ARBORICULTURAL IMPACT ASSESSMENT

Tyddyn Forgan ESS

March 2025

Barton Hyett Associates
Arboricultural Consultants

Summary table		
Site Name:	Tyddyn Forgan ESS	
Project reference:	6435	
Site Address:	Llanddeiniolen, Caernarfon, North Wales	
Nearest Postcode:	LL55 3AN	
Central Grid reference:	SH 55705 67357	
Local Planning Authority:	Gwynedd Council	
Relevant planning policies:	The Anglesey & Gwynedd Joint Local Development Plan 2011 - 2026 (July 2017), Policy PCYFF 4: Design & Landscaping I Gwynedd Council Supplementary Planning Guidance (SPG), Landscape Character (November 2009)	
Statutory Controls:	**Tree Preservation Order**	**Conservation Area**
	None	No
Ancient trees/ woodlands?	N/A	
Soil Type: (Source: BGS online soils map © NERC 2025)	**Superficial/Drift**	**Bedrock**
	Slowly permeable wet very acid upland soils with a peaty surface / freely draining slightly acid loamy soils	Padarn Tuff Formation - Tuff, felsic
Proposed site plan:	Drawing No: FST016 PL-01 (Rev. 06), dated: 24/02/2025	
Report author:	David Holmes *FdSc, MArborA*	
Checked by:	Richard Hyett *MSc, BSc (Hons), MICFor, MArborA*	
Revision:	Rev. 01	
Date of issue:	04/03/2025	

Arboricultural ASSOCIATION Professional Member

PR01027

Institute of Chartered Foresters registered

Barton Hyett Arboricultural Consultants

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1. INTRODUCTION

1.1. Barton Hyett Associates Ltd has been instructed by Net Zero Twenty Six Ltd to survey trees located at Tyddyn Forgan near Caernarfon ('the site') in accordance with the recommendations of British Standard 5837:2012 '*Trees in relation to design, demolition and construction - recommendations*'

1.2. The scope of the instruction was to inspect trees relevant to a planning application for a Energy Storage System (ESS) at the site and provide written advice on how they inform feasibility and design options. The instruction also required an assessment of the potential impact (the Arboricultural Impact Assessment) of the proposed development on the site's arboricultural resource to be undertaken.

2. SITE DESCRIPTION

2.1. The site consists of one field and an access route into Pentir substation, operated by The National Grid. The field and road are bordered by hedgerows, fences and ditches. The location is approximately 4.5km to the southwest of Bangor city centre. The surrounding area is agricultural land with blocks of woodland, small copses and outlying rural dwellings.

Figure 1: aerial image (Google Maps 2025) showing the approximate site area in red

2.2. The unnamed road has a concrete wearing-surface and runs to the substation. Access into the main part of the site is via two field gates which are located on the northwest boundary of the site, leading from the unnamed road. The unnamed road meets the northern side of the B4547, where it forms a T-road junction.

2.3. The site is relatively flat throughout with the average mean height above sea level being 110m. The southern boundary of the site is defined by a shelter belt plantation, see W2 in the schedules at **Section 3**.

3. TREE SURVEY FINDINGS

3.1. The survey recorded 52 arboricultural features. These are summarised in terms of quality in accordance with the recommendations of BS 5837:2012 in Table 1 below and shown in more detail on the Tree Survey and Constraints Plan (**Section 2**) and within the Tree Survey Schedule (**Section 4**).

Table 1: arboricultural features by type and quality category.

	Total	A - High quality trees whose retention is most desirable.	B - Moderate quality trees whose retention is desirable.	C - Low quality trees which could be retained but should not significantly constrain the proposal.	U - Very poor quality trees that should be removed unless they have high conservation value.
Trees	**38**	-	20	18	-
Groups	**12**	-	9	3	-
Woodlands	**2**	-	2	-	-
Total	**52**	**0**	**31**	**21**	**0**

3.2. The recorded Out Of Scope (OOS) trees and features refer to trees which are inaccessible or located off-site and unlikely to be affected by the development or, it was found that the trees are undersized according to BS 5837:2012, which stipulates a minimum recordable diameter of 75mm.

4. KEY ARBORICULTURAL FEATURES

4.1. There are no high-quality category A, Veteran or Ancient trees recorded on this site. There is no Ancient Semi-Natural Woodland (ASNW) associated with the site.

4.2. It is yet to be confirmed by the LPA if the trees recorded on site are protected by a Tree Preservation Order (TPO). The site is not within a Conservation Area (C/A).

4.3. The groups of moderate quality, close-grown thorn G5 and G6 appear to be remnant sections of an old hedge line.

4.4. Several of the birch recorded on the unnamed road have an unusually 'cranked' lower stem, where the form appears to have been historically windswept after establishment and perhaps staked at a later stage to grow upright.

4.5. On the approach to the substation, there appears to have been recent clearance works carried out following on from a storm with the arisings being chipped to the plot. The low-quality multi-stemmed willow has

partially failed with some stems in contact with the ground. The root plate is still partially intact and at the time of survey (late-January 2025), the trees were coming into bud.

4.6. The main section of the site compromises rushes and moss. Clusters of gorse and brambles are establishing across the main site however this was inconsistently recorded on the topographical survey. As the stems are below 75mm the decision was made not to record these features as accuracy and consistency could not be guaranteed.

5. PROPOSED DEVELOPMENT

5.1. The development proposal is for an Energy Storage System (ESS) with associated infrastructure and access. The proposed site layout is shown on the proposed site plan, drawing No: FST016 PL-01 (Rev. 06), dated: 24/02/2025 (as amended and submitted). A more detailed description can be found in the Planning Statement that accompanies the application.

6. IMPACT ASSESSMENT

6.1. The impact assessment considers the effects of any tree loss required to implement the proposed development as well as any reasonably foreseeable, potentially damaging activities proposed in the vicinity of retained trees. This is undertaken with reference to BS 5837:2012 and considering the nature of the proposed development. Actual and potential impacts can include tree removal to facilitate the development, soil compaction in close proximity to trees, and direct impact damage to the canopy and roots of retained trees from construction activities. A summary of anticipated impacts resulting from the proposed development is provided below.

Table 2: summary of proposed removals of each BS 5837:2012 quality category

	Total	A - High quality trees whose retention is most desirable.	B - Moderate quality trees whose retention is desirable.	C - Low quality trees which could be retained but should not significantly constrain the	U - Very poor quality trees that should be removed unless they have high conservation value.
Trees	**4**	-	T10, T11	T4, T5	-
Groups	**2**	-	G5	G4 (sectional)	-
Hedgerows	**0**	-	-	-	-
Woodland	**0**	-	-	-	-
Total	**6**	**-**	**3**	**3**	**-**

Trees to be removed

6.2. Four individual trees, one group and a part of one group are proposed to be removed. These removals are summarised by quality category in the table below and shown on the Tree Retention and Removal Plan in **Section 3.**

6.3. To facilitate the proposal, the moderate quality birch and willow, respectively T10 and T11 would need to be removed along with the moderate quality group of hawthorn G5. Two low quality spruce (T4 and T5) would need to be removed along with the northern section the group of spruce and birch (G4).

Impacts on retained trees

6.4. The moderate quality birch T2 can be retained as the tree is outside the ESS compound. The tree may require a crown lift to increase clearance and allow a working space to install the security perimeter fencing.

Conclusion

6.5. The proposal is feasible from an arboricultural perspective, and if carefully implemented according to an approved arboricultural method statement there would be no or only a low potential negative impact on the retained trees. A combined Tree Retention and Removal and Tree Protection Plan are included in **Section 3**.

7. TREE PROTECTION MEASURES

7.1. The proposed security fence which is to be erected around the perimeter of the ESS compound, will act as an effective tree protection barrier if erected before any construction works commence on site. This will mitigate the need to install BS5837:2012 fencing along the outer perimeters of those trees close to the development area. However, trees and hedgerows within the interior of the site could be impacted during the construction phase of the development and the security fencing will only protect trees located around the periphery of the site.

7.2. The group of hawthorn G6 is close to the new access road into the site. Temporary protective fencing should be installed to deter access to these trees.

8. HEADS OF TERMS FOR AN ARBORICULTURAL METHOD STATEMENT (AMS)

8.1. BS 5837:2012 (Figure 1) recommends that detailed/technical design of tree protection and arboricultural methodologies should be resolved and finalised following the approval of the feasibility of a scheme by the Local Planning Authority.

8.2. Annex B and Table B.1 of BS 5837:2012, an informative, advises that Arboricultural Method Statement (AMS) Heads of Terms are a sufficient level of information in order to deliver tree-related information into the planning system. The table also advises that a detailed AMS might reasonably be required as a 'reserved matter' or planning condition.

