# Awel y Môr Offshore Wind Farm

# Category 6: Environmental Statement

## Volume 5, Annex 5.2: Habitat and Hedgerow Survey Report

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# AWEL Y MÔR OFFSHORE WIND FARM

## Habitat & Hedgerow Survey

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| | | | | | | |

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## APPENDICES

# 1.0 Introduction

Awel y Môr Offshore Wind Farm (AyM) is a Nationally Significant Infrastructure Project (NSIP). An Environmental Impact Assessment (EIA) is being undertaken, the findings of which will be presented within an Environmental Statement (ES), which will accompany a Development Consent Order (DCO) application under the Planning Act 2008.

SLR Consulting was commissioned by GoBe Consultants, on behalf of Awel y Môr Offshore Wind Farm Ltd (AyMOWL), in May 2020 to undertake the onshore ecological work necessary to inform the EIA. This report presents the results of the habitat survey and hedgerow assessment at the areas that may be affected by construction and operation of the onshore aspects of the AyM project comprising the landfall location, cable corridor and substation (hereafter referred to as "onshore infrastructure").

As AyM has progressed, the emerging scheme design has undergone a process of refinement so the precise locations and extent of the proposed scheme during the times of survey have been subject to change. Therefore, the scheme details presented in this report may vary from those presented within the ES, however the survey area includes all areas currently under consideration at the time of survey. Following the refinement of the project design, the Draft Order Limits (DOL), presented at Statutory Consultation within the Preliminary Environmental Information Report (PEIR), have become the final Order Limits submitted within the DCO application.

## 1.1 Background

An EIA Scoping Report was prepared in accordance with Regulation 10 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and Regulation 6 of the Marine Works (Environmental Impact Assessment) Regulations 2007. The Scoping Report was submitted to the Planning Inspectorate (PINS) in June 2020. Within the Scoping Report, full details were provided as to the proposed approach for ecological survey and assessment. The Scoping Opinion was provided by PINS in response to the Scoping Report, in July 2020. Comments made in the Scoping Opinion have been taken into account within this report, where relevant. Both documents are available at the PINS website[1]; the Scoping Report and Scoping Opinion content is not repeated here, and readers should refer to the original documents for details.

A Preliminary Ecological Appraisal was subsequently carried out during the period July to September 2020 for three landfall locations, cable route corridors and substation locations under consideration at that time. This was informed by additional desk-based survey and initial habitat survey, based on interpretation of aerial imagery and ground-based survey, where access was possible. Findings were presented in a Preliminary Ecological Appraisal (PEA)[2] report, submitted to the AyM EIA Evidence Plan Expert Topic Group (which includes Natural Resources Wales (NRW), Denbighshire County Council (DCC), the Royal Society for the Protection of Birds (RSPB) and North Wales Wildlife Trust (NWWT)), in February 2021 for information and comment, in advance of further proposals for habitat and species-specific surveys.

Following the agreement of access to areas not able to be visited in 2020 and in line with the recommendations

[1] https://infrastructure.planninginspectorate.gov.uk/projects/wales/awel-y-mor-offshore-wind-farm/?ipcsection=docs
[2] CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, Second Edition, December 2017.

in the PEA report, the initial habitat survey was updated in spring 2021 and a further survey update was made in December 2021 to include a small additional area at Y Ffrith, west of North Wales Bowling Centre. This report updates and supersedes the earlier habitat survey findings presented in the PEA report and includes habitat survey data for all areas which may be affected by the construction and operation of the onshore infrastructure. It also includes the results of a survey of hedgerows within the same survey area.

## 1.2 Survey area

The habitat survey was initially undertaken to consider habitats within 100m of the Draft Order Limits (DOL) that were presented at Statutory Consultation. Subsequent to this, a further area at Y Ffrith, west of North Wales Bowling Centre was identified as being potentially affected by the project and was added to the survey area in December 2021. The habitat survey includes all areas landward of Mean High Water Springs (MHWS). Refer to Figure 1 for details.

## 1.3 Purpose of this report

This report presents the findings of the habitat survey and hedgerow assessment. The report seeks to establish baseline conditions and identify habitats that are important ecological features (irrespective of animal species they may support). The assessment of impacts resulting from AyM is beyond the scope of this report however and will be covered in the Onshore Biodiversity and Nature Conservation chapters of the ES.

## 1.4 Evidence of technical competence and experience

This report has been authored by Jess Colebrook, a Principal Ecologist at SLR Consulting with over 20 years' experience as a professional ecologist. Jess is a Chartered Environmentalist (CEnv) and a full member of CIEEM (MCIEEM). Jess is leading the onshore ecological work necessary to inform the EIA for the project, has been involved in the scoping and consultation process, undertook the habitat surveys and authored this report.

Amy Gill and Emma Clarke undertook the hedgerow surveys. Emma Clarke is a skilled field ecologist with 3 years experience of habitat, botanical and protected species survey. Amy has 18 months experience of undertaking habitat and protected species survey. Both are working toward CIEEM membership and abide by its professional code of conduct.

Additional technical support and Quality Assurance review has been provided by Duncan Watson. Duncan is a Technical Director at SLR Consulting with over 23 years' professional ecological experience. He is also a Chartered Environmentalist (CEnv) and a full member of CIEEM (MCIEEM).

# 2.0 Methodology

## 2.1 Desk study

A desk-based study has been undertaken to identify sources of pre-existing ecological data of relevance, that could inform the EIA; this is reported within Table 2-1 of the PEA report[3]. Relevant parts of the desk study that have been used to inform this report, i.e. data relevant to habitats and hedgerows, are detailed in Table 2-1 of this report (below); note also that subsequent to completion of the PEA report, an updated data request was made to Cofnod and any relevant new data received up to 8th September 2021 have been included in this report.

**Table 2-1**
**Baseline Data Sources of Relevance to this Report**

| Source | Summary | Date Obtained for scoping | Date updated |
|---|---|---|---|
| Natural Resources Wales (NRW) lle.gov.uk website | Datasets for:<br>• Ancient Woodland Inventory 2011;<br>• Habitat Networks;<br>• Local Nature Reserves (LNR);<br>• NRW Species Data on the NBN Gateway;<br>• Saltmarsh Extents;<br>• Sites of Special Scientific Interest (SSSI);<br>• Special Areas of Conservation (SACs);<br>• Terrestrial Phase 1 Habitat Survey; and<br>• Traditional Orchards. | 11 December 2019 | 22 January 2021 |
| NRW Designated Site Search [redacted] | Statutory designated site details:<br>• SACs;<br>• SSSIs;<br>• National Nature Reserves (NNR); and<br>• LNRs. | 12 December 2019 | 22 January 2021 |

[3] For a copy of the PEA refer to AyM Offshore Windfarm Environmental Statement Volume 5, Annex 5.1

| Source | Summary | Date Obtained for scoping | Date updated |
|---|---|---|---|
| Cofnod (North Wales Biological Records Centre) | • Local Wildlife Sites (LWS);<br>• Protected and Notable Species Records;<br>• Phase 1 Habitat Information; and<br>• Ancient Woodland. | 13 December 2019 | 8th September 2021 |
| National Biodiversity Network (NBN) Gateway | • Protected and notable species records. | 13 December 2019 | 22 January 2021 |
| Gwynt y Mor Offshore Wind Farm (OWF) Environmental Statement (ES) Onshore Ecology Chapter & Appendices | Surveys undertaken in 2005 including:<br>• Extended Phase 1 habitat survey | 02 December 2019 | N/A |
| Burbo Bank Extension OWF ES Ecology Chapter & Appendices | Surveys undertaken in 2011 and 2012 for habitats, plants, hedgerows | 02 December 2019 | N/A |
| North Wales Windfarms Connection Project ES Ecology Chapter & Appendices. | Surveys undertaken in 2014 for habitats and hedgerows. | 02 December 2019 | N/A |
| Elwy Solar Farm Scoping Report and Ecological Appraisal | Surveys undertaken in 2019 for habitats and extended to include the additional recording of the presence, or likely presence, of protected species, invasive species and other species of conservation significance. | N/A | 22 January 2020 |
| Botanical Society of Britain and Ireland (BSBI): Denbighshire Rare Plant Register (May 2014) | Includes native plants and some archaeophytes which have international or national rarity status, irrespective of their rarity in Denbighshire, as well as plants that are locally rare or scarce. | N/A | 22 January 2020 |

## 2.2 Field survey

The field survey comprised three main elements:

- mapping of habitats - in this instance habitats have been mapped using UKHab v1.1[4], as agreed at the EIA scoping stage, to capture the presence of Section 7 (of the Environment (Wales) Act 2016 and Annex 1 (of the EC Habitats Directive) habitat types. The presence of invasive non-native plant species was also recorded during the habitat survey;

- More detailed botanical recording at areas that are known or suspected to support protected or notable plant species and that may be significantly impacted; specifically habitats at Rhyl Golf Course, Y Ffrith and adjacent the River Clwyd. The surveys were undertaken during May and June 2021 to maximise the chances of flowering parts being evident; and

- gathering sufficient detail to determine if hedgerows that could be breached by the proposed development meet the definition of "important" under the Hedgerow Regulations (1997).

