Appendix 8A
WSP (2025) Foel Trawsnant Grid Connection. Preliminary Ecological Appraisal

Pennant Walters

FOEL TRAWSNANT GRID CONNECTION

PRELIMINARY ECOLOGICAL APPRAISAL

PEA
FEBRUARY 2025

PUBLIC

Pennant Walters

FOEL TRAWSNANT GRID CONNECTION

PRELIMINARY ECOLOGICAL APPRAISAL

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FOEL TRAWSNANT GRID CONNECTION

PRELIMINARY ECOLOGICAL APPRAISAL

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EXECUTIVE SUMMARY

WSP UK Limited ('WSP') was commissioned by Pennant Walters to undertake a Preliminary Ecological Appraisal (PEA) to support the construction of an Overhead Line (OHL) proposed to connect the Foel Trawsnant Wind Farm and the wider national grid (the 'Proposed Development'). The area to be covered by the OHL is hereafter referred to as the 'Site'.

This PEA, undertaken in September and October 2024, is based on an ecological desk study, a habitat survey, a Daytime Bat Walkover (DBW) and a protected/notable species assessment. It has been compiled with reference to relevant nature conservation legislation, planning policy and the UK Biodiversity Framework.

A desk study was undertaken in October 2024. The desk study identified three Special Areas of Conservation (SACs) within 10 km of the Site. Twenty-two non-statutory nature conservation sites were identified within 2 km of the Site. Blocks of Ancient Woodland Inventory woodland were also identified within and near to the Site. The South East Wales Biological Records Centre (SEWBReC) returned records of multiple protected and/or notable species within 2 km of the Site in the last 10 years.

The habitat survey, undertaken from 10th to 12th September 2024, identified 17 Phase 1 habitat types in addition to hardstanding within the Site. Eight Priority Habitats were identified: 'hedgerow', 'upland oakwoods', 'lowland mixed deciduous woodland', 'wet woodland', 'lowland dry acid grassland', 'lowland fen', 'purple moor-grass and rush pasture', and 'rivers'. The Site was assessed as suitable to support bats, badger *Meles meles*, otter *Lutra lutra*, water vole *Arvicola amphibius*, other mammals, birds, amphibians, reptiles, invertebrates, invasive non-native plant species (INNS), and notable plants. Although the habitats within the Site are considered suitable to support great crested newt *Triturus cristatus* and dormice *Muscardinus avellanarius*, these species are considered likely absent from the Site given the results of targeted species-specific surveys conducted by CSA Environmental in 2024. Targeted water vole surveys conducted by CSA Environmental in 2024 confirmed the presence of water vole directly adjacent to the Site.

The following recommendations have been outlined in this report:

- Works to be carried out as per environmental best practice to avoid direct and indirect impacts to Wildlife Sites/Sites of Importance for Nature Conservation (SINCs), Ancient Woodland Inventory woodlands, and Priority Habitats. If this is not possible, consultation with local councils will be required to agree appropriate compensation.
- Further surveys to assess the presence/likely absence of the following species within the Site: bats, badger, otter, and birds.
- Ecological supervision and implementation of a Precautionary Method of Works (PMoW) to protect the following species within the Site: badger, dormice, common amphibians, reptiles, other mammals, and birds.
- A pre-works check of the Site up to four weeks before the commencement of the Proposed Development to determine any spread of INNS.
- Environmental best practices to be implemented, to include measures such as prevention of emissions, covering of excavations, and protection of retained trees, vegetation and aquatic habitats.

- Avoidance of habitats suitable to support water vole in the northern section of the Site. If this is not possible, a licence should be sought from Natural Resources Wales (NRW) to facilitate the Proposed Development.
- Enhancement of the biodiversity of the Site to be implemented, to include the planting of trees and shrubs in existing gaps in treelines and hedgerows in order to enhance connectivity.

1. INTRODUCTION

1.1. PROJECT BACKGROUND

1.1.1. WSP UK Ltd (WSP)[1] was commissioned by Pennant Walters to support a Development of National Significance (DNS) application for the proposed Foel Trawsnant Wind Farm electricity network infrastructure connection. The proposals are located within Bridgend County Borough Council (CBC) and Neath Port Talbot CBC in South Wales.

1.1.2. The proposals comprise 66 kilovolt (kV) overhead lines (OHL) and underground cables (UGC), which will provide a connection between the Foel Trawsnant Wind Farm and the wider national grid. The existing OHL (approximately 2 km south-west of the settlement of Llangynwyd (British National Grid: SS841874)) will serve as the connection point for the proposals. The connection will consist of approximately 5.1km of UGC and approximately 4.6km of OHL. Whilst the requirement for a DNS application is triggered by the OHL section, the whole of the connection will require DNS consent.

1.1.3. In order to support the application, WSP has carried out a Preliminary Ecological Appraisal (PEA) of the OHL sections of the proposals, hereafter referred to as the 'Site', and shown in Figure 1. The Site is divided into a northern section and a southern section.

1.1.4. It has not been necessary to consider the UGC associated with the Foel Trawsnant Wind Farm as part of the PEA, as the UGC will be located beneath roads, and therefore there is no requirement to consider ecological receptors. Hereafter within this report, the term 'Proposed Development' is used to refer to the OHL sections of the proposal only.

1.1.5. A series of ecological surveys within or within the proximity of the Site have been conducted (CSA Environmental, 2024a, 2024b, 2024c, 2024d). These comprise a PEA survey, great crested newt *Triturus cristatus* environmental DNA (eDNA) surveys, dormice *Muscardinus avellanarius* surveys, and water vole *Arvicola amphibius* surveys. The results of these surveys are discussed in this report.

1.1.6. This PEA serves to provide information regarding the ecological baseline of the Site and relevant recommendations, including further ecological surveys required and mitigation measures to support the Proposed Development.

1.1. SCOPE OF REPORT

1.1.1. Pennant Walters commissioned WSP to complete a PEA of the Site in June 2024. The brief was:

[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.

- To provide baseline ecological information about the Site and 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
- If necessary, to identify the need for avoidance, mitigation, compensation or enhancement measures and/or further ecological surveys.

1.2. RELEVANT LEGISLATION AND POLICY

1.2.1. 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;
- Replacement Neath Port Talbot CBC Local Development Plan 2023-2038; and
- Replacement Bridgend Local Development Plan 2018 to 2033.

[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 Phase 1 habitat survey; and
- A protected/notable species assessment.

2.2. DESK STUDY

2.2.1. The desk study was undertaken in October 2024 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 Site, which incorporates the Site. 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 Biological Records Centre (SEWBReC):

- Records of legally protected and/or notable species within 2 km of the Site; and
- Records of non-statutory designated sites within 2 km of the Site.

2.2.2. Records of other protected habitats (comprising Priority Habitats listed on Section 7 of the Environment (Wales) Act 2016 and Ancient Woodland Inventory (AWI) woodlands) within 1 km of the Site was collected from DataMapWales (Welsh Government, n.d.).

2.2.3. Freely downloadable datasets (available from Natural Resources Wales (NRW)) were consulted for information regarding the presence of international statutory designated sites[3] within 10 km of the Site and national statutory designated sites[4] within 2 km of the Site.

2.2.4. Open source 1:25,000 Ordnance Survey (OS) mapping was used to identify waterbodies within 500 m of the Site.

2.2.5. The findings of this desk study have been incorporated within Section 3 and Appendix B of this report and are shown on Figure 2 and Figure 3.

2.2.6. The ecological desk study was carried out by a member of the CIEEM, who has completed numerous ecological desk studies within the last year.

[3] Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites.

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

2.3. PHASE 1 HABITAT SURVEY

2.3.1. A Phase 1 habitat survey was carried out over three days on the 10th, 11th and 12th September 2024. The survey covered the entire Site including boundary features. In addition, a buffer area of 50 m around the Site was also surveyed, where it was safe and accessible. As the area surveyed extended beyond the Site it is hereafter known as the 'Survey Area'. The habitat survey was carried out by members of the CIEEM, with experience completing PEAs of sites comprising similar habitats to those found within the Site.

2.3.2. 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 Priority Habitats under the provision of the Environment (Wales) Act 2016.

2.3.3. A list of plant species was compiled (Appendix C), with relative plant species abundance estimated using the DAFOR scale[5]. 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 (TNs) 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 locations shown on Figure 4. Photographs (Ps) are shown 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 included as TNs. Detailed mapping of such species, or a full survey of the Survey Area for all INNS, is beyond the scope of this commission.

2.3.7. Data collected as part of this Phase 1 habitat survey is suitable for use in retrospective biodiversity unit calculations, if required.

2.4. PROTECTED SPECIES ASSESSMENT

2.4.1. The potential for the Survey Area 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: great crested newt (Gent and Gibson, 2003 and English Nature, 2001); reptiles (Froglife, 1999 and Gent and Gibson, 2003); bats (Collins, 2023 and Mitchell-Jones, 2004); badger *Meles meles* (Harris et al, 1991 and Roper, 2010); dormouse

[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.

(English Nature, 2006); otter *Lutra lutra* (Chanin, 2003); water vole (Dean et al, 2016); and invertebrates (Drake et al, 2007 and Kirby, 2001).

2.5. DAYTIME BAT WALKOVER

2.5.1. A Daytime Bat Walkover (DBW) of trees and habitats was undertaken within the Survey Area in accordance with good practice guidelines (Collins, 2023).

2.5.2. The DBW was intended to assess the suitability of the habitats present within the Survey Area to support roosting, commuting and foraging bats. This would allow for the appropriate recommendations of further surveys.

2.5.3. Trees and habitats were considered as requiring further surveys if they were assessed as:

- Having suitability to support roosting bats;
- Within the development footprint or within a distance where they may be likely to suffer disturbance from lighting, vibration or noise (specific to the Site and individual feature); and
- Likely to support a roost of high conservation status that may be impacted by the severing of commuting routes from the roost, and lighting, noise, and vibration impacts.

2.6. NOTES AND LIMITATIONS

2.6.1. Every effort has been made to provide a comprehensive description of the Survey Area; 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; therefore, the absence of records does not demonstrate the absence of species, it may simply indicate a gap in recording coverage.
- The Phase 1 habitat survey was carried out over the period of three days, as such only a selection of all species that occur within the Survey Area will have been recorded. However, through use of desk study information to supplement survey data, it is considered that an accurate assessment of the potential for the Survey Area to support protected species or those of conservation concern was possible.
- The extended habitat map (Figure 4) 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.

3. RESULTS

3.1. DESIGNATED SITES

STATUTORY SITES

3.1.1. A total of three international statutory designated sites were identified within 10 km of the Site. A description of these sites is detailed in Table 3-1 below and their locations are shown in Figure 2. The desk study did not return any national statutory designated sites within 2 km of the Site.

Table 3-1 - International statutory designated sites within 10 km of the Site

Site name	Designation	Size (ha)	Approximate distance and orientation from the Site	Description
Glaswelltiroedd Cefn Cribwr/Cefn Cribwr Grasslands	Special Area of Conservation (SAC)	58.19	4.3 km south	This is one of four sites representing purple moor-grass *Molinia caerulea* meadows in south and central Wales, one of the major UK strongholds for this habitat type. At this site, there are extensive stands of M24 *Molinia – Cirsium dissectum* fen-meadow, including the heathy sub-type with cross-leaved heath *Erica tetralix*, as well as other forms with a stronger representation of grasses, rushes and small sedges. Transitions to stands of more acidic *Molinia* and *Juncus* pasture, dry neutral grassland and wet scrub vegetation are well-represented. Uncommon and declining species associated with the *Molinia* meadows at this site include the nationally rare viper's-grass *Scorzonera humilis* and the nationally scarce soft-leaved sedge *Carex montana*. The site is designated for the following Annex I habitat that is a primary reason for selection of this site: ▪ *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae)*. The following Annex II species are also present as a qualifying feature, but not a primary reason for site selection: ▪ Marsh fritillary butterfly *Euphydryas aurinia*.
Kenfig/Cynffig	SAC	1190.8	6.1 km south-west	This SAC is located on the south-eastern edge of Swansea Bay between Port Talbot and Porthcawl. The site has a number of coastal and species features but just one marine feature: Atlantic salt

Site name	Designation	Size (ha)	Approximate distance and orientation from the Site	Description
				meadows *Glauco-Puccinellietalia maritimae.* Although salt marsh makes up less than 2% of the site, this habitat is rare along the Glamorgan coast and the saltmarsh exhibits a diverse mosaic of communities. Here it includes plant species such as sea heath *Frankenia laevis* and samphire *Salicornia spp.* The saltmarsh habitat at Kenfig has been subject to natural changes due to erosion and changes to the river geomorphology. The site is designated for the following Annex I habitats that are a primary reason for selection of this site: ▪ Fixed coastal dunes with herbaceous vegetation ("grey dunes"). ▪ Humid dune slacks. ▪ Hard oligo-mesotrophic waters with benthic vegetation of *Chara spp.* The following Annex I habitats are also present as a qualifying feature, but not a primary reason for site selection: ▪ Atlantic salt meadows *Glauco-Puccinellietalia maritimae*. The site is designated for the following Annex II species that are a primary reason for selection of this site: ▪ Petalwort *Petalophyllum ralfsii.* ▪ Fen orchid *Liparis loeselii*.
Blackmill Woodlands	SAC	70.56	8.2 km south-east	Blackmill Woodlands is an example of old sessile oak *Quercus petraea* woods at the southern extreme of the habitat's range in Wales and contributes to representation of the habitat in Wales and in south-west England. The ground flora is restricted by the relative dryness of the site, but the main habitat features of sessile oak canopy, acidic ground flora of *Vaccinium myrtillus* and wavy hair-grass *Deschampsia flexuosa*, and moderate fern and bryophyte cover are present. The woodlands have a long cultural history of management, reflected in the distinctive gnarled appearance of many of the trees. The site is designated for the following Annex I habitat that is a primary reason for selection of this site:

Site name	Designation	Size (ha)	Approximate distance and orientation from the Site	Description
				▪ Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles.

NON-STATUTORY SITES

3.1.2. A total of 22 non-statutory nature conservation sites were located within 2 km of the Site. A description of these sites is detailed in Table 3-2 below and their locations are shown in Figure 3.

Table 3-2 - Non-statutory designated sites within 2 km of the Site

Site name	Designation	Approximate distance from the Site	Description
Abercerdin Wood	Wildlife site/SINC (Adopted)	Within the Site.	Broad-leaved semi-natural woodland, unimproved neutral grassland, semi-improved neutral grassland, acid/neutral geological outcrop.
Caerau West	Wildlife site/SINC (Adopted).	Within the Site.	Marsh/marshy grassland, flush spring and acid/neutral flush, sphagnum blanket bog, sphagnum wet modified bog, wet dwarf shrub heath, dry heath acid mosaic, dry dwarf shrub heath, semi-improved acid grassland, scattered bracken *Pteridium aquilinum*.
Cwm Cerdin	Wildlife site/SINC (Adopted).	Within the Site.	Broad-leaved semi-natural woodland, unimproved neutral grassland, tall herb fern interspersed in improved grassland.
Gilfach Uchaf	Wildlife site/SINC (Adopted).	Within the Site.	Marsh/marshy grassland, semi-improved acid grassland, acid dry dwarf shrub heath, natural acid/neutral rock exposure.
Nant-y-Castell Grasslands	Wildlife site/SINC (Adopted).	Within the Site.	Unimproved neutral grassland, dense continuous bracken.
Sychbant Fields	Wildlife site/SINC (Adopted).	0.2 km west	Dry dwarf shrub heath (acid).
Y Parc (south)	Wildlife site/SINC (Adopted).	0.4 km north	Broad-leaved semi-natural woodland, marsh/marshy grassland, semi-improved neutral grassland, dense continuous scrub, wet dwarf shrub heath, blanket bog, unimproved neutral grassland.

Site name	Designation	Approximate distance from the Site	Description
Waun-y-Gilfach woods	Wildlife site/SINC (Adopted).	0.4 km east	Broad-leaved semi-natural woodland, marsh/marshy grassland.
Y Parc (north)	Wildlife site/SINC (Adopted).	0.4 km north	Broad-leaved semi-natural woodland, wet and dry dwarf heath with scattered bracken, semi-improved acid grassland, unimproved neutral grassland, wet modified *Sphagnum* bog, marsh/marshy grassland, dense continuous scrub.
Cwm Sychbant	Wildlife site/SINC (Adopted).	0.4 km north	Semi-improved neutral grassland, broad-leaved seminatural woodland, marsh/marshy grassland, dense continuous bracken, coniferous plantation.
Tudor West	Wildlife site/SINC (Adopted).	0.6 km east	Marsh/marshy grassland, neutral grassland unimproved, broad-leaved semi-natural woodland, semi-improved acid grassland, acid/neutral flush.
Llan Road Woods	Wildlife site/SINC (Adopted).	0.6 km east	Bracken, dense continuous scrub, marsh/marshy grassland, scattered broad-leaved trees.
Cwm Cerwyn	Wildlife site / SINC (Adopted).	0.8 km north	Broad-leaved semi-natural woodland, unimproved neutral grassland, dense continuous scrub, coniferous plantation.
Caerau North	Wildlife site/SINC (Adopted)	0.8 km north	Marsh/marshy grassland, fen, dry modified bog, wet modified bog, *Sphagnum* blanket bog, semi-improved acid grassland, wet dwarf shrub heath, broad-leaved semi-natural woodland, acid dry dwarf shrub heath.
Nant-y-Crynwydd	Wildlife site/SINC (Adopted).	1.0 km south	Marsh/marshy grassland, semi-improved neutral and acid grassland, *Sphagnum* blanket bog, broad-leaved semi-natural woodland, dense continuous scrub.
Craig Tal-y-Fan	Wildlife site/SINC (Adopted).	1.2 km east	Broad-leaved semi-natural woodland, dense continuous scrub, dense continuous bracken.
Llwydarth Wood	Wildlife site/SINC (Adopted).	1.2 km east	Broad-leaved semi-natural woodland and dense continuous scrub.
Drysity'n-y-waun	Wildlife site/SINC (Adopted).	1.2 km east	Marsh/marshy grassland, broad-leaved semi-natural woodland, acid/neutral rock exposures.
Nant Bryncynan Woods	Wildlife site/SINC (Adopted).	1.3 km east	Broad-leaved semi-natural woodland.

Site name	Designation	Approximate distance from the Site	Description
B-Lines	Bug life – insect pathway.	1.5 km south	The B-Lines are a series of 'insect pathways' which have been established by Buglife. They run throughout the British countryside and towns, and act as a restorative series of wildflower-rich habitat stepping stones. They link existing wildlife areas together, creating a network which provides large areas of brand-new habitat benefiting bees and butterflies.
Afan Mineral Railway	Wildlife site/SINC (Adopted).	1.7 km north	Riparian woodland, a large proportion of which is included on the AWI. Additional habitats include a mosaic of grassland, heath, bracken slopes and spoil elements in a valley which also holds considerable industrial heritage. Public access extends along the site by means of a tarmac cycle track along a dismantled railway line.
Ty'n-y-Waun	Wildlife site/SINC (Adopted).	1.9 km east	Marsh/marshy grassland, semi-improved neutral grassland, broad-leaved semi-natural woodland along proposed community route.

