Witney Lake and Country Park

2025 Phase 1 Habitat Survey

Prepared for

Witney Town Council

by

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1 Introduction

1.1 Background

This report describes a Phase 1 Habitat Survey of approximately 17ha of land at Witney Lake and Country Park at Witney in Oxfordshire, hereinafter referred to as 'the site'. The study was commissioned by Witney Town Council in April 2025.

1.2 Site description

The site is formed of two parcels of land to the south-east of the town of Witney, located to the north and south of the A40. General descriptions of these parcels are provided below.

Northern parcel: The centre of the northern parcel is located by National Grid Reference SP 36014 08935. The parcel comprises a large publicly-accessible grassland field, Mill Meadow, and marginal habitats bordering two steams of the River Windrush which flow to the east and west of the meadow. There are two smaller fields to the south of this, separated from the main meadow by dense hedgerows, and an area of woodland and scrub extends along the southern boundary of the parcel alongside the highway of the A40.

Southern parcel: The southern parcel of the site is located by National Grid Reference SP 35706 08500 and is located to the south of the A40, south-westwards of the northern parcel. The parcel comprises part of a large lake, Witney Lake, with surrounding woodland and marginal habitats. The parcel is bordered by a stream formed by a continuation of the River Windrush to the east, and by Emma's Dyke watercourse which flows to the west. A strip of woodland forms the northern boundary along the A40.

The location and boundary of the site is shown in the image below.

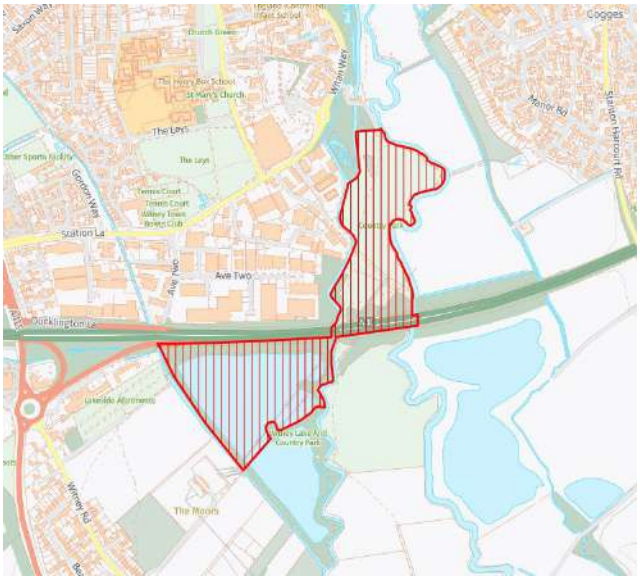

Image 1: Site area shown in red hatch

1.3 Lower Windrush Valley Conservation Target Area (CTA)

The site lies within the Lower Windrush Valley CTA which extends south-eastwards from the centre of Witney beyond Standlake and Northmoor. Oxfordshire Biodiversity Action Plan (BAP) targets associated with this CTA include

1. Mesotrophic / Eutrophic standing waters - management.
2. Lowland Meadows - management, restoration and creation.
3. Ponds - management and creation (particularly of pond complexes).
4. Reedbed (and swamp) - management and creation.
5. Floodplain grazing marsh – management

1.4 Lower Windrush Valley Project

The southern part of the site lies within the northern extent of the Lower Windrush Valley geographical area, as identified by the Lower Windrush Valley Project (LWVP). Within the '*Review of Biodiversity Opportunities in the Lower Windrush Valley'* (LWVP, 2020), the LWVP have identified a series of objectives to further the aim creating and enhancing key habitats within the Valley, including habitats found within the site such as grassland, lakes, ponds, river corridor and hedgerows. These objectives are considered within the recommendations given in Section 5.

1.5 Aims

This study serves as a companion to the Phase 1 Habitat Survey of the remaining areas of Witney Lakes and Country Park, previously carried out in 2021 (Lucas, 2021). It focuses on sections of the nature reserve that were excluded from the earlier survey, aiming to provide a comprehensive overview of the entire reserve when considered together.

The aims of this study are:

- To undertake a Phase 1 Habitat Survey to provide a baseline description of the site;
- To assess the likely nature conservation importance of habitats within the site;
- To identify Habitats of Principal Importance (HPIs) listed under Section 41 of the 2006 NERC Act (formerly identified as priority habitats) occurring within the site;
- To identify any invasive non-native plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) occurring within the site; and
- To outline potential opportunities for ecological enhancement relevant to the habitats and features identified within the site.

2 Methodology

2.1 Phase 1 Habitat Survey

The field survey comprised a Phase 1 Habitat Survey carried out over three visits on 17th, 18th and 20th June 2025. Weather conditions during the survey visits were sunny or partially overcast and mild with either no wind or a light breeze. The survey was conducted by Anna Senior MCIEEM, an experienced ecologist with over 18 years' experience undertaking habitat surveys who holds a Level 4 Field Identification Skills Certificate (FISC) from the Botanical Society of Britain and Ireland (BSBI).

The field survey followed the approach described in the *Handbook for Phase 1 Habitat Survey* (JNCC, 2016). This involved walking over the site, mapping the main habitat types and compiling detailed 'target notes' to record habitat features and a list of vascular plant species, together with a qualitative assessment of relative abundance where appropriate.

All accessible areas of the site were surveyed during the Phase 1 Habitat Survey, with detailed botanical lists recorded for each habitat. This is with the exception of Witney Lake on which a focussed botanical survey was conducted in 2023 (Aquilina Environmental Quality, 2023) and which is therefore outside the scope of this current study.

Habitats and land uses were mapped onto field sheets or a Samsung Galaxy Tab Active3 using Coreo software. The full results of the Phase 1 Habitat Survey, including detailed target notes and species lists, are given in Appendix A. Botanical names follow Stace (2019) for higher plants.

2.2 Evaluation

The evaluation of the site, and the habitats within it, is based on the results of the field survey described above.

Each ecological resource identified during the survey (site, habitat, species, or feature) was assigned a value based on professional judgment, using the geographic scales outlined in the Chartered Institute of Ecology and Environmental Management (CIEEM) *Guidelines for Ecological Impact Assessment* (CIEEM, 2024):

- International
- National
- Regional
- County
- District
- Local
- within immediate zone of influence only (Site/Negligible)

The potential for protected species and HPIs to be present within the site has been assessed on the basis of the habitats and features recorded during the field survey.

2.3 Limitations

There was good accessibility to all areas of the site for survey and the survey was carried out at an appropriate time of year for botanical surveys.

The eastern part of Mill Meadow had been subject to recent management by cutting in advance of the survey visits, and as such it is possible that some grassland species may have been overlooked as a result of this. However, the composition and nature of the habitat recorded suggests that this is unlikely to have significantly constrained the overall assessment of habitat type and quality of this grassland.

The field survey was not subject to any significant constraints and the survey conducted is considered adequate to make a robust assessment of the site's likely nature conservation significance and to form the basis of the evaluation and recommendations provided in Sections 4 and 5 of this report.

3 Results

3.1 Overall Results

The habitats recorded at the site during the 2025 habitat survey are summarised in Table 1 below and illustrated on Figure 1. Corresponding target notes are provided in Figure 2. Detailed target notes and botanical data for each of the recorded habitats is provided in Appendix 1.

Table 1: Phase 1 Habitat areas recorded during the field survey

Phase 1 Habitat	Area (ha)
Broadleaved semi-natural woodland	1.39
Mixed semi-natural woodland	0.61
Broadleaved plantation woodland	0.83
Dense scrub	0.12
Semi-improved neutral grassland	5.51
Amenity grassland	0.62
Tall ruderal vegetation	1.08
Standing water	6.14
Hardstanding	0.61
Hedgerows	293 metres
Total	**16.91**

Habitat descriptions are given below with the northern parcel described first, followed by the southern parcel. Target note numbers relate to the habitat polygons/ features detailed in Appendix 1 and illustrated in Figure 2.

3.2 Northern Parcel: Mill Meadow and Surrounds

Habitats occurring within the northern parcel of the site are described below.

Semi-improved neutral grassland

Target note 1: A large expanse of semi-improved neutral grassland forms the majority of the northern parcel of the site. This is Mill Meadow, a flat, low-lying open and publicly-accessible area of grassland. The grassland contains abundant false oat-grass, frequent meadow brome, and occasional cock's-foot, common couch, hogweed, meadow barley, meadow vetchling, perennial rye-grass, greater plantain, rough-meadow-grass and white clover. A range of other grass and forb species are also found rarely but widespread throughout the sward and include species indicative of neutral grassland such as meadow foxtail, crested dog's-tail and tufted hair-grass.