### 2.2.1 Habitat survey

Initial identification of areas of similar habitat (i.e. habitat polygons) via interpretation of aerial imagery was undertaken prior to attending site. The aerial images used in this process were the most recent commercially available at 12.5cm and 25cm resolutions and are dated 2016[5]. The minimum mapping unit used was 25m$^2$ or 5m length. However, due to the large extent of the survey area and early project stage, habitat boundaries were "snapped" to the nearest OS Mastermap topography vectors.

In addition to aerial photograph interpretation OS Vector Map Local datasets (dated 07/07/2020) were used to identify the presence of waterbodies and watercourses. This method was used as small watercourses and ponds are often difficult to discern on aerial images; and although simplistic is considered appropriate for initial mapping.

Each of the polygons identified from aerial interpretation was visited, and where necessary, remapped. Habitats at each were classified as follows using the UKHab Primary Habitat Hierarchy:

- Urban habitats were classified to Level 3 "Built up areas and gardens", with the exception of buildings which were mapped to Level 5 "buildings";

- All other habitats were classified to Level 4 (where applicable) including mandatory secondary habitat codes (numbers 10 – 41). Habitats were only further classified to Level 5 if they represented an Annex 1 habitat type; and

- Boundary fences were not mapped.

Additional secondary codes, photographs and notes were recorded for the majority of polygons; these have been retained in a Geographical Information System (GIS) and due to the amount of data are not presented in this report, they can however be supplied upon request. The most relevant/pertinent records are included here, in particular for habitats deemed to be important ecological features.

The field survey was undertaken by Jess Colebrook CEnv MCIEEM over a period of 15 days in 2020; specific dates

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[4] Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2020) The UK Habitat Classification User Manual Version 1.1 at [redacted]

[5] Supplied by ©Bluesky International Limited

were as follows; 17, 18, 26, 27, 28 August and 8, 9, 10, 11, 15, 16, 17, 18, 22 September and 15 October. Additional survey was undertaken over a period of eight days in 2021 on the following dates: 12th – 16th and 29th April, 18th May and 3rd June and 7th December.

### 2.2.2 Hedgerow assessment

During the habitat survey, summary notes were made about each hedgerow including the species present and the presence of trees, ditches or walls. This information was used to make a shortlist of hedgerows that could be breached by the onshore elements of AyM and which warranted more detailed survey, to determine if they were "important" under Schedule 1 Part II (6) of the Hedgerow Regulations 1997 (i.e. for wildlife and landscape reasons rather than archaeological or historical reasons).

For the purpose of the assessment a "hedgerow" is defined in Section 3(1) of the Hedgerow Regulations as follows:

*any hedgerow growing in, or adjacent to, any common land, protected land, or land used for agriculture, forestry or the breeding or keeping of horses, ponies or donkeys, if—*

*(a)it has a continuous length of, or exceeding, 20 metres; or*

*(b)it has a continuous length of less than 20 metres and, at each end, meets (whether by intersection or junction) another hedgerow.*

"Important" hedgerows (for wildlife and landscape reasons) must be at least 30 years old, and satisfy at least one of the criteria listed in Part II of Schedule 1 of the Hedgerow Regulations. To summarise, the criteria are a hedgerow that:

- Contains Schedule 1 birds, Schedule 5 animals or Schedule 8 plants species listed in the Wildlife and Countryside Act 1981 (as amended);
- Contains endangered, extinct, rare of vulnerable species, as listed in the British Red Data Books;
- Includes (on average, per 30m section) at least:
  - 7 woody species; or
  - 6 woody species and 3 features in sub paragraph 4 (see below); or
  - 6 woody species, including one of black-poplar *Populus nigra ssp betulifolia*, large-leaved lime *Tilia platyphyllos*, small-leaved lime *Tilia cordata* or wild service-tree *Sorbus torminalis*; or
  - at least 5 woody species, and has associated with it at least 4 of the features specified in sub-paragraph 4 of Part II of Schedule 1 of the Hedgerow Regulations; or
  - at least 4 woody species, at least 2 features in sub paragraph 4 and is adjacent to a bridleway or footpath, a road used as a public path, or a byway open to all traffic.

The features referred to in sub paragraph 4 of Part II of Schedule 1 of the Hedgerow Regulations are:

- a bank or wall which supports the hedgerow along at least one half of its length;

- gaps which in aggregate do not exceed 10% of the length of the hedgerow;
- where the length of the hedgerow does not exceed 50 metres, at least one standard tree;
- where the length of the hedgerow exceeds 50 metres but does not exceed 100 metres, at least 2 standard trees;
- where the length of the hedgerow exceeds 100 metres, such number of standard trees (within any part of its length) as would when averaged over its total length amount to at least one for each 50 metres;
- at least 3 woodland species within one metre, in any direction, of the outermost edges of the hedgerow;
- a ditch along at least one half of the length of the hedgerow;
- connections scoring 4 points or more (a connection with another hedgerow scores one point and a connection with a pond or a woodland in which the majority of trees are broad-leaved trees scores 2 points); and
- a parallel hedge within 15 metres of the hedgerow.

The shortlist for survey was based upon the minimum species requirements of the above; therefore all hedgerows potentially breached by the onshore elements of AyM, which were recorded as potentially supporting at least four woody species (in their entire length) were subject to further survey to gather the additional detail necessary for assessment. Hedgerows subject to further survey are identified on Figure 2.

The additional hedgerow survey was conducted, 13th, 14th, 19th – 21st, and 27th May 2021 by Amy Gill and Emma Grubb, both Project Ecologists at SLR. The hedgerows requiring survey were marked on a plan in advance and divided into 30m sections. Global Positioning System (GPS) was used to determine the start and end of each section on the ground. For each section specific details were recorded on to a proforma to enable ease of reference against the regulations (refer to raw data in Appendix B).

### 2.2.3 Limitations

No significant survey limitations were recorded. However, it should be noted that due to the seasonal nature of the survey, it is possible that some plant species may have been missed if not in evidence at the time of the survey, e.g. early flowering species may have been missed by the surveys undertaken in August-October 2020 and late flowering species may have been missed by the surveys undertaken in April-May 2021. Nevertheless, with the exception of the additional area at Y Ffrith west of North Wales Bowling Centre, surveys were all undertaken within the optimal period for habitat survey. At Y Ffrith, where survey was undertaken in December 2021, a number of plant species could have been missed due to the suboptimal season of survey. However, since the habitat is contiguous with and shares similarities with adjacent areas that were subject to survey during the optimal period, it is considered that the dominant and characteristic species have been determined in sufficient detail to enable the objectives of this report to be met.

## 2.3 Determining Important Ecological Features

Ecological features can be important for a variety of reasons and the rationale used to identify them is explained below. Importance may relate, for example, to protected status, the quality or extent of the site or habitats therein; habitat and/ or species rarity; the extent to which such habitats and/or species are threatened

throughout their range, or to their rate of decline.

Important habitats are considered here to be those which:

- match descriptions of habitats listed on Annex 1 of the Habitats Directive, so far as it applies to the UK and as transposed by The Conservation of Habitats and Species Regulations 2017 (as amended);
- match descriptions of habitats of principal importance for biodiversity under Section 7 of the Environment (Wales) Act 2016;
- comprise irreplaceable habitats; such as (but not limited to) limestone pavement, sand dunes, ancient woodland and veteran trees[6];
- meet the criteria of "important hedgerow" under Schedule 1 Part II (6) of the Hedgerow Regulation 1997; and/or
- comprise a significant habitat resource for an important species. (This element was not assessed at this stage, but the report will be updated later if required).

It is worth noting here that the Local Biodiversity Action Plan was sought for Denbighshire but appears to no longer be available online, or elsewhere, having been archived in 2017. In addition, it has been confirmed that there are no current LWS selection criteria for the county.

