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Cefn-y-Brith, Llay Road, Cefn-y-Bedd, Wrexham.

On behalf of Mr. Clint Shaw.

Preliminary Ecological Appraisal

Report number:	CS-001D1	Author:	R. Leigh
Date:	22 August 2021	Approved:	C. Evans

Important Information to Readers

This report has been prepared for Mr. Shaw, in accordance with the terms and conditions of appointment for an Ecological Appraisal. Leigh Ecology Ltd cannot accept any responsibility for the use of or reliance on the content of this report by any third party.

The advice contained in this report is based on the information available and/or collected during the period of study. We cannot completely eliminate the possibility of important ecological features being found through further investigation and/or by survey at different times of the year or in different years.

Surveys and assessments are undertaken on the understanding that nothing in our reports will be omitted, amended or misrepresented by the client or any other interested party.

This report aims to provide general advice on ecological constraints associated with any development of the proposed site and includes recommendations for further survey.

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1 Executivesummary

1.1 Leigh Ecology Ltd was commissioned to undertake an Extended Phase 1 Habitat Survey of a parcel of land, which has been identified as a site for a new water park.

1.2 The site is an open mosaic habitat containing semi-improved neutral grassland, poor semi-improved grassland and marshy grassland with open water and ponds. The site has limited public access.

1.3 Trees within the site offer poor bat roosting habitat but do offer foraging and commuting opportunities for bats.

1.4 Areas of key ecological interest within the development site include marshy grassland, the lake itself, the ponds and the hedgerows.

1.5 The site contains habitat frequented by commoner and scarcer bird species; any habitat removal should be undertaken outside of the bird-nesting season March-August inclusive.

1.6 The provision of similar muddy bare ground should be provided as part of the site landscape design.

1.7 The habitats on site provide potential for use by reptile species; although, suitable reptile habitat within the site is limited in extent, and results will feed into any mitigation and method statement necessary to reduce the risk to common reptiles (if present) being injured as a result of the works.

1.8 Two ponds occur on site, these both have potential habitat for amphibians; however, these will not be impacted on by the proposal, though some safeguards to protect amphibians should be put in place.

1.9 It is suggested that an Ecological Mitigation Strategy be prepared for the proposed development of the site. This would ensure that potential impacts are minimised and that enhancements are provided, as deemed appropriate.

2 Introduction

Background

2.1 Leigh Ecology was commissioned by Mr. Clint Shaw to undertake an Extended Phase 1 of land identified for a leisure and mixed agricultural development, located adjacent to Llay Road, Cefyn-y-Bedd. The site is located at approximate National Grid Reference (NGR) SJ317556); refer to redline boundary on *Figure 2.1*.

2.2 Sites of biodiversity conservation value, habitats and species in UK and Local Biodiversity Action Plans (UK BAP and LBAP) and protected species are material considerations in the planning process (Department for Communities and Local Government 2012).

2.3 The study is documented in this report and includes the following:

1. Preliminary ecological baseline for the site;
2. Potential ecological constraints to the development of the site; and
3. Further ecological work necessary for a planning submission.

2.4 All Work was undertaken in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Practice.

Legislation and Planning Policy

2.5 **General**

Articles of British wildlife and countryside legislation, policy guidance and both Local and National Biodiversity Action Plans (BAPs) are referred to throughout this report. Their context and application are explained in the relevant sections of this report. The relevant articles of legislation are:

- Planning Policy Wales (8th Ed. January 2016)
- Technical Advice Note 5 (TAN5) Nature Conservation and Planning 2009
- Local planning policies (Wrexham City Council).
- The Conservation of Habitats and Species Regulations 2017.

- The Wildlife and Countryside Act 1981 (as amended).
- EC Council Directive on the Conservation of Wild Birds 79/409/EEC.
- National Parks and Access to the Countryside Act 1949.
- The Protection of Badgers Act 1992.
- The Countryside and Rights of Way Act 2000.
- The Hedgerow Regulations 1997.
- The Natural Environment and Rural Communities Act 2006; and
- Local Biodiversity Action Plan for Wrexham.

Sites of biodiversity conservation value, habitats and species in UK and Local Biodiversity Action Plans (BAPS) and protected species are material considerations in the planning process Habitat Regulations 2017 and the Environment (Wales) Act 2016.

Under the Planning Policy Wales, the presence of any protected species is a material planning consideration. The Framework states that impacts arising from development proposals must be avoided where possible or adequately mitigated/compensated for and that opportunities for ecological enhancement should be sought.



Figure 2.1; Site Location.

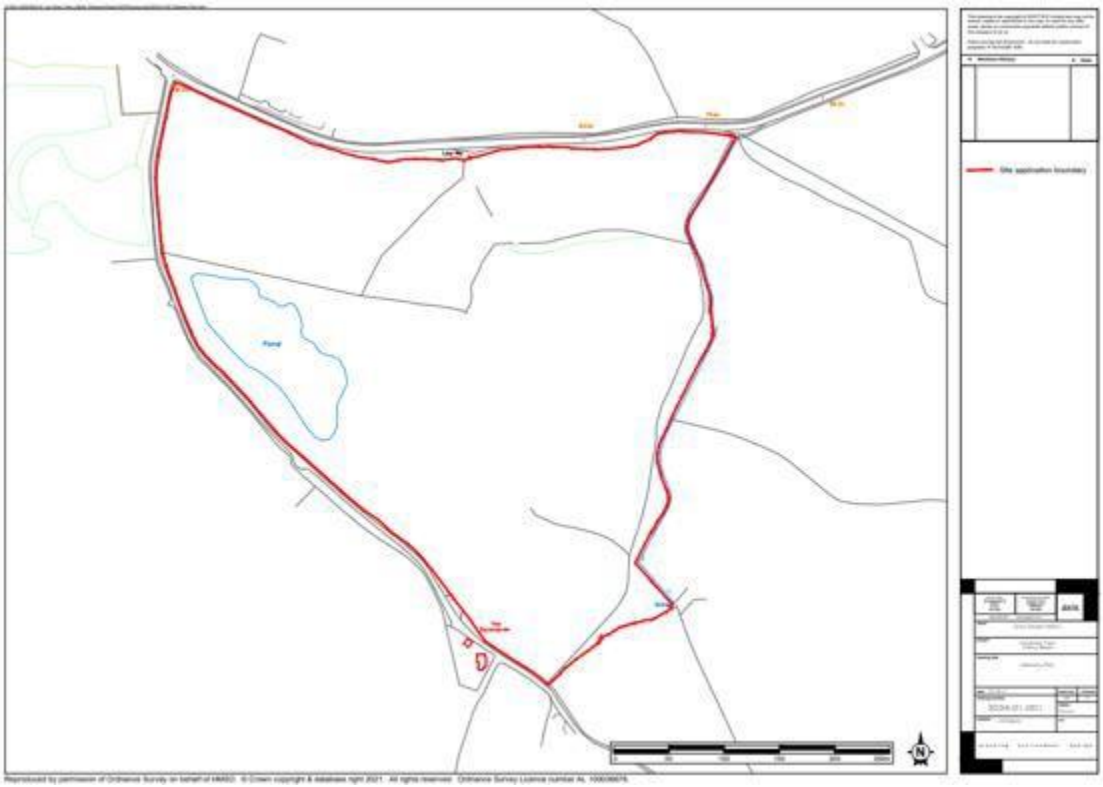


Figure 2.2; Land at Cefn-y-Brith, with the red line representing the development site boundary and the survey area.