The eastern part of the field had been recently mown, leaving the grass relatively short, while the western part was uncut and longer. Footpaths cross the field and run along its edges, where the grass is either cut short or worn down, revealing small patches of bare ground. The field edges gradually transition into taller, rougher grassland and scrub. In some areas, particularly along the western edge, scrub encroaches into the field. Occasional scattered scrub species, such as dog-rose and hawthorn, are also present within the field's interior.

Target note 9: A smaller field of species-poor, semi-improved neutral grassland is located to the south of Mill Meadow. This is dominated by false oat-grass and common nettle and supports a higher proportion of ruderal species and fewer grasses than Mill Meadow. Footpaths around the field edges support a slightly different community of more trample-resistant species including ribwort plantain, knotgrass, creeping buttercup and white clover.

Broadleaved semi-natural woodland

Target note 10: Broadleaved semi-natural woodland occurs along the River Windush extending south-westwards from the edge of Mill Meadow. The woodland has scrubby edges, containing dogwood, hazel and goat willow, that transition into taller trees reaching 16–18 m in height towards the south and west, including alder, crack willow and osier. The ground flora is shaded within the woodland interior but is more open at the edges, with ruderal and scrub species dominated by common nettle and also including creeping thistle, cleavers, Yorkshire-fog and wild angelica. Standing and fallen deadwood is frequent throughout.

Mixed semi-natural woodland

Target notes 13 and 15: At the southern edge of the northern part of the site, two areas of mixed woodland occur which appear to be predominantly of semi-natural origin although some planted trees are present. Pine trees occur throughout and other tall standard trees include silver birch, pedunculate oak, ash, hornbeam and a notable line of tall white willow trees which form the western edge of the woodland at Target note 15. The scrub layer is well developed in both areas, comprising predominantly dogwood, wild privet, cherry plum and hazel. Fallen deadwood is frequent throughout and there are signs of disturbance from camping, fires, and vandalism.

Dense scrub

Target note 14: An embankment alongside the northern edge of the A40 supports scrub and young trees including sycamore, hawthorn and bramble.

Target note 16: Patches of scrub are present along stream margin forming the eastern edge of Mill Meadow. These are dominated by hawthorn, elder, and grey willow, with more dense thickets of blackthorn toward the northern end.

Ruderal vegetation

Target note 2: The north-western corner of Mill Meadow is dominated by tall ruderal species with abundant common nettle, hedge bindweed, rough meadow-grass and frequent comfrey. A burnt hay pile is located at its northern end.

Target note 6: A small, wedge-shaped field is located to the south of Mill Meadow. This is dominated by ruderal vegetation, with common nettle as the prevailing species, abundant false oat-grass and frequent cleavers.

Target note 12: A recently cut wayleave is present beneath overhead electric wires to the north of the A40. There are woodchips scattered on the ground and the area supports a good range of low scrub and ruderal species, interspersed with patches of bare ground. Common nettle is dominant, hedge bindweed and cleavers are abundant, and creeping thistle, creeping cinquefoil, and bramble are

frequent.

Target notes 3 and 16: Marginal habitats along the western boundary of Mill Meadow are dominated by ruderal species and long grass with abundant false oat-grass, common nettle and cleavers and frequent hedge bindweed. Along the western edge of Mill Meadow, a narrow strip of tall ruderal vegetation of a similar composition lines the stream along the eastern edge of the meadow although in some areas, the meadow grassland extends up to the water's edge. The river margin also supports occasional patches of marginal plants such as yellow iris, purple-loosestrife, reed sweet-grass, and greater pond-sedge.

Eutrophic standing water (pond)

Target note 4: An artificial scrape is present in the north-western corner of Mill Meadow. This is well-established and contains areas of shallow open water with some patches of marginal vegetation including hemp-agrimony, red sweet-grass and water figwort. The feature is surrounded by long grass and enclosed by stock fencing.

Hedgerows

Two hedgerows are present within the northern part of the site:

Target note 5: This comprises an outgrown but intact, species-poor hedgerow along the southern edge of Mill Meadow. The hedgerow reaches a height of approximately 7m, and hazel is dominant throughout. The hazel appears to have been coppiced in the past, with multiple stems per stool. The hedgerow edges support long grass and ruderal vegetation, with a species composition similar to that described in Target note 1. Cut logs, brash piles, and grass cuttings are scattered along the base of the hedge.

Target note 7: A hedgerow located along the southern edge of the grassland at Target note 6, comprising a defunct, species-poor hedgerow with gaps at the base but a continuous canopy. The hedgerow reaches up to 8 m in height with a shorter section at the eastern end where it passes beneath overhead electric wires. The hedgerow is dominated by field maple and also contains hawthorn, elder and dogwood. Several taller, multi-stemmed trees are present within the hedgerow and bramble scrub is encroaching into the adjacent field to the north.

Scattered trees

Target notes 3 and 16: Lines of mature trees occur along the streams bordering the eastern and western edges of Mill Meadow. These generally include crack willow although alder, ash, walnut and osier are also present.

Target note 21: Several early-mature hawthorn and apple trees are scattered within an area of amenity grassland to the east of the lake in the south of the site, with the grassland mown closely around their bases.

3.3 Southern parcel - Witney Lake and surrounds

Habitats occurring within the southern parcel of the site are described below.

Eutrophic standing water (lake)

Target note 28: The southern part of the site is dominated by the extensive open water of Witney Lake, only the northern half of which falls within the survey site. The lake is used for fishing and is accessed by dogs in places. There are no signs of floating-leaved or emergent aquatic plants visible from the shore however sparse and infrequent patches of marginal vegetation are present at the water's edge. This includes greater pond-sedge, field horsetail, yellow iris, mint, reed canary-grass and bittersweet. For the most part, the shoreline is bordered directly by shrubs and woodland (*Target note 17*) and there is an abrupt transition to the open water. The lake's banks drop steeply into water and appear to provide no gradual slopes or shallow margins suitable to support emergent plants.

Semi-natural broadleaved woodland

Target note 23: The northern edge of the southern parcel along the A40 road edge comprises mature semi-natural broad-leaved woodland. This area appears drier than other woodlands on site, with a dense canopy and scrubby edges. The woodland contains abundant hawthorn and sycamore, and frequent field maple, poplar and hazel, with the tallest trees reaching around 10m in height. The ground layer is sparse due to heavy shading and the most frequent ground flora species include garlic mustard, common nettle and common ivy. Piles of deadwood and brash are common throughout the area.

Target note 25: An avenue of mature trees on the western side of the lake comprises predominantly crack willow and grey willow trees of around 20m in height, as well as several which are collapsed into the lake, and scattered scrub below. The trees on each side generally form a closed canopy above the footpath which passes below.

Plantation broadleaved woodland

Target note 17: The northern and eastern lake margins comprise dense, scrubby broadleaved woodland dominated by willows (crack, grey and goat willows) with less frequent alder, ash, hazel and sycamore. The canopy is largely closed, resulting in very little light reaching the woodland floor and creating a sparse, shaded ground layer. Trees overhang the edge of the nearby lake and small areas of marginal vegetation only occur occasionally in places where the canopy is more open.

Semi-improved neutral grassland

Target note 20: A small, flat area of long grassland occurs at the base of an electricity pole on the eastern edge of the lake, surrounded by narrow mown strips. The grassland is dominated by false oat-grass with abundant cock's-foot and rough meadow-grass and few forbs.

Amenity grassland

Target note 18: A strip of closely mown amenity grassland occurs to both sides of a footpath that encircles the lake. The grassland occasionally extends to the lake edge, particularly around occasional benches and at fishing access points. The grassland has a tight, low sward and supports plant species typical of managed, fertile lawns including perennial rye-grass, white clover, ground-ivy, cock's-foot and cow parsley.

Marginal vegetation

Target note 19: A continuation of the River Windrush flows alongside the eastern margin of the

southern parcel of the site. It is generally shaded by trees and scrub from the adjacent woodland, but in some areas there are diverse and well-developed stands of marginal vegetation including species such as hemp-agrimony, meadowsweet, reed sweet-grass, Himalayan balsam, yellow iris, purple-loosestrife and great yellow-cress.