[6] Referenced in Planning Policy Wales (PPW) Edition 11 (2021) and PPW Technical Advice Note 5. Nature Conservation and Planning (2009)

# 3.0 Results

## 3.1 General context

The Survey Area is situated on and near the north Wales coast on low-lying, predominantly agricultural land situated between the towns of Rhyl, Rhuddlan and St Asaph Business Park. The A55 dual-carriageway crosses the Survey Area just north of St Asaph Business Park, with the A547 and A525 crossing to the west of Rhuddlan. The A548 is the main coastal road from Rhyl to Prestatyn.

The River Clwyd bisects the Survey Area, flowing from St Asaph northward into Rhyl.

The Survey Area comprises three broadly distinct areas:

- Coastal Strip: This area is densely populated, including extensive residential and holiday accommodation. Pedestrian footpaths are present directly adjacent to the beach, as is a golf course at the proposed landfall. Man-made sea-defences including imported rocks are present, along with shingle and sand beaches.

- North of the A55: the land is low lying with a network of drainage ditches; seasonally wet in places. A significant area comprises "Coastal and Floodplain Grazing Marsh" (see below). Often intensively agricultural, most of the land is used for grazing sheep and cattle. Hedgerows and woodland are relatively scarce.

- South of the A55: Here the land begins to rise up on to the limestone, the topography is more undulating, field sizes are smaller, and boundaries are typically well-established hedgerows. Whilst still predominately agricultural, permanent pasture is more common, as are woodlands and hedges.

There are no statutory designated sites within the Survey Area. However, four LWS lie within, or within 100m of the onshore infrastructure areas (refer to Figure 3 for locations), plus two other nature reserves. Summary descriptions of the habitats/floral species (provided by Cofnod) at each LWS are given in Table 3-1.

**Table 3-1**
**LWS within the Survey Area**

| Site Name | Size | Description |
|---|---|---|
| Y Ffrith, Prestatyn LWS | 19.7ha | This site comprises sand dune and herb rich grassland. The dune is an important natural sea defence although a sea wall has been built along the coast in front. Bare ground and sparse vegetation occurs as a result of erosion caused by public access and sea defence works.<br><br>The main species is marram grass *Ammophila arenaria* and there are other unusual seaside plants including sea holly *Eryngium maritimum*, sea beet *Beta vulgaris ssp maritima*, sea-buckthorn *Hippophae rhamnoides*, bristly ox-tongue *Helminthotheca echioides*, spiny restharrow *Ononis spinosa*, wild parsnip *Pastinaca sativa* and lyme grass *Leymus arenarius*. |

| Site Name | Size | Description |
|---|---|---|
| | | Grassland behind the dunes supports red fescue *Festuca rubra*, common bent *Agrostis canina*, false oat-grass *Arrhenatherum elatius*, hairy sedge *Carex hirta*, buck's-horn plantain *Plantago coronopus*, Yorkshire-fog *Holcus lanatus* and sand sedge *Carex arenaria*. A number of wetland herbs have been recorded, though the area is now drier than previously. |
| Bryn Cwnin Wetland LWS | 3.83 | A swamp dominated by greater pond-sedge *Carex riparia*, lesser pond-sedge *Carex acutiformis* and a number of wetland plants such as square-stalked willowherb *Epilobium tetragonum*, bulrush *Typha latifolia*, yellow loosestrife *Lysimachia vulgaris*, purple loosestrife *Lythrum salicaria*, yellow iris *Iris pseudacorus* and meadowsweet *Filipendula ulmaria*. There are areas of open water and open ditches. Higher ground surrounding the swamp is rush pasture. |
| Clwyd Estuary and Adjacent Fields LWS | 556.2 | An estuary including mudflats, where large numbers of birds feed, saltmarsh, a disused tip with botanical interest and supporting ground nesting birds, and adjacent fields and water bodies which support significant numbers of wintering waders and wildfowl.<br><br>There is approximately 50ha of saltmarsh which forms an integral part of the estuary in providing nutrients, and supports distinctive saltmarsh flora. A strip of coastal grassland adjacent to the marsh supports the rare Babington's orache *Atriplex glabriuscula* and lyme grass.<br><br>The disused tip is an important refuge for breeding birds. There are also a number of uncommon plants, including wild parsnip, bristly ox-tongue and hairy buttercup *Ranunculus sardous*. |
| Coed Coed Cord / Coed y Saeson | 6.6ha | Flat, low lying, ancient woodland including alder *Alnus glutinosa*, ash *Fraxinus excelsior*, oak *Quercus robur* and birch *Betula sp* communities. Hazel *Corylus avellana* forms an extensive herb layer with hawthorn *Crataegus monogyna* and ash and elm *Ulmus sp* saplings. The herb-layer is varied with dog's mercury *Mercurialis perennis*, sanicle *Sanicula europaea*, giant fescue *Festuca gigantea*, false brome *Brachypodium sylvaticum* and early dog-violet *Viola reichenbachiana*. |
| Glascoed Nature Reserve | 8.6ha | The reserve was created in 2000 to help support the great crested newts *Triturus cristatus*, displaced by the construction of St Asaph Business Park. It comprises a mosaic of 14 ponds, rough grassland, ditch and two woodland compartments, some mature trees in pre-existing hedgerows, especially along the northern boundary. |
| Rhuddlan Pond LNR | 3.4ha | Rhuddlan Pond is an accessible reserve including ponds and meadows. |

## 3.2 Habitats

Habitat types within the Survey Area are shown in Figure 1 (Habitat Plan), with primary and mandatory secondary UKHab codes stated. Important habitats (as defined in Section 2.3) are shown in Figure 3 (Important Habitats), including primary codes, mandatory secondary codes plus additional secondary codes as appropriate.

General descriptions for the various habitats encountered, including illustrative photographs, are provided below. More detailed descriptions are provided for specific areas of Priority Habitat indicated on Figure 3, where there was potential for Annex 1 habitat, locally important or rare species to occur (i.e. at the landfall area including Rhyl Golf Course, saltmarsh adjacent to the River Clwyd and woodlands). Data for all habitat polygons, including (in almost all cases) photographs and dominant/characteristic species are stored in a GIS and can be made available upon request.

### 3.2.1 Littoral sediment (t2)

The coastal area is heavily modified, with promenades/sea walls present. Photograph 3-1 illustrates the sand, gravel and the eroded remains of previous sea defences present at the beach at Rhyl, close to Rhyl golf course.

**Photograph 3-1: Beach at Rhyl**

### 3.2.2 Supralittoral sediment (s3)

Coastal sand dune (s3a) grassland is present to the northeast of the proposed landfall area, extending eastward. This area falls within and directly adjacent to Y Ffrith LWS. Its extent is constrained by the presence of the sea wall and promenade to the seaward side, and by areas of rabbit grazed neutral grassland used extensively for amenity purposes to the south.

The majority of the area is dominated by marram grass with varying amounts of red fescue, couch grass E*lymus*

*repens*, sand couch *Elymus farctus* and occasionally sea holly. Progressing inland, these decrease and a wider variety of herbs are present along with areas of scrub.

Whilst a comprehensive list was not gathered, species noted to occur across this area, and grading into the neutral grassland further inland included dandelion *Taraxacum officinale agg*, bramble *Rubus fruticosus*, ribwort plantain *Plantago lanceolata*, cock's-foot *Dactylis glomerata*, black medick *Medicago lupulina*, buck's horn plantain, perennial ryegrass *Lolium perenne*, Alexanders *Smyrnium olusatrum*, curled dock *Rumex crispus*, ragwort *Senecio jacobaea*, daisy *Bellis perennis*, autumn hawkbit *Leontodon autumnalis*, bird's-foot trefoil *Lotus corniculatus*, bloody cranesbill *Geranium sanguineum*, scarlet pimpernel *Anagallis arvensis*, false oat grass, sea beet, bulbous buttercup *Ranunculus bulbosus*, germander speedwell *Veronica chamaedrys*, scurvy grass *Cochlearia officinalis*, sea mouse-ear *Cerastium diffusum*, thale cress *Arabidopsis thaliana*, field woodrush *Luzula campestris*, burnet rose *Rosa pimpinellifolia*, sheep's fescue *Festuca ovina*, bush vetch *Vicia sepium*, hairy sedge, sheep's sorrel *Rumex acetosella*, harebell *Campanula rotundifolia*, shore bindweed *Calystegia soldanella*, common hogweed *Heracleum sphondylium*, hare's-foot clover *Trifolium arvense*, spear thistle *Cirsium vulgare*, common knapweed *Centaurea nigra*, hoary cress *Lepidium draba*, sweet vernal grass *Anthoxanthum odoratum*, common meadow grass *Poa pratensis*, hop trefoil *Trifolium campestre*, timothy grass *Phleum pratense*, common mouse-ear *Cerastium fontanum*, lady's bedstraw *Galium verum*, white campion *Silene latifolia*, common restharrow *Ononis repens*, lesser hop trefoil *Trifolium dubium*, white clover *Trifolium repens*, little mouse-ear *Cerastium semidecandrum*, yarrow *Achillea millefolium*, crab apple *Malus sylvestris*, creeping cinquefoil *Potentilla reptans*, nettle *Urtica dioica* and crested dog's-tail *Cynosurus cristatus*.

