

Bartlett Arboretum

White House Farm, White House Lane
Spencers Wood, Reading

Planning Ref. 232560

Ecological Permeability & Enhancements

[Planning Condition 20]

November 2024



4Woods Ecology Ltd, 243 Woodlands Road, Woodlands, Southampton, SO40 7GJ
tel. 023 8029 2590

4Woods Ecology Ltd. Company registration no. 4801465. England.
Registered office: Drove House, 14 Bakers Drove, Rownhams, Southampton SO16 8AD

Bartlett Arboretum

White House Farm, White House Lane
Reading

Ecological Permeability & Enhancements

1.0	Introduction	1
1.1	Background	1
2.0	Site Context	1
3.0	Ecological Permeability & Enhancement Strategy	3
3.1	Aims & Objectives	3
3.2	Maintaining Ecological Permeability	4
3.3	Ecological Enhancements	7
	3.3.1 Woodland enhancements	
	3.3.2 Tree Planting	
	3.3.3 Meadow grassland	
	3.3.4 Aquatic Habitat	
	3.3.5 Newt Hibernaculum	
	3.3.6 Bat/Bird Boxes	
4.0	References	18

Map 1 – Site Location

Appendix I – Woodland Habitat Condition Assessment

Document produced by:

Su Forster BSc PGDip MCIEEM
4Woods Ecology Ltd

November 2024

1.0 Introduction

1.1 Background

Planning consent has been granted by Woking Borough Council for the creation of an arboretum with ancillary support facilities, including office/laboratory/storage facilities and car parking, on land at White House Farm, White House Lane, Spencers Wood, Reading (SU708 657 – at the centre of the site) (**Map 1**). (Planning Ref. 232560)

The consent is subject to various planning conditions including:

20. Species Specific Enhancements

Prior to commencement of development of any phase of the development hereby approved, a detailed strategy for ecological permeability and biodiversity enhancements to the site, as per those outlined in section 4.5 and Map 4 of the Ecological Impact Assessment report (4Woods Ecology, September 2023), shall be provided to the local authority for its approval. This strategy shall be prepared by a suitably qualified ecologist and appropriate to the local ecological context. Once approved the strategy shall be implemented in full unless otherwise agreed by the local authority in writing.

This document aims to provide the required details to satisfy the above planning condition.

It should be noted that development of the arboretum will be completed in phases due to cost implications for such a large project. Currently, details for the development area (storage/offices/car park) are well developed for Phase 1. Further details are yet to be devised for future phases, and therefore the proposed ecological enhancement measures for future phases are based on the overall site arrangement plan (as submitted as part of the planning application) and will be incorporated into the final specifications for each later phase.

2.0 Site Context

The baseline ecological context was determined during a site walkover in April 2023, further bat surveys during July/August 2023 and desktop study, completed by 4Woods Ecology Ltd. The findings were used to produce an Ecological Impact Assessment (EclA) for the planning application (4Woods Ecology Ltd, 2023). Additional informal visits to the site were completed by Su Forster, of 4Woods Ecology Ltd, during July/August 2024.

In summary the site assessment resulted in the following key findings:

- The application site is a large area of land of around 9ha in size, comprising a large agricultural field (of low nature conservation value), with a small deciduous Oak-dominated secondary woodland (priority habitat, of local nature conservation value) at the north-western corner. A small area of moderately species-rich neutral grassland exists at the north-western corner of the woodland/site (of local nature conservation value). Native species-poor hedgerows (priority habitat, of local nature

conservation value) extend around the site boundaries. The site is located at the edge of the village of Spencers Wood, surrounded by a patchwork of other agricultural fields and woodlands, with scattered residential properties/estates.

- The local area is within the *Thames Basin Heaths National Character Area* described as containing large conurbations but with a mix of villages further west (within which the site lies). In this western area is a patchwork of small to medium-sized fields and woods ([Natural England - National Character Area Profiles - National Character Area Profiles](#)).
- There are x3 'Berkshire Local Wildlife Sites' (LWS) within 2km of the application site, all due to the presence of ancient woodland or species associated with ancient woodland.
- The site is within an area indicated as a 'Network Expansion Zone' (i.e. areas likely to be suitable for habitat creation and possible linking up of networks across a landscape).
- Protected/Notable species recorded at the site or known to occur locally include:
 - **Great Crested Newt** (populations recorded to the north and south of the site, with nearest record at 300m to the north).
 - **Common Reptiles** (e.g. Grass Snake/Slow-worm occur locally – there is potential for colonisation within the site where suitable habitat becomes available in future).
 - [REDACTED]
 - [REDACTED]
 - [REDACTED]
 - [REDACTED]
 - [REDACTED]
 - [REDACTED]
 - **Hedgehog** (reported in close proximity to the site in 2019).
 - **Bats** (Common Pipistrelle day roosts were present within the two buildings within the site, which have since been demolished under NE license (BMCL). Records indicate presence of at least x7 bat species locally: *Common Pipistrelle*, *Soprano Pipistrelle*, *Nathusius' Pipistrelle*, *Brown Long-eared Bat*, *Myotis sp.*, *Daubenton's bat*, *Noctule*, *Serotine*)
 - **Dormouse** (recorded in local woodlands, with nearest record at 680m to south and 1.5km to north, with habitat connectivity to the site).
 - **Birds** (various notable bird species recorded locally, including: Barn Owl, Greenfinch, House Martin, Kestrel, Red Kite, Starling, Swift, Wren).

- **Invertebrates** (various species recorded locally, including: Stag Beetle, Grayling, White Admiral, Cinnabar, Adonis Ladybird, White Letter Hairstreak butterfly).

Geology and soils for the location are described as follows:

- The geology is classified as 'London Clay' – a mix of clay/silt/sand. (www.geologyviewer.bgs.ac.uk).
- The soils are described as '711h Wickham 4': *slowly permeable seasonally waterlogged fine loamy over clayey and fine silty over clayey soils associated with similar clayey soils, often with brown subsoils.* (Soil Survey of England & Wales, Sheet 6). These soils are described as slightly acid but with base-rich loamy and clayey soils, pH 5-7 (UK Soil Observatory, www.bgs.ac.uk).

3.0 Ecological Permeability & Enhancement Strategy

3.1 Aims & Objectives

The overall aim of ecological enhancement measures will be to improve quality of existing habitat and to diversify available habitat, within the context of the overall site proposals, which will be valuable to those species which occur at the site or occur locally (and therefore could enter/colonise the site in future). In addition, a further aim is to ensure the site remains accessible to terrestrial animal species and ensure their movement/dispersal through the site is not hindered and improved where possible.

