



Lady Margaret's Park Extension,
Chirk, Wrexham

Preliminary Ecological Appraisal

Prepared by
CSA Environmental

on behalf of
Caravan and Motorhome Club

Report Ref: CSA/1992/04b

September 2021

This report may contain sensitive ecological information. It is the responsibility of the Local Authority to determine if this should be made publicly available.

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CONTENTS	Page
Executive Summary	1
1.0 Introduction	2
2.0 Legislation, Planning Policy & Standing Advice	3
3.0 Methods	5
Desk Study	5
Field Survey	6
Limitations	6
Evaluation and Assessment	6
4.0 Baseline Ecological Conditions	7
Nature Conservation Designations	7
Habitats and Flora	9
Fauna	11
5.0 Discussion and Recommendations	18
Nature Conservation Designations	18
Habitats and Flora	18
Fauna	19
Summary of Recommendations	20
Opportunities for Ecological Enhancement	21
6.0 Conclusions	23
7.0 References	24
Appendices	
Appendix A: Habitats Plan & Photographs	
Appendix B: Legislation, Planning Policy and Standing Advice	
Appendix C: Desk Study Information	
Appendix D: Habitats and Flora Species List	
Appendix E: Bat Survey Report (CSA/1992/06a)	
Appendix F: Ecological Enhancements Plan	

EXECUTIVE SUMMARY

Extension of an existing Caravan and Motorhome Club site is proposed at Lady Margaret's Park, Chirk, Wrexham for which detailed planning permission will be sought.

CSA Environmental was instructed by the Caravan and Motorhome Club to undertake a Preliminary Ecological Appraisal (PEA) of the Site to identify ecological constraints to development, inform recommendations for design, highlight opportunities for ecological enhancement and determine any additional investigation/survey work necessary.

As part of this PEA, a desk study and extended Phase 1 Habitat survey of the Site were undertaken in March 2021. The Site comprises one semi-improved grassland field, bordered to the west and north-west by mature woodland, to the east by dense scrub and railway corridor, and south-east by a large garden.

The Site lies c. 230m from the River Dee and Bala Lane SAC and River Dee/Afon Dyfrdwy SSSI which are sensitive to water quality impacts (e.g. phosphates). The Site also lies c.240m from Chirk Castle and Parkland SSSI, however subject to sensitive lighting design, there is not anticipated to be any significant effect on the qualifying features of the designation.

Grassland habitats currently present within the Site are generally common and widespread, with the greatest ecological interest associated with the mature woodland and trees at the boundaries of the Site. These will be retained and protected alongside proposals.

Protected species which may be present include foraging/dispersing bats and nesting birds in woodland, trees and scrub. A sensitive lighting scheme has been designed to minimise impacts to bats and notable invertebrate assemblages. A population of great crested newts is present within 300m, however they are considered unlikely to be present due to the intervening habitats, with a non-licensed working methods approach considered proportionate to the scale of habitat impact. Badgers were found to be absent, but a pre-commencement walkover to confirm the conditions remain unchanged is recommended.

No overriding constraints to development of the Site have been identified. Recommendations have been provided for sensitive design and ecological enhancement measures that could be delivered as part of the proposed development.

1.0 INTRODUCTION

- 1.1 This report has been prepared by CSA Environmental on behalf of the Caravan and Motorhome Club. It sets out the findings of a Preliminary Ecological Appraisal (PEA) of land at Lady Margaret's Park, Chirk, Wrexham (hereafter referred to as 'the Site'). Extension of the existing site through provision of 15 new hardstanding caravan pitches and 15 eco-friendly pods and safari tents, with associated parking and roads is proposed at the Site, for which detailed planning permission will be sought.
- 1.2 The scope of this appraisal has been determined with due consideration for best-practice guidance provided by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017), and to the *Biodiversity: Code of practice for planning and development* (BS 42020:2013) published by the British Standards Institution (2013).
- 1.3 The Site occupies an area of c. 1.7ha and is located around central grid reference SJ 2849 3748, to the west of Chirk. It consists of one semi-improved grassland field, bounded to the west and north-west by mature woodland, to the east by dense scrub and railway corridor, and to the south-east by a large garden (see Habitats Plan in Appendix A).
- 1.4 A desk study and extended Phase 1 Habitat survey were undertaken of the Site, the findings of which are presented herein.
- 1.5 This PEA aims to:
 - Identify any ecological constraints to development of the Site
 - Inform design decisions
 - Identify further ecological surveys and investigation necessary to inform a full Ecological Impact Assessment (EclA) of the Site
 - Highlight opportunities for ecological enhancement
- 1.6 As set out in best practice guidelines (CIEEM, 2017) a PEA is typically only suitable for planning submission where there are no ecological constraints relating to the project. Where ecological constraints are identified, such as the presence of important ecological features, the effects of development on these features should be assessed within a separate EclA report, which would supersede the PEA. As no further survey work was required, impacts, mitigation and enhancements are dealt with where appropriate within this PEA report.

2.0 LEGISLATION, PLANNING POLICY & STANDING ADVICE

Legislation

- 2.1 Legislation relating to wildlife and biodiversity of particular relevance to this PEA includes:
- The Conservation of Habitats and Species Regulations 2017
 - The Wildlife and Countryside Act 1981 (as amended)
 - The Natural Environment and Rural Communities (NERC) Act 2006
 - The Protection of Badgers Act 1992
- 2.2 This above legislation has been addressed, as appropriate, in the production of this report. Further information on the above legislation is provided in Appendix B.

Planning Policy Wales

- 2.3 The Planning Policy Wales (PPW) 11 (Welsh Government, 2021) sets out the government planning policies for Wales and how they should be applied. Chapter 6: Distinctive and Natural Places, is of particular relevance to this report as it relates to ecology and biodiversity. Further details are provided in Appendix B.
- 2.4 The Environment (Wales) Act 2016 sets out the requirement for the 'sustainable management of natural resources' together with new ways of working to achieve this. Section 6 under Part 1 of the Environment (Wales) Act 2016 introduced an enhanced biodiversity and resilience of ecosystems duty (the S6 duty) for public authorities in the exercise of functions in relation to Wales. The S6 duty requires that public authorities must seek to maintain and enhance biodiversity so far as consistent with the proper exercise of their functions and promote the resilience of ecosystems.
- 2.5 Technical Advice Note 5: Nature Conservation and Planning (Welsh Assembly Government, 2009), which is referred to by the PPW, provides further guidance in respect of statutory obligations for protecting and enhancing biodiversity and geological conservation and their effects within the planning system.

Local Planning Policy

- 2.6 A number of local planning policies relate to ecology, biodiversity and/or nature conservation. These are summarised in Table B.1 of Appendix B. These policies have been addressed, as appropriate, in the production of this report.

Standing Advice

- 2.7 Natural Resources Wales Standing Advice (Natural Resources Wales, 2015) regarding bats and planning, aims to support local authorities and forms a material consideration in determining applications. Standing Advice has therefore been given due consideration, alongside other detailed guidance documents, in the production of this report.

3.0 METHODS

Desk Study

- 3.1 The Multi-Agency Geographic Information for the Countryside (MAGIC) online database was reviewed in March 2021 to identify nature conservation designations within the following search radii:
 - Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar sites within 10km of the Site (including possible/proposed sites)
 - Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Local Nature Reserves (LNR) within 3km of the Site
 - Other relevant data e.g. Ancient Woodland Inventory within 1km of the Site
- 3.2 A review was undertaken of the location of any such designations, their distance from and connectivity with the Site, and the reasons for their designation. This information was used to determine whether they may be within the Site's zone of influence.
- 3.3 As the Site lies close to the Wales-England border, both the North Wales Environmental Information Service (Cofnod) and Shropshire Ecological Data Network (SEDN) were contacted for details of any non-statutory nature conservation designations and records of protected/notable habitats and species. This information was requested for an area encompassing the Site and adjacent land within c. 2km of its central grid reference. This search area was selected to include the likely zone of influence upon non-statutory designations and protected or notable habitats and species.
- 3.4 Further online resources were reviewed for information which may aid the identification of important ecological features. The Woodland Trust's online Ancient Tree Inventory was reviewed for known ancient or veteran trees within the Site and adjacent land. Interactive online mapping provided by the charity 'Buglife' was used to determine whether the Site falls within an Important Invertebrate Area.
- 3.5 In accordance with Natural England's Great Crested Newt Mitigation Guidelines (2001), a desktop search was undertaken to identify ponds within 500m of the Site which may have potential to support breeding great crested newts *Triturus cristatus*, using Ordnance Survey (OS) mapping, the MAGIC database and aerial photography. Whilst it is recognised this is Natural England guidance, no equivalent is available in Wales and is taken to be the most relevant guidance available.
- 3.6 Where possible under the terms of the data provider, relevant desk study data are presented in Appendix C.

Field Survey

Extended Phase 1 Habitat Survey

- 3.7 An extended Phase 1 Habitat survey was carried out in fine and dry weather conditions on 23 March 2021 by Cerian MCIEEM, encompassing the Site and immediately adjacent habitats that could be viewed.
- 3.8 Phase 1 Habitat survey is a method of classification and mapping wildlife habitats in Great Britain. It was originally intended to provide "...*relatively rapidly, a record of the semi-natural vegetation and wildlife habitat over large areas of countryside.*" The Phase 1 Habitat survey method has been widely 'extended' beyond its original purpose to allow the capture of information at an intermediate level between Phase 1 and Phase 2 Habitat surveys, and here includes the following:
- More detailed floral species lists for each identified habitat
 - Descriptions of habitat structure, the evidence of management and a broad assessment of habitat condition
 - Mapping of additional habitat types (e.g. hardstanding)
 - Identification of Priority Habitats under Section 41 of the NERC Act
 - Identification of Habitats Directive Annex I habitat types
 - Evidence of, or potential for, European Protected Species (EPS) (including bats, great crested newt, dormouse and otter)
 - Evidence of, or potential for, other protected species (including birds, reptiles, water vole, badger and certain invertebrates)
 - Evidence of, or potential for, other notable species (including S41 Species of Principal Importance as well as notable, rare, protected or controlled plants and invertebrates)
- 3.9 Results of the extended Phase 1 Habitat survey are presented on the Habitats Plan in Appendix A. Appendix D provides a list of floral species recorded in each habitat.

Limitations

- 3.10 There were no specific limitations to the desktop study. The extended Phase 1 Habitat survey was conducted just outside the optimum time of year so some species will likely have been missed, Update visits have since been made and descriptions and botanical lists updated where relevant to inform this assessment.

Evaluation and Assessment

- 3.11 The evaluation and assessment of ecological features is typically beyond the scope of a PEA and has therefore not been undertaken here. Formal evaluation and assessment of any identified important ecological features should be undertaken as part of either a full EclA, or receptor-specific survey and assessment in accordance with the published CIEEM method (CIEEM, 2018).

4.0 BASELINE ECOLOGICAL CONDITIONS

Nature Conservation Designations

Statutory

- 4.1 There are no statutory designations covering any part of the Site.
- 4.2 Four international statutory designations were identified within 10km of the Site. These were the River Dee and Bala Lake (England and Wales) SAC (c. 0.23km south of the Site), Berwyn and South Clwyd Mountains (Wales) SAC (c. 6.34km north-west), Johnstown Newt Sites (Wales) SAC (c.7.78km north-east) and Berwyn (Wales) SPA (c.8.94km west of the Site)
- 4.3 Three national statutory designations were identified within 3km of the Site. These were River Dee (England) SSSI (c.0.23km south of the Site), Afon Dyfrdwy (River Dee Wales) SSSI (c. 0.23km south of the Site) and Chirk Castle and Parkland (Wales) SSSI (c. 0.24km west of the Site).
- 4.4 One local statutory designation was identified within 3km of the Site. This was the Ifton Meadows LNR (c.2.84km east of the Site). Given the distance from the Site, along walking routes over 3.5km in length, and the network of walking routes in the local area, it is considered unlikely to experience a significant increase in recreational use from occupiers of the Caravan and Motorhome Club extension.
- 4.5 These statutory designations are described in Table 1 below. Based on the distance, nature of the proposals and poor habitat connectivity between the Site and Berwyn and South Clwyd Mountains SAC, Johnstown Newt Sites SAC and Berwyn SPA, and with consideration of its special interest features and their vulnerabilities, it is considered that proposals for extension of the existing Caravan and Motorhome Club by 30 pitches is unlikely to cause significant effects on these designations, which is therefore not taken to represent a constraint to development. However, the Site falls within 250m of the River Dee and Bala Lake SAC, and River Dee SSSI to the south and 240m of Chirk Castle and Parkland SSSI to the west. Further consideration of potential impacts on these designations is given in Section 5.0.

Non-Statutory

- 4.6 One non-statutory designation was identified by Cofnod within 2km of the Site, comprising Coed y Camlas/Canal Wood Wildlife Site (c. 230m north of the Site). Canal Wood is accessible via a well-managed tow path, within c.800m walk of the proposed extension. The proposals will likely result in a small increase in recreational users as a result of increased capacity, however given the nature of well-maintained access, it is not considered to result in any significant impacts on the qualifying features of the Wildlife Site.

- 4.7 The SEDN provided a further two non-statutory designations within 2km of the Site, comprising Pentre Wood LWS (c. 980m south-west) and Nanteris Wood (c. 1.8km south-west). Pentre Wood has some formal access and is within a walkable distance of the proposed extension. However given the scale of the proposals and the network of public walking routes in the local area within Chirk and Chirk Castle, this is not considered to give rise to any significant impacts on the LWS. These non-statutory designations are described in Table 1 below.

