



## GREAT BIRCHWOOD COUNTRY PARK, WARTON

For

PRYDIS GROUP

## UPDATED PHASE 1 HABITAT SURVEY & GREAT CRESTED NEWT SURVEY

APRIL 2021

17 Chorley Old Road,  
Bolton,  
Lancashire  
BL1 3AD

Tel: 01204 393 006

Fax: 01204 388 792

E-mail: [info@appletons.uk.com](mailto:info@appletons.uk.com)

[www.appletons.uk.com](http://www.appletons.uk.com) @Appletons\_LArch

Landscape Architecture • Ecology • Environmental Planning & Assessment • Arboriculture

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# appletons

17 Chorley Old Road  
Bolton  
Lancashire  
BL1 3AD

Tel: 01204 393006

Email: [info@appletons.uk.com](mailto:info@appletons.uk.com)

Web: [www.appletons.uk.com](http://www.appletons.uk.com)

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## DOCUMENT CONTROL

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<b>Prepared by: Paula Bateson</b>	<b>Date: Jun 2021</b>
<b>Surveyor: Paula Bateson</b>	<b>Date: April 2021</b>
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### Document

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Final	Updated Phase 1 Habitat & GCN Surveys	28.06.21	PB	LAC	G.M. Bavington - Prydis Group	13.07.21	

### Revisions to Final Document

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## **NON-TECHNICAL SUMMARY**

In February 2021, Appletons was commissioned by Prydis Group to undertake updated ecology surveys at a proposed residential development site at Great Birchwood Country Park, Warton, Lancashire. This included an updated habitat survey, ecological desk study exercise and great crested newt survey. A suite of other protected species surveys is being undertaken by Arbtech Ltd, the reports of which should be read in conjunction with the current report.

The ecological desk study identified several protected and priority species records within 2km of the site including amphibian, bats, birds and riparian mammals. In addition, ten designated nature conservation sites were identified by the desk study, the closest of which are associated with the Ribble Estuary, ~185 m south of the site area.

The application site encompasses Fort San Antone music venue, caravan park and campsite, Great Birchwood. Key habitats on site include woodland, poor semi-improved grassland, scattered trees, hardstanding, marshy grassland and ponds. The mature, broadleaved woodland on site contains standing dead trees, and forms part of a larger area of woodland off site. Japanese knotweed is present on site.

A great crested newt eDNA survey was undertaken on all ponds within 500m of the application site with habitat connectivity. One pond tested positive for GNA eDNA, located over 250m from the site.

Current proposals comprise a residential development. All woodland and pond habitats will be retained. In relation to habitats and amphibians, required actions to ensure compliance with wildlife legislation and relevant planning policy are summarised below. Further detail is provided within Chapter 7.

- Consultation with Natural England and the County Ecologist will be undertaken as part of the planning process in relation to nearby nature conservation sites. Reference should be made to the Updated Habitat Regulations Assessment Report completed by ArbTech.
- Retention of a woodland edge buffer of at least five metres should be allowed for as part of final detailed landscape proposals, to maintain/enhance habitat integrity.
- At least 120m of native hedgerow habitat should be incorporated into the proposed landscaping scheme to compensate for the proposed removal of existing hedgerow.
- A Construction Environment Management Plan shall be compiled and implemented to ensure protection of all retained habitats and nearby protected sites throughout development works.
- Biodiversity enhancement measures should be incorporated into the proposed landscaping scheme to maximise the ecological value of the site. Examples are provided within Chapter 7.
- Suitable structures for nesting swallows should be incorporated into finalised design proposals, such as sheltered car ports or covered bin storage areas for example. Swallow cups should then be installed internally at the apex of the structures.
- Precautionary method statements in relation to amphibians, and other species such as hedgehog are provided in Chapter 7 and should be implemented on site.
- Any vegetation clearance and building/structure demolition should be undertaken outside of the nesting bird season.
- An invasive species management plan for the control of Japanese knotweed and variegated yellow archangel should be compiled and implemented.

- Arbtech have updated the survey work in relation to bat, badger, water vole and badger. Recommendations detailed within the related, appropriate Arbtech reports should be adhered to.

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## 1.0 INTRODUCTION

- 1.1 In February 2021, Appletons was commissioned by Prydis Group to undertake an updated desk study, habitat survey and great crested newt survey at the site of a proposed residential development at Great Birchwood Country Park, Warton.
- 1.2 Outline Planning Permission was granted in September 2018 for the redevelopment of the site to include a care home, assisted living units and associated facilities (Application no.: 16/0992). Numerous ecology reports formed part of the 2018 application, listed below. Since then, proposals have been revised to include a residential development as opposed to that described above. This report will form part of a fresh planning application. Owing to the revised proposals and age of survey data, ecology survey work has been updated in 2021.
- 1.3 The 2018 planning application was accompanied by the following ecology reports:
- Extended Phase 1 Habitat Survey (Appletons, April 2016)
  - Great Crested Newt Survey (Appletons, May 2016)
  - Badger Survey (Arbtech, September 2016)
  - Water Vole Survey (Arbtech, September 2016)
  - Bat Survey – Preliminary Roost Assessment (Arbtech, October 2016)
  - Bat Survey – Emergence and Activity Surveys (Arbtech, July 2017)
  - Reptile Presence/Likely-absence Surveys (Arbtech, July 2017)
  - HRA Screening Report (Arbtech, July 2017)
  - Pink-footed Goose Desk Study (Arbtech, February 2018)
  - Habitat Regulations Assessment Report (Arbtech, June 2018)
- 1.4 The current report represents an update to the Extended Phase 1 Habitat Survey and Great Crested Newt Surveys only. Arbtech have been commissioned to review the remainder of the reports in relation to the need for updated survey data and impact assessments.

### Site description and context

- 1.5 The site area measures approximately 8.19 ha and is centred at Ordnance Survey Grid Reference SD 3957 2820. The site is bound by Lytham Road to the south, Lytham Golf Academy to the west and agricultural fields to the north and east. Within the wider area, the towns of Warton and Lytham are located to the east and west, the Ribble Estuary is located beyond Lytham Road to the south and agricultural farmland dominates the landscape to the north.
- 1.6 The survey area itself encompasses Fort San Antone music venue, caravan park and campsite, Great Birchwood. Key habitats on site include woodland, poor semi-improved grassland, scattered trees, hardstanding, marshy grassland and ponds. The mature broadleaved woodland on site contains standing dead trees, and forms part of a larger area of woodland off site.

## 2.0 METHODOLOGIES

### Ecological desk study

- 2.1 A updated desk study exercise has been undertaken to determine the presence of any designated nature conservation sites, notable habitats and records of protected, priority and invasive species within a 2km radius of the site. Data was provided by Lancashire Ecological Records Network, South Lancashire Bat Group and the Natural England website 'MAGIC' (Multi Agency Geographical Information for the Countryside) was utilised to search locations of statutory nature conservation sites priority habitats and ancient woodland. The data collected from these consultees is discussed in Chapter 3. Selected raw data are provided in Appendix 2. In compliance with the terms and conditions relating to its commercial use, the full desk study data is not provided within this report. The desk study also included a review of relevant local planning policy with regard to biodiversity and nature conservation, provided as Appendix 6.

### Phase 1 Habitat survey

- 2.2 A Phase 1 Habitat Survey was undertaken by Appletons in April 2016 and was updated in April 2021. The Phase 1 Habitat Survey followed the methodology of the Joint Nature Conservation Committee (JNCC, 2010) and the Institute of Environmental Assessment (IEA, 1995) and is a standard technique for classifying and mapping British habitats. The aim is to provide a record of habitats that are present on site. Data recorded during the field survey are discussed in Chapter 4.

### Great crested newt eDNA analysis

- 2.3 In accordance with guidance approved by Natural England (Biggs et al. 2014), environmental DNA (eDNA) analysis was completed all ponds within 500m of the site area. Water samples were collected by a great crested newt licence holder with suitable experience and training. A total of 20 water samples were taken from around each pond margin. The samples were taken from around the pond perimeter of each pond at equal intervals, and target areas of egg laying habitat and open water which may be used for displaying. The samples were combined within a Whirl-Pak bag and 15ml of the mixture was extracted using a pipette and added to a sterile tube containing 35ml of ethanol. This was repeated a total of six times for each pond. The samples were sent to Surescreen Scientifics for testing to determine the presence/absence of great crested newt DNA within the water samples from each pond.

### Analysis of data

- 2.4 The habitat survey, desk top study and great crested newt survey results are discussed in Chapter 6 in the context of the proposed development. In line with CIEEM guidance (CIEEM, 2018) and British Standard 42020 (British Standards Institution, 2013). The analysis aims to:
- Assess site value in relation to habitats and amphibians and likely impacts of proposals;
  - Inform appropriate avoidance, mitigation and / or compensation measures, if required, to minimise any potential negative impacts; and,
  - Evaluate the need for further survey work and / or consultation.
- 2.5 All recommended actions to ensure compliance with relevant wildlife legislation and planning policy are listed in Chapter 7. All discussed and recommended mitigation in relation to statutory nature conservation sites and other protected species aside from great crested newt will be provided by Arbtech.



### 3.0 DESK STUDY

#### Introduction

3.1 An updated ecological desk study search was undertaken in 2021. A summary of relevant ecological data is provided within this section. Selected raw data is provided as Appendix 2.

#### Nature Conservation Sites

3.2 Data provided by the local biological records centre and reference to the Natural England MAGIC website indicates that three statutory and seven non-statutory nature conservation sites occur within a 2km radius of the site, summarised in Table 3.1 below. Maps of nature conservation site boundaries are provided within Appendix 2.

Nature Conservation Site	Designation	Proximity to site	Description
<b>Statutory Sites</b>			
Ribble and Alt Estuaries	RAMSAR, SPA, SPA(Marine)	185 m south	The Ribble Estuary has extensive intertidal sand-silt flats with one of the largest areas of grazed greenmarsh in Britain. The estuary is of international importance for the passage and wintering waterfowl it supports, being a major link in the chain of estuaries down the west coast of Britain used by birds on migration between the breeding grounds in the far north and their wintering grounds further south. The mudflats are rich in invertebrates on which the waders and wildfowl feed and the sandbanks also provide low tide roosting sites for pinkfooted geese. The saltmarshes provide roosting sites for the waders at high tide.
Ribble Estuary	SSSI, MCZ		
Ribble Estuary	NNR	615 m south-west	The reserve occupies over half of the total area of the Ribble Estuary, including extensive areas of mud and sand flats and one of the largest single areas of saltmarsh in England. It is a key site in the chain of wetlands which make up the east Atlantic flyway or migration route for wintering wildfowl and waders, including large populations of widgeon, pink-footed geese and whooper swans.
Lytham Coastal Changes	SSSI	1.07 km west	Lytham Coastal Changes consists of four separate locations within the town of Lytham St Anne's. Geological interest is preserved in sediments beneath the top soil and sand dunes of the area, and provides a record of sea-level changes which occurred during the Holocene.
<b>Non-statutory Sites</b>			
Ribble and Alt Estuaries	IBA	185 m south	Intertidal mudflats and saltmarsh important for wintering and passage wildfowl and waders and for breeding gulls. Ribble Estuary regularly used by Whooper swans.
Warton Brows	BHS	1.06 km south-east	The site comprises a coastal mosaic of species-rich, semi-natural grassland and mature scrub situated along and above the bank between the saltmarsh of the Ribble Estuary SSSI and Warton Aerodrome. It also includes a tidal creek and associated saltmarsh at the eastern end and pastureland with ponds and scrub at the western end.
Lytham Foreshore Dunes and Saltmarsh	BHS	1.13 km west	The site comprises 10km of coastal habitats at Lytham St. Annes. It is made up of a variety of habitats including sand dunes, dune grassland, saltmarsh, foreshore with shingle, sand and mudflats. The dune grassland and slacks support a rich flora and invertebrate fauna. The saltmarshes and intertidal areas of sand, silt and shingle provide valuable feeding and roosting areas for some of the many birds for which the adjoining Ribble Estuary SSSI is internationally important.
<b>Key:</b> IBA: Important Bird Area SSSI: Site of Special Scientific Interest RAMSAR: Site listed on The Convention on Wetlands of International Importance (Ramsar Convention) MCZ: Marine Conservation Zone SPA: Special Protection Area NNR: National Nature Reserve BHS: Biological Heritage Site			

**Table 3.1: Summary of Nature Conservation Sites within 2 km of Survey Area**

- 3.3 The information summarised in Table 3.1 has not altered since 2016.
- 3.4 The Natural England MAGIC website identifies the site area as situated across three SSSI Impact Risk Zones for the Ribble Estuary SSSI, each of which stipulate that the Local Planning Authority must consult with Natural England for any residential development comprising of over 10 properties.

### Habitats

- 3.5 The Natural England website 'MAGIC' (Multi Agency Geographical Information for the Countryside) highlights the woodland within the east of the site as priority habitat broad-leaved woodland (a Section 41 Habitat, NERC Act, 2004), however the confidence in classification is 'low', which means no data is known to have been gathered to support this within the last ten years. This forms part of a wider ~2ha area of woodland immediately east of the site. Legislation/policy relating to Section 41 Habitats is provided in Appendix 6.
- 3.6 Open grassland habitats within the east of the site are highlighted as the Section 41 habitat 'Coastal and floodplain grazing marsh' with a confidence classification of 'low'. These form part of a wider ~165ha area of this priority habitat, encompassing agricultural fields north of Lytham Road and east of the Lytham to Preston train line. The north and north-eastern perimeters are identified by Magic as 'priority habitat inventory - no main habitat but additional habitat exists'. This is where priority habitats remain, but no main habitat can be identified. In this case, potential priority Coastal and floodplain grazing marsh covers over 50% of the area. The confidence level for this classification is also 'low'.
- 3.7 No other potential Section 41 habitats were identified within or adjacent to the site by Natural England MAGIC website.
- 3.7 The Natural England MAGIC website indicates that no Ancient Woodland exists within 2km of the site.
- 3.8 Ordnance Survey data shows the presence of three ponds on site and six ponds within 500 metres of the site. A field boundary ditch is shown to run parallel to the east of the site. Aerial imagery suggests one additional potential pond within a field immediately east of the site.

### Species

- 3.9 Table 3.2 below & overleaf provides a summary of protected species records identified by the desk study within a 2km radius of the site. Absence of a species record should not be taken as confirmation that a species is absent from the search area.

