

Appendix 11.2: Ecology Desk Study



THE
ENVIRONMENT
PARTNERSHIP



LAND NORTH OF BRYN LANE WREXHAM ECOLOGY DESK STUDY

TEP
Genesis Centre
Birchwood Science Park
Warrington
WA3 7BH

Tel: 01925 844004
Email: tep@tep.uk.com
www.tep.uk.com

Offices in Warrington, Market Harborough, Gateshead, London and Cornwall

Document Title	Ecology Desk Study
Prepared for	Net World Sports
Prepared by	TEP - Warrington
Document Ref	9134.002

Author	Andrew Wolfenden
Date	January 2022
Checked	Cameron Campbell
Approved	John Crowder

Amendment History					
Version	Date	Modified by	Check / Approved by	Reason(s) issue	Status
2.0	April 23	PP	AE	Updated following amendments to the redline boundary and proposed development	Issued
3.0	June 23	PP	AE	Updated following CBRE comments.	Issued

CONTENTS	PAGE
1.0 Introduction	1
2.0 Method	3
3.0 Legislation and Planning Policy	5
4.0 Site Designations	10
5.0 Habitats	22
6.0 Species	23

TABLES	PAGE
Table 1: Sources of Ecological Information	3
Table 2: Details of Internationally Designated Wildlife Sites within 10km of the Site	10
Table 3: Details of Nationally Designated Wildlife Sites within 5km of the Site	13
Table 4: Likely Impacts of Development Proposals on the River Dee (England) SSSI.	17
Table 5: Details of Non-statutory Locally Designated Wildlife Sites within 2km of the Site ..	20
Table 6: Notable Species Records within 2km of the Site	23

FIGURES	PAGE
Figure 1: Site Location Plan	2
Figure 2: Internationally Designated Wildlife Sites within 10km of the Site	12
Figure 3: Nationally Designated Wildlife Sites within 5km of the Site	16
Figure 4: SSSI IRZ within the Site	18
Figure 5: Statutory Locally Designated Wildlife Sites within 2km of the Site	19
Figure 6: Non-statutory Locally Designated Wildlife Sites within 2km of the Site	21
Figure 7: Notable Habitats within and adjacent to the Site	22

APPENDICES

APPENDIX A: Citations for Statutory Designated Wildlife Sites of International Importance
APPENDIX B: Citations for Statutory Designated Wildlife Sites of National Importance

1.0 Introduction

1.1 The Environment Partnership (TEP) was commissioned by Net World Sports in October 2021 to complete an ecology desk based assessment of land known as the land north of Bryn Lane in Wrexham, North Wales (hereafter referred to as 'the site'). Ecological surveys are required to support an Environmental Statement that will inform proposals for a commercial development.

1.2 The proposed development is commercial in nature and encompasses:

Detailed Component:

- *Demolition of existing buildings, site clearance and preparation works, including removal of vegetation and reprofiling of topsoil, where necessary;*
- *Construction of a new warehouse unit, providing 33,595 sqm Gross External Area (GEA) for B1c (light industry appropriate in a residential area), B2 (general industrial) and B8 (storage & distribution) uses (Unit 2);*
- *Construction of 8 new smaller units (Units 3-7; 14-16), providing a total of 29,659 sqm GEA for B1c (light industry appropriate in a residential area), B2 (general industrial) and B8 (storage & distribution) uses;*

Outline Component:

- *Construction of up to 72,635 sqm GEA for employment uses (B1c (light industry appropriate in a residential area), B2 (general industrial) and B8 (storage & distribution) uses), ancillary retail/drive thru facilities and potential for a hotel and petrol filling station (A1, A3, C1 or sui generis). The overall quantum of A1, A3, C1 or sui generis use would not exceed 16,150 sqm GEA;*
- *The proposed buildings will be up to 28.5m in height above ground level;*

Site Wide

- *Access and parking provision, including new access junctions, internal roads, service yards and car and HGV parking. Two new junctions are proposed (in detail) providing vehicular access, as well as cycle and pedestrian access, from Bryn Lane/Industrial Estate Road with an additional access road for a substation. Car parking spaces, HGV trailer spaces and HGV lorry spaces are proposed across the application site;*
- *Retention and enhancement of some existing on-site green spaces and provision of landscaping around the application site; and*
- *Implementation of drainage/attenuation measures.*

Site Description

1.3 The site (central grid reference SJ 38614 51101) is approximately 37.21ha in size and is located to the east of Wrexham in North Wales.

- 1.4 The site is bounded to the south by Bryn Lane and Wrexham Industrial Estate, to the north by Francis Lane, to the west by both Industrial Estate Road and Hugmore Lane (with associated residential properties), and to the east by open agricultural fields. The wider area predominantly comprises urban development to the west associated with Wrexham town centre, with open countryside present to the north and east and the industrial estate to the south.
- 1.5 The site location within the context of the wider landscape is illustrated in Figure 1 below.

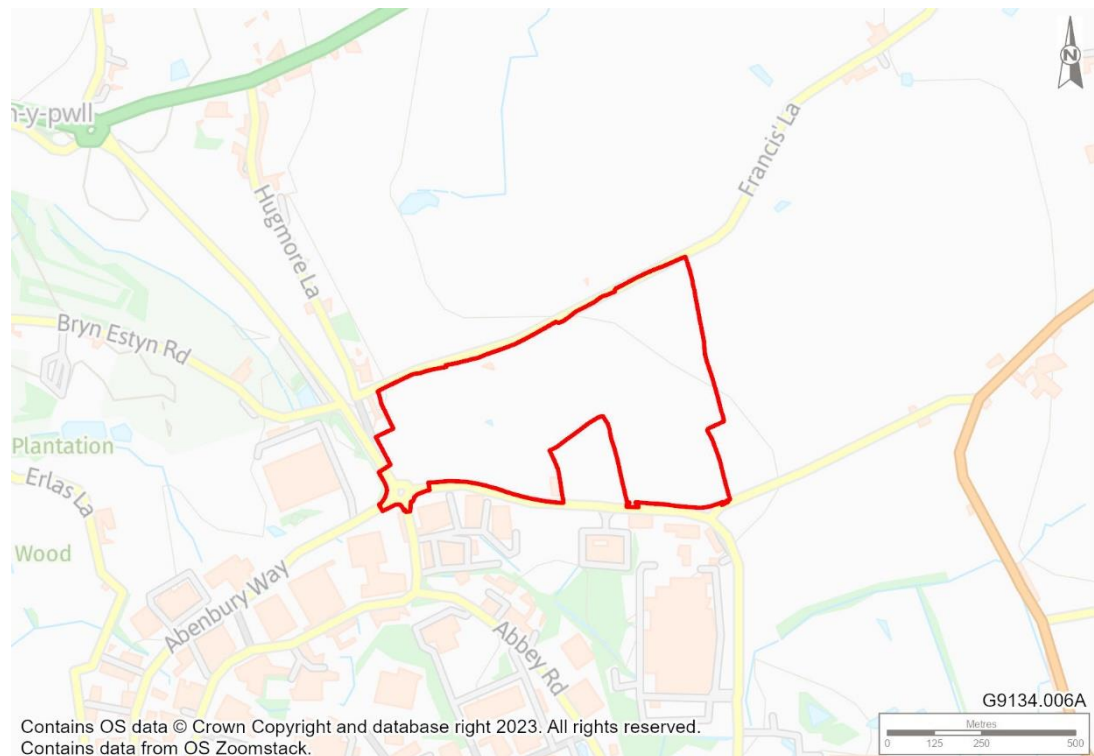


Figure 1: Site Location Plan

2.0 Method

- 2.1 Information regarding historic species records and protected sites was requested/gathered from the sources listed in Table 1. This collated data gives a useful indication of the distribution and abundance of ecological receptors at a given locale. An absence of records does not indicate the absence of protected species from the search area.

Table 1: Sources of Ecological Information

Source of Information	Nature of Information
Natural Resources Wales (NRW)	Statutory designated wildlife sites of international importance within 10km Statutory designated wildlife sites of national importance within 5km Statutory designated wildlife sites of local importance within 2km
LANDMAP	Notable habitats within and adjacent to the site
North Wales Environmental Information Service (COFNOD)	Protected species records within 2km Non-statutory designated wildlife sites of local importance within 2km
Wrexham County Borough Council	Land allocations and relevant policies
ArcMap10	Ordnance & Aerial survey mapping

- 2.2 Statutory designated wildlife sites of international importance may include:
- Ramsar sites;
 - Special Areas of Conservation (SAC); and
 - Special Protection Areas (SPA).
- 2.3 Statutory designated wildlife sites of national importance may include:
- Site of Special Scientific Interest (SSSI);
 - National Nature Reserve (NNR); and
 - Marine Nature Reserve (MNR).
- 2.4 Statutory designated wildlife sites of local importance refers to Local Nature Reserves (LNR).
- 2.5 Non-statutory designated wildlife sites of local importance may include:
- Local Wildlife Site (LWS).
- 2.6 Habitats of value may include those listed under any of the following:
- Ancient woodland;

- Main rivers¹;
- Habitats of principal importance under Section 7 of the Environment (Wales) Act 2016 (S7); and
- Local Biodiversity Action Plan Habitats (LBAP).

2.7 Protected species records may include those listed under any of the following:

- European Protected Species (EPS);
- Protected bird species under Schedule 1 of the Wildlife and Countryside Act 1981, as amended (WCA1);
- Protected animal species under Schedule 5 of the Wildlife and Countryside Act 1981, as amended (WCA5);
- Protected plant species under Schedule 8 of the Wildlife and Countryside Act 1981, as amended (WCA8);
- Invasive non-native plant species under Schedule 9 of the Wildlife and Countryside Act 1981, as amended (WCA9);
- Invasive Alien Species (Enforcement and Permitting) Order 2019 (IAS);
- Protection of Badgers Act 1992 (PBA);
- Species of principal importance under Section 7 of the Environment (Wales) Act 2016 (S7);
- Red and Amber listed Birds of Conservation Concern (BRd/BAm);
- Red and Amber listed Birds of Conservation Concern (Wales) (BRd (Wales)/BAm (Wales)); and
- Local Biodiversity Action Plan Species (LBAP).

¹ Main rivers are statutory watercourses designated by Natural Resources Wales (in Wales). 'Main rivers' are usually larger streams and rivers, but some of them are small watercourses of significance. Works within 8m of non-tidal main rivers (or within 16m of tidal main rivers) are generally prohibited or require permission as there could be flood risk implications.

3.0 Legislation and Planning Policy

- 3.1 This section details legislation and planning policy which may have relevance to the site. Only legislation and policy relevant to biodiversity are included.

International Legislation

Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

Protected Species

- 3.2 European Protected Species (EPS) and their breeding sites or resting places are protected under Regulation 41 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 which makes it illegal to:
- Deliberately capture, injure or kill any such animal or to deliberately take or destroy their eggs;
 - Deliberately disturb such an animal; and
 - Damage or destroy a breeding site or resting place of such an animal.
- 3.3 European Protected Species (EPS) licenses can be granted by NRW in respect of development to permit activities that would otherwise be unlawful under the Conservation Regulations, providing that the following 3 tests (set out in the EC Habitats Directive) are passed, namely:
- The development is for reasons of overriding public interest;
 - There is no satisfactory alternative; and
 - The favourable conservation status of the species concerned will be maintained and/or enhanced.
- 3.4 Under Regulation 9(5) of the Conservation Regulations, Planning Authorities have a duty to 'have regard to the requirements of the EC Habitats Directive' i.e. LPA's must consider the above 3 'tests' when determining whether Planning Permission should be granted for developments likely to cause an offence under the Conservation Regulations.

Protected Sites

- 3.5 The Regulations also deal with the assessment of potential impacts on sites of European nature conservation importance. Requirements are set out within Regulations 63 and 64 of the Habitats Regulations, where a series of steps and tests are followed for plans or projects that could potentially affect a European site. The steps and tests set out within Regulations 63 and 64 are commonly referred to as the 'Habitats Regulations Assessment' process.

- 3.6 All plans and projects (including planning applications) which are not directly connected with, or necessary for, the conservation management of a habitat site, require consideration of whether the plan or project is likely to have significant effects on that site. This consideration should take into account the potential effects both of the plan/project itself and in combination with other plans or projects. Where an adverse effect on the site's integrity cannot be ruled out, and where there are no alternative solutions, the plan or project can only proceed if there are imperative reasons of over-riding public interest and if the necessary compensatory measures can be secured.

National Legislation

Wildlife and Countryside Act 1981

- 3.7 Animal species listed under Schedule 5 of the Wildlife and Countryside Act 1981 (and as amended) receive full protection which makes it illegal (subject to certain exceptions) to:
- Intentionally kill, injure or take any such animal;
 - Intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any such animal; and
 - Intentionally or recklessly disturb such animals while they occupy a place used for shelter or protection.
- 3.8 Some species receive partial protection under this Act (as amended by the Countryside and Rights of Way Act 2000), which provides protection against intentional killing or injury of any such animal.
- 3.9 All wild birds (as defined by the act) are protected under this Act, which makes it illegal (subject to exceptions) to:
- Intentionally kill, injure or take any wild bird;
 - Take, damage or destroy the nest (whilst being built or in use) or eggs of any wild bird.
- 3.10 Additional protection is provided to birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (and as amended). In addition to the offences detailed above relating to all wild birds, it is illegal to:
- Intentionally or recklessly disturb any bird listed on Schedule 1, or their dependent young while nesting.
- 3.11 Plant species listed under Schedule 8 of the Wildlife and Countryside Act 1981 (and as amended) are protected from unauthorised intentional picking, uprooting and destruction.

Environment (Wales) Act 2016

- 3.12 Section 6 of the Environment Act places a duty on public authorities to 'seek to maintain and enhance biodiversity' so far as it is consistent with the proper exercise of those functions. In so doing, public authorities must also seek to 'promote the resilience of ecosystems'.

- 3.13 Section 7 of the Environment Act requires The Welsh Ministers to publish, review and revise lists of living organisms and types of habitat in Wales, which they consider are of key significance to sustain and improve biodiversity in relation to Wales. This is known as the S7 list.

Protection of Badgers Act 1992

- 3.14 The Protection of Badgers Act 1992 makes it an offence to kill, injure or take a badger from the wild. It is also an offence to disturb, damage or interfere with a sett unless a licence is obtained from a statutory authority.

National Planning Policy

Planning Policy Wales 2021

- 3.15 Planning Policy Wales (PPW) delivers land use planning policy for Wales and provides a framework for the effective preparation of local planning authorities' development plans.

Technical Advice Note 5 (2009)

- 3.16 PPW is supplemented by 21 topic based Technical Advice Notes (TANs). Technical Advice Note 5- Nature Conservation and Planning is a key TAN in relation to nature conservation and biodiversity.

- 3.17 TAN 5 states that the town and country planning system in Wales should:

- work to achieve nature conservation objectives through a partnership between local planning authorities, NRW, the Environment Agency Wales, voluntary organisations, developers, landowners and other key stakeholders;
- integrate nature conservation into all planning decisions looking for development to deliver social, economic and environmental objectives together over time;
- ensure that the UK's international and national obligations for site, species and habitat protection are fully met in all planning decisions;
- look for development to provide a net benefit for biodiversity conservation with no significant loss of habitats or populations of species, locally or nationally;
- help to ensure that development does not damage, or restrict access to, or the study of, geological sites and features or impede the evolution of natural processes and systems especially on rivers and the coast;
- forge and strengthen links between the town and country planning system and biodiversity action planning particularly through policies in local development plans and the preparation of supplementary planning guidance that adds value to Local Biodiversity Action Plans (LBAPs) by highlighting the ways in which the planning system can help to deliver the objectives of LBAPs in practical ways; and
- plan to accommodate and reduce the effects of climate change by encouraging development that will reduce damaging emissions and energy consumption and that help habitats and species to respond to climate change.