Table 1. Statutory and Non-Statutory Designations within search radii

Site Name & Designation	Distance & Direction from Survey Area	Special Interests or Qualifying Features
International Designations within 10km		
River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid SAC	c. 0.23km south	Watercourse designated for plain to montane levels with water-crowfoot <i>Ranunculus spp</i> vegetation. Also designated for presence of Atlantic salmon <i>Salmo salar</i> and floating water-plantain <i>Luronium natans</i> . Other important species supported include otter <i>Lutra lutra</i> , sea lamprey <i>Petromyzon marinus</i> , river lamprey <i>Lampetra fluviatilis</i> , brook lamprey <i>Lampetra planeri</i> , Atlantic salmon <i>Salmo salar</i> and bullhead <i>Cottus gobio</i> .
Berwyn a Mynyddoedd de Clwyd/ Berwyn and South Clwyd Mountains SAC	c. 6.34km north-west	Contains the largest stands of upland European dry heath and supports the most extensive tract of near-natural blanket bog in Wales.
Johnstown Newt Sites SAC	c. 7.78km north-east	Designated for large population of great crested newts <i>Triturus cristatus</i> . Habitats of importance include water bodies, bogs, marshes, fens, heath, scrub, grassland and broad-leaved deciduous woodland.
Berwyn SPA	c. 8.94km west	Diverse habitat mosaic which supports hen harrier <i>Circus cyaneus</i> , merlin <i>Falco columbarius</i> , peregrine falcon <i>Falco peregrinus</i> and red kite <i>Milvus milvus</i> .
National Designations within 3km		
River Dee (England) SSSI	c. 0.23km south	River with floating vegetation. Supports otter, sea lamprey, river lamprey, brook lamprey, Atlantic salmon, bullhead, grayling* <i>Thymallus thymallus</i> and freshwater pearl mussel* <i>Margaritifera margaritifera</i> .
Afon Dyfrdwy (River Dee) SSSI (Wales)	c. 0.23km south	River with floating vegetation often dominated by water crowfoot <i>Ranunculus aquatilis</i> within Wales. Supports otter, sea lamprey, river lamprey, brook lamprey, Atlantic salmon, bullhead, grayling and freshwater pearl mussel

Chirk Castle and Parkland (Wales) SSSI	c. 0.24km west	Ancient wood pasture and parkland containing a large and diverse range of veteran and ancient trees. Also important for invertebrate species, including saproxylic invertebrates.
Local Designations within 3km		
Ifton Meadows LNR	c.2.84km east	Habitat mosaic comprised of acid, neutral and marshy grassland, ancient semi-natural woodland, scrub and open water. Supports a diverse range of bird, reptile, invertebrate and flora species.
Non-statutory Designations within 3km		
Coed y Camlas/Canal Wood Wildlife Site (W232)	c. 230m north	Semi-natural broad-leaved woodland either side of the canal. The canopy is dominated by sycamore, with ash, sessile oak and birch. The understorey includes hawthorn, hazel, elder and elm, with dog's mercury, tufted hair-grass, wood melick, bluebell and primrose
Pentre Wood Local Wildlife Site	c.980m south-west	Ancient woodland, continuation of Nanteris Wood
Nanteris Wood Local Wildlife Site	c. 1.8km south-west	Ancient woodland in valley

Ancient Woodland

- 4.8 There is no ancient woodland covering any part of the Site. Extensive areas of ancient woodland are present in close proximity to the Site, including c.5m south, c. 30m west, and c.240m north. Additionally, one oak tree on-site is listed as Notable and five oaks within the adjacent woodland to the west are listed as Veteran on the Ancient Tree Inventory. This is fairly typical for the context of the Site, which lies on the edge of Chirk Castle and Parkland SSSI. Retention of on-site and adjacent features with appropriate buffers to respect the root protection areas of the trees has been incorporated at early stages of design.

Habitats and Flora

- 4.9 Habitats recorded on-site were classified in line with current Phase 1 Habitat survey guidance (JNCC, 1990), as illustrated in Appendix A. Detailed species lists for each habitat are provided in Appendix D.

Notable Flora Records

- 4.10 Cofnod provided 67 records of 33 notable plant species from within the search area, including records of invasive species. Those of potential relevance to habitats on-site include bluebell *Hyacinthoides non-scripta* (located c. 230m north-west in adjacent woodland and other areas around Chirk Castle) and thin-spiked wood sedge *Carex strigosa* (located 270m north in woodland near the canal). Japanese knotweed *Fallopia japonica* and Himalayan balsam *Impatiens glandulifera* have been recorded nearby along the River corridor and at Chirk Castle but have not been identified on-site.

- 4.11 The SEDN provided only three records of plant species, including bluebell, floating water-plantain *Luronium natans* and butcher's-broom *Ruscus aculeatus*, the latter two of which are historic records from pre-1960. Only bluebell is of relevance to Site, with presence on the woodland edge in the north-west of the Site, and in adjacent woodlands.

Semi-improved grassland

- 4.12 The Site comprises one semi-improved grassland field, which appears to be managed on a regular basis, with close mown paths through it for informal use by park visitors, and longer grassland banks around the perimeter. Species recorded include field wood-rush *Luzula campestris*, creeping thistle *Cirsium arvense*, creeping buttercup *Ranunculus repens*, lesser celandine *Ficaria verna*, dandelion *Taraxacum officinale* agg., germander speedwell *Veronica chamaedrys*, yarrow *Achillea millefolium*, creeping cinquefoil *Potentilla reptans*, ground ivy *Glechoma hederacea*, groundsel *Senecio vulgaris* and occasional bluebell at woodland edges. By the summer ragwort *Senecio jacobaea* was frequent, with occasional hogweed *Heracleum sphondylium*, and similar herb assemblage, with the additional of self-heal *Prunella vulgaris*,

Woodlands and trees

- 4.13 A mature woodland (labelled W2) on a stepped plateau forms the western boundary of the field. Veteran oaks *Quercus robur* form the major component, with also sycamore *Acer pseudoplatanus*, elder *Sambucus nigra*, ash *Fraxinus excelsior*, hornbeam *Carpinus betulus* and small area of Douglas fir *Pseudotsuga menziesii* at the northern end, with lords and ladies *Arum maculatum* and bluebell recorded in the ground flora.
- 4.14 Woodland W1 is a smaller compartment of mixed younger woodland, comprising oak, birch *Betula* sp., beech *Fagus sylvatica*, elder and European larch *Larix decidua*, which forms part of the northern boundary of the Site.
- 4.15 A notable oak *Quercus robur* is present in the north-east of the Site, with further scattered young and semi-mature trees in the north of the Site and along the eastern boundary with an adjacent garden. Species included birch, hawthorn, oak, elder and alder *Alnus glutinosa*. Mature sycamore and ash lie just off-site to the east and south and overhang the Site.

Scrub and tall ruderal

- 4.16 Scattered tall ruderal is present in the grassland sward, comprising mostly of dock, *Rumex* sp. with dense stands present at the perimeter of the grassland, including bracken *Pteridium aquilinum* along the southern edge, willowherb *Epilobium* sp. in the east and stands of nettle *Urtica dioica* in the north.

- 4.17 A minimum of 20 clumps of stinking iris *Iris foetidissima* were noted along the eastern edge of the Site, possibly establishing from the adjacent garden.
- 4.18 Dense scrub forms much of the north-east of the Site obscuring the railway corridor, comprising largely of bramble *Rubus fruticosus* agg, with hazel *Corylus avellana*, dogwood *Cornus sanguinea*, elder, hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa*. Other small stands of similar species were noted along the northern and southern boundaries. Low growing pockets of bramble scrub are present along the stepped plateau of the western boundary.

Other habitats

- 4.19 A small area of hardstanding is present at the entrance to the field. The majority of the northern, eastern and southern boundaries are demarcated by a post and wire fence.

Fauna

Bats

- 4.20 A total of 362 bat records were identified within the search area, dating from 1985 to 2020, including a number of roosts. These include the following species: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P.pygmaeus*, noctule *Nyctalus noctula*, brown long-eared *Plecotus auritus*, Natterer's *Myotis nattereri*, Whiskered *M.mystacinus*, Brandts *M.brandtii*, Daubenton's *M.daubentonii*, lesser horseshoe *Rhinolophus hipposideros* and greater horseshoe *R.ferrumequinum*.
- 4.21 The closest records are of soprano pipistrelle and common pipistrelle recorded along the access driveway and woodland to the existing Caravan and Motorhome Park (c. 290m from the Site), within woodland continuous with the proposed extension. Further records of these common species are recorded further south in the woodland and other woodlands associated with Chirk Castle. At least 48 of the records are associated with Mynattyn Wood (c. 760m north-west) in 2009, with four species recorded, including lesser horseshoe bat. The majority of other record are associated with woodlands surveyed at Chirk Castle in 2009, including records of lesser horseshoe commuting and foraging in the woodland, as well as one probable night roost in a nearby cottage. Lesser horseshoe bats have been monitored at Chirk Castle regularly (hibernation, maternity and temporary roosts) between 1988 and 2020. There are other good hibernation opportunities in close proximity, with records of greater horseshoe bats, alongside lesser horseshoe and four other bat species, hibernating in nearby Ceiriog River Caves and Kilns. Other records of large roosts supporting 500+ pipistrelle bats and 100+ pipistrelle bats were given for other locations in the local search area, and a probable brown long-eared roost (identified through droppings).

- 4.22 The SEDN provided only 2 records of bat species, comprising one common pipistrelle and one soprano pipistrelle recorded at Moreton Hall in 2012, c. 1.8km south-east. No further data or information has been provided.
- 4.23 The proposed extension Site is small in size but given its woodland setting, and connectivity with ancient woodland corridors to the west and north, and presence of roosts nearby, it likely forms part of a wider foraging area for a number of local bat species, including rare lesser horseshoe bats, known to be present at Chirk Castle. The woodland boundary habitats, and canopies of the notable tree in the north-east and other boundary trees form suitable foraging habitat, with potential to support tree roosting species.
- 4.24 Bat surveys were carried out on the adjacent existing caravan park land to the west of the proposed extension, comprising a walked transect in July 2021, seven days of static monitoring in August 2021 and three dusk and dawn roost surveys of a toilet block features. The walked transect route included the extension field for good coverage. Full methods and results are given in a copy of the full Bat Survey Report in Appendix E. These surveys confirmed common and widespread species to be present on-site and on adjacent land, dominated by common and soprano pipistrelle but also noctule, *Myotis* bats, and brown long-eared bat, foraging along woodland edges and tree canopies associated with the Lady Margaret's Caravan Site, although no lesser horseshoe bats were recorded. A minor soprano pipistrelle day roost was confirmed within the toilet block.
- 4.25 Given its sensitive location, the lighting strategy has been discussed with the project team to minimise lighting impacts on the local bat population. The lighting strategy is discussed further in Section 5.0.

Badger

- 4.26 Cofnod have provided seven records of badger *Meles meles* from within the search area, dating from 2003 to 2015, including active setts and latrines. The closest record is c. 500m from the Site. The SEDN have provided a further six records of badger *Meles meles* from within the search area, dating from 2004 to 2014. All are located over 1km south across the River Dee.
- 4.27 The Site lies on the edge of a large area of woodland, with substantial suitable habitat for badgers in the local landscape across the network of woodlands and parkland. No evidence to indicate presence of badgers was identified on-site, such as setts or latrines, but the grassland habitat possibly forms part of a wider foraging area if a clan is present nearby. The presence of new eco-friendly camping pods and tents will generate human disturbance which may deter badgers from using this field in future during the spring and summer, although given the context

within the setting of the wider area, it is not considered likely to form a key resource for this species.

Dormouse

- 4.28 No records of dormouse *Muscardinus avellanarius* were provided by Cofnod or SEDN.
- 4.29 Current knowledge of dormice in North Wales finds them to be fairly restricted, with key sites at Ruthin and the Wych Valley. The proposed Site lies on the edge of a large area of ancient woodland, which superficially has potential for dormice. The boundary woodland and scrub habitats will be largely retained with buffers, with the scheme focused on the central grassland habitats. As such potentially suitable habitats will be retained and protected. Dormice are therefore not considered to pose a constraint.

Water Vole

- 4.30 Records of water vole *Arvicola amphibius* are known from Llangollen Canal, dating from 1997 to 2004, located c.230m north of the Site. The SEDN provided two further records of water vole, from 1998 and 2011, associated with locations along the River Dee to the south of the Site.
- 4.31 There is no aquatic habitat for water voles on-site or immediately adjacent. The closest possible habitat is located over 200m south at the River Dee, across a road and open field habitat, or c.90m east at the aqueduct, across a road and housing, and so whilst known to be present locally, they are considered absent from Site and scoped out of further assessment.

Otter

- 4.32 A total of 21 records of otter *Lutra lutra* were identified within the search area, dating from 2000 to 2014. The closest records are located from along the canal at Chirk Tunnel from 2014, within 100m of the Site, with the majority of records associated with the River Dee. The SEDN provided a further six records of otter, dating from 2006 to 2013, associated with the River Dee, with the closest located c.255m south.
- 4.33 Whilst records of otter are associated with the river nearby, the Site is located uphill from the river and the aqueduct entrance to the tunnel, across an open field, gardens and a road. Given the high quality of habitat associated with the River Dee and along the canal, it is considered highly unlikely otters would use terrestrial features on-site and are not referred to again.

Other Mammals

Brown Hare

- 4.34 Four records of brown hare *Lepus europaeus* were returned by Cofnod from within the search area, the closest located over c. 1km from the Site within Chirk Castle parkland and a nearby golf course.
- 4.35 The local landscape supports high quality habitat for brown hare, with a mosaic of woodland and grassland habitats. The on-site habitats, whilst superficially similar, are contained within a small field, on the edge of the railway line, with Chirk residential areas and roads nearby to the east, and busy Caravan and Motorhome Club to the west, which reduces the suitability for brown hare. As such, brown hare are considered to be likely absent and are not considered further.

Hedgehog

- 4.36 Thirteen records of hedgehog *Erinaceus europaeus* were identified by Cofnod within the search area, as recently as October 2020. The majority of records are located in residential areas of Chirk and Chirk Bank, with the closest located c.560m east. The SEDN provides three additional records of hedgehog, from a 1km grid square that contains the Site.
- 4.37 Perimeter habitats of scrub and woodland are suitable for sheltering and foraging hedgehogs if present nearby. The proposals will retain boundary features and maintain open areas, which will allow hedgehogs to continue to move through the landscape.

Polecat

- 4.38 Three records of polecat *Micromys minutus* were identified by Cofnod within the search area, dating from 1960, 2009 and 2015. The closest record is an unverified brief sighting of a large animal with polecat markings crossing the road at the southern edge of the Site. Another was reported dead on the bridge crossing the River Dee, c.1.5km east in 2009. The SEDN returned one record of polecat from 2011, located over 1.6km south-east.
- 4.39 Woodland and scrub habitats around the boundaries of the Site may offer some suitable habitat as part of a wider home range for polecat if present nearby, particularly given the extensive areas of suitable parkland and woodland habitat in the local area. Whilst some evidence of rabbits was noted on-site, given its small size (c1.7ha), it is not considered to form a significant resource for polecat, which typically have large home ranges, varying in size from 42 to 428ha.

Birds

- 4.40 A total of 175 records of 43 notable bird species were identified by Cofnod within the search area (some of which comprise larger clusters of records from the same location over wider time periods), dating from

2007 to 2021. Those of potential relevance to woodland, scrub and grassland habitats on and adjacent to Site include: song thrush *Turdus philomelos*, redwing *Turdus iliacus*, fieldfare *Turdus pilaris*, bullfinch *Pyrrhula pyrrhula*, marsh tit *Poecile palustris*, dunnock *Prunella modularis*, starling *Sturnus vulgaris*, red kite *Milvus milvus*. It may also provide foraging habitat for barn owl *Tito alba* but given its small area and enclosed nature it is unlikely to form a key resource.

- 4.41 The SEDN provided 27 further records of notable bird species, with those of potential relevance including stock dove *Columba oenas*, fieldfare, redwing, song thrush and mistle thrush *Turdus viscivorus*. Fieldfare and redwing are Red List species for their rare breeding status, but are a common winter migrant and are likely to be found in periphery woodland and tree habitats.
- 4.42 The woodlands, trees and scrub are likely to support a variety of hole and scrub nesting species. The majority of boundary habitats of higher value will be retained and protected alongside the scheme to retain this resource. Some of the notable records are for rarer woodland birds (such as pied flycatcher *Ficedula hypoleuca*, goshawk *Accipier gentilis* and woodcock *Scolopax rusticola*), however the presence of the existing Caravan and Motorhome Park is likely to deter certain species from nesting nearby due to human disturbance in the breeding season. The Chirk Castle parklands and woodlands and woodland along the River Dee in the local landscape likely offer the most optimal habitat for these species. Given the small size of the field and the enclosed nature, is it unlikely to support ground nesting species.