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Study Area	Legislation	Section 41 Species	Local BAP species
<b>Mammals</b>						
Common pipistrelle <i>Pipistrellus pipistrellus</i>	48	2014	Within the site area	HSD 4, WCA 5, WCA 6	-	-
Pipistrelle bat <i>Pipistrellus sp.</i>	28	2019	Within the site area	HSD 4, WCA 5, WCA 6	*	-
Daubenton's Bat <i>Myotis daubentonii</i>	1	2008	Within the site area	HSD 4, WCA 5, WCA 6		
Water vole <i>Arvicola amphibius</i>	7	2014	Within the site area	WCA 5	✓	✓

**Table 3.2: Summary of Protected Species Records Within 2km of Survey Area (continues)**

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Study Area	Legislation	Section 41 Species	Local BAP species
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	4	2019	1.15 km east	HSD 4, WCA 5, WCA 6	✓	-
Unidentified bat <i>Chiroptera</i> sp.	12	2019	1.25km east	HSD 2*, HSD 4, WCA 5, WCA 6	*	*
Brandt's Bat <i>Myotis brandtii</i>	1	1993	1.25 km north-east	HSD 4, WCA 5, WCA 6	-	✓
Noctule bat <i>Nyctalus noctula</i>	6	2019	1.29km north-east	HSD 4, WCA 5, WCA 6	✓	✓
Brown long-eared bat <i>Plecotus auritus</i>	2	2019	1.37km north-east	HSD 4, WCA 5, WCA 6	✓	✓
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	6	2019	1.37km north-east	HSD 4, WCA 5, WCA 6	-	-
European Otter <i>Lutra lutra</i>	1	1991	Within 1km grid square immediately south of site #	HSD 2, HSD 4, WCA 5, WCA 6	✓	✓
<b>Amphibians</b>						
Great crested newt <i>Triturus cristatus</i>	18	2016	Within the site area**	HSD 2, HSD 4, WCA 5	✓	✓
<b>Flora</b>						
Bluebell <i>Hyacinthoides non-scripta</i>	5	2016	Within the site area	WCA 8	-	-
<b>Birds</b>						
Whooper Swan <i>Cygnus cygnus</i>	1	2017	800m north-west	WCA1i, BD1	-	✓
Ruff <i>Calidris pugnax</i>	2	1983	930 m south	WCA1i, BD1	-	✓
Bittern <i>Botaurus stellaris</i>	1	2003	1.45 km west	WCA1i, BD1	✓	✓
Little egret <i>Egretta garzetta</i>	1	2007	>265m south-east #	BD1	-	✓
Glossy Ibis <i>Plegadis falcinellus</i>	2	2007	>265m south-east #	BD1	-	-
Black-tailed Godwit <i>Limosa limosa</i>	1	2007	>265m south-east #	WCA1i	-	✓
Spoonbill <i>Platalea leucorodia</i>	1	1997	Within 10km grid square in which the site exists #	WCA1i, BD1	-	-
Common Tern <i>Sterna hirundo</i>	1	1997	Within 10km grid square in which the site exists #	BD1	-	✓
Arctic Tern <i>Sterna paradisaea</i>	1	1997	Within 10km grid square in which the site exists #	BD1	-	✓
Barn owl <i>Tyto alba</i>	1	1997	Within 10km grid square in which the site exists #	WCA1i	-	-
<p><b>Key:</b>  *: Species dependent  **: Record the result of a licence return associated with 2016 survey work, detailed in Appletons, May 2016 GCN survey report. One central grid reference used for results of all ponds surveyed, whereas GCN only present within pond 260m from site.  #: Grid reference provided less than 6 figures  HSD 2: Annex 2 of The Conservation of Habitats and Species Regulations 2017. Animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation.  HSD 4: Annex 4 of The Conservation of Habitats and Species Regulations 2017. Animal and plant species of community interest in need of strict protection.  BD1: Annex 1 of the Directive 2009/147/EC on the conservation of wild birds. Bird species of community interest in need of strict protection.</p>						

**Table 3.2: Summary of Protected Species Records Within 2km of Survey Area (continues)**

WCA 1i: Schedule 1 Part 1 of Wildlife and Countryside Act 1981 (as amended). Birds protected by special penalties at all times.  
WCA 5: Schedule 5 of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds).  
WCA 6: Schedule 6 of Wildlife and Countryside Act 1981 (as amended). Animals which may not be killed or taken by certain methods.  
WCA 8: Schedule 8 of Wildlife and Countryside Act 1981 (as amended). Protected plants and fungi.  
Note. These tables do not include reference to the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats), the Bonn Convention on the Conservation of Migratory Species of Wild Animals or the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

**Table 3.2: Summary of Protected Species Records Within 2km of Survey Area (continued)**

- 3.9 In addition to the species listed in Table 3.2, the desk study identified records of smooth newt *Lissotriton vulgaris* and common frog *Rana temporaria*, which are species protected by UK legislation from sale.
- 3.10 The desk study identified that the site area is located within a Whooper Swan Sensitive Waterbird Area (SWA) and Pink-footed Goose Major Feeding Area. Whooper Swans and Pink-footed Geese utilise considerable tracts of the land for feeding. In Lancashire, the foraging areas are often managed for intensive agricultural production. The SWA and major feeding area classifications include any 2x2km tetrads known to be utilised by at least 1% of the Lancashire & North Merseyside Population.
- 3.11 In addition to legally protected species, the desk study identified additional records of Species of Principal Importance for Nature Conservation in England (Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006), and Lancashire Biodiversity Action Plan key species. These include over thirty-five bird species, over thirty species of flowering plant, seven moth species, hedgehog *Erinaceus europaeus*, one beetle species and one species of mollusc. Of these, eight records were located within 500m of the site: one record of lapwing *Vanellus vanellus* 375m south and seven records of brown hare *Lepus europaeus*, the closest of which is 225m east.

**Invasive species**

- 3.11 Table 3.3 overleaf provides a summary of invasive species records identified by the desk study within a 2 km radius of the site. Absence of a species record should not be taken as confirmation that a species is absent from the search area.

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Study Area	Legislation
Japanese knotweed <i>Fallopia japonica</i>	13	2016	Within site area	WCA9
Rhododendron <i>Rhododendron ponticum</i>	3	2017	490 m west	WCA9
Japanese rose <i>Rosa rugosa</i>	5	2015	1.28km south-west	WCA9
Montbretia <i>Crocsmia pottsii x aurea = C. x crocosmiiflora</i>	4	2016	1.5km north-east	WCA9
Giant Hogweed <i>Heracleum mantegazzianum</i>	6	2002	Within 10km grid square in which the site exists#	WCA9
Giant Knotweed <i>Fallopia sachalinensis</i>	4	2002	Within 10km grid square in which the site exists#	WCA9
Canadian waterweed <i>Elodea canadensis</i>	2	2002	Within 10km grid square in which the site exists#	WCA9
Wall Cotoneaster <i>Cotoneaster horizontalis</i>	2	2004	Within 10km grid square in which the site exists#	WCA9
Variiegated yellow archangel <i>Lamiasrum galeobdolon subsp. Argentatum</i>	6	2013	Within 10km grid square in which the site exists#	WCA9
<b>Key:</b> WCA9: Schedule 9 of Wildlife and Countryside Act 1981 (as amended). Invasive, non-native, plants and animals. #: Grid reference provided less than 6 figures				

**Table 3.3: Summary of Invasive Species Records Within 2 km of Survey Area**

## 4.0 PHASE 1 HABITAT SURVEY

### Introduction

- 4.1 This section provides the results of the 2021 Phase 1 Habitat Survey. A Phase 1 Habitat Survey map is provided as Appendix 1 (Drawing 1586-E1-01), which illustrates the location and extent of all habitat types recorded within the site area. Site photographs are provided as Appendix 3. Target notes (TN) in the text below relate to Drawing 1586-E1-01, Appendix 1.
- 4.2 The survey was carried out on 16<sup>th</sup> April 2021 by Paula Bateson MSc ACIEEM, Senior Ecologist, as an update to the April 2016 presence/absence survey work. The survey was not subject to any significant constraints.

### Site habitats

- 4.3 Habitats recorded by the survey within and adjacent to the site areas are listed below, with the corresponding JNCC Phase 1 Habitat Survey codes (JNCC, 2010).
- A1.1.1: Broad-leaved woodland – semi-natural
  - A2.1: Dense scrub
  - A3.1: Scattered trees – broadleaved
  - B5: Marshy grassland
  - B6: Poor semi-improved grassland
  - C3.1: Tall ruderal herb
  - G1: Standing water
  - J1.2: Amenity grassland
  - J1.4: Introduced shrub
  - J2.1: Species-poor hedgerow
  - J3.6: Hardstanding & Buildings

### Woodland and scrub

#### *Broad-leaved woodland – semi-natural*

- 4.4 A ~0.7ha block of mature woodland is included within the site area at the north-western corner (TN12), along with a 0.12ha linear belt of woodland along a wet ditch (TN13). The TN12 woodland has increased in area since 2016, owing to the relaxation of the mowing regime in between mature scattered trees adjacent to the woodland edge, to allow the establishment of woodland ground flora. Previously, half of this woodland area was classified as scattered trees and amenity grassland.
- 4.5 The woodland at TN12 comprises semi-mature to mature birch *Betula* sp., turkey oak *Quercus cerris*, sessile oak *Quercus*, and sycamore *Acer pseudoplatanus* as the dominant canopy species with occasional hawthorn *Crataegus monogyna* as a sparse understorey. Several of the mature oaks possess features such as rot holes and split branches, and occasional dead fallen trees are present. Numerous turkey oaks to the eastern edge of the woodland possess dead canopies. Ground flora is dominated by low lying bramble *Rubus fruticosus* agg. in the north. Other species present are indicative of mature woodland with moist ground conditions. Species often associated with ancient woodland habitats are occasional, including bluebell *Hyacinthoides non-scripta*, pendulous sedge *Carex pendula*, wood speedwell *Veronica montana*, giant fescue *Schedonorus giganteus*, remote sedge *Carex remota* and wood sedge *Carex sylvatica*. Other

species indicative of moist conditions include common reed *Phragmites australis*, compact rush *Juncus conglomeratus*, hairy sedge *Carex hirta*, figwort *Scrophularia nodosa* and greater willowherb *Epilobium hirsutum*. Common woodland species are also occasional to rare including ivy *Hedera helix*, male fern *Dryopteris* sp., nettle *Urtica dioica*, ground elder *Aegopodium podagraria*, cleavers *Galium aparine*, garlic mustard *Alliaria petiolate*, red dead-nettle *Lamium purpureum*, foxglove *Digitalis purpurea*, gorse *Ulex europaeus*, lesser celandine *Ficaria verna*, wood avens and ground elder *Aegopodium podagraria*. Towards the south, the woodland is more open with a limited understorey, owing to management history (see Paragraph 4.4). A higher abundance of grass species listed in Paragraph 4.10 are present here amongst common woodland flora species.

- 4.6 A dry ditch is present along the northern site boundary within the woodland, colonised by the ground flora species present within the woodland. Occasional worn trails are present throughout the woodland, likely to be the result of residents and visitors of the campsite. A compost heap is present at the north-east of the woodland (TN1) and a large log pile is present at TN4, constructed from a mature chopped tree trunk. Japanese knotweed is also present at TN2 next to the compost heap.
- 4.7 The woodland at TN13 is dominated by sycamore and willow *Salix* sp., with hawthorn and elder *Sambucus nigra* as understory species. Bramble and ground elder form the dominant ground flora, with frequent foxglove and nettle also present. Occasional trees within this area of woodland possess features such as rot holes and split limbs.
- 4.8 A narrow, dry ditch is present within the woodland at TN13. Hart's-tongue fern *Phyllitis scolopendrium* is present along the banks of the ditch. This ditch is likely ephemeral based on the presence of water in 2016.

#### *Dense scrub*

- 4.9 Pockets of dense scrub are present throughout the site, mostly at habitat edges of woodland and grassland habitats. Species include bramble, hawthorn, willow and gorse. A linear belt of dense scrub runs parallel to the eastern boundary along a wet ditch, dominated by willow with occasional blackthorn *Prunus spinosa* and hawthorn.

#### *Scattered trees – broadleaved*

- 4.10 Scattered trees were present throughout the site area, ranging from young to mature in age. Reference should be made to Appletons Report 1586: Great Birchwood Tree Survey for detailed descriptions of individual trees within the site area.

### Grassland

#### *Marshy grassland*

- 4.11 Open grassland is present to the west and south-east of the site (TN14 & TN15), which is tussocky in nature owing to a relaxed mowing regime in recent years. Species are indicative of moist, nutrient-rich ground conditions, and include perennial rye-grass *Lolium perenne*, curled dock *Rumex crispus*, red fescue *Festuca rubra*, dandelion *Taraxacum officinale* agg., broad-leaved dock *Rumex obtusifolius*, creeping thistle *Cirsium arvense*, Yorkshire fog *Holcus lanatus*, ribwort plantain *Plantago lanceolata*, common comfrey *Symphytum officinale*, great willowherb, foxglove, cuckoo flower *Cardamine pratensis*, common nettle, cleavers, white dead-nettle *Lamium album*, cock's-foot *Dactylus glomerata*, meadow foxtail *Alopecurus pratensis* and hard

rush *Juncus inflexus*. Stands of common reed *Phragmites australis* are frequent as well as occasional yellow flag *Iris pseudacorus*, further evidence of wet ground conditions. Doves-foot cranesbill *Geranium molle* is occasionally present at areas of disturbance. Black knapweed *Centaurea nigra* and meadow cranesbill *Geranium pratense* are also occasional towards the south of the grassland at TN14, which are species potentially indicative of lower soil nutrient conditions (and thus potentially restorable to more species-rich grassland).

#### *Poor semi-improved grassland*

- 4.12 Two paddocks are present within the south of the site, with establishing tussocky swards. These fields are dominated by meadow foxtail *Alopecurus pratensis*, Yorkshire fog *Holcus lanatus*, red fescue and tufted hair grass *Deschampsia cespitosa*. Forbs are rare and include ragwort *Jacobaea vulgaris*, daisy, dandelion and greater plantain *Plantago major*. These two paddocks were shortly grazed by horses in 2016.
- 4.13 Other areas of grassland previously shortly mown have been allowed to develop a longer sward since 2016. Species present include abundant meadow foxtail, Yorkshire fog *Holcus lanatus* and sweet vernal grass *Anthoxanthum odoratum* with occasional forbs including dandelion *Taraxacum officinale*, wavy bittercress *Cardamine flexuosa*, ribwort plantain *Plantago lanceolata* and creeping buttercup *Ranunculus repens*.

#### Tall herb and fern

##### *Tall ruderal herb*

- 4.14 The south-western site boundaries are formed by linear earth bunds adjacent to a wet ditch. The embankments are dominated by tall ruderal species. Species present include white dead-nettle, foxglove, common comfrey, cow parsley *Anthriscus sylvestris*, broad-leaved dock, nettle, wild teasel *Dipsacus fullonum*, cleavers, bittercress *Cardamine* sp, tufted vetch *Vicia cracca*, ground elder and scattered bramble throughout. Japanese knotweed *Fallopia japonica* is present at TNs 6&7 and variegated yellow archangel *Lamiastrum galeobdolon subsp. Argentatum* is present at TN5.

#### Open water

##### *Standing water*

- 4.15 Three ponds are located within the site area, including a circular pond within the south-west of the site (TN16), a large horse-shoe shaped pond within the east of the site (TN17), and a linear pond within the west of the site (TN18).
- 4.16 The Pond at TN16 is an unfenced, circular pond with steep banks, located within a field of recently unmanaged grassland. Bramble scrub is present along western, southern and northern banks with scattered hawthorn, whilst the east bank comprises grassland. The substrate of the pond is mostly muddy earth with some stony areas. Some shallow margins are present at the outermost edges of the pond, but margins are mostly slope steeply to deeper water. Marginal vegetation comprises abundant soft rush *Juncus effusus* and hard rush *Juncus inflexus*. Aquatic vegetation comprises a carpet of curled pondweed *Potamogeton crispus*, with occasional amphibious bistort *Persicaria amphibia* and common duckweed *Lemna minor*.
- 4.17 The Pond at TN17 is a small U-shaped lake within an area of grassland used as campsite and for caravans (outside of Covid-19 restrictions). The pond banks vary in gradient and comprise mown amenity grassland



with scattered scrub including bramble, young ash *Fraxinus excelsior*, crack willow *Salix fragilis* and goat willow *Salix caprea*. Clay and muddy earth form the substrate of the pond. Tall emergent vegetation comprises occasional soft rush, hard rush and creeping bent *Agrostis stolonifera*.

- 4.18 The Pond at TN18 is a narrow, unfenced pond bordered by amenity grassland to the east and dense bramble hawthorn, grey willow and blackthorn *Prunus spinosa* scrub to the north, west, and south. Dense great reedmace *Typha latifolia* is present to the northern margins. Muddy earth and reedmace litter form the main substrate of the pond, with an area of stony substrate also present at the south-west of the pond. Occasional shallow margins are present at the outermost edges of the pond, but the pond margins mostly sloped steeply to deeper water. A narrow drain connected the site driveway to the pond, which was dry at time of survey.

#### *Wet ditch*

- 4.19 A wet ditch forms the south-eastern boundary of the site area. The ditch held areas of shallow standing water which measures up to approximately 0.2 m in depth. Aquatic vegetation such as fool's water-cress *Apium nodiflorum* is present. The ditch measures approximately 1 m in depth and mature willow trees and scrub are present along the banks.