Target note 24: Emma's Dyke is an off-site stream adjacent to the western boundary of the southern parcel of the site. The stream is approximately 6m wide with natural earth banks and some extensive stands of emergent and marginal vegetation.

Ruderal vegetation

Target note 26: Patches of unmanaged tall ruderal vegetation occur on the eastern edge of Emma's Dike. These typically include false oat-grass, common nettle, great willowherb, red dead-nettle, broad-leaved dock, mugwort and hedge bindweed.

Other habitats

Other habitats recorded in the southern part of the site include a gravel footpath encircling the lake, this is generally 2-4m wide and well used by the general public, particularly by dog-walkers. There is a small sown wildflower meadow located in a shaded location just off the path to the north-east of the lake. It contains a mix of predominantly non-native species such as crimson flax, sweet Alison and Virginia Stock, and is beginning to be colonised by invading garlic mustard.

A culvert occurs beneath the A40 (*Target note 11*), carrying the River Windrush with a southwards flow. The river is approximately 8m wide at this point with a rapid flow. No vegetation occurs below the culvert. A hardstanding platform occurs at the western end of the site alongside Emma's Dyke where a second similar culvert is located.

4 Evaluation

4.1 Habitats

Habitats of Principal Importance

The following habitats recorded during the site survey are considered to be Habitats of Principal Importance (HPIs) for the conservation of biodiversity in England under Section 41 of the NERC Act 2006:

- Witney Lake which qualifies as a eutrophic standing water.
- The broadleaved semi-natural woodland along the River Windrush and bordering the A40 in the south of the site, which qualify as lowland mixed deciduous woodland.
- The broadleaved plantation woodland fringing Witney Lake and semi-natural mixed woodlands which have sections that are also likely to qualify as lowland mixed deciduous woodland.
- The pond in Mill Meadow may also qualify as a HPI under the 'pond' criteria if it supports a population of a Species of Principal Importance (e.g. common toad), a species protected under the Wildlife and Countryside Act (e.g. grass snake) or a European protected species (e.g. great crested newt).
- The hedgerows in the northern parcel of the site (Target Notes 5 and 7).
- The River Windrush and Emma's Dyke flowing adjacent to the site which qualify as rivers.

Individually, the woodlands, lake and rivers offer substantial areas of semi-natural habitat with potential value for a wide range of species. Collectively, along with their associated tree lines and marginal habitats, they form key elements of a well-connected green corridor through Witney and the wider Lower Windrush Valley, and are considered to be of up to district-level value in combination.

The hedgerows and pond are likely to provide habitat to a range of species and contribute to the overall resource of the site, however as these features are more easily replaceable and less integral to the overall functioning of the habitat corridor they are considered to be of no more than local value in their own right.

Other habitats

The neutral grassland fields in the northern part of the site are considered to be of local value. Meadows are a declining habitat in England and in some instances species-rich examples may qualify as lowland meadow or coastal and floodplain grazing marsh HPIs. The grassland fields, in particular Mill Meadow, have potential for restoration into more species-rich, higher-value habitats. At present, they are likely to support a variety of wildlife and significantly contribute to the ecological value of the site and the wider ecological corridor.

The areas of dense scrub, ruderal vegetation, amenity grassland, sown wildflower meadow and hardstanding are considered to be of negligible biodiversity value.

4.2 Species

Vascular plants

All plant species recorded during the survey are common and widespread and no protected or notable plant species were found. The habitats recorded during this study are considered unlikely to support any notable populations or assemblages of plants. This is with the exception of Witney Lake which is noted as being of importance for vascular plants and stoneworts (Aquilina Environmental Quality, 2023) and it is understood this was the subject of a separate detailed survey in 2023.

Schedule 9 species

An invasive non-native species is any non-native animal or plant that has the ability to spread causing damage to the environment. Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to plant or otherwise cause to grow in the wild invasive non-native plants listed on Schedule 9 of the Act.

One Schedule 9 plant species, Himalayan balsam, was recorded in several locations across the site, with particular concentrations recorded along the margins of the River Windrush. This species is widespread within the surrounding landscape and efforts to eradicate from the site in isolation are unlikely to succeed. Echoing the recommendations of the earlier Phase 1 Habitat Survey which covered sections of the River Windrush (Lucas, 2021), any local eradication measures for Himalayan balsam should be coordinated with a broader, landscape-scale initiative if and when one is established. In the meantime, it is recommended that all contractors working on-site should adhere to strict biosecurity measures to prevent the plant's spread—most importantly, thoroughly cleaning all equipment and clothing to avoid transferring seeds or plant fragments to other locations.

Chalara ash dieback

There are a number of ash trees within the site, some of which show signs of the effects of *Chalara* ash dieback disease. In line with the recommendations of the earlier Phase 1 Habitat Survey of the wider reserve (Lucas, 2021), the presence of this disease in trees around the site should be monitored to ensure that dead or dying trees do not become a danger to visitors. Forest Research advise that '*With the exceptions of felling for public safety or timber production, we advise a general presumption against felling living ash trees, whether infected or not. This is because there is good evidence that a small proportion will be able to tolerate H. fraxineus infection. There is also the possibility that a proportion of ash trees can become diseased, but then recover to good health. These, too, would be valuable for our research, although it is still too early to know whether there are such trees in the British ash population'*. For further information see https://www.forestresearch.gov.uk/tools-and-resources/fthr/pest-and-disease-resources/ash-dieback-hymenoscyphus-fraxineus/ (accessed July 2025) and the Forestry Commission information leaflet '*Managing Ash Dieback in England*' (Forestry Commission, 2019).

Scope of survey

The scope of the survey was limited to the identification of vascular plants and habitats, and

therefore did not constitute a survey for protected or notable species such as mammals, reptiles, birds, or amphibians. While the site contains suitable habitats for a range of protected species, the presence or likely presence of these species have not been assessed as part of this report

4.3 Evaluation Summary

The site supports several HPIs (e.g. eutrophic standing waters, lowland mixed deciduous woodland, rivers, and hedgerows), contributing to a valuable green corridor of up to district-level importance. Hedgerows, a pond, and grasslands offer local ecological value and in particular the grasslands show potential for habitat enhancement.

Himalayan balsam (a Schedule 9 invasive species) is present and requires coordinated control and biosecurity measures. Some ash trees show signs of *Chalara* ash dieback and further monitoring is advised. No other notable plant species were recorded.

5 Recommendations

5.1 Overview

All management activities at the site should aim to contribute to the targets of the Lower Windrush Valley CTA which covers the site, and the objectives of the LWVP which cover the southern part of the site. A selection of measures is identified below that could potentially increase the nature conservation interest of the site and provide new opportunities for wildlife. This takes into account the need to maintain the amenity value of the site as well as the aforementioned CTA targets and LWVP objectives.

Grassland habitats

- It is recommended that the grassland within Mill Meadow, and where appropriate, the smaller grassland fields to the south of this, are managed to enhance structural and species diversity which would in turn provide benefits for invertebrates, reptiles and other wildlife. In line with research-informed guidance for restoration and management of grasslands (Blakesley & Buckley, 2016), an outline methodology for achieving these aims could include:
  - Soil testing of the grassland to assess nutrient levels, evaluate the potential for botanical enhancement in restoration efforts, guide the selection of suitable seed mixes, and support informed future management decisions.
  - Introduce new native grassland species appropriate to the local soil and conditions, ideally through green hay or seed from nearby species-rich donor sites or alternatively through an appropriate commercial seed mix.
  - Ensure no fertiliser or pesticides are added to the grassland and aim to reduce nutrient levels through removal of cuttings after mowing.
  - Implement a low-intensity grazing or cutting regime to maintain sward structure. If cutting is used, the grassland should be cut once or twice annually (typically late July and early September) and 10–20% should be left uncut each year to create structural diversity.
  - Ensure small gaps and are patches are available within the sward to allow seedling establishment. This should occur naturally through grazing but if cutting is used it may be appropriate to scarify or lightly disturb small areas.
  - Identify and selectively manage species such as thistles, docks, or nettles through hand pulling or spot-treatment with herbicide.
  - Monitor annually to record species composition and adjust management accordingly.
- Within Mill Meadow and elsewhere within the site, a 2-5m strip of grassland immediately adjacent to hedgerows, scrub and woodland habitats could be managed through cutting only once every 2-3 years (cutting no more than 50% in any one year) in order to establish a rough tussocky sward benefiting reptiles and invertebrates.
- Any grassland areas not covered by the above management methodology could be managed to prevent succession by scrub and tree species.