Reptiles

- 4.43 Two records of grass snake *Natrix natrix* (syn. *N. helvetica*) were returned by Cofnod within the search area, located over 1km west within Chirk Castle grounds and parkland. No other records were returned from the SEDN.
- 4.44 The grassland habitats appeared to be fairly regularly managed, with mown paths, and some areas with a longer sward on the north-east bund. The Site is heavily shaded on the west, north-west and eastern aspects, with any potential limited to the north-eastern corner. Longer, tussocky grassland is present in the adjacent field to the north, which provides a larger area of more suitable habitat. On-site habitats are considered likely to at most support the occasional dispersing grass snake, as part of a wider home range.

Amphibians

- 4.45 A total of 23 records of five amphibian species were identified within the search area, including common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt *Lissotriton vulgaris*, palmate newt *Lissotriton helvetica* and great crested newt. The closest records are of palmate

newt, smooth newt, common frog and great crested newt at a woodland pond associated with Chirk Castle, located c.300m west of the Site, across woodland and the existing Caravan and Motorhome Park. This pond has been surveyed on a number of occasions between 2008 and 2019, with a peak of 12 adult great crested newt recorded. Further ponds at Chirk Castle have also been surveyed and confirmed presence, with a peak of 92 adult male and 15 female great crested newt located c.1.4km north-west of the Site, and confirmed presence c. 1.6km north-west. Further older records of presence has been confirmed in ponds east of Chirk.

- 4.46 No ponds are present on-site or immediately adjacent, but scrub and woodlands provide suitable sheltering and foraging habitat for amphibians in their terrestrial phase, if present nearby. A more detailed appraisal of the Site in respect of great crested newt is provided below.

Great Crested Newt

- 4.47 Despite spending much of their annual lifecycle within the terrestrial environment, great crested newts are dependent upon the presence of suitable aquatic breeding habitat in order for a population to persist. No potential breeding ponds were identified on-site during the site survey, while a further three appear to be present within a dispersible range of the Site, based on OS mapping. Two are located east of the aqueduct (c.310m and 500m respectively), across roads and gardens, and are not considered of relevance and scoped out of further assessment. The remaining feature is the pond known to support a population of great crested newts, located c.300m west.
- 4.48 Whilst habitats on-site superficially appear suitable to support great crested newts in their terrestrial phase, they would have to disperse across optimal woodland habitat, and hardstanding areas associated with the existing Caravan and Motorhome Club site to reach on-site habitats. As such it is considered unlikely they will be present on-site. However, given the proximity within 300m and the necessity for some clearance of on-site habitats in the north west of the extension site to facilitate the site layout, a non-licenced working method statement is considered proportionate and appropriate to ensure there are no impacts on the favourable conservation status of the local population.

Invertebrates

- 4.49 A total of 191 records of invertebrate species were identified within the search area. As expected given the invertebrate interest of the adjacent parkland and woodlands, the vast majority are associated with Chirk Castle woodlands and parklands SSSI. These are for a wide range of beetle, moth, butterfly and fly species, recorded as part of surveys conducted over a number of years. A small number have been recorded at Pentre Wood LWS, south of the River Dee, and at residential locations. The SEDN provided only two further records, of brown-spot

pinion *Agrochola litura*, which frequents woodland and bushy suburban habitats, and dusky thorn *Ennomos fuscantaria*, associated with deciduous woods and their margins and suburban habitats where larval foodplant ash grows. Both of these species could be associated with peripheral habitats on-site, and are Biodiversity Action Plan (BAP) and Section 41 (England)/Section 7 (Wales) species. Given mature woodland adjacent to Site is continuous with the Chirk Castle grounds, it is possible some of the above notable species may be recorded in peripheral habitats, which will be retained alongside proposals.

Fish

- 4.50 Cofnod provided five records of three fish species from within the search area, comprising Atlantic salmon *Salmo salar*, brown/sea trout *Salmo trutta* and eel *Anguilla Anguilla*. The latter is a record from the Llangollen canal from 2019, whilst the others are associated with the River Dee.
- 4.51 There is no direct hydrological connection to the River Dee or Llangollen canal to support fish species. However, any effects arising from increased surface run off or pollution could result in indirect impacts to fish species through changes in water quality.

5.0 DISCUSSION AND RECOMMENDATIONS

Nature Conservation Designations

Statutory

River Dee and Bala Lake SAC & River Dee/Afon Dyfrdwy-River Dee SSSI

- 5.1 The Site lies c. 230m from the SAC/SSSI. Given the nature of the proposals for a small increase in pitches of an existing Caravan and Motorhome Club, there will be a modest increase in recreational use but is not anticipated to result in a significant effect on the qualifying features. The SAC and SSSI are however sensitive to changes in water quality and discharge of waste water, which could result in an impact pathway on the qualifying features, particularly notable fish species and aquatic habitats. Whilst no new foul water facilities are expected to service the new pitches, there is potential for changes to surface water drainage as a result of the scheme and increased use of existing foul water services arising from an increased capacity at the existing Caravan and Motorhome Park facilities.
- 5.2 Where there is potential for an increase in phosphates arising from proposed development being discharged into the River Dee catchment, further screening as part of a Habitats Regulation Assessment (HRA) would be undertaken by Wrexham Council.

Chirk Castle and Parkland SSSI

- 5.3 Chirk Castle and Parkland lies within 240m of the Site, designated for being one of the best examples of ancient wood pasture and parkland in Wales, containing a large number of veteran and ancient trees and of special interest for invertebrate species. The castle buildings also support a breeding roost of National importance for rare lesser horseshoe bats.
- 5.4 Given the nature of the scheme, there will be no direct impacts on the qualifying features of the SSSI, with adjoining woodland retained and protected alongside proposals, with potential for a small increase in recreational visitors to the park. Potential for lighting impacts on the lesser horseshoe bats associated with the SSSI that utilise the surrounding landscape for dispersal and foraging are discussed further in Section 5.6 below. Subject to measures on lighting, there is not anticipated to be any adverse effects on the SSSI.

Habitats and Flora

Woodland and Trees

- 5.5 The Site is bordered to the west and north-west by mature woodland and veteran trees, with a further notable tree in the north-east of the Site. Woodland and veteran trees are priority habitats in Wrexham, and

represent important foraging, refuge and dispersal habitat for a range of fauna. These features will be retained and protected with appropriate buffers, with a 'biodiversity area' retained around the perimeter of the Site where no works except supplementary woodland and thicket planting will take place. New bollard lighting will be set back from woodland edges to protect it from development edge effects arising from light intrusion.

Fauna

Bats

- 5.6 The proposed extension Site is small in size but given its mature woodland setting, with connectivity with ancient woodland corridors to the west and north, and presence of roosts nearby, it likely forms part of a wider foraging area for a number of local bat species, including rare lesser horseshoe bats.
- 5.7 Due to the small scale of the Site, further surveys were not considered necessary, with recommendations for scheme design to ensure bats can continue to use boundary features considered appropriate. However, further bat surveys were conducted on land immediately west associated with the existing Lady Margaret's site between July and September 2021. The extension field was included within the scope of the transect survey to provide additional data. Surveys confirmed at least five species to be present, dominated by common and soprano pipistrelle species, which are typically more light tolerant, but also 75 *Myotis* species passes and 5 brown long-eared bat passes during static monitoring, which are more light sensitive species. No horseshoe bats were recorded during any surveys conducted in July and August.
- 5.8 Despite the absence of horseshoe bats during surveys, these were conducted in July/August and are a snapshot in time, hence do not confirm absence. Given its sensitive location, the lighting strategy has been designed to avoid additional light intrusion as far as possible and is restricted to routes through the centre of the Site, to maintain a dark edge to key woodland habitats to allow light sensitive species to continue to move through the landscape. Lighting can also alter prey distribution and abundance, and so minimising this will minimise impacts on invertebrate species associated with woodland and its edge habitats. Lighting will be in the form of 1.1m tall bollard lighting fitted with a shield to reduce upward light spill and modern 3w LED luminaire.

Badger

- 5.9 Whilst no evidence of badgers was identified during the Phase 1 habitat survey, a pre-commencement walkover to confirm badgers are still absent is recommended. Similarly, should any evidence of badgers be identified during the clearance of areas of scrub in the north of the Site,

further investigation will be conducted to characterise the sett before any further works proceed.

Nesting Birds

- 5.10 The woodlands, trees and scrub are likely to support a variety of hole and scrub nesting species. The majority of boundary habitats of higher value will be retained and protected alongside the scheme to retain this resource. However some small areas of scrub habitat will be cleared to facilitate the proposed layout of pitches. All nests and their young are protected by the Wildlife and Countryside Act 1981. Any clearance of nesting habitat will be undertaken outside the nesting season (March – August inclusive) or immediately following a nesting check by a suitably qualified ecologist to confirm no active nests are present.

Great Crested Newts

- 5.11 A population of great crested newts is known to be present with 300m of the Site. Whilst habitats around the periphery of the Site (woodland and scrub) superficially appear suitable to support great crested newts in their terrestrial phase, they would have to disperse across optimal woodland habitat, and hardstanding areas associated with the existing Caravan and Motorhome Club site to reach on-site habitats. As such it is considered unlikely they will be present on-site. However, given they are present within the vicinity and some clearance of scrub and a bund feature is required to facilitate the proposed layout, a non-licensed working method statement is considered proportionate and appropriate to ensure there are no impacts on the favourable conservation status of the local population. This will involve the following:

- Timing of works to appropriate time of year/daytime
- Toolbox talk to contractors
- Clearance of vegetation under ecological watching brief
- Checking by hand any logs, stones or mounds revealed in the area
- Protection of retained areas from mechanical damage through use of Heras fencing
- Suitable storage of materials to avoid risk of great crested newts sheltering under them
- Treatment and movement of topsoil to avoid reworking areas that may form refuges for amphibians
- Leaving no trenches open overnight that could trap amphibians

- 5.12 The non-licensed method statement will be submitted and approved by the LPA authority prior to any works commencing to ensure the favourable conservation status of the great crested newt population is maintained.

Invertebrates

- 5.13 The proposed Site is located within 240m of Chirk Cast and Parkland SSSI, designated for its invertebrate interest, and lies within the North East

Wales Important Invertebrate Area (IIA). Mature woodland and tree habitats with potential to support notable species are being retained and protected alongside proposals. Some new external lighting in the form of 1.1m bollard LED lights will be provided through the centre of the Site and kept to a minimum for health and safety, which will retain this woodland edge resource for invertebrates and minimise light disturbance for light attracted species.

- 5.14 Grassland surrounding new pods and safari tents will be enhanced with a diverse wildflower meadow mix for a more aesthetically attractive outlook for guests whilst also enhancing grassland habitats for foraging invertebrates. A perimeter of grassland will be retained around the extension field, with some supplementary woodland and thicket planting and log piles and invertebrate hotels create, to provide an overall increase in flowering and nectar-rich plants for pollinators and sheltering and nesting opportunities for a range of invertebrate species. Retaining and enhancing important invertebrate habitats alongside proposals will help to support the objectives of IIAs.

Opportunities for Ecological Enhancement

- 5.15 Planning Policy Wales 11 and the Environment (Wales) Act 2016 seek to leave biodiversity in a better state than prior to development, achieving net benefits for biodiversity.
- 5.16 The developable area is dominated by grassland habitats of limited ecological interest, with areas of greater biodiversity value around the perimeter of the Site. Subject to scheme design, it is considered that the proposed extension is likely to be capable of delivering net benefits for biodiversity on-site, with enhancements outlined below and illustrated on the Ecological Enhancements Plan (CSA/1992/112).
- 5.17 Additionally, other land to the north under the control of the Caravan and Motorhome Club will be made available for ecological enhancement and designated a 'wildlife enhancement area', predominantly to ensure proposals to redevelop the existing Lady Margaret's Site are capable of delivering net benefits for biodiversity, but will complement measures provided on-site to deliver significant benefits. This includes bringing grassland into more favourable condition through improved management, new standard tree planting, and provision of wildlife boxes and log piles.
- 5.18 To promote adherence to the PPW 11 and Policy EC4 Hedgerows, Trees and Woodland and Policy EC6 Biodiversity Conservation of the Wrexham Unitary Development Plan, the following opportunities for ecological enhancement have been identified:
- Incorporation of native plants and those of wildlife importance in to landscaping scheme for both on-site planting and the 'wildlife

enhancement area' to provide diverse foraging opportunities for birds, invertebrates and bats

- Enhancement of existing grassland habitat through establishment of wildflower grassland to diversify the flora and provide a greater abundance of nectar and pollen for invertebrates, managed as longer grassland
- New native thicket and woodland planting along the eastern boundary which is currently sparsely vegetated with scattered trees, to strengthen this corridor and provide additional nesting and sheltering habitat for birds, mammals and invertebrates
- Protective thicket planting within the scheme to replace small areas of scrub to be lost in the north of the Site to facilitate the layout
- Provision of a new bat roosting opportunities on the mature retained oak tree and one in the western woodland belt
- Provision of new bird nesting opportunity on retained mature oak tree and two in the western woodland belt
- Creation of two log piles in the western retained biodiversity area, which will naturally rot down and provide a dead wood resource for invertebrates, and shelter for invertebrates and small mammals such as hedgehogs
- Installation of large insect hotel within the centre of the Site, surrounded by wildflower meadow, to provide an educational resource for public engagement, and provide nesting and sheltering opportunities for invertebrates

6.0 CONCLUSIONS

- 6.1 Confirmed ecological constraints to development at the Site have been identified as the presence of:
- Bats - rare bat species are known locally and likely utilise habitats on-site for foraging/dispersal
 - Nesting birds – on-site habitat offers suitable nesting habitat
 - Great crested newts – population known to be present nearby, although dispersal to on-site habitats unlikely, non-licensed working method statement considered proportionate and appropriate
- 6.2 The proposals will be screened by Wrexham Council as part of a Habitats Regulations Assessment to determine any potential significant impacts on the River Dee and Bala Lake SAC with respect to phosphates.
- 6.3 Recommendations for sensitive design and ecological enhancement measures that could be delivered as part of development at the Site have been provided here-in, which will aid accordance with National Planning Policy and Policy EC4 Hedgerows, Trees and Woodland and Policy EC6 Biodiversity Conservation of the Wrexham Unitary Development Plan.
- 6.4 No overriding constraints to development have been identified subject to the implementation of appropriate mitigation measures in respect of confirmed ecological constraints, and further recommended consultation.

7.0 REFERENCES

British Standards Institution, 2013. *BS 42020:2013 Biodiversity — Code of practice for planning and development*. London: BSI.

British Standards Institution, 2012. *BS 5837:2012 Trees in relation to design, demolition and construction: Recommendations*. London: BSI.

Buglife, no date. *Important Invertebrate Areas*. [online] Available at: <<https://www.buglife.org.uk/resources/important-invertebrate-areas/>> [Accessed April 2021].