Objectives of the proposed strategy for ecological permeability and biodiversity enhancements are therefore detailed below:

1. Ensure any new fencing or other new linear features allow for movement of [REDACTED] Hedgehog within and through the site (movement of other notable species is unlikely to be affected);
2. Maintain & enhance habitat connectivity to facilitate movement/dispersal of species (e.g. Great Crested Newt, Dormouse, Hedgehog, bats, birds, invertebrates etc).
3. Enhance retained habitats to improve habitat quality/diversity for species (e.g. Great Crested Newt, Dormouse, Hedgehog, bats, birds, invertebrates etc).
4. Create new habitat which will be valuable to species that occur locally.
5. Ensure long-term management supports the proposed enhancements and habitat creation to maximise ecological benefits.

3.2 Maintaining Ecological Permeability

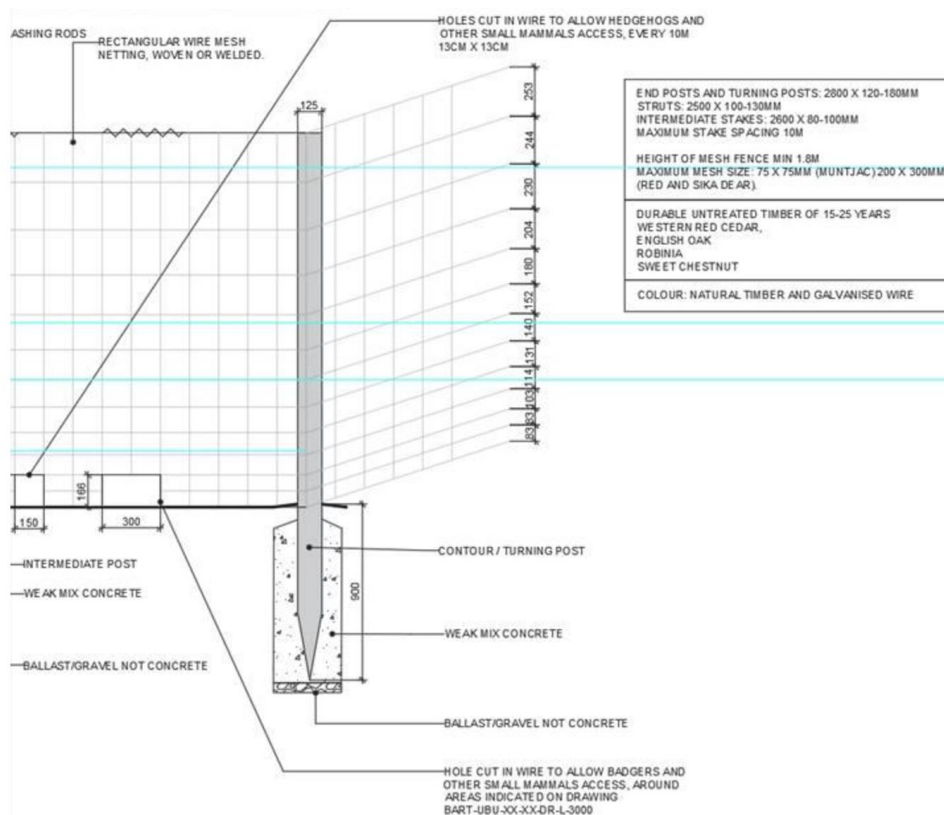
3.2.1 Fencing – Mammal Access

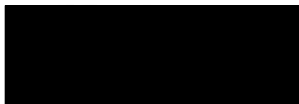
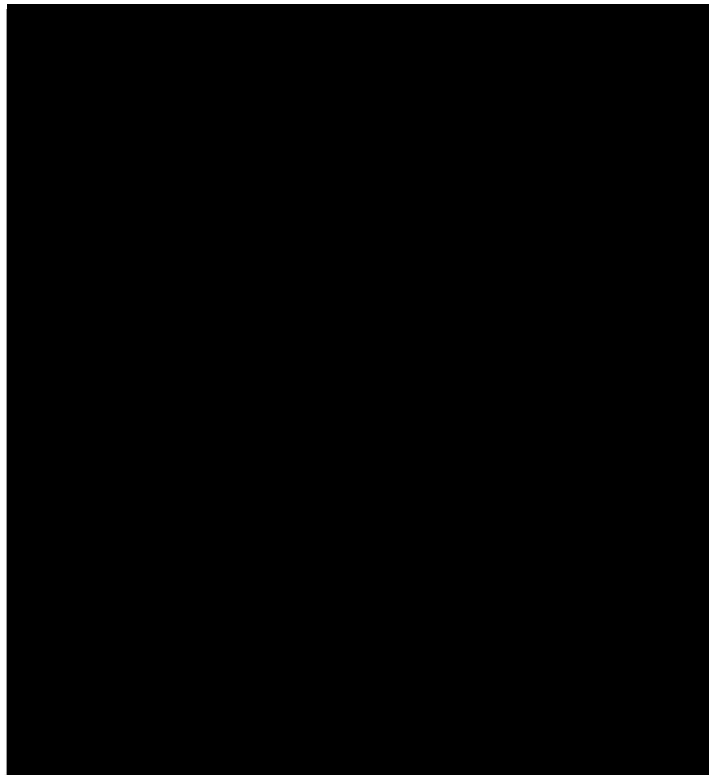
A 1.9m high post and wire mesh fence (see specification below) is to be erected around entire site boundary in order to prevent access by Deer (to protect tree specimens within the arboretum) and for site security. This is scheduled to be completed during a later phase of the overall project.

The following measures will be used to ensure this fencing does not prevent access/movement of [REDACTED] Hedgehog through the site:

- [REDACTED]
- Gaps measuring 13cm² will be created every 10m along the base of the fence to allow for movement of Hedgehog.