OTHER HABITATS OF CONSERVATION IMPORTANCE

3.1.3. A total of 179 parcels[6] of Priority Habitats were identified within 1 km of the Site as part of the desk study. Details are provided in Table 3-3.

3.1.4. Section 3.2 considers whether each of the habitat parcels within the Site qualify as Priority Habitats. The findings are shown on Figure 5.

Table 3-3 – Priority Habitats within 1 km of the Site

Habitat type	Number of Parcels within 1 km of the Site	Present within the Survey Area
Blanket bog	8	No
Lowland dry acid grassland	32	Yes
Lowland fens and reedbeds	20	Yes
Lowland heathland	27	No
Open mosaic habitat on previously developed land	12	No
Purple moor-grass and rush pastures	52	Yes
Raised bog	5	No
Upland flushes, fens and swamps	7	Yes
Upland heathland	7	Yes
Wood pasture	9	Yes

3.1.5. A total of 39 parcels of Ancient Woodland Inventory (AWI) parcels were identified within 1 km of the Site as part of the desk study. Details are provided in Table 3-4. One AWI parcel, an Ancient Semi-Natural Woodland (ASNW), was identified in the southern extent of the Survey Area, spanning both banks of the Nant Lluest-Wen, which flows through the Site.

Table 3-4 - Ancient Woodland Inventory Woodlands within 1 km of the Site

Habitat type	Number of Parcels within 1 km of the Site	Number of Parcels within the Survey Area
Ancient Semi-Natural Woodland	21	1

[6] 'Parcels' throughout this report are defined as mapped habitat units.

Habitat type	Number of Parcels within 1 km of the Site	Number of Parcels within the Survey Area
Plantation on Ancient Woodland Site	9	0
Restored Ancient Woodland Site	9	0

3.2. HABITAT SURVEY

OVERVIEW

3.2.1. The following account summarises the findings of the habitat survey. The habitat types are mapped on Figure 4 and are listed in Table 3-5 along with areas in hectares (or length for linear features). A description of the dominant and notable species, and the composition and management of each habitat is provided below and an indicative species list is provided in Appendix B. TNs are provided in Appendix C and photographs in Appendix D. 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 habitat survey manual and does not reflect habitat importance.

Table 3-5 – Phase 1 Habitat Areas

Phase 1 Habitat	Area (ha)	Length (m)	% of Site Area
A1.1.1 – Broadleaved woodland – Semi-natural	3.59	-	7.93
A1.1.2 – Broadleaved woodland – Plantation	0.45	-	0.99
A1.2.2 – Coniferous woodland – Plantation	0.11	-	0.25
A1.3.2 – Mixed woodland – Plantation	0.35	-	0.76
A2.1 – Scrub – Dense/continuous	0.27	-	0.46
A2.2 – Scrub – Scattered*	0.11	-	0.23
A3.1 – Broadleaved parkland/scattered trees	-	502.72[7]	-

[7] Broadleaved parkland/scattered trees in this case were present as a linear feature, and therefore have been measured in metres.

Phase 1 Habitat	Area (ha)	Length (m)	% of Site Area
B1.2 – Acid grassland – Semi-improved	5.00	-	11.05
B4 – Improved grassland	17.78	-	39.25
B5 – Marshy grassland	12.08	-	26.68
B6 – Poor semi-improved grassland	3.50	-	7.74
C1.1 – Bracken – Continuous	0.96	-	2.12
C1.2 – Bracken – Scattered*	0.90	-	-
C3.1 – Other tall herb and fern – ruderal	0.09	-	0.20
G2 – Running water	-	1,688.11	-
HS - Hardstanding	0.14	-	0.31
J2.1.2 – Species-poor intact hedge	-	559.68	-
J2.5 – Wall	-	764.40	-
J2.6 – Dry ditch	-	272.93	-
Total	**42.29**	**3787.84**	**100**

*A2.2 and C1.2 represent scattered habitats overlaid over another habitat type; therefore, these are subtracted from the total area.

A1.1.1 – BROADLEAVED WOODLAND – SEMI-NATURAL

3.2.2. Five parcels of semi-natural broadleaved woodland were identified within the Survey Area.

3.2.3. The northern-most of these parcels was in the northern section of the Site, and was a woodland with an open canopy (approximately 40% of the canopy was open), with large, mature trees (P1). The habitat parcel sloped steeply towards an un-named stream to the west, which was outside the Survey Area. Evidence of a recent landslip was recorded within this habitat parcel (TN8). The parcel was sheep-grazed, but not publicly accessible. The tree species within this parcel comprised abundant sessile oak *Quercus petraea*, frequent ash *Fraxinus excelsior*, and rare willow *Salix sp.* and hazel *Corylus avellana*. The understorey was not dense, and included abundant Yorkshire-fog *Holcus lanatus*, frequent bracken *Pteridium aquilinum* and soft rush *Juncus effusus*, and occasional soft shield-fern *Polystichum setiferum*. The habitat was assessed as qualifying as the Priority Habitat 'upland oakwoods,' with a predominance of oak, and hazel within the understorey. However, it was considered to be in poor condition, with rare parcels of Indian balsam *Impatiens glandulifera* present (TN2).

3.2.4. The remaining parcels of semi-natural broad-leaved woodland were in the southern section of the Site.

3.2.5. The north-most of these overlapped with a parcel of wood pasture, returned from DataMapWales during the desk study. However, whilst it may be present outside the Survey Area, there was not considered to be any wood pasture present within the Survey Area, owing to the density of the trees, the lack of veteran or ancient trees, and the woodland within the Survey Area acting as boundary features between fields. Further, due to the dense bracken understorey, the woodland was not assessed as belonging to the Priority Habitat 'lowland mixed deciduous woodland.'

3.2.6. A further parcel of broadleaved semi-natural woodland was recorded directly to the south of Nant Lluest-Wen. Here, the trees were of varying maturity, comprising abundant coppiced hazel, with rare sessile oak, holly *Ilex aquifolium* and rowan *Sorbus aucuparia*. The understorey was dense, and comprised bramble *Rubus fructicosus agg.* and hard shield-fern *Polystichum aculeatum*. Dormouse nest tubes were recorded throughout the parcel (TN3). This parcel is listed on DataMapWales as being an ASNW; it was also assessed as belonging to the Priority Habitat 'lowland mixed deciduous woodland'. It also forms part of the Cwm Cerdin Wildlife Site/SINC (Adopted).

3.2.7. Further south, and directly south of Nant y Castell, a minor stream flowing east through the Survey Area, a further parcel of broadleaved semi-natural woodland was recorded (P2). The woodland was extremely dense, with willow *Salix spp.* up to 5 m tall. Goat willow *S. caprea* was dominant, with occasional grey willow *S. cinerea* and rare eared willow *S. aurita*. Indian balsam was frequent throughout the parcel, with rare hemp-agrimony *Eupatorium cannabinum* and bramble. The parcel is considered to be a poor-quality Priority Habitat 'wet woodland,' owing to constraints on its spread through the provision of fence lines, leading to a reduction in structural diversity, and the presence of the INNS Indian balsam.

3.2.8. The final area of broadleaved semi-natural woodland was in the far south of the Survey Area. It was a dense woodland with a sparse understorey of bramble, with some areas undergoing natural regeneration following woodland clearance. There were both mature and immature trees, with frequent sessile oak, and rare rowan, silver birch *Betula pendula* and hazel. Some open glades within the woodland were present, with abundant bramble, hemp-agrimony, heath *Calluna vulgaris,* and occasional purple moor-grass *Molinia caerulea* (P3). Some of this woodland formed a mosaic of woodland, marshy grassland, and heathland, with locally dominant purple moor-grass and heather *Calluna vulgaris*. Some Indian balsam was identified within the woodland parcel. The woodland was assessed as being an example of the Priority Habitat 'lowland mixed deciduous woodland'.

A1.2.2 – CONIFEROUS WOODLAND – PLANTATION

3.2.9. Two parcels of coniferous woodland plantation were identified, directly to the north and west of the broadleaved woodland plantation (P5). These were larch *Larix decidua* plantations, with mature trees and little understorey.

3.2.10. The habitat parcel was not considered to qualify as a Priority Habitat.

A1.3.2 – MIXED WOODLAND – PLANTATION

3.2.11. One area of plantation mixed woodland was identified in the far south of the Site, adjacent to semi-natural broad-leaved woodland. Tree species were co-dominated by larch and sessile oak. This habitat parcel is considered likely to have been planted following felling.

3.2.12. The habitat parcel was not considered to qualify as a Priority Habitat.

A2.1 – SCRUB – DENSE/CONTINUOUS

3.2.13. Parcels of dense/continuous scrub were identified during the Phase 1 habitat survey, all within the southern section of the Survey Area. The majority of these formed field boundaries, and comprised dense gorse *Ulex europaeus* scrub up to 4 m high and 3 m wide, with rare bramble (P6). One of these parcels was on an earth bank, and had rare beech and rowan within the scrub. Here, a mammal path was recorded going from a semi-improved grassland field into the scrub (TN4), and outside of the Survey Area, to the west, rabbit *Oryctolagus cuniculus* droppings were recorded (TN5).

3.2.14. The final parcel of dense/continuous scrub was further south, bordering the minor road leading to Llangynwyd, and comprised bracken, bramble and hogweed *Heracleum sphondylium,* up to 2 m tall. Rare and occasional species included gorse, meadow buttercup *Ranunculus acris*, Yorkshire-fog, and red clover *Trifolium pratense.* The INNS Indian balsam (TN2) and Japanese knotweed *Reynoutria japonica* (TN1) were both identified within the habitat parcel.

3.2.15. Neither of the parcels of dense/continuous scrub were assessed as qualifying as a Priority Habitat.

A2.2 – SCRUB – SCATTERED

3.2.16. A small parcel of scattered scrub was identified in the northern section, where scattered gorse was present over bracken.

3.2.17. In the southern section a parcel of scattered willow scrub was identified, with semi-mature trees present. Here, it was partly wet underfoot.

3.2.18. Neither of the scrub habitats were considered to qualify as Priority Habitats.

A3.1 – BROADLEAVED PARKLAND/SCATTERED TREES

3.2.19. Several lines of trees were identified within the Survey Area, all in the southern section. These lines of trees formed boundary features between fields, watercourses and roads.

3.2.20. The northernmost line of trees was on a steeply sloping back, facing eastwards. Rowan was abundant, with frequent sessile oak and occasional gorse.

3.2.21. On the southern boundary of the same field, a line of trees on a drystone wall was recorded (P7). The wall was mostly covered by bryophytes, and was vegetated with frequent rowan, occasional sessile oak, and rare hazel, beech, holly and gorse.

3.2.22. Further south, a line of mature trees was identified on an earth bank, 10 m tall. This treeline was assessed from the east side only due to access restrictions. Ash, sycamore *Acer pseudoplatanus*, sessile oak and willow were occasional, with rare hawthorn *Crataegus monogyna*. The ash trees were exhibiting evidence of ash dieback *Hymenoschyphus fraxineus*.

3.2.23. To the south of this, along the centre of the field, a line of mature sessile oak trees was recorded along an earth bank.

3.2.24. Along the north of the Nant Y Castell, a line of abundant blackthorn *Prunus spinosa* and frequent willow was present. These were up to 4 m tall, and had ground flora comprising occasional nettle *Urtica dioica* and bramble, and rare Indian balsam.

3.2.25. Along the south of the same river, a line of trees was dominated by sessile oak, with occasional hazel, and rare sycamore, rowan and hawthorn. The eastern extent of this line comprised less mature, smaller trees than along the east. Indian balsam was dominant along the base of the trees (P8).

3.2.26. Each of these lines of trees was assessed as qualifying as the Priority Habitat 'hedgerows,' and may qualify as Important Hedgerows under the Hedgerows Regulations 1997.

3.2.27. Further scattered trees were identified within the Survey Area, shown on Figure 4.

B1.2 – SEMI-IMPROVED ACID GRASSLAND

3.2.28. Semi-improved acid grassland was recorded in both the northern section and the southern section of the Survey Area.

3.2.29. In the northern section, the semi-improved acid grassland was sheep-grazed, with a sward height of up to 50 cm (P9). The fields were enclosed with stock fences. Yorkshire-fog was dominant, with abundant common bent *Agrostis capillaris* and occasional sheep's-fescue *Festuca ovina*. Species indicative of wet conditions, such as purple moor-grass and soft rush, were also recorded, and were more frequent in the northern-most area of this habitat parcel, where a mosaic of semi-improved acid grassland and marshy grassland was recorded and the sward height was up to 60 cm. Heath species, including heather, heath bedstraw *Galium saxatile,* bell heather *Erica cinerea*, and bilberry *Vaccinium myrtillus,* were recorded throughout the habitat parcel, but were increasingly common in the west. This area of semi-improved acid grassland was identified according to DataMapWales as a Priority Habitat, comprising lowland dry acid grassland and upland heathland. Given the relative abundance of species present within this habitat parcel (i.e. less than 25% dwarf shrub cover), the habitat was assessed as qualifying as the Priority Habitat lowland dry acid grassland only.

3.2.30. Parcels of semi-improved acid grassland in the southern section of the Survey Area were also sheep-grazed (P10). Here, perennial rye-grass *Lolium perenne* was abundant, indicating improvement. Sweet vernal-grass *Anthoxanthum odoratum* and sheep's fescue were occasional, and common bent was rare. Species indicative of acidic conditions, such as tormentil *Potentilla erecta* and sheep's sorrel *Rumex acetosella* were recorded. Owing to the improvement of these land parcels, they were not considered to qualify as Priority Habitats.

B4 – IMPROVED GRASSLAND

3.2.31. Improved grassland was also recorded in both the northern and southern sections of the Survey Area.

3.2.32. In the northern section, a sheep-grazed enclosed field was dominated by perennial rye-grass, with a short, homogenous sward height (P11).

3.2.33. Much of the southern section of the Survey Area comprised this habitat type. Again, perennial rye-grass was dominant, with areas of rare soft rush, and locally dominant Yorkshire-fog (P12). Some areas of improved grassland were less grazed, with a taller sward height up to 30 cm, and with sweet-vernal grass and creeping bent *Agrostis stolonifera* also recorded. Although most improved grassland habitat parcels were sheep-grazed, the parcels to the north and the west of the minor

road leading to Llangynwyd were cattle-grazed, and had rare areas of bare ground caused by poaching. Species indicative of disturbed areas were recorded along field entrances and farm tracks, including annual meadow-grass *Poa annua,* pineapple weed *Matricaria discoidea*, and nettle.

3.2.34. One area of improved grassland in the southern section of the Site was identified by DataMapWales as belonging to the Priority Habitat 'purple moor-grass and rush pasture'. However, none of the areas of improved grassland within the Survey Area qualified as Priority Habitats.

B5 – MARSHY GRASSLAND

3.2.35. Two parcels of marshy grassland were identified in the northern section of the Survey Area.

3.2.36. The northern-most of these parcels had areas where purple moor-grass was dominant (P13). Soft rush, although frequent, did not dominate, and there were areas of sheep's-fescue. Here, there were dense tussocks and high levels of dead leaf litter. In other areas of the same habitat parcel, soft rush was dominant. There were wet areas throughout the habitat parcel, but no defined stream. Sheep and cattle paths were seen throughout the habitat. Throughout the parcel, there was evidence of cattle-grazing, which was considered likely to be light, owing to the high sward height still present (up to 1 m). The habitat was identified in DataMapWales as qualifying as the Priority Habitat 'upland flushes, fens and swamps'. However, as the habitat was assessed during the Phase 1 habitat survey as being species-poor, it was found not to qualify as a Priority Habitat.

3.2.37. Further south within the same northern section of the Survey Area, an area of marshy grassland was dominated by soft rush, and had a sward height of 60 cm. It was sheep-grazed with some wet pools underfoot. Marsh thistle *Cirsium palustre* was occasional, with rare rosebay willowherb *Chamaenerion angustifolium*, Yorkshire-fog, and common ragwort *Jacobaea vulgaris.* This habitat parcel was identified by DataMapWales as being a lowland dry acid grassland, but this assessment was rejected during the Phase 1 habitat survey.

3.2.38. A parcel of marshy grassland was also identified around a minor stream in the northern section of the Survey Area (P14). The tall (1 m) sward height was dominated by soft rush, with occasional purple moor-grass, Yorkshire-fog, and foxglove *Digitalis purpurea*. This habitat was in a depression, with running water heard flowing beneath the vegetation. DataMapWales identified this area as belonging to the Priority Habitat 'lowland fens and reedbeds'. The habitat parcel was assessed as being a poor-quality lowland fen, and thus qualifying as a Priority Habitat.

3.2.39. Further south, but remaining in the northern section of the Survey Area, parcels of marshy grassland comprised dense tufts of dominant purple-moor grass up to 1 m tall, with soft rush abundant (P15). Tussocks within the wet habitat were dominated by bryophyte species. Grass species such as Yorkshire-fog, common bent and sweet vernal-grass were increasingly common on a farm track around the edge of the habitat parcel. These parcels were identified by DataMapWales as qualifying as the Priority Habitat 'purple moor-grass and rush-pasture'. This assessment is supported by the Phase 1 habitat survey for these habitat parcels.

3.2.40. Further parcels of purple moor-grass and rush pasture were identified at the southern-most part of the southern section of the Survey Area (P16). These areas had a sward height of up to 1.5 m, with dense tussocks and lots of dead leaf litter, making the habitat parcels very rank. Purple moor-grass was dominant, with occasional hard fern *Blechnum spicant*, and rare soft rush, foxglove, marsh thistle, and heath bedstraw. In some areas, common bent was dominant, and the habitat was increasingly grazed. Elsewhere, soft rush was dominant. The habitats were locally grazed by sheep

or cattle at the time of survey, with the exception to this being a small parcel within the broad-leaved semi-natural woodland. Each of these habitats were identified by DataMapWales as belonging to either purple moor-grass and rush pasture Priority Habitat, or lowland dry acid grassland Priority Habitat. The Phase 1 habitat survey identified each of these habitat areas as qualifying as the Priority Habitat 'purple moor-grass and rush pasture'.

3.2.41. Slightly further north, an area of marshy grassland was cattle-grazed, with dominant Yorkshire-fog and abundant soft rush. Crested dog's-tail *Cynosurus cristatus* was frequent, and sharp rush *Juncus acutiflorus* and spear thistle *Cirsium vulgare* were rare. This habitat parcel did not qualify as a Priority Habitat.

3.2.42. To the north of this, a small area of marshy grassland was dominated by soft rush, with abundant Indian balsam and frequent purple moor-grass. This was very wet underfoot with dense tufts, and had been heavily poached. DataMapWales identified this habitat parcel type as qualifying as the Priority Habitat 'lowland fens and reedbeds'. However, due to the dominant soft rush, heavy poaching, and presence of an INNS, this habitat parcel was not found to qualify as a Priority Habitat during the Phase 1 habitat survey.