**Photograph 3-2: Coastal Sand Dunes at Y Ffrith**

Marram dominated dunes at Y Ffrith are considered to be UKHab s3a6 (Annex 1 habitat type H2120) "shifting

dunes with marram" since they broadly fit the following definition[7]:

*Shifting dunes along the shoreline with Ammophila arenaria ("white dunes") encompasses most of the vegetation of unstable dunes where there is active sand movement. Under these conditions sand-binding marram Ammophila arenaria is always a prominent feature of the vegetation and is usually dominant. In the UK the majority of such vegetation falls within NVC type SD6 Ammophila arenaria mobile dune community*.

There is not a literal translation to/from UKHab and the NVC communities referenced above; however the area was considered to be reasonably well described by the NVC community SD6 and so may fit the Annex 1 H2130 dune grassland description.

The areas inland of the marram dominated section are a type of fixed dune habitat, which is also present at parts of Rhyl Golf Course (albeit with no dunes remaining) where it is dominated by red fescue, lady's bedstraw, birds foot trefoil, restharrow, sheep's fescue, sheep's sorrel and common bent, with sea beet and marram closest to the shore. It occurs in complex mosaic with (mostly) neutral grassland dominated by sweet vernal grass, red fescue, cock's foot, meadow foxtail, sedge species, Yorkshire fog, perennial ryegrass, ribwort plantain, woodrush, red clover, medicks and vetches. At the golf course, the mosaic is such that often the grassland does not fall clearly into either definition. ;

**Photograph 3-3: Rhyl Golf Course Grassland mosaic**

The potential presence of UKHab s3a7 (Annex 1 habitat type H2130) dune grassland at Rhyl Golf Course rough and fairways and south of Y Ffrith LWS was considered (the definition of this grassland type being quite wide). The definition of this grassland type is[8]

[7] Definition from the JNCC website at https://sac.jncc.gov.uk/habitat/H2120/
[8] Definition from the JNCC website at https://sac.jncc.gov.uk/habitat/H2130/

*Fixed dune vegetation occurs mainly on the largest dune systems, being those that have the width to allow it to develop. It typically occurs inland of the zone dominated by marram on coastal dunes, and represents the vegetation that replaces marram as the dune stabilises and the organic content of the sand increases. In the UK the vegetation corresponds to the following NVC types:*

*SD7 Ammophila arenaria – Festuca rubra semi-fixed dune community*

*SD8 Festuca rubra – Galium verum fixed dune grassland*

*SD9b Ammophila arenaria – Arrhenatherum elatius dune grassland, Geranium sanguineum sub-community*

*SD11 Carex arenaria – Cornicularia aculeata dune community*

*SD12 Carex arenaria – Festuca ovina – Agrostis capillaris dune grassland*

There is not a literal translation to/from UKHab and the NVC communities referenced above; however some areas were considered to be reasonably well described by the NVC communities SD7, SD8 and/or SD12 and so may fit the Annex 1 H2130 dune grassland description. This is clearest south of Y Ffrith and so has been mapped as s3a7 on Figure 1. At the golf course, the mosaic makes such mapping problematic and it is shown as s3a only.

### 3.2.3 Littoral sediment (t2)

An area of coastal saltmarsh (t2a) is present adjacent to the River Clwyd (see Section 3.2.8). The grassland here is relatively tall sward along with small pools and creeks (including Pont Robin Cut, referenced in Section 3.2.8). It is inundated at the highest of tides.

The vegetation is dominated by red fescue, creeping bent *Agrostis stolonifera*, saltmarsh rush *Juncus gerardii* and sea arrow grass *Triglochin maritima.* Other species recorded include parsley water dropwort *Oenanthe lachenalii*, saltmarsh grass *Puccinellia maritima,* tall fescue *F. arundinacea*, sea milkwort *Lysimachia maritima*, hemlock water dropwort *Oenanthe crocata*, celery leaved buttercup *Ranunculus sceleratus*, common scurvy grass, couch, creeping soft grass *Holcus mollis*, marsh foxtail *Alopecurus geniculatus*, soft brome *Bromus hordeaceus* and white clover also occur. Extensive patches of soft rush *Juncus effusus* and yellow sedge *Carex sp* are present at the southern (landward) edge. The pools support water crowfoot *Ranunculus sp*, triangular club-rush *Schoenolectus triqueter* and sea club-rush *Bolboscheonus maritimus*. This is considered to broadly accord with the Annex 1 habitat type Atlantic salt meadows (H1330)/UKHab t2a7.

**Photograph 3-4 (a and b): Saltmarsh adjacent to River Clwyd**

### 3.2.4 Cropland – arable and horticulture (c1)

Cropland is most abundant north of the A55. Maize, barley, oilseed rape and other brassicas were all noted to occur, as shown in Photograph 3-5. None of the arable fields had retained margins for wildlife at the time of survey, most had very little/no headland at all.

**Photograph 3-5: Cropland: Maize Southeast of Rhyl**

### 3.2.5 Neutral grassland (g3) and modified grassland (g4) including areas of coastal and floodplain grazing marsh (secondary code 25)

The majority of the Survey Area comprises grassland that has been agriculturally improved to various degrees. Lower-lying fields north of the A55 were commonly more diverse than those south of it, with less dominance of perennial rye grass and greater occurrence of crested dogs tail, common bent and agricultural weed species such as creeping thistle *Cirsium arvense*, common nettle and dock species *Rumex spp* as well as species associated with damper conditions such as creeping bent, Yorkshire fog, hard rush *Juncus inflexus* and soft rush. The most agriculturally improved fields were dominated by perennial rye grass, sometimes with white clover and were used for grazing cattle or for silage, less commonly for hay.

The lowest lying fields adjacent to the River Clwyd were found to support a wider range of species including: meadow foxtail, common bent, soft brome, crested dogs tail, couch, white clover, nettle, perennial rye grass, creeping thistle, creeping soft grass, Yorkshire fog, common mouse-ear, meadow grasses *Poa spp* and patches of hard rush. The wet depressions/drainage lines supported creeping bent, marsh foxtail and cuckoo flower *Cardamine pratensis*, with floating sweetgrass *Glyceria fluitans* and common spike rush *Eleocharis palustris* recorded in the wettest places.

These low lying fields also support a network of ditches at the boundaries, many of which are only seasonally wet. This network of fields and ditches is considered to comprise an area of coastal and floodplain grazing marsh.

As already noted, Rhyl Golf Course also supports areas of neutral and modified grassland, in mosaic with dune grassland types. The neutral grassland is dominated by red fescue, sweet vernal grass, sheep's sorrel with patches of Yorkshire fog, creeping bent and birds foot trefoil. The greens support more perennial rye grass and white clover.

**Photograph 3-6: Grassland North of the A55**

**Photograph 3-7: Grassland South of the A55**

**Photograph 3-8: Grassland South of the River Clwyd**

### 3.2.6 Hedgerows (h2) and scrub (h3)

Hedgerows are widespread across the Survey Area though most common south of the A55. The majority appeared to be managed via flailing. Most hedgerows were species-poor, dominated by a mixture of hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa* and bramble, though even these hedgerows often included mature oak trees *Quercus spp*. The most species-rich hedgerows also included species such as (but not limited to) wych elm *Ulmus glabra*, hazel *Corylus avellana*, sycamore *Acer pseudoplatanus*, holly *Ilex aquifolium*, rose *Rosa* sp. bird cherry *Prunus padus* and ash *Fraxinus excelsior*.

**Photograph 3-9 (a and b): Hedgerows: Species-poor, Flailed with Trees South of St Asaph Business Park (top) and Unmanaged, North of Bodelwyddan (bottom)**

Further information in respect of the most species-rich hedges which may be breached by the scheme is included in Section 4.

