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LANDSCAPE & ECOLOGICAL MANAGEMENT PLAN

At

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Date:	1st September 2025
Updated (V2):	17th December 2025
UES reference:	UES03918/32

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1 INTRODUCTION

1.1 Author and qualifications

This report is compiled and written by Tom Kenwright BSc MSc ACIEEM, UES Senior Ecologist. Tom holds a level 5 Botanical Society of Britain and Ireland (BSBI) Field Identification Skills Certificate (FISC), which certifies him as competent to undertake Phase 1 Habitat and NVC surveys. Tom is licensed by Natural Resources Wales (NRW) to disturb all species of bat and take or handle all species other than greater *Rhinolophus ferrumequinum* or lesser horseshoe *Rhinolophus hipposideros* under licence number S094176/1. Tom is licensed by NRW to disturb, take and handle great crested newts (GCNs) *Triturus cristatus* under licence number S095290/1.

This report has been approved by Toby Hart BSc MCIEEM PIEMA, UES Managing Director. Toby holds a level 6 BSBI FISC, which is only awarded in exceptional circumstances where the surveyor is a very competent professional field botanist and is of national status. Toby is licensed by NRW to disturb all species of bat and take or handle all species other than greater or lesser horseshoe under licence number S095644/1. Toby is licensed by NRW to disturb, take and handle GCNs under licence number S093149/2.

1.2 Instructions received from the client

UES has been commissioned to produce a Landscape and Ecological Management Plan (LEMP) – detailing the stipulations for the proposed and retained habitats on site, as well management responsibilities and timings.

A planning application has been submitted (reference P/2025/0430) for the creation of a Green Eco-Heritage Zone and the construction of a single B8 warehouse unit with integral offices, new vehicular access, car and HGV parking, servicing and storage, landscaping, heritage and ecology mitigation and ancillary development. This Eco-Heritage Park will be subject to ecological restoration and enhancement measures, with sections made accessible to the public.

1.3 Objectives and scope

This LEMP has been compiled in order to address how the final site landscaping plans will be implemented, maintained and managed, and which organisations are responsible for these actions. The LEMP aims to:

- Ensure that retained and created habitats are established and managed appropriately throughout their lifetime.
- Provide habitats and features on site which promote protected or otherwise notable species and enhance the overall biodiversity and ecology of the site.
- Ensure that management responsibilities are appropriately delegated and that specific measures are scheduled.

1.4 Structure of the report

This report sets out the baseline ecological information before detailing how the objectives of this LEMP will be achieved during and after the development.

Each habitat on site will require a certain level of establishment, maintenance and monitoring to ensure that they are providing the ecosystem function required of them. Section 3 details the habitats being retained or created, and specific management measures for each habitat. The management responsibilities and mechanisms to ensure compliance are explained in Section 4, and the management measures are summarised in the management schedule in Section 5.

This document should be read in conjunction with Appendices 1 - 5 and the Ecological Impact Assessment (EcIA) that has been prepared for the proposed development.

2 BASELINE ECOLOGICAL INFORMATION

Historically, the site was known to support a mosaic of habitats including open flower-rich grasslands, scrub, woodland, ponds and open mosaic habitat on previously developed land. As such, the site was designated as part of a Local Wildlife Site (LWS). Since the sites designation as an LWS, it has been subject to reducing levels of management and has remained almost completely unmanaged for a number of years. This lack of management has allowed encroaching scrub to dominate at the expense of more notable habitats, reducing the sites structural and botanical diversity.

The site now comprises large homogenous areas of self-seeded scrub, with small areas of semi-improved grassland glades and pathways throughout. The River Clywedog flows along part of the southern site boundary and the Redwither Brook flows along the south-western boundary. Both watercourses are bordered by a band of riparian woodland. Numerous historic munitions buildings are present across the site, and a number of ponds were known to historically be present, only two of which are considered to still function as aquatic habitat. Other habitats present on site include hardstanding access tracks and small areas of marshy grassland, tall ruderal vegetation, bare ground, scattered broadleaved trees and ephemeral / short perennial vegetation.

A suite of ecological survey work has been undertaken on the site by UES across 2022 – 2025, as summarised in the accompanying Ecological Impact Assessment (EcIA) (report reference UES03918/30). The EcIA identified various impacts due to the presence, or potential presence, of protected or otherwise notable species or habitats within the site boundary or the surrounding area.

The following ecological receptors have been identified as having the potential to be impacted by the development proposals:

- **Amphibians**: The site supports a medium population of GCNs, with breeding activity concentrated in Pond 3 (see Appendix 4 – Pond Plan). Pond 4 has shown intermittent use by very low numbers of individuals, while other ponds on site are either unsuitable or no longer functional. The terrestrial habitats within the development footprint include woodland, scrub, and small areas semi-improved grassland, which offer moderate to high quality foraging, commuting, and hibernation opportunities.

- [redacted]

- **Bats**: Moderate levels of bat activity were recorded during bat activity surveys, with bats exhibiting foraging and commuting behaviours. Bat activity was recorded across the entire site but was generally highest along the riparian woodland, tree lines, and commuting corridors through the centre of the site, where there are pathways and breaks in the dense scrub. The woodland and tree lines associated with the ponds on site provided hotspots of activity.

  During the bat scoping survey and the subsequent bat presence / absence surveys of buildings, a minimum of three species of bat were found roosting across nine roosts, all of which are considered to be day roosts used on an occasional basis by a single

or very low number of bats. No evidence of roosting bats was observed within the trees on site.

- **Breeding birds**: The site supports a diverse assemblage of breeding birds, with 35 species confirmed or likely breeding and a further 18 possibly breeding on site or within 50m of the site boundary. Fourteen of the confirmed/likely breeders are species of conservation concern, including two Schedule 1 species; Cetti's warbler *Cettia cetti* and kingfisher *Alcedo atthis*. Both species were recorded on site on single occasions and are not considered to be breeding on site. Given the limited amount of suitable habitat and the distance of at least 10m between the Industrial Unit Compound and the watercourses, it is anticipated there will be no direct impacts or loss of habitat for either of these species, even if they begin breeding on site prior to the commencement of development works.

- **Hedgehogs:** Although no direct evidence of hedgehog *Erinaceus europaeus* activity was recorded during ecological surveys, the presence of suitable habitats combined with local records, suggests that hedgehogs may use the site on an occasional or transient basis for foraging, commuting, and hibernation.

- **Otters**: Otters *Lutra lutra* are known to use parts of the River Clywedog and Redwither Brook within the wider landscape, with multiple records returned from within 2km of the site, including one from approximately 360m away. Both watercourses at the site boundary provide suitable foraging and commuting habitat. The remains of a dead otter and a potential degraded otter spraint were observed on site in 2025, however no other evidence of otter activity has been observed. It is considered that otters use the watercourses at the site boundaries in a transitory capacity for commuting or occasional foraging, but are not currently using the site for breeding or regular shelter.

- **Invasive species:** Three invasive non-native plant species have been recorded on site: Himalayan balsam *Impatiens glandulifera*, Japanese knotweed *Reynoutria japonica* and montbretia *Crocosmia* × *crocosmiiflora*. These species are present in discrete areas, predominantly along the watercourses at the site boundaries, and within the south-western and south-eastern sections of the site.

- **Dense scrub:** The majority of the site is dominated by dense self-seeded scrub, comprising a mix of species. The majority of the scrub is semi-mature and is dominated by either bramble *Rubus fruticosus agg.,* blackthorn *Prunus spinosa*, hawthorn *Crataegus monogyna*, goat willow *Salix caprea* or grey willow *Salix cinerea*. The eastern section of the site contains an area of mature hawthorn scrub. Unlike the majority of the scrub on site, the scrub's structure mimics woodland with the mature shrubs forming a canopy layer but without a dense understory. This has allowed for a more diverse ground flora.

- **Ponds:** Six ponds are present on site (see Appendix 4 – Pond Plan), however only Ponds 3 and 4 currently hold standing water for most or all of the year. Pond 3a holds standing water, but is a series of three small, connected water-filled tanks of limited ecological value. All other ponds are dry and no longer function as aquatic habitats.

- **Watercourses:** Two watercourses are present at the site boundaries; the River Clywedog at the southern boundary and Redwither Brook at the south-western boundary.

- **Woodland and dense scrub:** A band of mature riparian woodland runs along the banks of the River Clywedog on the southern site boundary and along some of the Redwither Brook at the south-western boundary.

The impact on these receptors will be mitigated for through the implementation of a Construction Environmental Management Plan (CEMP), CEMP:Biodiversity & Ecological Design Strategy (EDS) and though the GCN European Protected Species (EPS) mitigation licence that will be secured for the site. This LEMP details the compensatory habitat creation and the proposed enhancement measures that will be provided as part the proposed development.

3 HABITAT CREATION AND MANAGEMENT

Two principal areas within the site will be subject to targeted habitat enhancement and ongoing management: the proposed Industrial Unit Compound and the Eco-Heritage Park. The Eco-Heritage Park comprises two distinct zones:

- The Restoration Area, where enhancement works will focus on the creation of a structurally diverse mosaic of habitats through the phased removal of encroaching scrub and the restoration of species-rich grassland.

- The Wider Eco-Heritage Park, which will largely be retained in its current condition, with subtle ecological enhancements and long-term management implemented to support habitat resilience and biodiversity value.

The enhancement works within the Eco-Heritage Park will be delivered through a 15-year phased programme, comprising six phases at three-year intervals (see Appendix 2 – Phasing Plan). This approach enables adaptive management, allowing lessons learned from earlier phases to inform subsequent interventions. It also minimises ecological disruption by staggering the otherwise large-scale removal of scrub, thereby reducing immediate impacts on species currently utilising these habitats and allowing time for newly created habitats to establish and function as ecological replacements. Landscaping plans have been created by Mdlandscape and are provided at Appendix 3, showing the proposed works within Phase 1 and the completed enhancement measures of Phase 6 in Year 15.

Phase 1 will commence the same year that any site clearance, construction or initial habitat works take place (Year 1). Some works within Phase 1 may extend or be delayed beyond Year 1 to align with ecological constraints and optimal implementation periods. Each subsequent phase will commence at the earliest appropriate window within its designated year e.g. Phase 2 will begin in Year 3, Phase 3 in Year 6 etc. Proposed timings have been guided by key seasonal considerations, including the GCN life cycle, nesting bird season, and optimal sowing and establishment windows for target vegetation communities.

While the phased approach applies primarily to habitat creation within the Restoration Area, enhancement and monitoring activities across the wider Eco-Heritage Park will begin in Phase 1, ensuring early gains in biodiversity value and informing site-wide management from the outset.

3.1 Habitats associated with the Industrial Unit Compound

3.1.1 Scattered trees

A small number of existing scattered trees will be retained within the Industrial Unit Compound, all of which will be protected in accordance with BS5837:2012 during construction works.

A total of 27 newly planted field maple *Acer campestre*, wild cherry *Prunus avium* and pedunculate oak *Quercus robur* trees are proposed within the planting schedule for the Industrial Unit Compound. Only native species will be planted; however, some non-native cultivars of field maple and wild cherry will be planted for their aesthetic value.

The planting and initial establishment of the proposed trees will be as detailed within the Planting Schedule and Specification Plan that has been prepared for the site by Mdlandscape (drawing number 311/LAND/L/110 Revision P02).

Once established, newly planted trees (and retained trees) will require little management in the future, unless specifically addressing problems or damage to individual specimens. Branches will only be removed when they pose a risk to the health and safety of people or infrastructure. All pruning should be undertaken outside of the breeding bird season and should be avoided from March to August inclusive. If any specialist works are required, an approved arboriculturist should be appointed.

The newly planted and retained trees on site will provide nesting habitat for birds, and once fully mature may develop fissures and crevices which could be used by roosting bats. Furthermore, they will provide a food source for birds, bats and other mammals in the form of fruit, seeds and invertebrates attracted to the trees, in addition to providing a range of opportunities for invertebrates.

3.1.2 Hedgerows

Approximately 100m of field maple hedgerow and 125m of mixed native species hedgerow will be planted. The mixed native species hedgerow will comprise the following species:

- Field maple - *Acer campestre*
- Hazel – *Corylus avellana*
- Hawthorn – *Crataegus monogyna*
- Holly – *Ilex aquifolium*
- Elder – *Sambucus nigra*

These hedgerows are in part being planted as boundary features, however the use of entirely native species, including a mix of species where possible, ensures that these features provide opportunities for wildlife.

The hedgerows are to be planted as detailed within the Planting Schedule and Specification Plan that has been prepared for the site by Mdlandscape, drawing number 311/LAND/L/110 Revision P02. This includes the use of slow-release fertiliser at time of planting, use of bark mulch at the base of the hedge after planting and protection with biodegradable guards, canes and ties if damage from rabbits is considered to be an issue during establishment.