B6 – POOR SEMI-IMPROVED GRASSLAND

3.2.43. Fields of enclosed, sheep-grazed poor semi-improved grassland were identified in both the northern and southern sections of the Site, with similar structure and species composition throughout (P17). The sward height was between 5 and 30 cm, with sheep paths where sward height was higher. Species present included Yorkshire-fog, wavy hair-grass *Deschampsia flexuosa*, sheep's-fescue, sweet vernal-grass, and crested dog's-tail. Scattered bracken was rare throughout.

3.2.44. None of the poor semi-improved grassland habitats qualified as Priority Habitats.

C1.1 – BRACKEN – CONTINUOUS

3.2.45. Parcels of dense, continuous bracken were identified throughout the Survey Area. In the southern section, Indian balsam was present within some of these parcels, specifically to the north of Nant Lluest-Wen and in multiple parcels around Nant y Castell. Japanese knotweed was recorded in parcels around Nant y Castell (TN2, P18).

3.2.46. None of these habitat parcels qualified as Priority Habitats.

C1.2 – BRACKEN – SCATTERED

3.2.47. Scattered bracken habitats were present in the southern section of the Survey Area only. Again, Indian balsam was present within many of these parcels.

3.2.48. None of these habitat parcels qualified as Priority Habitats.

C3.1 – OTHER TALL HERB AND FERN – RUDERAL

3.2.49. Within the southern section of the Survey Area, two adjacent parcels of tall herb and fern – ruderal were recorded. The western-most of these, along the west of a minor unnamed road, comprised dominant Indian balsam, 3 m tall. Along the east of this same road, an unmanaged grass verge had abundant Indian balsam and cock's-foot *Dactylis glomerata*, with occasional common hogweed, crested dog's-tail, silverweed *Potentilla anserina*, and Yorkshire-fog.

3.2.50. A further area of tall ruderal was identified further south, bordering improved grassland fields. This comprised dominant Indian balsam, with hawthorn and pedunculate oak *Quercus robur* also recorded.

3.2.51. None of these habitat parcels qualified as Priority Habitats.

G2 – RUNNING WATER

3.2.52. Running water habitats were found throughout the Survey Area.

3.2.53. The northern-most of these habitats was very densely vegetated, with the same species composition as for the marshy grassland that it flowed through. It was not possible to see the running water beneath the vegetation, but it could be heard, and was assessed as being likely slow-flowing. This running water forms part of the fen Priority Habitat that it flows through, and itself qualifies as the Priority Habitat 'rivers'.

3.2.54. Slightly to the south, a further stream was identified, which was again heavily vegetated as for the surrounding marshy grassland, and so could not be seen along most of its length (P19). Where it could be seen, it had a moderate flow, and was in a ditch 70 cm wide and 1 m deep. This stream is within 2.5 km of its furthest source, and therefore qualifies as the Priority Habitat 'rivers'.

3.2.55. In the southern section of the Survey Area, the Nant Lluest-Wen flowed eastwards, with a medium flow (P20). The stream was 2 m wide at its widest point within the Survey Area, but this width varied along its length. It was up to 30 cm deep, with a stone substrate. The banks were vegetated as per the surrounding woodland habitats, and were in some places heavily poached on the southern bank. Some Indian balsam was recorded along the banks. In the woodland directly north of this watercourse, minor streams flowed into the Nant Lluest-Wen. The Nant Lluest-Wen within the Survey Area is within 2.5 km of its furthest source, and therefore qualifies as the Priority Habitat 'rivers'.

3.2.56. To the south, the Nant y Castell was recorded flowing north-east through the Survey Area, with a fast flow (P21). The banks were steep and mostly unvegetated, and the river was shaded by trees. Nettle and Indian balsam were present on the banks, and there was some debris comprising bricks and plastic recorded in the watercourse. Further south, the Nant y Castell again was present in the Survey Area (P22). Here, there were very steep banks of bare earth up to 1 m tall in places, with vegetation on top of the banks but not within the watercourse. There was a mud and stone substrate, with poached banks. Again, the Nant y Castell within the Survey Area is within 2.5 km of its furthest source, and therefore qualifies as the Priority Habitat 'rivers'.

3.2.57. Finally, in the south of the Survey Area, a wet ditch with a slow flow was recorded. This was 10 cm deep, with the bankside vegetation comprising Indian balsam and soft rush. The banks were 30 cm deep, and were very steep. There was evidence of cattle poaching along the banks. As this ditch was likely created for agricultural drainage, it does not qualify as a Priority Habitat.

HS – HARDSTANDING

3.2.58. Small areas of unvegetated roads formed the hardstanding habitats, all within the southern section of the Survey Area.

3.2.59. These habitats do not qualify as Priority Habitats.

J2.1.2 – SPECIES-POOR INTACT HEDGE

3.2.60. Several species-poor intact hedges were recorded, all within the southern section of the Survey Area.

3.2.61. The northern-most of these was 3 m tall and 2 m wide, and had not been recently flayed. Species comprised frequent hazel and hawthorn, with rare rowan and ash. Indian balsam was frequent, and bracken dominant.

3.2.62. Further south was an unmanaged relict hedgerow, up to 8 m high in places (P23). Species recorded comprised beech, hawthorn and rowan, with Indian balsam and bramble ground flora. A rabbit warren (TN6) was recorded within this hedgerow.

3.2.63. Along the northern edge of a minor unnamed road was a hedgerow comprising hazel, horse-chestnut *Aesculus hippocastanum*, willow, hawthorn and blackthorn, with abundant bramble and Indian balsam. Bordering the south of the same road was a hedge on an earth mound, with dense bracken and Indian balsam between hazel, blackthorn and holly shrubs.

3.2.64. To the south of this, a hedge comprising abundant hawthorn and rare sycamore, apple *Malus campestris*, and blackthorn was recorded on an earth bank. This had not been recently flayed, and was 3 m tall.

3.2.65. Each of the hedgerows qualifies as hedgerow Priority Habitat, and may qualify as Important Hedgerows under the Hedgerows Regulations 1997.

J2.5 – WALL

3.2.66. Dry stone walls were recorded throughout the Survey Area. These were mostly in poor condition, and were collapsed in places and vegetated with grasses, ferns and bramble.

3.2.67. Wall habitats do not qualify as Priority Habitats.

J2.6 – DRY DITCH

3.2.68. One dry ditch was recorded in the northern section of the Survey Area, within an area of marshy grassland (P24).

3.2.69. In the southern section of the Survey Area a dry ditch was recorded immediately north of Nant Lluest-Wen, and appeared to be seasonally wet with some stones in the bed. It was vegetated as for the surrounding woodland.

3.2.70. The dry ditches do not qualify as Priority Habitats.

3.3. PROTECTED AND NOTABLE SPECIES ASSESSMENT

3.3.1. The potential for the Survey Area to support legally protected and/or notable species has been assessed using the results of the desk study and observations made during the field survey of habitats within and immediately surrounding the Site. 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 within the Survey Area. Habitats present within the Survey Area are suitable for the following species; further consideration is given below to the likelihood for these species to be present within the Survey Area:

- Bats;
- Dormouse;

- Badger;
- Otter;
- Water vole;
- Other mammals;
- Birds;
- Amphibians;
- Reptiles;
- Fish;
- Invertebrates;
- INNS; and
- Notable plants.

3.3.2. The Survey Area does 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 report.

BATS

3.3.3. A total of 31 records of at least eight different bat species were returned during the desk study. These were brown long-eared bat *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus*, Daubenton's bat *Myotis daubentonii*, greater horseshoe bat *Rhinolophus ferrumequinum*, lesser horseshoe bat *Rhinolophus hipposideros*, Natterer's bat *Myotis nattereri*, noctule bat *Nyctalus noctule*, and soprano pipistrelle *Pipistrellus pygmaeus.*

3.3.4. The desk study also returned records of bats that were not identified to species level: pipistrelle bat species *Pipistrellus* sp., myotis bat species *Myotis* sp. and unknown bat species (*Chiroptera* sp.).

3.3.5. The closest bat record was for a myotis bat 428 m east of the southern section of the Site.

3.3.6. During the Phase 1 habitat survey a DBW was carried out, which aimed to identify trees, buildings and structures within the Survey Area with suitability to support roosting bats.

3.3.7. Three trees were identified during the DBW with the potential to support roosting bats. These were all in the southern section of the Survey Area, and were between the Nant Lluest-Wen and Nant y Castell, shown on Figure 4.

3.3.8. Tree 1 was a mature sessile oak adjacent to a fenceline (P25). A tear-out wound was identified on the south side of the tree, extending upwards into two chambers and downwards.

3.3.9. Tree 2 was along the same tree line to the east (P26). Again, it was a mature sessile oak with a tear-out wound.

3.3.10. Finally, tree 3 was slightly to the south, and was the westernmost sessile oak in the tree line (P27). It was twin-stemmed, and on the south stem, a wound hosted an active bees' nest, and could extend further beyond this. On the north stem, there were two woodpecker holes with old nest material inside.

3.3.11. There were no buildings or structures identified within the Survey Area with potential to support roosting bats.

3.3.12. The Survey Area provides some suitable habitat for foraging and commuting bats in the form of dense scrub, woodland, and linear habitats such as running water, tree lines and hedgerows.

BADGER

3.3.13. Two records of badger within 2 km of the Site were returned from the desk study in the last 10 years. The nearest badger record was 1.09 km east of the southern section of the Site.

3.3.14. No evidence of badger was present during the field survey. However, suitable habitat for commuting, foraging and sett-building existed within the Survey Area in the form of grassland, scrub and woodland, particularly in the southern extent.

DORMOUSE

3.3.15. One record of dormouse within 2 km of the Site was returned from the desk study in the last 10 years, 1. 8km east of the southern section of the Site.

3.3.16. Dormouse surveys conducted by CSA Environmental in support of the Proposed Development in 2024 returned no dormice or evidence of dormice, and therefore dormice are considered likely absent from the Survey Area (CSA Environmental, 2024c).

3.3.17. However, given the suitability of the habitat within the Site for dormice, measures to avoid impacts to dormice are described in Section 4.4.

OTTER

3.3.18. A total of three records of otter within 2 km of the Site were returned from the desk study in the last 10 years. The nearest otter record was 873 m west of the northern section of the Site.

3.3.19. There was no evidence of otter within the Site during the field survey, and no potential resting sites were identified, although a thorough search of all watercourses and a buffer appropriate to otter was beyond the scope of this survey, and was therefore not conducted.

3.3.20. Watercourses throughout the Survey Area were considered to be suitable to support commuting and resting otter, with watercourses in the southern section of the Survey Area also suitable to support foraging otter due to the likely presence of fish. Riparian habitats, notably the woodland habitats adjacent to watercourses in the southern section of the Survey Area, were also considered suitable to support commuting and resting otter.

WATER VOLE

3.3.21. There were no records of water vole within 2 km of the Site returned from the desk study in the last 10 years.

3.3.22. Slow-moving waterbodies within both the northern and the southern sections of the Survey Area were considered suitable to support water vole. Suitable vegetation to support water vole was identified, with exposed areas of banks that would provide suitable burrowing habitat.

3.3.23. CSA Environmental (2024d) have carried out two water vole surveys within the Survey Area in 2024 in accordance with good practice. The first of these surveys identified evidence of water vole in the northern-most section of running water in the northern section of the Site. It was considered likely that water vole are present in the surrounding areas due to the suitability of the habitat, which includes acid and marshy grassland identified in the Survey Area. The second of the two water vole surveys found water vole signs in this area to be lower in frequency (CSA Environmental, 2024d).

3.3.24. The water vole surveys did not identify any evidence of water voles in the southern section of the Site.

OTHER MAMMALS

3.3.25. One record of brown hare *Lepus europaeus* was returned during the desk study, 1.7 km south-east of the southern section of the Phase 1. Although no evidence of brown hare was observed during the field survey, the Survey Area has habitats considered suitable to support brown hare, with a mosaic of grass fields and hedgerows, and some woodland edges.

3.3.26. A total of ten records of hedgehog *Erinaceus europaeus* within 2 km of the Site were returned from the desk study in the last 10 years. Nine of these were in residential areas around the Survey Area, with one in coniferous woodland west of the southern section of the Survey Area. Although no evidence of hedgehog was observed during the field survey, habitats within the Survey Area considered suitable to support hedgehogs included grasslands, hedgerows, and woodlands.

3.3.27. CSA Environmental identified two records of harvest mouse *Micromys minutus* 0.01 km east of the Site in 2008 and 2009 (CSA Environmental, 2024). Although no evidence of harvest mouse was observed during the field study, marshy grassland habitats within the Survey Area were considered suitable to support harvest mouse.

BIRDS

3.3.28. In total, the desk study returned 906 records of 53 protected and/or notable bird species within 2 km of the Site.

3.3.29. A total of 22 of these species were listed on Schedule 1 of the WCA. 21 bird species were listed on Part 1 (protected at all times) of the Schedule 1, and one bird species was listed on Part 2 (protected during the close season) of the Schedule 1. Examples of these include barn owl *Tyto alba,* marsh harrier *Circus aeruginosus,* and merlin *Falco columbarius.* Honey buzzard *Pernis apivorus*, also listed on Schedule 1, is known to be present within the wider area.

3.3.30. Nightjar *Caprimulgus europaeus*, listed on Annex 1 of the Birds Directive, is known to be present in the wider area around the Site, and forages in open areas adjacent to forests.

3.3.31. A total of 31 bird species (of the 53 species returned from the desk study) were listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. These included curlew *Numenius arquata,* lapwing *Vanellus vanellus*, and yellowhammer *Emberiza citrinella.*

3.3.32. During the Phase 1 habitat survey seven bird species were sighted or heard. These species were dipper, red kite *Milvus milvus* (listed on Schedule 1 of the WCA), swift *Apus apus* (listed on the Birds of Conservation Concern 4 Wales (BoCC4W) – Red List (BoCC, 2022)), house martin *Selichon urbicum* (BoCC4W – Amber List), skylark *Alauda arvensis* (Priority Species, BoCC4W – Amber List), wheatear *Oenanthe oenanthe* (BoCC4W – Amber List), and meadow pipit *Anthus pratensis* (BoCC4W – Red List).

3.3.33. The habitats within the Survey Area were considered suitable for common and widespread breeding birds. It was also considered that some species listed on Schedule 1 of the WCA, such as red kite and honey buzzard, may nest in the habitats in the southern section of the Site.

AMPHIBIANS

3.3.34. Six records of common frog *Rana temporaria,* four records of common toad *Bufo bufo*, and six records of palmate newt *Lissotriton helveticus* were returned during the desk study.

3.3.35. No amphibians or evidence of amphibians was identified during the field survey.

3.3.36. The Site is on the boundary of the known range of great crested newt in Wales (French et al., 2014). The eDNA surveys carried out by CSA Environmental returned negative results for great crested newts in four ponds within 500 m of the Site (CSA Environmental, 2024b). Therefore, it is considered very unlikely that great crested newt will be present within the Survey Area, and they are therefore not mentioned further.

3.3.37. During the Phase 1 habitat survey, no evidence of amphibians was identified, however suitable terrestrial habitat for common and widespread amphibian species (e.g. common frog and common toad) existed within the Survey Area in the form of scrub, grassland, and woodland habitat. Brash piles adjacent to the woodland ride in the southern section of the Survey Area were assessed as potential refugia. Slow flowing waterbodies are also suitable for breeding common and widespread amphibians, in both the northern and southern sections of the Survey Area.

REPTILES

3.3.38. Fifteen records of adder *Vipera berus,* 20 records of common lizard *Zootoca vivipara*, nine records of grass snake *Natrix helvetica*, and six records of slow worm *Anguis fragilis* were returned within 2 km of the Site from the desk study in the last 10 years. The nearest common lizard record was 21 m west of the southern-most point of the Site. All other reptile records were at least 1.2 km from the Site.

3.3.39. No evidence of reptiles was identified during the field survey. The habitats within the Survey Area were considered to provide suitability to support reptile species, with lower suitability in the southern section of the Survey Area due to a short sward height within grassland fields. Brash piles adjacent to the woodland ride in the southern section of the Survey Area and stone walls throughout the Survey Area were assessed as potential refugia.

FISH

3.3.40. One record of a fish within 2 km of the Site was returned from the desk study in the last 10 years. This species was the brown trout *Salmo trutta* and the record was 596 m east of the Site, within the Afon Llynfi. Streams within the Site are hydrologically connected to the Afon Llynfi. The streams within the southern section of the Site are considered suitable to support brown trout. However, due to the low flow and dense vegetation in the streams in the northern section of the Site, these are not considered suitable to support brown trout.

3.3.41. Given the scope and the nature of the Proposed Development, it is anticipated that any impacts to watercourses and therefore fish can be avoided through the implementation of embedded mitigation measures in accordance with best practice, as detailed in Section 4.7. Therefore, fish are not considered further in this report. If the scope and/or nature of the Proposed Development were to change, and impacts to watercourses were to be expected, then a further survey by a suitably experienced ecologist would be recommended.

INVERTEBRATES

3.3.42. A total of 50 invertebrate species which are listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016 were returned during the desk study within 2 km of the Site. These species included small heath *Coenonympha pamphilus*, anomalous *Stilbia anomala*, autumnal rustic *Eugnorisma glareosa*, flounced chestnut *Anchoscelis helvola*, neglected rustic *Xestia castanea*, sallow *Cirrhia icteritia*, and small phoenix *Ecliptopera silaceata.*

3.3.43. Habitats considered suitable to support many of these invertebrate species were present within the Survey Area; for example, heathland supports small heath; woodland fringes support autumnal rustic; woodland supports flounced chestnut; and woodlands with willowherbs support small phoenix.

3.3.44. Records of an invertebrate species considered to be invasive were returned during the desk study. These were 18 records of harlequin ladybird *Harmonia axyridis.*

3.3.45. Areas of woodland, scrub and grassland present within the Survey Area were considered suitable to support mainly common invertebrate species due to the common and widespread nature of the habitats present.

3.3.46. Given the scope and nature of the Proposed Development, it is anticipated that impacts to watercourses can be avoided through the implementation of embedded mitigation measures in accordance with best practice, as detailed in Section 4.7. Therefore, aquatic invertebrates are not considered further in this report. If the scope and/or nature of the Proposed Development were to change, and impacts to watercourses were to be expected, then a further survey by a suitably experienced ecologist would be recommended.

INNS

3.3.47. 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.

3.3.48. Ten INNS listed on Schedule 9 of the WCA were returned during the desk study within 2 km of the Site: curly waterweed *Lagarosiphon major,* entire-leaved cotoneaster *Cotoneaster integrifolius*, Himalayan cotoneaster *Cotoneaster simonsii*, hollyberry cotoneaster *Cotoneaster bullatus*, Indian balsam, Japanese knotweed*,* variegated yellow archangel *Lamiastrum galeobdolon subsp. argentatum,* montbretia *Crocosmia x crocosmiiflora*, rhododendron *Rhododendron ponticum* and wall cotoneaster *Cotoneaster horizontalis.*

3.3.49. During the field survey, two plant INNS were recorded within the Site: Japanese knotweed and Indian balsam.

3.3.50. All habitats within the Survey Area were considered suitable to support INNS.

NOTABLE PLANTS

3.3.51. Three notable plant species were returned during the desk study. This included one species listed on Schedule 8 of the WCA; bluebell *Hyacinthoides non-scripta*.