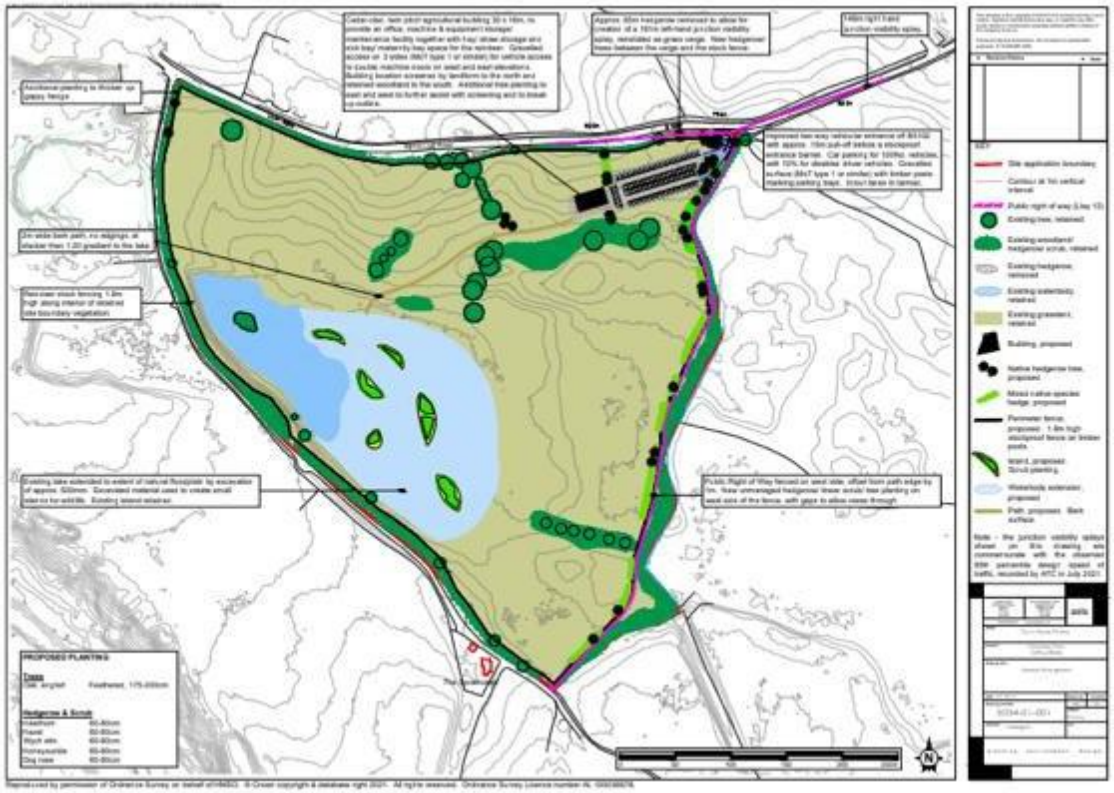


Figure 2.3; Land at Cefn-y-Brith, showing the proposed development.

3 Methodology

3.1 A preliminary understanding of the ecological baseline of the development site (hereafter referred to as 'the site') was derived through desk study and site survey.

Desk study

3.2 The following on-line information was used in the compilation of the desk study of this report:

- www.magic.gov.uk – information on protected sites up to 1km from the site;
- www.nbn.org.uk – protected species distribution;
- CONFOD data search 2km from site.

3.3 In addition, the UK BAP and LBAP were reviewed, with reference to the potential value of habitats and species present, or likely to be present, within or adjacent to the site.

Site survey

3.4 An Extended Phase 1 habitat survey and species surveys of the site were undertaken on the 10th July 2021, 15th May 2022 and 9th June 2022. The surveys broadly followed the 'Extended Phase 1' methodology (Institute of Environmental Assessment (IEA), 1995 and JNCC 2010) and each of the main habitats were classified according to the relevant criteria. In addition to the mapping and description of habitats, incidental observations of protected and/or BAP priority species and the potential for such species to occur on site (and in the surrounding landscape where relevant) were also noted. The methodologies of the field surveys are described in more detail below.

Phase 1 Habitat Survey

3.5 The habitat survey involved identifying and mapping the dominant habitat types following the JNCC Phase 1 habitat survey methodology recommended by Natural England (NE). The outputs of this include a habitat map and a set of target notes (*see Appendix 1 & 2*). Dominant plant species were noted, as were any uncommon species or species indicative of particular habitat types. Botanical names follow 'New Flora of the British Isles' (Stace 1997). Particular attention was paid to hedgerows and trees within the survey area.

3.6 The DAFOR scale was used for semi-quantitative sampling, to provide a quick estimate of the relative abundance of species (generally plants) within the site.

3.7 To obtain useful abundance data, the site was surveyed using a 2m square across the site within all habitat types identified. The squares were surveyed for species, and categories assigned according to percentage cover.

3.8 *Table 3.1* presents the categories comprising the DAFOR scale.

Value	Percentage cover	Notes
D - Dominant	> 75%	Rarely used in practice.
A - Abundant	51 - 75%	Very common over most of the site
F - Frequent	26 - 50%	
O - Occasional	11 - 25%	
R - Rare	1 - 10%	

Table 3.1; DAFOR scale.

3.9 It is generally recognised that recording plant cover using the DAFOR scale is extremely subjective, being affected by a number of factors and in particular recorder bias.

3.10 Water bodies within 250m of the site were also identified from Ordnance Survey (OS) maps and through aerial photography.

Protected Species Walkover Survey and Species Surveys

3.11 The Extended Phase 1 habitat survey involved a critical assessment of the value of habitats suitable for use by protected species or species of conservation concern, as follows:

- The value of the site, and immediate surroundings for nesting birds and feeding ground.
- The value of the site, and immediate surroundings for roosting, foraging and commuting bats. Mature trees and suitable structures were carefully scrutinised to assess their likely occupancy by roosting and/or hibernating bats.
- The likely value of any aquatic and/or terrestrial habitat on site for use by foraging and hibernating amphibians, particularly with regard to protected species (such as great crested newt).
- No ponds or hedgerows are being lost as a consequence of the proposal however a single bat transect was undertaken to assess the usage of the habitat on site by bats.

- Pond examinations were undertaken in May and June to extract Edna for GCN analysis – however this was not carried our as the ponds were dry on examination
- The likely value of any terrestrial habitat on site for use by foraging and hibernating reptiles.
- Hedgerows, scrub and woodland habitats were appraised for their suitability for use by dormice.
- The site was investigated for its use by badgers by searching for the characteristic signs of badger activity, including setts, latrines, paths, footprints, hairs and feeding signs. Where access allowed, the survey boundary was extended in order to search adjacent areas for badger setts.
- The value of the site for other protected species or groups, or for other notable species such as water vole, otter, hedgehog and invertebrates.
- Trees were checked from the ground for potential bat roost features, and a single bat transect was undertaken to gai an understanding of the bat usage of the site.
- Specific Otter and Water Vole surveys were undertaken in May.
- A bat transect was undertaken along specific bat friendly habitat, in order to

Survey Limitations

3.12 Ecological surveys are limited by factors that affect species presence such as time of year, weather, migration patterns and behaviour.

3.13 No constraints were identified that are likely to significantly affect the conclusions drawn within this report; however, the breeding bird assumptions are based on birds noted and habitats recorded on site.

4 Results

Desk Study

Statutory Designations

4.1 Two statutory designated site (e.g., Special Protection Areas (SPA), Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) or, Ramsar Sites) was identified within the proposed development site or within a 1km radius of the site boundary.

