

**LAND OFF WREXHAM ROAD,  
ABERMORDDU, FLINTSHIRE**

**PRELIMINARY ECOLOGICAL APPRAISAL**

**JANUARY 2022**

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<b>Revised</b>	<b>-</b>

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## EXECUTIVE SUMMARY

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- Cheshire Ecological Services (CES), the commercial division of Cheshire Wildlife Trust, was commissioned to conduct a Preliminary Ecological Appraisal of land off Wrexham Road, Abermorddu, Flintshire, where a residential development is proposed.
- The survey was conducted on the 22<sup>nd</sup> October 2021 by Kyle Mellish ACIEEM. The purpose was to gain baseline ecological information of the site in order to assess its current status, to identify any ecological constraints to development, to recommend further survey if necessary, and to outline recommend mitigation and ecological enhancement measures where appropriate.
- The proposed development site totals approximately 4.3 hectares and is located immediately to the west of Wrexham Road (A541), within the west of the village of Abermorddu, approximately 6.6km to the north of Wrexham, within the county of Flintshire.
- At the time of the survey, the site comprised semi-improved grasslands, poor semi-improved grassland, broadleaved mixed deciduous woodland, wet alder woodland, bramble & blackthorn scrub, bracken, hedgerows, treelines, a stream and two ditches. The wet alder woodland, blackthorn scrub and bracken and a section of the stream comprise part of the designated Caeau Abermorddu Wildlife Site.
- The site proposals involve the almost complete loss of semi-improved grassland within Field 1, which is of notable botanical diversity and a complimentary habitat to the adjacent Wildlife Site. It is therefore recommended that this habitat be sought to be retained if it all possible, particularly the north of the habitat which is more species-diverse. This could include either reducing housing units or moving some of the development into Field 2, although it is acknowledged these may not be viable options due to budgetary viability or the need for public open space areas. Nevertheless, such options should be explored to demonstrate that the mitigation hierarchy has been followed.
- As part of the desk-based study, the local biodiversity recording centre (Cofnod) provided records of protected and Priority species occurring within 2km of the proposed development site, within the past twenty years, with selected records also returned within 25 years.
- The results of previous ecological surveys for the site undertaken by Kingdom Ecology from 2016-2019 were reviewed to inform the assessment of the site.
- Features of ecological importance identified during the survey included all habitats within the Caeau Abermorddu Wildlife Site (alder woodland, mixed scrub and bracken), semi-improved grasslands (particularly within Field 1), bramble scrub, poor semi-improved grassland, broadleaved mixed deciduous woodland, hedgerows and treelines. Although not necessarily afforded legal protection (although protection is afforded through the planning system for Wildlife Sites and Priority habitats are of material consideration), it is recommended that where practicable, these features be retained and sufficiently protected during development works.



- The habitat composition of the site was considered to have potential to support legally protected species including badger, great crested newt, birds, bats, native bluebell and reptiles.
- It is considered appropriate to recommend further and updated survey effort in respect of badgers, great crested newt, barn owl, breeding birds, roosting and foraging bats, reptiles and further botanical surveys, to inform the development proposal and planning application.
- Possible mitigation and enhancement measures are also outlined, particularly in respect of Field 1, as it contains Priority habitats that are proposed to be lost to development.

## 1.0 INTRODUCTION

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- 1.1 Cheshire Ecological Services (CES), the commercial division of Cheshire Wildlife Trust, was commissioned to conduct a Preliminary Ecological Appraisal (PEA) of land off Wrexham Road, Abermorddu, Flintshire, where a residential development is proposed.
- 1.2 The PEA consisted of a review of existing ecological survey data, a desk-top study and an Extended Phase 1 Habitat Survey of the site. The purpose was to gain baseline ecological information of the site in order to assess its current status, to identify any ecological constraints to development, to recommend further survey if necessary, and to recommend mitigation and ecological enhancement measures where relevant.
- 1.3 The survey was conducted by CES Consultant Ecologist Kyle Mellish BSc (Hons) ACIEEM on the 22<sup>nd</sup> October 2021. Kyle is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM), with over 7 years' experience in ecological consultancy.
- 1.4 Weather conditions at the time of survey were predominantly dry with occasional light drizzle and sunny spells, with a temperature of 9°C.

## 2.0 SITE DESCRIPTION

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- 2.1 The survey was centred on OS grid reference SJ 30768 56735.
- 2.2 The area of land requested to be surveyed totalled approximately 4.3 hectares, and is hereafter referred to as the 'site'. The site is located immediately to the west of Wrexham Road (A541), within the north-west of the village of Abermorddu, approximately 6.6km to the north of Wrexham, within the county of Flintshire.
- 2.3 At the time of survey, the site comprised semi-improved grasslands of varying diversity, poor semi-improved grassland, broadleaved mixed deciduous woodland, wet alder woodland, bramble & blackthorn scrub, bracken, hedgerows, treelines, a stream and two ditches. The wet alder woodland, blackthorn scrub and bracken and part of the stream comprise part of the designated Caeau Abermorddu Wildlife Site.
- 2.4 The site was bounded to the north and west by the Caeau Abermorddu Wildlife Site, to the east by Wrexham Road and area of housing, and to the south by a new housing estate and Abermorddu County Primary School.
- 2.5 Land-use in the wider area comprised largely of agricultural pasture fields, with significant wooded areas on the slopes of the surrounding valley and along the Rivers Alyn & Cegidog to the west and east. The main urban areas of Abermorddu were present to the east and south of the site, and the centre of Wrexham is present 6.6km to the south-east, though the wider urban area and associated satellite towns and villages were much closer (refer to Appendix A - Site Location Plan).

### 3.0 SURVEY METHODS

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3.1 The PEA comprises of a review of existing ecological survey data, a desk-based study and field survey.

#### **Existing Ecological Survey Data**

3.2 Various ecological surveys have been completed for the site in the past by Kingdom Ecology, from 2016-2019, which comprised:

- Extended Phase 1 habitat survey (Preliminary Ecological Appraisal, Kingdom Ecology, 2016)
- Bat tree surveys (Preliminary Ecological Appraisal, Kingdom Ecology, 2016)
- Bat activity surveys (Bat Activity & Great Crested Newt, Kingdom Ecology, 2016)
- Great crested newt environmental DNA (eDNA) and Presence/Absence surveys (Bat Activity & Great Crested Newt, Kingdom Ecology, 2016)
- Further botanical surveys (Reptile, Breeding Bird & Botanical Survey, Kingdom Ecology, 2019)
- Reptile surveys (Reptile, Breeding Bird & Botanical Survey, Kingdom Ecology, 2019)
- Badger survey (Reptile, Breeding Bird & Botanical Survey, Kingdom Ecology, 2019)
- Breeding bird surveys (Reptile, Breeding Bird & Botanical Survey, Kingdom Ecology, 2019).

3.3 Where applicable, the results of these surveys have been considered within this PEA.

#### **Desk-based study**

3.4 The desk-based study comprised consultation with the following consultees:

- Defra's online mapping facility 'MAGIC'
- Cofnod - the local environmental records centre for North Wales
- Ordnance Survey - OS mapping of the local and wider area

3.5 The desk-based study comprised consultation with Defra's online mapping facility 'MAGIC' to search for statutorily designated nature conservation sites within a 5km radius of the site.

3.6 Cofnod was requested to provide information on non-statutory nature conservation sites and protected and Priority species within a 2km radius from the site boundary, within the past 20 years. Records for slow worm were noted within the last 25 years, as habitats in the area are suitable for this reptile, which are likely under-recorded.

3.7 Ordnance Survey mapping of the local area was reviewed for the presence of habitats and features of potential ecological relevance to this survey, such as ponds.

## Extended Phase 1 Habitat Survey

- 3.8 This survey involved the mapping of various habitat types on the site in addition to any habitat features and botanical species of conservation importance. A thorough walk-over survey was undertaken of the site. The methodology for this survey followed that described by the Joint Nature Conservation Committee (JNCC, 2010).
- 3.9 Priority habitats and species, for which there is a national or local Biodiversity Action Plan (BAP) and those listed under Section 42 of the Natural Environment and Rural Communities Act, 2006 (for Wales), were recorded as such where present. The Section 42 list of Priority habitats and species has now been superseded by the Section 7 list of the Environment (Wales) Act 2016, however, the lists are currently exactly the same and the two should therefore be considered interchangeable.
- 3.10 Preliminary searches were also carried out for legally protected and Priority species such as badgers, bats, reptiles and great crested newts (GCN) that may potentially use the site. Scientific names and the national status of vegetative species recorded follow Stace (2019). Scientific and common names stated in the text are also presented in Appendix C.
- 3.11 The abundance of all recorded botanical species identified in potential Priority habitats was assessed using the DAFOR scale, as described by Sutherland (1996). The DAFOR scale is a broad interpretive assessment whereby the surveyor assigns one of the following categories to the abundance of the species; Dominant, Abundant, Frequent, Occasional or Rare. The exception to this was for hedgerows and treelines; which have been described separately within the discussion section (Section 5) of this report.
- 3.12 All trees with features such as holes, cracks and crevices which were known to CES at the time of survey to be lost or otherwise impacted by the proposed development were assessed for their suitability to support roosting bats, and were categorised in accordance with the Bat Conservation Trust's (BCT) Bat Survey: Good Practice Guidelines, (2016). The guidelines outline the initial survey requirements of all trees, and where necessary, detail the required further actions and likely mitigation. Trees were allocated the following categories (based on an assessment of potential roost features when viewed from the ground), as contained in Table 1 below.

Table 1: Bat Roost Classification Guidelines

Suitability	Description – Roosting habitats	Commuting and foraging habitats
<b>Negligible</b>	Buildings/trees with negligible habitat features to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats,
<b>Low</b>	Buildings/trees with one of more potential roost sites that could be used by individual bats opportunistically, although they are unlikely to be suitable for maternity or hibernation roosting. This category also includes	Habitat that could be used by small numbers of commuting bats such as gappy hedgerows or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat.

	buildings/trees of sufficient size and age that elevated inspection may reveal features not previously identified, or features seen that have very limited roosting potential.	Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
<b>Moderate</b>	Buildings/trees with one or more potential roost sites to support roosting bats but unlikely to support a roost of high conservation status (with respect to roost type only).	<p>Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.</p> <p>Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.</p>
<b>High</b>	Buildings/trees with one of 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.	<p>Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge.</p> <p>High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland.</p> <p>Site is close to and connected to known roosts.</p>

### Survey Limitations

- 3.13 The observations made during this survey have been used to assess the presence or likely absence of protected and Priority species within the proposed area of works, and to recommend further actions where required. It should however, be noted that this survey serves as a single visit representing a 'snap-shot in time' whereby only the species present at the time of survey were recorded.
- 3.14 Positive evidence of species that use this site periodically or are in growth at different times of the year may not have been recorded. It is important to consider that the absence of a species from a particular survey does not necessarily indicate the absence (or continued absence) of that species from the area.
- 3.15 The survey was conducted outside of the optimal survey season for undertaking botanical assessment. However, it was considered possible to accurately classify habitat types, given the experience of the surveyor and previous survey data available for the site. Additional survey during the optimal botanical survey season (June-July) would be required to confirm this evaluation as correct, as has been recommended.

## 4.0 RESULTS

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### Desk-based Study

4.1 Defra's online mapping facility 'MAGIC' indicates that there are four statutorily designated nature conservation sites present within 5km of the site:

- Llay Bog Special Site of Special Scientific Interest (SSSI) located approximately 1.7km to the south east of the site, at its closest point.
- Alyn Waters Local Nature Reserve (LNR) located approximately 1.7km to the south east of the site, at its closest point.
- Coed Talon Marsh SSSI located approximately 3.3km to the north west of the site, at its closest point.
- Marford Quarry SSSI located approximately 4.8km to the south east of the site, at its closest point.

**Note:** Two further SSSI sites are present within 5km of the site, comprising Coedwig Ffosil Brymbo Fossil Forest SSSI and Chwarel Singret SSSI. These sites are however designated for their historical and geological interest, rather than nature conservation, and are therefore not considered further within this assessment.

4.2 Cofnod indicates that there are 13 non-statutorily designated nature conservation sites present within 2km of the site:

- Caeau Abermorddu Wildlife Site (WS) located partially on and immediately adjacent to the site, on the site's western boundary.
- Caergwrlle Castle WS located approximately 0.1km to the north east of the site, at its closest point.
- Rhydun Hall Grassland WS located approximately 0.4km to the north east of the site, at its closest point.
- Alyn Waters WS located approximately 0.4km to the east of the site, at its closest point.
- Hope Mountain and Ffrywdd Wood WS located approximately 0.6km to the south of the site, at its closest point.
- Bryn Yorkin WS located approximately 0.6km to the north west of the site, at its closest point.
- Sydalt Wood WS located approximately 0.7km to the south of the site, at its closest point.
- Bryn-y-Gaer WS located approximately 0.8km to the north east of the site, at its closest point.
- Carreg-y-ty WS located approximately 1.1km to the north west of the site, at its closest point.
- Caeau Farm Wood WS located approximately 1.4km to the north east of the site, at its closest point.
- Blast Road Pond WS located approximately 1.4km to the south east of the site, at its closest point.
- Fagl Lane Quarry WS located approximately 1.8km to the north west of the site, at its closest point.
- Silverdale Meadow WS located approximately 1.9km to the north east of the site, at its closest point.

- 4.3 Cofnod highlighted the presence of the following protected, Priority and invasive species occurring within approximately 2km of the proposed development site since 2001 (records for slow worm within 25 years have also been included, as denoted by the year in brackets):

Table 2: Protected & Priority Species Records

Scientific name	Common name	Designations
<b>Mammals</b>		
<i>Arvicola amphibius</i>	Water Vole	S7, WCA5, LBAP
<i>Chioptera sp.</i>	Unknown Bat	Bern, EPS, HDir, WCA5, LBAP
<i>Erinaceus europaeus</i>	Hedgehog	Bern, S7, LBAP
<i>Lepus europaeus</i>	Brown Hare	S7, LBAP
<i>Lutra lutra</i>	Otter	Bern, EPS, HDir, S7, WCA5, LBAP
<i>Meles meles</i>	Badger	Bern, PBA, LBAP
<i>Mustela putorius</i>	Polecat	Bern, HDir, RD2(UK), S7, LBAP
<i>Myotis</i>	Myotis Bat Species	Bern, EPS, HDir, WCA5, LBAP
<i>Myotis daubentonii</i>	Daubenton's Bat	Bern, EPS, HDir, WCA5, LBAP
<i>Nyctalus noctula</i>	Noctule Bat	Bern, EPS, HDir, S7, WCA5, LBAP
<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	Bern, EPS, HDir, S7, WCA5, LBAP
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	Bern, EPS, HDir, S7, WCA5, LBAP
<i>Plecotus auritus</i>	Brown Long-eared Bat	Bern, EPS, HDir, S7, WCA5, LBAP
<b>Amphibians &amp; Reptiles</b>		
<i>Anguis fragilis</i>	Slow-worm (1999)	Bern, S7, WCA5, LBAP
<i>Bufo bufo</i>	Common Toad	Bern, S7, WCA5, LBAP
<i>Lissotriton helveticus</i>	Palmate Newt	Bern, WCA5, LBAP
<i>Lissotriton vulgaris</i>	Smooth Newt	Bern, WCA5, LBAP
<i>Natrix helvetica</i>	Grass Snake	Bern, S7, WCA5, LBAP
<i>Rana temporaria</i>	Common Frog	Bern, HDir, WCA5, LBAP
<i>Triturus cristatus</i>	Great Crested Newt	Bern, EPS, HDir, S7, WCA5, LBAP
<i>Vipera berus</i>	Adder	Bern, S7, WCA5, LBAP
<i>Zootoca vivipara</i>	Common Lizard	Bern, S7, WCA5, LBAP
<b>Birds</b>		
<i>Acanthis cabaret</i>	Lesser Redpoll	S7, UKB
<i>Alauda arvensis</i>	Skylark	BDir2.2, S7, UKBR, LBAP
<i>Alcedo atthis</i>	Kingfisher	BDir1, Bern, UKBA, WCA1.1, LBAP
<i>Anthus pratensis</i>	Meadow Pipit	Bern, UKBA,
<i>Anthus trivialis</i>	Tree Pipit	Bern, S7, UKBR, LBAP
<i>Apus apus</i>	Swift	UKBA
<i>Cinclus cinclus</i>	Dipper	Bern, UKBA
<i>Cuculus canorus</i>	Cuckoo	S7, UKBR, LBAP
<i>Delichon urbicum</i>	House Martin	Bern, UKBA
<i>Dendrocopos minor</i>	Lesser Spotted Woodpecker	Bern, S7, UKBR, LBAP
<i>Emberiza citrinella</i>	Yellowhammer	Bern, S7, UKBR, LBAP
<i>Emberiza schoeniclus</i>	Reed Bunting	Bern, S7, UKBA, LBAP
<i>Falco columbarius</i>	Merlin	BDir1, Bern, UKBR, WCA1.1, LBAP
<i>Falco peregrinus</i>	Peregrine	BDir1, Bern, WCA1.1
<i>Falco subbuteo</i>	Hobby	Bern, WCA1.1
<i>Falco tinnunculus</i>	Kestrel	Bern, S7, UKBA, , LBAP
<i>Fringilla montifringilla</i>	Brambling	WCA1.1
<i>Gallinago gallinago</i>	Snipe	BDir2.1, UKBA, LBAP
<i>Hirundo rustica</i>	Swallow	Bern
<i>Limosa limosa</i>	Black-tailed Godwit	BDir2.2, UKBR WCA1.1
<i>Linaria cannabina</i>	Linnet	Bern, S7, UKBR, LBAP
<i>Locustella naevia</i>	Grasshopper Warbler	S7, UKBR, LBAP
<i>Milvus milvus</i>	Red Kite	BDir1, WCA1.1
<i>Muscicapa striata</i>	Spotted Flycatcher	Bern, S7, UKBR, LBAP



