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PRELIMINARY ECOLOGICAL APPRAISAL

At

Plot 3A

Wrexham Industrial Estate
Bryn Lane
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A handwritten signature in black ink, appearing to read 'Toby Hart', is positioned below the 'Approved by:' line.

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CONTENTS

EXECUTIVE SUMMARY	3
1 INTRODUCTION	7
1.1 Author, surveyors, qualifications and scope of study area.....	7
1.2 Survey objectives.....	7
1.3 Proposed development	7
1.4 Structure of the report.....	8
2 METHODOLOGY	9
2.1 Desk study	9
2.2 Field survey	9
2.3 Survey limitations.....	10
3 RESULTS.....	11
3.1 Desk study	11
3.2 Baseline conditions – Habitats	14
3.3 Baseline conditions – Protected species or resources	23
4 EVALUATION AND RECOMMENDATIONS	30
4.1 Habitats	30
4.2 Species.....	34
5 CONCLUSION.....	41
6 REFERENCES	42
APPENDICES.....	43
Appendix 1 – Desk study	43
Appendix 2 – Phase 1 habitat plan	44
Appendix 3 – Aerial photographs.....	45
Appendix 4 – Photographs	46
Appendix 5 – Statutory and planning context.....	47

EXECUTIVE SUMMARY

United Environmental Services Ltd (UES) was commissioned by FI Real Estate Management Ltd to carry out a baseline ecological survey of a parcel of land at Plot 3A, Wrexham Industrial Estate, Bryn Lane, Wrexham. A desk study and preliminary ecological appraisal (PEA) survey were undertaken on 23rd August and 8th September 2021, including searches using the Multi Agency Geographic Information Centre and Cofnod – North Wales Environmental Information Service. Since the initial walkover survey, the site boundary has been extended to incorporate an additional area to the east. A walkover survey of this area was undertaken on the 7th June 2022.

The PEA provides an assessment of potential ecological impacts associated with the development of the land parcel. The development proposals are for the construction of three industrial units with associated parking and access roads.

The land parcel has an area of approximately 20.9ha and was formerly used for industrial and agricultural purposes, prior to being left unmanaged for several years. The site contains large semi-improved species-rich grassland fields interspersed with ponds, small stands of woodland, hedgerows and scattered trees. Large areas of the site have succeeded into dense scrub and areas of bare ground and ephemeral / short perennial are present on previously developed land within the south-eastern section of the site. The south-western section of the site contains an area of amenity grassland and a large hardstanding compound used to store vehicles. A shallow stream runs along the northern site boundary and wet ditches are present along the western and part of the eastern site boundaries.

Since the initial walkover survey, the site boundary has been amended to incorporate an additional 4.5ha of adjacent land. This land comprises two agricultural grassland fields that are divided and bordered by hedgerows and trees. A dry and unvegetated ditch runs along part of the eastern boundary a pond surrounded by willow scrub is present within the northernmost field.

The results of the survey combined with the results of the desk study have highlighted the requirement for further work in relation to the following habitats and species:

- **Amphibians** – A great crested newt (GCN) *Triturus cristatus* impact assessment should be undertaken to assess all accessible ponds that are onsite and offsite within 500m of the proposed development site. This impact assessment can be undertaken any time of year.

Given the historical presence of GCNs on site and within the immediate surrounding area, it is considered highly likely that further GCN presence / absence surveys and subsequent population size class assessments surveys will also need to be undertaken of the onsite ponds and of offsite ponds within 500m of the site. If GCNs are found to be present onsite or within the immediate vicinity, a European protected species (EPS) mitigation licence will need to be granted by Natural Resources Wales. As part of a licence, a suite of mitigation measures will be required, including the installation of newt fencing and a period of trapping and translocation to an established receptor site.

Where possible, suitable GCN terrestrial and aquatic habitat should be retained and protected as part of the development. If any terrestrial or aquatic habitat used by GCNs is due to be lost, compensatory habitat will need to be created.

- **Badger** – Reasonable avoidance measures (RAMs), including a pre-commencement check are to be implemented during the construction phase of the development.

A wildlife friendly lighting plan should be designed for the site, with particular emphasis on avoiding lighting spill onto any retained or created areas of high-quality habitat that could be used by foraging badgers, specifically woodland, hedgerows, large areas of dense scrub and areas of species-rich grassland.

- **Bats** – Bat activity surveys should be undertaken to assess the use of the site by foraging and commuting bats. These surveys should involve transect surveys and the installation of static detectors across the site, from April to October inclusive.

A ground level tree assessment should be undertaken of all trees (including scattered trees, woodland trees and mature areas of dense scrub) that have the potential to be adversely impacted by the development (felling, arboricultural works or significant levels of disturbance), to assess their potential to support roosting bats. This ground level assessment can be undertaken any time of year. If any trees due to be adversely impacted are found to have the potential to support roosting bats, further aerial tree inspections should be conducted (any time of year). If any potential roosting features are found to still be suitable following the inspections, further bat presence / absence surveys or further aerial inspections may be required (May to September inclusive).

A wildlife friendly lighting plan should be designed for the site, with particular emphasis on avoiding lighting spill onto any installed bat boxes and retained areas of high-quality habitat that are used as key areas by foraging and commuting bats.

- **Breeding birds** – Breeding bird surveys should be undertaken to assess the use of the site, involving a transect survey once a month from March to August inclusive.

An assessment of the potential to support breeding barn owls should be undertaken of any trees that have the potential to be adversely impact by the proposals (felling, arboricultural works or subject to significant levels of disturbance). This assessment can be undertaken simultaneously with the ground level tree assessment for bats and can be undertaken anytime of year.

Site clearance, tree felling, arboricultural works and vegetation clearance are to take place outside of the breeding bird season and should not be undertaken from March to August inclusive. If not possible and works need to take place during this period, a targeted nest survey is to be undertaken immediately prior to the works by a suitably qualified ecologist or an ecological clerk of works appointed to oversee the works.

- **Invasive species** – Invasive species will need to be subject to control measures during the works and should be eradicated as part of the development, to ensure that they do not spread across the site or onto adjacent areas. An invasive species method statement should be prepared to detail these measures.
- **Invertebrates** – A single exploratory invertebrate survey is recommended to identify invertebrate assemblages and to inform the requirements for mitigation or compensation measures. This survey would need to be undertaken from May to September inclusive.

- **Ponds** – Ponds should be retained and protected where possible, including the implementation of a 5m buffer zone. If any ponds are due to be removed to facilitate the development, a pSYM survey should be undertaken to determine whether the ponds qualify as habitats of principal importance and to inform the compensation measures required. These surveys can be undertaken between June and August inclusive.

If any ponds are to be removed, they should be re-created and any ponds that qualify as habitats of principal importance will need to be compensated for on a 2:1 ratio.

- **Plant communities** – To determine the ecological value of the open mosaic habitat on site, further botanical and invertebrate surveys should be undertaken. The botanical survey can be undertaken from June to August inclusive and the single exploratory invertebrate survey can be undertaken from May to September inclusive. It's likely that some areas of open mosaic habitat will need to be retained or recreated as part of the development proposals. This could include the translocation of topsoil and the seedbank to a particular area on site, designated as a wildlife area.

A further national vegetation classification (NVC) botanical survey should be undertaken in June to August to determine the value of the species-rich grassland on site.

Reptiles – A reptile presence / absence survey should be undertaken, involving the deployment of artificial refugia and seven site visits between March to October inclusive. If the survey identifies the presence of reptiles, it will need to be extended to a total of 15 site visits to assess the size class of any reptile populations found.

Where possible, suitable reptile habitat should be retained and protected as part of the development. If any habitat used by reptiles is due to be lost, compensatory habitat will need to be created, the requirement for which will be determined following the further surveys.

- **Stream & ditches** – Specific procedures and control measures will need to be implemented to ensure that there is no risk of input into the watercourse or the ditches. Where possible, buffer zones of at least 5m from the top of the banks should be retained along the length of the stream and the ditches, to protect them from disturbance and to reduce the risk of pollution. The buffer zones should be retained and enhanced as an ecological corridor.

If any sections of the stream or ditches are to be removed or culverted, replacement habitat should be re-created. Sections of the retained ditches along the eastern and western site boundaries could be enhanced through scrub removal to open these habitats up and increase colonisation by marginal and emergent plant species, which are abundant and diverse along less shaded sections.

- **Trees and hedgerows** – A BS5837 arboricultural survey should be undertaken to catalogue the location and species of the trees on site. Hedgerows and trees, in particular those forming a linear feature across the site, should be retained where possible. RPAs should be established and implemented around the trees and hedgerows which are to be retained. If any trees or hedgerows are to be removed, they should be replaced accordingly as part of a detailed landscaping scheme, with only native species to be planted.



- **Woodland** – The areas of woodland should be retained where possible and should be protected during the construction phase of the development. If any areas of woodland on site are to be removed, they should be replaced through compensatory planting in an appropriate location.

Mitigation measures, as detailed in section 4, should be adhered to, which may in some cases negate the need for further survey work.

The development also presents an opportunity to improve the habitats on site for wildlife, such as bats and birds. The inclusion of nest boxes and bat boxes will provide suitable nesting and roosting features in the long term.

This report should be read with appendices 1 to 5, which include results of the desk study, GIS phase 1 habitat mapping, photographs of site and relevant statutory guidance.

1 INTRODUCTION

1.1 Author, surveyors, qualifications and scope of study area

This report is written by Tom Kenwright BSc MSc, UES Senior Ecologist. Tom holds a level 5 Botanical Society for Britain and Ireland (BSBI) field identification skills certificate (FISC), which certifies him as competent to undertake botanical and habitat surveys up to National Vegetation Classification (NVC) level.

Other surveyors included:

- Alasdair Grubb BSc ACIEEM, UES Ecologist. Alasdair holds a level 5 BSBI FISC, which certifies him as competent to undertake botanical and habitat surveys up to NVC level.

The report provides an assessment of the potential ecological impacts associated with the proposed development of a parcel of land at Plot 3a, Wrexham Industrial Estate, Bryn Lane, Wrexham.

The zone of influence considered within the scope of the survey includes all land within the red line boundary. Where relevant, other ecological resources, receptors and important habitats which are spatially separate from the site are considered.

1.2 Survey objectives

UES was commissioned in August 2021 to conduct a PEA of the proposed development site. This was completed in order to:

- Establish baseline conditions and determine the importance of ecological features present or potentially present within the survey area
- Identify key ecological constraints to the project
- Make recommendations for design options to avoid significant effects on important ecological resources at an early stage of development planning
- Identify potential requirement for further surveys for nationally or internationally protected species which may be present on site
- Identify potential requirement for mitigation or compensation, including measures that may be required based on further surveys

1.3 Proposed development

The development proposals are for the construction of three industrial units with associated parking and access roads.



1.4 Structure of the report

This report is a baseline appraisal that forms the basis for further ecological surveys and Environmental Impact Assessments (EIA) if required. In the majority of cases the preliminary ecological assessment will not provide all the ecological data required by the Local Planning Authority to determine an application, especially in the event that protected habitat or species issues are present or likely.

This report should be read with appendices 1 to 5, which include results of the desk study, GIS phase 1 habitat mapping, photographs of site and relevant statutory guidance.

2 METHODOLOGY

This PEA comprises a desk study and a field survey. The desk study is conducted in order to collate ecological information on species and / or habitats of interest that may be present. The field survey is conducted in order to assess the habitats and their importance, both on site and in the context of their wider surroundings.

2.1 Desk study

The following resources were used to inform the desk study:

- National – Using the UK government’s MAGIC website, statutorily protected sites were scoped to a distance of 10km from the application site.
- Local – A record search of designated sites and protected or otherwise notable species within 2km of the proposed development site was undertaken through Cofnod – North Wales Environmental Information Service.

2.2 Field survey

An ecological walkover survey was carried out on 23rd August by Tom Kenwright and Alasdair Grubb and on 8th September 2021 by Tom Kenwright. On the 7th June 2022, Tom Kenwright conducted a walkover survey of an additional parcel of land that was added to the proposed development boundary. The purpose of the surveys was to identify, record and map dominant habitat types within the development area and highlight any further species surveys that may be required based on the quality of those habitats. When conducting the surveys particular focus was concentrated on the following species and habitat features:

- | | |
|------------------|-------------------------|
| • Amphibians | • Hedgerows |
| • Reptiles | • Plant communities |
| • Badger | • Invasive species |
| • Bats | • Otter |
| • Hazel dormouse | • Water vole |
| • Birds | • White-clawed crayfish |
| • Trees | |

The habitats were assessed by using the phase 1 habitat survey technique, which is a system for environmental audit widely used within the environmental consultancy field. The survey was undertaken in accordance with the methodology in the ‘Handbook for phase 1 habitat survey - A technique for environmental audit’ (JNCC, 2010) as recommended in the “Guidelines for Preliminary Ecological Appraisal” (CIEEM, 2017).

The survey area encompasses all of the land within the development footprint and the land to a distance of 30m outside it where accessible. In line with recognised guidelines, ponds were also scoped to a distance of 500m (250m radius from the survey area).

The phase 1 habitat survey methodology was extended to record any signs of habitats suitable to support protected / invasive species and any incidental observations of other noteworthy species.