8.3. In relation to the site, it is anticipated that arboricultural working methods are likely to be quite straightforward. A brief summary of the principles of tree protection on development sites is included in **Section 7**.

8.4. A draft, 'Heads of Terms' for an AMS is set out below:

- Project arboriculturist – schedule of monitoring and supervision to be agreed upon with the applicant and LPA
- Pre-commencement site meeting - to be attended by the project arboriculturist, client, site manager and other relevant parties. Project arboriculturist to ensure that all parties have copies of the tree protection plan and this report
- Tree removals and facilitation pruning - as shown on the Tree Retention and Removal Plan (TRRP)
- Erection of tree protection barriers and temporary ground protection as per the Tree Protection Plan (TPP)
- Site preparation and ground works - no access for any machinery within the fenced tree protection areas.
- Main construction phase - all tree protection measures shall remain in situ and intact for the duration of the construction phase
- Removal of tree protection barriers
- Final landscaping including tree planting

9. CONCLUSIONS AND RECOMMENDATIONS

9.1. Four trees one group and the part of one group would need to be removed to facilitate the proposal. The trees breakdown as two moderate (T10 and T11) and two low quality trees (T4 and T5). The group proposed for removal (G5) is moderate quality while the group requiring a sectional removal (G4) is low quality.

9.2. The loss of trees can be mitigated with replacement planting and the retained trees can be adequately protected during construction activities to sustain their health and longevity.

9.3. The proposed layout should offer mitigation planting to offset the loss of trees to implement the layout. New hedging to screen the site from the surrounding area would be easily achievable and offer a good level of mitigation.

9.4. A detailed AMS and finalised Tree Protection Plan will need to be produced. Where the feasibility of a scheme has been agreed upon by the Local Planning Authority, this detail can be agreed upon and submitted later as part of a reserved matters application or pre-commencement planning condition (by agreement with the applicant).

David Holmes *FdSc, MArborA*
Arboriculturist

IMAGES FROM THE TREE SURVEY

PROJECT NO: 6435

TAKEN ON: 22/01/2025

SURVEYOR: DAVID HOLMES

Barton Hyett
Arboricultural Consultants

IMAGE 1: A view looking northeast along the unnamed road leading to the substation

IMAGE 2: A view looking southwest along the unnamed access road, looking toward the B4547

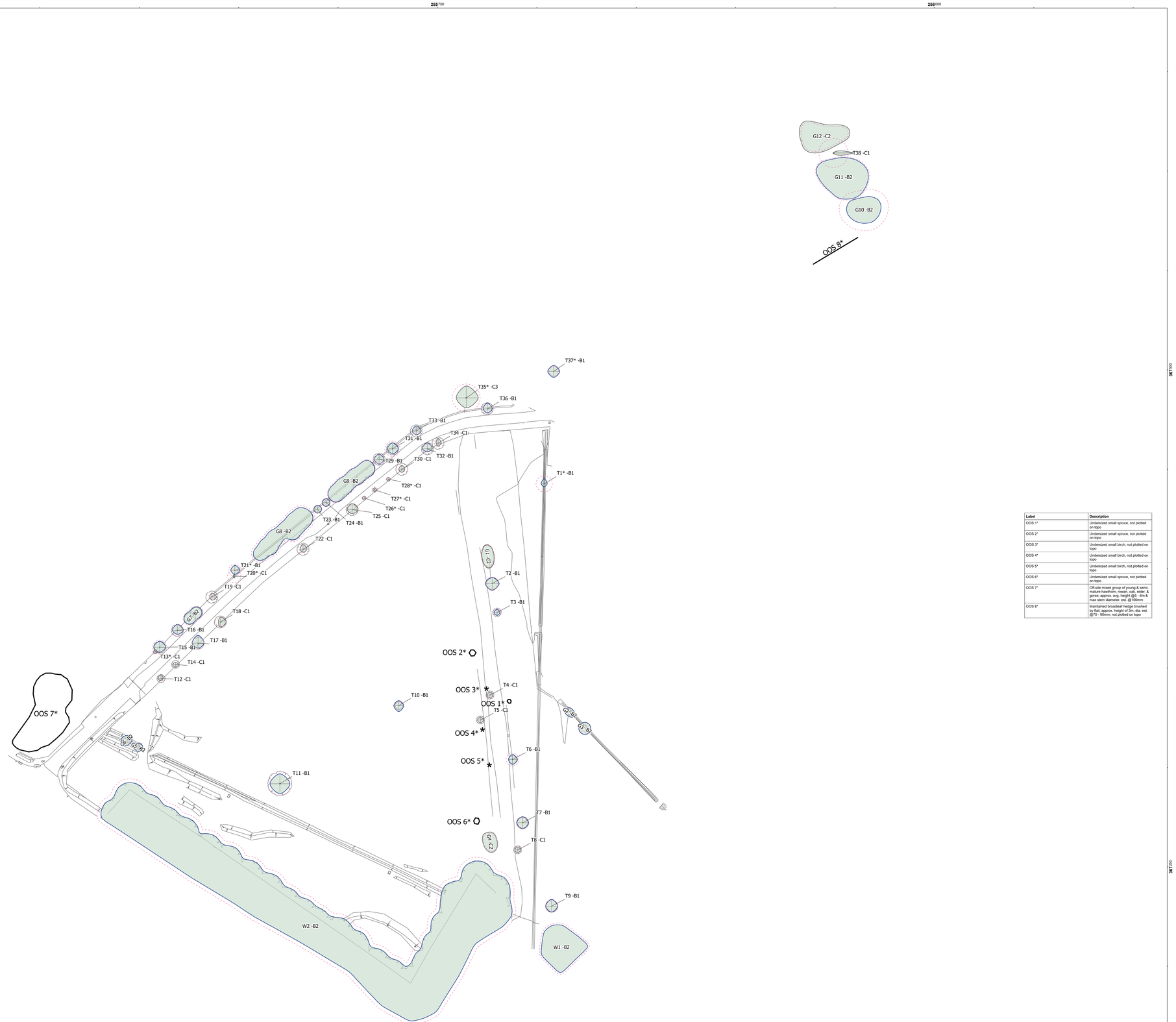
IMAGE 3: A view looking northeast along the unnamed access road (substation visible to centre of shot)

IMAGE 4: a view looking west along the boundary shelter belt plantation W2. NOTE: rushes throughout

IMAGE 5: A general view looking south across the main part of the site, showing the in-field willow T11 & the shelter belt plantation W2

IMAGE 6: A general view looking south along the site boundary with the unnamed road

SECTION 1



Label	Description
OOS 1*	Undersized small spruce, not plotted on topo
OOS 2*	Undersized small spruce, not plotted on topo
OOS 3*	Undersized small birch, not plotted on topo
OOS 4*	Undersized small birch, not plotted on topo
OOS 5*	Undersized small birch, not plotted on topo
OOS 6*	Undersized small spruce, not plotted on topo
OOS 7*	Off-site mixed group of young & semi-mature hawthorn, rowan, oak, elder, & gorse; approx. avg. height @5 - 6m & max stem diameter. est. @100mm
OOS 8*	Maintained broadleaf hedge brushed by flail, approx. height of 3m; dia. est. @70 - 90mm; not plotted on topo

KEY

- Category A Tree - High quality (Retention highly desirable)
- Category A - Hedgerow, Group, Woodland - High quality (Retention highly desirable)
- Category B Tree - Moderate quality (Retention desirable)
- Category B - Hedgerow, Group, Woodland - Moderate quality (Retention desirable)
- Category C Tree - Low quality (May be retained but should not constrain development)
- Category C - Hedgerow, Group, Woodland - Low quality (May be retained but should not constrain development)
- Category U Tree - Very low quality (Mostly unsuitable for retention)
- Category U - Hedgerow, Group, Woodland - Very low quality (Mostly unsuitable for retention)
- Root Protection Area (RPA) - Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and soil volume to maintain the tree's viability
- Shrub mass/offsite tree/out of scope (OOS)
- ★ Tree/Group/Hedgerow not on topographical survey. Location given is an estimate