<i>Oenanthe oenanthe</i>	Wheatear	Bern
<i>Passer domesticus</i>	House Sparrow	S7, UKBR, LBAP
<i>Perdix perdix</i>	Grey Partridge	BDir2.1, S7, UKBR, LBAP
<i>Periparus ater</i>	Coal Tit	Bern
<i>Phylloscopus trochilus</i>	Willow Warbler	UKBA
<i>Picus viridis</i>	Green Woodpecker	Bern, LBAP
<i>Poecile palustris</i>	Marsh Tit	Bern, S7, UKBR, LBAP
<i>Prunella modularis</i>	Dunnock	Bern, S7, UKBA
<i>Pyrrhula pyrrhula</i>	Bullfinch	S7, UKBA, LBAP
<i>Regulus regulus</i>	Goldcrest	Bern
<i>Saxicola rubicola</i>	Stonechat	Bern, LBAP
<i>Scolopax rusticola</i>	Woodcock	BDir2.1, UKBR, LBAP
<i>Sturnus vulgaris</i>	Starling	BDir2.2, Bern, S7, UKBR, LBAP
<i>Sylvia curruca</i>	Lesser Whitethroat	LBAP
<i>Turdus iliacus</i>	Redwing	BDir2.2, UKBR, WCA1.1,
<i>Turdus philomelos</i>	Song Thrush	BDir2.2, Bern, S7, UKBR, LBAP
<i>Turdus pilaris</i>	Fieldfare	BDir2.2, UKBR, WCA1.1,
<i>Tyto alba</i>	Barn Owl	Bern, WCA1.1, LBAP
<i>Vanellus vanellus</i>	Lapwing	BDir2.2, S7, UKBR, LBAP
<b>Invertebrates</b>		
<i>Acronicta psi</i>	Grey Dagger	S7
<i>Acronicta rumicis</i>	Knot Grass	S7
<i>Agrochola helvola</i>	Flounced Chestnut	S7
<i>Agrochola litura</i>	Brown-spot Pinion	S7
<i>Agrochola lychnidis</i>	Beaded Chestnut	S7
<i>Allophyes oxyacanthae</i>	Green-brindled Crescent	S7
<i>Amphipoea oculea</i>	Ear Moth	S7
<i>Amphipyra tragopoginis</i>	Mouse Moth	S7
<i>Apamea remissa</i>	Dusky Brocade	S7
<i>Aporophyla lutulenta</i>	Deep-brown Dart	S7
<i>Atethmia centrigo</i>	Centre-barred Sallow	S7
<i>Bombus lucorum</i>	White-Tailed Bumblebee	LBAP
<i>Bombus terrestris</i>	Buff-Tailed Bumblebee	LBAP
<i>Bombus lapidarius</i>	Large Red Tailed Bumblebee	LBAP
<i>Bombus pratorum</i>	Early Bumblebee	LBAP
<i>Bombus pascuorum</i>	Common Carder Bee	LBAP
<i>Brachylomia viminalis</i>	Minor Shoulder-knot	S7
<i>Caradrina morpheus</i>	Mottled Rustic	S7
<i>Caryocolum junctella</i>	Confluent Groundling	LBAP
<i>Ceramica pisi</i>	Broom Moth	S7
<i>Chesias legatella</i>	Streak	S7
<i>Chiasmia clathrata</i>	Latticed Heath	S7
<i>Cirrhia gilvago</i>	Dusky-lemon Sallow	S7
<i>Cirrhia icteritia</i>	Sallow	S7
<i>Coenonympha pamphilus</i>	Small Heath	S7
<i>Diarsia rubi</i>	Small Square-spot	S7
<i>Diloba caeruleocephala</i>	Figure of Eight	S7
<i>Ecliptopera silaceata</i>	Small Phoenix	S7
<i>Ennomos erosaria</i>	September Thorn	S7
<i>Ennomos fuscantaria</i>	Dusky Thorn	S7
<i>Erynnis tages</i>	Dingy Skipper	S7, LBAP
<i>Eugnorisma glareosa</i>	Autumnal Rustic	S7
<i>Eulithis mellinata</i>	Spinach	S7
<i>Euxoa nigricans</i>	Garden Dart	S7
<i>Gonomyia abbreviata</i>	<i>Gonomyia abbreviata</i>	LBAP
<i>Graphiphora augur</i>	Double Dart	S7
<i>Hepialus humuli</i>	Ghost Moth	S7
<i>Hipparchia semele</i>	Grayling	S7
<i>Hoplodrina blanda</i>	Rustic	S7
<i>Hydraecia micacea</i>	Rosy Rustic	S7

<i>Lasiommata megera</i>	Wall	S7
<i>Leucania comma</i>	Shoulder-striped Wainscot	S7
<i>Litologia literosa</i>	Rosy Minor	S7
<i>Lycia hirtaria</i>	Brindled Beauty	S7
<i>Macaria wauaria</i>	V-Moth	S7
<i>Melanchra persicariae</i>	Dot Moth	S7
<i>Mniotype adusta</i>	Dark Brocade	S7
<i>Orthonama vittata</i>	Oblique Carpet	S7
<i>Orthosia gracilis</i>	Powdered Quaker	S7
<i>Perizoma albulata</i>	Grass Rivulet	S7
<i>Satyrrium w-album</i>	White-letter Hairstreak	S7, WCA5, LBAP
<i>Scotopteryx chenopodiata</i>	Shaded Broad-bar	S7
<i>Sideridis reticulata</i>	Bordered Gothic	S7
<i>Spilosoma lubricipeda</i>	White Ermine	S7
<i>Spilosoma lutea</i>	Buff Ermine	S7
<i>Stilbia anomala</i>	Anomalous	S7
<i>Tholera cespitis</i>	Hedge Rustic	S7
<i>Tholera decimalis</i>	Feathered Gothic	S7
<i>Timandra comae</i>	Blood-vein	S7
<i>Tyria jacobaeae</i>	Cinnabar	S7
<i>Watsonalla binaria</i>	Oak Hook-tip	S7
<i>Xanthorhoe ferrugata</i>	Dark-barred Twin-spot Carpet	S7
Flowering Plants		
<i>Hyacinthoides non-scripta</i>	Bluebell	WCA8, LBAP

Note: All species names and designations provided by Cofnod.

#### Designations key:

BDir1 - EU Birds Directive Annexe 1  
 BDir2.1 - EU Birds Directive Annexe 2.1  
 BDir2.2 - EU Birds Directive Annexe 2.2  
 BERN - Convention on the Conservation of European Wildlife and Natural Habitats  
 EPS - European Protected Species  
 LBAP – Local Biodiversity Action Plan Species  
 PBA – Protection of Badgers Act 1992  
 S7 - Environment (Wales) Act 2016 (Section 7)  
 UKBA – Birds of Conservation Concern (RSPB) – Amber  
 UKBR – Birds of Conservation Concern (RSPB) - Red  
 WCA1 – Wildlife & Countryside Act, 1981 – Schedule 1  
 WCA5 – Wildlife & Countryside Act, 1981 – Schedule 5

- 4.4 A number of other species records were provided but have not been included in this report as it is considered highly unlikely that they would be associated with the proposed development site. For example, numerous records of wading birds were provided. Given the habitat composition of the site and the nature of the proposed works, it is considered highly unlikely that the proposed development would impact upon such species.
- 4.5 Cofnod highlighted the presence of 43 ancient woodland sites within 2km of the site – an irreplaceable Priority habitat. The closest ancient woodland site was located approximately 160m west of the site.

## Fieldwork

- 4.6 Features of interest recorded on the site during this survey are described in the Target Notes (TN) below. All numbered Target Notes correspond with the Phase 1 Habitat Map (Appendix B). Species lists for each area and photographic plates are presented within Appendices C and D respectively.

### Target Notes

TN1 – Caeau Abermorddu Wildlife Site

TN2 – Species-rich semi-improved grassland within Field 1 (Plates 1 & 2)

TN3 – Marshy area within Field 1 dominated by tufted hairgrass (Plate 3)

TN4 – Waxcap fungi within semi-improved grassland in Field 1 (Plates 4 & 5)

TN5 – Dry stone wall within broadleaved woodland on western site boundary (Plate 6)

TN6 – Mature ash tree with **Moderate** bat roost potential & potential suitability for nesting/roosting barn owl (Plate 7)

## 5.0 DISCUSSION

### Designated Sites

#### Statutory Sites

- 5.1 The closest designated site to the site is Llay Bog SSSI, located 1.7km to the south-east of the site. The SSSI comprises a small peat bog within a former ice hollow created by glaciation and is designated for its botanical interest; with bog species within the centre of the site and alder-birch carr woodland and mesotrophic fringe vegetation around the edges of the site. Species mentioned within the site citation include marsh cinquefoil (*Potentilla Palustris*), marsh pennywort (*Hydrocotyle vulgaris*), marsh violet (*Viola palustris*), soft rush (*Juncus effusus*), alder buckthorn (*Frangula alnus*), purple moor grass (*Molinia caerulea*), broad buckler fern (*Dryopteris dilatata*), bog moss (*Sphagnum sp.*), cotton grasses (*Eriophorum sp.*), cranberry (*Vaccinium oxycoccus*), bottle sedge (*Carex rostrata*), sundew (*Drosera rotundifolia*), common heather (*Calluna vulgaris*) and cross-leaved heath (*Erica tetralix*).
- 5.2 None of the above habitats are present within the proposed development site and associated species are largely absent with the exception of soft rush; a general wetland specialist and very widespread. The bog is also not publically accessible. Given the above and the distance from the proposed site, no direct or indirect impacts are expected on the Llay Bog SSSI.
- 5.3 Alyn Waters LNR is the second closest site, located 1.7km south-east of the site at its nearest point, just to the south of the Llay Bog SSSI. The site is designated primarily for its grassland habitats, but also encompasses woodland dominated by willow, birch and cherry and an area of scrubland within Alyn Waters Country Park. The area supports a population of skylark, and an abundance of orchids including bee orchids (*Ophrys apifera*), early purple (*Orchis mascula*), twayblade (*Neottia sp.*), broadleaved helleborine (*Epipactis helleborine*) and pyramidal orchid (*Anacamptis pyramidalis*) as well as common broomrape (*Orobanche minor*).
- 5.4 As per the Llay Bog SSSI, the distance to site and lack of connecting habitats would mean that direct impacts on the LNR as a result of development are unlikely. Unlike the Llay Bog SSSI however, Alyn Waters is publically accessible and contains numerous footpaths which are accessible from the site via the village. The LNR and wider Alyn Waters Country Park do however possess significant infrastructure to accommodate recreational use including well-maintained public footpaths as well as a café, picnic area and visitor centre where bikes can be hired. In addition, the Country Park provides numerous waste (including dog waste) disposal sites, well signposted trails and an information brochure. Given this, impacts on the LNR as a result of the proposed development are thought to be unlikely. It is however recommended that the information brochure for the Alyn Waters Country Park be included within new householder information packs in order to highlight the importance of the habitats on site to new residents. available at:  
[https://old.wrexham.gov.uk/assets/pdfs/countryside/alyn\\_waters\\_walks.pdf](https://old.wrexham.gov.uk/assets/pdfs/countryside/alyn_waters_walks.pdf).

- 5.5 Reference to the LNR should also be made within the Wildlife Information Pack (recommended in reference to nearby Wildlife Sites), which would also include a responsible user code for these areas.
- 5.6 All further statutorily designated sites are considered sufficiently distant and without habitat connectivity to be adversely affected by development of the site.

#### Non-Statutory Sites

- 5.7 The closest non-statutorily designated site is Caeau Abermorddu WS, which is located partially on-site, as well as immediately adjacent to the site's northern and western boundaries (see TN1). The WS encompasses an elongated narrow area along a hillside, and is designated for its pasture/meadow, scrub and wet woodland. Habitats within the WS comprise semi-improved acid grassland, marshy grassland, wet woodland and semi-improved neutral grassland. Species described by Cofnod within the marshy grassland include sharp-flowered rush (*Juncus acutiflorus*), creeping bent (*Agrostis stolonifera*), lesser pond sedge (*Carex acutiformis*), Yorkshire fog (*Holcus lanatus*), oval sedge (*Carex leporina*) and ragged robin (*Silene flos-cuculi*). The acid grassland species include common bent, heath bedstraw (*Galium saxatile*), bitter vetch (*Lathyrus linifolius*), creeping soft grass (*Holcus mollis*), sweet vernal-grass (*Anthoxanthum odoratum*) and sheep's fescue (*Festuca ovina*). The wet woodland is dominated by alder (*Alnus glutinosa*), with other species including elder (*Sambucus nigra*) and holly (*Ilex aquifolium*) in the shrub layer and yellow archangel (*Lamium galeobdolon*), opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*), bramble (*Rubus fruticosus* agg.) and meadowsweet (*Filipendula ulmaria*) present within the ground flora assemblage. The scrub within the site comprises blackthorn (*Prunus spinosa*) scrub and the semi-improved neutral grassland includes cat's-ear (*Hypochaeris radicata*), common knapweed (*Centaurea nigra*), autumn hawkbit (*Scorzoneroides autumnalis*), harebell (*Campanula rotundifolia*), mouse-ear hawkweed (*Pilosella officinarum*), ribwort plantain (*Plantago lanceolata*) and sweet vernal-grass.
- 5.8 The site layout (Appendix F) shows that all WS areas on site are proposed to be retained at their current extent. It also shows that the on-site treeline that borders the LWS is to be retained, with the exception of what appears to be a single juvenile tree (part of G1), as well as a 'wildlife buffer zone' from the edge of treeline extent to the developed areas of site.
- 5.9 Though no areas of the WS or buffering on-site treeline are to be lost (with the exception of a single small tree), development still has the potential to affect the neighbouring WS through direct impacts such as run-off or inadvertent damage if materials were to be stored or machinery operated in these areas.
- 5.10 It is therefore recommended that as per the plans in Appendix F, a non-developed buffer of a minimum of 10m be maintained to the WS, and the belt of woodland around the site edge also be retained to buffer nearby WS habitats. Furthermore, current grassland vegetation should be retained within buffer areas, to be managed via a habitat management plan, to be secured via an appropriately worded planning condition.

- 5.11 It is also recommended that a Construction & Environmental Management Plan (CEMP) be produced for the site, to be secured via an appropriately worded planning condition. The CEMP should detail how noise, dust, damage and pollution of the adjacent WS will be avoided through measures which should include timed works, dust suppression and appropriate pollution control measures.
- 5.12 Several informal footpaths currently cross the site and enter the WS to the west of the site. It is considered that the occupation of the new development has the potential to affect the WS through increased recreational pressures, likely involving trampling and dog walking.
- 5.13 In order to minimise such post-development impacts, it is recommended that new home owners be provided with a 'Wildlife Information Pack'. This pack would include information on the importance and sensitivity of the adjacent LWS, as well as guidance on responsible use of local nature conservation sites. It should also detail recreational opportunities available on site within areas such as the Public Open Space (POS) area, which would take pressure off the LWS. The use of mown grass pathways within the POS would also help to promote their use by new residents. The Wildlife information pack should be secured via a planning condition, and be provided within new homeowner information packs.
- 5.14 It is also recommended to fence-off WS areas on site (namely the alder woodland, blackthorn scrub & bracken) to exclude public access; given the sensitivity of these habitats and potential impacts such as trampling of herbaceous species and dog fouling (which adversely affects habitats through nutrient enrichment). Suitable fencing would include agricultural sheep netting, which would prevent dogs from gaining access. Dialog should also be made with the landowner of the adjacent WS to explore whether the informal pathways will be excluded from the new residents, and if not, then what measures could be put in place to limit their range within the wider WS.
- 5.15 With the implementation of the above recommendations, both direct and indirect impacts on the WS can be minimised.
- 5.16 It is also considered that impacts on other nearby WS sites - including the Caergwrl Castle WS located 40m to the north-east of the site – would also be brought to a minimum by the above recommended actions.

