



Pennant Walters

GLANLLYNFI GARTH WIND FARM

Draft Environmental Statement

Appendix 8A - Preliminary Ecological Appraisal Report





Pennant Walters **Maesteg Windfarms**

Preliminary Ecological Appraisal

2025-05-09

UK0039180.3591





Pennant Walters

MAESTEG WINDFARMS

PRELIMINARY ECOLOGICAL APPRAISAL

TYPE OF DOCUMENT (VERSION)

PROJECT NO. PROJECT NO

OUR REF. NO. PEA1

DATE: MAY 2025

Pennant Walters

MAESTEG WINDFARMS

PRELIMINARY ECOLOGICAL APPRAISAL

WSP

1 Capital Quarter

Tyndall Street

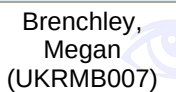
Cardiff

CF10 4BZ

Phone: +44 2920 769 200

WSP.com

QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	For client comment			
Date	May 2025			
Prepared by	Megan Brenchley			
Signature	 Brenchley, Megan (UKRMB007) Digitally signed by Brenchley, Megan (UKRMB007) DN: cn=Brenchley, Megan (UKRMB007), ou=Active, email=Rhiannon.Brenchley@wsp.com Reason: I am the author of this document Date: 2025.05.09 10:02:50 +01'00'			
Checked by	Huw Bramhall			
Signature	 Digitally signed by Huw Bramhall DN: cn=Huw Bramhall, c=GB, o=WSP, ou=Ecology, email=huw.bramhall@wsp.com Date: 2025.05.09 10:14:53 +01'00'			
Authorised by	Gary Lindsay			
Signature	 Digitally signed by Lindsay, Gary (UKGXL777) Reason: I am approving this document Date: 2025.05.12 11:50:35 +01'00'			
Project number	UK0039180.3591			
Report number	V1			
File reference	\\corp\global\GB\Projects\UK0039xxx\UK0039180.3591 - Maesteg Windfarm\03 WIP\EC Ecology\05 Reports\PEA Report			

CONTENTS

1.	INTRODUCTION	2
1.2.	SCOPE OF REPORT	2
1.3.	RELEVANT LEGISLATION AND POLICY	3
2.	METHODS	4
2.1.	OVERVIEW	4
2.2.	DESK STUDY	4
2.3.	HABITAT SURVEY	5
2.4.	DAYTIME BAT WALKOVER	6
2.5.	HABITAT SUITABILITY INDEX ASSESSMENT	7
2.6.	PROTECTED SPECIES ASSESSMENT	7
2.7.	NOTES AND LIMITATIONS	7
3.	RESULTS	9
3.1.	DESK STUDY	9
3.2.	HABITAT SURVEY	14
3.3.	DAYTIME BAT WALKOVER	22
3.4.	HABITAT SUITABILITY INDEX ASSESSMENT	23
3.5.	PROTECTED AND NOTABLE SPECIES ASSESSMENT	24
4.	DISCUSSION AND RECOMMENDATIONS	29
4.2.	STATUTORY DESIGNATED SITES	29
4.3.	NON-STATUTORY DESIGNATED SITES	29
4.4.	OTHER HABITATS OF CONSERVATION IMPORTANCE	30
4.5.	PROTECTED AND NOTABLE SPECIES	30
4.6.	FURTHER SURVEY REQUIREMENTS	35
4.7.	PRELIMINARY AVOIDANCE, MITIGATION AND COMPENSATION MEASURES	41

4.8.	ECOLOGICAL ENHANCEMENT OPPORTUNITIES	41
5.	CONCLUSIONS	43
6.	REFERENCES	44
	FIGURES	46

TABLES

Table 1 – Bat roosting suitability categorisation for buildings and structures (as per Collins (2023))	6
Table 2 – Bat roosting suitability categorisation for trees (as per Collins (2023))	7
Table 3 - Statutory designated sites of international importance	9
Table 4 - Statutory designated sites of national importance	11
Table 5 - Non-statutory designated sites within the Sites	12
Table 6 - Phase 1 habitat areas	14
Table 3-5 - Type Caption Here	23
Table 7 - Key ecological constraints and further survey requirements	36

FIGURES

Figure 1 - Mynydd Pwll-yr-Lwrch and Moel Cynhordy/Mynydd Moelgella Site Location	46
Figure 2 - International Statutory Designated Sites within 10 km of the Sites	46
Figure 3 - National Statutory Designated Sites within 2 km of the Sites	46
Figure 4 - Statutory Designated Sites for which Bats are a Qualifying Feature	46
Figure 5 - Non-statutory Designated Sites within 2 km of the Sites	46
Figure 6 - Priority Habitats and AWI Areas within 2 km of the Sites as returned from the desk study	46
Figure 7a – Standing water within 500 m of Mynydd Pwll-yr-Lwrch Site	46

Figure 7b – Standing water within 500 m of Moel Cynhordy/Mynydd Moelgella Site	46
Figure 8 - Mynydd Pwll-yr-Lwrch Phase 1 Habitat Survey Results	46
Figure 9 - Moel Cynhordy/Mynydd Moelgella Phase 1 Habitat Survey Results	46
Figure 10 - Mynydd Pwll-yr-Lwrch Target Notes and Daytime Bat Walkover Results	46
Figure 11 - Moel Cynhordy/Mynydd Moelgella Target Notes and Daytime Bat Walkover Results	46

APPENDICES

APPENDIX A

RELEVANT LEGISLATION AND PLANNING POLICY

APPENDIX B

SUMMARY OF ECOLOGICAL DESK STUDY DATA

APPENDIX C

PLANT SPECIES RECORDED

APPENDIX D

TARGET NOTES

APPENDIX E

PHOTOGRAPHS

APPENDIX F

HSI ASSESSMENT RESULTS

EXECUTIVE SUMMARY

It is understood that Pennant Walters is proposing the creation of proposed windfarms at Mynydd Pwll-yr-lwrch and Moel Cynhordy/Mynydd Moelgella (the 'Proposed Development', at the 'Sites'). Pennant Walters commissioned WSP UK Limited (WSP) to undertake a Preliminary Ecological Appraisal (PEA) of the Proposed Development. The aim was to identify habitats and assess their potential to support protected and/or notable species. The following ecological constraints that could be impacted by the Proposed Development were identified during a desk study and a habitat survey:

- Two Special Areas of Conservation (SACs) within 10 km of the Sites, and one SAC within 30 km of the Sites designated for the presence of bats.
- Three Sites of Special Scientific Interest (SSSIs) within 10 km of the Sites, the closest of which (Cwm Du Woodlands) is 0.3 km from the Sites.
- Thirty-five non-statutory designated sites within 2 km of the Site.
- Twenty-five Phase 1 habitat types within the Site, of which seven qualify or may qualify as belonging to one of six Priority Habitats.
- The potential of the Site to support bats, badger *Meles meles*, brown hare *Lepus europaeus*, hedgehog *Erinaceus europaeus*, otter *Lutra lutra*, water vole *Arvicola amphibius*, amphibians including great crested newt *Triturus cristatus*, reptiles, notable plants, and invasive non-native plants (INNS).

For the Proposed Development to comply with relevant legislation and planning policy, the following further surveys, assessments, avoidance and mitigation measures are proposed:

- A Habitats Regulations Assessment (HRA) to determine if the Proposed Development will result in Likely Significant Effects (LSE) on statutory designated sites of international importance.
- Implementation of environmental best practice to avoid impacts to the Cwm Du Woodlands SSSI, laid out in a Construction Environment Management Plan (CEMP).
- Avoidance of Priority Habitats and B-Lines within the Sites. If this is not possible, consultation with Bridgend County Council should be undertaken. For any loss of Priority Habitat, replacement habitat commensurate or greater than that lost should be provided.
- Completion of a National Vegetation Classification (NVC) survey of Priority Habitats.
- Targeted surveys for bats, otter (depending on the construction footprint), water vole, and great crested newt.
- Implementation of preliminary avoidance and/or mitigation measures for badger, reptiles, brown hare, hedgehog, common and widespread amphibian and reptile species, notable plants, and INNS, to include ecological supervision and works under a Precautionary Method of Works (PMoW).
- Implementation of enhancement measures, to include: installation of bat boxes in trees; planting of pollinator-friendly native species of local provenance; and incorporation of Sustainable Drainage (SuDS). This helps deliver biodiversity enhancement in accordance Section 6 of the Environment (Wales) Act 2016. This should be detailed in an NBB report.

The above recommendations should be re-visited following the issue of a preliminary design.

Ornithology surveys, undertaken by WSP in 2025, will be subject to a separate report. Therefore, birds are not mentioned in this report.

1. INTRODUCTION

- 1.1.1. WSP UK Ltd (WSP)¹ was commissioned by Pennant Walters to undertake a Preliminary Ecological Appraisal (PEA) of habitats to support the development of proposed windfarms at Mynydd Pwll-yr-lwrch and Moel Cynhordy/Mynydd Moelgella (hereafter referred to jointly as the 'Proposed Development'). Mynydd Pwll-yr-lwrch (Central Grid Reference SS 87112 92856) and Moel Cynhordy/Mynydd Moelgella (Central Grid Reference SS 88724 90076) are located near the town of Maesteg in Bridgend County Borough. It is anticipated that the Proposed Development will comprise wind turbine generators, access routes, and an on-site substation on each of the Sites, as well as other associated infrastructure, although a design has not yet been finalised. The footprints of the Proposed Development are hereafter referred to as the 'Sites'. The extent of the Sites are shown in Figure 1.
- 1.1.2. The Sites comprise mainly sheep-grazed open upland habitats, with marshy areas extending over large parts of the Sites, and discrete blocks of woodland. The Sites are bordered to the north (Moel Cynhordy/Mynydd Moelgella) and east (Mynydd Pwll-yr-lwrch) by Garw Forest and Caerau Forest, both of which are coniferous plantations. Moel Cynhordy/Mynydd Moelgella is bound on the eastern border by the Garw Fechan, a tributary of the Afon Garw, which eventually flows into the Afon Ogwr. To the north-east of the Sites, the existing Llynfi Afan Wind Farm and associated infrastructure exists within open upland grassland and conifer plantation. The wider landscape of the Sites comprises mostly sheep-grazed open upland, with coniferous plantation. The town of Blaengarw lies to the east, Caerau lies to the west, and Maesteg lies to the south-west.
- 1.1.3. Ecological surveys are required to support the planning process for the Proposed Development. It is important to gather sufficient information to support the design and to identify key ecological considerations relevant to the design. Ornithology surveys, undertaken by WSP in 2025, will be subject to a separate report (WSP, 2025). Therefore, birds are not mentioned further in this report.

1.2. SCOPE OF REPORT

- 1.2.1. Pennant Walters commissioned WSP to complete a PEA of the Sites. The brief was:
- To provide baseline ecological information about the Sites and a surrounding study area with particular reference to whether legally protected and/or notable sites, species or habitats are present or likely to be present;
 - To provide recommendations to enable compliance with relevant nature conservation legislation and planning policy; and

¹ WSP have provided this report solely for the use of the recipient and accepts no liability to any third parties or any other party using or reviewing the report or any part thereof. WSP makes no warranties or guarantees, actual or implied, in relation to this report, or the ultimate commercial, technical, economic, or financial effect on the project to which it relates, and bears no responsibility or liability related to its use other than as set out within the scope of the contract under which it was supplied.

- if necessary, to identify the need for avoidance, mitigation, compensation or enhancement measures and/or further ecological surveys.

1.3. RELEVANT LEGISLATION AND POLICY

- 1.3.1. The appraisal has been compiled with reference to the following relevant nature conservation legislation, planning policy and the UK Biodiversity Framework from which the protection of sites, habitats and species is derived in Wales. The context and applicability of each item is explained as appropriate in the relevant sections of the report and additional details are presented in Appendix A.

Legislation

- The Conservation of Habitats and Species Regulations 2017 (as amended) (Habitats Regulations);
- The Wildlife and Countryside Act 1981 (as amended) (WCA);
- Countryside Rights of Way Act 2000;
- The Town and Countryside (Environmental Impact Assessment) (Wales) Regulations 2017;
- The Protection of Badgers Act 1992;
- The Wild Mammals (Protection) Act 1996;
- Environment (Wales) Act 2016;
- The Wellbeing of Future Generations (Wales) Act 2015

Policy

- The UK Post-2010 Biodiversity Framework (2011-2020) (JNCC and DEFRA, 2012);
- UK Biodiversity Action Plan (UKBAP)²;
- Planning Policy Wales (PPW) (Edition 12) 2024;
- Future Wales: The National Plan 2040;
- Technical Advice Note 5; and
- Bridgend County Borough Local Biodiversity Action Plan (LBAP).

² The UK BAP has now been replaced by the UK Post-2010 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant.

2. METHODS

2.1. OVERVIEW

- 2.1.1. This appraisal has been prepared with reference to current good practice guidance published by the Chartered Institute for Ecology and Environmental Management (CIEEM, 2017a, 2017b and 2018), and Joint Nature Conservation Committee (JNCC, 2016); and guidance contained in the British Standard - Code of Practice for Biodiversity and Development BS42020:2013 (British Standards Institute, 2013).
- 2.1.2. This PEA is based on the following data sources:
- An ecological desk study;
 - A habitat survey;
 - A Daytime Bat Walkover (DBW);
 - A Great Crested Newt *Triturus cristatus* (GCN) Habitat Suitability Index (HSI) assessment; and,
 - A protected/notable species assessment.

2.2. DESK STUDY

- 2.2.1. The desk study was undertaken in March 2025 to review existing ecological baseline information available in the public domain and to obtain information held by relevant third parties. For the purpose of the desk study exercise, records were collated within various radii around the Sites. This approach is consistent with current good practice guidance published by the CIEEM, 2017a and 2017b. To provide the baseline data for the ecological desk study, the following information was requested from South East Wales Biodiversity Records Centre (SEWBReC):
- Records of non-statutory nature conservation sites within 2 km of the Sites;
 - Records of Ancient Woodland Inventory (AWI) parcels within 2 km of the Sites;
 - Records of Priority Habitats listed on Section 7 of the Environment (Wales) Act 2016 within 2 km of the Sites;
 - Records of legally protected and notable species within 2 km of the Sites; and
 - records of bat roosts within 10 km of the Sites.
- 2.2.2. Freely downloadable datasets (available from Natural Resources Wales (NRW)) were consulted for information regarding the presence of:
- sites of national importance designated under UK³ within 2 km of the Sites;
 - national statutory designated sites which are designated for bats within 10 km of the Sites;
 - sites designated under international directives or conventions⁴ within 10 km of the Sites; and
 - international statutory designated sites for which bats are a qualifying feature within 30 km of the Sites.

³ Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR).

⁴ Special Areas of Conservation (SAC), Special Protection Areas (SPA), and Ramsar sites

- 2.2.3. In addition, open source 1:25,000 Ordnance Survey mapping was used to identify any mapped water bodies and watercourses within 500 m of the Sites.
- 2.2.4. The findings of the desk study have been incorporated within Section 3 and Appendix B of this report, and are shown on Figure 2 to Figure 7.
- 2.2.5. The ecological desk study was carried out by a qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM) who is experienced in desk studies.

2.3. HABITAT SURVEY

- 2.3.1. Habitats were described and mapped following the standard Phase 1 habitat survey methodology (JNCC, 2016). Phase 1 habitat survey is a standard technique for classifying and mapping British habitats. The dominant plant species are recorded and habitats are classified according to their vegetation types. Where appropriate consideration was given to whether habitats qualify, or could qualify, as a Priority Habitat following habitat descriptions published by the Joint Nature Conservation Committee (JNCC, 2008).
- 2.3.2. A Phase 1 habitat survey of the Site was carried out on the 18 to 19 February and 11 to 12 March 2025. The survey covered the entirety of the Sites including boundary features. The Phase 1 habitat survey was carried out by competent ecologists with CIEEM memberships, and who have experience undertaking habitat surveys of similar habitats. One of the ecologists was also Field Identification Skills Certificate (FISC) accredited to Level 4.
- 2.3.3. A list of plant species was compiled (Appendix C), with relative plant species abundance estimated using the DAFOR scale⁵. The scientific names for plant species follow those in the New Flora of the British Isles (Stace, 2019) and are also listed in Appendix C.
- 2.3.4. Habitats were marked on a mobile mapping computer and were subsequently digitised using a Geographical Information System (GIS).
- 2.3.5. Target notes were made to provide information on specific features of ecological interest or habitat features too small to be mapped. These are included in Appendix D, and photographs are included in Appendix E.
- 2.3.6. Any invasive non-native plant species (INNS) listed on Schedule 9 of the WCA which were evident during the Phase 1 habitat survey were also target noted. Detailed mapping of such species; or a full survey of the Sites for all invasive plant species is beyond the scope of this commission.

⁵ The DAFOR scale has been used to estimate the frequency and cover of the different plant species as follows: Dominant (D) - >75% cover, Abundant (A) – 51-75% cover, Frequent (F) – 26-50% cover, Occasional (O) – 11-25% cover, Rare (R) – 1-10% cover., The term 'Locally' (L) is also used where the frequency and distribution of a species are patchy and 'Edge' (E) is also used where a species only occurs on the edge of a habitat type.

2.4. DAYTIME BAT WALKOVER

- 2.4.1. A DBW of trees, buildings and structures was undertaken within the Sites. The DBW was intended to identify the presence of trees, buildings and structures that could support bat roosts, with the aim to inform any further bat survey requirements. All observations were made from ground level.
- 2.4.2. Following the surveys, buildings and structures were classified as having one of the following categories based on their suitability to support roosting bats (as per Collins (2023) and BSI (2015) guidelines); none, negligible, low, moderate or high suitability. These are described below in Table 1.

Table 1 – Bat roosting suitability categorisation for buildings and structures (as per Collins (2023))

Category	Description
None	No features likely to be used by any roosting bats at any time of the year (i.e., a complete absence of crevice/suitable shelter at all ground/underground levels).
Negligible	No obvious features likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.
Low	A structure with one of more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity and not a classic cool/stable hibernation site but could be used by individual hibernating bats).
Moderate	A structure with one of more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat by unlikely to support a roost of high conservation status.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g., maternity, or classic cool/stable hibernation sites.

- 2.4.3. Trees were categorised as having one of the following categories based on their suitability to support roosting bats (as per Collins (2023)); none, Further Assessment Required (FAR) and Potential Roost Feature (PRF). These are described below in Table 2.

Table 2 – Bat roosting suitability categorisation for trees (as per Collins (2023))

Category	Description
None	Either no Potential Roost Features (PRFs) in the tree or highly unlikely to be any.
Further Assessment Required (FAR)	Further assessment required to establish if PRFs are present in the tree.
PRF	A tree with at least one PRF present.

- 2.4.4. Trees, buildings and structures were considered as requiring further surveys if they were assessed as having suitability to support roosting bats.

2.5. HABITAT SUITABILITY INDEX ASSESSMENT

- 2.5.1. A review of OS and aerial imagery of the Site indicated the presence of waterbodies within 500 m of the Site boundary.
- 2.5.2. A Habitat Suitability Index (HSI) assessment of some of these waterbodies was undertaken in accordance with the standard approach developed by Oldham et al. (2000).
- 2.5.3. The objective of the HSI assessment was to identify the suitability of waterbodies to support great crested newt populations, and to use the HSI scores to scope out locations from further GCN surveys where the results of the HSI assessment indicted a likely absence of breeding GCN.
- 2.5.4. Accessible waterbodies identified (using OS basemaps) within a 500 m search area of the Sites were subjected to a HSI assessment that assessed their suitability to support GCN and informed the need for further surveys. The results of the HSI assessment are presented in Appendix F and discussed in this report.

2.6. PROTECTED SPECIES ASSESSMENT

- 2.6.1. The potential for the Sites to support legally protected and notable species was assessed using the desk study results and combined with field observations during the habitat survey. The assessment of habitat suitability for protected and notable species was based on professional experience and judgement. This was supplemented by standard sources of guidance on habitat suitability assessment for key faunal groups including: GCN (Gent and Gibson, 2003 and English Nature, 2001); reptiles (Froglife, 1999 and Gent and Gibson, 2003); bats (Collins, 2016 and Mitchell-Jones, 2004); badger *Meles meles* (Harris et al, 1991 and Roper, 2010); dormouse *Muscardinus avellanarius* (English Nature, 2006); otter *Lutra lutra* (Chanin, 2003); water vole *Arvicola amphibius* (Dean et al, 2016) and invertebrates (Drake et al, 2007 and Kirby, P, 2001).

2.7. NOTES AND LIMITATIONS

- 2.7.1. Every effort has been made to provide a comprehensive description of the Sites; however, the following specific limitations apply to this assessment:

- Ecological survey data is typically valid for two years unless otherwise specified, for example if conditions are likely to change more quickly due to ecological processes or anticipated changes in management (CIEEM, 2019).
- Records held by local biological record centres and local recording groups are generally collected on a voluntary basis, with some species and taxon such as invertebrates being underreported; therefore, the absence of records does not demonstrate the absence of species, it may simply indicate a gap in recording coverage.
- The survey was not completed during the optimal survey season for Phase 1 habitat survey, generally accepted to be from April-September (inclusive). However, it is considered that sufficient information was gathered to enable an assessment of the habitat types present, in line with standard Phase 1 habitat categories and the potential for these to support protected or notable species.
- The extended habitat survey was carried out over the period of four days, over a large area; as such only a selection of all species that occur within the Sites will have been recorded. However, through use of desk study information to supplement site survey data, it is considered that an accurate assessment of the potential for the Sites to support protected species or those of conservation concern was possible.
- The extended Phase 1 habitat map (Figures 8 and 9) has been reproduced from field notes and plans. Whilst this provides a sufficient level of detail to fulfil the requirements of a PEA, the maps are not intended to provide exact locations of key habitats for scheme design purposes.

3. RESULTS

3.1. DESK STUDY

STATUTORY DESIGNATED SITES

- 3.1.1. The desk study identified two international statutory designated sites within 10 km of the Sites, and one international statutory designated site for which bats are a qualifying feature within 30 km of the Sites. A description of these sites is detailed in Table 3 below and shown in Figure 2 and Figure 4a.
- 3.1.2. The desk study also identified two national statutory designated sites within 2 km of the Sites. Five further national statutory designated sites for which bats are a qualifying feature were identified within 10 km of the Sites. A description of all of these sites is detailed in Table 4 below and shown in Figures 3 and 4.

Table 3 - Statutory designated sites of international importance

Site Name	Designation	Size (ha)	Approximate Distance and orientation from Pwll-y-lwrch	Approximate Distance and orientation from Cynhordy	Description
Glaswelltiroedd Cefn Cribwr/Cefn Cribwr Grasslands	Special Area of Conservation (SAC)	58.0	8.8km south	6km south west	Designated for the presence of the following Annex I habitat: ▪ <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>). The following Annex II species is also present as a qualifying feature, but not a primary reason for site selection: ▪ Marsh fritillary butterfly <i>Euphydryas aurinia</i>.
Blackmill Woodlands	SAC	70.1	7.7km south-east	4.3 km south east	Designated for the presence of the following Annex I habitat: ▪ Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles.
Arfordir Calchfaen de Orllewin Cymru/Limestone	SAC	1583.9	29km west	30.8 km west	Designated for the presence of the following Annex I habitats:

Site Name	Designation	Size (ha)	Approximate Distance and orientation from Pwll-y-lwrch	Approximate Distance and orientation from Cynhordy	Description
Coast of South West Wales					▪ Vegetated sea cliffs of the Atlantic and Baltic Coasts; and ▪ fixed coastal dunes with herbaceous vegetation ("grey dunes"). The following Annex I habitats are also present as a qualifying feature, but not a primary reason for site selection: ▪ European dry heaths; ▪ Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuca-Brometalia</i>) ▪ Caves not open to the public; and ▪ submerged or partially submerged sea caves. Designated for the presence of the following Annex II species: ▪ Greater horseshoe bat <i>Rhinolophus ferrumequinum</i>; and ▪ early gentian <i>Gentianella anglica</i>. The following Annex II species is also present as a qualifying feature, but not a primary reason for site selection: ▪ Petalwort <i>Petalophyllum ralfsii</i>.

Table 4 - Statutory designated sites of national importance

Site Name	Designation	Size (ha)	Approximate Distance and orientation from Pwll-y-lwrch	Approximate Distance and orientation from Cynhordy	Description
Cwm Du Woodlands	Site of Special Scientific Interest (SSSI)	24.0	1.2km south	0.4km west	An ancient sessile valley oakwood growing on the Pennant Sandstone of the South Wales Coalfield. Alder <i>Alnus glutinosa</i> dominates locally, and there is a rich ground flora.
Cwm Cyffog	SSSI	17.9	4.7km south west	1.7km east	An example of upland blanket mire dominated by purple moor-grass <i>Molinia caerulea</i> with a range of bog-mosses <i>Sphagnum spp.</i> White beak-sedge <i>Rhynchosdora alba</i> is locally rare.
Frog Pond Wood	LNR	3.0	10.3 km south-west	8.6km south-east	A mixed oak <i>Quercus sp.</i> and <i>Fraxinus excelsior</i> woodland, with a pond and wetland areas. Pipistrelle bats <i>Pipistrelle sp.</i> are present in the LNR.
Tremains Wood	LNR	3.1	12.79 km south	9.5 km south	A lowland mixed broadleaved woodland. Pipistrelle bats are present in the LNR.
Glyncornel	LNR	29.7	11.6 km east	9.5 km east	Habitats comprise woodland and flower-rich meadows. Foraging bats are present in the LNR.
Coedymwstwr Woodland	SSSI	20.5	12.9km south-east	9.7 km south east	A mixed deciduous woodland on limestone with a rich ground flora. Bats have been recorded

Site Name	Designation	Size (ha)	Approximate Distance and orientation from Pwll-y-lwrch	Approximate Distance and orientation from Cynhordy	Description
					inhabiting the main cave system. ⁶
Craig-y-parciau Woodland	Local Nature Reserve (LNR)	0.6	12.9 km south	9.9 km south east	An oak and ash woodland on a steep slope of the Ogmore River. Daubenton's bat <i>Myotis daubentonii</i> is known to be present within the site.