Local Planning Policy

Wrexham Unitary Development Plan 1996 - 2011 (adopted February 2005)

- 3.18 The Wrexham Unitary Development Plan outlines the Council's broad intention for development in the area and provides a framework for the more specific policies and proposals. It is chiefly concerned with a vision of how the area should develop for the benefit of local people, developers and visitors alike. The specific policies provide detailed guidance for the development and other use of land.
- 3.19 Online policies maps for the Unitary Development Plan can be viewed by following the link: <https://www.wrexham.gov.uk/service/development-plans-and-other-planning-policy/wrexham-unitary-development-plan>
- 3.20 Neither the site nor adjacent land is allocated for biodiversity purposes.
- 3.21 The Unitary Development Plan document can be viewed by following the link: <https://www.wrexham.gov.uk/sites/default/files/2020-05/udp-statement.pdf>
- 3.22 The following policies relate to biodiversity and nature conservation:
- Policy PS11 - Biodiversity;
 - Policy GDP1 - Development Objectives;
 - Policy EC2 - Agricultural Land;
 - Policy EC4 - Hedgerows, Trees and Woodland;
 - Policy EC6 - Biodiversity Conservation.

Wrexham Local Development Plan (LDP) 2013 to 2028

- 3.23 WCBC are preparing a Local Development Plan (LDP) which will replace the current adopted Unitary Development Plan. The LDP is a land use plan that sets out the planning requirements for achieving sustainable development in the Borough over the period 2013-2028. WCBC has decided not to adopt the plan at this stage, however it remains a material consideration with significant weight, as it has been found sound by a Planning Inspector.
- 3.24 The following policies relate to biodiversity and nature conservation:
- Draft Policy SP15 - Natural Environment;
 - Draft Policy NE1 - International and Nationally Designated Nature Conservation Sites
 - Draft Policy NE2 - Locally Designated Sites of Nature Conservation and Geological Importance
 - Draft Policy NE3 - Trees, Woodlands and Hedgerows;
 - Draft Policy NE6 - Waste Water Treatment and River Water Quality.

Local Planning Guidance Notes

- 3.25 The Council's Local Planning Guidance Notes can be viewed at the following link: <https://www.wrexham.gov.uk/service/development-plans-and-other-planning-policy/local-planning-guidance-notes>
- 3.26 The following guidance notes relate to biodiversity and nature conservation:

- 17 - Trees and Development;
- 32 - Biodiversity and Development.

Natural Resources Wales Area Statements

- 3.27 Natural Resources Wales have developed seven Area Statements covering different areas of Wales. These statements are seen as a collaborative response to the Natural Resources Policy, published by the Welsh Government in 2017.
- 3.28 The Area Statement for North East Wales can be viewed by following the link: <https://naturalresources.wales/about-us/area-statements/?lang=en>
- 3.29 The following sections of the Area Statement relate to biodiversity and nature conservation:
- Develop and improve urban/rural green infrastructure;
 - Increasing woodland cover for social, environmental and economic benefits; and
 - Promoting the resilience of ecosystems in maintaining and enhancing biodiversity.

Local Biodiversity Action Plans (LBAP) (2002)

- 3.30 The LBAP document for Wrexham can be viewed by following the link: <https://webarchive.nationalarchives.gov.uk/20110303154000/http://www.ukbap.org.uk/lbap.aspx?id=499#6>
- 3.31 The following habitats are identified within LBAPs by WCBC:
- Derelict and Industrial Land
 - Garden
 - Linear aquatic habitats (rivers, streams, canals)
 - Ponds
 - Upland moorland
 - Woodland
 - Lowland raised bog
 - Lowland wood-pasture and parkland
 - Wet woodland
- 3.32 The following species are identified within LBAPs by WCBC:
- Great crested newt (*Triturus cristatus*)
 - Barn owl (*Tyto alba*)
 - Song thrush (*Turdus philomelos*)
 - Badger (*Meles meles*)
 - Otter (*Lutra lutra*)
 - Lesser horseshoe bat (*Rhinolophus hipposideros*)
 - Black poplar (*Populus nigra*)

4.0 Site Designations

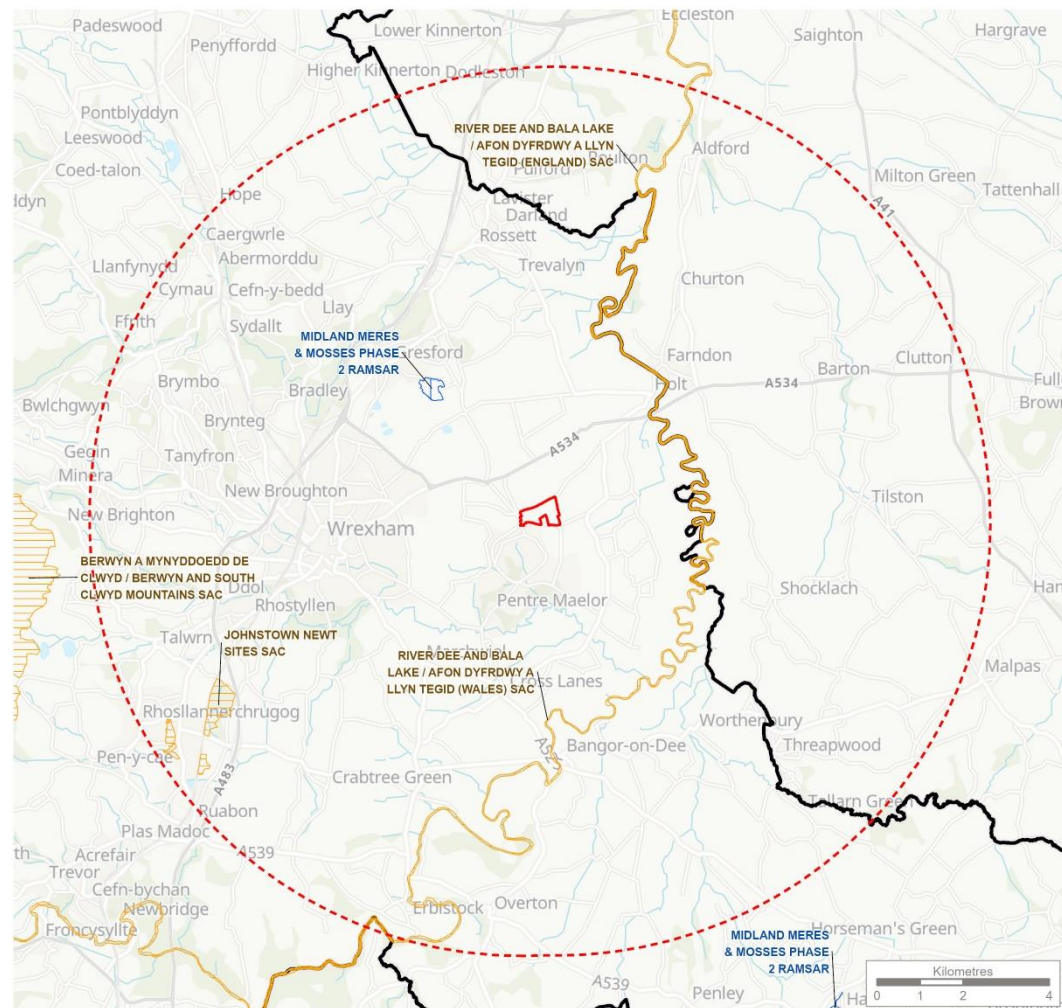
Statutory Designated Wildlife Sites of International Importance

- 4.1 There are three internationally designated wildlife sites within 10km of the site (Figure 2). These are detailed in Table 2 below. Citations are included in Appendix A.

Table 2: Details of Internationally Designated Wildlife Sites within 10km of the Site

Name of Designation	Type of Designation	Location of Designation in Relation to Site	Reason for Site Designation
Afon Dyfrdwy a Llyn Tegid (River Dee and Bala Lake)	SAC (Wales)	3.1km to the east of the site	- Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation - Atlantic salmon - Floating water-plantain - Sea lamprey - Brook lamprey - River lamprey - Bullhead - Otter
River Dee and Bala Lake	SAC (England)	3.1km to the east of the site	- Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation - Atlantic salmon - Floating water-plantain - Sea lamprey - Brook lamprey - River lamprey - Bullhead - Otter
Midlands Meres and Mosses Phase 2	Ramsar (Wales)	3.5km to north-west of the site	- Diverse range of habitats from open water to raised bog - Supports a number of rare plant species associated with wetlands, including cowbane, elongated edge, <i>Dicranum affine</i> and <i>Sphagnum pulchrum</i>. Also supports an assemblage of invertebrates including several rare species.

Name of Designation	Type of Designation	Location of Designation in Relation to Site	Reason for Site Designation
Johnstown Newt Sites	SAC (Wales)	8km to the south-west of the site	• Great crested newt



Key

- Site boundary
- Site boundary - 10km buffer
- Ramsar
- Special Area of Conservation (SAC)
- Wales/England Border

Sites searched for were as follows:

- Ramsar
- Special Protection Areas (SPA)
- Special Areas of Conservation (SAC)

THE ENVIRONMENT PARTNERSHIP
Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
Land North of Bryn Lane, Wrexham

Title
Internationally Designated Sites Within a 10km Buffer

Drawing Number
G9134.001A

Scale
1:120,000 @ A4

Date
20/04/2023

Drawn SP	Checked BJ	Approved AE
-------------	---------------	----------------

© Natural England
Contains public sector information licensed under the Open Government Licence v3.0.
© Scottish Natural Heritage
Contains public sector information licensed under the Open Government Licence v3.0.
© Natural Resources Wales
Contains public sector information licensed under the Open Government Licence v2.0.
OS licence number 100019741
Ordnance Survey Data
Contains OS data © Crown copyright and database right 2023.
Contains data from OS Zoomstack



Figure 2: Internationally Designated Wildlife Sites within 10km of the Site

Statutory Designated Wildlife Sites of National Importance

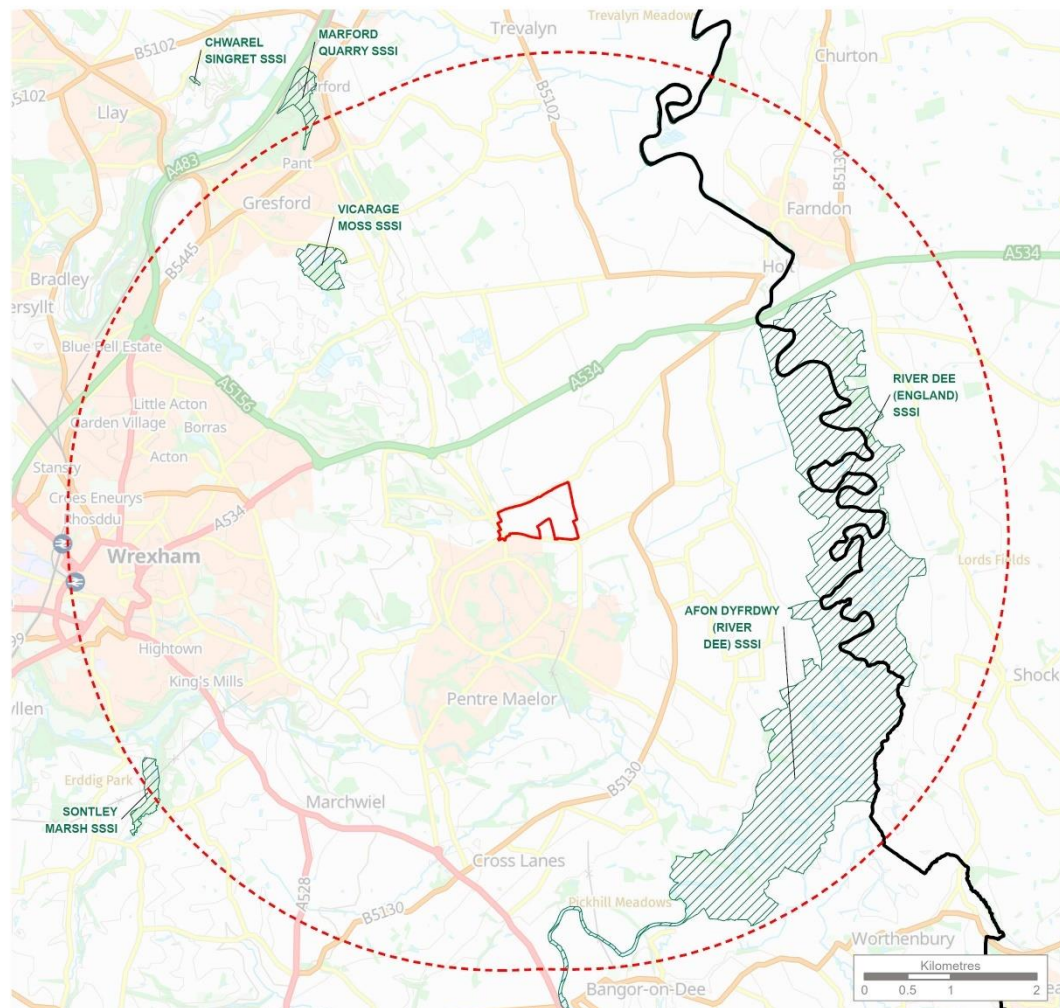
- 4.3 There are five nationally designated wildlife sites within 5km of the site (Figure 3). These are detailed in Table 3 below. Citations are included in Appendix B. Dee Cliffs, Farndon SSSI is also located within 5km of the site, but is designated for its geological interest and is therefore excluded from further consideration.

Table 3: Details of Nationally Designated Wildlife Sites within 5km of the Site

Name of Designation	Type of Designation	Location of Designation in Relation to Site	Reason for Site Designation
Afon Dyfrdwy (River Dee)	SSSI (Wales)	3.1km to the north-east of the Site	Afon Dyfrdwy (River Dee) is of special interest for its fluvial geomorphology, Carboniferous geology, range of river habitat types, saltmarsh transition habitats, populations of floating water plantain <i>Luronium natans</i> , slender hare's-ear <i>Bupleurum tenuissimum</i> , sea barley <i>Hordeum marinum</i> , hard-grass <i>Parapholis strigosa</i> , otter <i>Lutra lutra</i> , salmon <i>Salmo salar</i> , bullhead <i>Cottus gobio</i> , brook lamprey <i>Lampetra planeri</i> , river lamprey <i>Lampetra fluviatilis</i> , sea lamprey <i>Petromyzon marinus</i> , club-tailed dragonfly <i>Gomphus vulgatissimus</i> and other aquatic invertebrates.

Name of Designation	Type of Designation	Location of Designation in Relation to Site	Reason for Site Designation
River Dee	SSSI (England)	3.1km to the north-east of the Site	The River Dee is notified for its nationally important transition through a range of river types from mesotrophic to eutrophic. It is also notified for Atlantic salmon <i>Salmo salar</i> , otter <i>Lutra lutra</i> , club-tailed dragonfly <i>Gomphus vulgatissimus</i> and fluvial geomorphology.
Vicarage Moss	SSSI (Wales)	3.7km to the north-west of the site	Geomorphological and botanical interest. The site is one of the best-developed examples of a kettle hole complex in Wales comprising one very large and several smaller subsidiary kettle holes. The largest kettle hole, Vicarage Moss itself, is about 200 metres long and forms a deep basin occupied by mire vegetation which also occupies one of the smaller kettle holes. The basin mire is exceptionally well defined by its sharp junction with the steep surrounding slopes. It is the largest example of a basin mire in Clwyd, the vegetation being distinctly zoned, particularly in the isolated mire occupying a subsidiary kettle hole to the south.

Name of Designation	Type of Designation	Location of Designation in Relation to Site	Reason for Site Designation
Sontley Marsh	SSSI (Wales)	4.7km to the south-west of the site	Botanical interest. One of the best wetland examples in Clwyd of the “southern mesotrophic mire” type more characteristic of south-west Wales and, in North Wales, largely restricted to Ynys Môn, Dwyfor and Clwyd.
Marford Quarry	SSSI	5km to the north-west of the site	This disused sand and gravel working is notified for its entomological interest. A large diversity of lepidopteran species have been recorded including many notable species. The butterfly and moth species lists include one and four nationally rare species respectively with additional locally and regionally notable species. The butterfly list is particularly diverse with around thirty individual species being recorded and is significant in a county context. Botanically the quarry supports both a rich flora indicative of calcareous sand and gravel substrates and a range of seral plant successional stages from uncolonised areas to “scrub” woodland.