2.3 Survey limitations

The survey was conducted in June, August and September, at an appropriate time of year when most plant species are readily identifiable and sufficient vegetative identification was possible, allowing a robust assessment of habitats to be undertaken. There are considered to be no limitations to the results of the survey and the recommendations of this report.

3 RESULTS

3.1 Desk study

A desk study was conducted for the proposed development site and surrounding area. Statutorily protected sites were scoped to a distance of 10km. Further results of the desk study can be found at Appendix 1 – Desk study.

3.1.1 Protected sites

There are four non-statutorily protected sites within 2km of the proposed development site:

- **Wrexham Industrial Estate Wildlife Site**

Located approximately 30m south-west of the proposed development site at its closest point, the designated site lies on the other side of Bryn Lane. The designation covers a series of sites within Wrexham Industrial Estate, which includes unmanaged grassland at Bryn Road and on Cefn Park and ancient broadleaved woodland at Erlas Black Wood.

Cefn Park comprises derelict land supporting a complex mosaic of scrub, grassland and tall herb. Species-rich grassland occurs where there is rabbit grazing with cowslip *Primula veris*, restharrow *Ononis repens*, yellow-wort *Blackstonia perfoliata*, common centaury *Centaureum erythraea* and common bird's-foot trefoil *Lotus corniculatus*. Other species of interest include dyer's greenweed *Genista tinctoria* in among scrub and grass vetchling *Lathyrus nissolia* in rank grassland.

A mosaic of woodland and damp grassland occurs adjacent to the River Clywedog. The woodland is dominated by mature hawthorn *Crataegus monogyna*, with alder *Alnus glutinosa* and crack willow *Salix fragilis* along the river. The ground flora is sparse but dogs mercury *Mercurialis perennis*, hart's-tongue fern *Asplenium scolopendrium* and common male fern *Dryopteris filix-mas* are present. Erlas Black Wood is dominated by mature oak.

A strip of species-rich grassland beside a ditch on Bryn Road has similar grassland species including the uncommon grass vetchling.

- **Oatlands Meadows Wildlife Site**

Located approximately 1.65km east of the proposed development site, the designation supports damp grassland with abundant perennial ryegrass *Lolium perenne* and a low species diversity.

- **Peter's Dingle Wildlife Site**

Located approximately 2km south of the proposed development site, the designation supports ash *Fraxinus excelsior* / pedunculate oak *Quercus robur* woodland along a brook. The understorey is of wych elm *Ulmus glabra*, elder *Sambucus nigra*, hawthorn, wild privet *Ligustrum vulgare* and hazel *Corylus avellana*, the latter becoming abundant in areas where it has been coppiced. The field layer is often dominated by ivy *Hedera helix*, bramble *Rubus fruticosus* agg., and stinging nettle *Urtica dioica*, however dogs mercury, yellow archangel *Lamium galeobdolon*, giant fescue *Festuca gigantea*, black bryony *Dioscorea communis* and harts'-tongue fern are also present.

- **Cefn Park Wildlife Site**

Located approximately 2km west of the proposed development site, the designation supports a series of broadleaved woodlands within Cefn Park Estate. Big Wood is the largest (8.9ha) and is dominated by ash with oak, sycamore *Acer pseudoplatanus* and an occasional mature wych elm. The understorey is continuous with frequent holly *Ilex aquifolium*, young sycamore and wych elm. The woodland has a rich ground flora including dogs mercury, English bluebell *Hyacinthoides non-scripta*, wood anemone *Anemone nemorosa* and ramsons *Allium ursinum*. Rhododendron Spinney is also dominated by ash but with beech *Fagus sylvatica* and sweet chestnut *Castanea sativa* and a locally dense understorey of rhododendron *Rhododendron ponticum*. Alder, crack willow and goat willow *Salix caprea* dominate the poorly drained eastern side where great horsetail *Equisetum telmateia* and greater pond sedge *Carex riparia* occur as well as a fen dominated by common reed *Phragmites australis*.

There is one statutorily protected site within 2km of the proposed development site:

- **Afon Dyfrdwy (River Dee) SSSI¹**

Located approximately 1.6km east of the proposed development site, the SSSI covers the River Dee and its floodplain. The designation covers much of the same area as the River Dee (England) SSSI and the River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid SAC². The site has been designated for its nationally important transition through a range of river types from mesotrophic to eutrophic. The site has also been designated for supporting Atlantic salmon *Salmo salar*, otter *Lutra lutra*, brown trout *Salmo trutta*, bullhead *Cottus gobio*, brook lamprey *Lampetra planeri*, river lamprey *Lampetra fluviatilis*, sea lamprey *Petromyzon marinus* and club-tailed dragonfly *Gomphus vulgatissimus*.

The proposed development site lies within a SSSI Impact Risk Zone (IRZ) within which Natural England only request that they are consulted on industrial / agricultural developments that could cause air pollution (including industrial processes, livestock and poultry units with floorspace >500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t) and general combustion processes >50MW energy input.

There are sixteen statutorily protected sites (designated for ecological reasons) within 2km of the proposed development site:

- | | |
|---|---|
| • Chwarel Singret SSSI | • Old Pulford Brook Meadows SSSI |
| • Cloy Brook Pastures SSSI | • River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid SAC |
| • Dee Cliffs, Farndon SSSI | • River Dee (England) SSSI |
| • Gatewen Marsh SSSI | • Sontley Marsh SSSI |
| • Johnston Newt Sites SSSI | • Strytlas A'r Hafod SSSI |
| • Llay Bog SSSI | • Vicarage Moss SSSI |
| • Marford Quarry SSSI | • Well Rough and Long Plantation SSSI |
| • Midland Meres and Mosses Phase 2 Ramsar | |

¹ SSSI – Site of Special Scientific Importance

² SAC – Special Area of Conservation

3.1.2 Protected species

The following records of protected or otherwise notable species were highlighted by the environmental records search:

- **Amphibians:** numerous records of GCNs were returned, including records of medium sized populations in the ponds within the proposed development site, the most recent of which dates from 2016. Records of common frog *Rana temporaria*, common toad *Bufo bufo* and smooth newt *Lissotriton vulgaris* were also returned from the proposed development site and records of palmate newt *Lissotriton helveticus* were returned from within 2km.
- **Badgers:** numerous records of badger were returned from within 2km of the proposed development site, the majority of which detail badger setts. The closest record to the proposed development site details a single active badger burrow from 2003, located approximately 400m west of the site.
- **Bats:** records of Brandt's *Myotis brandti*, whiskered *Myotis mystacinus*, lesser horseshoe *Rhinolophus hipposideros*, Daubenton's *Myotis daubentonii*, noctule *Nyctalus noctula*, Natterer's *Myotis nattereri*, brown-long eared (BLE) *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus* bats were returned. Records of bat roosts include common pipistrelle, BLE and *Myotis sp.* bats. The closest roost record is located approximately 330m west of the site and details approximately 30 suspected *Myotis sp.* droppings in a bat box. Field records of common pipistrelle, soprano pipistrelle, BLE, Noctule, Natterer's, whiskered / Brandt's, Daubenton's and lesser horseshoe were recorded from a land parcel immediately adjacent to the north-west of the site in 2020.
- **Birds:** various species, including several NERC section 41 and Wildlife and Countryside Act 1981 Schedule 1 species. Records returned from within the proposed development site or within the immediate vicinity are limited to an auditory record of a green woodpecker *Picus viridis* from 2019 and a record of a male and female peregrine falcon *Falco peregrinus* from 2016, observed flying over site carrying prey items. Notable bird records from within 500m of the site include barn owl *Tyto alba*, curlew *Numenius arquata*, grasshopper warbler *Locustella naevia*, house martin *Delichon urbicum*, bullfinch *Pyrrhula pyrrhula*, woodcock *Scolopax rusticola* and goshawk *Accipiter gentilis*.
- **Brown hare:** five records of brown hare *Lepus europaeus* were returned, dating from 2005 and 2010. The closest record is located approximately 680m south of the site.
- **Hazel dormouse:** no records of hazel dormouse *Muscardinus avellanarius* were returned from within 2km of the proposed development site.
- **Hedgehog:** five records of hedgehog *Erinaceus europaeus* were returned from within 2km of the proposed development site. All records date from between 2012 and 2019 and the closest record is located approximately 1.1km west of the site.
- **Invertebrates:** records of cinnabar moth *Tyria jacobaeae*, figure of eight moth *Diloba caeruleocephala*, shaded broad-bar moth *Scotopteryx chenopodiata*, latticed heath moth *Chiasmia clathrata*, small heath butterfly *Coenonympha pamphilus*, wall butterfly *Lasiommata megera*, *Phaonia atriceps* (fly), red-girdled mining bee *Andrena*

labiata and white-barred soldier (fly) *Oxycera morrisii* were returned from within the proposed development site, dating from 2019. Other notable records include white-letter hairstreak butterfly *Satyrrium w-album* from 2006, located approximately 2km south-west of the proposed development site and numerous records of dingy skipper *Erynnis tages* and grizzled skipper *Pyrgus malvae*, the closest of which are located approximately 100m south-east of the site within the Wrexham Industrial Estate Wildlife Site.

- Otter: numerous records of otter *Lutra lutra* were returned from within 2km of the proposed development site. All records details either trail camera footage or field signs (spraints and footprints). The closest record is located approximately 500m south-east of the site, however it is historical and dates from 1946. All other records date from 1991-2019 and detail otters along Redwither Brook (1km south-west of the proposed development site), River Clywedog (1.7km south) and on the floodplain of the River Dee (1.6km east).
- Polecat: five records of polecat *Mustela putorius* were returned, dating from 2004 and 2014. The closest record is located approximately 380m north-west of the site, dating from 2014.
- Reptiles: records of common lizard *Zootoca vivipara*, slow worm *Anguis fragilis*, adder *Vipera berus* and grass snake *Natrix natrix* were returned, all of which are located within Wrexham Industrial Estate, between 700m-1.2km west of the proposed development site. The common lizard and grass snake records date from 2020 and 2018 respectively, however the slow worm and adder records date from 'before 2009' and 'before 1999' respectively.
- Water vole: no records of water vole *Arvicola amphibius* were returned from within 2km of the proposed development site.
- White-clawed crayfish: no records of white-clawed crayfish *Austropotamobius pallipes* were returned from within 2km of the proposed development site.

3.2 Baseline conditions – Habitats

The results of the PEA are also shown on the accompanying map at Appendix 2 – Phase 1 habitat plan. Habitats are colour-coded in accordance with the phase 1 standard.

The site lies on the edge of the Wrexham Industrial Estate and is surrounded by urban areas to the south and west, and by agricultural fields to the north and east. The following principal habitat types were characterised on site:

- A1.1.1 Broadleaved, semi-natural woodland
- A2.1 Dense scrub
- A2.2 Scattered scrub
- A3.1 Scattered broadleaved trees
- B2.2 Semi-improved neutral grassland
- B5 Marshy grassland
- B6 Species-poor, semi-improved grassland
- C3.1 Tall ruderal
- F1 Swamp

- G1 Standing water
- G2 Running water
- J1.2 Amenity grassland
- J1.3 Ephemeral / short perennial
- J1.4 Introduced shrub
- J2.1.1 Intact, species-rich hedge
- J2.1.2 Intact, species-poor hedge
- J2.2.1 Defunct, species-rich hedge
- J2.2.2 Intact, species-poor hedge
- J2.3.1 Hedge with trees – species-rich
- J2.4 Fence
- J2.6 Dry ditch
- J3.6 Buildings
- J5 Hardstanding

3.2.1 A1.1.1 Broadleaved, semi-natural woodland

There are three small areas of woodland on site, all of which are isolated from each other. All areas are relatively young and lack large veteran trees. The canopy layers are dominated by either silver birch *Betula pendula* or pedunculate oak and other canopy and understory species include sycamore, grey willow *Salix cinerea*, goat willow, elder, blackthorn *Prunus spinosa*, dog rose *Rosa canina* and hawthorn.

The ground layer within all areas of woodland on site is heavily shaded by the canopy and understory layers and botanical diversity is limited. Species present include bramble, stinging nettle, herb robert *Geranium robertianum*, ivy, creeping buttercup *Ranunculus repens*, wood dock *Rumex sanguineus*, common male fern, wood avens *Geum urbanum*, broad buckler fern *Dryopteris dilatata* and common hogweed *Heracleum sphondylium*.

An additional band of woodland lies offsite but demarcates the northern site boundary. This woodland is more mature and has a greater species diversity, with a canopy and understory of sycamore, ash, pedunculate oak, crack willow, holly, hawthorn, hazel, blackthorn, dog rose and elder. The ground flora layer is more established and diverse and includes additional species such as hart's-tongue fern, honeysuckle *Lonicera periclymenum* and false wood brome *Brachypodium sylvaticum*.