Chartered Institute of Ecology and Environmental Management, 2016. *Guidelines for Assessing and Using Biodiversity Data*. Winchester: CIEEM.

Chartered Institute of Ecology and Environmental Management, 2017. *Guidelines for Ecological Report Writing*. Winchester: CIEEM.

Chartered Institute of Ecology and Environmental Management, 2017. *Guidelines for Preliminary Ecological Appraisal*. 2nd ed. Winchester: CIEEM.

Chartered Institute of Ecology and Environmental Management, 2018. *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Version 1.1. Winchester: CIEEM.

Collins, J., ed., 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 3rd ed. London: The Bat Conservation Trust.

Defra, 2011. *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*. London: Defra.

Eaton, M., Aebischer, N., Brown, A., Heam, R., Lock, L., Musgrove, A., Noble, D., Stroud, D. and Gregory, R., 2015. Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. *British Birds*, 108, pp.708-746.

English Nature, 2001. *Great Crested Newt Mitigation Guidelines*. Peterborough: EN.

Joint Nature Conservation Committee, 1990. *Handbook for Phase 1 habitat survey – a technique for environmental audit*. Revised reprint 2010. Peterborough: JNCC.

JNCC and Defra (on behalf of the Four Countries' Biodiversity Group), 2012. *UK Post-2010 Biodiversity Framework*. [pdf] Peterborough: JNCC. Available at: <<http://jncc.defra.gov.uk/page-6189>> [Accessed April 2021].

Ministry of Housing, Communities and Local Government, 2019. *National Planning Policy Framework (NPPF)*. London: Ministry of Housing, Communities and Local Government.

Multi-Agency Geographic Information for the Countryside (MAGIC), 2013. *Interactive Map*. [online] Available at: <<http://www.magic.gov.uk/MagicMap.aspx>> [Accessed April 2021].

Natural England and Department for Environment, Food & Rural Affairs, 2014. *Protected species and development: advice for local planning authorities*. [online, last updated January 2021] Available at: <<https://www.gov.uk/protected-species-and-sites-how-to-review-planning-proposals>> [Accessed April 2021].

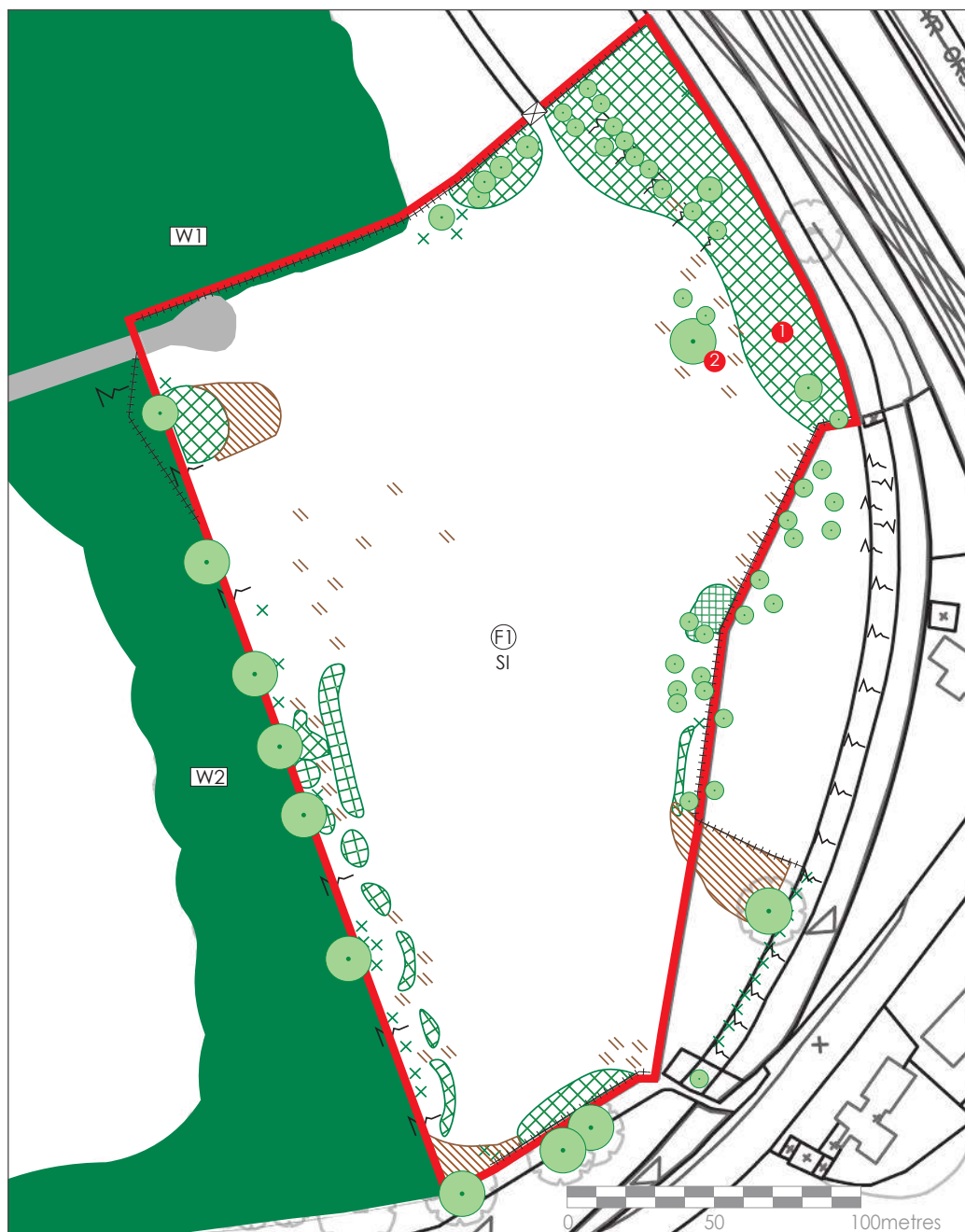
Oldham, R. S., Keeble, J., Swan, M. J. S. & Jeffcote, M., 2000. Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal*, 10(4), pp.143-155.

The Woodland Trust, no date. *Ancient Tree Inventory*. [online] Available at: <<https://ati.woodlandtrust.org.uk/>> [Accessed April 2021].

Appendix A

Habitats Plan &

Photographs (23/03/21)



	Site boundary		Dense tall ruderal		Fence
	Semi-improved grassland		Scattered tall ruderal		Field reference
	Woodland		Individual tree (indicative location)		Target note: 1. Deadwood pile 2. Notable oak tree
	Dense scrub		Hardstanding		
	Scattered scrub		Gate		



Photograph 1. View east of Woodland W1 along northern edge of Site.



Photograph 2. Scrub and trees on bank in north-east of Site.



Photograph 3. View towards north-east of Site and notable oak trees with ruderal under canopy.



Photograph 4. Clump of stinking iris along eastern boundary.



Photograph 5. View south along boundary with large garden, showing scattered trees.



Photograph 6. View north up the field, showing mown paths through semi-improved grassland.



Photograph 7. View to western woodland boundary (W2), with mature oak and scrub on plateau edge.



Photograph 8. Veteran oaks in woodland W2.



Photograph 9. View south along W2 from northern end of Site, showing tall ruderal and scrub patches (29.07.21).



Photograph 10. View east from entrance to field.



Photograph 9. View north across 'wildlife enhancements area' (29.07.21).



Photograph 10. View south across 'wildlife enhancements area' (29.07.21).

Appendix B

Legislation and Planning Policy

- 7.1 The **Conservation of Habitats and Species Regulations 2017** transposes Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, and aspects of Council Directive 79/409/EEC on the Conservation of Wild Birds, into UK domestic law. The Regulations make prescriptions for the designation and protection of Sites of Community Importance ('European sites', e.g. Special Areas of Conservation and Special Protection Areas) and European Protected Species (EPS).
- 7.2 The **Wildlife and Countryside Act 1981 (as amended)**, principally by the Countryside and Rights of Way Act 2000) forms the basis for protection of statutory designated sites of national importance (e.g. Sites of Special Scientific Interest; SSSIs) and native species that are rare and vulnerable in a national context. Additionally, badgers are protected under the Protection of Badgers Act 1992.
- 7.3 **Section 40(1) of the Natural Environment and Rural Communities (NERC) Act 2006** states that each public authority, "must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity." This legislation makes it clear that planning authorities should consider impacts to biodiversity when determining planning applications, with particular regard to the Section 42 (S42) lists of 55 habitats and 558 species of principal importance.
- 7.4 The **Environment (Wales) Act 2016** sets out the required for the 'sustainable management of natural resources' together with new ways of working to achieve this. Section 6 under Part 1 of the Environment (Wales) Act 2016 introduced an enhanced biodiversity and resilience of ecosystems duty (the S6 duty) for public authorities in the exercise of functions in relation to Wales. The S6 duty requires that public authorities must seek to maintain and enhance biodiversity so far as consistent with the proper exercise of their functions and promote the resilience of ecosystems. Section 7 of Part 1 replaces the duty in section 42 of the NERC Act 2006, to publish and revise lists of living organisms and types of habitat in Wales of key significance, to sustain and improve biodiversity.
- 7.5 The **UK Post-2010 Biodiversity Framework (2011-2020)** lists the UK's most threatened species and habitats and sets out targets and objectives for their management and recovery. The UK Biodiversity Action Plan (BAP) process is delivered nationally, regionally and locally and should be used as a guide for decision-makers to have regards for the targets set by the framework and the goals they aim to achieve. The UK BAP has now been replaced by the UK Post-210 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant.
- 7.6 The **Nature Recovery Action Plan (NRAP) 2020** for Wales was originally published in December 2015 at the Nature Recovery Plan. It is the

National Biodiversity Strategy and Action Plan for Wales under Aichi target 17 of the United Nations Convention on Biological Diversity's (CBD) strategic Plan for Biodiversity. It sets out the commitment to reversing the loss of biodiversity in Wales and objectives for action.

- 7.7 The **Planning Policy Wales 11 (Welsh Government, 2021)** sets out the government planning policies for Wales and how they should be applied. With regards to ecology and biodiversity, Chapter 6: Distinctive and Natural Places, states that development plan strategies, policies and development proposals should be formulated to look at the long term protection and enhancement of special characteristics and intrinsic qualities of places, be these of natural, historic and built environments, ensuring their longevity in the face of change. This means both protecting and enhancing landscapes, habitats, biodiversity, geodiversity and the historic environment in their own right, as well as other components of the natural world, such as water resources or air quality. Biodiversity loss should be reversed, pollution reduced, environmental risks addressed and overall resilience of ecosystems improved.
- 7.8 The PPW recognises the planning system has a key role to play in helping to reverse the decline in biodiversity and increase the resilience of ecosystems. Paragraph 6.4.3 sets out the principles that local planning authorities should apply when determining planning applications:
- Support the conservation of biodiversity, in particular the conservation of wildlife and habitats; and must provide a net gain in biodiversity
 - Ensure action in Wales contributes to meeting international responsibilities and obligations for biodiversity and habitats;
 - Ensure statutorily and non-statutorily designated sites are properly protected and managed;
 - Safeguard protected and priority species and existing biodiversity assets from impacts which directly affect their nature conservation interests and compromise the resilience of ecological networks and the components which underpin them, such as water and soil, including peat; and
 - Secure enhancement of and improvements to ecosystem resilience, by ensuring any adverse environmental effects are firstly avoided, then minimised, mitigated and as a last resort compensated for, and by improving diversity, condition, extent and connectivity of ecological networks.
- 7.9 **Technical Advice Note 5: Nature Conservation and Planning** (Welsh Assembly Government, 2009), which is referred to by the PPW, provides further guidance in respect of statutory obligations for protecting and

enhancing biodiversity and geological conservation and their effects within the planning system and is a material planning consideration.

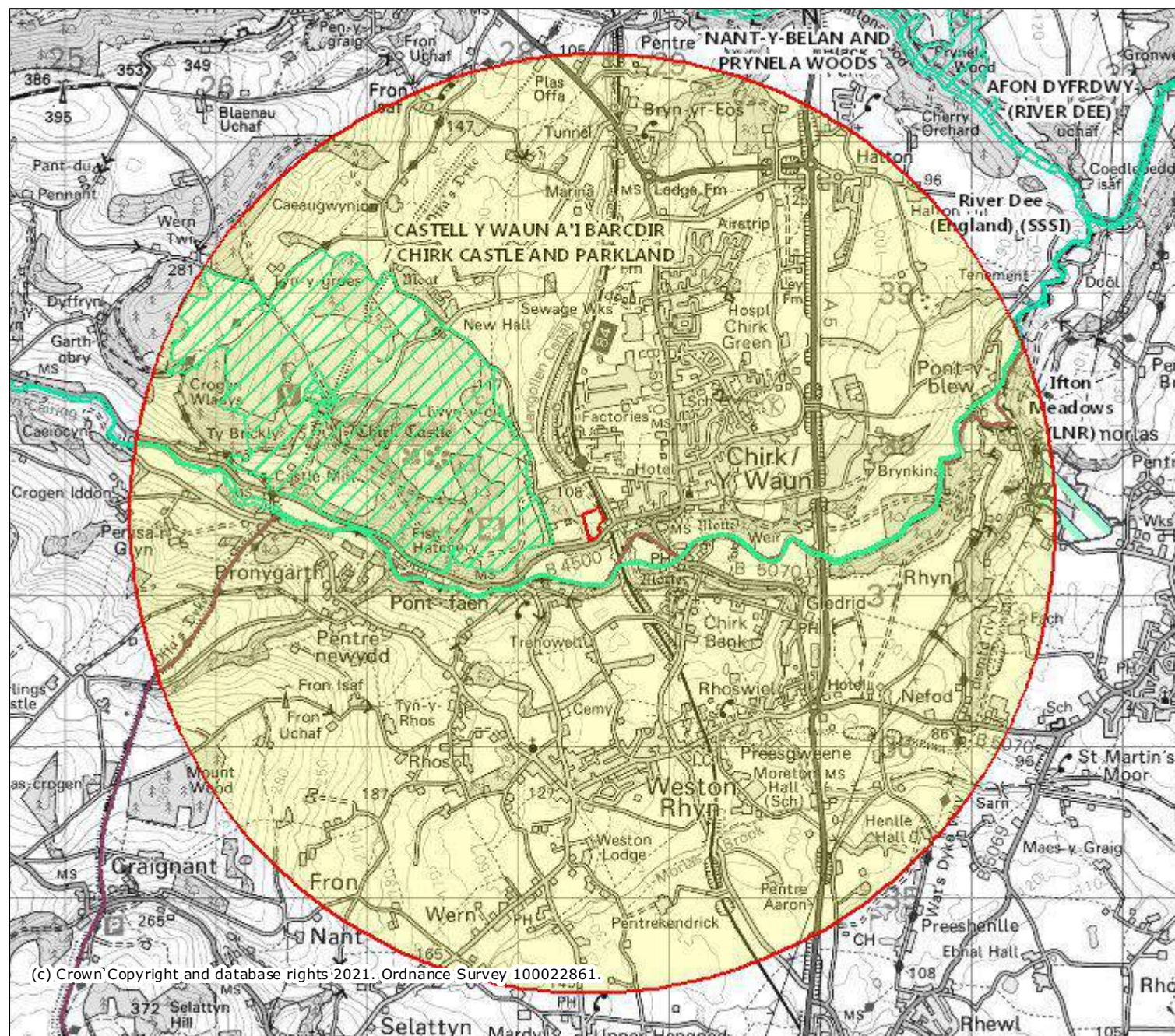
- 7.10 Local planning policies of relevance to ecology, biodiversity and/or nature conservation have been set out in Table B.1 below. The Wrexham Local Development Plan 2013 – 2028 is currently going through consultation and once adopted will replace the Unitary Development Plan 1996-2011.