Site	Designation	Distance from Site
Llay Bog	Site of Special Scientific Interest see designation below	76m E from Eastern Boundary – 252m East from Lake works
River Dee and Bala Lake Special Area of Conservation	SAC	River Alaw – tributary of the River Dee – 200m SE of site

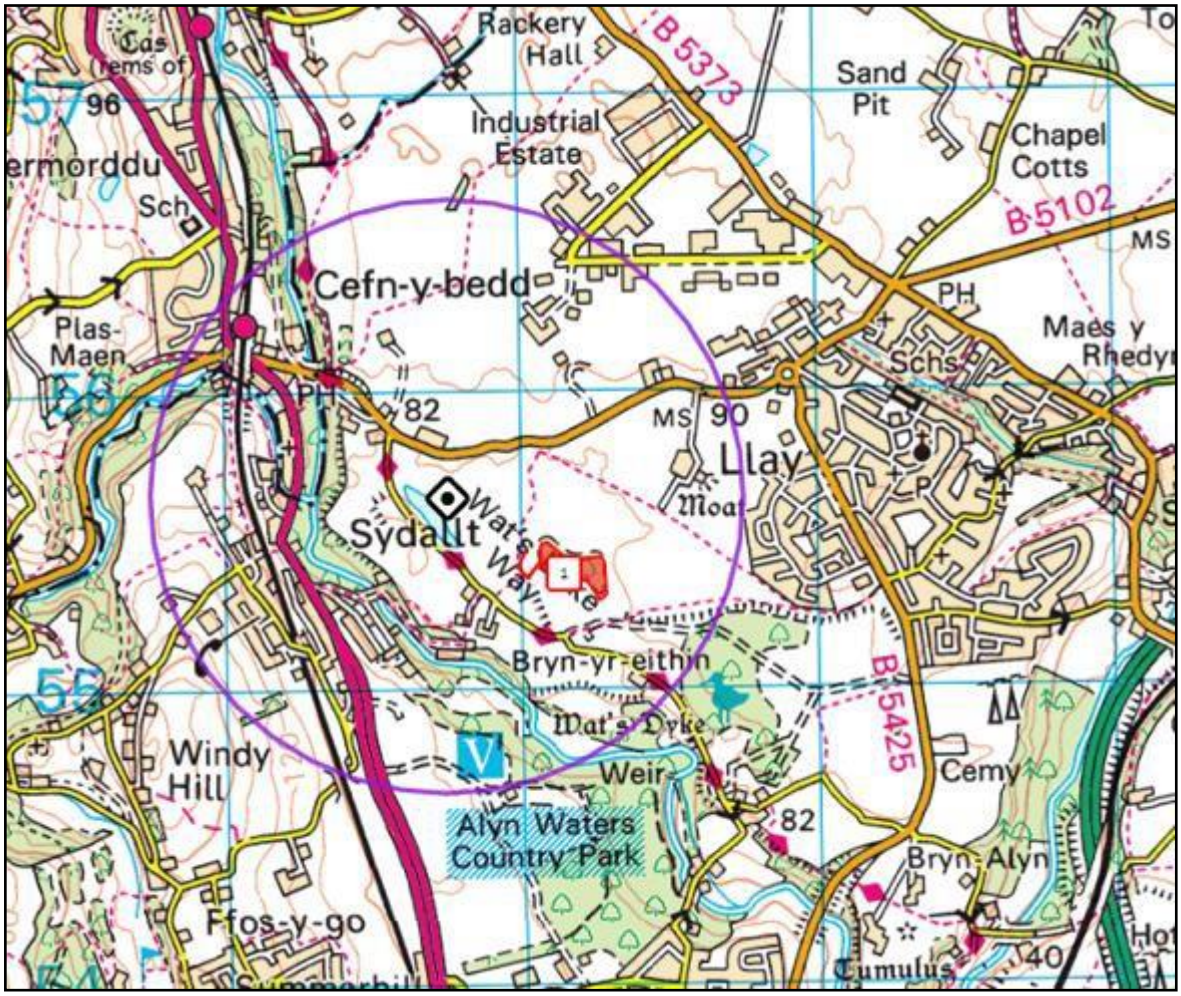
YNGOR CEFN GWLAD CYMRU COUNTRYSIDE COUNCIL FOR WALES SITE OF SPECIAL SCIENTIFIC INTEREST CITATION WREXHAM LLAY BOG

***Date of Notification**: 1972, 1983 National*

***Grid Reference**: SJ 322554 O.S. Maps: 1:50,000 Sheet number: 117 1:25,000 Sheet number: SJ 35*

***Site Area**: 1.9 ha*

Description: Botanical Interest. A small peat bog in an ice hollow in the glacial drift deposits. The bog margin, adjacent to the boundary ditch, is more mesotrophic than the central area and contains such species as Marsh Cinquefoil Potentilla palustris, Marsh Pennywort Hydrocotyle vulgaris, Marsh Violet Viola palustris and Soft Rush Juncus effusus. The northern fringe is covered in alder - birch carr and includes Alder Buckthorn Frangula alnus with Purple Moor Grass Molinia caerulea and Broad Buckler Fern Dryopteris dilatata as common species underneath the woodland canopy. The small central portion of the bog is characterised by a lawn of Bog Moss Sphagnum spp. with Eriophorum angustifolium and Cotton Grasses E. Vaginatum, Cranberry Vaccinium oxycocus, Bottle Sedge Carex rostrata, Sundew Drosera rotundifolia and Calluna vulgaris and Heaths Erica tetralix.



General SAC features:

Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins) (4%)

- Salt marshes. Salt pastures. Salt steppes (2%)
- Inland water bodies (standing water, running water) (90%)
- Improved grassland (2%)
- Broad-leaved deciduous woodland (2%)
- Primary reasons for selection:
- Annex I Habitat: Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion
- vegetation
- Annex II Species: Atlantic salmon, Floating water-plantain
- Qualifying features:

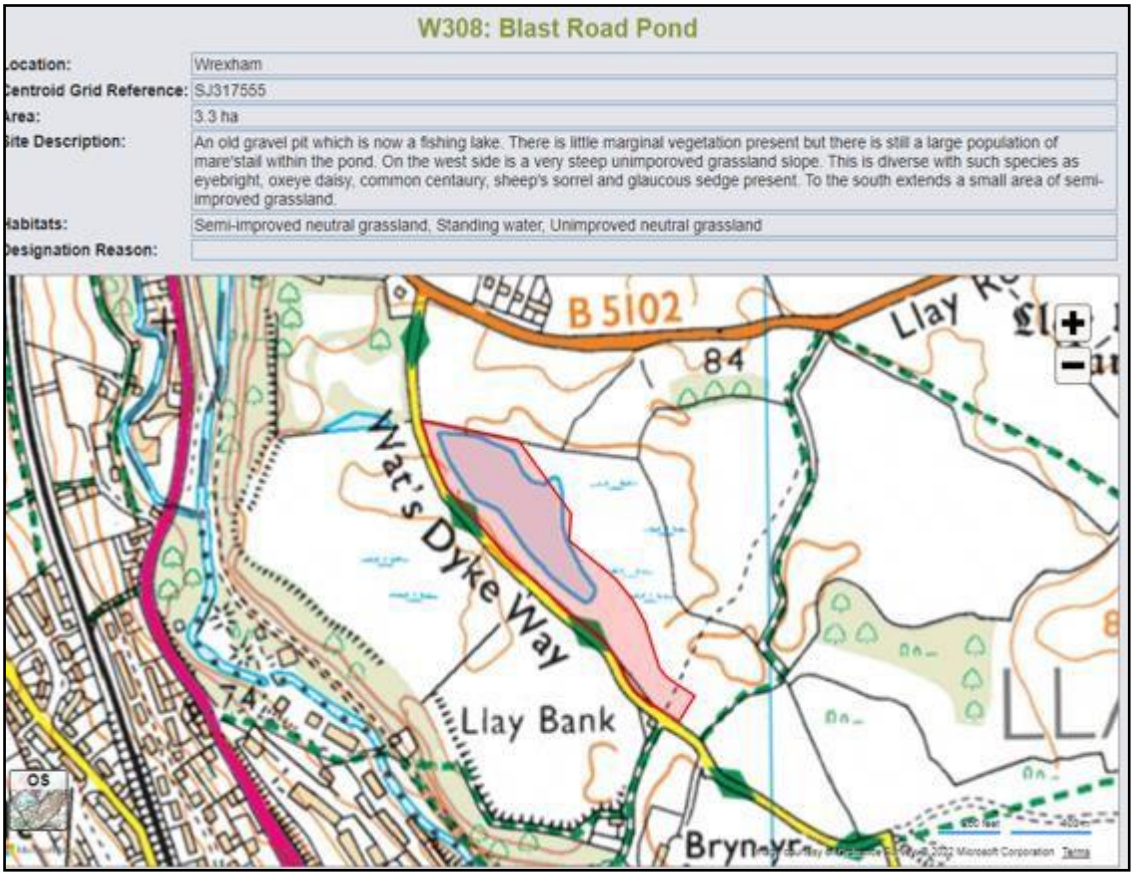
- Annex II Species (qualifying reason): Sea lamprey, Brook
- lamprey, River Lamprey, Bullhead, Otter.