Key

- Site boundary
- Site boundary - 5km buffer
- Wales and England Border
- Sites of Special Scientific Interest (SSSI)

Sites searched for were as follows:

- Sites of Special Scientific Interest (SSSI)
- National Nature Reserve (NNR)
- Area of Outstanding Natural Beauty (AONB)

THE ENVIRONMENT PARTNERSHIP

Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
Land North of Bryn Lane, Wrexham

Title
Nationally Designated Sites Within a 5km Buffer

Drawing Number
G9134.002A

Scale
1:60,000 @ A4

Date
25/04/2023

Drawn SP	Checked BJ	Approved AE
-------------	---------------	----------------

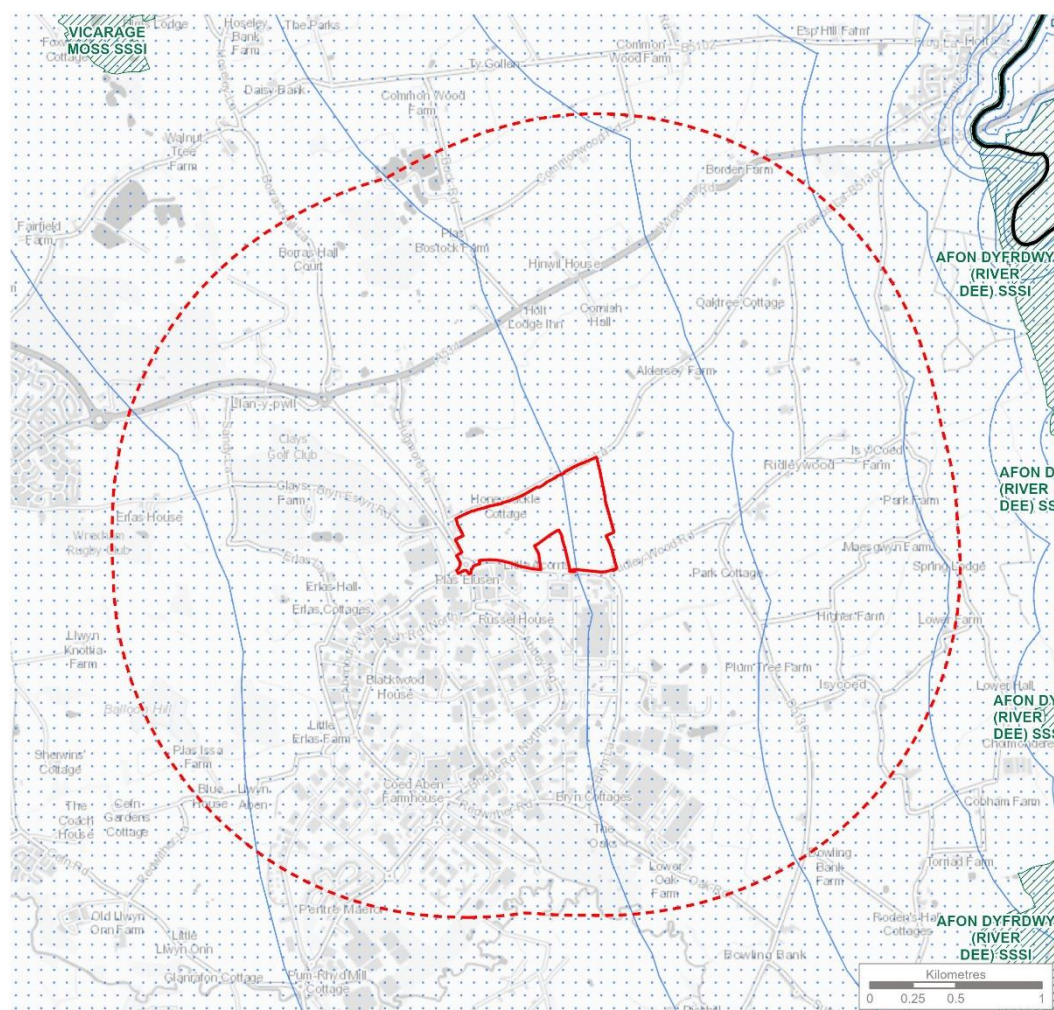
© Natural England
Contains public sector information licensed under the Open Government Licence v3.0.
© Scottish Natural Heritage
Contains public sector information licensed under the Open Government Licence v3.0.
© Natural Resources Wales
Contains public sector information licensed under the Open Government Licence v2.0.
OS licence number 100017908
Ordnance Survey Data
Contains OS data © Crown copyright and database right 2023.
Contains data from OS Zoomstack

Figure 3: Nationally Designated Wildlife Sites within 5km of the Site

- 4.4 The site falls within the Impact Risk Zone (IRZ) for the River Dee (England) SSSI. This is shown in Figure 4.
- 4.5 Impact Risk Zones are applicable to England but may extend into Wales for sites close to the border. The proposed development is not listed as a risk category with regard to these SSSI's, therefore the Local Authority is not required to consult with Natural England with regard to potential impacts on the SSSI's as a result of this development. Table 4 provides information on the likely impacts of development proposals on the SSSI's.

Table 4: Likely Impacts of Development Proposals on the River Dee (England) SSSI.

Planning Proposal Categories	LPA Should Consult Natural England on Likely Risks from the Following:
All planning applications	Assessed not to impact the SSSI.
Infrastructure	Airports, helipads and other aviation proposals.
Wind and solar energy	Assessed not to impact the SSSI.
Minerals, oil and 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	Assessed not to impact the SSSI.
Residential	Assessed not to impact the SSSI.
Rural residential	Assessed not to impact the SSSI.
Air pollution	Any industrial/agricultural development that could cause air pollution (incl: industrial processes, livestock & poultry units with floorspace > 500m ² , slurry lagoons & digestate stores > 750m ² , manure stores > 3500t).
Combustion	General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.
Waste	Assessed not to impact the SSSI.
Composting	Assessed not to impact the SSSI.
Discharges	Assessed not to impact the SSSI.
Water supply	Assessed not to impact the SSSI.



- Key**
- Site boundary
 - Site boundary - 2km buffer
 - Wales and England Border
 - Sites of Special Scientific Interest (SSSI)
 - Sites of Special Scientific Interest - Impact Risk Zone

THE ENVIRONMENT PARTNERSHIP
Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
Land North of Bryn Lane, Wrexham

Title
Sites of Special Scientific Interest - Impact Risk Zone

Drawing Number
G9134.005A

Scale
1:30,000 @ A4

Date
20/04/2023

Drawn
SP

Checked
BJ

Approved
AE

© Natural England
Contains public sector information licensed under the Open Government Licence v3.0.

© Scottish Natural Heritage
Contains public sector information licensed under the Open Government Licence v3.0.

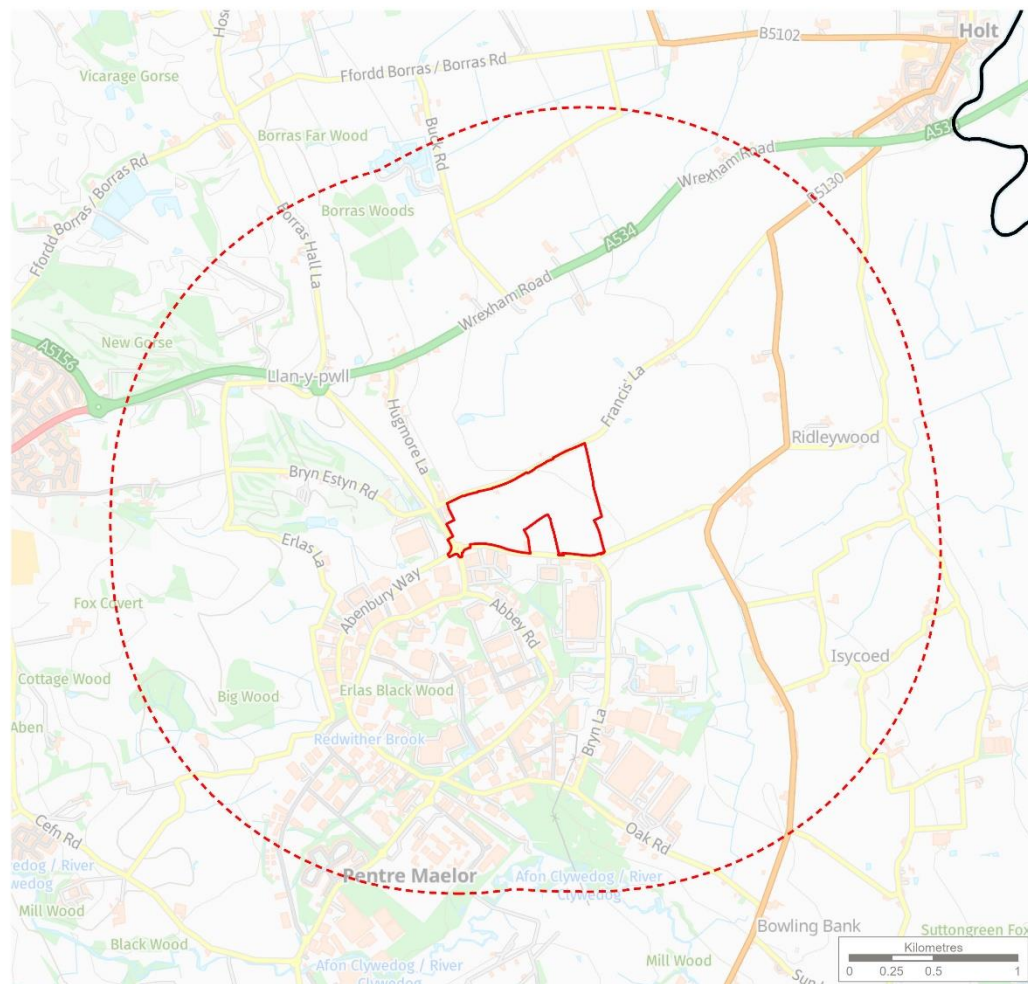
© Natural Resources Wales
Contains public sector information licensed under the Open Government Licence v2.0.
OS licence number 100019741

Ordnance Survey Data
Contains OS data © Crown copyright and database right 2023.
Contains data from OS Zoomstack

Figure 4: SSSI IRZ within the Site

Statutory Designated Wildlife Sites of Local Importance

- 4.6 There are no statutory locally designated wildlife sites within 2km of the site (Figure 5).



Key
 Site boundary
 Site boundary - 2km buffer
 Wales and England Border

Sites searched for were as follows:
 - Local Nature Reserves

No records found

THE ENVIRONMENT PARTNERSHIP
 Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
 Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
 Land North of Bryn Lane, Wrexham

Title
 Statutory Locally Designated Sites Within a 2km Buffer
 Drawing Number
 G9134.003A

Scale 1:30,000 @ A4	Date 20/04/2023
Drawn SP	Checked BJ
Approved AE	

© Natural England
 Contains public sector information licensed under the Open Government Licence v3.0.
 © Scottish Natural Heritage
 Contains public sector information licensed under the Open Government Licence v3.0.
 © Natural Resources Wales
 Contains public sector information licensed under the Open Government Licence v2.0.
 OS licence number 100019741
 Ordnance Survey Data
 Contains OS data © Crown copyright and database right 2023.
 Contains data from OS Zoomstack

Figure 5: Statutory Locally Designated Wildlife Sites within 2km of the Site

Non-statutory Designated Wildlife Sites of Local Importance

- 4.7 There are three non-statutory locally designated wildlife sites within 2km of the site (Figure 6). These are detailed in Table 5 below.

Table 5: Details of Non-statutory Locally Designated Wildlife Sites within 2km of the Site

Name of Designation	Type of Designation	Location of Designation in Relation to Site	Reason for Site Designation
Wrexham Industrial Estate	LWS	619m south of the site	Unknown. This is a series of sites within the industrial estate which includes unmanaged grassland at Bryn Road and on Cefn Park land; and ancient broadleaved woodland, Erlas Black Wood.
Cefn Park	LWS	1.3km south west of the site	Unknown. This site is a series of broadleaved woodlands within Cefn Park Estate. There is a rich ground flora which includes dog's mercury, bluebell, wood anemone and ramsons.
Borras Wood North	LWS	1.6km north of the site	Unknown. Ancient woodland over marshy ground. The majority of the site has been planted up with poplars. Beneath this is a ground flora dominated by marshy species, including early purple orchid

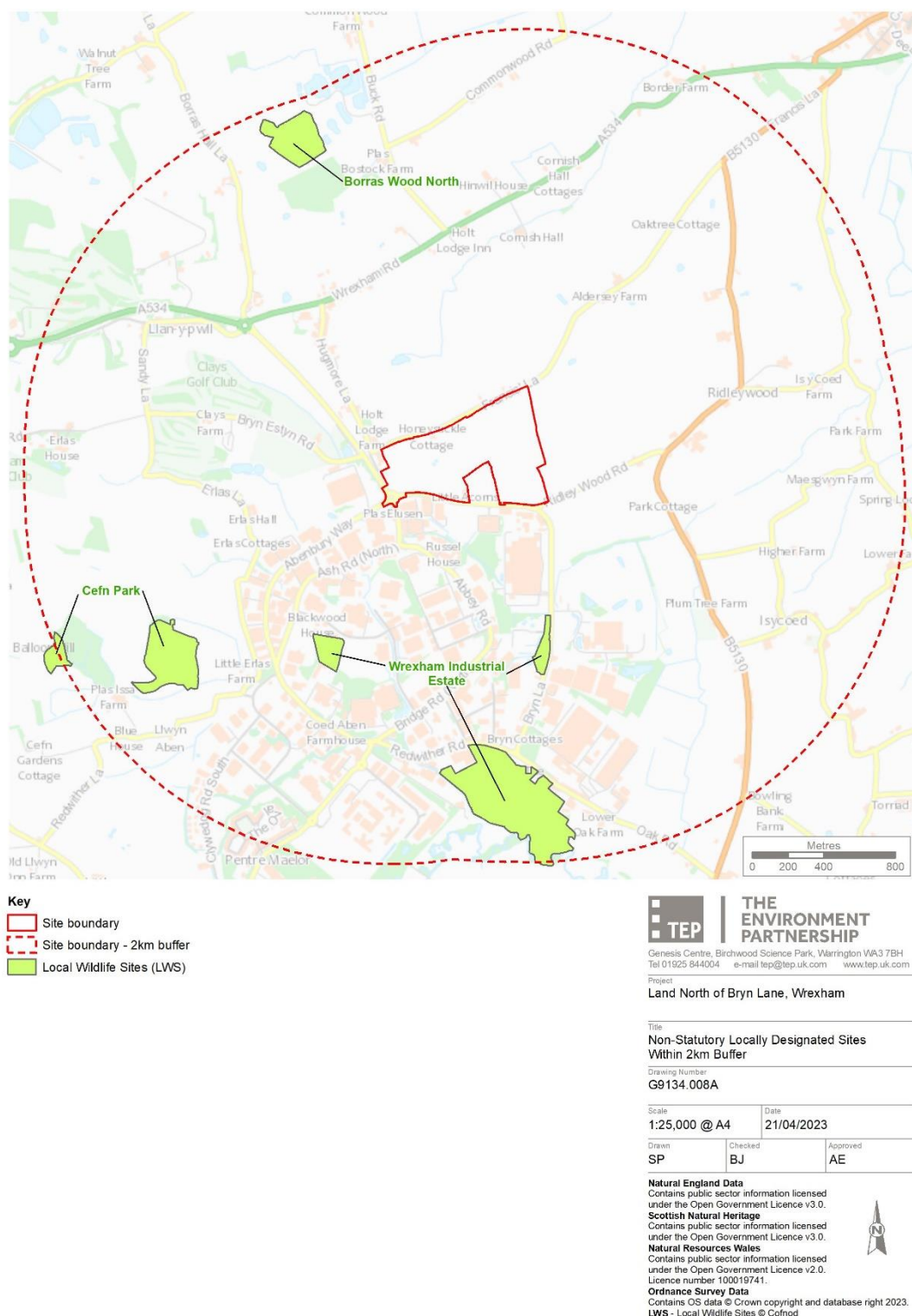
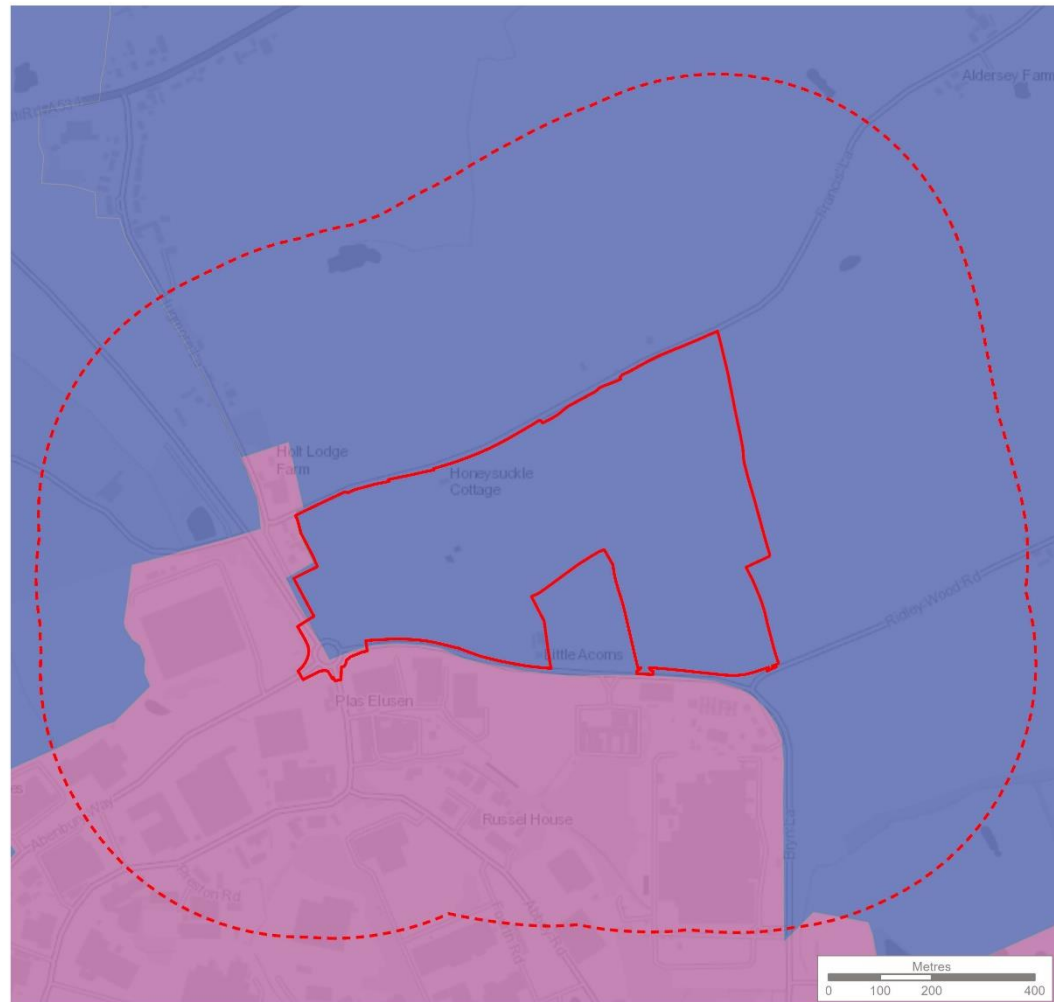