Hedgerow trimming and any formative pruning works will be carried out October to February to avoid the bird nesting season and allow flowering and fruiting of plants. Hedgerows will be maintained to encourage thickening growth and to reach the desired height of 1.5m by gradually increasing the cutting height of the hedge by small amounts each year. Incremental height increase is the key to the hedge management cycle, sympathetically allowing a hedgerow to progress slowly through its natural growth cycle without putting it under damaging stress.

The newly planted hedgerows, particularly the native species-rich hedgerow will provide suitable sheltered foraging and commuting habitat for a variety of wildlife such as amphibians and mammals, in addition to nesting and foraging opportunities for birds.

3.1.3 Wildflower grassland

Four types of grassland are to be created within the landscaped areas of the proposed Industrial Unit Compound. These include:

- Wildflower grassland meadows sown with Emorsgate EM1 Basic General-Purpose Meadow Mixture or EM2 Standard General-Purpose Meadow Mixture
- Native grassland lawns sown with Emorsgate EG1 General-Purpose Meadow Grass Mixture
- Swales and an attenuation basin sown with Emorsgate EG8 Meadow Grass Mixture for Wet Soils
- Short amenity grassland areas sown with Germinal Amenity A2 Quality Lawn Mix

The proposed establishment and maintenance of the wildflower grassland meadows and native grassland lawns are detailed below. Swales, attenuation basins and amenity grassland areas are discussed separately below in Sections 3.1.4 and 3.1.5, respectively.

Both the wildflower grassland and native grassland lawns will be established in the same way, as detailed within the Planting Schedule and Specification Plan (drawing number 311/LAND/L/110 Revision P02).

This includes preparation of the seeding area through the initial removal of weeds using repeated cultivation, followed by ploughing or digging to bury any surface vegetation, followed by cultivation of the soil with a harrow or rake to produce a medium tilth that is then rolled or trodden to produce a firm surface.

Seed is best sown in the autumn or spring, but can be sown at other times of the year if there is sufficient warmth and moisture in the soil. The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out, the seed will be divided into two or more parts and sown in overlapping sections. The seed will not be incorporated into or covered by the soil, but will be firmed in by rolling or treading, to give good soil/seed contact.

Wildflower grassland meadows

The proposed seed mixes contain wildflowers and grasses, most of which are perennial and are slow to establish. A flush of annual weeds, arising from the soil seed bank is anticipated soon after sowing. These weeds can look unsightly, but they will offer shelter to the sown seedlings and will die off by the end of the growing season. Annual weeds will not be cut until mid to late summer. Hand weeding will be carried out if desired. The meadow will then be cut in August, with all arisings removed and composted. This will reveal the young meadow, which will then be kept short by mowing through to the end of March of the following year.

From the second year onwards, these areas will be subject to traditional hay meadow management practices. After flowering in July or August, a 'hay cut' will be taken, during which the sward will be cut back with a scythe, petrol strimmer or tractor mower to around 50mm. The 'hay' will be left to dry and shed seed for 1-7 days before it's removal from site. The re-growth will then be mown regularly to a height of 5cm, as with all other areas of grassland through to March inclusive. From April onwards the grassland will be left unmanaged until the next hay cut it taken in late July or August.

Native grassland lawns

In place of large areas of intensively mown amenity grassland, areas of native grassland lawn will be created to comprise in providing aesthetical, functional and ecological benefits.

Once seedling grasses are established, (typically about three to four weeks after sowing), the soil around the grass roots will be lightly rolled or treaded to firm and level the soil ready for the first cut. This will not take place, however, if the ground is saturated with water. Following this, the grassland will be left to establish to a minimum height of 10cm before an initial cut down to 7.5cm.

In the first year after establishment, these areas will be mown as regularly as needed, progressively reducing the mowing height over the first spring/summer to the desired height.

From the second year onwards after establishment, these areas will be managed through an infrequent and relaxed mowing regime that involves 3-5 cuts throughout the growing season of April to October inclusive. Outside of this period, these areas of grassland will be mown as frequently as deemed necessary by the tenant/appointed management company. The mowing will be staggered across the compound to ensure different sward heights are maintained, providing sheltered foraging opportunities for mammal, amphibians and birds.

3.1.4 Swales and attenuation basin

The proposals incorporate the creation of numerous swales and an attenuation basin. Whilst these features are primarily being created to manage surface water, their establishment and ongoing management will be partly driven by ecology, and they will provide an ecological benefit. The swales are expected to be dry for most of the year; however the attenuation basin may hold standing water in the winter or immediately following periods of heavy rainfall. If these features remain predominantly dry and do not hold standing water for most of the year, they will be managed as wildflower grassland and subject to the same management as the wildflower meadow areas detailed above in Section 3.1.3. Given the likely waterlogged conditions for short periods of time, these areas may become colonised by and support additional species that are more tolerant of impeded drainage, e.g. rushes *Juncus spp*. This will further increase the botanical diversity of the soft landscaped areas within the Industrial Unit Compound.

If any of the swales or the attenuation basin are found to retain water during the summer months or for most of the year, they will be treated as aquatic habitats and managed as detailed for ponds in Section 3.2.6 below.

3.1.5 Other habitats

Additional habitats will be created within the Industrial Unit Compound, including amenity grassland and ornamental shrub and herbaceous bed planting. These areas will be established as detailed within the Planting Schedule and Specification Plan (drawing number 311/LAND/L/110 Revision P02) and will be managed by the tenant/appointed management company as deemed necessary.

These habitat types are of limited value to wildlife and are primarily being created and managed for aesthetical or functional purposes, rather than ecological benefits. Despite this, these areas will still provide some foraging opportunities for invertebrates, birds, bats and other mammals, and may provide nesting opportunities for breeding birds. As such, any cutting or pruning of dense vegetation should be avoided during the nesting bird season and should be avoided from March to August inclusive.

3.2 Habitats associated with the Eco-Heritage Zone

3.2.1 Woodland

All woodland habitats within the site boundary are to be retained and protected as part of the proposed development.

To maximise their ecological value, the retained woodland areas will be subject to enhancement measures as part of the wider site management. Given that these areas of woodland are already well-established, extensive intervention is neither necessary nor ecologically desirable, as excessive management risks undermining existing habitat integrity. Enhancement measures that will be implemented as follows:

Selective thinning and coppicing

Selective thinning and coppicing of the understory will be implemented to ensure that the woodland's canopy and understory layers do not become overcrowded at the detriment of the ground flora layer. The requirement for selective thinning or coppicing will be dependent on changing conditions within the woodland. As such, a detailed inspection will be undertaken every five years by a suitably qualified ecologist or arboriculturist. These 5-year inspections will identify the need for further management works including thinning, coppicing, understory clearance or the removal of diseased specimens.

Where possible, thinning will prioritise the retention of species diversity and will target non-native species such as sycamore *Acer pseudoplatanus*.

Any advised felling, coppicing or understory clearance will be undertaken by the approved management company or a suitability qualified arboriculturist where necessary. Tree felling and any vegetation clearance works will to take place outside of the nesting bird season and will not to be undertaken from March to August inclusive.

The project ecologist will ensure all trees identified for felling do not contain any potential bat roosting features. If any trees proposed for felling are found to contain bat roosting features, they will be retained, and alternative trees will be felled instead if necessary. Full details of pre-felling checks and mitigation to protect bats will be detailed within the Bat Conservation Plan and the CEMP:Biodiversity & EDS documents that are being prepared for the site.

Deadwood and log piles

Deadwood is an important feature of woodlands, supporting biodiversity by providing microhabitats and opportunities for invertebrates, fungi, birds, and mammals. It also creates structural complexity, assists in nutrient cycling, enriches the soil, and stores carbon.

The presence of any deadwood is beneficial within a woodland, however standing deadwood is particularly valuable as it is more likely to provide nesting opportunities for birds, roosting opportunities for bats and is preferred by most saproxylic invertebrates. Standing deadwood also decomposes slower than fallen deadwood, providing benefits for a longer period.

As part of the proposed selective thinning, where possible, trees due to be felled will be ring-barked to kill the tree and provide the required benefits of reducing the canopy layer, whilst also allowing the trunk to remain as standing deadwood. This will not be undertaken in areas close to pathways, roads or any other infrastructure that would risk trees falling and causing damage, or harm to people.

Any other vegetation removed through tree felling, coppicing or understory clearance will be retained onsite and used to create habitat piles. Material will be gathered and deposited in discrete piles to reduce the impact on the woodland's ground flora. Felled trees and other arisings will be cut and manipulated so that a mix of different size logs and brash are present in each pile. This is to provide structural diversity and micro niches that favour different species e.g. larger cavities for hedgehogs and smaller cavities for invertebrates. These log piles have the potential to provide sheltering, foraging and hibernating opportunities for amphibians, small mammals and invertebrates, and may be used by breeding birds.

Removal of invasive species

Although invasive species are not present within the development footprint, targeted control and eradication measures will be implemented as part of the wider ecological enhancement strategy.

The Japanese knotweed and montbretia within the areas of woodland will be eradicated as part of these enhancements, with removal and disposal undertaken in accordance with regulatory guidance.

Due to its abundance, dispersal capability, and upstream seed sources, it is anticipated that it may not be possible to entirely eradicate Himalayan balsam from the wider site, most of which is present within the areas of riparian woodland that border the watercourse at the site boundaries. However, ongoing control and removal will be undertaken to reduce its abundance and prevent further spread across the site. Full details will be provided within the CEMP:Biodiversity & EDS document.

3.2.2 Scattered trees

Scattered semi-mature trees retained within the areas of scrub on site will not require any specific management measures. If any future arboricultural works are required for these trees (for example, due to health and safety concerns), they should be undertaken by an appropriately qualified arboriculturist (to BS3998:2010. Any tree felling or arboricultural works will be undertaken outside of the breeding bird season and should not be undertaken from March to August inclusive. If this is not possible, a breeding bird nest check will be undertaken immediately prior to the works by a suitably experienced ecologist.

3.2.3 Dense scrub

Retained areas of dense scrub will require little ongoing management. A mosaic of scrub, wildflower grassland and open-vegetation communities will be retained within the Restoration Area and will be managed as detailed below in Sections 3.2.4 and 3.2.5.

All other areas of scrub within the wider site will be retained and left largely unmanaged and undisturbed. The maturest areas of hawthorn scrub that resemble a woodland in structure, with a defined canopy layer and open ground layer, will be managed in the same way as the areas of woodland on site, as detailed within Section 3.2.1 above.

3.2.4 Wildflower grassland

The principle works within the Restoration Area involve the restoration of wildflower grassland, transitioning to a mosaic with the existing scrub habitats to the east.

To facilitate grassland restoration, the existing scrub must first be removed. This will be undertaken in outside of the nesting bird season and will be completed in September or October. Scrub will be cut to a height of 10cm, arisings will be collected, and this area will be left for at least 48 hours to allow any sheltering GCNs and other wildlife to vacate the area. Any scrub clearance within 100m of Ponds 3 and 4 (known to be in use by GCNs) will be undertaken under ecological supervision, to ensure that the potential risk to GCNs is reduced to the lowest possible level.

Following the minimum 48-hour period, an ecologist will oversee the removal of all stumps and the top 5cm of topsoil to remove the build-up of nutrients from the recent scrub growth. Removal of a thin layer of topsoil is favoured over deep top-soil removal or soil reversion given the presence of grassland indicator species and an established seedbank, in addition to a reduced risk of impacts to GCNs. Topsoil and stump removal will be undertaken in October or November, prior to the peak GCN hibernation period. The small areas of existing wildflower grassland that have not yet been completely encroached by scrub will be retained and will not be subject to topsoil-strip, only scrub removal.

To avoid impacting hibernating GCNs and ensure sown wildflower seed will survive and germinate, sowing will be delayed until the following March. If temperatures remain cold and frost is present, sowing can be delayed until April. Any new vegetation growth will be removed prior to sowing.

Sown seed will be surface-cast by hand or machine, however care must be taken if using machinery around trees or retained areas of scrub. The seed will not be incorporated into or covered by soil, but it will be firmed in by rolling or treading, to give good soil/seed contact.

Within the first growing period following sowing, the wildflower grasslands will be mown to a height of 5-10cm in May, July and September. Arisings will be removed during all cuts, to reduce nutrient loading.

Regular cutting during the first year is preferred for these large areas of wildflower grassland as most of the target species are slow-growing perennials. Regular cutting will remove fast-growing ruderal species that will colonise following the ground disturbance and can dominate, outcompeting preferential flora before it has a chance to establish. Cutting unwanted competitive ruderal species before they flower and set seed also avoids the build-up of a seed bank of undesirable species and will improve long-term sward composition. Furthermore, regular mowing/cutting allows light to reach emerging seedlings and redirects energy from vertical growth to root establishment, helping perennials build resilience and survive into Year 2.

At the end of the first growing season, the grassland will be left unmanaged over winter to provide sheltering opportunities for invertebrates, small mammals and amphibians.

From the second year onwards, the grasslands will be subject to two annual cuts to 5-10cm, the first of which will be in April to suppress early grass dominance. The second cut will be a hay cut in August. During each cut, the sward will be monitored for establishing scrub including brambles, and these will be uprooted, cut back or controlled through the spot-treatment with an appropriate herbicide.