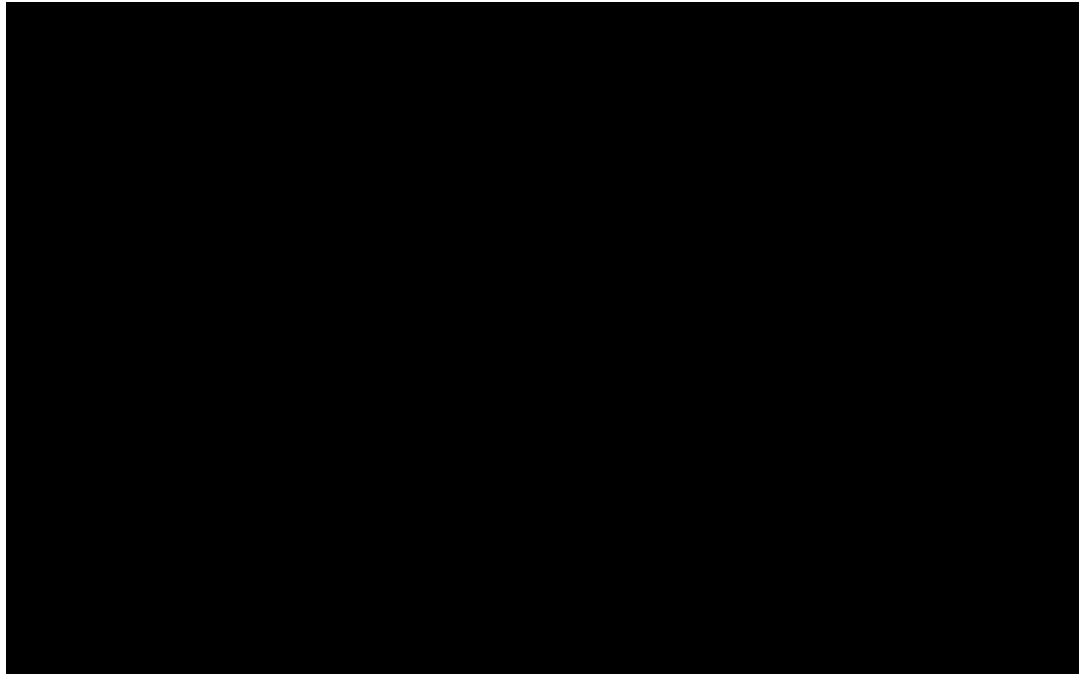
Movement of other notable species are unlikely to be hindered by the mesh fencing.





Procedure for [REDACTED] Installation:

- Immediately prior to installation of the boundary Deer fencing an ecologist will confirm final positions of existing [REDACTED] points and mark these locations on site.
- The ecologist will then brief the contractor regarding these requirements.
- During installation of the boundary Deer fencing gaps of around 200mm wide x 300mm high (or appropriate [REDACTED]) [REDACTED] will be cut at the base of the fencing mesh [REDACTED].
- These gaps will then be left for at least one month (outside of the winter season) [REDACTED].
- A timber/metal frame and gate/flap (if required) will then be constructed/installed at each gap (as illustrated below). The access gaps will be kept open for a further month [REDACTED] before installing/closing the two-way gate flaps (ensuring that they open and close freely both ways).

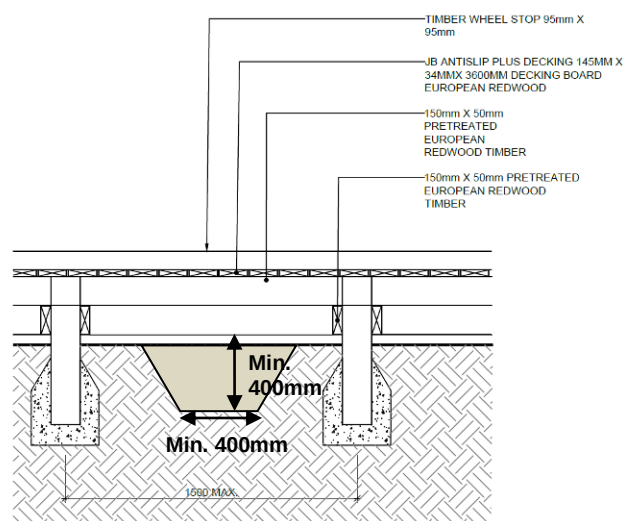
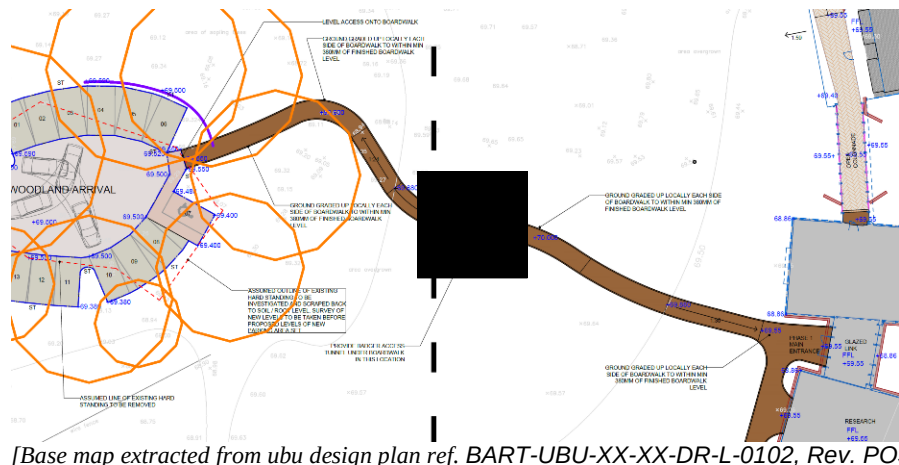


3.2.2 Woodland Boardwalk

A raised timber boardwalk will be installed leading from the new woodland car park to the site buildings, through the eastern portion of the woodland (this is to be part of a later phase of the project).

[Redacted text block]

[Redacted text block]



Longitudinal section through boardwalk, [REDACTED]

3.3 Ecological Enhancements

3.3.1 Woodland Enhancements

The overall ongoing management of the woodland will be subject to an agreed Woodland Management Plan, to be prepared by a Forestry/Arboricultural Consultant, as required by Planning Condition 17. This must include enhancement measures to improve the Biodiversity Net Gain Habitat Condition assessment from Poor to Moderate (see **Appendix I**). In order to achieve this the management plan/site proposals will aim to improve the scoring of the Habitat Condition Assessment, as indicated at **Appendix I**, by inclusion of the following:

- creation of temporary open areas to allow development of a more diverse age class of trees and vertical structure over time.
- Additional native tree/shrub planting to increase species and age-range diversity. Species to be of at least UK provenance and appropriate to the

woodland habitat type (NVC: W10c) (suggested species: Holly *Ilex aquifolium*, Rowan *Sorbus aucuparia*, Silver Birch *Betula pendula*, Elder *Sambucus nigra*, Hawthorn *Crataegus monogyna*, Blackthorn *Prunus spinosa*, Hazel *Corylus avellana*, Guelder Rose *Viburnum opulus*).

- Increase the abundance of deadwood, maintaining standing deadwood/branches (where assessed as safe) and retention of large stumps and logs where tree felling is required. Additional log piles (each min. 1m² footprint x 40cm high) will be created as tree removal/surgery is completed, aiming for an overall rate of at least 1 per 1000m² of woodland (based on total woodland area being (est.) 11,000m²) and spread throughout the woodland habitat (see plan below)

Additional measures to be taken to enhance the woodland habitat include:

- Removal of the tarmac hardstanding area in the centre of the woodland, to be replaced with permeable surface (i.e. gravel), which will benefit surrounding mature trees.
- Installation of the boundary deer fencing around the entire site, which will reduce browsing pressure within the woodland and allow regeneration/growth of new planting.
- Creation of a 'dead hedge' (i.e. additional deadwood habitat and ground cover/refuges) surrounding the new car park, with native shrub planting within and amongst the parking spaces,

Woodland management to improve habitat condition over time, with additional tree/shrub planting where appropriate (subject to Woodland Management Plan)



Deadwood hedge surrounding car park, with native shrub planting within and amongst parking spaces

★ Approx. distribution of additional log piles (in addition to retention of standing deadwood/branches, stumps and large logs).