Table 1. Summary of regional and local planning policy relating to ecology

Policy	Summary
Wrexham Unitary Development Plan 1996-2011	
Policy EC4 Hedgerows, Trees and Woodland	Development proposals should provide for the conservation and management of hedgerows, trees, orchards, woodland, wildlife and natural landscape and water features, and include new planting in order to enhance the character of the landscape and townscape. Development which results in the loss or significant damage to valuable trees, important hedgerows or ancient woodland sites will not be permitted.
Policy EC6 Biodiversity Conservation	Development either within or close to sites of biodiversity interest will only be permitted where it can be clearly demonstrated that the need for the development outweighs the need to safeguard the intrinsic nature conservation value of the site. Where such development is permitted, damage should be kept to a minimum, and compensatory measures should be provided. Measures to improve the biodiversity value of sites and enhance their natural conservation interest and landscape quality including the establishment of local nature reserves, will be supported.

Appendix C

Desk Study Information



Legend

-  Local Nature Reserves (England)
-  National Nature Reserves (England)
-  National Nature Reserves (Wales)
-  Sites of Special Scientific Interest (England)
-  Sites of Special Scientific Interest (Wales)

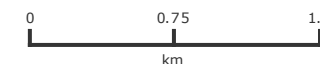
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11/03/2021

Site Check Report Report generated on Thu Mar 11 2021
You selected the location: Centroid Grid Ref: SJ28493747
The following features have been found in your search area:

Local Nature Reserves (England)

Reference	1082930
Name	IFTON MEADOWS
Hectares	16.43
Hyperlink	https://designatedsites.naturalengland.org.uk/SiteLNRDetail.aspx?SiteCode=L1082930

Sites of Special Scientific Interest (England)

Name	River Dee (England) SSSI
Reference	1008731
Natural England Contact	C2L Innovation & Support Team
Natural England Phone Number	0845 600 3078
Hectares	362
Citation	2000452
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s2000452

Sites of Special Scientific Interest (Wales)

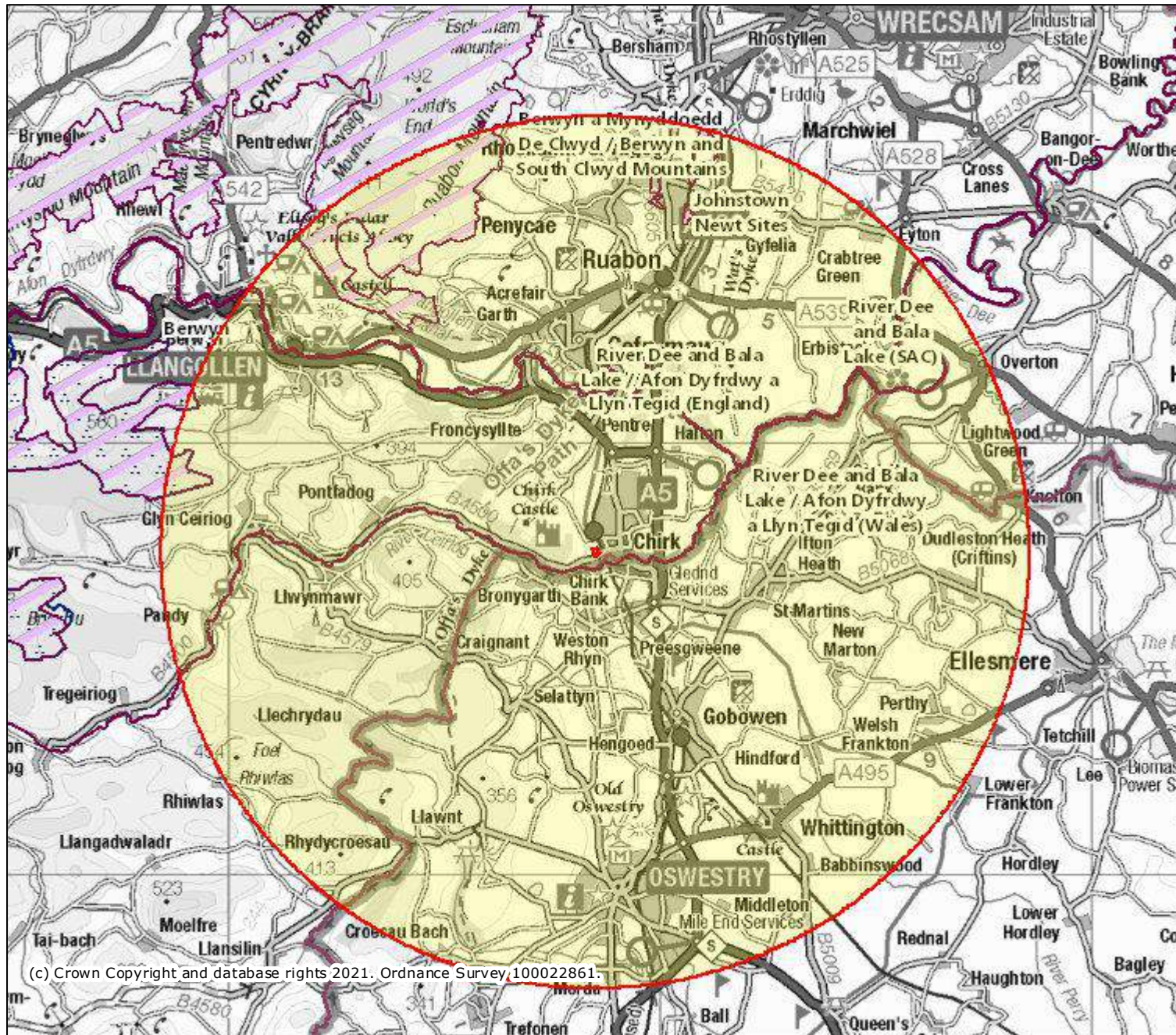
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Eastings	326948
Northings	338219
First Notified	28/07/2011
Last Notified	Null
Confirmation Date	01/03/2012
Cartesian Area (Ha)	308.402295

Name	AFON DYFRDWY (RIVER DEE)
Eastings	306401
Northings	342641
First Notified	30/11/1995
Last Notified	02/05/2002
Confirmation Date	24/01/2003
Cartesian Area (Ha)	1491.421792

Local Nature Reserves (England) - points
No Features found

National Nature Reserves (England)
No Features found

National Nature Reserves (Wales)
No Features found



Legend

-  Special Areas of Conservation (England)
-  Possible Special Areas of Conservation (England)
-  Special Areas of Conservation (Wales)
-  Special Protection Areas (England)
-  Potential Special Protection Areas (England)
-  Special Protection Areas (Wales)

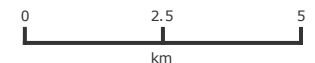
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11/03/2021

Site Check Report Report generated on Thu Mar 11 2021
You selected the location: Centroid Grid Ref: SJ28483747
The following features have been found in your search area:

Special Areas of Conservation (England)

Name	RIVER DEE AND BALA LAKE
Reference	UK0030252
Hectares	146.07
Hyperlink	http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?euocode=UK0030252

Special Areas of Conservation (Wales)

Name	Johnstown Newt Sites
Reference	UK0030173
Marine	n
Date Notified	13/12/2004
Cartesian Area (Ha)	69.717717

Name	River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (Wales)
Reference	UK0030252
Marine	n
Date Notified	01/04/2005
Cartesian Area (Ha)	1149.884964

Name	River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (England)
Reference	UK0030252
Marine	n
Date Notified	13/12/2004
Cartesian Area (Ha)	156.076685

Name	Berwyn a Mynyddoedd De Clwyd / Berwyn and South Clwyd Mountains
Reference	UK0012926
Marine	n
Date Notified	13/12/2004
Cartesian Area (Ha)	27216.908451

Special Protection Areas (Wales)

Name	Berwyn
Reference	UK9013111

Possible Special Areas of Conservation (England)

No Features found

Special Protection Areas (England)

No Features found

Potential Special Protection Areas (England)

No Features found



Key



Search Location



Search Buffer (2000m)



Wildlife Sites

1: W232: Coed y Camlas/Canal Wood



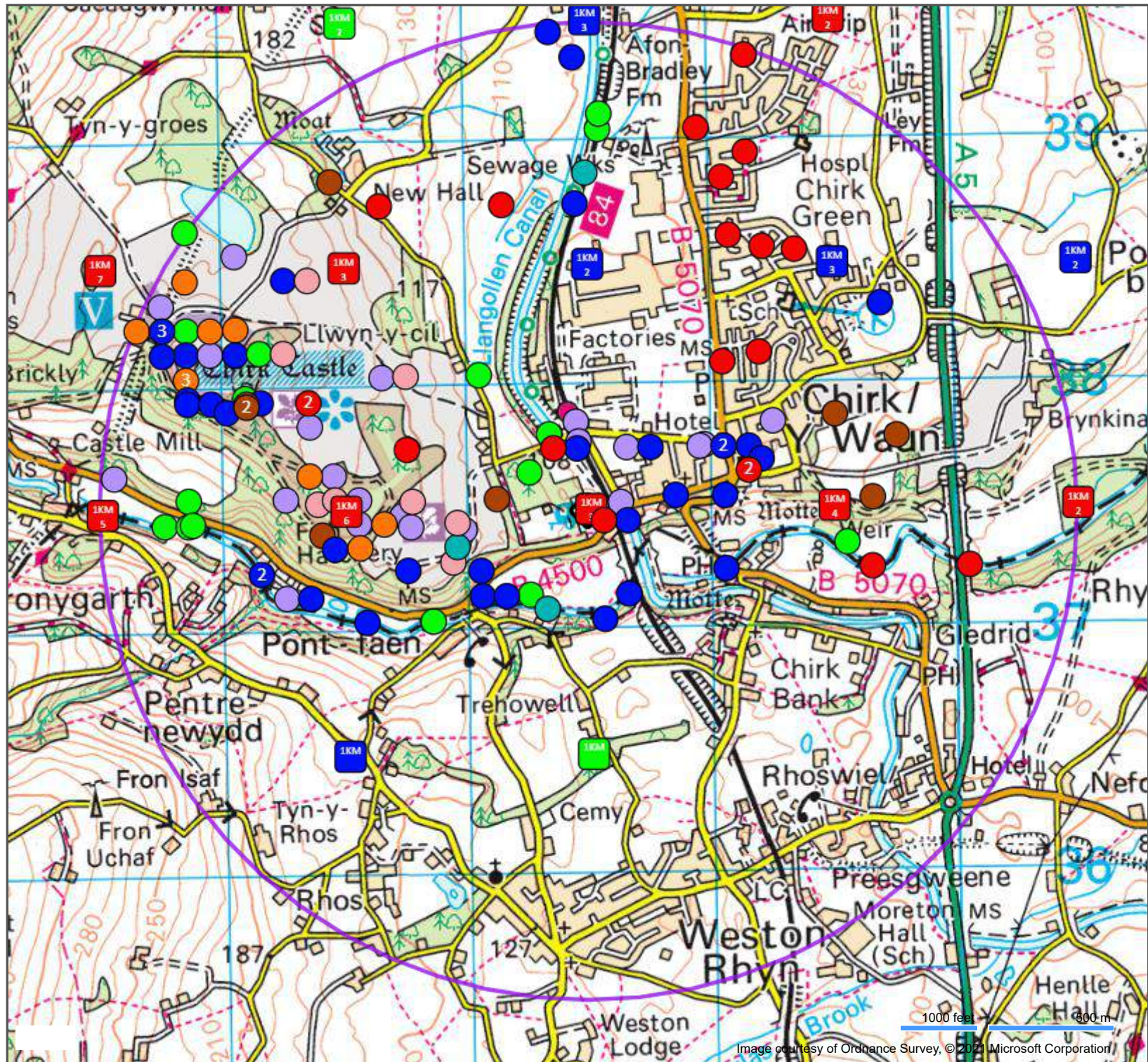
Ancient Woodland Sites

Sites

Site Type	Distance	Site Name	Sites Features
Sites of Special Scientific Interest	289m	1418: Castell y Waun a'i Barcdir / Chirk Castle and Parkland	Features: Grassland, Watercourse, Woodland Species: Rhinolophus hipposideros- breeding
Sites of Special Scientific Interest	334m	2554: Afon Dyfrdwy (River Dee)	Features: Geology, Grassland, Watercourse, Woodland Species: Baris lepidii, Bupleurum tenuissimum, Cottus gobio, Gomphus vulgatissimus, Hordeum marinum, Isogenus nubecula, Lampetra fluviatilis, Lampetra planeri, Luronium natans, Lutra lutra, Osmerus eperlanus, Petromyzon marinus, Salmo salar
Special Areas of Conservation	326m	UK0030252: River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (England)	Features: Watercourse Species: Cottus gobio, Lampetra fluviatilis, Lampetra planeri, Luronium natans, Lutra lutra, Petromyzon marinus, Salmo salar
Special Areas of Conservation	334m	UK0030252: River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (Wales)	Features: Watercourse Species: Cottus gobio, Lampetra fluviatilis, Lampetra planeri, Luronium natans, Lutra lutra, Petromyzon marinus, Salmo salar
Ancient Woodland Sites	96m	46915: Plantation on Ancient Woodland Site	
Ancient Woodland Sites	119m	31092: Restored Ancient Woodland Site	
Ancient Woodland Sites	120m	36380: Restored Ancient Woodland Site	
Ancient Woodland Sites	137m	36386: Restored Ancient Woodland Site	
Ancient Woodland Sites	145m	31091: Restored Ancient Woodland Site	
Ancient Woodland Sites	222m	36383: Restored Ancient Woodland Site	
Ancient Woodland Sites	292m	36385: Restored Ancient Woodland Site	
Ancient Woodland Sites	304m	36403: Restored Ancient Woodland Site	
Ancient Woodland Sites	407m	36382: Restored Ancient Woodland Site	
Ancient Woodland Sites	486m	36379: Restored Ancient Woodland Site	