Any litter or debris will be removed from the area prior to cutting and underneath these materials will be checked for sheltering wildlife. Where possible, arisings will be left *in situ* for 48 hours, before being collected and piled in designated composting areas at the edge of the grassland; this will provide sheltering opportunities for amphibians, small mammals and other wildlife. The cuttings must not be left spread across the grassland for longer than 72 hours, as this will increase the level of nutrients within the soil and prohibit the establishment of the wildflower grassland.

Existing hardstanding pathways through the grassland will be retained to provide access. Additional informal pathways may need to be subject to regular mowing and maintained with a short sward for access across the site to undertake enhancement, restoration and ongoing management works within later phases.

The areas of grassland restoration within Phase 1 will be sown with a general-purpose wildflower seed mix, such as the Emorsgate EM3 Special General-Purpose Meadow Mixture or Emorsgate EM34 Diverse Meadow Mixture. Alternative seed mixes can be used if needed, provided they are approved by the project ecologist. Following the establishment of grassland, the annual site monitoring surveys will assess the success of the grassland restoration, which will be used to inform the proposed grassland restoration within Phase 2, and identify the need for any changes to the methodology. Changes could include the use of a different seed mix to suit the soil type, provision of additional yellow rattle *Rhinanthus minor* seed to suppress grass growth, or altering the frequency of mowing in the first year or in the long-term. Adaptive management based on the successes and failures of previous phases will be form a key component of the sites long-term management plan, which will continuously be reviewed and changed where monitoring surveys identify a benefit.

3.2.5 Disturbed ground and ephemeral communities

Creation

Historically, the site's use as a munitions factory, coupled with frequent disturbance from subsequent operational use and management activities, created extensive areas of bare ground and open vegetation. These conditions supported a range of early successional communities and disturbance-tolerant species. However, in the absence of sustained management and with progressive scrub encroachment and successional processes, these open habitats have become increasingly fragmented and are now largely confined to narrow strips along access tracks and paths.

To recreate these open communities, discrete areas of bare ground will be established within the grassland–scrub mosaic, to support ephemeral plant communities and enhance structural and botanical diversity, as indicated on the landscaping plans prepared for the site (see Appendix 3). This will involve the targeted importation of very small quantities of inert materials such as crushed brick, sand, and low-nutrient subsoil, to locally vary the growing substrate and suppress competitive vegetative communities and scrub encroachment. All materials will be sourced from verified clean sites, free from chemical contamination, invasive non-native species, and construction waste. These materials will be distributed onto site following the clearance of scrub vegetation and the preparation of the ground, as detailed above in Section 3.2.4. The importation of materials will be undertaken under the supervision of a suitably experienced ecologist, who will advise on locations and quantities accordingly.

The phased approach to habitat creation across the site provides the opportunity for adaptive management and habitat creation, allowing the successes and failures of the initial areas of

habitat creation to inform and influence the future habitat creation measures. This may be the type, amount or distribution pattern of materials.

Following establishment, these areas will be allowed to colonise naturally; pioneer plant species colonising initially and later successional species gradually colonising over time.

These interventions will create microhabitats that favour early successional species, including stress-tolerant annuals and ruderal plants, which are typically underrepresented in managed grassland systems. By introducing heterogeneity in soil texture, chemistry, and compaction, the scheme will promote niche differentiation and increase botanical diversity at a fine spatial scale. In addition, small, gently sloping sandy banks and occasional vertical faces will be formed in selected locations to provide nesting opportunities for burrowing invertebrates, including solitary bees and beetles. These features will be positioned to maximise sun exposure and shelter from prevailing winds, enhancing their suitability.

The creation of bare ground and sandy substrates will also contribute to the resilience of the wider ecological network of the site by supporting species adapted to disturbance and drought, The creation of these disturbed areas within the proposed mosaic of grassland and scrub will support a broader range of functional groups, trophic interactions, and seasonal niches, thereby strengthening ecosystem function.

Ongoing management

Following creation, this habitat will require minimal management, however annual site inspections and management meetings will review the establishment of these areas and assess whether any further remedial works are required. The following principles will be considered during the annual review meeting:

- Invasive species: Recently exposed ground may offer opportunity for colonisation by invasive species. If any invasive species become established, they will be subjected to appropriate control and eradication measures as soon as possible.

- Dominant ruderals: After initial habitat creation works, an initial flush of dominant ruderal species (such as thistles *Cirsium spp*. and willowherbs *Epilobium spp*.) may occur. This dominance is likely only to persist for 1 - 2 years before natural processes control them. However, if their dominance does persist, or begins to create a monoculture across the habitat, targeted control may be required. This control may be undertaken by physical uprooting of plants, or spot-treatment with appropriate herbicide. This will be undertaken before the plants set seed (before August in most cases); care will be taken to ensure that nesting birds are not affected by these works.

- Scrub encroachment: Small areas of scrub are desired within this habitat as it will offer structural diversity, however if scrub starts to dominate, consideration will be given to removal.

- Bare-ground creation: Maintaining some areas of bare ground is desirable and periodic disturbance will likely be required to prevent scrub encroachment and sustain the open conditions. This can easily be achieved through the use of hand tools to disturb and overturn parts of the substrate and vegetation.

3.2.6 Ponds

New pond creation

The development proposals include the creation of five new ponds, which will provide new ecological niches and will act as a significant ecological enhancement to the site. Ponds will be created in Phases 2, 3, 4 and 5, with two ponds created in Phase 3. Ponds will be excavated at the same time as topsoil removal works are undertaken as part of the grassland restoration within the relevant phase.

As the primary purpose of the ponds is to provide breeding opportunities for GCNs, they will largely share key design features, however subtle design differences are proposed to provide different conditions and ecological niches, targeting a range of species.

The ponds will vary in depth to ensure a variety of ecological niches and provide a range of micro habitats. Ponds created will have a maximum depth as follows:

Phase 2 – maximum depth of 1.5m
Phase 3 – maximum depths of 1.5m and 2.5m,
Phase 4 – maximum depth of 1m.
Phase 5 - maximum depth of 1.5m

Ponds that hold water until late summer to allow GCN larvae to metamorphose and leave the water, but dry annually or every few years, are of the greatest value to GCNs as the regular drying ensures that fish cannot survive. However, during periods of extended dry weather, shallow ponds can rapidly lose water and dry up completely, potentially killing all newt larvae before they can metamorphose. This isn't considered to be a significant issue if a standalone event, as GCNs can have long-life spans and one year of breeding failure should not be catastrophic to the survival of the population. However, due to a trend in increasing annual temperatures, the proposed ponds have been designed to include a range of depths that will ensure suitable breeding habitat remains at all times. This will give the GCNs present a greater resilience to changing environmental conditions. Shallower ponds and deeper ponds are to be created as these are preferred by common toad *Bufo bufo*, which prefer to breed in water at a depth of more than 1.5m. In addition, a range of pond depths will ensure the site can support a greater range of aquatic and marginal plants and aquatic invertebrates, many of which specialise in shallow water habitats, or those that are more susceptible to drying.

Ground conditions within the vicinity of Wrexham Industrial Estate generally contain clay-rich deposits and lend themselves to the creation of ponds, as evidenced by the number of waterbodies present across the industrial estate. UES were involved with an unrelated planning application approximately 1km north-east of the site where a large number of ponds were successfully created without the need for puddling clay or an artificial liner. Given this and the historic presence of ponds on site, it is considered that the proposed ponds do not need to be lined and will likely fill up naturally. If ponds are not found to hold sufficient water levels following the first year, a liner or puddling clay will be introduced to ensure the retention of water.

All five ponds will be designed to have a shallow edge that slopes down at a 15º angle or less into a 15cm deep shelf. This shelf will extend for 50cm before grading as gently as possible until the centre of the pond reaches the maximum depth detailed above.

To ensure structural diversity and sufficient egg-laying material for breeding GCNs are present, the drawdown zone and the shelf within the two ponds created in Phases 3 and 5 will

be planted with the following marginal and emergent species in the next available planting season (April-June) following pond excavation:

- Water mint – *Mentha aquatica*
- Water forget-me-not – *Myositis scorpioides*
- Brooklime – *Veronica beccabunga*
- Watercress - *Nasturtium officinale*
- Yellow iris - *Iris pseudacorus*
- Reed sweet-grass - *Glyceria maxima*
- Greater pond sedge - *Carex riparia*
- Cypress sedge - *Carex pseudocyperus*

In the longer term, these newly created ponds will also support many other plant species as part of a process of natural succession.

The pond created within Phases 2 and 4 will not be planted and will instead be naturally colonised by emergent, marginal and aquatic plant species.

In order to regulate the oxygen levels in the pond, at least two submerged oxygenating plant species will be planted within all of five ponds in April-June in the second year following establishment, once water levels have settled. Suitable species include hornwort *Ceratophyllum demersum*, common water crowfoot *Ranunculus aquatilis* and spiked water milfoil *Myriophyllum spicatum*.

Existing pond improvements

The ponds currently present on site (see Appendix 4 – Pond Plan) are in varying stages of succession, however all ponds are approaching a late stage. Ponds in varying stages of succession is generally considered be beneficial, as it provides different niches and conditions, supporting a greater diversity of species than if ponds were all of the same age, size and depth. However, three of the ponds on site (1, 1a and 2) now remain dry for most of the year and are no longer considered to be aquatic habitats. A reduction in the suitability to support breeding GCNs has been observed within all ponds over the course of UES' involvement with the site. This is predominantly as a result of scrub encroachment, dense vegetation growth or the build-up of leaf litter, resulting in eutrophic conditions and a reduction in the depth and area of standing water.

Of the 6 ponds on site, only Ponds 1 and 1a are due to be lost to facilitate the proposals, however both are now dry and no longer function as aquatic habitats. Ponds 2, 3 and 4 will be retained and subject to ecological enhancement measures and long-term management and monitoring. Pond 3a is a series of three small, connected, water-filled concrete tanks that lack aquatic or marginal vegetation, with the exception of duckweed *Lemna spp*. This small aquatic feature provides limited opportunities for enhancement measures and will be retained and left unmanaged as part the proposals.

Pond 2 will be restored as part of Phase 1 of the ecological restoration works, through the clearance of scrub from around the perimeter of the pond. Leaf litter and other detritus that has built up within the basin of the pond will be removed, retaining the ponds shallow and gently sloping margins whilst ensuring the centre of the pond has a maximum depth of at least 1m. Following scrub clearance and excavation, this pond will not be planted and will instead be naturally colonised by emergent, marginal and aquatic plant species.

Pond 3 is the main GCN breeding pond on site, known to support a medium population. The pond is a large concrete lined and walled tank, with a depth of approximately 1m. The tanks walls extend approximately 1m from the ground and it is surrounded by dense scrub on all aspects. Aquatic and emergent vegetation is diverse and abundant, with willow saplings encroaching where substrate has accumulated at the margins of the pond. A reduction in the quality of the pond and the availability of open standing water has been observed during UES' involvement with the project. This has been as a result of the build-up of leaf litter and other organic material, the encroachment of scrub and the choking of the pond by emergent vegetation. As part of Phase 1, this pond will be subject to enhancement measures to ensure its longevity and maximise its potential to support breeding GCNs.

As Pond 3 already supports an established GCN population, intervention will be minimal and limited to the removal of all encroaching willow scrub within the pond, removal of scrub around the margins of the pond to ensure it remains entirely unshaded, and the removal of leaf litter and built-up organic material within the base of the pond. Scrub removed will be cut to a height of 10cm using hand tools reduce the risk of impacts to GCNs sheltering within at ground level.

To reduce the build-up of leaf-litter within the pond while safeguarding GCNs and other amphibians present, these works will be timed to avoid sensitive life stages, with works scheduled for late autumn (October–early November) when GCNs are least likely to be present in the pond. This will prevent disturbance to eggs, larvae, breeding and hibernating adults.

Leaf litter and other organic material will be removed from one-third of the pond area, to minimise disruption and limit the area of disturbance. Material will be extracted using hand tools and low-impact methods (e.g. rakes, nets) to avoid sediment disturbance within the wider pond. Arisings will be temporarily stored on tarpaulins adjacent to the pond for at least 24 hours before disposal, allowing any amphibians and invertebrates within a chance to escape.

A licenced ecologist or suitably qualified accredited agent will oversee all work, ensuring compliance with licensing requirements and adaptive management if GCNs or other protected species are encountered. The proposed ongoing monitoring of the pond will inform the need for future clearance works.

Pond 4 is in a late successional stage and is being choked by emergent greater reedmace *Typha latifolia* and shaded by dense scrub at the margins. Despite this, the pond still holds standing water and functions as an aquatic habitat, albeit in a limited capacity. Ephemeral, late-stage ponds provide optimal conditions for many aquatic invertebrate species, a nationally scare example is the mud snail *Omphiscola glabra*. Given the retention of Pond 3 and the proposed creation of five new ponds that will be managed to maintain an early-mid successional state, this pond will largely be maintained in its current condition and subject to minimal management. As part of Phase 4 the pond will be subject to selective scrub clearance to ensure that no more than 50% of the pond's margins are heavily shaded, preventing the pond from drying completely and failing to function as an aquatic habitat. The pond will also be subject to the removal of a small quantity of the emergent vegetation, ensuring that no more than 75% of the ponds surface is covered. As with Pond 3, scrub clearance will be undertaken from September to February inclusive and removal of emergent vegetation will be undertaken from October to early-November inclusive. These works will also be undertaken under the supervision of a licenced ecologist or suitably qualified accredited agent.