NON-STATUTORY SITES

- 3.1.3. The desk study identified 34 Wildlife Sites/Sites of Importance for Nature Conservation (SINCs) and 1 B-Line within 2 km of the Sites. The B-Line overlaps the entirety of both Sites. B-lines are locally important insect pollinator dispersal pathways between areas of existing wildflower-rich habitat. B-Lines have been mapped by Buglife to address the problem of the loss of flowers and pollinators. Three of the Wildlife Sites/SINCs are present within the Sites. These are detailed in Table 5, and all of the non-statutory designated sites returned from the desk study are shown in Figure 5.

Table 5 - Non-statutory designated sites within the Sites

Site Name	Which Site it is present within	Description
Craig Du	Moel Cynhordy/Mynydd Moelgella	Comprises the habitats: dense continuous bracken <i>Pteridium aquilinum</i> ; broadleaved semi-natural woodland; semi-improved acid grassland; and acid dry dwarf shrub heath.
Nant-y-Fforest	Moel Cynhordy/Mynydd Moelgella	Comprises the habitats: marsh/marshy grassland; wet dwarf shrub heath; dry heath/acid grassland mosaic; dry modified bog-moss bog; semi-improved acid grassland; broadleaved semi-natural woodland; acid/neutral flush; and acid dry dwarf shrub heath.
Blaen-Cwmdu	Mynydd Pwll-yr-lwrch	Comprises the habitats: marsh/marshy grassland; semi-improved natural grassland; semi-improved acid grassland; dense continuous scrub; broadleaved semi-natural

⁶ Although bats have been recorded in the Coedymwstwr Woodland SSSI, it is not known if the site is designated for the presence of bats. In the absence of this detail, it has been assumed that Coedymwstwr Woodland SSSI is designated for the presence of bats,

Site Name	Which Site it is present within	Description
		woodland; acid/neutral flush; and acid dry dwarf shrub heath.

OTHER HABITATS OF CONSERVATION IMPORTANCE

- 3.1.4. The desk study identified 78 parcels of AWI areas within 2 km of the Sites. These comprised:
- Fifty-nine parcels of Ancient Semi-Natural Woodland (ASNW);
 - Two parcels of Restored Ancient Woodland Site (RAWS);
 - Ten parcels of Plantation on Ancient Woodland Site (PAWS); and
 - Seven Ancient Woodland Sites of Unknown Categories.
- 3.1.5. Of these, none were present within the Sites, although Moel Cynhordy/Mynydd Moelgella was bordered by a PAWS to the east, an Ancient Woodland Site of Unknown Category to the south-east, and a parcel of ASNW to the west.
- 3.1.6. A search on DataMapWales for Priority Habitats identified 564 parcels of habitats that may contain Priority Habitats within 2 km of the Sites. These were:
- Blanket bog;
 - Lowland dry acid grassland;
 - Lowland fens and reedbeds;
 - Lowland heathland;
 - Marsh fritillary habitat;
 - Open mosaic habitat on previously developed land;
 - Purple moor-grass and rush pastures;
 - Raised bog;
 - Traditional orchards;
 - Upland flushes, fens and swamps;
 - Upland heathland; and
 - Wood pasture.
- 3.1.7. The AWI parcels and Priority Habitats are shown in Figure 6.
- 3.1.8. A search for waterbodies identified springs and streams within 500 m of Moel Cynhordy/Mynydd Moelgella, but there were no standing bodies of water within 500 m of this Site identified from the OS mapping. P8 and P10 were not returned from the desk study, but were recorded on Site during the Phase 1 habitat survey.
- 3.1.9. A search for waterbodies within 500 m of Mynydd Pwll-yr-lwrch returned multiple springs and streams. There were also six bodies of standing water identified, three of which (P1, P2, and P3) were within the Site.
- 3.1.10. All waterbodies within the Sites and within 500 m of the Sites are shown on Figure 7.

3.2. HABITAT SURVEY

OVERVIEW

- 3.2.1. The following account summarises the findings of the Phase 1 habitat survey. Twenty-five Phase 1 habitat types were identified in the Sites⁷. They are mapped on Figures 8 and 9 and are listed in Table 5 along with areas in hectares (or length for linear features). A description of the dominant and notable species, the composition and management of each habitat is provided below and an indicative species list is provided in Appendix C. Target Notes (TNs) are provided in Appendix D and shown on Figures 10 and 11, and images (I) are provided in Appendix E. Alpha-numeric codes used in this section cross-refer to the JNCC Phase 1 habitat survey classification (JNCC, 2016). The order of the habitat descriptions below reflects their ordering in the Phase 1 habitat survey manual and does not reflect habitat importance.

Table 6 - Phase 1 habitat areas

Phase 1 Habitat	Moel Cynhordy/Mynydd Moelgella			Mynydd Pwll-yr-lwrch		
	Area (ha)	Length (m)	% of Site Area	Area (ha)	Length (m)	% of Site Area
A1.1.1 Broadleaved woodland	1.80	N/A	0.92	0.12	N/A	0.06
A1.2.2 Coniferous woodland	1.75	N/A	0.90	N/A	N/A	N/A
A1.3.1 Mixed woodland	0.48	N/A	0.25	N/A	N/A	N/A
A2.1 Scrub – dense/continuous	1.56	N/A	0.80	N/A	N/A	N/A
A2.2 Scrub - scattered	0.94	N/A	0.48	0.22	N/A	0.12
A3.1 Broadleaved parkland/scattered trees	N/A	74.86	N/A	N/A	953.15	N/A
B1.2 Acid grassland	22.58	N/A	11.58	25.45	N/A	13.65
B2.2 Neutral grassland	3.38	N/A	1.73	1.30	N/A	0.70
B4 Improved grassland	108.12	N/A	55.44	13.83	N/A	7.42

⁷ Dry dwarf shrub heath/acid grassland and Wet dwarf shrub heath/acid grassland are also included in Table 5. However, these do not represent a different Phase 1 habitat type, and instead demonstrate a complex mosaic of these habitat types.

Phase 1 Habitat	Moel Cynhordy/Mynydd Moelgella			Mynydd Pwll-yr-lwrch		
	Area (ha)	Length (m)	% of Site Area	Area (ha)	Length (m)	% of Site Area
B5 Marsh/marshy grassland	18.84	N/A	9.66	58.50	N/A	31.37
C1.1 Bracken – continuous	27.21	N/A	13.95	15.52	N/A	8.32
C1.2 Bracken – scattered	7.52	N/A	3.86	21.44	N/A	11.50
D1.1 Dry dwarf shrub heath	N/A	N/A	N/A	10.99	N/A	5.89
D2 Wet dwarf shrub heath	N/A	N/A	N/A	0.05	N/A	0.03
D5 Dry heath/acid grassland	N/A	N/A	N/A	31.55	N/A	16.92
D6 Wet heath/acid grassland	N/A	N/A	N/A	4.72	N/A	2.53
G1 Standing water	0.08	N/A	0.04	0.10	N/A	0.05
G2 Running water	N/A	2191.15	N/A	N/A	4278.96	N/A
I1.1.1 Inland cliff – acid/neutral	N/A	N/A	N/A	0.23	185.18	0.12
I1.2.1 Scree – acid/neutral	0.50	N/A	0.26	1.28	N/A	0.69
I2.2 Spoil	N/A	N/A	N/A	0.40	N/A	0.21
J2.5 Wall	N/A	2329.16	N/A	N/A	7106.64	N/A
J2.6 Dry ditch	N/A	2901.80	N/A	N/A	4275.83	N/A
J2.8 Earth bank	N/A	N/A	N/A	N/A	77.89	N/A
J4 Bare ground	0.27	N/A	0.14	0.76	N/A	0.41
TOTAL⁸	195.03	7496.97	100.01	186.46	16877.65	99.99

⁸ The habitat percentage totals do not equal exactly 100% due to rounding differences.

A1.1.1 BROADLEAVED WOODLAND

- 3.2.2. A parcel of broadleaved woodland was recorded in the east of the Moel Cynhordy/Mynydd Moelgella Site. This was broadly divided into a northern section, which bordered the bank of the Garw Fechan, and a southern section, which extended westwards up a steep slope.
- 3.2.3. The northern section comprised mostly semi-mature and dense elder *Sambucus nigra*, sessile oak *Quercus petraea*, silver birch *Betula pendula*, and ash *Fraxinus excelsior*, with locally abundant alder *Alnus glutinosa* along the bank of the river. The understory was as per the surrounding bracken *Pteridium aquilinum*, although heath species indicative of acidic conditions, including bilberry *Vaccinium myrtillus* and heather *Calluna vulgaris* were also recorded. This habitat was assessed as being the Priority Habitat 'Lowland Mixed Deciduous Woodland' in accordance with the Environment (Wales) Act 2016.
- 3.2.4. The southern block of broadleaved woodland comprised predominantly mature sessile oak and silver birch. This woodland was very open, with large spaces between trees, but a connecting canopy. Here, the understorey was as for the surrounding sheep-grazed habitats, with sheep's fescue *Festuca ovina*, creeping bent *Agrostis stolonifera*, and occasional soft rush *Juncus effusus*. Sheep's paths were present throughout the woodland, but there was no evidence of management. Dead and dying trees had been left in situ. This habitat was assessed as being the Priority Habitat 'Upland oakwood' in accordance with the Environment (Wales) Act 2016.
- 3.2.5. A small parcel of broadleaved woodland was recorded in the south of the Mynydd Pwll-yr-lwrch Site (I1). This was a mature sessile oak woodland, again with a very open, sheep-grazed grassland understorey. There were no saplings or young trees present within the woodland. This habitat was assessed as potentially belonging to the Priority Habitat 'Upland oakwood' in accordance with the Environment (Wales) Act 2016.

A1.2.2 CONIFEROUS WOODLAND

- 3.2.6. Immediately to the south of the broadleaved woodland in the Moel Cynhordy/Mynydd Moelgella Site was a larch *Larix decidua* plantation, with the invasive non-native Schedule 9 species rhododendron *Rhododendron ponticum* recorded on the edges of this habitat parcel (I2). The coniferous woodland was steeply sloping to the east and was separated by a fence from the sheep-grazed habitats to the north and west. Bracken was abundant in the understorey, with occasional bilberry and hard fern *Blechnum spicant*.

A1.3.2 MIXED WOODLAND

- 3.2.7. Two parcels of mixed woodland were present in the south of the Moel Cynhordy/Mynydd Moelgella Site. The western-most of these was a Sitka spruce *Picea sitchensis* plantation, with young scattered sessile oak, hawthorn *Crataegus monogyna*, willow *Salix sp.*, and ash. The understory comprised bramble *Rubus fruticosus agg.*
- 3.2.8. The eastern mixed woodland parcel comprised similar species, with abundant soft rush and bracken.

A2.1 SCRUB – DENSE/CONTINUOUS

- 3.2.9. There were parcels of dense/continuous scrub recorded throughout the Moel Cynhordy/Mynydd Moelgella Site, although most of these were too small to be mapped. These mostly comprised gorse *Ulex europaeus* or bramble scrub, and were found at the edges of woodland parcels and field boundaries (I3). One parcel of scrub, in the centre of the Moel Cynhordy/Mynydd Moelgella Site comprised grey willow *Salix cinerea* up to 6 m tall on either side of a stream, with an understorey of soft rush. Owing to the grazed nature of this parcel, there were no saplings.

A2.2 SCRUB – SCATTERED

- 3.2.10. Scattered scrub was present in several areas of the Moel Cynhordy/Mynydd Moelgella Site, overlying grassland habitats. It comprised very sparse gorse and western gorse *Ulex gallii*, and plants were generally small and isolated.
- 3.2.11. Scattered gorse and scattered bramble were identified in the north of the Mynydd Pwll-yr-lwrch Site, again overlying grassland habitats. These were isolated areas.

A3.1 BROADLEAVED PARKLAND/SCATTERED TREES

- 3.2.12. A line of mature trees was recorded either side of a stream in the northern section of the Moel Cynhordy/Mynydd Moelgella Site. The species comprised dominant sessile oak, with rare ash, alder, and downy birch *Betula pubescens*.
- 3.2.13. Lines of trees were also recorded in the south-east of the Mynydd Pwll-yr-lwrch Site, with dominant sessile oak and rare hawthorn and downy birch (I4). These were mostly adjacent to running water and dry ditches, and formed the boundary of the edge of the Site.

A3.2 CONIFEROUS PARKLAND/SCATTERED TREES

- 3.2.14. Scattered Sitka spruce saplings were recorded within acid grassland in the north of the Mynydd Pwll-yr-lwrch Site. These were sparsely scattered, and considered likely to have self-seeded from the conifer plantation to the north and east of the Mynydd Pwll-yr-lwrch Site.

A3.3 MIXED PARKLAND/SCATTERED TREES

- 3.2.15. One area of mixed parkland/scattered trees was recorded in the Moel Cynhordy/Mynydd Moelgella Site, which extended from a parcel of woodland to the south of the Site north-east across the bracken and adjacent to a stream. Most of the trees were immature, and the species composition was 30% coniferous trees and 70% broadleaved. The following species were all occasional within the area of scattered trees: Sitka spruce; hawthorn; sessile oak and goat willow *Salix caprea*.

B1.2 ACID GRASSLAND

- 3.2.16. Much of the grassland in the north-west of the Moel Cynhordy/Mynydd Moelgella Site and the north of the Mynydd Pwll-yr-lwrch Site was sheep-grazed acid grassland, with a sward height of up to 20 cm and anthills abundant throughout (I5). These grasslands were unenclosed, with defunct dry stone walls throughout, and were bordered by encroaching bracken. Species recorded within these parcels included dominant sheep's fescue, abundant common bent *Agrostis capillaris*, and rare heath bedstraw *Galium saxatile*, heather *Calluna vulgaris*, foxglove *Digitalis purpurea* and bilberry. Lichens and mosses were observed throughout. Perennial rye-grass *Lolium perenne* and soft rush were indicative of improved conditions owing to nutrient enrichment as a result of grazing.

B2.2 NEUTRAL GRASSLAND

- 3.2.17. Linear strips of neutral grassland were recorded on both sites adjacent to watercourses and improved grasslands, where wet areas were subject to sheep-grazing and were dominated by soft rush (I6). Some areas of this were too small to map, and so were recorded as TNs (TN2, TN5, TN6, TN10, I22). Locally, the sward height reached up to 1.5 m tall, and some of the neutral grassland areas were wet underfoot.

B4 IMPROVED GRASSLAND

- 3.2.18. Most of the grassland in the Moel Cynhordy/Mynydd Moelgella Site and isolated parcels in the Mynydd Pwll-yr-lwrch Site were assessed as being improved grassland, on account of the dominance of perennial rye-grass (I7). The improved grasslands were considered likely to have derived from acid grassland, with species such as heath bedstraw rare within the parcels, although these parcels have been improved through nutrient enrichment and grazing. The sward height was between 3 and 10 cm.
- 3.2.19. Creeping buttercup *Ranunculus repens*, cock's foot *Dactylis glomerata*, creeping thistle *Cirsium arvense* and common chickweed *Stellaria media*, all of which are indicative of improved grasslands, were all rare. Soft rush was locally occasional where ground conditions were wet, and some areas formed a mosaic with neutral grassland.

B5 MARSH/MARSHY GRASSLAND

- 3.2.20. Much of the northern section of the Moel Cynhordy/Mynydd Moelgella Site comprised marsh/marshy grassland, dominated by purple moor-grass, with rare soft rush and tufted hair-grass *Deschampsia caespitosa*. The sward height was up to 70 cm, and the purple-moor grass formed dense tufts with dead leaf litter. A similar habitat type was found across much of the central and southern sections of the Mynydd Pwll-yr-lwrch Site (I8).
- 3.2.21. Locally, species indicative of acid conditions were recorded, including bell heather *Erica cinerea*, bilberry, foxglove, heath milkwort *Polygala serpyllifolia* and heath bedstraw.
- 3.2.22. Encroaching scattered bracken was recorded on some edges of the marsh/marshy grassland habitat, and rhododendron was also recorded in the Moel Cynhordy/Mynydd Moelgella Site.
- 3.2.23. The marsh/marshy grassland habitats were considered likely to qualify as the Priority Habitat 'Purple moor-grass and rush pastures' in accordance with the Environment (Wales) Act 2016. Some areas of marsh/marshy grassland may also qualify as 'Upland Flushes, Fens and Swamps'.

C1.1 BRACKEN – CONTINUOUS

- 3.2.24. There were large areas of continuous bracken across much of the Moel Cynhordy/Mynydd Moelgella Site and the south of the Mynydd Pwll-yr-lwrch Site, with rare foxglove and purple moor-grass, and scattered trees including holly *Ilex aquifolium*, Sitka spruce, elder, sessile oak, silver birch and ash (I9).
- 3.2.25. Within the Mynydd Pwll-yr-lwrch Site, some of these areas displayed evidence of recent burning (such as TN21), most likely as a management technique. These burnt areas were all in the south of the Mynydd Pwll-yr-lwrch Site, adjacent to areas of improved grassland.

C1.2 BRACKEN – SCATTERED

- 3.2.26. Parcels of scattered bracken encroached onto grassland habitats throughout both Sites, with rare bilberry and sheep's sorrel *Rumex acetosella* in the sward.

D1.1 DRY DWARF SHRUB HEATH

- 3.2.27. Dry dwarf shrub heath was present within much of the Mynydd Pwll-yr-lwrch Site, forming a mosaic with acid grassland and grading into wet dwarf shrub heath locally. This habitat showed evidence of grazing outside of sloping areas, which could not be grazed by sheep (I10). The dry dwarf shrub heath was tussocky, and had a sward height of approximately 30cm. Bilberry, western gorse and heather were all locally abundant, although most of the parcels comprised constant bilberry shrub. Bryophytes (excepting bog-mosses) were frequent throughout, and sheep's fescue and heath bedstraw were occasional.
- 3.2.28. These parcels were considered to qualify as the Priority Habitat 'Upland heathland' in accordance with the Environment (Wales) Act 2016.

D2 WET DWARF SHRUB HEATH

- 3.2.29. Wet dwarf shrub heath was also recorded within the Mynydd Pwll-yr-lwrch Site, again forming a mosaic with acid grassland. Here, although the shrub species were the same as for dry dwarf shrub heath, purple moor-grass was abundant (I11). The habitats were still sheep-grazed, but to a lesser extent than the dry dwarf shrub heath.
- 3.2.30. These parcels were considered to qualify as the Priority Habitat 'Upland heathland' in accordance with the Environment (Wales) Act 2016.

G1 STANDING WATER

- 3.2.31. Two parcels of standing water were present in the Moel Cynhordy/Mynydd Moelgella Site. The eastern most of these (P8) comprised standing water up to 10 cm deep, fed by a culvert passing beneath the bare ground track to the west. There was an outflow to the east leading into a dry ditch, although at the time of the survey this was not being fed due to dry conditions. The standing water was vegetated with bulrush *Typha latifolia* and soft rush, and was slightly poached by grazing sheep.
- 3.2.32. The westernmost parcel of standing water in the Moel Cynhordy/Mynydd Moelgella Site (P9) had steep banks on its north, east and south banks, but graded over the path on the western bank. It was not possible to determine the depth of the standing water from the bank. There was no shade or macrophyte cover. The edges were vegetated with rush and grassland species. It was considered unlikely to support fish or wildfowl.
- 3.2.33. There was also an area of standing water that was too small to map in the Moel Cynhordy/Mynydd Moelgella Site, marked as TN8 (P10). It was not possible to determine its depth, as it was vegetated with soft rush and purple moor-grass. It was heavily shaded by immature goat willow scrub.
- 3.2.34. Four parcels of standing water were recorded within the northern section of the Mynydd Pwll-yr-lwrch Site, although only three of these were large enough to map on the Phase 1 habitat figure.
- 3.2.35. Of these, the northernmost standing water habitat, identified during the desk study as P1, was heavily vegetated with dense willow scrub and bulrush, making it difficult to determine its depth (I18). It was poached by horses, and had shallow gradual banks.

- 3.2.36. To the south of the Mynydd Pwll-yr-lwrch Site, within an area of acid grassland and dry heath mosaic, a standing water habitat was identified (I20) on the Site boundary. Again, willow scrub was growing within the standing water, making it difficult to determine the depth. The banks were vegetated with soft rush, and the waterbody was approximately 25% shaded. Macroalgae covered approximately 10% of the water surface. This was identified during the desk study as P6.
- 3.2.37. To the west of this, a third parcel of standing water was recorded. This was returned from the desk study as P3, and was almost completely dry during the survey (I19). It was heavily shaded, and was densely vegetated with soft rush, purple moor-grass and willow scrub.
- 3.2.38. Finally, a pool of standing water too small to be mapped was identified in the north of the Mynydd Pwll-yr-lwrch Site (I21). This measured approximately 4m x 2m, and had shallow banks shaded by willow scrub. It is marked as TN13 (P7).

G2 RUNNING WATER

- 3.2.39. There were several areas of running water recorded within the Moel Cynhordy/Mynydd Moelgella Site. Bordering the east of the Moel Cynhordy/Mynydd Moelgella Site, the Garw Fechan was a meandering river with steep vertical banks up to 1 m high on the outside of bends, and shallow stoney banks on the inside of bends (I12). The water was up to 30 cm deep and 1.5 m wide, and flowed south-east with a moderate flow. Although there was no vegetation within the watercourse, the banks were vegetated with bracken and grasses, and semi-mature alders lined much of the banks. There was some minor poaching by sheep. A stream flowed into this from the west.
- 3.2.40. The Garw Fechan was considered to qualify as the Priority Habitat 'Rivers' in accordance with the Environment (Wales) Act 2016.
- 3.2.41. A further stream was recorded flowing through the Site from the north. It had a very slow flow at the time of the survey, and was 50 cm wide. Towards the north, the banks were steep but low, although further south the banks were up to 60 cm deep. The substrate was stony and silty, and the stream was densely shaded by soft rush.
- 3.2.42. Along the south of the Moel Cynhordy/Mynydd Moelgella Site, a stream with grassy banks flowed west. The stream had a maximum depth of 20 cm. At the Site boundary, this joins another shallow stream that flows south.
- 3.2.43. In the northern section of the Moel Cynhordy/Mynydd Moelgella Site, a stream was present within marshy grassland. Further upstream, the stream was very shallow, with a very low flow in a ditch 10 cm wide and 15 cm deep. It was choked with purple moor-grass and soft rush. As it flowed westwards, the stream became more open, up to 80 cm wide, and had some pools of water. The substrate became stoney, and towards the western end the stream was shaded by grey willow *Salix cinerea* on the banks.
- 3.2.44. The northernmost stream in the Moel Cynhordy/Mynydd Moelgella Site could be heard beneath very dense tussocky purple moor-grass, and flowed from a source within a deep depression on the slope. Around the stream, there was increased soft rush, with some bog-mosses.
- 3.2.45. These streams were considered to be near-natural, and are within 2.5 km of their source, and so are considered to qualify as the Priority Habitat 'Rivers' in accordance with the Environment (Wales) Act 2016.

- 3.2.46. Within the Mynydd Pwll-yr-lwrch Site, there were multiple areas of running water, most of which formed a network of interconnected streams and wet ditches in the south and north of the Site.
- 3.2.47. In the south east of the Mynydd Pwll-yr-lwrch Site, the streams showed evidence of being straightened and deepened, with recently excavated earth on their banks. These had a low to moderate flow, and were up to 30 cm wide and 10 cm deep. Many of them were lined with sessile oak trees. Due to the improvement of these streams through straightening, they are not considered to qualify as Priority Habitats.
- 3.2.48. Further west within the Mynydd Pwll-yr-lwrch Site, a stream with moderate flow flowed south-west from P3 (I13). It was heavily shaded due to dense vegetation smothering the stream, with soft rush lining the banks. This stream was considered to be near-natural, and is within 2.5 km of their source, and so is considered to qualify as the Priority Habitat 'Rivers' in accordance with the Environment (Wales) Act 2016.
- 3.2.49. Streams were also identified in the north of the Mynydd Pwll-yr-lwrch. Again, these were heavily shaded by dense vegetation, and were poached by horses. One of these, flowing west, had steep banks up to 3 m high, which were vegetated with western gorse. Again, these streams were considered to be near-natural, and are within 2.5 km of their source, and so are considered to qualify as the Priority Habitat 'Rivers' in accordance with the Environment (Wales) Act 2016.

I1.1.1 INLAND CLIFF – ACID/NEUTRAL

- 3.2.50. A southwards facing inland cliff was recorded in the centre of the Mynydd Pwll-yr-lwrch Site. It was steeply sloping and was sparsely vegetated with dry dwarf shrub heath species, with a scree pile at the base of the cliff (I14).
- 3.2.51. A second inland cliff was recorded to the south of this, but was too small to map, and so was recorded as TN23. It was approximately 15 m high, and was vertical, comprising blocks of rocks. Again, a scree pile was recorded at its base.
- 3.2.52. These habitats are considered to qualify as the Priority Habitat 'Inland rock outcrop and scree habitats' in accordance with the Environment (Wales) Act 2016.