Woodland habitats

- Woodland composition could be enhanced through phased removal of existing areas of non-native conifers, particularly within the mixed woodland to the north of the A40, and replacement with new mixed native woodland planting.
- If sycamore trees are found to be becoming over-dominant within the semi-natural broadleaved woodland area south of the A40, these could also be felled to provide opportunities for saplings of native tree species to establish or new tree planting.
- Similarly, any ash trees felled for *Chalara* ash dieback management could be replaced with new native tree planting.
- Areas of mixed and broadleaved woodland throughout the site would benefit from management by coppicing to improve longevity of trees and enhance structural diversity. Coppicing and pollarding of suitable specimens across the woodland areas could be carried out, with groups of trees divided into compartments and managed on rotation, in order to create a diverse woodland structure and provide enhanced habitat for a range of species.
- Similarly, a sub-canopy of native shrub species could be enhanced through planting and natural regeneration of species (such as hazel, hawthorn and bramble) which, where appropriate, could be included in the coppicing regime as these mature.
- A series of open glades could be created within woodland areas through selective thinning of other trees and understorey vegetation. These areas could be maintained through management of scrub edges to increase the resource of high-value woodland edge.
- Where appropriate, native scrub habitats could also be established around retained woodland edges to create a structurally diverse gradation from woodland to scrub to rough grassland, which are noted for their high biodiversity value.

Wetland habitats

- Selective thinning of overshading vegetation from around the lake edges and riverbanks could be carried out to increase light levels along wetland margins and encourage the establishment of more diverse aquatic and marginal vegetation, with the aim of achieving an optimum mix of 40% shade and 60% light.
- Marginal and aquatic vegetation could generally be left to establish naturally within the rivers however, if appropriate, planting could be carried out around the lake edge on coir rolls in places where natural ledges are not available.
- The existing pond in Mill Meadow could be managed to maintain areas of open water and avoid being choked by marginal plant growth.
- Arisings from pond management and other vegetation management around the site could be used to create brash piles adjacent to the pond suitable for hibernating amphibians and breeding grass snake.
- Other new ponds and scrapes could be created within existing grassland areas to complement the existing aquatic habitats already present and to offer a complex of wetland habitats suitable for breeding amphibians.
- Any new wetlands should be of wildlife-friendly design, including gently shelving margins

and native aquatic/marginal planting.

Hedgerows

- Where appropriate, the existing hedgerows could be trimmed every 2-3 years on a rotational cutting scheme, with no more than one third of hedges trimmed within the same 12 months. This would encourage bushier hedges and fruiting of hedgerow plants.
- Hedgerows could be trimmed between January and February, allowing the majority of hedgerow fruits to be eaten by birds and other wildlife prior to cutting.
- Existing standard trees within the hedgerows could be maintained and, where appropriate, other hedgerow plants could be excluded from the cutting regime in order to eventually provide new mature trees.

Other opportunities for wildlife

A selection of new opportunities for wildlife could be provided within the site including:

- Standing and fallen deadwood habitats could be maintained and enhanced where safe to do so, including use of management techniques such as veteranisation of selected retained mature trees to promote deadwood.
- New bat roosting opportunities and bird boxes could be provided on new and existing buildings and existing mature trees.
- New purpose-built hibernacula could be constructed within areas of suitable reptile habitat to provide additional refuge and hibernation opportunities for reptiles.
- Log and brash piles could be created using arisings from woodland/ scrub maintenance works, located along woodland, scrub and heathland edges, within rough grassland and alongside wetland areas.

6 Conclusion

The site is a valuable site for biodiversity located within the northern part of the Lower Windrush Valley, Oxfordshire. The site contains a variety of habitats which provide a resource of up to up to district value.

This report outlines the current habitat composition and highlights opportunities to enhance ecological value through targeted habitat creation, restoration, and ongoing management, supporting both local and wider landscape-scale conservation objectives.

7 References

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Figures

Figure 1: Phase 1 Habitats at Witney Lake & Country Park

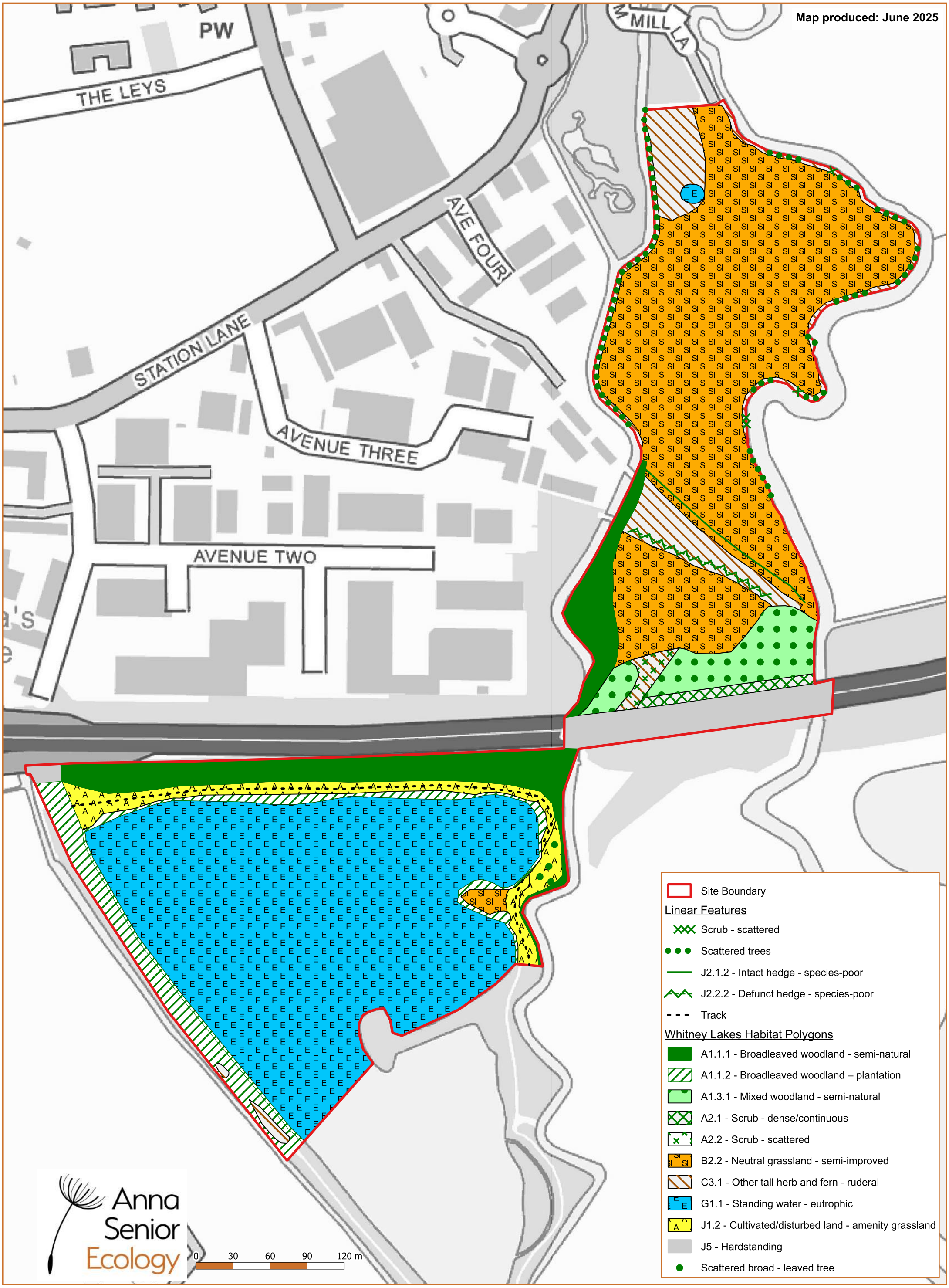
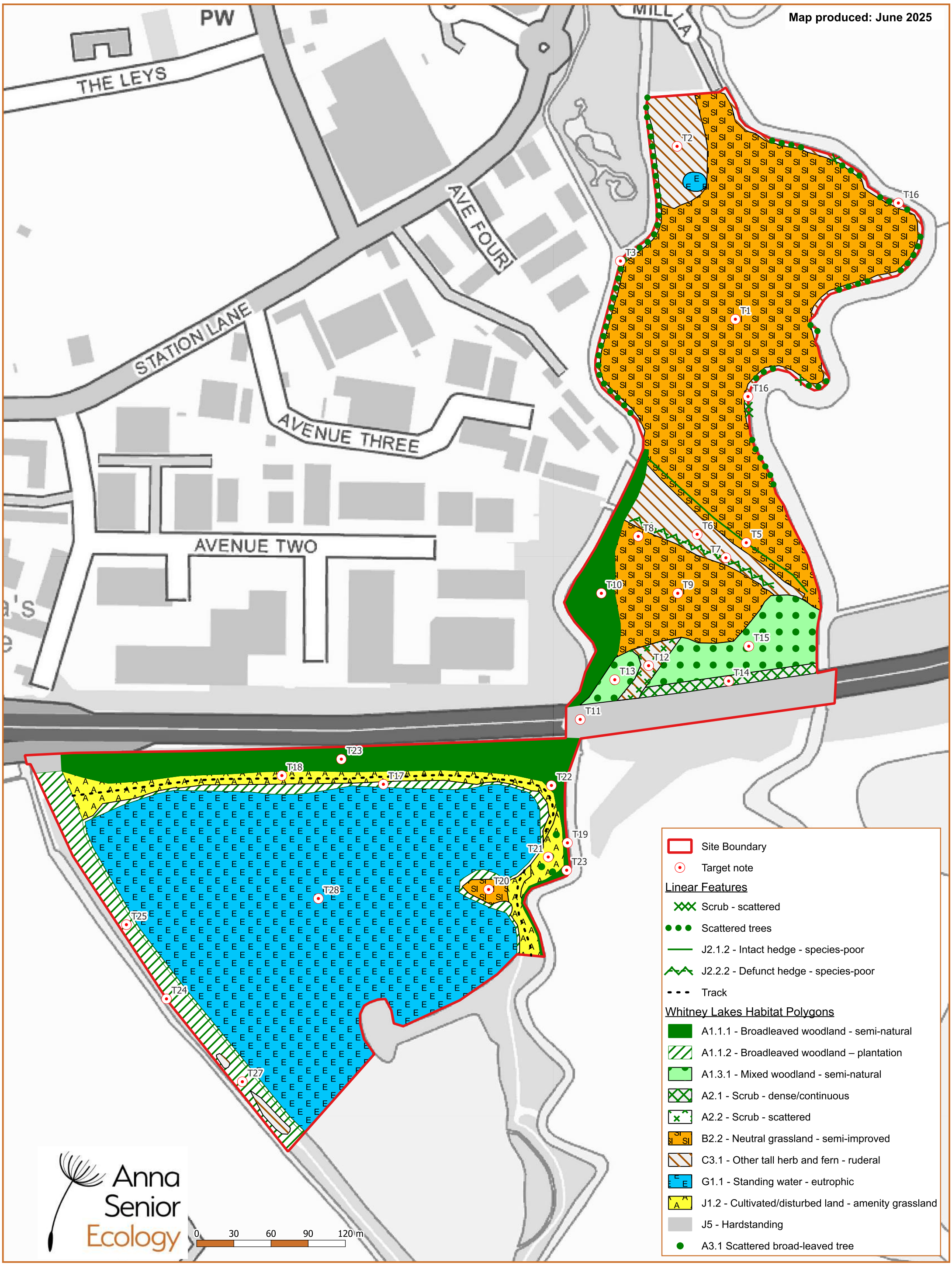