3.2.2 A2.1 Dense scrub

There are numerous areas of dense scrub on site, including large continuous areas and smaller stands. These areas of scrub predominantly include stands dominated by grey willow or bramble, however areas of mixed species scrub are also present. Additional species observed within the scrub include goat willow, hazel, wild cherry *Prunus avium*, hawthorn, dogwood *Cornus sanguinea*, blackthorn, elder, holly, guelder rose *Viburnum opulus*, horse chestnut *Aesculus hippocastanum*, beech, dog rose, pedunculate oak saplings, silver birch, field maple *Acer campestre*, sycamore saplings, perforate St John's-wort *Hypericum perforatum*, wood dock, stinging nettle, wood avens, herb robert, common male fern, cock's-foot *Dactylis glomerata*, common bent *Agrostis capillaris*, false oatgrass *Arrhenatherum elatius*, common couch *Elymus repens*, perennial rye grass, crested dog's-tail *Cynosurus cristatus*, rough meadow grass *Poa trivialis*, Yorkshire fog *Holcus lanatus*, Italian ryegrass *Lolium multiflorum*, great willowherb *Epilobium hirsutum*, silverweed *Potentilla anserina*, cow

parsley *Anthriscus sylvestris*, common hogweed, common ragwort *Jacobaea vulgaris*, false-fox sedge *Carex otrubae*, black medic *Medicago lupulina*, upright hedge parsley *Torilis japonica*, creeping cinquefoil *Potentilla reptans*, selfheal *Prunella vulgaris*, creeping buttercup, meadow buttercup *Ranunculus acris*, creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, ivy and germander speedwell *Veronica chamaedrys*.

3.2.3 A2.1 Scattered scrub

Scattered scrub and tree saplings are beginning to encroach upon the areas of grassland, bare ground and damaged areas of hardstanding across the site. Species predominantly include grey willow, goat willow, silver birch, blackthorn, hawthorn, pedunculate oak and bramble.

3.2.4 A3.1 Scattered broadleaved trees

Most trees on site are limited to the small areas of woodland or are immature specimens growing within the areas of dense scrub. A number of scattered semi-mature and mature pedunculate oak, ash and sycamore trees are present within the western section of the site.

3.2.5 B2.2 Semi-improved neutral grassland

The majority of main section of the site comprises areas of semi-improved grassland that were once used as grazing pasture but have been unmanaged for a number of years. Hedgerows and bands of tall ruderal and dense scrub demarcate field boundaries, splitting the grassland on site into six areas / fields. The majority of these fields comprise semi-improved grassland and have a similar species composition and diversity. There are some differences between the grassland communities, particularly the south-eastern most field which is more species rich.

To differentiate between the different semi-improved grassland communities on site, they have been labelled Grasslands 1 to 3 on the accompanying phase 1 habitat plan at Appendix 2.

Following changes to the proposals, an additional two fields of semi-improved agricultural grassland have been incorporated into the scheme. These fields comprise the same species community and have been labelled and mapped as Grassland 4.

Grassland 1 lies within the south-eastern section of the site and has the greatest diversity of forbs of all the grassland areas on site. Despite being unmanaged for a number of years, some parts of the grassland had a relatively short and had a low grass to forb ratio, indicating that the soil is nutrient poor and has received little agricultural improvement. These areas contain some numerous indicators of unimproved grassland, which are also present in abundance. Indicator species present include quaking grass *Briza media*, sweet vernal grass *Anthoxanthum odoratum*, common knapweed *Centaurea nigra*, lady's bedstraw *Galium verum*, common bird's-foot trefoil, hoary ragwort *Jacobaea erucifolia*, meadow vetchling *Lathyrus pratensis*, common fleabane *Pulicaria dysenterica*, oxeye daisy *Leucanthemum vulgare*, grass vetchling and common spotted orchid *Dactylorhiza fuchsii*. The field is not uniform however and the central and northern section is being encroached by bramble and tall ruderal species, indicative of lower quality grassland, such as common nettle, creeping thistle, spear thistle, common hogweed and broadleaved dock *Rumex obtusifolius*. The

eastern section of the grassland adjacent to Pond 3 appears to have impeded drainage and has a different species community, as described below in section 3.2.6 below.

Additional species present include rough meadow grass, red fescue, Yorkshire fog, common bent, false oatgrass, tufted hairgrass *Deschampsia cespitosa*, cock's-foot, sweet vernal grass, crested dog's-tail, glaucous sedge *Carex flacca*, compact rush *Juncus conglomeratus*, hard rush *Juncus inflexus*, bramble, false-fox sedge, ribwort plantain *Plantago lanceolata*, creeping thistle, hairy tare *Vicia hirsuta*, red clover *Trifolium pratense*, black medic *Medicago lupulina*, curled dock *Rumex crispus*, silverweed, teasel *Dipsacus fullonum*, creeping cinquefoil, scarlet pimpernel *Anagallis arvensis*, tufted vetch *Vicia cracca*, perforate St John's-wort, marsh thistle *Cirsium palustre*, smooth tare *Vicia tetrasperma* and yarrow *Achillea millefolium*.

Grassland 2 contains many of the same species as Grassland 1, but with a reduced abundance of unimproved indicator species and a greater abundance of competitive grasses and ruderal species that indicative of agricultural improvement. Despite this, the sward remains relatively species-rich. Species present include sweet vernal grass, common bent, meadow foxtail *Alopecurus pratensis*, rough meadow grass, red fescue, Yorkshire fog, cock's-foot, common couch, perennial ryegrass, timothy *Phleum pratense*, tufted hairgrass, false oatgrass, compact rush, soft rush *Juncus effusus*, hard rush, selfheal, common fleabane, creeping thistle, bramble, creeping buttercup, smooth tare, meadow buttercup, great willowherb, white clover *Trifolium repens*, hoary ragwort, common bird's-foot trefoil, common ragwort, common sorrel *Rumex acetosa*, dandelion *Taraxacum officinale* agg., curled dock, common spotted orchid, common knapweed, marsh thistle, common mouse-ear *Cerastium fontanum*, creeping cinquefoil, ground elder *Aegopodium podagraria*, tufted vetch, American willowherb *Epilobium ciliatum*, spear thistle, meadow vetchling, broadleaved dock, common hogweed, scarlet pimpernel, ribwort plantain, field horsetail *Equisetum arvense*, cut-leaved crane's-bill *Geranium dissectum*, stinging nettle, lesser stitchwort *Stellaria graminea*, hairy tare and meadowsweet *Filipendula ulmaria*.

Grassland 3 has a similar species assemblage to Grassland 2 but lacks majority of the unimproved indicator species and has a reduced diversity of forbs, a reduced abundance of unimproved indicator species and a greater proportion of competitive grasses and ruderal species indicative of improved conditions. Despite this, the sward remains relatively species-rich, and the grassland is considered to still qualify as semi-improved grassland.

Grassland 4 is currently managed for agricultural purposes for a silage or hay cut. Whilst forbs are relatively abundant within the sward, the grassland lacks many of the indicators of higher quality that are present within other areas of grassland on site. Species present include: Yorkshire fog, soft brome *Bromus hordeaceus*, meadow foxtail, sweet vernal grass, red fescue, rough meadow grass, perennial rye grass, crested dog's-tail, false oatgrass, creeping bent *Agrostis stolonifera*, oval sedge *Carex leporina*, compact rush, field wood-rush *Luzula campestris*, cuckoo flower *Cardamine pratensis*, meadow buttercup, common sorrel, common mouse-ear, common knapweed, red clover, creeping buttercup, creeping thistle, dandelion, common ragwort, creeping cinquefoil, common bird's-foot trefoil, lesser trefoil *Trifolium dubium*, meadow vetchling, hairy tare, tufted vetch, white clover and common vetch *Vicia sativa*. Additional species recorded only at the margins of the grassland include cock's-foot, lesser stitchwort, common hogweed and greater bird's-foot trefoil *Lotus pedunculatus*.

3.2.6 B5 Marshy grassland

An area of marshy grassland is present within the eastern section of Grassland 1. Whilst completely dry at the time of the walkover surveys, the species present indicate that this area has impeded drainage.

The grassland is locally dominated by either hard rush or common fleabane. Species diversity is generally low and additional species present include soft rush, silverweed, tufted hairgrass, Yorkshire fog, great willowherb, curled dock, creeping buttercup, bramble, tufted vetch, creeping thistle, false fox sedge *Carex otrubae*, common hogweed, creeping bent and marsh thistle.

3.2.7 B6 Species-poor, semi-improved grassland

Small areas of grassland that have a significantly reduced species-diversity are present at the eastern and western boundaries of the site. The sward within these areas of grassland is dominated by a low number of competitive grass species. Forb species present are low in abundance and diversity, and are mostly indicative of improved conditions. Species present include rough meadow grass, cock's-foot, common bent, false oatgrass, Yorkshire fog, perennial ryegrass, common couch, tufted hair grass, meadow foxtail, red fescue, creeping thistle, bramble, stinging nettle, common ragwort, meadow buttercup, creeping buttercup, white clover, dandelion, common mouse-ear, broadleaved dock, curled dock, creeping cinquefoil, common hogweed, field horsetail and ribwort plantain.

The edge of the eastern section of species-poor semi-improved grassland borders the drainage ditch and the grassland runs down a short steep section of earth bank. This bank has much shorter sward and a much higher species diversity than the adjacent grassland, however it is too small an area to map as a separate habitat type and has instead been target noted on the accompanying phase 1 habitat plan at Appendix 2, see Target Note 13. Additional species present within this area include common centaury, black medic, perforate St John's-wort, grass vetchling, common knapweed, red clover, glaucous sedge, bristly ox-tongue *Helminthotheca echioides*, common bird's-foot trefoil and common agrimony *Agrimonia eupatoria*.

3.2.8 C3.1 Tall ruderal

Large areas of tall ruderal vegetation are present across the site, in addition to smaller areas at the ecotones between habitats that are too small to map and hence have not been included on the accompanying phase 1 habitat plan at Appendix 2. These areas are species-poor and are mostly dominated by great willowherb, although hedge bindweed *Calystegia sepium*, bramble, stinging nettle, mugwort *Artemisia vulgaris*, creeping thistle, hemlock *Conium maculatum*, silverweed, cock's-foot, common couch, false oatgrass, common hogweed and marsh thistle are also present.

3.2.9 F1 Swamp

Ponds 3 and 4 on site support large areas of swamp vegetation, as detailed below in section 3.2.10.

3.2.10 G1 Standing water

Six ponds are present on site, each of which is in a different successional stage and provides a different aquatic habitat niche. Pond 1 is a large open body of water that is believed to be a man-made fishing pond (as evidenced by the presence of a liner, anecdotal evidence from previous surveys of the site and from talking to adjacent landowners), however the current presence of fish is uncertain. The pond was over 0.5m deep at the time of the survey and is likely over 1m deep within the centre. The pond is surrounded by dense willow scrub on all aspects and has a ring of emergent greater reedmace *Typha latifolia* at its margins. Aquatic vegetation within the pond also includes a sparse matt of a waterweed *Elodea sp.* and spiked water milfoil *Myriophyllum spicatum*.

Pond 2 is a large body of open water surrounded by woodland. No aquatic vegetation was observed within the pond and marginal vegetation is predominantly limited to the woodland understory and ground flora species. The water was at least 0.5m deep at the time of the survey.

Pond 3 is a large field pond surrounded by dense willow and bramble scrub. The pond has been completely encroached by swamp vegetation and is lacking areas of open water. Species present include greater reedmace, bittersweet *Solanum dulcamara*, cypress sedge *Carex pseudocyperus*, lesser water parsnip *Berula erecta*, water horsetail *Equisetum fluviatile*, wild angelica *Angelica sylvestris* and gypsywort *Lycopus europaeus*. Large areas of the pond were dry at the time of the survey, however pockets of water with a depth of up to 20cm were present. The swamp vegetation is similar to that within Pond 4, however hard rush, fool's watercress *Helosciadium nodiflorum* and water plantain *Alisma plantago-aquatica* were also observed.

Pond 4 is a large field pond that is surrounded by dense goat willow, grey willow, hawthorn, bramble and dog rose scrub. As with Pond 3, Pond 4 is in a late successional stage and is being heavily encroached by swamp vegetation. At the time of the survey, most of the pond was holding standing water to a depth of 0.3 – 0.75m, however only a small area of deeper open water (over 1m deep) was present within the northern section of the pond.

Pond 5 appears to have previously been created for the previous use of the site and has a steep-sided basin amongst an area of dense scrub. The pond itself is shallow and was holding approximately 30cm of standing water at the time of the walkover surveys. Common duckweed *Lemna minor*, and a stonewort *Chara sp.* are present in addition to small quantities of emergent and marginal fool's watercress, greater reedmace, hard rush and jointed rush *Juncus articulatus*.

Pond 6 is a field pond located within the north-western corner of the agricultural fields that comprise the eastern section of the site. The pond is almost completely shaded by encroaching goat and grey willow scrub. The pond is shallow and has a large drawdown zone of emergent vegetation. The pond was completely damp but lacked any standing water at the time of the walkover survey, however the pond is known to hold standing water in the winter. Emergent species present within the drawdown zone include greater reedmace, bittersweet, redshank *Persicaria maculosa*, gypsywort, cypress sedge, soft rush, marsh bedstraw *Galium palustre* and hard rush. A band of marginal vegetation surrounds the pond, although it is limited where dense willow scrub dominates. Marginal species include great willowherb, silverweed, creeping thistle, tufted vetch, meadow vetchling, false fox sedge, curled dock, floating sweet-grass *Glyceria fluitans*, canary reed grass *Phalaris arundinacea* and stinging nettle.