Non-Statutory Designations

4.2 Information is supplied from Cofnod and the Multi Agency Geographic Information for the Countryside (MAGIC).

4.3 There are four non statutory and non-statutory sites located within the 1km record search from the proposal site.

Site	Designation	Distance from Site
Hope Mountain	Local Wildlife Site	1km NW
Sydalt Woods	Local Wildlife Site	750m w
Alyn Waters	Local Nature Reserve	200m SE
Blast Road Pond	Local Wildlife Site	Proposal Site



The designation of the Wildlife Site.



Previous records of protected/notable species

4.4 Very few protected/notable species have been recorded within the study area; none of these records were from within the site boundary itself. Previous records are summarised in the species accounts below and are listed in *Appendix 3*.

Invertebrates

4.5 A number of protected/notable invertebrate species have been recorded within the proposed site.

4.6 These are mainly dragonflies and hawkers, which are recorded over aquatic and marginal habitat.

4.7 The nearest butterfly/moth sightings were over 140m north west of site.

Amphibians

4.8 No records for any amphibian species were returned within the proposal site.

4.9 It is acknowledged that NRW hold records 50m from the site.

4.10 Two records of GCN were noted 623m east of the site, separated by intensive agri habitat.

4.11 A record of Common Toad was returned 626m from the site.

Reptiles

4.12 The wider search returned a number of Grass Snake records, the closest to the site was 721m.

Birds

4.13 The dataset provided by Cofnod identified records of a number of bird species, including species protected under Schedule 1 of the Wildlife and Countryside Act (WCA) 1981, species listed on the UK Biodiversity Action Plan (UKBAP) species.

4.14 Bird species records were specifically returned from within the proposed site, these included Hobby, Chiff Cahff, Little Ringed Plover, Oystercatcher, Buzzard, Goosander, Common Sandpipier, Slavonian Grebe; from the wider area Barn Owl, Grey Partridge, Lapwing and

Woodcock were recorded.

Mammals

4.15 The dataset provided by Cofnod included no mammal records from the proposal site.

4.16 Seven differing hedgehog sightings were noted within the residential area north and east of the subject site.

4.17 Four separate records of differing bat species were recorded within 200m of the site. The sites bordering hedgerows and woodland features offer ideal bat foraging habitat in a relatively sparce area.

4.18 [redacted]

Site survey

Habitats

4.19 The location of the habitats within the survey area are shown in *Appendix 1*, which should be read together with the accompanying Target Notes (TNs) in *Appendix 2* and photographs within the text. Habitat descriptions are provided below; plant species are referred to using their English names.

4.20 The site is a mosaic of open water, poor semi-improved grassland, improved neutral grassland, marshy grassland, and scrubby hedgerows.

4.21 The site habitats were subject to DAFOR survey assigning the species composition density and hierarchy occurring. DAFOR Tables representing habitat types within the site are presented in *Appendix 3.*



Photograph 1: A vista looking across the site from the south east.

Semi-improved neutral grassland

4.22 This habitat was identified within the south of the site creating a mosaic of habitat with marshy grassland areas within lower elevations.



Photograph 2: Semi-improved neutral grassland and marshy grassland mosaic within the site.

Marshy grassland

4.23 This habitat was identified within lower elevations, between the lake and the pond of the site and within a flat field at the south of the site

4.24 Marshy grassland is a LBAP priority habitat.



Photograph 3: Marshy grassland at the south of the lake.



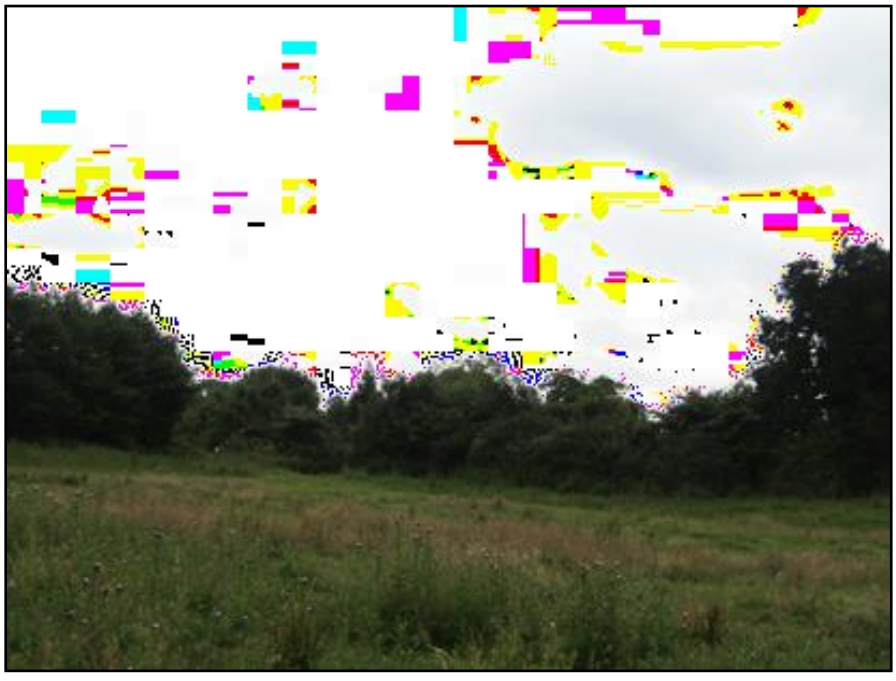
Photograph 4: Closer view of the marshy area south of the lake.

Poor semi-improved grassland

4.25 This habitat type was dominant within the site and comprised most of the grassland fields present.



Photograph 5: Poor semi-improved grassland within the south west boundary of the site.



Photograph 6: Dense scrub adjacent to the site boundary at the northwest corner of the site

Tall ruderal

4.26 This habitat was identified in patches at the west and center of the site around the pond.



Photograph 7: The pond located at the center east of the site, was partially dry seemingly previously poached by cattle giving a muddy beach type habitat.

Standing water

4.27 Two ponds occur on site, in addition to the lake; one is located at the centre/ east of the site and the other is located within the eastern boundary.

4.28 A single pond is located 50m to the east of the site, this pond was also dry when visited to survey for eDNA.

4.29 Both ponds were subjected to an HSI assessment and seem to have good amphibian potential.

4.30 However, visits in May and June revealed that the ponds are ephemeral, drying out in early Spring through the Summer.

4.31 The terrestrial habitat surrounding the ponds offers good foraging and hibernacula potential.

4.32 Ponds and Lakes are a LBAP priority habitat.

4.33 The lake is a large waterbody containing numerous waterfowls, and possibly predatory fish, therefore rendering it low potential for amphibians.



Photograph 8: The pond within the south west of the site.



Photograph 9: The southern edge of the lake contains number of wildfowls, including Grey Lag Geese, Canada Geese, Mallard, Coot, and Moorhen.



Photograph 10: The vista across the lake to the northern bank.

Bare ground

4.34 A small patch of bare, muddy ground was identified within the marshy edges of the south of the lake, it was notable that the Lapwing were probing for invertebrates in this area. It also offers some potential nesting habitat.

Site Boundaries

4.35 Site boundaries comprise species-rich hedgerows containing broad-leaved trees and post and wire fences.

4.36 Hedgerows are a UK BAP and LBAP priority habitat.

Surrounding habitats

4.37 The wider landscape consists of mainly agricultural environment, including cattle and arable.

Protected and notable species

Plants

4.38 No plant species of conservation concern were recorded within the site.

Invasive species

4.39 No invasive species were noted within the proposal site or along site boundaries.

Invertebrates

4.40 No notable invertebrate species were recorded; however, marshy grassland has potential to support valuable invertebrate communities such as hoverflies, crane flies and soldier flies.