### Priority Habitats

- 5.17 Cofnod returned 43 records of ancient woodland sites within 2km of the site, the closest located approximately 160m west of the site (a restored ancient woodland site). Given the distance to the site, no adverse impacts are expected on this or other ancient woodland sites in the wider area.

## **Habitats**

### Semi-improved Neutral Grassland (Plates 1-5)



- 5.18 Two areas of semi-improved grassland were present on site, within Fields 1 & 2 in the north and south-centre of site respectively.
- 5.19 The semi-improved grassland within Field 1 (see TN2) occupied a gently east-sloping field, becoming increasingly wet along its northern and eastern extent, with species typical of inundated soils more common in these areas, including a small marshy area dominated by tufted hairgrass with sharp-flowered rush (see TN3/Plate 3). The sward was predominantly of moderate height reflecting a low grazing pressure by cattle and was relatively species-diverse (particularly in the north of the field), with species including abundant ribwort plantain & creeping buttercup, frequent creeping bent, marsh thistle, creeping thistle, common sorrel, smooth meadow grass, perennial rye-grass, false oat-grass & sharp flowered rush and occasional white & red clover, meadowsweet, dandelion, sweet vernal grass, common ragwort, bird's-foot trefoil, meadow buttercup, compact rush and soft rush. Sedge species were also widespread within the sward, which included hairy sedge – further identification of other sedge species was not possible given the timing of the survey. Several species also present suggested the soils of Field 1 (or parts of it) may be slightly acidic, such as sharp-flowered rush and tormentil, which prefer acidic soils. As these acidic-indicator species were not dominant however, and can tolerate neutral soils, it is likely that the underlying soils are largely neutral. Several species within this grassland area were also noted to be present within the adjacent WS, including sharp-flowered rush and creeping bent, forming a complementary habitat to the WS. Waxcap fungi and other fungi species were also observed within the grassland (see TN4/Plates 4 & 5).
- 5.20 A further semi-improved grassland field was present within Field 2 (Plates 8 & 9), within the south of the site, bounded by hedgerows and a stream. The sward was slightly taller than Field 1 with more tussocks, though the cattle were able to access all fields. Botanical species diversity was evidently lower than Field 1, and the assemblage also lacked many of the inundation tolerant species that were present within the other field. Species present within the sward included abundant cock's foot, creeping buttercup & creeping bent, frequent false oat-grass, Yorkshire fog, ribwort plantain, creeping thistle, common sorrel & white clover and occasional common mouse-ear, meadow buttercup, common ragwort, sweet vernal grass, red clover, birds foot trefoil and smooth meadow grass.
- 5.21 The relatively species-rich assemblage with Field 1, which shares a species composition and functionality with the adjacent WS, is collectively of county-level importance, given the scarcity of species-rich grasslands within the Wales and the UK as a whole. The less species-rich grassland within Field 2 was considered to be of local importance.

#### Poor Semi-Improved Grassland (Plates 10 & 11)

- 5.22 An area of poor semi-improved improved grassland was present within Field 3, in the south-west of the site. As per the other grasslands, this area was managed via low-intensity cattle grazing, though had a moderate length sward with abundant ruderal herbs/injurious weeds present throughout. Species within the grassland included abundant creeping buttercup, creeping thistle and cock's-foot, with frequent common

ragwort, white clover & false oat-grass and occasional bramble, broadleaved dock, meadow buttercup, ribwort plantain, common sorrel, creeping bent, Yorkshire fog, perennial rye-grass and common chickweed.

- 5.23 Unlike the semi-improved grassland fields - given the poor botanical species assemblage within the poor semi-improved grassland - this habitat is considered to be of site level ecological importance.

WS Woodland Area on Site – Alder Woodland (Plate 12)

- 5.24 A small area of woodland was present along the western boundary of the site, which comprised of alder dominant wet woodland which forms part of the Caeau Abermorddu WS. A stream was present within the eastern edge of this habitat, with other areas evidently wet underfoot and small flushes present which joined the stream. The alder appeared likely to have been subject to past coppicing, with shrub species consisting of occasional elder & individual ash saplings and a ground flora which included abundant creeping buttercup, frequent fern species, herb Robert, watercress, bramble & common nettle and occasional ground elder, mosses, marsh thistle, meadowsweet, ground ivy, ivy, liverwort species and bittersweet. Individuals of sedge species (possibly pill-sedge - *Carex pilulifera*), gypsywort and water figwort were also present.
- 5.25 As a constituent part of the Caeau Abermorddu WS, the alder woodland is considered to be of county-level ecological importance.

Woodland Belt around Field 1 – Broadleaved Mixed Deciduous Woodland (Plate 13 - 15)

- 5.26 Field 1 was ringed by a belt of woodland around the majority of its northern and eastern sides, extending outside the site into the adjacent LWS. The woodland appeared to be self-sown and was predominantly of a juvenile-early mature age structure, with occasional more mature trees outside the site which overhung onto it. Tree and shrub species within the woodland comprised abundant coppiced hazel, with frequent elder, common willow & alder, with occasional common hawthorn and holly. Ground flora species within the woodland included mosses, fern species, herb Robert, wood avens, ground ivy, creeping buttercup, bramble, red campion, common chickweed and common nettle.
- 5.27 A shallow dry ditch was present within the south-western part of the woodland (/D1). A dry stone wall was also present along the western site boundary which was obscured by the woodland and was sunken into the bank in places and largely in a poor state of repair (see TN5/Plate 6).
- 5.28 The woodland is likely to qualify as deciduous woodland priority habitat and is functionally linked to the adjacent WS, and was therefore considered to be of local ecological importance.

Bramble Scrub (Plates 16-18)

- 5.29 Dense/continuous bramble scrub was present on field edges across the site; particularly around the east and western borders of Field 1 (between the grassland and tree belt), on the northern and eastern borders of Field 2, and to the south of the ditch in Field 3.



The bramble scrub formed a belt on average 5m wide, though was notably wider along the eastern edge of Field 1. The scrub was dominated by bramble, with frequent common nettle present and occasional creeping thistle, willowherb species and meadowsweet – particularly in wetter areas in the north-east of Field 1. Scattered alder and willow trees were also occasionally present within the scrub.

- 5.30 Due to its extensive and well connected cover, which is likely to present foraging and shelter for several species on site, the bramble scrub is considered to be of local-level ecological importance.

#### WS Scrub Area on Site – Blackthorn Scrub (Plates 19 & 20)

- 5.31 An area of scrub was present within the north of Field 3 (north of ditch D2), which forms part of the Caeau Abermorddu WS. The southern face of the scrub was very dense, but became less so toward the northern boundary. Woody species comprised primarily of blackthorn, though elder was also frequent and occasional ash saplings and willow species were present. Abundant creeping buttercup was present within the ground flora, with herb Robert, wood avens, ground ivy, red campion and common nettle also present. Bracken was also present within the ground flora, though predominantly within the western edge of the scrub where it adjoined open bracken habitat.

- 5.32 As a constituent part of the Caeau Abermorddu WS, the mixed scrub is of county-level ecological importance.

#### WS Bracken Area on Site – Bracken (Plate 21)

- 5.33 An area of bracken was present within the north-east of Field 3. This area forms part of the Caeau Abermorddu WS, however, unlike other WS habitats on site, this area was not described within the Wildlife Site description provided by Cofnod, and is not listed as a reason for the WS designation. Bracken was the dominant species within this habitat, with frequent common nettle and Yorkshire fog and occasional creeping thistle and broadleaved dock present. As typifies most bracken habitats, this area was of low botanical diversity.

- 5.34 Though within the WS area, the bracken scrub does not contribute positively toward the WS designation as it of low diversity and provides few opportunities for faunal species within the locality. As such it is considered to be of site level ecological importance only.

#### Watercourses & Ditches (Plates 15 & 22-26)

- 5.35 A stream and two ditches were present within the site, as described below.

- 5.36 The stream (Plates 22 - 24) enters the site from the north-west; appearing to drain from an off-site pond (Pond 1) to the west, through the adjacent Caeau Abermorddu WS and then onto site. The course of the stream skirts the east side of the alder woodland, and is thereafter under tree cover under treeline TL01, before exiting site in the south-west via a concrete culvert. The watercourse had a low/moderate flow, an average depth of 5cm, an average width of 50cm and water quality appeared to be of good. The substrate of the watercourse was predominantly formed of silt and mud, though it was slightly stonier in its north-west extent as it skirted the alder woodland. Aquatic and marginal

vegetation was infrequent, and primarily concentrated in more open areas, with species largely restricted to fool's water-cress and brooklime.

- 5.37 Though predominantly lacking vegetation and shallow, the stream does provide a source of running water, a commuting corridor and a possible habitat for invertebrates and as such is considered to be of local-level ecological importance.
- 5.38 Ditch 1 (see Plate 15/D1) was present within the south-western part of the broadleaved woodland belt, and consisted of a dry ditch which was largely devoid of vegetation and had a bottom comprised mostly of leaf litter.
- 5.39 Ditch 2 (see Plates 25 & 26/D2) was present within Field 3, effectively splitting the field into two parts along a diagonal line. The ditch enters the site from the western corner of the field, before joining with the stream just outside the site beyond the north-east corner of Field 3. It was predominantly dry, though damper toward its north-eastern end, indicating it only flows during high/prolonged rainfall events. As it remains mostly dry, the base of the ditch was occupied by vegetation from surrounding habitats i.e. the poor semi-improved grassland, bramble scrub and bracken. The ditch is considered to be of low ecological value.

#### Treelines and Hedgerows (Plates 27-34)

- 5.40 Two treelines and four hedgerows were present on site, as described below:
- Treeline 1 (TL01 – Plates 27 & 28) – TL01 surrounded the stream within the south of the site, dividing Fields 1 & 2, with a small section within the north-east corner of Field 3. It is considered likely that the treeline comprised a lapsed single or double hedgerow, which has since been allowed to grow taller and has expanded outward through natural regeneration. Consequently, the average width of the treeline was approximately 10m. Formerly coppiced hazel was the dominant tree species, with holly frequent & occasional hawthorn and scattered individuals of ash, elder, sycamore and blackthorn also present. Many areas which were bare of vegetation were present beneath the canopy, with species within vegetated areas including common nettle, annual meadow-grass, creeping buttercup and ivy. Overall the treeline was considered to be species-poor.
  - Treeline 2 (TL02 – Plate 29) – TL02 was present on the south-west border of the site and was set at the top of a bank. It was also considered likely that this treeline consisted of a lapsed hedgerow, and several shrubs were still currently present, as well as several large gaps. The average width of shrubs was only 2m, but the canopy cover of the trees was much wider. Tree species consisted primarily of ash, though elm was also frequently present. Shrub species consisted of frequent holly and hazel and occasional hawthorn, dog rose and elder. Ground flora beneath the treeline was fairly diverse, with abundant herb Robert, frequent wood avens, occasional bramble, ivy, fern species, cleavers, nettles & red campion, and scattered individuals of greater stitchwort, foxglove and violet species. As it is situated on the south-west border of the site, this treeline may be considered to be also part of the adjacent Caeau Abermorddu WS (though it is not mentioned within the WS description provided by Cofnod).

- Hedgerow 1 (H1 – Plate 30) – H1 comprised a species-poor roadside hedgerow along the eastern boundary of Field 1, which was largely intact and buffered by bramble scrub along its western side. Occasional trees were present and the hedgerow appeared to be managed by flailing on a regular basis, with an average height of 3m and average width of 2.5m. Tree species within the hedgerow consisted of individuals of pedunculate oak and bay willow. Hazel comprised the dominant species, with occasional hawthorn, holly and elder and individuals scattered individuals of elm present. The ground flora consisted of abundant ivy, with frequent nettles & ground elder, occasional cow parsley, herb Robert & common hogweed and individuals of bramble, bindweed & horsetail.
- Hedgerow 2 (H2 – Plate 31) – H2 was present along the southern border of Fields 1 & 2, though mostly within the adjacent school grounds to the south, with trees regularly present. The hedgerow was species-rich with a species-composition not thought typical to the area, and was considered likely to have been relatively recently planted (within the past 30 years). It was not closely managed and several of the shrubs present were on the verge of becoming juvenile trees. It had an average height of 7m and an average width of 4.5m. Tree species present included poplar species and ash. Shrub species included frequent wild cherry, guelder rose & hazel, with occasional holly and scattered individuals of rowan, hawthorn, lime, bird cherry, field rose and buckthorn. Ground flora was fairly sparse, with frequent common nettle and ivy and occasional bramble, ground elder and ground ivy.
- Hedgerow 3 (H3 – Plate 32) – H3 was present between Fields 2 & 3 and consisted of a species-poor hedgerow with trees, which was partially defunct. The hedgerow was not subject to intensive management, and had an average height of 5m and an average width of 3.5m. Tree species within the hedgerow consisted predominantly of ash with an individual field maple. Shrub species were dominated by hazel, with frequent elm, elder & hawthorn and individuals of buckthorn and rose species. The ground flora was dominated by nettles, with frequent cleavers and ivy, occasional lesser burdock, red campion, ground ivy, bramble & broadleaved dock and scattered individuals of black nightshade, forget-me-not species and lesser stitchwort.
- Hedgerow 4 (H4 – Plates 33 & 34) – H4 was present on the north-west boundary of Field 3 on a bank, adjacent to the bracken habitat. It was species-poor, with several large gaps were present rendering this hedgerow defunct, and occasional trees also present. The hedgerow had an average height of 4m and an average width of 4m. Tree species within the hedgerow consisted of individual field maple and sycamore trees. The hedgerow was dominated by coppiced hazel, with frequent holly, occasional elm and hawthorn and small amounts of both standing and fallen deadwood. The ground flora was dominated by herb Robert, with abundant ivy, frequent common nettle & wood avens, occasional fern species, red campion & mosses and small patches of ground elder, cleavers and wood sorrel. This hedgerow is present within the Caeau Abermorddu WS and may therefore be potentially considered part of the WS (though it is not mentioned within the WS description provided by Cofnod).

5.41 Due to its diversity of woody species, it is concluded that Hedgerow H2 could potentially qualify as Important under the Wildlife and Landscape criteria of the Hedgerow

Regulations, 1997. Due to its diversity of woody species and associated features including a bank, presence of standard trees, woodland species and adjacent footpath, Treeline TL02 could also potentially qualify as important under the hedgerow regulations. Therefore, a detailed hedgerow assessment will be required if these hedgerows/treelines are to be affected by the proposed development.

- 5.42 All other hedgerows and treelines are unlikely to qualify as Important under the Wildlife and Landscape criteria of the Hedgerow Regulations, 1997 because of their lack of woody species and associated features. It should however be noted that hedgerows over thirty years old can be protected by the Regulations for a number of other factors such as historical and archaeological interest. It is not the place of this ecological report to assess such other factors.
- 5.43 A hedgerow assessment differs from the phase 1 hedgerow classification as it is far more detailed. It assesses each 30m stretch of hedgerow, looking at species diversity, associated features and management regimes. Even if the further surveys determine that the hedgerows are not ecologically important (under the Regulations), it is recommended that they be retained wherever possible.
- 5.44 Hedgerows comprising 80% or more of locally native woody species qualify as Priority habitat and those which meet certain criteria are protected under the Hedgerow Regulations 1997. As all hedgerows and treelines on site comprise over 80% of locally native woody species, they therefore qualify as Priority habitat.
- 5.45 Hedgerows and treelines on site are considered to be of at least local-level ecological importance, providing habitat corridors across the site as well as a foraging resource for various species.