Annual site inspections will inform the need for future scrub and vegetation removal, ensuring that scrub cover is maintained between 50-75% and emergent vegetation cover is maintained between 75-90%.

Long term pond management

Once fully established, newly created ponds (and retained ponds) will not require a great amount of management. However, ponds are always susceptible to leaks and invasion of non-native species which can change habitats, supress native species and dry out ponds. Over time, ponds may become encroached by scrub.

Table 1 – Ongoing pond management requirements

Management activity	Description	Timings
Monitoring pond water levels	In natural ponds, water levels vary seasonally, which can be beneficial for wildlife as it provides a "drawdown zone". Water levels often drop during the summer months, but if the pond water levels drastically drop and do not rise again within the following year, specialist hydrological advice must be sought to advise on the cause and solutions available.	Ongoing, monitoring of the water levels at least twice per year for the first three years.
Preventing invasion of alien species	Alien, non-native plant species can "choke" ponds, supressing native vegetation and decreasing water levels. The pond vegetation will be checked annually for invasive species. Information and identification sheets on such species can be found at https://www.nonnativespecies.org/non-native-species/ If any of these species are found within the ponds, ecological advice will be sought to provide the best solution for removing the species.	Monitor every year, during April-September when plants are easier to identify.
Preventing the introduction of fish	Under no circumstances should fish be introduced to the ponds. Fish predate on the eggs, larval and juvenile forms of many invertebrates and other wildlife, which has a negative effect on the overall health of the ecosystem.	At all times
Scrub removal	Natural successional processes will lead to scrub establishment around the ponds. Low levels of scrub are tolerable, such as willow or bramble, as they will offer sheltering opportunities for amphibians, but scrub will not be allowed to dominate. With the exception of Pond 4 as detailed above, no more than 20% of the pond's banks should feature scrub; where required, this will be removed by physically cutting and / or digging it out, or through use of appropriate herbicide.	Autumn, annually. Winter, as required
Removal of algal blooms	The submerged, oxygenating aquatic plants planted should prevent the growth of algal blooms. However, in the case that an algal bloom does occur, blankets of algae will be carefully raked off.	If and when an algal bloom develops.

3.2.7 Watercourses

The watercourse at the site boundaries and the drainage ditch within the northern section of the site will be retained and left largely undisturbed. Both the River Clywedog and Redwither Brook are largely bordered by a thin strip of riparian woodland, which will be managed as detailed above in Section 3.2.1. With the exception of the maintenance of informal access paths to facilitate ongoing management works within the wider site, all other habitats within close proximity to the watercourses will be left unmanaged, providing completely undisturbed areas for wildlife.

Himalayan balsam is currently present along the banks of both watercourse and is abundant and continuing to spread within the southern section of the site. Control and removal of Himalayan balsam will be undertaken to reduce its abundance and prevent further spread

across the site. This will be achieved though through the pulling and removal of plants from May-June inclusive when plants are readily identifiable but yet to set seed. Pulling and removal will be undertaken annually for the first five years, after which a review of the effectiveness will determine if measures are working and worth continuing or altering the frequency. Due to its abundance, dispersal capability, and upstream seed sources, it is anticipated that it may not be possible to entirely eradicate Himalayan balsam from the wider site.

Full details of all initial and long-term management, control and eradication of invasive species will be detailed within the CEMP:Biodiversity & EDS report that is being prepared for the site, including annual site inspections to identify new occurrences and the implementation of appropriate control and eradication measures

3.2.8 Additional habitats

Hibernacula and log/brash piles

Three amphibian hibernacula and at least three log piles will be created during various phases of the restoration works, as shown within the Ecological Enhancements Plan at Appendix 1. These will provide sheltering and hibernating opportunities for a variety of wildlife on site.

The hibernacula will be created by excavating a pit in the ground (0.5-1m deep, 0.5-1m wide, and 1-2m long). Ideally, the pits will then be filled using materials already present on site, including hay, brash, cut timber / logs and brick / rock hard-core, or the materials can be sourced from elsewhere if necessary. The pits will be piled up to a height of approximately 1m above ground level. Hibernacula will then be loosely capped with topsoil or turf, ensuring that access is still available through to the lower layers at the margins. The following diagram provides a visual representation of the hibernaculum, with the only additional requirement to the diagram being that a pit is first excavated.

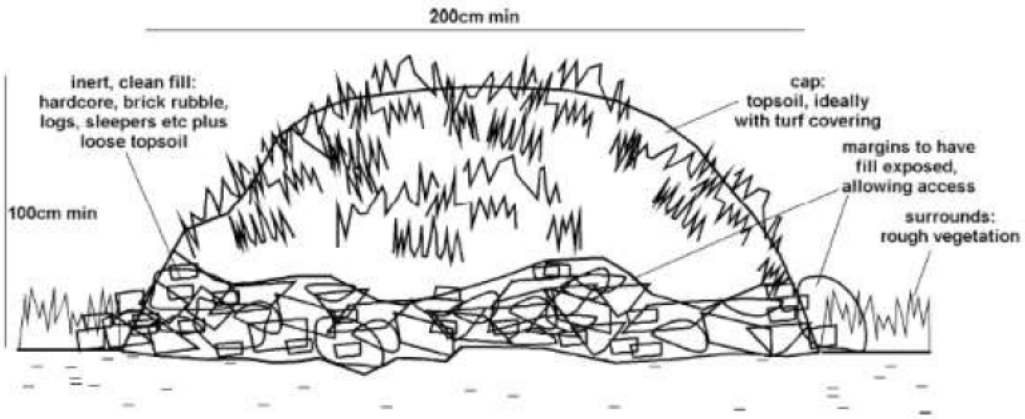


Figure 1 – Hibernacula design

The log / brash piles will be created using arisings from the initial scrub removal works. Felled trees and other arisings will be cut and manipulated so that a mix of different size logs and brash are present in each pile. This is to provide structural diversity and micro niches that favour different species e.g. larger cavities between logs for hedgehogs and smaller cavities for invertebrates.

Further log / brash piles will be created using the arisings from the long-term management of the scrub and woodland within the wider site, as detailed within Section 3.2.1.

Bat boxes

A suite of bat boxes will be provided to compensate for the loss of potential roosting features within the small number of trees being removed to facilitate the proposals. Additional bat boxes will be installed to provide an ecological enhancement in the type and availability of roosting opportunities. Eight Schwegler 1FF boxes will be installed within the retained buildings on site, with others affixed to retained trees within the areas of scrub and woodland. Full details are provided within the Bat Conservation Plan that is being prepared for the site, however the following boxes will be installed onto trees:

- 3x Schwegler 2F bat box
- 5x Schwegler 1FF bat box
- 3x Schwegler 2FN bat box
- 1x Schwegler 1FS large colony bat box

Indicative locations are shown in the Ecological Enhancements Plan at Appendix 1; however, final placement will be determined by the project ecologist at the time of installation, based on prevailing site conditions.

All bat boxes will be installed within the first year of the Phase 1 works.

Bird boxes

The following nest boxes will be provided as part of the development:

- 6x Schwegler 1B nest box (26mm entrance hole)
- 6x Schwegler 1B nest box (32mm entrance hole)
- 2x Schwegler startling nest box
- 5x Schwegler 2H open-fronted nest box
- 1x Tawny owl nest box

These bird boxes are durable and will enhance the site by providing nesting opportunities for a wide range of bird species that are known to be present onsite and within the local area.

Should any of the specified models be unavailable due to supply constraints, alternative models may be used, subject to prior agreement with the project ecologist to ensure equivalent nesting functionality. Preference will be given to woodcrete or woodstone designs where possible due to their proven durability and longevity.

Installation will be undertaken by a suitably qualified ecologist or under ecological supervision. Indicative locations are shown in the Ecological Enhancements Plan at Appendix 1; however, final placement will be determined by the project ecologist at the time of installation, based on prevailing site conditions. The boxes will be sited at a minimum height of three metres and will be oriented between north and east, thus avoiding strong sunlight and the wettest winds.

4 RESPONSIBILITIES, MONITORING AND ADAPTIVE MANAGEMENT

4.1 Management responsibilities

The responsibility for all initial habitat creation works lies with FI-REM (developer / landowner). FI-REM and any appointed contractors will be responsible for ensuring that the habitat creation works are carried out to in accordance with this LEMP.

Subsequent management of the habitats within the Industrial Unit Compound will be the responsibility of the management company appointed to manage this part of the site.

Subsequent management of the habitats within the Restoration Area and the Wider Eco-Heritage Park will be the responsibility of FI-REM (developer / landowner) and will be secured through a Section 106 Agreement. An ecology cooperative has been established and involves FI-REM (developer / landowner), United Environmental Services (ecological consultant), North Wales Wildlife Trust and Enfys Ecology Ltd. Butterfly Conservation and Amphibian and Reptile Conservation are also advisory members of the cooperative. Furthermore, whilst Wrexham Borough Council's Ecologist and NRW aren't members of the cooperative, their expertise and advice will be regularly sought from the cooperative.

Through the cooperative, Enfys Ecology and the North Wales Wildlife Trust will be appointed as the management company and responsible body, responsible for undertaking the ongoing habitat management works as detailed within this document. They must ensure that the ongoing measures detailed within this LEMP are implemented. They will also be responsible for monitoring the establishment of habitats as well as monitoring them for any changes affecting their quality or function. If evidenced and identified as necessary by the ongoing monitoring surveys and the results of earlier works, changes can be made to the proposed methodology for habitat creation measures and the long-term management plan, provided they are agreed by the cooperative.

4.2 Monitoring

As part of the long-term management plan, annual site inspections will be undertaken of the created and retained ecology areas by Enfys Ecology, North Wales Wildlife Trust and / or the project ecologist. Following this, annual meetings will be held and will include all members of the ecology cooperative. The purpose of the meeting will be to discuss any issues, particularly in relation to failed habitat establishment and management, and to determine whether any remedial works are necessary to restore the habitats to a satisfactory standard, or to implement further enhancement measures. This meeting will be held from late summer to winter, so that the habitats can be assessed when in flower (e.g. wildflower meadows) and to allow for the required remedial works to be arranged.

Additional to the annual site inspection and subsequent management meetings, the GCN Mitigation licence that will be secured from NRW prior to the start of works will require ongoing GCN population monitoring surveys of the retained and newly created ponds. These monitoring surveys will be undertaken by UES (or any other appointed project ecologist). Any individuals undertaking these surveys must hold an appropriate NRW GCN survey licence, or be listed as an accredited agent under another ecologist's licence.

Following completion of the construction works and establishment of the habitats, further butterfly monitoring surveys will be undertaken of the site by an appropriately skilled ecologist,

with particular focus on dingy skipper, grizzled skipper and small heath butterflies (species of principle importance). These monitoring surveys will be undertaken every 5 years following the start of habitat enhancement works and will continue for a period of 25 years.

Additional general invertebrate surveys covering all taxa will also be undertaken by an appropriately skilled ecologist. These monitoring surveys will be undertaken every 5 years following the start of habitat enhancement works and will continue for a period of 25 years

Survey results from all monitoring surveys will be provided to the ecology cooperative to inform the need for changes to the management plan. Results will also be submitted to NRW, Wrexham County Council Ecologist and Cofnod, the North Wales Environmental Information Service.

4.3 Site access restrictions

Access across most of the site will not be encouraged to prevent excessive disturbance and damage. However, existing permissive footpaths across and throughout the site will be retained to allow the public to access parts of the site on foot.

5 MANAGEMENT SCHEDULE

The below table summarises the management requirements and responsibilities detailed in the previous sections. This table should be read in conjunction with the previous sections, which include more detail which should not be overlooked.

All initial works within the Industrial Unit Compound area are to be undertaken at the appropriate time of year as indicated in Table 2 below and are to begin within 2 years of the commencement of construction works, unless specified otherwise.

Phase 1 of enhancement works to the Eco-Heritage Park will commence the same year that any site clearance, construction or initial habitat works take place (Year 1). Some works within Phase 1 may extend or be delayed beyond Year 1 to align with ecological constraints and optimal implementation periods. Each subsequent phase will commence at the earliest appropriate opportunity within its designated year e.g. Phase 2 will begin in Year 3, Phase 3 in Year 6 etc.

The long-term ongoing management plan for both parts of the site will commence immediately following the start of construction works or initial habitat creation works, whichever occurs first, unless specified otherwise. These management plans will be implemented for a minimum period of 30 years and will be implemented beyond this period whilst the consented development remains operational.