Figure 2: Phase 1 Habitat Polygons and Features at Witney Lake & Country Park



Appendix 1: Target Notes and Species Lists

Target Note 1.
B.2.2 Neutral grassland - semi-improved

Central grid ref: SP 36045 08986 **Area:** 4.604ha

Description: Mill Meadow- a flat, low-lying grassland field bordered by rivers on both the east and west sides. The eastern section has been recently mown, leaving the grass relatively short, while the western side remains uncut and longer. Footpaths cross the field and run along its edges, where the grass is either cut short or worn down, creating small patches of bare ground. The field edges gradually transition into taller, rougher grassland and scrub. In some areas—particularly along the western edge—scrub encroaches into the field. Occasional scattered scrub species, such as dog-rose and hawthorn, are also present within the field's interior.

Scientific name	Common name	Abundance
Agrostis stolonifera	Creeping Bent	rare
Alopecurus pratensis	Meadow Foxtail	rare
Arrhenatherum elatius	False Oat-grass	abundant
Bromus commutatus	Meadow Brome	frequent
Carex hirta	Hairy Sedge	rare
Centaurea nigra	Common Knapweed	rare
Cirsium arvense	Creeping Thistle	rare
Cirsium vulgare	Spear Thistle	rare
Crataegus monogyna	Hawthorn	rare
Cynosurus cristatus	Crested Dog's-tail	rare
Dactylis glomerata	Cock's-foot	occasional
Deschampsia cespitosa	Tufted Hair-grass	rare
Elymus repens	Common Couch	occasional
Epilobium hirsutum	Great Willowherb	rare
Festuca rubra	Red Fescue	rare
Galium verum	Lady's Bedstraw	rare
Geranium dissectum	Cut-leaved Crane's-bill	rare
Helminthotheca echioides	Bristly Oxtongue	rare
Heracleum sphondylium	Hogweed	occasional
Holcus lanatus	Yorkshire-fog	rare
Hordeum secalinum	Meadow Barley	occasional
Humulus lupulus	Hop	rare
Jacobaea vulgaris	Common ragwort	rare
Lathyrus pratensis	Meadow Vetchling	occasional
Lolium perenne	Perennial Rye-grass	occasional
Persicaria amphibia	Amphibious Bistort	rare
Phleum pratense	Timothy	rare
Plantago lanceolata	Ribwort Plantain	rare
Plantago major	Greater Plantain	occasional
Poa pratensis	Smooth Meadow-grass	rare
Poa trivialis	Rough Meadow-grass	occasional
Potentilla reptans	Creeping Cinquefoil	rare

Ranunculus acris	Meadow Buttercup	rare
Ranunculus repens	Creeping Buttercup	rare
Rhinanthus minor	Yellow-rattle	rare
Rosa canina	Dog-rose	rare
Rumex acetosa	Common Sorrel	rare
Rumex crispus	Curled Dock	rare
Rumex obtusifolius	Broad-leaved Dock	rare
Schedonorus arundinaceus	Tall Fescue	rare
Sonchus asper	Prickly Sow-thistle	rare
Trifolium repens	White Clover	occasional
Urtica dioica	Common Nettle	rare

Target Note 2.
C3.1 Other tall herb and fern - ruderal

Central grid ref: SP 36004 09115 **Area:** 0.321ha

Description: A corner of the grassland field is dominated by tall ruderal species, and a burnt hay pile is located at its northern end.

Scientific name	Common name	Abundance
Alopecurus pratensis	Meadow Foxtail	occasional
Angelica sylvestris	Wild Angelica	occasional
Arrhenatherum elatius	False Oat-grass	frequent
Calystegia sepium	Hedge Bindweed	abundant
Cirsium arvense	Creeping Thistle	occasional
Dactylis glomerata	Cock's-foot	occasional
Elymus repens	Common Couch	frequent
Poa trivialis	Rough Meadow-grass	abundant
Rumex crispus	Curled Dock	frequent
Sonchus asper	Prickly Sow-thistle	frequent
Stachys palustris	Marsh Woundwort	rare
Symphytum sp.	Comfrey	frequent
Urtica dioica	Common Nettle	abundant

Target Note 3.
C3.1 Other tall herb and fern – ruderal / tree line

Central grid ref: SP 35967 09023 **Area:** 0.108ha

Description: A stream running along the western boundary of Target Note 1, measuring up to 6 metres in width and flowing southwards. Its eastern bank is lined with a row of mature trees, including crack willow, ash, and osier, reaching heights of up to 10m and overhanging the watercourse. Along the western bank, there is some patchy scrub composed of hawthorn and grey willow, although the margin on both sides is dominated by ruderal species and long grass. The stream has steep earth banks, which are artificially reinforced in areas where built development directly borders the watercourse on the eastern side.