Tree Ref	Species	Height (m)	LifeStage	RPA Radius (m)	RPA (m2)
T1*	Hawthorn	4	EM	4.1	52
T2	Birch (Silver)	11	SM	3.2	33
T3	Hawthorn	5	EM	2.2	15
T4	Spruce (Sitka)	6	Y	1.3	5
T5	Spruce (Sitka)	6	Y	1.3	5
T6	Yew (Common)	5	SM	3.2	33
T7	Willow (Goat)	7	SM	2.6	22
T8	Spruce (Sitka)	6	Y	1.5	7
T9	Willow (Goat)	8	SM	3.1	31
T10	Birch (Silver)	6	SM	1.8	10
T11	Willow (Goat)	9	SM	6	113
T12	Birch (Silver)	5	SM	1.3	5
T13*	Birch (Silver)	6	SM	1	3
T14	Birch (Silver)	5	SM	1.1	4
T15	Birch (Silver)	10	SM	3.6	41
T16	Birch (Silver)	10	SM	2.9	26
T17	Birch (Silver)	10	SM	3	28
T18	Birch (Silver)	9	SM	2.3	16
T19	Birch (Silver)	9	SM	1.6	8
T20*	Hawthorn	2	M	3.3	35
T21*	Rowan	6	SM	3	28
T22	Birch (Silver)	8	SM	1.8	10
T23	Birch (Silver)	9	SM	1.8	10
T24	Birch (Silver)	9	SM	2	12
T25	Birch (Silver)	10	SM	2.3	16
T26*	Birch (Silver)	6.5	SM	1	3
T27*	Birch (Silver)	0.75	SM	1.5	7
T28*	Birch (Silver)	6.5	SM	1	3
T29	Birch (Silver)	9	SM	2.3	16
T30	Birch (Silver)	8.5	SM	1.6	8
T31	Rowan	10	SM	3.8	46
T32	Birch (Silver)	10	SM	2.4	18
T33	Birch (Silver)	10	SM	1.8	10
T34	Birch (Silver)	4	SM	1.8	10
T35*	Willow (Goat)	15	EM	7	152
T36	Oak	10	SM	2.5	20
T37*	Birch (Silver)	8	SM	2.4	18
T38	Willow (Goat)	8	EM	7.3	168

Group Ref	Species	Height Range (m)	LifeStage	RPA Radius (m)	RPA (m2)
G1	Birch	6 - 8	SM	2.8	24
G2	Hawthorn; holly	4 - 5	SM	1.1	4
G3	Hawthorn; holly	4 - 6	EM	1.3	5
G4	Birch; Silka spruce	6 - 7	Y	1.1	4
G5	Hawthorn	3.5	EM	1.3	5
G6	Hawthorn	3.5	EM	1.3	5
G7	Birch	6 - 8	SM	2.5	20
G8	Alder; birch	7 - 11	SM	4.5	65
G9	Alder; birch	8 - 10	SM	3.9	49
G10	Monterey cypress	18 - 20	M	10.2	327
G11	Alder; birch; goat willow; hawthorn; rowan; holly; oak; honeysuckle	6 - 8	SM	3	28
G12	Alder; birch; goat willow; sycamore	6	SM	1.7	9

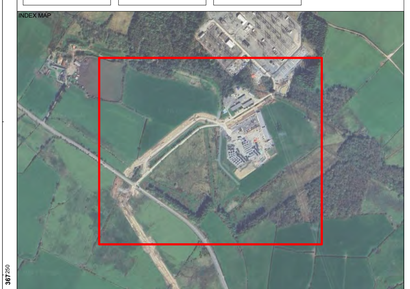
WoodRef	Species	Height Range (m)	LifeStage	RPA Radius (m)	RPA (m2)
W1	Silka spruce; larch; birch; oak; holly; beech; gorse	2 - 18	EM	5.4	92
W2	Silka spruce; larch; beech; holly; gorse; dogrose; elder	1 - 18	SM	4.9	76

Tree Canopy Area	
Category	Total SQM
B	410.6
C	204.4

Tree Group Canopy Area	
Category	Total SQM
B	1265.2
C	415.6

Woodland Canopy Area	
Category	Total SQM
B	6373.8

INDEX MAP



Note: The original of this drawing was produced in colour -- a monochrome copy should not be relied upon. This drawing should be interpreted with reference to the accompanying tree schedule and written advice

N
GRID NORTH

0 15 30 60 Meters

PROJECT TITLE

Tyddyn Forgan (6435)

DRAWING TITLE

Tree Survey and Constraints Plan

SCALE	DRAWING NUMBER
Scale: 1:1,000 @ A1	**BHA_6435_01**

DRAWN BY	APPROVED BY	REVISION	SHEET	DATE
AT	DH	-	-	28/01/2024

COORDINATE SYSTEM / DATUM

British National Grid / Newlyn Datum (AOD)

CLIENT

Net Zero Twenty Six Limited

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Ordnance Survey Copyright Licence number 100054267.

Barton Hyett Associates
Arboricultural Consultants

Tel: 01386 576161
Address: Office 5E, Deer Park Business Centre,
Eckington, Pershore, Worcestershire, WR10 3DN

DRAWING PRODUCED BY

SUMMIT GEO

enquiries@barton-hyett.co.uk

255500 255750 256000

367500

Label	Description
OOS 1*	Undersized small spruce, not plotted on topo
OOS 2*	Undersized small spruce, not plotted on topo
OOS 3*	Undersized small birch, not plotted on topo
OOS 4*	Undersized small birch, not plotted on topo
OOS 5*	Undersized small birch, not plotted on topo
OOS 6*	Undersized small spruce, not plotted on topo
OOS 7*	Off-site mixed group of young & semi-mature hawthorn, rowan, oak, elder, & gorse; approx. avg. height @5 - 6m & max stem diameter, est. @100mm
OOS 8*	Maintained broadleaf hedge brushed by flail, approx. height of 3m; dia. est. @70 - 90mm; not plotted on topo

G12 -C2
G11 -B2
G10 -B2
TN2
OOS 8*
T37* -B1
T35* -C3
T36 -B1
T33 -B1
T34 -C1
T31 -B1
T29 -B1
T32 -B1
T30 -C1
T28* -C1
T27* -C1
T26* -C1
T25 -C1
T24 -B1
T23 -B1
G9 -B2
G8 -B2
T22 -C1
T21* -B1
T20* -C1
T19 -C1
T16 -B1
T15 -B1
T13* -C1
T12 -C1
G7 -B2
T18 -C1
T17 -B1
T14 -C1
OOS 7*
G5 -B2
G6 -B2
T1* -B1
G1 -C2
TN1
T2 -B1
T3 -B1
OOS 2*
OOS 3*
OOS 1*
T4 -C1
T10 -B1
T5 -C1
OOS 4*
OOS 5*
T6 -B1
T11 -B1
T7 -B1
OOS 6*
T8 -C1
G4 -C2
G3 -B2
G2 -B2
T9 -B1
W2 -B2
W1 -B2

367500

255500 255750 256000

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- Shrub mass/offsite tree/out of scope (OOS)
- Tree/Group/Hedgerow not on topographical survey. Location given is an estimate
- Tree / Hedgerow / Group to be removed

Protection Measures

- Tree Protection Barrier
- All weather information notices to read 'Construction Exclusion Zone - No Entry' A3 in size. To be attached to tree protection barriers at regular intervals
- Target Note
- Perimeter Fence
- Track

Tree Ref	Species	Height (m)	Life/Stage	RPA Radius (m)	RPA (m2)	Remove
T1	Hawthorn	4	EM	4.1	52	
T2	Birch (Silver)	11	SM	3.2	33	
T3	Hawthorn	5	EM	2.2	15	
T4	Spruce (Sitka)	6	Y	1.3	5	Yes
T5	Spruce (Sitka)	6	Y	1.3	5	Yes
T6	Yew (Common)	5	SM	3.2	33	
T7	Willow (Goat)	7	SM	2.6	22	
T8	Spruce (Sitka)	6	Y	1.5	7	
T9	Willow (Goat)	8	SM	3.1	31	
T10	Birch (Silver)	8	SM	1.8	10	Yes
T11	Willow (Goat)	9	SM	6	113	Yes
T12	Birch (Silver)	5	SM	1.3	5	
T13	Birch (Silver)	6	SM	1	3	
T14	Birch (Silver)	5	SM	1.1	4	
T15	Birch (Silver)	10	SM	3.6	41	
T16	Birch (Silver)	10	SM	2.9	26	
T17	Birch (Silver)	10	SM	3	28	
T18	Birch (Silver)	9	SM	2.3	16	
T19	Birch (Silver)	9	SM	1.6	8	
T20	Hawthorn	2	M	3.3	35	
T21	Rowan	6	SM	3	28	
T22	Birch (Silver)	8	SM	1.8	10	
T23	Birch (Silver)	9	SM	1.8	10	
T24	Birch (Silver)	9	SM	2	12	
T25	Birch (Silver)	10	SM	2.3	16	
T26	Birch (Silver)	6.5	SM	1	3	
T27	Birch (Silver)	0.75	SM	1.5	7	
T28	Birch (Silver)	6.5	SM	1	3	
T29	Birch (Silver)	9	SM	2.3	16	
T30	Birch (Silver)	8.5	SM	1.6	8	
T31	Rowan	10	SM	3.8	46	
T32	Birch (Silver)	10	SM	2.4	18	
T33	Birch (Silver)	10	SM	1.8	10	