3.2.11 G2 Running water

A wet ditch is present along the western and part of the eastern site boundaries. The section of ditch along the western boundary is entirely shaded by scrub and has very little marginal or aquatic vegetation. The ditch is culverted at the southern site boundary and some marginal vegetation is present at the culvert entrance including wild angelica, yellow iris *Iris pseudacorus*, bittersweet, canary reed grass, hard rush, remote sedge *Carex remota*, fool's watercress, clustered dock *Rumex conglomeratus* and great willowherb. This section of the ditch was not flowing at the time of the survey and contained little water, with a maximum depth of 5cm.

The section of ditch along part of the eastern boundary also contained little standing water, with a maximum depth of 7cm, however it is heavily vegetated by marginal and emergent vegetation. Species present include clustered dock, water starwort *Callitriche sp.*, fool's watercress, soft rush, bramble, greater reedmace, gypsywort, great willowherb, marsh bedstraw, common fleabane, great willowherb, stinging nettle, hard rush, lesser water parsnip, hemlock water dropwort *Oenanthe crocata*, ragged robin *Silene flos-cuculi*, watercress *Nasturtium officinale* and meadowsweet. Scattered scrub is present along the entire length of the ditch, however the northern and southern sections are almost entirely encroached by dense scrub and the abundance and diversity of marginal and emergent species is reduced compared to the central section.

Whilst both sections of ditch were not flowing at the time of the survey, they both connect to a stream at the northern section of the site and are considered likely to hold slow flowing water in the winter or following periods of rainfall. The stream along the northern section of the site lies within an area of woodland and is heavily shaded by the canopy and understory. The stream was slow flowing at the time of the walkover survey, with some sections completely dry and other holding shallow pools of water with a maximum depth of 30cm. No aquatic or emergent vegetation is present and marginal vegetation is limited to the woodland understory species.

3.2.12 J1.2 Amenity grassland

Amenity grassland lawns are present within the south-western section of the site. These lawns have a very short sward and appear to be subject to an intensive mowing regime. There are numerous areas of disturbance within the grassland which provide additional microhabitats and have resulted in a relatively high number of forb species being recorded. Species present include perennial ryegrass, red fescue, Yorkshire fog, annual meadow grass *Poa annua*, white clover, scarlet pimpernel, bristly oxtongue, selfheal, glaucous sedge, cut-leaved crane's-bill, hoary ragwort, common mouse-ear, creeping buttercup, common cat's-ear *Hypochaeris radicata*, marsh thistle and common bird's-foot trefoil.

3.2.13 J1.3 Ephemeral / short perennial vegetation

The areas of hardstanding within the south-eastern section of the site include areas of gravel, a large spoil mound of mixed materials and large areas of unbroken concrete. These areas have become encroached by scattered scrub and ephemeral vegetation, with some areas containing sporadic vegetation and other contain a dense mat. Grasses are limited and are not dominant within these areas and hence the denser mats of vegetation have not been mapped as grassland.

A gravel area with a number of other loose materials has a particularly high botanical diversity and contains a number of uncommon and calcicolous species including blue fleabane *Erigeron acer*, yellow-wort and lady's bedstraw (see Appendix 2 – Target Note 12). Other species present include common ragwort, common bird's-foot trefoil, bramble, sweet briar *Rosa rubiginosa*, glaucous sedge, wild strawberry *Fragaria vesca*, creeping cinquefoil, marsh thistle, common centaury, American willowherb, common cat's-ear, scarlet pimpernel, hawthorn saplings, oxeye daisy, selfheal, common knapweed, red fescue, spear thistle, common figwort *Scrophularia nodosa*, grey speedwell *Veronica polita*, dandelion, meadow vetchling, common field speedwell *Veronica persica*, field maple saplings, black medic, hard rush, teasel, thyme-leaved speedwell *Veronica serpyllifolia*, evening primrose *Oenothera sp.*, tutsan *Hypericum androsaemum*, common fleabane, petty spurge *Euphorbia peplus*, great willowherb, weld *Reseda luteola*, rosebay willowherb *Chamaenerion angustifolium*, common male fern, common mullein *Verbascum thapsus*, perforate St John's wort, annual meadow grass, greater plantain *Plantago major*, bittersweet, crosswort *Cruciata laevipes*, hart's-tongue fern, white campion *Silene latifolia*, buck's-horn plantain *Plantago coronopus*, Canadian fleabane *Erigeron canadensis*, autumn hawkbit *Scorzoneroides autumnalis*, grey willow saplings, stinging nettle, creeping thistle, annual pearlwort *Sagina apetala*, bristly oxtongue, common daisy *Bellis perennis*, broadleaved dock, curled dock, prickly sow thistle *Sonchus asper*, creeping buttercup and meadow buttercup.

3.2.14 J1.4 Introduced shrub

A small area of introduced shrub is present at the south-western corner of the site.

3.2.15 J2.1.1 Intact, species-rich hedge

Hedge 1 demarcates the western site boundary and runs parallel with Bryn Lane. The hedgerow appears to be subject to some, albeit infrequent management and measures 4-5m in height and 1-2m in width. Hawthorn is dominant, however occasional field maple, guelder rose, ash, grey willow and blackthorn are also present.

3.2.16 J2.1.2 Intact, species-poor hedge

Hedge 4 runs east to west through the centre of the site and demarcates the boundary between two grassland fields. The hedgerow is unmanaged and measures approximately 3-4 in height and 2-3m in width. The hedge is dominated by hawthorn, with occasional grey willow, blackthorn and dog rose.

Hedge 5 forms the boundary between the two agricultural fields in the eastern section of the site. The hedge appears to have been unmanaged in recent years but likely received infrequent management in the past. The hedge measures approximately 3m in height and 3.5m in width. Species present include blackthorn, dog rose, hawthorn and pedunculate oak.

Hedge 6 demarcates the northern boundary of the agricultural fields in the eastern section of the site. The hedge appears to be subject to some infrequent management and measures approximately 2.5m in height and 2m in width. Species present include blackthorn, dog rose, hawthorn and field maple.



3.2.17 J2.2.1 Defunct, species-rich hedge

Hedge 3 runs along part of the southern boundary of the hardstanding compound within the south-western section of the site and is separated from Hedge 2 by the entrance to the compound. The hedgerow is very defunct, with numerous gaps and has a height of 2-3m and a width of 1-2m. Species present within the hedgerow include hawthorn, dog rose, field maple, pedunculate oak, guelder rose and blackthorn.

3.2.18 J2.2.2 Defunct, species-poor hedge

Hedge 2 runs along part of the southern boundary the large area of hardstanding within the south-western section of the site. The hedgerow appears to be subject to minimal, management and has grown to a height of 3-4m and a width of 2-3m. The hedge is entirely composed of hawthorn and blackthorn.

Hedge 7 forms part of the eastern boundary of the agricultural fields in the eastern section of the site. The hedge appears to be unmanaged and measures approximately 3.5m in height and 3.5m in width. Species present include blackthorn, dog rose, hawthorn and grey willow.

3.2.19 J2.3.1 Hedge with trees – species-rich

Hedge 8 runs along part of the southern boundary of the agricultural fields that form the eastern section of the site. The hedge appears to be unmanaged and measures approximately 3-4m in height and 3-4m in width. A dry ditch lies offsite at the southern base of the hedge. The hedgerow contains hawthorn, blackthorn, dog rose, goat willow and pedunculate oak trees.

3.2.20 J2.4 Fence

Palisade and metal chain fencing is present on site and demarcates the boundary between fields and the edge of the hardstanding parking area.

3.2.21 J2.6 Dry ditch

The eastern boundary of the northernmost agricultural field in the eastern section of the site is demarcated from the adjacent residential garden by a dry and unvegetated ditch, with a depth of approximately 0.75m. The ditch does not appear to hold standing water at anytime of the year.

3.2.22 J3.6 Building

Building 1 is located within the south-western section of the site and lies within the hardstanding compound used for the parking of vehicles. The building is likely used as a shelter or for the temporary storage of materials as no wall is present on the eastern aspect and the internal areas are partially exposed. The walls are constructed from redbrick and a flat metal-lipped roof is present, supported by a central metal pillar. The internal area of the building was visible and could be fully assessed. There are no loft voids or internal cavities and the building is in a good condition with no cavities or crevices that could be used by

roosting bats or nesting birds. The building is considered to have negligible potential to support roosting bats.

Building 2 is a large tin-shed that lies within an area of overgrown willow scrub. The walls and the flat roof have been constructed from single-skinned corrugated metal sheets, with metal support beams and pillars. There are no windows, however some sections of the roof are damaged, and the door is ajar, allowing some light to enter the building. There are no loft voids or internal cavities, and the single-skinned walls ensure that there are no cavities or crevices that could be used by roosting bats. The building is considered to have negligible potential to support roosting bats. The beams, floor and furniture within the building provide some, albeit limited, potential nesting opportunities for birds such as robins *Erithacus rubecula*, wrens *Troglodytes troglodytes* or pigeons *Columba livia domestica*. A large collection of pigeon droppings and a live pigeon were observed within the building, however no evidence of nesting birds was observed.

3.2.23 J5 Hardstanding

Areas of hardstanding on site include areas of gravel within the southern section of the site, a large spoil mound of mixed materials and large areas of concrete within the southern-eastern section and a large gravel area used to store vehicles within the south-western section.

3.3 Baseline conditions – Protected species or resources

As part of the PEA, specific observations of wildlife were also recorded. Wildlife observations focused on protected species, invasive species or species of conservation concern. Habitats with potential to support protected species were noted with a view to follow up surveys if required.

3.3.1 Amphibians

GCNs have been recorded on numerous occasions in the local area, including within the ponds on site. The records returned are not specific to each pond and detail combined results from previous GCN surveys undertaken between 1992 and 2016. However, it can be determined that GCNs have previously been recorded within some of the six onsite ponds and all records show small to medium sized counts, with a maximum count of 48 adults. Records of common frog, common toad and smooth newt were also returned from the proposed development site.

During the walkover survey, common frogs were observed within three different locations across the site, see Target Note 1.

The six ponds on site are considered to be broadly suitable to support GCNs due to the presence of standing water and sufficient aquatic or emergent vegetation to support egg laying. Parts of the ditch / stream system at the site boundaries was slow flowing or still and appeared broadly suitable to support breeding GCNs at the time of the walkover survey. However, their suitability depends on the flow rate and depth of standing water during the GCN breeding season as they were shallow and lacking sufficient water at the time of the walkover surveys.

Numerous other ponds are present within 250m of the proposed development site, many of which also have records of supporting GCNs. Bryn Lane runs along the western site boundary and has the potential to act as a barrier to amphibian movement, however the offsite ponds that lie to the north, east and south are well connected to the site through suitable terrestrial habitat.

The terrestrial habitats within the development footprint are broadly suitable for GCNs. The areas of woodland, hedgerows, tall ruderal, scrub and species-rich grassland habitats provide an array of moderate to high quality opportunities for foraging and commuting amphibians. Additionally, there are potential hibernation opportunities in the exposed tree root systems, mammal burrows and dense vegetation / leaf litter within the areas of scrub and woodland.

3.3.2 Reptiles

Records of common lizard, slow worm, grass snake and adder were returned from the local area. No reptiles were observed on site during the walkover survey.

The areas of grassland, woodland edge, hedgerow, scrub and ephemeral / short perennial vegetation on site provide an array of suitable reptile habitats and provide foraging, commuting, basking and hibernating opportunities for slow worm, grass snake and common lizard. The drains and the ponds on site further provide suitable foraging habitat for grass snake, which predominantly predate amphibians. The habitats on site are considered to be broadly unsuitable to support adders, which are specialists of heathland, moorland, coastal and woodland edges habitats.

Bryn Lane runs along the western site boundary and has the potential to act as a barrier to reptile movement, however the site is relatively well connected to other areas of suitable habitat within the wider landscape.

3.3.3 Badger

Numerous records of badger were returned from within 2km of the proposed development site, the closest of which details a single active badger burrow from 2003, located approximately 400m west of the site.

Evidence of badger activity observed on site during the walkover survey was limited to a single badger scatt, which wasn't dug into a latrine, and an adjacent faint, short section of mammal path, both of which were recorded in the northernmost field (see Target Note 4).

In addition to the suspected badger scatt, a fox scatt was observed in the eastern section of the site (see Target Note 5), an unknown species of deer (suspected to be a roe deer *Capreolus capreolus*) was briefly observed within the central section of the site (see Target Note 7) and deer footprints were observed along the eastern boundary of the site (see Target Note 6). A large rabbit warren comprising approximately 10 small burrows and surrounded by numerous rabbit droppings was observed within an area of woodland on site (see Target Note 8).

The habitats on site provide moderate-high quality foraging and commuting habitat for badgers and the areas of dense scrub and woodland on site provide sheltered sett building opportunities. Given the level of evidence observed on site during the walkover survey, it is



considered that badger use of the site is currently limited to occasional foraging and commuting.

3.3.4 Bats

Records of numerous species of bats were returned from within 2km of the site and records of at least eight species, including lesser horseshoe bats were returned from an adjacent land parcel, located approximately 30m north of the site.

There are two buildings on site, both of which lack any potential roosting features and have been assessed as having negligible potential to support roosting bats.

A full ground level tree assessment wasn't undertaken during the walkover survey, however potential roosting features that could be used by roosting bats were incidentally observed within a number of trees on site (see Appendix 2 – Target Notes 2 and 3).