Scrub habitat occurs in patches across the survey area and most commonly comprises a single species stands or mixtures of brambles *Rubus fruticosus*, blackthorn *Prunus spinosa* and/or hawthorn, occasionally gorse *Ulex europaeus* nearer to the coast.

### 3.2.7 Standing open water (r1) including ponds (secondary code 19)

Within the Survey Area ponds occur at greatest density around St Asaph Business Park, and to the southeast of Rhyl in the area between the A525 and B5119. Many of the ponds at the business park have been created specifically as part of previous mitigation measures for great crested newt (GCN). Ponds are scattered across the remainder of the Survey Area and are typically located within agricultural fields, surrounded by a margin of scrub and trees on the banks. Most often these ponds were not fenced, such that in grazed fields the margins are poached.

**Photograph 3-10 (a and b): Ponds: Mitigation Pond at St Asaph Business Park (top), Field Pond south of the A55 bottom)**

The types of vegetation present varies greatly between ponds; those within woodland and scrub typically have very little other than duckweed *Lemna spp*, field ponds generally include floating sweet grass, soft rush and larger or older ponds also include broad leaved pond weed *Potomogeton natans*, bulrush, branched burr reed and/or common water plantain *Alisma plantago-aquatica*, amongst others.

### 3.2.8 Rivers and streams (r2)

The River Clwyd, plus a network of streams and ditches, are present within the Survey Area, most particularly within the northern part. The River Clwyd remains tidal at the point it is crossed by the Survey Area; the banks are earth/silt but also include some reinforced rocky sections. Saltmarsh vegetation is present mainly to the west side (as already described), there is no visible in channel vegetation.

**Photograph 3-11: River Clwyd**

The Cut is a straight, man-made deep drain within agricultural grass and cropland in the north of the Survey Area. The banks are well vegetated with a mixture of scrub, agricultural grasses and ruderals such as nettles and hogweed. The aquatic vegetation was noted to include branched bur-reed *Sparganium erectum*, common reed *Phragmites australis*, water cress *Rorippa nasturtium-aquaticum*, fools water cress *Apium nodiflorum* and duckweed *Lemna sp*.

**Photograph 3-12: The Cut**

Other larger water courses include Glanfyddion Cut, that flows from Dyserth in the east, entering the east side of the River Clwyd just north of Rhuddlan Sewage Works and Pont Robin Cut which starts south of the A547 toward Pengwern and enters the west side of the River Clwyd, approximately opposite the sewage works (through the saltmarsh). Both these water courses are regulated via man-made features such as weirs and/or tidal gates and the character varies considerably within the Survey Area. In both cases the banks are earthy and often grassy and poached, with sections shaded by scrub or trees. The Pont Robin was always turbid when visited over the survey period, the Glanfyddion most often clear. As is evident in the photograph below, the Glanfyddion Cut also supports in channel vegetation including water crowfoot sp.

**Photograph 3-13: Glanfyddion Cut, north of sewage works**

**Photograph 3-14: Pont Robin Cut, south of A547**

In addition to the above, many of the field boundaries in the survey area include a ditch, though the vast majority held no open water and so are not mapped as such. Those that do are generally also grassy, dominated by floating sweetgrass or fools water cress, or else so shaded by a hedge that vegetation is largely absent.

**Photograph 3-15: Typical boundary ditch**

### 3.2.9 Fen, marsh and swamp (f2)

An area of lowland fen (f2a) is present at The Flash, east of Rhyl. It is wholly dominated by greater pond sedge *Carex riparia*, with small amounts of common reed and bulrush at the margin, along with canary reed grass, nettle, hogweed, great willowherb *Epilobium hirsutum* and agricultural grasses. Grey willow *Salix cinerea* scrub is also present.

**Photograph 3-16: Fen at The Flash**

Linear swamps and reedbeds are associated with parts of the drainage network in the fields north of the A55, as illustrated in Photograph 3-17, with additional small swamps also present at Rhyl Golf Course.

**Photograph 3-17: Swamp and Reedbed east of Rhyl (top) and close to the River Clwyd (bottom)**

### 3.2.10 Urban (u1)

Urban areas are concentrated at the coast, plus at Rhuddlan, Bodelwyddan and St Asaph Business Park. These were not subject to detailed survey.

### 3.2.11 Woodland and forest (w1 broadleaved and w2 coniferous)

Woodland is relatively scarce within the Survey Area; all of it has been subject to management such that it is, or contain elements of, plantation (though conifer plantation woodland is scarce). Most also shows evidence of being used for game rearing or cover; all are subject to browsing by deer – the southern woodlands more so. Canopy species throughout tend to be oak, ash, sycamore or elm *Ulmus procera* (the latter diseased). The largest woodland areas are described below; this includes all woodlands mapped as Ancient Semi-Natural Woodland (ASNW) or Planted Ancient Woodland Sites (PAWS) within the survey area.

**Table 3-2**
**Main Woodlands within Survey Area**

| Woodland Name and Location | Description |
|---|---|
| Rhydorddwywen Covert, east of Rhyl | Even-aged sycamore over nettles, with even-aged Scot's pine *Pinus sylvestris* to the west and north boundaries.<br><br>Plantation on Ancient Woodland Site |
| Cottage Covert, east of Rhyl | Oak *Quercus robur* dominated with some Scot's pine, birch *Betula pendula*, beech *Fagus sylvatica* and sycamore. Holly, blackthorn and hawthorn are present below, and the ground flora comprises bramble, ivy *Hedera helix*, bluebell *Hyacinthoides non-scripta*, honeysuckle |

| Woodland Name and Location | Description |
|---|---|
| | *Lonicera periclymenum*, and dogs mercury *Mercurialis perennis*.<br><br>Restored Ancient Woodland site |
| Long Covert, east of Rhyl | Even aged Scot's pine, brambles and bluebells below. Turkey oak *Quercus cerris* (?) and sycamore to east<br><br>Mix of Plantation on Ancient Woodland Site and Restored Ancient Woodland Site. |
| Bryn Cwnin Covert, west of Bryn Cwnin Farm | Relatively wet; there is standing water in the western corner and a shallow pond in the east. The wood comprises even-aged poplar *Populus sp* and sycamore trees with some hazel below, and an area of cypress conifers *Cupressus × leylandii* in the centre. The ground flora is bramble, bluebell, wood anemone *Anemone nemorosa* and false wood brome *Brachypodium sylvaticum*.<br><br>Ancient Semi-Natural Woodland |
| Bryn y Wal Covert west of Bryn Cwnin Farm | Massive sweet chestnut *Aesculus hippocastanus* and sycamore at the southern boundary; elder *Sambusus nigra*, snowberry *Symphoricarpus albus*, holly and hawthorn are present below with bluebells. Central parts are water-logged and support crack willow *Salix fragilis*, snowberry and ivy. Ivy continues to dominate the ground flora to the north and west. The western parts of the wood are even-aged sycamore plantation.<br><br>Ancient Semi-Natural Woodland |
| Pengwern Woodland | Secondary woodland grown up over/around old military buildings. Tree species include poplar, oak, ash, Scot's pine, elm *Ulmus procera*, alder *Alnus glutinosa* over hawthorn, blackthorn and ivy. Sections of this wood are impenetrably scrubby. Southern parts are contain ash and oak up to 40cm diameter plus a single ash over 1m diameter toward the centre. Ground flora includes lesser celandine *Ficaria verna*, Lords and ladies *Arum maculatum*, red campion *Silene dioica*, ivy, ground ivy *Glechoma hederacea* and nettles. Standing water is present at the south end. |
| Princes Gorse and linear woodland adjacent to Nant y Faenol Road. | Long established plantation woodland (shown as mixed plantation woodland for at least 100 years on OS plans).<br><br>Even aged ash, sycamore and elm, other species include pine, birch, oak, goat willow *Salix caprea* and alder. Most trees are up to 30cm diameter, there are no really large ones. The woodland appears un- |