### **Features of Ecological Importance**

- 5.46 The following features were considered to be of ecological importance at the site level or higher:
- WS woodland Area on Site – Alder Woodland – County Importance
  - WS Scrub Area on Site – Blackthorn Scrub – County Importance
  - Neutral Semi-Improved Grassland – Field 1 – County Importance
  - Semi-Improved Grassland – Field 2 – Local Importance
  - Bramble Scrub – Local Importance
  - Broadleaved Mixed Deciduous Woodland – Local Importance
  - Treelines & Hedgerows – of at least Local Importance
  - Watercourse: Stream – Local Importance
  - Poor Semi-Improved Grassland – Field 3 – Site Importance
  - Bracken Habitat – Site Importance
  - Watercourse: Ditches (D01 & D02) – Site Importance
- 5.47 Although not all above habitats are necessarily afforded legal protection, it is recommended that where practicable, the above features of ecological importance should be retained and sufficiently protected during development works.

- 5.48 It is also recommended that, as the survey was undertaken in October outside the optimal period for botanical assessment, that the site be subject to further botanical assessment during optimal survey timing (June-July), in order to fully and accurately assess the species assemblages present.

### **Impacts on Habitats of Proposed Development**

- 5.49 The site layout plan (refer to Appendix F) shows that all WS areas on & adjacent to site (including the alder woodland, blackthorn scrub & bracken) are to be retained and remain undeveloped, with a buffer of a minimum of 10m shown to the WS areas within Field 1 proposed for development, and no development to take place within Field 3, and plans for Field 2 to comprise public open space, a drainage basin and a footpath connection to the play park to the south of Field 3. The entirety of the woodland belt around Field 1 (with the exception of a single small tree) is also to be retained, in turn acting as a buffer to the adjacent WS. Impacts on these habitats may however still be possible, and as per the recommendations of the statutory sites section, it is recommended that a CEMP be instated for the site, the WS fenced off and a minimum of a 10m buffer be maintained from the developed area; this buffer to comprise of retained grassland and scrub in this location and be subject to a habitat management plan to ensure it remains in favourable condition.
- 5.50 The site layout plan (Appendix F) & Tree Survey Plan also shows that treeline TL02 and hedgerows H2 & H4 are to be retained in their entirety, which is also recommended by this report. Treeline TL01 is however shown to be cut back on its south-east extent to allow space for the gardens of proposed dwellings. Sections of H1 are also to be lost to allow for road and pedestrian access from Wrexham Road. Due to their proximity to highways, internal roads and gardens, H1 and sections of TL01 are also likely to be closely managed to maintain their aesthetic appeal, though it must be noted that H1 is already quite closely managed. It is also likely that a small section of H3 would have to be removed to accommodate the footpath to the playground within the south of Field 3. In the case of TL01, sufficient space for replacement planting does appear to be present directly due to the west of areas to be lost (across the stream), which if planted with similar species would maintain the width and therefore commuting value of this treeline once established. Ample opportunity currently exists to 'gap up' retained hedges on site; many of which are at least partially defunct and species-poor. The 'gapping up' of existing hedgerows on site with native species would improve their connectivity, diversity and overall value to wildlife, and likely mitigate for the sections lost within TL01, H1 & H3. It is recommended that any gapping up/new hedgerow planting associated with the proposed development should contain a minimum of five of the following species: Common hawthorn (*Crataegus monogyna*), field maple (*Acer campestre*), alder (*Alnus glutinosa*), hazel (*Corylus avellana*), crab apple (*Malus sylvestris*), field rose (*Rosa arvensis*) wild cherry (*Prunus avium*), holly (*Ilex aquifolium*), crab apple (*Malus sylvestris*) and guelder rose (*Viburnum opulus*). Sympathetic management of hedgerows and treelines is also recommended to maximise their value, cutting no more than 1/3 of each hedgerow/treeline each year, where this is possible.

- 5.51 Current plans appear to show that the stream that runs through the site will not be affected by development, though it does not explicitly mention it. It is recommended that the stream be retained within its current channel and not subject to any engineering which would alter its character or change its course. Furthermore, it is recommended that run-off from built areas such as housing and roads not be allowed to enter the stream – the methodology for which should be contained within the site drainage plans and a CEMP, as recommended within the statutory site section. Opportunity also exists to improve the diversity of aquatic and marginal flora of the stream by allowing further light to the watercourse, which could be done via crown lifting along the south-west border of TL01, or the coppicing of hazels (as has been previous practice on within this treeline).
- 5.52 Though it is not due to be developed, some areas of semi-improved grassland within Field 2 would be lost due to the excavation of an attenuation basin and a footpath link to a nearby playground. It is therefore recommended that as much of the existing vegetation within Field 2 be retained and sufficiently protected as possible. Practices to increase the diversity and therefore value of this habitat are also recommended, this to be accomplished by management of all areas (where possible) as a hay meadow (light cattle grazing which is currently beneficial will likely cease once the site is developed). Earlier soil sample analysis of this field (see Soil Analysis Report, CES, 2022) revealed low levels of phosphorus and relatively low levels of potassium, indicating that management as meadow would stand a good chance of success. Mown grass pathways could be maintained through the meadow to maintain access and promote use of the area as public open space. Opportunity also exists to design the attenuation basin in a way be of value to wildlife. This can include an area of permanent water (at least 0.5m below any drainage points) and seeding/planting with native aquatic and marginal plants. These measures would provide further habitats on site and maximise the value of the semi-improved grassland; and would be considered likely to mitigate for those areas lost.
- 5.53 Inarguably, the largest impact of site proposals is the almost complete loss of the neutral semi-improved grassland within Field 1, with the exception of small areas on the northern and eastern site boundary which would form part of the buffer to the adjacent WS. Loss of this habitat would mean the loss of a grassland of considerable diversity, the species within it (including waxcap mushrooms and other fungi) and a complimentary habitat to the adjacent WS. It is therefore recommended that this habitat be sought to be retained if it all possible, particularly the north of the habitat which is more species-diverse. This could include either reducing housing units or moving some of the development into Field 2, although it is acknowledged these may not be viable options due to budgetary viability or the need for public open space areas. Nevertheless, such options should be considered to demonstrate that the mitigation hierarchy has been followed.
- 5.54 If the grassland cannot be retained in-situ, then consideration could be given to its translocation to a currently species-poor area which shares underlying soil characteristics. As such Fields 2 & 3 were subject to soil analysis (see Soil Analysis Report, CES, 2022). The analysis found Fields 2 & 3 to be low in nutrients and neutral, but underlying soil conditions were not thought to be suitable for the translocation – Field



2 was predominantly level and dry (despite being beside a stream) and Field 3 was sloping but also largely dry and therefore likely to be free draining, whereas Field 1 is sloping and evidently retains water. It is however possible that wetter areas could be created within Field 2 through bunding of the stream to create seepages, or that a suitable translocation site could be found outside the site, of which the local authority may have information.

5.55 In accordance with the mitigation hierarchy; if the grassland cannot feasibly be retained, translocated or mitigated for, its loss must be therefore as a last resort be compensated for. In this situation, all retained areas of the grassland should be subject to a management plan to keep these areas in favourable condition. The provision of compensatory and enhanced retained habitats should seek to buffer and provide complementary habitats to the WS located to the west, and should include grassland habitats (as the main overall habitat type to be lost). Areas suitable for the provision of new habitats would comprise those within Field 2 & 3, and could include meadow grassland areas, scrub (to expand the existing scrub within the WS – potentially within the bracken area), hedgerows and woodland – all of which are also present within the WS (with the possible exception of hedgerows). The Soil Analysis Report (CES, 2022), indicated that nutrient levels within these fields are low, meaning that the creation of species-rich habitats and particularly meadow habitats is considered practical. Selective translocation could also be utilised for species within the semi-improved grassland which are of ecological value but are tolerant of a wide range of soil types, which would include the majority of plants within the species list (see Section D), excluding wet grassland specialists such as marsh thistle, sedge and rush species.

5.56 The above measures should be detailed within a Habitat Creation and Management Plan. A CEMP is also recommended to avoid impacts of construction and operation of the proposed development site on sensitive habitats. It is considered that the local planning authority would require such plans to assess the developments effects in regard to local and national planning policy pertaining to nature conservation and planning.

### **Protected & Notable Species**

5.57 The habitat composition of the site has potential to support legally protected and Priority wildlife species. It was not within the scope of this survey to carry out detailed searches for protected species, although the potential for the study site to support the following species is discussed below:

- Badger
- Barn owl
- Bats
- Birds
- Brown hare
- Great crested newt and other amphibians
- Hedgehog
- Invasive species
- Invertebrates

- Notable/Protected Flora - Bluebells
- Polecat
- Reptiles
- Water vole

Legislation relating to each species discussed in this report is presented in Appendix E – Legislation. No other legally protected species are considered likely to be associated with the proposed development site due to a lack of suitable habitat on, and surrounding the site.

#### Badger

- 5.58 Badgers and their setts are protected under British law. Therefore, surveys are required to check for the presence of badgers or their setts if they are likely to be disturbed for any reason. Statutory guidance indicates that a licence may be required if potentially disturbing works are to take place within 30m of a badger sett.
- 5.59 Cofnod provided details of badgers occurring within 2km of the proposed development site since 2001, which included records of setts, though none of the records were located on site or immediately adjacent to it. No signs of badger were found on site or within 30m during surveys by Kingdom Ecology during surveys in 2016 & 2019.
- 5.60 At the time of the survey, no setts or evidence of badger such as latrines, hairs or snuffle holes were recorded on site. A full 30m buffer around the site could not be surveyed however due to a lack of access permission. Habitats within 30m include marshy grassland and woodland on banked ground; presenting suitable habitats for foraging and sett building respectively.
- 5.61 It is therefore recommended that a badger survey be undertaken of the site and all habitats within 30m, to search for the possible presence of badger setts. Access permission should be sought to the adjacent WS particularly, given the evident suitability of this area for badger sett building. The survey should take place in winter, ideally December or January, when the vegetation is at its lowest and field signs are more easily identified.

#### Barn owl

- 5.62 Barn owls receive special protection under Schedule 1 of the Wildlife & Countryside Act, 1981 (as amended). In addition to the protection afforded to all wild birds under Section 1 of the Act, species listed on Schedule 1 also receive special legal protection when breeding; making it an offence to intentionally or recklessly disturb any wild barn owl whilst it is at or near a nest containing eggs or young, or disturb the dependent young of such a bird. Barn owls nest and roost in buildings and within deep cavities in trees, and will readily utilise nest boxes where available.
- 5.63 Cofnod provided details of barn owl occurring within around 2km of the site since 2001. No note of barn owls was made in the Kingdom Ecology, with the exception of returned records within the data search.
- 5.64 Foraging habitats on site are considered suitable for barn owl, albeit restricted in extent, i.e. where the grassland is tussocky or of moderate length and so suitable to support



small mammal populations. Nevertheless, given that the home range of individual barn owls typically extends 3-5km from the roost sites, (Shawyer 2011) the site is therefore considered unlikely constitute an important foraging resource for the local barn owl population.

- 5.65 All trees on site to be lost were assessed for their potential to support roosting or nesting barn owl. A single ash tree (refer to TN5, Plate 6/T3 in Appendix G) within the south of TL01 was found to potentially be suitable for roosting/nesting barn owl, which is due to be lost to development. The tree was suffering from significant heartwood decay, with several suitable entrance points and potential large cavities within the decay feature. No signs of barn owl presence such as pellets or droppings were observed around the tree, however that in not necessarily indicative of barn owl absence.
- 5.66 It is therefore recommended that the tree be inspected by a suitably experienced ecologist for any presence or past presence of barn owls, to determine if the tree is used (or suitable to be used) by barn owls for roosting or nesting. Should no signs of barn owl be observed during this survey, a further pre-commencement check for barn owl should be conducted prior to the consented felling of the tree.

#### Bats

- 5.67 All British bat species are protected under British law. Therefore, surveys are required to check for their presence in areas where bats or their roosts are likely to be disturbed for any reason.
- 5.68 Bats roost in buildings and mature trees, where they rest, give birth, raise young and hibernate. Buildings provide a choice of safe, dry places and can present a whole range of potential roost sites such as within wall cavities, eaves or roofs.
- 5.69 Some bat species rely exclusively on trees for roost sites; others use them for only part of the year. The importance of trees to bats depends on species, season and foraging behaviour. Even in winter, deep cavities can provide protection against bad weather and fluctuations in temperature. Furthermore, trees and hedgerows, especially native ones, can host many species of insects, which are food for bats, and can also aid bat navigation.
- 5.70 Cofnod provided details of several bat species occurring within around 2km of site since 2001, including Myotis bat species, Daubenton's, noctule, common pipistrelle, soprano pipistrelle & brown long-eared bat and an unknown bat. No records of roosts were returned either on or adjacent to the site.
- 5.71 Kingdom Ecology have previously conducted surveys at the site in regards to bats in 2016 and 2019. Trees on site were assessed for their potential to support roosting bats in 2016, finding T3 (an ash) to be of moderate bat roost suitability, a dead tree within G7 (a dead alder) to be of high bat roost suitability & T6 (an ash) to be of low bat roost suitability. Of these, the tree within G7 and tree T6 are to be retained (see Appendix H), with T3 to be (presently) lost. Bat activity surveys were also carried out in 2016, with surveys undertaken out in April, May & June. No roosts were identified during the bat activity surveys, and the site was identified to support low-moderate levels of bat activity,

with common pipistrelle, soprano pipistrelle, noctule and whiskered bat identified during the surveys.

### *Buildings*

- 5.72 There are no buildings on site, and no buildings on adjacent land are expected to be impacted as a result of development at the site.

### *Trees*

- 5.73 During the 2021 PEA, all trees on site which were identified to be lost or otherwise impacted as a result of the development were assessed for their potential to support roosting bats. Trees which were not due to be lost/affected have not been assessed, and therefore should further tree loss be required beyond that set out in Appendix G, further assessment for features that may support roosting bats will be required.
- 5.74 Of the trees identified to be lost/affected, a single mature ash tree only (refer to TN6/Plate 7/T3 in Appendix G) was found to offer bat roost potential; considered to be of Moderate bat roost potential.
- 5.75 The heartwood of T3 was rotten and exposed on the southern side, with multiple holes within the heartwood and callus rolls on the outside of the wound which represent potentially suitable features for roosting bats. T3 is proposed to be lost to facilitate the development (see Appendix G).
- 5.76 Due to the heartwood rot, the tree is considered unsafe to be subject to aerial surveys, though the suitable features are likely able to be accessed using a short ladder from ground level. It is therefore recommended that T3 be subject to further assessment, using a ladder and endoscope, from ground level. As the use of endoscopes for bat survey is a licensable activity, a licensed bat ecologist will be required to conduct the assessment. Should the features not be able to be fully inspected, or evidence of bats is found, bat emergence/re-entry surveys would be required in the active season (Mid-May-September).
- 5.77 It is also recommended that features suitable for roosting bats be incorporated into new buildings within the site, to provide further roosting opportunities for bat species on site, in line with local and national planning policy.

### *Linear features*

- 5.78 The hedgerows, treelines, woodland edge and bramble scrub form linear features across the site, providing suitable foraging and commuting opportunities for bats. As detailed within the habitats discussion section, though the entirety of the woodland and the majority of hedgerows and treelines are to be retained, several sections of H1 lost and TL01 trimmed back. All bramble scrub is also expected to be lost to accommodate the development. In addition to this, retained hedgerows around field 1 are expected to be more closely maintained and will likely be subject to additional light spill, as a result of the development.

- 5.79 Kingdom Ecology previously conducted bat activity surveys of the site in 2016 (Kingdom Ecology, 2016). The surveys found four bat species in total using the site (comprising common and soprano pipistrelle, noctule and whiskered bat), with the site considered to support a bat assemblage of 'local' value. Habitats along the northern and western boundary of the site were considered to be of the greatest value to local bat populations, and grassland habitats were likely to present a seasonal food source of emerging beetle larvae to noctule bats.
- 5.80 It is recommended that all hedgerows, treelines, woodland and scrub be retained where possible, in order to maintain connectivity around the site, linking up areas of foraging and commuting habitat in the wider area.
- 5.81 If it is not possible to retain and protect these features (as is likely to accommodate the site layout), and as the previous survey data is over five years old and grassland and scrub habitats have continued to increase in value to bats, then bat activity surveys will likely be required in order to ascertain the impacts of the proposed loss/proximity of new houses of these linear features may have on bats.
- 5.82 It is also recommended that a bat friendly lighting scheme be implemented for the site. Any lighting of the proposed development site should be kept to a minimum, and every effort should be made to reduce light spillage onto hedgerows, treelines, woodland and scrub.