Figure 6: Non-statutory Locally Designated Wildlife Sites within 2km of the Site

5.0 Habitats

5.1 No notable habitats are present on or adjacent to the site (Figure 7).



Key
 Site boundary
 Site boundary - 500m buffer
 Improved Grassland
 Industrial

THE ENVIRONMENT PARTNERSHIP
 Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
 Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
 Land North of Bryn Lane, Wrexham

Title
 Notable Habitats Within and Adjacent to the Site

Drawing Number
 G9134.004A

Scale
 1:10,000 @ A4

Date
 20/04/2023

Drawn
 SP

Checked
 BJ

Approved
 AE

© Natural England
 Contains Ordnance Survey data, © Crown copyright and database right 2023. OS Licence number 100022021. Contains data created and provided by Cumbria Biodiversity Data Centre on behalf of Cumbria Wildlife Trust under a CC BY 4.0 International License
 Contains Forestry Commission information licensed under the Open Government Licence v3.0. © Environment Agency copyright and/or database right 2015. All rights reserved.
 © Scottish Natural Heritage
 Contains public sector information licensed under the Open Government Licence v3.0.
 OS licence number 100017806
 © Natural Resources Wales
 Contains public sector information licensed under the Open Government Licence v2.0. OS licence number 100019141
 Ordnance Survey Data
 Contains OS data © Crown copyright and database right 2023.



Figure 7: Notable Habitats within and adjacent to the Site

6.0 Species

6.1 2,142 species records from the last 20 years were returned from COFNOD for within 2km of the site. These are shown in Table 6.

Table 6: Notable Species Records within 2km of the Site

Name of Species	Legislation	Number of Records Returned	Closest Record to Site
Amphibians			
Great crested newt	EPS, WCA5, S7, LBAP	161	0m (on-Site)
Common toad	S7	19	532m south east of the site
Birds			
Barn owl	WCA1, LBAP	16	Within 2000m of the site
Black-headed gull	S7, BAm, BRd (Wales)	8	Within 2000m of the site
Bullfinch	S7, BAm, BAm (Wales)	14	Within 2000m of the site
Cetti's warbler	WCA1	1	Within 2000m of the site
Common gull	BAm, BAm (Wales)	6	Within 2000m of the site
Common sandpiper	BAm, BAm (Wales)	1	Within 2000m of the site
Coot	BAm (Wales)	4	Within 2000m of the site
Crossbill	WCA1	1	Within 2000m of the site
Cuckoo	S7, BRd, BRd (Wales)	6	Within 2000m of the site
Curlew	S7, BRd, BRd (Wales)	12	Within 2000m of the site
Dunnock	S7, BAm, BAm (Wales)	18	Within 2000m of the site
Fieldfare	WCA1, BRd, BAm (Wales)	12	Within 2000m of the site

Name of Species	Legislation	Number of Records Returned	Closest Record to Site
Gadwall	BAm	2	Within 2000m of the site
Goldcrest	BRd (Wales)	10	Within 2000m of the site
Goshawk	WCA1, BAm (Wales)	2	Within 2000m of the site
Grasshopper warbler	S7, BRd, BRd (Wales)	4	Within 2000m of the site
Great black-backed gull	BAm, BAm (Wales)	3	Within 2000m of the site
Green sandpiper	WCA1, BAm, BAm (Wales)	2	Within 2000m of the site
Greenfinch	BRd, BRd (Wales)	15	Within 2000m of the site
Grey heron	BAm (Wales)	8	Within 2000m of the site
Grey partridge	S7, BRd, BRd (Wales)	1	Within 2000m of the site
Grey wagtail	BAm, BAm (Wales)	7	Within 2000m of the site
Greylag goose	WCA1 pt2, BAm	9	Within 2000m of the site
Herring gull	S7, BRd, BRd (Wales)	11	Within 2000m of the site
Hobby	WCA1	6	Within 2000m of the site
House martin	BRd, BAm (Wales)	13	Within 2000m of the site
House sparrow	S7, BRd, BAm (Wales)	18	Within 2000m of the site
Jack snipe	BAm (Wales)	1	Within 2000m of the site
Kestrel	S7, BAm, BRd (Wales)	21	Within 2000m of the site
Kingfisher	WCA1, BAm	2	Within 2000m of the site

Name of Species	Legislation	Number of Records Returned	Closest Record to Site
Lapwing	S7, BRd, BRd (Wales)	14	Within 2000m of the site
Lesser black-backed gull	BAm, BRd (Wales)	8	Within 2000m of the site
Lesser redpoll	S7, BRd, BAm (Wales)	1	Within 2000m of the site
Linnet	S7, BRd, BRd (Wales)	12	Within 2000m of the site
Little ringed plover	WCA1	2	Within 2000m of the site
Long-tailed tit	Bam	14	Within 2000m of the site
Mallard	BAm	8	Within 2000m of the site
Marsh harrier	WCA1, BAm, BAm (Wales)	1	Within 2000m of the site
Marsh tit	S7, BRd, BRd (Wales)	2	Within 2000m of the site
Meadow pipit	BAm, BRd (Wales)	9	Within 2000m of the site
Merlin	WCA1, BRd, BRd (Wales)	1	Within 2000m of the site
Mistle thrush	BRd, BAm (Wales)	10	Within 2000m of the site
Moorhen	Bam	7	Within 2000m of the site
Mute swan	Bam	10	Within 2000m of the site
Oystercatcher	BAm, BAm (Wales)	1	Within 2000m of the site
Peregrine	WCA1	4	Within 2000m of the site
Pink-footed goose	Bam	1	Within 2000m of the site
Pintail	WCA1 pt2, BAm, BAm (Wales)	2	Within 2000m of the site

Name of Species	Legislation	Number of Records Returned	Closest Record to Site
Pochard	BRd, BRd (Wales)	1	Within 2000m of the site
Quail	WCA1, BAm, BAm (Wales)	2	Within 2000m of the site
Redshank	BAm, BRd (Wales)	3	Within 2000m of the site
Redstart	Bam	3	Within 2000m of the site
Redwing	WCA1, BAm	12	Within 2000m of the site
Reed bunting	S7, BAm	7	Within 2000m of the site
Ringed plover	S7, BRd, BRd (Wales)	2	Within 2000m of the site
Rook	Bam, BRd (Wales)	13	Within 2000m of the site
Sedge warbler	Bam	7	Within 2000m of the site
Shelduck	BAm, BRd (Wales)	5	Within 2000m of the site
Shoveler	BAm, BAm (Wales)	1	Within 2000m of the site
Skylark	S7, BRd, BAm (Wales)	16	Within 2000m of the site
Snipe	BAm, BAm (Wales)	5	Within 2000m of the site
Song thrush	S7, BAm, LBAP	19	Within 2000m of the site
Sparrowhawk	Bam	10	Within 2000m of the site
Spotted flycatcher	S7, BRd, BRd (Wales)	3	Within 2000m of the site
Starling	S7, BRd, BRd (Wales)	19	Within 2000m of the site
Stock dove	Bam	19	Within 2000m of the site

Name of Species	Legislation	Number of Records Returned	Closest Record to Site
Swift	BRd, BRd (Wales)	9	Within 2000m of the site
Tawny owl	Bam	5	Within 2000m of the site
Teal	BAm, BAm (Wales)	4	Within 2000m of the site
Tree sparrow	S7, BRd, BRd (Wales)	5	Within 2000m of the site
Wheatear	Bam	3	Within 2000m of the site
Whinchat	BRd, BRd (Wales)	2	Within 2000m of the site
Whitethroat	BAm, BRd (Wales)	14	Within 2000m of the site
Whooper swan	WCA1, BAm	2	Within 2000m of the site
Wigeon	BAm, BAm (Wales)	3	Within 2000m of the site
Willow warbler	BAm, BRd (Wales)	7	Within 2000m of the site
Woodcock	BRd, BRd (Wales)	5	Within 2000m of the site
Wren	Bam	23	Within 2000m of the site
Yellow Wagtail	S7, BRd, BRd (Wales)	2	Within 2000m of the site
Yellowhammer	S7, BRd, BRd (Wales)	10	Within 2000m of the site
Invertebrates			
Blood-vein moth	S7	1	2000m south of the site
Cinnabar moth	S7	10	694m south east of the site
Dingy skipper butterfly	S7	59	384m south of the site

Name of Species	Legislation	Number of Records Returned	Closest Record to Site
Figure of eight moth	S7	1	694m south of the site
Grayling butterfly	S7	5	1600m north west of the site
Grizzled skipper butterfly	S7, LBAP	70	402m south of the site
Latticed heath moth	S7	11	453m south of the site
Narrow-bordered five-spot burnet moth	S7	4	1300m south of the site
Oak hook-tip moth	S7	2	1300m south of the site
Powdered quaker moth	S7	2	1600m west of the site
Red-shanked Carder Bee	S7	1	2000m north west of the site
Scarce four-dot pin-palp beetle	S7	1	2000m south of the site
Shaded broad-bar moth	S7	10	627m south of the site
Small emerald moth	S7	2	1300m south of the site
Small heath butterfly	S7	46	350m south of the site
Small phoenix moth	S7	3	715m south of the site
Sprawler moth	S7	1	1600m east of the site
Wall butterfly	S7	5	694m south of the site
Bats			
Brandt's bat	EPS, WCA5	2	758m south west of the site
Brown long-eared bat	EPS, S7, WCA5	7	485m south of the site

Name of Species	Legislation	Number of Records Returned	Closest Record to Site
Common pipistrelle	EPS, S7, WCA5	13	605m south of the site
Daubenton's bat	EPS, WCA5	3	605m east of the site
Lesser horseshoe bat	EPS, S7, WCA5, LBAP	5	605m east of the site
Natterer's bat	EPS, WCA5	1	605m east of the site
Noctule bat	EPS, S7, WCA5	6	605m east of the site
Soprano pipistrelle	EPS, S7, WCA5	5	605m east of the site
Unspecified bat species	EPS, WCA5	3	711m west of the site
Unspecified myotis bat species	EPS, WCA5	2	502m south of the site
Unspecified pipistrelle species	EPS, WCA5	1	1400m east of the site
Whiskered bat	EPS, WCA5	4	924m south west of the site
Terrestrial Mammals			
Badger	PBA, LBAP	35	Within 2000m of the site
Brown hare	S7	8	1300m south east of the site
Hedgehog	S7	8	284m west of the site
Otter	EPS, S7, WCA5, LBAP	7	181m west of the site
Polecat	S7	5	0m (On-site)
Plants			
Black poplar	LBAP	2	1000m north of the site

Name of Species	Legislation	Number of Records Returned	Closest Record to Site
Bluebell	WCA8	3	509m north of the site
Canadian waterweed	WCA9	1	886m south west of the site
Cherry laurel	WCA9	1	1400m north of the site
Cornflower	S7	1	611m north west of the site
Giant hogweed	WCA9, IAS	1	1400m south of the site
Himalayan balsam	WCA9, IAS	5	1300m south of the site
Himalayan cotoneaster	WCA9	1	1600m south east of the site
Japanese knotweed	WCA9	4	1400m south east of the site
Montbretia	WCA9	1	365m south of the site
New Zealand pigmyweed	WCA9	4	90m north of the site
Pennyroyal	S7	1	620m south of the site
Rhododendron ponticum	WCA9	1	1400m north of the site
Water fern	WCA9	1	676m south of the site
Reptiles			
Adder	WCA5, S7	2	1800m south of the site
Common lizard	WCA5, S7	1	453m south of the site
Grass snake	WCA5, S7	2	1200m south of the site
Slow-worm	WCA5, S7	2	1200m south of the site

Name of Species	Legislation	Number of Records Returned	Closest Record to Site
Fish			
European eel	S7	2	886m to the south west of the site

APPENDIX A: Citations for Statutory Designated Wildlife Sites of International Importance

STANDARD DATA FORM for sites within the 'UK national site network of European sites'

Special Protection Areas (SPAs) are classified and Special Areas of Conservation (SACs) are designated under:

- the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters);
- the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) in Scotland;
- the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland; and
- the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) in the UK offshore area.

Each SAC or SPA (forming part of the UK national site network of European sites) has its own Standard Data Form containing site-specific information. The information provided here generally follows the same documenting format for SACs and SPAs, as set out in the [Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011 \(2011/484/EU\)](#).

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

More general information on SPAs and SACs in the UK is available from the [SPA homepage](#) and [SAC homepage](#) on the JNCC website. These webpages also provide links to Standard Data Forms for all SAC and SPA sites in the UK.

<https://jncc.gov.uk/>



NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE UK0030252
SITENAME River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid

TABLE OF CONTENTS

- [1. SITE IDENTIFICATION](#)
- [2. SITE LOCATION](#)
- [3. ECOLOGICAL INFORMATION](#)
- [4. SITE DESCRIPTION](#)
- [5. SITE PROTECTION STATUS AND RELATION WITH CORINE BIOTOPES](#)
- [6. SITE MANAGEMENT](#)

1. SITE IDENTIFICATION

1.1 Type B	1.2 Site code UK0030252	Back to top
----------------------	-----------------------------------	-----------------------------

1.3 Site name

River Dee and Bala Lake/ Afon Dyfrdwy a Llyn Tegid

1.4 First Compilation date 2003-05	1.5 Update date 2015-12
--	-----------------------------------

1.6 Respondent:

Name/Organisation: Joint Nature Conservation Committee

Address: Joint Nature Conservation Committee Monkstone House City Road Peterborough
PE1 1JY

Email:

Date site proposed as SCI: 2003-05

Date site confirmed as SCI: 2004-12

Date site designated as SAC: 2005-04

National legal reference of SAC designation:

Regulations 11 and 13-15 of the Conservation of Habitats and Species Regulations 2010
(<http://www.legislation.gov.uk/uksi/2010/490/contents/made>).