#### Miscellaneous

##### *Amenity grassland*

- 4.17 Pockets of shortly mown grassland are present throughout the site, used as play space and campsite area (outside of Covid-19 restrictions). Species present include meadow foxtail, Yorkshire fog *Holcus lanatus* and sweet vernal grass *Anthoxanthum odoratum* with forbs including daisy *Bellis perennis*, dandelion *Taraxacum officinale*, wavy bittercress *Cardamine flexuosa*, ribwort plantain *Plantago lanceolata* and creeping buttercup *Ranunculus repens*.

##### *Introduced shrub*

- 4.18 Areas of managed ornamental planting formed garden areas of the wooden lodges within the north-east of the site. Species recorded include cabbage palm *Cordyline australis*, ornamental spindle *Euonymus fortunei*, primrose *Primula vulgaris*, hybrid Spanish bluebell *Hyacinthoides hispanica* sp., common poppy *Papaver rhoeas*, flowering current *Ribes sanguineum*, greater periwinkle *Vinca major* and daffodil *Narcissus* sp.

##### *Ephemeral/short perennial vegetation*

- 4.19 A horse ménage is present within the south of the site, which is becoming colonised with low lying, establishing vegetation including silverweed *Argentina anserina*, dandelion, pointed spear-moss *Calliergonella cuspidata*, bifid crestwort *Lophocolea bidentata*, common feather-moss *Kindbergia praelonga*, white clover *Trifolium repens* and Yorkshire fog.

##### *Buildings & hardstanding*

- 4.20 A large two-storey building with wooden cladding is located within the centre of the site, and numerous wooden lodges are present within the north-east of the site area. A brick building is located within the south of the site, which comprises a single storey building with a pitched, tiled roof. A second brick built single

storey building is present at the north of the site, understood to be used as a shooting range, whilst brick stables are present within the south of the site.

- 4.21 Hardstanding on site includes tarmac roads into and throughout the campsite, along with storage areas and hard-core pitches for caravans.

#### Hedgerows

##### *Species-poor intact hedgerow*

- 4.22 A managed hedgerow is present along the southern boundary of the site, adjacent to Lytham Road. This was dominated by hawthorn and managed to approximately 1m in height.

##### *Species-poor defunct hedgerow*

- 4.23 A defunct hedgerow is present within the south of the site, adjacent to the entrance driveway. This comprised a row of mature hawthorns and occasional elder. Garlic mustard, white-dead nettle *Lamium album* and cow parsley *Anthriscus sylvestris* were recorded as ground flora species.

#### **Invasive plant species**

- 4.24 Japanese knotweed is present at TNs 2, 6, 7, 10 and 11 on Drawing 1586-E3-01 (Appendix 1), and variegated yellow archangel is present at TN5.

#### **Incidental observations**

- 4.25 The following species were recorded as incidental observations on site during the 2016 and 2021 visits:
- Lepidoptera: red admiral *Vanessa atalanta*, small tortoiseshell *Aglais urticae*, gatekeeper *Pyronia tithonus*, small skipper *Thymelicus sylvestris*, meadow brown *Maniola jurtina*, large white *Pieris brassicae*, small white *Pieris rapae*, green-veined white *Pieris napi*, silver y moth *Autographa gamma*, small copper *Lycaena phlaeas* and comma *Polygonia c-album*.
  - Amphibians: Common frog *Rana temporaria* and smooth newt *Lissotriton vulgaris*.
  - Mammals: Brown hare *Lepus europaeus*
  - Birds: chiff chaff *Phylloscopus collybita*, blue tit *Cyanistes Caeruleus* robin *Erithacus rubecula*.

#### **Overall habitat changes on site since 2016**

- 4.26 A relaxation in mowing regime has allowed woodland flora to develop between trees at the north-west of the site, with an increase in species associated with moist ground conditions. A low number of additional species potentially indicative of ancient woodland were also recorded within the woodland in 2021.
- 4.27 The recent pause in mowing has also allowed the area of tall marshy grassland to expand at the west, and areas of open, amenity grassland to develop into longer semi-improved grassland at the east. Only some shortly mown grassland remains, classified as amenity grassland on Drawing 1586-E3-01, Appendix 1.
- 4.28 The horse paddocks have been recently ungrazed, allowing a tussocky sward to develop and the ménage is unused with establishing mosses and other short forbs.
- 4.29 Most of the buildings are currently unoccupied.

- 4.30 Variegated yellow archangel is present at the east of the site, unrecorded in 2016.
- 4.31 Japanese knotweed has spread to a couple of new locations since 2016.

## 5.0 GREAT CRESTED NEWT EDNA RESULTS

- 5.1 Water samples were collected from all ponds located north of the A584, within 500m of the application site, on the 16<sup>th</sup> and 20<sup>th</sup> April 2021 by Paula Bateson MSc(Hons) ACIEEM, Senior Ecologist. A Habitat Suitability Index (HSI) assessment was also completed to ascertain the suitability of the waterbodies for breeding great crested newt.
- 5.2 A summary of the HSI results and eDNA analysis results provided by Surescreen Scientifics is summarised in Table 5.1 and on Appletons Drawing 1586-E3-02 (Appendix 4).

Water body reference	Distance from site (metres)	HSI Category (see Appendix 5)	GCN Detection	Positive replicates	Sample integrity / inhibition / degradation tests
Pond 1	290m	Excellent	<b>Positive</b>	8	Pass
Pond 2	190m	Below average	Negative	0	Pass
Pond 3	120m	Average	Negative	0	Pass
Pond 4	150m	Good	Negative	0	Pass
Pond 5	75m	Excellent	Negative	0	Pass
Pond 6	30m	Poor	Negative	0	Pass
Pond 7	On site	Poor	Negative	0	Pass
Pond 8	On site	Below average	Negative	0	Pass
Pond 9	On site	Poor	Negative	0	Pass
Pond 10	25m	Poor	Negative	0	Pass

**Table 5.1: Great Crested Newt eDNA Analysis Result**

- 5.3 The results indicate that eDNA for GCN was detected in one pond, located over 250m from the site area. In the remaining samples eDNA was not detected.

## 6.0 CONCLUSIONS

### Habitats

- 6.1 The ecological importance of the habitats present on site is determined by their presence on the list of Habitats of Principal Importance in England (Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006) and on the Local BAP, along with the intrinsic value of the habitat.
- 6.2 Several minor changes have occurred on site since 2016, largely due to Covid-19 restrictions limiting public use and a relaxation in mowing. Some mown grassland habitats have been left to develop into more semi-natural habitats and horses have been removed from the paddocks, stables and manège. Woodland ground flora has been allowed to establish between mature scattered trees at the north-west of the site.
- 6.3 The mature woodland on site is the most valuable habitat type owing to maturity and species indicative of ancient woodland such as bluebell. The ponds have the potential to be ecologically valuable, subject to the removal of fish stock.

### *Woodland*

- 6.4 The woodland on site is not considered to qualify as a priority woodland habitat owing to its species composition and a lack of key ground flora species to align to appropriate NVC types. However, the habitat is considered of value owing to the maturity of the habitat, the diverse structure and presence of standing and fallen deadwood habitat. Woodland is also an underrepresented habitat within the local area which is largely dominated by open agricultural fields. Current proposals intend to retain the woodland on site and a recommendation is made in Section 7 in relation to woodland protection throughout construction works.
- 6.5 Current proposals indicate that no residential gardens will back onto woodland habitat, minimising the risk of compost fly-tipping. Levels of habitat disturbance are likely to remain as present, as the woodland is currently used for play by children and campers. Enhancement measures could include the removal of invasive species and planting of dense/thorny native shrubs along the woodland edge, to reduce access and encourage the recovery and development of woodland ground flora.

### *Ponds*

- 6.6 Ponds with high ecological quality and/or that support rare and notable flora and fauna are classed as local and UK priority habitats. The aquatic habitats of ponds on site are in a relatively poor conditions owing to being stocked with fish. However, marginal vegetation within the pond at TN18 is relatively established and this pond is known to support protected species (water vole). This pond is therefore likely to qualify as a priority habitat in suboptimal condition. All ponds on site are to be retained as part of current proposals and recommendations are made in Chapter 7 in relation to protection throughout construction works and habitat enhancement.
- 6.7 Current proposals also intend to create two additional ponds as part of landscaping proposals, resulting in a net gain of this habitat type. Advice is provided in Chapter 7 in relation to maximising the ecological value of any ponds created.

### *Hedgerow*

- 6.8 All native hedgerows measuring over 20m in length qualify as Habitats of Principle Importance, which includes both hedgerow features on site. Current proposals will result in the removal of the 120m defunct, hawthorn hedgerow within the south of the site. A recommendation is made in Chapter 7 for the incorporation of over 120m of native species-rich hedgerow into soft landscaping proposals, as compensation.

### *Other habitats*

- 6.9 No other habitats were identified as potential priority habitats. All grasslands were relatively species-poor with a prominence of rank and agricultural grass species. Site development presents the potential to incorporate areas of species-diverse grassland on site, a recommendation for which is made in Chapter 7.

### Invasive species

- 6.10 Japanese knotweed and variegated yellow archangel are present within the site area. These species are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), and as such it is illegal to cause these species to spread into the wild.
- 6.11 The footprint of the proposed development will not directly impact upon areas of Japanese knotweed and variegated yellow archangel, however construction work poses a high risk of inadvertently causing these invasive species to spread due to ground disturbance and movement of site personnel and machinery within contaminated areas. In addition, future residents may also accidentally cause these species to spread.
- 6.12 An invasive species management plan is recommended in Chapter 7.

### Amphibians

#### *Great crested newt*

- 6.13 As per 2016 conclusions, no great crested newts were identified within ponds within 250 m of the proposed development site. The proposed development site is located within 'distant terrestrial habitat' for the GCN population identified, and the risk of impacting upon GCN is highly unlikely. However, as a precaution, and owing to the likely presence of common amphibian species, a working method statement is recommended, detailed in Chapter 7.
- 6.14 Soft landscaping proposals include the creation of two new ponds and also present the opportunity to enhance existing, retained habitats site for amphibians. The removal of fish stock from ponds would significantly improve pond conditions for breeding amphibians. The two new ponds will be located within the centre of a roundabout. Reference should be made to the Great Crested Newt Conservation Handbook (Langton et al., 2001), which provides guidance on aquatic and terrestrial habitat creation suitable for amphibians. The inclusion of amphibian underpasses may increase chances of occupation.

### *Nesting birds*

- 6.15 Several nests were observed on site including swallow *Hirundo rustica* nests within the stables and blue tit *Cyanistes caeruleus* nests within man-made structures. The woodland, hedgerow, trees and shrubs also provide suitable bird nesting habitat. A recommendation is made in Chapter 7 in relation to timing of site

clearance to avoid nesting bird season, and for the inclusion of swallow nest cups within any proposed sheltered structures such as car ports.

### Other species

#### *Brown hare*

- 6.16 One brown hare was seen on site during the survey, which is a Species of Principle Importance for nature conservation in England (NERC Act, 2006). The hare was seen within an area of open grassland which is usually utilised as a campsite outside of pandemic restrictions. It is likely that the site is usually of negligible value for brown hare owing to disturbance from the campsite. The surrounding open grassland of is suitable for brown hare and several records were identified by the desk study of brown hare within these fields. It is not considered that site development will adversely affect local populations of this species.

#### *Hedgehog*

- 6.17 The site provides suitable foraging, refuge and hibernation habitat for hedgehog. The overall layout of the development is unlikely to displace this species from the site, if present, owing to the retention of woodland, pond and grassland habitats. However, individual hedgehogs may be impacted upon throughout construction works and as such precautionary recommendations is made in Chapter 7 in relation to working methods.

#### *Invertebrates*

- 6.18 A number of common invertebrates were recorded during the Phase 1 Habitat Survey. Soft landscaping proposals must include areas of invertebrate attracting planting, as recommended in Chapter 7.
- 6.19 Any recommendations in relation to protected species and nature conservation sites will be made by Arbtech Ltd including:
- Badger
  - Barn owl
  - Water vole
  - Reptiles
  - European sites and associated bird assemblages
  - Roosting bats
  - Barn owl

## 7.0 REQUIRED ACTIONS

7.1 The following chapter is based on the Pre-Application Presentation Masterplan (Pre-Application Presentation, Bellair, Prydis, Savills, KTA)

7.2 If and when the above plan is updated, the current report must be reviewed and amended where appropriate.

### Nature Conservation Sites

7.3 Reference should be made to the Updated Habitat Regulations Assessment Report completed by ArbTech.

### Habitats

#### Woodland

7.4 A buffer of semi-natural habitats measuring at least five metres in width should be allowed for along woodland edges as part of detailed landscaping proposals.

7.5 All woodland and trees on and adjacent to the site, which are not to be removed as a part of the proposed works, shall be protected in accordance with British Standard "Trees in relation to construction - Recommendations" BS5837:2005. Protection will be installed on site prior to the commencement of any works on site. Root protection areas are shown on Appletons Tree Survey Plans 1586/2016/01 and 1586/2016/02.

7.6 A Construction Environmental Management Plan (CEMP) will be implemented to minimise any potential indirect impacts of construction works to retained site habitats including woodland. This will incorporate good working practices to minimise noise, dust, artificial light, run-off and pollution.

#### Ponds

7.7 A Construction Environmental Management Plan (CEMP) will be implemented to minimise any potential indirect impacts of construction works to retained site habitats including ponds. This will incorporate good working practices to minimise noise, dust, artificial light, run-off and pollution.

#### Hedgerow

7.8 At least 120m of native hedgerow habitat should be incorporated into the proposed landscaping scheme to compensate for the proposed removal of existing hedgerow.

#### Habitat enhancement

7.9 In accordance with relevant National Planning Policy Framework (Conserving and Enhancing the Natural Environment), biodiversity enhancement measures should be incorporated into the proposed landscaping scheme to maximise the ecological value of the site. For the site at Great Birchwood, Warton, appropriate measures include could include the following:

- A belt of native scrub planted along woodland edges will minimise disturbance from people and dogs.
- Removal of invasive non-native species.
- Discontinue the introduction of fish stock into ponds.
- Wildlife pond creation.



- Species-rich grassland creation.
- Species-rich hedgerow creation.
- Invertebrate attracting planting schedule.
- Installation of features such as bird and bat boxes.
- Installation of a barn owl nest box.

### **Protected / Priority Species**

- 7.10 Arbtech have updated the survey work in relation to bat, badger, water vole and badger. Recommendations detailed within the related, appropriate Arbtech reports should be adhered to.

#### Nesting birds

- 7.11 To ensure compliance with the Wildlife and Countryside Act 1981 (as amended), any vegetation clearance and building/structure demolition should be undertaken outside of the nesting bird season. The nesting bird season is weather dependent but generally extends between March and September inclusive. If this is not possible then any vegetation or structures that are to be removed or disturbed should be checked by an experienced ecologist for nesting birds immediately prior to works commencing. If birds are found to be nesting, any works which may affect them would have to be delayed until the young have fledged and the nest has been abandoned naturally.

- 7.12 Suitable structures for nesting swallows should be incorporated into finalised design proposals, such as sheltered car ports or covered bin storage areas for example. Swallow cups should then be installed internally at the apex of the structures. Further advice in relation to swallow habitat creation can be found at the following link: <https://www.cornwall.gov.uk/media/0azjdwic/accommodating-swallows-swifts-and-house-martins.pdf>

#### Amphibians

- 7.13 The following precautionary method statement should be adhered to:

#### *Pre-construction: Habitat Removal Techniques and Measures*

##### *Above ground Tree / Hedgerow Removal*

- All necessary tree and hedgerow removal shall be felled by hand using a chainsaw and cut no lower than 150mm above ground. The resultant log and brash piles of the felled tree shall not be left within the proposed works area overnight, unless stored off the ground within a skip or similar. If appropriate, logs and brash could be used to create hibernacula for amphibians outside of the works area.

##### *Removal of grassland/ruderal habitat*

- All long vegetation to be removed shall be directionally strimmed towards the northern, eastern or western site perimeters. As an absolute precaution and in the interests of common amphibians and small mammals (such as field voles and potentially hedgehog), this will be completed using strimmers to a height of no less than 150mm from the ground. Following cutting, the arisings will be raked off site using wooden rakes. The cut habitats shall then be left undisturbed for at least two full nights to allow any remaining animals such as small mammals to disperse out of the site area.