Scientific name	Common name	Abundance
Arrhenatherum elatius	False Oat-grass	abundant
Calystegia sepium	Hedge Bindweed	frequent
Chamaenerion angustifolium	Rosebay Willowherb	rare

Cirsium arvense	Creeping Thistle	rare
Crataegus monogyna	Hawthorn	abundant
Fraxinus excelsior	Ash	rare
Galium aparine	Cleavers	abundant
Hedera helix	Common Ivy	rare
Phragmites australis	Common Reed	rare
Rubus fruticosus agg.	Bramble	occasional
Rumex obtusifolius	Broad-leaved Dock	rare
Salix cinerea	Grey Willow	occasional
Salix fragilis	Crack Willow	dominant
Salix viminalis	Osier	abundant
Sambucus nigra	Elder	rare
Symphytum sp.	Comfrey	occasional
Urtica dioica	Common Nettle	abundant

Target Note 4.
G1.1 Standing water - eutrophic

Central grid ref: SP 36012 09085 **Area:** 0.024ha

Description: An artificial scrape containing areas of shallow open water with some patches of marginal vegetation. The feature is surrounded by long grass and enclosed by stock fencing.

Scientific name	Common name	Abundance
Angelica sylvestris	Wild Angelica	occasional
Arrhenatherum elatius	False Oat-grass	dominant
Calystegia sepium	Hedge Bindweed	abundant
Cirsium arvense	Creeping Thistle	occasional
Eupatorium cannabinum	Hemp-agrimony	frequent
Glyceria maxima	Reed Sweet-grass	occasional
Humulus lupulus	Hop	rare
Rumex crispus	Curled Dock	abundant
Scrophularia auriculata	Water Figwort	occasional
Symphytum sp.	Comfrey	abundant
Typha latifolia	Bulrush	frequent

Target Note 5.
J.2.1.2 Hedgerow-intact-species-poor

Central grid ref: SP 36036 08813 **Length:** 168m

Description: An outgrown but intact, species-poor hedgerow reaching a height of approximately 7m, with hazel dominant throughout. The hazel appears to have been coppiced in the past, with multiple stems per stool. To the south, a margin of long grassland and ruderal vegetation is present, apparently managed as a scalloped edge to enhance habitat for reptiles along the adjacent footpath. The northern margin also supports long grass and ruderals, with a species composition similar to that described in Target note 1. Cut logs, brash piles, and grass cuttings are scattered along the base of the hedge.

Scientific name	Common name	Abundance
Acer campestre	Field Maple	abundant
Convolvulus arvensis	Field Bindweed	frequent

Cornus sanguinea	Dogwood	frequent
Corylus avellana	Hazel	dominant
Crataegus monogyna	Hawthorn	occasional
Lactuca serriola	Prickly Lettuce	rare
Prunella vulgaris	Selfheal	rare
Rumex crispus	Curled Dock	frequent
Salix cinerea	Grey Willow	rare
Sonchus asper	Prickly Sow-thistle	abundant
Urtica dioica	Common Nettle	dominant

Target Note 6.
C3.1 Other tall herb and fern – ruderal

Central grid ref: SP 35998 08818 **Area:** 0.374ha

Description: A small, wedge-shaped field dominated by ruderal vegetation, with common nettle as the prevailing species. The absence of scrub in the interior of the field suggests the field is managed by occasional cutting.

Scientific name	Common name	Abundance
Anthriscus sylvestris	Cow Parsley	occasional
Arctium sp.	Burdock	occasional
Arrhenatherum elatius	False Oat-grass	abundant
Cirsium arvense	Creeping Thistle	occasional
Galium aparine	Cleavers	frequent
Heracleum sphondylium	Hogweed	rare
Matricaria discoidea	Pineappleweed	rare
Persicaria maculosa	Redshank	rare
Plantago major	Greater Plantain	rare
Polygonum aviculare	Knotgrass	rare
Urtica dioica	Common Nettle	dominant

Target Note 7.
J.2.2.2 Hedgerow-defunct-species-poor

Central grid ref: SP 36032 08783 **Length:** 125m

Description: A defunct, species-poor hedgerow with gaps at the base but a continuous canopy, reaching up to 8m in height. The eastern end is shorter where it passes beneath overhead electric wires. Several taller, multi-stemmed trees are present and bramble scrub is encroaching into the adjacent field to the north.

Scientific name	Common name	Abundance
Acer campestre	Field Maple	dominant
Cornus sanguinea	Dogwood	occasional
Corylus avellana	Hazel	rare
Crataegus monogyna	Hawthorn	dominant
Geum urbanum	Wood Avens	rare
Rubus fruticosus agg.	Bramble	frequent
Sambucus nigra	Elder	rare
Sisymbrium officinale	Hedge Mustard	rare

Target Note 8.
C3.1 Other tall herb and fern – ruderal

Central grid ref: SP 35981 08798 **Area:** N/A

Description: Piles of cut vegetation are present at the base of Hedgerow 7, which are promoting the growth of additional ruderal vegetation.

Scientific name	Common name	Abundance
Chenopodium album	Fat-hen	rare
Lamium album	White Dead-nettle	rare
Sonchus asper	Prickly Sow-thistle	frequent
Symphytum sp.	Comfrey	occasional
Urtica dioica	Common Nettle	dominant

Target Note 9.
B.2.2 Neutral grassland - semi-improved

Central grid ref: SP 36004 08760 **Area:** 0.846ha

Description: A grassland field dominated by false oat-grass and common nettle. Shallow channels run through the centre of the area, supporting a higher proportion of ruderal species and fewer grasses. Footpaths around the field edges support a slightly different community of more trample-resistant species.

Scientific name	Common name	Abundance
Arrhenatherum elatius	False Oat-grass	dominant
Carex hirta	Hairy Sedge	rare
Cirsium arvense	Creeping Thistle	rare
Convolvulus arvensis	Field Bindweed	abundant
Dactylis glomerata	Cock's-foot	occasional
Deschampsia cespitosa	Tufted Hair-grass	rare
Epilobium hirsutum	Great Willowherb	occasional
Galium aparine	Cleavers	occasional
Heracleum sphondylium	Hogweed	rare
Hordeum secalinum	Meadow Barley	rare
Jacobaea vulgaris	Common ragwort	occasional
Odontites vernus	Red Bartsia	rare (on footpaths)
Plantago lanceolata	Ribwort Plantain	frequent (on footpaths)
Poa trivialis	Rough Meadow-grass	frequent
Polygonum aviculare	Knotgrass	occasional (on footpaths)
Ranunculus repens	Creeping Buttercup	frequent (on footpaths)
Rumex obtusifolius	Broad-leaved Dock	rare
Sonchus asper	Prickly Sow-thistle	rare
Trifolium repens	White Clover	frequent (on footpaths)
Urtica dioica	Common Nettle	frequent

Target Note 10.
A1.1.1 Broadleaved woodland – semi-natural

Central grid ref: SP 35949 08721 **Area:** 0.405ha

Description: Semi-natural woodland with scrubby edges that transition into taller trees reaching

16–18m in height towards the south and west. The ground flora is shaded within the woodland interior but becomes more open at the edges, with ruderal and scrub species dominating. Standing and fallen deadwood is frequent throughout.

Scientific name	Common name	Abundance
Angelica sylvestris	Wild Angelica	occasional
Alnus glutinosa	Alder	frequent
Cirsium arvense	Creeping Thistle	occasional
Cornus sanguinea	Dogwood	abundant
Corylus avellana	Hazel	abundant
Galium aparine	Cleavers	frequent
Holcus lanatus	Yorkshire-fog	occasional
Rumex obtusifolius	Broad-leaved Dock	rare
Salix caprea	Goat Willow	occasional
Salix fragilis	Crack willow	abundant
Salix viminalis	Osier	rare
Sambucus nigra	Elder	rare
Urtica dioica	Common Nettle	dominant

Target Note 11.
Culvert

Central grid ref: SP 35936 08645 **Area:** N/A

Description: A concrete culvert runs beneath the A40, carrying the river flowing southwards. The river is approximately 8m wide with a rapid flow. No vegetation occurs below the culvert.

Target Note 12.
C3.1 Other tall herb and fern – ruderal

Central grid ref: SP 35986 08684 **Area:** 0.089ha

Description: A recently cut wayleave beneath overhead electric wires, with woodchips scattered on the ground. The area supports scattered a good range of scrub and ruderal vegetation, interspersed with patches of bare ground.