2. SITE LOCATION

[Back to top](#)

2.1 Site-centre location [decimal degrees]:

Longitude

-2.8611111111

Latitude

53.04722222

2.2 Area [ha]:

1271.32

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

175.7

2.5 Administrative region code and name

NUTS level 2 code

Region Name

UKL1	West Wales and The Valleys
UKD2	Cheshire
UKG2	Shropshire and Staffordshire
UKL2	East Wales

2.6 Biogeographical Region(s)

Atlantic (100.0
%)

3. ECOLOGICAL INFORMATION

[Back to top](#)

3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A B C D	A B C		
						Representativity	Relative Surface	Conservation	Global
3260 			317.83	0	G	A	B	B	A
9180 	X		1.27	0	G	D			
91A0 			1.27	0	G	D			
91E0 	X		1.27	0	G	D			

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.

- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A B C D	A B C		
						Min	Max				Pop.	Con.	Iso.	Glo.
F	1103	Alosa fallax			p				P	DD	D			
F	1163	Cottus gobio			p				P	DD	C	C	C	C
F	1099	Lampetra fluviatilis			p				P	DD	C	C	C	C
F	1096	Lampetra planeri			p				P	DD	C	C	C	C
P	1831	Luronium natans			p	10000	10000	i		M	B	B	B	B
M	1355	Lutra lutra			p				P	DD	C	C	C	C
I	1029	Margaritifera margaritifera			p				P	DD	D			
F	1095	Petromyzon marinus			p				P	DD	C	C	C	C
F	1106	Salmo salar			p	1001	10000	i		M	A	B	C	B

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see [reference portal](#))
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

4.1 General site character

[Back to top](#)

Habitat class	% Cover
N03	2.0
N02	4.0
N14	2.0
N06	90.0

N16	2.0
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: shingle,sandstone,alluvium 2 Terrestrial: Geomorphology and landscape: lowland,floodplain

4.2 Quality and importance

Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation for which this is considered to be one of the best areas in the United Kingdom. Luronium natans for which this is considered to be one of the best areas in the United Kingdom. Petromyzon marinus for which the area is considered to support a significant presence. Lampetra fluviatilis for which the area is considered to support a significant presence. Lampetra planeri for which the area is considered to support a significant presence. Salmo salar for which this is considered to be one of the best areas in the United Kingdom. Cottus gobio for which the area is considered to support a significant presence. Lutra lutra for which the area is considered to support a significant presence.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i o b]

Rank: H = high, M = medium, L = low

Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,

T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions

i = inside, o = outside, b = both

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i o b]
M	J03		I

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. The Natural Resources Wales weblink below provides access to information on its designated sites. Detailed information about this Natura 2000 site can be accessed via the Management Plan link provided in Section 6.2. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): <http://publications.naturalengland.org.uk/category/6490068894089216>

<http://publications.naturalengland.org.uk/category/3212324>

<https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/protected-areas-of-lan>

http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

5.1 Designation types at national and regional level:

[Back to top](#)

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	99.3	UK00	0.8		

6. SITE MANAGEMENT

6.1 Body(ies) responsible for the site management:

Organisation:	Natural Resources Wales
Address:	
Email:	

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

☒	Yes	Name: RIVER DEE AND BALA LAKE / AFON DYFRDWY A LLYN TEGID Link: https://www.naturalresources.wales/media/673374/River_Dee_Bala_Lake_32_Plan.pdf
☐	No, but in preparation	
☐	No	

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE SPECIAL AREA OF CONSERVATION (SAC) AND SPECIAL PROTECTION AREA (SPA) STANDARD DATA FORMS

The codes in the table below generally follow those explained in the [official European Union guidelines for the Standard Data Form](#) (also referencing the relevant page number).

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	SPA (classified Special Protection Area)	53
B	cSAC, SCI or SAC (candidate Special Area of Conservation, Site of Community Importance, designated Special Area of Conservation)	53
C	SPA area/boundary is the same as the cSAC/SCI/SAC i.e. a co-classified/designated site (Note: this situation only occurs in Gibraltar)	53

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glaucio-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippophya• rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
3160	Natural dystrophic lakes and ponds	57
3170	Mediterranean temporary ponds	57
3180	Turloughs	57
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation	57
4010	Northern Atlantic wet heaths with Erica tetralix	57
4020	Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix	57
4030	European dry heaths	57
4040	Dry Atlantic coastal heaths with Erica vagans	57
4060	Alpine and Boreal heaths	57
4080	Sub-Arctic Salix spp. scrub	57
5110	Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)	57
5130	Juniperus communis formations on heaths or calcareous grasslands	57
6130	Calaminarian grasslands of the Violetalia calaminariae	57
6150	Siliceous alpine and boreal grasslands	57
6170	Alpine and subalpine calcareous grasslands	57
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	57
6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	57
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	57
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	57
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	57
6520	Mountain hay meadows	57
7110	Active raised bogs	57
7120	Degraded raised bogs still capable of natural regeneration	57
7130	Blanket bogs (* if active bog)	57
7140	Transition mires and quaking bogs	57
7150	Depressions on peat substrates of the Rhynchosporion	57
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	57
7220	Petrifying springs with tufa formation (Cratoneurion)	57
7230	Alkaline fens	57
7240	Alpine pioneer formations of the Caricion bicoloris-atrofuscae	57
8110	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	57
8120	Calcareous and calcshist scree of the montane to alpine levels (Thlaspietalia rotundifoliae)	57
8210	Calcareous rocky slopes with chasmophytic vegetation	57
8220	Siliceous rocky slopes with chasmophytic vegetation	57
8240	Limestone pavements	57
8310	Caves not open to the public	57
8330	Submerged or partially submerged sea caves	57
9120	Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robur-petraeae or Ilici-Fagenion)	57
9130	Asperulo-Fagetum beech forests	57
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	57
9180	Tilio-Acerion forests of slopes, scree and ravines	57
9190	Old acidophilous oak woods with Quercus robur on sandy plains	57
91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	57
91C0	Caledonian forest	57
91D0	Bog woodland	57
91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	57
91J0	Taxus baccata woods of the British Isles	57

3.1 Habitat representativity (abbreviated to 'Representativity' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent representativity	57
B	Good representativity	57
C	Significant representativity	57
D	Non-significant presence representativity	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	58
B	> 2%-15%	58
C	≤ 2%	58

3.1 Degree of conservation (abbreviated to 'Conservation' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	59
B	Good conservation	59
C	Average or reduced conservation	59

3.1 Global assessment (abbreviated to 'Global' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	59
B	Good value	59
C	Significant value	59

3.2 Population (abbreviated to 'Pop.' in data form)

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	62
B	> 2%-15%	62
C	≤ 2%	62
D	Non-significant population	62

3.2 Degree of conservation (abbreviated to 'Con.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	63
B	Good conservation	63
C	Average or reduced conservation	63

3.2 Isolation (abbreviated to 'Iso.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Population (almost) Isolated	63
B	Population not-isolated, but on margins of area of distribution	63
C	Population not-isolated within extended distribution range	63

3.2 Global Grade (abbreviated to 'Glo.' or 'G.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	63
B	Good value	63
C	Significant value	63

3.3 Other species – essentially covers bird assemblage types

CODE	DESCRIPTION	PAGE NO
WATR	Non-breeding waterbird assemblage	UK specific code
SBA	Breeding seabird assemblage	UK specific code

BBA	Breeding bird assemblage (applies only to sites classified pre 2000)	UK specific code
-----	--	------------------

4.1 Habitat class code

CODE	DESCRIPTION	PAGE NO
N01	Marine areas, Sea inlets	65
N02	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	65
N03	Salt marshes, Salt pastures, Salt steppes	65
N04	Coastal sand dunes, Sand beaches, Machair	65
N05	Shingle, Sea cliffs, Islets	65
N06	Inland water bodies (Standing water, Running water)	65
N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
N09	Dry grassland, Steppes	65
N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic resources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
H05	Soil pollution and solid waste (excluding discharges)	65
H06	Excess energy	65
H07	Other forms of pollution	65
I01	Invasive non-native species	65
I02	Problematic native species	65
I03	Introduced genetic material, GMO	65
J01	Fire and fire suppression	65
J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
K01	Abiotic (slow) natural processes	65
K02	Biocenotic evolution, succession	65
K03	Interspecific faunal relations	65
K04	Interspecific floral relations	65
K05	Reduced fecundity/ genetic depression	65
L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
M02	Changes in biotic conditions	65
U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
UK00	No Protection Status	67
UK01	National Nature Reserve	67
UK04	Site of Special Scientific Interest (GB)	67
UK05	Marine Conservation Zone	67
UK06	Nature Conservation Marine Protected Area	67
UK86	Special Area (Channel Islands)	67
UK98	Area of Special Scientific Interest (NI)	67
IN00	Ramsar Convention site	67
IN08	Special Protection Area	67
IN09	Special Area of Conservation	67

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX.22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

Joint Nature Conservation Committee

Monkstone House

City Road

Peterborough

Cambridgeshire PE1 1JY

UK

Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948

Email: RIS@JNCC.gov.uk

FOR OFFICE USE ONLY.

DD MM YY

--	--	--

Designation date

--	--	--	--	--	--

Site Reference Number

2. Date this sheet was completed/updated:

Designated: 02 February 1997

3. Country:

UK (England/Wales)

4. Name of the Ramsar site:

Midland Meres and Mosses Phase 2

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. **For RIS updates only,** changes to the site since its designation or earlier update:

a) Site boundary and area:

**** Important note:** If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) **hard copy** (required for inclusion of site in the Ramsar List): yes ✓ -or- no ☐;
- ii) **an electronic format** (e.g. a JPEG or ArcView image) Yes
- iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** yes ✓ -or- no ☐;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

52 55 20 N 02 45 43 W

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Chester, Shrewsbury, Stafford

The 18 units which make up the site are spread over the Wrexham / Shropshire / Cheshire and Staffordshire Plain. The majority of the units are in Cheshire and north Shropshire, with a small number of outlying sites in adjacent parts of Staffordshire and Wrexham.

Administrative region: Cheshire; Clwyd; Shropshire; Staffordshire; Wrexham/ Wrexham

10. Elevation (average and/or max. & min.) (metres): **11. Area** (hectares): 1588.24

Min. 63
Max. 94
Mean 83

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Meres and Mosses form a geographically diverse series of lowland open water and peatland sites in the north-west Midlands of England and north-east Wales. These have developed in natural depressions in the glacial drift left by receding ice sheets which formerly covered the Cheshire/Shropshire Plain. The 18 component sites include open water bodies (meres), the majority of which are nutrient-rich with associated fringing habitats, reed swamp, fen, carr and damp pasture. Peat accumulation has resulted in the nutrient-poor peat bogs (mosses) forming in some sites on the fringes of the meres or completely infilling basins. In a few cases the result is a floating quaking bog or schwingmoor. The wide range of resulting habitats support nationally important flora and fauna.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1, 2

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 1

The site comprises a diverse range of habitats from open water to raised bog.

Ramsar criterion 2

Supports a number of rare species of plants associated with wetlands, including the nationally scarce cowbane *Cicuta virosa* and, elongated sedge *Carex elongata*. Also present are the nationally scarce bryophytes *Dicranum affine* and *Sphagnum pulchrum*.

Also supports an assemblage of invertebrates including several rare species. There are 16 species of British Red Data Book insect listed for this site including the following endangered species: the moth *Glyphipteryx lathamella*, the caddisfly *Hagenella clathrata* and the sawfly *Trichiosoma vitellinae*.

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	acidic, basic, neutral, sand, clay, alluvium, peat, nutrient-rich, nutrient-poor, sandstone, sandstone/mudstone, gravel
Geomorphology and landscape	lowland, hilly, floodplain, escarpment
Nutrient status	eutrophic, mesotrophic, oligotrophic
pH	acidic, circumneutral, strongly acidic
Salinity	fresh
Soil	mainly organic
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Shawbury, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/shawbury.html) Max. daily temperature: 13.4° C Min. daily temperature: 5.2° C Days of air frost: 61.8 Rainfall: 655.7 mm Hrs. of sunshine: 1398.1

General description of the Physical Features:

The Meres and Mosses of the north-west Midlands comprise a series of open water and peatland sites, most of which developed in natural depressions left by the retreating ice sheets at the end of the last Ice Age. There are over 60 open water sites, or 'meres', as well as a smaller number of peatland sites, known as 'mosses'.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The Meres and Mosses of the north-west Midlands comprise a series of open water and peatland sites, most of which developed in natural depressions left by the retreating ice sheets at the end of the last Ice Age. There are over 60 open water sites, or 'meres', as well as a smaller number of peatland sites, known as 'mosses'.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Recharge and discharge of groundwater, Flood water storage / desynchronisation of flood peaks

19. Wetland types:

Inland wetland

Code	Name	% Area
U	Peatlands (including peat bogs swamps, fens)	66.1
O	Freshwater lakes: permanent	14.4
Other	Other	12.7
Xp	Forested peatland	4.7
W	Shrub-dominated wetlands	2.1

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The site's primary interest is its wide range of lowland wetland types and successional stages within a distinct biogeographical area. Waters are generally circumneutral or acidic depending on the component site's soil type, catchment size and usage. Substantial areas of open water remain in some sites, and in many cases this is fringed by extensive and varied swamp, fen and carr communities. Some basins have become peat-filled, leading in some circumstances to the development of ombrotrophic conditions; of particular importance are the quaking bogs or schwingmoors.

Fenns, Whixall, Bettisfield, Wem and Cadney Mosses are large raised bogs of exceptional importance.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Nationally important species occurring on the site.**Higher Plants.**

Calamagrostis stricta, *Carex elongata*, *Cicuta virosa*, *Thelypteris palustris*

Lower Plants.

Sphagnum pulchrum, *Dicranum undulatum*

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds**Species currently occurring at levels of national importance:****Species with peak counts in spring/autumn:**

Northern shoveler , <i>Anas clypeata</i> , NW & C Europe	171 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1998/9-2002/3)
--	--

Species with peak counts in winter:

Great cormorant , <i>Phalacrocorax carbo carbo</i> , NW Europe	323 individuals, representing an average of 1.4% of the GB population (5 year peak mean 1998/9-2002/3)
--	--

Great bittern , <i>Botaurus stellaris stellaris</i> , W Europe, NW Africa	1 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9-2002/3)
---	--

Water rail , <i>Rallus aquaticus</i> , Europe	7 individuals, representing an average of 1.5% of the GB population (5 year peak mean 1998/9-2002/3)
---	--

Species Information**Nationally important species occurring on the site.****Invertebrates.**

Limnophila heterogyna, Atylotus plebeius, Hagenella clathrata, Limnophila fasciata, Carorita limnaea, Glyptopteryx lathamella, Trichiosoma vitellinae, Eilema serica, Brachythops wusteneii, Pachinematus xanthocarpus, Sittcus floricola, Lampronia fuscata, Hybomitra lurida.

23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
 Archaeological/historical site
 Environmental education/ interpretation
 Livestock grazing
 Non-consumptive recreation
 Peat cutting (small-scale/subsistence)
 Scientific research
 Sport fishing

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	
Local authority, municipality etc.	+	+
National/Crown Estate	+	+
Private	+	+

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	
Recreation	+	
Current scientific research	+	
Collection of non-timber natural products: (unspecified)	+	
Commercial forestry		+
Fishing: recreational/sport	+	
Arable agriculture (unspecified)		+
Grazing (unspecified)	+	+
Hunting: recreational/sport	+	+
Sewage treatment/disposal		+
Irrigation (incl. agricultural water supply)		+
Mineral exploration (excl. hydrocarbons)		+
Transport route		+
Urban development		+
Non-urbanised settlements		+

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.
2. Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
Eutrophication	1		+	+	+
Introduction/invasion of non-native plant species	1		+		+
Pollution – pesticides/agricultural runoff	1			+	+

For category 2 factors only.

What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?

Is the site subject to adverse ecological change? NO

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	
National Nature Reserve (NNR)	+	
Land owned by a non-governmental organisation for nature conservation	+	
Management agreement	+	+
Site management statement/plan implemented	+	
Other	+	+
Special Area of Conservation (SAC)	+	

b) Describe any other current management practices:

The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Habitat.

Catchment management planning.

Peatland restoration & monitoring.

Fen rehabilitation.

Limnology.

Hydrology.

Environment.

Water chemistry.

Trophic status/nutrient budgets.

Peat paleo-ecology.

Impacts of fish.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Areas owned by the Local Authority and National Nature Reserves are used by schools and universities for site-based projects and individual dissertations.