Site Type	Distance	Site Name	Sites Features
Ancient Woodland Sites	498m	36396: Restored Ancient Woodland Site	
Ancient Woodland Sites	608m	46921: Plantation on Ancient Woodland Site	
Ancient Woodland Sites	661m	45483: Plantation on Ancient Woodland Site	
Ancient Woodland Sites	724m	36384: Restored Ancient Woodland Site	
Ancient Woodland Sites	761m	31099: Restored Ancient Woodland Site	
Ancient Woodland Sites	857m	46914: Plantation on Ancient Woodland Site	
Ancient Woodland Sites	871m	31093: Restored Ancient Woodland Site	
Ancient Woodland Sites	877m	45481: Plantation on Ancient Woodland Site	
Ancient Woodland Sites	882m	36388: Restored Ancient Woodland Site	
Ancient Woodland Sites	920m	36400: Restored Ancient Woodland Site	
Ancient Woodland Sites	929m	34216: Ancient Semi Natural Woodland	
Ancient Woodland Sites	943m	31100: Restored Ancient Woodland Site	
Ancient Woodland Sites	944m	29307: Ancient Semi Natural Woodland	
Ancient Woodland Sites	963m	46922: Plantation on Ancient Woodland Site	
Ancient Woodland Sites	986m	33146: Ancient Semi Natural Woodland	
Ancient Woodland Sites	1071m	36381: Restored Ancient Woodland Site	

Site Type	Distance	Site Name	Sites Features
Ancient Woodland Sites	1112m	36402: Restored Ancient Woodland Site	
Ancient Woodland Sites	1158m	26909: Ancient Semi Natural Woodland	
Ancient Woodland Sites	1371m	46923: Plantation on Ancient Woodland Site	
Ancient Woodland Sites	1374m	33145: Ancient Semi Natural Woodland	
Ancient Woodland Sites	1430m	36398: Restored Ancient Woodland Site	
Ancient Woodland Sites	1511m	45482: Plantation on Ancient Woodland Site	
Ancient Woodland Sites	1513m	36399: Restored Ancient Woodland Site	
Ancient Woodland Sites	1542m	31094: Restored Ancient Woodland Site	
Ancient Woodland Sites	1742m	34218: Ancient Semi Natural Woodland	
Ancient Woodland Sites	1745m	36387: Restored Ancient Woodland Site	
Ancient Woodland Sites	1756m	36390: Restored Ancient Woodland Site	
Ancient Woodland Sites	1795m	29308: Ancient Semi Natural Woodland	
Ancient Woodland Sites	1798m	46918: Plantation on Ancient Woodland Site	
Ancient Woodland Sites	1842m	49811: Ancient Woodland Site of Unknown Category	
Ancient Woodland Sites	1869m	36401: Restored Ancient Woodland Site	
Ancient Woodland Sites	1873m	36389: Restored Ancient Woodland Site	



cofnod

Gwasanaeth Gwybodaeth Amgylcheddol Gogledd Cymru
North Wales Environmental Information Service

eMapper for Cofnod

Land west of Chirk – 1992/CT / E08821

Key



Search Location



Search Buffer (2000m)

Yellow Bees, Wasps, Ants and Sawflies

Blue Birds

Orange Butterflies and Moths

Light Blue Fish

Pink Fungi, Lichen and Slime Moulds

Red Mammals

Purple Other Invertebrates

Green Plants

Brown Reptiles and Amphibians

Appendix D

Habitats and Flora Species List

Table D. Habitats and Flora Species List							
Site name	1992 Lady Margarets Park						
Survey date and surveyor	23/03/2021 CT						
Scientific name	Common name	Habitat Type					
		F1	W1	W2	Scrub	Treeline	Embankment
Herb species							
<i>Achillea millefolium</i>	Yarrow	X					
<i>Aegopodium podagraria</i>	Ground-elder	X					
<i>Arum maculatum</i>	Lords-and-ladies			X			
<i>Cirsium arvense</i>	Creeping thistle	X					
<i>Ficaria verna</i>	Lesser celandine	X					
<i>Galium aparine</i>	Cleavers						X
<i>Glechoma hederacea</i>	Ground ivy	X					
<i>Heracleum sphondylium</i>	Hogweed					X	
<i>Hyacinthoides non-scripta</i>	Bluebell	X		X			
<i>Iris foetidissima</i>	Stinking iris						
<i>Monbretia crocosmia</i>	Monbretia						
<i>Potentilla reptans</i>	Creeping cinquefoil	X					
<i>Ranunculus repens</i>	Creeping buttercup	X					
<i>Rumex</i> sp.	Dock	X					
<i>Senecio vulgaris</i>	Groundsel					X	
<i>Taraxacum officinale</i> agg.	Dandelion	X					
<i>Urtica dioica</i>	Common nettle					X	X
<i>Veronica chamaedrys</i>	Germander speedwell	X					
<i>Vicia</i> sp.	Vetch					X	
Sedges and rushes							
<i>Luzula campestris</i>	Field wood-rush	X					
Grasses							
<i>Arrhenatherum elatius</i>	False oat-grass					X	
Woody species							
Coniferous							
<i>Larix decidua</i>	European Larch		X				
<i>Pseudotsuga menziesii</i>	Douglas fir			X			
Broadleaved							
<i>Acer pseudoplatanus</i>	Sycamore			X			
<i>Betula</i> sp.	Birch		X		X	X	
<i>Carpinus betulus</i>	Hornbeam		X	X			
<i>Cornus sanguinaea</i>	Dogwood						
<i>Corylus avellana</i>	Hazel				X	X	
<i>Crataegus monogyna</i>	Hawthorn				X	X	X
<i>Fraxinus excelsior</i>	Ash			X			X
<i>Ligustrum vulgare</i>	Wild privet				X		
<i>Prunus spinosa</i>	Blackthorn				X		X

Appendix E

Bat Survey Report

(CSA/1992/06a)



Lady Margaret's Park,
Wrexham

Bat Survey Report

Prepared by
CSA Environmental

on behalf of
The Caravan and Motorhome
Club

Report No: CSA/1992/06a

August 2021

Report Reference	Date	Revision	Prepared by	Approved by	Comments
CSA/1992/06	27/08/2021	-	CM/CT	KC	First issue
CSA/1992/06a	09/09/2021	A	CT	KC	Second issue



CONTENTS		Page
1.0	Introduction	1
2.0	Legislation	1
3.0	Methods	2
4.0	Results	8
5.0	Summary	16
6.0	References	17

1.0 INTRODUCTION

- 1.1 This report has been prepared by CSA Environmental on behalf of The Caravan and Motorhome Club. It sets out the findings of bat survey work undertaken at Lady Margaret's Park, Wrexham (hereafter referred to as 'the Site') as part of redevelopment proposals for the existing site.
- 1.2 The Site is located around central grid reference SJ 28296 37474, to the West of Chirk.

2.0 LEGISLATION

- 2.1 All British bat species are legally protected under Regulation 43 of the Conservation of Habitats and Species Regulations 2017 (as amended). These Regulations make it an offence to:
- Deliberately capture, injure, or kill a bat
 - Deliberately disturb bats, impairing their ability to survive, breed, reproduce or rear/nurture their young, or which significantly affects the local distribution or abundance of the species
 - Damage or destroy a breeding site or resting place used by bats
- 2.2 All bats and their roosts in the UK were previously fully protected under the Wildlife & Countryside Act 1981 (as amended). Amendments to the Act have removed most provisions as they relate to bats, however it remains an offence to:
- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection
 - Intentionally or recklessly obstruct access to any structure or place used for shelter or protection
- 2.3 It is important to note that bat roosts are protected throughout the year, regardless of whether or not bats are present at the time. Under the Regulations, the offence of damaging or destroying a breeding site or resting place is subject to 'strict liability', i.e. an offence is committed irrespective of whether the causal act was deliberate or otherwise.
- 2.4 Where development is proposed that would result in an offence under the Regulations, a European Protected Species (EPS) statutory derogation licence (often termed 'EPS Mitigation Licence') will need to be secured from Natural Resources Wales to permit an act that would otherwise be unlawful. Such a licence can only be granted following receipt of planning permission with all relevant conditions discharged, and where it has been demonstrated that specific statutory derogation tests have been met.

3.0 METHODS

- 3.1 The following survey methods, design, data analysis and interpretation have been undertaken with due consideration of the Bat Conservation Trust (BCT) guidelines 3rd Edition (Collins, 2016).

Preliminary Roost Assessment (PRA)

Structures

- 3.2 A detailed internal and external inspection of the building was completed where possible, using high-powered torches and a ladder as appropriate, with the aim of identifying the potential for this structure to support roosting bats.
- 3.3 External inspection focused on identifying potential bat access points to the interior of each structure and any external features that could potentially be used by crevice-dwelling species. Particular attention was given to window sills, window panes, weatherboarding, and pitch/ridge tiles; as evidence is typically found in these locations.
- 3.4 The internal inspection involved a systematic search for bats or any evidence of their activity, in particular droppings and/or feeding remains within the building and associated roof spaces. Access within the internal roof structure was limited by water tanks, which restricted access to only the southern end of the main part of the block. No accessible roof space was present within the adjoining annexe.
- 3.5 A description of the structure was made, including construction, condition and age (where known).
- 3.6 The aim of this inspection is to record direct (i.e. actual roosting bats) or indirect evidence of roosting bats (e.g. droppings), as well as the nature and number of features with 'potential' to support roosting bats. This includes consideration of structures to support bats whilst in hibernation.

Trees

- 3.7 All trees to be removed to facilitate the proposals were inspected from ground level, using high-powered torches, ladder and endoscope as appropriate. Particular attention was given to woodpecker holes, limb splits, knot holes, lifting bark and mature ivy stems.
- 3.8 A description of each tree was made, including the species, height, diameter at breast height and condition.
- 3.9 The aim of this inspection was to record direct (i.e. actual roosting bats) or indirect evidence of roosting bats (e.g. droppings), as well as the nature and number of features with 'potential' to support roosting bats. This includes consideration of trees to support bats whilst in hibernation.

Assessing 'Potential'

- 3.10 All structures and trees were assigned to one of four categories in respect of their 'potential' to support roosting bats, or the confirmation of any bat roosts identified. 'Potential' in this context is taken to be the broad suitability of features to support roosting bats, based upon the nature, condition or structure of such features, in the absence of confirmed evidence of roosting.
- 3.11 Assigning the following categories is intended to determine the effort of any further targeted survey or inspections which are necessary to prove presence or likely absence of roosting bats, rather than to assign importance to such features.
- 3.12 The following categories are assigned to structures and/or trees herein, Either:
- **Confirmed roost** – where one or more bat roosts are identified during PRA inspections, either through direct sightings of bats, and/or indirect evidence such as bat droppings, Or;
 - **High** – A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
 - **Moderate** – A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, assessments at this stage are made irrespective of species conservation status).
 - **Low** – A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
 - **Negligible** – Negligible habitat features on site likely to be used by roosting bats.
- 3.13 The potential of a tree or structure to support roosting bats is often influenced by its age and construction, thermal stability, lighting and levels of human activity. Furthermore, the proximity to foraging habitat - particularly woodland, parkland and wetland- as well as the presence of navigational routes (e.g. hedgerows, treelines and watercourses) influence both the potential for bats to roost, as well as the species which may roost. Professional judgement is therefore applied, based upon known factors which effect the potential of features to support roosting bats, insofar as determining the need or scope of further surveys or inspections.

Limitations

- 3.14 As detailed above, access to loft spaces was restricted by water tanks or absence of loft access points, and so the assessment was largely informed by the external inspection.

Roost Surveys

- 3.15 One dusk emergence and two pre-dawn re-entry survey were undertaken in July, August and early September, to confirm the presence/likely absence of roosting bats in association with the on-site building. In addition, the surveys aim to determine the character of any identified roosts, namely species present, number of roosting bats and roost type (i.e. day, night feeding, maternity and transitory).
- 3.16 The dusk emergence/pre-dawn re-entry surveys were undertaken for approximately 1.5 hours following British Summer Time (BST) sunset and 1.5 hours prior to BST sunrise respectively, with due consideration for the BCT good practice guidelines. The surveys were carried out by experienced bat workers Katie Critchley CEcol MCIEEM, Cerian Thomas MCIEEM, Alex Perry ACIEEM (licence ref: S089599/1), supported by Tom Preece ACIEEM and Lorna Gwilliam in suitable conditions (see Table 2).
- 3.17 During the survey, the surveyors watched for any bats entering parts of the building or using key flight lines, equipped with Batlogger M detectors to assist in determining species of bat and any associated behaviour. A note was made of all bat passes, along with the time, species and any information regarding behaviour, including direction of flight, and activity e.g. foraging/commuting.
- 3.18 An infrared video camera rig (Sony Handycam HDR SR5E) was used to film the eastern aspect and give greater coverage to this angle.
- 3.19 The positions of the surveyors and the infrared camera rig around the building during the survey are illustrated Figure 1 below.



Figure 1. Surveyor locations A, B & C and IR Camera for roost surveys conducted in July / August 2021

- 3.20 Following the survey all bat calls were downloaded from the Batlogger M detectors and analysed BatExplorer to enable species identification, where possible, and quantitative analysis of the data.

Limitations

- 3.21 No specific limitations to roost surveys were encountered, other than visiting members of the public approaching surveyors during the dusk survey to ask questions.

Activity Surveys

Transect Surveys

- 3.22 One transect survey was undertaken on 29 July 2021. The transect route was aimed to cover all accessible areas, features and habitats at the Site, including an adjoining field to the east of the Site, with the aim of providing some information on which species use habitats on-site for foraging and commuting, including rare lesser horseshoe bats known to be present at Chirk Castle. The route was repeated more than once during the survey to minimise temporal bias.
- 3.23 The transect was walked at a moderate and consistent speed with qualitative observations of bat behaviour made by the surveyor. Each survey commenced at sunset (British Summer Time), continuing for the following two hours.
- 3.24 Bat calls were recorded using an Elekon Batlogger M detector. This detector automatically records ultrasonic signals with a one second delay between recordings. Recordings of bat contacts were subsequently analysed using BatExplorer software, with sonograms reviewed to confirm bat identification to genera, or where possible, species level.
- 3.25 Each of the recorded files, which contain a variable number of call 'pulses', was designated a 'bat contact'. At the point of contact, each sound file is assigned a GPS location.
- 3.26 Transect surveys are intended to gather data on the spatial distribution of bat activity across the Site, identifying areas of relative importance for bats, including key flight lines. In addition, direct observation of bats allows for qualitative assessments of how bats use the Site to be made, complementing quantitative data collected through remote monitoring.

Remote Monitoring

- 3.27 Two Wildlife Acoustics Songmeter (SM4) detectors were deployed during August 2021 to provide two data-sets. The location of this Monitoring Location (ML) is shown on Figure 2 below.



ML  ML1  ML2

Figure 2. The locations of each Monitoring Location (ML) surveyed during remote monitoring survey in August 2021.

- 3.28 The detectors were setup to automatically record ultrasonic signals for the period from half an hour before sunset to half an hour after sunrise each night, with the monitoring period spanning eighteen nights.
- 3.29 Weather conditions were obtained for each night surveyed using historic weather data from the World Weather Online website, with weather observations taken from the nearest weather station in Shawbury. The five nights showing the most optimal weather conditions (in terms of temperature, precipitation and wind speed, see Table 5) were taken forward for analysis.
- 3.30 Recordings are triggered when a bat echolocation call is detected and will contain a variable number of call 'pulses'. Each file containing call pulses by a bat/s is designated as a 'bat contact' for each species present. The maximum recording duration is 15 seconds after which time a new recording file, and thus a new bat contact, is generated if echolocation calls are still being detected. This means that periods of prolonged bat activity near a detector is represented as multiple bat contacts, rather than a single one.