Scientific name	Common name	Abundance
Acer campestre	Field Maple	occasional
Anthriscus sylvestris	Cow Parsley	occasional
Arctium sp.	Burdock	occasional
Calystegia sepium	Hedge Bindweed	abundant
Carex hirta	Hairy Sedge	rare
Cirsium arvense	Creeping Thistle	frequent
Cirsium palustre	Marsh Thistle	rare
Dactylis glomerata	Cock's-foot	rare
Dipsacus fullonum	Wild Teasel	rare
Galium aparine	Cleavers	abundant
Glechoma hederacea	Ground-ivy	occasional
Helminthotheca echioides	Bristly Oxtongue	rare
Heracleum sphondylium	Hogweed	occasional
Juncus inflexus	Hard Rush	occasional
Ligustrum vulgare	Wild Privet	occasional

Myosotis sylvatica	Wood Forget-me-not	rare
Potentilla reptans	Creeping Cinquefoil	frequent
Ranunculus repens	Creeping Buttercup	occasional
Rubus fruticosus agg.	Bramble	frequent
Rumex crispus	Curled Dock	occasional
Rumex obtusifolius	Broad-leaved Dock	rare
Rumex sanguineus	Wood Dock	rare
Salix cinerea	Grey Willow	occasional
Scrophularia auriculata	Water Figwort	rare
Stellaria aquatica	Water Chickweed	rare
Symphytum sp.	Comfrey	rare
Urtica dioica	Common Nettle	dominant

Target Note 13.
A1.3.1 Mixed woodland – semi-natural

Central grid ref: SP 35970 08687 **Area:** 0.097

Description: Woodland comprising a mix of coniferous and broadleaved trees, with standard mature trees and scattered scrub in the shrub layer. The ground flora is heavily dominated by ruderal species, with areas of bare ground. Several fallen trees are present.

Scientific name	Common name	Abundance
Betula pendula	Silver Birch	occasional
Cornus sanguinea	Dogwood	abundant
Pinus sp.	Pine	abundant
Salix viminalis	Osier	abundant

Target Note 14.
A2.1 Scrub - dense

Central grid ref: SP 36060 08680 **Area:** 0.116ha

Description: An embankment alongside the road supporting scrub and young trees, with an overgrown timber fence located at its base.

Scientific name	Common name	Abundance
Acer pseudoplatanus	Sycamore	occasional
Crataegus monogyna	Hawthorn	abundant
Rubus fruticosus agg.	Bramble	dominant

Target Note 15.
A1.3.1 Mixed woodland – semi-natural

Central grid ref: SP 36074 08699 **Area:** 0.512ha

Description: Dense mature woodland with a closed canopy, sparse ground flora, and a well-developed scrub layer with some saplings. A line of large white willow trees forms the western edge, reaching heights of up to 20m. Fallen deadwood is frequent throughout and there are signs of disturbance from camping, fires, and vandalism. The eastern boundary is bordered by a stream with steep earth banks. This section is heavily shaded, with limited marginal vegetation and significant amounts of fallen deadwood along the banks.

Scientific name	Common name	Abundance
Acer campestre	Field Maple	occasional

Carpinus betulus	Hornbeam	frequent
Cirsium arvense	Creeping Thistle	frequent
Cornus sanguinea	Dogwood	abundant
Corylus avellana	Hazel	frequent
Crataegus monogyna	Hawthorn	rare
Dactylis glomerata	Cock's-foot	occasional
Fraxinus excelsior	Ash	occasional
Galium aparine	Cleavers	frequent
Geranium robertianum	Herb-Robert	rare
Heracleum sphondylium	Hogweed	rare
Jacobaea vulgaris	Common ragwort	occasional
Ligustrum vulgare	Wild Privet	frequent
Lonicera periclymenum	Honeysuckle	rare
Pinus sp.	Pine	frequent
Prunus cerasifera	Cherry Plum	abundant
Quercus robur	Pedunculate Oak	occasional
Rubus fruticosus agg.	Bramble	occasional
Salix alba	White Willow	frequent
Taxus baccata	Yew	rare
Urtica dioica	Common Nettle	dominant

Target Note 16.
C3.1 Other tall herb and fern - ruderal

Central grid ref: SP 36079 08903 **Area:** 0.15ha

Description: A narrow strip of tall ruderal vegetation, scattered scrub, and trees lines the river along the eastern edge of Target Note 1 (Mill Meadow). In some areas, the grassland typical of Target Note 1 extends to the water's edge. The tree layer mainly includes crack willow, alder, and walnut, while the scrub is dominated by hawthorn, elder, and grey willow, with denser thickets of blackthorn toward the northern end.

The river has a fast flow and steep earth banks. It supports occasional patches of marginal plants such as yellow iris, purple-loosestrife, reed sweet-grass, and greater pond-sedge. Some submerged aquatic vegetation, such as water-crowfoot, is also present. Invasive Himlayan balsam occurs in large patches along the river, particularly at SP 36086 08888 and SP 36113 08918.

Scientific name	Common name	Abundance
Alnus glutinosa	Alder	frequent
Carex pendula	Pendulous Sedge	rare
Carex riparia	Greater Pond-sedge	rare
Cirsium palustre	Marsh Thistle	rare
Corylus avellana	Hazel	rare
Crataegus monogyna	Hawthorn	dominant
Epilobium hirsutum	Great Willowherb	occasional
Filipendula ulmaria	Meadowsweet	rare
Galium aparine	Cleavers	occasional
Glechoma hederacea	Ground-ivy	frequent
Glyceria maxima	Reed Sweet-grass	rare
Heracleum sphondylium	Hogweed	rare

Impatiens glandulifera	Himalayan Balsam	rare
Iris pseudacorus	Yellow Iris	frequent
Juglans regia	Walnut	occasional
Lycopus europaeus	Gypsywort	rare
Lythrum salicaria	Purple-loosestrife	rare
Malus domestica	Apple	rare
Mentha sp.	Mint	rare
Myosotis sylvatica	Wood Forget-me-not	rare
Phalaris arundinacea	Reed Canary-grass	rare
Prunus spinosa	Blackthorn	occasional
Ranunculus sp.	Water-crowfoot	occasional within stream
Rorippa amphibia	Great Yellow-cress	rare
Rosa canina	Dog-rose	rare
Rumex crispus	Curled Dock	rare
Salix cinerea	Grey Willow	occasional
Salix fragilis	Crack willow	dominant
Salix viminalis	Osier	rare
Sambucus nigra	Elder	occasional
Solanum dulcamara	Bittersweet	rare
Symphytum sp.	Comfrey	occasional
Urtica dioica	Common Nettle	frequent

Target Note 17.
A1.1.2 Broadleaved woodland – plantation

Central grid ref: SP 35842 08594 **Area:** 0.311ha

Description: Dense, scrubby broadleaved woodland dominated by willows. The canopy is largely closed, resulting in very little light reaching the woodland floor and creating a sparse, shaded ground layer. Trees overhang the edge of the adjacent lake, with small areas of marginal vegetation occurring occasionally in places where the canopy is more open.

Scientific name	Common name	Abundance
Acer pseudoplatanus	Sycamore	rare
Alnus glutinosa	Alder	occasional
Carex pendula	Pendulous Sedge	rare
Carex riparia	Greater Pond-sedge	occasional
Corylus avellana	Hazel	occasional
Epilobium hirsutum	Great Willowherb	rare
Fraxinus excelsior	Ash	rare
Iris pseudacorus	Yellow Iris	occasional
Juncus inflexus	Hard Rush	rare
Salix caprea	Goat Willow	rare
Salix cinerea	Grey Willow	frequent
Salix fragilis	Crack willow	abundant
Sambucus nigra	Elder	rare

Target Note 18.
J1.2 Amenity grassland

Central grid ref: SP 35699 08601 **Area:** 0.53ha

Description: Closely mown amenity grassland occurs on both sides of a footpath that encircles the lake. It occasionally extends to the lake edge, particularly around benches and at fishing access points. The grassland has a tight, low sward and supports plant species typical of trampled grassland.

Scientific name	Common name	Abundance
Anthriscus sylvestris	Cow Parsley	frequent
Arrhenatherum elatius	False Oat-grass	abundant
Cirsium arvense	Creeping Thistle	occasional
Dactylis glomerata	Cock's-foot	abundant
Elymus repens	Common Couch	occasional
Geranium dissectum	Cut-leaved Crane's-bill	rare
Glechoma hederacea	Ground-ivy	frequent
Lolium perenne	Perennial Rye-grass	abundant
Plantago major	Greater Plantain	frequent
Ranunculus repens	Creeping Buttercup	occasional
Rumex obtusifolius	Broad-leaved Dock	rare
Stellaria media	Common Chickweed	rare
Trifolium repens	White Clover	occasional
Urtica dioica	Common Nettle	frequent
Veronica persica	Common Field-speedwell	rare

Target Note 19.
G2.1 Running water – eutrophic

Central grid ref: SP 35925 08556 **Area:** N/A

Description: A continuation of the stream described in Target Note 3. The stream here is up to 6m wide, with a slow flow and a silt and gravel bed. The natural banks are generally low but steep in parts. It is mostly shaded by trees and scrub, but in some areas there are diverse and well-developed stands of marginal vegetation. Two patches of Himalayan balsam were recorded at SP 35891 08431 and SP 35923 08569.