Group Ref	Species	Height Range	Life/Stage	RPA Radius (m)	RPA (m2)	Remove
G1	Birch	6 - 8	SM	2.8	24	Yes
G2	Hawthorn; holly	4 - 5	SM	1.1	4	
G3	Hawthorn; holly	4 - 6	EM	1.3	5	
G4	Birch; Sitka spruce	6 - 7	Y	1.1	4	
G5	Hawthorn	3.5	EM	1.3	5	Yes
G6	Hawthorn	3.5	EM	1.3	5	

WoodRef	Species	Height Range	Life/Stage	RPA Radius (m)	RPA (m2)	Remove
W1	Sitka spruce; larch; birch; oak; holly; beech; gorse	2 - 18	EM	5.4	92	
W2	Sitka spruce; larch; beech; holly; gorse; dogrose; elder	1 - 18	SM	4.9	76	

Target Notes

Label	Description
TN1	Crown lift T2 to allow fencing to pass beneath beneath branches
TN2	Crown clearance beneath G10 is 4m & will allow high-sided vehicles to pass

INDEX MAP

Note: The original of this drawing was produced in colour – a monochrome copy should not be relied upon. This drawing should be interpreted with reference to the accompanying tree schedule and written advice

N
GRID NORTH

0 15 30 60 Meters

PROJECT TITLE

Tyddyn Forgan (6435)

DRAWING TITLE

Tree Retention, Removal and Protection Plan

SCALE	DRAWING NUMBER
Scale: 1:1,000 @ A1	BHA_6435_02

DRAWN BY	APPROVED BY	REVISION	SHEET	DATE
DB	IH	-	-	26/02/2025

COORDINATE SYSTEM / DATUM: **British National Grid / Newlyn Datum (AOD)**

CLIENT: **Chawson First School**

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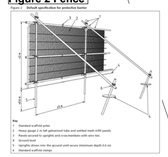
Barton Hyett Associates
Arboricultural Consultants

Tel: 01386 576161
Address: Office 11, Unit 22 Lansdown Industrial Estate, Cheltenham, GL51 8PL

DRAWING PRODUCED BY
SUMMIT GEO
enquiries@barton-hyett.co.uk

Figure 2 Fence



Tree Protection Barrier - Barrier to be erected prior to the commencement of works on site and not to be altered or removed until works are complete (cross check with specific requirements of any relevant planning conditions).

Section 3

TREE SURVEY SCHEDULE

PROJECT NO: 6435

SITE NAME: TYDDYN FORGAN ESS.

SURVEYOR: DAVID HOLMES

SURVEY DATE: 22/01/2025

CLIENT: NET ZERO TWENTY SIX LIMITED

Barton Hyett Arboricultural Consultants

INDIVIDUAL TREES

Ref	Species	On/ off site	Top Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. low crown height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m²
T1	Hawthorn	On	4.0	8	Yes	340	2.5-1.5-1.5-1.5	0.0	0.0	None	EM	None	Topped @3m beneath overhead power lines; established close to dry-stone wall; good vigour throughout crown; not plotted on topo	Good	Fair	20+	B1	4.1	52.0
T2	Birch (Silver)	On	11.0	1	None	270	3.0-3.5-3.5-3.5	1.5	1.5	E	SM	None	Main stem splits @2m into 2x scaffold limbs which form a cohesive crown; slightly cranked lower stem presenting as a non-progressive lean to N; ivy cover to lower stem & unions / scaffold limbs	Good	Fair	20+	B1	3.2	33.0
T3	Hawthorn	On	5.0	2	Yes	180	1.5-1.5-1.5-1.5	2.0	0.0	None	EM	None	Typical for age & species	Good	Fair	20+	B1	2.2	15.0
T4	Spruce (Sitka)	On	6.0	1	None	100	1.5-1.5-1.5-1.5	2.0	2.0	N	Y	None	Typical for age & species	Good	Fair	20+	C1	1.3	5.0
T5	Spruce (Sitka)	On	6.0	1	None	110	1.5-1.5-1.5-1.5	2.0	2.0	N	Y	None	Typical for age & species	Good	Fair	20+	C1	1.3	5.0
T6	Yew (Common)	On	5.0	9	Yes	270	2.5-2.5-2.5-2.0	0.0	0.0	None	SM	None	Main stem splits @G/L into multiple stems which form a cohesive crown; typical for age & species	Good	Fair	20+	B1	3.2	33.0
T7	Willow (Goat)	On	7.0	1	None	220	3.0-3.0-3.0-3.0	1.5	2.0	N	SM	None	Main stem splits @2.5m into multiple scaffold limbs which form a cohesive crown; typical for age & species	Good	Fair	20+	B1	2.6	22.0
T8	Spruce (Sitka)	On	6.0	1	None	120	1.5-1.5-1.5-1.5	2.0	2.0	N	Y	None	Typical for age & species	Good	Fair	20+	C1	1.5	7.0
T9	Willow (Goat)	On	8.0	1	None	260	3.5-3.0-3.0-3.0	1.5	2.0	N	SM	None	Main stem splits @2m into multiple scaffold limbs which form a cohesive crown; typical for age & species	Good	Fair	20+	B1	3.1	31.0
T10	Birch (Silver)	On	8.0	1	None	150	2.5-2.5-3.0-2.5	2.0	2.0	S	SM	None	Typical for age & species	Good	Fair	20+	B1	1.8	10.0

TREE SURVEY SCHEDULE

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SURVEYOR: DAVID HOLMES

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Barton Hyett Arboricultural Consultants

Ref	Species	On/ off site	Top Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. low crown height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m²
T11	Willow (Goat)	On	9.0	1	Yes	500	5.0-5.0-5.0-5.0	1.5	0.0	None	SM	None	Main stem splits @0.5m into multiple scaffold limbs which form a cohesive crown; dia. est @0.25m; typical for age & species	Good	Fair	20+	B1	6.0	113.0
T12	Birch (Silver)	On	5.0	1	None	100	2.0-1.0-1.0-1.5	2.0	2.0	N	SM	None	Historical wind-throw with stem leaning to NW; recent crown lift leaving small pruning stubs	Good	Fair	10+	C1	1.3	5.0
T13	Birch (Silver)	On	6.0	1	None	80	1.0-1.0-1.0-1.0	2.0	2.0	NW	SM	None	Laterally suppressed by adjacent birch; recent crown lift leaving small pruning stubs; not plotted on topo	Good	Fair	20+	C1	1.0	3.0
T14	Birch (Silver)	On	5.0	1	None	90	1.0-1.5-1.5-1.5	1.5	1.0	E	SM	None	Heavily damaged historically; main stem is re-gen from partly decayed stem; recent crown lift leaving large pruning stubs	Good	Fair	10+	C1	1.1	4.0
T15	Birch (Silver)	On	10.0	2	None	300	3.0-3.0-2.5-3.0	3.0	0.0	None	SM	None	Twin-stemmed; minor small branch tear-out (still attached) to E off crown; recent crown lift leaving small pruning stubs	Good	Fair	20+	B1	3.6	41.0
T16	Birch (Silver)	On	10.0	1	None	240	3.0-3.0-2.0-2.5	2.5	2.0	S	SM	None	Slight non-progressive lean to NE; recent crown lift leaving small pruning stubs	Good	Fair	20+	B1	2.9	26.0
T17	Birch (Silver)	On	10.0	1	None	250	4.0-3.0-2.5-3.0	2.0	2.5	NE	SM	None	Main stem splits @2m into 2x scaffold limbs which form a cohesive crown; non-progressive lean to E; recent crown lift leaving small pruning stubs	Good	Fair	20+	B1	3.0	28.0

TREE SURVEY SCHEDULE

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Barton Hyett Arboricultural Consultants