| Woodland Name and Location | Description |
|---|---|
| | thinned/unmanaged since planting. Ground flora includes dogs mercury, ivy, bramble, holly, hawthorn, bluebell, lesser celandine, and harts tongue fern *Asplenium scolopendrium*, *Dryopteris* sp, Lords and ladies, wood avens *Geum urbanum*, red campion and nettle.<br><br>Linked to Princes Gorse is the linear woodland leading north along Nant y Faenol Road. It includes mature oak, beech, sycamore, ash and hazel, adjacent to a stream. |
| Coed Faenol Bropor, immediately west of St Asaph Business Park | Large oaks, with younger ash, willow, hazel, blackthorn, hawthorn and sycamore.<br><br>Ancient semi-natural woodland |
| Coed y Gors, south west of Faenol Bropor | Oak, ash, elm, hazel and sycamore over a ground flora of ivy, dogs mercury and enchanters nightshade *Circaea lutetiana*.<br><br>Restored Ancient Woodland Site. |
| Un-named large woodland block to west of Coed y Gors, within Bodelwyddan Park | Managed woodland with compartments and grassy rides between. Northern parts are waterlogged with standing and fallen deadwood but lacking in understorey. The canopy trees are even-aged birch larch *Larix* sp. and sycamore up to 25cm diameter for the majority, some larger up to 50cm diameter.<br><br>Southern parts are drier with larger oaks, up to 90cm diameter, plus other smaller trees including beech, ash and sycamore. Ground flora includes dogs mercury, early purple orchid *Orchis mascula*, nettle, bluebell, ground ivy, wood false brome, ivy, Lords and ladies, bramble and Dryopteris sp.<br><br>Progressing southwards, the woodland diminishes into a wide field boundary/tree belt adjacent to the Estate wall, including a five stemmed veteran oak >2m diameter at base. This was the only veteran tree located within the survey area, though others were visible within Bodelwyddan Estate to the west.<br><br>Restored Ancient Woodland Site. |
| Coed y Saeson, south of Bodelwyddan substation | Woodland including alder, ash, oak and birch in the canopy. Hazel hawthorn, ash and elm below with dog's mercury, sanicle, giant fescue, false brome and early dog-violet in the ground flora.<br><br>Ancient semi-natural woodland. |

| Woodland Name and Location | Description |
|---|---|
| | LWS |

One further area of woodland occurs at Bryn Cwnin wetland LWS; it is best described as wet woodland (w1d). It is dominated by willow carr and forms part of a wetland complex which also includes swamp and ponds. Eastern parts include several larger oak and sycamore where the ground is drier.

**Photograph 3-18: Broadleaved Woodland at Princes Gorse (North of A55)**

**Photograph 3-19: Broadleaved Woodland along a bridleway at St Asaph Business Park**

## 3.3 Species

The desk study confirms that numerous notable plant species occur within 2km of the proposed onshore infrastructure; those for which there are records within the Survey Area are listed in Table 3-3.

**Table 3-3**
**Notable Plant species recorded within Survey Area (Cofnod dataset)**

| SCIENTIFIC | ENGLISH | STATUS* |
|---|---|---|
| *Ruscus aculeatus* | Butcher's-broom | HDir, RD1(Wales) Vulnerable |
| *Buxus sempervirens* | Box | RD1(UK) Data deficient, RD2(UK) Rare |
| *Hypericum montanum* | Pale St John's-wort | RD1(UK) Near threatened |
| *Viola canina* | Heath Dog-violet | RD1(UK) Near threatened |
| *Euphorbia exigua* | Dwarf Spurge | RD1(UK) Near threatened, RD1(Wales) Near threatened |
| *Papaver argemone* | Prickly Poppy | RD1(UK) Vulnerable, RD1(Wales) Endangered |
| *Hordeum marinum* | Sea Barley | RD1(UK) Vulnerable, RD2(UK) Scarce, S7 |
| *Fumaria purpurea* | Purple Ramping-fumitory | RD1(Wales) Critically endangered, RD2(UK) Scarce, S7 |
| *Hippuris vulgaris* | Mare's-tail | RD1(Wales) Near threatened |
| *Marrubium vulgare* | White Horehound | RD1(Wales) Near threatened, RD2(UK) Scarce |
| *Sinapis arvensis* | Charlock | RD1(Wales) Vulnerable |

| SCIENTIFIC | ENGLISH | STATUS* |
|---|---|---|
| *Butomus umbellatus* | Flowering-rush | RD1(Wales) Vulnerable |
| *Brassica oleracea* | Wild Cabbage | RD2(UK) Scarce |
| *Medicago sativa subsp. falcata* | Sickle Medick | RD2(UK) Scarce |
| *Hyacinthoides non-scripta* | Bluebell | WCA8 |

* HDir – Habitats Directive Annex V (plant species of Community interest whose taking in the wild and exploitation may be subject to management measures), RD1(UK) - Red Data Book listing for the UK based on IUCN guidelines[9], RD1(Wales) - Red Data Book listing for Wales based on IUCN guidelines, RD2(UK) - Red Data Book listing for the UK not based on IUCN guidelines, S7 - Environment (Wales) Act 2016 (Section 7), WCA8 - Wildlife & Countryside Act 1981 Schedule 8 (Plants which are protected).

In addition to the above species, a further 61 species of local importance[10] are noted to occur in the Survey Area by Cofnod, refer to Appendix A for a full list.

Most of the records are associated with coastal habitats, habitats along the River Clwyd or woodlands. Whilst there is a record for Butcher's broom within the Survey Area, it is close to the remains of a dwelling and is considered most likely a garden escape in this instance.

More detailed botanical recording was undertaken during the habitat survey at locations where notable plants were most anticipated to occur; namely coastal habitats, the River Clwyd and woodlands. This recorded many of the locally important species listed at Appendix A but no additional notable or locally important species. However it should be borne in mind that exhaustive searching for particular species has not been undertaken, and given that plants may only be evidence at certain times of year presence additional species remains possible.

Invasive non-native species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) present in the dataset provided by Cofnod and within the survey area are listed in Table 3-4. Of these, Japanese Rose was recorded during the surveys at coastal habitats. The other species listed were not encountered, though it is not possible to conclude absence from the survey area for the same reasons as given for notable plants above.

In addition to the species at Table 3-4, Himalayan balsam *Impatiens glandulifera*, was recorded on the banks of Glanffyddion Cut and at water courses adjacent to Princes Gorse woodland. *Rhododendron ponticum* was also noted to occur in Princes Gorse woodland.

Locations for Invasive Non-Native Species (INNS) recorded during the field survey or in the table below are included on Figure 4.

[9] See the JNCC Conservation Designations for UK Taxa 2020 available at https://hub.jncc.gov.uk/assets/478f7160-967b-4366-acdf-8941fd33850b

[10] As defined within the Denbighshire (VC50) Country Rare Plants Register May 2014 available at [redacted]

**Table 3-4**
**Invasive non-native species recorded within Survey Area (Cofnod data set)**

| SCIENTIFIC | ENGLISH | Listed on sch9? | Approximate Location |
|---|---|---|---|
| *Azolla filiculoides* | Water Fern | Y | Pont Robin, north of Pengwern<br>Two ponds within Glascoed Nature Reserve |
| *Carpobrotus edulis* | Hottentot-fig | Y | Extreme north west edge of survey area (spurious record, location within sea) |
| *Fallopia japonica* | Japanese Knotweed | Y | Pengwern |
| *Heracleum mantegazzianum* | Giant Hogweed | Y | Within drainage basin at Princes Gorse |
| *Hydrocotyle ranunculoides* | Floating Pennywort | Y | Within roadside ditch south of Rhyd Wen Farm Mews |
| *Rosa rugosa* | Japanese Rose | Y | Eastern extreme of site, at Y Ffrith |
| *Hippophae rhamnoides* | Sea-buckthorn | N | Eastern extreme of site, at Y Ffrith |
| *Hyacinthoides hispanica* | Spanish Bluebell | N | Eastern extreme of site, at Y Ffrith |
| *Cortaderia selloana* | Pampas grass | N | Eastern extreme of site, at Y Ffrith |
| *Sedum album* | White stonecrop | N | South of substation |

# 4.0 Hedgerow assessment

A total of ten hedgerows were subject to detailed assessment; raw data for each are included in Appendix B, and the locations are shown on Figure 2. Of these ten hedgerows, five were assessed to be "Important" on wildlife and landscape ground (irrespective of animal species they may support[11]) as detailed in Table 4-1 and shown on Figure 3.

**Table 4-1**
**Important Hedgerows on Wildlife and Landscape Grounds (as defined by Hedgerow Regulations 1997)**

| Hedgerow Reference | Reason for Importance |
|---|---|
| H3 | contains at least 4 species, has 3 features and is adjacent to a public right of way. |
| H5 | contains at least 4 species, has 3 features and is adjacent to a public right of way. |
| H6 | contains at least 4 species, has 3 features and is adjacent to a public right of way |
| H9 | Contains at least 5 species and has 4 features |
| H10 | Contains at least 5 species and has 5 features |

[11] A review of the findings of ongoing protected species field surveys will be undertaken once they are completed, so as to identify any additional hedgerows that are of known value to protected species, and which may therefore qualify as "Important" under that criterion. If necessary this report will be updated accordingly.