I1.2.1 SCREE – ACID/NEUTRAL

- 3.2.53. A scree pile was present in the east of the Moel Cynhordy/Mynydd Moelgella Site. This was a large, unvegetated scree pile, with particles ranging from silt size to 30 cm.
- 3.2.54. A second scree pile was present to the west, on a slope up to 5 m high, with mostly gravel-sized particles, but some ranging up to 40 cm. Again, this scree was unvegetated, but mosses and lichens were prevalent around the scree pile.
- 3.2.55. Numerous scree piles were recorded across the Mynydd Pwll-yr-lwrch Site, mostly in the north, around exposed rock faces. These were all unvegetated, and particles were larger, ranging from 10 cm to 50 cm across. Where not mapped owing to their small size, these were recorded as TN24, TN25 and TN31.
- 3.2.56. These habitats are considered to qualify as the Priority Habitat 'Inland rock outcrop and scree habitats' in accordance with the Environment (Wales) Act 2016.

I2.2 SPOIL

- 3.2.57. Two spoil piles were recorded in the south of the Mynydd Pwll-yr-lwrch Site (I15). These were approximately 4 m tall, and were vegetated as per the surrounding habitats, with dense bracken and acid grassland species recorded.

J2.5 WALL

- 3.2.58. A network of defunct dry stone walls were present in both of the Sites (I16). Most of these were covered in mosses and lichen, and were up to 1.5 m high, where not collapsed.

J2.6 DRY DITCH

- 3.2.59. There was a network of dry ditches within the Moel Cynhordy/Mynydd Moelgella Site (I17). These were up to 2 m deep, although most were approximately 1 m deep. Although none of them were wet at the time of survey, some of them had increased levels of soft rush, and were therefore likely wet during periods of high rainfall. Within the north-west of the Moel Cynhordy/Mynydd Moelgella Site, the dry ditches were vegetated with purple moor-grass, as per the surrounding marshy grassland habitats. A dry ditch in the south of the Moel Cynhordy/Mynydd Moelgella Site had a stand of the INNS Indian balsam *Impatiens glandulifera* on its southern bank (TN1).
- 3.2.60. Within the Mynydd Pwll-yr-lwrch Site, the dry ditches formed a network in the north of the Site, and were up to 3 m deep. The substrate was stony, and the banks were either exposed rocks or vegetated with dry heath. The banks varied between 45° and vertical. These ditches were considered likely to be natural geological formations.
- 3.2.61. However, in the south-east of the Mynydd Pwll-yr-lwrch Site, the dry ditches were evidently managed, with piles of excavated earth alongside them. These were likely used to divert water from the improved sheep-grazed fields.

J2.8 EARTH BANK

- 3.2.62. An earth bank was recorded in the south-west of the Mynydd Pwll-yr-lwrch Site, vegetated with dense bracken. It was likely a dry stone wall, that had collapsed and become vegetated.

J4 BARE GROUND

- 3.2.63. Bare ground tracks within both Sites were recorded, constructed to allow for vehicular access between fields. These were unvegetated.

3.3. DAYTIME BAT WALKOVER

- 3.3.1. Eighteen trees were assessed as having PRFs for bats within the Moel Cynhordy/Mynydd Moelgella Site (Labelled BT1-18 on Figure 10). No structures were identified within this Site that may have the potential to support roosting bat species.
- 3.3.2. A further 18 trees were assessed as having PRFs for bats within the Mynydd Pwll-yr-lwrch Site (Labelled BT19-36 on Figure 11).
- 3.3.3. A rocky outcrop (TN16, I24) was identified within the Mynydd Pwll-yr-lwrch Site which was considered to have low potential to support roosting bats. It was west facing, with crevices between rocks on the face which were considered likely to extend backwards into the hillside. However, the face of the features was very exposed, and there was a lack of connecting trees or hedgerows

which would provide flight lines around the feature. Therefore, it was considered likely to be used only opportunistically by individual crevice roosting bats.

3.4. HABITAT SUITABILITY INDEX ASSESSMENT

- 3.4.1. No ponds were identified within 500 m of the Moel Cynhordy/Mynydd Moelgella Site during the desk study, but three bodies of standing water were recorded during the Phase 1 habitat survey (one of which was too small to map and is marked as TN8).
- 3.4.2. Six ponds were identified within 500 m of the Mynydd Pwll-yr-lwrch Site during the desk study. Of these, three were present within the Site: P1, P2, and P3. P6 was on the Site boundary. P4 and P5 were to the south of the Site boundary. P2 was not recorded during the Phase 1 habitat survey, and is considered absent from the Mynydd Pwll-yr-lwrch Site. A further pond was identified within the Mynydd Pwll-yr-lwrch Site during the Phase 1 habitat survey, marked as TN13 (P7).
- 3.4.3. All of these bodies of water, with the exception of P2, which was absent, and P5, which was beyond the survey boundary, were subject to an HSI assessment, the results of which are shown in Table 7.

Table 7 – HSI Assessment Results

Waterbody reference	HSI Result
Mynydd Pwll-yr-lwrch	
P1	Below Average
P3	Below Average
P4	Below Average
P6	Average
P7	Poor
Moel Cynhordy/Mynydd Moelgella Site	
P8	Poor
P9	Average
P10	Poor

- 3.4.4. Full results are shown in Appendix F.
- 3.4.5. Therefore, P9 in the Moel Cynhordy/Mynydd Moelgella Site, and P1, P3, P4 and P6 in the Mynydd Pwll-yr-lwrch Site provide habitat that is suitable to support GCN, and the Sites could support populations of GCN. A paper quantifying the status of GCN in Wales (French et al., 2014) indicates that there is suitable habitat for GCN within the Sites, as the Sites fall within the known distribution of GCN in Wales. P8 and P10 in the Moel Cynhordy/Mynydd Moelgella Site, and P7 in the Mynydd

Pwll-yr-lwrch Site, returned a 'poor' suitability to support GCN, and therefore the presence of breeding GCN within these waterbodies is considered unlikely.

3.5. PROTECTED AND NOTABLE SPECIES ASSESSMENT

3.5.1. The potential for the Sites to support legally protected species and notable species has been assessed using the results of the desk study and observations made during the site survey of habitats within and immediately surrounding the Sites. A summary of desk study information is included within Appendix B. Desk study records have only been considered below if they are recent (from the last 10 years) and/or if they relate to species that may be supported by habitats at the Sites. Habitats present within the Sites are suitable for the following species; further consideration is given below to the likelihood for these species to be present within the Sites:

- Bats;
- Badger;
- Dormice;
- Brown hare *Lepus europaeus*;
- Hedgehog *Erinaceus europaeus*;
- Otter;
- Water vole;
- Amphibians;
- Reptiles;
- Invertebrates; and
- INNS.

3.5.2. The Sites do not provide suitable habitat for other protected or notable species and other species, beyond those listed above, will not be considered further in this PEA.

BATS

- 3.5.3. Twenty-four records of bats were returned from the desk study within 2 km of Mynydd Pwll-yr-lwrch. The closest to the Mynydd Pwll-yr-lwrch Site was a record of pipistrelle bat species located 420m west of the Site. This is also the species for which most of the records were returned.
- 3.5.4. Seven records of bats were returned from the desk study within 2 km of the Moel Cynhordy/Mynydd Moelgella Site. The closest to the Moel Cynhordy/Mynydd Moelgella Site was a record of common pipistrelle *Pipistrellus pipistrellus* located 36 m west of the Site.
- 3.5.5. There were also 31 records of bat roosts within 10 km of the Sites. The closest bat roost record to the Mynydd Pwll-yr-lwrch Site was located 3 km north-east of the Site.
- 3.5.6. The closest bat roost record to the Moel Cynhordy/Mynydd Moelgella Site was located 1.5km south-east of the Site.
- 3.5.7. Of these bat roosts, all were recorded within buildings. There were multiple confirmed maternity roosts, the closest of which was for soprano pipistrelle *Pipistrellus pygmaeus*. It was located 2.9 km north of the Mynydd Pwll-yr-lwrch Site and 5.9 km north of Moel Cynhordy/Mynydd Moelgella Site.
- 3.5.8. The closest record to the Mynydd Pwll-yr-lwrch Site was a record for pipistrelle bat species which was located 3km north-west of the Site.

- 3.5.9. The closest record to the Moel Cynhordy/Mynydd Moelgella Site was a record of soprano pipistrelle which was located 1.4 km south-west of the Site.
- 3.5.10. The species returned as part of the desk study, including all bat records within 2 km of the Sites, and records of roosts within 10 km of the Sites, comprised common pipistrelle, brown long-eared bat *Plecotus auritus*, Natterer's bat *Myotis nattereri*, noctule bat *Nyctalus noctula*, soprano pipistrelle, and lesser horseshoe *Rhinolophus hipposideros*, along with other records of undetermined bat species.
- 3.5.11. Suitable habitat to support roosting bats was recorded within the Sites in the form of broadleaved woodland and scattered trees. Within the Moel Cynhordy/Mynydd Moelgella Site, 18 trees were assessed as having PRFs suitable to support roosting bats. Within the Mynydd Pwll-yr-lwrch Site, 18 trees and one structure (TN16, I24) were assessed as having PRFs suitable to support roosting bats. These are shown on Figure 10 and Figure 11. Linear habitats such as running water provide suitable commuting corridors, and marshy grassland and woodland provide suitable foraging opportunities for bats.

BADGER

- 3.5.12. No records of badger were returned from the desk study.
- 3.5.13. No signs or evidence of badger were identified during the Phase 1 habitat survey.
- 3.5.14. The bracken, dry heath, and acid and improved grassland habitats within the Sites were considered to provide suitable foraging and commuting habitat for badger. Sett-building potential was considered to be limited to the woodlands within the Sites.

DORMICE

- 3.5.15. One record of dormice was returned from the desk study.
- 3.5.16. This record was located at 2566 m south of the Mynydd Pwll-yr-lwrch Site and 1745 m west of the Moel Cynhordy/Mynydd Moelgella Site.
- 3.5.17. No signs or evidence of dormice were identified during the Phase 1 habitat survey.
- 3.5.18. The broadleaved woodland habitat and dense scrub have the potential to support nesting dormice. However, the scrub within the Sites is generally limited and isolated and there was relatively poor connectivity to suitable habitat outside of the Sites. The broadleaved woodland habitats had an open understorey, and therefore had limited foraging and nesting opportunities. Similarly, the proximity of these woodlands to coniferous plantations reduces the suitability of the Sites to support dormice; the plantation woodland which border the Sites (Garw Forest to the north of Moel Cynhordy/Mynydd Moelgella, and Caerau Forest to the east of Mynydd Pwll-yr-lwrch) have low species diversity, a high canopy, and poor understorey. This limits off-Site connectivity. Dormice can be found within conifer plantation, but typically only where it forms a mosaic with other optimal habitats such as hedgerow, scrub and broadleaved woodland.
- 3.5.19. Therefore, dormice are considered to be likely absent from the Sites and are not discussed further in this report.

BROWN HARE

- 3.5.20. Three records of brown hare were returned from the desk study. The closest record to the Mynydd Pwll-y-Lwrch Site was located 1556 m to the east; the closest record to the Moel Cynhordy/Mynydd Moelgella Site was located 842 m to the south.
- 3.5.21. No brown hares were recorded during the Phase 1 habitat survey.
- 3.5.22. Diverse open habitats, notably grasslands with encroaching bracken recorded within the Sites, were considered suitable to support brown hares. This species prefers areas of short vegetation for feeding at night, but uses areas of denser vegetation cover for resting and occasional feeding during daylight hours.

HEDGEHOG

- 3.5.23. Fifteen records of hedgehog were returned from the desk study.
- 3.5.24. The closest record of hedgehog was located 933 m south-west of the Mynydd Pwll-y-Lwrch Site.
- 3.5.25. The closest record to the Moel Cynhordy/Mynydd Moelgella Site was located 352 m west of the Site.
- 3.5.26. No hedgehogs were recorded during the Phase 1 habitat survey.
- 3.5.27. Areas of habitat suitable to support foraging, resting and breeding hedgehog were identified within the Sites (scrub, woodland, and scattered trees).

OTTER

- 3.5.28. Three records of otter were returned from the desk study
- 3.5.29. The closest record to the Mynydd Pwll-y-Lwrch Site was located 984 m to the south.
- 3.5.30. The closest record to the Moel Cynhordy/Mynydd Moelgella Site was located 1189 m to the west.
- 3.5.31. The ditches and streams present within the Sites had low potential for commuting and foraging otters, there was no evidence of otter holts or rocks/tree roots suitable for resting identified during the extended habitat survey. The stream banks within the Site are considered unsuitable for building holts/couches and there are limited foraging opportunities due to the size of the streams and the low capacity to support large populations of fish or other prey such as amphibians and small mammals.
- 3.5.32. It is considered that the Site is of low to negligible value to the local otter population, and it is unlikely that otters use the Site. Any use is likely to be infrequent. .

WATER VOLE

- 3.5.33. No records of water vole were returned from the desk study.
- 3.5.34. No evidence of water vole was recorded during the Phase 1 habitat survey.
- 3.5.35. Suitable habitat for water vole existed within the ditches and marshy grasslands across the northern section of the Moel Cynhordy/Mynydd Moelgella Site, and across the majority of the Mynydd Pwll-y-Lwrch Site. Water voles inhabit wet heathland, marshes and rivers/streams with steep vegetated banks.

AMPHIBIANS

- 3.5.36. Records of common frog *Rana temporaria*, common toad *Bufo bufo*, palmate newt *Lissotriton helveticus*, and smooth newt *Lissotriton vulgaris* were returned from the desk study.

- 3.5.37. The closest record to the Mynydd Pwll-y-lwrch Site was for common frog located at a distance of 383 m northeast of the Site.
- 3.5.38. The closest record to the Moel Cynhordy/Mynydd Moelgella Site was also for common frog, which was located 145 m east of the Site.
- 3.5.39. There were no records of GCN returned from the desk study.
- 3.5.40. Frogspawn (TN14) was recorded within the pond identified as P7 in the Mynydd Pwll-yr-lwrch Site. The waterbodies and watercourses within the Sites were suitable to support common amphibians during their aquatic stage, including common frogs and common toads. The surrounding grassland may also provide suitable terrestrial habitat for amphibians, and the dry stone walls would provide suitable refugia and hibernacula.
- 3.5.41. There was no evidence of GCN during the Phase 1 habitat survey. The suitability of the Sites to support GCN is discussed further in Section 3.4.

REPTILES

- 3.5.42. Records of common lizard *Zootoca*, slow worm *Anguis fragilis* and grass snake *Natrix helvetica* were returned from the desk study.
- 3.5.43. The closest record of common lizard to the Mynydd Pwll-y-lwrch Site was located 455 m to the south and closest common lizard record to the Moel Cynhordy/Mynydd Moelgella Site was located 385 m to the east.
- 3.5.44. The closest record of grass snake to the Mynydd Pwll-y-lwrch Site was located 677 m to the south and the closest grass snake record to the Moel Cynhordy/Mynydd Moelgella Site was located 992 m to the east.
- 3.5.45. The closest slow worm record to the Mynydd Pwll-y-lwrch Site was located 460 m to the south and the closest slow worm record to the Moel Cynhordy/Mynydd Moelgella Site was located 653 m to the east.
- 3.5.46. No reptiles were observed during the Phase 1 habitat survey of the Sites; however, suitable habitat for supporting reptiles was recorded within the Site.
- 3.5.47. Bracken, scrub, heath, and grasslands including marshy grassland and acid grassland were considered to be suitable for common lizard, slow worm, grass snake and adder *Vipera berus*.
- 3.5.48. Parcels of scree habitats were considered to provide suitable basking opportunities for reptiles, and the dry stone walls and rock piles (TN11, TN12, TN15, TN16, TN17, TN18, TN19, TN24, TN25, TN27, TN31, I23, I25) would provide suitable refugia and hibernacula.

INVERTEBRATES

- 3.5.49. Ninety-seven records of protected and/or notable invertebrates were returned from the desk study.
- 3.5.50. Three records of invertebrates were returned from the desk study which were located within the Site boundary of the Mynydd Pwll-y-lwrch Site. These records were for knot grass (moth) *Acrionicta rumicis*, beautiful yellow underwing (moth) *Anarta myrtili* and green hairstreak (butterfly) *Callophrys rubi*.
- 3.5.51. The closest invertebrate record to the Moel Cynhordy/Mynydd Moelgella Site was for dingy skipper (butterfly) *Erynnis tages* and was located 12 m east of the Site.

- 3.5.52. It was considered that the mosaic of grassland, heath, bracken and woodland within the Sites was suitable to support large numbers of mainly common terrestrial invertebrate species.
- 3.5.53. The watercourses and waterbodies within the Sites were also considered likely to support mainly common and widespread aquatic invertebrate species.
- 3.5.54. Due to the widespread nature of the habitats present within the Sites, and the fact that the Proposed Development is unlikely to lead to isolation of habitats, impacts on invertebrates as a result of the Proposed Development are likely to be minor. Therefore, although ecological enhancement opportunities will consider invertebrates, no specific invertebrate surveys or ecological enhancements are considered necessary, and invertebrates are not discussed further in this report.

NOTABLE PLANTS

- 3.5.55. Twenty-four notable plant species were identified within 2 km of the Sites in the desk study. Of these, two species are listed on Section 7 of the Environment (Wales) Act 2016 (chamomile *Chamaemelum nobile* and pennyroyal *Mentha pulegium*), and two are listed on Schedule 8 of the WCA (bluebell *Hyacinthoides non-scripta* and pennyroyal).
- 3.5.56. Woodland and bracken habitats within the Site were considered suitable to support bluebell. The acid grassland habitats within the Sites were considered suitable to support chamomile, and marshy grassland parcels were considered suitable to support pennyroyal.

INVASIVE NON-NATIVE PLANT SPECIES

- 3.5.57. Certain plant species are listed on Schedule 9 of the WCA. It is an offence to plant or otherwise cause these species to grow in the wild.
- 3.5.58. No INNS were returned from the desk study. Two species of INNS were identified during the Phase 1 habitat survey: rhododendron and Himalayan balsam *Impatiens glandulifera*. All habitats within the Site were considered suitable to support various species of INNS.
- 3.5.59. It should be noted that an exhaustive INNS survey was beyond the scope of this assessment, and therefore further INNS may be present within the Site, but undetected.

4. DISCUSSION AND RECOMMENDATIONS

- 4.1.1. This section considers the potential for effects on designated sites, legally protected species, notable species and notable habitats as a consequence of the Proposed Development. Where further surveys or detailed assessment of potential effects are required in order to design suitable mitigation this is identified.

4.2. STATUTORY DESIGNATED SITES

- 4.2.1. The Habitats Regulations provide strict protection to sites of international importance. This includes requiring projects or plans to be screened for Likely Significant Effects (LSEs) upon SPA, SAC and candidate SACs (cSACs). Guidance also requires potential SPAs (pSPAs) and Ramsars are subject to the same assessment. Therefore, due to the presence of Glaswelltiroedd Cefn Cribwr/Cefn Cribwr Grasslands SAC, Blackmill Woodlands SAC, and Arfordir Calchfaen de Orllewin Cymru/Limestone Coast of South West Wales SAC within the conceivable zones of influence from the Proposed Development, it must be screened by the competent authority to determine whether LSE are likely to result. If the competent authority is unable to conclude that significant effects are not likely, the Proposed Development must be subject to additional assessment in accordance with the Habitats Regulations.
- 4.2.2. SSSIs are subject to strict protection under the WCA. This requires landowners to maintain these sites in favourable condition and works within these sites are managed by the appropriate national statutory body via the consent process. Certain operations within SSSIs require consent; these are specific to each SSSI. Cwm Du Woodlands SSSI is 0.3 km west of the Sites, and is of interest as an ancient sessile valley oakwood growing on the Pennant Sandstone. No working within the SSSI will occur. However, indirect effects on the SSSI may result from the Proposed Development through pollution. It is therefore recommended that environmental best practice is followed. This environmental best practice should be laid out in a Construction Environmental Management Plan (CEMP).
- 4.2.3. Cwm Cyffog SSSI is considered to be of a sufficient distance from the Sites, and without impact pathways such as watercourses, so that it, or its features, will not be impacted by the Proposed Development. No further recommendations are therefore made in relation to this SSSI.
- 4.2.4. Coedymwstwr SSSI is partially designated due to the presence of bats roosting within the cave systems. This PEA will recommend bat activity surveys of the Sites (Section 4.5). The results of these surveys will allow for a better understanding of how bats use the Sites, and therefore if any impacts to the bats recorded within the Coedymwstwr Woodland SSSI are likely to be result from the Proposed Development. Any further recommendations in relation to bats using the Coedymwstwr SSSI should be set out in a bat survey report.

4.3. NON-STATUTORY DESIGNATED SITES

- 4.3.1. The Proposed Development should seek to avoid direct and indirect impacts to all B-lines, Wildlife Sites and Wildlife Sites (Candidate) that lie within the Site, as listed in Section 3.2. If this is not feasible, the local authority should be consulted before a design is developed.

4.4. OTHER HABITATS OF CONSERVATION IMPORTANCE

- 4.4.1. The desk study identified the following Priority Habitats within the Sites: 'Lowland dry acid grassland', 'Lowland fens and reedbeds', 'Lowland heathland', 'Open mosaic on previously developed land', 'Purple moor-grass and rush pastures', 'Upland flushes, fens and swamps', 'Upland heathland', and 'Wood pasture'.
- 4.4.2. Seven habitat types across the Site were identified as Priority Habitats (or possible Priority Habitats) in accordance with Section 7 of the Environment (Wales) Act 2016 during the Phase 1 habitat survey: 'Upland heathland', 'Rivers', 'Upland oakwood', 'Lowland mixed deciduous woodland', 'Inland rock outcrop and scree habitats', 'Upland flushes, fens and swamps', and 'Purple moor-grass and rush pastures'.
- 4.4.3. The Priority Habitats (or possible Priority Habitats) identified during the Phase 1 habitat survey are considered to be accurate and true to the habitats recorded within the Sites. Priority Habitats returned from the desk study have been used as a guide for our assessment of the Sites, but are not considered to be representative of the Sites. For example, an area in the north of the Moel Cynhordy/Mynydd Moelgella Site was returned from the desk study as belonging to the Priority Habitat 'Lowland heath'. However, during the field survey, this habitat was found to comprise continuous bracken and acid grassland, and therefore would not qualify as Lowland Heath.
- 4.4.4. Another example of this is that areas of both Sites were returned from the desk study as being 'Lowland Dry Acid Grassland'. However, as the Sites comprise old, non-functional enclosures (as opposed to grassland managed in functional enclosures), these were not considered to qualify as Priority Habitats. Where enclosures were functional, here the habitats had degraded into improved grassland, and so did not qualify as a Priority Habitat.
- 4.4.5. Under Section 7 of this legislation all public bodies (including local planning authorities) must 'take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section and encourage others to take such steps'.
- 4.4.6. To comply with planning policy, the Proposed Development would need to demonstrate that there would be no significant loss of these Priority Habitats as a result of the works. If it is not feasible to avoid Priority Habitats, consultation with the local authority should be completed as the design is developed. For any loss of Priority Habitat, replacement habitat commensurate with that lost should be provided within the design. This should ideally be at a higher biodiversity value than the habitat removed.
- 4.4.7. National Vegetation Classification (NVC) surveys may be required on habitats which will be impacted by the Proposed Works and have been assessed as qualifying, or potentially qualifying as Priority Habitats during the Phase 1 habitat survey
- 4.4.8. Multiple parcels of ancient woodland occur within 2km of the Sites, although none were within the Sites; therefore no further recommendations in relation to AWI parcels are provided.

4.5. PROTECTED AND NOTABLE SPECIES

- 4.5.1. The results of the desk study, Phase 1 habitat survey and protected species assessment highlighted the potential presence of several protected species or species of conservation concern within the Sites, or within the immediate surroundings of the Sites. These were bats, badger, brown hare, hedgehog, otter, water vole, amphibians, reptiles, common and widespread invertebrates, notable

plants, and INNS. The legal protection afforded to these species is outlined below and, where appropriate, the requirement for further survey and/ or mitigation measures is identified.

BATS

- 4.5.2. All species of bats recorded within the UK are protected from killing, injury and disturbance⁹ and their roosts protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the WCA with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by NRW for certain purposes.
- 4.5.3. Certain species of bats, including the Bechstein's bat *Myotis bechsteinii*, greater *Rhinolophus ferrumequinum* and lesser *Rhinolophus hipposideros* horseshoe bats, noctule bat, brown long-eared bat and soprano pipistrelle bat are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation to maintain and enhance for these species when carrying out their functions.
- 4.5.4. Suitable habitat for commuting bats was recorded within the Sites in the form of linear habitats such as lines of trees, dry-stone walls and streams, and the habitats throughout the Sites provide suitable foraging habitats for bats.
- 4.5.5. A total of 36 trees (18 in each of the Sites) were assessed as being suitable to support roosting bats. A rocky outcrop within the Mynydd Pwll-yr-lwrch Site was also assessed as having low suitability to support roosting bats.
- 4.5.6. The Proposed Development has been identified to present the following risks to bats:
- Disturbance/killing/injury to commuting and foraging bats caused by wind turbine collisions;
 - Disturbance/killing/injury of roosting bats through site clearance activities; and
 - Loss of suitable roosting, commuting and foraging habitat through site clearance activities.
- 4.5.7. It is recommended that the Proposed Development seeks to minimise loss of roosting, foraging and commuting habitat for bats through sensitive scheme design where practicable. Retained habitat shall be protected during the clearance and construction phases.
- 4.5.8. Further surveys are recommended to determine the bat species assemblage within the Sites, and if they are at risk of loss to the Proposed Development, to determine if the trees and structure with suitability to support roosting bats are used by roosting bats. These surveys are detailed within Section 4.6.