4.41 A number of dragonflies and hawkers were noted during the May and June visits.

4.42 The site also contains a number of flowering plant species, likely to be of resource for bee species that will frequent the shrub habitat and flowers to harvest pollen.

Amphibians

4.43 Great crested newts are protected by Schedule 2 of the Convention of Habitats and Species Regulations (2010) and Schedule 5 of the Wildlife and Countryside Act (1981, as amended), which provide protection to both the individuals and the areas they use for rest, shelter or breeding. Great crested newts are also a UK BAP and LBAP priority species.

4.44 The site contains two ponds and a large lake; one pond was almost dry whilst the other offered suitable amphibian habitat during the initial site visit.

4.45 A single pond occurs some 50m east of the site, this is a marl surrounded by dense vegetation. The pond wa s also dry when visited to take water Edna samples.

4.46 However, during the May visit, the ponds were both dry; therefore, rendering them unsuitable as a breeding pond for amphibians.

4.47 Given the presence of wildfowl and potential presence of fish including catfish and pike (the lake is fished by anglers who confirm the presence), it is unlikely that the lake will offer suitable amphibian habitat.



Photograph 11: The site of a pond recorded showing the dried condition.



Photograph 12: The second dried pond, on the eastern boundary of the site.



Photograph 13: A drain runs within the eastern hedge boundary; this is in a dry state.

Reptiles

4.48 The habitats within the site provided by marshy grassland, semi-improved neutral grassland and scrubby species rich hedgerows with its glades and variable sward structures on south-facing slopes, offer suitable habitat for reptiles.

4.49 Due to the isolated nature of the site, created by barriers to dispersal (roads to the north and the west), the potential for reptile immigration is limited.

Birds

4.50 The site provides suitable nesting and foraging habitat (e.g. scrub, hedgerows, marshy grassland and varied sward grassland) for a range of bird species, including UK BAP species, such as lapwing *Vanellus vanellus*, curlew *Numenius arquata*, skylark *Alauda arvensis*, tree pipit *Anthus trivialis*, yellow wagtail *Motacilla flava*, song thrush *Turdus philomelos*, dunnock *Prunella modularis*, starling *Sturnus vulgaris*, house sparrow *Passer domesticus*, tree sparrow *P. montanus*, bullfinch *Pyrrhula pyrrhula*, yellowhammer *Emberiza citrinella* and reed bunting *E. schoeniclus.*

4.51 Species recorded during the site survey included; grey heron *Ardea cinerea*, kestrel *Falco tinnunculus*, carrion crow *Corvus corone*, woodpigeon *Columba palumbus*, magpie *Pica pica*, starling, swallow *Hirundo rustica* chaffinch *Fringilla coelebs* and goldfinch *Carduelis carduelis* Lapwing.

Badgers

4.52 No signs of badger activity were recorded during the site survey.

Water Vole

4.53 The water course on-site was searched for signs of presence on May 12th, 2022; no footprints, grazing lawns etc.... were found.

Otter

4.54 An otter survey of the water course and adjoining ditches on the 12th May 2022 revealed no signs of usage.

4.55 However, given the proximity to key watercourses (River Alaw) and the acceptance that the lake will be an excellent food resource, it is likely that otters will utilize the site commuting of as a feeding resource.

Bats

4.56 The trees within the site are not mature, therefore, were assessed as providing low bat roosting potential, i.e., they possess little in the way of features suitable for roosting bats such as rot-holes, fissures, cracks and hollows. However, these trees and hedgerows are likely to provide abundant invertebrates, thus providing foraging opportunities for bats.

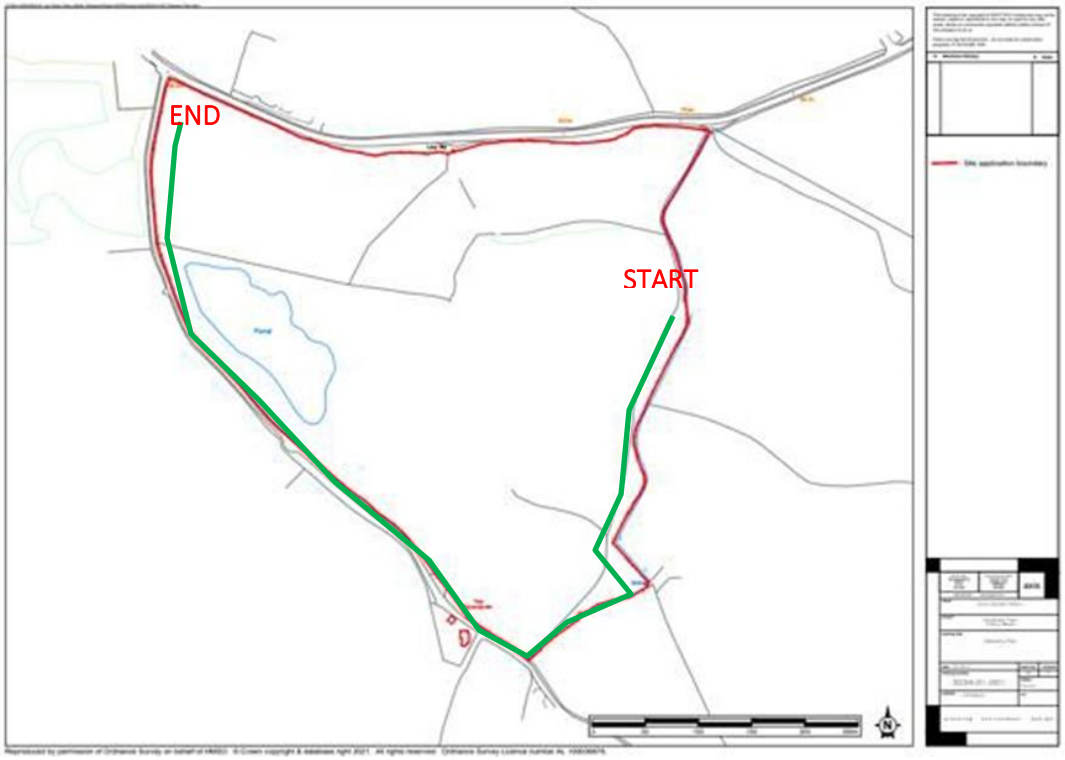
4.57 Surveys of the trees found that some contained some ivy coverage and some decay.

4.58 A single bat transect was undertaken on the 9th June. Commencing at 21.30 until 23.30, the transect concentrated on the hedgerows and the watercourse see figure below showing transect routes and areas of core activity.

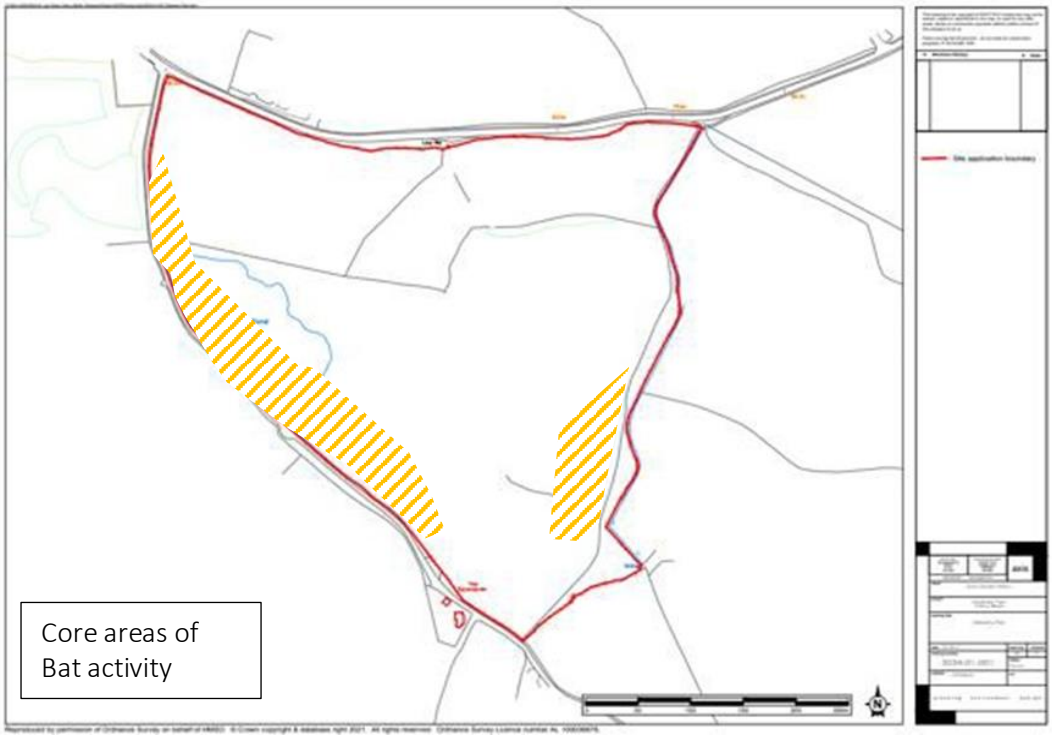
4.59 The transect survey followed the 2019 BCT guidance methodology, two surveyors armed with IPD tablets and Echometer Pro – linked with Google Earth transect registration software was used.