Any fauna uncovered (such as hedgehogs or common amphibians) shall be moved to woodland habitats adjacent to the northern site boundary.

#### *Removal of refuges*

- The base and roots of the cut trees shall be carefully dug up under the supervision of a suitably experienced ecologist so that potential refuges can be examined for the presence of amphibians.
- Potential hibernation and resting areas shall be checked by a suitably experienced ecologist prior to removal and removed by the ecologist if possible. Potential hibernation/resting areas generally consist of sheltered or subsurface cavities, such as those found within log piles, brick piles, beneath paving slabs and urban debris, at the base of grass tussocks, between tree roots and within mammal holes.

#### *Throughout Works: Worker Awareness and Sympathetic Working Practices*

- Staff working on site will be made aware that the site and local area supports populations of amphibians and that although unlikely, there is a low risk of GCN being present.
- An information poster shall be erected in the site cabin detailing methodologies of works with respect to protected species including GCN.
- Although an encounter with GCN is considered a remote possibility, all contractors will be made aware of how to identify this species. To aid identification, a poster will be used during toolbox talks and initial site inductions, and pinned on a site notice board.
- Amphibians like to hide under refuges such as those discussed above. Staff must simply demonstrate awareness when working and moving materials. Should an animal other than a GCN be found it shall be gently moved, for example in a clean bucket, to a suitable location within habitat well away from the working area. Mill Dam Wood SBI immediately north of the site would provide a suitably undisturbed location to relocate any amphibians to.
- Workers must ensure trenches and other steep-sided excavations are backfilled before nightfall. Should this not be possible, a ramp will be left to allow fauna to easily exit.
- Amphibians will utilise stacked materials such as wood, stone, boards or metal sheets as refuges. Keep the site tidy and stored materials off the ground wherever possible – for example on pallets or within skips.
- Should it be necessary to store materials such as topsoil on site then the stockpile will be smoothed to prevent access by amphibians into potential cavities.
- Works will be restricted to the designated development area and the impact of works on adjacent habitats avoided by site fencing. No storage of materials or driving of vehicles will take place outside of the development area.

### Action in Response to Great Crested Newts

- Should a GCN be recorded during the construction period, all works will cease and a licenced ecologist contacted immediately who will advise on further action. The ecologist will liaise as appropriate with the local planning authority ecologist and Natural England.

### Drainage

- No drainage that can trap amphibian species, such as gully pot drainage, will be used as part of the development.

### Hedgehog

7.14 The following precautionary measures should be adhered to:

#### *Development / landscaping design*

- Gaps measuring a minimum of 13cm by 13cm shall be created within gravel boards at the bases of any fences on site, providing access for hedgehogs into and between residential gardens. Alternatively, gravel boards shall be lifted ~13cm from the ground.
- Log piles shall be created within retained woodland habitats as refugia, and two hedgehog hibernation domes shall be installed within discrete, undisturbed habitats at the east of the site.

#### *Pre-construction*

- Contractors shall be given a 'toolbox talk' in respect of the potential presence of hedgehog. This will highlight the precautionary methods to be in place throughout construction works to protect the species and include information on their recognition.
- A suitably experienced ecologist shall check all suitable features and vegetation immediately prior to vegetation clearance. This is of particular importance during the winter months as hedgehogs maybe resting and hibernating within dense vegetation.
- Any hedgehogs found shall be moved by the ecologist to a suitable similar habitat adjacent to the site, or allowed to move away on its own accord, before any further clearance can occur.

#### *Throughout construction*

- As hedgehogs are more active during the night, any construction works that creates potential hazards such as voids and steep sided holes that could act as pitfall traps to hedgehogs shall be securely enclosed or covered over at the end of the day's work and shall not be left open overnight. If this cannot be avoided holes and trenches will have a means of escape, such as a stout branch provided for any animals that may fall in. Any open-ended pipes and other material stored on site shall be covered and checked for hedgehogs before being moved.

### **Invasive species**

7.15 An invasive species management plan for the control of Japanese knotweed and variegated yellow archangel should be compiled and implemented.

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<http://jncc.defra.gov.uk/page-6387>

Ministry of Housing, Communities and Local Government (2018). National Planning Policy Framework.

Available:

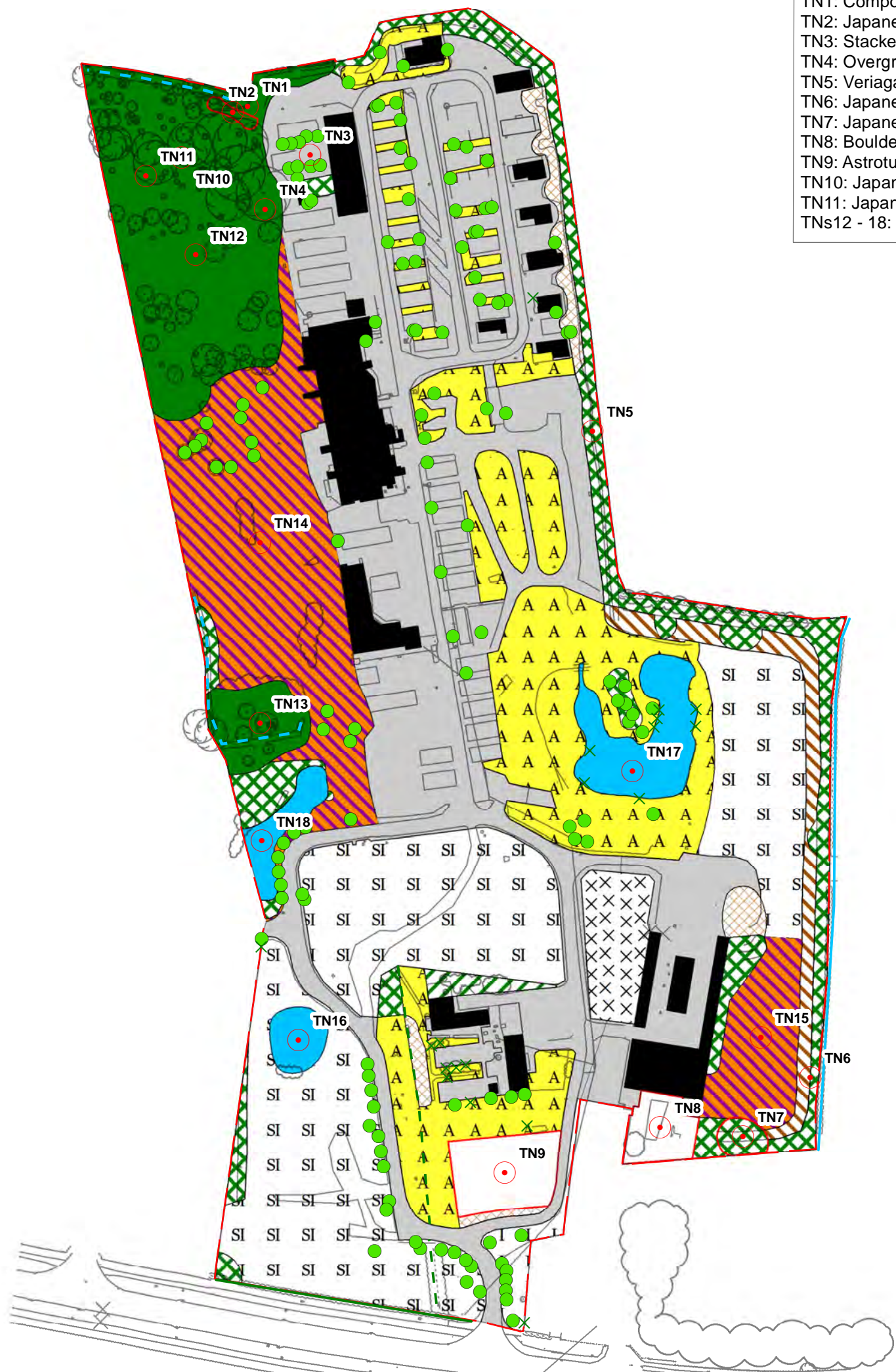
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/728643/Revised\\_NPPF\\_2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728643/Revised_NPPF_2018.pdf)

Natural England. Multi Agency Geographic Information for the Countryside (MAGIC). Available:

<http://www.magic.gov.uk/>





**APPENDIX 1**



**Target notes**  
 TN1: Compost heap  
 TN2: Japanese knotweed  
 TN3: Stacked/stored materials  
 TN4: Overgrown log pile, resulting from large felled tree  
 TN5: Veriegated yellow archangel  
 TN6: Japanese knotweed  
 TN7: Japanese knotweed  
 TN8: Boulders, stacked wood and tipped/stored materials  
 TN9: Astroturf  
 TN10: Japanese knotweed  
 TN11: Japanese knotweed  
 TNs12 - 18: Habitat locations referenced in text

- Legend**
- Site boundary
  - Scattered trees
  - Scattered scrub
  - Target note
  - Species-poor defunct hedgerow
  - Species-poor intact hedgerow
  - Dry ditch
  - Wet ditch
  - Target note area
  - Semi-natural broadleaved woodland
  - Plantation broadleaved woodland
  - Dense scrub
  - Improved grassland
  - Marsh grassland
  - Semi-improved grassland
  - Tall ruderal herb
  - Standing water
  - Amenity grassland
  - Scattered scrub
  - Introduced shrub
  - Building
  - Hardstanding

Project	Great Birchwood Country Park, Warton			
Title	2021 Phase 1 Habitat Plan			
Client	Savills			
Date	16.04.21	Scale		1:1,800 @ A3
Drawn	PB	Drawing No.		1586-E3-01
Checked	LM	Revision	-	


 Appletons: 17 Chorley Old Road, Bolton BL1 3AD. Tel: 01204 393026 Fax: 01204 388792  
 Web: www.appletons.uk.com Email: info@appletons.uk.com



**APPENDIX 2**

Site Check Report Report generated on Thu Jul 08 2021  
**You selected the location:** Centroid Grid Ref: SD39582820  
 The following features have been found in your search area:

#### National Nature Reserves (England)

**Name**

RIBBLE ESTUARY

**Reference**

1006123

**Hectares**

5231.22

**Hyperlink**

<https://www.gov.uk/government/publications/lancashires-national-nature-reserves/lancashires-national-nature-reserves#ribble-estuary>

#### Ramsar Sites (England)

**Name**

RIBBLE & ALT ESTUARIES

**Reference**

UK11057

**Hectares**

13488.48

#### Sites of Special Scientific Interest (England)

**Name**

Ribble Estuary SSSI

**Reference**

1003787

**Natural England Contact**

C2L Innovation & Support Team

**Natural England Phone Number**

0845 600 3078

**Hectares**

9348.7

**Citation**

1004299

**Hyperlink**

<http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1004299>

#### Special Protection Areas (England)

**Name**

RIBBLE & ALT ESTUARIES

**Reference**

UK9005103

**Hectares**

12447.14

#### Local Nature Reserves (England) - points

No Features found

#### Local Nature Reserves (England)

No Features found

#### National Nature Reserves (England) - points

No Features found

#### Ramsar Sites (England) - points

No Features found

#### Proposed Ramsar Sites (England) - points

No Features found

#### Proposed Ramsar Sites (England)

No Features found

#### Sites of Special Scientific Interest (England) - points

No Features found

#### Special Areas of Conservation (England) - points

No Features found

#### Special Areas of Conservation (England)

No Features found

#### Possible Special Areas of Conservation (England) - points

No Features found

#### Possible Special Areas of Conservation (England)

No Features found

#### Special Protection Areas (England) - points

No Features found

#### Potential Special Protection Areas (England) - points

No Features found

#### Potential Special Protection Areas (England)



No Features found

Site Check Report Report generated on Thu Jul 08 2021

**You selected the location:** Centroid Grid Ref: SD39552819

The following features have been found in your search area:

**SSSI Impact Risk Zones - to assess planning applications for likely impacts on SSSIs/SACs/SPAs & Ramsar sites (England)**

**1. DOES PLANNING PROPOSAL FALL INTO ONE OR MORE OF THE CATEGORIES BELOW?**

2. IF YES, CHECK THE CORRESPONDING DESCRIPTION(S) BELOW. LPA SHOULD CONSULT NATURAL ENGLAND ON LIKELY RISKS FROM THE FOLLOWING:

**All Planning Applications**

All planning applications (except householder) outside or extending outside existing settlements/urban areas affecting greenspace, farmland, semi natural habitats or landscape features such as trees, hedges, streams, rural buildings/structures.

**Infrastructure**

Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals.

**Wind & Solar Energy**

Solar schemes with footprint > 0.5ha, all wind turbines.

**Minerals, Oil & Gas**

Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.

**Rural Non Residential**

Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m<sup>2</sup> or footprint exceeds 0.2ha.

**Residential**

Residential development of 10 units or more.

**Rural Residential**

Any residential developments outside of existing settlements/urban areas with a total net gain in residential units.

**Air Pollution**

Any development that could cause AIR POLLUTION or DUST either in its construction or operation (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons/manure stores).

**Combustion**

All general combustion processes. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.

**Waste**

Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management.

**Composting**

Any composting proposal. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.

**Discharges**

Any discharge of water or liquid waste that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream.

**Water Supply**

**Notes 1**

New residential developments in this area should consider recreational disturbance impacts on the coastal designated sites. Please consider this issue in the HRA screening.

**Notes 2**

**GUIDANCE - How to use the Impact Risk Zones**

[/Metadata for magic/SSSI IRZ User Guidance MAGIC.pdf](#)

**1. DOES PLANNING PROPOSAL FALL INTO ONE OR MORE OF THE CATEGORIES BELOW?**

2. IF YES, CHECK THE CORRESPONDING DESCRIPTION(S) BELOW. LPA SHOULD CONSULT NATURAL ENGLAND ON LIKELY RISKS FROM THE FOLLOWING:

**All Planning Applications**

All planning applications (except householder) outside or extending outside existing settlements/urban areas affecting greenspace, farmland, semi natural habitats or landscape features such as trees, hedges, streams, rural buildings/structures.

**Infrastructure**

Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals.

**Wind & Solar Energy**

Solar schemes with footprint > 0.5ha, all wind turbines.

**Minerals, Oil & Gas**

Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.

**Rural Non Residential**

Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m<sup>2</sup> or footprint exceeds 0.2ha.

**Residential**

Residential development of 10 units or more.

### **Rural Residential**

Any residential developments outside of existing settlements/urban areas with a total net gain in residential units.

#### **Air Pollution**

Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m<sup>2</sup>, slurry lagoons > 200m<sup>2</sup> & manure stores > 250t).

#### **Combustion**

General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/combustion.

#### **Waste**

Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.

#### **Composting**

Any composting proposal with more than 500 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.

#### **Discharges**

Any discharge of water or liquid waste of more than 2m<sup>3</sup>/day to ground (ie to seep away) or to surface water, such as a beck or stream.

#### **Water Supply**

##### **Notes 1**

New residential developments in this area should consider recreational disturbance impacts on the coastal designated sites. Please consider this issue in the HRA screening.

##### **Notes 2**

#### **GUIDANCE - How to use the Impact Risk Zones**

[/Metadata for magic/SSSI IRZ User Guidance MAGIC.pdf](#)

#### **1. DOES PLANNING PROPOSAL FALL INTO ONE OR MORE OF THE CATEGORIES BELOW?**

2. IF YES, CHECK THE CORRESPONDING DESCRIPTION(S) BELOW. LPA SHOULD CONSULT NATURAL ENGLAND ON LIKELY RISKS FROM THE FOLLOWING:

#### **All Planning Applications**

All planning applications (except householder) outside or extending outside existing settlements/urban areas affecting greenspace, farmland, semi natural habitats or landscape features such as trees, hedges, streams, rural buildings/structures.

#### **Infrastructure**

Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals.

#### **Wind & Solar Energy**

Solar schemes with footprint > 0.5ha, all wind turbines.

#### **Minerals, Oil & Gas**

Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.