The trees on site, including trees within the woodland and trees and mature shrubs within the areas of dense scrub on site have the potential to contain roosting features that could support roosting bats.

The majority of the site is composed of dense scrub and semi-improved grassland, which provide moderate quality habitat for foraging and commuting bats. In addition, the site contains pockets of higher quality bat habitat including potentially semi-improved grassland, ponds, hedgerows and woodland.

3.3.5 Hazel dormouse

No records of hazel dormouse were returned from within 2km of the proposed development site.

The majority of the site is composed of grassland habitats which are broadly unsuitable to support hazel dormice. The large areas scrub and the smaller areas of woodland and the hedgerows on site provide some suitable habitat, however the majority of these habitats are not particularly species rich and are lacking sufficient quantities of key species such as hazel and honeysuckle. The woodland off site along the northern site boundary is perhaps more suitable in terms of vegetation as hazel and honeysuckle are present, however its relatively small size renders it less suitable.

Additionally, the proposed development site and the adjacent woodland along the northern site boundary are isolated from larger areas of suitable woodland habitat within the wider landscape by large continuous urbanised areas and arable fields.

Hazel dormice are not considered to be present on site or within the immediate vicinity of the proposed development site.

3.3.6 Birds

Numerous records of notable or protected bird species were returned from within the boundary of the proposed development site (limited to green woodpecker and a peregrine flyover) or from within the immediate vicinity including barn owl and goshawk. The proposed development

site is considered to be unsuitable to support breeding goshawk due to the small size of the areas of woodland, which do not provide sufficient areas required for courtship or nursery areas for fledglings to practise their flight. Additionally, the site is lacking conifer trees, which goshawks have a strong preference for when choosing nest sites. The scattered mature trees on site and at the edges of the small stands of woodland have some potential to support nesting barn owls, however this would be dependent on the presence of suitable cavities within the trees. The areas of grassland on site provide high quality barn owl foraging habitat.

Although a targeted bird survey was not conducted during the site visit, the following bird species were recorded whilst on site: blue tit *Cyanistes caeruleus*, great tit *Parus major*, woodpigeon *Columba palumbus*, robin, goldfinch *Carduelis carduelis*, blackbird *Turdus merula*, long-tailed tit *Aegithalos caudatus*, wren, feral pigeon, starling *Sturnus vulgaris*, swallow *Hirundo rustica*, swift *Apus apus*, bullfinch, blackcap *Sylvia atricapilla*, tawny owl *Strix aluco* and buzzard *Buteo buteo*.

Of the species observed on site, starling is listed on the British Trust for Ornithology's (BTOs) Birds of Conservation Concern (BoCC) red list and bullfinch, swift and tawny owl are listed on the amber list. Additionally, Starling and bullfinch are listed as species of principal importance under Environment (Wales) Act 2016.

The areas of woodland, dense scrub, hedgerows, ponds, ditches, scattered trees and Building 2 all provide suitable nesting opportunities for breeding birds in the summer.

3.3.7 Trees

There are no tree species on site which are afforded statutory protection. Individual and groups of trees however may be subject to a tree preservation order (TPO).

3.3.8 Hedgerows

There are eight hedgerows on site. Given the relatively low species diversity, it is considered that these hedgerows will not qualify as "important" for ecological reasons under the Hedgerow Regulations, but they may qualify on historical grounds.

3.3.9 Plant communities

The hedgerows, drainage ditches, ponds, woodland and semi-improved grassland habitats on site may qualify as habitats of principal importance. Habitats of principal importance are material planning considerations under the Environment (Wales) Act 2016.

In addition, the previously developed land within the south-eastern section of the site likely qualifies as the 'open mosaic habitat on previously development land' habitat of principal importance. The mosaic of habitats in this area meets all five of the following qualifying criteria:

1. 'The area of open mosaic habitat is at least 0.25ha in size.
2. There is a known history of disturbance at the site or evidence that soil has been removed or severely modified by previous use(s) of the site. Extraneous materials/substrates such as industrial spoil may have been added.

3. The site contains some vegetation. This will comprise early successional communities consisting mainly of stress-tolerant species (e.g. indicative of low nutrient status or drought). Early successional communities are composed of (a) annuals, or (b) mosses/liverworts, or (c) lichens, or (d) ruderals, or (e) inundation species, or (f) open grassland, or (g) flower-rich grassland, or (h) heathland.
4. The site contains unvegetated, loose bare substrate and pools may be present.
5. The site shows spatial variation, forming a mosaic of one or more of the early successional communities (a)–(h) above (criterion 3) plus bare substrate, within 0.25ha.'

3.3.10 Invasive species

Single stands of the invasive species Himalayan balsam *Impatiens glandulifera* (see Target Note 9), hollyberry cotoneaster *Cotoneaster bullatus* (see Target Note 11) and an additional unidentified cotoneaster species (see Target Note 10) were observed on site.

3.3.11 Otter

Numerous records of otter were returned from within 2km of the proposed development site. However, all non-historical records (dating from the last 30 years) detail otters along Redwither Brook (1km south-west of the proposed development site), the River Clywedog (1.7km south) and on the floodplain of the River Dee (1.6km east).

The entire length of the ditches and stream at the site boundaries were not subject to a detailed inspection for evidence of water vole activity due to density of scrub, however numerous sections were inspected, and no evidence of otter activity was observed. These watercourses are not considered to be suitable to support otters due to the lack of fish on which to forage and a lack of connectivity to the larger watercourses within the wider landscape that would cause them to be used for commuting purposes.

Otters are not considered to be present on site or within the immediate vicinity of the site.

3.3.12 Water vole

No records of water vole were returned from within 2km of the proposed development site.

The entire length of the ditches and stream at the site boundaries were not subject to a detailed inspection for evidence of water vole activity (due to the density of dense scrub), however numerous sections were inspected, and no evidence of water vole activity was observed.

No evidence of water vole activity was observed during a water vole survey of the stream at the northern site boundary and the ditch at the eastern boundary that was undertaken in 2011 to inform a planning application for the parcel of land immediately adjacent to the northern site boundary. These watercourses were found to be broadly unsuitable to support water vole during the 2011 survey and are in a similar condition now. The section of ditch that runs along the western section of the site and the stream that runs along the northern section of the site are almost entirely shaded by dense scrub or woodland and have predominantly unvegetated banks, lacking sufficient foraging opportunities for water voles. The section of ditch that runs

along the eastern site boundary is considered to be broadly unsuitable as it was predominantly dry at the time of the walkover survey and the majority is being encroached by dense scrub, reducing its suitability.

Water voles are not considered to be present on site or within the immediate vicinity of the site.

3.3.13 White-clawed crayfish

No records of white-clawed crayfish were returned from within 2km of the proposed development site. The habitats on site are considered to be unsuitable to support this species as the stream and ditches at the site boundary are heavily vegetated or shaded and lack the sufficient substrate to provide refugia, breeding and foraging opportunities.

White-clawed crayfish are not considered to be present on site or within the immediate vicinity of the site.

3.3.14 Invertebrates

General invertebrate assemblage

The site supports a range of different habitats and will likely support a wide assemblage of invertebrate species, including potentially protected and notable species. Records of cinnabar moth, figure of eight moth, shaded broad-bar moth, latticed heath moth, small heath butterfly, wall butterfly, *Phaonia atriceps* (fly), red-girdled mining bee and white-barred soldier (fly) were returned from within the boundary of the proposed development site.

A specific invertebrate survey wasn't undertaken at the time of the walkover surveys, however high levels of invertebrate activity were observed, and numerous species were incidentally recorded, including painted lady butterfly *Vanessa cardui*, brimstone butterfly *Gonepteryx rhamni*, small copper butterfly *Lycaena phlaeas*, speckled wood butterfly *Pararge aegeria*, common blue butterfly *Polyommatus icarus*, holly blue butterfly *Celastrina argiolus*, large white butterfly *Pieris brassicae*, small tortoiseshell butterfly *Aglais urticae*, meadow brown butterfly *Maniola jurtina*, gatekeeper butterfly *Pyronia tithonus*, common carder bumblebee *Bombus pascuorum*, buff-tailed bumblebee *Bombus terrestris*, red-tailed bumblebee *Bombus lapidarius*, silver Y moth *Autographa gamma*, marmalade hoverfly *Episyrphus balteatus*, common darter dragonfly *Sympetrum striolatum* and spiked shieldbug *Picromerus bidens*.

Species recorded within the eastern section of the site include small copper butterfly, speckled wood butterfly, meadow brown, holly blue butterfly, small heath butterfly, straw dot moth *Rivula sericealis*, yellow shell moth *Camptogramma bilineata*, common carder bumblebee, red-tailed bumblebee, honeybee *Apis mellifera* and buff-tail bumblebee.

Dingy and grizzled skipper

Numerous records of dingy skipper and grizzled skipper butterflies were returned from within 2km of the site, the closest of which are located approximately 100m south-east of the site within the Wrexham Industrial Estate Wildlife Site.

The southern section of the site contains an area of open-mosaic habitat that supports the larval foodplants of both species and provide potentially suitable habitat for these species.



Both species are listed on Section 7 of the Environment (Wales) Act 2016, making them a material planning consideration.

Lesser silver water beetle

No records of lesser silver water beetle were returned within 2km of the proposed development site, however this species is only known to occur in two counties in England, and one county in Wales, within the UK; Somerset, Cheshire and Wrexham Borough. The lesser silver water beetle is fully protected under the Wildlife and Countryside Act 1981 and is a Red List species.

Lesser silver water beetles have an extremely restricted habitat requirement and are predominantly only found in ponds with cattle-poached margins and with a raft of floating vegetation. A lesser silver water beetle survey was undertaken of Ponds 1-5 on site (and the ditch along the eastern boundary) in 2013 by Andy Harmer Ecology Services, to inform an Environmental statement prepared for the Wrexham (Gas Fired Power Station) Order. The survey found all ponds and ditches to be broadly unsuitable to support lesser silver water beetle and indicated further decline in suitability would occur if the ponds remained unmanaged. The ponds have been unmanaged since the survey and many have entered a late successional stage or have been encroached by dense scrub or choked by swamp vegetation, further reducing their suitability to support this species.

4 EVALUATION AND RECOMMENDATIONS

This section provides a brief assessment of the likely impacts associated with the proposed development on the receptors identified during the walkover survey and desk study. It also includes any mitigation and compensation measures which may be required for the proposed development to proceed.

4.1 Habitats

4.1.1 Designated sites

The sites identified during the desk study were cross-referenced with the survey area relevant to this report. The closest non-statutorily protected site is Wrexham Industrial Estate Wildlife Site, which lies approximately 30m south-west of the site at its closest point and is separated from the site by Bryn Lane. The closest statutorily protected site is Afon Dyfrdwy (River Dee) SSSI, which lies approximately 1.6km to the east of the proposed development site.

Given the distances from site and the scale of development, it is considered unlikely that the proposed development will have any direct or indirect impact on this or any other local designated sites. The proposed development is purely industrial / commercial and does not have a residential aspect. As such, it is considered that the proposed development will not result in any additional significant recreational pressure upon any of the protected sites within the local area.

4.1.2 Hedgerows and scattered trees

There are eight hedgerows and numerous scattered trees on site.

Construction impacts

Site clearance and setting out may involve the direct loss of hedgerows or trees on site. Construction activities too close to the root protection areas (RPAs) of retained trees and hedgerows could cause permanent damage.

Mitigation

A BS5837 arboricultural survey should be undertaken to catalogue the location and species of the trees on site. Hedgerows and trees, in particular those forming a linear feature across the site, should be retained where possible. RPAs should be established and implemented around the trees and hedgerows which are to be retained. Where necessary, these areas should be adequately protected by appropriately designed protective barriers and ground protection throughout the entire development process.

Compensation

If any trees or hedgerows are to be removed, they should be replaced accordingly as part of a detailed landscaping scheme, with only native species to be planted.



Operational impacts

No operational impacts are envisaged.

4.1.3 Woodland

There are a number of small areas of woodland scattered across the site. This woodland has the potential to qualify as the lowland mixed deciduous woodland habitat of principal importance.

Construction impacts

The woodland could be lost, permanently damaged, altered and / or disturbed by the construction activities.

Mitigation

The areas of woodland should be retained where possible and should be protected during the construction phase of the development. The retained areas of woodland should be fenced off to protect the root systems of the trees within, and no contractors should access the woodland unless authorised to do so or for reasons related to working within the woodland (e.g. protecting it from construction activities). No materials should be stored in the woodland and no temporary or permanent external lighting should be directed onto the woodland.

Compensation

If any areas of woodland on site are to be removed, they should be replaced through compensatory planting in an appropriate location.

Operational impacts

No operational impacts are envisaged.

4.1.4 Stream / ditches

A slow flowing stream / ditch system is present along the eastern, western and northern site boundaries.

Construction impacts

Site clearance and construction works may result in the removal or the culverting of the stream or ditches on site and could result in disturbance and / or pollution to the watercourse if retained.

Mitigation

Specific procedures and control measures will need to be implemented to ensure that there is no risk of input into the watercourse or the ditches. These measures should be set out by the contractors prior to the commencement of works and will need to be agreed with the Local Planning Authority and other statutory consultees. These measures should conform to best



practice guidance and include the cleaning of all machinery and equipment before use on site to prevent contamination of the watercourse with foreign abiotic and biotic materials.