Ref	Species	On/ off site	Top Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. low crown height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m^2
T18	Birch (Silver)	On	9.0	1	None	190	2.5-3.0-2.5-1.0	1.5	1.0	SW	SM	None	Historical union failure to N @1.5m leaving an unbalanced crown & visible heartwood; recent crown lift leaving small pruning stubs	Good	Fair	20+	C1	2.3	16.0
T19	Birch (Silver)	On	9.0	1	None	130	2.0-2.5-1.5-1.0	1.5	2.0	W	SM	None	Slightly cranked lower stem presenting a non-progressive lean to NE; recent crown lift leaving small pruning stubs	Good	Fair	20+	C1	1.6	8.0
T20	Hawthorn	On	2.0	1	Yes	280	1.0-0.5-1.0-0.5	0.0	0.0	None	M	None	Old decayed bole topped @0.75m with re-gen maintained @2m; dia. est. @0.15m; established close to dry-stone wall; not plotted on topo	Good	Poor	20+	C1	3.3	35.0
T21	Rowan	Off	6.0	4	Yes	250	2.5-2.5-2.0-2.0	0.0	0.0	None	SM	None	Off-site tree; established close to NW of dry-stone wall; cursory inspection from boundary; not plotted on topo	Good	Fair	20+	B1	3.0	28.0
T22	Birch (Silver)	On	8.0	1	None	150	2.5-2.0-1.5-1.5	2.0	1.5	S	SM	None	Heavily cranked lower stem presenting a non-progressive lean to E; recent crown lift leaving small pruning stubs	Good	Fair	20+	C1	1.8	10.0
T23	Birch (Silver)	On	9.0	1	None	150	2.0-2.0-2.0-2.0	2.0	2.0	NE	SM	None	Established close to dry-stone wall; recent crown lift leaving small pruning stubs	Good	Fair	20+	B1	1.8	10.0
T24	Birch (Silver)	On	9.0	1	None	160	2.0-2.0-2.0-2.0	2.0	1.5	W	SM	None	Established close to dry-stone wall; recent crown lift leaving small pruning stubs	Good	Fair	20+	B1	2.0	12.0

TREE SURVEY SCHEDULE

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Barton Hyett Arboricultural Consultants

Ref	Species	On/ off site	Top Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. low crown height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m^2
T25	Birch (Silver)	On	10.0	1	None	190	3.0-3.0-2.0-2.5	2.0	2.5	NE	SM	None	Slightly cranked lower stem presenting a non-progressive lean to E; occluding damage to E of stem @1m; recent crown lift leaving small pruning stubs	Good	Fair	20+	C1	2.3	16.0
T26	Birch (Silver)	On	6.5	1	None	80	1.0-1.0-1.0-1.0	2.0	1.0	SW	SM	None	Heavily cranked lower stem presenting a non-progressive lean to E; recent crown lift leaving small pruning stubs; basal strimmer damage to NE; not plotted on topo	Good	Fair	10+	C1	1.0	3.0
T27	Birch (Silver)	On	0.75	2	Yes	120	1.0-1.0-1.0-1.0	0.0	0.0	None	SM	None	Previously twin-stemmed tree which has been topped @0.25m with re-gen maintained @0.75m; heavily cranked lower stems; stem dia. est. @0.15m; not plotted on topo	Good	Poor	20+	C1	1.5	7.0
T28	Birch (Silver)	On	6.5	1	None	80	1.0-1.0-1.0-1.0	2.0	1.0	SW	SM	None	Single remaining stem from a previously twin-stemmed tree; heavily cranked lower stem presenting a non-progressive lean to E; recent crown lift leaving small pruning stubs; stem dia. recorded @0.5m; not plotted on topo	Good	Fair	10+	C1	1.0	3.0
T29	Birch (Silver)	On	9.0	1	None	190	2.5-2.5-2.5-2.5	2.0	2.5	W	SM	None	Established close to dry-stone wall; small off-site rowan approx 2.5m W of stem to N of adjacent wall; recent crown lift leaving small pruning stubs	Good	Fair	20+	B1	2.3	16.0

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Ref	Species	On/ off site	Top Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. low crown height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m^2
T30	Birch (Silver)	On	8.5	2	None	130	2.0-1.5-1.5-1.5	1.5	0.0	None	SM	None	Heavily cranked lower stems presenting a non-progressive lean to NE; recent crown lift leaving large pruning stubs	Good	Fair	20+	C1	1.6	8.0
T31	Rowan	On	10.0	1	None	320	3.0-3.0-2.5-2.5	2.5	0.0	None	SM	None	Multi-stemmed tree; dia. recorded @0.5m; established close to dry-stone wall; recent crown lift leaving small pruning wounds	Good	Fair	20+	B1	3.8	46.0
T32	Birch (Silver)	On	10.0	1	None	200	3.0-2.5-1.5-2.5	2.5	2.5	E	SM	None	Main stem splits @3m into 2x scaffold limbs which form a slightly disjointed crown; slightly cranked lower stem presenting as a non-progressive lean to E; recent crown lift leaving small pruning stubs; occluding bark damage to SW & W of stem @0.25 & 1m respectively	Good	Fair	20+	B1	2.4	18.0
T33	Birch (Silver)	On	10.0	1	None	150	2.5-2.5-2.0-2.0	2.5	2.5	N	SM	None	Slightly cranked lower stem presenting as a non-progressive lean to E; established close to dry-stone wall; recent crown lift leaving small pruning stubs; small off-site oak to N of adjacent wall	Good	Fair	20+	B1	1.8	10.0
T34	Birch (Silver)	On	4.0	1	None	150	2.5-1.5-1.5-1.0	0.5	0.0	S	SM	None	Topped @1m leaving a large wound with crown formed by retained lateral branches; heavily cranked lower stem presenting a non-progressive lean to NE	Good	Fair	10+	C1	1.8	10.0

TREE SURVEY SCHEDULE

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Ref	Species	On/ off site	Top Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg. low crown height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m²
T35	Willow (Goat)	Off	15.0	1	None	580	6.0-6.0-5.0-5.0	2.0	2.0	S	EM	None	Off-site tree; earthworks to N E & W of stem; extensive damage to lower stem with visible heartwood & cavity; good reaction growth with occluding wound; visibility through the stem; good vigour throughout the crown; good habitat potential; not plotted on topo	Good	Fair	20+	C3	7.0	152.0
T36	Oak	On	10.0	2	None	210	3.0-2.5-2.0-2.0	2.5	0.0	None	SM	None	Twin-stemmed forming a cohesive crown with minor crossing branches; established close to dry-stone wall; recent crown lift leaving small pruning stubs	Good	Fair	20+	B1	2.5	20.0
T37	Birch (Silver)	On	8.0	1	Yes	200	3.0-3.0-3.0-3.0	1.5	1.0	S	SM	None	Main stem heavily swathed in ivy; good vigour throughout crown; not plotted on topo	Good	Fair	20+	B1	2.4	18.0
T38	Willow (Goat)	On	8.0	3	Yes	610	0.10000000149011612-10.0-0.10000000149011612-0.10000000149011612	0.0	0.0	None	EM	None	Multi-stemmed willow; failed to E with root-plate partially intact; evidence of re-gen & crown coming into bud (mid-January 2025); stems to NE partially cleared; not plotted on topo	Fair	Poor	20+	C1	7.3	168.0

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GROUPS OF TREES

Ref	Species	On/off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. Crown radius (m)	Avg. low crown height (m)	Life Stage	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G1	Birch	On	6 - 8	4	None	230.0	2.5	1.5	SM	Close grown trees forming a cohesive crown; largest stem shows recent storm damage with tear-out wounds & partly hung-up dead & damaged limbs within own crown & stem to N	Fair	Fair	20+	C2	2.8
G2	Hawthorn; holly	On	4 - 5	3	Yes	90.0	2.0	0.0	SM	Close grown stems on opposite sides of dry-stone wall; 2x thorn & 1x holly	Good	Fair	20+	B2	1.1
G3	Hawthorn; holly	On	4 - 6	2	Yes	100.0	2.5	0.0	EM	Close grown stems on opposite sides of dry-stone wall; midden to NE of stems; poor vigour noted to crown of holly	Fair	Fair	20+	B2	1.3
G4	Birch; Sitka spruce	On	6 - 7	8	Yes	90.0	1.5	0.25	Y	Close grown stems; typical for age & species	Good	Fair	20+	C2	1.1
G5	Hawthorn	On	3.5	2	Yes	100.0	2.5	0.0	EM	Close grown thorn stems on S bank of ditch; possibly remnants of old hedge-line	Good	Fair	20+	B2	1.3
G6	Hawthorn	On	3.5	2	Yes	100.0	2.5	0.0	EM	Close grown thorn stems on opposite banks of ditch; possibly remnants of old hedge-line	Good	Fair	20+	B2	1.3
G7	Birch	On	6 - 8	2	None	210.0	2.0	2.5	SM	Tree to NE is twin-stemmed & show heavily cranked lower stem; recent crown lift leaving small pruning stubs	Good	Fair	20+	B2	2.5
G8	Alder; birch	On	7 - 11	6	None	380.0	3.5	3.0	SM	Established close to dry-stone wall; 1x alder & 5x birch; recent crown lift leaving small pruning stubs	Good	Fair	20+	B2	4.5
G9	Alder; birch	On	8 - 10	4	None	330.0	3.5	3.0	SM	Established close to dry-stone wall; 2x alder & 2x birch; recent crown lift leaving small pruning stubs	Good	Fair	20+	B2	3.9
G10	Monterey cypress	On	18 - 20	2	None	850.0	6.5	4.0	M	Close grown trees forming a cohesive crown; crowns to E cut back to clear access track; utilities inspection chamber & trench to E of root plate; not plotted on topo	Good	Fair	20+	B2	10.2
G11	Alder; birch; goat willow; hawthorn; rowan; holly; oak; honeysuckle	On	6 - 8	25	None	250.0	2.5	0.0	SM	Multi-stemmed trees forming a cohesive crown; crowns to S cut back to clear overhead power lines & stems to N of plot felled with arisings chipped to plot; understory of oak holly thorn etc; newt fence running E - W across approx. middle of plot; not plotted on topo	Good	Fair	20+	B2	3.0
G12	Alder; birch; goat willow; sycamore	On	6	15	None	140.0	2.5	0.0	SM	Multi-stemmed trees established around small flooded pit; bramble & fern understory; not plotted on topo	Good	Fair	20+	C2	1.7