National Nature Reserves are used as management-practice and machinery demonstration sites.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities.

Angling; boating.

Facilities provided.

There is a network of public footpaths.

Seasonality.

Increased use in summer.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs,

European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

Head, Countryside Division, Welsh Assembly Government, Cathays Park, Cardiff, CF1 3NQ

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK / Site Safeguard Officer, International Designations, Countryside Council for Wales, Maes-y-Ffynnon, Penrhosgarnedd, Bangor, Gwynedd, LL57 2DW

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Site-relevant references

- Banks, JW (1970) Observations on the fish population of Rostherne Mere, Cheshire *Field Studies* 3(2), 357-379
- Belcher, JA & Storey, JE (1968) The phytoplankton of Rostherne and Mere meres. *Cheshire Naturalist*, **905**, 57-61.
- Bellamy, DJ (1967) *Ecological studies on some European mires*. Unpublished PhD thesis, University of London
- Berry, AQ, Gale, F, Daniels, JL & Allmark, B (eds.) (1996) *Fenn's and Whixall Mosses*. Clwyd County Council, Mold
- Boulton, GS & Worsley, P (1965) Late Weichselian glaciation in the Cheshire Shropshire Basin. *Nature*, **207**(4998), 704-706
- Brassil, K, Silvester, R & Tosteven, P (1991) *An archaeological assessment of Fenn's and Whixall Mosses, Clwyd and Shropshire*. Clwyd-Powys Archaeological Trust, Welshpool (CPAT Report, No. 9)
- Bratton, JH (ed.) (1991) *British Red Data Books: 3. Invertebrates other than insects*. Joint Nature Conservation Committee, Peterborough
- Carvalho, LC (1993) *Experimental limnology on four Cheshire meres*. Unpublished PhD Thesis, University of Liverpool
- Carvahlo, L & Moss, B (1995) The current status of a sample of English Sites of Special Scientific Interest subject to eutrophication. *Aquatic Conservation*, **5**, 191-204
- Cranswick, PA, Waters, RJ, Musgrove, AJ & Pollitt, MS (1997) *The Wetland Bird Survey 1995-96: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge
- Daniels, JL (2002) *Fenn's, Whixall & Bettisfield Mosses National Nature Reserve*. English Nature, Whitchurch
- Daniels, RE (1978) Floristic analyses of British mires and mire communities. *Journal of Ecology*, **66**, 773-802
- English Nature (2001) *Mosses trails. Exploring Fenn's & Whixall Mosses and the Llangollen Canal*. English Nature, Whitchurch
- Fowles, A (1994) *Invertebrates of Wales: a review of important sites and species*. Joint Nature Conservation Committee, Peterborough
- Hawley, G, Ross, S, Shaw, S, Taylor, K, Wheeler, B & Worrall, P (2004) Nutrient enrichment of basin fens. Options for remediation. *English Nature Research Reports*, No. **610** www.english-nature.org.uk/pubs/publication/PDF/610.pdf
- Huddart, D & Glasser, NF (2002) *Quaternary of northern England*. Joint Nature Conservation Committee, Peterborough (Geological Conservation Review Series, No. 25)
- Jones, PS, Stevens, DP, Blackstock, TH, Burrows, CR & Howe, EA (eds.) (2003) *Priority habitats of Wales: a technical guide*. Countryside Council for Wales, Bangor
- Krivtsov, V, Bellinger, E & Sigee, D (2002) Water and nutrient budgeting of Rostherne Mere, Cheshire, UK. *Nordic Hydrology*, **33**, 391-414
- McLeod, CR, Yeo, M, Brown, AE, Burn, AJ, Hopkins, JJ & Way, SF (eds.) (2004) *The Habitats Directive: selection of Special Areas of Conservation in the UK*. 2nd edn. Joint Nature Conservation Committee, Peterborough. www.jncc.gov.uk/SACselection
- Moss, B, Beklioglu, M, Carvalho, L, Kilinc, S, McGowan, S & Stephen, D (1997) Vertically-challenged limnology; contrasts between deep and shallow lakes. *Hydrobiologia*, **342/343**, 257-267
- Moss, B, McGowan, S, Kilinc, S & Carvalho, L (1993) Current limnological condition of a group of the West Midlands Meres that bear SSSI status. *English Nature Research Reports*, No. **59**
- Musgrove, AJ, Pollitt, MS, Hall, C, Hearn, RD, Holloway, SJ, Marshall, PE, Robinson, JA & Cranswick, PA (2001) *The Wetland Bird Survey 1999-2000: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge. www.wwt.org.uk/publications/default.asp?PubID=14
- Pearson, MC & Green, BH (1964) An approach to the hydrology of a 'Schwingmoore'. In: *Proceedings of the 10th International Botanical Congress, University of Edinburgh*
- Poole, EG & Whiteman, A.J (196 1) The glacial drifts of the Shropshire Cheshire Basin. *Quarterly Journal of the Geological Society*, **117**, 91-130
- Poole, EG (1966) Late Weichselian glaciation in the Cheshire Shropshire Basin. *Nature*, **211**(5048), 507
- Ratcliffe, DA (ed.) (1977) *A Nature Conservation Review. The selection of biological sites of national importance to nature conservation in Britain*. Cambridge University Press (for the Natural Environment Research Council and the Nature Conservancy Council), Cambridge (2 vols.)

- Reynolds, CS (1971) The ecology of the planktonic blue-green algae in the north Shropshire meres. *Field Studies*, **3**, 409-432.
- Reynolds, CS (1979) The limnology of the eutrophic meres of the Shropshire–Cheshire Plain. *Field Studies*, **5**(1), 93-173
- Rieley, JO, Page, SE & Shah, AA (1984) Eutrophication of afforested basin mires in the Midlands of England. In: *Proceedings of the 7th International Peat Congress, Dublin*
- Rose, F (1953) A survey of the ecology of the British lowland bogs. *Proceedings of the Linnaean Society*, **164**, 186-211
- Shirt, DB (ed.) (1987) *British Red Data Books: 2. Insects*. Nature Conservancy Council, Peterborough
- Sinker, CA (1970) The north Shropshire meres & mosses: a background for ecologists. *Field Studies*, **1**(4), 101-138
- Stewart, A, Pearman, DA & Preston, CD (eds.) (1994) *Scarce plants in Britain*. Joint Nature Conservation Committee, Peterborough
- Sutherland, JP (1997) The hoverflies (Diptera, Syrphidae) of Rostherne Mere, Cheshire. *Dipterists Digest*, **4**(1), 35-40
- Tallis, JH (1973) The terrestrialisation of lake basins in north Cheshire, with special reference to the development of a 'Schwingmoore' structure. *Journal of Ecology*, **61**, 537-567
- Turner, J (1964) The anthropogenic factor in vegetational history. I. Tregaron and Whixall Mosses. *New Phytologist*, **63**(1), 73-89
- Walsh, B (1965) *An investigation of the bottom fauna of Rostherne Mere, Cheshire*. Unpublished PhD Thesis, University of Liverpool
- Waltham, AC, Simms, MJ, Farrant, AR & Goldie, HS (1997) *Karst and caves of Great Britain*. Chapman & Hall, London, for Joint Nature Conservation Committee, Peterborough (Geological Conservation Review Series, No. 12)
- Winfield, IJ & Tobin, CM (1995) Impact of fish and fishery management on the conservation of the West Midland Meres: sampling methodology. *English Nature Research Reports*, No. **137**

Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone: +41 22 999 0170 • Fax: +41 22 999 0169 • email: ramsar@ramsar.org

STANDARD DATA FORM for sites within the 'UK national site network of European sites'

Special Protection Areas (SPAs) are classified and Special Areas of Conservation (SACs) are designated under:

- the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters);
- the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) in Scotland;
- the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland; and
- the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) in the UK offshore area.

Each SAC or SPA (forming part of the UK national site network of European sites) has its own Standard Data Form containing site-specific information. The information provided here generally follows the same documenting format for SACs and SPAs, as set out in the [Official Journal of the European Union recording the Commission Implementing Decision of 11 July 2011 \(2011/484/EU\)](#).

Please note that these forms contain a number of codes, all of which are explained either within the data forms themselves or in the end notes.

More general information on SPAs and SACs in the UK is available from the [SPA homepage](#) and [SAC homepage](#) on the JNCC website. These webpages also provide links to Standard Data Forms for all SAC and SPA sites in the UK.

<https://jncc.gov.uk/>



NATURA 2000 - STANDARD DATA FORM

For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)

SITE UK0030173
SITENAME Johnstown Newt Sites

TABLE OF CONTENTS

- [1. SITE IDENTIFICATION](#)
- [2. SITE LOCATION](#)
- [3. ECOLOGICAL INFORMATION](#)
- [4. SITE DESCRIPTION](#)
- [5. SITE PROTECTION STATUS AND RELATION WITH CORINE BIOTOPES](#)
- [6. SITE MANAGEMENT](#)

1. SITE IDENTIFICATION

1.1 Type B	1.2 Site code UK0030173	Back to top
----------------------	-----------------------------------	-----------------------------

1.3 Site name

Johnstown Newt Sites

1.4 First Compilation date 2001-03	1.5 Update date 2015-12
--	-----------------------------------

1.6 Respondent:

Name/Organisation: Joint Nature Conservation Committee
Address: Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY
Email:

Date site proposed as SCI:	2001-03
Date site confirmed as SCI:	2004-12
Date site designated as SAC:	2004-12
National legal reference of SAC designation:	Regulations 11 and 13-15 of the Conservation of Habitats and Species Regulations 2010 (http://www.legislation.gov.uk/uksi/2010/490/contents/made).

2. SITE LOCATION

[Back to top](#)

2.1 Site-centre location [decimal degrees]:

Longitude

-3.028333333

Latitude

53.01222222

2.2 Area [ha]:

69.29

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code

Region Name

UKL2

East Wales

2.6 Biogeographical Region(s)

Atlantic (100.0
%)

3. ECOLOGICAL INFORMATION

[Back to top](#)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A B C D	A B C		
						Min	Max				Pop.	Con.	Iso.	Glo.
A	1166	Triturus cristatus			p	1850	1850	i		G	C	B	B	B

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see [reference portal](#))
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

4.1 General site character

[Back to top](#)

Habitat class	% Cover
N14	15.0
N08	10.0
N23	25.0
N06	4.0
N16	45.0
N07	1.0
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: sedimentary,sandstone,sand,neutral,clay 2 Terrestrial: Geomorphology and landscape: slope,lowland

4.2 Quality and importance

Triturus cristatus for which this is considered to be one of the best areas in the United Kingdom.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i o b]
M	J03		B
H	I01		B
M	A03		I
H	E01		B
M	J02		B
M	A04		I
M	B02		I
H	I02		B
H	G01		I
H	K02		B

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i o b]
M	G01		O

Rank: H = high, M = medium, L = low

Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,

T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions

i = inside, o = outside, b = both

4.5 Documentation

The Natural Resources Wales weblink below provides access to information on its designated sites. Detailed information about this Natura 2000 site can be accessed via the Management Plan link provided in Section 6.2. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): <https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/protected-areas-of-lan>

http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	100.0				

6. SITE MANAGEMENT

6.1 Body(ies) responsible for the site management:

Organisation:	Natural Resources Wales
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

☒	Yes	Name: JOHNSTOWN NEWT SITES
		Link:
		https://www.naturalresources.wales/media/672594/Johnstown%20Newt%20Site%20Management%20Plan%20April%202019.pdf
☐	No, but in preparation	
☐	No	

EXPLANATION OF CODES USED IN THE SPECIAL AREA OF CONSERVATION (SAC) AND SPECIAL PROTECTION AREA (SPA) STANDARD DATA FORMS

The codes in the table below generally follow those explained in the [official European Union guidelines for the Standard Data Form](#) (also referencing the relevant page number).

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	SPA (classified Special Protection Area)	53
B	cSAC, SCI or SAC (candidate Special Area of Conservation, Site of Community Importance, designated Special Area of Conservation)	53
C	SPA area/boundary is the same as the cSAC/SCI/SAC i.e. a co-classified/designated site (Note: this situation only occurs in Gibraltar)	53

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glaucio-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippophya• rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

CODE	DESCRIPTION	PAGE NO
3160	Natural dystrophic lakes and ponds	57
3170	Mediterranean temporary ponds	57
3180	Turloughs	57
3260	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation	57
4010	Northern Atlantic wet heaths with Erica tetralix	57
4020	Temperate Atlantic wet heaths with Erica ciliaris and Erica tetralix	57
4030	European dry heaths	57
4040	Dry Atlantic coastal heaths with Erica vagans	57
4060	Alpine and Boreal heaths	57
4080	Sub-Arctic Salix spp. scrub	57
5110	Stable xerothermophilous formations with Buxus sempervirens on rock slopes (Berberidion p.p.)	57
5130	Juniperus communis formations on heaths or calcareous grasslands	57
6130	Calaminarian grasslands of the Violetalia calaminariae	57
6150	Siliceous alpine and boreal grasslands	57
6170	Alpine and subalpine calcareous grasslands	57
6210	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)	57
6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	57
6410	Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)	57
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	57
6510	Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)	57
6520	Mountain hay meadows	57
7110	Active raised bogs	57
7120	Degraded raised bogs still capable of natural regeneration	57
7130	Blanket bogs (* if active bog)	57
7140	Transition mires and quaking bogs	57
7150	Depressions on peat substrates of the Rhynchosporion	57
7210	Calcareous fens with Cladium mariscus and species of the Caricion davallianae	57
7220	Petrifying springs with tufa formation (Cratoneurion)	57
7230	Alkaline fens	57
7240	Alpine pioneer formations of the Caricion bicoloris-atrofuscae	57
8110	Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani)	57
8120	Calcareous and calcshist scree of the montane to alpine levels (Thlaspietalia rotundifoliae)	57
8210	Calcareous rocky slopes with chasmophytic vegetation	57
8220	Siliceous rocky slopes with chasmophytic vegetation	57
8240	Limestone pavements	57
8310	Caves not open to the public	57
8330	Submerged or partially submerged sea caves	57
9120	Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robur-petraeae or Ilici-Fagenion)	57
9130	Asperulo-Fagetum beech forests	57
9160	Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli	57
9180	Tilio-Acerion forests of slopes, scree and ravines	57
9190	Old acidophilous oak woods with Quercus robur on sandy plains	57
91A0	Old sessile oak woods with Ilex and Blechnum in the British Isles	57
91C0	Caledonian forest	57
91D0	Bog woodland	57
91E0	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	57
91J0	Taxus baccata woods of the British Isles	57

3.1 Habitat representativity (abbreviated to 'Representativity' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent representativity	57
B	Good representativity	57
C	Significant representativity	57
D	Non-significant presence representativity	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	58
B	> 2%-15%	58
C	≤ 2%	58

3.1 Degree of conservation (abbreviated to 'Conservation' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	59
B	Good conservation	59
C	Average or reduced conservation	59

3.1 Global assessment (abbreviated to 'Global' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	59
B	Good value	59
C	Significant value	59

3.2 Population (abbreviated to 'Pop.' in data form)

CODE	DESCRIPTION	PAGE NO
A	> 15%-100%	62
B	> 2%-15%	62
C	≤ 2%	62
D	Non-significant population	62

3.2 Degree of conservation (abbreviated to 'Con.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	63
B	Good conservation	63
C	Average or reduced conservation	63

3.2 Isolation (abbreviated to 'Iso.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Population (almost) Isolated	63
B	Population not-isolated, but on margins of area of distribution	63
C	Population not-isolated within extended distribution range	63

3.2 Global Grade (abbreviated to 'Glo.' or 'G.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	63
B	Good value	63
C	Significant value	63

3.3 Other species – essentially covers bird assemblage types

CODE	DESCRIPTION	PAGE NO
WATR	Non-breeding waterbird assemblage	UK specific code
SBA	Breeding seabird assemblage	UK specific code

BBA	Breeding bird assemblage (applies only to sites classified pre 2000)	UK specific code
-----	--	------------------