Where possible, buffer zones of at least 5m from the top of the bank should be retained along the length of the stream and the ditches, to protect them from disturbance and to reduce the risk of pollution. The buffer zones should be retained and enhanced as an ecological corridor. The buffer zones should be adequately fenced off and no vegetation clearance or other construction activities should take place within it unless part of ecological enhancement works.

Compensation and enhancement

If any of the stream and ditches are to be removed or culverted, replacement habitat should be re-created. Sections of the retained ditches along the eastern and western site boundaries could be enhanced through scrub removal to open these habitats up and increase colonisation by marginal and emergent plant species, which are abundant and diverse along less shaded sections.

Operational impacts

Significant issues could include general degradation to the stream and ditches by way of litter or access pressures.

Mitigation

Bins and other waste disposal / recycling facilities should be available in the immediate surrounding area.

4.1.5 Ponds

There are six ponds on site, all of which have the potential to qualify as habitats of principal importance.

Construction impacts

Site clearance and construction works may result in the loss of ponds on site and may result in the disturbance and / or pollution of retained ponds.

Mitigation

Ponds should be retained and protected where possible. If any ponds are due to be removed to facilitate the development, a pSYM survey should be undertaken to determine whether or not the ponds qualify as habitats of principal importance and to inform the compensation measures required. These surveys can be undertaken between June and August inclusive.

Specific pollution prevention measures will need to be implemented to ensure that the retained and any newly created ponds are protected during the consultation phase of the development. Where possible, this should include a 'no-works' buffer zone of at least 5m.

Compensation and enhancement

If any ponds are to be removed, they should be re-created and any ponds that qualify as habitats of principal importance will need to be compensated for on a 2:1 ratio. Newly created



ponds should be designed in conjunction with retained ponds to provide a range of aquatic habitats to benefit a greater diversity of species e.g. a mix of open water and late successional swamp communities. Newly created and retained ponds should also be designed and enhanced to target protected or notable species that known to be present on site or within the local area e.g. GCNs.

Operational impacts

Significant issues could include general degradation to the ponds by way of litter or access pressures.

Mitigation

Bins and other waste disposal / recycling facilities should be available in the immediate surrounding area.

4.1.6 Open mosaic habitat

The southern section of the site has the potential to qualify as the habitat of principal importance 'open mosaic habitat on previously developed land'. This habitat can be of particular value for plant and invertebrate species.

Construction impacts

The development proposals could result in the removal of this habitat.

Mitigation and compensation

To determine the ecological value of the open mosaic habitat on site, further botanical and invertebrate surveys should be undertaken. A further botanical survey should be undertaken to classify the vegetation communities and determine whether any protected or notable plant species or communities are present. This survey should be undertaken from June to August inclusive and should be undertaken by a suitability qualified botanist. A single exploratory invertebrate survey is recommended to identify invertebrate assemblages and to identify any key species associated with open mosaic habitats. This survey would need to be undertaken from May to September by a suitably experienced invertebrate ecologist.

The result of these further surveys will determine if any further mitigation or compensation measures are required. If the site is found to contain invertebrate or botanical assemblages of particular importance, or is found to support protected or particularly notable species, some areas of open mosaic habitat should be retained or recreated as part of the development proposals. This could include the translocation of topsoil and the seedbank to a particular area on site, designated as a wildlife area.

Operational impacts

To be determined following the further surveys.



4.1.7 Species-rich grassland

Some of the areas of grassland on site are species-rich and two of the grassland fields are considered to potentially qualify as unimproved grassland and may meet the criteria to qualify as the lowland meadow habitat of principal importance.

Construction impacts

The development proposals could result in the removal of this habitat.

Mitigation and compensation

To determine the ecological value of the grassland habitats on site and to determine whether any protected or notable plant species or communities are present, a further NVC botanical survey should be undertaken. This survey should be undertaken during the peak flowering season and should be conducted from June to August inclusive by a suitability qualified botanist.

The result of the further survey will determine the compensation and mitigation requirements.

Operational impacts

To be determined following the further surveys.

4.2 Species

4.2.1 Amphibians

GCNs and other common amphibian species are known to have historically used the six onsite ponds for breeding and three common frogs were observed during the walkover survey. The site contains high quality foraging, commuting and breeding habitat and it's considered that GCNs are likely to still be present on site.

Construction impacts

Potential impacts include direct harm, injury and / or death to individuals and the loss or degradation of aquatic breeding and foraging habitat and terrestrial commuting, foraging and hibernating habitat.

Mitigation and compensation

A GCN impact assessment should be undertaken to assess all accessible ponds, both onsite and within offsite 500m of the proposed development site, for their suitability to support GCNs. This impact assessment can be undertaken any time of year.

Given the historical presence of GCNs on site and within the immediate surrounding area, it is considered highly likely that further GCN presence / absence surveys and subsequent population size class assessments (PSCA) surveys will also need to be undertaken of the onsite ponds and of offsite ponds within 500m of the site. These surveys can only be undertaken from mid-March and June inclusive and require multiple survey visits (4 for presence / absence and 6 for PSCA), with at least half of the total visits undertaken during the period of mid-April to mid-May.

If GCNs are found to be present onsite or within the immediate vicinity, a European protected species (EPS) mitigation licence will need to be granted by Natural Resources Wales. This EPS licence can only be granted once planning permission has been secured, and will need to be in place prior to the start of any works on site. Natural Resources Wales aim to process licence applications within 30 working days. As part of a licence, a suite of mitigation measures will be required, including the installation of newt fencing and a period of trapping and translocation to an established receptor site.

Where possible, suitable GCN terrestrial and aquatic habitat should be retained and protected as part of the development. If any terrestrial or aquatic habitat used by GCNs is due to be lost, compensatory habitat will need to be created. The requirement for compensatory habitat creation will be determined following the further surveys.

Operational impacts

To be determined following the further surveys.

4.2.2 Reptiles

The site provides an array of habitats on site that are suitable to support common lizard, slow worm and grass snake, all three of which are known to be present in the local area.

Construction impacts

If reptiles are present during the construction activities, they could be directly harmed. The development could also result in a loss of suitable foraging habitat and the severance of commuting corridors across the site.

Mitigation and compensation

A reptile presence / absence survey should be undertaken by a suitably experienced ecologist, involving the deployment of artificial refugia and seven site visits between March to October inclusive. If the survey identifies the presence of reptiles, it will need to be extended to a total of 15 site visits to assess the size class of any reptile populations found. The survey results will then be used to inform the necessary mitigation and compensation measures.

Based on the results of this further survey work, a reptile mitigation strategy may be required for submission with the planning application, which will detail how reptiles will be safeguarded throughout the development.

Where possible, suitable reptile habitat should be retained and protected as part of the development. If any habitat used by reptiles is due to be lost, compensatory habitat will need to be created, the requirement for which will be determined following the further surveys.

Operational impacts

To be assessed following the further survey.

4.2.3 Badger

A single badger scat and a faint mammal path was observed within the northernmost field on site. No other evidence of badger activity and no badger setts were observed. The habitats on site provide high quality foraging and commuting habitat and offer sheltered sett building opportunities, however it's considered that badger use of the site is currently limited to occasional foraging and commuting in a transitory capacity.

Construction impacts

Construction activities without mitigation could result in direct harm to badgers, loss of foraging habitats and the severance of commuting corridors. If any badger setts are present at the time of works, the development could also result in sett disturbance, sett collapse and sett abandonment.

Mitigation

The following reasonable avoidance measures (RAMs) are to be implemented during the development as badgers are considered to be using the site on an occasional basis for foraging and commuting:

- Prior to the commencement of any works, or access by any machinery or heavy plant, a search should be undertaken to identify any new setts or signs of badger activity.
- Regular site checks must be undertaken during construction to ensure that no new setts have been created.
- No trenches or excavations will be left open overnight. They will be backfilled or covered with board, or alternatively fitted with a means of escape for any badger (or other animal) which may become trapped within, such as a plank or slope leading out of the bottom of the excavation at an angle of 45°.
- Any pipes will be stored with caps on to prevent entry by badgers and other animals, and materials such as barbed wire will be stored so that animals cannot become entangled in them.
- Any chemicals or harmful materials will be stored so that they cannot be accessed by badgers or other animals.
- Excavations will be checked before they are backfilled to ensure that no animals have become trapped.

Operational impacts

A wildlife friendly lighting plan should be designed for the site, with particular emphasis on avoiding lighting spill onto any retained or created areas of high-quality habitat that could be used by foraging badgers, specifically woodland, hedgerows, large areas of dense scrub and areas of species-rich grassland.

4.2.4 Bats

The buildings on site have negligible potential to support roosting bats. There are a number of trees on site which contain features that are suitable for roosting bats. The habitats on site provide moderate-high quality foraging and commuting habitat for bats and the site has the potential to be used by a range of species, including lesser horseshoe bats.

Construction impacts

If bats are roosting within trees during site clearance and demolition, they are at risk of direct harm and disturbance and the roosts will be lost permanently. Inappropriate landscaping could also result in the severing of commuting corridors used by bats as well as the loss of foraging habitats.

Mitigation

Bat activity surveys should be undertaken to assess the use of the site by foraging and commuting bats. These surveys should involve transect surveys and the installation of static detectors across the site, from April to October inclusive.

A ground level tree assessment should be undertaken of all trees (including scattered trees, woodland trees and mature areas of dense scrub) that have the potential to be adversely impacted by the development (felling, arboricultural works or significant levels of disturbance), to assess their potential to support roosting bats. This ground level assessment can be undertaken any time of year.

If any trees due to be adversely impacted are found to have the potential to support roosting bats, further aerial tree inspections should be conducted (any time of year). If any potential roosting features are found to still be suitable following the inspections, further bat presence / absence surveys or further aerial inspections may be required (May to September inclusive).

The survey results will inform the requirement for further mitigation or compensation measures. It should be noted that if bats are found to be roosting on site, these further measures may include an application for an EPS mitigation licence from Natural Resources Wales.

Enhancements

The provision of bat boxes as part of the development proposals would increase the roosting opportunities for bats on site and would act as an ecological enhancement. Bat boxes may also need to be provided to compensate for the loss of potential bat roosting features in trees. At the time of writing this report no detailed plans are available, but bat boxes that could be used on site include:

- Schwegler 1FF box (affixed to trees or buildings)
- Schwegler 2F box (affixed to trees or buildings)
- Schwegler 1FW hibernation box (affixed to trees)
- Schwegler 2FR bat tube (installed in connected pairs or threes into the external walls of buildings)

Bat boxes affixed to trees should be fitted at a height of between 5 and 6m metres on a southerly aspect.

The bat boxes affixed to, or installed into the external walls of buildings should be installed just below the eaves / roof height. No detailed lighting proposals are as yet available to UES, however care must be taken when installing any new lighting to ensure that light spillage onto the bat boxes is minimised. This may require the use of cowling or relocation of the bat box or lighting.

It should be noted that once bat inhabits a bat box, they may only be disturbed by a licensed bat worker.

Operational impacts

A wildlife friendly lighting plan should be designed for the site, with particular emphasis on avoiding lighting spill onto any installed bat boxes and retained areas of high-quality habitat that are used as key areas by foraging and commuting bats. This lighting plan will need to be informed by the results of the further survey, however as a general principle, lighting should avoid overspill onto areas of woodland, hedgerows, ponds, large areas of dense scrub and areas of species-rich grassland.

4.2.5 Birds

There are a number of habitats, such as woodland, hedgerows, dense scrub, ponds, species-rich grassland, Building 2 and mature trees which could support breeding birds. The habitats on site provide high-quality foraging habitat for barn owls. Provided suitable cavities are present, there is some potential for trees on site to support breeding barn owls.

Construction impacts

Tree felling, arboricultural works, site clearance, vegetation removal and demolition of Building 2 could result in the direct loss of nests, any individuals within the nests and of available nesting territories if conducted during the breeding season.

Mitigation

Given the high quality and range of habitats on site, a suite of breeding bird surveys should be undertaken to assess the use of the site and to inform the appropriate mitigation and compensation measures. The surveys would involve undertaking a transect survey once a month from March to August inclusive.

An assessment of the potential for trees to support breeding barn owls should be undertaken of any trees that have the potential to be adversely impacted by the proposals (felling, arboricultural works or subject to significant levels of disturbance). This assessment can be undertaken simultaneously with the ground level tree assessment for bats and can be undertaken anytime of year. The requirement for further surveys, mitigation or compensation measures with regards to breeding barn owls will be informed by the results of this survey.

Site clearance, tree felling, arboricultural works, vegetation removal (including enabling works) and the demolition of Building 2 are to take place outside of the breeding bird season and should not be undertaken from March to August inclusive. If this is not possible and works need to take place between this period, a targeted breeding bird nest scoping survey should be conducted by a suitably qualified ecologist immediately prior to the works, or an ecological clerk of works appointed to oversee the works.

Compensation and enhancement

If extensive areas of vegetation are to be removed, consideration should be given to providing replacement habitat for foraging and nesting birds by incorporating native species tree, shrub or scrub planting as part of the landscaping proposals. The full requirements of compensatory habitat creation will depend on the development proposals and will be informed by the breeding bird surveys. Areas of rough grassland should specifically be retained or re-created to continue to provide high quality habitat for foraging barn owls, which are known to be present in the local area.