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WOODLANDS

Ref	Species	On/off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. Crown radius (m)	Avg. low crown height (m)	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	ASNW or ARW buffer (m)
W1	Sitka spruce; larch; birch; oak; holly; beech; gorse	Off	2 - 18	30	Yes	450.0	4.5	1.0	EM	None	Woodland block established to fenced boundary; sample recorded where feature abuts survey area; predominantly conifer with broadleaf establishing to boundaries; stems to NW topped / cut back to clear overhead power lines; holly & gorse etc established as understory	Good	Fair	40+	B2	5.4	20.0
W2	Sitka spruce; larch; beech; holly; gorse; dogrose; elder	On	1 - 18	500	None	410.0	3.0	1.0	SM	None	Woodland block established to boundary; predominantly conifer with beech established to SW of plot (adjacent to B4547); holly gorse & yew etc establishing sporadically as understory; some internal fencing within block; boundary to SE of block defined by dry-stone wall & ditch with off-site thorn & hazel hedge	Good	Fair	40+	B2	4.9	20.0
W1	English oak; sweet chestnut; downy birch; hawthorn; holly; dogrose; elder	Off	1 - 18	90	Yes	850.0	7.5	1.5	M	None	Wooded copse; predominantly oak & chestnut with other species occurring as a developed understory; this area was not entered as ownership is ambiguous; all observations carried out from PRoW; sample recorded where feature abuts survey area; site appears to have been historically worked as there are a number of excavation sites; single & multi stemmed trees; the latter appears to be lapsed coppice stools which indicates an historically worked site - may have been managed as coppice with standards; several mature oak & chestnut sighted within the plot which may be 'locally notable' / 'veteran'	Good	Good	40+	A3	10.2	

- The tree survey was carried out with reference to the methodology set out in BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.
- Trees were surveyed individually or as groups where it was considered that they had grown together to form cohesive arboricultural features either aerodynamically (trees that provide companion shelter), visually (e.g. avenues or screens) or culturally (including for biodiversity). However, where it was considered that there was an arboricultural need to differentiate between attributes trees within groups and/or woodlands were also surveyed as individuals.
- Within the tree survey schedule, each surveyed TREE (T), GROUP (G), HEDGEROW (H), WOODLAND (W) or SHRUB MASS on or adjacent to the site is given a reference number which refers to its position on the tree survey and constraints plan.
- TREE SPECIES are listed by common name.
- OOS: The recorded Out Of Scope trees and features refer to either a dead-standing or failed tree; a stump or minor shrubs; where trees are inaccessible or located off-site and unlikely to be affected by the development or, it is found that the trees are undersized according to BS 5837:2012, which stipulates a minimum recordable diameter of 75mm.

The **DIMENSIONS** taken are:

- STEM-No. indicates the number of main stems (i.e. whether the trunk divides at or below 1.5m; (used in the calculation of root protection area (RPA)) "m-s" = Multi-stemmed.
- STEM DIAMETER (measured in millimetres), obtained from the girth measured at approx. 1.5m. For trees with 2 to 5 sub-stems, a notional figure is derived from the sum of their cross-sectional areas. For multi-stemmed trees, the notional diameter may be estimated on the basis of the average stem size x the number of stems. Note: a notional diameter may be estimated where measurement is not possible.
- HEIGHT (measured in metres), recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- The CROWN SPREAD, taken at the four cardinal points to derive an accurate representation of the tree crown, recorded up to the nearest half metre for dimensions up to 10m and to up the nearest whole metre for dimensions over 10m.
- CROWN CLEARANCES, expressed both as the existing height above ground level of the first significant branch along with its direction of growth (e.g., 2.5m-N) and also in terms of the overall crown e.g., the average height of the crown above ground level. Measurements are recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- ESTIMATES: where any measurement has had to be estimated, e.g., due to inaccessibility, this is indicated by a "#" suffix to the measurement as shown in the Tree Survey Schedule.

LIFE STAGE is defined as follows:

Y Young: Normally stake dependent, establishing trees. Should be growing fast, usually primarily increasing in height more than spread but as yet making a limited impact upon the landscape.

SM Semi-mature: Established young trees, normally of good vigour and still increasing in height but beginning to spread laterally. Beginning to make an impact on the local landscape and environment. Semi-mature are still capable of being transplanted without preparation, up to 300mm girth and not yet sexually mature.

EM Early-mature: Not yet having reached 75% of expected mature size. Established young trees, normally of good vigour and still increasing in height but beginning to spread laterally. Beginning to make an impact on the local landscape and environment.

M Mature: Well-established trees, still growing with some vigour but tending to fill out and increase spread. Bark may be beginning to crack and fissure. In the middle half of their safe, useful life expectancies.

LM Late-mature: In full maturity but possibly beyond mature and in a state of natural decline. Still retaining some vigour but any growth is slowing.

A Ancient: A tree that has passed beyond maturity and is old/aged compared with other trees of the same species. Typically having a very wide trunk and a small canopy.

PHYSIOLOGICAL CONDITION (HEALTH & VITALITY):

Essentially a snapshot of the general health of the tree based upon its general appearance, its apparent vigour and the presence or absence of symptoms associated with poor health, physiological stress etc. (fungal infections may be recorded here but decay giving rise to structural weakness would be recorded under 'Structural Condition' – see next parameter):

Good: No significant health issues.

Fair: Indications of slight stress or minor disease (e.g., the presence of minor dieback/deadwood or epicormic shoot growth).

Poor: Significant stress or disease noted; larger areas of dieback than above.

Dead: (or Moribund).

STRUCTURAL CONDITION:

Features affecting the structural stability of the tree include decay, significant deadwood, root-plate instability or significant damage to structural roots, weak forks (e.g. those where bark is included between the members) etc. Classified as:

Good: No obvious structural defects: basically sound.

Fair: Minor, potential or incipient defects.

Poor: Significant feature(s) likely to lead to actual failure in the medium- to long-term.

Dead: (or Moribund).

ESTIMATED REMAINING CONTRIBUTION:

An estimate of the length of time in years that a tree might be expected to continue to make a useful contribution to the locality at an acceptable level of risk (based on an assumption of continued routine maintenance):

- Less than 10 years
- 10+ years
- 20+ years
- 40+ years

SPECIAL IMPORTANCE:

Trees that are particularly notable as high-value trees such as ancient trees/woodland or veteran trees. Such trees may be regarded as the principal arboricultural features of a site and pose a significant constraint to potential development.

An ***ancient*** tree is one that has passed beyond maturity and is very old compared with other trees of the same species. Very few trees reach the ancient life stage. ***Veteran*** trees are often very old but not necessarily so; they may be regarded as 'survivors' that have developed some of the characteristic features of an ancient tree but have not necessarily lived as long. All ancient trees are veterans but not all veteran trees are ancient.

The term '*notable*' carries no weight within the National Planning Policy Framework (NPPF), but is a term that recognises a mature tree which may stand out in the local environment because it is large in comparison with other trees around it.

Ancient woodland is an area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland (ASNW), plantations on ancient woodland sites (PAWS) and ancient replanted woodland (ARW).

QUALITY CATEGORY:

Trees are classed as category U, A, B or C, based on criteria given in BS 5837:2012; summary definitions as follows (see BS 5837 for further details). Categories A, B and C are further characterised by the use of sub-categories, which attempt to identify what aspect of the tree is the main source of its perceived value, These are:

(1) arboricultural qualities
(2) landscape qualities, and
(3) cultural, historic or ecological/conservation qualities.