Removal of tarmac

3.3.2 Tree Planting

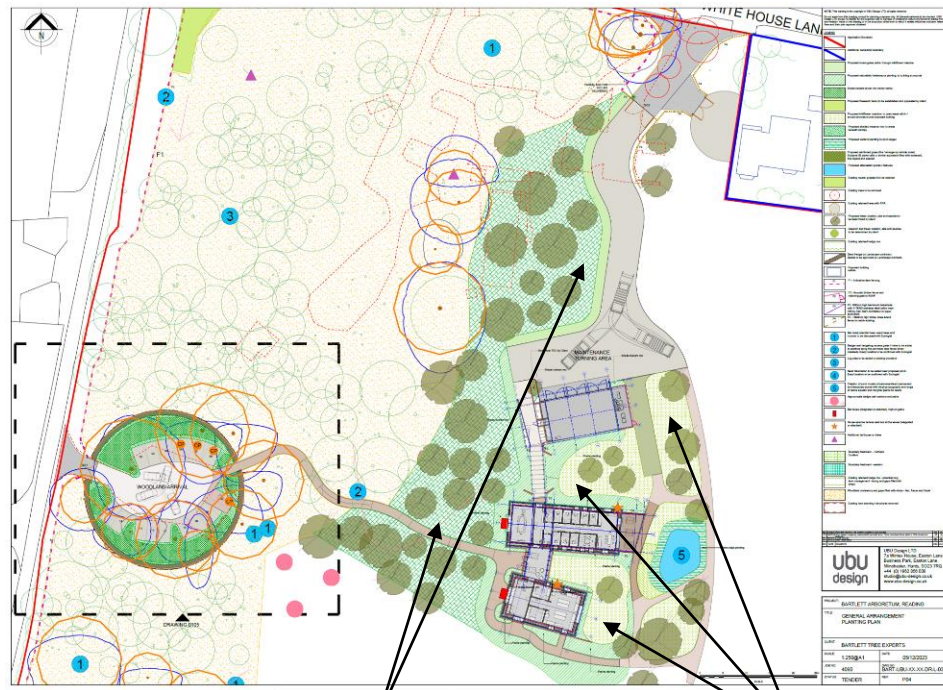
Significant new tree planting will be undertaken at the site as follows, which will be completed in phases over several years.

- Additional new tree planting between the existing woodland and new buildings to create a buffer to the woodland and provide additional habitat. This is to comprise a mix of UK native woodland species. Additional UK native woodland shrubs will be included in places to enhance the habitat diversity.
- Other new trees to be planted immediately surrounding the buildings and access road as part of the landscaping, which will be species of scientific importance.
- Additional line of western tree species along the inner side of the hedgerow and deer fencing at the south-western and south-eastern boundaries to supplement the boundary vegetation. This will include fruit and nut-producing species to benefit birds [REDACTED]
- A wide variety of different tree species are to be planted throughout the arboretum area of the site. This is to include specimens selected for their scientific importance, importance for a future climate, and importance to the UK and global arboricultural, horticultural and landscape industry. Rather than be limited to ~20 native genera the arboretum selection currently includes over 150 genera of trees.
- The intention is to include a collection of all the resistant Elm species within the site (potential food source for White Letter Hairstreak), as well as many other species.

3.3.3 Meadow grassland

A meadow grassland species mix suitable to the soils and local area will be sown beneath the tree planting area between the buildings and existing woodland and throughout the arboretum area. This will be a suitable shade-tolerant grass seed mix such as Emorsgate EH1 (Hedgerow mixture) and/or EW1 (Woodland Mixture), or similar seed mix from an alternative reputable company that guarantees UK provenance.

In more open areas around the buildings and areas of open space within the arboretum, a wildflower meadow grassland seed mix will be sown such as Emorsgate EM2 (standard general purpose), EM4 (meadow mixture for Clay soils) or EM5 (Meadow mixture for Loamy soils), or similar seed mix from an alternative reputable company that guarantees UK provenance.



Green shaded areas: shade-tolerant meadow seed mix to be sown beneath new tree planting (also throughout the arboretum area)

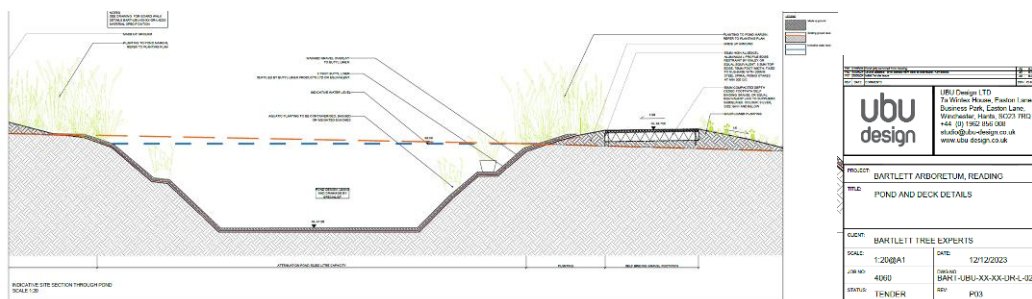
Yellow shaded areas: Wildflower meadow grassland seed mix to be sown (or equivalent wildflower meadow turf)