#### Birds

- 5.83 All species of wild bird, their nests and eggs are protected under Section 1 of the Wildlife and Countryside Act, 1981 (as amended). Therefore, surveys are required to check for their presence where they are likely to be disturbed for any reason.
- 5.84 Cofnod provided numerous records of priority and protected bird species occurring within the search area since 2001; the species listed within the data search comprising those that may utilise habitats on the site.
- 5.85 Kingdom Ecology previously carried out breeding bird surveys of the site in 2019, comprising eight surveys between March & May 2019 (Kingdom Ecology, 2019). The surveys found the site to support a moderately diverse assemblage of relatively common bird species which are likely to breed on site, though this did include Priority species such as house sparrow, starling and dunnock; house sparrow and starling also being red list bird species of conservation concern (Birds of Conservation Concern 5), with dunnock present on the amber list. Habitats of greatest value were considered to be the scrub, woodland and hedgerow habitats on the site's boundaries.
- 5.86 The hedgerows, treelines and both bramble and blackthorn scrub present suitable nesting, shelter and foraging habitats for a range of common passerines such as meadow pipit, yellowhammer and song thrush. The wet woodland and woodland belt around the site (given its proximity to wet woodland and other wetland habitats within Caeau Abermorddu WS) are considered to present suitable nesting, shelter and foraging habitats for species such as marsh tit and reed bunting.

- 5.87 The site layout (see Appendix F) and tree loss plan (see Appendix G) indicate that all woodland areas on site are to be retained with the exception of a single small tree. The blackthorn scrub on site will also be entirely retained. Areas of treeline TL01/G6 in the south of the site will however be trimmed back with a single ash lost (T3), and though the majority of hedgerows will be retained, several sections of hedgerow H1 are to be lost in order to accommodate site access, as well as likely a small section of H3 to allow footpath access to the local playground. Hedgerows H1 and sections of hedgerow H2 and treeline TL01 are also likely to be brought under closer management due to their proximity to new residential gardens. Most notably however, all areas of bramble scrub within Field 1 are to be lost, and it is likely that significant areas of bramble scrub within Field 2 will also be lost to accommodate an attenuation basin. Bramble scrub provides nesting, shelter and foraging and covers a significant area of the site – over 0.4 Ha of which is likely to be lost within Fields 1 & 2.
- 5.88 Due to the loss of a significant area of scrub as well as sections of hedgerows and treelines on site (as well as likely closer management), impacts on local breeding bird populations are considered possible. Though breeding bird surveys have been undertaken previously, the survey data is over 2 years old and is therefore considered to be out of date, particularly given the further colonisation of scrub on site since the surveys were carried out. It is therefore recommended that breeding bird surveys be undertaken at the site to determine the likely scale of impact and identify requirements for mitigation or compensation.
- 5.89 All woody vegetation on site has the potential to support nesting birds. Retention of scrub, hedgerows and treelines would help reduce the potential development impacts on breeding birds and every effort should be made to retain these features. The site is not thought likely to support ground nesting species such as skylark, however, breeding bird surveys would confirm this.
- 5.90 It is recommended that all site preparation works, including vegetation removal and building demolition, be conducted between September and February (i.e. outside of the ‘core’ nesting bird season, which generally encompasses March to August inclusive). If this is not possible and works are required to be conducted during the ‘core’ bird nesting season, CES should be contacted and a nesting bird survey be conducted prior to any potentially disturbing works taking place. In the event that nesting birds are found to be present, an appropriate mitigation strategy should be formulated and implemented.
- 5.91 It is also acknowledged that birds may nest outside the ‘core’ nesting bird season, and as such, due diligence must be shown by site staff or contractors when undertaking vegetation clearance activities outside this time. Should a nest be suspected, vegetation clearance works should cease and CES contacted for advice.
- 5.92 In addition, a scheme for the provision of bird nesting features should be formulated, with features provided either on existing retained trees or integrated into new buildings to provide additional nesting features. Earlier recommendations in regards to ‘gapping up’ and increasing the species diversity of hedgerows on site would also help to mitigate lost foraging and nesting opportunities as a result of development.

### Brown hare

- 5.93 Brown hare is a Local and UK BAP Priority species, and listed on Section 7 of the Environment Wales Act.
- 5.94 Brown hares are associated with farmland habitats, such as those found at the site, where they feed on grass shoots and utilise areas of tall vegetation for cover.
- 5.95 Cofnod provided details of brown hare occurring within around 2km of the proposed development site since 2001.
- 5.96 As the site contains both grassland and nearby scrubby shelter habitats suitable for hare, it is therefore recommended that any work which has potential to disturb leverets (young brown hares) be conducted outside of the brown hare breeding season; which generally encompasses February to August. If this is not practicable, it is recommended that the site be made unsuitable for breeding brown hares before February. The grass on site should be cut or grazed to a short sward height (<10cm) and maintained at this level until consented development works begin. This should deter brown hares from breeding on the site.
- 5.97 If brown hares or leverets are discovered during development works, CES should be contacted for advice. No further survey effort in respect of this species is considered necessary.

### Great crested newt (GCN) and other amphibians

- 5.98 GCN are protected under British law. Adult GCN predominantly live terrestrially, but utilise ponds for breeding purposes during the spring and summer months. Statutory guidance indicates that a survey may be necessary to check for the presence of GCN if background information on distribution suggests that they may be present. Detailed indicators include:
- Any historical records for GCN on the site, or in the general area
  - A pond on or near the site (within around 500m), even if it holds water only seasonally. Note that muddy, cattle-poached, heavily vegetated or shady ponds, ditches and temporary flooded hollows can be used by GCN
  - Sites with refuges (such as piles of logs or rubble), grassland, scrub, woodland or hedgerows within 500m of a pond
- 5.99 Though they can range 500m from the nearest pond, the terrestrial range of GCN from their breeding ponds is typically contained to within 250m.
- 5.100 Cofnod provided details of GCN occurring within 1km of the proposed development site, with one record returned within 500m of the site, comprising a single adult near a pond approximately 75m west of the site (Pond 1), in 2009.
- 5.101 There are no ponds on site and the three waterbodies on site are considered unsuitable for GCN; as the stream had a consistent flow and the two ditches were dry at the time of survey, and considered likely to remain dry apart from during high rainfall events.

5.102 OS mapping highlighted the presence of two ponds within 250m of the site; namely Pond 1 (~75m) & Pond A (~250m) and a further two ponds, namely (Ponds B & C) within 250m to 500m of the proposed development site boundary (refer to Appendix A). A review of OS and aerial mapping indicated that Pond 1 & Pond A may be suitable for GCN breeding. The review also indicated that Ponds B & C may be suitable for GCN breeding. Ponds A, B & C are however separated from the site by the A541 and an extensive area of residential housing comprising the majority of the village of Abermorddu; which are considered significant barriers to amphibian dispersal. OS mapping indicated that all other waterbodies within 500m of the site (which included the River Alyn) were flowing, and therefore unlikely to support GCN breeding. Pond 1 is however within 250m of the site, with connecting habitats including woodland and no observed barriers to dispersal. With regard to GCN, Pond 1 is considered to be the only waterbody requiring consideration; the site proposals would not likely impact upon any other GCN populations centred at other ponds.

5.103 The site contains suitable foraging, shelter and dispersal habitat for GCN within hedgerows, treelines, scrub, woodland and grassland. When development activities commence, the storage of materials and movement of spoil is also likely to create further suitable shelter opportunities for GCN/amphibians, where they could take refuge and be harmed as a consequence of construction works.

5.104 Kingdom Ecology previously conducted a presence/absence survey for GCN of Pond 1 in 2016, comprising egg searches, torch counts, bottle trapping as well as an environmental DNA (eDNA) survey (Kingdom Ecology, 2016). The GCN presence/absence surveys found no evidence of GCN (though common toad were observed to be breeding within the pond), and the eDNA survey returned a negative result, and therefore likely absence was concluded at this time.

5.105 As over five years have elapsed since the previous GCN surveys of Pond 1 and habitats on site remain suitable for terrestrial GCN, it is recommended that an updated GCN survey of Pond 1 be conducted. The pond should first be visited to establish if it remains extant and assess its suitability. Following this, in order to establish presence or likely absence of GCN, it is recommended that an eDNA water sampling survey be undertaken of the pond. eDNA surveys consist of a single visit whereby water samples are taken from the pond by a trained, experienced and licensed ecologist in strict accordance with sampling protocol. Water samples are then sent off to an approved laboratory for environmental DNA analysis. This type of survey may only be carried out between mid-April and June (inclusive).

5.106 Should a positive result be returned confirming the presence of GCN in the pond, then a full GCN survey involving population size-class assessment will likely be required, consisting of funnel trapping, hand netting, torch survey and/or egg search on six survey visits. The findings of such survey would inform the mitigation requirements, which may be licensable. If GCN are found to remain absent from Pond 1 (i.e. a Negative eDNA result is again returned), then licensed GCN mitigation will not be required.

5.107 Common toad is a UK BAP Priority species and are listed under Section 7 of the Environment Wales Act. As breeding toads were identified within the pond within



previous surveys, this species is likely to be present on site. The forthcoming GCN survey report should therefore include a scheme of reasonable avoidance measures for the protection of common toad (and other common amphibians) should GCN be found to be absent.

#### Hedgehog

5.108 Hedgehogs are a UK BAP Priority species and listed on Section 7 of the Environment Wales Act. Hedgehogs favour mosaic habitats such as scrub, woodland edges and mature gardens, where they can forage amongst short vegetation and shelter in dense scrub and amongst cover objects.

5.109 Cofnod provided details of hedgehog occurring within approximately 1km of the proposed development site since 2001.

5.110 Habitats on site were considered to offer hedgehog with suitable foraging and shelter habitat, most notably within the woodland, scrub and hedgerow habitats. Development at the site has the potential to impact upon hedgehogs, therefore it is recommended that all woody and scrub vegetation (standing or fallen) to be affected by the works be removed by hand prior to any potentially disturbing works taking place. These measures should be sufficient in discouraging and/or displacing hedgehogs from the working areas. Upon completion of the development, it is also recommended that hedgehogs be able to gain access to the gardens through a series of holes/gaps if close-panel fencing or walls are to be used; although ideally boundaries would comprise hedgerows. Gaps should be at ground level, approximately 13cm by 13cm, and incorporated in to each garden.

5.111 It is also recommended that areas of scrub should be included within any ecological enhancement proposals for the site, to replace the opportunities likely to be lost for hedgehogs through the removal of extensive areas of bramble scrub.

#### Invasive Species

5.112 Cofnod provided details of several invasive flora species occurring within 2km of the proposed development site. A number of these species are listed under Schedule 9, Part II of the Wildlife and Countryside Act 1981. As such, it is an offence under section 14(2) of the Act to plant this species or to cause it to grow in the wild. However, none of these records were identified on or within 100m of the site, and no invasive species were observed on site during the site walkover.

5.113 Consequently, no further survey effort is recommended in relation to invasive species. Site contractors should however monitor the site for species with invasive tendencies, and CES contacted for advice if the presence of invasive species is suspected.

#### Invertebrates

5.114 Cofnod provided details of various invertebrate species occurring within 2km of the site since 2001, though none of the records were located on site.

5.115 The semi-improved grasslands on site likely present a significant nectar resource for foraging insects, and habitats on site include larval food plants for many of these species.



5.116 The site layout (refer to Appendix F) indicates that the majority of habitats on site will be retained with the exception of the semi-improved grassland and bramble scrub within Field 1. The loss of this habitat would result in a significant decrease of available nectar resources on site as well as a reduction in larval food plants for species such as small heath, dingy skipper, grayling and wall butterflies.

5.117 It is therefore recommended that areas subject to ecological enhancement or compensation on site include both native scrub and flower-rich grassland, to provide replacement nectar and larval food resources to those lost.

5.118 It is also recommended that native and/or wildlife friendly species are incorporated within the site layout; preferably including a diverse range of grasses, flowering plants and trees including natives, which would provide nectar and larval food plant resources for invertebrate species.

#### Protected/Notable Flora – Bluebell

5.119 Cofnod returned several records of protected/notable flora species within 2km of the site. Of these, the native bluebell (*Hyacinthoides non-scripta*) was identified within Field 2 in the south of site (located at OS grid reference SJ308566), with several more records returned within the Caeau Abermorddu WS adjacent to the site (also with six figure grid references).

5.120 Native bluebells (*Hyacinthoides non-scripta*) are protected under the Wildlife and Countryside Act 1981, making it an offence dig up the plant in the countryside or uproot the plants with intention to sell them.

5.121 Kingdom Ecology also found native bluebells to present within the western edge of Field 1 during surveys in 2019 (Kingdom Ecology, 2019). In addition to this, the surveys also found extensive areas of bluebells to be present within the Caeau Abermorddu WS to the west.

5.122 Bluebells complete their lifecycle early in the year, and are typically dormant from July onwards; the leaves having being discarded and the plant consisting of a bulb only at this time. As such, the site walkover (conducted in October) did not record any signs of bluebell, but this is unlikely to mean they are no longer present.

5.123 It is therefore recommended that the site be subject a bluebell survey during their growing season (April - May), to identify the distribution of bluebells on site, and therefore inform whether this species will be impacted by the proposed development, and thereby inform a mitigation strategy for bluebells at the site if required.

#### Polecat

5.124 Polecat is a UK and Local Biodiversity Action Plan (BAP) species and are listed on Section 7 of the Environment Wales Act.

- 5.125 Polecats occur in a wide range of habitats, including woodland, farmland, grassland and hedgerows, preferring lowland areas including valleys and farms within Wales. Polecats will often make dens in rabbit burrows throughout the summer.
- 5.126 Cofnod provided details of polecat occurring within approximately 2km of the development site since 2001, the closest record at approximately 1km south (though only a four figure grid reference was supplied).
- 5.127 The site is considered to offer suitable foraging, shelter and resting habitats for polecat. The habitats on site are however widespread in the local area, and the site is considered likely to be of low importance to polecat. Protective measures in relation to hedgehogs & brown hare would be expected to provide protection to this species during site clearance, and no further survey effort is therefore recommended.

### Reptiles

- 5.128 All six species of British reptile are protected against intentional killing, injury or sale under Schedule 5 of the Wildlife and Countryside Act, 1981. The sand lizard and smooth snake are afforded a higher degree of protection, which, amongst other things, makes it an offence to damage, destroy or obstruct their places of shelter or disturb these species in such a place. However, the distribution of these species is limited, and is largely restricted to a few southern counties in England, with the exception of some coastal sites in Merseyside and North Wales which support populations of sand lizard.
- 5.129 The distribution of the remaining 'common' species (i.e. adder, grass snake, slow worm and common lizard) is widespread. With some variation between species, reptiles prefer undisturbed habitats with open areas for basking and warmth, and more vegetated areas for shelter and feeding. They shelter and hibernate in crevices underground, such as within old mammal burrows, cracks within concrete bases and within spoil/rubble mounds.
- 5.130 Cofnod provided details of grass snake, adder and common lizard occurring within around 1km of the proposed development site since 2001, as well as a record for slow-worm from 1999.
- 5.131 Kingdom Ecology previous conducted reptile surveys at the site between March and May 2019 (Kingdom Ecology, 2019), though no reptiles were found during the surveys.
- 5.132 The site presents suitable habitats for reptiles, predominantly on the edge of the site, within hedgerows, treelines, the stream, bramble and blackthorn scrub, bracken and to a lesser extent the grassland fields (as the sward is predominantly of short/moderate height). It is likely that the site has become more suitable for reptiles since the previous surveys were undertaken, due to a low-intensity grazing regime and continued expansion of bramble scrub habitats. The site layout (see Appendix F) indicates that the vast majority of bramble scrub on site is likely to be lost to accommodate the development.
- 5.133 Given the proposed loss of suitable habitats on site, the previous reptile survey being over two years old and the level of legal protection afforded to the 'widespread' reptile

species, it is recommended that a reptile presence/likely absence survey be undertaken in respect of the proposed development to establish the status of reptiles at the site. The reptile survey should involve the deployment of artificial cover objects (ACO) at the site followed by a minimum of seven survey visits to check the ACO and suitable existing site features (such as exposed logs and stones) for basking/sheltering reptiles. The optimal survey window for surveying for reptiles is April, May and September, although summer surveys can be undertaken during periods of suitable weather. In the event that reptiles are found to be associated with the site, further survey effort may be required and a suitable mitigation strategy will need to be formulated and implemented.

#### Water Vole

- 5.134 Water voles receive full protection under the provisions of Section 9 of the Wildlife & Countryside Act. It is an offence to cause harm to water voles and their places of shelter. Water voles inhabit the banks and margins of slow flowing water courses, such as rivers, ditches and streams. They will also inhabit canals, lakes and ponds.
- 5.135 The dry ditches present on site are of low suitability to water vole; representing poor quality habitat due to predominate absence of water and marginal vegetation. The stream on site is also considered to be of low suitability for water voles, due to its shallow water depth, scarce marginal vegetation, predominant lack of riparian margins or banks and the fact that watercourse enters a culvert on the site's southern boundary. No signs of water vole were observed on site during the site walkover.
- 5.136 Water vole are therefore considered likely to be absent from the site and no further surveys for this species are considered necessary.