3.3.52. There were two additional notable plant species that are Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. The species were chamomile *Chamaemelum nobile* and pennyroyal *Mentha pulegium*.

3.3.53. No notable plant species listed on Schedule 8 of the WCA or Section 7 of the Environment (Wales) Act 2016 were identified during the field survey, and, although the field survey was carried out over a short period of time, it was carried out during the optimal season for botanical survey. Although bluebell was recorded during the field survey, this was the hybrid between the native and non-native bluebell, and therefore is not protected by the WCA. However, the survey was conducted late in the botanical season, and therefore the native bluebell may be present within woodland habitats in the Survey Area, 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.

4.1. STATUTORY DESIGNATED SITES

4.1.1. Three Special Areas of Conservation (SACs) were identified during the desk study.

4.1.2. Glaswelltiroedd Cefn Cribwr/Cefn Cribwr Grasslands SAC is 4.3 km south of the Site, and there is no functional connectivity between the Site and this SAC. Therefore, the Proposed Development is not considered likely to impact the Glaswelltiroedd Cefn Cribwr/Cefn Cribwr Grasslands SAC, and no further recommendations are made.

4.1.3. Kenfig/Cynffig SAC is 6.1 km south-west of the Site. Streams and rivers within the Site flow into the Afon Llynfi, which itself is a tributary of Afon Ogwr, which is directly to the south of the Kenfig/Cynffig SAC. Despite this hydrological connectivity, due to the distance between the Site and the SAC (6.1 km directly, and over 20 km fluvially), the Proposed Development is not considered likely to impact the Kenfig/Cynffig SAC, and therefore no further recommendations are made.

4.1.4. Blackmill Woodlands SAC is 8.2 km south-east of the Site. There is no functional connectivity between the Site and this SAC. Therefore, the Proposed Development is not considered likely to impact the Blackmill Woodlands SAC, and no further recommendations are made.

4.1.5. No national statutory designated sites were identified within 2 km of the Site.

4.2. NON-STATUTORY DESIGNATED SITES

4.2.1. The Proposed Development should seek to avoid direct and indirect impacts to all Wildlife Sites/SINCs (adopted) that lie within the Survey Area and the vicinity. The Wildlife Sites/SINCs (adopted) within the Site (Abercerdin Wood, Caerau West, Cwm Cerdin, Gilfach Uchaf, and Nant-y-Castell Grasslands) are described in Table 3-2. If it is not feasible to avoid impacts to Wildlife Sites/SINCs (adopted), the local authority should be consulted before a design is developed.

4.2.2. The B-Line is of a sufficient distance from the Site as to not be impacted by the Proposed Development, and therefore no further recommendations are made.

4.3. HABITATS

4.3.1. Multiple habitat parcels across the Survey Area have been identified during the Phase 1 habitat survey as various Priority Habitats in accordance with Section 7 of the Environment (Wales) Act 2016. These Priority Habitats are ‘lowland dry acid grassland’, ‘purple moor-grass and rush pasture’, ‘lowland fen’, ‘rivers’, ‘upland oakwoods’, hedgerows’, ’lowland mixed deciduous woodland’ and ‘wet woodland’. These are associated with various habitats throughout the Survey Area, and are shown on Figure 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.’

4.3.2. Two AWI parcels were also identified with the Site. These are also shown on Figure 5.

4.3.3. 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 in development. For any loss of Priority Habitat, replacement habitat commensurate with that lost should be provided within the design. This could include, for example, restoring habitats that are considered to be low quality Priority Habitats.

4.3.4. Furthermore, AWI parcels are irreplaceable habitats, and the Proposed Development should seek to avoid loss of these habitats through sensitive scheme design. If this is not feasible, consultation with the local authority should be completed as part of design development.

4.3.5. The watercourses identified within the Survey Area may support protected and/or notable aquatic species. However, given the scope and the nature of the Proposed Development, it is anticipated that any impacts to watercourses can be avoided through the implementation of embedded mitigation measures in accordance with best practice, as detailed in Section 4.7. If the scope and/or nature of the Proposed Development were to change, and impacts to watercourses were to be expected, then a further survey by a suitably experienced ecologist would be recommended.

4.4. PROTECTED AND NOTABLE SPECIES

4.4.1. The results of the desk study, habitat survey and protected species assessment highlighted the presence or potential presence of several protected species or species of conservation concern within the Survey Area. These include bats, badger, otter, water vole, other mammals, birds, common and widespread amphibians, common and widespread reptiles, fish, invertebrates, INNS, and notable plants. 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

4.4.2. All species of bats recorded within the UK are protected from killing, injury and disturbance[8] 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.

4.4.3. Certain species of bats, including the Bechstein's bat *Myotis bechsteinii*, greater horseshoe, lesser horseshoe, 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 habitats for these species when carrying out their statutory functions.

4.4.4. Suitable habitats were recorded during the DBW for foraging, commuting and roosting bats within the Survey Area. The Survey Area was assessed as having moderate habitat suitability for bats as

[8] 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.

per Collins (2023) due to the mosaic of woodland, grassland and watercourse habitats present within the Survey Area. The Survey Area is also connected to suitable habitats in the wider landscape which offers additional commuting and foraging habitat.

4.4.5. If these habitats are to be removed, fragmented or severed, further surveys should be undertaken in relation to bats, as detailed in Table 4-1 below.

4.4.6. Three trees during the field survey were assessed as having potential to support roosting bats. These are shown on Figure 4. If these trees are to be impacted by the Proposed Development, further surveys should be undertaken, as detailed in Table 4-1 below.

BADGER

4.4.7. 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 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.

4.4.8. The Survey Area has suitability for badgers for commuting, foraging, and sett building activities. No setts were identified during the habitat survey; however, badgers are a mobile species able to quickly build new setts in new locations. Should suitable habitat be impacted, the Proposed Development presents the risk of damage/disturbance to a sett or a badger using a sett during vegetation clearance activities, particularly over woodland habitat.

4.4.9. For this reason, it is recommended that suitable habitat for badger is avoided where possible. Further survey requirements are described in Table 4-1 if such habitat cannot be avoided. Ecological avoidance, mitigation and compensation requirements to minimise effects on badgers are described in Section 4.6.

DORMICE

4.4.10. Dormice are fully protected under the Habitats Regulations and afforded additional protection under the WCA. Dormice 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 habitats for these species when carrying out their statutory functions.

4.4.11. Dormice are considered likely absent from the Survey Area. However, there is nesting and foraging suitability of the habitats recorded within the Survey Area (which include woodland and scrub), and these habitats are likely to be impacted through vegetation clearance. Therefore, it is recommended that an Ecological Clerk of Works (ECoW) is present on Site prior to works commencing to deliver a toolbox talk to all Site personnel to advise on the possibility of dormice being present during the works. Works should be conducted under a Precautionary Method of Works (PMoW). If a dormouse or evidence of dormice is identified during the vegetation clearance works, a licence should be sought from NRW. This is considered necessary only in the southern section of the Survey Area, as habitats within the northern section were not considered suitable to support dormice.

OTTER

4.4.12. 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.

4.4.13. Otters are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation under Section 7 to have regard for these species when carrying out their functions.

4.4.14. The Survey Area has been assessed as having suitability for supporting otter within the watercourses; the Proposed Development presents the following risks to otters:

- Disturbance to otters and/or their resting places.
- Loss of suitable habitat.
- Indirect impacts effects to river habitat such as pollution run-off.

4.4.15. For these reasons, impact to rivers, and the associated woodland, should be avoided wherever practicable and works should be carried out as per environmental best practice (Section 4.7) to avoid impact to river habitat. A follow-up riparian mammal survey to fully understand the extent to which otters may be using the watercourses is recommended, as detailed in Table 4-1. Ecological avoidance, mitigation and compensation requirements to minimise effects on otters are described in Section 4.6.

WATER VOLE

4.4.16. Water voles are protected from killing and injury and disturbance in their places of rest or shelter, and their places of rest or shelter are protected from damage, destruction or obstruction under the WCA. Activities that would otherwise constitute an offence under this legislation may be licensed by NRW for certain purposes.

4.4.17. Water voles are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation under Section 7 to have regard for these species when carrying out their functions.

4.4.18. The northern section of the Survey Area has been assessed as supporting water vole by CSA Environmental (2024d). The same survey identified water vole as likely absent from the southern section of the Site. The Proposed Development presents the following risks to water voles:

- Disturbance to water voles and/or their resting places.
- Loss of suitable habitat.
- Indirect impacts effects to river habitat such as pollution run-off.

4.4.19. For these reasons, impact to watercourses and habitats identified during the water vole survey as suitable to support water voles should be avoided wherever practicable and works should be carried out as per environmental best practice (Section 4.7) to avoid impact to river habitat. In the case that this is not possible, a licence should be sought from NRW in order to carry out works associated with the Proposed Development. Ecological avoidance, mitigation and compensation requirements to minimise effects on water voles are described in Section 4.6.

OTHER MAMMALS

4.4.20. Brown hare are offered protection under Section 10A of the WCA, which protects brown hare from killing at certain times of year.

4.4.21. Hedgehogs are listed on Schedule 6 of the WCA. This protects these species from certain methods of killing or taking.

4.4.22. Brown hare, hedgehogs and harvest mouse are listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation under Section 7 to have regard for these species when carrying out their functions.

4.4.23. The Survey Area has suitability for these and other mammals due to the habitats present, including woodland habitat, marshy grassland, and grazed fields. Should suitable habitat be impacted, the Proposed Development presents the following risks:

- Killing/injury of mammals through vegetation clearance/other intrusive works and removal of their habitats.

4.4.24. For this reason, 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 mammals being present during the works and what to do should they be identified.

BIRDS

4.4.25. Under the WCA all wild birds are protected from killing and injury, and their nests and eggs protected from taking, damage and destruction whilst in use. Additional protection is extended to species listed under Schedule 1 of the WCA, meaning it is also an offence to disturb these species at or near the nest, or whilst they have dependent young. Red kite, listed on Schedule 1 of the WCA, was observed during the Phase 1 habitat survey, and suitable habitat to support red kite was recorded within the Survey Area in woodlands.

4.4.26. Honey buzzard are listed on Annex I of the Birds Directive, and are known to breed in the area surrounding the Site. Suitable habitat to support honey buzzard was recorded within the Survey Area in woodlands.

4.4.27. Nightjar surveys are also listed on Annex I of the Birds Directive. Suitable habitat for foraging and breeding nightjars exists within woodlands and adjacent open areas within the Survey Area.

4.4.28. Various bird species are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016, several of which were identified with 1 km of the Site from the desk study.

4.4.29. The Site contained a range of habitats with suitability to support common and widespread breeding birds. This includes breeding waders and other upland species. Mitigation measures to avoid effects on birds are described in Section 4.5 below.

4.4.30. Vegetation clearance should be avoided during the breeding bird season in the first instance. If works cannot avoid the breeding bird season, then all vegetation and suitable nesting habitats must be hand-searched by a suitably qualified ecologist immediately prior to removal.

4.4.31. Birds may also be impacted through collision with or electrocution on transmission lines or supporting structures. The significance of collision and electrocution depends on the bird species present and design of the power network. It also depends on whether or not the preferred route corridor is within connectivity range of an international statutory designated site. There are no international statutory designated sites within 10 km of the Site that are designated for the presence of birds.

4.4.32. Due to the collision risk, it is recommended that a Site visit is undertaken by a suitably experienced ornithologist in order to identify the further survey requirements at the Site. These surveys are likely to include surveys to characterise the magnitude of flight activity along the length of the route and identify the range of species that may be at risk from collision. The Site visit will identify the specific requirement for further surveys, which are likely to include a raptor roost survey, and Vantage Point (VP) surveys. Other ornithological surveys may also be required.

AMPHIBIANS

4.4.33. Common toad is listed as a Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation to have regard for these species when carrying out their functions.

4.4.34. The Site has suitability for common and widespread amphibians. These habitats include broad-leaved woodland, scrub, and grassland. Suitable aquatic habitat for amphibians may be present within the rivers and streams identified within the Survey Area.

4.4.35. Should suitable terrestrial habitat be impacted, the OHL Development presents the following risks to amphibians:

- Killing/injury of amphibians through vegetation clearance/other intrusive works, and removal of their habitats.

4.4.36. For these reasons, impact to all habitat suitable for amphibians (including terrestrial habitat) should be avoided wherever practicable.

4.4.37. Where this is not possible, 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. Works should be conducted under a PMoW.

REPTILES

4.4.38. Native widespread reptile species (common lizard, adder, grass snake *Natrix helvetica* and slow worm) are partially protected under Schedule 5 of the WCA. This includes protection from killing and injury.

4.4.39. 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 habitats for this species when carrying out their statutory functions.

4.4.40. The Survey Area has suitability for reptiles due to the habitats present. Should suitable habitat be impacted, the Proposed Development presents the following risks to reptiles:

- Killing/injury of reptiles through vegetation clearance/other intrusive works, and removal of their habitats.

4.4.41. For this reason, it is recommended that suitable habitat for reptiles is avoided where possible. Given the small areas of vegetation clearance likely required to facilitate the Proposed Development, it is considered that, if it is not possible to avoid reptile-suitable habitat, works can progress under a PMoW under supervision of an ECoW.

4.4.42. Any refugia and hibernacula, such as the brash and stone walls, should be retained and protected where possible. If this is not possible, it should be dismantled under supervision of an ECoW during the active season.

4.4.43. Any removal of vegetation suitable to support hibernating reptiles should be carried out in the active season (March to October) to avoid potential impacts to hibernating reptiles.

INVERTEBRATES

4.4.44. Common and widespread habitats within the Survey Area were considered suitable to support mainly common invertebrate species. Should suitable habitat be removed, the Proposed Development presents the risks of loss of habitat (e.g. broadleaved semi-natural woodland) used by invertebrates.

4.4.45. Targeted terrestrial invertebrate presence/likely absence surveys are not considered necessary. Enhancement measures to ensure the Survey Area remains suitable for terrestrial invertebrates are included in Section 4.8, and lost habitats should be replaced on a ratio of at least 1:1.

INNS

4.4.46. 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.

4.4.47. Presence of the INNS, Indian balsam and Japanese knotweed, were recorded during the habitat survey, and presence of additional species cannot be ruled out. For these reasons, the Proposed Development presents the risk of the spread of Schedule 9 WCA plant species, resulting in an offence under the WCA.

4.4.48. Areas where INNS have been identified within the Site should be avoided where possible. Further recommendations, including further survey relating to INNS, are described in Table 4-1.

NOTABLE PLANTS

4.4.49. Habitats within the Survey Area were considered suitable to support the native bluebell, which is listed on Schedule 8 of the WCA, under which the intentional picking, uprooting or destruction of bluebells is prohibited.

4.4.50. It is recommended that all habitat considered suitable to support bluebells is avoided in the first instance. If this is not possible, it is recommended that the Proposed Development is undertaken in the presence of an ECoW, working under a PMoW.

4.5. FURTHER RECOMMENDATIONS

4.5.1. Recommendations for further ecological surveys are proposed in Table 4-1, to support legal and planning policy compliance.

Table 4-1 - Further Survey Requirements

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
Bats	Risk of disturbance to bats roosting in suitable trees via direct effect and/or artificial lighting. Risk of loss of suitable commuting and foraging habitat.	**In the event that habitats suitable to support foraging or commuting bats are to be impacted (woodland, riparian habitats, hedgerows and tree lines):** **Ground level bat activity surveys** – To include observation and manual and static bat detector surveys to establish the species assemblage and a measure of bat activity. This is likely to include automated static bat detector surveys. **In the event that trees identified as having Potential Roost Features (PRFs) are to be impacted:** **PRF inspection surveys –** To allow for a more detailed assessment of the likely suitability of the trees for bats, and to look for more conclusive evidence of bats. This may involve the use of tree climbing. Depending on the results of these surveys, further surveys may be required.	Automated/static bat detector surveys should collect a minimum of five consecutive nights of data per month (April/May to September/October, with surveys in April and October weather-dependent) in appropriate weather conditions. PRF inspection surveys can be carried out at any time of year.
Badger	Risk of damage or disturbance to a sett or a badger using its sett during vegetation clearance activities, particularly over woodland habitat.	A pre-works check for badger is recommended due to the ability of badger to create new setts in a short space of time (a minimum of two weeks in advance of works). Avoidance of potential setts by setting up exclusion zones. If disturbance to/destruction of setts cannot be avoided, then they must be excluded and closed under licence. In this instance further	Badgers can build setts at any time of year. Licences to exclude and close setts are typically only issued for use between 1st July and 30th November.

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
		surveys would be required to characterise the setts within the Survey Area and where access is possible, in the wider area.	
Otter	Risk of disturbance to otters and/or their resting places. Risk of loss of suitable habitat. Risk of indirect effects to river habitat such as pollution run-off.	**Riparian mammal survey** – To assess the use of the rivers and associated habitats by otter. This will involve a full survey of all of the watercourses within the Survey Area, including 200 m upstream and downstream of the Site. Depending on the results of the surveys and the design of the Proposed Development, additional surveys may be required, which may include trail camera monitoring of any identified potential otter resting places.	A visit can be carried out at any time of year. Signs are less visible after periods of heavy rainfall and/or flooding, and therefore surveys immediately after these weather conditions should be avoided.
Birds	Loss or disturbance of potential breeding, commuting and foraging bird habitat. Mortality through collision or electrocution with transmission cables.	**Scoping survey** – to identify the specific requirement of further ornithological surveys. These are likely to include raptor roost surveys and Vantage Point (VP) surveys but may also include other surveys. <u>Likely further surveys:</u> **Raptor roost survey** – during the non-breeding season to identify the possibility of communal roosts for raptors in suitable habitats within 2 km of the Site. **Vantage Point (VP) Flight Activity Surveys** – within the breeding season to quantify the level of flight activity and its distribution over the Survey Area. Each VP viewshed, to be selected following a review of habitat types within the Site. Each VP should be observed for a minimum of 12	The breeding bird season is considered to be April to August inclusive. The non-breeding season is considered to be September to March. The **scoping survey** can be undertaken at any time of year. The **raptor roost survey,** if required, should comprise two visits between January and March. **VP flight activity surveys,** if required, should be observed each month from April to June inclusive.

Ecological Receptor	Potential Constraints	Further Survey Requirements	Seasonal Constraints
		hours per month from April to June inclusive. These should be rotated between dawn, day and dusk as much as possible.	
Invasive non-native plant species (INNS)	Spread of Schedule 9 WCA plant species, resulting in an offence under the WCA.	A pre-works check up to four weeks prior to the commencement of the Proposed Development for INNS should be carried out. **In the event that areas where INNS are present cannot be avoided:** Treatment and removal of INNS to be carried out by suitably certified contractors.	The pre-works check can be carried out at any time. Most INNS are clearly identifiable between April and September inclusive.