Scientific name	Common name	Abundance
Alliaria petiolata	Garlic Mustard	abundant
Carex pendula	Pendulous Sedge	rare
Carex riparia	Greater Pond-sedge	rare
Crataegus monogyna	Hawthorn	frequent
Eupatorium cannabinum	Hemp-agrimony	rare
Filipendula ulmaria	Meadowsweet	rare
Glyceria maxima	Reed Sweet-grass	rare
Impatiens glandulifera	Himalayan Balsam	rare
Iris pseudacorus	Yellow Iris	rare
Lythrum salicaria	Purple-loosestrife	rare
Mentha sp.	Mint	rare
Myosotis sylvatica	Wood Forget-me-not	rare
Potentilla anserina	Silverweed	rare
Rorippa amphibia	Great Yellow-cress	rare

Rubus fruticosus agg.	Bramble	abundant
Salix cinerea	Grey Willow	occasional
Salix fragilis	Crack willow	frequent
Sambucus nigra	Elder	occasional
Solanum dulcamara	Bittersweet	occasional
Stachys sylvatica	Hedge Woundwort	rare
Symphytum sp.	Comfrey	rare
Urtica dioica	Common Nettle	frequent

Target Note 20.
B.2.2 Neutral grassland - semi-improved

Central grid ref: SP 35860 08512 **Area:** 0.056ha

Description: A small, flat area of long grassland lying at the base of an electricity pole, surrounded by narrow mown strips.

Scientific name	Common name	Abundance
Arrhenatherum elatius	False Oat-grass	dominant
Calystegia sepium	Hedge Bindweed	occasional
Dactylis glomerata	Cock's-foot	abundant
Holcus lanatus	Yorkshire-fog	frequent
Lolium perenne	Perennial Rye-grass	frequent
Poa trivialis	Rough Meadow-grass	abundant
Rumex obtusifolius	Broad-leaved Dock	rare
Urtica dioica	Common Nettle	occasional

Target Note 21.
J1.2 Amenity grassland and scattered trees

Central grid ref: SP 35915 08528 **Area:** 0.093ha

Description: Amenity grassland similar in appearance and species to that described in Target Note 18. Several early-mature hawthorn (*Crataegus monogyna*) and apple (*Malus domestica*) trees are scattered throughout, with the grassland mown closely around their bases.

Target Note 22.
Sown wildflower meadow

Central grid ref: SP 35922 08594 **Area:** N/A

Description: A sown wildflower meadow located in a shaded location adjacent to the footpath. It contains a mix of predominantly non-native species and is beginning to be colonised by invading garlic mustard.

Scientific name	Common name	Abundance
Alliaria petiolata	Garlic Mustard	abundant
Eschscholzia californica	Californian Poppy	occasional
Heracleum sphondylium	Hogweed	occasional
Linum grandiflorum	Crimson Flax	abundant
Lobularia maritima	Sweet Alison	abundant
Malcolmia maritima	Virginia Stock	abundant
Silene dioica	Red Campion	occasional

Target Note 23.
A1.1.1 Broadleaved woodland – semi-natural

Central grid ref: SP 35744 08616 **Area:** 0.987ha

Description: Woodland along the A40 road edge, with the tallest trees reaching around 10m in height. This area is drier than other woodlands on site, with a dense canopy and scrubby edges. The ground layer is sparse due to heavy shading, and piles of deadwood and brash are common. A timber fence runs along the northern edge, adjacent to the road embankment.

Acer campestre	Field Maple	frequent
Acer platanoides	Norway Maple	rare
Acer pseudoplatanus	Sycamore	abundant
Aesculus hippocastanum	Horse-chestnut	rare
Alliaria petiolata	Garlic Mustard	abundant
Alnus glutinosa	Alder	occasional
Cornus sanguinea	Dogwood	occasional
Corylus avellana	Hazel	frequent
Crataegus monogyna	Hawthorn	abundant
Fraxinus excelsior	Ash	occasional
Galium aparine	Cleavers	occasional
Geum urbanum	Wood Avens	occasional
Hedera helix	Common Ivy	abundant
Populus sp.	Poplar	frequent
Rubus fruticosus agg.	Bramble	occasional
Rumex sanguineus	Wood Dock	occasional
Salix caprea	Goat Willow	rare
Sambucus nigra	Elder	occasional
Sorbus aucuparia	Rowan	rare
Urtica dioica	Common Nettle	abundant

Target Note 24.
G2.1 Running water – eutrophic

Description: Emma's Dyke – an off-site stream adjacent to the site's western boundary. The stream is approximately 6m wide with natural earth banks and some extensive stands of emergent and marginal vegetation.

Target Note 25.
A1.1.2 Broadleaved woodland – plantation

Central grid ref: SP 35601 08433 **Area:** 0.523ha

Description: An avenue of mature trees comprising predominantly crack willow and grey willow trees of around 20m in height, several of which are collapsed into the lake, and scattered scrub below. A continuation of the footpath and managed grassland verges described at Target Note 18 continues below, however the trees on each side generally form a closed canopy above the path.

Scientific name	Common name	Abundance
Acer campestre	Field Maple	frequent
Acer platanoides	Norway Maple	occasional

Acer pseudoplatanus	Sycamore	occasional
Alnus glutinosa	Alder	abundant
Anthriscus sylvestris	Cow Parsley	abundant
Carpinus betulus	Hornbeam	rare
Corylus avellana	Hazel	rare
Crataegus monogyna	Hawthorn	abundant
Fraxinus excelsior	Ash	rare
Geum urbanum	Wood Avens	rare
Hedera helix	Common Ivy	frequent
Heracleum sphondylium	Hogweed	occasional
Populus sp.	Poplar	rare
Prunus cerasifera	Cherry Plum	rare
Quercus robur	Pedunculate Oak	rare
Rosa canina	Dog-rose	rare
Rubus fruticosus agg.	Bramble	occasional
Rumex sanguineus	Wood Dock	rare
Salix babylonica	Weeping willow	frequent
Salix caprea	Goat Willow	rare
Salix cinerea	Grey Willow	abundant
Salix fragilis	Crack willow	abundant
Salix viminalis	Osier	rare
Sambucus nigra	Elder	rare

Target Note 26.
C3.1 Other tall herb and fern - ruderal

Central grid ref: SP 35694 08314 and SP 35601 08423 **Area:** 0.037ha

Description: Patches of unmanaged tall ruderal vegetation on the eastern edge of Emma's Dyke.

Scientific name	Common name	Abundance
Arrhenatherum elatius	False Oat-grass	dominant
Artemisia vulgaris	Mugwort	occasional
Calystegia sepium	Hedge Bindweed	frequent
Cirsium arvense	Creeping Thistle	frequent
Epilobium hirsutum	Great Willowherb	occasional
Galium aparine	Cleavers	abundant
Lamium purpureum	Red Dead-nettle	abundant
Rumex obtusifolius	Broad-leaved Dock	occasional
Urtica dioica	Common Nettle	dominant

Target Note 27.
Brash pile

Central grid ref: SP 35639 08375 **Area:** N/A

Description: A large brash pile formed of arisings from tree management located within scrub at the stream edge.

Target Note 28.
G1.1 Standing water – eutrophic

Central grid ref: SP 35728 08492 **Area:** 6.114ha

Description: A large lake with no signs of floating-leaved or emergent aquatic plants visible from the shore. Sparse and infrequent patches of marginal vegetation are present at the water's edge, but for the most part, the shoreline is bordered directly by shrubs and woodland and there is an abrupt transition to the open water. The lake's banks drop steeply into water and provide no gradual slopes or shallow margins suitable to support emergent plants.

Scientific name	Common name	Abundance
Carex riparia	Greater Pond-sedge	occasional
Equisetum arvense	Field Horsetail	rare
Iris pseudacorus	Yellow Iris	frequent
Merntha sp.	Mint	rare
Phalaris arundinacea	Reed Canary-grass	rare
Solanum dulcamara	Bittersweet	rare