#### **Rural Non Residential**

Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m<sup>2</sup> or footprint exceeds 0.2ha.

#### **Residential**

Residential development of 10 units or more.

#### **Rural Residential**

Any residential developments outside of existing settlements/urban areas with a total net gain in residential units.

#### **Air Pollution**

Any development that could cause AIR POLLUTION (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons/manure stores).

#### **Combustion**

All general combustion processes. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/combustion.

#### **Waste**

Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management.

#### **Composting**

Any composting proposal. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.

#### **Discharges**

Any discharge of water or liquid waste that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream.

#### **Water Supply**

##### **Notes 1**

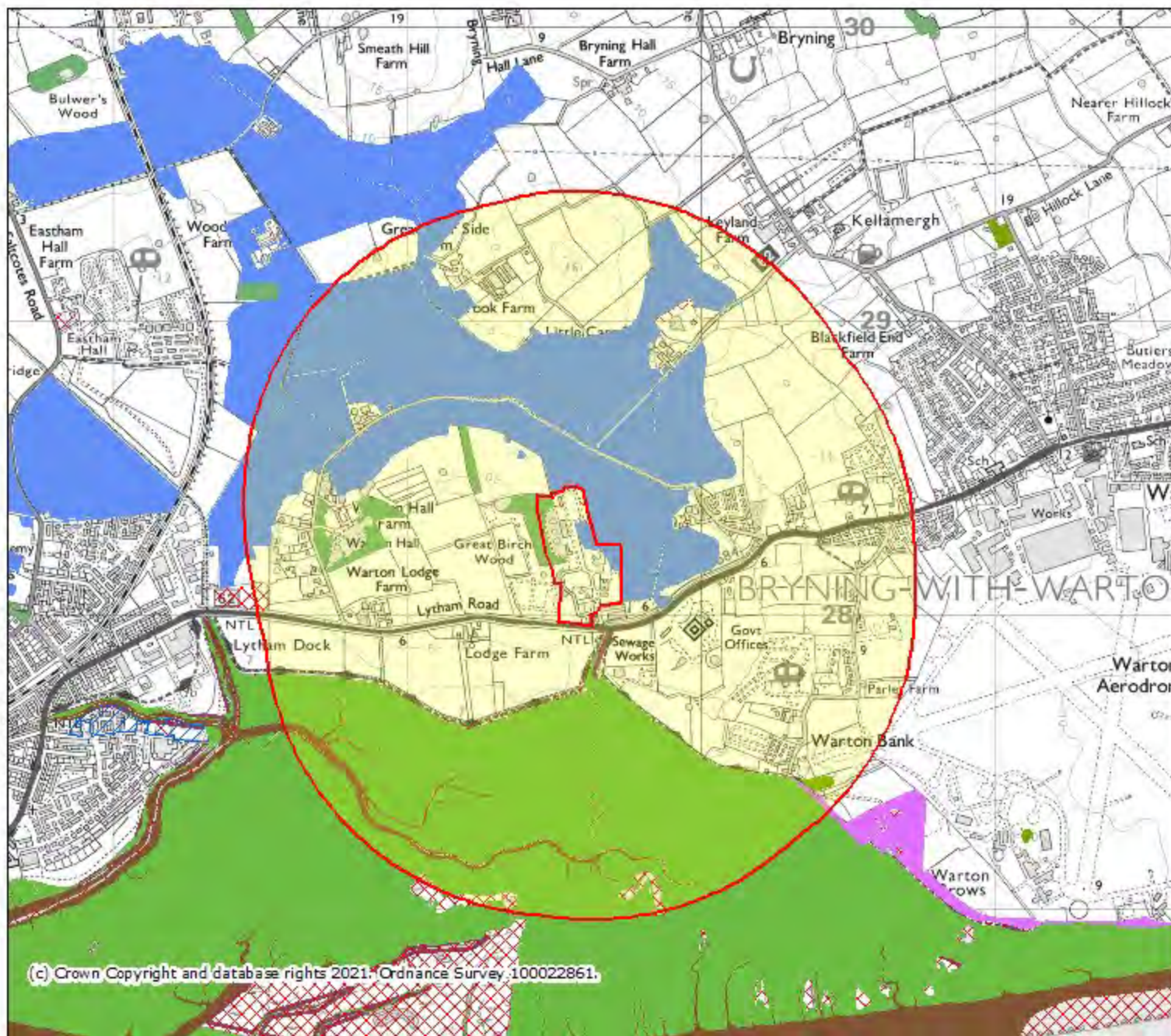
New residential developments in this area should consider recreational disturbance impacts on the coastal designated sites. Please consider this issue in the HRA screening.

##### **Notes 2**

#### **GUIDANCE - How to use the Impact Risk Zones**

[/Metadata for magic/SSSI IRZ User Guidance MAGIC.pdf](#)

### APPENDIX 3: Site Photographs



### Legend

- Priority Habitat Inventory - Coastal Saltmarsh (England)
- Priority Habitat Inventory - Mudflats (England)
- Priority Habitat Inventory - Coastal and Floodplain Grazing Marsh (England)
- Priority Habitat Inventory - Good quality semi-improved grassland (Non Priority) (England)
- Priority Habitat Inventory - Deciduous Woodland (England)
- Priority Habitat Inventory - Traditional Orchards (England)
- Woodpasture and Parkland BAP Priority Habitat (England)
- Open Mosaic Habitat (Draft)
- Priority Habitat Inventory - No main habitat but additional habitat exists (England)

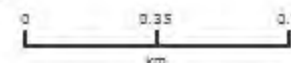
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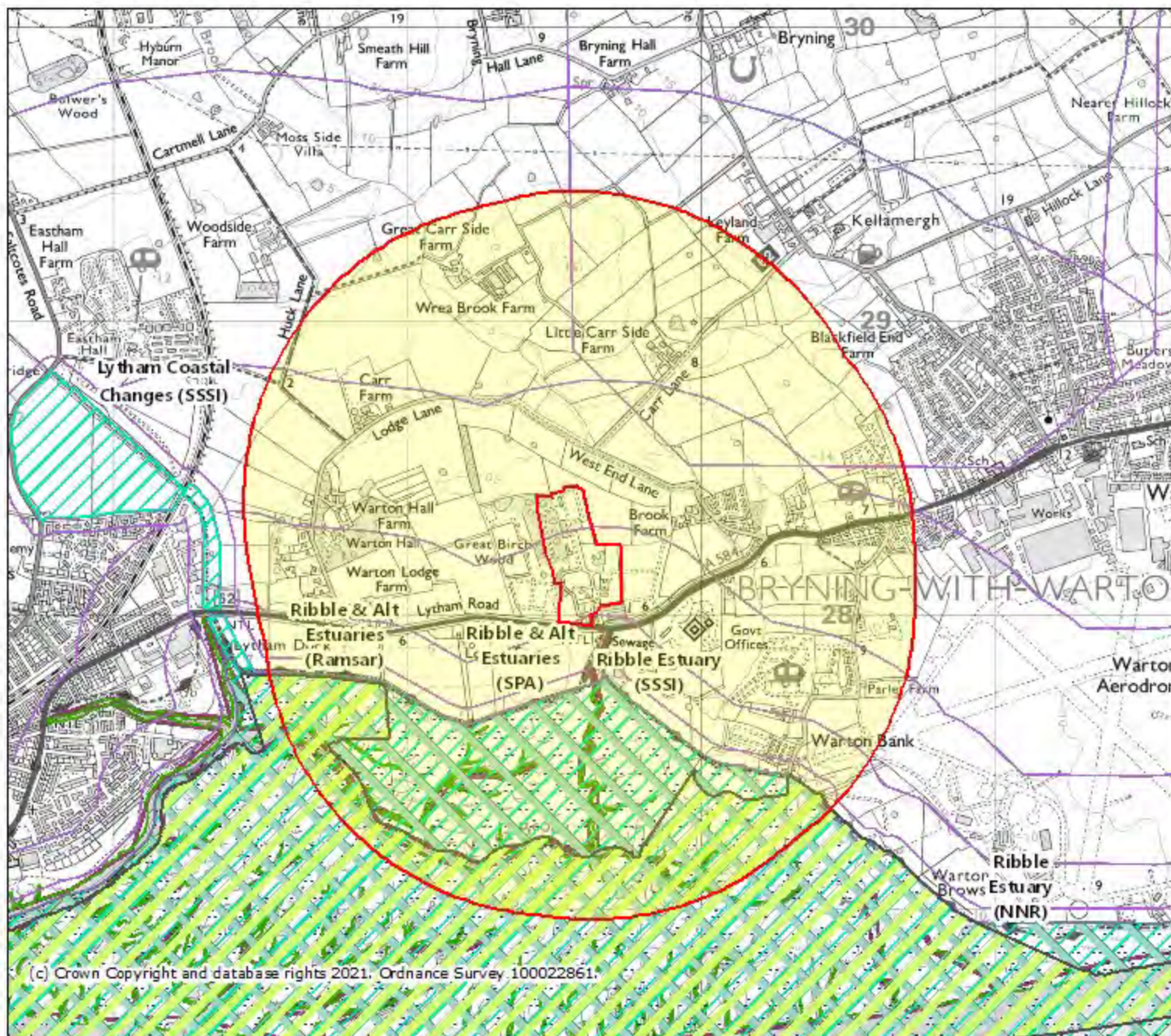
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ymax = 430800



Map produced by MAGiC on 15 July, 2021.

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### Legend

National Nature Reserves (England)

Ramsar Sites (England)

Sites of Special Scientific Interest (England)

SSSI Impact Risk Zones - to assess planning

applications for likely impacts on SSSIs/SACs/SPAs & Ramsar sites (England)

Special Areas of Conservation (England)

Special Protection Areas (England)

### Marine Conservation Zones (England)

Designated

Projection = OSGB36

xmin = 334600

ymin = 425900

xmax = 344700

ymax = 430800

Map produced by MAGIC on 15 July, 2021.

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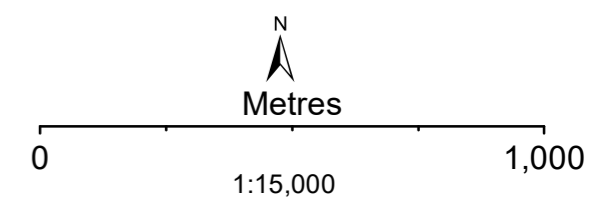
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Lancashire County Council 100023320 2021.

**Project:**  
Great Birchwood Country Park Warton  
**Client:**  
Appletons  
**Grid Ref:** 339592 428195

**Legend**

-  250 m Buffer
-  500 m Buffer
-  1 km Buffer
-  2 km Buffer
-  Lancashire Key Species
-  Bat Roost or Possible Roost
-  Other Bat Record
-  SLBG Bat Roost or Possible Roost
-  SLBG Other Bat Record
-  Lancashire INNS
-  Biological Heritage Sites
-  Marine Conservation Zones
-  Natura 2000
-  SSSI
-  Pink-footed Goose Major Feeding Area
-  Pink-footed Goose Regular Flyover Area
-  Whooper Swan SWA

**N.B. THIS IS AN INTERACTIVE PDF  
LAYERS CAN BE TURNED ON OR OFF  
TO AID CLARITY.**

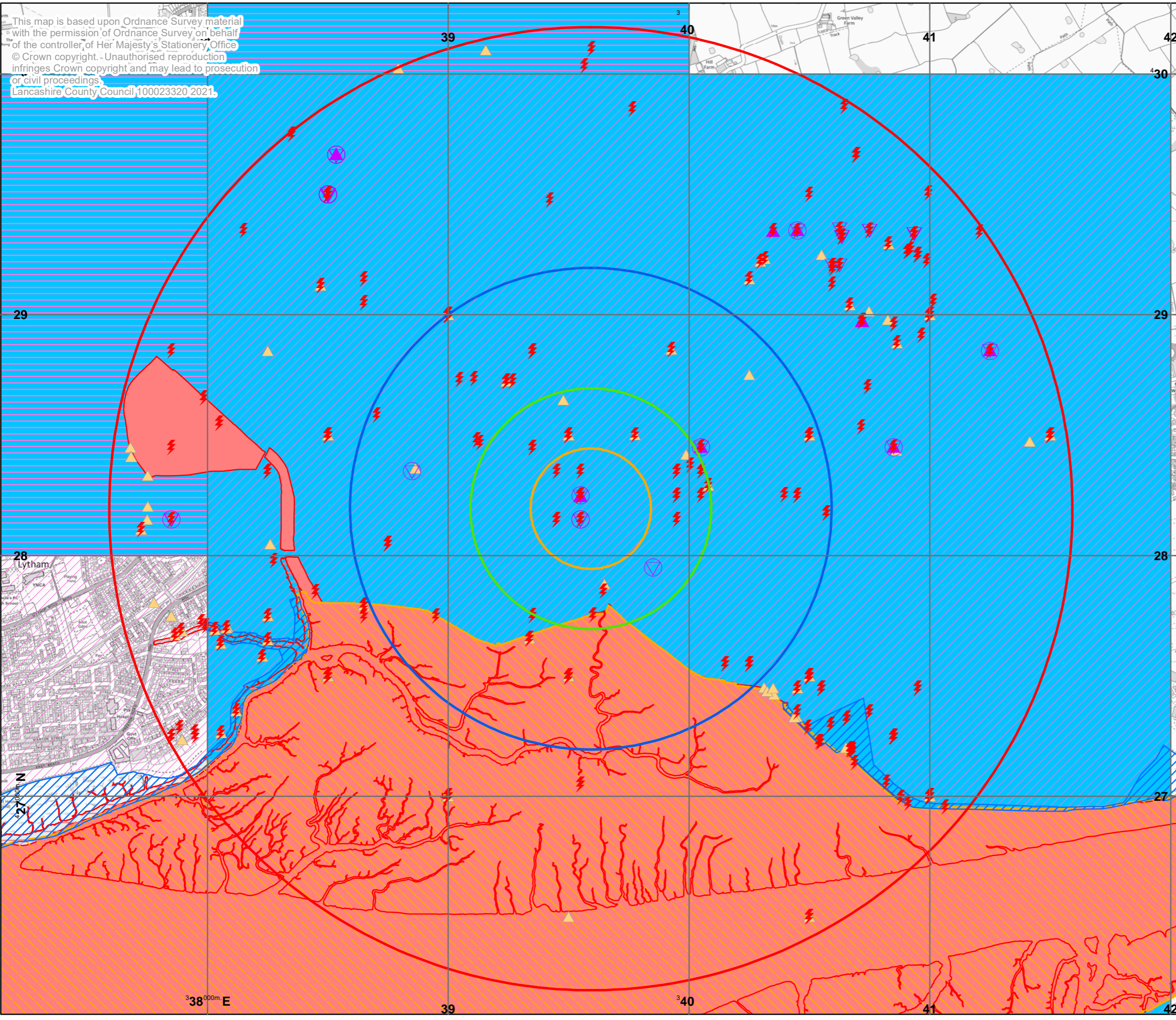


*Boundaries of statutory designations (Natura 2000, SSSI etc) are included for information only. Definitive information for these designations should be obtained from Natural England.*

*Lancashire Key Species records are plotted at the centre of the area to which they relate (the precision of each record is given in the accompanying attribute data and spreadsheet).*

*NBN Atlas occurrence download at <https://hbnatlas.org> accessed on Fri Oct 20 12:44:41 UTC 2017. See supporting documentation for citations and further information.*

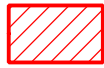
Lancashire Environment Record Network  
C/O Planning Group  
Environment Directorate,  
Lancashire County Council,  
PO Box 100,  
County Hall,  
Preston. PR1 0LD



# Lancashire County Heritage Sites

## Biological Heritage Site

Lytham Foreshore Dunes and Saltmarsh



**Site Boundary**

Ref No. 32NW01

**Biological Heritage Sites Partnership**

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This map shows only the boundary of the Biological Heritage Site named above. It does not show any other designated sites which may occur within the area covered by the map.