4.60 Common Pipistrelle, Soprano Pipistrelle, Whiskered Myotis and Common Noctule were recorded foraging and commuting within the hedgerows and above the lake, see the figure

below showing the core activity areas recorded during the bat transect survey



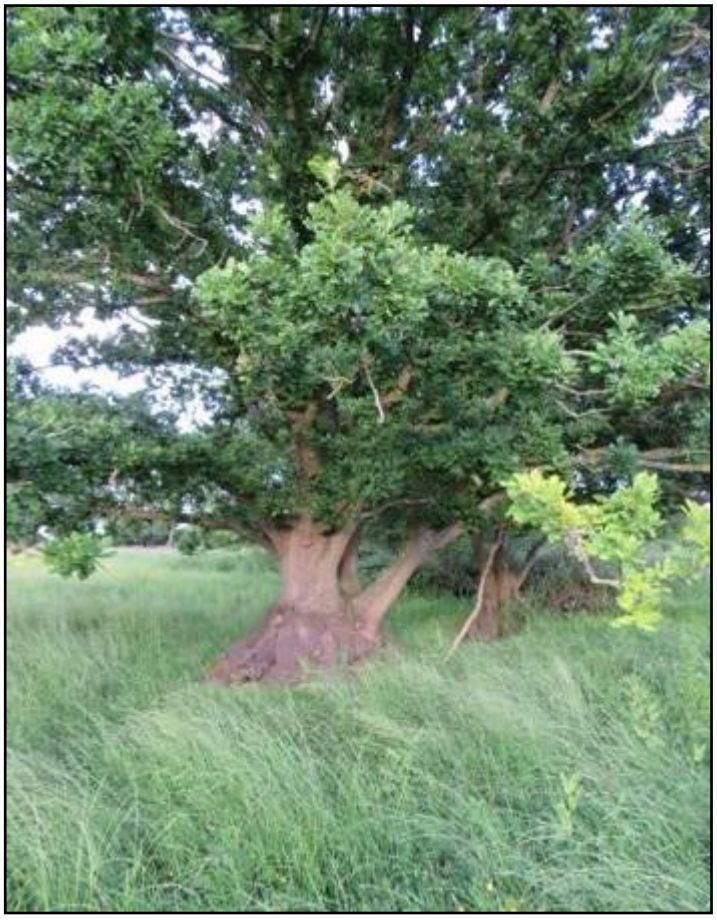
Bat survey Transect Route

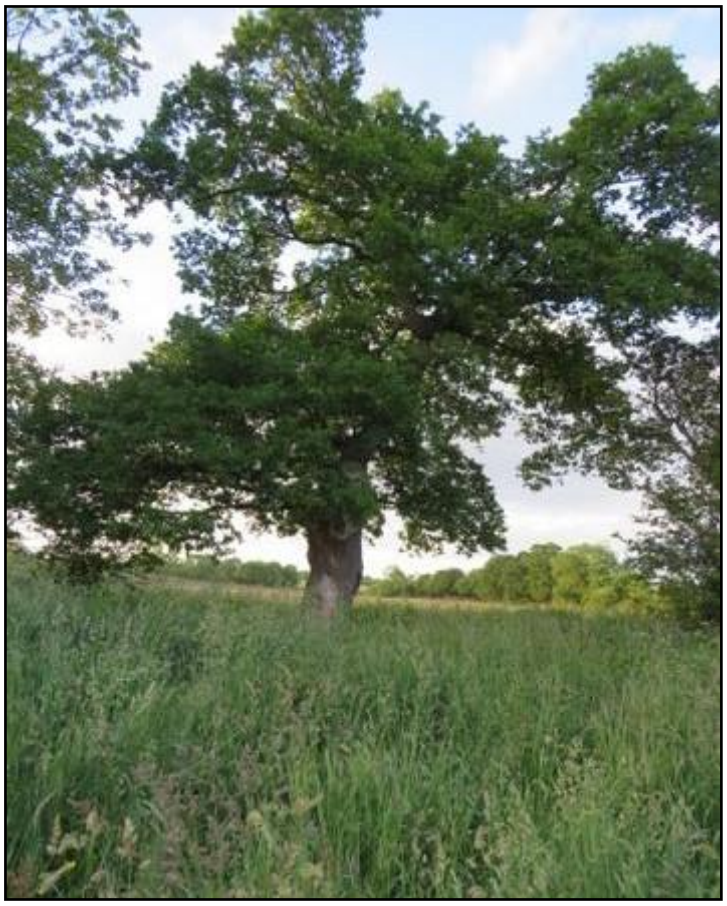




Photograph 14: The oak tree is located on the western boundary hedge, has some decay on the upper limbs.

Photograph 15: Oak tree in the center of the site, some small fissures were noted.





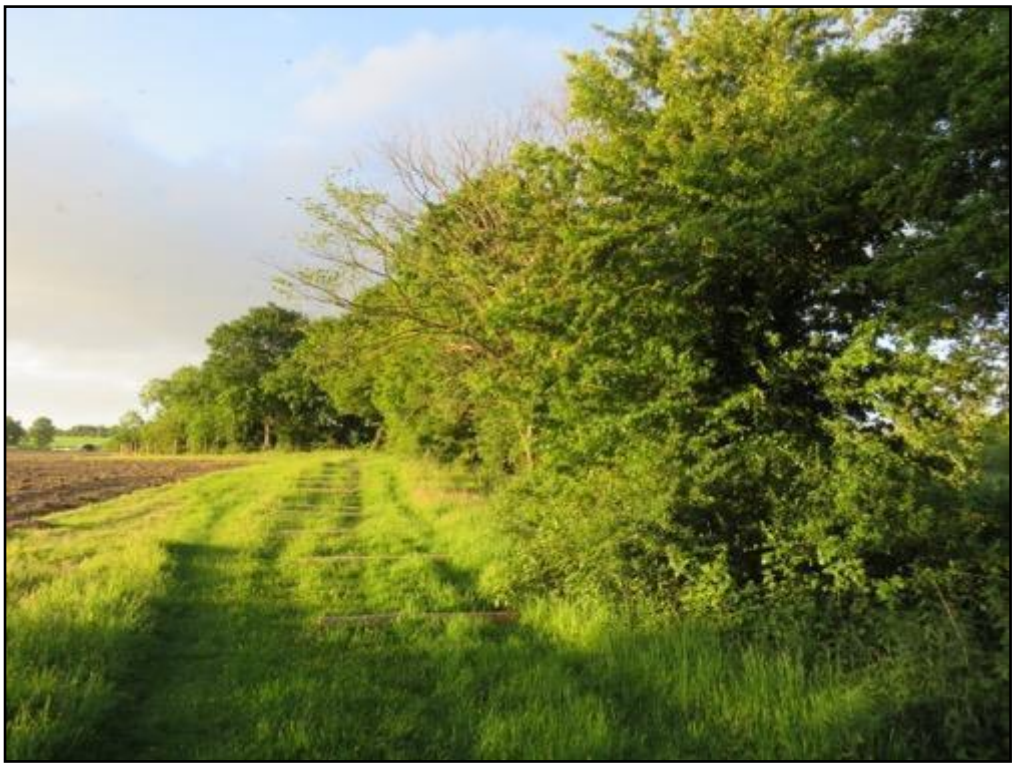
Photograph 16: The trees on the previous line of a hedgerow offers some loos bark and a decayed upper limb.

