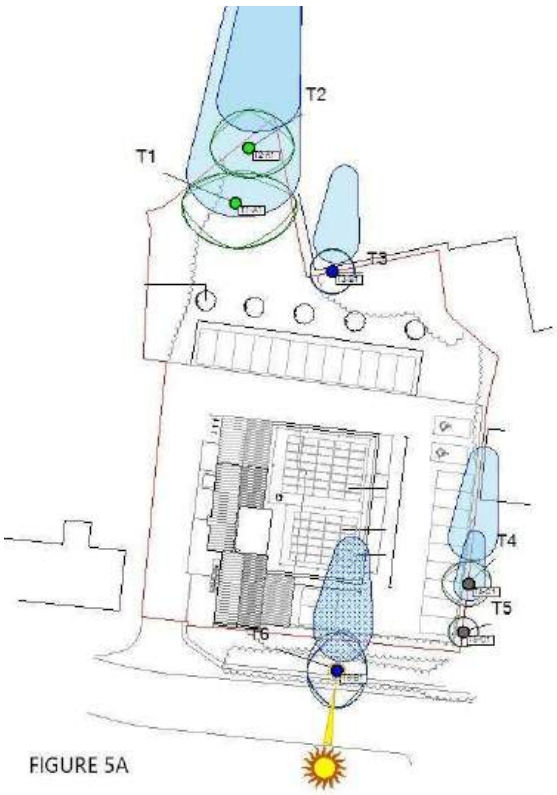


FIGURE 5A

Figure 5: October 13:00hrs: shows partial extension (approximately 15%) of shadow over the roof of the proposal where the photovoltaic panels (PV) will be sited. T6 will still be in full leaf during the month of October; PV performance is likely to be moderately reduced until leaf fall opens up the canopy. Shade from the ivy is likely to continue limiting PV performance to an extent. **Figure 5A: October 13:00hrs:** showing T6 shadow with a 20% crown reduction.

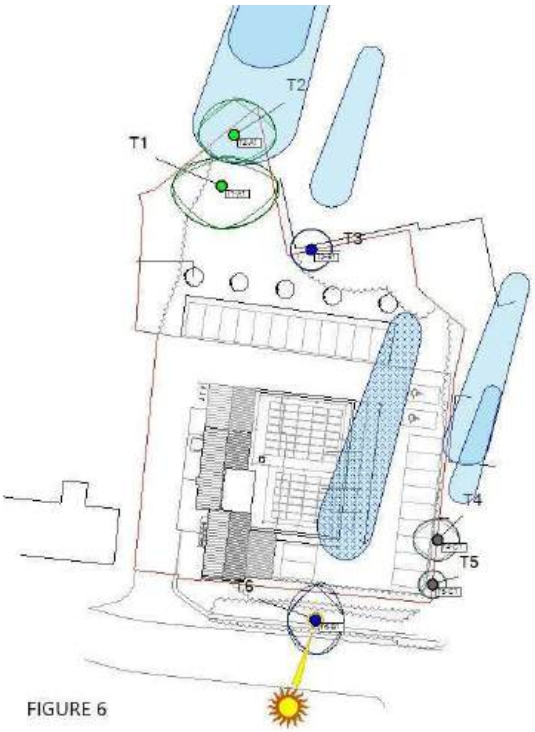


FIGURE 6

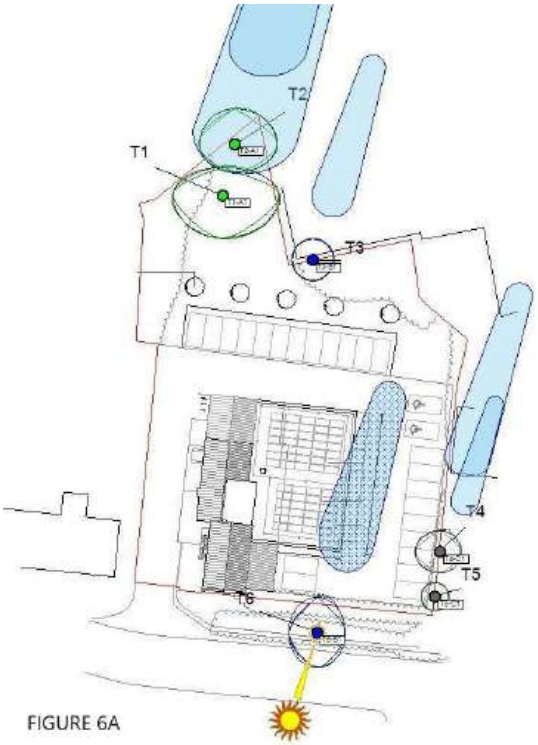


FIGURE 6A

Figure 6: December 13:00hrs: shows long shadow partially extending over the roof of the proposal where the photovoltaic panels (PV) will be sited. T6 will not be in leaf during the month of December therefore a reasonable amount of light will be captured by the PVs, although ivy may be limiting PV performance to a negligible extent. **Figure 6A: December 13:00hrs:** showing T6 shadow with a 20% crown reduction.

Summary

The shadow assessment undertaken in ArborShadow version R4 3:01 indicates that currently during the spring/summer period the majority of PV panels are likely to be operating at full capacity (see **Figures 2 to 4**). There may be partial shading of the PV panels during early autumn and winter (see **Figures 1, 5** and **6**).

A 20% crown reduction and removal of ivy to T6 would afford a minor amelioration of the effects of shading, particularly during the period September and October. Further, maintenance of the crown of T6 will likely be ongoing to maintain the performance of the PV panels. This maintenance would need to be undertaken on a cyclic basis and is best discussed by PV suppliers.

Arboricultural works to any trees shall be undertaken with reference to BS3998:2010 Tree Works – Recommendations.

Finally, solar panel installation companies have worked with all types of properties – including properties surrounded by trees. They know how to maximise the efficiency of any proposed solar panels.