Table 2 – Industrial Unit Compound long-term management schedule

ACTIVITY	DESCRIPTION	TIMINGS
Initial works – carried out by appointed contractors		
Initial arboricultural works	Following the recommendations of the Arboricultural Impact Assessment produced for the site.	During the development - September to February inclusive. If not possible, then a bird nest scoping survey should be carried out immediately prior to the works.
Tree planting	As detailed within the Planting Schedule and Specification Plan (drawing number 311/LAND/L/110 Revision P02).	During the development, although planting between October and March is preferred.
Hedgerow planting	As detailed within the Planting Schedule and Specification Plan (drawing number 311/LAND/L/110 Revision P02).	During the development, although planting between October and March is preferred.
Sowing of four different types of grassland	Including preparatory ground works as detailed within the Planting Schedule and Specification Plan (drawing number 311/LAND/L/110 Revision P02).	March to April is optimal, however can be sown at other times of year provided there is sufficient warmth and moisture in the soil.
Swale and attenuation basin creation	As detailed within the Planting Schedule and Specification Plan (drawing number 311/LAND/L/110 Revision P02).	During development, no timing restrictions.
Long-term ongoing management plan – carried out by the appointed site management company		
Arboricultural works / tree pruning	As and when needed e.g. to address specific health and safety risks	September to February inclusive. If not possible, then a bird nest check should be carried out immediately prior to the works.

Tree / hedge plant establishment assessment	Inspection of newly planted trees / hedgerows to monitor establishment after first growing season. Any trees deemed not to be in sufficient health / sufficiently well-established are to be replaced by the planting contractor.	After first full growing season, in late summer when leaves are still present to provide indication of plant health.
Initial pruning of hedgerows		October to February following planting
Subsequent pruning of hedgerows	As required to maintain desired height of 1.5m.	September to February inclusive. If not possible, then a bird nest check should be carried out immediately prior to the works.
First-year management of wildflower meadow areas, swales and attenuation basin	First cut of weeds that have been left and allowed to establish, followed by regular mowing over autumn and winter.	First cut - August after first year of sowing Ongoing regular mowing from – August to March inclusive.
Second-year onwards management of wildflower meadow areas, swales and attenuation basin	Annual hay-cut followed by regular mowing over autumn and winter.	Hay cut – July to August Ongoing regular mowing – August to March inclusive.
First-year management of native grassland lawn areas	Mow as regularly as needed during first growing season	No timing restrictions
Second-year onwards management of native grassland lawn areas	3-5 mows during the growing season, staggered across the grassland to ensure areas of differing sward height at all times. Regular mowing over autumn and winter.	3-5 mows – April to October inclusive Ongoing regular mowing – November to March inclusive.
Management of amenity grassland and ornamental shrub planting	In accordance with the site's management programme.	No time restrictions.

Table 3 – Eco-Heritage Park long-term management schedule

ACTIVITY	DESCRIPTION	TIMINGS
Phase 1 – Initial works – Commencing Year 1 (the year during which any construction or initial habitat clearance works commence)		
Scrub removal to facilitate restoration of wildflower grassland and Pond 2	To a height of 5cm using hand-tools or machinery but not disturbing the soil. Any scrub clearance within 100m of Ponds 3 and 4 will be under ecological supervision. Including collection and removal of all arisings.	September to October during the first available period following the commencement of any works associated with the clearance or construction of the Industrial Unit Compound area.
Ground works to prepare proposed wildflower grassland areas for seeding	Removal of large stumps and 5cm layer of topsoil under ecological supervision, following finger-tip search of any potential refugia and around large stumps. A period of at least 48 hours must be left between scrub clearance and ground works.	October to November, immediately following scrub removal. Can be continued in early March if needed.
Wildflower grassland seeding	May require minor further ground preparation works first.	March following the scrub clearance and preparatory ground works, including topsoil removal.
First-year management of restored wildflower grassland	Mown three times over summer to a height of 5–10 cm. To suppress annual weeds and encourage root development of sown wildflowers. Collection and removal of all arisings to reduce nutrient loading and prevent smothering of seedlings.	Mown in May, July and September.
Removal of leaf-litter and excavation of restored Pond 2	Retaining the pond's shallow and gently sloping margins whilst ensuring the centre has a depth of at least 1m.	Immediately following scrub clearance around the pond.
Importation of inert materials for creation of disturbed areas	Very small quantities of inert materials such as crushed brick, sand, and low-nutrient subsoil, to locally vary the growing substrate and suppress competitive vegetative communities and scrub encroachment. Under the supervision of a suitably experienced ecologist, who will advise on locations and quantities accordingly.	Immediately following scrub clearance and ground preparation works to facilitate wildflower grassland sowing.
Removal of scrub around Pond 3	Cut to a height of 10cm using hand tools reduce the risk of impacts to GCNs sheltering within at ground level. Undertaken under ecological supervision.	September to February inclusive. Within the first available period following the commencement of construction works or site clearance.

Removal of leaf-litter and organic material within Pond 3	Removal from one-third of the pond, to limit the area of disturbance. Material will be extracted using hand tools and low-impact methods (e.g. rakes, nets) to avoid sediment disturbance wider pond. Arisings will be temporarily stored on tarpaulins adjacent to the pond for at least 24 hours before disposal, allowing any amphibians and invertebrates present within a chance to escape. Undertaken under ecological supervision.	October–early November. Within the first available period following the commencement of construction works or site clearance.
Installation of bird and bat boxes affixed to trees	Under ecological supervision and as detailed in Section 3.2.8 and the Ecological Enhancements Plan at Appendix 1.	Within Year 1, no specific timing restrictions.
Installation of bat boxes within retained building and installation of security measures.	Under ecological supervision and as detailed in the Bat Conservation Plan prepared for the site.	Within Year 1, no specific timing restrictions.
Creation of brash / log pile	Using material from prior scrub clearance works undertaken within this phase.	Following scrub clearance and ground preparation works to facilitate wildflower grassland sowing
Phase 2 – Initial works – Commencing in Year 3		
Scrub removal to facilitate restoration of wildflower grassland	To a height of 5cm using hand-tools or machinery but not disturbing the soil. Any scrub clearance within 100m of Ponds 3 and 4 will be under ecological supervision. Including collection and removal of all arisings.	September to October within Year 3.
Ground works to prepare proposed wildflower grassland areas for seeding	Removal of large stumps and 5cm layer of topsoil under ecological supervision, following finger-tip search of any potential refugia and around large stumps. A period of at least 48 hours must be left between scrub clearance and ground works.	October to November, immediately following scrub removal. Can be continued in early March if needed.
Wildflower grassland seeding	May require minor further ground preparation works first.	March following the scrub clearance and preparatory ground works, including topsoil removal.
First-year management of	Mown three times over summer to a height of 5–10 cm. To suppress annual	Mown in May, July and September.

restored wildflower grassland	weeds and encourage root development of sown wildflowers. Collection and removal of all arisings to reduce nutrient loading and prevent smothering of seedlings.	
Creation of new pond		Immediately following scrub clearance and ground preparation works to facilitate wildflower grassland sowing.
Planting of oxygenating plants within newly created pond		April-June in second year following pond establishment.
Creation of amphibian hibernacula	Including excavation of pits and filling with suitable materials, before capping with topsoil and turf. Under ecological supervision.	Following scrub clearance and ground preparation works to facilitate wildflower grassland sowing
Creation of brash / log pile	Using material from prior scrub clearance works undertaken within this phase.	Following scrub clearance and ground preparation works to facilitate wildflower grassland sowing
Phase 3 – Initial works Commencing in Year 6		
Scrub removal to facilitate restoration of wildflower grassland	To a height of 5cm using hand-tools or machinery but not disturbing the soil. Any scrub clearance within 100m of Ponds 3 and 4 will be under ecological supervision. Including collection and removal of all arisings.	September to October within Year 6.
Ground works to prepare proposed wildflower grassland areas for seeding	Removal of large stumps and 5cm layer of topsoil under ecological supervision, following finger-tip search of any potential refugia and around large stumps. A period of at least 48 hours must be left between scrub clearance and ground works.	October to November, immediately following scrub removal. Can be continued in early March if needed.
Wildflower grassland seeding	May require minor further ground preparation works first.	March following the scrub clearance and preparatory ground works, including topsoil removal.
First-year management of restored wildflower grassland	Mown three times over summer to a height of 5–10 cm. To suppress annual weeds and encourage root development of sown wildflowers. Collection and removal of all arisings to reduce nutrient loading and prevent smothering of seedlings.	Mown in May, July and September.

Creation of 2x ponds		Immediately following scrub clearance and ground preparation works to facilitate wildflower grassland sowing.
Planting of marginal and emergent species within 2x newly created ponds	The drawdown zone and the shelf within both ponds created in Phase 3 will be planted with marginal and emergent species.	April to June in the next available planting season following pond excavation
Planting of oxygenating plants within 2x created ponds		April-June in second year following pond establishment.
Creation of amphibian hibernacula	Including excavation of pits and filling with suitable materials, before capping with topsoil and turf. Under ecological supervision.	Following scrub clearance and ground preparation works to facilitate wildflower grassland sowing
Phase 4 – Initial works Commencing in Year 9		
Scrub removal to facilitate restoration of wildflower grassland.	To a height of 5cm using hand-tools or machinery but not disturbing the soil. Any scrub clearance within 100m of Ponds 3 and 4 will be under ecological supervision. Including collection and removal of all arisings.	September to October within Year 9.
Ground works to prepare proposed wildflower grassland areas for seeding	Removal of large stumps and 5cm layer of topsoil under ecological supervision, following finger-tip search of any potential refugia and around large stumps. A period of at least 48 hours must be left between scrub clearance and ground works.	October to November, immediately following scrub removal. Can be continued in early March if needed.
Wildflower grassland seeding	May require minor further ground preparation works first.	March following the scrub clearance and preparatory ground works, including topsoil removal.
First-year management of restored wildflower grassland	Mown three times over summer to a height of 5–10 cm. To suppress annual weeds and encourage root development of sown wildflowers. Collection and removal of all arisings to reduce nutrient loading and prevent smothering of seedlings.	Mown in May, July and September.
Creation of new pond		Immediately following scrub clearance and ground preparation works to facilitate wildflower grassland sowing.
Planting of oxygenating plants		April-June in second year following pond establishment.

within created excavated pond		
Selective scrub removal around retained Pond 4.	To ensure that no more than 50% of the pond's margins are heavily shaded. Undertaken under ecological supervision. Cut to a height of 10cm using hand tools reduce the risk of impacts to GCNs sheltering within at ground level.	September to February inclusive. Within the first available period within Phase 4.
Selective emergent vegetation removal within retained Pond 4.	To ensure that no more than 75% of the ponds surface is covered. Material will be extracted using hand tools and low-impact methods (e.g. rakes, nets) to avoid sediment disturbance wider pond. Arisings will be temporarily stored on tarpaulins adjacent to the pond for at least 24 hours before disposal, allowing any amphibians and invertebrates present within a chance to escape. Undertaken under ecological supervision.	October–early November. Within the first available period within Phase 4.
Creation of brash / log pile	Using material from prior scrub clearance works undertaken within this phase.	Following scrub clearance and ground preparation works to facilitate wildflower grassland sowing.
Phase 5 – Initial works Commencing in Year 12		
Scrub removal to facilitate restoration of wildflower grassland.	To a height of 5cm using hand-tools or machinery but not disturbing the soil. Any scrub clearance within 100m of Ponds 3 and 4 will be under ecological supervision. Including collection and removal of all arisings.	September to October within Year 15.
Ground works to prepare proposed wildflower grassland areas for seeding	Removal of large stumps and 5cm layer of topsoil under ecological supervision, following finger-tip search of any potential refugia and around large stumps. A period of at least 48 hours must be left between scrub clearance and ground works.	October to November, immediately following scrub removal. Can be continued in early March if needed.
Wildflower grassland seeding	May require minor further ground preparation works first.	March following the scrub clearance and preparatory ground works, including topsoil removal.