- 3.31 Recorded bat calls were analysed using the specialist software AnalookW to identify the species present. Quantitative analysis of bat activity was then undertaken by calculating the average bat contacts per hour on each night monitored, for each species.
- 3.32 Bat activity can show considerable inter-night variability and is dependent on a number of variables, including temperature, wind, and seasonality, amongst others. To account for this variability the median values for the average hourly bat contacts per night are reported, rather than a mean value which would misrepresent the average activity.

Limitations

- 3.33 It should be noted that the findings described herein for remote monitoring surveys are based on the bat activity recorded at the location immediate to each detector, and therefore only describe localised activity at the Site.
- 3.34 In addition, comparisons drawn on the number of detector activations by different species/genera can only give an indication of relative species abundance at the Site, as detectability varies between species.
- 3.35 It is acknowledged that the quantum of bat contacts recorded during a survey may not give a true reflection of the abundance of bats using the Site. For example, a single bat foraging close to a detector may trigger several hundred activations in the course of one night. However, this activity level does provide a proxy for the level of use by bats, and therefore its relative importance.
- 3.36 Activity surveys should typically be spread out to cover spring (April/May), summer (June/July/August) and autumn (September/October) seasons. Due to the time of year ecological survey work commenced, it was not possible to complete a spring transect survey and remote monitoring period. However, following consultation with the LPA ecologist it was considered appropriate to provide some information on bat activity during the bat maternity season to determine if the Site has importance for the local horseshoe population.

4.0 RESULTS

Preliminary Roost Assessment

Structures

External

- 4.1 The toilet block is a single-story brick building with a hipped roof with tightly inter-locking concrete tiles. The structure is 'T' shaped with a small annex off the western aspect. Small wooden framed bathroom windows are present on a number of the aspects and wooden access doors. The eaves are open with exposed wooden rafters, with wooden timber behind attached to the top of the wall plate.
- 4.2 There were several potential access points at eaves level where the wooden timber has lifted above the top of the wall plate, creating narrow gaps. In one location on the western aspect of the adjoining annexe, bird droppings and a single bat dropping were on the wall below a larger horizontal opening, suggesting bird nesting activity. Protective mesh installed to inhibit bird access above wooden window frames has also been lost in some locations, creating larger openings into the roof, but no evidence of droppings was noted underneath. A single dropping was found on the wall at the north-east corner, although no obvious access point was present above, with timber tight to the wall plate. There were seven large wall mounted lights on the exterior of the building and a strip light in a small porch area of the washing station



Photograph 1. Southern aspect of adjoining annexe, with connecting corridor.



Photograph 2. North-west aspect of toilet block, with bathroom windows and doors.



Photograph 3. Gap above the wall plate on western aspect of annexe with bird droppings and single bat dropping.



Photograph 4. Narrow gap at the top of the wall plate under the eaves.



Photograph 5. North-east corner where bat dropping was noted on exterior wall, with small gap above the door.



Photograph 6. Large gap where mesh is missing on eastern aspect.

Internal

- 4.3 Water tanks filled much of the central part of the internal roof void of the main block, with no accessible loft hatch in the annexe block. Where the southern end could be searched, this was found to be dusty but clear of any mammal droppings, or flies. There was some cobwebbing at the beams but not extensive. The roof structure is formed of wooden rafters and central ridge beam with supporting purlins, with bitumen felt lining. The felt was in good condition and tight to the ridge beam, with some gaps where it has been cut for ducts and vents. Internal mesh is present to prevent ingress by birds. Some points of light were visible at the eaves, suggesting possible access points.
- 4.4 Multiple potential access features were found on the external search of the building, as well as two individual bat droppings on the exterior wall. However, no evidence was identified in the accessible roof space and given the number of exterior wall mounted lights present, and nearby lighting columns, which are considered to reduce its suitability for larger numbers of bats, the buildings was considered to have at most 'Moderate', potential for roosting bats.



Photograph 7. Water tanks within centre of roof space, impeding access for thorough search.



Photograph 8. Southern end of main roof space, with bitumen felt lining and insulated floor.

Trees

- 4.5 A total of three tree groups were included in the assessment, labelled G8, G9 and G20 on the Tree Survey Plan (prepared by Treecare Consulting). These tree groups are to be impacted or removed to facilitate the reconfigured layout through the centre of the Site and demolition and rebuild of the new toilet block. Results of the assessments is given in Table 1 below.

Table 1: Summary of trees subject to ground-based assessment

Tree Reference	Species	Description	Bat roost potential
G8	Rowan	Mature rowan group, one of which to be removed. All generally good condition with fairly small stems, no potential roosting features	Neg
G9	Mixed (beech, white beam, birch)	Mature moderate sized trees to rear of toilet block, all to be removed. Loosely spaced group, with two more mature forms. Minor cracks/splits starting in stems, but too early to form a feature. Large nest in most eastern tree. Otherwise generally good condition with existing pruning wounds well healed and smooth bark. Two whitebeam have pruning scars, which appear to be fully occluded, very shallow minor features if do go in, on narrow stems.	Neg
G20	Birch	Two semi-mature trees in a short section of hedgerow, to be removed. Both are in good condition, with smooth bark, and no potential roosting features	Neg

Roost Surveys

- 4.6 The weather conditions and timings for the roost surveys are given in Table 2 below.

Table 2. Bat roost presence/absence survey timings and weather conditions

Survey Date	Sunset/ Sunrise Time	Start Time	End Time	Temp. (°C)		Cloud Cover (oktas)		Wind (Beaufort Scale)		Precipitation
				Start	End	Start	End	Start	End	
29/07/21	21:09	20:56	22:39	18	15	8	8	1	0	None
17/08/21	05:55	04:25	06:10	14	14	7	8	0	0	None
02/09/21	06:22	04:52	06:37	14	12	8	8	0	1	None

Dusk Emergence 29 July 2021

- 4.7 One possible emergence of a soprano pipistrelle was noted at 21:19 hrs at the north-eastern corner by surveyor B, 23 minutes after sunset. It was noted flying north alongside the eastern aspect of the building. As no other surveyor saw / heard the bat and given the timing of the appearance and its location and height, it was considered likely to have emerged from an eaves location on the eastern aspect of the building.

- 4.8 Limited other bat activity was recorded, with occasional foraging or noted from calls heard and rather than observed activity of common and soprano pipistrelle bats and *Myotis* bats recorded by the surveyors, and brief noctule passes at 21.31 hrs, 21.44 hrs and 22.30 hrs. No other roosting behaviour was observed.

Dawn re-entry 17 August 2021

- 4.9 One confirmed re-entry of a soprano pipistrelle was noted at 05.57 hrs at the north-eastern corner by surveyor B, 2 minutes after sunrise. A soprano pipistrelle was noted at 05.01 hrs to loop around the north-east corner near the roof before flying away. No further activity was noted at this position until 05.45 hrs when a soprano pipistrelle quickly flew south-west over the roof, before a soprano pipistrelle returned again at 05.54 hrs and was observed flying up and away to the guttering at the north-east corner for a few minutes. At 05.57 hrs it flew up and into the guttering and crawled under the lowest row of roof tiles closest to the hipped ridge. This is consistent with the first survey, where a soprano was considered likely to have emerged along the eastern aspect.
- 4.10 Very limited other activity was observed during the survey, with brown long-eared bats recorded at 04.35 hrs by all three surveyors, and at 04.45 hrs by surveyors A and B, and again at 04.47-04.48 hrs by surveyor A. No other roosting behaviour was observed.

Dawn re-entry 02 September 2021

- 4.11 No bats were seen to return to roost in any features in the building. Very limited activity was observed and recorded overall. Some nearby common and soprano pipistrelle activity was recorded at the start of the survey from surveyors at the north-west and north-east aspects of the building, but very little activity was recorded after 06.00hrs. The final bat recorded by surveyor A was a heard but not seen soprano pipistrelle at 06:05hrs (also recorded by surveyor C) and a common pipistrelle by surveyor B at 06:03hrs. A late soprano pipistrelle was recorded foraging briefly through the tree canopies to the south of the toilet block at 06:28hrs (6 minutes after sunrise) by surveyor C, before it flew south. No further bats were recorded after this time and none returned to roost.

Activity Surveys

Transect Surveys

- 4.12 The weather conditions experienced during the transect survey is provided in Table 3 below.

Table 3. Bat transect survey timings and weather conditions

Survey Date	Sunset/ Sunrise Time	Start Time	End Time	Temp. (°C)		Cloud Cover (oktas)		Wind (Beaufort Scale)		Precipitation
				Start	End	Start	End	Start	End	

29/07/21	21:09	21:09	23:09	18	15	8	8	1	0	None
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- 4.13 At least three species of bat were recorded at the Site during the transect survey, comprising common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and noctule *Nyctalus noctula*. Activity was dominated by soprano pipistrelle but was widespread for both species across the Site along woodland edges and tree canopies, including lit areas at the Site entrance and pitches, although was less frequent along the southern edge. Noctule was recorded on one occasion near the Site entrance at 22.32 hrs.
- 4.14 The number of bat contacts recorded for each species are summarised in Table 4 below. The locations of each bat contact and the overall distribution of activity across the Site are illustrated in Figures 3 and 4.

Table 4. Summary of bat contacts recorded during transect surveys

Month	Common pipistrelle	Soprano pipistrelle	Pipistrellus species	Noctule
Jul	49	107	22	1
Percentage of Total (%)	27.4	59.8	12.3	0.56



Figure 3. Locations of bat contacts recorded during the transect survey

- 4.15 Figure 4 below provides an indicative illustration of 'hotspots' in bat activity recorded during the transect survey undertaken at the Site. This demonstrates the activity is widespread, with a hotspot near the Site entrance and lower activity at the south edge of the Site.

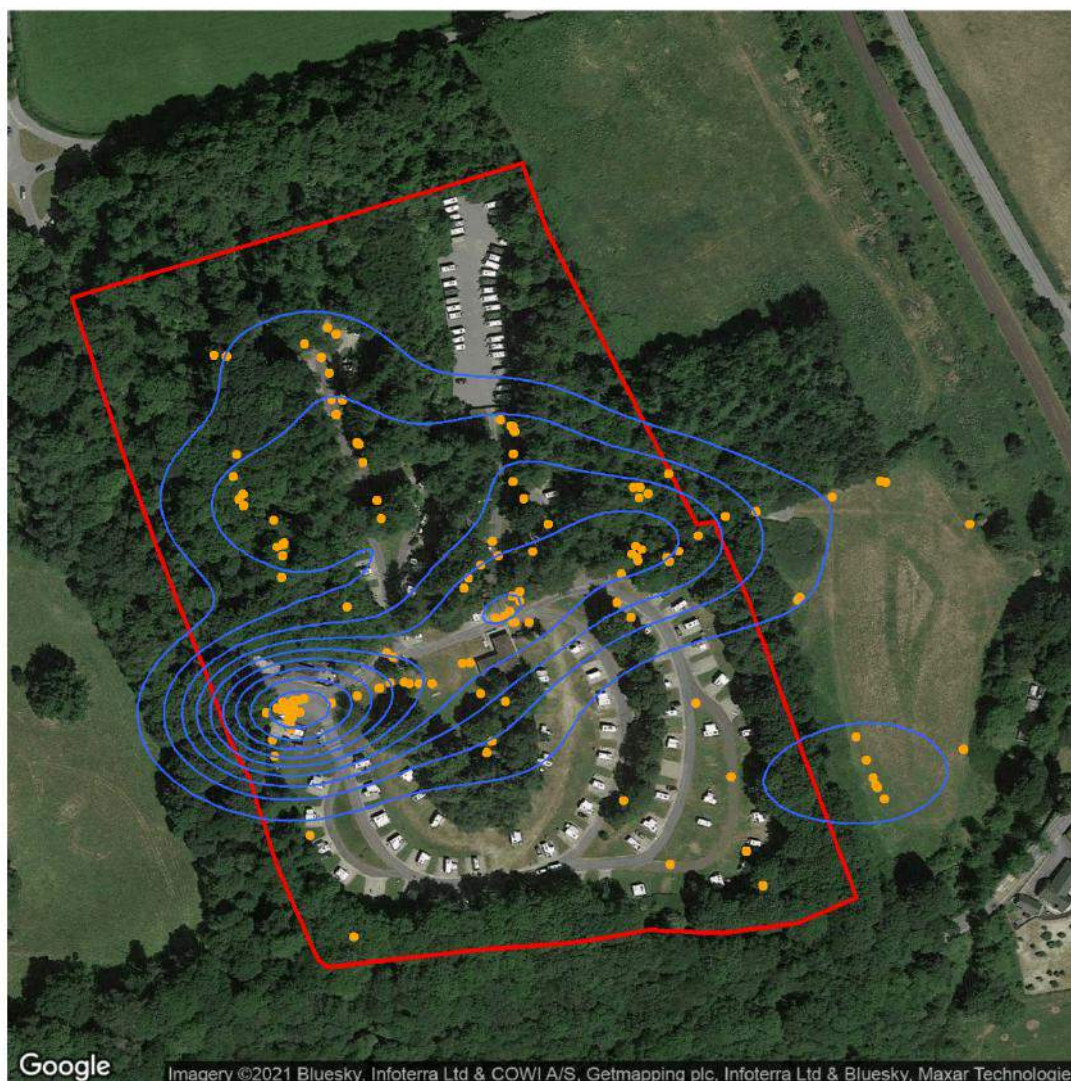


Figure 4. Indicative 'Utilisation Distribution' (UD) of all bat species/genera at the Site estimated from the transect data. The UD illustrates the relative probability of a bat in flight being present at a given point at the Site, with higher/central contours having a greater probability, and lower/peripheral contours having less probability.

Remote monitoring

- 4.16 The weather conditions experienced during the seven nights where data was analysed are provided in Table 5 below.

Table 5. Overnight weather conditions during remote monitoring

Survey Month	Dates Sampled (2021)	Temp. (°C)		Cloud Cover (%)		Wind (km/h)		Precipitation
		Min	Max	Min	Max	Min	Max	
Aug	09/08/21	10	13	39	98	8	14	Light rain at 21:00
Aug	10/08/21	11	16	1	69	6	9	Dry

Aug	11/08/21	15	16	54	99	10	16	Very light rain at 00:00 and 06:00
Aug	12/08/21	14	14	8	79	18	21	Dry
Aug	13/08/21	13	15	29	80	10	22	Dry
Aug	14/08/21	13	15	53	86	6	8	Very light rain at through evening
Aug	15/08/21	10	15	28	100	5	13	Dry

- 4.17 At least five species of bat were recorded at the site during the static monitoring survey, comprising common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctula*, with the addition of *Myotis* species and brown long-eared *Plecotus auritus*.
- 4.18 The total number of bat contacts recorded across both monitoring locations in the August monitoring period for each bat species/genera are provided in Figure 5 below.