© Lancashire County Council

© The Wildlife Trust for Lancashire,  
Manchester and North Merseyside  
Natural England



Grid ref. SD346271

Scale 1:50,000

Site approved

Map 1 of 1

Boundary revised

Date of Map 29/09/14



# Lancashire County Heritage Sites

## Biological Heritage Site

Warton Brows

 **Site Boundary**

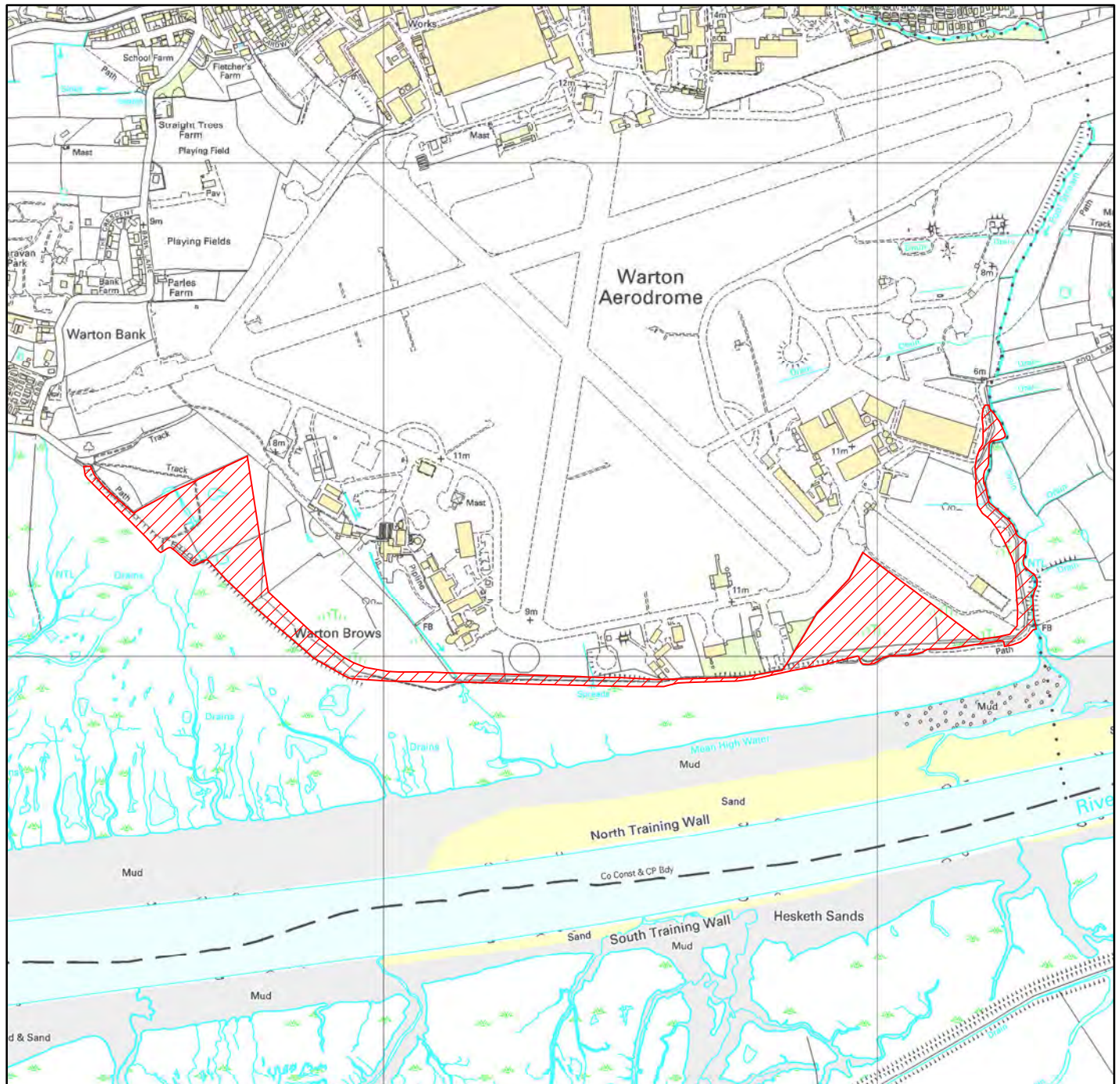
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This map shows only the boundary of the Biological Heritage Site named above. It does not show any other designated sites which may occur within the area covered by the map.

Ref No. 42NW02

**Biological Heritage Sites Partnership**

- © Lancashire County Council
- © The Wildlife Trust for Lancashire, Manchester and North Merseyside Natural England



Grid ref. SD413269

Scale 1:12,000

Site approved

Map 1 of 1

Boundary revised

Date of Map 29/09/14







**APPENDIX 3**



**Photo 1: Marshy grassland at TN14 looking north**



**Photo 2: Marshy grassland at TN14 looking S**



**Photo 3: Woodland at TN12 with unmown ground flora**



**Photo 4: Woodland at TN12**



**Photo 5: Standing deadwood at TN14 woodland edge**



**Photo 6: Target note 3 area – stacked wood**



**Photo 7: Japanese knotweed at TN2**



**Photo 8: Typical of ornamental planting on site**



**Photo 9: Mown amenity grassland on site**



**Photo 10: Variegated yellow archangel**



**Photo 11: Japanese knotweed at TN7**



**Photo 12: Marshy grassland at TN15**



**Photo 13: Horse manege**



**Photo 14: Building on site**



**Photo 15: Woodland at TN13**



**Photo 16: Pond 1**



**Photo 17: Pond 2**



**Photo 18: Pond 3**



**Photo 19: Pond 4**



**Photo 20: Pond 5**



**Photo 21: Pond 7**



**Photo 22: Pond 8**



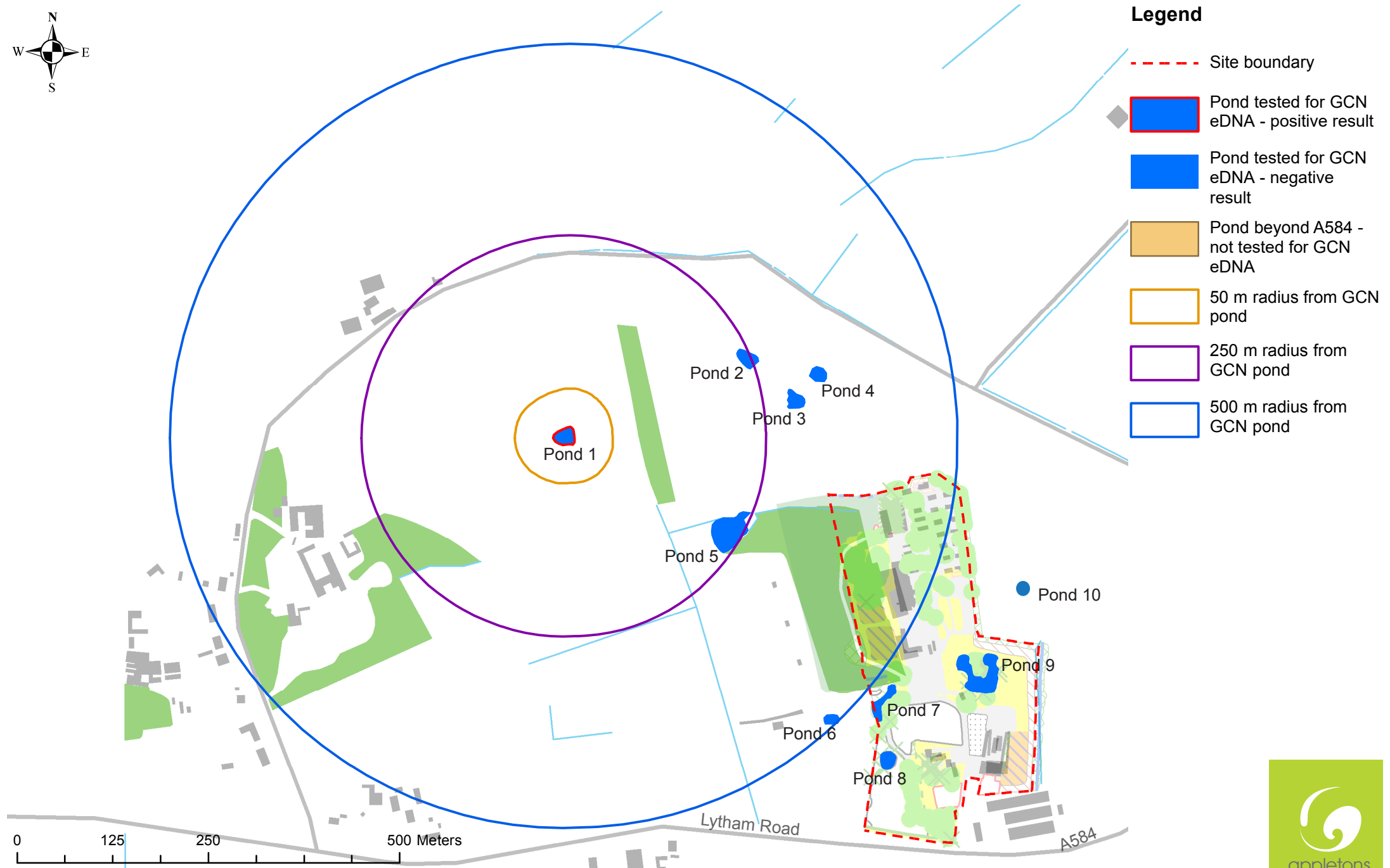
**Photo 23: Pond 9**



**Photo 24: Pond 10**



**APPENDIX 4**



# GREAT BIRCHWOOD, WARTON

Drawing 1586-E3-02  
Drawing Title: GCN Distribution Plan



Folio No: E9288  
 Report No: 1  
 Purchase Order: 1586  
 Client: APPLETONS  
 Contact: Paula Bateson

## TECHNICAL REPORT

### ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

#### SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

#### RESULTS

**Date sample received at Laboratory:** 19/04/2021  
**Date Reported:** 28/04/2021  
**Matters Affecting Results:** None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
1155	Gr B Pond 6	SD 39460 28132	Pass	Pass	Pass	Negative	0
1157	Gr B Pond 2	SD 39338 28601	Pass	Pass	Pass	Negative	0
1158	Gr B Pond 4	SD 39431 28577	Pass	Pass	Pass	Negative	0
1159	Gr B Pond 3	SD 39403 28531	Pass	Pass	Pass	Negative	0
1160	Gr B Pond 1	SD 39120 28483	Pass	Pass	Pass	Positive	8
1161	Gr B Pond 9	SD 39649 28188	Pass	Pass	Pass	Negative	0
1162	Gr B Pond 8	SD 39535 28073	Pass	Pass	Pass	Negative	0





If you have any questions regarding results, please contact us: [ForensicEcology@surescreen.com](mailto:ForensicEcology@surescreen.com)

**Reported by:** Chris Troth

**Approved by:** Chris Troth

## **METHODOLOGY**

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

## **INTERPRETATION OF RESULTS**

- SIC:**            **Sample Integrity Check** [Pass/Fail]  
When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.
- DC:**            **Degradation Check** [Pass/Fail]  
Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.
- IC:**            **Inhibition Check** [Pass/Fail]  
The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.
- Result:**        **Presence of GCN eDNA** [Positive/Negative/Inconclusive]  
**Positive:** GCN DNA was identified within the sample, indicative of GCN presence within the sampling



location at the time the sample was taken or within the recent past at the sampling location.

**Positive Replicates:** Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.

**Negative:** GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.



Folio No: E9595  
Report No: 1  
Purchase Order: 1586  
Client: APPLETONS  
Contact: Paula Bateson

## TECHNICAL REPORT

### ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (*TRITURUS CRISTATUS*)

#### SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

#### RESULTS

**Date sample received at Laboratory:** 23/04/2021  
**Date Reported:** 07/05/2021  
**Matters Affecting Results:** None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
1156	POND 5	SD 39317 28375	Pass	Pass	Pass	Negative	0
3228	POND 10	SD 39660 28295	Pass	Pass	Pass	Negative	0

If you have any questions regarding results, please contact us: [ForensicEcology@surescreen.com](mailto:ForensicEcology@surescreen.com)

**Reported by:** Chris Troth

**Approved by:** Chris Troth



## **METHODOLOGY**

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

## **INTERPRETATION OF RESULTS**

- SIC:**           **Sample Integrity Check** [Pass/Fail]  
When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.
- DC:**           **Degradation Check** [Pass/Fail]  
Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.
- IC:**           **Inhibition Check** [Pass/Fail]  
The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.
- Result:**       **Presence of GCN eDNA** [Positive/Negative/Inconclusive]  
**Positive:** GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location.  
**Positive Replicates:** Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.  
**Negative:** GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.





**APPENDIX 5**

## Habitat Suitability

All surveyed ponds were visually assessed for their suitability to support GCN by a suitably qualified ecologist. Ponds were assessed utilising the modified GCN Habitat Suitability Index (HSI) (Oldham *et al*, 2000). The HSI is a numerical index between 0 and 1, wherein a score of 1 represents optimal habitat for GCN. The HSI score is used to define the suitability of the pond on a categorical scale (Table 1). It should be noted, however, that the system is not precise enough to allow the conclusion that a pond with a high score will definitely support GCN whilst those with a low score will not.

HSI Score	Pond Suitability
< 0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
> 0.8	Excellent

**Table 1: Great Crested Newt HSI Scoring**

The HSI is given by assigning a quantitative figure to each of 10 variables, including pond area, water quality and level of shading, which are all factors considered to affect GCN. The tenth root of the product of these variables is then calculated, giving a figure for habitat suitability. An assessment was also made of the habitat connectivity between ponds and the site, based on a review of habitat survey data (if available) and mapped sources.

Attribute	Description	HSI Score
<b>Pond 1</b>		
<b>Description</b>	Unfenced circular pond in a field of cattle grazed improved grassland. The pond banks comprised coarse grassland with Yorkshire-fog <i>Holcus lanatus</i> , reed canary-grass <i>Phalaris arundinacea</i> and occasional bramble <i>Rubus fruticosus</i> agg. Shallow margins with established tall marginal vegetation. Margins shelved towards the middle. Western pond margin was partially poached by cows. Pond substrate mainly mud. Thin film of algae present in places.	
<b>Distance from Proposed Development</b>	290 m north-west.	
<b>Grid Reference</b>	SD 39122 28482. Geographical location optimum.	1.0
<b>Pond Area</b>	12 m diameter. Approximately 150m <sup>2</sup> .	0.3
<b>Permanence</b>	Considered to rarely dry OUT.	1.0
<b>Water Quality</b>	Good based on invertebrate diversity/ water clarity/ aquatic plants.	1.0
<b>Shade</b>	Unshaded.	1.0
<b>Wildfowl</b>	No evidence of wildfowl impacts.	1.0
<b>Fish</b>	No fish recorded throughout 2016 survey period.	1.0
<b>Pond count</b>	Over 4 ponds with connectivity within 1km	1.0
<b>Surrounding Terrestrial Habitat</b>	Moderate: Located within centre of cattle-grazed field. Linear belt of woodland comes within 70 m of pond to the east, and hedgerow comes within 85 m of pond to the south.	0.67
<b>Macrophytes</b>	~70% cover. Species include abundant greater spearwort <i>Ranunculus lingua</i> , hard rush <i>Juncus inflexus</i> , reed canary-grass <i>Phalaris arundinacea</i> and burreed sp <i>Sparganium</i> sp, and locally abundant gypsywort <i>Lycopus europaeus</i> , fool's watercress <i>Apium nodiflorum</i> and creeping bent <i>Agrostis stolonifera</i> .	1.0
<b>Overall suitability score</b>		<b>0.85 (Excellent)</b>