First-year management of restored wildflower grassland	Mown three times over summer to a height of 5–10 cm. To suppress annual weeds and encourage root development of sown wildflowers. Collection and removal of all arisings to reduce nutrient loading and prevent smothering of seedlings.	Mown in May, July and September.
Creation of new pond		Immediately following scrub clearance and ground preparation works to facilitate wildflower grassland sowing.
Planting of oxygenating plants within newly created pond		April-June in second year following pond establishment.
Phase 6 – Initial works Commencing in Year 15		
Scrub removal to facilitate restoration of wildflower grassland.	To a height of 5cm using hand-tools or machinery but not disturbing the soil. Any scrub clearance within 100m of Ponds 3 and 4 will be under ecological supervision. Including collection and removal of all arisings.	September to October within Year 15.
Ground works to prepare proposed wildflower grassland areas for seeding	Removal of large stumps and 5cm layer of topsoil under ecological supervision, following finger-tip search of any potential refugia and around large stumps. A period of at least 48 hours must be left between scrub clearance and ground works.	October to November, immediately following scrub removal. Can be continued in early March if needed.
Wildflower grassland seeding	May require minor further ground preparation works first.	March following the scrub clearance and preparatory ground works, including topsoil removal.
First-year management of restored wildflower grassland	Mown three times over summer to a height of 5–10 cm. To suppress annual weeds and encourage root development of sown wildflowers. Collection and removal of all arisings to reduce nutrient loading and prevent smothering of seedlings.	Mown in May, July and September.
Creation of amphibian hibernacula	Including excavation of pits and filling with suitable materials, before capping with topsoil and turf. Under ecological supervision.	Following scrub clearance and ground preparation works to facilitate wildflower grassland sowing
Long-term ongoing management plan – covering all phases and commencing immediately following the start of works within each phase		

5-year site inspection of woodland areas by a suitability qualified arboriculturist or ecologist.	To identify the need for any further management intervention e.g. selective thinning, invasive species eradication etc.	April – August. Undertaken every 5 years, starting in Year 1.
Selective thinning of trees, coppicing and clearance of understory within woodland and areas of mature hawthorn scrub	As advised by ecologist or arboriculturist following 5-year site inspection and management meeting. Following confirmation from ecologist that it will not impact potential bat roosting features. Ensuring retention / creation of standing deadwood where possible and processing arisings into habitat piles.	September to February only (outside of the nesting bird season).
Eradication of invasive species montbretia and Japanese knotweed.	As detailed within the CEMP:Biodiversity & EDS. Complete eradication of Japanese knotweed is anticipated to take a number of years and will continue beyond the completion of Phase 1.	April – August. Within the next available season following the commencement of construction works or site clearance.
Ongoing control of invasive Himalayan balsam	Annual pulling and removal when plants are readily identifiable but yet to set seed. To be undertaken annually for first five years, after which a review of the effectiveness will determine if measures are working and worth continuing or altering the frequency.	May-June, annually for first five years.
Ongoing management of disturbed ephemeral areas	Monitoring for invasive species colonisation. Control measures undertaken if required. Monitoring of dominant ruderals. Control measures required if dominance not controlled by natural processes. Removal of scrub, at discretion of project ecologist or appointed management company. Continued presence of bare ground required; creation of new areas as initial areas become vegetated.	Annually, June to August. Annually, as required. As required, October to February. As required, October to February.
Ongoing pond management	Water level monitoring to ensure no leaks. Hydrological advice and remedial works may be required. Monitoring for invasive species colonisation. Monitoring scrub encroachment.	Ongoing monitoring. At least twice per year during first 3 years from creation. April and August. June and August inclusive, annually. Annually, no timing restrictions.

	Monitoring of algal blooms. To be raked off if required.	If and when algal blooms develop.
Second-year and ongoing management of restored wildflower grassland	Two cuttings each year, to a height of 5-10cm. All arisings are to be left *in situ* for 48-72 hours, before collection and removal. During each cut, the sward should be monitored for establishing scrub including brambles, and these should be uprooted, cut back or use of appropriate herbicide.	Cuts in April and August annually.
Management meetings	To discuss the establishment and condition of habitats, and whether any remedial actions are required to restore habitats.	Annually, August – September.

6 CONCLUSION

This LEMP sets out a comprehensive framework for the creation, enhancement, and long-term stewardship of habitats across The Oaks site, integrating ecological resilience with landscape functionality. Through a phased programme of restoration and adaptive management, the proposals will deliver a net benefit for biodiversity, support protected and priority species, and contribute to the wider ecological network of Wrexham Industrial Estate.

The plan ensures that retained and newly created habitats are established and maintained in accordance with best practice, with clear responsibilities assigned to competent bodies and secured through legal mechanisms. The involvement of an ecology cooperative, comprising experienced ecological consultants and conservation organisations, provides a robust governance structure to oversee delivery, monitor outcomes, and respond to emerging challenges.

Ongoing monitoring, annual management reviews, and periodic habitat assessments will ensure that the site continues to function as a dynamic and ecologically valuable landscape. Where necessary, management prescriptions will be refined in response to evidence, ensuring that the plan remains effective and responsive throughout its lifespan.

In summary, this LEMP provides an actionable, and ecologically sound strategy to secure the long-term biodiversity value of The Oaks, delivering meaningful outcomes for wildlife, stakeholders, and the wider community.

APPENDICES

Appendix 1 – Ecological Enhancements Plan

Ecological Enhancement Plan

Site: The Oaks, Wrexham Industrial Estate
NGR: (SJ) 38653 49314
Author: Harry Fox
Date: 02/12/2025

north

REDWITHER ROAD

OAK ROAD

Power Station

Works

Tank

Drain

33.8m

The Oaks

Pond

Redwither Brook

FB

Pumping Station

Clywedog (Bagillt)

CR

Co Const. F Const & Eb Ady

AE2M CLYWEDOG / RIVER CLYWEDOG

see continuation

LANDSCAPE MASTERPLAN

0 10 20 30 40 50 60 70 80 90 100

SCALE 1:1250 (A1)
SCALE 1:2500 (A3)

METRES

Location Plan



Legend

- EXISTING TREES TO BE RETAINED
- EXISTING TREES - ROOT PROTECTION AREA
- EXISTING AREAS OF SCRUB HABITAT TO BE RETAINED
- EXISTING WATER FEATURE TO DE REMOVED
- TREE WITH NEGLIGIBLE BAT ROOST POTENTIAL
- TREE WITH LOW BAT ROOST POTENTIAL
- TREE WITH MODERATE BAT ROOST POTENTIAL
- DEVELOPMENT SITE
- PROPOSED UNIT/BUILDING
- PROPOSED NATIVE SPECIES STANDARD DECIDUOUS TREE
- PROPOSED NATIVE SPECIES SHRUB PLANTING
- PROPOSED ORNAMENTAL SHRUB AND HERBACEOUS PLANTING
- PROPOSED NATIVE MIXED SPECIES HEDGING
- PROPOSED NATIVE SPECIES WILDFLOWER AND GRASS MIX
- PROPOSED NATIVE GRASS MIX
- PROPOSED SHORT AMENITY GRASS MIX
- PROPOSED SWALE / ATTENUATION
- PROPOSED FOOTPATHS
- PROPOSED SITE ROADS AND PARKING
- NATURE RESERVE
- EXISTING PUBLIC RIGHT OF WAY
- PROPOSED PERMISSIVE FOOTPATH
- EXISTING AREAS OF SPECIES RICH GRASSLAND
- EXISTING AREAS OF EPHEMERAL / SHORT PERENNIAL VEGETATION
- EXISTING WATER FEATURE RETAINED
- AREA TO BE RESTORED TO SPECIES RICH GRASSLAND
- AREAS TO BE CREATED AS DISTURBED GROUND
- PROPOSED POND - ALLOWED TO COLONISE NATURALLY (1m DEEP)
- PROPOSED POND - TO BE PLANTED WITH NATIVE SPECIES MARGINAL PLANTING (1.5m and 2.5m DEEP)

- Brash piles
- Hibernacula
- Schwegler 1B (26mm entrance hole)
- Schwegler 1B (32mm entrance hole)
- Schwegler 2H open-fronted nest box
- Tawny owl nest box
- Schwegler Startling nest box
- Schwegler 1FF bat box
- Schwegler 1FS large colony bat box
- Schwegler 2F bat box
- Schwegler 2FN bat box

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Project	THE OAKS, OAK ROAD WREXHAM INDUSTRIAL ESTATE	**Dwg No** 311/LAND/L/104	**Revision** P05.1
Title	LANDSCAPE MASTERPLAN PROPOSED SITE AND NATURE RESERVE YEAR FIFTEEN	**Scale** 1:1250 @ A1 / 1:2500 @ A3	**Date** 1/12/2025

Revision	Date	Details	Drawn	Checked	Reviewed
P01	07/02/2025	PRE-APPLICATION CONSULTATION	MD	XXXX	MD
P02	19/05/2025	PLANNING APPLICATION	MD	XX	MD
P03	22/08/2025	PLANNING APPLICATION & LEMP	MD	XX	MD
P04	04/09/2025	PLANNING APPLICATION	MD	XX	MD
P05.1	1/12/2025	PLANNING APPLICATION	MD	XX	MD

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Appendix 2 – Phasing Plan

15 Year Habitat Managment Plan

Site: The Oaks, Wrexham Industrial Estate
NGR: (SJ) 38653 49314
Author: Harry Fox
Date: 02/12/2025

north

REDWITHER ROAD

OAK ROAD

Power Station

Works

Tank

Drain

33.0m

The Oaks

Pond

Lowes

FB

Pumping Station

Clywedog)

CR

Co Const. F Const & ED adj

AFON CLYWEDOG / RIVER CLYWEDOG

see continuation

LANDSCAPE MASTERPLAN

0 10 20 30 40 50 60 70 80 90 100

SCALE 1:1250 (A1)
SCALE 1:2500 (A3)

METRES

Location Plan



Legend

- EXISTING TREES TO BE RETAINED
- EXISTING TREES - ROOT PROTECTION AREA
- EXISTING AREAS OF SCRUB HABITAT TO BE RETAINED
- EXISTING WATER FEATURE TO BE REMOVED
- TREE WITH NEGLIGIBLE BAT ROOST POTENTIAL
- TREE WITH LOW BAT ROOST POTENTIAL
- TREE WITH MODERATE BAT ROOST POTENTIAL
- DEVELOPMENT SITE
- PROPOSED UNIT/BUILDING
- PROPOSED NATIVE SPECIES STANDARD DECIDUOUS TREE
- PROPOSED NATIVE SPECIES SHRUB PLANTING
- PROPOSED ORNAMENTAL SHRUB AND HERBACEOUS PLANTING
- PROPOSED NATIVE MIXED SPECIES HEDGING
- PROPOSED NATIVE SPECIES WILDFLOWER AND GRASS MIX
- PROPOSED NATIVE GRASS MIX
- PROPOSED SHORT AMENITY GRASS MIX
- PROPOSED SWALE / ATTENUATION
- PROPOSED FOOTPATHS
- PROPOSED SITE ROADS AND PARKING
- NATURE RESERVE
- EXISTING PUBLIC RIGHT OF WAY
- PROPOSED PERMISSIVE FOOTPATH
- EXISTING AREAS OF SPECIES RICH GRASSLAND
- EXISTING AREAS OF EPHEMERAL / SHORT PERENNIAL VEGETATION
- EXISTING WATER FEATURE RETAINED
- AREA TO BE RESTORED TO SPECIES RICH GRASSLAND
- AREAS TO BE CREATED AS DISTURBED GROUND
- PROPOSED POND - ALLOWED TO COLONISE NATURALLY (1m DEEP)
- PROPOSED POND - TO BE PLANTED WITH NATIVE SPECIES MARGINAL PLANTING (1.5m and 2.5m DEEP)

- Phase 1
- Phase 2
- Phase 3
- Phase 4
- Phase 5
- Phase 6

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Project	THE OAKS, OAK ROAD WREXHAM INDUSTRIAL ESTATE	**Dwg No**	311/LAND/L/104	**Revision**	P05.1
Title	LANDSCAPE MASTERPLAN PROPOSED SITE AND NATURE RESERVE YEAR FIFTEEN	**Scale**	1:1250 @ A1 / 1:2500 @ A3	**Date**	1/12/2025

Revision	Date	Details	Drawn	Checked	Reviewed
P01	07/02/2025	PRE-APPLICATION CONSULTATION	MD	XXXX	MD
P02	19/05/2025	PLANNING APPLICATION	MD	XX	MD
P03	22/08/2025	PLANNING APPLICATION & LEMP	MD	XX	MD
P04	04/09/2025	PLANNING APPLICATION	MD	XX	MD
P05.1	1/12/2025	PLANNING APPLICATION	MD	XX	MD

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Appendix 3 – Landscaping Plan – Years 1 & 15

north

REDWITHER ROAD

OAK ROAD

Overhead Wires

Substation

Power Station

33.0m

The Oaks

Redwither Brook

Pond

Pumping Station

FB

Clywedog

overhead wires

AFON CLYWEDOG / RIVER CLYWEDOG

see continuation

LANDSCAPE MASTERPLAN

0 10 20 30 40 50 60 70 80 90 100

SCALE 1:1250 (A1)
SCALE 1:2500 (A3)
METRES

Notes

1. Dimensions are given in metres and millimetres as stated on the drawing.
2. Centre of site is located at approximately grid reference SJ 38740 49238.
3. Drawing must be reproduced in colour.