## 6.0 SUMMARY RECOMMENDATIONS TABLE

	Species potentially associated with the site/s?	Further survey effort required?	Survey timing	Recommendations
Badger	Yes	Yes: A <b>badger survey</b> will be required at site and on land within 30m of the site boundary within Caeau Abermorddu WS, if access possible.	<b>Any time of year Ideally December- January</b>	No potentially disturbing work should take place until the results of the survey are known.
Barn owl	Yes	Yes: The ash tree (TN6) which is due to be lost to development should be <b>inspected for evidence of barn owl</b> roosting/nesting by an appropriately experienced surveyor.  Any additional trees to be lost as a result of a change of designs should also be assessed for their suitability to support nesting/roosting barn owl.	<b>Any time of year Ideally when the trees are not in leaf</b>  <b>Any time of year Ideally when the trees are not in leaf</b>	No potentially disturbing work should take place until the results of the assessment are known.
Bats	Yes	Yes: The ash tree (TN6) should be inspected by a licensed ecologist using an endoscope to determine the presence or suitability of the tree for roosting bats.	<b>Any time of year Ideally when the trees are not in leaf</b>	No potentially disturbing work should take place until the results of the assessment are known.

		Potentially: <b>Updated Activity Surveys will be required</b> if boundary hedgerows, treelines and bramble scrub cannot be retained and/or a bat friendly lighting scheme cannot be implemented.	<b>Optimal mid-May - early September but Possible late April - early October</b>	No potentially disturbing work should take place until a bat activity survey has been conducted in order to determine the usage of the site and adjacent habitats by bats. A bat friendly lighting scheme should be produced for the site.
Birds	Yes	<b>Yes: Updated Breeding bird surveys</b> will be required to assess the possible impacts of habitat loss on local bird populations.  <b>Potentially: Nesting bird surveys</b> will be required <u>if</u> vegetation removal works are to take place between March & September.	<b>April - June</b>  <b>March - September</b>	No potentially disturbing work should take place until the results of the surveys are known.  Vegetation removal works should take place outside of the bird breeding season (i.e. October – February). A nesting bird survey will not be required if potentially disturbing works are undertaken during this period.
Brown hare	Yes	No	-	Grassland on site should be kept low (<10cm) to deter brown hare from using the site.
Great crested newt	Yes	Yes: <b>Updated GCN survey</b> will be required of Pond 1.	<b>March – October</b>	No potentially disturbing work should take place until the further survey has been carried out.
Hedgehog	Yes	No	-	Where possible, all woody/scrub vegetation to be affected should be removed by hand prior to potentially disturbing works taking place.
Hedgerows/Treelines	On site	Potentially: Hedgerow H2 & Treeline TL02 should be subject to a detailed <b>hedgerow assessment</b> if they are to be lost/impacted by the proposed development.	<b>April - October</b>	No potentially disturbing works should take place until the results of the hedgerow assessment are known (if they are to be affected).  Retain hedgerows and treelines within the proposed development, where at all possible.

Invasive Species	No	No	-	Contact CES if the presence of invasive species is suspected on site.
Invertebrates	Yes	No	-	Include species-rich grassland and scrub within ecological enhancement and native/wildlife friendly species within site landscaping.
Protected/Notable Flora – Native Bluebell	Yes	Yes: A bluebell survey of the site should be undertaken between April – May.	<b>April-May</b>	No potentially damaging/disturbing works should take place until the results of the survey are known.
Polecat	Yes	No	-	Follow guidance for brown hare & hedgehogs and contact CES if found.
Reptiles	Yes	Yes: An updated reptile <b>presence/likely absence survey</b> is required to assess if reptiles will be affected by the proposed development.	Optimum period: <b>April - May or September</b>	No potentially damaging/disturbing works should take place until the results of the survey are known.
Updated Botanical Survey	Yes	Yes: An updated botanical survey of habitats on site, particularly the semi-improved grasslands, is required to confirm their classification as correct.	<b>June-July</b>	No potentially damaging/disturbing works should take place until the results of the survey are known.
Water vole	No	No	-	-
Recommendations for mitigation/enhancement	<ul style="list-style-type: none"> <li>• Provide buffers to the adjacent Caeau Abermorddu WS. The buffer area to be controlled via a habitat management plan.</li> <li>• Produce a Construction &amp; Ecological Management Plan (CEMP) to mitigate development construction and operational impacts on the adjacent priority WS.</li> <li>• Production of a Habitat Creation &amp; Management plan for retained and new habitats.</li> <li>• Retain the semi-improved grassland within Field 1, if at all possible.</li> <li>• Provide buffer planting to the adjacent WS within Field 3 in the west of the site.</li> <li>• Gap up existing hedgerows with native hedgerows species</li> <li>• Provide a bat &amp; bird box scheme for the site</li> <li>• Include species-rich grassland, tree planting and scrub within ecological enhancement areas and native/wildlife friendly species within site landscaping.</li> </ul>			

## 7.0 REFERENCES

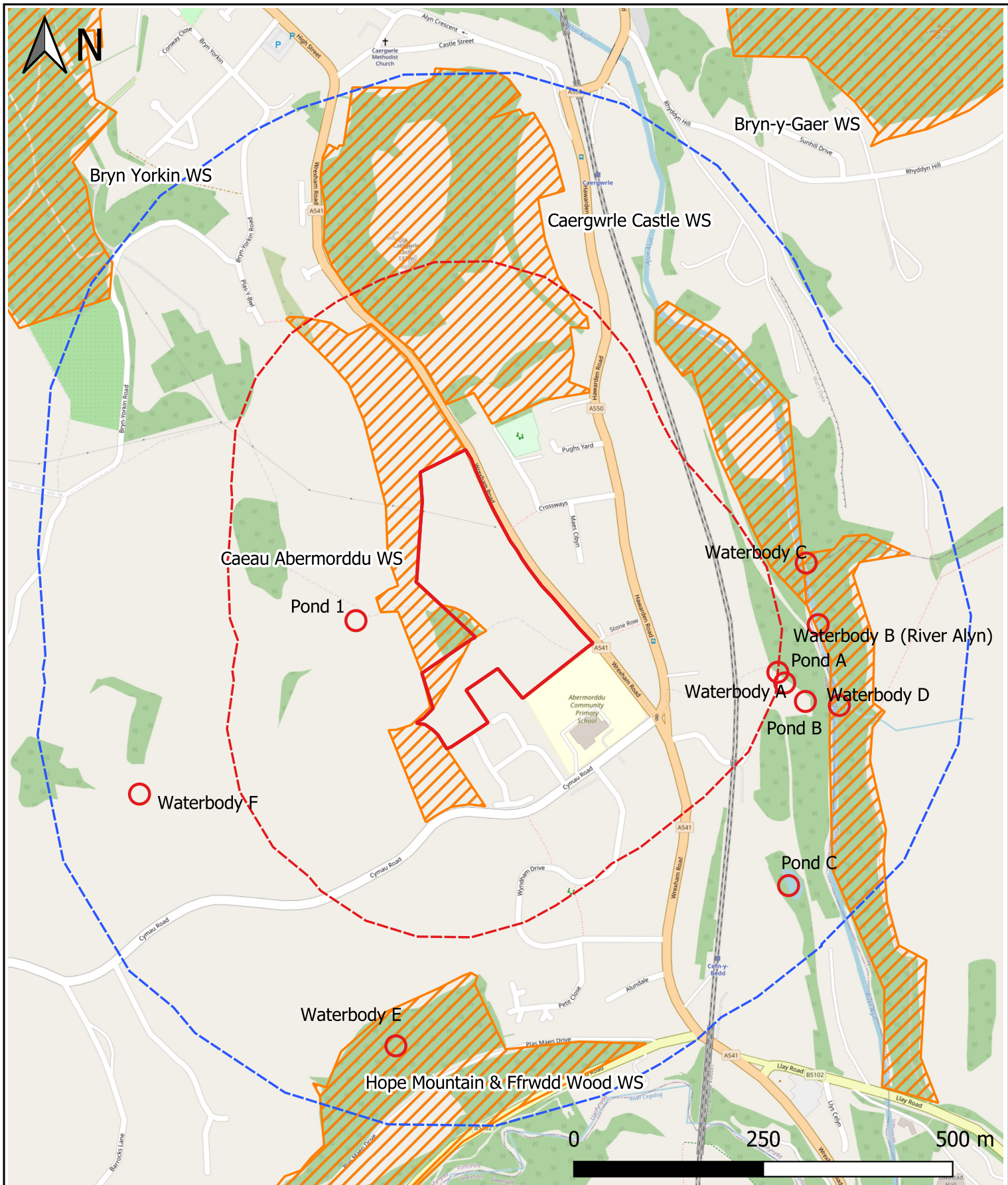
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## Appendices

**Appendix A: Site Location Plan**








**Cheshire**  
Ecological Services

Bickley Hall Farm  
Bickley  
Malpas  
Cheshire  
SY14 8EF

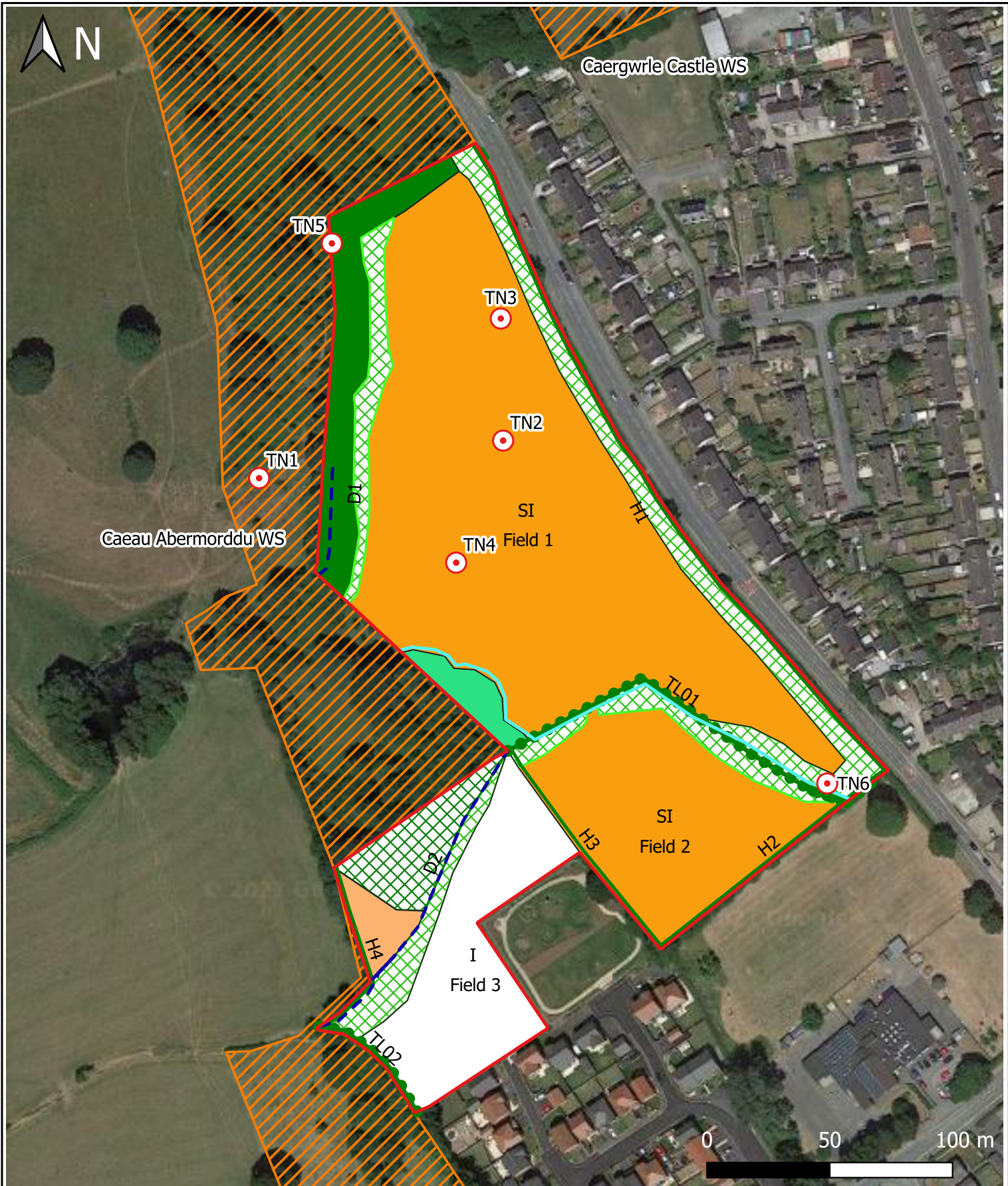
Project:	Land off Wrexham Road, Abermorddu
Map:	Site Location Plan
CES Ref:	CES/750.111/01-22/KM
Scale:	Approximate
Date:	January 2022
Base map from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © <a href="https://www.openstreetmap.org">https://www.openstreetmap.org</a> and	

**Legend (Indicative)**

-  Site Boundary
-  250m Buffer
-  500m Buffer
-  Waterbodies within 500m
-  Wildlife Sites (WS)

## **Appendix B: Extended Phase 1 Habitat Survey Plan**





**Cheshire**  
Ecological Services

Bickley Hall Farm  
Bickley  
Malpas  
Cheshire  
SY14 8EF

Project:	Land off Wrexham Road, Abermorddu
Map:	Extended Phase 1 Habitat Plan
CES Ref:	CES/750.111/01-22/KM
Scale:	Approximate
Date:	January 2022
Aerial Baselayer obtained from Google Maps, Google LLC, with whom all rights remain.	

- Site Boundary
- Blackthorn Scrub
- Bracken
- Bramble Scrub
- Broadleaved Mixed Deciduous Woodland
- Poor Semi-Improved Grassland
- Semi-Improved Grassland
- WS Alder Woodland
- Ditch
- Species-Poor Hedgerow
- Stream
- Tree Line
- Wildlife Sites (WS)
- Pond 1

- Target Notes**
- TN1 - Caeau Abermorddu Wildlife Site
  - TN2 - Species-Rich Semi-Improved Grassland (Field 1)
  - TN3 - Marshy Area within Semi-Improved Grassland (Field 1)
  - TN4 - Waxcap Fungi within Semi-Improved Grassland (Field 1)
  - TN5 - Dry Stone Wall on Western Site Boundary
  - TN6 - Tree with Moderate Bat Roost Potential & Potential Suitability for Nesting/Roosting Barn Owl

## Appendix C: Species List

Semi-Improved Grassland (Field 1)		
Scientific Name	Common Name	DAFOR
<i>Achillea millefolium</i>	Yarrow	R
<i>Agrostis stolonifera</i>	Creeping bent	F
<i>Anthoxanthum odoratum</i>	Sweet vernal grass	O
<i>Arrhenatherum elatius</i>	False oat-grass	F
<i>Carex hirta</i>	Hairy sedge	O
<i>Carex sp.</i>	Sedge species	O
<i>Cerastium glomeratum</i>	Sticky mouse-ear	R
<i>Cirsium arvense</i>	Creeping Thistle	F
<i>Cirsium palustre</i>	Marsh Thistle	F
<i>Deschampsia caespitosa</i>	Tufted hairgrass	R
<i>Filipendula ulmaria</i>	Meadowsweet	O
<i>Holcus lanatus</i>	Yorkshire Fog	O
<i>Juncus acutiflorus</i>	Sharp-flowered rush	F
<i>Juncus articulatus</i>	Jointed rush	R
<i>Juncus conglomeratus</i>	Compact rush	O
<i>Juncus effusus</i>	Soft rush	O
<i>Lolium perenne</i>	Perennial ryegrass	F
<i>Lotus corniculatus</i>	Bird's foot trefoil	O
<i>Luzula campestris</i>	Field wood-rush	R
<i>Plantago lanceolata</i>	Ribwort plantain	A
<i>Poa pratensis</i>	Smooth meadow grass	F
<i>Potentilla erecta</i>	Tormentil	O
<i>Ranunculus acris</i>	Meadow buttercup	O
<i>Ranunculus repens</i>	Creeping buttercup	A
<i>Rumex acetosa</i>	Common sorrel	F
<i>Rumex obtusifolius</i>	Broadleaved dock	R
<i>Senecio jacobaea</i>	Common ragwort	O
<i>Taraxacum officinale</i>	Dandelion	O
<i>Taraxacum sp.</i>	Taraxacum species	R
<i>Trifolium pratense</i>	Red clover	O
<i>Trifolium repens</i>	White clover	O
<i>Urtica dioica</i>	Common nettle	R