4.6. PRELIMINARY AVOIDANCE, MITIGATION AND COMPENSATION MEASURES

4.6.1. 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 in Table 4-1 above. It should be noted that targeted mitigation measures including but not limited to habitat retention, 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.

- Works should be carried out as per environmental best practice (Section 4.7) to avoid indirect impacts to designated sites and Priority Habitats.
- 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.
- Ecological enhancements to include planting of pollinator friendly species for any habitat lost which is suitable for invertebrates (see further possibilities in Section 4.8).

4.7. ENVIRONMENTAL BEST PRACTICE

4.7.1. In addition, general environmental protection measures must be implemented during the construction phase of the Proposed Development. Such measures include best environmental practice guidance outlined in the Guidance for Pollution Prevention produced by NRW, the Northern Ireland Environment Agency (NIEA), the Scottish Environment Protection Agency (SEPA) and the Oil Care Campaign 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 boundary:

- Measures must be taken to prevent dust and other emissions from construction impacting land beyond the Survey Area.
- 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 construction site is closed (e.g. overnight) to prevent entrapment of animals.
- Retained trees must be protected in accordance with BS5837.
- Noise and vibration must be controlled and kept to the minimum necessary.
- As construction works are to be completed in the daytime, no lighting is expected. However, any lighting used for construction, required due to adverse weather conditions only, must be switched-off when not in use and positioned so as not to spill on to adjacent land or retained vegetation within the Survey Area.

4.8. ECOLOGICAL ENHANCEMENT OPPORTUNITIES

4.8.1. PPW (Edition 12, 2024) states:

4.8.2. "A Resilient Wales can be supported by protecting and providing sufficient scale, extent, diversity and connectivity within, and between, landscapes and habitats to maintain and enhance biodiversity

and the resilience of ecosystems. This support will enable them to withstand the pressures of change, to tackle pollution, to protect and enhance water resources, to protect soils and to enable flood mitigation, the creation of carbon sinks (especially in urban areas), and to promote opportunities for social and economic activity based on valuing and enabling access to the natural, historic and built environment.".

4.8.3. Net Benefit for Biodiversity (NBB) in association with development is encouraged by PPW (2024) and under Section 6 of Part 1 of the Environment (Wales) Act 2016. The below recommendations aim to comply with a NBB approach, in the way of delivering an overall improvement in biodiversity with the absence of a metric. By engaging with these recommendations in the early stages of the Proposed Works, it is hoped that ecosystem resilience and wider ecosystem benefits can be achieved. This approach will support local authorities in achieving their Section 6 duty to *"promote the resilience of ecosystems"* when determining planning applications.

4.8.4. Planning policy promotes the inclusion of ecological enhancement, accordingly it is recommended that consideration is given to the following enhancement measures:

- Planting of a variety of native species as part of landscaping to encourage invertebrates;
- Replacement of trees at a 3:1 ratio to those lost as a result of the Proposed Development;
- Installation of bird and bat boxes in trees to provide additional refuge sites and nesting opportunities for these species' groups;
- Create of species-rich grasslands by the incorporation of wildflower seed of local provenance;
- Invertebrate hotels and habitat piles to provide refuge for reptiles, amphibians and hedgehog; and
- Good horticultural practice should be utilised, including the use of peat-free composts, mulches and soil conditioners and favouring native plants of local provenance in landscaping.

4.8.5. These measures are to be detailed in a NBB report, which would describe how the Proposed Development has followed the step-wise approach and would thus lead to a NBB, as well as how the Proposed Development aligns with the DECCA framework. The step-wise approach, and the DECCA framework, are both described in PPW (2024).

5. CONCLUSIONS

5.1.1. In conclusion, the Proposed Development has the potential to impact upon the following ecological receptors: bats, badger, otter, water vole, other mammals, birds, amphibians, reptiles, fish, invertebrates, INNS and notable plants.

5.1.2. The following has been recommended:

- The Proposed Development should seek to avoid impacts to Wildlife Sites/SINCs (adopted) and AWI woodlands as far as possible. If this is not feasible, the local authority should be consulted before a design is developed.
- Avoidance of clearance of any Priority Habitat. If loss of these habitats cannot be avoided, they should be replaced to a higher biodiversity value at an appropriate replacement ratio.
- Avoidance of clearance of trees as far as possible. If loss of trees cannot be avoided, they should be replaced at a ratio of 3:1 in accordance with PPW (2024).
- Avoidance of habitats suitable to support water vole in the north of the Site. If this is not possible, a licence should be sought from NRW.
- Further surveys have been recommended for: bats, badger, otter, birds, and INNS.
- Vegetation clearance of suitable habitat for dormice, other mammals, breeding birds, amphibians, and reptiles will be carried out under a PMoW in the presence of an ECoW.
- Works should be carried out under Environmental Best Practice, which should be clearly laid out in a CEMP.
- Enhancement measures have been provided to work towards achieving a NBB. An NBB report will be produced to detail how the Proposed Development will lead to an NBB, in accordance with PPW (2024).

5.1.3. Results of the surveys recommended as part of this assessment will inform the need for any further licensing and/or mitigation requirements in line with national and local planning policy and legislation, including the delivery of biodiversity enhancements in accordance with duties under Section 6 of the Environment (Wales) Act 2016.

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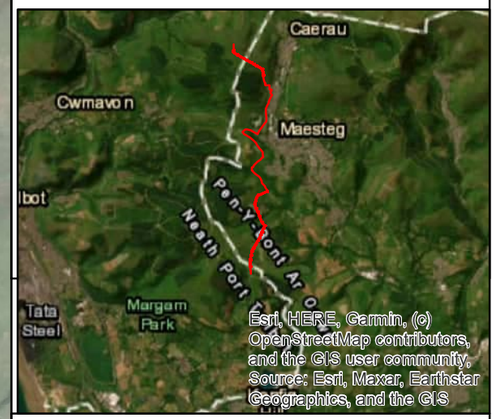
FIGURES

N

Legend

- Site
- Survey Area

0 0.5 1 Kilometres



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Project: FOEL TRAWSNANT

Title: SITE LOCATION

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Drawn: AM
Checked: GH
Approved: NB

Legend

- Site
- Survey Area
- 10km Buffer
- Special Areas of Conservation (SAC)

0 2 4 Kilometers

wsp

Client: PENNANT WALTERS

Project: FOEL TRAWSNANT

Title: STATUTORY DESIGNATED SITES WITHIN 10 KM

Drawing No:	Figure 2	Drawn:	AM
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AFAN MINERAL RAILWAY
Caerau North
Caerau West
Tudor West
Nant-y-Crynwydd
Craig Tal-y-Fan
Y Parc (north)
Cwm Cerwyn
Llwydarth Wood
Y Parc (south)
Cwm Sychbant
Abercerdin Wood
Llan Road Woods
Drysity'n-y-waun
Sychbant Fields
Cwm Cerdin
Waun-y-Gilfach woods
Nant-y-Castell Grasslands
Ty'n-y-Waun
Nant Bryncynan Woods
Gilfach Uchaf

N

Legend

- Site
- Survey Area
- Sites of Importance for Nature Conservation (SINCs)
- B-lines

0 1 2 Kilometres

wsp

Client: PENNANT WALTERS

Project: FOEL TRAWSNANT

Title: NON-STATUTORY DESIGNATED SITES WITHIN 2 KM

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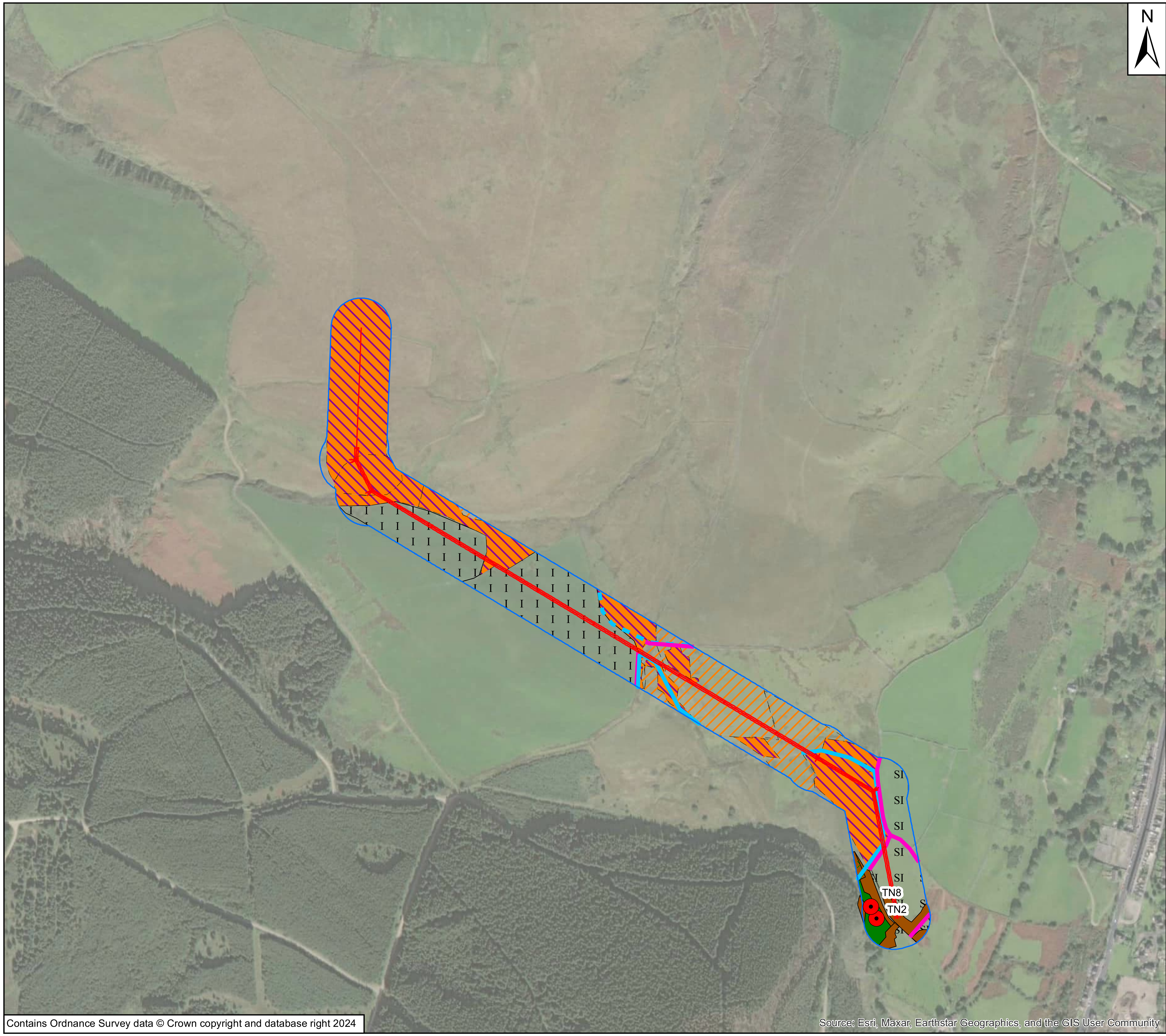

N

Legend

- Site
- Survey Area
- Target Note

Phase 1 Habitat Classification

- Broadleaved woodland - semi-natural
- Scrub - scattered
- Acid grassland - semi-improved
- Improved grassland
- Marsh/marshy grassland
- Poor semi-improved grassland
- Bracken - continuous
- Running water
- Wall
- Dry ditch

0 100 200 m

wsp

Client:

PENNANT WALTERS

Project:

FOEL TRAWSNANT

Title

PHASE 1 HABITAT RESULTS

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Scale:	6,100 @ A3	Approved:	GH

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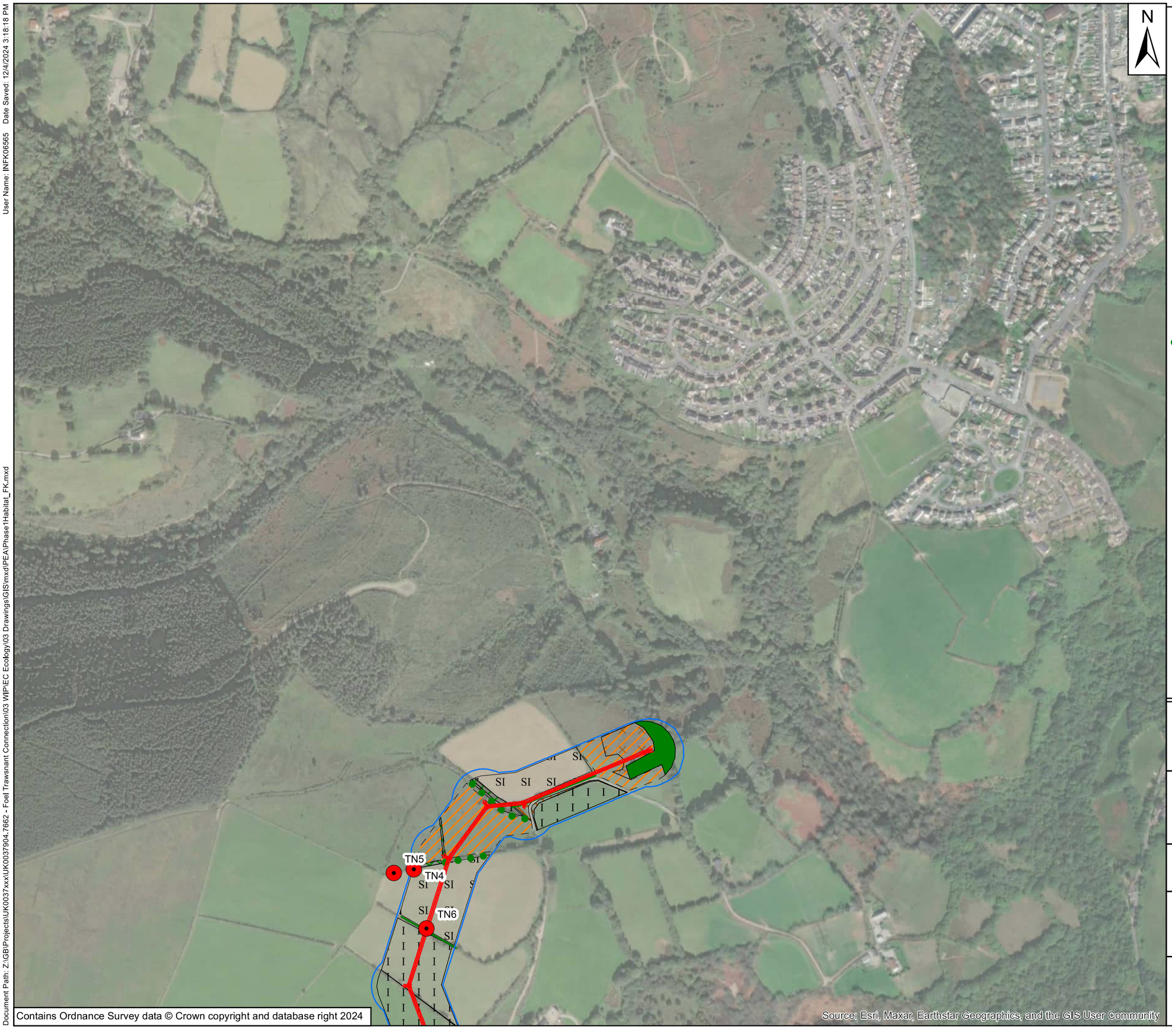

Legend

- Site
- Survey Area
- Target Note

Phase 1 Habitat Classification

- Broadleaved woodland - semi-natural
- Scrub - dense/continuous
- Acid grassland - semi-improved
- Improved grassland
- Poor semi-improved grassland
- Bracken - scattered
- Other tall herb and fern - ruderal
- Broadleaved Parkland/scattered trees
- Intact hedge - species-poor

0 100 200 m

wsp

Client: PENNANT WALTERS

Project: FOEL TRAWSNANT

Title: PHASE 1 HABITAT RESULTS

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

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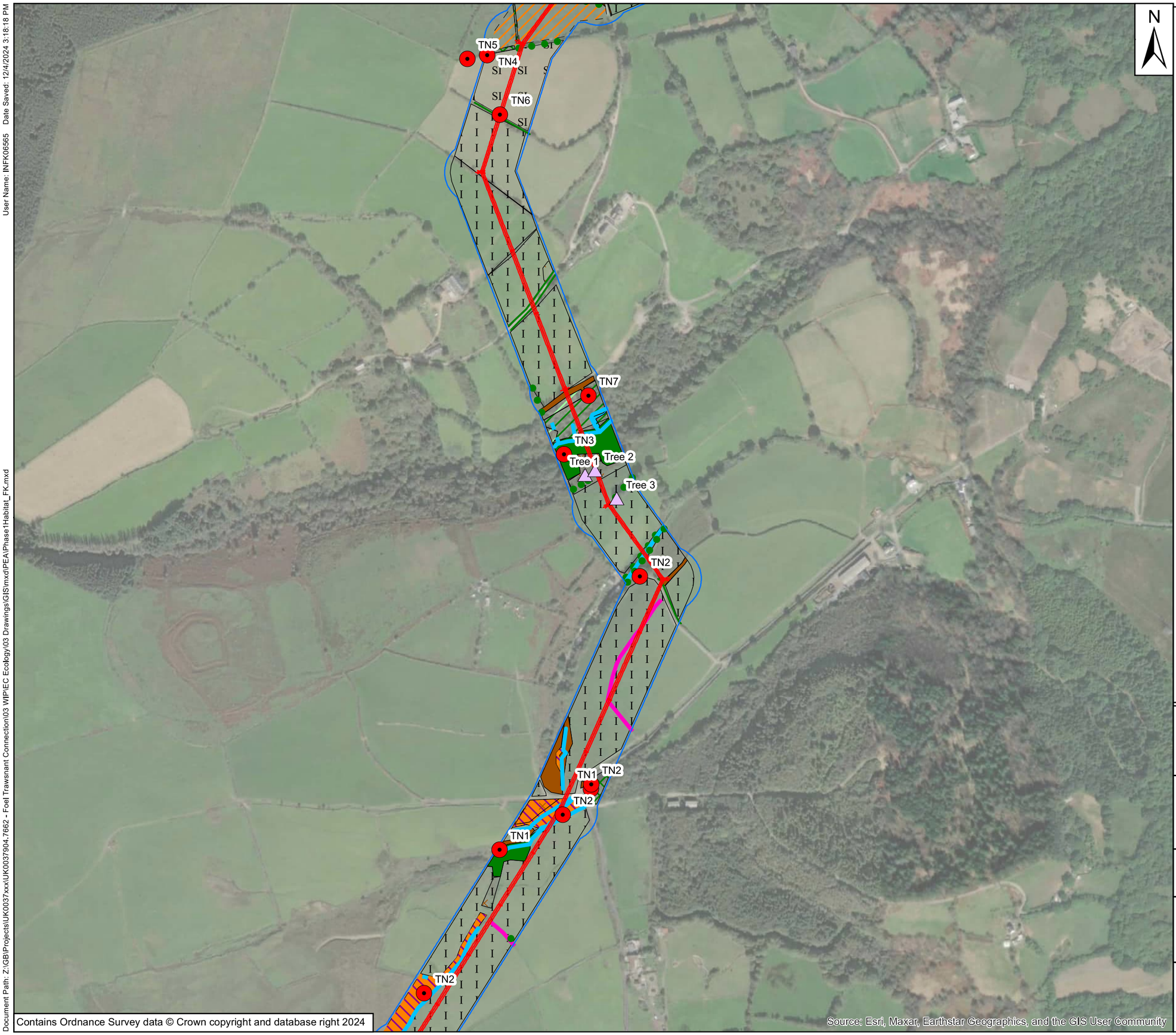