Location Plan



Legend

- EXISTING TREES TO BE RETAINED
- EXISTING TREES - ROOT PROTECTION AREA
- EXISTING TREE TO BE REMOVED
- EXISTING AREAS OF SCRUB HABITAT TO BE RETAINED
- EXISTING AREAS OF SCRUB HABITAT TO BE REMOVED
- EXISTING AREAS OF SPECIES RICH GRASSLAND
- EXISTING AREAS OF OPEN MOSAIC HABITAT
- EXISTING WATER FEATURE RETAINED
- EXISTING WATER FEATURE TO BE REMOVED
- PROPOSED UNIT/BU LD NG
- PROPOSED NATIVE SPECIES STANDARD DECIDUOUS TREE
- PROPOSED NATIVE SPECIES SHRUB PLANTING
- PROPOSED ORNAMENTAL SHRUB AND HERBACEOUS PLANTING
- PROPOSED NATIVE MIXED SPECIES HEDGING
- PROPOSED NATIVE SPECIES WILDFLOWER AND GRASS MIX
- PROPOSED NATIVE GRASS MIX
- PROPOSED SHORT AMENITY GRASS MIX
- PROPOSED SWALE / ATTENUATION
- PROPOSED RESTORATION OF SPECIES RICH GRASSLAND AND MOSAIC HABITAT
- PROPOSED FOOTPATHS
- PROPOSED SITE ROADS AND PARKING
- EXISTING PUBLIC RIGHT OF WAY
- PROPOSED PERMISSIVE FOOTPATH

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Project	THE OAKS, OAK ROAD WREXHAM INDUSTRIAL ESTATE	**Dwg No**	311/LAND/L/100
Title	LANDSCAPE MASTERPLAN PROPOSED SITE AND NATURE RESERVE YEAR ONE	**Scale**	1:1250 @ A1 / 1:2500 @ A3
		Revision	P03
		Date	22/08/2025

Revision	Date	Details	Drawn	Checked	Reviewed
P01	07/02/2025	PRE-APPLICATION CONSULTATION	MD	XX	MD
P02	19/05/2025	PLANNING APPLICATION	MD	XX	MD
P03	22/08/2025	PLANNING APPLICATION & LEMP	MD	XX	MD

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north

REDWITHER ROAD

OAK ROAD

Works

Tank

Power Station

Drain

33.0m

The Oaks

Redwither Brook

FB

Pumping Station

Pond

Clywedog)

GR

Co Const, P Const & Ep.Bdy

AFON CLYWEDOG / RIVER CLYWEDOG

see continuation

LANDSCAPE MASTERPLAN

0 10 20 30 40 50 60 70 80 90 100

SCALE 1:1250 (A1)
SCALE 1:2500 (A3)
METRES

The masterplan indicates the proposed removal of scrub and restoration of grass and wildflower habitat that could be gradually achieved over a ten year period.

A phased approach to the habitat restoration would minimise disturbance to local fauna and allow wildlife to relocate as scrub is cleared.

The approach to habitat restoration is detailed in the Landscape and Ecological Management Plan.

Trees of good form and condition and trees with bat roost features that are encountered during the scrub clearance works will be retained where appropriate to provide longevity to the tree population and for biodiversity and habitat benefit. This will also retain visual and habitat links to the woodland and scrub habitat to the perimeter of the site.

Notes

1. Dimensions are given in metres and millimetres as stated on the drawing.
2. Centre of site is located at approximately grid reference SJ 38740 49238.
3. Drawing must be reproduced in colour.

Location Plan



Legend

- EXIST NG TREES TO BE RETAINED
- EXIST NG TREES - ROOT PROTECTION AREA
- EXIST NG AREAS OF SCRUB HABITAT TO BE RETAINED
- EXIST NG WATER FEATURE TO BE REMOVED
- TREE WITH NEGLIGIBLE BAT ROOST POTENTIAL
- TREE WITH LOW BAT ROOST POTENTIAL
- TREE WITH MODERATE BAT ROOST POTENTIAL

DEVELOPMENT SITE

- PROPOSED UNIT/BUILDING
- PROPOSED NATIVE SPEC ES STANDARD DEC DUOUS TREE
- PROPOSED NATIVE SPEC ES SHRUB PLANT NG
- PROPOSED ORNAMENTAL SHRUB AND HERBACEOUS PLANTING
- PROPOSED NATIVE MIXED SPECIES HEDGING
- PROPOSED NATIVE SPEC ES WILDFLOWER AND GRASS MIX
- PROPOSED NATIVE GRASS MIX
- PROPOSED SHORT AMENITY GRASS MIX
- PROPOSED SWALE / ATTENUATION
- PROPOSED FOOTPATHS
- PROPOSED SITE ROADS AND PARK NG

NATURE RESERVE

- EXIST NG PUBLIC RIGHT OF WAY
- PROPOSED PERMISSIVE FOOTPATH
- EXIST NG AREAS OF SPEC ES RICH GRASSLAND
- EXIST NG AREAS OF EPHEMERAL / SHORT PERENNIAL VEGETATION
- EXIST NG WATER FEATURE RETA NED
- AREA TO BE RESTORED TO SPEC ES RICH GRASSLAND
- AREAS TO BE CREATED AS DISTURBED GROUND
- PROPOSED POND - ALLOWED TO COLONISE NATURALLY (1m DEEP)
- PROPOSED POND - TO BE PLANTED WITH NATIVE SPECIES MARGINAL PLANTING (1.5m and 2.5m DEEP)

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Title	LANDSCAPE MASTERPLAN PROPOSED SITE AND NATURE RESERVE YEAR FIFTEEN	**Scale**	1:1250 @ A1 / 1:2500 @ A3
		Revision	P05.1
		Date	1/12/2025

Revision	Date	Details	Drawn	Checked	Reviewed
P01	07/02/2025	PRE-APPLICATION CONSULTATION	MD	XXXX	MD
P02	19/05/2025	PLANNING APPLICATION	MD	XX	MD
P03	22/08/2025	PLANNING APPLICATION & LEMP	MD	XX	MD
P04	04/09/2025	PLANNING APPLICATION	MD	XX	MD
P05.1	1/12/2025	PLANNING APPLICATION	MD	XX	MD

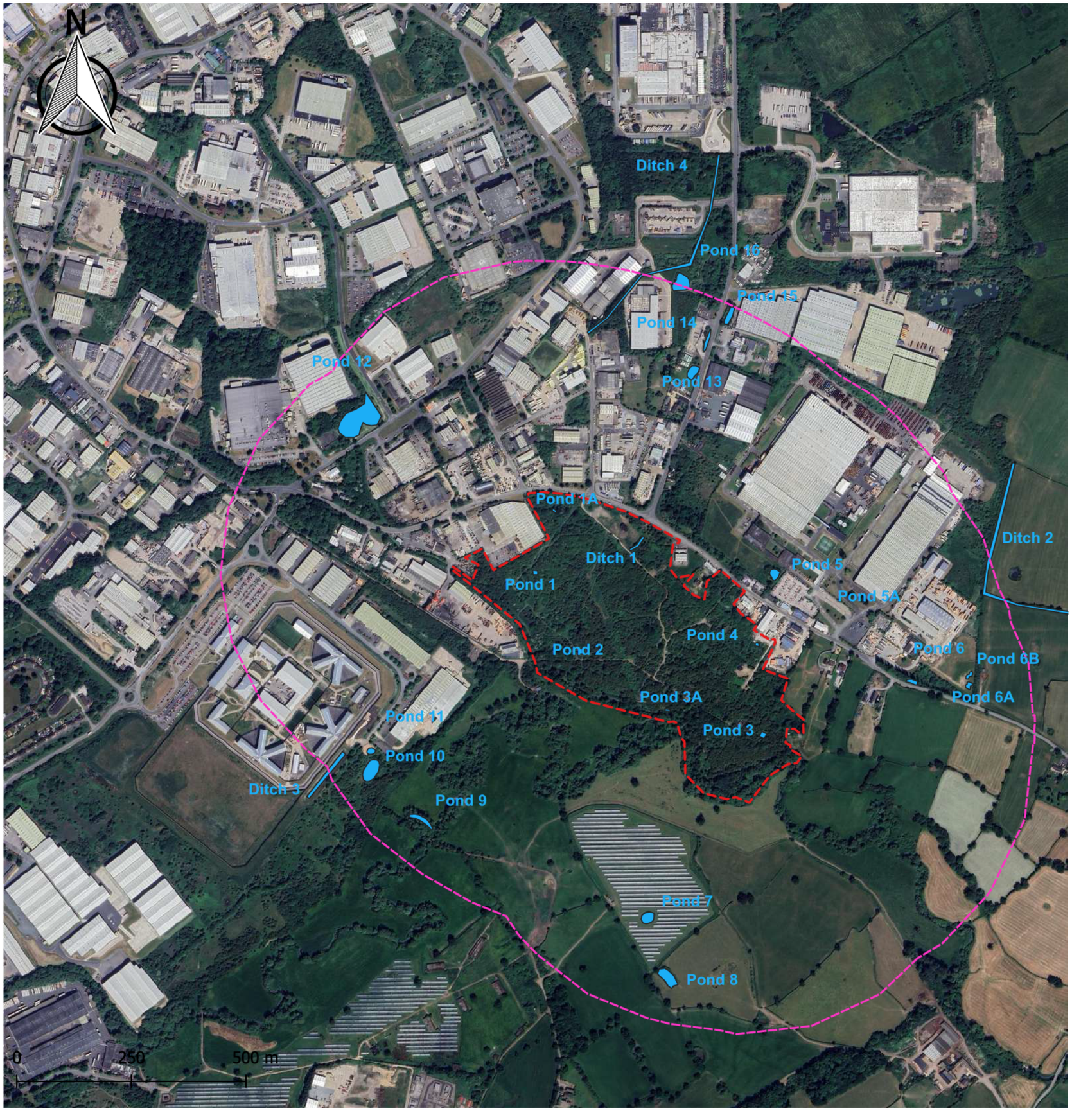
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Appendix 4 – Pond Plan

500m Pond Plan

Site: The Oaks, Wrexham
NGR: SJ 38699 49320
Author: Tom Kenwright
Date: 04/04/2023





KEY:

- Survey boundary
- Waterbodies
- 500m buffer zone to survey boundary

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Appendix 5 – Legislation

STATUTORY AND PLANNING CONTEXT

Ecological assessments

Ecological assessments play an important part within the planning context; they include an initial assessment which highlights any specific interests of a site. From the initial site assessment, the surveyor assesses the suitability of habitats within the site to support protected species and makes recommendations for further survey works if required. The following paragraphs provide a brief interpretation of the legislative protection that is relevant to the findings of this report.

Habitats

Section 7 of the Environment Act (Wales) places a duty on Welsh Ministers to publish, review and revise lists of types of habitats and species in Wales which they consider are of key significance to sustain and improve biodiversity. The Welsh Ministers must also take all reasonable steps to maintain and enhance the habitats published in these lists,and encourage others to take such steps.

Amphibians

<u>Great crested newts</u>

Great crested newts (GCN) *Triturus cristatus* and their habitat (aquatic and terrestrial) are afforded full protection by the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017. If both national and international legislation are taken together, it is an offence to:

- Deliberately, intentionally or recklessly kill, injure or capture GCN
- Deliberately, intentionally or recklessly disturb GCN in such a way to be likely to significantly affect:
    - their ability to survive, breed, reproduce, rear or nurture their young
    - their ability to hibernate or migrate
    - their local distribution or abundance
- Deliberately, intentionally or recklessly take or destroy the eggs of GCN
- Damage or destroy breeding sites or resting places of GCN
- Intentionally or recklessly disturb sheltering GCN, or obstruct access to their resting place
- Keep, transport, sell or exchange, or offer for sale or exchange any live or dead GCN, any part of GCN or anything derived from GCN

Penalties for offences include unlimited fines (formerly up to £5000), plus up to six months imprisonment, for each offence committed.

GCN are also protected by the Protection of Animals Act 1911, which prohibits cruelty and mistreatment. Releasing a GCN in such a way as to cause undue suffering may be an offence under the Abandonment of Animals Act 1960.

In addition to the above, there are various statutory provisions relating to the transport of animals, designed to ensure their welfare. GCN are also listed under Section 7 of the Environment (Wales) Act 2016.

It is important to identify the presence of GCN individuals and also to identify suitable habitat on sites so that legal obligations regarding this species can be observed. If a survey identifies the presence of GCN on the site, an assessment of the population size class is required. This can then inform a mitigation scheme, which would need to be developed in liaison with the local Natural Resources Wales (NRW) team, and which minimises direct threats to newts and compensates for any loss of habitat. A licence issued by NRW is required for the legal implementation of a mitigation scheme.

An NRW mitigation licence application requires a Mitigation Method Statement and a Reasoned Statement of Application. The Mitigation Method Statement contains details of the proposed mitigation works. The Reasoned Statement needs to provide a rational and reasoned justification as to why the proposed development meets the requirements of the Conservation (National Habitats & c.) regulations 1994, namely Regulations 44(2)(e), (f) or (g), and 44(3)(a).

Other amphibians

More common British amphibians, such as common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt *Triturus vulgaris* and palmate newt *Triturus helveticus* are protected only by Section 9(5) of the Wildlife and Countryside Act 1981 (as amended). This section prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy.

The above named species are also listed as UK Species of Conservation Concern. Due to general declines in most British amphibian species in recent years, many local authorities require amphibian surveys as a planning condition, or as part of environmental information submitted as part of a planning application, even where the presence of GCN is ruled out.