Attribute	Description	HSI Score
<b>Pond 2</b>		
<b>Description</b>	Small unfenced oval pond at the north edge of a silage field. The pond possessed steep banks of improved grassland with occasional grey willow <i>Salix cinerea</i> scrub and a mature crack willow <i>Salix fragilis</i> . A hawthorn <i>Crataegus monogyna</i> hedge formed part of the north boundary of the pond, although part of the north bank extends a short distance beyond the hedge and into the field to the north. The margins of the pond were shallow with established tall emergent vegetation and grey willow scrub. The pond substrate comprised a thick layer of leaf litter. The water level of the pond varied significantly with rainfall throughout the survey period.	
<b>Distance from Proposed development</b>	190 m north.	
<b>Grid Reference</b>	SD 39342 28596. Geographical location optimum.	1.0
<b>Pond Area</b>	120 m <sup>2</sup> approximately.	0.2
<b>Permanence</b>	Considered to rarely dry out.	1.0
<b>Water Quality</b>	Poor based on invertebrate diversity/ water clarity/ aquatic plants.	0.33
<b>Shade</b>	~90%. Pond largely shaded by scrub surrounding and within pond.	0.4
<b>Wildfowl</b>	No evidence of wildfowl.	1.0
<b>Fish</b>	Stickleback <i>Gasterosteus</i> sp. and fish fry present in 2016.	0.33
<b>Pond count</b>	Over 4 ponds with connectivity within 1km	1.0
<b>Surrounding Terrestrial Habitat</b>	Good: Hedgerow directly connects to the pond and provided connectivity to suitable surrounding habitats including woodland.	1.0
<b>Macrophytes</b>	20% cover. The main vegetation present is tall emergent vegetation comprising locally abundant bulrush <i>Typha latifolia</i> , lesser bulrush <i>Typha angustifolia</i> , reed canary-grass <i>Phalaris arundinacea</i> and soft rush <i>Juncus effusus</i> , and occasional water mint <i>Mentha aquatic</i> and amphibious bistort <i>Persicaria amphibia</i> .	0.5
<b>Overall suitability score</b>		<b>0.58 (Below average)</b>
<b>Pond 3</b>		
<b>Description</b>	Oblong unfenced pond within the north of a silage field, crowded by common reed <i>Phragmites australis</i> and grey willow. The pond possessed shallow banks of improved grassland with abundant meadow foxtail <i>Alopecurus pratensis</i> and Yorkshire-fog. The margins and the outer edge of the reedswamp were mostly shallow, but deeper water was present further into the pond. The pond possessed a substrate of leaf litter and common reed litter, with some muddy earth.	
<b>Distance from Proposed Development</b>	120 m north.	
<b>Grid Reference</b>	SD 39389 28544. Geographical location optimum.	1.0
<b>Pond Area</b>	150 m <sup>2</sup> approximately.	0.3
<b>Permanence</b>	Considered to rarely dry out.	1.0
<b>Water Quality</b>	Poor based on invertebrate diversity/ water clarity/ aquatic plants.	0.33
<b>Shade</b>	~50%. Surface of pond partially shaded by willow.	1.0
<b>Wildfowl</b>	No evidence of wildfowl.	1.0
<b>Fish</b>	Single stickleback recorded in 2016.	0.33
<b>Pond count</b>	Over 4 ponds with connectivity within 1km	1.0
<b>Surrounding Terrestrial Habitat</b>	Moderate: Situated within 15 m of hedgerow, which connects to surrounding ponds and habitats including woodland.	0.67
<b>Macrophytes</b>	50% cover. Common reed formed dominant vegetation, which occurs throughout apart from the western and eastern ends and the middle. There was also frequent hemlock water-dropwort <i>Oenanthe crocata</i> and occasional common water-starwort <i>Callitriche stagnalis</i> .	0.8
<b>Overall suitability score</b>		<b>0.67 (Average)</b>

Attribute	Description	HSI Score
<b>Pond 4</b>		
<b>Description</b>	Small circular pond, surrounded by a low semi-derelict barbed wire fence, within the south of a silage field. Established fringe of tall emergent vegetation present along shallow sloping pond margins. One young hawthorn willow present along banks. Muddy earth formed the main substrate of the pond.	
<b>Distance from proposed development</b>	150 m north	
<b>Grid Reference</b>	SD 39431 28571. Geographical location optimum.	1.0
<b>Pond Area</b>	Approximately 60 m <sup>2</sup> .	0.1
<b>Permanence</b>	Considered to rarely dry out.	1.0
<b>Water Quality</b>	Moderate based on invertebrate diversity/ water clarity/ aquatic plants.	0.67
<b>Shade</b>	Less than 5% of pond surface shaded by bankside scrub.	1.0
<b>Wildfowl</b>	No evidence of waterfowl.	1.0
<b>Fish</b>	No fish recorded throughout 2016 survey period. Likely absent.	1.0
<b>Pond count</b>	Over 4 ponds with connectivity within 1km	1.0
<b>Surrounding Terrestrial Habitat</b>	Moderate: Situated within 15 m of hedgerow, which connects to surrounding ponds and habitats including woodland.	0.67
<b>Macrophytes</b>	~60% cover. Tall emergent vegetation comprised lesser bulrush, with occasional yellow iris <i>Iris pseudacorus</i> and hard rush <i>Juncus inflexus</i> , and also occasional water mint. Aquatic species present included occasional common duckweed <i>Lemna minor</i> , amphibious bistort and goldilocks buttercup <i>Ranunculus auricomus</i> .	0.9
<b>Overall suitability score</b>		<b>0.73 (Good)</b>
<b>Pond 5</b>		
<b>Description</b>	Large unfenced pond on the north-western edge of Great Birch Wood. The banks of the pond were steep in places, and crowded by areas of dense bramble scrub, grey willow and alder <i>Alnus glutinosa</i> . Mature oak <i>Quercus</i> sp. trees were also present along the western and southern banks. Willow and alder scrub extended 10 m into the pond in places. Leaf litter formed the dominant substrate of the pond, whilst an area of stony substrate was also recorded. The pond margins varied from shallow to steeply sloping. A narrow drain issued into the pond at its north-eastern corner.	
<b>Distance from proposed development</b>	75 m west.	
<b>Grid Reference</b>	SD 39320 28374. Geographical location optimum.	1.0
<b>Pond Area</b>	Approximately 750 m <sup>2</sup> .	1.0
<b>Permanence</b>	Permanent.	0.9
<b>Water Quality</b>	Moderate based on invertebrate diversity/ water clarity/ aquatic plants.	0.67
<b>Shade</b>	The trees and scrub shade about 70% of the pond margin.	0.8
<b>Wildfowl</b>	No evidence of waterfowl.	1.0
<b>Fish</b>	Carp <i>Cyprinus</i> sp. present along with low numbers of stickleback in 2016.	0.33
<b>Pond count</b>	Over 4 ponds with connectivity within 1km	1.0
<b>Surrounding Terrestrial Habitat</b>	Located adjacent to mature woodland.	1.0
<b>Macrophytes</b>	~40% cover. A fringe of tall emergent vegetation was present along the northern pond margin, comprising bulrush, lesser bulrush and yellow iris. This extended out 5-10m from the north margin, and in one section extended almost across the width of the pond.	0.7
<b>Overall suitability score</b>		<b>0.80 (excellent)</b>



Attribute	Description	HSI Score
<b>Pond 6</b>		
<b>Description</b>	Circular unfenced pond within area of amenity grassland next to a golf driving range. The gently sloping banks comprised rough grassland with locally abundant reed canary-grass and occasional bittersweet <i>Solanum dulcamara</i> . The substrate of the pond was mainly muddy earth. The pond margins were mostly shallow, apart from one short steep section along the north of the pond.	
<b>Distance from proposed development</b>	30 m west.	
<b>Grid Reference</b>	SD 39464 28133. Geographical location optimum.	1.0
<b>Pond Area</b>	Approximately 150 m <sup>2</sup> .	0.3
<b>Permanence</b>	Permanent.	0.9
<b>Water Quality</b>	Moderate based on invertebrate diversity/ water clarity/ aquatic plants.	0.67
<b>Shade</b>	Less than 5% of pond surface shaded by single young crack willow on northern bank.	1.0
<b>Wildfowl</b>	No evidence of waterfowl.	1.0
<b>Fish</b>	Large fish and stickleback recorded during 2016 surveys.	0.01
<b>Pond count</b>	Over 4 ponds with connectivity within 1km	1.0
<b>Surrounding Terrestrial Habitat</b>	Moderate: Located within 20 m of woodland habitat along eastern boundary of golf driving range, adjacent to site.	0.67
<b>Macrophytes</b>	~40% cover. Vegetation comprised abundant water horsetail <i>Equisetum fluvatile</i> , reed canary-grass and bittersweet. Locally abundant hard rush and brooklime <i>Veronica beccabunga</i> were also recorded along with occasional amphibious bistort. Most of the margin had a film of green algae at the time of survey.	0.7
<b>Overall suitability score</b>		<b>0.49 (poor)</b>
<b>Pond 7</b>		
<b>Description</b>	Narrow unfenced pond bordered by amenity grassland to the east and dense bramble hawthorn, grey willow and blackthorn <i>Prunus spinosa</i> scrub to the north, west, and south. Muddy earth and bulrush litter formed the main substrate of the pond, with an area of stony substrate also present at the south-west of the pond. Occasional shallow margins were recorded at the outermost edges of the pond, but the pond margins mostly sloped steeply to deeper water. A narrow drain connected the site driveway to the pond, which was dry at time of survey.	
<b>Distance from proposed development</b>	On site.	
<b>Grid Reference</b>	SD 39515 28141. Geographical location optimum.	1.0
<b>Pond Area</b>	~200m <sup>2</sup> .	0.4
<b>Permanence</b>	Permanent.	0.9
<b>Water Quality</b>	Poor – heavily silted.	0.33
<b>Shade</b>	~20% of pond margins shaded by bankside scrub.	1.0
<b>Wildfowl</b>	Some evidence of waterfowl.	0.67
<b>Fish</b>	Large fish and fish fry recorded during 2016 surveys. Large fish skeleton present in 2021.	0.01
<b>Pond count</b>	Over 4 ponds with connectivity within 1km	1.0
<b>Surrounding Terrestrial Habitat</b>	Good: Bankside scrub progresses into woodland to the north of the pond. Marshy grassland also present to the north.	1.0
<b>Macrophytes</b>	~30% cover. The vegetation comprises a shallow swamp dominated by reedmace at the northern end, and tall emergent vegetation elsewhere with abundant hard rush, frequent soft rush, and locally frequent great willowherb <i>Epilobium hirsutum</i> .	0.6
<b>Overall suitability score</b>		<b>0.47 (poor)</b>

Attribute	Description	HSI Score
<b>Pond 8</b>		
<b>Description</b>	Unfenced circular pond with steep banks, located within a recently unmanaged pasture. Bramble scrub present along western, southern and northern banks. Scattered hawthorns present along margin of pond. The east bank comprised grassland. The substrate of the pond was mostly muddy earth with some stony areas also recorded. Some shallow margins present at the outermost edges of the pond, but margins mostly slope steeply to deeper water (~0.5m).	
<b>Distance from proposed development</b>	On site.	
<b>Grid Reference</b>	SD 39536 28067. Geographical location optimum.	1.0
<b>Pond Area</b>	Approximately 100 m <sup>2</sup> .	0.2
<b>Permanence</b>	Permanent.	0.9
<b>Water Quality</b>	Good based on invertebrate diversity/ water clarity/ aquatic plants.	1.0
<b>Shade</b>	Less than 5% of pond surface shaded by bramble and hawthorn scrub.	1.0
<b>Wildfowl</b>	No evidence of waterfowl.	1.0
<b>Fish</b>	Large fish and fish fry recorded in 2016. Used as a breeding pond to stock Ponds 7 & 9.	0.01
<b>Pond count</b>	Over 4 ponds with connectivity within 1km	1.0
<b>Surrounding Terrestrial Habitat</b>	Good: located within field of tussocky grassland, with scrub & hedgerows to the boundaries.	1.0
<b>Macrophytes</b>	~50% Marginal vegetation comprised abundant soft rush and hard rush. Aquatic vegetation comprised a carpet of curled pondweed <i>Potamogeton crispus</i> , with occasional amphibious bistort and common duckweed recorded.	0.8
<b>Overall suitability score</b>		<b>0.52 (Below average)</b>
<b>Pond 9</b>		
<b>Description</b>	Small U-shaped lake within amenity grassland normally used as campsite and for caravans. The pond banks varied in gradient and comprises mown amenity grassland with scattered scrub including bramble, young ash, crack willow and goat willow <i>Salix caprea</i> . Clay and muddy earth formed the substrate of the pond. Scattered trees on land within centre of U-shape pond.	
<b>Distance from proposed development</b>	On site.	
<b>Grid Reference</b>	SD 39653 28185. Geographical location optimum.	1.0
<b>Pond Area</b>	Approximately 1,300 m <sup>2</sup> .	0.9
<b>Permanence</b>	Permanent.	0.9
<b>Water Quality</b>	Poor based on invertebrate diversity/ water clarity/ aquatic plants. Highly silted.	0.33
<b>Shade</b>	~30% of pond margins shaded by scrub.	1.0
<b>Wildfowl</b>	Mallards present.	0.67
<b>Fish</b>	Informed by site manager that carp have previously been released into lake, and that the lake is occasionally used for fishing. Large fish recorded during all survey visits in 2016.	0.01
<b>Pond count</b>	Over 4 ponds with connectivity within 1km	1.0
<b>Surrounding Terrestrial Habitat</b>	Moderate: Closely mown amenity grassland surrounds pond, however suitable habitat in the form of a linear bund of unmanaged grassland and scrub comes within 10 m of pond.	0.67
<b>Macrophytes</b>	<5% cover. Tall emergent vegetation comprised occasional soft rush, hard rush, and creeping bent.	0.3
<b>Overall suitability score</b>		<b>0.45 (poor)</b>

Attribute	Description	HSI Score
<b>Pond 10</b>		
<b>Description</b>	Unfenced, small pond within a silage field. Shallow banks dominated by rush. Likely ephemeral. Mud substrate.	
<b>Distance from proposed development</b>	25m east.	
<b>Grid Reference</b>	SD 39662 28292. Geographical location optimum.	1.0
<b>Pond Area</b>	Approximately 15m <sup>2</sup> .	0.05
<b>Permanence</b>	Likely to dry annually.	0.1
<b>Water Quality</b>	Poor based on invertebrate diversity/ water clarity/ aquatic plants. Highly silted.	0.33
<b>Shade</b>	0% of pond margins shaded.	1.0
<b>Wildfowl</b>	No evidence of waterfowl.	1.0
<b>Fish</b>	Absent.	1.0
<b>Pond count</b>	Over 4 ponds with connectivity within 1km	1.0
<b>Surrounding Terrestrial Habitat</b>	Moderate: Within silage field, but ~15m from linear bund of willow scrub and other semi-natural habitats.	0.67
<b>Macrophytes</b>	~20% cover. Comprising floating sweet grass and rushes.	0.5
<b>Overall suitability score</b>		<b>0.47 (poor)</b>



**APPENDIX 6**

This section provides an overview of the framework of legislation and policy which underpins nature conservation and is a material consideration in the planning process in England.

## **GENERAL BIODIVERSITY LEGISLATION AND POLICY**

### **Conservation of Habitats and Species Regulations 2017, as amended (Habitats Regulations 2010, as amended)**

The Habitats Regulations 2017 consolidate and update the Conservation (Natural Habitats, &c.) Regulations 1994 and all its various amendments. Prior to 31<sup>st</sup> December 2020, The Habitats Regulations 2017 was the principal means by which the EEC Council Directive 92/43 (The Habitats Directive) as amended is transposed into English and Welsh law.

Since 31 December 2020, The Conservation of Habitats and Species Regulations 2017 (as amended) remains in place with only relatively minor changes (owing to the Conservation of Habitats and Species Amendment (EU Exit Regulations 2019). Examples of the relatively minor changes are that the European Commission's role in the HRA derogation test process was replaced by the Secretary of State for the Environment, Food and Rural Affairs; and changes to the procedures for designation / classification of Special Areas of Conservation ("SACs") / Special Protection Areas ("SPAs"). The HRA regime set out in the Conservation of Habitats and Species Regulations 2017 (as amended) continues to apply in largely the same way after the transition period ends. Parliament are however at liberty to introduce future changes to the Conservation of Habitats and Species Regulations 2017 (as amended) since, the UK is no longer bound by the EU Habitats and Wild Birds Directives.