Legend

- Site
- Survey Area
- Target Note

Phase 1 Habitat Classification

- Broadleaved woodland - semi-natural
- Broadleaved woodland - plantation
- Coniferous woodland - plantation
- Scrub - dense/continuous
- Acid grassland - semi-improved
- Improved grassland
- Marsh/marshy grassland
- Poor semi-improved grassland
- Bracken - continuous
- Bracken - scattered
- Other tall herb and fern - ruderal
- Running water
- Broadleaved Parkland/scattered trees
- Running water
- Intact hedge - species-poor
- Wall
- Dry ditch

Trees with Bat Roosting Suitability

- PRF

0 100 200 m

Client: PENNANT WALTERS

Project: FOEL TRAWSNANT

Title: PHASE 1 HABITAT RESULTS

Drawing No:	Figure 4	Drawn:	LT
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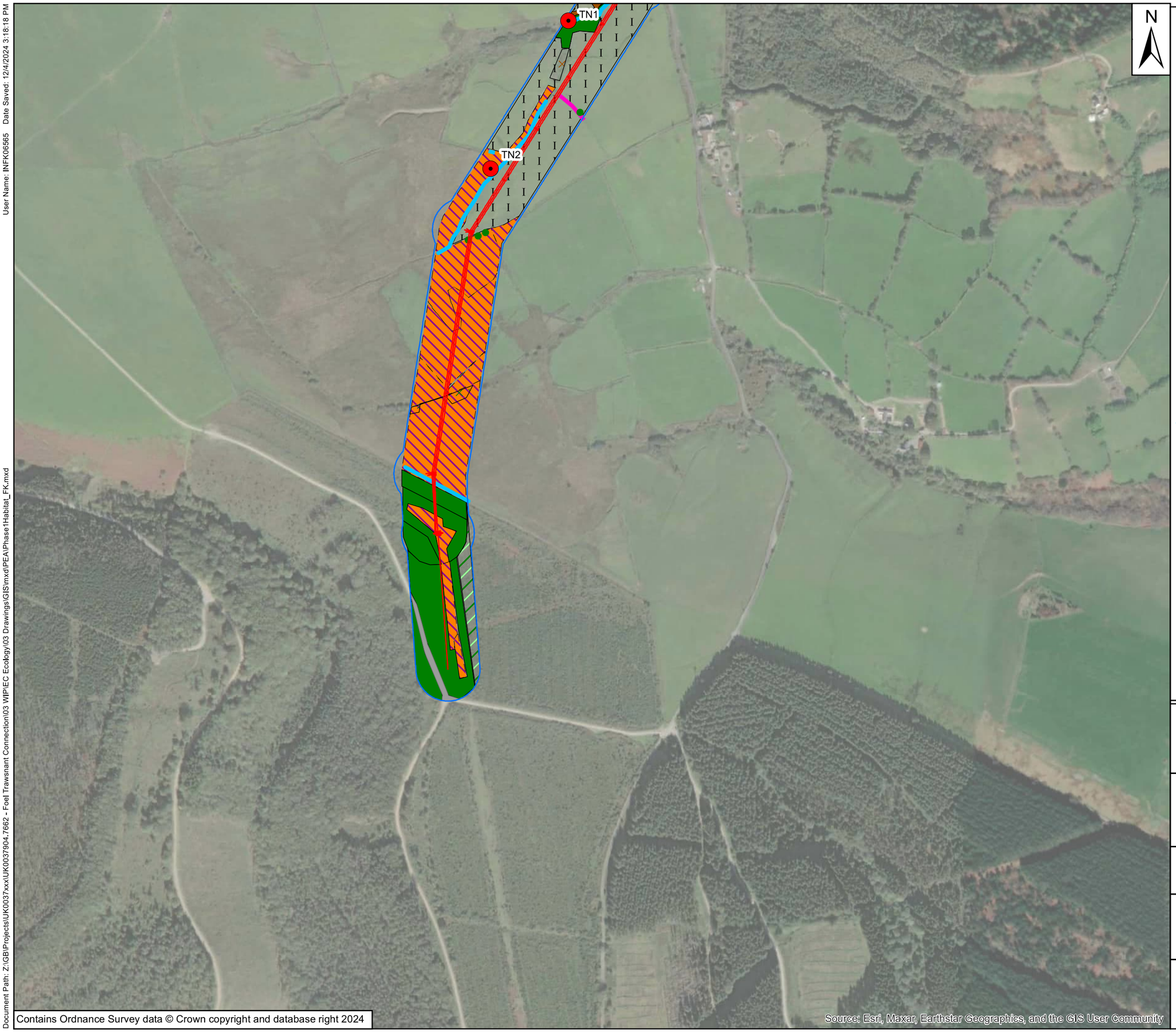

Legend

- Site
- Survey Area
- Target Note

Phase 1 Habitat Classification

- Broadleaved woodland - semi-natural
- Mixed woodland - plantation
- Scrub - scattered
- Improved grassland
- Marsh/marshy grassland
- Poor semi-improved grassland
- Bracken - continuous
- Bracken - scattered
- Hard standing
- Broad-Leaved Parkland/scattered trees
- Running water
- Wall
- Dry ditch

0 100 200 m

wsp

Client: PENNANT WALTERS

Project: FOEL TRAWSNANT

Title: PHASE 1 HABITAT RESULTS

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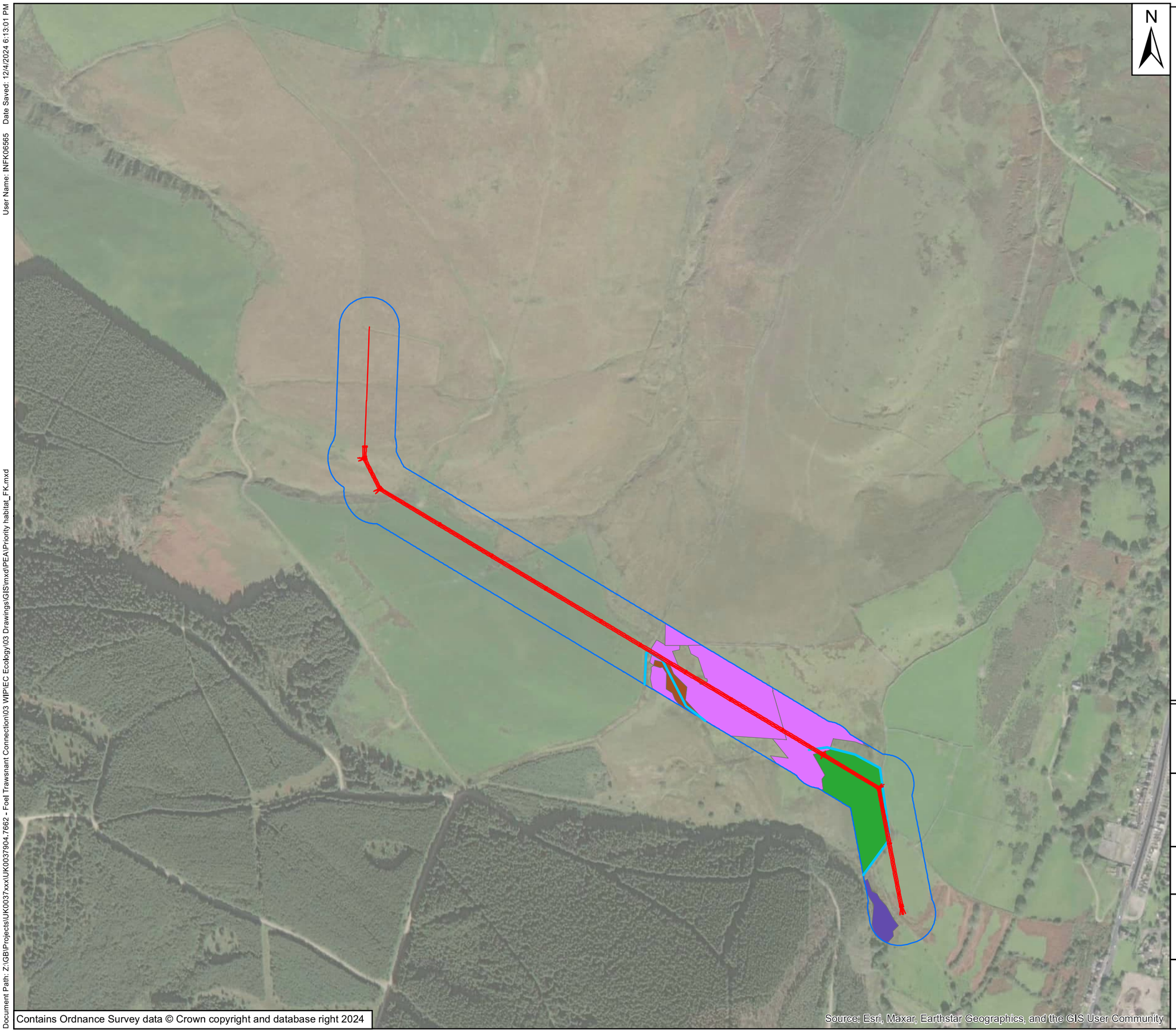

Legend

- Site
- Survey Area

Priority Habitats

- Lowland dry acid grassland
- Lowland fen
- Purple moor-grass and rush pasture
- Upland Oakwoods
- Rivers

0 100 200 m

wsp

Client: PENNANT WALTERS

Project: FOEL TRAWSNANT

Title: PRIORITY HABITATS AND ANCIENT WOODLAND MAP

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Date: 12/4/2024
Scale: 6,100 @ A3
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Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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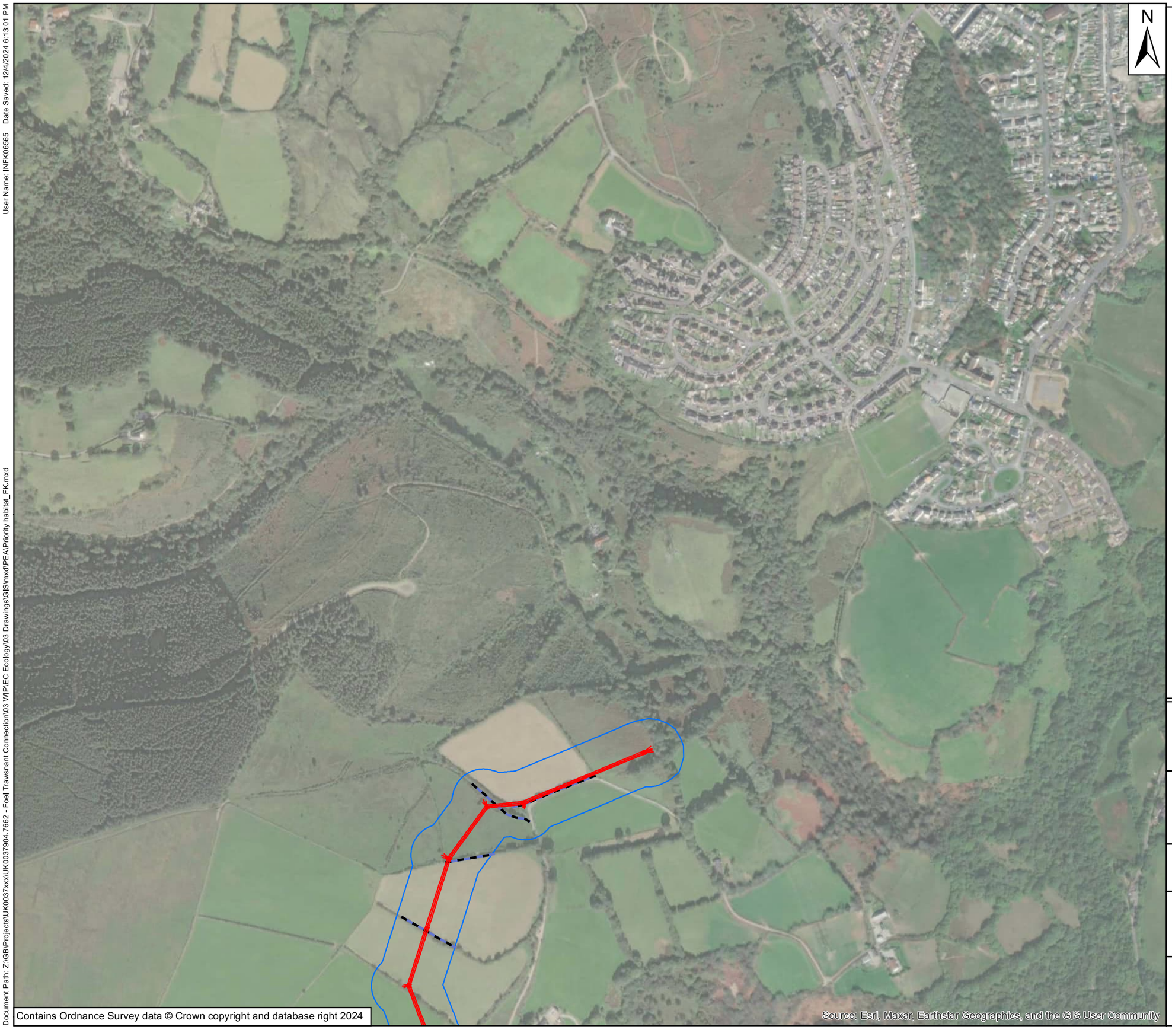

Legend

- Site
- Survey Area
- Hedgerows

0 100 200 m

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Client: PENNANT WALTERS

Project: FOEL TRAWSNANT

Title: PRIORITY HABITATS AND ANCIENT WOODLAND MAP

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Legend

- Site
- Survey Area

Priority Habitats

- Wet Woodland
- Lowland mixed deciduous woodland
- Purple moor-grass and rush pasture
- Hedgerows
- Rivers

Ancient Woodlands

- Ancient Semi-Natural woodland

0 100 200 m

wsp

Client: PENNANT WALTERS

Project: FOEL TRAWSNANT

Title: PRIORITY HABITATS AND ANCIENT WOODLAND MAP

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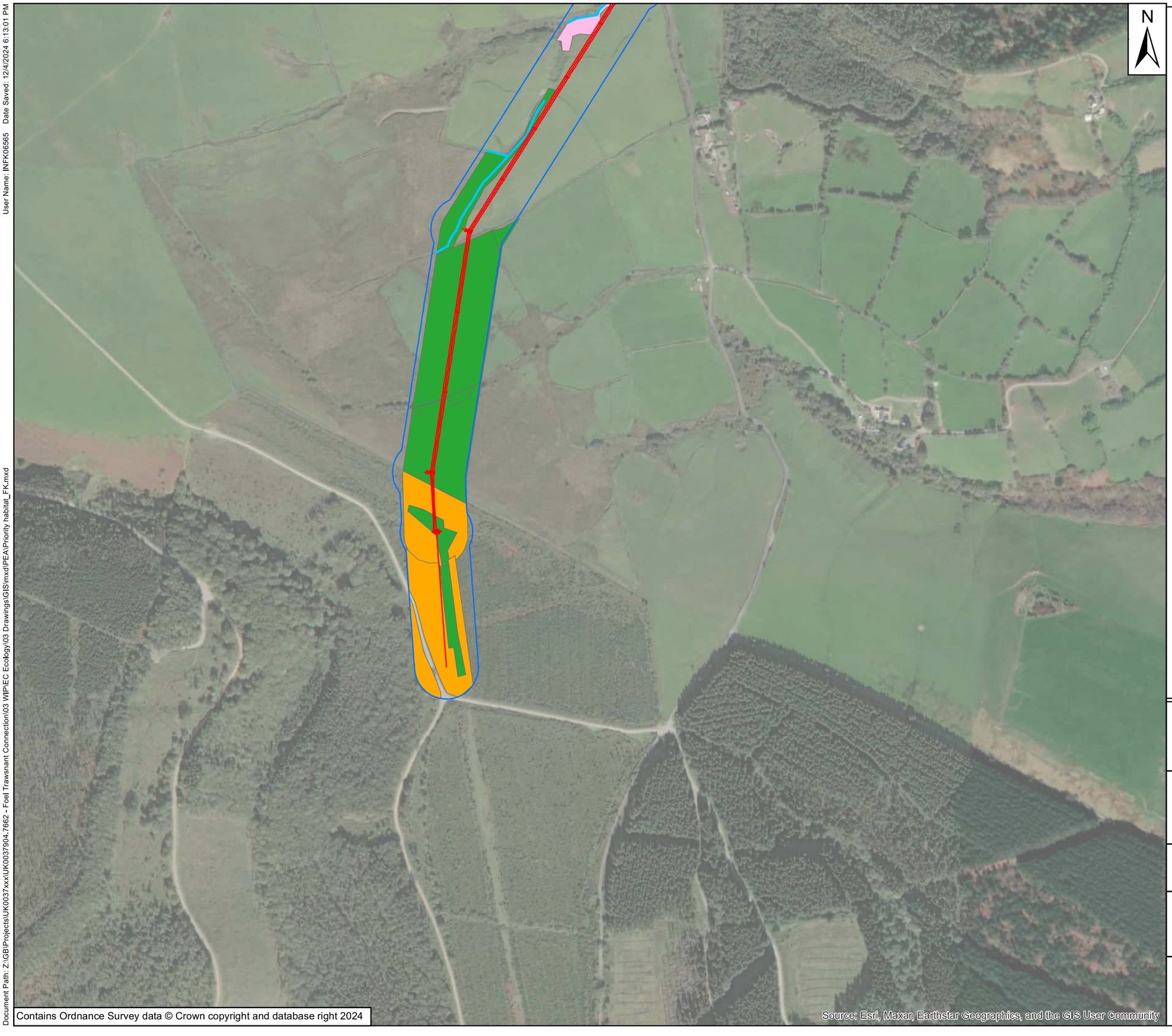

Legend

- Site
- Survey Area

Priority Habitats

- Wet Woodland
- Lowland mixed deciduous woodland
- Purple moor-grass and rush pasture
- Rivers

0 100 200 m

wsp

Client: PENNANT WALTERS

Project: FOEL TRAWSNANT

Title: PRIORITY HABITATS AND ANCIENT WOODLAND MAP

Drawing No: Figure 5
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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.