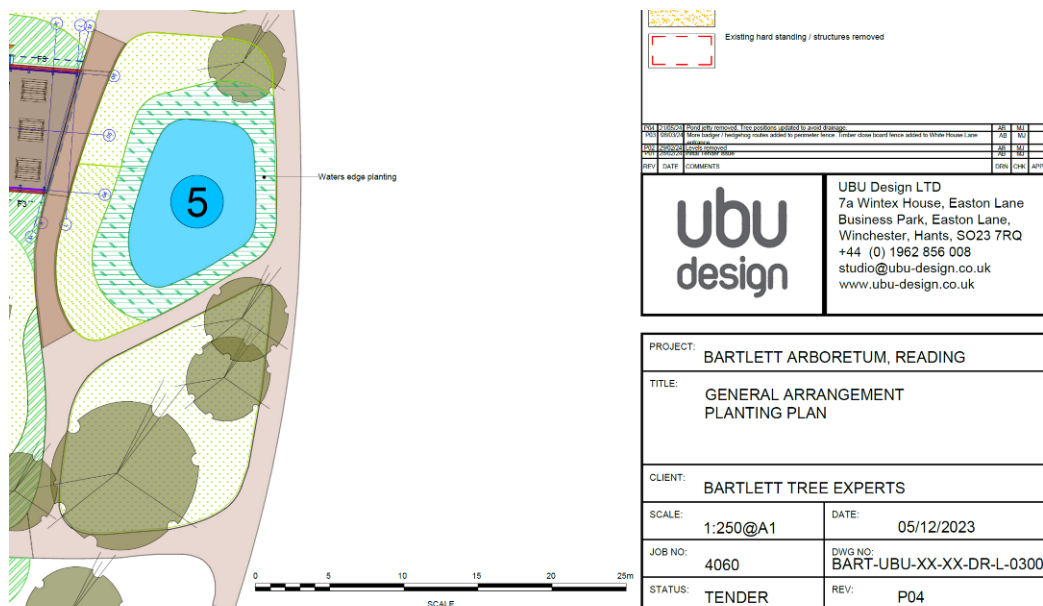
3.3.4 Aquatic Habitat

Attenuation Pond

A new pond will be created for the primary purpose of attenuation and potential fire-fighting, located just to the east of the new buildings. This will be a butyl-lined pond with gravel overlay, with a capacity of 90,000 litres (this would equate to a pond measuring roughly 8m x 10m, with 1.5m depth to the centre and with 45° sloping sides, as indicated in the various plans).

The banks will be gradually sloping, with planting shelves to introduce emergent/marginal species (see diagram below). Floating and submerged aquatic plant species will also be introduced to increase oxygenation, enhance habitat for aquatic invertebrates and provide suitable egg-laying substrate for newts.





Extracted from ubu design – General Arrangement planting plan

Being adjacent to the buildings, the pond planting here will include an ornamental element, with wetland planting around the margins to suit the required aesthetics. However, at least 75% of submerged/floating/emergent species will be native species (of at least UK provenance), selected from the 'indicative native pond planting species list' below.

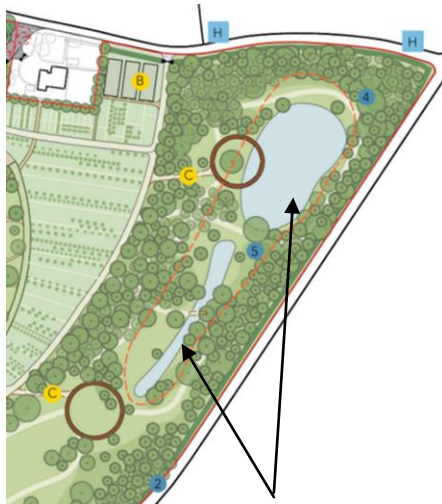
Pond mosaic

In addition, at the north-eastern portion of the site a 'pond mosaic' will be created within the 'arboretum' area. The detail for this area is yet to be devised, but will include the following elements:

- New ponds: one large pond permanently holding water, and other ponds which may be semi-permanent (i.e. may dry out in some years)
- Permanent pond: The size will depend on the need to hold a specific quantity of water for use at the site. However, this will have a surface area of at least 25m², and up to 1.5m deep in centre) with gradually beaching margins and with a range of native aquatic submerged and marginal plants suitable for newt egg laying (see species list below).
- Other semi-permanent pond(s): with broad shallow edges and small deep area (aim for approximate water depth proportions: 80% shallow – less than 0.5m deep and 20% deep – up to 1.2m deep).
- Only native pond plants will be introduced to these ponds (see planting species list below). No non-native species will be introduced.
- The wildflower meadow grassland that will be sown within the arboretum area will extend up to the pond margins with additional native pond-edge planting being added (see species list below).

- No fish will be introduced to any of the ponds.
- Details to achieve these pond specifications on site will be developed following further site survey/testing by a specialist. A management plan will also be devised to maintain the above specifications.
- The management plan will also include the following aims to maximise the potential wildlife value (particularly for Great Crested Newts):
 - the aim will be to achieve a pond surface cover of 60-80% aquatic/emergent vegetation during the summer period (with a third of the pond surface remaining free of floating vegetation) within the large permanent pond.
 - No more than 60% of the pond perimeters (extending to at least 1m from the pond edge) will be subject to shading during the Spring/Summer season.
 - a fringe of marginal and emergent vegetation will be retained around at least half of the pond's edge.
 - The permanent pond will have a shallow, gradually beaching edge (perhaps around 2m in length) that is largely clear of vegetation (to allow for Great Crested Newt mating displays).

(based on GCN Habitat Suitability Index, ARG, 2010; SEPA 2000, Langton et al 2001)



Indicative position of ponds – final details to be devised as part of a later phase.

Indicative native pond planting species list

Submerged species:

Common Starwort *Callitriche stagnalis*,
Water Crowfoot *Ranunculus aquatilis*
Rigid Hornwort *Ceratophyllum demersum*
Curled Pondweed *Potamogeton crispus**
Water Soldier *Stratiotes aloides*

Floating species:

Fringed water-lily *Nymphoides peltata*
Yellow water-lily *Nuphar lutea*
White water-lily *Nymphaea alba*
Frogbit *Hydrocharis morsus-ranae*
Floating sweet-grass *Glyceria fluitans**

Emergent/bankside species:

Bogbean *Menyanthes trifoliata*
Water Plantain *Alisma plantago-aquatica*
Greater Spearwort *Ranunculus lingua*
Water forget-me-not *Myosotis scorpioides**
Brookline *Veronica beccabunga* *
Arrowhead *Sagittaria sagittifolia*
Yellow flag *Iris pseudocorus*
Water mint *Mentha aquatic**
Marsh Marigold *Caltha palustris*
Amphibious bistort *Polygonum amphibium*
Great Willowherb *Epilobium hirsutum* *

Pond Edge species

Purple loosestrife *Lythrum salicaria*
Ragged Robin *Lychnis flos-cuculi*
Soft Rush *Juncus effusus*
Meadowsweet *Filipendula ulmaria*
Marsh Cinquefoil *Potentilla palustris*
Cuckoo flower *Cardamine pratensis*

* species of particular value to Great Crested Newts for egg-laying – at least 3 of these species to be included.

Note: plants to be sourced from local pond management work where possible (e.g. from a nature reserve), or if bought stock is required this will be from suppliers that guarantee the plants are of UK provenance.

3.3.5 Newt Hibernaculum

A specific Newt Hibernaculum will be created at the north-eastern corner of the site, within 10m of the new large permanent pond. (This will be completed during a later phase of the project).