Semi-Improved Grassland (Field 2)		
Scientific Name	Common Name	DAFOR
<i>Agrostis stolonifera</i>	Creeping bent	A
<i>Anthoxanthum odoratum</i>	Sweet vernal grass	O
<i>Arrhenatherum elatius</i>	False oat-grass	F
<i>Cerastium glomeratum</i>	Sticky mouse-ear	O
<i>Cirsium arvense</i>	Creeping Thistle	F
<i>Dactylis glomerata</i>	Cocks's foot	A
<i>Holcus lanatus</i>	Yorkshire Fog	F
<i>Lotus corniculatus</i>	Bird's foot trefoil	O
<i>Plantago lanceolata</i>	Ribwort plantain	F
<i>Poa pratensis</i>	Smooth meadow grass	O



<i>Ranunculus acris</i>	Meadow buttercup	O
<i>Ranunculus repens</i>	Creeping buttercup	A
<i>Rumex acetosa</i>	Common sorrel	F
<i>Rumex obtusifolius</i>	Broadleaved dock	R
<i>Senecio jacobaea</i>	Common ragwort	O
<i>Trifolium pratense</i>	Red clover	O
<i>Trifolium repens</i>	White clover	F

Poor Semi-Improved Grassland (Field 3)		
Scientific Name	Common Name	DAFOR
<i>Agrostis stolonifera</i>	Creeping bent	O
<i>Arrhenatherum elatius</i>	False oat-grass	F
<i>Cirsium arvense</i>	Creeping Thistle	A
<i>Dactylis glomerata</i>	Cocks's foot	A
<i>Holcus lanatus</i>	Yorkshire Fog	O
<i>Juncus effusus</i>	Soft rush	R
<i>Lolium perenne</i>	Perennial ryegrass	O
<i>Plantago lanceolata</i>	Ribwort plantain	O
<i>Plantago major</i>	Greater plantain	R
<i>Ranunculus acris</i>	Meadow buttercup	O
<i>Ranunculus repens</i>	Creeping buttercup	A
<i>Rubus fruticosus agg.</i>	Bramble	O
<i>Rumex acetosa</i>	Common sorrel	O
<i>Rumex obtusifolius</i>	Broadleaved dock	F
<i>Senecio jacobaea</i>	Common ragwort	F
<i>Stellaria graminea</i>	Lesser stitchwort	R
<i>Stellaria media</i>	Common chickweed	O
<i>Trifolium repens</i>	White clover	F

LWS Woodland Area on Site – Alder Woodland		
Scientific Name	Common Name	DAFOR
<i>Aegopodium podagraria</i>	Ground elder	O
<i>Alnus glutinosa</i>	Alder	D
<i>Bryophyta sp.</i>	Mosses	O
<i>Carex sp.</i>	Sedge sp. (pos. pill sedge)	R
<i>Cirsium palustre</i>	Marsh thistle	O
<i>Dryopteridaceae sp.</i>	Fern species	F
<i>Filipendula ulmaria</i>	Meadowsweet	O
<i>Fraxinus excelsior</i>	Ash (saplings)	R
<i>Geranium robertianum</i>	Herb Robert	F
<i>Glechoma hederacea</i>	Ground ivy	O
<i>Hedera helix</i>	Ivy	O
<i>Lycopus europaeus</i>	Gypsywort	R
<i>Marchantiophyta sp.</i>	Liverwort species	O

<i>Nasturtium officinale</i>	Watercress	F
<i>Ranunculus repens</i>	Creeping buttercup	A
<i>Rubus fruticosus</i> agg.	Bramble	F
<i>Sambucus nigra</i>	Elder	O
<i>Scrophularia auriculata</i>	Water figwort	R
<i>Solanum dulcamara</i>	Bittersweet	O
<i>Urtica dioica</i>	Common Nettle	F

Woodland Belt around Field 1 – Broadleaved Mixed Deciduous Woodland		
Scientific Name	Common Name	DAFOR
<i>Acer pseudoplatanus</i>	Sycamore	R
<i>Alnus glutinosa</i>	Alder	F
<i>Arum maculatum</i>	Lords & ladies	R
<i>Bryophyta</i> sp.	Mosses	O
<i>Cirsium vulgare</i>	Spear thistle	R
<i>Corylus avellana</i>	Hazel (coppice)	A
<i>Crataegus monogyna</i>	Common hawthorn	O
<i>Dryopteridaceae</i> sp.	Fern species	O
<i>Festuca rubra</i>	Red fescue	R
<i>Fraxinus excelsior</i>	Ash	R
<i>Geranium robertianum</i>	Herb Robert	F
<i>Geum urbanum</i>	Wood avens	O
<i>Glechoma hederacea</i>	Ground ivy	O
<i>Ilex aquifolium</i>	Holly	O
<i>Malus sylvestris</i>	Crab apple	R
<i>Ranunculus repens</i>	Creeping buttercup	F
<i>Rubus fruticosus</i> agg.	Bramble	F
<i>Salix caprea</i>	Goat willow	R
<i>Salix cinerea</i>	Common sallow	F
<i>Salix pentandra</i>	Bay willow	R
<i>Sambucus nigra</i>	Elder	F
<i>Silene dioica</i>	Red campion	O
<i>Stachys sylvatica</i>	Woundwort	R
<i>Stellaria media</i>	Common chickweed	O
<i>Urtica dioica</i>	Common nettle	F

Bramble Scrub		
Scientific Name	Common Name	DAFOR
<i>Calystegia sepium</i>	Hedge bindweed	R
<i>Cirsium arvense</i>	Creeping thistle	O
<i>Dactylis glomerata</i>	Cock's foot	R
<i>Epilobium</i> sp.	Willowherb species	O
<i>Filipendula ulmaria</i>	Meadowsweet	O
<i>Heracleum sphondylium</i>	Common hogweed	R
<i>Prunus spinosa</i>	Blackthorn	R
<i>Pteridium aquilinum</i>	Bracken	R

<i>Rubus fruticosus agg.</i>	Bramble	D
<i>Senecio jacobaea</i>	Common ragwort	R
<i>Urtica dioica</i>	Common nettle	F

LWS Scrub Area on Site - Blackthorn Scrub		
Scientific Name	Common Name	DAFOR
<i>Alnus glutinosa</i>	Alder	R
<i>Cirsium arvense</i>	Creeping thistle	R
<i>Fraxinus excelsior</i>	Ash (saplings)	O
<i>Geranium robertianum</i>	Herb robert	F
<i>Geum urbanum</i>	Wood avens	O
<i>Glechoma hederacea</i>	Ground ivy	O
<i>Prunus spinosa</i>	Blackthorn	D
<i>Pteridium aquilinum</i>	Bracken (mostly western edge)	F
<i>Ranunculus repens</i>	Creeping buttercup	A
<i>Rubus fruticosus agg.</i>	Bramble	F
<i>Salix caprea</i>	Goat willow	R
<i>Salix cinerea</i>	Common sallow	R
<i>Sambucus nigra</i>	Elder	F
<i>Silene dioica</i>	Red campion	O
<i>Urtica dioica</i>	Common nettle	F

LWS Bracken Area on Site - Bracken		
Scientific Name	Common Name	DAFOR
<i>Cirsium arvense</i>	Creeping thistle	O
<i>Festuca rubra</i>	Red fescue	R
<i>Glechoma hederacea</i>	Ground ivy	R
<i>Holcus lanatus</i>	Yorkshire fog	F
<i>Pteridium aquilinum</i>	Bracken	D
<i>Rumex obtusifolius</i>	Broadleaved dock	O
<i>Urtica dioica</i>	Common nettle	F

Treelines (TL01 & TL02) – Descriptions within main report	
Scientific Name	Common Name
<i>Acer pseudoplatanus</i>	Sycamore
<i>Corylus avellana</i>	Hazel (coppice)
<i>Crataegus monogyna</i>	Hawthorn
<i>Digitalis purpurea</i>	Foxglove
<i>Dryopteridaceae sp.</i>	Fern species
<i>Fraxinus excelsior</i>	Ash
<i>Galium aparine</i>	Cleavers
<i>Geranium robertianum</i>	Herb Robert
<i>Geum urbanum</i>	Wood avens

<i>Glechoma hederacea</i>	Ground ivy
<i>Hedera helix</i>	Ivy
<i>Ilex aquifolium</i>	Holly
<i>Poa annua</i>	Annual meadow grass
<i>Prunus spinosa</i>	Blackthorn
<i>Rubus holostea</i>	Greater stitchwort
<i>Ranunculus repens</i>	Creeping buttercup
<i>Rosa canina</i>	Dog rose
<i>Rubus fruticosus</i> agg.	Bramble
<i>Sambucus nigra</i>	Elder
<i>Silene dioica</i>	Red campion
<i>Ulmus glabra</i>	Wych Elm
<i>Urtica dioica</i>	Common nettle
<i>Viola</i> sp.	Violet species

Hedgerows (H1 - H4) – Descriptions within main report	
Scientific Name	Common Name
<i>Acer campestre</i>	Field maple
<i>Acer pseudoplatanus</i>	Sycamore
<i>Aegopodium podagraria</i>	Ground elder
<i>Anthriscus sylvestris</i>	Cow parsley
<i>Arctium minus</i>	Lesser burdock
<i>Asplenium scolopendrium</i>	Hart's tongue fern
<i>Bryophyta</i> sp.	Mosses
<i>Calystegia sepium</i>	Hedge bindweed
<i>Corylus avellana</i>	Hazel (coppice)
<i>Crataegus monogyna</i>	Hawthorn
<i>Dryopteridaceae</i> sp.	Fern species
<i>Equisetum arvense</i>	Horsetail
<i>Fagus sylvatica</i>	Beech
<i>Fraxinus excelsior</i>	Ash
<i>Galium aparine</i>	Cleavers
<i>Geranium robertianum</i>	Herb Robert
<i>Glechoma hederacea</i>	Ground ivy
<i>Hedera helix</i>	Ivy
<i>Heracleum sphondylium</i>	Common hogweed
<i>Ilex aquifolium</i>	Holly
<i>Myosotis</i> sp.	Forget-me-not species
<i>Oxalis acetosella</i>	Wood sorrel
<i>Populus</i> sp.	Poplar species
<i>Prunus avium</i>	Wild cherry
<i>Prunus padus</i>	Bird cherry
<i>Quercus robur</i>	Pedunculate oak (trees)
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Rosa arvensis</i>	Field rose
<i>Rosa canina</i>	Dog rose
<i>Rubus fruticosus</i> agg.	Bramble

<i>Rumex obtusifolius</i>	Broadleaved dock
<i>Salix pentandra</i>	Bay willow
<i>Sambucus nigra</i>	Elder
<i>Silene dioica</i>	Red campion
<i>Solanum nigrum</i>	Black nightshade
<i>Sorbus aucuparia</i>	Rowan
<i>Stellaria graminea</i>	Lesser stitchwort
<i>Tillia sp.</i>	Lyme species
<i>Ulmus sp.</i>	Elm species
<i>Urtica dioica</i>	Common nettle
<i>Viburnum opulus</i>	Guelder rose

## Appendix D: Photographic Plates

**Photographic Plates**



**Plates 1 & 2: TN2 – Species-rich semi-improved grassland in Field 1.**



**Plate 3: TN3 – Marshy area dominated by tufted hairgrass within semi-improved grassland in Field 1.  
Sharp flowered rush also present.**



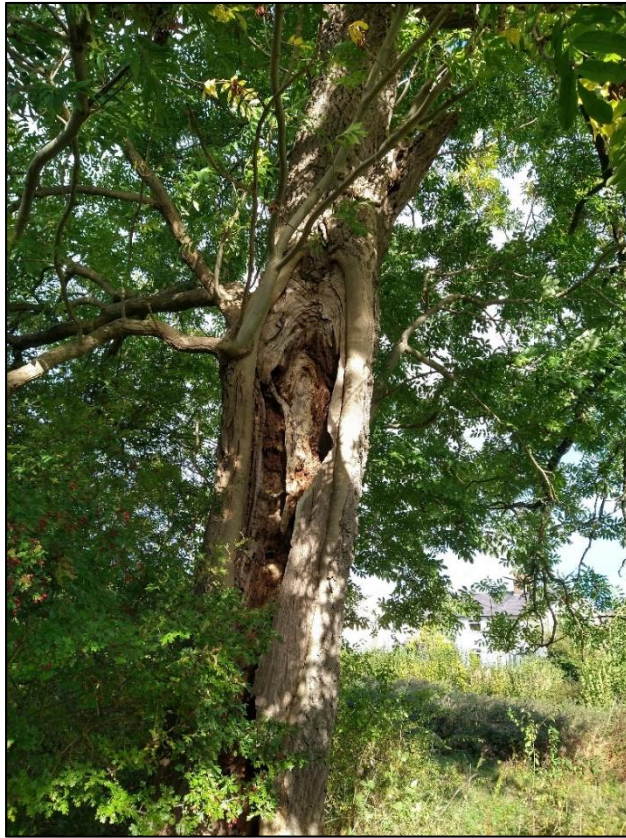


**Plates 4 & 5: TN4 - Waxcap (above left) and other fungi species (above right) within semi-improved grassland in Field 1.**



**Plate 6: TN5 – Dry stone wall on the western site boundary.**





**Plate 7: TN6 – Mature ash of Moderate bat roost potential, which is also potentially suitable for nesting/roosting barn owl.**



**Plates 8 & 9: Semi-improved grassland within Field 2.**





**Plates 10 & 11: Poor semi-improved grassland within Field 3. Abundant injurious weeds were readily apparent.**



**Plate 12: Alder woodland on site, part of the Caeau Abermorddu WS on the western boundary of site.**





**Plates 13 & 14: Belt of broadleaved mixed deciduous woodland present around the edge of Field 1 (above left), with evident abundant previously coppiced hazel (above right)**



**Plate 15 – Dry ditch (D1) within deciduous broadleaved woodland.**





**Plate 16: Examples of bramble scrub present around the margins of Field 1.**



**Plate 17: Bramble scrub present around the margins of Field 2.**





**Plate 18: Bramble scrub present around the ditch within the north-west of Field 3.**



**Plates 19 & 20: Blackthorn scrub forming part of the Caeau Abermorddu WS, to the north of Field 3.**





**Plate 21: Bracken dominated habitat, forming part of the Caeau Abermorddu WS to the north of Field 3.**



**Plate 22: Stream on site, showing a section with sparse aquatic vegetation and evidence of cattle poaching.**





**Plates 23 & 24: Stream on site, showing section with abundant shade from adjacent coppiced hazels within TL01 (above left) and section where the stream exits the site through a culvert, with widespread aquatic vegetation including fool's water cress and brooklime (above right).**



**Plates 25 & 26: Dry ditch (D2) within Field 3, predominantly obscured by bramble and bracken.**





**Plates 27 & 28: Treeline TL01 surrounding the stream on site.**



**Plate 29: Treeline TL02 on present on the south-western boundary of site.**





**Plate 30: Hedgerow 1 along the eastern site boundary with Wrexham Road.**



**Plate 31: Hedgerow H2 on the southern boundary of the site.**





**Plate 32: Hedgerow H2 in the south of the site, separating Fields 2 & 3.**



**Plate 33 & 34: Hedgerow H4, present on the south-west boundary of the site.**

**Appendix E: Relevant Legislation**

Species/Habitat	Protected by:	UK BAP	Local BAP
Badger	<i>Protection of Badgers Act, 1992</i>	No	Yes
Barn owl	Schedule 1, Part 1 of the <i>Wildlife and Countryside Act, 1981</i>	No	Yes
Bats	Regulation 42 of <i>The Conservation of Habitats and Species Regulations, 2017</i>  Section 9 of the <i>Wildlife and Countryside Act, 1981</i> (as amended)  Section 7 of the <i>Environment (Wales) Act 2016</i>	Dependent on species	Dependent on species
Bluebell	Schedule 8 of the <i>Wildlife and Countryside Act, 1981</i> (as amended)	No	Yes
Brown hare	Section 7 of the <i>Environment (Wales) Act 2016</i>	Yes	Yes
Butterflies & Moths	Section 7 of the <i>Environment (Wales) Act 2016</i>	Dependent on species	Dependent on species
Common toad	Provision 5 of Section 9 of the <i>Wildlife and Countryside Act, 1981</i> (as amended)  Section 7 of the <i>Environment (Wales) Act 2016</i>	Yes	
Great crested newt	Regulation 42 of <i>The Conservation of Habitats and Species (Amendment) Regulations, 2017</i>  Section 9 of the <i>Wildlife and Countryside Act, 1981</i> (as amended)  Section 7 of the <i>Environment (Wales) Act 2016</i>	Yes	Yes
Hedgehogs	Section 7 of the <i>Environment (Wales) Act 2016</i>	Yes	No
Hedgerows	<i>The Hedgerows Regulations, 1997</i>	Yes	Yes
Invasive species	Section 9 of the <i>Wildlife and Countryside Act, 1981</i> (as amended)		
Nesting birds	Section 1 of the <i>Wildlife and Countryside Act, 1981</i>	Dependent on species	Dependent on species
Otters	Regulation 41 of <i>The Conservation of Habitats and Species Regulations, 2017</i>  Section 5 of the <i>Wildlife and Countryside Act, 1981</i>	Yes	Yes
Polecat	Section 6 of the <i>Wildlife and Countryside Act, 1981</i> (as amended)  Section 7 of the <i>Environment (Wales) Act 2016</i>	Yes	Yes
Water vole	Section 9 of the <i>Wildlife and Countryside Act, 1981</i> (as amended)  Section 7 of the <i>Environment (Wales) Act 2016</i>	Yes	Yes
'Widespread' reptiles	Provisions 1 and 5 of Section 9 of the <i>Wildlife and Countryside Act, 1981</i> (as amended)  Section 7 of the <i>Environment (Wales) Act 2016</i>	Yes	Dependent on species