BADGER

- 4.5.9. The Protection of Badgers Act 1992 makes it illegal to wilfully kill, injure or take any badger, or attempt to do so. It also makes it an offence to intentionally or recklessly damage, destroy or

⁹ Disturbance is defined within the Habitats Regulations as that which is likely to impair a species ability to survive, breed or reproduce, hibernate or migrate or to significantly affect the local distribution or abundance of the species.

obstruct access to any part of a badger sett. Activities that would otherwise constitute an offence under this legislation may be licensed by NRW for certain purposes.

- 4.5.10. The Sites had suitability for badgers to excavate setts, although this was restricted to the woodland and dense bracken. The Sites had suitability to support foraging badgers across the entirety of the Sites. No setts or signs of badgers were identified during the Phase 1 habitat survey. However, badgers are able to quickly excavate setts in new locations.
- 4.5.11. Owing to the limited amount of suitable habitat for sett-building badgers within the Site, the absence of evidence of badgers during the Phase 1 habitat survey, and the lack of badger records returned from the desk study, it is considered the badger are likely to be absent from the Sites. Ecological avoidance, mitigation and compensation requirements to minimise effects on badgers are described in Section 4.7.
- 4.5.12. NRW will typically only issue licenses for the closure and destruction of badger setts between 1 July and 30 November under a registered licence. As badgers are able to build setts quickly, it is recommended that a pre-works check for badgers is undertaken two to three months prior to the commencement of construction if it is within this window. Should construct fall within December-June surveys should be completed in September to allow sufficient time for the setts to be closed in advance of the closure window shutting.

BROWN HARE

- 4.5.13. Brown hare are offered protection under Section 10A of the WCA, which protects brown hare from killing at certain times of year. The species is also listed as a Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation to maintain and enhance for this species when carrying out their functions.
- 4.5.14. The Proposed Development has the potential to lead to the killing/injury of brown hares, particularly young, through vegetation clearance and other intrusive works, and removal of their habitats.
- 4.5.15. It is likely that potential impacts on brown hare could be avoided through design and implementation of standard mitigation measures during construction works. For this reason, it is recommended that works are conducted under a Precautionary Method of Works (PMoW).

HEDGEHOG

- 4.5.16. The hedgehog is listed on Schedule 6 of the WCA ,which makes it illegal to kill or capture wild hedgehogs, and is listed under the Wild Mammals Protection Act (1996), which prohibits cruel treatment of hedgehogs. The species is also listed as a Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation to maintain and enhance for this species when carrying out their functions.
- 4.5.17. The Sites had suitable habitat for foraging, commuting and nesting hedgehog in woodland and scrub. Therefore, the Proposed Development presents the risk of killing/injury through vegetation clearance to hedgehog. To prevent this, any removal of suitable habitat should be carried out under a PMoW, as detailed in a CEMP.

OTTER

- 4.5.18. Otters are protected from killing, injury and disturbance and their places of rest or shelter (holts and other resting sites) are protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the WCA with respect to disturbance of individuals occupying

places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by NRW for certain purposes.

- 4.5.19. Otters are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation to maintain and enhance for this species when carrying out their functions.
- 4.5.20. Although no potential holts or resting places for otter were recorded within the Site, there were watercourses suitable to support commuting otter within the Sites. Therefore, measures to avoid impacts to commuting otters should be detailed in a CEMP.
- 4.5.21. The Garw Fechan to the east of the Moel Cynhordy/Mynydd Moelgella Site may provide suitable resting places for otter, including natal holts, beyond the Site boundary. If works to facilitate the Proposed Development are required within 200 m of the Garw Fechan, it is recommended that an otter survey of the extent of the Garw Fechan within 200 m of the Moel Cynhordy/Mynydd Moelgella Site is carried out. This is described in Section 4.6.

WATER VOLE

- 4.5.22. The water vole is protected from killing and injury and its place of rest or shelter (burrow) is protected from damage, destruction or obstruction under the WCA. Additional protection from disturbance is extended to individuals occupying places of rest or shelter. Activities that would otherwise constitute an offence under this legislation may be licensed by NRW for certain purposes.
- 4.5.23. The water vole is also listed as a Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation to maintain and enhance for this species when carrying out their functions.
- 4.5.24. The steep sided banks present within the ditches and above ground dense marshy grassland vegetation in the Sites may provide suitable shelter or protection for water vole. Therefore, the Proposed Development has the potential to injure/kill or disturb water vole, as well as destroy their places of rest.
- 4.5.25. A follow-up riparian mammal survey to fully understand the extent to which water vole may be using these stretches of streams is recommended, as detailed in Section 4.6. Ecological avoidance, mitigation and compensation requirements to minimise effects on water vole are described in Section 4.7.

AMPHIBIANS

Common and widespread amphibians

- 4.5.26. Common frog and common toad are protected under Schedule 5 of the WCA. This includes protection from killing and injury. Common toads are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation to maintain and enhance for this species when carrying out their functions.
- 4.5.27. The Mynydd Pwll-yr-Iwrch Site is known to support frogs, with frogspawn recorded in P7 during the Phase 1 habitat survey. The ditches, streams and terrestrial habitat in the Site was considered suitable to support all common and widespread amphibians.
- 4.5.28. Therefore, the Proposed Development presents the risk of killing/injury of common and widespread amphibians through vegetation clearance, and removal of their habitats.

- 4.5.29. Impact to all habitat suitable for amphibians (including terrestrial habitat) should be avoided as far as possible. Where this is not practicable, it is recommended that an ECoW is present on site prior to works commencing to deliver a toolbox talk to all site personnel to advise on the possibility of amphibians being present during the works and what to do should they be identified. The ECoW should perform a fingertip search of all vegetation to be cleared immediately prior to clearance, and potential hibernacula should be removed, where required, during the active season under supervision of an ECoW. Works should be conducted under a PMoW, as detailed in a CEMP.

GCN

- 4.5.30. GCN are protected from deliberate killing, capturing or disturbing; deliberate taking or destroying of the eggs; and damaging or destroying of a breeding site/resting place under the Habitats Directive. GCN are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation to maintain and enhance for this species when carrying out their functions.
- 4.5.31. P9 in the Moel Cynhordy/Mynydd Moelgella Site, and P1, P3, P4 and P6 in the Mynydd Pwll-yr-lwrch Site underwent a HSI assessment and returned a result of above 0.5, and were therefore considered suitable to support GCN. One other pond, P5, within 500 m of the Mynydd Pwll-yr-lwrch Site, was not subject to an HSI assessment, and may also be suitable to support GCN.
- 4.5.32. The terrestrial habitats within the Sites were considered suitable to support GCN in their terrestrial phase.
- 4.5.33. If GCN are present within the Site, the Proposed Development risks the killing/injury and/or disturbance to GCN and their place of rest/shelter. Therefore, further surveys are required to confirm GCN presence/likely absence.
- 4.5.34. P5, within 500m of the Mynydd Pwll-yr-lwrch Site, should be subject to an HSI assessment. This may lead to the requirement of further surveys, depending on the results.
- 4.5.35. P9 in the Moel Cynhordy/Mynydd Moelgella Site, and P1, P3, P4 and P6 in the Mynydd Pwll-yr-lwrch Site would require further surveys, which could include environmental DNA (eDNA) surveys, or four presence/likely absence surveys per pond. These further surveys are restricted to mid-March – June, which is the optimal period for GCN surveys. Presence/likely absence surveys would comprise four to six surveys.
- 4.5.36. These surveys are detailed in Section 4.6.
- 4.5.37. If GCN are identified within the Site and impacts to GCN or GCN habitat cannot be avoided, activities that would otherwise constitute an offence under legislation may be licensed by NRW for certain purposes.

REPTILES

- 4.5.38. Native widespread reptile species (common or viviparous lizard, adder, grass snake and slow worm) are partially protected under Schedule 5 of the WCA. This includes protection from killing and injury.
- 4.5.39. All reptile species are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation to maintain and enhance for these species when carrying out their functions.

- 4.5.40. No evidence of reptiles was identified during the Phase 1 habitat survey, although the habitats, specifically marshy grassland, bracken, acid grassland, heath and scrub, were considered to be suitable to support common and widespread reptile species, with basking opportunities on the spoil and scree. Due to the widespread nature of reptile species, and the suitability of the habitats within both Sites to support common and widespread reptile species, it can be assumed that reptile species are present in suitable habitats within both Sites. Therefore, the Proposed Development risks killing/injury of reptiles through vegetation clearance or other intrusive works. Therefore, no further surveys are required, but mitigation measures should be implemented to prevent killing and injury to reptile species, and enhancement measures should consider reptile species.
- 4.5.41. Any refugia and hibernacula, such as the stone piles and dry stone walls, should be retained and protected where possible. If this is not possible, they should be dismantled under supervision of an ECoW during the active season.
- 4.5.42. Any removal of vegetation suitable to support hibernating reptiles should be carried out in the active season (March to October) to avoid impacts to hibernating reptiles.
- 4.5.43. Vegetation clearance and refugia/hibernacula dismantling should be carried out under a PMoW.

NOTABLE PLANTS

- 4.5.44. Although no notable plant species have been recorded during the Phase 1 habitat survey, habitats within the Site were considered suitable to support bluebell (woodland and bracken), chamomile (acid grassland) and pennyroyal (marshy grassland). It should be assumed that chamomile is present within the Sites, owing to the proximity of the record of chamomile and the suitability of the habitats within the Sites. Public bodies have an obligation to maintain and enhance for these species when carrying out their functions.
- 4.5.45. In the first instance, removal of the habitats on the Sites suitable to support notable plant species should be avoided where possible. Where it is not possible to avoid, habitat suitable for supporting notable plant species should be replaced at a minimum ratio of 1:1. Surveys to confirm the presence or likely absence of these species may also be necessary to inform appropriate mitigation measures.

INVASIVE NON-NATIVE PLANT SPECIES

- 4.5.46. Certain plants are listed on Schedule 9 of the WCA. It is an offence to plant or otherwise cause these species to grow in the wild.
- 4.5.47. Rhododendron and Himalayan balsam were identified during the field survey. Presence of INNS elsewhere within the Site, and presence of other INNS, cannot be ruled out.
- 4.5.48. There is, therefore, a possibility that the Proposed Development may risk the spread of Schedule 9 WCA plant species, resulting in an offence under the WCA. To avoid this, any habitat removal should be subject to a pre-works check by an ECoW to determine the presence of INNS, and under a PMoW. No additional surveys are considered necessary.

4.6. FURTHER SURVEY REQUIREMENTS

- 4.6.1. Potential ecological constraints for which further surveys are required to ensure legal and planning policy compliance are listed in Table 6.

Table 8 - Key ecological constraints and further survey requirements

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
Priority Habitats	Loss of habitats.	If identified Priority Habitats cannot be avoided then NVC surveys should be completed to inform mitigation measures and inform further Ground Water Dependant Terrestrial Ecosystems.	The optimal period for NVC surveys on habitats identified within the Sites is May – August.
Bats	Risk of disturbance to bats roosting in suitable trees via direct effect and/or artificial lighting. Risk of loss and/or severance of suitable commuting and foraging habitat.	PRF inspection surveys – Should trees be directly impacted by the development a more detailed assessment of the likely suitability of the trees for bats, and to look for more conclusive evidence of bats may be required. This may involve the use of tree climbing. Depending on the results of these surveys, further surveys may be required. Preliminary Roost Assessment (PRA) surveys – To allow for a more detailed assessment of the likely suitability of any structures impacted which have been identified as having suitability for bats, an internal inspection may be required. This would look for more conclusive evidence of bats. Depending on the results of this survey, further surveys may be required. Where accessibility prevents close inspection, a dusk emergence survey may be required. Bat Activity Surveys – To assess the bat species assemblage and activity levels within	PRF inspection surveys and PRA surveys are not seasonally constrained. Bat Activity Surveys comprising both static detector deployment and NBWs should be undertaken in each of spring (April-May), summer (June-mid-August) and autumn (mid-August-October).

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
		the Sites. At this stage of the project, there is not yet a fixed design and therefore the number of the turbines is not known. Once this is known automated detectors should be located at turbine locations to collect data for 10 consecutive nights in each of spring (April-May), summer (June-mid-August) and autumn (mid-August-October). Nighttime Bat Walkover (NBW) – Static detectors provide an overview of how bat activity is broadly distributed over the site and which species are present, but are less suited to identifying flight lines and understanding the numbers of bats present. NBW surveys can be used to identify connections between nearby roosts, linear features (or other potential flight paths and potential key foraging areas. These surveys are recommended should additional information on flight paths be required once turbine locations are known.	
Otter	Risk of disturbance to otters and/or their resting places. Risk of loss of suitable habitat for commuting otter. Risk of indirect effects to river habitat such as pollution run-off.	Should habitats within 200m of the Garw Fechan be affected during the construction of the Proposed Development: Otter survey – To assess the use of the Garw Fechan and associated habitats by otter. This will involve a full survey of 200m upstream and downstream of the Moel Cynhordy/Mynydd Moelgella Site boundary extent.	Otter surveys are not seasonally constrained.

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
		This may lead to the requirement for further surveys, including the deployment of trail cameras. If places of rest or shelter for otters are damaged/destroyed during the Proposed Development, further surveys/inspections may be required and an EPS licence from NRW will need to be obtained to allow the work to proceed lawfully. A precautionary approach would be followed in accordance with licence methodology. This would likely include a pre-works check to identify any resting places/holts in proximity to the Proposed Development prior to works commencing.	
Water vole	Risk of disturbance to water voles and their resting places. Killing/injury of water voles during construction works. Loss of suitable habitat. Risk of indirect impacts to river habitat such as pollution run-off.	Riparian mammal survey – To assess the use of the streams within the Sites and associated habitats by water vole. This will involve a full survey of all of the watercourses within the Sites.	Two water vole surveys should be undertaken. One of these should be in mid-April to June, and one should be in July to September inclusive. The visits should be at least two months apart.
Great crested newts	Killing/injury of GCN through construction works.	Development within 500m of waterbodies that may support GCN poses a risk of causing harm, including injury, disturbance, or killing.	HSI assessments are not seasonally constrained.

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
		Should P9 in the Moel Cynhordy/Mynydd Moelgella Site, and P1, P3, P4 and P6 in the Mynydd Pwll-yr-lwrch Site fall within 500m of the development they should be subject to further surveys, which could include environmental DNA (eDNA) surveys, or four presence/likely absence surveys per pond. P5, within 500m of the Mynydd Pwll-yr-lwrch Site, should be subject to an HSI assessment. This may lead to the requirement of further surveys, depending on the results.	Further GCN surveys (eDNA and presence/likely absence surveys) are restricted to the optimal times of mid-March – June.

4.7. PRELIMINARY AVOIDANCE, MITIGATION AND COMPENSATION MEASURES

4.7.1. To enable compliance with relevant legislation and planning policy, as described above within Sections 4.1-4.4, the following avoidance, mitigation and compensation measures should be designed into the Proposed Development. These will be refined following completion of further survey work recommended above. It should be noted that targeted mitigation measures including but not limited to habitat retention and/or restoration could be required. It is not possible to provide prescriptive measures in the absence of design information for the Proposed Development. Any such measures will need to be developed in parallel with further surveys and as the design for the Proposed Development is developed.

- Any vegetation clearance required as part of the Proposed Development should be carried out under a PMoW with an ECoW present. Information to prevent impacts on the protected species discussed in this report should be documented in a PMoW document.
- Works should be carried out as per environmental best practice to avoid indirect impacts to Wildlife Sites and Priority Habitats, including river habitat.
- Avoidance of vegetation clearance within Priority Habitats, where practicable. Where this is not possible, provision of replacement habitat, over and above that which is lost, would be required.
- Avoidance of working in areas where INNS are present.

ENVIRONMENTAL BEST PRACTICE

4.7.2. In addition, general environmental protection measures must be implemented during the construction phase of the proposed scheme. Such measures include best environmental practice guidance outlined in the NRW Guidance for Pollution Prevention (NRW, 2018) and those outlined by the Construction Industry Research and Information Association guidance (CIRIA, 2015). The following minimum standards must be adhered to prevent ecological impacts beyond the Site boundaries:

- Measures must be taken to prevent dust and other emissions from construction affecting land beyond the Sites.
- Chemicals and fuels must be stored in secure containers located away from watercourses or water bodies. Spill kits must be available.
- Excavations must be covered or securely fenced (with no potential access points beneath fencing) when the Sites are closed (e.g. overnight) to prevent entrapment of animals.
- Retained trees must be protected in accordance with BS5837 (British Standards Institute, 2012).
- Noise and vibration must be controlled and kept to the minimum necessary.
- Lighting used for construction must be switched-off when not in use and positioned so as not to spill on to adjacent land or retained vegetation within the Site.

4.8. ECOLOGICAL ENHANCEMENT OPPORTUNITIES

4.8.1. PPW (Edition 12, 2024) states *‘By protecting and enhancing biodiversity, and our natural environment more generally, it will be possible to future proof economic assets in response to the challenges presented by climate change, to promote low carbon and appropriate resource choices which address the causes of climate change and to provide cost effective ecosystems services such as clean air and water.’*

- 4.8.2. Net Benefit for Biodiversity (NBB) in association with development is encouraged by PPW (2021) and under Section 6 of Part 1 of the Environment (Wales) Act 2016. The below recommendations aim to comply with a NBB approach, by way of delivering an overall improvement in biodiversity without use of a metric. Engaging with these recommendations in the early stages of the Proposed Development would facilitate ecosystem resilience and wider ecosystem benefits being achieved. This approach will support local authorities in achieving their Section 6 duty to “*promote the resilience of ecosystems*” when determining planning applications.
- 4.8.3. To encourage compliance with planning policy the following measures are recommended for inclusion within the Proposed Development; where possible:
- Installation of bird and bat boxes in trees to provide additional refuge sites;
 - If planting is required, no planting of INNS within the Site;
 - Planting of pollinator friendly native species of local provenance for any habitat lost which is suitable for invertebrates.
 - Enhancing connectivity through the planting of shrubs and trees where appropriate; and
 - Sustainable drainage systems (SuDS) to be incorporated into the design of the Proposed Development to reduce the effects of water runoff and provide ecological benefits. To facilitate this, ecological and landscape design input would be required in the design of SuDS features to ensure that the relevant standards are met and to ensure benefits for biodiversity are achieved.
- 4.8.4. These measures should be detailed in an NBB report.

5. CONCLUSIONS

- 5.1.1. The Proposed Development is likely to impact upon protected and/or notable species and habitats due to the removal of habitats within the Sites during the construction phase, and continuing through the operational phase. During the operational phase of the Proposed Development, there may be impacts to species such as commuting/foraging bats.
- 5.1.2. The Sites lie 4.3 km from the closest statutory designated site of international importance, and 30.0km from the closest statutory designated site of international importance designated for the presence of bats. Therefore, an HRA assessment will be required once further details on the Proposed Development are available.
- 5.1.3. Cwm Du Woodlands SSSI is located 0.3 km west of the Site. To prevent indirect effects on Cwm Du Woodlands SSSI, environmental best practice should be followed, laid out in a CEMP.
- 5.1.4. Habitats recorded within the Site comprise: woodland; scrub; parkland/scattered trees; grassland (comprising acid, neutral, improved, and marsh/marshy); bracken; heath; standing water; running water; inland cliff; scree; spoil; wall; dry ditch; earth bank; and bare ground. The following Priority Habitats were identified (or potentially present) within the Site: Upland heathland; Rivers; Upland oakwood; Lowland mixed deciduous woodland; Inland rock outcrop and scree habitats; Upland Flushes, Fens and Swamps; and Purple moor-grass and rush pastures.
- 5.1.1. If it is not feasible to avoid Priority Habitats within or adjacent to the Site, consultation with Bridgend County Council should be completed as part of design development and NVC surveys may be required at those locations. For any loss of Priority Habitat, replacement habitat commensurate or greater than that lost should be provided within the design.
- 5.1.2. The Proposed Development has the potential to impact upon protected and/or notable species including bats, badger, brown hare, hedgehog, otter, water vole, amphibians, reptiles, notable plants and INNS. Further targeted surveys for bats, otter (should habitats within 200 m of the Garw Fechan be impacted), water vole, and GCN are recommended, based on the current understanding of the Proposed Development.
- 5.1.3. Preliminary avoidance and/or mitigation measures are recommended for badger, brown hare, hedgehog, common and widespread amphibians, reptiles, notable plants and INNS in the form of protection/retention of habitats, ecological supervision and/or PMoW.
- 5.1.4. Results of the surveys recommended as part of this assessment will inform the need for any further licensing and/or mitigation requirements and help inform the detailed design of the proposals in line with national and local planning policy and legislation, including the delivery of biodiversity enhancements in accordance with duties under Section 6, which should be detailed in an NBB report. The recommendations detailed above should be re-visited following the issue of a preliminary design.

6. REFERENCES

- Amphibian and Reptile Groups of the United Kingdom (2010) ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. ARG UK, UK
- Chanin P (2003). Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough
- Chartered Institute of Ecology and Environmental Management (CIEEM) (2017a). Guidelines for Preliminary Ecological Appraisal. CIEEM, Winchester.
- CIEEM (2017b). Guidelines for Ecological Report Writing. CIEEM, Winchester.
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland, Terrestrial, Freshwater and Coastal. CIEEM, Winchester.
- CIEEM (2019) Advice Note: On the Lifespan of Ecological Reports & Surveys.
- CIRIA (2015) Environmental good practice on site (fourth edition) (C741) Charles, P., Edwards, P (eds). CIRIA, London.
- Collins J. (ed.) (2023) Bat Surveys for Professional Ecologists, Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London.
- Dean, M., Strachan, R., Gow, D. and Andrews R. (2016). The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds. Fiona Matthews and Paul Chanin. The Mammal Society, London.
- Drake CM, Lott DA, Alexander KNA and Webb J (2007). Surveying terrestrial and freshwater invertebrates for conservation evaluation. Natural England Research Report NERR005. Natural England, Peterborough.
- English Nature (2001). Great Crested Newt Mitigation Guidelines. English Nature, Peterborough.
- English Nature (2006). The Dormouse Conservation Handbook. 2nd Edition. Natural England. Peterborough
- Environment Agency (2014) Pollution Prevention Guidance. Available online: <https://www.gov.uk/government/collections/pollution-prevention-guidance-ppg> [accessed July 2014].
- French G. C. A., Wilkinson, J. W, Fletcher, D. H., Arnell, A. P. (2014) Quantifying the Status of Great Crested Newts in Wales. Natural Resources Wales.
- Froglife (1999) Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice sheet 10. Froglife, Halesworth
- Gent, A. and Gibson, S. (2003). Herpetofauna Workers Manual. JNCC. Peterborough
- Harris S, Cresswell P and Jefferies D (1991) (Report) Surveying Badgers. The Mammal. Society, Bristol.
- Highways Agency (1997) Design Manual for Roads and Bridges, Volume 10, Section 4, Part 7: Nature Conservation Advice in Relation to Reptiles and Roads.
- Highways Agency (1997) Design Manual for Roads and Bridges, Volume 10, Part 5, Mitigating against effects on badgers.
- HMSO (Her Majesty's Stationary Office) (1981). Wildlife and Countryside Act (as amended by the Countryside and Rights of Way Act 2000). HMSO, Norwich.
- HMSO (1992) The Badgers Act.
- HMSO (1996) The Wild Mammals (Protection) Act. HMSO, London.
- HMSO (2006) Natural Environment and Rural Communities Act. HMSO, Norwich.

- HMSO (2010). The Conservation of Habitats and Species Regulations 2017 (the Habitat Regulations)
- Joint Nature Conservation Committee (JNCC) (2016). Handbook for Phase 1 habitat survey – a technique for environmental audit. JNCC, Peterborough.
- JNCC Biodiversity Reporting and Information Group (2008). UK Biodiversity Action Plan
- JNCC and DEFRA (2012) UK Post 2010 Biodiversity Framework. Available online: <http://jncc.defra.gov.uk/page-6189>. [Accessed July 2014].
- Kirby, P. (2001). Habitat Management for Invertebrates: A Practical Handbook. RSPB Management Guides
- Langton, T.E.S., Beckett, C.L., and Foster, J.P. (2001). Great Crested Newt Conservation Handbook, Froglife, Halesworth
- Mitchell- Jones, A.J (2004) Bat Mitigation Guidelines. English Nature.
- NatureScot (2021). Bats and onshore wind turbines – survey, assessment and mitigation.
- NRW (2018). Guidance for Pollution Prevention. Available online: <https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/>
- Oldham R.S., Keeble J., Swan M.J.S., and Jeffcote M. (2000) Evaluating the suitability of habitat for the great crested newt. Herpetological Journal 10: 143-155
- Roper, T.J. (2010). Badger. Harper Collins.
- Scottish Natural Heritage (2016). Assessing Connectivity with Special Protection Areas (SPAs). Version 3.
- The Welsh Government (2013). The Action Plan for Pollinators in Wales. [Available online: <https://www.gov.wales/sites/default/files/publications/2019-04/action-plan-for-pollinators.pdf>].
- Wales Mammal Biodiversity Action Forum (2013). Mammal Action Plans: Brown Hare *Lepus europaeus*. [Available online: <https://www.biodiversitywales.org.uk/Home>]
- Wheeler, P., Wray, S. and Yalden, D. (2012). Brown Hare and Mountain Hare. In: Cresswell, W.J., Birks, J.D.S., Dean, M., Pacheco, M., Trehwella, W.J., Wells, D. and Wray, S. (eds.) UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation. Southampton: The Mammal Society.
- WSP. (2025). Maesteg Windfarms: Winter bird report.