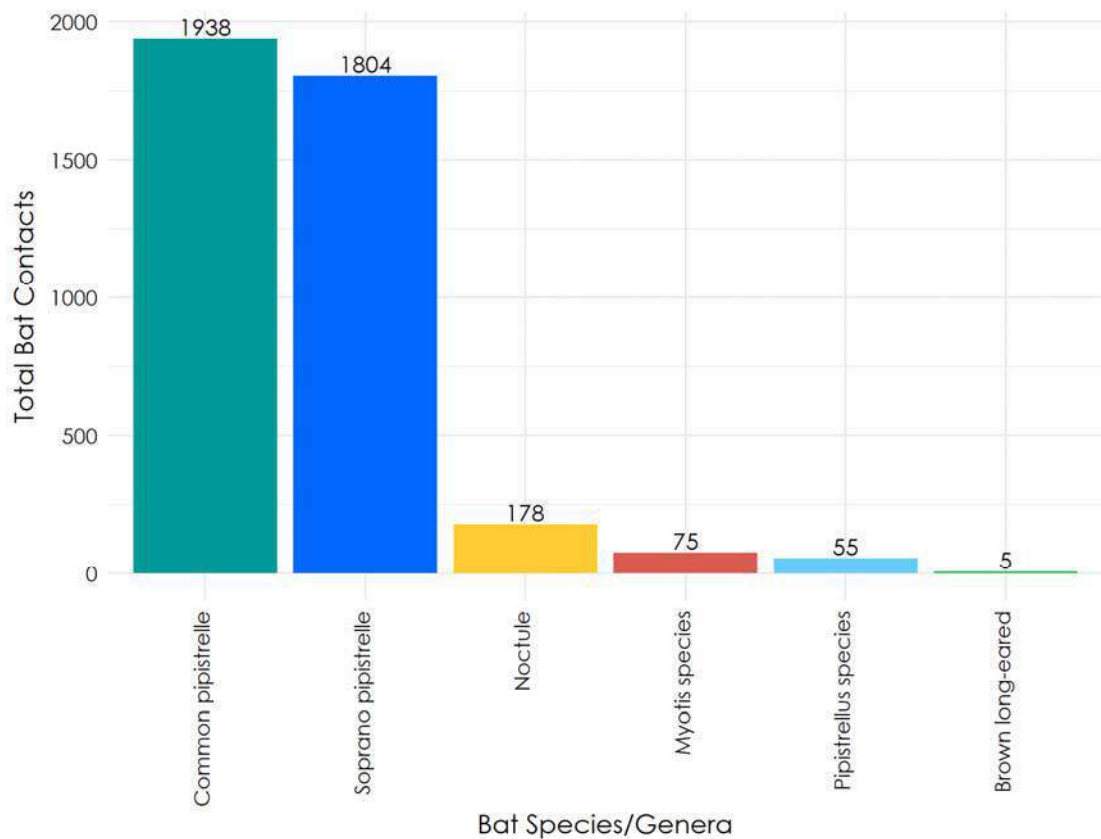


Figure 5. Total bat contacts by species/genera recorded across all remote monitoring periods and monitoring locations

- 4.19 Whilst similar numbers of common and soprano pipistrelle bat passes were recorded, common pipistrelle were recorded in higher numbers at ML1 in the centre of the Site, and soprano pipistrelle were recorded in higher numbers at ML2 at the south-east woodland edge of the Site. Noctule were recorded in small numbers on all nights at both locations, but more frequently over the centre of the Site at ML1. *Myotis* species conversely were recorded most frequently at the south-east woodland

edge location, and as a more light sensitive group of species, it's possible they are deterred by the light levels in the centre of the Site.

- 4.20 Figure 6 below shows the variance in nightly activity levels for each of these bat species recorded on-site. More detailed data describing Figure 6 are provided in Table 6. The activity data in Figure X is presented as boxplots for each bat species, which show the inter-night variability in bat activity across the 7 nights monitored. The median value (middle line of the boxplot) is taken as the typical level of activity for that species on-site at the point monitored. The length of each coloured boxplot is the interquartile range which shows the variance in nightly activity around the median value. The ends of each whisker line define the minimum and maximum nightly activity values recorded at the monitoring location. Outlying values are nightly activity levels that are greatly different when compared to the distribution of the remaining nightly activity levels. Outliers are illustrated as black points away from the boxplot. While important to note, these outliers do not represent the bat activity more commonly found at the Site for the species in question.

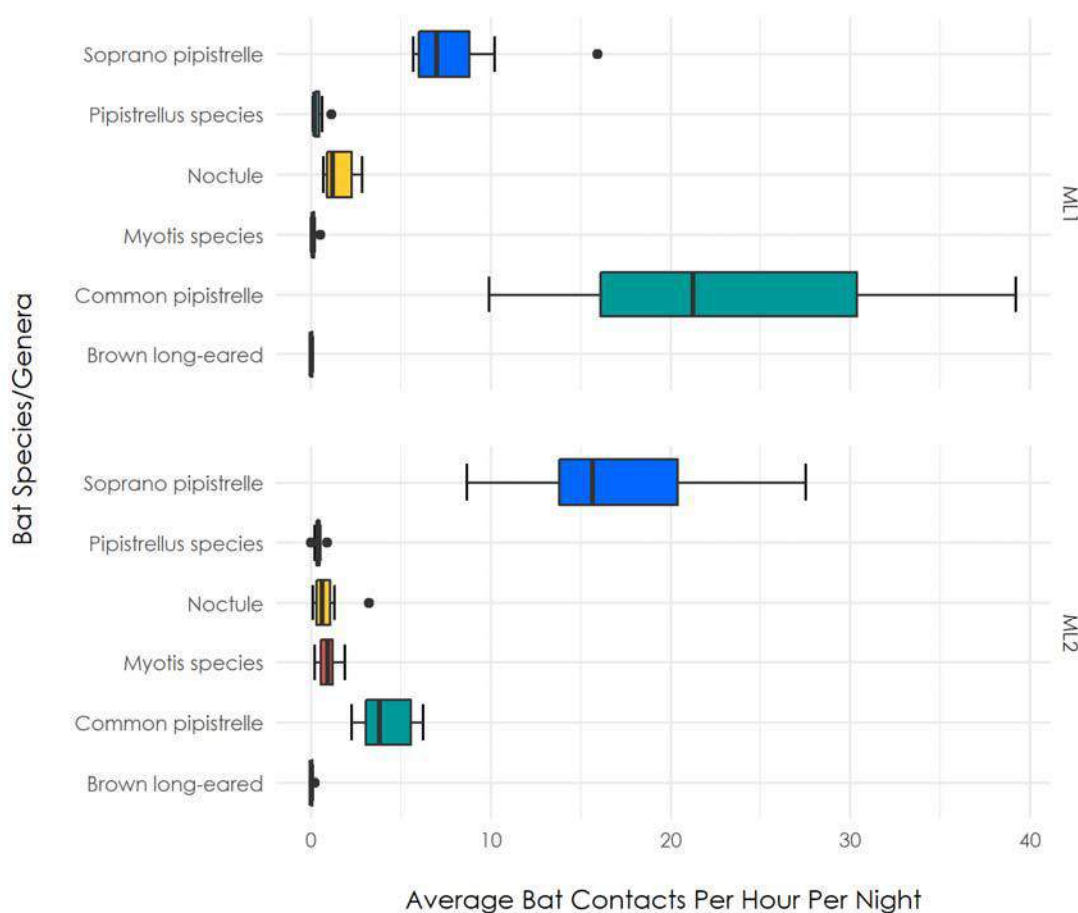


Figure 6. Average bat contacts per hour per night for each bat species/genera recorded across all remote monitoring

- 4.21 Figure 6 and Table 6 demonstrate the higher prevalence of pipistrelle bats and the higher rate of common pipistrelle at ML1 and soprano pipistrelle at ML2. No lesser horseshoe were recorded during the 7 nights of data analysed, and a review of the additional 11 nights of data not

subject to detailed analysis did also not record any horseshoe activity. Pipistrelle and noctule species were recorded arriving on-site within 5-20mins of sunset, indicating there are likely roosts nearby in the local landscape, and given the parkland setting to the west with a large number of veteran and notable trees and residential properties nearby, this is not unexpected for these species, with a range of roosting opportunities.

Table 6. Average bat contacts per hour per night recorded during remote monitoring surveys

ML	Species	Average bat contacts per hour per night				Total bat contacts	Number of nights monitored
		Minimum	Maximum	Median	IQ range		
ML1	Brown long-eared	0.000	0.100	0.000	0.049	2	7
ML1	Common pipistrelle	9.883	39.214	21.236	14.285	1642	7
ML1	Myotis species	0.000	0.489	0.099	0.102	10	7
ML1	Noctule	0.681	2.838	1.180	1.369	111	7
ML1	Pipistrellus species	0.098	1.109	0.199	0.252	27	7
ML1	Soprano pipistrelle	5.675	15.927	6.981	2.795	586	7
ML2	Brown long-eared	0.000	0.195	0.000	0.050	3	7
ML2	Common pipistrelle	2.237	6.219	3.789	2.498	296	7
ML2	Myotis species	0.195	1.859	0.903	0.646	65	7
ML2	Noctule	0.097	3.229	0.602	0.745	67	7
ML2	Pipistrellus species	0.000	0.891	0.393	0.155	28	7
ML2	Soprano pipistrelle	8.674	27.529	15.656	6.568	1218	7

5.0 SUMMARY

- 5.1 No trees with significant bat potential are to be impacted by the proposals and no further investigation is considered necessary prior to removal.
- 5.2 A single soprano pipistrelle bat was confirmed to be roosting within the toilet block on the first and second survey, with no roosting behaviour observed on the third survey, and is considered likely to be an opportunistic day roost. A Natural Resource Wales derogation licence will be required to legally allow the destruction of the roost location, with appropriate mitigation put in place. This will include replacement roost provision prior to demolition, soft stripping under ecological supervision by a licenced ecologist, timing of works, and replacement features in the new structure.

- 5.3 Activity surveys identified at least five species to be present on-site, dominated by common and widespread species, particularly common and soprano pipistrelle bats. Activity was recorded across much of the Site along woodland edges and tree canopies, which is not unexpected given its woodland setting. No lesser horseshoe bat activity was recorded during the monitoring period.

6.0 REFERENCES

Chartered Institute of Ecology and Environmental Management, 2017. *Guidelines for Ecological Report Writing*. Winchester: CIEEM.

Chartered Institute of Ecology and Environmental Management, 2018. *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1*. Winchester: CIEEM.

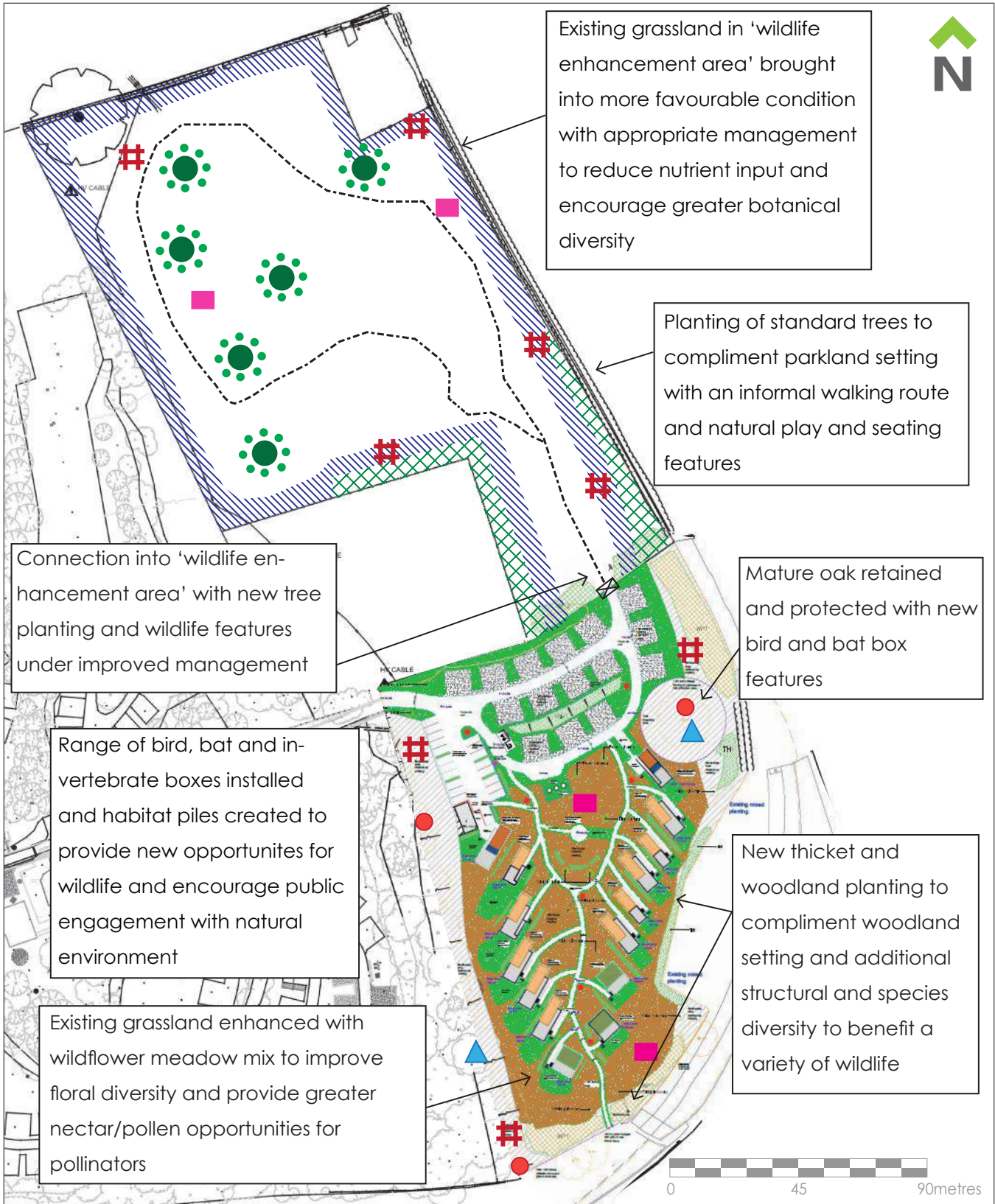
Collins, J., ed., 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 3rd ed. London: The Bat Conservation Trust.

Lintott, P. R., Davison, S., van Breda, J., Kubasiewicz, L., Dowse, D., Daisley, J., Haddy, E. and Mathews, F, 2017. *Ecobat: An online resource to facilitate transparent, evidence-based interpretation of bat activity data*. Ecology and evolution, 8(2), pp.935-941.

Appendix F

Ecological Enhancements Plan

(CSA/1992/112)



Existing shrub retained



Habitat piles (using logs from tree management work)



Bird boxes x3 on retained trees



Margin of longer grassland



New standard trees (2x beach, 2x Oak, 2x Scots Pine)



Bat boxes x2 on retained trees



Walking route



Insect Hotels x4 in sunny locations in wildflower areas



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Project Lady Margarets Caravan Park

Drawing Title Ecological Enhancements Plan

Client Caravan and Motorhome Club

Drawing No.
CSA/1992/112

Scale
Refer to scale

Date
Sept 2021

Rev
-

Drawn
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