Compensation for the loss of nesting habitat and the enhancement of the nesting habitat on site can also be provided through the provision of bird nest boxes. At the time of writing this report no detailed plans are available, but bird boxes that could be used on site include:

- Schwegler 1B nest box (affixed to trees)
- Schwegler 2H robin nest box (affixed to trees)
- Schwegler 3S starling nest box (affixed to trees or buildings)
- Schwegler 1MR Avianex box (affixed to trees or buildings)
- Barn owl box (affixed to trees)

Bird boxes should be sited at a minimum height of three metres. Unless there are trees which shade the box during the day, the boxes should be oriented between north and east, thus avoiding strong sunlight and the wettest winds.

Operational impacts

Inappropriate management of the habitats on site could degrade them and render them unsuitable for wildlife.

Mitigation

It is important to implement good horticultural practice in any landscaping scheme, including the use of peat-free composts, mulches and soil conditioners. The use of pesticides (herbicides, insecticides, fungicides and slug pellets) should be discouraged to prevent fatal effects on the food chain. Any pesticides used should be non-residual.

Excessive removal or pruning of trees and hedgerows should be avoided to maximise the growth and plant matter available to wildlife. Pruning should be left until late winter to leave seeds and berries for wintering wildlife and to ensure no impact on breeding and nesting birds.

4.2.6 Invasive species

Single stands of Himalayan balsam, hollyberry cotoneaster and an additional unidentified cotoneaster species were observed on site. Hollyberry cotoneaster and three other species of cotoneaster are listed under Schedule 9 of the Wildlife and Countryside Act 1981 and Himalayan balsam is listed under Schedule 2 of the Invasive Alien Species (Enforcement and Permitting) Order 2019. As a consequence of both articles of legislation, it is an offence to plant or otherwise cause these species to grow in the wild, including as a result of development works.



Construction impacts

Site clearance and setting out could result in the disturbance and dispersal of invasive species on and off site.

Mitigation

Invasive species will need to be subject to control measures during the works and should be eradicated as part of the development, to ensure that they do not spread across the site or onto adjacent areas. An invasive species method statement should be prepared to detail these measures.

Operational impacts

If the invasive species are subject to control measures and are eradicated as part of the development, no further operational impacts are envisaged. However, complete eradication is an ongoing process, and if it is not treated as such, they can return and continue to spread. This could become more acute with increased activity on site.

4.2.7 Invertebrates

The site contains a wide variety of habitats and likely supports a wide assemblage of invertebrate species, with the potential for protected or notable species to be present.

Construction impacts

If any protected invertebrates are present, works on site could result in the following impacts: direct harm, injury and / or death to individuals, loss of suitable habitat and fragmentation of habitats.

Mitigation

A single exploratory invertebrate survey is recommended to identify invertebrate assemblages and to inform the requirements for mitigation or compensation measures. This survey would need to be undertaken from May to September by a suitably experienced invertebrate ecologist.

Operational impacts

To be assessed following the further surveys.



5 CONCLUSION

The land parcel has an area of approximately 20.9ha and was formerly used for industrial and agricultural purposes, prior to being left unmanaged for several years. The site contains large semi-improved species-rich grassland fields interspersed with ponds, small stands of woodland, hedgerow and scattered trees. Large areas of the site have succeeded into dense scrub and areas of bare ground and ephemeral / short perennial are present on previously developed land within the south-eastern section of the site. The south-western section of the site contains an area of amenity grassland and a large hardstanding compound used to store vehicles. A shallow stream runs along the northern site boundary and wet ditches are present along the eastern and western boundaries.

Since the initial walkover survey, the site boundary has been amended to incorporate an additional 4.5ha of adjacent land. This land comprises two agricultural grassland fields that are divided and bordered by hedgerows and trees. A dry and unvegetated ditch runs along part of the eastern boundary a pond surrounded by willow scrub is present within the northernmost field.

The preliminary ecological appraisal has highlighted potential issues with the following ecological receptors on or adjacent to site: amphibians, badgers, bats, breeding birds, invasive species, invertebrates, ponds, plant communities, reptiles, streams & ditches, trees & hedgerows and woodland. Provided these issues are addressed in accordance with the recommendations detailed in this report, the development may proceed without adversely impacting the aforementioned ecological receptors.

The development also presents an opportunity to enhance the habitats available to wildlife on site. The provisioning of bat and bird nest boxes on site will provide improved roosting and nesting opportunities into the long-term future of the site.



6 REFERENCES

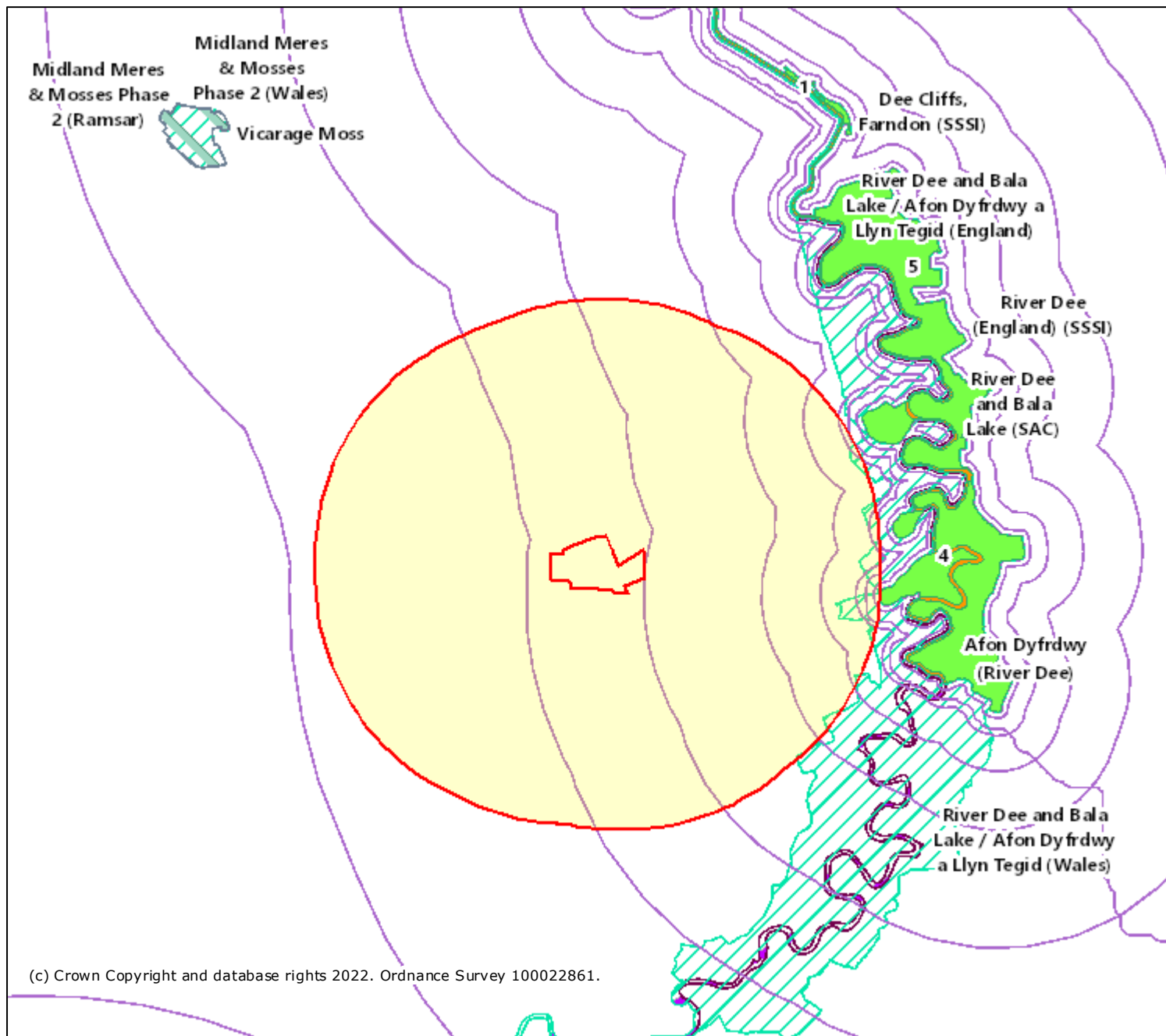
- CIEEM (2017). *Guidelines for Preliminary Ecological Appraisal* (Second Edition).
- DEFRA (2019). *MAG/C* [online]. Available at: <http://magic.defra.gov.uk/>.
- JNCC (2010). *Handbook for Phase 1 habitat survey: A technique for environmental audit*.
- MHCLG (2021). National Planning Policy Framework (NPPF).



APPENDICES

Appendix 1 – Desk study

Statutorily protected sites - 2km



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Legend

- | | |
|------------------------------------|---|
| Local Nature Reserves (England) | Not Assessed |
| National Nature Reserves (England) | Sites of Special Scientific Interest (England) |
| National Nature Reserves (Wales) | SSSI Impact Risk Zones - to assess planning applications for likely impacts on SSSIs/SACs/SPAs & Ramsar sites (England) |
| Ramsar Sites (England) | Sites of Special Scientific Interest (Wales) |
| Proposed Ramsar Sites (England) | Special Areas of Conservation (England) |
| Ramsar Sites (Wales) | Possible Special Areas of Conservation (England) |
| | Special Areas of Conservation (Wales) |
| Favourable Condition | Special Protection Areas (England) |
| Unfavourable Recovering | Potential Special Protection Areas (England) |
| Unfavourable no change | Special Protection Areas (Wales) |
| Unfavourable Declining | |
| Part Destroyed | |
| Destroyed | |

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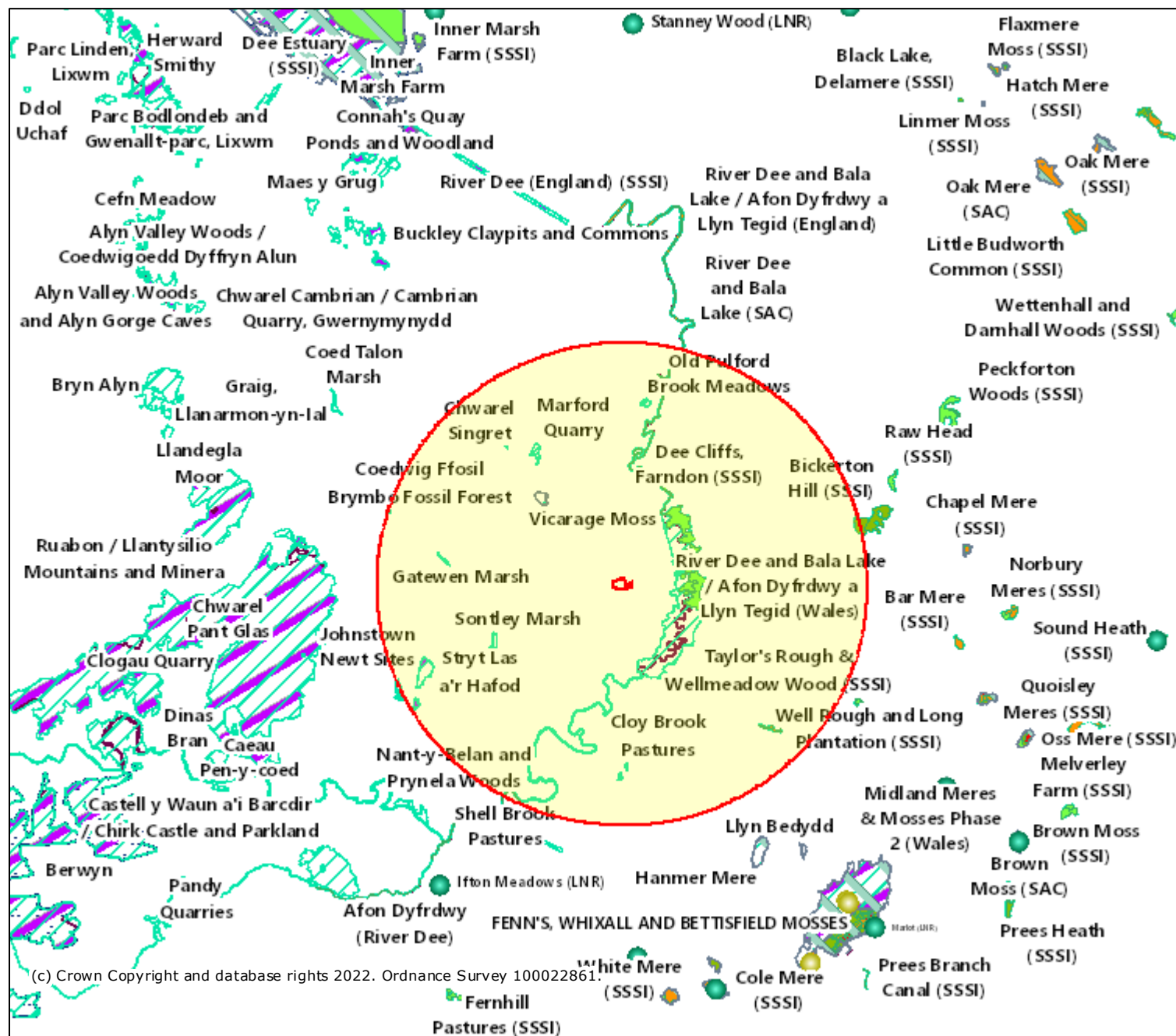
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ymax = 354800