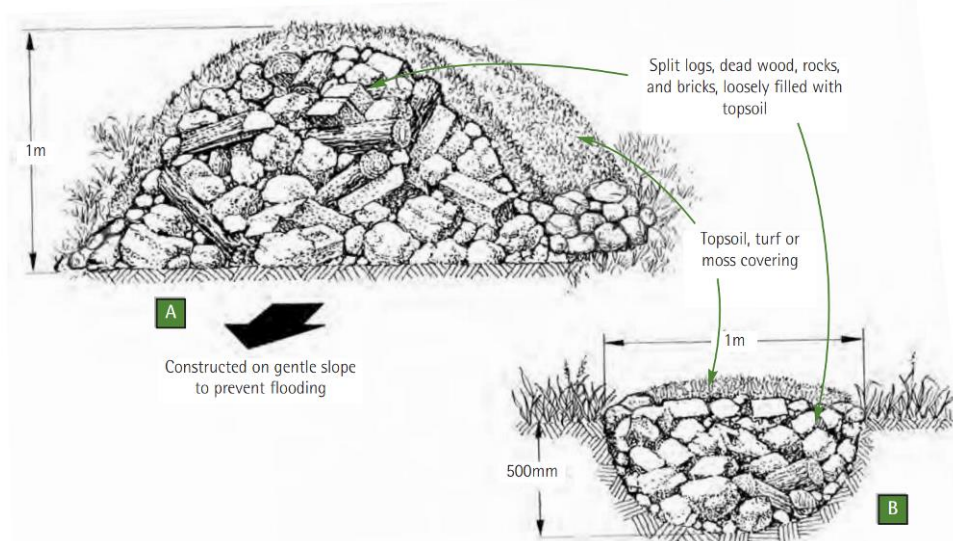
This will be sited in a shaded location amongst trees/shrubs, and close to the boundary vegetation.

The specification is illustrated below (the chosen design will depend on soil type in this part of the site – i.e. free-draining or impermeable).



Indicative position of amphibian hibernaculum (4) (final details for this part of the site to be devised as part of a later phase)

Fig. 8 Great crested newt refuges on (A) impermeable and (B) free-draining soils



Extracted from Great Crested Newt Conservation Handbook, Froglife 2001

3.3.6 Bat/Bird Boxes

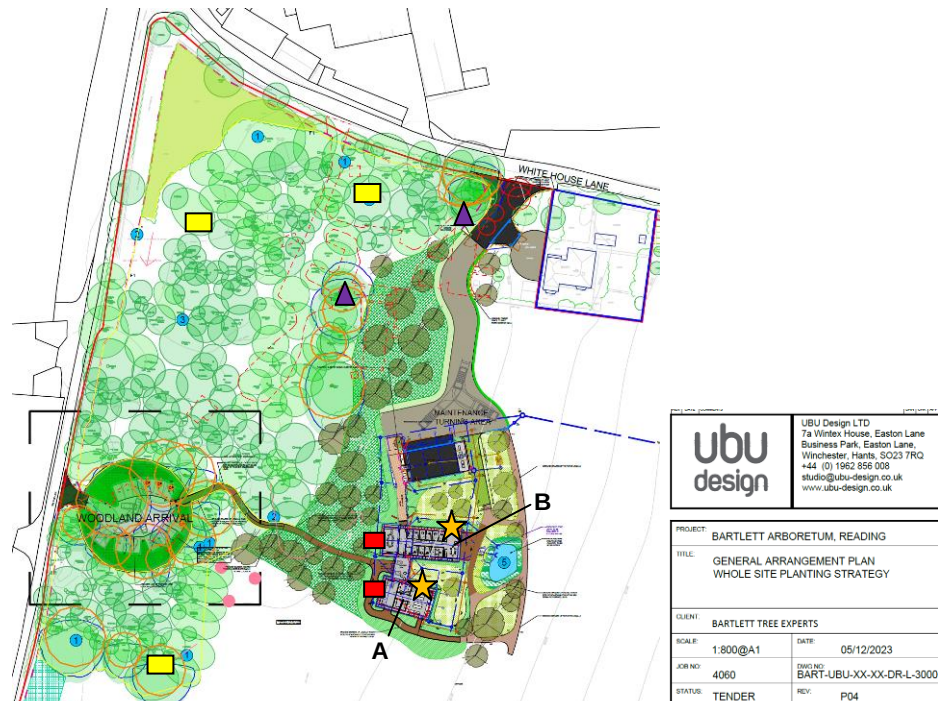
Two bat boxes (Schwegler 2F-DFP) have already been installed on trees at the site as part of the bat license mitigation. These will be retained.

An additional x3 bat boxes will be installed on trees within the woodland area, with suitable locations being selected by the ecologist on site (based on lack of clutter/clear flight routes/least disturbance/absence of lighting).

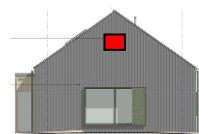
Approximate locations are indicated on the following plan, with boxes being at a height of at least 3m but preferably 4m+. These boxes will be of 'woodcrete' construction for longevity, such as Schwegler 2F/2F-DFP/2FN/1FF, or similar (depending on availability). Each box will be of a different design and will include a cavity box and crevice box.

In addition, integrated bat and bird boxes will be installed within the walls of the new buildings, behind the external cladding. This will include:

- **X2 House Sparrow terrace nest boxes** (e.g. Schwegler 1SP box, Vivaro Pro, or similar woodcrete/woodstone, or bespoke timber design - to be approved by ecologist). Behind timber or zinc cladding.
- **X2 crevice bat boxes** (e.g. Schwegler 1FR bat tube or 1FE / habitat integrated box or similar, or bespoke box constructed with thick untreated, rough timber if required (design to be approved by ecologist)). Behind timber cladding. The integrated boxes will have a design with the entrance hole at the bottom to allow droppings to fall out (to avoid the need for future cleaning out).



Base plan extracted from ubu design 'General Arrangement Plan - Whole Site Planting Strategy'



Building A:
West elevation



Building A: North elevation



Building B:
West elevation



Building B: North elevation

(elevations extracted from SNUG tender documents, May 2024)

- Approx. locations for bat boxes on trees (Schwegler 2F/ 2FN/ 1FF or similar)
- ▲ Location of bat mitigation boxes already installed. To be retained (but with the box by the access road being moved further into the woodland if necessary, depending on final light levels – this is to be advised by ecologist on site. Bat boxes are only to be moved after licensed ecologist confirms no bats are present).
- Integrated bat box behind timber cladding at the top of the building gables.
- ★ Integrated House Sparrow terrace nest box, behind timber (blg A) or zinc cladding (blg B), at the eaves

Future management: Climbing plants are proposed on the walls of the buildings. Management in the long term will ensure growth of these plants does not block the access gaps into the bat/bird boxes by maintaining a clear area around the access hole of at least 30cm.

4.0 References

ARG UK (2010). *Advice Note 5: Great Crested Newt Habitat Suitability Index* (May 2010).

Natural England (2007). [REDACTED] Natural England Technical Information Note TIN026.

English Nature (2001). *Great Crested Newt Mitigation Guidelines* (v. August 2001). English Nature, Peterborough.

English Nature (2002). [REDACTED] Published guidance booklet. English Nature, Peterborough.