4.1 Habitat class code

CODE	DESCRIPTION	PAGE NO
N01	Marine areas, Sea inlets	65
N02	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	65
N03	Salt marshes, Salt pastures, Salt steppes	65
N04	Coastal sand dunes, Sand beaches, Machair	65
N05	Shingle, Sea cliffs, Islets	65
N06	Inland water bodies (Standing water, Running water)	65
N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
N09	Dry grassland, Steppes	65
N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic resources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
H05	Soil pollution and solid waste (excluding discharges)	65
H06	Excess energy	65
H07	Other forms of pollution	65
I01	Invasive non-native species	65
I02	Problematic native species	65
I03	Introduced genetic material, GMO	65
J01	Fire and fire suppression	65
J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
K01	Abiotic (slow) natural processes	65
K02	Biocenotic evolution, succession	65
K03	Interspecific faunal relations	65
K04	Interspecific floral relations	65
K05	Reduced fecundity/ genetic depression	65
L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
M02	Changes in biotic conditions	65
U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
UK00	No Protection Status	67
UK01	National Nature Reserve	67
UK04	Site of Special Scientific Interest (GB)	67
UK05	Marine Conservation Zone	67
UK06	Nature Conservation Marine Protected Area	67
UK86	Special Area (Channel Islands)	67
UK98	Area of Special Scientific Interest (NI)	67
IN00	Ramsar Convention site	67
IN08	Special Protection Area	67
IN09	Special Area of Conservation	67

APPENDIX B: Citations for Statutory Designated Wildlife Sites of National Importance

**CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES**

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

**GWYNEDD/DENBIGHSHIRE/
WREXHAM/FLINTSHIRE**

AFON DYFRDWY (RIVER DEE)

Date of Notification: 1995, 2002

National Grid Reference: SH 930351 – SJ 311695

O.S. Maps

1:50,000 Sheet number:	Outdoor Leisure map 18 Explorer maps 255, 256, 257 & 266
1:10,000 Sheet number:	SH83 NE; SH84 SE; SH93 NW & NE; SH94 SW; SJ03 NW; SJ04 SW & SE; SJ13 NE, NW, SE & SW; SJ14 SW & SE; SJ23 NW & NE; SJ24 SW & SE; SJ26 NE SJ27 SE; SJ33 NW; SJ34 SW, SE & NE; SJ35 NE; SJ36 NE & NW; SJ44 NW; SJ45 SW & NW

Site area: 1,489.5 ha

Description:

Afon Dyfrdwy (River Dee) is of special interest for its fluvial geomorphology, Carboniferous geology, range of river habitat types, saltmarsh transition habitats, populations of floating water plantain *Luronium natans*, slender hare's-ear *Bupleurum tenuissimum*, sea barley *Hordeum marinum*, hard-grass *Parapholis strigosa*, otter *Lutra lutra*, salmon *Salmo salar*, bullhead *Cottus gobio*, brook lamprey *Lampetra planeri*, river lamprey *Lampetra fluviatilis*, sea lamprey *Petromyzon marinus*, club-tailed dragonfly *Gomphus vulgatissimus* and other aquatic invertebrates.

The main channel of the River Dee lies within both Wales and England, and is notified as two separate SSSIs – the Afon Dyfrdwy (River Dee) SSSI in Wales and the River Dee (England) SSSI in England. The features for which the SSSIs are notified, in particular migratory fish, depend upon the whole river ecosystem. Salmon, otter, club-tailed dragonfly, and fluvial geomorphology are of special interest in both Wales and England.

The site extends from the outflow of Llyn Tegid SSSI downstream to where it flows into the Dee Estuary SSSI. In its swifter upper reaches it flows through the broad valley near Corwen, and the spectacular Vale of Llangollen before entering the Cheshire plain at Erbistock and meandering northwards through the Cheshire plain to its tidal limit at Farndon. In its slower, more mature reaches the river is characteristic of a floodplain river with meanders, oxbows and other river-formed landscape features. The River Dee is heavily regulated, with its flow controlled by the reservoirs of Tegid, Celyn and Brenig. The site includes the Ceiriog, Meloch, Tryweryn, and Mynach tributaries.

The source of the River Dee lies within the Snowdonia National Park and its catchment contains a wide spectrum of landscapes from high mountains around Bala, rugged peaks near Llangollen, steep-sided wooded valleys, and the plains of Cheshire and north Shropshire through to the vast mudflats of the estuary. There is a tidal influence as far upstream as Farndon and high tides regularly exceed the Chester weir crest level.

The course and topography of the River Dee and its tributaries were strongly influenced and modified during the last Ice Age. The underlying geology of the Dee ranges from impermeable Cambrian and Ordovician shales in the west, through Silurian to Carboniferous Limestone outcrop at Llangollen to Coal Measures and thick boulder clay overlying the Triassic sandstones of the Lower Dee valley.

GEOLOGY/GEOMORPHOLOGY

Three separate Geological Conservation Review (GCR) Sites are located within the Afon Dyfrdwy (River Dee) SSSI. The River Dee (Rhewl Section) and River Dee (Holt to Worthenbury) GCR sites were selected for their fluvial geomorphological importance and had previously been notified as individual SSSI. The rocks exposed at Dee Bridge are important for their Upper Carboniferous stratigraphy.

Dee Bridge (Upper Carboniferous)

Dee Bridge is important for its Upper Carboniferous stratigraphy. It encompasses the type locality for the Dee Bridge Formation. Adjacent to the river is a sequence of shales, sandstones and mudstones deposited under fluvio-deltaic conditions between the Kinderscoutian and Langsettian stages. Along with a correlative site 20 km to the north (Ruby Brickworks), it comprises the most complete documented sequence of upper Namurian strata in North Wales, illustrating the variation of marginal facies along the northern margin of the Wales-Brabant massif. The site is unique in Wales in showing the progressive, increased influence of more northerly-derived sediments over those derived from the northern margin of the Wales-Brabant massif.

River Dee (Holt to Worthenbury) (fluvial geomorphology)

This site comprises a meandering reach of the River Dee between Holt in the north and Worthenbury in the south. It includes land in Wrexham (Wales) and Cheshire (England) and consists of some of the most spectacular and intricately developed river bends or meanders seen anywhere in Britain. The site is important for studies of fluvial geomorphology.

The GCR site was selected for: 1) the present river channel and its intricate pattern of meanders; 2) the main areas of floodplain either side of the river, for the full length of the selected reach; 3) all the visible palaeochannels (abandoned channels) located on the floodplain adjacent to the present channel; 4) the gravel and sand bars located within the modern channel and the other evidence of modern-day river processes contained within the channel; and 5) the most impressive of the remnants of ancient river cliffs located towards the north-east and south-west margins of the site.

The pattern and scale of the meanders are exceptional on a British scale: the range of forms from simple curves to double-headed forms, and the intricacy of the pattern developed over the whole reach is outstanding. The total landform assemblage, including the remnants of ancient river cliffs, the floodplain areas, and the present and abandoned channels, provides the basis for

reconstructing the development of the river since the end of the last glaciation. The abandoned channels and old meander loops (some of which were once oxbow lakes) are exceptional landforms in their own right; their pattern, location and contained sediments provide significant potential for reconstructing some of the geologically recent changes in the course of the River Dee in its long evolution during Holocene times, namely the last 11,500 years. The gravel and sand bars distributed along the course of the modern channel, and the changing form of its banks and bed, bear witness to a range of important modern-day fluvial processes.

Although this part of the course of the River Dee has changed in position markedly during the Holocene, the last few hundred years have been characterised by relative channel stability. It seems likely that the banks and bed of the modern channel are now evolving in response to changing flow and sediment regimes induced by upstream regulation and other human modification to the fluvial system. The significance of the site for studying modern-day river processes is enhanced by the tidally-influenced downstream reach. This renders the site potentially significant for investigating the effects of possible future sea-level rise on the development of the river channel, particularly in view of the long history of tidal influences and stage records (river level) at downstream locations.

This reach of the Dee is a valuable part of the heritage of Great Britain, due to its outstanding combination of landform, sedimentary and process evidence. Most large British rivers have been significantly channelised or straightened in their lower reaches. The Dee is exceptional in maintaining an extremely sinuous platform across the sensitive fluvial-tidal transition zone.

River Dee (Rhewl Section) (fluvial geomorphology)

This reach of the River Dee provides a particularly good example of ingrown incised meanders. Their formation has involved lateral erosion as well as vertical erosion, so that the valley is asymmetrical in cross-profile and indicates that rejuvenation was progressive. In this respect the Dee meanders provide a geomorphological contrast to the entrenched meanders of the River Wye.

FLORA

The River Dee below Llyn Tegid is a predominantly mesotrophic river with a diversity of vegetation types reflecting its geology and geographical location. Near the outflow of Llyn Tegid, the community is typical of a sandstone, mudstone and hard limestone river type intergrading with a mesotrophic river type dominated by gravels, pebbles and cobbles. Species such as hemlock water-dropwort *Oenanthe crocata*, alternate water-milfoil *Myriophyllum alterniflorum*, intermediate water-starwort *Callitriche hamulata*, water mosses *Fontinalis antipyretica* and *F. squamosa*, and reed canary-grass *Phalaris arundinacea* are present. In spite of the large size of the river, the moderate gradient allows pond water-crowfoot *Ranunculus peltatus* to dominate. The nationally and internationally rare floating water-plantain *Luronium natans* also occurs here.

Below Corwen the river increases in gradient such that the community changes to an oligo-mesotrophic river type comprised of numerous bryophytes including *Brachythecium rivulare*, *Conocephalum conicum*, *Eurynchium praelongum*, *Philonotis fontana* and *Rhyncostegium riparioides*, interspersed with patches of *Fontinalis spp.* and sparse milfoil and crowfoot.

Between Llangollen and Bangor-on-Dee, sandstone, mudstone and hard limestone river type

vegetation again predominates, this time with the unusual hybrid crowfoot *Ranunculus x bachii* (*R. fluitans x aquatilis*) occurring in large stands. The Dee is one of only two known UK localities for this hybrid. In this section the river shows signs of nutrient enrichment with the introduced Canadian waterweed *Elodea canadensis* becoming more prevalent.

Below Bangor-on-Dee the River Dee flows into the Cheshire plains and displays typical characteristics of lowland river types with shallow gradients flowing over nutrient rich soils, with pondweeds such as curled pondweed *Potamogeton crispus*, perfoliate pondweed *Potamogeton perfoliatus* and small pondweed *Potamogeton berchtoldii* occurring frequently. Tripartite bur-marigold *Bidens tripartita* and lesser pondweed *Potamogeton pusillus*, both rare along Welsh rivers, are found in this section. This section is a lowland, clay-dominated river type but due to overgrazing of the margins and eutrophication this vegetation component is threatened and frequently species-poor. Fennel pondweed *Potamogeton pectinatus* also occurs here and in the more eutrophic sections may be the only submerged species.

There is good tree cover along the banks of the River Dee and the tributaries, with the Ceiriog being tree lined on both banks along much of its length. The dominant species are alder *Alnus glutinosa* and willow *Salix spp.*, with occasional ash *Fraxinus excelsior* and oak *Quercus spp.*. Where sections of the riverbank have been fenced off the vegetation tends to be dominated by bramble *Rubus fruticosus*, nettles *Urtica dioica* and other tall ruderals. Indian (also known as Himalayan) balsam *Impatiens glandulifera* and Japanese knotweed *Fallopia japonica* are increasing throughout the site.

Downstream of Chester along the canalised section of the river towards the estuary saltmarsh transition habitats have developed. These comprise upper and middle saltmarsh, annual high marsh and wet neutral grassland. These habitats support such rarities as the following species of special interest: slender hare's-ear, sea barley and hard-grass.

MAMMALS

The otter is of special interest and is found throughout the site, especially where appropriate bank side cover exists to provide secure holts and lying up areas. Water vole *Arvicola terrestris* have been recorded on the middle and lower reaches of the River Dee.

FISH

The River Dee is of special interest for Atlantic salmon for which it is one of the Environment Agency's index rivers. The Mynach, Meloch and Ceiriog tributaries are the most important salmon spawning tributaries in the Dee catchment and are included within this SSSI. Other migratory fish utilising the system include river lamprey, sea lamprey, sea trout *Salmo trutta trutta*, and eel *Anguilla anguilla*. Smelt *Osmerus eperlanus* and Twaite shad *Alosa fallax* have been recorded in the section between Chester and the estuary, but are not thought to have breeding populations.

The Dee also supports populations of non-migratory fish including bullhead and brook lamprey which are species of special interest, as well as brown trout *Salmo trutta*. The river is noted for its grayling *Thymallus thymallus*. The middle and lower reaches of the Dee support a diverse coarse fish population including, roach *Rutilus rutilus*, dace *Leuciscus leuciscus*, bream *Abramis brama* and perch *Perca fluviatilis*, although low water temperatures and poor riparian habitat

limit spawning success. Several coarse fish species including Barbel *Barbus barbus*, ruffe *Gymnocephalus cernua*, chub *Leuciscus cephalus*, and silver bream *Blicca bjoerkna* have been introduced to the system.

INVERTEBRATES

The lower reaches of the River Dee support Britain's only known population of the stonefly *Isogenus nubecula*. Club-tailed dragonfly *Gomphus vulgatissimus* is nationally scarce and present along the lower Dee, particularly where the river is slow flowing and there is adjacent woodland habitat or bankside tree cover available for adults. The nationally scarce weevil *Baris lepidii* has been recorded at its only Welsh site on sandy riverbanks along the lower Dee. All three species are of special interest.

Other aquatic invertebrates present include the nationally scarce freshwater pearl mussel *Margaritifera margaritifera* which is recorded from only nine Welsh rivers, and the water beetle *Bidessus minutissimus*, which inhabits reaches of the middle Dee, where it prefers fine gravel substrates in shallow, slow flowing side-waters.

Remarks:

The section of the Dee that flows through England is notified as a separate SSSI under the name of River Dee (England), ensuring that the whole of the river is safeguarded.

Part of the SSSI lies within the Snowdonia National Park.

The Afon Dyfrdwy (River Dee) SSSI supports the following habitats and species listed in the EC Habitats Directive (Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora):

- Rivers with floating vegetation often dominated by water crowfoot - Annex I
- Otter – Annex II & IV
- Sea lamprey – Annex II
- River lamprey – Annex II & V
- Brook lamprey – Annex II
- Atlantic salmon – Annex II & V
- Bullhead – Annex II
- Freshwater pearl mussel – Annex II & V
- Grayling – Annex V

The otter and the freshwater pearl mussel are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

*This document is **NOT** a definitive legal version and has been formatted, updated and partially edited for use on the CCW Web site. This document should not be used in any legal proceedings, public enquiry or any other hearing or appeal. If you require a full legal copy of the document please contact CCW in writing.*

Site name: River Dee (England) **County:** Cheshire/ Shropshire

District: Chester City Council District Council/ North Shropshire District Council

Status: Site of Special Scientific Interest (SSSI) notified under section 28C of the Wildlife and Countryside Act 1981 (as amended)

Local Planning Authorities: Cheshire County Council, Shropshire County Council, Chester City Council District Council, North Shropshire District Council

National Grid reference: SJ417532

Area: 371.50 ha

Ordnance Survey sheet: 1:50,000: 117, 126 **1:10,000:** SJ23, 26, 33, 34, 44, 45, 46

Date notified (under 1981 Act): 1996

Date of Last Revision: 2 May 2002

Reasons for notification:

The River Dee is notified for its nationally important transition through a range of river types from mesotrophic to eutrophic. It is also notified for Atlantic salmon *Salmo salar*, otter *Lutra lutra*, club-tailed dragonfly *Gomphus vulgatissimus* and fluvial geomorphology.

The River Dee lies within both England and Wales, and is notified as separate SSSIs – the River Dee (England) and the Afon Dyfrdwy-River Dee SSSI in Wales. The features for which the two SSSIs are notified, in particular the range of river types and migratory fish, depend upon the whole river ecosystem. The fluvial geomorphological interest occurs in both England and Wales.

The English sections of the river are therefore notified as components of the whole ecosystem for which the river is a nationally important example, and because the otter, club-tailed dragonfly and the geomorphological interest occurs on the English reaches.

General description:

The River Dee (England) SSSI comprises the part of the river of the same name and the part of its tributary, the Ceiriog, that flow through England. The site includes a section of the river as it meanders across the Cheshire plain down stream from Shocklach, where it forms the national boundary, northwards through Chester to the city's western outskirts. Further up the catchment, the southern half of river channel

of the River Ceiriog located in North Shropshire between Chirk Castle and Erbistock forms part of the SSSI.