Examples of these qualities for each of the three categories are given below, although these are indicative only.

Note: This is NOT a health and safety classification; the classification does not take into account any requirement for remedial tree care or ongoing maintenance apart from that which may affect the trees' general suitability for retention.

CATEGORY A: HIGH QUALITY:

Trees or groups whose retention should be given a particularly high priority within the design process. Normally with an expected useful life expectancy of at least 40 years.

A1: Notably fine specimens; rare or unusual specimens; essential component trees within groups, semi-formal or formal plantings (e.g., dominant trees within an avenue etc.).
A2: Trees, groups or woodlands of particular visual importance as landscape features.
A3: Trees, groups or woodlands of particular significance by virtue of their conservation, historical, commemorative or other value (e.g., veteran trees or wood pasture).

CATEGORY B: MODERATE QUALITY

Trees or groups of some importance with a likely useful life expectancy in excess of 20 years. Their retention would be desirable; selective removal of certain individuals may be acceptable but only after full consideration of all alternative courses of action.

B1: Fair quality but not exceptional; good specimens showing some impairment (e.g., remediable defects, minor storm damage or poor past management).
B2: Acceptable trees situated such as to have little visual impact within the wider locality. Also the number of trees, perhaps in groups or woodlands, whose value as landscape features is greater collectively than would warrant as individuals (such that the selective removal of an individual would not impact greatly upon the trees' overall, collective value).
B3: Trees, groups or woodlands with clearly identifiable conservation or other cultural benefits.

CATEGORY C: LOW QUALITY:

Trees or groups of rather low quality, although potentially capable of retention for at least approx. 10 years. Also small trees with stems below 150mm diameter.

Potentially retainable, but not of sufficient value to be regarded as a significant planning constraint.

C1: Unremarkable trees of very limited merit or significantly impaired condition.
C2: Trees offering only low- or short-term landscape benefits; also secondary specimens within groups or woodlands whose loss would not significantly diminish their landscape value.
C3: Trees with extremely limited conservation or other cultural benefits.

CATEGORY U: VERY LOW QUALITY

Trees likely to prove to be unsuitable for retention for longer than 10 years should any significant increase in site usage arise as a result of development. E.g., dead or moribund trees; those at risk of collapse or in terminal decline; trees that will be left unstable by other essential works such as the removal of nearby category U trees; trees infected by pathogens that could materially affect other trees; low-quality trees that are suppressing better specimens. (Category U trees may have conservation values that it might be desirable to preserve. This category may also include trees that should be removed irrespective of any development proposals.)

ROOT PROTECTION AREA (RPA):

These are normally represented as a circle centred on the base of each tree stem with a radius of 12 times the stem diameter, measured at 1.5m above ground level. The shape of the RPA may be altered where site conditions dictate that there are sound reasons to do so.

VETERAN OR ANCIENT TREE BUFFER (VTB/ATB)

In line with the Standing Advice produced by the Forestry Commission and Natural England, this is a buffer zone (in metres) around an ancient or veteran tree that should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's stem diameter.

ANCIENT WOODLAND BUFFER (FOR ASNW, PAWS OR ARW)

In line with the Standing Advice produced by the Forestry Commission and Natural England, this is a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, a larger buffer zone may be required.

THE IMPORTANCE OF TREES

Wider benefits:

There is a growing body of evidence that trees bring a wide range of benefits to the places people live.

Some *Economic* benefits of trees include:

- Trees can increase property values
- As trees grow larger, the lift they give to property values grows proportionately
- They can improve the environmental performance of buildings by reducing heating and cooling costs, thereby cutting bills
- Mature landscapes with trees can be worth more as development sites
- Trees create a positive perception of a place for potential property buyers
- Urban trees improve the health of local populations, reducing healthcare costs

Some *Social* benefits of trees include:

- Trees help create a sense of place and local identity
- They benefit communities by increasing pride in the local area
- They can create focal points and landmarks
- They have a positive impact on people's physical and mental health
- They can have a positive impact on crime reduction

Some *Environmental* benefits of trees include:

- Urban trees reduce the 'urban heat island effect' of localised temperature extremes
- They provide shade, making streets and buildings cooler in summer
- They help remove dust and particulates from the air
- They help to reduce traffic noise by absorbing and deflecting sound
- They help to reduce wind speeds
- By providing food and shelter for wildlife they help increase biodiversity
- They can reduce the effects of flash flooding by slowing the rate at which rainfall reaches the ground
- They can help remediate contaminated soil

On new development sites:

Trees bring many benefits to new development. Where retained successfully they can form important and sustainable elements of green infrastructure, contribute to urban cooling and reduce energy demands in buildings. Their importance is acknowledged in relation to adaptation to the effects of climate change. Other benefits brought by trees include:

- increasing property values;
- visual amenity
- softening, complementing and adding maturity to built form
- displaying seasonal change
- increasing wildlife opportunities in built-up areas
- contributing to screening and shade
- reducing wind speed and turbulence

NATIONAL PLANNING POLICY

Paragraph 6.4.43 of the Planning Policy Wales - Edition 12, February 2024 (PPW) states in relation to Ancient Woodland:

'Ancient woodland, semi-natural woodlands, individual ancient, veteran and heritage trees and ancient hedgerows are irreplaceable natural resources, and have significant landscape, biodiversity and cultural value. Such trees, woodlands and hedgerows are to be afforded protection from development which would result in their loss or deterioration unless very exceptionally there are significant and clearly defined public benefits; this protection must prevent potentially damaging operations and their unnecessary loss139. 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, work to improve its completeness and use it to ensure the protection of trees and woodland and identify opportunities for more planting as part of the Green Infrastructure Assessment, particularly in terms of canopy cover'.

The PPW goes on to state:

'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)140. They should also be incorporated into Green Infrastructure Assessments and plans'.

STATUTORY CONTROLS

Statutory tree protection

Works to trees which are covered by Tree Preservation Orders (TPOs) or are within a Conservation Area (CA) require permission or consent from the Local Planning Authority. Where information is available on any Statutory designations such as this they are identified within the summary table in Section 1 and on the Tree Survey and Constraints Plan at Section 2.

Notwithstanding specific exceptions and in general terms, a TPO prevents the cutting down, uprooting, topping, lopping, wilful damage or wilful destruction of protected trees or woodlands without the prior written consent of the LPA.

Penalties for contravention of a TPO tend to reflect the extent of damage caused but can, in the event of a tree being destroyed, result in a fine of up to £20,000 if convicted in a Magistrates' Court, or an unlimited fine is the matter is determined by the Crown Court.

Similarly, and again notwithstanding specific exceptions, it is an offence to carry out any works to a tree in a Conservation Area with a trunk diameter greater than 75mm diameter at 1.5 height without having first provided the LPA with 6 weeks written notification of intent to carry out the works.

On many non-residential sites (excluding specific exemptions) there is also a statutory restriction relating to tree felling that relates to quantities of timber that can be removed within set time periods. In basic terms, it is an offence to remove more than 5 cubic metres of timber in any one calendar quarter without having first obtained a felling licence from the Forestry Commission.

Any proposed tree works that are planned to be carried out on site must be carried out in accordance with the statutory controls outlined. Therefore, we recommend that a further check is made with the LPA before any tree works are carried out.

Statutory Wildlife Protection

Although preliminary visual checks from ground level of likely wildlife habitats are made at the time of surveying, detailed ecological assessments of wildlife habitats are not made by the arboriculturist and fall outside of the scope for this report.

Trees which contain holes, splits, cracks and cavities could potentially provide a habitat for protected species such as bats in addition to birds and small mammals. It is advised that in some instances specialist ecological advice may be required. This may result in tree works being carried out following a detailed climbing inspection to the tree to ensure that protected species or their nests/roosts are not disturbed. If any are found, the site manager, site owner or consulting arboriculturist should be informed and appropriate action taken as recommended by the appointed Ecologist or the relevant Statutory Nature Conservation Organisation (SNCO): Natural England, Scottish Natural Heritage or Natural Resources Wales.

It is advised that tree/hedgerow works are carried out with the understanding that birds will generally nest in trees, hedges and shrubs between March and August. This time period only provides an indication of likely nesting times and as such diligence is required when undertaking tree works at all times.

Irrespective of the time of year and other than any actions approved under General Licence, it is an offence to intentionally kill, injure or take any wild bird or to intentionally take, damage or destroy the nest or eggs of any wild bird. Ideally, tree operations should be avoided during the likely bird nesting period. However, any tree works should always only be carried out following a preliminary visual check of the vegetation.