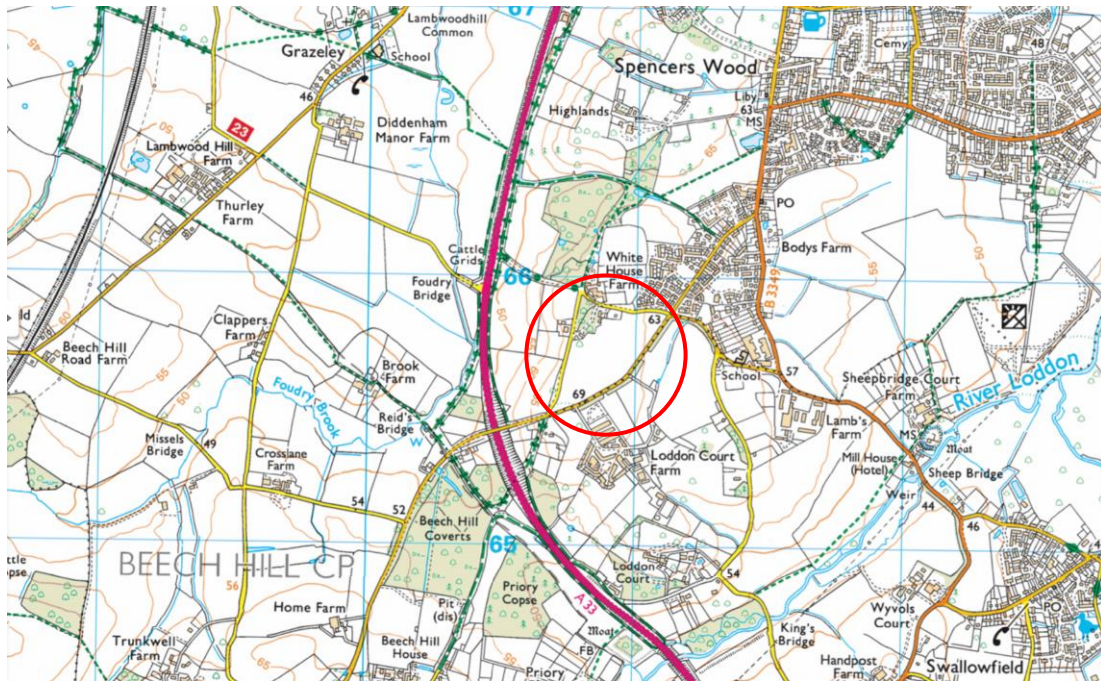
Langton T, Beckett C & Foster J (2001). *Great Crested Newt Conservation Handbook*. Froglife, Halesworth

SEPA (2000). *Ponds, Pools and Lochans*. Scottish Environment Protection Agency.

Reason, PF and Wray, S (2023). *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats*. CIEEM, Ampfield.

Bartlett Arboretum, Whitehouse Farm, Spencers Wood, Berkshire

Map 1 – Site Location



Crown copyright, all rights reserved. Licence numb10003

1km

Appendix I

Woodland Habitat Condition Assessment

*[Additional notes in **RED** indicate enhancements to be achieved via appropriate management, to be detailed within the Woodland Management Plan, in order to result in 'Moderate habitat condition']*

Condition Sheet: WOODLAND Habitat Type			
UK Habitat Classification (UKHab) Habitat Type(s)			
Woodland and forest - Lowland beech and yew woodland Woodland and forest - Lowland mixed deciduous woodland Woodland and forest - Native pine woodlands Woodland and forest - Other coniferous woodland Woodland and forest - Other Scot's pine woodland Woodland and forest - Other woodland; broadleaved Woodland and forest - Other woodland; mixed Woodland and forest - Upland birchwoods Woodland and forest - Upland mixed ashwoods Woodland and forest - Upland oakwood Woodland and forest - Wet woodland			
Habitat Description			
Oak-dominated woodland with large central area cleared of ground flora/understorey. Trees are generally mature, even-aged with small canopies. Several trees are leaning, fallen or hung-up. The western side of the woodland, extending along the roadside, retains more understorey which is dominated by Holly. Very small patch of Bluebells at SW corner, but otherwise any remaining ground flora is dominated by Ivy.			
ukhab – UK Habitat Classification - - - -			
This condition sheet is based on the England Woodland Biodiversity Group (EWBG) Woodland Condition Survey Method, available here: Woodland Wildlife Toolkit (sylva.org.uk) -			

IMPORTANT: This biodiversity metric woodland condition assessment must be used to assess woodland being input into the biodiversity metric. The outputs of this condition assessment are not equivalent to, nor are they comparable with the scores from the EWBG condition assessment, because the EWBG assessment has been adapted for the biodiversity metric, including the removal of EWBG Indicator 7 (Proportion of favourable land cover around woodland) and Indicator 14 (Size of woodland), and minor changes to other indicators.

Site name and location	Whitehouse Farm, Spencers Wood	On-site or off-site	On-site			
Limitations (if applicable)		Survey reference (if relating to a wider survey)				
Grid reference	SU7081 6582	Habitat parcel reference	C			
Condition Assessment Criteria						
Indicator		Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator	Notes (such as justification)
A	Age distribution of trees	Three age-classes ¹ present.	Two age-classes ¹ present.	One age-class ¹ present.	1	All mature (intermediate), even-aged trees Planting/Management to achieve 2 age classes – possible 2 points
B	Wild, domestic and feral herbivore damage	No significant browsing damage evident in woodland ² .	Evidence of significant browsing pressure is present in 40% or less of whole woodland ² .	Evidence of significant browsing pressure is present in 40% or more of whole woodland ² .	1	Lack of young growth suggests deer browsing pressure. Evidence of deer found Deer fencing to be erected which will reduce browsing pressure –

						possible 2/3 points
C	Invasive plant species	No invasive species ³ present in woodland.	Rhododendron <i>Rhododendron ponticum</i> or cherry laurel <i>Prunus laurocerasus</i> not present, other invasive species ³ <10% cover.	Rhododendron or cherry laurel present, or other invasive species ³ >10% cover.	3	
D	Number of native tree species	Five or more native tree or shrub species ⁴ found across woodland parcel.	Three to four native tree or shrub species ⁴ found across woodland parcel.	Two or less native tree or shrub species ⁴ across woodland parcel.	3	10 species in total
E	Cover of native tree and shrub species	>80% of canopy trees and >80% of understory shrubs are native ⁵ .	50 - 80% of canopy trees and 50 - 80% of understory shrubs are native ⁵ .	<50% of canopy trees and <50% of understory shrubs are native ⁵ .	3	All native species