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.

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.

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, 2009[9]).

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, 2012[10]).

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.

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).

[9] 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.

[10] 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 16.05.24].

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		✓ [11](part)			✓[12]	✓[13]		✓[14]
Hazel Dormouse		✓ 5(part)			✓	✓		✓
Otter		✓ 5(part)			✓	✓		✓
Water vole		✓[15](full)				✓		✓

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

[12] 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.

[13] 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.

[14] 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.

[15] 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.

Reptiles		✓[16](part)		✓[9]	✓[17]	✓[18]		✓[19]
Amphibians		✓[20](part)		✓[21]	✓[22],[23]	✓[24]		
White-clawed Crayfish		✓[25](partial)			✓[26]	✓		✓
Invertebrates		✓[27](full/part)		✓	✓[28],[29]	✓[30]		✓[31]

[16] 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).

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

[18] 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.

[19] To view the current list of UK BAP priority herptile species visit: http://jncc.defra.gov.uk/page-5166 [Accessed 16.05.24].

[20] 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).

[21] 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.

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

[23] Great crested newt is the only amphibian listed on Annex II of the Habitats Directive.

[24] 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.

[25] 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.

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

[27] 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 16.05.24].

[28] 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.

[29] There are currently twelve invertebrates listed in Annex II of the Habitats Directive; White-clawed crayfish (*Austropotamobius pallipes*), Southern damselfly (*Coenagrion mercuriale*), Marsh fritillary butterfly (*Eurodryas aurinia*), Violet click beetle (*Limoniscus 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*).

[30] 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&usg=AFQjCNEpiUWYuOqhVcfSDvi_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 16.05.24]

[31] To view the current list of UK BAP priority invertebrates visit: http://jncc.defra.gov.uk/page-5169 [Accessed 16.05.24].

Fish		✓[32](full/part)		✓[9]	✓[33],[34]	✓[35]		✓[36]
Plants			✓[37]	✓[9]	✓[38],[39]	✓[40]		✓[41]

[32] 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 16.05.24].

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

[34] 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 16.05.24].

[35] 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.

[36] To view the current list of UK BAP priority fish visit: http://jncc.defra.gov.uk/page-5164 [Accessed 16.05.24].

[37] To view the current list of Schedule 8 listed plants visit: http://www.legislation.gov.uk/ukpga/1981/69/schedule/8 [Accessed 16.05.24].

[38] There are nine plant species designated as European Protected Species. To view the current list visit: http://www.legislation.gov.uk/uksi/2010/490/schedule/5/made [Accessed 16.05.24].

[39] To view the current list of plant species on Annex II of the Habitats Directive visit: http://jncc.defra.gov.uk/page-1523 [Accessed 16.05.24].

[40] 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 16.05.24].

[41] 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 16.05.24].

Appendix B

SUMMARY OF ECOLOGICAL DESK STUDY DATA

Table B-1 – Protected and / or notable mammals for which records have been identified within 2 km of the Site

Species Common Name	Species Latin Name	No. of Records	Distance between Site and closest record (m)	Legal / Conservation Status[42]
Bat	*Chiroptera*	1	1968	EPS, WCA5
Brown Hare	*Lepus europaeus*	1	1720	S7
Brown Long-eared Bat	*Plecotus auritus*	3	2066	EPS, HDir, WCA5, S7, Bern, RDB2 (UK)
Common Pipistrelle	*Pipistrellus pipistrellus*	5	1466	EPS, HDir, WCA5, S7, Bern, RDB2 (UK)
Daubenton's Bat	*Myotis daubentonii*	3	1911	EPS, HDir, WCA5, Bern, RDB2 (UK)
Eastern Grey Squirrel	*Sciurus carolinensis*	9	62	WCA9, INNS
Eurasian Badger	*Meles meles*	2	1091	BA, Bern
Eurasian Otter	*Lutra lutra*	3	873	EPS, HDir, WCA5, S7, Bern, CITES, RDB2 (UK)
Greater Horseshoe Bat	*Rhinolophus ferrumequinum*	3	3838	EPS, HDir, WCA5, AnII, S7, Bern, RDB2 (UK)
Hazel Dormouse	*Muscardinus avellanarius*	1	1836	EPS, HDir, WCA5, S7, Bern, RDB2 (UK)
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	4	3838	EPS, HDir, WCA5, AnII, S7, Bern, RDB2 (UK)
Myotis Bat species	*Myotis*	1	428	EPS, HDir, WCA5, Bern
Natterer's Bat	*Myotis nattereri*	1	1669	EPS, HDir, WCA5, Bern, RDB2 (UK)
Noctule Bat	*Nyctalus noctula*	3	1669	EPS, HDir, WCA5, S7, Bern, RDB2 (UK)

[42] PBA = Protection of Badgers Act, EPS = European Protected Species, INNS = Invasive Non-Native Species, S7 = Environment Act (Wales) Section 7 Species, WCA5 = Wildlife and Countryside Act Schedule 5 Species, WCA9 = Wildlife and Countryside Act Schedule 9 Species, WCA1.1 = Wildlife and Countryside Act Schedule 1 Part 1 Species, WCA1.2 = Wildlife and Countryside Act Schedule 1 Part 2 Species.

Species Common Name	Species Latin Name	No. of Records	Distance between Site and closest record (m)	Legal / Conservation Status[42]
Pipistrelle Bat species	*Pipistrellus*	4	583	EPS, WCA5
Soprano Pipistrelle	*Pipistrellus pygmaeus*	3	1669	EPS, S7, WCA5
West European Hedgehog	*Erinaceus europaeus*	10	1001	S7

Table B-2 - Protected and / or notable amphibians and reptiles for which records have been identified within 2 km of the Site

Species Common Name	Species Latin Name	No. of Records	Distance between Site and closest record (m)	Legal / Conservation Status
Common Frog	*Rana temporaria*	6	21	HDir, WCA5, Bern
Common Toad	*Bufo bufo*	4	21	WCA5, S7, Bern
Palmate Newt	*Lissotriton helveticus*	6	779	WCA5, Bern
Adder	*Vipera berus*	15	1405	WCA5, S7, Bern
Common Lizard	*Zootoca vivipara*	20	21	WCA5, S7, Bern
Grass Snake	*Natrix helvetica*	9	1418	WCA5, S7, Bern
Slow worm	*Anguis fragilis*	6	1223	WCA5, S7, Bern

Table B-3 - Protected and / or notable birds for which records have been identified within 2 km of the Site

Species Common Name	Species Latin Name	No. of Records	Distance between Site and closest record (m)	Legal / Conservation Status[43]

[43] Amber list = BoCC Wales Amber list species, Red list = BoCC Wales Red list species

Barn Owl	*Tyto alba*	18	18	WCA1.1, WCA9, Bern, CITES
Black Redstart	*Phoenicurus ochruros*	3	3	WCA1.1, Bern, WBAm(RSPB), UKBR(RSPB)
Black-headed Gull	*Chroicocephalus ridibundus*	3	3	BDir22, S7, WBR(RSPB), UKBAm(RSPB)
Brambling	*Fringilla montifringilla*	9	9	WCA1.1, WBAm(RSPB)
Bullfinch	*Pyrrhula pyrrhula*	41	41	S7, WBR(RSPB), UKBAm(RSPB)
Canada Goose	*Branta canadensis*	4	4	BDir21, WCA9, INNS
Common Scoter	*Melanitta nigra*	1	1	BDir22, WCA1.1, S7, WBAm(RSPB), UKBR(RSPB)
Crossbill	*Loxia curvirostra*	31	31	WCA1.1, Bern, LI(VC43)
Cuckoo	*Cuculus canorus*	39	39	S7, WBR(RSPB), UKBR(RSPB)
Curlew	*Numenius arquata*	1	1	BDir22, S7, WBR(RSPB), LI(VC43), UKBR(RSPB),
Dartford Warbler	*Curruca undata*	3	3	BDir1, WCA1.1, WBAm(RSPB), UKBAm(RSPB),
Dunnock	*Prunella modularis*	53	53	S7, Bern, UKBAm(RSPB)
Fieldfare	*Turdus pilaris*	19	19	BDir22, WCA1.1, WBAm(RSPB), UKBR(RSPB)
Firecrest	*Regulus ignicapilla*	4	4	WCA1.1, Bern, WBAm(RSPB), LI(VC43),
Golden Plover	*Pluvialis apricaria*	9	9	BDir1, BDir22, S7, WBR(RSPB), LI(VC43)
Goshawk	*Accipiter gentilis*	32	32	WCA1.1, WCA9, CITES
Grasshopper Warbler	*Locustella naevia*	24	24	S7, WBR(RSPB), UKBR(RSPB)
Hen Harrier	*Circus cyaneus*	4	4	BDir1, WCA1.1, S7, CITES, WBR(RSPB), LBAP (BBNP, CON, DEN, FLI, GWY, POW, SNP, VOG), LI(VC43)

Herring Gull	*Larus argentatus*	25	25	BDir22, S7, WBR(RSPB), UKBR(RSPB)
House Martin	*Delichon urbicum*	41	41	Bern, UKBAm(RSPB)
House Sparrow	*Passer domesticus*	33	33	S7, WBAm(RSPB), UKBR(RSPB)
Kestrel	*Falco tinnunculus*	25	25	S7, Bern, CITES, WBR(RSPB), LI(VC43), UKBAm(RSPB)
Kingfisher	*Alcedo atthis*	1	1	BDir1, WCA1.1, Bern, WBAm(RSPB), UKBAm(RSPB)
Lapwing	*Vanellus vanellus*	4	4	BDir22, S7, WBR(RSPB), LI(VC43), UKBR(RSPB)
Lesser Redpoll	*Acanthis cabaret*	15	15	S7, LBAP (CON), WBAm(RSPB), UKBR(RSPB)
Lesser Spotted Woodpecker	*Dryobates minor*	2	2	S7, Bern, WBR(RSPB), LI(VC43), UKBR(RSPB)
Linnet	*Linaria cannabina*	29	29	S7, Bern, WBR(RSPB), UKBR(RSPB)
Marsh Harrier	*Circus aeruginosus*	1	1	BDir1, WCA1.1, CITES, WBAm(RSPB), UKBR(RSPB), UKBAm(RSPB)
Marsh Tit	*Poecile palustris*	1	1	S7, Bern, WBR(RSPB), UKBR(RSPB)
Merlin	*Falco columbarius*	6	6	BDir1, WCA1.1, Bern, CITES, WBR(RSPB), LI(VC43), UKBR(RSPB)
Nightjar	*Caprimulgus europaeus*	35	35	BDir1, S7, Bern, WBAm(RSPB), LI(VC43), UKBAm(RSPB),
Osprey	*Pandion haliaetus*	2	2	BDir1, WCA1.1, CITES, WBAm(RSPB), UKBAm(RSPB)
Peregrine	*Falco peregrinus*	10	10	BDir1, WCA1.1, Bern, CITES, LI(VC43)
Pied Flycatcher	*Ficedula hypoleuca*	5	5	S7, WBR(RSPB), UKBR(RSPB)

Pintail	*Anas acuta*	1	1	BDir21, WCA1.2, CITES, WBAm(RSPB), UKBAm(RSPB)
Quail	*Coturnix coturnix*	1	1	BDir22, WCA1.1, WBAm(RSPB), LI(VC43), UKBAm(RSPB)
Red Kite	*Milvus milvus*	50	50	BDir1, WCA1.1, WCA9, CITES, WBAm(RSPB)
Redwing	*Turdus iliacus*	30	30	BDir22, WCA1.1, WBAm(RSPB), UKBR(RSPB)
Reed Bunting	*Emberiza schoeniclus*	39	39	S7, Bern, WBAm(RSPB), UKBAm(RSPB)
Ring Ouzel	*Turdus torquatus*	3	3	S7, Bern, WBR(RSPB), LI(VC43), UKBR(RSPB)
Ringed Plover	*Charadrius hiaticula*	1	1	S7, Bern, WBR(RSPB), UKBR(RSPB)
Skylark	*Alauda arvensis*	34	34	BDir22, S7, WBAm(RSPB), UKBR(RSPB)
Song Thrush	*Turdus philomelos*	61	61	BDir22, S7, Bern, WBAm(RSPB), UKBR(RSPB)
Spotted Flycatcher	*Muscicapa striata*	16	16	S7, Bern, WBR(RSPB), UKBR(RSPB)
Starling	*Sturnus vulgaris*	32	32	BDir22, S7, Bern, WBR(RSPB), UKBR(RSPB)
Swift	*Apus apus*	43	43	WBAm(RSPB), UKBAm(RSPB)
Tree Pipit	*Anthus trivialis*	35	35	S7, Bern, WBAm(RSPB), UKBR(RSPB)
Whimbrel	*Numenius phaeopus*	1	1	BDir22, WCA1.1, WBAm(RSPB), UKBR(RSPB)
Willow Tit	*Poecile montanus*	6	6	S7, Bern, WBR(RSPB), LI(VC43), UKBR(RSPB)
Wood Warbler	*Phylloscopus sibilatrix*	17	17	S7, WBR(RSPB), UKBR(RSPB),
Woodlark	*Lullula arborea*	1	1	BDir1, WCA1.1, S7
Wryneck	*Jynx torquilla*	1	1	WCA1.1, Bern

Yellowhammer	*Emberiza citrinella*	1	1	S7, Bern, WBR(RSPB), UKBR(RSPB)

Table B-4 - Protected and / or notable fish for which records have been identified within 2 km of the Site

Species Common Name	Species Latin Name	No. of Records	Distance between Site and closest record (m)	Legal / Conservation Status
Brown/Sea Trout	*Salmo trutta*	1	596	S7, LI(BIS)

Table B-5 - Protected and / or notable invertebrates for which records have been identified within 2 km of the Site

Species Common Name	Species Latin Name	No. of Records	Distance between Site and closest record (m)	Legal / Conservation Status
Black Oil-beetle	*Meloe proscarabaeus*	11	158	S7
Harlequin Ladybird	*Harmonia axyridis*	18	329	INNS
Violet Oil-beetle	*Meloe violaceus*	1	1721	S7, RDB2 (UK) - NB
Dingy Skipper	*Erynnis tages*	14	431	S7, RDB1 (UK) - VU, LI(SEWBReC)
Grayling	*Hipparchia semele*	7	1064	S7, RDB1 (UK) - VU, LI(SEWBReC), LI(VC43)
Grayling	*Hipparchia semele semele*	1	1889	S7, RDB1 (UK) – VU, LI(SEWBReC), LI(VC43)
Marsh Fritillary	*Euphydryas aurinia*	1	2546	HDir, WCA5, S7, Bern, RDB1 (UK) - VU, LI(SEWBReC)
Small Blue	*Cupido minimus*	2	1469	WCA5, S7, RDB1 (UK) - NT, LI(SEWBReC)
Small Heath	*Coenonympha pamphilus*	27	21	S7, RDB1 (UK) - NT
Small Pearl-bordered Fritillary	*Boloria selene*	15	688	S7, RDB1 (UK) - NT, LI(SEWBReC), LI(VC43)

Wall	*Lasiommata megera*	3	329	S7, RDB1 (UK) - NT
Brown-Banded Carder Bee	*Bombus humilis*	1	1936	S7
Anomalous	*Stilbia anomala*	9	62	S7
August Thorn	*Ennomos quercinaria*	2	1170	S7, LI(BIS)
Autumnal Rustic	*Eugnorisma glareosa*	10	62	S7
Blood-vein	*Timandra comae*	9	503	S7
Brindled Beauty	*Lycia hirtaria*	9	224	S7
Broom Moth	*Ceramica pisi*	9	224	S7
Buff Ermine	*Spilosoma lutea*	15	224	S7
Centre-barred Sallow	*Atethmia centrago*	2	1183	S7
Cinnabar	*Tyria jacobaeae*	12	503	S7
Dark Brocade	*Mniotype adusta*	1	748	S7
Dark-barred Twin-spot Carpet	*Xanthorhoe ferrugata*	9	224	S7, LBAP (GWY, VOG)
Dot Moth	*Melanchra persicariae*	19	224	S7
Dusky Brocade	*Apamea remissa*	10	503	S7
Dusky Thorn	*Ennomos fuscantaria*	3	224	S7
Ear Moth	*Amphipoea oculea*	1	1061	S7
Feathered Gothic	*Tholera decimalis*	1	503	S7
Flounced Chestnut	*Anchoscelis helvola*	3	62	S7
Forester	*Adscita statices*	4	1064	S7, LI(BIS)
Galium Carpet	*Epirrhoe galiata*	2	224	S7
Garden Tiger	*Arctia caja*	7	503	S7
Ghost Moth	*Hepialus humuli*	2	224	S7
Green-brindled Crescent	*Allophyes oxyacanthae*	3	224	S7

Hedge Rustic	*Tholera cespitis*	4	503	S7
Knot Grass	*Acronicta rumicis*	14	503	S7
Large Wainscot	*Rhizedra lutosa*	1	1960	S7
Latticed Heath	*Chiasmia clathrata*	6	782	S7
Mottled Rustic	*Caradrina morpheus*	3	688	S7
Neglected Rustic	*Xestia castanea*	7	62	S7
Oak Hook-tip	*Watsonalla binaria*	1	1825	S7
Oblique Carpet	*Orthonama vittata*	1	1183	S7, LI(BIS)
Powdered Quaker	*Orthosia gracilis*	3	503	S7
Rosy Minor	*Litoligia literosa*	4	719	S7
Rosy Rustic	*Hydraecia micacea*	3	503	S7
Rustic	*Hoplodrina blanda*	6	679	S7
Sallow	*Cirrhia icteritia*	10	62	S7
Shoulder-striped Wainscot	*Leucania comma*	16	224	S7
Small Phoenix	*Ecliptopera silaceata*	16	62	S7
Small Square-spot	*Diarsia rubi*	3	503	S7
White Ermine	*Spilosoma lubricipeda*	12	224	S7

Table B-6 - Protected and / or notable plants for which records have been identified within 2 km of the Site

Species Common Name	Species Latin Name	No. of Records	Distance between Site and closest record (m)	Legal / Conservation Status
American Skunk-cabbage	*Lysichiton americanus*	5	786	INNS
Bluebell	*Hyacinthoides non-scripta*	25	21	WCA8
Butterfly-bush	*Buddleja davidii*	8	1109	INNS