FIGURES

Figure 1 - Mynydd Pwll-yr-Lwrch and Moel Cynhordy/Mynydd Moelgella Site Location

Figure 2 - International Statutory Designated Sites within 10 km of the Sites

Figure 3 - National Statutory Designated Sites within 2 km of the Sites

Figure 4 - Statutory Designated Sites for which Bats are a Qualifying Feature

Figure 5 - Non-statutory Designated Sites within 2 km of the Sites

Figure 6 - Priority Habitats and AWI Areas within 2 km of the Sites as returned from the desk study

Figure 7a – Standing water within 500 m of Mynydd Pwll-yr-Lwrch Site

Figure 7b – Standing water within 500 m of the Moel Cynhordy/Mynydd Moelgella Site

Figure 8 - Mynydd Pwll-yr-Lwrch Phase 1 Habitat Survey Results

Figure 9 - Moel Cynhordy/Mynydd Moelgella Phase 1 Habitat Survey Results

Figure 10 - Mynydd Pwll-yr-Lwrch Target Notes and Daytime Bat Walkover Results

Figure 11 - Moel Cynhordy/Mynydd Moelgella Target Notes and Daytime Bat Walkover Results



N

Key

Mynydd Pwll-yr-Iwrch

Moel Cynhordy/Mynydd Moelgella

012

Kilometers

Client:

Pennant Walters

Project:

Maesteg Windfarms Preliminary Ecological Appraisal

Title

Mynydd Pwll-yr-Iwrch and Moel Cynhordy/Mynydd Moelgella Site Location

Drawing No:

Figure 1

Date:

11/03/2025

Scale:

40,000 @ A3

Drawn:

LT

Checked:

MB

Approved:

GL

Contains Ordnance Survey data © Crown copyright and database right 2025

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



N

Key

Mynydd Pwll-yr-Iwrch

Moel Cynhordy/Mynydd Moelgella

10 km buffer

Special Area of Conservation (SAC)

0

2.5

5

Kilometers

Client:

Pennant Walters

Project:

Maesteg Windfarms Preliminary Ecological Appraisal

Title

International Statutory Designated Sites within 10km of the Sites

Drawing No:

Figure 1

Date:

11/03/2025

Scale:

100,000 @ A3

Drawn:

LT

Checked:

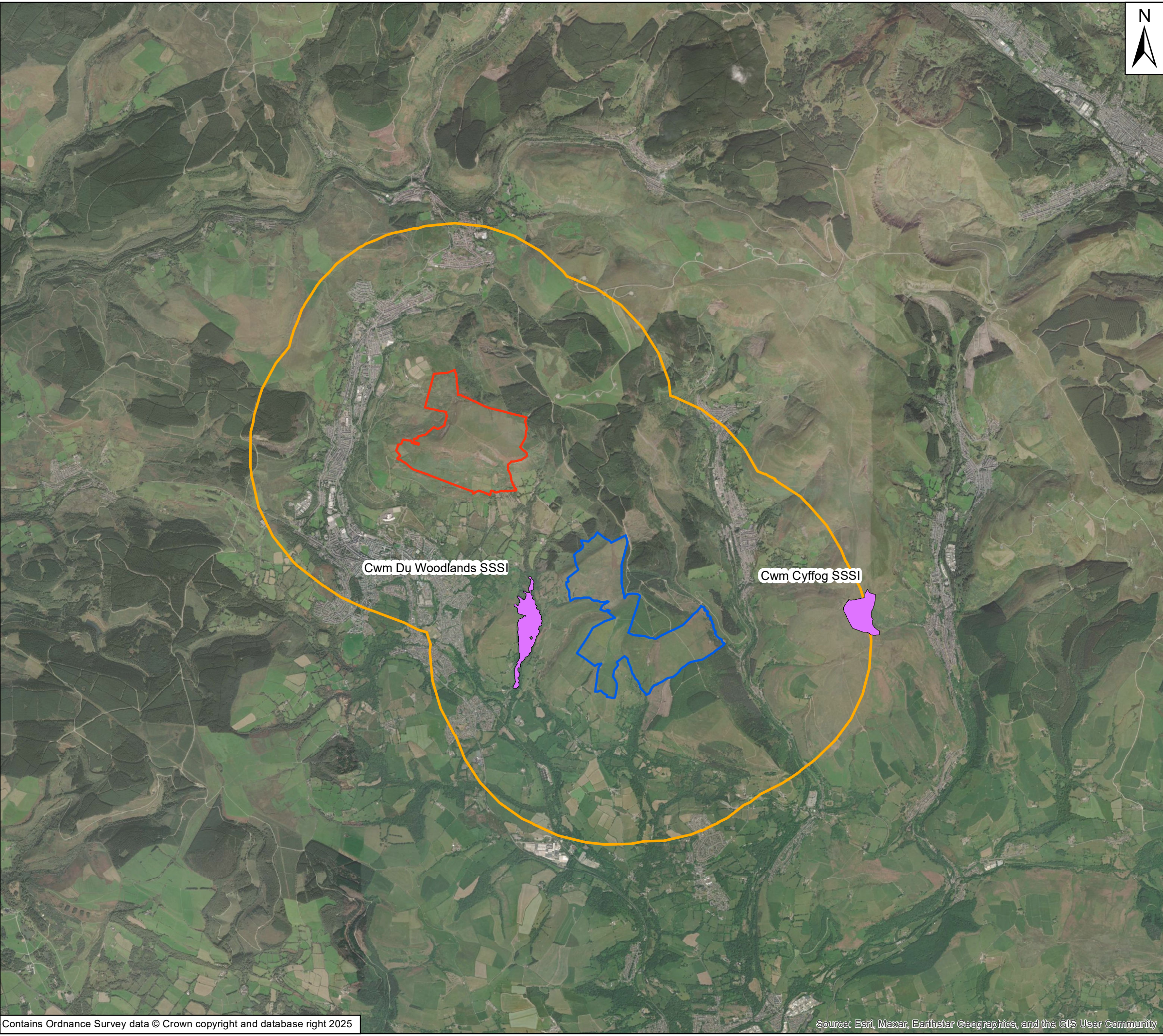
MB

Approved:

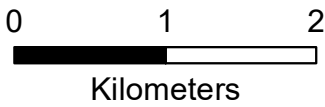
GL

Contains Ordnance Survey data © Crown copyright and database right 2025

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



- Key**
- Mynydd Pwll-yr-lwrch
 - Moel Cynhordy/Mynydd Moelgella
 - 2 km buffer
 - Site of Special Scientific Interest (SSSI)



Client:	Pennant Walters		
Project:	Maesteg Windfarms Preliminary Ecological Appraisal		
Title	National Statutory Designated Sites within 2 km of the Sites		
Drawing No:	Figure 3	Drawn:	LT
Date:	11/03/2025	Checked:	MB
Scale:	50,000 @ A3	Approved:	GL



N

Key

Mynydd Pwll-yr-lwrch

Moel Cynhordy/Mynydd Moelgella

10km Buffer

30km Buffer

Local Nature Reserve (LNR)

Site of Special Scientific Interest (SSSI)

0510

Kilometers

Client:

Pennant Walters

Project:

Maesteg Windfarms Preliminary Ecological Appraisal

Title

Statutory Designated Sites for which Bats are a Qualifying Feature

Drawing No: Figure 4a

Date: 17/04/2025

Scale: 300,000 @ A3

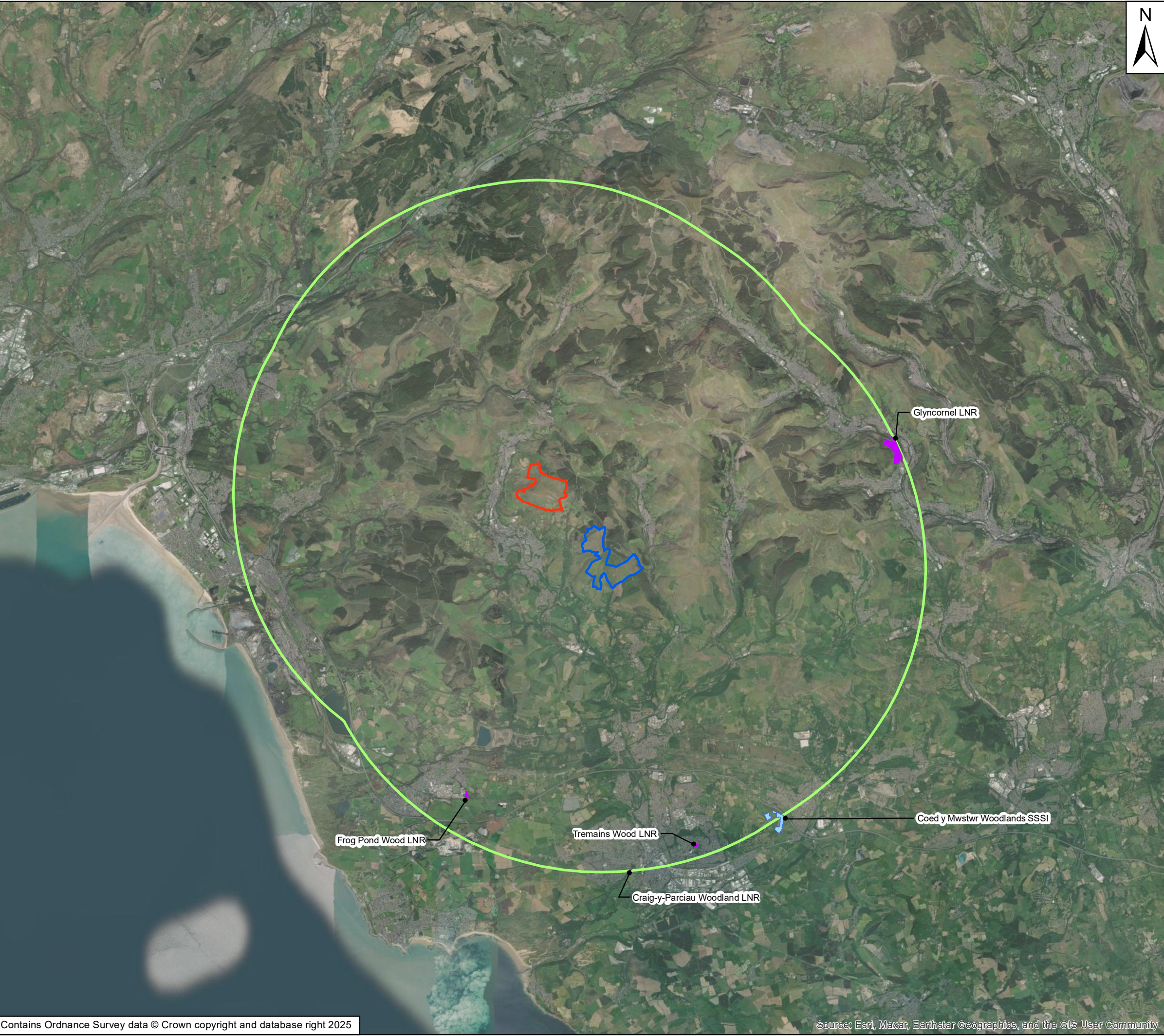
Drawn: LT

Checked: MB

Approved: GL

Contains Ordnance Survey data © Crown copyright and database right 2025

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



N

Key

- Mynydd Pwll-yr-lwrch
- Moel Cynhordy/Mynydd Moelgella
- 10km Buffer
- Local Nature Reserve (LNR)
- Site of Special Scientific Interest (SSSI)

02.55

Kilometers

Client:

Pennant Walters

Project:

Maesteg Windfarms Preliminary Ecological Appraisal

Title

Statutory Designated Sites for which Bats are a Qualifying Feature

Drawing No: Figure 4b

Date: 01/04/2025

Scale: 130,000 @ A3

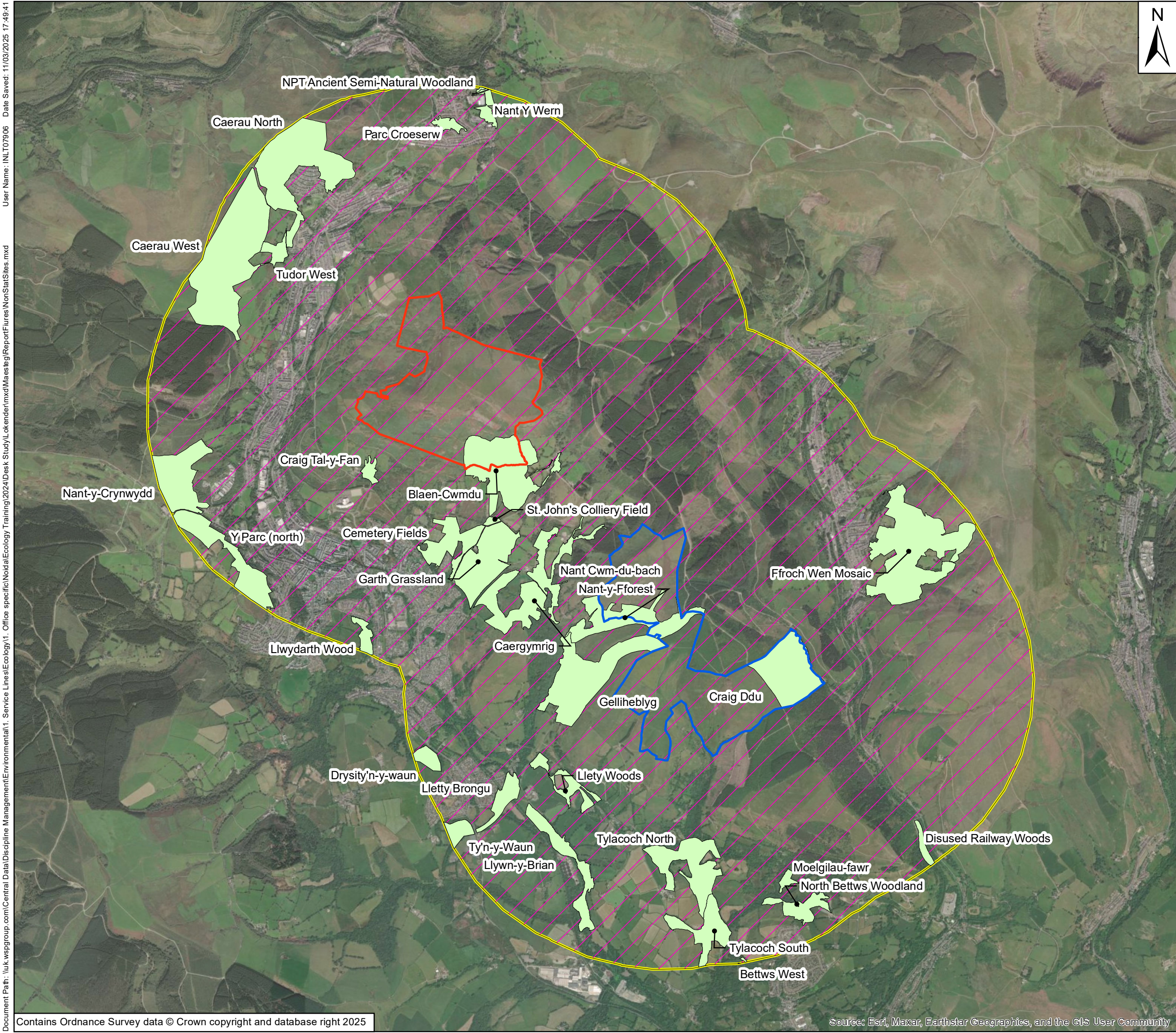
Drawn: LT

Checked: MB

Approved: GL

Contains Ordnance Survey data © Crown copyright and database right 2025

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Key

- Mynydd Pwll-yr-Iwrch
- Moel Cynhordy/Mynydd Moelgella
- 2 km buffer
- Wildlife Site/SINC (Adopted)
- B-Lines

0 1 2
Kilometers

wsp

Client:

Pennant Walters

Project:

Maesteg Windfarms Preliminary Ecological Appraisal

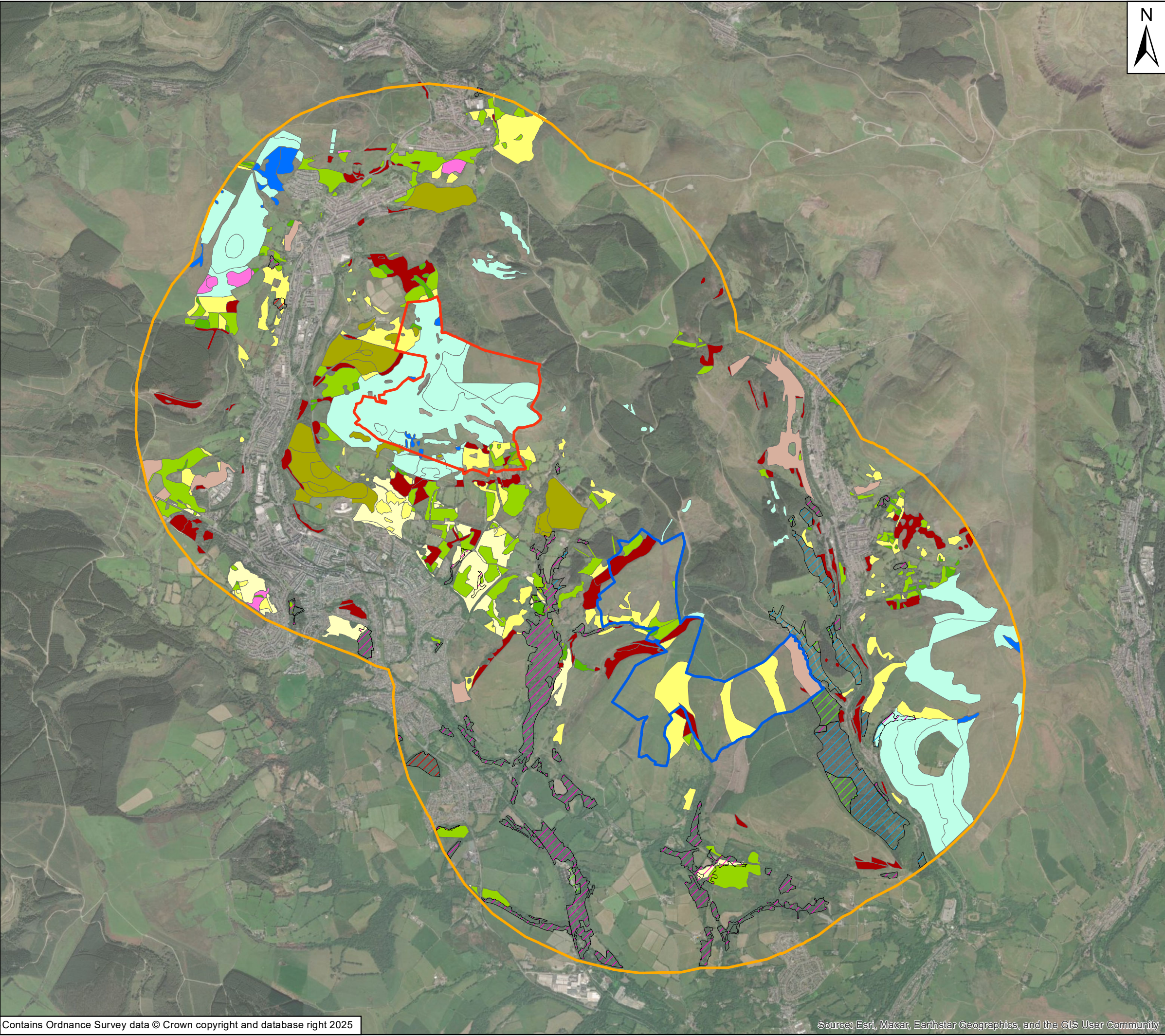
Title:

Non-Statutory Designated Sites within 2km of the Sites

Drawing No:	Figure 5	Drawn:	LT
Date:	12/03/2025	Checked:	MB
Scale:	35,000 @ A3	Approved:	GL

Contains Ordnance Survey data © Crown copyright and database right 2025

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



N

0

0.5

1

Kilometers

Mynydd Pwll-yr-Iwrch

Moel Cynhordy/Mynydd Moelgella

2 km buffer

Ancient Semi-Natural Woodland

Ancient Woodland Site of Unknown Category

Plantation on Ancient Woodland Site

Restored Ancient Woodland Site

Blanket Bog

Lowland Dry Acid Grassland

Lowland Fens and Reedbeds

Lowland Heathland

Marsh Fritillary Habitat

Open Mosaic Habitat on Previously Developed Land

Purple Moor Grass and Rush Pastures

Raised Bog

Traditional Orchards

Upland Flushes, Fens and Swamps

Upland Heathland

Wood Pasture

Client:

Pennant Walters

Project:

Maesteg Windfarms Preliminary Ecological Appraisal

Title

Priority Habitats and AWI Areas within 2 km of the Sites as Returned from the Desk Study

Drawing No:

Figure 6

Date:

12/03/2025

Scale:

35,000 @ A3

Drawn:

LT

Checked:

MB

Approved:

GL

Contains Ordnance Survey data © Crown copyright and database right 2025

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Key

Mynydd Pwll-yr-lwrch

500m Buffer

Bodies of standing water

0400800

Meters

Client:

Pennant Walters

Project:

Maesteg Windfarms Preliminary Ecological Appraisal

Title

Standing water within 500m of the Mynydd Pwll-yr-lwrch Site

Drawing No:

Figure 7

Date:

17/04/2025

Scale:

12,000 @ A3

Drawn:

LT

Checked:

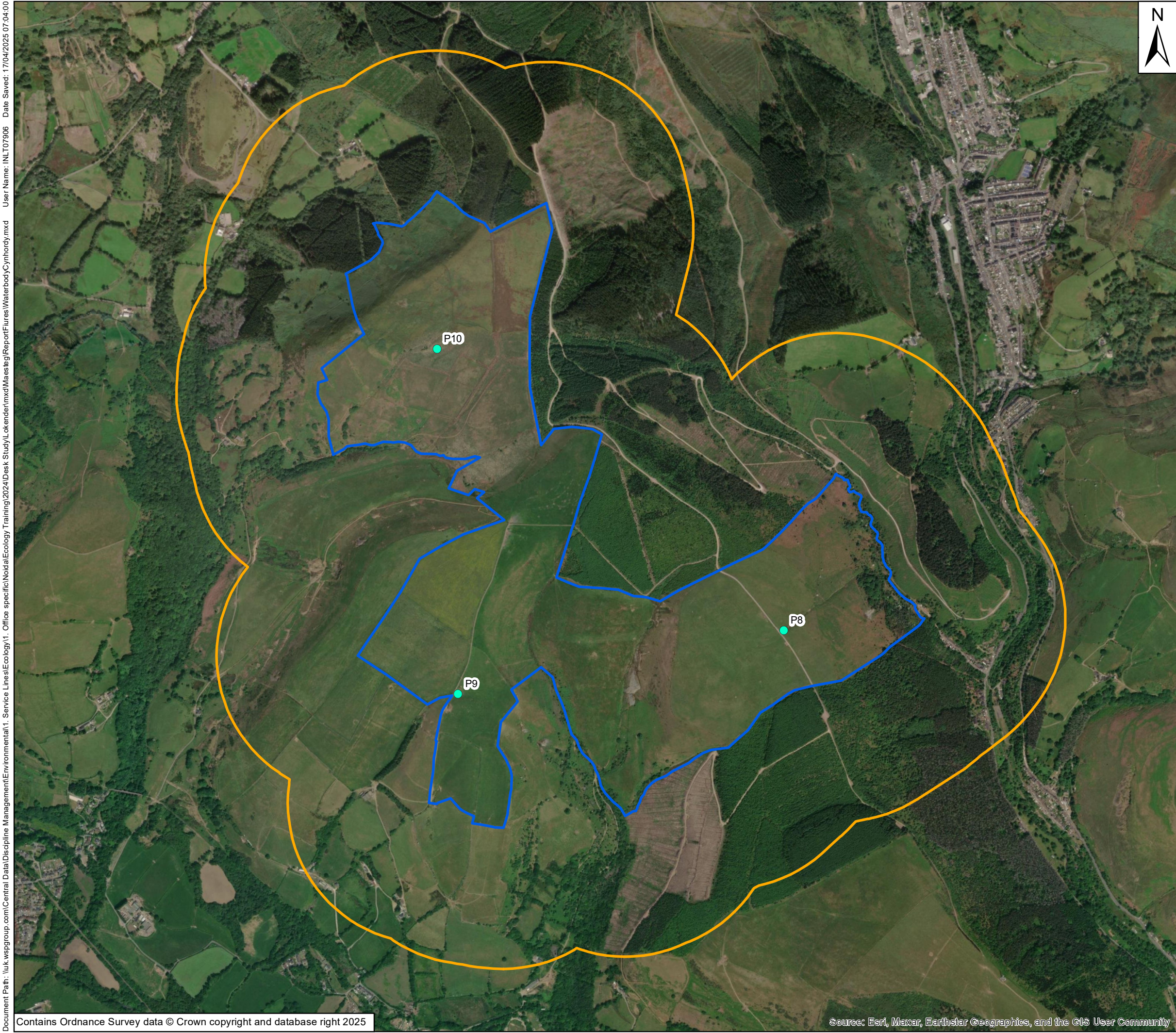
MB

Approved:

GL

Contains Ordnance Survey data © Crown copyright and database right 2025

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Key

- Moel Cynhordy/Mynydd Moelgella
- 500m Buffer
- Bodies of standing water

0400800

Meters

Client:

Pennant Walters

Project:

Maesteg Windfarms Preliminary Ecological Appraisal

Title

Standing water within 500m of the Moel Cynhordy/Mynydd Moelgella Site

Drawing No:

Figure 7b

Date:

17/04/2025

Scale:

13,000 @ A3

Drawn:

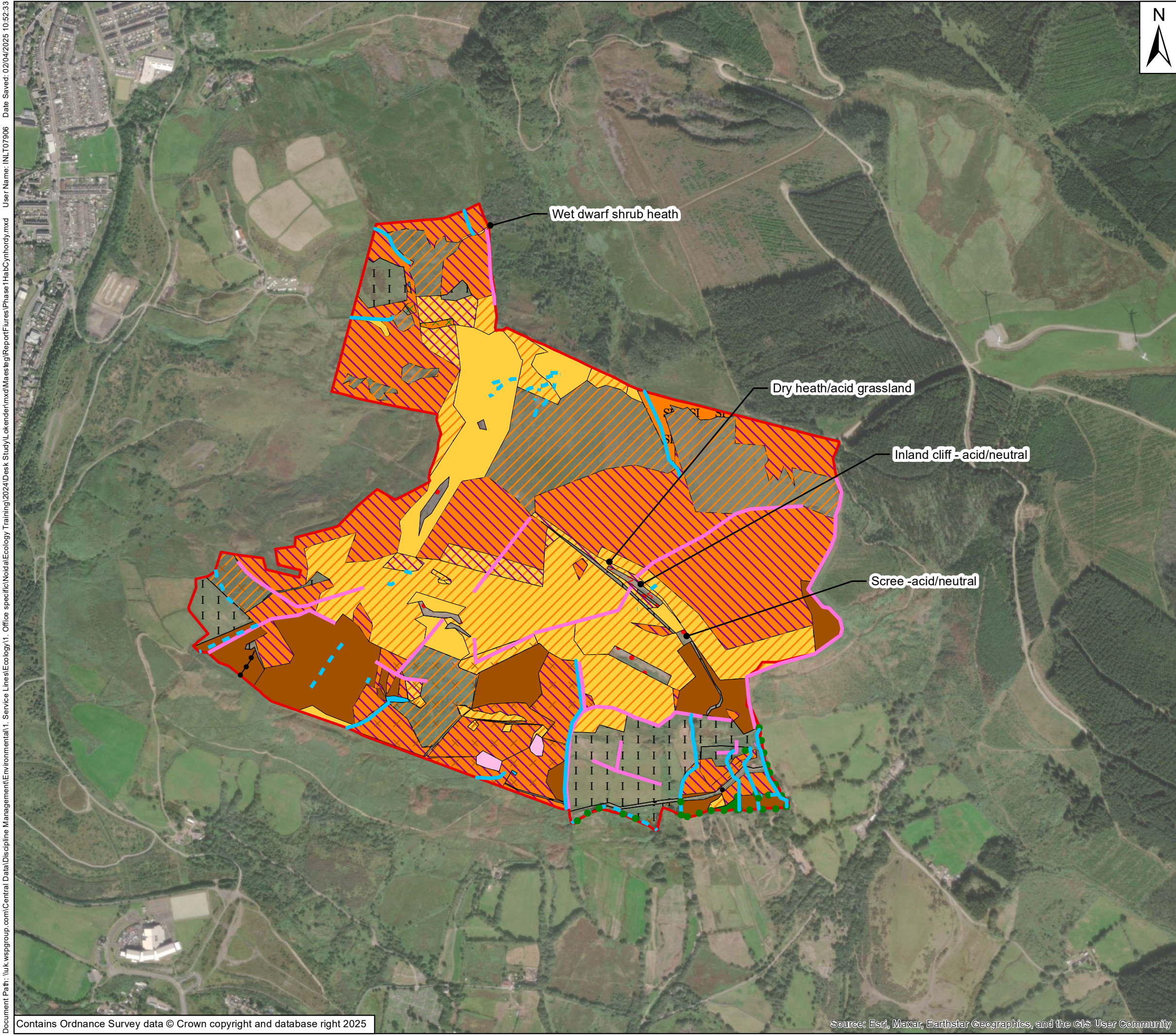
LT

Checked:

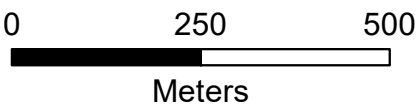
MB

Approved:

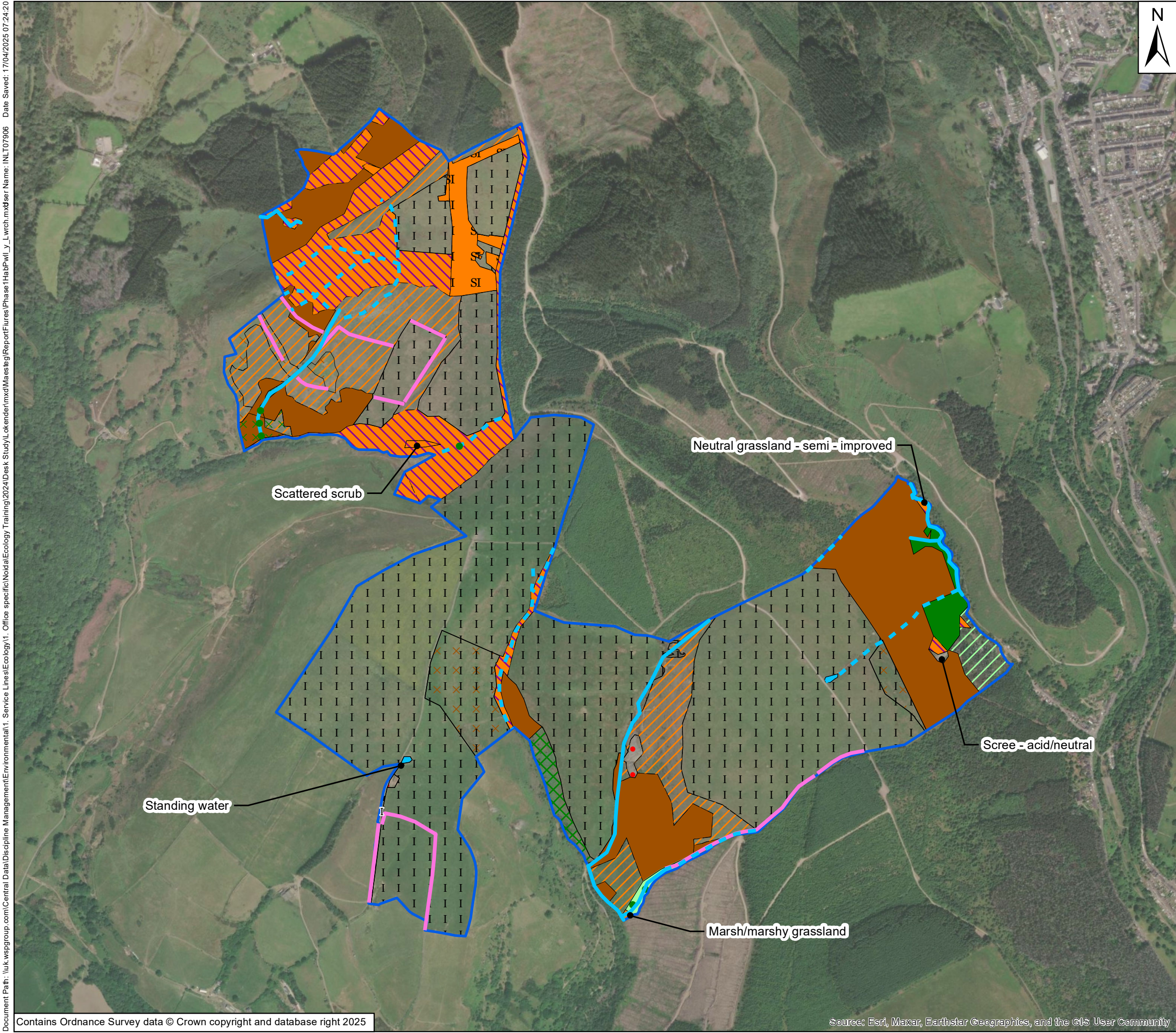
GL



- Key**
- Mynydd Pwll-yr-Iwrch Site
 - Phase 1 Habitat**
 - Broadleaved woodland - semi-natural
 - Scrub - scattered
 - Acid grassland - semi-improved
 - Neutral grassland - semi-improved
 - Improved grassland
 - Marsh/marshy grassland
 - Bracken - continuous
 - Bracken - scattered
 - Dry dwarf shrub heath - acid
 - Wet dwarf shrub heath
 - Dry heath/acid grassland
 - Wet heath/acid grassland
 - Standing water
 - Inland cliff - acid/neutral
 - Scree - acid/neutral
 - Spoil
 - Bare ground
 - Broadleaved parkland/scattered trees
 - Dry ditch
 - Earth bank
 - Running water
 - Wall



Client:	Pennant Walters		
Project:	Maesteg Windfarms Preliminary Ecological Appraisal		
Title	Mynydd Pwll-yr-Iwrch Site Phase 1 Habitat Survey Results		
Drawing No:	Figure 8	Drawn:	LT
Date:	17/04/2025	Checked:	MB
Scale:	10,000 @ A3	Approved:	GL



N

0250500

Meters

Client:

Pennant Walters

Project:

Maesteg Windfarms Preliminary Ecological Appraisal

Title

Moel Cynhordy/Mynydd Moelgella Site Phase 1 Habitat Survey Results

Drawing No:

Figure 9

Date:

17/04/2025

Scale:

10,000 @ A3

Drawn:

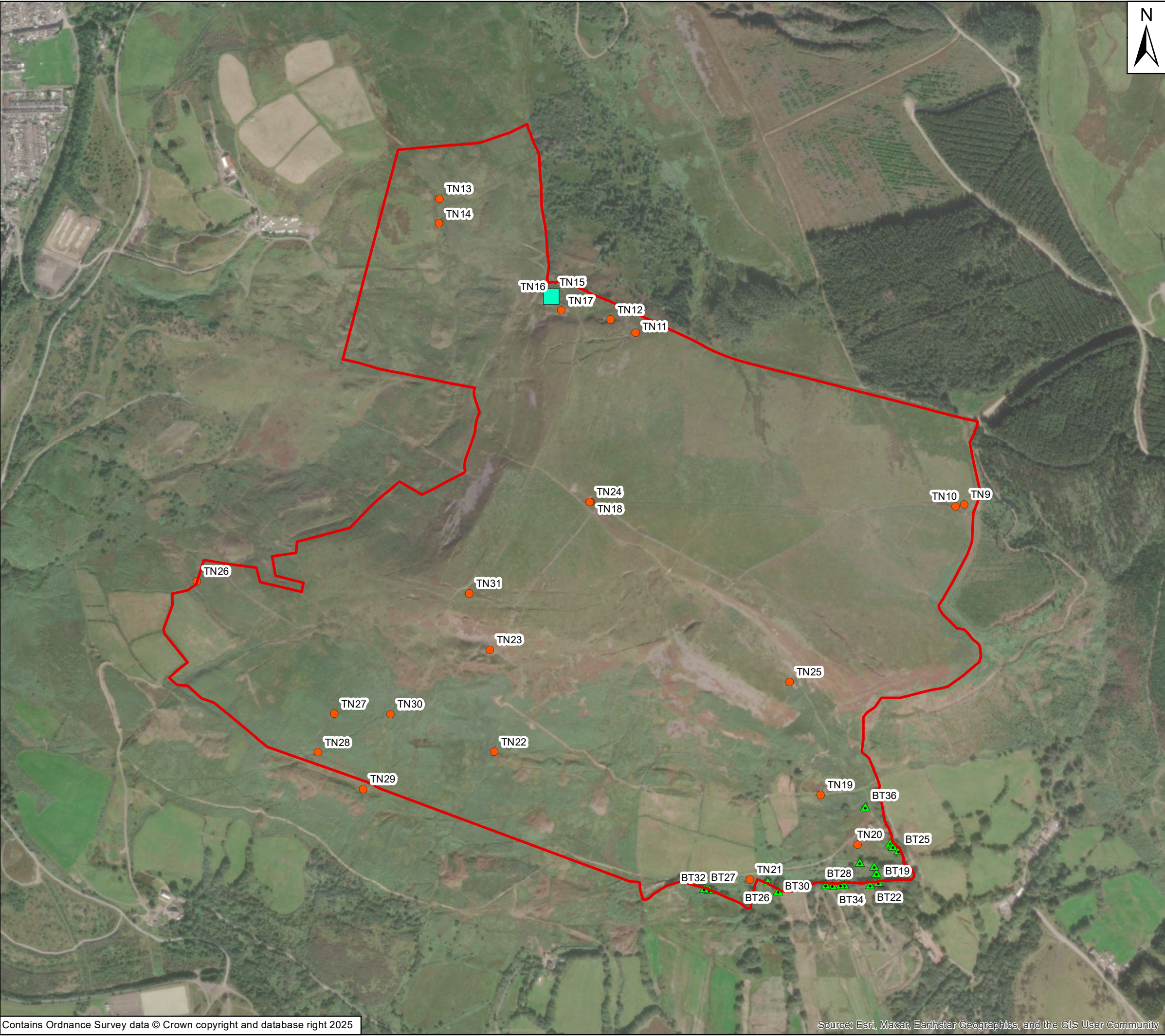
LT

Checked:

MB

Approved:

GL



Key

Mynydd Pwll-yr-lwrch Site

Target Notes

PBRA Trees
Suitability

PRF

PBRA Structures
Suitability

Low

0250500

Meters

Client:

Pennant Walters

Project:

Maesteg Windfarms Preliminary Ecological Appraisal

Title

Mynydd Pwl-yr-lwrch Site
Target Notes and Daytime Bat Walkover Results

Drawing No:

Figure 10

Date:

17/04/2025

Scale:

8,000 @ A3

Drawn:

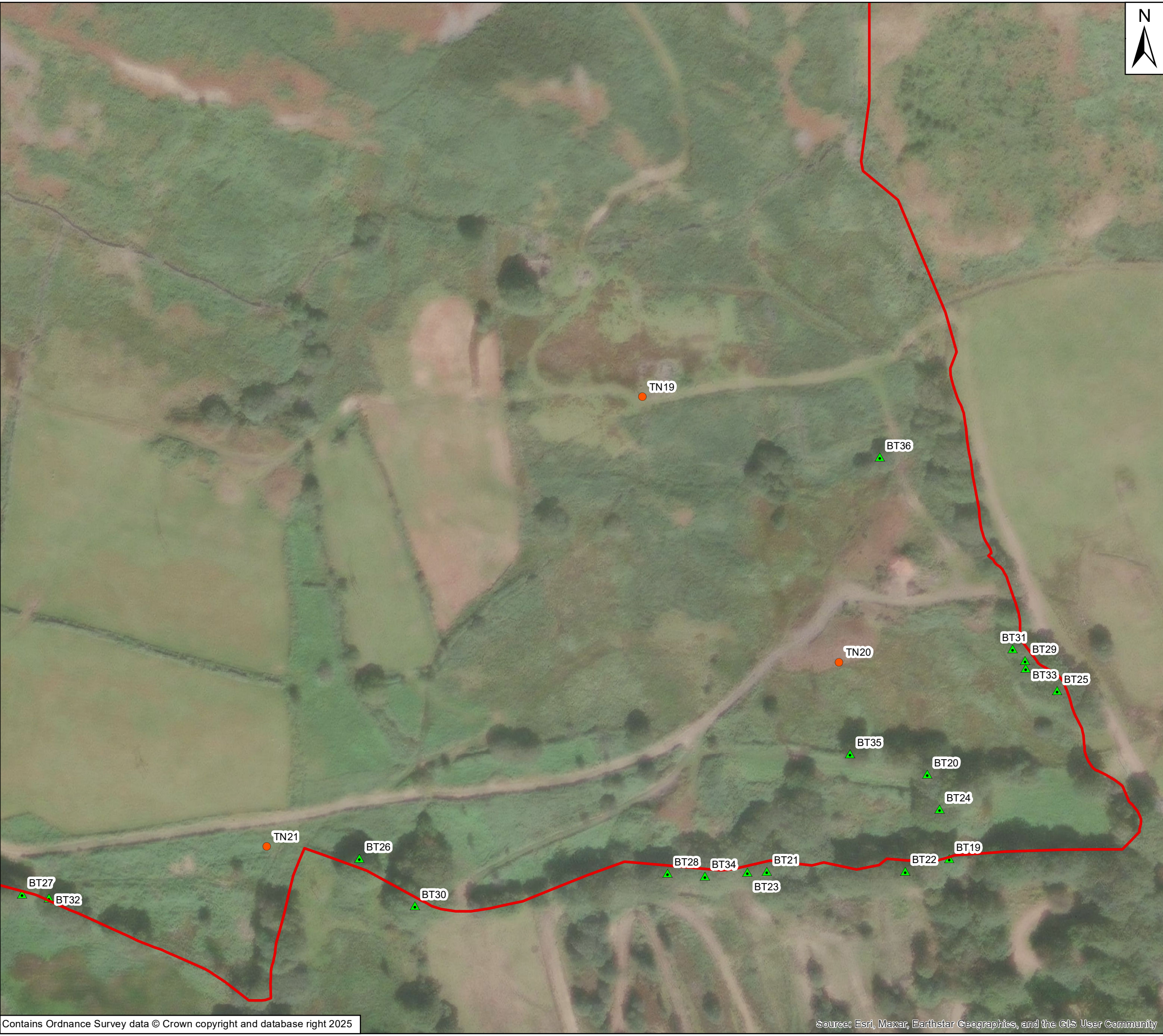
LT

Checked:

MB

Approved:

GL



N

Key

Mynydd Pwll-yr-lwrch Site

Target Notes

PBRA Trees

Suitability

PRF

050100

Meters

wsp

Client:

Pennant Walters

Project:

Maesteg Windfarms Preliminary Ecological Appraisal

Title

Mynydd Pwll-yr-lwrch Site
Target Notes and Daytime Bat Walkover Results

Drawing No:

Figure 10

Date:

17/04/2025

Scale:

1,500 @ A3

Drawn:

LT

Checked:

MB

Approved:

GL



Key

Moel Cynhordy/Mynydd Moelgella Site

Target notes

PBRA Trees
Suitability

PRF

0250500

Meters

Client:

Pennant Walters

Project:

Maesteg Windfarms Preliminary Ecological Appraisal

Title

Moel Cynhordy/Mynydd Moelgella Site Target Notes and Daytime Bat Walkover Results

Drawing No:

Figure 11

Date:

17/04/2025

Scale:

10,000 @ A3

Drawn:

LT

Checked:

MB

Approved:

GL

Contains Ordnance Survey data © Crown copyright and database right 2025

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Key

Moel Cynhordy/Mynydd Moelgella Site

Target notes

PBRA Trees
Suitability

PRF

050100

Meters

Client:

Pennant Walters

Project:

Maesteg Windfarms Preliminary Ecological Appraisal

Title

Moel Cynhordy/Mynydd Moelgella Site Target Notes and Daytime Bat Walkover Results

Drawing No:

Figure 11

Date:

17/04/2025

Scale:

1,500 @ A3

Drawn:

LT

Checked:

MB

Approved:

GL

Appendix A

RELEVANT LEGISLATION AND PLANNING POLICY



ENGLAND & WALES LEGISLATION AND POLICY CONTEXT

This report has been compiled with reference to relevant wildlife legislation, planning policy and the UK Biodiversity Framework. An overview and context of relevant legislation is provided, with the relevant protection each species groups or species receives summarised in Table 1.

The Wildlife and Countryside Act 1981, (as amended) (WCA)

Protected birds, animals and plants are listed under Schedules 1, 5, 8 respectively of the WCA, while Schedule 9 lists non-native and/or invasive species the spread of which in the wild is prohibited by the WCA. A description of these Schedules and their meaning is provided below.

Under the WCA (England and Wales) all birds, their nests and eggs (with exception of species listed under Schedule 2) are protected by the WCA. It is an offence to:

- Intentionally kill, injure, or take any wild bird,
- Take or destroy an egg of any wild bird.
- Damage or destroy the nest of any wild bird (whilst being built, or in use). Under the WCA the clearance of vegetation within the survey area boundary, or immediately adjacent to the survey area during the bird nesting season could result in an offence occurring by the disruption or destruction of nest sites. The bird breeding season can be taken to occur between March - August inclusive, although is subject to variations based on species, geographical and seasonal factors.

Schedule 1

Birds listed under Schedule 1 of the WCA¹⁰ are afforded additional protection with regard to intentional or reckless disturbance whilst nest-building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Schedule 5

Species listed in Schedule 5 can either be fully protected or be partially protected under Section 9, which makes it unlawful to intentionally:

- Part 1: kill, injure or take;
- Part 2: possess or control (live or dead animal, part or derivative);
- Part 4 (a): damage or destruct any structure used for shelter or protection;
- Part 4 (b): disturb them in a place of shelter or protection;
- Part 4 (c): obstruct access to place of shelter or protection;
- Part 5 (a): sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative);
- Part 5 (b): advertise for buying or selling.

Schedule 8

The Act makes it an offence (subject to exceptions) to pick, uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8, and prohibits the unauthorised intentional uprooting of such plants.

Schedule 9

Invasive species listed under Schedule 9 are prohibited from release into the wild and the Act prohibits planting or “causing to grow” in the wild of any plant species listed in Schedule 9. It should be noted that certain bird species listed on Schedule 1 of the WCA are also listed on Schedule 9 to prevent release of non-native and captive individuals, this includes barn owl, red kite, goshawk and corncrake.

Countryside Rights of Way Act 2000 (CRoW Act)

The CRoW Act has amended the WCA in England and Wales strengthening the protection afforded to Sites of Special Scientific Interest (SSSI) and the legal protection for threatened species. It adds the word ‘reckless’ to the wording of the offences listed under Section 9(4) of the WCA. This alteration makes it an offence to recklessly commit an offence, where previously an offence had to be intentional to result in a breach of legislation.

¹⁰ To view the current list of Schedule 1 listed birds visit: <http://www.legislation.gov.uk/ukpga/1981/69/schedule/1> [Accessed 20.03.25].

Natural Environment and Rural Communities (NERC) Act 2006

Species and Habitats of Principal Importance in England and Wales are listed under Section 41 and Section 42 respectively of the NERC Act. The Section 41 and 42 lists detail species that are of principal importance for the conservation of biodiversity in England and Wales, and should be used to guide decision-makers such as local and regional authorities when implementing their duty to have regard for the conservation of biodiversity in the exercise of their normal functions – as required under Section 40 of the NERC Act 2006.

The Environment (Wales) Act 2016

The Environment (Wales) Act 2016 (<http://www.legislation.gov.uk/anaw/2016/3/contents/enacted>) puts in place the legislation needed to plan and manage Wales' natural resources in a more proactive, sustainable and cohesive way. Section 7 replaces the duty in Section 42 of the NERC Act 2006 and it places a duty on the Welsh Ministers to publish, review and revise lists of living organisms and types of habitats which they consider are of key significance to sustain and improve biodiversity in Wales. The species and habitat lists are identical to those in Section 42 but it should be noted it is currently under review (23.03.2017).

The Protection of Badgers Act (1992)

It is an offence to wilfully take, kill, injure, possess or ill-treat a badger. Under the Act their setts are protected against intentional or reckless interference. Sett interference includes damaging or destroying a sett, obstructing access to any part of the sett, or disturbance of a badger whilst it is occupying a sett. The Act defines a badger sett as 'any structure or place, which displays signs indicating the current use by a badger' and Natural England (NE) takes this definition to include seasonally used setts that are not occupied but that show sign of recent use by badgers (Natural England, 2009¹¹).

If impacts to badgers or their setts are unavoidable then authorised sett disturbance requires a licence.

The UK Post-2010 Biodiversity Framework (2011-2020) (JNCC and DEFRA, 2012)

This Framework lists the UK's most threatened species and habitats and sets out targets and objectives for their management and recovery. The UK Biodiversity Action Plan (BAP) process is delivered nationally, regionally and locally and should be used as a guide for decision-makers to have regards for the targets set by the framework and the goals they aim to achieve. The UK BAP has now been replaced by the UK Post-2010 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant (UK Post-2010 Biodiversity Framework, 2012¹²).

The Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. They also transpose elements of the EU Wild Birds Directive in England and Wales. The Regulations came into force on 30th November 2017, and extend to England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters). In Scotland, the Habitats Directive is transposed through a combination of the Habitats Regulations 2010 (in relation to reserved matters) and the Conservation (Natural Habitats &c.) Regulations 1994. The Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) transpose the Habitats Directive in relation to Northern Ireland.

All species listed under Annex IV of the Habitats Directive require strict protection and are known as European Protected Species (EPS). Under Regulation 42 of the Habitats Regulations it is unlawful to:

- Deliberately kill, capture or disturb;
- Deliberately take or destroy the eggs of; and
- Damage or destroy the breeding site/resting place of any species protected under this legislation.

If the Ecologist determines that impacts to an EPS are unavoidable then the works may need to be carried out under a site specific mitigation licence from Natural England (NE) or Natural Resources Wales (NRW). Low Impact Class licences are also available in both England and Wales for bats and great crested newts. This enables Registered Low Impact Consultants to undertake certain low impact activities reducing the EPS application paperwork and process length.