Natterjack toad *Bufo calamita* and pool frog *Pelophylax lessonae* are also offered the same level of protection as GCN, through the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017.

Natterjack and common toad are also listed under Section 7 of the Environment (Wales) Act 2016.

Water bodies that support all five (more common) species of British amphibians in high numbers, may be afforded protection in local plans, as Sites of Importance for Nature Conservation (SINC), or a similar equivalent, for sites of local importance. A site may require statutory protection as a Site of Special Scientific Interest (SSSI).

Reptiles

Common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, grass snake *Natrix natrix* and adder *Vipera berus* are protected under the Wildlife and Countryside Act 1981 (as amended). They are listed as a Schedule 5 species therefore part of Section 9(1) and section 9(5) apply. The Countryside and Rights of Way Act 2000 also strengthens their protection. It is offence to:

- Intentionally or recklessly kill or injure any of the species listed above
- Sell, offer, advertise or transport for sale a live or dead animal of the species listed above

If a proposed development is likely to have an impact on these reptiles the local statutory nature conservation organisation must be consulted.

Sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca* receive full protection under the Wildlife and Countryside Act 1981 (as amended) and Conservation of Habitats and Species Regulations 2017. Read together, it is an offence to:

- Deliberately, intentionally or recklessly kill, injure or capture any sand lizards or smooth snakes
- Deliberately, intentionally or recklessly disturb sand lizards or smooth snakes in such a way to be likely to significantly affect:
    - their ability to survive, breed, reproduce, rear or nurture their young
    - their ability to hibernate or migrate
    - their local distribution or abundance
- Deliberately, intentionally or recklessly take or destroy the eggs of such an animal
- Damage or destroy breeding sites or resting places of such animals
- Intentionally or recklessly disturb sheltering sand lizards or smooth snakes, or obstruct access to their resting place
- Keep, transport, sell or exchange, or offer for sale or exchange any live or dead sand lizards or smooth snakes, any part of such an animal or anything derived from such an animal

Penalties for offences include unlimited fines (formerly up to £5000), plus up to six months imprisonment, for each offence committed.

All reptile species (except for smooth snake) are also listed under Section 7 of the Environment (Wales) Act 2016.

Badger

European badgers *Meles meles* and their habitat are protected under The Protection of Badgers Act 1992 and are also included on Schedule 6 of the Wildlife and Countryside Act 1981, and Appendix III of the Bern Convention. The legislation affords badgers protection against deliberate harm or injury making it an offence to:

- Wilfully kill, injure, take, possess or cruelly ill-treat a badger (or attempt to do so)
- To interfere with a sett by damaging or destroying it
- To obstruct access to, or entrance of, a badger sett
- To disturb a badger whilst it is occupying a sett

Penalties for offences include unlimited fines (formerly up to £5000), plus up to six months imprisonment, for each offence committed.

Works that disturb badgers whilst they are occupying a sett are illegal without a licence. Disturbance can occur even without direct interference or damage to the sett in question. In general, the following activities are likely to require a licence:

- Use of heavy machinery or significant earth moving within 30m of a sett
- Use of lighter machinery (usually any wheeled vehicles) within 20m of a sett
- Any digging, chain saw use or scrub clearance within 10m of a sett

Hazel dormouse

Hazel dormice *Muscardinus avellanarius* are offered full protection through the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017. If both national and international legislation are taken together, it is an offence to:

- Deliberately, intentionally or recklessly kill, injure or capture dormice
- Deliberately, intentionally or recklessly disturb dormice in such a way to be likely to significantly affect:
    - their ability to survive, breed, reproduce, rear or nurture their young
    - their ability to hibernate or migrate
    - their local distribution or abundance
- Damage or destroy breeding sites or resting places of dormice
- Intentionally or recklessly disturb sheltering dormice, or obstruct access to their resting place
- Keep, transport, sell or exchange, or offer for sale or exchange any live or dead dormouse, any part of a dormouse or anything derived from a dormouse

Penalties for offences include unlimited fines (formerly up to £5000), plus up to six months imprisonment, for each offence committed.

Dormice are also listed under Section 7 of the Environment (Wales) Act 2016.

Bats

In the United Kingdom, all species of bat and their roosts are afforded full protection under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (known as the "Habitats Regulations"). The Wildlife and Countryside Act is the domestic implementation of the Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) and was amended by the Countryside and Rights of Way Act 2000. This makes it an offence to:

- Deliberately, intentionally or recklessly kill, injure or capture a bat
- Deliberately, intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection
- Deliberately, intentionally or recklessly damage, destroy or obstruct access to any place that a bat uses for shelter or protection (even if the bat is not present at the time)
- Keep, transport, sell or exchange, or offer for sale or exchange any live or dead bat, any part of a bat or anything derived from a bat

Under UK law, a bat roost is *any structure or place which any wild [bat] … uses for shelter or protection*. As bats often reuse the same roosts, legal opinion is that a roost is protected whether or not the bats are present at the time of the activity taking place.

Penalties for offences include unlimited fines (formerly up to £5000), plus up to six months imprisonment, for each offence committed.

If an activity is likely to result in any of the above offences, a licence can be applied for to derogate from the protection afforded. These licences must provide appropriate mitigation and are issued by NRW.

The Environment (Wales) Act 2016 also lists the following bat species as species of principle importance under Section 7:

- Barbastelle *Barbastella barbastellus*
- Bechstein's bat *Myotis bechsteinii*
- Noctule *Nyctalus noctula*
- Common pipistrelle *Pipistrellus pipistrellus*
- Soprano pipistrelle *Pipistrellus pygmaeus*
- Brown long-eared bat *Plecotus auritus*
- Greater horseshoe *Rhinolophus ferrumequinum*
- Lesser horseshoe *Rhinolophus hipposideros*

Birds

All wild birds, their nests and young are protected throughout England and Wales by the Wildlife & Countryside Act 1981 (as amended). It is illegal to kill, injure or take any wild bird, or damage or destroy the nest or eggs of breeding birds. The legislation applies to all bird species, common and rare.

In addition to the protection afforded to all wild birds, more vulnerable species listed on Schedule 1 of the Act receive enhanced protection when breeding. Schedule 1 species, including their dependent young, are protected from intentional or reckless disturbance whilst at or near the nest, in addition to the protection afforded the more common species.

The Environment (Wales) Act 2016 offers further protection to the nests of some species that regularly re-use their nests, even when the nests are not in use.

The leading governmental and non-governmental conservation organisations in the UK have reviewed the population status' of 244 UK bird species. "Birds of Conservation Concern 4: the Red List for Birds" is the most recent publication summarising their findings. Three lists, Red, Amber and Green, have been produced based on the most up-to-date evidence available and criteria include conservation status at global and European levels and, within the UK: historical decline, trends in population and range, rarity, localised distribution and international importance. These lists are a valuable resource when considering conservation priorities.

Trees

Trees may be protected on an individual or group level through a Tree Preservation Order (TPO). In order to carry out works to trees with a TPO, prior written consent must be obtained from the Local Planning Authority. Trees may also be protected through a condition of planning consent or designated conservation areas.

Hedgerows

The Hedgerow Regulations are made under Section 97 of the Environment Act 1995 and came into operation on 1st of June 1997. They aim to protect important hedgerows in the countryside by controlling their removal through a system of notification to the Local Planning Authority.

A hedgerow can only be considered for classification as "important" if it, or the hedgerow of which the section belongs to is over 20m in length (or which meets a hedgerow at either end) and has existed for 30 years or more.

Plants

Schedule 8 of the Wildlife & Countryside Act 1981 (as amended) lists a number of plant species which are protected under Section 13 of the same legislation. As such, it is an offence to:

- Intentionally or recklessly pick, uproot or destroy a plant, or any seeds or spores attached to it, which is listed on Schedule 8
- Keep, transport, sell or exchange, or offer for sale or exchange any live or dead wild plant on Schedule 8, any part of the plant or anything derived from the plant

Penalties for offences include unlimited fines (formerly up to £5000), plus up to six months imprisonment, for each offence committed.

The Conservation of Habitats and Species Regulations 2017 extends European legislative protection to a further subset of plants. It is therefore an offence to pick, collect, cut, uproot, destroy or trade any plant listed in Schedule 4 of these Regulations, unless the appropriate licence is first obtained.

A large number of species of vascular plants, lichens, algae, fungi, mosses, stoneworts and liverworts are also protected through planning policy as species of principal importance, as required under Section 7 of the Environment Act (Wales) 2016.

Invasive Plant Species

A number of invasive, non-native plant species are listed under Schedule 9 (Part II) of the Wildlife and Countryside Act 1981 (as amended). The most commonly encountered listed species in ecological surveys are Japanese knotweed *Fallopia japonica*, Montbretia *Crocosmia x crocosmiiflora* and variegated yellow archangel *Lamiastrum galeobdolon subsp. argentatum*. Section 14(2) of this Act makes it an offence to *plant or otherwise cause to grow in the wild* any plant listed on Schedule 9 (Part II). These provisions are necessary to prevent the establishment of non-native species which may be detrimental to our native wildlife.

A number of invasive, non-native plants species are listed under Schedule 2 (Part II) of the Invasive Alien Species (Enforcement and Permitting) Order 2019. The most commonly encountered listed species in ecological surveys are Himalayan balsam *Impatiens glandulifera* and giant hogweed *Heracleum mantegazzianum*. Section 3 of this Act make it an offence to *plant* or *otherwise causes to grow in the wild* any plant which is listed on Schedule 2 (Part II). These provisions are necessary to prevent the establishment of non-native species which may be detrimental to our native wildlife.

Soil or plant material contaminated with non-native and invasive plants can cause ecological damage and may be classified as controlled waste. It is an offence to keep, treat or dispose of waste that could harm the environment or human health. If there is any doubt, contact the local authority or Environment Agency.

Japanese knotweed has an extensive root system and new plants can regenerate rapidly from the smallest fragments of rhizomes. Material containing this species is classed as “controlled waste” under the Environmental Protection Act (Duty of Care) Regulations 1991. The disposal of such waste requires all involved parties to follow a strict code of practice and maintain adequate records regarding their conduct.

Otter

European otter *Lutra lutra* are offered full protection through the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017. If both national and international legislation are taken together, it is an offence to:

- Deliberately, intentionally or recklessly kill, injure or capture otters
- Deliberately, intentionally or recklessly disturb otters in such a way to be likely to significantly affect:
    - their ability to survive, breed, reproduce, rear or nurture their young
    - their ability to migrate
    - their local distribution or abundance
- Damage or destroy breeding sites or resting places of otters
- Intentionally or recklessly disturb sheltering otters, or obstruct access to their resting place
- Keep, transport, sell or exchange, or offer for sale or exchange any live or dead otter, any part of an otter or anything derived from otter

Penalties for offences include unlimited fines (formerly up to £5000), plus up to six months imprisonment, for each offence committed.

Otters are also listed under Section 7 of the Environment (Wales) Act 2016.

Water vole

Water voles *Arvicola amphibius* are protected by the provisions of Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- Intentionally kill, injure or take water vole
- Possess or control live or dead water vole or any part of a water vole
- Intentionally or recklessly damage destroy or obstruct access to any structure or place which a water vole uses for shelter or protection, or disturb water vole using such a place
- Sell, offer, advertise or transport live or dead water voles for sale

Licences are available from NRW to allow activities that would otherwise be an offence, including:

- Scientific or educational purposes
- For the purposes of ringing or marking
- Conserving wild animals or introducing them into particular areas
- Preserving public health or public safety
- Preventing the spread of disease
- Preventing serious damage to any form of property or to fisheries

Penalties for offences include unlimited fines (formerly up to £5000), plus up to six months imprisonment, for each offence committed.

Water voles are also listed under Section 7 of the Environment (Wales) Act 2016.

White-clawed crayfish

White-clawed crayfish *Austropotomobius pallipes* are protected under the Wildlife and Countryside Act 1981 (as amended). They are listed as a Schedule 5 species therefore part of Section 9(1) and section 9(5) apply. The Countryside and Rights of Way Act 2000 also strengthens their protection. It is offence to:

- Intentionally or recklessly kill or injure white-clawed crayfish
- Sell, offer, advertise or transport for sale a live or dead white-clawed crayfish

If a proposed development is likely to have an impact on white-clawed crayfish then the local statutory nature conservation organisation must be consulted.

Penalties for offences include unlimited fines (formerly up to £5000), plus up to six months imprisonment, for each offence committed.
Their inclusion on the EC Habitats Directive allows areas to be designated as Special Areas of Conservation (SAC) for the presence of white-clawed crayfish. Such a designation brings legal protection under the Conservation of Habitats Regulations 2017, this includes how the site is managed and what development can occur on and in proximity to these sites.

White-clawed crayfish are also listed under Section 7 of the Environment (Wales) Act 2016.

Planning Policy

National planning guidance is issued in the form of Planning Policy Wales (Edition 12 - 2024). The most relevant sections are included in Chapter 6: Distinctive and Natural Places. This chapter details the policies on issues such as the protection of trees, woodlands, species, and designated sites. The document is free and available to view online.