The Habitats Regulations 2017 place duty upon the relevant authority of government to identify sites which are of importance to the habitats and species listed in Annexes I and II of the Habitats Directive. Those sites which meet the criteria are designated as Sites of Community Importance, which are subsequently identified as Special Areas of Conservation (SAC). The regulations also place a duty upon the government to maintain a register of European protected sites designated as a result of Directive 79/409/EEC on the Conservation of Wild Birds (The Birds Directive). These sites are termed Special Protection Areas (SPA) and, in conjunction with SACs, form a network of sites known as Natura 2000. The Habitats Directive introduces for the first time for protected areas, the precautionary principle; that is that projects can only be permitted having ascertained no adverse effect on the integrity of the site. Projects may still be permitted if there are no alternatives, and there are imperative reasons of overriding public interest.

The Habitats Regulations 2010 also provide for the protection of individual species of fauna and flora of European conservation concern listed in Schedules 2 and 5 respectively. Schedule 2 includes species such as otter and great crested newt for which the UK population represents a significant proportion of the total European population. It is an offence to deliberately kill, injure, disturb or trade these species. Schedule 5 plant species are protected from unlawful destruction, uprooting or trade under the regulations.

The Habitats Regulations 2010 were amended in August 2012 and in 2017 to ensure clearer transposition of the provisions of Articles 2, 3, 4(4) (second sentence) and Article 10 of the Wild Birds Directive, by giving additional and specific duties to relevant bodies. A number of amendments were also made to transpose more clearly certain elements of the Habitats Directive.

### **The Wildlife and Countryside Act (WCA) 1981 (as amended)**

The WCA, as amended, consolidates and amends pre-existing national wildlife legislation in order to implement the Bern Convention and the Birds Directive. It complements the Habitat Regulations 2010 (as amended), offering protection to a wider range of species. The Act also provides for the designation and protection of national conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSIs).

Schedules of the act provide lists of protected species, both flora and fauna, and detail the possible offences that apply to these species. All relevant species specific legislation is detailed later in this Appendix.

### **The Countryside and Rights of Way (CROW) Act 2000**

The CROW Act, introduced in England and Wales in 2000, amends and strengthens existing wildlife legislation detailed in the WCA. It places a duty on government departments and the National Assembly for Wales to have regard for biodiversity, and provides increased powers for the protection and maintenance of SSSIs. The Act also contains lists of habitats and species (Section 74) for which conservation measures should be promoted, in accordance with the recommendations of the Convention on Biological Diversity (Rio Earth Summit) 1992.

### **The Natural Environment and Rural Communities (NERC) Act 2006**

Section 40 of the NERC Act places a duty upon all local authorities and public bodies in England and Wales to promote and enhance biodiversity in all of their functions. Sections 41 (England) and 42 (Wales) list habitats and species of principal importance to the conservation of biodiversity. These lists superseded Section 74 of the CRoW Act 2000.

### **The Hedgerow Regulations 1997**

The Hedgerow Regulations make provision for the identification of important hedgerows which may not be removed without permission from the Local Planning Authority.

### **UK Biodiversity Action Plan**

The United Kingdom Biodiversity Action Plan (UK BAP), first published in 1994 and updated in 2007, was a government initiative designed to implement the requirements of the Convention of Biological Diversity to conserve and enhance species and habitats. The UK BAP contained a list of priority habitats and species of conservation concern in the UK, and outlined biodiversity initiatives designed to enhance their conservation status. Lists of Broad and Local habitats were also included. The priority habitats and species correlated with those listed on Section 41 and 42 of the NERC Act.

The UK BAP required that conservation of biodiversity was addressed at a County level through the production of Local BAPs. These were complementary to the UK BAP, however were targeted towards species of conservation concern characteristic of each area. In addition, a number of local authorities and large organizations have produced their own BAPs.

### **Species and Habitats of Material Consideration for Planning in England**

In 2011, the government published the 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' to replace the previous England Biodiversity Strategy. In 2012 the UK BAP was replaced by the UK Post-2010 Biodiversity Framework.

Previous planning policy (and some supporting guidance which is still current, e.g. ODPM Circular 06/2005, now under revision), refers to UK BAP habitats and species as being a material consideration in the planning process. Equally many local plans refer to BAP priority habitats and species. Both remain as material considerations in the planning process but such habitats and species are now described as Species and Habitats of Principal Importance for Conservation in England, or simply priority habitats and priority species under the UK Post-2010 Biodiversity Framework. The list of habitats and species remains unchanged and is still derived from Section 41 list of the Natural Environment and Rural Communities (NERC) Act 2006. As was previously the case when it was a BAP priority species hen harrier continues to be regarded as a priority species although it does not appear on the Section 41 list.

## **NATIONAL PLANNING POLICY FRAMEWORK**

The National Planning Policy Framework sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced.

Chapter 15, on conserving and enhancing the natural environment, sets out how the planning system should protect and enhance the natural and local environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

To protect and enhance biodiversity and geodiversity, plans should:

- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons<sup>58</sup> and a suitable compensation strategy exists; and
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

The following should be given the same protection as habitats sites:

- a) potential Special Protection Areas and possible Special Areas of Conservation;
- b) listed or proposed Ramsar sites; and
- c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

The presumption in favour of sustainable development does not apply where development requiring appropriate assessment because of its potential impact on a habitats site is being planned or determined.

## LOCAL PLANNING POLICY

The West Lancashire Local Plan 2012-2027 ('WLLP'), adopted October 2013, is the current adopted Plan for the Borough. It guides future development within the Borough to 2027. Policy EN2 of the strategy addresses nature conservation sites, habitats and species, provided below.

**Policy EN2**

**Preserving and Enhancing West Lancashire's Natural Environment**

**1. Nature Conservation Sites and Ecological Networks**

a) The hierarchy of nature conservation sites

The Council is committed to ensuring the protection and enhancement of West Lancashire's biodiversity and geological assets and interests. In order to do this, the Council will have regard to the following hierarchy of nature conservation sites when making planning decisions, according to their designation:

i) International

- Ramsar Sites
- Special Areas of Conservation (SAC)
- Special Protection Areas (SPA)
- Candidate SACs or SPAs

The strongest possible protection will be given to sites of international importance.

The Council will also support the development of the Ribble Coast and Wetlands Regional Park, which encompasses part of the Ribble and Alt Estuaries SPA / Ramsar site.

ii) National

- National Nature Reserves (NNR)
- Sites of Special Scientific Interest (SSSI)

Developments that would directly or indirectly affect any site of national importance will only be permitted where there are exceptional circumstances and where the benefits of the development at that site clearly outweigh the impacts to the site and the wider ecological network. In the case of SSSI's, consideration will be given to the likely impact of the development on the features of the site that make it of special scientific interest.

iii) Local

- Regionally Important Geological Sites
- County Biological Heritage Sites
- Local Nature Conservation Sites
- Local Nature Reserves

Development that would directly or indirectly affect any sites of local importance will be permitted only where it is necessary to meet an overriding local public need or where it is in relation to the purposes of the nature conservation site.

b) Development within or affecting nature conservation sites and ecological networks

In addition to the provisions of National and European law, and in accordance with national planning policy, proposals for development within or affecting the above nature conservation sites must adhere to the following principles:

- i. proposals which seek to enhance or conserve biodiversity will be supported in principle, subject to the consideration of other Local Plan policies;
- ii. consideration should be given to the impact of development proposals on the Major Wildlife Corridors defined on the Policies Map and on any additional ecological networks identified by any Supplementary Planning Document in the future and, where possible, opportunities to support the network by incorporating biodiversity in and around the development should be encouraged;
- iii. where development is considered necessary, adequate mitigation measures and compensatory habitat creation will be required through planning conditions and / or obligations, with the aim of providing an overall improvement in the site's biodiversity value. Where compensatory habitat is provided it should be of at least equal area and diversity, if not larger and more diverse, than what is being replaced; and
- iv. the development of recreation will be targeted in areas which are not sensitive to visitor pressures - the protection of biodiversity will be given higher priority than the development of recreation in sensitive areas of internationally-important nature conservation sites (as identified in paragraph (1)(a)(i) above), and on all nature conservation sites and ecological networks in situations where there is conflict between the two objectives.

c) Damage to nature conservation sites and ecological networks

The following definition of what constitutes damage to nature conservation sites and other ecological assets will be used in assessing developments likely to impact upon them:

- i. loss of the undeveloped open character of a part, parts or the entire nature conservation site or ecological network;
- ii. reducing the width of part of an ecological network or causing direct or indirect severance of any part of the ecological network or of any part of a nature conservation site;
- iii. restricting the potential for lateral movement of wildlife within or through an ecological network or nature conservation site;



- iv. causing the degradation of the ecological functions of any part of the ecological network or nature conservation site;
- v. directly or indirectly damaging or severing links between nature conservation sites, green spaces, wildlife corridors and the open countryside; and
- vi. impeding links to the wider ecological network and nature conservation sites that are recognised by neighbouring planning authorities.

Part (1) of this policy applies to all presently designated nature conservation sites, as shown on the Policies Map and set out in Appendix I, and to any nature conservation sites or ecological networks that may be designated in the future by appropriate agencies.

## 2. Priority Species and Habitats

Where there is reason to suspect that there may be priority species, or their habitat, on or close to a proposed development site, planning applications should be accompanied by a survey assessing the presence of such species and, where appropriate, making provision for their needs.

In particular, the HRA of the Local Plan identifies a series of sites (in Appendix 8 of that document) where the potential of the site to support important habitat for birds associated with Martin Mere SPA cannot be ruled out at this stage. For those sites (and any others which may support suitable habitat) the applicant should submit an Ornithology Report containing sufficient information to demonstrate that consideration has been given to the potential for effects on SPA birds and, if necessary, that suitable mitigation measures will be implemented to address this to the satisfaction of the Council and ensure no adverse effect on site integrity.

The report could, depending on the site, be a confirmation that no suitable habitat is in fact present and therefore no loss of supporting habitat would result. This will allow the Council to screen the project against the Habitats Regulations (or equivalent legislation) and relevant national and local policy.

## 3. Trees and Landscaping

The Council will encourage the creation of new woodlands where appropriate.

Development involving the loss of, or damage to, woodlands or trees of significant amenity, screening, wildlife or historical value will only be permitted where the development is required to meet a need that could not be met elsewhere, and where the benefits of the development clearly outweigh the loss or damage.

In such cases the developer will be required to replace the trees lost on site with ones of at least equal value either on site or in that locality where it is unsuitable for the trees to be located on the particular site. Conditions will be imposed or legal agreements made to ensure such mitigation measures are carried out.

All development should:

- i. Include appropriate landscaping plans, which incorporate suitable tree planting that integrates well with all existing trees. This should be done in accordance with guidance contained in national guidance BS.5837:2012 and any subsequent document;
- ii. Both new and existing trees should be maintained by the owner of the site in accordance with guidance contained in BS.5837:2012 and any subsequent document;
- iii. Promote an increase in tree cover where it would not threaten other vulnerable habitats; and
- iv. Avoid encroachment into the canopy area or root spread of trees considered worthy of retention.

To assist the Council in decision-making, sufficient information should be submitted alongside proposals for development to enable the Council to assess the effects on trees. The level of detail should be in accordance with BS.5837:2012 - *Trees in relation to design, demolition and construction*, or any subsequent document.

## SPECIES SPECIFIC LEGISLATION

This section contains a summary of legislation with relation to the species present or potentially present in the survey area. The reader should refer to the original legislation for definitive interpretation.

### Birds

The Wildlife and Countryside Act (WCA) 1981 (as amended) gives general protection to all wild birds in Britain (subject to the provisions of the act). It is an offence to intentionally or recklessly\*:

- Kill, injure or take any wild bird,
- Take, damage or destroy the nest of any wild bird whilst the nest is in use or being built, or
- Take or destroy an egg of any wild bird.

It is also an offence for any person to have in his possession or control any live or dead wild bird, egg of a wild bird, or any part, or derivative, of such a bird or egg (subject to the provisions of the act).

Birds listed on Schedule 1 of the WCA 1981 (as amended) are protected by special penalties, and it is an offence to intentionally or recklessly\*:-

- Disturb any wild bird included in Schedule 1 whilst it is building a nest or is in, on or near a nest containing eggs or young, or
- Disturb dependent young of such a bird.

\*Reckless offences were added by the Countryside Rights of Way (CRoW) Act 2000.

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Birds receive further protection through the Bern Convention, the Bonn Convention and the European Communities Council Directive on the Conservation of Wild Birds, or EC Birds Directive:

1. The Bern Convention aims to ensure the conservation and protection of wild bird species and their natural habitats (listed in Appendix II of the Convention), and to regulate the exploitation of those species (including migratory species) listed in Appendix III.
2. The Bonn Convention aims to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix I of the Convention), whilst species on Appendix II are generally of conservation concern and / or deemed to be able to benefit from international cooperation.
3. The EC Birds Directive is the tool through which the European Community meets its obligations for bird species under the Bern Convention and Bonn Convention. The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. Article 5 requires members to establish a general scheme of protection for all wild birds. Annex I contains a list of specially protected bird species. The EC Birds Directive is implemented in the UK by several statutes, including the WCA 1981 (as amended).

Several bird species are Species of Principal Importance for Nature Conservation in England, making them capable of being material considerations in the planning process.

The reader should refer to the original legislation for the definitive interpretation.

### Great crested newt

Great crested newts (GCN) and the places they use for shelter or protection receive protection under The Conservation of Habitats and Species Regulations 2010 (Habitats Regulations 2010). They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981, as amended. This protection means that GCN, and the places they use for shelter or protection, are capable of being a material consideration in the planning process.

Regulation 41 of the Habitats Regulations 2010, states that a person commits an offence if they:

- deliberately capture, injure or kill a GCN;

- deliberately disturb GCN;
- deliberately take or destroy eggs of a GCN; or
- damage or destroy a GCN breeding site or resting place.

Disturbance of animals includes 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 in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

It is an offence under the Habitats Regulations 2010 for any person to have in his possession or control, to transport, to sell or exchange or to offer for sale, any live or dead GCN, part of a GCN or anything derived from GCN, which has been unlawfully taken from the wild. This legislation applies to all life stages of GCN.

Whilst broadly similar to the above legislation, the WCA 1981 (as amended) differs in the following ways:

- Section 9(1) of the WCA makes it an offence to *intentionally* (rather than deliberately) kill, injure or take any protected species.
- Section 9(4)(a) of the WCA makes it an offence to *intentionally or recklessly\** damage or destroy, or *obstruct access to*, any structure or place which a protected species uses for shelter or protection.
- Section 9(4)(b) of the WCA makes it an offence to *intentionally or recklessly\** disturb any protected species *while it is occupying a structure or place which it uses for shelter or protection.*

\*Reckless offences were added by the Countryside and Rights of Way (CRoW) Act 2000.

Great crested newts are listed as Species of Principal Importance on the UK Post-2010 Biodiversity Framework (2012), and as such are material considerations in the planning process. Great crested newts are also included on the Greater Manchester Biodiversity Action Plan.

#### Invasive Flora

The Wildlife and Countryside Act 1981 provides the primary controls on the release of non-native species into the wild in Great Britain. It is an offence under section 14(2) of the Act to 'plant or otherwise cause to grow in the wild' any plant listed in Schedule 9, Part II. This list contains 36 plant species and their hybrids, and includes Japanese knotweed and variegated yellow archangel.

Section 33 of the Environmental Protection Act 1990 states that a person shall not:

- deposit controlled waste, or knowingly cause or knowingly permit controlled waste to be deposited in or on any land unless a waste management licence authorising the deposit is in force and the deposit is in accordance with the licence;
- treat, keep or dispose of controlled waste, or knowingly cause or knowingly permit controlled waste to be treated, kept or disposed of:
- in or on any land, or
- by means of any mobile plant,
- except under and in accordance with a waste management licence;
- treat, keep or dispose of controlled waste in a manner likely to cause pollution of the environment or harm to human health.