For information, the Wildlife and Countryside Act 1981 (as amended), The Countryside and Rights of Way Act 2000 (as amended) and the Conservation of Habitat and Species Regulations 2010, form the basis of the statutory legislation for flora and fauna in England and Wales. A different legislative framework applies in Scotland and Northern Ireland.
Any proposed tree works that are planned to be carried out on site must be carried out in accordance with any relevant statutory controls, outlined above.

DESIGN GUIDANCE

Approach

The approach adopts the guidelines set out in the British Standard BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations. The process is broken down to coordinate with the key elements within both the RIBA Plan of Work (2013) and British Standard 5837:2012 as set out in the table below:

Information Stage	RIBA Stage	BS5837:2012
Stage A – Tree Survey	2: Concept	4: Feasibility
Stage B – Arboricultural Impact Assessment	3: Developed design	5: Proposals
Stage C – Arboricultural Method Statement	4: Technical design	6: Technical Design
Stage D – Arboricultural Site Supervision	5: Construction	7: Demolition and construction

A hierarchical approach is adopted in order to achieve optimum use of the site and location of built structures. This is set out below:

Avoid

The starting point of Site layout design should be to avoid the RPA of retained trees and provide suitable clearance from above ground constraints [tree canopies]. Where possible building lines should be at least 2m outside the RPA to provide working space for construction. However, protection measures can be taken if such clearance is not achievable.

Mitigate

Where intrusion within the RPA is unavoidable then its impact on the tree can be mitigated by specialist measures:

Foundations that avoid trenching e.g. screw piles, suspended floor slabs or casting at ground level for lightweight structures such as bin and cycle stores.

Limited use may be made for parking, drives or hard surfaces within the root protection areas, subject to advice from a qualified arboriculturist. Cellular confinement systems that enable hard surfaces to be built above existing soil levels are acceptable methods subject to site-specific soil conditions.

Service runs that cannot be routed outside the RPA(s) can be installed by, for example, thrust boring, directional drilling, air excavation or hand digging. These operations often require supervision by the project arboriculturist.

Compensate

Replacement planting can ensure the continuity of tree cover where tree removal is unavoidable or desirable. Off-site provision may be considered in some circumstances but this will require negotiation with the local planning authority.

Considerations:

For proposed residential developments, consideration must be given to numerous factors future tree growth and orientation.

Tree constraints

Root Protection Areas:

With reference to BS5837:2012, a root protection area (RPA) is defined as "a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure should be treated as a priority". "**The default position [when considering design layout in relation to RPAs] should be that structures are located outside the RPAs of trees to be retained**".

BS5837:2012 states (4.6.2) that, "where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced." The BS goes on to state that, "modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution," and that any deviation from the original circular plot should take into account:

- Morphology and disposition of roots;
- topography and drainage;
- soil type and structure;
- the likely tolerance of the tree to root damage/disturbance.

Additional buffer zones beyond the RPA:

The following text is taken from the Standing Advice produced by the Forestry Commission and Natural England as included in the National Planning Policy Guidance:

'A buffer zone's purpose is to protect ancient woodland and individual ancient or veteran trees. The size and type of buffer zone should vary depending on the scale, type and impact of the development'.

Ancient woodland buffer:

'For ancient woodlands, you should have a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, you're likely to need a larger buffer zone. For example, the effect of air pollution from development that results in a significant increase in traffic'.

Ancient and veteran tree buffer:

'A buffer zone around an ancient or veteran tree should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's diameter'.

Above ground:

Above ground constraints posed by trees describe the capacity for trees to have an overbearing or dominating effect on new developments; usually post occupancy. Typical above ground constraints include a number or combination of inconveniences including shading, branch spread, movement of trees during strong winds and so on. If not adequately considered, above ground constraints can lead to repeated requests to fell or heavily prune retained and protected trees.

Shade:

Adverse shading and blocked views from windows raise concerns for incoming residents, which may lead to pressure to fell or remove trees in the future. Wherever possible it is advisable to arrange fenestration away from tree canopies to lessen the conflict, or increase window size to accommodate ambient light.

Conversely, appropriate designed development can use existing or new trees to create necessary and welcome shade and screening.

As part of the adopted approach the above considerations and constraints are assessed cumulatively in order to provide clear and site-specific advice on the areas of a site most suitable for the location of development.

Dependent on the site and nature of the proposed development, the Tree Survey and Constraints Plans may show the following:

Recommended Developable area - an advisory area defined in order to minimise arboricultural impacts using standard approaches to construction. Restricting proposed development to this area will limit the risk of harm to retained trees and of the Local Planning Authority objecting to the proposed development. It may be possible to propose development outside of this area but specific 'low impact' construction techniques may be needed recommended.

Recommended Buffer to development - similar to the Recommend Developable Area but defined as a line marking a suitable buffer to retained trees. More commonly used on large sites or sites where the presence of trees is localised.

Tree Opportunities

Depending on the scale of developments existing trees can often provide opportunities to enhance the existing arboricultural resource of a site by bringing it into good management or by putting in place remedial measures e.g. soil amelioration.

Appropriately designed new tree planting is extremely important in maintaining healthy and sustainable tree populations. For the reasons highlighted, new trees can bring many benefits to new developments. It is critical to the establishment of new tree planting that the locations, species and specification of new trees is appropriate. Subsequently the sourcing of high-quality stock, suitable planting and the provision of post planting maintenance are essential to allow new trees to establish and to allow them to mature.

HOW TREE DAMAGE CAN OCCUR

Above the ground

Damage can occur as a result of knocks and scuffs, breakages of branches and/or tree trunks. This is often but not always associated with machine operations, groundworks excavations, tele handlers, high sided vehicles and crane use. Other forms of above ground damage include fixings to trunk and unauthorised cutting back of branches. Wounds will harm a tree's health and shorten its life by letting in disease-causing organisms.

Below the ground

It is often not appreciated that the majority of most tree roots are generally located within the top 600mm of the ground. On this basis it needs to be understood that damage to roots can occur in three ways:

- Root severance can occur as a result of, for example, soil stripping during site clearance or excavations.
- Root dieback and death can result from compaction of the soil. Compaction can occur as a result of vehicle weight, weight of stored materials or increased pedestrian access. Compaction crushes out soil pore space and prevents tree respiration from occurring (respiration requires gas exchange between the ground and the atmosphere). Compacted soil is denser and therefore inhibits/prevents any further new root growth.
- Pollution of the soil with chemicals such as oil or cement washings can destroy the soil environment, making it inhospitable for the tree cause causing it stress.

The effects of these impacts can be disfiguring to a tree's appearance and also weaken a tree making it more liable to attack by pest and diseases. In addition, root damage or death results in corresponding decline above the ground with dieback occurring within the tree crown.

The effects of damage to trees generally take some time to become fully apparent. In many cases, damaged trees decline slowly after the completion of a new development, until they eventually need to be removed due to ill health.

Tree protection barriers and load distributing 'no-dig' paths are specified in order to prevent soil compaction from taking place.

GENERAL SITE RULES FOR TREE PROTECTION

Do not independently carry out any activity that is at odds with the site scheme of tree protection. This is contained within an approved Arboricultural Method Statement (AMS) and accompanying Tree Protection Plan.

In simple terms: do not carry out any work within any Construction Exclusion Zone (CEZ) without prior liaison with the Project Arboriculturist and written authorisation from the Local Planning Authority.

Within the CEZ:

- No mixing of cement
- No soil/turf stripping, raising/lowering of ground levels (unless advised), deposit or excavation of soil or rubble
- No excavations for services or installation of services
- No storage of materials, machinery fuel, chemicals or other materials of any other description
- No parking/use of tracked or wheeled machinery
- No siting of temporary structures including hard standing areas, portaloos, site huts
- No lighting of fires or disposal of liquids
- Fires on site should be avoided if possible. Where they are unavoidable, they must not be lit in a position where heat could damage foliage or branches. Fires must be a minimum of 20m from the trunk of any retained tree or the centre line of any hedgerow to be retained
- No signs, cables, fixtures or fittings of any other description shall be attached to any part of a retained tree

CONSTRUCTION EXCLUSION ZONE - NO ENTRY

TREE PROTECTION FENCING

THIS FENCE MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED TREE PROTECTION PLANS AND ARBORICULTURAL METHOD STATEMENT FOR THIS DEVELOPMENT.

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER.
CONTRAVENTION CAN RESULT IN BREACH OF PLANNING CONDITIONS AND/OR CRIMINAL PROSECUTION.
(TOWN AND COUNTRY PLANNING ACT 1990)

FOR ALL ENQUIRIES REGARDING TREES AT THIS DEVELOPMENT
PLEASE CALL 01386 576161 OR EMAIL ENQUIRIES@BARTON-HYETT.CO.UK

Barton Hyett Associates
Arboricultural Consultants