F	Open space within woodland	10 - 20% of woodland has areas of temporary open space ⁶ . Unless woodland is <10ha, in which case 0 - 20% temporary open space is permitted ⁷ .	21 - 40% of woodland has areas of temporary open space ⁶ .	<10% or >40% of woodland has areas of temporary open space ⁶ . But if woodland <10ha has <10% temporary open space, please see Good category ⁷ .	2	Large area has been cleared in the centre Management to achieve 0-20% temporary open space – possible 3 points
G	Woodland regeneration	All three classes present in woodland ⁸ ; trees 4 - 7 cm Diameter at Breast Height (DBH), saplings and seedlings or advanced coppice regrowth.	One or two classes only present in woodland ⁸ .	No classes or coppice regrowth present in woodland ⁸ .	1	mature trees only. No regeneration. No coppice. Woodland management to result in at least 1-2 classes of young trees throughout, indicating regeneration – possible 2-3 points.
H	Tree health	Tree mortality less than 10%, no pests or diseases and no crown dieback ⁹ .	11% to 25% mortality and/or crown dieback or low-risk pest or disease present ⁹ .	Greater than 25% tree mortality and or any high-risk pest or disease present ⁹ .	2	deadwood in canopy and some standing deadwood

I	Vegetation and ground flora	Recognisable NVC plant community ¹⁰ at ground layer present, strongly characterised by ancient woodland flora specialists.	Recognisable woodland NVC plant community ¹⁰ at ground layer present.	No recognisable woodland NVC plant community ¹⁰ at ground layer present.	1	Nettles/Ivy/Cleavers. Management to encourage development of recognisable plant community at ground layer NVC: W10c <i>Quercus robur</i>, <i>Hedera helix</i> sub-comm. – possible 2 points
J	Woodland vertical structure	Three or more storeys across all survey plots or a complex woodland ¹¹ .	Two storeys across all survey plots ¹¹ .	One or less storey across all survey plots ¹¹ .	1	Mainly canopy only. Only some areas with Holly-dominating understorey Management to achieve at least 2 storeys throughout the woodland – possible 2 points
K	Veteran trees	Two or more veteran trees ¹² per hectare.	One veteran tree ¹² per hectare.	No veteran trees ¹² present in woodland.	1	Mature but not veteran trees

Footnotes

Footnotes below refer to the EWBG woodland condition assessment methodology: EWBG (No date). *Assessing your Woodland's Condition* [online]. Available from:

[Woodland Wildlife Toolkit \(sylva.org.uk\)](http://sylva.org.uk)

When applying this condition sheet, good practice would be to use the methodology associated with the EWBG toolkit.

Footnote 1 - See EWBG method INDICATOR 1 for more information. If tree species is not a birch *Betula* sp., cherry *Prunus* sp. or *Sorbus* sp.: 0 – 20 years (Young); 21 - 150 years (Intermediate); and >150 years (Old). For birch, cherry or *Sorbus* species; 0 - 20 years = Young; 21 - 60 years = Intermediate; >60 years = Old. A recognisable age-class should be a consistent recognisable layer across the woodland or stand being assessed. Presence of a few saplings would not indicate that the woodland has an 'age-class' of young trees.

Footnote 2 - See EWBG method INDICATOR 2 for more information. Browsing pressure is considered to be significant where >20% of vegetation visible within each survey plot shows damage from any type of browsing pressure listed.

Footnote 3 - See EWBG method INDICATOR 3 for more information. Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly.

Check for the presence of all plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), particularly the following invasive non-native species: American skunk cabbage *Lysichiton americanus*; Himalayan balsam *Impatiens glandulifera*; Japanese knotweed *Reynoutria japonica*; cherry laurel *Prunus laurocerasus*; shallon *Gaultheria shallon*; snowberry *Symphoricarpos albus*; variegated yellow archangel *Lamium galeobdolon* subsp. *argentatum*; rhododendron *Rhododendron ponticum*; and tree-of-heaven *Ailanthus altissima*.

Footnote 4 - See EWBG method INDICATOR 4 and Table 2 for more information. The number of different native tree or shrub species including young trees and shrubs. A list of commonly found native tree and shrub species is provided in Table 2. Not all species listed are native to all parts of the UK. Note a list of commonly found non-native tree species are also included and should be recorded if present.

Footnote 5 - See EWBG method INDICATOR 5 and for more information. The abundance of native tree species in upper (>5 m) and understorey (up to 5 m) layers including young trees and shrubs.

Footnote 6 - See EWBG method INDICATOR 6 for more information. Open space within woodland in this context is temporary open space in which trees can be expected to regenerate (for example, glades, rides, footpaths, areas of clear-fell). This differs from permanent open space where tree regeneration is not possible or desirable (for example, tarmac, buildings, rivers). Area is at least 10 m wide with less than 20% covered by shrubs or trees.

Footnote 7 – Given the increased ratio of edge habitat to woodland where the woodland is <10ha.

Footnote 8 - See EWBG method INDICATOR 8 for more information. This indicator measures regeneration potential of the woodland by considering three classes: seedlings; saplings; and young trees of 4-7 cm DBH. All three classes would fall in the 'young' category of the 'age distribution of trees' indicator, but the regeneration indicator gathers additional information by considering regeneration potential - if seedlings, saplings and young trees are all present that means natural regeneration processes are happening.

Footnote 9 - See EWBG method INDICATOR 9 for more information and Table 3 for a list of diseases and pests and their risk level.

Footnote 10 - See EWBG method INDICATOR 10 directing to NVC key for more information. The 'UKHab to NVC translation table' in the UK Habitat Classification resources may also be useful to assess this.

Footnote 11 – This criterion looks at structural diversity and is useful to understand in conjunction with the age of trees in a woodland. Vertical structure is defined as the number of canopy storeys present. Possible storey values are: 1) Upper; 2) Complex: recorded when the stand is composed of multiple tree heights that cannot easily be stratified into broad height bands (such as upper, middle or lower); 3) Middle; 4) Lower; and 5) Shrub layer. There might be no storeys where the woodland has been felled. See EWBG INDICATOR 11 for more information.

Footnote 12 - See EWBG method INDICATOR 12 for more information. See gov.uk standing advice on ancient and veteran trees. Available from:

[Keepers of time: ancient and native woodland and trees policy in England \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/61221/ancient-woodland-and-trees-policy.pdf)

and:

[Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/61221/ancient-woodland-and-trees-policy.pdf)

Footnote 13 – See EWBG method INDICATOR 13 for more information. This includes logs, large dead branches on the forest floor and stumps (<1 m tall) >20 cm diameter at narrowest point and >50 cm long. Also includes standing dead trees (>1 m tall) and also deadwood on standing live trees. Diameter is measured at the narrowest point on the stem. Minimum diameter of 20 cm.

Footnote 14 - See EWBG method INDICATOR 15 for more information. Examples of disturbance are: significant nutrient enrichment; soil compaction from trampling, machinery, animal poaching or litter.