Other mammals

4.61 The site also provided potentially suitable habitat for red fox, brown hare and hedgehog.

4.62 The site does not offer any suitable habitat for water vole or otter; however, it is difficult to categorically discount a commuting otter stopping over at the lake particularly given the presence of fish within the lake.

4.63 The banks of the lake do not offer favorable habitat for otters to use as a holt of resting place, given its open appearance with no secluded areas.



Photograph 17: Example of the boundary hedge, offers good bat foraging and commuting habitat.

5 Constraints and Recommendations

5.1 The proposed site will consist of a mixed agricultural and leisure lake.

5.2 Construction and post construction impacts are therefore possible upon both the habitats and species within and immediately adjacent to the site. Ecological constraints and recommendations with regard to any development of the site are discussed below.

Designated sites

5.3 The adjacent SSSI Llay Bog, is currently in poor condition; therefore, it is suggested that the client develops a management plan to improve the condition and manage it in the future.

5.4 The drains feeding the Bog are dry, which may have emanated from agricultural management and drain diversion over the years.

5.5 The site is dry and seemingly in a state of woodland succession.

5.6 **It is suggested that the client and NRW agree a re-irrigation proposal on land within his control. This will ensure the proposed development will have a positive impact on the SSSI and other biodiversity on the site.**

5.7 The proposal site (lake) is a Local Wildlife Site, designated for birds; therefore, given the vast majority of ground nesting birds are currently predated by terrestrial predators. The proposed provision of island nesting habitat should prevent this to an extent.

5.8 The River Dee/Bala Lake SAC, tributary is located 200m SW of the proposal site, however given the intervening topography it is unlikely that the surface drainage water will flow down towards the river.

5.9 It is not envisaged that the protected sites will be impacted on by increase of phosphorus levels caused by the proposal given the site will be connected to the new package treatment plant with balancing reedbed settlement pond and monitored prior to discharge to land drains.

5.10 The proposal will not be connected to the main drains, Waste will be managed on the existing yard area.

5.11 No trade effluent will be produced.

Habitats

5.12 The lake, muddy marginal areas and marshy grassland vegetation habitat may provide suitable habitats for UK BAP priority species such as birds listed in 4.47 and 4.48 as well as more common bird species.

5.13 It is suggested that the marshy area and its vegetation is protected by the provision of a raised boardwalk, which can be used as part of a nature trail.

5.14 Habitats within the site support fox and are likely to support hedgehog, common frog *Rana temporaria* and common toad *Bufo bufo.*

5.15 The two ponds on site are ephemeral and are unlikely to provide habitat for amphibians.

5.16 Hedgerows within the site and marshy grassland can be considered as possessing some ecological value, as these habitats are both UK BAP and LBAP priority habitats.

5.17 The trees and hedgerows also offer good commuting and foraging habitat; therefore, it is important that they are retained within the project plans.

5.18 There is the potential for some of the habitats on site to support protected species; this is discussed below.

Protected species

Great crested newts

5.19 Due to nature of the lake within the site it is unlikely that great crested newt is present within it, therefore no further action is required.

5.20 However, the two ponds that occur in the west and south of the site both offer favourable habitat, as does the adjacent terrestrial habitat.

5.21 However, given that the ponds on site and the pond located outside the eastern boundary are ephemeral it is unlikely that any amphibians breed on site.

5.22 However, it is acknowledged that Spring may has affected the suitability of the ponds on site or just off site, and the historical records from NRW which suggest that GCN occur within 50m of site, some safeguards to ensure that no GCN will be harmed during the proposed works, and some post development enhancements will be provided in order ensure the ongoing conservation status of amphibians on the site and local area.

5.23 It is suggested that the excavations and construction activities are undertaken following and initial fingertip check of the site of works and then follow amphibian safeguard reasonable avoidance measures.

5.24 Biodiversity enhancements will be provided on site by developing three amphibian hibernacula (see appendix three).

5.25 The applicant will also undertake a review of site drainage in order to improve the irrigation of areas on site, therefore enhancing the site for amphibians.

5.26 Common toad is a UK BAP species and may use the marshy area, scrub and hedgerows within the site for commuting, resting and hibernation. It is recommended that the conservation objectives for this species are considered and suitable terrestrial habitat such as scrub and

hedgerows are retained, and log piles are provided within design plans for future development of the site.

5.27 Therefore

Reptiles

5.28 Reptiles require a varied habitat structure that provides shelter, a range of shady and sunny spots, food, and frost-free areas to spend the winter.

5.29 The proposed development has the potential to impact the areas mentioned above and therefore, it is recommended that reptile surveys are undertaken. If reptiles are recorded within the site, a mitigation plan and a method statement will be prepared that details the actions required to reduce the risk of reptiles being injured as a result of the works.

Birds

5.30 The lake and its marginal muddy area offer waders and wildfowl species excellent habitat for foraging and nesting.

5.31 Therefore, it is suggested that the water park design includes habitats specifically provided for wading and waterfowl.

5.32 Any potential removal of habitat associated with this development is regarded as relatively insignificant for birds given the abundance of similar habitat in the surrounding landscape. However, nesting birds are protected under The Wildlife and Countryside Act 1981 (and amendments) and it would be an offence to damage or destroy a nest or otherwise disturb a nesting bird.

5.33 Because of the possible presence of nesting birds, it is recommended that any necessary removal of vegetation takes place outside of the bird-breeding season (at least March to August)

5.34 Should this not be possible, a pre-works check by a qualified ecologist should be undertaken to ensure that nesting birds are absent.

5.35 Any habitat removed should be replaced with native species.

5.36 **A number of nest boxes should be provided within the site, target species include Kestrel, Barn Owl Trees Sparrow and tit boxes.**

Bats

5.37 All bat roosts are fully protected under the Wildlife and Countryside Act 1981 (and amendments) and The Conservation of Habitats and Species Regulations 2010, which defines these animals as European Protected Species. An offence would be committed if roosts, whether occupied or not, were destroyed, damaged or obstructed, or if bats themselves were harmed or disturbed.

5.38 The trees on site provide little opportunity for roosting. However, trees to the south of the site around the fishing pools and along the eastern and southern boundaries may provide roosting opportunities and could potentially hold some importance for colonies of roosting bats that may be in close proximity to the site.

5.39 Foraging habitat is provided by hedgerows and marshy grassland within the site and its boundaries, hedgerows and scrub within the site provide navigational flight lines.

5.40 Given the composition of the habitat, which is likely to be removed during construction, it is considered unlikely that the development would result in a negative effect on the local bat population.

5.41 A number of bat boxes will be provided on the trees within the boundary hedge in order to provide safe roosting habitats within the foraging and commuting features.

5.42 Additional, linear planting of native 'bat friendly' species is recommended within the site to provide commuting and foraging opportunities and to the wider area.

5.43 Light spillage within the proposed development should be prevented from falling on these corridors to prevent disturbance to bats.

Badger

5.44 Given that no badger activity was recorded during the phase 1 survey, direct impact on badgers is unlikely.

5.45 Badgers are mobile and it is acknowledged that the survey was constrained by dense areas of vegetation; therefore, **it is recommended that a pre-construction badger survey of the site is undertaken in order to ensure that it is not being used by badger.**

5.46 The developer should also remain vigilant to the possible presence of badger and take further advice if any activity is recorded.

Water Vole

5.47 No signs or records of Water Vole were noted; therefore, it is unlikely that Water Vole occur on the site.

Otter

5.48 No signs of Otter were noted during the survey; however, some historic records were returned by CONFOD mainly on the river Alyn.