Map produced by MAGIC on 15 September, 2022.
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Statutorily protected sites - 10km



Legend

- | | | | |
|---|---|---|--|
|  | Local Nature Reserves (England) - points |  | Part Destroyed |
|  | National Nature Reserves (England) - points |  | Destroyed |
|  | National Nature Reserves (Wales) - points |  | Not Assessed |
|  | Ramsar Sites (England) |  | Sites of Special Scientific Interest (England) |
|  | Proposed Ramsar Sites (England) |  | Sites of Special Scientific Interest (Wales) |
|  | Ramsar Sites (Wales) |  | Special Areas of Conservation (England) |
| Sites of Special Scientific Interest Units (England) | |  | Possible Special Areas of Conservation (England) |
|  | Favourable Condition |  | Special Areas of Conservation (Wales) |
|  | Unfavourable Recovering |  | Special Protection Areas (England) |
|  | Unfavourable no change |  | Potential Special Protection Areas (England) |
|  | Unfavourable Declining |  | Special Protection Areas (Wales) |

Projection = OSGB36

```
xmin = 296500
```

```

xmin = 298900
ymin = 332700

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```
xmax = 380000
```

```
xmax = 500000
ymax = 373000
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Map produced by MAGIC on 14 September, 2022.

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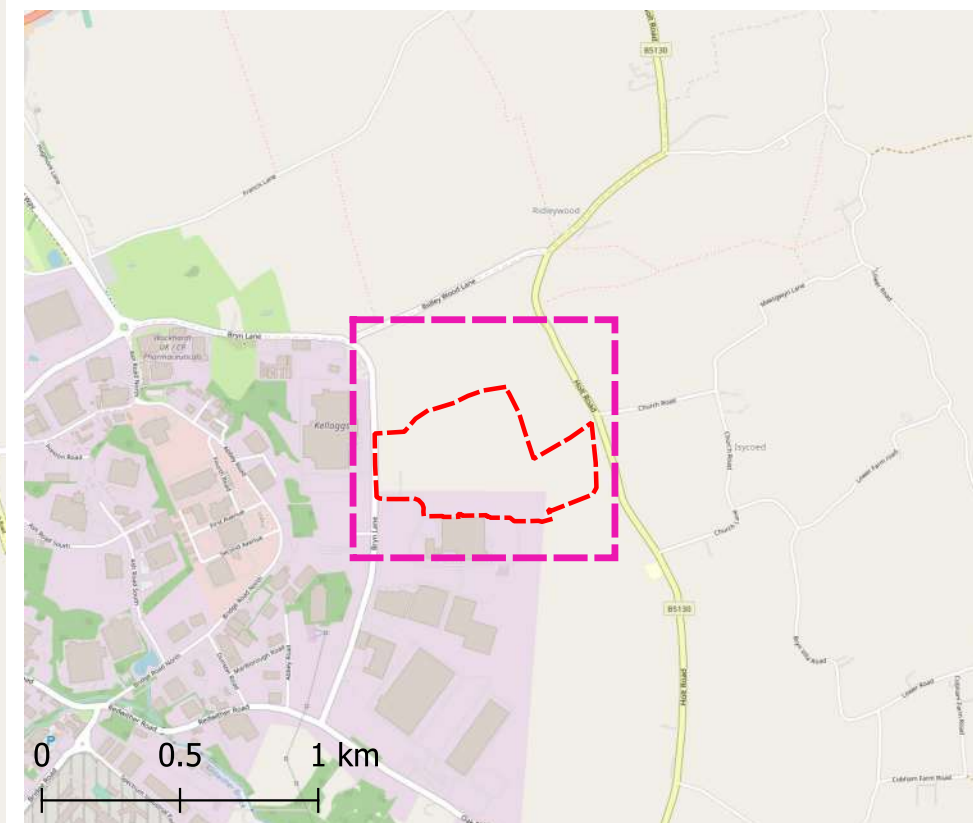
Appendix 2 – Phase 1 habitat plan

Target Note 1 -	Common frog
Target Note 2 -	Dead tree with bat roosting potential
Target Note 3 -	Oak tree with bat roosting potential
Target Note 4 -	Badger scat and small mammal path
Target Note 5 -	Fox scat
Target Note 6 -	Deer footprints
Target Note 7 -	Adult deer
Target Note 8 -	Rabbit warren with multiple burrows and droppings
Target Note 9 -	Himalayan balsam
Target Note 10 -	Cotoneaster
Target Note 11 -	Hollyberry cotoneaster
Target Note 12 -	Area of ephemeral / short perennial vegetation with increased botanical diversity and calcicolous species
Target Note 13 -	Small area of grassland with increased botanical diversity



Preliminary Ecological Appraisal

Site: Plot 3a, Wrexham Industrial Estate
NGR: SJ 39340 50457
Author: Tom Kenwright
Date: 15/09/2022

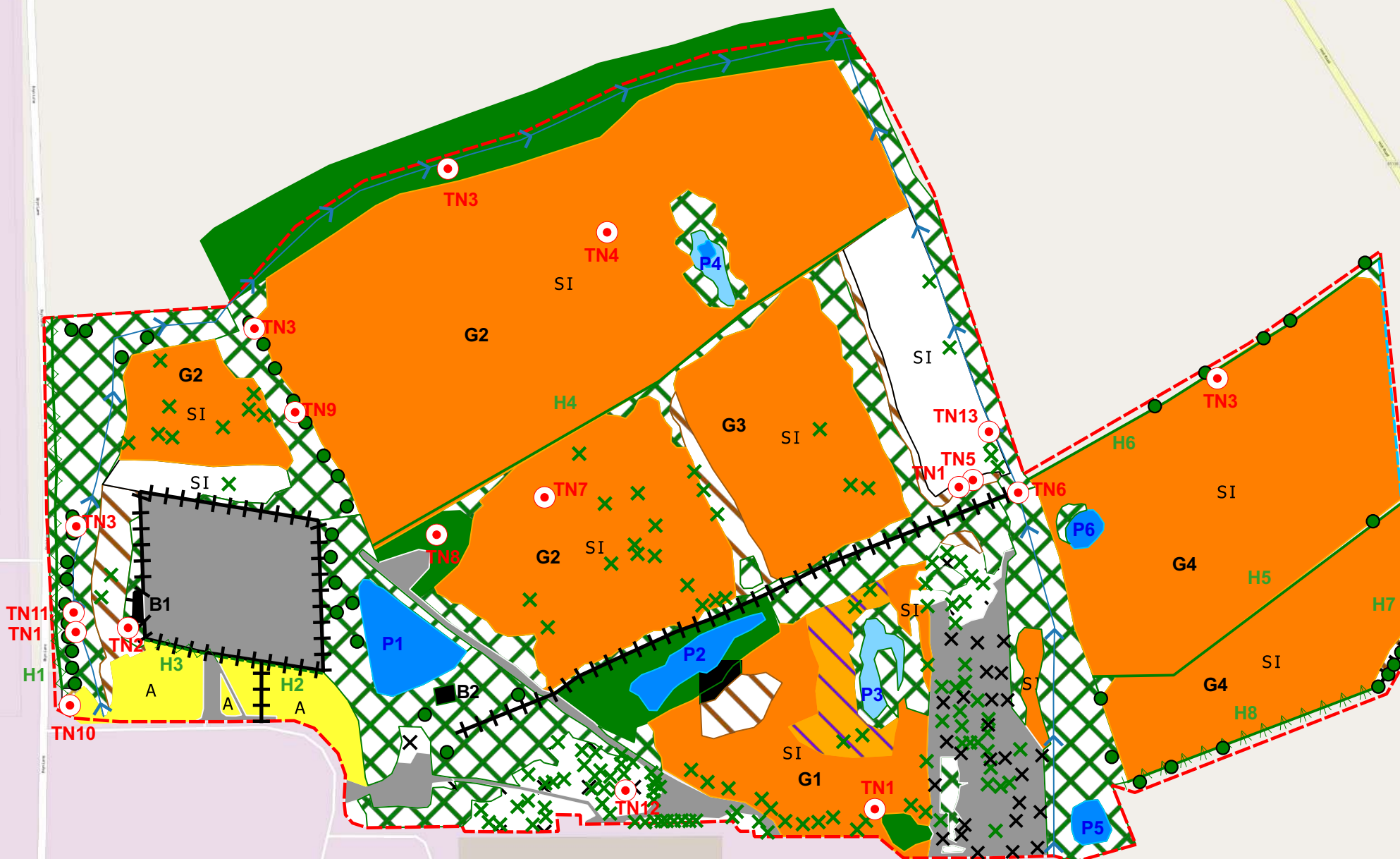


KEY:

A1.1.1 - Broadleaved woodland - semi-natural	J1.4 - Introduced shrub
A2.1 - Scrub - dense/continuous	J2.1.1 - Intact hedge - native species-rich
A2.2 - Scrub - scattered	J2.1.2 - Intact hedge - species-poor
A3.1 - Broadleaved scattered trees	J2.2.1 - Defunct hedge - native species-rich
B2.2 - Semi-improved neutral grassland	J2.2.2 - Defunct hedge - species-poor
B5 - Marshy grassland	J2.3.1 - Hedge with trees - native species-rich
B6 - Poor semi-improved grassland	J2.4 - Fence
C3.1 - Tall ruderal	J2.6 - Dry ditch
F1 - Swamp	J3.6 - Buildings
G1 - Standing water	J5 - Hardstanding
G2 - Running water	Survey boundary
J1.2 - Amenity grassland	Target Notes
J1.3 - Ephemeral/short perennial	

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Appendix 3 – Aerial photographs



Plot 3a – Wrexham Industrial Estate

Close aerial photograph

— Survey boundary



Plot 3a – Wrexham Industrial Estate

Wide aerial photograph

 Site location





Appendix 4 – Photographs



Photograph 1 – Small area of woodland within the central section of the site, located in close proximity to Pond 1.



Photograph 2 – Small of woodland within the central southern section of the site, surrounding Pond 2.



Photograph 3 – Looking towards the offsite woodland that borders the northern site boundary.



Photograph 4 – Looking towards an area of dense willow scrub.



Photograph 5 – Looking towards an area of mixed species scrub on site.



Photograph 6 – Example of scattered scrub encroaching upon the areas of grassland.



Photograph 7 – Example of scattered mature or semi-mature trees on site.



Photograph 8 – Grassland 1 within the south-eastern section of the site.



Photograph 9 – Grassland 2 within the central section of the site.



Photograph 10 – Grassland 2 within the northern section of the site.



Photograph 11 – Grassland 3 within the eastern section of the site.



Photograph 12 – Species-poor semi-improved grassland within the eastern section of the site.



Photograph 13 – Example of areas of tall ruderal vegetation on site.



Photograph 14 – Pond 1.



Photograph 15 – Pond 2 is surrounded and shaded by woodland.



Photograph 16 – Pond 3 is being choked by swamp vegetation and no open areas of standing water are present.



Photograph 17 – Pond 4 is being choked by swamp vegetation, however a central area of open standing water is present.



Photograph 18 – The ditch along the western boundary has little marginal or emergent vegetation and is heavily shaded by the surrounding scrub.



Photograph 19 – The ditch along the eastern site boundary is heavily vegetated and is being encroached by scrub.



Photograph 20 – Looking along the stream that flows along the northern site boundary.



Photograph 21 – Example of hardstanding in the south-eastern section of the site with significant encroachment from scattered scrub and ephemeral / short perennial vegetation.



Photograph 22 – Example of hardstanding in the south-eastern section of the site with significant encroachment from scattered scrub and ephemeral / short perennial vegetation.



Photograph 23 – Example of hardstanding in the south-eastern section of the site with some ephemeral / short perennial vegetation.



Photograph 24 – Example of large area of intact hardstanding in the south-eastern section of the site.



Photograph 25 – Looking east along Hedgerow 3.



Photograph 26 – Looking east along Hedgerow 2.



Photograph 27 – Looking north towards Hedgerow 4.



Photograph 28 – View of Building 1.



Photograph 29 – External view of Building 2.



Photograph 30 – Internal view of Building 2.



Photograph 31 – Example of potential bat roosting features incidentally observed within a dead tree on site.



Photograph 32 – Example of potential bat roosting features incidentally observed within a tree on site.



Photograph 33 – Badger scat observed on site.



Photograph 34 – Hollyberry cotoneaster observed on site.



Photograph 35 – Himalayan balsam observed on site.



Photograph 36 – Rabbit warren observed on site.



Photograph 37 – Looking across the agricultural semi-improved grassland within the south-eastern section of the site.



Photograph 38 – Looking west along Hedgerow 5.



Photograph 39 – Looking north-east towards Hedgerow 6.



Photograph 40 – Looking west along Hedgerow 8.



Photograph 41 – Looking towards Pond 6 and the surrounding willow scrub.



Photograph 42 – Emergence and marginal vegetation around Pond 6.



Photograph 43 – Pond 6 was completely dry at the time of the walkover survey.



Photograph 44 – Dry ditch at the eastern boundary of the agricultural fields in the eastern section of the site.



Appendix 5 – Statutory and planning context

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

Great crested newts

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 *Crocsmia 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 (PPW - 2018). 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.