# 5.0 Important ecological features

### 5.1.1 Section 7 habitats & ancient woodland

Whilst the majority of the Survey Area comprises agricultural grassland used for grazing cattle and sheep which is of limited ecological importance, the following habitats of Principal Importance (i.e. those included under Section 7 of the Environment Act (Wales) 2016), many of which are also included on Annex 1 of the Habitats Directive) are confirmed to be present, and are shown on Figure 3. In all cases the reference definition for each habitat type has been taken from UK Biodiversity Action Plan Priority Habitat Descriptions[12].

- Coastal sand dunes (s3a) – areas within Rhyl Golf Course and at Y Ffrith meet this description. Certain locations within Rhyl Golf Course may also comprise Annex 1 habitat types dune grassland (H2120)/UKhab s3a6 and (H2130)/UKHab s3a7;

- Coastal saltmarsh (t2a) occurs adjacent to the River Clwyd. This area is also considered to broadly accord with the Annex 1 habitat type Atlantic salt meadows (H1330)/UKHab t2a7.

- None of the woodland within the Survey Area is considered to meet the definition of lowland mixed deciduous woodland. However, most of the larger blocks are listed as ancient woodland (ASNW and/or PAWS), in the Ancient Woodland Inventory and retain some ancient woodland indicator species. A veteran oak is also present in woodland at the south of the site, within Bodelwyddan Estate. These woodlands are considered to be an irreplaceable resource.

  A small area at Bryn Cwnin Wetland LWS meets the definition of wet woodland, which is;

  *"Wet woodland occurs on poorly drained or seasonally wet soils, usually with alder, birch and willows as the predominant tree species, but sometimes including ash, oak, pine and beech on the drier riparian areas. It is found on floodplains, as successional habitat on fens, mires and bogs, along streams and hill-side flushes, and in peaty hollows."*

- Hedgerows (h2a) – most of the hedgerows within the Survey Area meet the Section 7 definition, which states:

  "*A hedgerow is defined as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less that 20m wide. Any bank, wall, ditch or tree within 2m of the centre of the hedgerow is considered to be part of the hedgerow habitat, as is the herbaceous vegetation within 2m of the centre of the hedgerow. All hedgerows consisting predominantly (i.e. 80% or more cover) of at least one woody UK native species are covered by this priority habitat, where each UK country can define the list of woody species native to their respective country*".

  Five hedgerows which could be breached by the proposed scheme have also been assessed as "Important" under the Hedgerow Regulations 1997 on the basis of environmental and botanical criteria (additional hedges may be identified following completion of protected species surveys).

[12] Section 7 Habitat definitions align with the UK Biodiversity Action Plan Priority Habitat Descriptions published in 2008 and updated in 2011, available at https://data.jncc.gov.uk/data/2728792c-c8c6-4b8c-9ccd-a908cb0f1432/UKBAP-PriorityHabitatDescriptions-Rev-2011.pdf

- Many of the fields north of the A55 and associated with the River Clwyd drainage network are considered to meet to the description of Coastal and Floodplain Grazing Marsh (identified with UKHab secondary code 25, within Clwyd Estuary and Adjacent Fields LWS), including those that have been agriculturally improved, which is:

  *"Grazing marsh is defined as periodically inundated pasture, or meadow with ditches which maintain the water levels, containing standing brackish or fresh water. The ditches are especially rich in plants and invertebrates. Almost all areas are grazed and some are cut for hay or silage. Sites may contain seasonal water-filled hollows and permanent ponds with emergent swamp communities, but not extensive areas of tall fen species like reeds; although they may abut with fen and reed swamp communities."*

- Lowland Fen (f2a); the fen at The Flash is considered to meet the Section 7 description,

  *Fens are peatlands which receive water and nutrients from the soil, rock and ground water as well as from rainfall: they are minerotrophic.*

  though is species poor and nor does it comprise Annex 1 habitat;

- Reedbeds (f2e) – the largest linear reedbeds are considered to meet the Section 7 description;

  *"Reedbeds are wetlands dominated by stands of the common reed* Phragmites australis*, wherein the water table is at or above ground level for most of the year. They tend to incorporate areas of open water and ditches, and small areas of wet grassland and carr woodland may be associated with them."*

- Rivers (r2a) – The River Clwyd meets the definition by virtue of supporting other protected and/or Section 7 species such as otter rather than for habitat type/quality *per se.* Remaining water courses within the survey area are not considered to meet the definition, but if Section 7 or protected species are later found to use them then this report will be updated accordingly; and

- Ponds (UKHab secondary code 19); most ponds in the area are likely to meet the Section 7 definition by supporting GCN and/or other Section 7 or Red Data Book species; all ponds are shown on Figure 3 and are concluded to be important ecological features.

The majority of the habitats identified above are part of, or assist towards, Welsh Habitat Network Areas[13]. In its 2013 report, NRW states "*The habitat network layers offer a general guide to how habitats are functionally related in the landscape, and therefore can be interpreted to help locate conservation action such as habitat restoration and expansion*."

### 5.1.2 Plant species

A range of notable plant species has been recorded within the Survey Area based on desk study and field survey results. Detailed surveys for specific species have not been undertaken, but based upon data to date, the species are mainly associated with coastal habitats, areas adjacent to the River Clwyd and/or ASNW/PAWS, which are

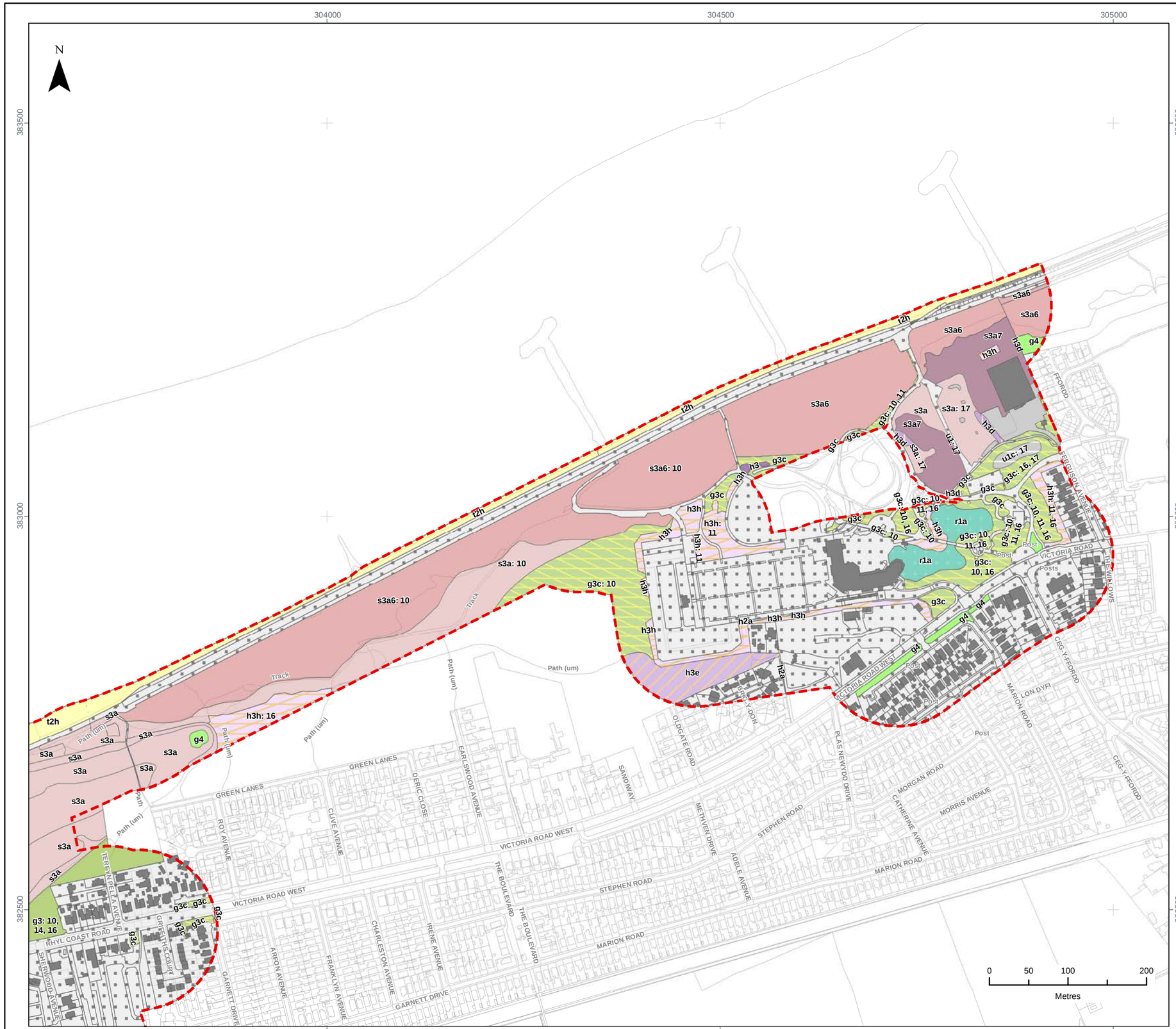
[13] Latham, Sherry & Rothwell, (2013) CCW Staff Science Report No 13/3/3 Ecological Connectivity and Biodiversity Prioritisation in the Terrestrial Environment of Wales.