¹¹ Natural England, June 2009, Protection of Badgers Act 1992 (as amended), Guidance on 'Current Use' in the definition of a Badger Sett WMLG17, Natural England, Peterborough.

¹² JNCC and Defra (on behalf of the Four Countries' Biodiversity Group), July 2012, UK Post-2010 Biodiversity Framework, Available from: http://jncc.defra.gov.uk/pdf/UK_Post2010_Bio-Fwork.pdf [Accessed 20.03.25].

Certain EPS are also listed under Annex II of the Habitats Directive and are afforded protection by the establishment of core areas of habitat known as Special Areas of Conservation. This means these species are a relevant consideration in a Habitats Regulations Assessment (HRA).

The Birds Directive seeks to maintain populations of all wild bird species across their natural range (Article 2). All bird species listed under Annex I¹³ of the Birds Directive are rare or vulnerable and afforded protection by the classification of Special Protection Areas (SPAs), these are also designated under all regularly occurring migratory species, with regard to the protection of wetlands of international importance (Article 4). This means these bird species and communities are a relevant consideration in HRA.

¹³ To view birds listed under Annex I visit: http://ec.europa.eu/environment/nature/conservation/wildbirds/threatened/index_en.htm [accessed 20.03.25]

Table A-1 - Key Species and National Wildlife Legislation, Policy and Biodiversity Framework Applicable in England & Wales

Table A:1: Key Species and National Wildlife Legislation, Policy and Biodiversity Framework Applicable in England & Wales								
Species	Legislation, Planning Policy and UK Biodiversity Framework							
	Wildlife and Countryside Act 1981 (as amended), (WCA)				The Conservation of /Habitats and Species Regulations 2010 (as amended) (Habitats Regulations) - Regulation 41	Natural Environment and Rural Communities (NERC) Act 2006 / The Environment(Wales) Act (2016)	The Protection of Badgers Act 1992	The UK Post-2010 Biodiversity Framework 2011-2020 (JNCC and DEFRA, 2012)
	Schedule1	Schedule 5	Schedule 8	Schedule 9	European Protected Species (Annex IV of the EC Habitats Directive),			
Badger							✓	
Bats		✓ ¹⁴ (part)			✓ ¹⁵	✓ ¹⁶		✓ ¹⁷
Hazel Dormouse		✓ 5(part)			✓	✓		✓
Otter		✓ 5(part)			✓	✓		✓
Water vole		✓ ¹⁸ (full)				✓		✓
Birds	✓			✓ ¹⁹		✓ ²⁰		✓ ²¹

¹⁴ These species are partially protected under section 9(4)(b), (4)(c) and (5).

¹⁵ Only Barbastelle (*Barbastella barbastellus*), Bechstein’s bat (*Myotis bechsteinii*), greater horseshoe bat (*Rhinolophus ferrumequinum*) and lesser horseshoe bat (*Rhinolophus hipposideros*) are listed on Annex II of the Habitats Directive.

¹⁶ Greater horseshoe bat, lesser horseshoe bat, Bechstein’s bat, noctule (*Nyctalus noctula*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*) and barbastelle are listed as Species of Principal Importance in England with the addition of common pipistrelle (*Pipistrellus pipistrellus*) in Wales listed under Section 7 of the Environment (Wales) Act (2016) <http://www.legislation.gov.uk/ukpga/2006/16/contents>.

¹⁷ Barbastelle bat, Bechstein’s bat, noctule, soprano pipistrelle, brown long-eared bat, greater horseshoe bat, lesser horseshoe bat are listed as UK BAP species of bat.

¹⁸ Class Licences are available to Registered Consultants to intentionally disturb, damage or destroy water vole burrows or to displace water voles from their burrows in relation to a development proposal where the licensed action provides a conservation benefit for water voles. Certain displacement operations may be carried out under a Class licence by a registered person in England, however in Wales all displacement operations must be carried out under a site specific licence.

¹⁹ To view plants and animals listed on Schedule 9 Part 1 visit <http://www.legislation.gov.uk/ukpga/1981/69/schedule/9> [accessed 6 April 2017]

²⁰ There are 49 species of birds listed as Species of Principal Importance in England in Section 41 of the NERC Act 2006 and 51 species in Wales under Section 7 of the Environment (Wales) Act (2016) <http://www.legislation.gov.uk/ukpga/2006/16/contents>.

²¹ To view the current list of UK BAP priority birds visit: <http://jncc.defra.gov.uk/page-5163> [Accessed 20.03.25].

Reptiles		✓ ²² (part)		✓ ⁹	✓ ²³	✓ ²⁴		✓ ²⁵
Amphibians		✓ ²⁶ (part)		✓ ²⁷	✓ ^{28, 29}	✓ ³⁰		
White-clawed Crayfish		✓ ³¹ (partial)			✓ ³²	✓		✓
Invertebrates		✓ ³³ (full/part)		✓	✓ ^{34, 35}	✓ ³⁶		✓ ³⁷

²² The four common reptile species, Adder (*Vipera berus*), Grass snake (*Natrix natrix*), Common lizard (*Zootoca vivipara*) and Slow worm (*Anguis fragilis*) are offered partial protection under section 9(5). The rarer UK reptile species (Smooth snake (*Coronella austriaca*) and Sand lizard (*Lacerta agilis*)) are partially protected under section 9(4)(b) and (c) and (5).

²³ Smooth snake (*Coronella austriaca*) and Sand lizard (*Lacerta agilis*) are the only reptiles to be designated as European Protected Species.

²⁴ All 6 reptile species are listed as Species of Principal Importance in England listed under Section 41 of the NERC Act 2006 and 5 species, excluding smooth snake, listed under Section 7 of the Environment (Wales) Act (2016) <http://www.legislation.gov.uk/ukpga/2006/16/contents>.

²⁵ To view the current list of UK BAP priority herptile species visit: <http://jncc.defra.gov.uk/page-5166> [Accessed 20.03.25].

²⁶ The four common reptile species, Adder (*Vipera berus*), Grass snake (*Natrix natrix*), Common lizard (*Zootoca vivipara*) and Slow worm (*Anguis fragilis*) are offered partial protection under section 9(5). The rarer UK reptile species (Smooth snake (*Coronella austriaca*) and Sand lizard (*Lacerta agilis*)) are partially protected under section 9(4)(b) and (c) and (5).

²⁷ Common frog (*Rana temporaria*), Common toad (*Bufo bufo*), Smooth newt (*Lissotriton vulgaris*) and Palmate newt (*Lissotriton helveticus*) are offered partial protection under section 9(5). Great crested newt (*Triturus cristatus*) and Natterjack toad (*Epidalea calamita*) are offered partial protection under section 9(4)(b) and (c) and (5). Pool frog (*Pelophylax lessonae*) is offered partial protection under section 9(4)(b) and (c)(1) only and with respect to England only.

²⁸ Great crested newt, Natterjack toad and Pool frog are the only amphibians to be designated European Protected Species.

²⁹ Great crested newt is the only amphibian listed on Annex II of the Habitats Directive.

³⁰ Great crested newt, Natterjack toad and Common toad are listed as Species of Principal Importance in England in Section 41 of the NERC Act 2006 and under Section 7 of the Environment (Wales) Act (2016) <http://www.legislation.gov.uk/ukpga/2006/16/contents>.

³¹ Under the Wildlife and Countryside Act it is illegal to take or sell white clawed crayfish under the WCA. A licence is required to survey (hand net or trap) for the species. To undertake work within WCC inhabited rivers a Class Licence maybe issued by the relevant authority to move WCC away from harm prior to works. Although WCC are not protected from killing or injury Natural England state in their Class licence that due to declining numbers all efforts should be made to conserve the species.

³² White clawed crayfish are listed under Annex II and V of the Habitats Directive.

³³ To view the current list of invertebrates that are protected under this Act either in part or full visit: <http://www.legislation.gov.uk/ukpga/1981/69/schedule/5> [Accessed 20.03.25].

³⁴ The Large blue butterfly (*Maculinea arion*), Fisher’s estuarine moth (*Gortyna borelii lunata*) and Lesser whirlpool ram’s-horn snail (*Anisus vorticulus*) are the only invertebrates to be designated European Protected Species.

³⁵ There are currently twelve invertebrates listed in Annex II of the Habitats Directive; White-clawed crayfish (*Austroptamobius pallipes*), Southern damselfly (*Coenagrion mercuriale*), Marsh fritillary butterfly (*Eurodryas aurinia*), Violet click beetle (*Limonicus violaceus*), Stag beetle (*Lucanus cervus*), Freshwater pearl mussel (*Margaritifera margaritifera*), Narrow-mouthed whorl snail (*Vertigo angustior*), Round-mouthed whorl snail (*Vertigo genesii*), Geyer’s whorl snail (*Vertigo geyeri*), Desmoulin’s whorl snail (*Vertigo moulinsiana*), Lesser whirlpool ram’s-horn snail (*Anisus vorticulus*) and Fisher’s estuarine moth (*Gortyna borelii lunata*).

³⁶ There are currently 379 invertebrate species (not including marine species) listed as Species of Principal Importance in England http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=4&ved=0ahUKEwivvu7J9trSAhXiCsAKHX4TBGcQFggvMAM&url=http%3A%2F%2Fpublications.naturalengland.org.uk%2Ffile%2F6518755878240256&usq=AFOjCNEpiUWYuOghVcfSDvi_3iK2TJytfQ and 188 species in Wales http://www.eryri-npa.gov.uk/data/assets/pdf_file/0003/486156/SpeciesList.pdf listed under Section 41 of the NERC Act 2006 and listed under Section 7 of the of the Environment (Wales) Act 2016. [Accessed 20.03.25]

³⁷ To view the current list of UK BAP priority invertebrates visit: <http://jncc.defra.gov.uk/page-5169> [Accessed 20.03.25].

Fish		✓ ³⁸ (full/part)		✓ ⁹	✓ ^{39, 40}	✓ ⁴¹		✓ ⁴²
Plants			✓ ⁴³	✓ ⁹	✓ ^{44, 45}	✓ ⁴⁶		✓ ⁴⁷

³⁸ To view the current list of fish either part or fully protected under the Act visit: <http://www.legislation.gov.uk/ukpga/1981/69/schedule/5> [Accessed 20.03.25].

³⁹ Sturgeon (*Acipenser sturio*) is the only fish to be designated a European Protected Species.

⁴⁰ There are eight fish species listed on Annex II of the Habitats Directive. To view the current list visit: <http://jncc.defra.gov.uk/page-1523> [Accessed 20.03.25].

⁴¹ There are 35 species of fish listed as Species of Principal Importance in England listed under Section 41 of the NERC Act 2006 and 10 species in Wales listed under Section 7 of the Environment (Wales) Act 2016.

⁴² To view the current list of UK BAP priority fish visit: <http://jncc.defra.gov.uk/page-5164> [Accessed 20.03.25].

⁴³ To view the current list of Schedule 8 listed plants visit: <http://www.legislation.gov.uk/ukpga/1981/69/schedule/8> [Accessed 20.03.25].

⁴⁴ There are nine plant species designated as European Protected Species. To view the current list visit: <http://www.legislation.gov.uk/ukpga/2010/490/schedule/5/made> [Accessed 20.03.25].

⁴⁵ To view the current list of plant species on Annex II of the Habitats Directive visit: <http://jncc.defra.gov.uk/page-1523> [Accessed 20.03.25].

⁴⁶ There are currently 152 vascular plants listed as Species of Principal Importance in England listed under Section 41 of the NERC Act 2006 and 77 species in Wales listed under Section 7 of the Environment (Wales) Act 2016.³¹ To view the current list of UK BAP priority plants visit: <http://jncc.defra.gov.uk/page-5171> and <http://jncc.defra.gov.uk/page-5168> [Accessed 20.03.25].

⁴⁷ To view the current list of UK BAP priority plants visit: <http://jncc.defra.gov.uk/page-5171> and <http://jncc.defra.gov.uk/page-5168> [Accessed 20.03.25].

Appendix B

**SUMMARY OF ECOLOGICAL DESK
STUDY DATA**



Table 2 - Protected and notable mammals (excluding bats) for which records have been identified within 2km of the Sites

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁴⁸
Hare	<i>Lepus europaeus</i>	3	842	S7
Hazel dormouse	<i>Muscardinus avellanarius</i>	1	1745	EPS, WCA5, S7, RDB2 (UK)
Hedgehog	<i>Erinaceus europaeus</i>	15	352	S7
Otter	<i>Lutra lutra</i>	3	1032	EPS, WCA5, S7, RDB2 (UK)

Table 3 - Protected and notable bats for which records have been identified within 2km of the Sites, or bat roosts within 10km of the Sites

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁴⁹
A bat species	-	19	662	EPS, WCA5
Brown long-eared bat	<i>Plecotus auritus</i>	1	1811	EPS, WCA5, S7, RDB2(UK)
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	35	36	EPS, WCA5, S7, RDB2(UK)
Natterer's bat	<i>Myotis nattereri</i>	1	1479	EPS, WCA5, S7, RDB2(UK)
Noctule	<i>Nyctalus noctula</i>	7	124	EPS, WCA5, S7, RDB2(UK)

⁴⁸ WCA = Wildlife and Countryside Act (1981), RDB1 (UK) = UK Red Data Book listing based on IUCN guidelines, RDB2 (UK) = UK Red Data Book listing not based on IUCN guidelines (Nationally Rare and Scarce), EPS = European Protected Species, S7 = Section 7 of the Environment (Wales) Act 2016.

⁴⁹ WCA = Wildlife and Countryside Act (1981), RDB1 (UK) = UK Red Data Book listing based on IUCN guidelines, RDB2 (UK) = UK Red Data Book listing not based on IUCN guidelines (Nationally Rare and Scarce), EPS = European Protected Species, S7 = Section 7 of the Environment (Wales) Act 2016.

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁴⁹
A pipistrelle species	<i>Pipistrellus sp.</i>	11	459	EPS, WCA5
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	13	280	EPS, WCA5, S7, RDB2(UK)

Table 4 – Bat roosts which have been identified within 10 km of the Sites

Species common name	Species Latin name	Notes	Distance from Site	Legal / Conservation Status ⁵⁰
A bat species	-	Minimum of night feeding perch in building	2292	EPS, WCA5
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	17 bats emerged from roost in cottage.	4162	EPS, WCA5, S7, RDB2(UK)
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Maternity roost in building. 50 counted in 2015.	4183	EPS, WCA5, S7, RDB2(UK)
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	53 bats seen exiting roost	4185	EPS, WCA5, S7, RDB2(UK)
Pipistrelle bat species	<i>Pipistrellus</i>	Entered roost behind facias in front of house	4662	EPS, WCA5
Pipistrelle bat species	<i>Pipistrellus</i>	Adult. Roost in corner of 1 Greenfield Terrace: bats use the row of 3 houses.	4674	EPS, WCA5
Pipistrelle bat species	<i>Pipistrellus</i>	Maternity roost in building.	5771	EPS, WCA5

⁵⁰ WCA = Wildlife and Countryside Act (1981), RDB1 (UK) = UK Re1536d Data Book listing based on IUCN guidelines, RDB2 (UK) = UK Red Data Book listing not based on IUCN guideline1538s (Nationally Rare and Scarce), EPS = European Protected Species, S7 = Section 7 of the Environment (Wales) 1540Act 2016.

Species common name	Species Latin name	Notes	Distance from Site	Legal / Conservation Status ⁵⁰
Pipistrelle bat species	<i>Pipistrellus</i>	Maternity roost in building as pup could not fly.	5771	EPS, WCA5
Myotis bat species	<i>Myotis</i>	Roost 1 individual	6542	EPS, WCA5,
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Emerging from roost	7111	EPS, WCA5, S7, RDB2(UK)
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Maternity colony; individual roosts	7143	EPS, WCA5, S7, RDB2(UK)
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	Day and night roost	7143	EPS, WCA5, S7, RDB2(UK)
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	Day and night roost	7143	EPS, WCA5, S7, RDB2(UK)
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Roost. Observed emerging during survey	7707	EPS, WCA5, RDB2(UK)
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Maternity Roost	7727	EPS, WCA5, RDB2(UK)
Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>	Seen in cellars while on routine roost visit	9028	EPS, AnII, WCA5, S7, RDB2(UK)
Brown long-eared bat	<i>Plecotus auritus</i>	Maternity roost	9042	EPS, HDir, WCA5, S7, RDB2(UK)
Greater horseshoe bat	<i>Rhinolophus ferrumequinum</i>	Hibernation and small summer roost	9042	EPS, AnII, WCA5, S7, RDB2(UK)
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	Hibernation and small summer roost	9042	EPS, AnII, WCA5, S7, RDB2(UK)
Daubenton's bat	<i>Myotis daubentonii</i>	Known roost	9071	EPS, WCA5, RDB2(UK)
Pipistrelle bat species	<i>Pipistrellus</i>	Roost in building: lots of droppings outside	9094	EPS, WCA5
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Multiple roosts under coping stones around roof	9342	EPS, WCA5, RDB2(UK)

Species common name	Species Latin name	Notes	Distance from Site	Legal / Conservation Status ⁵⁰
Pipistrelle	<i>Pipistrellus pipistrellus</i>	Day roost in western gable end of church: plus active around site.	9356	EPS, WCA5
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Adult. Roost at western eaves of St Paul's Church.	9578	EPS, WCA5, RDB2(UK)
Whiskered bat	<i>Myotis mystacinus</i>	Single animal Day roost from side elevation fascia	9633	EPS, WCA5, RDB2(UK)
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Possible Nursery Roost; mixed in swarming soprano pipistrelle	9633	EPS, WCA5, RDB2(UK)
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Re-entry Nursery roost	9633	EPS, WCA5, S7, RDB2(UK)
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Confirmed nursery roost	9633	EPS, WCA5, S7, RDB2(UK)
Brown long-eared bat	<i>Plecotus auritus</i>	Single animal Day roost from side elevation fascia or possibly part of building behind	9633	EPS, HDir, WCA5, S7, RDB2(UK)
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Confirmed nursery roost	9634	EPS, WCA5, S7, RDB2(UK)
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	Non-breeding day roost	9840	EPS, WCA5, S7, RDB2(UK)

Table 5 - Protected and notable reptiles for which records have been identified within 2 km of the Sites

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁵¹
Common lizard	<i>Zootoca vivipara</i>	50	290	WCA5, S7
Grass snake	<i>Natrix helvetica</i>	3	692	WCA5, S7
Slow worm	<i>Anguis fragilis</i>	18	382	WCA5, S7

Table 6 - Protected and notable amphibians for which records have been identified within 2 km of the Sites

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁵²
Common frog	<i>Rana temporaria</i>	10	141	WCA5
Common toad	<i>Bufo bufo</i>	5	452	WCA5, S7
Palmate newt	<i>Lissotriton helveticus</i>	4	384	WCA5
Smooth newt	<i>Lissotriton vulgaris</i>	4	374	WCA5

⁵¹ WCA = Wildlife and Countryside Act (1981), S7 = Section 7 of the Environment (Wales) Act 2016.

⁵² WCA = Wildlife and Countryside Act (1981), S7 = Section 7 of the Environment (Wales) Act 2016.

Table 7 - Protected and notable invertebrates for which records have been identified within 2km of the Sites

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁵³
Black oil-beetle	<i>Meloe proscarabaeus</i>	7	267	S7
Anoscopus albifrons	<i>Anoscopus albifrons</i>	3	1303	RDB2 (UK) - NB
Anomalous	<i>Stilbia anomala</i>	7	174	S7
August thorn	<i>Ennomos quercinaria</i>	2	1000	S7
Autumnal rustic	<i>Eugnorisma glareosa</i>	8	174	S7
Banded demoiselle	<i>Calopteryx splendens</i>	1	847	LI(SEWBrEC)
Banded general	<i>Stratiomys potamida</i>	1	1587	RDB2 (UK) - N
Beautiful demoiselle	<i>Calopteryx virgo</i>	1	629	LI(SEWBrEC)
Black darter	<i>Sympetrum danae</i>	5	191	LI(SEWBrEC)
Black-tailed skimmer	<i>Orthetrum cancellatum</i>	1	763	LI(SEWBrEC)
Blood vein	<i>Timandra comae</i>	10	358	S7
Bramble bronze	<i>Argolamprotes micella</i>	8	408	RDB2 (UK) - N
Brindled beauty	<i>Lycia hirtaria</i>	12	614	S7

⁵³ RBD1 (UK) = UK Red Data Book listing based on IUCN guidelines, RDB2 (UK) = UK Red Data Book listing not based on IUCN guidelines (Nationally Rare and Scarce), LI(SEWBrEC) = Locally Important (SEWBrEC), S7 = Section 7 of the Environment (Wales) Act 2016, WCA = Wildlife and Countryside Act (1981).

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁵³
Broom moss	<i>Ceramica pisi</i>	9	308	S7
Brown banded carder bee	<i>Bombus humilis</i>	2	282	S7
Buff ermine	<i>Spilosoma lutea</i>	17	308	S7
Buff-tailed mining bee	<i>Andrena humilis</i>	2	792	RDB2 (UK) - NB
Bulrush veneer	<i>Calamotropha paludella</i>	1	408	RDB2 (UK) - NB
Centre-barred sallow	<i>Atethmia centrigo</i>	5	1000	S7
Cheilosia chrysocoma	<i>Cheilosia chrysocoma</i>	1	1652	RDB2 (UK) - S
Cinnabar moth	<i>Tyria jacobaeae</i>	15	452	S7
Conops vesicularis	<i>Conops vesicularis</i>	1	1090	RDB2 (UK) - N
Dark-barred twin-spot carpet	<i>Xanthorhoe ferrugata</i>	13	487	S7
Dark brocade	<i>Mniotype adusta</i>	1	497	S7
Dark green fritillary	<i>Speyeria aglaja</i>	11	308	LI(SEWBRc)
Deleaster dichrous	<i>Deleaster dichrous</i>	1	1000	RDB2 (UK) - NB
<i>Dictya umbrarum</i>	<i>Dictya umbrarum</i>	2	1119	RDB2 (UK) - N
Dingy skipper	<i>Erynnis tages</i>	24	12	S7, RDB1(UK) - VU, LI(SEWBRc)
Diogma glabrata	<i>Diogma glabrata</i>	1	1000	RDB2 (UK) - N
Dot moth	<i>Melanchra persicariae</i>	19	478	S7
Dusky brocade	<i>Apamea remissa</i>	11	408	S7

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁵³
Dusky thorn	<i>Ennomos fuscantaria</i>	4	1000	S7
Ear moth	<i>Amphipoea oculatea</i>	1	581	S7
Emerald demoiselle	<i>Lestes sponsa</i>	6	133	LI(SEWBRcC)
Feathered gothic	<i>Tholera decimalis</i>	1	741	S7
Flounced chestnut	<i>Anchoscelis helvola</i>	2	1648	S7
Forester	<i>Adscita statice</i>	4	308	S7
Galium carpet	<i>Epirrhoe galiata</i>	2	325	S7
Garden tiger	<i>Arctia caja</i>	9	408	S7
Ghost moth	<i>Hepialus humuli</i>	1	352	S7
Golden horsefly	<i>Atylotus fulvus</i>	1	957	RDB2 (UK) - N
Golden-ringed dragonfly	<i>Cordulegaster boltonii</i>	16	191	LI(SEWBRcC)
<i>Grammoptera abdominalis</i>	<i>Grammoptera abdominalis</i>	1	1154	RDB2 (UK) - NA
Grayling	<i>Hipparchia semele</i>	12	87	S7, RDB1(UK) - VU, LI(SEWBRcC)
Green brindled crescent	<i>Allophyas oxyacanthae</i>	2	932	S7
Hedge rustic	<i>Tholera cespitis</i>	3	431	S7
<i>Larinus carlinae</i>	<i>Larinus carlinae</i>	2	1374	RDB2 (UK) - NB
<i>Lithobius (Lithobius) pilicornis</i>	<i>Lithobius (Lithobius) pilicornis</i>	1	362	RDB2 (UK)
Keeled skipper	<i>Orthetrum coerulescens</i>	8	191	LI(SEWBRcC)

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁵³
Knot grass	<i>Acronicta rumicis</i>	15	124	S7
Large wainscot	<i>Rhizedra lutosa</i>	1	1000	S7
Latticed heath	<i>Chiasmia clathrate</i>	5	408	S7
Long-winged cone-head	<i>Conocephalus fuscus</i>	3	592	LI(SEWBRc)
<i>Lophosia fasciata</i>	<i>Lophosia fasciata</i>	1	689	RDB2 (UK) - N
Marsh fritillary	<i>Euphydryas aurinia</i>	1	738	WCA5, S7, RDB1(UK) - VU, LI(SEWBRc)
Moss carder bee	<i>Bombus muscorum</i>	1	679	S7
Mottled rustic	<i>Caradrina Morpheus</i>	4	533	S7
Neglected rustic	<i>Xestia castanea</i>	5	174	S7
Oak hook-tip	<i>Watsonalla binaria</i>	1	1708	S7
Oblique carpet	<i>Orthonama vittata</i>	3	1197	S7
<i>Oedemera virescens</i>	<i>Oedemera virescens</i>	1	1252	RDB2 (UK) - R
Orange-footed furrow bee	<i>Lasioglossum xanthopus</i>	1	1086	RDB2 (UK) - NB
Pearl-bordered fritillary	<i>Boloria euphrosyne</i>	1	16	WCA5, S7, RDB1(UK) - EN, LI(SEWBRc)
Pied grey	<i>Eudonia delunella</i>	2	1000	RDB2 (UK) - NB
<i>Polydrusus formosus</i>	<i>Polydrusus Formosus</i>	2	1119	RDB2 (UK) - NA
Powdered quaker	<i>Orthosia gracilis</i>	5	706	S7
<i>Psammotettix albomarginatus</i>	<i>Psammotettix albomarginatus</i>	1	1119	RDB2 (UK) - NB

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁵³
Pygmy soldier	<i>Oxycera pygmaea</i>	7	849	RDB2 (UK) - N
River skater	<i>Aquarius najas</i>	1	1235	RDB2 (UK) - S
Rosy knot-horn	<i>Oncocera semirubella</i>	1	645	RDB2 (UK) - NB
Rosy minor	<i>Litologia literosa</i>	4	359	S7
Rosy rustic	<i>Hydraecia micacea</i>	5	741	S7
Rustic	<i>Hoplodrina blanda</i>	7	478	S7
Sallow	<i>Cirrhia icteritia</i>	8	174	S7
Scarce blue-tailed damselfly	<i>Ischnura pumilio</i>	3	233	RDB1(UK) - NT, LI(SEWBRcC)
Scarce grass-moth	<i>Crambus pratella</i>	3	492	RDB2 (UK) - NB
Short-winged cone-head	<i>Conocephalus dorsalis</i>	4	645	LI(SEWBRcC)
Shoulder-striped wainscot	<i>Leucania comma</i>	17	174	S7
Slender ground-hopper	<i>Tetrix subulate</i>	2	1119	LI(SEWBRcC)
Small blue	<i>Cupido minimus</i>	1	833	WCA5, S7, RDB1(UK) - NT, LI(SEWBRcC)
Small emerald	<i>Hemistola chrysoprasaria</i>	1	1714	S7
Small heath	<i>Coenonympha pamphilus</i>	44	339	S7, RDB1(UK) - NT
Small pearl-bordered fritillary	<i>Boloria selene</i>	6	237	S7, RDB1(UK) - NT, LI(SEWBRcC)
Small phoenix	<i>Ecliptopera silaceata</i>	19	408	S7
Small scabious mining bee	<i>Andrena marginata</i>	2	798	RDB2 (UK) - NA
Small square-spot	<i>Diarsia rubi</i>	5	478	S7

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁵³
Speckled bush-cricket	<i>Leptophyes punctatissima</i>	1	851	LI(SEWBRcC)
Spindle knot-horn	<i>Nephopterix angustella</i>	1	1000	RDB2 (UK) - NB
<i>Temnocerus coeruleus</i>	<i>Temnocerus coeruleus</i>	2	1401	RDB2 (UK) - NB
<i>Tetanocera punctifrons</i>	<i>Tetanocera punctifrons</i>	3	940	RDB2 (UK) - N
Tormentil mining bee	<i>Andrena tarsata</i>	4	963	S7
Violet oil-beetle	<i>Meloe violaceus</i>	2	188	S7, RDB2(UK)
Wall	<i>Lasiommata megera</i>	1	1126	S7, RDB1(UK) - NT
White ermine	<i>Spilosoma lubricipeda</i>	15	575	S7
<i>Xylota xanthocnema</i>	<i>Xylota xanthocnema</i>	1	1785	RDB2 (UK) - N
<i>Zodion cinereum</i>	<i>Zodion cinereum</i>	1	1401	RDB2 (UK) - N
<i>Zophomyia temula</i>	<i>Zophomyia temula</i>	1	836	RDB2 (UK) - N

Table 8 - Protected and notable fish for which records have been identified within 2km of the Sites

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁵⁴
Atlantic salmon	<i>Salmo salar</i>	1	619	S7
Brown trout	<i>Salmo trutta</i>	3	619	S7

⁵⁴ S7 = Section 7 of the Environment (Wales) Act 2016.