## ***The Conservation of Habitats and Species Regulations, 2017***

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European protected species are listed on Schedule 2 of the *Conservation of Habitats and Species Regulations* 2010. Those species listed on Schedule 2 are protected under Regulation 41, which refers to the protection of wild animals of a European Protected Species. The following is a summary of the offences listed under Regulation 41, however, the *Conservation Regulations* should always be referred to for the exact and current wording:

Under Regulation 41 of the *Conservation of Habitats and Species Regulations, 2010* it is an offence to –

- deliberately capture or kill a wild animal of a European protected species;
- deliberately disturb wild animals, in particular any disturbance which is likely:
  - to impair their ability to survive, to breed or reproduce, or to rear or nurture their young; or
  - to impair their ability, in the case of animals of a hibernating or migratory species, to hibernate or migrate;
  - to affect significantly the local distribution or abundance of the species to which they belong
- deliberately take or destroy the eggs of such an animal; or
- damage or destroy a breeding site or resting place of such an animal.
- keep, transport, sell or exchange, or offer for sale or exchange, any live or dead wild animal of a European protected species, or any part of, or anything derived from, such an animal.

## ***Wildlife and Countryside Act, 1981 (as amended)***

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British protected species of animal are listed on Schedule 5 of the *Wildlife and Countryside Act, 1981 (as amended)*. Those species listed on Schedule 5 are protected under Part 1, Section 9, which refers to the protection of certain wild animals. The following is a summary of the offences listed under Section 9; however the Act should always be referred to for the exact and current wording:

Under Section 9 of the *Wildlife and Countryside Act, 1981 (as amended)* if any person –

- intentionally kills, injures or takes any wild animal included in Schedule 5;
- has in his possession or control any live or dead wild animal included in Schedule 5 or any part of, or anything derived from such an animal;
- intentionally or recklessly damages or destroys, or obstructs access to, any structure or place which any wild animal included in Schedule 5 uses for shelter or protection;
- disturbs any such animal included in Schedule 5 while it is occupying a structure or place which it uses for that purpose;
- sells, offers or exposes for sale, or has in his possession or transports for the purpose of sale, any live or dead wild animal included in Schedule 5, or any part of, or anything derived from, such an animal; or,
- publishes or causes to be published any advertisement likely to be understood as conveying that he buys or sells, or intends to buy or sell, any of those things, he shall be guilty of an offence.



## ***Wildlife and Countryside Act, 1981 (as amended) - Birds***

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All species of wild bird, their nests and eggs are protected under Section 1 of the *Wildlife and Countryside Act, 1981 (as amended)*; therefore surveys are required to check for their presence where they are likely to be disturbed for any reason.

The following is a summary of the offences listed under Section 1; however the Act should always be referred to for the exact and current wording:

Under Section 1 of the *Wildlife and Countryside Act, 1981 (as amended)*, if any person:

- Intentionally kills, injures or takes any wild bird;
- Intentionally takes, damages or destroys the nest of any wild bird while that nest is in use or being built;
- Intentionally takes or destroys an egg or any wild bird, he shall be guilty of an offence;
- Has in his possession or control any live or dead wild bird or any part of, or anything derived from, such a bird; or
- Has in his possession or control an egg of any wild bird or any part of such an egg, he shall be guilty of an offence.

Schedule 1 (Part 1 and Part 2) of the *Wildlife and Countryside Act, 1981 (as amended)* lists bird species that receive special attention under Section 1. Any person convicted of an offence listed above, in respect of a bird included in Schedule 1 or any part of, or anything derived from, such a bird; the nest of such a bird; or an egg of such a bird or any part of such an egg, shall be liable to a special penalty.

Also, if any person intentionally or recklessly disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or disturbs dependent young of such a bird, he shall be guilty of an offence and liable to a special penalty.

Schedules 1, 2, 3 and 4 of the *Wildlife and Countryside Act, 1981 (as amended)* list different species of bird and different Parts of Section 1 of the Act refer to different offences which may be committed in relation to the varying Schedules. The following is a summary of the type of protection offered to species of wild bird listed on each of the Schedules, however the Act itself should always be referred to for the exact and current wording and full species lists:

Schedule 1: Birds which are protected by special penalties:

Part 1: At all times.

Part 2: During the close season.

Schedule 2: Birds which may be killed or taken:

Part 1: Outside the close season.

Part 2: By authorised persons at all times.

Schedule 3: Birds which may be sold:

Part 1: Alive at all times if ringed and bred in captivity.

Part 2: Dead at all times.

Part 3: Dead from 1<sup>st</sup> September to 28<sup>th</sup> February.

Schedule 4: Birds which must be registered and ringed if kept in captivity.

## ***The Environment (Wales) Act, 2016***

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Section 7 of the *Environment (Wales) Act, 2016* replaces the duty in Section 42 of the *Natural Environment and Rural Communities (NERC), Act, 2006 (as amended)*. Section 7 comprises a list of species and habitats of principle importance which is the same as the list under the

superseded Section 42 of the *NERC Act, 2006*. The *Environment (Wales) Act* itself should be referred to for the exact and current wording however a summary is detailed below:

- The Welsh Ministers will publish, review and revise lists of living organisms and types of habitat in Wales, which they consider are of key significance to sustain and improve biodiversity in relation to Wales;
- They must therefore consider any appropriate evidence, for example as provided in the State of Natural Resources Report, and also engage with any relevant stakeholders;
- The Welsh Ministers must also take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section, and encourage others to take such steps.

### ***The Hedgerow Regulations, 1997***

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Hedgerows are distinctive features in the countryside and are the traditional type of field boundary in many areas of England and Wales. Many of these date back to the original enclosure of the land and so are of historic interest and importance.

Hedgerows (particularly older hedgerows) can contain a diverse mix of species and provide important links between other areas of habitat thus allowing wildlife to disperse. This role that hedgerows play in conserving and enhancing biodiversity is recognised by the UK BAP for this habitat type.

Hedgerows which meet certain criteria are protected by *The Hedgerows Regulations, 1997*. The aim of the Regulations is to protect important hedgerows in the countryside by controlling their removal through a system of notification. Under the Regulations it is against the law to remove or destroy certain hedgerows without permission from the Local Planning Authority (LPA). The criteria used to assess hedgerows relate to the value of a hedgerow from an archaeological, historical, landscape or wildlife perspective. They exclude hedgerows that are less than 30 years old. If a hedgerow is at least 30 years old and qualifies under any one of the criteria, then it is important and LPA approval is required before it can be lawfully removed or destroyed.

Removal of a hedgerow in contravention of the Regulations is a criminal offence, punishable in some cases in the Magistrates Court, by a fine of up to £5,000. For anyone convicted on indictment in the Crown Court, the fine is unlimited.

If a hedgerow is over 30 years old and meets the criteria in the Regulations it is classified as 'important'. A summary of the criteria is set out below, however, *The Hedgerow Regulations, 1997* should be referred to for the exact and current wording:

- Marks a pre-1850 parish or township boundary; or
- Incorporates an archaeological; or
- Is part of, or associated with, an archaeological site; or
- Marks the boundary of, or is associated with, a pre-1600 estate or manor; or
- Forms an integral part of a pre-Parliamentary enclosure field system; or
- Contains certain categories of species of birds, animals or plants listed in the Wildlife and Countryside Act or Joint Nature Conservation Committee (JNCC) publications.
- Includes:
  - At least 7 woody species, on average, in a 30 metre length; or
  - At least 6 woody species, on average, in a 30 metre length and has at least 3 associated features; or
  - At least 6 woody species, on average, in a 30 metre length, including a black-poplar tree, or large-leaved lime, or a small-leaved lime, or wild service-tree; or

- At least 5 woody species, on average, in a 30 metre length and has at least 4 associated features.
- Runs alongside a bridleway, footpath, road used as a public path, or byway open to all traffic and includes at least 4 woody species, on average, in a 30 metre length and has at least 2 of the associated features listed at (i) to (v) below.

(Note: The number of woody species is reduced by one in the North of England (which does not include Cheshire). The list of 56 woody species comprises mainly shrubs and trees. It generally excludes climbers (such as clematis, honeysuckle and bramble) but includes wild roses)

Associated features:

- (i) A bank or wall supporting the hedgerow;
- (ii) Less than 10% gaps;
- (iii) On average, at least one tree per 50 metres;
- (iv) At least 3 species from a list of 57 woodland plants;
- (v) A ditch;
- (vi) A number of connections with other hedgerows, ponds or woodland; and
- (vii) A parallel hedge within 15 metres.

### **The Protection of Badgers Act, 1992**

The following is a summary of the offences contained in the Act; however the *Protection of Badgers Act, 1992* itself should always be referred to for the exact and current wording.

Under the *Protection of Badgers Act, 1992* a person is guilty of an offence if, except as permitted by or under this Act he:

- wilfully kills, injures or takes, or attempts to kill, injure or take, a badger;
- has in his possession or under his control any dead badger or any part of, or anything derived from, a dead badger;
- cruelly ill-treats a badger;
- uses badger tongs in the course of killing or taking, or attempting to kill or take, a badger;
- digs for a badger; or,
- sells a live badger or offers one for sale or has a live badger in his possession or control.

A person is also guilty of committing an offence under the *Protection of Badgers Act, 1992* if he intentionally or recklessly interferes with a badger sett by doing any of the following things:

- damaging a badger sett or any part of it;
- destroying a badger sett;
- obstructing access to, or any entrance of, a badger sett;
- causing a dog to enter a badger sett; or,
- disturbing a badger when it is occupying a badger sett,

The definition of a badger sett within the meaning of the 1992 Act is given as “any structure or place, which displays signs indicating current use by a badger”. ‘Current’ is not defined in the Act, and may be open to interpretation. Natural England indicates that a sett is in ‘current’ use if it has been occupied at all over the previous 12 months. Whatever the interpretation of ‘current

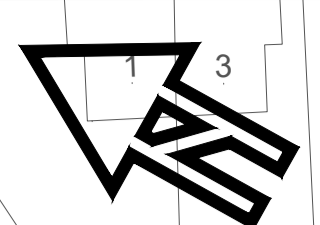
use' however, it is important to note that a sett is protected whether or not there is a badger actually in residence at the time of inspection.

Natural England Guidelines (which is also referred to in Wales) state that work that disturbs badgers or their setts is illegal if not carried out under licence. Badgers could be disturbed by work near their sett even if there is no direct interference or damage to the sett itself, for example, using very heavy machinery within 30 metres of an active sett. Lighter machinery (particularly for any digging operation) within 20 metres, or light work such as hand digging or scrub clearance within 10 metres of an active sett, all require a licence. There are some activities which can cause disturbance at a far greater distance (such as using explosives or pile driving) and should therefore be given individual consideration. Certain criteria must be met before a licence can be issued to enable otherwise prohibited works to proceed. Such criteria may be subject to change without notice.

Timing of operations should also be considered. If required, site-specific badger disturbance licences are normally only issued between the months of July and October so as to avoid the badger's breeding season. This aspect should be borne in mind when assessing any possible constraints upon the development timetable.

**Appendix F: Proposed Development Layout – Castle Green Homes, Ref:ABMRD –SP.01,  
Revision B, February 2020**





88.4m

WREXHAM ROAD

SCHEDULE OF ACCOMMODATION				
HOUSETYPE	DESCRIPTION	SQFT	NUMBER	PERCENTAGE
4P2B (affordable)	2 Bed, 2 Storey, Mid/End-Terrace	880 SQFT	14	20.00
SP3B (affordable)	3 Bed, 2 Storey, End-Terrace	999 SQFT	6	8.57
SP3B Corner (affordable)	3 Bed, 2 Storey, End-Terrace	999 SQFT	1	1.43
Marlow Semi	3 Bed, 2 Storey	987 SQFT	6	8.57
Oxford	3 Bed, 2 Storey	1040 SQFT	6	7.14
Henley	3 Bed, 2 Storey	1040 SQFT	7	10.00
Stratford	3 Bed, 2 Storey	1055 SQFT	10	14.29
Beaumont	3 Bed, 2 Storey	1234 SQFT	9	12.86
Burlington	4 Bed, 2 Storey	1255 SQFT	2	2.86
Wentworth	4 Bed, 2 Storey	1344 SQFT	5	7.14
Alderton	4 Bed, 2 Storey	1475 SQFT	5	7.14
<b>TOTAL</b>		<b>75976 SQFT</b>	<b>70</b>	
Gross Site Area	10.54 Acres	4.27 Hectares		
P.O.S	4.11 Acres	1.66 Hectares		
Existing Landscaping & Buffer zone	1.15 Acres	0.47 Hectares		
Site Entrance & Single-Sided Road & Sub Station	0.18 Acres	0.07 Hectares		
<b>NET SITE AREA:</b>	<b>5.1 ACRES</b>	<b>2.06 HECTARES</b>		
Gross Density:	6.64 Units/Acre	16.41 Units/Hectare		
<b>NET DENSITY:</b>	<b>13.73 UNITS/ACRE</b>	<b>33.92 UNITS/HECTARE</b>		
Gross Footage:	720835 SQFT/Acre	1654.79 SQM/Hectare		
<b>NET FOOTAGE:</b>	<b>14897.25 SQFT/ACRE</b>	<b>3419.91 SQM/HECTARE</b>		

**Key:**

- Site Boundary
- 1.8m high boundary fence
- 1.8m high screen wall / fence
- Private Drive
- Visibility Splays - 2.4x45m to Site Entrance
- Indicative Landscaping
- Number of parking spaces proposed to Semi-Detached and Detached Dwellings in accordance with Flintshire's Parking Standards
- Parking space allocation to Frontage Parking Dwellings
- Knee rails to parking bays to terraced Housetypes
- \* Affordable Housing
- Existing retained hedges/landscaping
- Existing overhead lines
- Existing Landscaping & Wildlife buffer zone

Rev:	Description:	Date:
A	Mix amended & Sub Station added	04/03/20
B	Amended in line with Pre App Response	07/10/20



**Castle Green**

Castle Green,  
Unit 20,  
St. Asaph Business Park,  
Denbighshire. LL17 0LJ.  
Tel. 01745 536677

Site:  
**Wrexham Road, Abermorddu**

Title:  
**Site Layout**

Scale: **1:500 at A1**      Date: **19/02/2020**

Ref: **ABMRD-SP.01**      Rev: **B**



**Appendix G: Tree Loss Plan – Ascerta, Tree Survey, Drawing No. P.1542.21.01, Revision A, September 2021**





CLIENT: Castle Green Homes			
PROJECT: 1542.21 Land off Wrexham Road, Abermorddu			
DRAWING TITLE: Tree Survey			
SCALE: 1:500 @A0	DRAWN BY: KP	DRAWING No.:	REV:
DATE: 23/09/2021	CHKD BY: CP	P.1542.21.01	A

**KEY**

	Existing tree to be retained
	Existing tree to be removed

REV	DESCRIPTION	DATE
A	Updated layout to '...Rev B'	27/10/21

**DO NOT SCALE**

ALL COORDINATES RELATED TO LOCAL GRID LOCATED TO OS NG BY BEST FIT TO DETAIL, EXTRACTED FROM OS DIGITAL DATA.

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