The Afon Dyfrdwy-River Dee SSSI has its source in Snowdonia at the outflow of Llyn Tegid SSSI and it includes the Ceiriog, Meloch, Tryweryn and Mynach tributaries. Its catchment contains a wide spectrum of landscape from high mountains around Bala, rugged peaks near Llangollen, steep sided wooded valleys, and the plains of Cheshire and North Shropshire through to the vast mudflats of the estuary. There is a tidal influence as far upstream as Farndon and high tides regularly exceed the Chester weir crest level. It flows through broad valley near Corwen, and through the spectacular Vale of Llangollen before meandering northwards through parts of the Cheshire plain where it joins the River Dee (England) SSSI. Further downstream it includes the stretch below Chester to where the river meets the Dee Estuary.

The River Dee is reputed to be the most regulated river in Europe, with flow controlled by the reservoirs of Tegid, Celyn and Brenig.

Flora

The River Dee (England) is typical of a mesotrophic river. The aquatic plant community includes species of water crowfoot *Ranunculus fluitans x aquatilis* and *Ranunculus peltatus*, and also floating water plantain *Luronium natans*. Water crowfoot forms extensive beds along the whole length of the Dee where flow conditions are suitable. Other aquatic plants which occur within the site include intermediate water-starwort *Callitriche hamulata*, alternate-flowered water-milfoil *Myriophyllum alterniflorum* and bryophytes including *Rhynchostegium riparoides* and *Fontinalis antipyretica*. Marginal vegetation consists mainly of reed canary-grass *Phalaris arundinacea* with occasional branched bur-reed *Sparganium erectum*.

Downstream of Llangollen to Bangor-on-Dee the river shows signs of nutrient enrichment with Canadian waterweed *Elodea canadensis* becoming more prevalent. Below Bangor-on-Dee the River Dee (England) flows into the Cheshire plains and displays typical characteristics of lowland river types with shallow gradients and rich geology, with curled pondweed *Potamogeton crispus* and fennel pondweed *Potamogeton pectinatus* occurring frequently.

There is good tree cover along the banks of the River Dee and the tributaries, with the Ceiriog being tree lined on both banks along much of its length. The dominant species are alder *Alnus glutinosa* and willow *Salix* spp., with occasional ash *Fraxinus excelsior* and oak *Quercus* spp.. Where sections of the riverbank have been fenced off the vegetation tends to be dominated by bramble *Rubus fruticosus*, nettles *Urtica dioica* and other tall ruderals. Himalayan balsam *Impatiens glandulifera* and Japanese knotweed *Fallopia japonica* are increasing throughout the site.

Mammals

The otter *Lutra lutra* is well established throughout the river system, especially where appropriate bank side cover exists. Numbers have increased along the River Dee (England) in recent years, and there is a record of young being seen in 2000. Water vole *Arvicola terrestris* have been recorded on the middle and lower reaches of the River Dee.

Fish

The River Dee is recognised as one of North Wales' premier rivers for Atlantic salmon *Salmo salar*. The Mynach, Meloch and Ceiriog tributaries are the most important salmon spawning tributaries in the Dee catchment and are included in the Afon Dyfrdwy-River Dee SSSI and also in relation to the English part of Ceiriog in the River Dee (England). Other migratory fish utilising the river system include sea trout *Salmo trutta trutta*, eel *Anguilla anguilla*, river lamprey *Lampetra fluviatilis*, and sea lamprey *Petromyzon marinus*. Smelt *Osmerus eperlanus* and twaite shad *Alosa fallax* have been recorded in the section between Chester and the estuary.

The Dee also supports important populations of non-migratory fish including brown trout *Salmo trutta*, bullhead *Cottus gobio*, and brook lamprey *Lampetra planeri*. The middle and lower reaches of the Dee support a diverse coarse fish population. The river is noted for its grayling *Thymallus thymallus*.

Birds

The entire River Dee system and associated tributaries support a wide range of breeding birds, which utilise a variety of bankside habitats. Nesting habitat for the kingfisher *Alcedo atthis* and sand martin *Riparia riparia* is provided by active erosion of riverbanks. Areas of fast flowing water and bankside cover are favoured by the dipper *Cinclus cinclus* and grey wagtail *Motacilla cinerea*, whereas the yellow wagtail *Motacilla flava* and mute swan *Cygnus olor* are found along the slower flowing reaches. Populations of grey heron *Ardea cinerea*, common sandpiper *Actitis hypoleucos* and goosander *Mergus merganser* also occur on the River Dee.

Areas of the Lower Dee floodplains provide breeding grounds for waders such as the lapwing *Vanellus vanellus*, and, when flooded, provide important over-wintering sites for the pintail *Anas acuta*.

Invertebrates

The club-tailed dragonfly *Gomphus vulgatissimus* is nationally scarce and present along the lower Dee including several parts of the River Dee (England), particularly where the river is slow flowing and there is adjacent woodland habitat or bankside tree cover available for adults. This population is the most northerly in Britain and the only one within the Cheshire Area of Search.

The lower reaches of the River Dee support Britain's only known population of the stonefly *Isogenus nubecula*, which is classified as vulnerable in the Red Data Book. The nationally scarce weevil *Baris lepidii* has been recorded on sandy riverbanks along the lower Dee but has not been recorded on any other Welsh river.

Geology/Geomorphology

The River Dee flows through the Worthenbury Geological Conservation Review (GCR), previously notified as an SSSI, straddles the border and is partly located within the River Dee (England) SSSI and the Afon Dyfrdwy-River Dee SSSI.

Holt to Worthenbury (Fluvial Geomorphology)

This area of interest comprises a meandering reach of the River Dee between Holt in the north and Worthenbury in the south. It includes land in Wrexham (Wales) and Cheshire (England) and consists of some of the most spectacular and intricately developed river bends or meanders seen anywhere in Britain. The area is of national importance for studies of fluvial geomorphology.

The main features of interest within the area are: 1) the present river channel and its intricate pattern of meanders; 2) the main areas of floodplain either side of the river, for the full length of the selected reach; 3) all the visible palaeochannels (abandoned channels) located on the floodplain adjacent to the present channel; 4) the gravel and sand bars located within the modern channel and the other evidence of modern-day river processes contained within the channel; and 5) the most impressive of the remnants of ancient cliffs located towards the north-east and south-west margins of the site.

The scientific value of the site can be summarised as follows: First, the pattern and scale of the meanders are exceptional on a British scale: the range of forms from simple curves to double-headed forms, and the intricacy of the pattern developed over the whole reach is outstanding.

Second, the total landform assemblage, including the remnants of ancient river cliffs, the floodplain areas, and the present and abandoned channels, provides the basis for reconstructing the development of the river since the end of the last glaciation. Third, the abandoned channels and old meander loops (some of which were once oxbow lakes) are exceptional landforms in their own right; their pattern, location and contained sediments provide significant potential for reconstructing some of the geologically recent changes in the course of the River Dee in its long evolution during Holocene times, i.e. the last 11,500 years. Fourth, the gravel and sand bars distributed along the course of the modern channel, and the changing form of its banks and bed, bear witness to a range of important modern-day fluvial processes.

Although this part of the course of the River Dee has changed in position markedly during the Holocene, the last few hundred years have been characterised by relative channel stability. It seems likely that the banks and bed of the modern channel are now evolving in response to changing flow and sediment regimes induced by upstream regulation and other human modifications to the fluvial system. The significance of the site for studying modern-day river processes is enhanced by the tidally-influenced downstream reach. This renders the area potentially significant for investigating the effects of possible future sea-level rise on the development of the river channel, particularly in view of the long history of tidal influence and stage records (river level) at downstream locations.

This reach of the Dee is therefore of major scientific importance and, as such, is a valuable part of the heritage of Great Britain. Its national importance stems from its outstanding combination of landform, sedimentary and process evidence. Most large British rivers have been significantly channelised or straightened in their lower reaches. The Dee is exceptional in maintaining an extremely sinuous planform across the sensitive fluvial-tidal transition zone.

Other information:

The River Dee (England) abuts Afon Dyfrdwy-River Dee SSSI

The Afon Dyfrdwy-River Dee proposed SAC abuts onto the Dee Estuary SAC.

The River Dee (England) SSSI in association with the Afon Dyfrdwy-River Dee SSSI supports the following habitats and species listed in the EC Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora. Those marked with an asterisk occur within England:

Floating vegetation of *Ranunculus* of plane, sub-mountainous rivers – Annex I

Otter *Lutra lutra** - Annex II & IV

Sea Lamprey *Petromyzon marinus** - Annex II

River Lamprey *Lampetra fluviatilis** - Annex II & V

Brook lamprey *Lampetra planeri** - Annex II

Atlantic salmon *Salmo salar** - Annex II & V

Bullhead *Cottus gobio** - Annex II

Freshwater Pearl Mussel *Margaritifera margaritifera* – Annex II & V

Grayling *Thymallus thymallus* – Annex V

The otter *Lutra lutra* and the Freshwater Pearl Mussel *Margaritifera margaritifera* are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

Parts of this site have been selected as a result of the former Nature Conservancy Council's Geological Conservation Review (GREGORY, K.J. 1997. *Fluvial Geomorphology of Great Britain*. Geological Conservation Review Series No. 13., Chapman & Hall), a national survey and evaluation of sites of geological and geomorphological interest.

The River Dee (England) lies within the Meres and Mosses and Oswestry Uplands Natural Areas.

**CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES**

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

WREXHAM

VICARAGE MOSS

Date of notification: 1981, 1983, 1988

National Grid Reference: SJ359541

O.S. Maps: 1:50,000 Sheet number: 117
1:25,000 Sheet number: SJ35

Site area: 21.1 ha

Description:

Geomorphological and botanical interest.

The site is one of the best-developed examples of a kettle hole complex in Wales comprising one very large and several smaller subsidiary kettle holes. The largest kettle hole, Vicarage Moss itself, is about 200 metres long and forms a deep basin occupied by mire vegetation which also occupies one of the smaller kettle holes. The basin mire is exceptionally well-defined by its sharp junction with the steep surrounding slopes.

The kettle holes are representative of many developed through the Wrexham area in the sands and gravels of the famous 'Wrexham Delta Terrace' and were probably formed towards the close of the Devensian glaciation by the melting of buried ice. As a classic example of the kettle hole land form and an integral part of the Wrexham Delta Terrace, Vicarage Moss is a site of outstanding interest to the Quaternary geomorphologist.

Vicarage Moss is the largest example of a basin mire in Clwyd, the vegetation being distinctly zoned, particularly in the isolated mire occupying a subsidiary kettle hole to the south.

The plant communities on the outer edge of the mire, which is generally species-poor, are dominated by *Juncus effusus* soft rush with extensive 'lawns' of *Sphagnum recurvum* and areas of *Carex rostrata* bottle sedge with *Carex elata* tufted sedge and *Agrostis canine* brown bent-grass. Further towards the centre of the mire is an area dominated by *Potentilla palustris* marsh cinquefoil and *Deschampsia cespitosa* tufted hair-grass.

The central part of the mire supports *Molinia caerulea* purple moor-grass, *Eriophorum angustifolium* common cotton-grass, *Eriophorum vaginatum* hare's-tail cotton-grass together with *Calluna vulgaris* ling and *Erica tetralix* cross-leaved heath.

There is an area of carr (wet woodland) consisting of *Alnus glutinosa* alder and *Salix spp.* willows at the northern edge of the mire and drier parts have been colonised by *Betula pubescens* hairy birch and *Pinus sylvestris* Scots pine.

*This document is **NOT** a definitive legal version and has been formatted, updated and partially edited for use on the CCW Web site. This document should not be used in any legal*

proceedings, public enquiry or any other hearing or appeal. If you require a full legal copy of the document please contact CCW in writing.

**CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES**

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

WREXHAM

SONTLEY MARSH

Date of Notification: 1986
National Grid Reference: SJ339478
O.S. Maps: 1:50,000 Sheet number: 117
1:25,000 Sheet number: SJ34
Site Area: 13 ha

Description:

Botanical interest.

One of the best wetland examples in Clwyd of the “southern mesotrophic mire” type more characteristic of south-west Wales and, in North Wales, largely restricted to Ynys Môn, Dwyfor and Clwyd.

The site occupies the western valley side of the Gefeiliau Brook, a tributary of the Afon Clywedog, and is fed by a series of springs along the valley slope, and by run-off.

Extensive areas of alder carr (woodland) occur, particularly adjacent to the Gefeiliau Brook and along spring-fed water courses. Alder *Alnus glutinosa* dominates, but there are extensive stands of Common Sallow *Salix cinerea* and Goat Willow *S. capraea* together with Bird Cherry *Prunus padus* and Guelder Rose *Viburnum opulus*.

Much of the site is dominated by tall fen vegetation with stands of Great Pond-sedge *Carex riparia*, Meadow-sweet *Filipendula ulmaria*, Lesser Pond-sedge *Carex acutiformis* and Great Horsetail *Equisetum telmateia*. Wetter areas here support Reed-grass *Phalaris arundinacea* and Hemp Agrimony *Eupatorium cannabinum* with Spindle *Euonymus europaeus* on drier sites. Dense strands of *Equisetum telmateia* also support Panicked Sedge *Carex paniculata* and Purple Loosestrife *Lythrum salicaria*. Marsh Valerian *Valeriana dioica* occurs throughout the site.

At the southern end of the site herb-rich damp grassland occurs with Ragged Robin *Lychnis flos-cuculi*, Yellow-rattle *Rhinanthus minor* and Devil's-bit Scabious *Succisa pratensis*.

Remarks:

The major part of the site is owned by the National Trust and managed as a Nature Reserve by the North Wales Naturalists Trust.

*This document is **NOT** a definitive legal version and has been formatted, updated and partially edited for use on the CCW Web site. This document should not be used in any legal*

proceedings, public enquiry or any other hearing or appeal. If you require a full legal copy of the document please contact CCW in writing.

**CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES**

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

WREXHAM

MARFORD QUARRY

Date of Notification: 1989
National Grid Reference: SJ357560
O.S. Maps: 1:50,000 Sheet number: 117
1:25,000 Sheet number: SJ35
Site Area: 15.8 ha

Description:

This disused sand and gravel working is notified for its entomological interest.

A large diversity of lepidopteran species have been recorded including many notable species. The butterfly and moth species lists include one and four nationally rare species respectively with additional locally and regionally notable species. The butterfly list is particularly diverse with around thirty individual species being recorded and is significant in a county context.

Botanically the quarry supports both a rich flora indicative of calcareous sand and gravel substrates and a range of seral plant successional stages from uncolonised areas to “scrub” woodland. On the quarry perimeter, remnants of ancient broadleaved woodland occur indicative of the vegetation over part of the area prior to quarrying. Generally the sand and gravel deposits are well drained but very locally grey willow *Salix cinerea ssp cinerea* and osier *S. viminalis* scrub has developed. Plant species characteristic of the early stages of plant colonisation are widespread, whilst locally species-rich grassland has developed. Elsewhere common gorse *Ulex europaeus* scrub is invading and increasing in abundance. A number of locally, regionally and nationally rare higher plant species are present of which the most notable are white mullein *Verbascum lychnitis*, pale St John's-wort *Hypericum montanum* and wild liquorice *Astragalus glycyphyllos*. The presence of species more indicative of coastal sandy habitats in Clwyd is also noteworthy.

The quarry was exploited for its sand and gravel reserves originating from deposits of outwash material forming part of the Wrexham Delta Terrace and derived from the Irish Sea glacier during the last Ice Age.

*This document is **NOT** a definitive legal version and has been formatted, updated and partially edited for use on the CCW Web site. This document should not be used in any legal proceedings, public enquiry or any other hearing or appeal. If you require a full legal copy of the document please contact CCW in writing.*



HEAD OFFICE

Genesis Centre,
Birchwood Science Park,
Warrington
WA3 7BH

Tel: 01925 844004
E-mail: tep@tep.uk.com

**MARKET
HARBOROUGH**

No. 1 The Chambers,
Bowden Business Village,
Market Harborough,
Leicestershire,
LE16 7SA

Tel: 01858 383120
E-mail: mh@tep.uk.com

GATESHEAD

Office 26, Gateshead
International Business
Centre,
Mulgrave Terrace,
Gateshead
NE8 1AN

Tel: 0191 605 3340
E-mail: gateshead@tep.uk.com

LONDON

8 Trinity Street,
London,
SE1 1DB

Tel: 020 3096 6050
E-mail: london@tep.uk.com

CORNWALL

4 Park Noweth,
Churchtown,
Cury,
Helston
Cornwall
TR12 7BW

Tel: 01326 240081
E-mail: cornwall@tep.uk.com