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁵⁴
Eel	<i>Anguilla anguilla</i>	2	619	S7

Table 9 - Protected and notable plants for which records have been identified within 2km of the Sites

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁵⁵
Royal fern	<i>Osmunda regalis</i>	2	194	LI(SEWBRc)
Bee orchid	<i>Ophrys apifera</i>	5	672	CITES, LBAP(CLY, GWY, TRA, TRF), LI(SEWBRc), LI(Vc47), LI(Vc48, LR), LI(Vc49, LS), WS_C
Bird cherry	<i>Prunus padus</i>	4	458	LBAP(GWY), LI(SEWBRc), LI(Vc47), LI(Vc49, LS), WS_C
Bluebell	<i>Hyacinthoides non-scripta</i>	12	512	WCA8, LBAP(ANG, CLY, CON, SNP, TRA, TRF)
Bristle bent	<i>Agrostis curtisii</i>	9	16	LI(SEWBRc), WS_P
Brown sedge	<i>Carex disticha</i>	1	755	LBAP(BRG, CON, GWY), LI(SEWBRc), LI(Vc43), LI(Vc48, LR), LI(Vc49, LR), LI(Vc50, LR), LI(Vc51, LS), WS_C
Chamomile	<i>Chamaemelum nobile</i>	2	458	S7, RDB1(Wales) - EN, LBAP(CON, GWY, PEM, VOG), LI(Vc49, LR), LI(Vc52, LR)

⁵⁵ RDB2 (UK) = UK Red Data Book listing not based on IUCN guidelines (Nationally Rare and Scarce), LI(SEWBRc) = Locally Important (SEWBRc).

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁵⁵
Corn mint	<i>Mentha arvensis</i>	1	525	RDB1(Wales) - VU, LI(VC50, LR)
Dwarf thistle	<i>Cirsium acaule</i>	1	517	LBAP(DEN), LI(SEWBRcC), LI(VC47), LI(VC50, LR), LI(VC51, LR), WS_C
Fragrant agrimony	<i>Agrimonia procera</i>	2	308	LBAP(BRG, GWY), LI(SEWBRcC), LI(VC43), LI(VC47), LI(VC48, LS), LI(VC49, LR), LI(VC50, LR), LI(VC51, LS), WS_C
Grass vetchling	<i>Lathyrus nissolia</i>	4	478	LI(SEWBRcC), LI(VC43), LI(VC49, LR), LI(VC50, LS), WS_C
Greater knapweed	<i>Centaurea scabiosa</i>	1	505	LI(SEWBRcC), LI(VC47), LI(VC48, LR), LI(VC49, LR), LI(VC50, LS), WS_C
Hawkweed oxtongue	<i>Picris hieracioides</i>	1	1330	LI(SEWBRcC), LI(VC43), LI(VC49, LR), LI(VC50, LR), LI(VC51, LR), WS_C
Knotted pearlwort	<i>Sagina nodosa</i>	1	1303	LI(SEWBRcC), LI(VC43), LI(VC47), LI(VC50, LS), LI(VC51, LS), WS_C
Mare's tail	<i>Hippuris vulgaris</i>	2	1566	RDB1(Wales) - NT, LBAP(BGW, BRG), LI(SEWBRcC), LI(VC48, LS), LI(VC49, LR), LI(VC50, LR), LI(VC52, LS), WS_C
Meadow thistle	<i>Cirsium dissectum</i>	1	1861	LBAP(BRG, GWY, VOG), LI(VC43), LI(VC47), LI(VC48, LR), LI(VC49, LR)
Pennyroyal	<i>Mentha pulegium</i>	1	598	WCA8, S7, RDB1(Wales) - CR, RDB2(UK) - S, LBAP(ANG, CON, CRM, POW, TRF), LI(VC50, LR), LI(VC52, LR)

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁵⁵
Scots pine	<i>Pinus sylvestris</i>	1	309	RDB2 (UK)
Spiked sedge	<i>Carex spicata</i>	1	970	LBAP(BRG, GWY), LI(VC43), LI(VC48, LR), LI(VC49, LS)
Stinking chamomile	<i>Anthemis cotula</i>	1	640	RDB1(UK) - VU, LBAP(VOG), LI(SEWBRc), LI(VC47), LI(VC49, LR), LI(VC51, LR), WS_C
Viper's bugloss	<i>Echium vulgare</i>	1	836	LBAP(BGW, GWY), LI(SEWBRc), LI(VC47), LI(VC48, LS), LI(VC49, LS), LI(VC50, LS), LI(VC51, LS), LI(VC52, LS), WS_C
Welsh poppy	<i>Meconopsis cambrica</i>	6	798	RDB2 (UK) - S, LBAP(CON, DEN, NPT), LI(VC43), LI(VC48, LS), LI(VC49, LS), WS_P
Whorled caraway	<i>Carum verticillatum</i>	1	587	LBAP(BGW, BRG, GWY), LI(VC43), LI(VC47), LI(VC48, LS), LI(VC49, LR)
Wood small-reed	<i>Calamagrostis epigejos</i>	1	970	LBAP(BRG, GWY), LI(VC48, LR), LI(VC49, LR), LI(VC50, LR), LI(VC51, LR)

Table 10 - Protected and notable lichens for which records have been identified within 2km of the Sites

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁵⁶
Greater whipwort	<i>Bazzania trilobata</i>	1	588	RDB1(Wales) – LC, LI(VC41, LR)

Table 11 - Protected and notable mosses for which records have been identified within 2km of the Sites

Species common name	Species Latin name	No. of records	Distance between closest record and Sites (m)	Legal / Conservation Status ⁵⁷
Heath star moss	<i>Campylopus introflexus</i>	17	308	RDB1(Wales) - NA, INNS

⁵⁶ RDB1 (UK) = UK Red Data Book listing based on IUCN guidelines, LI(VC41) = Locally Important (Vice County 41).

⁵⁷ RDB1 (UK) = UK Red Data Book listing based on IUCN guidelines, INNS = Invasive Non-Native Species.

Appendix C



wsp

PLANT SPECIES RECORDED

Table 12 - Plant species recorded

Common name	Botanical name	DAFOR
A1.1.1 Broadleaved woodland		
Alder	<i>Alnus glutinosa</i>	LF
Bilberry	<i>Vaccinium myrtillus</i>	O
Bracken	<i>Pteridium aquilinum</i>	O
Bramble	<i>Rubus fruticosus</i> agg.	R
Creeping bent	<i>Agrostis stolonifera</i>	F
Hard fern	<i>Blechnum spicant</i>	R
Heather	<i>Calluna vulgaris</i>	O
Sessile oak	<i>Quercus petraea</i>	A
Sheep's fescue	<i>Festuca ovina</i> agg.	F
Silver birch	<i>Betula pendula</i>	A
Soft rush	<i>Juncus effusus</i>	O
A1.1.2 Coniferous woodland		
Bilberry	<i>Vaccinium myrtillus</i>	O
Bracken	<i>Pteridium aquilinum</i>	A
Hard fern	<i>Blechnum spicant</i>	O
Larch	<i>Larix decidua</i>	D
Rhododendron	<i>Rhododendron ponticum</i>	E
Sessile oak	<i>Quercus petraea</i>	R
A1.1.3 Mixed woodland		
Bracken	<i>Pteridium aquilinum</i>	A
Hawthorn	<i>Crataegus monogyna</i>	R
Sessile oak	<i>Quercus petraea</i>	F
Sitka spruce	<i>Picea sitchensis</i>	D
Soft rush	<i>Juncus effusus</i>	A
Willow	<i>Salix</i> sp.	R

Common name	Botanical name	DAFOR
Bracken	<i>Pteridium aquilinum</i>	A
Hawthorn	<i>Crataegus monogyna</i>	R
A2.1 Scrub – dense/continuous		
Ash	<i>Fraxinus excelsior</i>	O
Bracken	<i>Pteridium aquilinum</i>	O
Bramble	<i>Rubus fruticosus</i> agg.	D
Gorse	<i>Ulex europaeus</i>	LD
Grey willow	<i>Salix cinerea</i>	LD
Soft rush	<i>Juncus effusus</i>	F
A2.1 Scrub – scattered		
Gorse	<i>Ulex europaeus</i>	R
Western gorse	<i>Ulex gallii</i>	R
A3.1 Broadleaved parkland/scattered trees		
Alder	<i>Alnus glutinosa</i>	R
Ash	<i>Fraxinus excelsior</i>	R
Downy birch	<i>Betula pubescens</i>	R
Sessile oak	<i>Quercus petraea</i>	D
A3.3 Mixed parkland/scattered trees		
Goat willow	<i>Salix caprea</i>	O
Hawthorn	<i>Crataegus monogyna</i>	O
Sessile oak	<i>Quercus petraea</i>	R
Sitka spruce	<i>Picea sitchensis</i>	O
B1.2 Acid grassland		
Bilberry	<i>Vaccinium myrtillus</i>	O
Common sorrel	<i>Rumex acetosa</i>	R
Creeping bent	<i>Agrostis stolonifera</i>	A
Field wood-rush	<i>Luzula palustris</i>	R
Foxglove	<i>Digitalis purpurea</i>	R

Common name	Botanical name	DAFOR
Heath bedstraw	<i>Galium saxatile</i>	R
Heather	<i>Calluna vulgaris</i>	O
Mat-grass	<i>Nardus stricta</i>	O
Perennial rye-grass	<i>Lolium perenne</i>	O
Purple moor-grass	<i>Molinia caerulea</i>	R
Sheep's fescue	<i>Festuca ovina agg.</i>	D
Soft rush	<i>Juncus effusus</i>	O
Springy turf-moss	<i>Rhytidiadelphus squarrosus</i>	F
Western gorse	<i>Ulex gallii</i>	R
B2.2 Neutral grassland		
Field wood-rush	<i>Luzula palustris</i>	R
Heath bedstraw	<i>Galium saxatile</i>	R
Perennial rye-grass	<i>Lolium perenne</i>	O
Round-leaved crowfoot	<i>Ranunculus omiophyllus</i>	R
Sheep's fescue	<i>Festuca ovina agg.</i>	R
Soft rush	<i>Juncus effusus</i>	D
B4 Improved grassland		
Cock's-foot	<i>Dactylis glomerata</i>	R
Common bent	<i>Agrostis capillaris</i>	O
Common chickweed	<i>Stellaria media</i>	R
Compact rush	<i>Juncus conglomeratus</i>	R
Creeping bent	<i>Agrostis stolonifera</i>	O
Creeping buttercup	<i>Ranunculus repens</i>	R
Creeping thistle	<i>Cirsium arvense</i>	R
Crested dog's-tail	<i>Cynosurus cristatus</i>	F
Heath bedstraw	<i>Galium saxatile</i>	R
Perennial rye-grass	<i>Lolium perenne</i>	D
Sheep's fescue	<i>Festuca ovina agg.</i>	O

Common name	Botanical name	DAFOR
Soft rush	<i>Juncus effusus</i>	LO
Springy turf-moss	<i>Rhytidiadelphus squarrosus</i>	R
Thyme-leaved speedwell	<i>Veronica serpyllifolia</i>	R
White clover	<i>Trifolium repens</i>	O
B5 Marsh/marshy grassland		
Bell heather	<i>Erica cinerea</i>	R
Bog-mosses	<i>Sphagnum spp.</i>	LF
Bracken	<i>Pteridium aquilinum</i>	O
Bramble	<i>Rubus fruticosus agg.</i>	R
Common sedge	<i>Carex nigra</i>	R
Hard fern	<i>Blechnum spicant</i>	R
Hemlock water dropwort	<i>Oenanthe crocata</i>	R
Purple moor-grass	<i>Molinia caerulea</i>	D
Rhododendron	<i>Rhododendron ponticum</i>	R
Sessile oak	<i>Quercus petraea</i>	R
Sheep's fescue	<i>Festuca ovina agg.</i>	O
Silver birch	<i>Betula pendula</i>	R
Soft rush	<i>Juncus effusus</i>	O
Tufted hair-grass	<i>Deschampsia caespitosa</i>	O
Wood sage	<i>Teucrium scorodonia</i>	R
C1.1 Bracken – continuous		
Ash	<i>Fraxinus excelsior</i>	R
Bracken	<i>Pteridium aquilinum</i>	D
Elder	<i>Sambucus nigra</i>	R
Foxglove	<i>Digitalis purpurea</i>	R
Gorse	<i>Ulex europaeus</i>	R
Holly	<i>Ilex aquifolium</i>	R
Purple moor-grass	<i>Molinia caerulea</i>	R

Common name	Botanical name	DAFOR
Sessile oak	<i>Quercus petraea</i>	R
Silver birch	<i>Betula pendula</i>	R
Sitka spruce	<i>Picea sitchensis</i>	R
Soft rush	<i>Juncus effusus</i>	R
C1.2 Bracken – scattered		
Bilberry	<i>Vaccinium myrtillus</i>	R
Bracken	<i>Pteridium aquilinum</i>	R
Sheep's sorrel	<i>Rumex acetosella</i>	R
D1.1 Dry dwarf shrub heath		
Bilberry	<i>Vaccinium myrtillus</i>	A
Heath bedstraw	<i>Galium saxatile</i>	O
Heather	<i>Calluna vulgaris</i>	A
Sheep's fescue	<i>Festuca ovina</i> agg.	F
Western gorse	<i>Ulex gallii</i>	A
D2 Wet dwarf shrub heath		
Bilberry	<i>Vaccinium myrtillus</i>	A
Heather	<i>Calluna vulgaris</i>	A
Purple moor-grass	<i>Molinia caerulea</i>	A
G2 Running water		
Bog-mosses	<i>Sphagnum</i> spp.	R
Bracken	<i>Pteridium aquilinum</i>	R
Bramble	<i>Rubus fruticosus</i> agg.	R
Marsh thistle	<i>Cirsium palustre</i>	R
Purple moor-grass	<i>Molinia caerulea</i>	LF
Sharp-flowered rush	<i>Juncus acutiflorus</i>	R
Soft rush	<i>Juncus effusus</i>	LF
J2.5 – Wall		
Hard fern	<i>Blechnum spicant</i>	R

Common name	Botanical name	DAFOR
J2.6 Dry ditch		
Soft rush	<i>Juncus effusus</i>	LD
Perennial rye-grass	<i>Lolium perenne</i>	R
Foxglove	<i>Digitalis purpurea</i>	R
Purple moor-grass	<i>Molinia caerulea</i>	LD

Appendix D

TARGET NOTES **wsp**

Table 13 – Target notes

Target Note	Description
Moel Cynhordy/Mynydd Moelgella	
TN1	Stand of Indian balsam <i>Impatiens glandulifera</i>
TN2	Area of increased soft rush <i>Juncus effusus</i> , indicative of wetter conditions
TN3	Raptor pellets within grassland
TN4	A 1 m high rock face which does not extend inwards, which is surrounded by an area of increased soft rush
TN5	Area of increased soft rush and bog-mosses <i>Sphagnum spp.</i> , indicative of wetter conditions. Extends northwards
TN6	Area of increased soft rush, indicative of wetter conditions
TN7	Earth bank 1 m high and 1.5 m wide, extending along field boundary
TN8	Small pool of standing water, which was too small to map. It was not possible to determine its depth. Heavily shaded by goat willow <i>Salix caprea</i>
Mynydd Pwll-yr-lwrch	
TN9	Mossy mounds over acid grassland habitat. Increase of acid species including bilberry <i>Vaccinium myrtillus</i> , heath bedstraw <i>Galium saxatile</i> and heather <i>Calluna vulgaris</i>
TN10	Area of dense soft rush along fence line, indicative of wetter conditions
TN11	Exposed rocks. Up to 30 cm diameter. Several areas of rock piles, no more than three rocks deep. Up to 20m long, 2m wide. Provides suitable refugia for amphibians and reptiles
TN12	Large pile of rocks. From 10cm to 1m diameter. Not vegetated. Likely from collapsing cliff, which is 4m high. Provides suitable refugia for amphibians and reptiles
TN13	Pool of standing water 4m x 2m, too small to be mapped. Unable to tell depth. Willow <i>Salix sp.</i> scrub growing in it. Shallow sided
TN14	Frogspawn in standing water
TN15	Pile of boulders and stones, likely collapsed from rocky outcrop to east. Provides suitable refugia for amphibians and reptiles
TN16	Rocky outcrop. Collapsed rubble at base. Facing west. Low potential to support bats. Although crevices between rocks likely extend back, the face is very exposed and lack of flight lines around outcrop. Collapsed rubble provides suitable refugia for amphibians and reptiles
TN17	Stone pile, no more than 3 stones deep. 10m wide and 3m across. Provides suitable refugia for amphibians and reptiles
TN18	Stone pile, 6m x 3m. Provides suitable refugia for amphibians and reptiles
TN19	Remains of stone building with remnants of walls which are 1m high and rubble piles around collapsed walls. Provides suitable refugia for amphibians and reptiles
TN20	Large spoil pile vegetated with mosses and gorse <i>Ulex europaeus</i> .

Target Note	Description
TN21	Bare ground, likely as a result of burning, potentially to clear bracken <i>Aquilinum pteridium</i>
TN22	Open fronted stone building with missing roof, stone construction. Negligible potential to support roosting bats as very exposed, with no flight lines. Cracks between stones do not extend inwards
TN23	15m tall inland vertical cliff. Blocks of rocks, with no large crevices seem from ground suitable for large numbers of bats
TN24	Scree pile. Provides suitable refugia for amphibians and reptiles
TN25	Scree pile. Provides suitable refugia for amphibians and reptiles
TN26	Deep depressions in ground
TN27	Remains of dry stone wall. Provides suitable refugia for amphibians and reptiles
TN28	Network of steep ditches to east and west
TN29	Pond outside of the boundary. Likely ephemeral, with shallow banks, and a gradual slope to dry land. Densely choked with aquatic plants. 5×15m
TN30	Hole at the top of the ditch connecting to underground spring with running water inside
TN31	Small pile of scree at base of exposed rocks. Provides suitable refugia for amphibians and reptiles

Appendix E

PHOTOGRAPHS **wsp**



I1 - A1.1.1. A representative example of broadleaved woodland.



I2 - A1.1.2. A representative example of coniferous woodland.



I3 – A2.1. A representative example of dense/continuous scrub.



I4 – A3.1. A representative example of broadleaved parkland/scattered trees.



I5 – B1.2. A representative example of acid grassland.



I6 – B2.2. A representative example of neutral grassland.



I7 – B4. A representative example of improved grassland.



I8 – B5. A representative example of marsh/marshy grassland.



I9 – C1.2. A representative example of continuous bracken.



I10 – D1.1. A representative example of dry dwarf shrub heath.



I11 – D2. A representative example of wet dwarf shrub heath.



I12 – G2. The Garw Fechan.



I13 – G2. An example of running water.



I14 – I1.1.1 and I1.2.1. A representative example of inland cliff and scree.



I15 – I2.2. A representative example of spoil.



I16 – J2.5. A representative example of a wall.



I17 – J2.6. An example of a dry ditch.



I18 – P1.



I19 – P3.



I20 – P6.



I21 – TN13, P7. A pool of standing water.



I22 – TN5. An area of increased soft rush *Juncus effusus* and bog-mosses *Sphagnum spp.*



I23 – TN11. Large pile of rocks providing suitable refugia for reptiles and amphibians.



I24 – TN16. Rocky outcrop identified as having low suitability to support roosting bats.



I25 – TN19. Remains of stone building with rubble piles around base of walls.



I26 – TN29. Pond outside of the Site boundary (P4).

Appendix F

HSI ASSESSMENT RESULTS



Habitat Suitability Index (HSI)	Moel Cynhordy/Mynydd Moelgella Site			Mynydd Pwll-yr-lwrch Site				
	P8	P9	P10	P1	P3	P4	P6	P7
Notes	Standing water up to 10 cm deep, fed by a culvert passing beneath the bare ground track to the west. Outflow to east leading to dry ditch. Vegetated with bulrush and soft rush, and poached by grazing sheep.	Pond with steep banks on its north, east and south banks, but gradated over the path on the western bank. Indeterminable depth. No shade of macrophyte cover. Vegetated banks.	Of indeterminate depth, vegetated with soft rush and purple moor-grass. It was heavily shaded by immature goat willow scrub.	Heavily vegetated with dense willow scrub and bulrush, making it difficult to determine its depth. Poached by horses, with shallow gradual banks.	Almost completely dry. Heavily shaded, and densely vegetated with soft rush, purple moor-grass and willow scrub.	Pond to the south of the Site. Likely ephemeral. Very gradual banks. Densely vegetated with aquatic plants. 5x15m.	Willow scrub growing within standing water, making it difficult to determine the depth. Banks vegetated with soft rush, and approximately 25% shaded. Macroalgae coverage approximately 10%.	Measured approximately 4m x 2m, and had shallow banks shaded by willow scrub.
Location	Zone B	Zone B	Zone B	Zone B	Zone B	Zone B	Zone B	Zone B
Pond area (m²)	<50m ²	375m ²	<50m ²	50-100m ²	900m ²	50-100m ²	100m ²	<50m ²
Pond drying	Sometimes dries	Never dries	Sometimes dries	Rarely dries	Dries annually	Dries annually	Rarely dries	Sometimes dries
Water quality	Moderate	Good	Good	Moderate	Good	Good	Good	Moderate
Shade	66-70%	0-60%	91-95%	91-95%	91-95%	0-60%	0-60%	86-90%
Fowl	Absent	Minor	Absent	Absent	Absent	Absent	Absent	Absent



Habitat Suitability Index (HSI)	Moel Cynhordy/Mynydd Moelgella Site			Mynydd Pwll-yr-lwrch Site				
	P8	P9	P10	P1	P3	P4	P6	P7
Fish	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Ponds within a 1 km radius	1	2	0	3	8	8	8	3
Terrestrial habitat	Moderate	Poor	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Macrophytes	1-5%	<1%	<1%	<1%	<1%	96-100%	6-10%	<1%
HSI score	0.484	0.650	0.387	0.515	0.552	0.547	0.688	0.4614
Habitat suitability	Poor	Average	Poor	Below average	Below average	Below average	Average	Poor

wsp



wsp.com