5.49 Otter are a designated feature of the Bala Lake and River Dee SAC.

5.50 Therefore, whilst no sings were located, it is feasible that animals may commute or feed within the lake. **Consequently, this should be considered during the Precautionary Working Method Statement. This will include pre-excavation checks and daily checks prior to works.**

Other mammals

5.51 No evidence to suggest the presence of hedgehogs was recorded during the site survey, although signs other than actual sightings can be well hidden. Suitable foraging and hibernation habitat were present with hedgerows and scrub within the site.

5.52 Further hedgehog survey is not considered necessary given the abundance of similar habitat for this species in the surrounding landscape.

5.53 Hedgehogs have been listed as a UK BAP priority species as populations have reportedly been in decline. UK BAP therefore encourages the conservation of habitat such as hedgerows, which support this species.

5.54 In order to avoid works adversely affecting the local conservation status of hedgehogs, **it is recommended that works avoid the hibernation period (November – March). Should this not be possible and there is the requirement for vegetation clearance during the hibernation period, then it should be carried out under a Precautionary Working Method Statement (PWMS).** Such a PWMS would be designed to ensure that hibernating hedgehogs are not disturbed, or in extreme instances injured or killed as a result of the works. **In addition, any clearance of hedgehog habitat should be restored following the works to adhere to UK BAP objectives.**

Summary

5.55 **Based on the above information it is recommended that an Ecological Mitigation and Enhancement Strategy be produced to minimise impacts and provide enhancements, as appropriate, related to the development of this site.**

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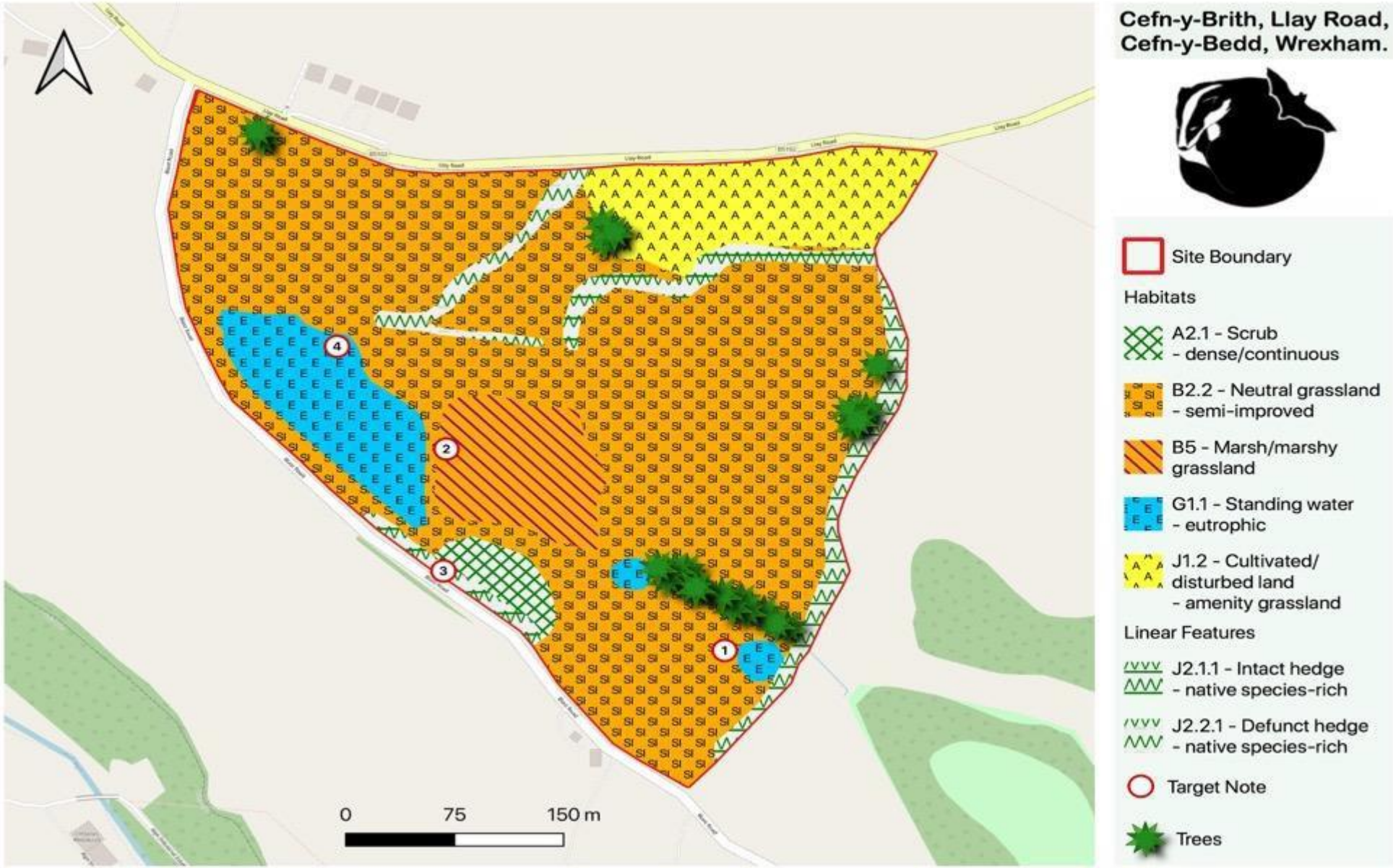
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Appendices

Appendix 1 Phase 1 Habitat Map



Appendix 2 – Target notes

Target Note (TN)	Description
1	Pond in South with amphibian potential
2	Bare ground within marshy grassland
3	Species Rich Hedgerow containing oak
4	Lake containing wildfowl species

Appendix 3 - DAFOR Tables

Table 1: Poor semi-improved grassland

SPECIES	SCIENTIFIC NAME	D	A	F	O	R	Notes
common mouse-ear	*Cerastium fontanum*				×		
red fescue	*Festuca rubra*	×					
soft rush	*Juncus effusus*				×		
Yorkshire fog	*Holcus lanatus*	×					
Cat's ear	*Hypochaeris radicata*			×			
common ragwort	*Jacobaea vulgaris*				×		
ribwort plantain	*Plantago lanceolata*			×			
meadow buttercup	*Ranunculus acris*				×		
creeping buttercup	*Ranunculus repens*		×				
broad-leaved dock	*Rumex obtusifolius*				×		
lesser trefoil	*Trifolium dubium*					×	
red clover	*Trifolium pratense*				×		
white clover	*Trifolium repens*			×			

Table 2: Marshy grassland

SPECIES	SCIENTIFIC NAME	D	A	F	O	R	Notes
pendulous sedge	*Carex pendula*					×	
rosebay willowherb	*Chamerion angustifolium*				×		
marsh thistle	*Cirsium palustre*				×		
soft rush	*Juncus effusus*				×		
greater bird's-foot trefoil	*Lotus pedunculatus*			×			
bracken	*Pteridium*				×		

Table 3: Poor semi-improved grassland

SPECIES	SCIENTIFIC NAME	D	A	F	O	R	Notes
yarrow	*Achillea millefolium*				×		
common mouse-ear	*Cerastium fontanum*				×		
red fescue	*Festuca rubra*	×					
soft rush	*Juncus effusus*				×		
Yorkshire fog	*Holcus lanatus*	×					
Cat's ear	*Hypochaeris radicata*			×			
common ragwort	*Jacobaea vulgaris*				×		
perennial ryegrass	*Lolium perenne*				×		
ribwort plantain	*Plantago lanceolata*			×			
meadow buttercup	*Ranunculus acris*				×		
creeping buttercup	*Ranunculus repens*		×				
broad-leaved dock	*Rumex obtusifolius*				×		
lesser trefoil	*Trifolium dubium*					×	
red clover	*Trifolium pratense*				×		
white clover	*Trifolium repens*			×			

Appendix 4 – Biodiversity Improvement Proposals