Canadian Waterweed	*Elodea canadensis*	1	543	INNS
Chamomile	*Chamaemelum nobile*	2	503	S7, RDB1 (Wales) - EN, RDB1 (UK) - VU
Cherry Laurel	*Prunus laurocerasus*	2	270	INNS
Cotoneaster	*Cotoneaster*	3	795	WCA9, INNS
Curly Waterweed	*Lagarosiphon major*	2	936	WCA9, INNS
Entire-leaved Cotoneaster	*Cotoneaster integrifolius*	1	1777	WCA9, INNS
Himalayan Balsam	*Impatiens glandulifera*	21	270	WCA9, INNS
Himalayan Cotoneaster	*Cotoneaster simonsii*	4	749	WCA9, INNS
Himalayan Honeysuckle	*Leycesteria formosa*	2	1121	INNS
Hollyberry Cotoneaster	*Cotoneaster bullatus*	1	1745	WCA9, INNS
Japanese Knotweed	*Fallopia japonica*	22	270	WCA9, INNS
Lamiastrum galeobdolon subsp. argentatum	*Lamiastrum galeobdolon subsp. argentatum*	1	761	WCA9, INNS
Montbretia	*Crocosmia*	1	1332	WCA9, INNS
Montbretia	*Crocosmia pottsii x aurea = C. x crocosmiiflora*	6	351	WCA9, INNS
New Zealand Willowherb	*Epilobium brunnescens*	12	270	INNS
Nuttall's Waterweed	*Elodea nuttallii*	1	573	INNS
Pennyroyal	*Mentha pulegium*	1	1957	WCA8, S7, RDB1 (Wales) - CR, RDB1 (UK) - EN, RDB2 (UK) - S
Rhododendron ponticum	*Rhododendron ponticum*	6	573	WCA9, INNS
Wall Cotoneaster	*Cotoneaster horizontalis*	4	543	WCA9, INNS

White Stonecrop	*Sedum album*	1	2066	INNS
Wilson's Honeysuckle	*Lonicera nitida*	1	1332	INNS
Heath Star Moss	*Campylopus introflexus*	17	94	INNS

Appendix C

PLANT SPECIES RECORDED

Common Name	Latin Name	Frequency (DAFOR)
A1.1.1 Broadleaved woodland – semi-natural		
Ash	*Fraxinus excelsior*	F
Bell heather	*Erica cinerea*	O
Bracken	*Pteridium aquilinum*	F
Bramble	*Rubus fructicosus agg.*	A to R
Eared willow	*Salix aurita*	R
Foxglove	*Digitalis purpurea*	R
Goat willow	*Salix caprea*	D
Grey willow	*Salix cinerea*	O
Hard fern	*Blechnum spicant*	R
Hard shield-fern	*Polystichum aculeatum*	O
Hazel	*Corylus avellana*	A to R
Heather	*Calluna vulgaris*	A to F
Hemp-agrimony	*Eupatorium cannabinum*	A to R
Holly	*Ilex aquifolium*	R
Indian balsam	*Impatiens glandulifera*	F to R
Maindenhair spleenwort	*Asplenium trichomanes*	R
Nettle	*Urtica dioica*	R
Purple moor-grass	*Molinia caerulea*	O
Rosebay willowherb	*Chamaenerion angustifolium*	R
Rowan	*Sorbus aucuparia*	R
Sessile oak	*Quercus petraea*	A to R
Silver birch	*Betula pendula*	R
Soft rush	*Juncus effusus*	F
Soft shield-fern	*Polystichum setiferum*	O
Tormentil	*Potentilla erecta*	R

Wild angelica	*Angelica sylvestris*	R
Willow	*Salix sp.*	R
Wild strawberry	*Fragaria vesca*	R
Yorkshire-fog	*Holcus lanatus*	A
A1.1.2 – Broadleaved woodland - plantation		
Beech	*Fagus sylvatica*	F
Bluebell	*Hyacinthoides hispanica x non-scripta*	R
Bramble	*Rubus fructicosus agg.*	O
Creeping soft-grass	*Holcus mollis*	R
Enchanter's-nightshade	*Circaea lutetiana*	R
Hard fern	*Blechnum spicant*	R
Hazel	*Corylus avellana*	A
Indian balsam	*Impatiens glandulifera*	O
Ivy	*Hedera helix*	O
Opposite-leaved golden saxifrage	*Chrysosplenium oppositifolium*	LF
Polypody	*Polypodium vulgare agg.*	R
Remote sedge	*Carex remota*	LA
Scaly male fern	*Dryopteris affinis agg.*	O
Scarlet pimpernel	*Anagallis arvensis*	R
Sessile oak	*Quercus petraea*	F
Soft rush	*Juncus effusus*	R
Soft shield-fern	*Polystichum setiferum*	R
Wavy bitter-cress	*Cardamine flexuosa*	R
Willow	*Salix sp.*	R
Wood sorrel	*Oxalis acetosella*	O
A1.2.2 – Coniferous woodland - plantation		
Larch	*Larix decidua*	D

A1.3.1 – Mixed woodland - plantation		
Larch	*Larix decidua*	D
Sessile oak	*Quercus petraea*	D
A2.1 – Scrub – dense/continuous		
Beech	*Fagus sylvatica*	R
Bracken	*Pteridium aquilinum*	F
Bramble	*Rubus fructicosus agg.*	F to R
Bugle	*Ajuga reptans*	R
Common bird's-foot trefoil	*Lotus corniculatus*	R
Gorse	*Ulex europaeus*	D to R
Hogweed	*Heracleum sphondylium*	F
Indian balsam	*Impatiens glandulifera*	O
Japanese knotweed	*Reynoutria japonica*	O
Meadow buttercup	*Ranunculus acris*	R
Red clover	*Trifolium pratense*	O
Ribwort plantain	*Plantago lanceolata*	R
Rowan	*Sorbus aucuparia*	R
Self-heal	*Prunella vulgaris*	R
Silverweed	*Potentilla anserina*	O
Soft rush	*Juncus effusus*	R
Tormentil	*Potentilla erecta*	R
Tufted hair-grass	*Deschampsia caespitosa*	R
Tufted vetch	*Vicia cracca*	R
Yorkshire-fog	*Holcus lanatus*	O
A2.1 – Scrub - scattered		
Gorse	*Ulex europaeus*	F
Willow	*Salix sp.*	F
A3.1 – Broadleaved parkland/scattered trees		

Ash	*Fraxinus excelsior*	F to O
Apple	*Malus sylvestris*	R
Beech	*Fagus sylvatica*	R
Blackthorn	*Prunus spinosa*	A
Bracken	*Pteridium aquilinum*	R
Bramble	*Rubus fructicosus agg.*	O
Foxglove	*Digitalis purpurea*	O to R
Gorse	*Ulex europaeus*	O to R
Hawthorn	*Crataegus monogyna*	R
Hazel	*Corylus avellana*	F to R
Holly	*Ilex aquifolium*	R
Indian balsam	*Impatiens glandulifera*	D to R
Nettle	*Urtica dioica*	O
Rowan	*Sorbus aucuparia*	A to R
Sessile oak	*Quercus petraea*	D to R
Sycamore	*Acer pseudoplatanus*	O to R
Willow	*Salix sp.*	F to R
B1.2 – Acid grassland – semi-improved		
Bell heather	*Erica cinerea*	R
Bilberry	*Vaccinium myrtillus*	R
Common bent	*Agrostis capillaris*	A to R
Common sorrel	*Rumex acetosa*	R
Gorse	*Ulex europaeus*	R, LF
Heath bedstraw	*Galium saxatile*	R
Heather	*Calluna vulgaris*	R
Marsh thistle	*Cirsium palustre*	R
Perennial rye-grass	*Lolium perenne*	LA
Purple moor-grass	*Molinia caerulea*	F to O

Sheep's fescue	*Festuca ovina*	O
Sheep's sorrel	*Rumex acetosella*	R
Soft rush	*Juncus effusus*	O, LD
Sweet vernal-grass	*Anthoxanthum odoratum*	O to R
Tormentil	*Potentilla erecta*	O to R
Yorkshire-fog	*Holcus lanatus*	D
B4 – Improved grassland		
Annual meadow-grass	*Poa annua*	LF
Autumn hawkbit	*Scorzoneroides autumnalis*	R
Broadleaved dock	*Rumex obtusifolius*	F to R
Cat's-ear	*Hypochaeris radicata*	R
Common bent	*Agrostis capillaris*	R
Common chickweed	*Stellaria media*	R
Common mouse-ear	*Cerastium fontanum*	LF
Common sorrel	*Rumex acetosa*	R
Creeping bent	*Agrostis stolonifera*	F
Creeping buttercup	*Ranunculus repens*	F to R
Creeping thistle	*Cirsium arvense*	O
Crested dog's-tail	*Cynosurus cristatus*	O to R
Greater plantain	*Plantago major*	LF
Hop trefoil	*Trifolium campestre*	R
Indian balsam	*Impatiens glandulifera*	R
Marsh thistle	*Cirsium palustre*	R
Meadow buttercup	*Ranunculus acris*	R
Nettle	*Urtica dioica*	LF to R
Perennial rye-grass	*Lolium perenne*	D
Pineapple weed	*Matricaria discoidea*	LF to R
Red clover	*Trifolium pratense*	R

Redshank	*Persicaria maculosa*	F
Ribwort plantain	*Plantago lanceolata*	O
Rosebay willowherb	*Chamaenerion angustifolium*	R
Rough meadow-grass	*Poa trivalis*	F to R
Shepherd's-purse	*Capsella bursa-pastoris*	LF
Silverweed	*Potentilla anserina*	R
Soft rush	*Juncus effusus*	O to R
Sweet vernal-grass	*Anthoxanthum odoratum*	F
White clover	*Trifolium repens*	O to R
Yorkshire-fog	*Holcus lanatus*	D to O
B5 – Marsh/marshy grassland		
Bell heather	*Erica cinerea*	R
A bent-grass	*Agrostis sp.*	D to R
Bilberry	*Vaccinium myrtillus*	R
Bog pimpernel	*Anagallis tenella*	R
Bracken	*Pteridium aquilinum*	R
Bramble	*Rubus fructicosus agg.*	R, E
Common bent	*Agrostis capillaris*	F
Common chickweed	*Stellaria media*	R
Common ragwort	*Jacobaea vulgaris*	R
Common sedge	*Carex nigra*	R
Common sorrel	*Rumex acetosa*	O
Creeping thistle	*Cirsium arvense*	O
Crested dog's-tail	*Cynosurus cristatus*	F
Foxglove	*Digitalis purpurea*	O to R
Hard fern	*Blechnum spicant*	O to R
Heath bedstraw	*Galium saxatile*	R
Heather	*Calluna vulgaris*	R

Indian balsam	*Impatiens glandulifera*	LA
Knotgrass	*Polygonum aviculare sens.str.*	F, E
Marsh thistle	*Cirsium palustre*	O to R
Perennial rye-grass	*Lolium perenne*	O
Pineapple weed	*Matricaria discoidea*	F, E
Purple moor-grass	*Molinia caerulea*	D to O
Rosebay willowherb	*Chamaenerion angustifolium*	R
Rough meadow-grass	*Poa trivalis*	A to R
Self-heal	*Prunella vulgaris*	R
Sharp-flowered rush	*Juncus acutiflorus*	R
Sheep's fescue	*Festuca ovina*	O to R
Soft rush	*Juncus effusus*	D to R
Soft shield-fern	*Polystichum setiferum*	R
Spear thistle	*Cirsium vulgare*	R
Sweet vernal-grass	*Anthoxanthum odoratum*	O to R
Toad rush	*Juncus bufonius sens.str.*	R, E
Tormentil	*Potentilla erecta*	R
Willow	*Salix sp.*	R
Yorkshire-fog	*Holcus lanatus*	D to R
B6 – Poor semi-improved grassland		
Bracken	*Pteridium aquilinum*	O to R, E
Common bent	*Agrostis capillaris*	A to R
Common chickweed	*Stellaria media*	R
Common sorrel	*Rumex acetosa*	R
Creeping buttercup	*Ranunculus repens*	O
Creeping thistle	*Cirsium arvense*	R
Crested dog's-tail	*Cynosurus cristatus*	F to R
Foxglove	*Digitalis purpurea*	R

Heath bedstraw	*Galium saxatile*	O
Indian balsam	*Impatiens glandulifera*	O
Marsh thistle	*Cirsium palustre*	O to R
Nettle	*Urtica dioica*	R
Perennial rye-grass	*Lolium perenne*	D to R
Red clover	*Trifolium pratense*	R
Rough meadow-grass	*Poa trivalis*	R
Sheep's fescue	*Festuca ovina*	O
Sheep's sorrel	*Rumex acetosella*	F
Soft rush	*Juncus effusus*	LA to R
Sweet vernal-grass	*Anthoxanthum odoratum*	O to R
Tormentil	*Potentilla erecta*	O to R
Wavy hair-grass	*Deschampsia flexuosa*	F
Western gorse	*Ulex gallii*	O
White clover	*Trifolium repens*	R
Yarrow	*Achillea millefolium*	O
Yorkshire-fog	*Holcus lanatus*	D to O
C1.1 – Bracken - continuous		
Bracken	*Pteridium aquilinum*	D
Bramble	*Rubus fructicosus agg.*	F to O
Hawthorn	*Crataegus monogyna*	R
Indian balsam	*Impatiens glandulifera*	D to F
C1.2 – Bracken - scattered		
Bluebell	*Hyacinthoides hispanica x non-scripta*	R
Bracken	*Pteridium aquilinum*	D to F
Hawthorn	*Crataegus monogyna*	O
Indian balsam	*Impatiens glandulifera*	A to F

Marsh thistle	*Cirsium palustre*	F to R
Sessile oak	*Quercus petraea*	R
Western gorse	*Ulex gallii*	F
Wood sorrel	*Oxalis acetosella*	R
C3.1 – Other tall herb and fern - ruderal		
Bramble	*Rubus fructicosus agg.*	R
Cock's-foot	*Dactylis glomerata*	A
Creeping thistle	*Cirsium arvense*	R
Crested dog's-tail	*Cynosurus cristatus*	O
Gorse	*Ulex europaeus*	R
Hawthorn	*Crataegus monogyna*	R
Hogweed	*Heracleum sphondylium*	O
Indian balsam	*Impatiens glandulifera*	D to A
Pedunculate oak	*Quercus robur*	R
Silverweed	*Potentilla anserina*	O
Yorkshire-fog	*Holcus lanatus*	O
J2.1 – Intact hedge – species-poor		
Apple	*Malus slyvestris*	R
Ash	*Fraxinus excelsior*	R
Beech	*Fagus sylvatica*	O
Blackthorn	*Prunus spinosa*	O to R
Bracken	*Pteridium aquilinum*	D to O
Bramble	*Rubus fructicosus agg.*	A
Common bent	*Agrostis capillaris*	O
False oat-grass	*Arrhenatherum elatius*	O
Gorse	*Ulex europaeus*	R
Hawthorn	*Crataegus monogyna*	A to R
Hazel	*Corylus avellana*	F to O

Hedge bindweed	*Calystegia sepium*	R
Hogweed	*Heracleum sphondylium*	R
Horse-chestnut	*Aesculus hippocastanum*	O
Holly	*Ilex aquifolium*	O
Indian balsam	*Impatiens glandulifera*	A to R
Nettle	*Urtica dioica*	O
Ribwort plantain	*Plantago lanceolata*	R
Rowan	*Sorbus aucuparia*	O to R
Silver birch	*Betula pendula*	R
Sycamore	*Acer pseudoplatanus*	R
White clover	*Trifolium repens*	O
Willow	*Salix sp.*	O to R
Yorkshire-fog	*Holcus lanatus*	O
J2.5 - Wall		
Bracken	*Pteridium aquilinum*	A
Bramble	*Rubus fructicosus agg.*	R
Common bent	*Agrostis capillaris*	D
Common sorrel	*Rumex acetosa*	R
Foxglove	*Digitalis purpurea*	O to R
Nettle	*Urtica dioica*	O
Yorkshire-fog	*Holcus lanatus*	F

Appendix D

TARGET NOTES

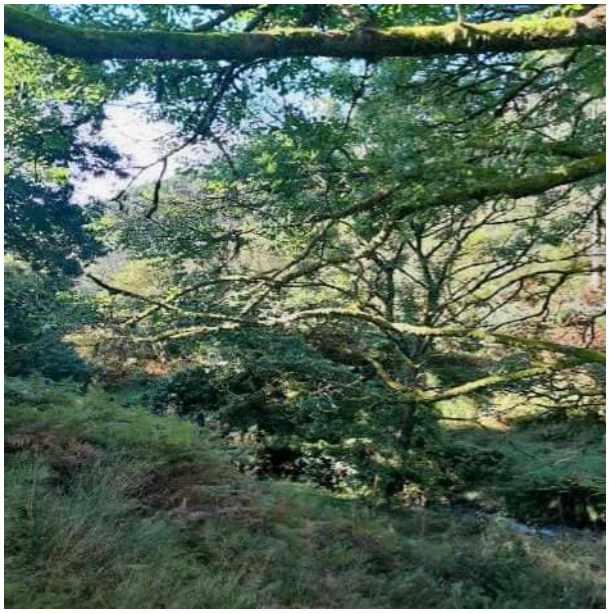
Table D-1 – Target Notes

Target Note Number	Description
TN1	Location of Invasive Non-Native Species (INNS): Japanese knotweed *Reynoutria japonica*
TN2	Location of INNS: Indian balsam *Impatiens glandulifera*
TN3	Dormouse *Muscardinus avellanarius* tubes recorded throughout woodland parcel
TN4	Mammal path
TN5	Rabbit *Oryctolagus cuniculus* droppings
TN6	Rabbit warren
TN7	A 7 m wide ride with piles of brash down the sides
TN8	Evidence of previous landslip

Appendix E

PHOTOGRAPHS

Table E-1 – Phase 1 Habitat Survey Photographs

	
P1 – Broadleaved semi-natural woodland in the northern section of the Survey Area.	P2 – Broadleaved semi-natural woodland in the southern section of the Survey Area, with encroaching Indian balsam.
	
P3 – An open glad in broadleaved semi-natural woodland in the south of the Survey Area.	P4 – Broadleaved plantation woodland within to Cwm Cerdin Wildlife Site/SINC (Adopted).

P5 – Conifer plantation, to the north of broadleaved woodland plantation.

P6 – Dense continuous gorse scrub forming a field boundary.

P7 – A line of broadleaved trees along a drystone wall.

P8 – A line of trees along the south bank of the Nant y Castell.

P9 – An example of semi-improved acid grassland, taken in the northern section of the Survey Area.	P10 - An example of semi-improved acid grassland, taken in the southern section of the Survey Area.
	
P11 – An example of improved grassland, taken in the northern section of the Survey Area.	P12 – An example of improved grassland, taken in the northern section of the Survey Area.
	
P13 – Marshy grassland in the northmost of the Survey Area.	P14 – Marshy grassland around a stream in the northern section of the Survey Area.

	
P15 – Marshy grassland in the northern section of the Survey Area.	P16 – An example of marshy grassland in the southern section of the Survey Area.
	
P17 – An example of poor semi-improved grassland.	P18 – An example of bracken, with Indian balsam and Japanese knotweed present.

P19 – A densely vegetated stream in the northern section of the Survey Area.

P20 – The Nant Lluest-Wen within the Survey Area.

P21 – The Nant y Castell within the Survey Area.

P22 – The Nant y Castell within the Survey Area.

	
P23 – A species-poor intact hedgerow within the southern section of the Survey Area.	P24 – A dry ditch within the southern section of the Survey Area.
	
P25 – Tree 1.	P26 – Tree 2.

	
P27 – Tree 3.	

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