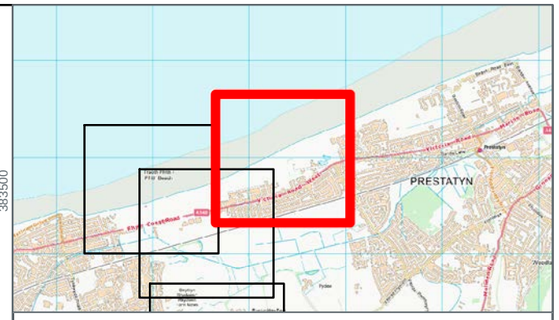
already identified as important ecological features.

INNS have also been recorded at a limited number of locations within the survey area, but in no locations were found to dominate.

# FIGURE 1

Habitat Plan




## LEGEND

- Habitat Survey Area

**Grassland - Neutral Grassland**
- g3 - Neutral Grassland
- g3c - Other Neutral Grassland

**Grassland - Modified Grassland**
- g4 - Modified Grassland

**Heathland and Shrub - Hedgerows**
- h2a - Hedgerow (Priority Habitat)

**Heathland and Shrub - Dense Scrub**
- h3 - Dense Scrub
- h3d - Bramble Scrub
- h3e - Gorse Scrub
- h3h - Mixed Scrub

**Sparsely Vegetated Land - Supralittoral Sediment**
- s3a - Coastal Sand Dune
- s3a6 - Shifting Dunes with Marram (H2120)
- s3a7 - Dune Grassland (H2130)

**Urban - Built-up Areas and Gardens**
- u1 - Built-up Area and Garden
- u1b - Developed Land; Sealed Surface
- u1b5 - Building
- u1c - Artificial Unvegetated, Unsealed Surface

**Rivers and Lakes - Standing Open Water and Canals**
- r1a - Eutrophic Standing Waters

**Marine Inlets and Transitional Waters - Littoral Sediment**
- t2h - Beach

Secondary Codes

| | |
|---|---|
| 10 - Scattered scrub | 33 - Ancient woodland site |
| 11 - Scattered trees | 36 - Plantation |
| 12 - Scattered bracken | 37 - Semi-natural woodland |
| 14 - Scattered rushes | 38 - Secondary woodland |
| 15 - Rushes dominant | 39 - Freshwater - man-made |
| 16 - Tall herb / ephemeral | 40 - Freshwater - heavily modified |
| 17 - Ruderal | 41 - Freshwater - natural |
| 19 - Ponds (Priority Habitat) | |
| 25 - Coastal and flood plain grazing marsh | |



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

FIGURE TITLE:

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FIGURE NUMBER:

FIGURE 1



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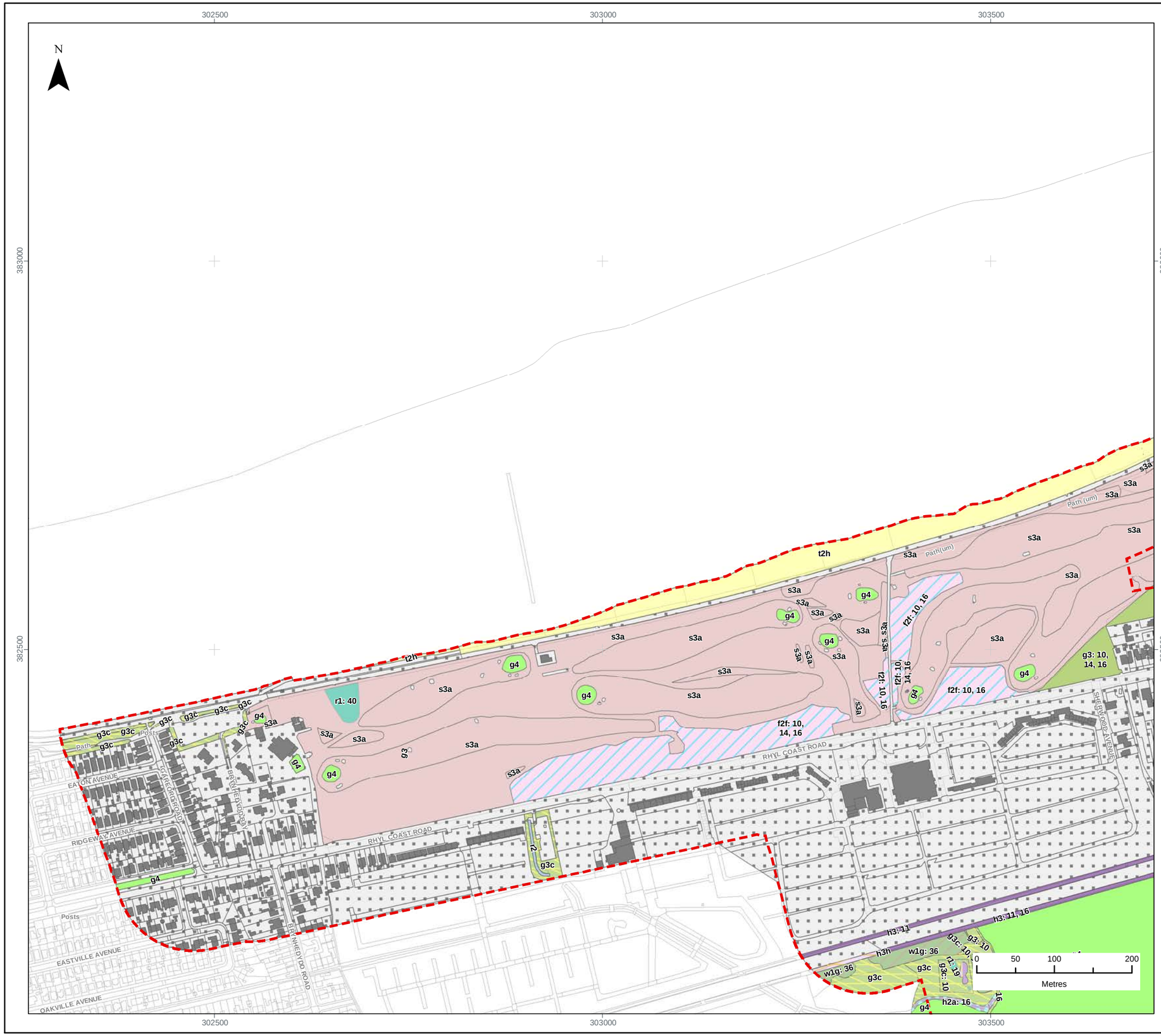
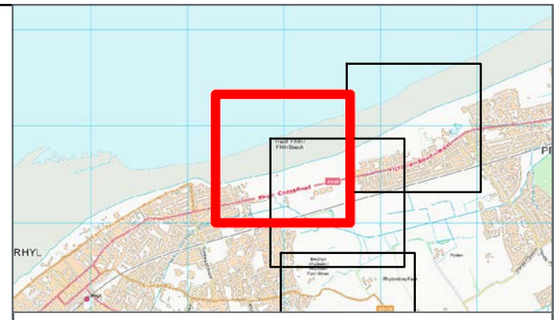
Fferm Wynt Alltraeth
AWEL Y MÔR
Offshore Wind Farm




## LEGEND

- Habitat Survey Area

**Wetland - Fen Marsh and Swamp**
- f2f - Other Swamp

**Grassland - Neutral Grassland**
- g3 - Neutral Grassland
- g3c - Other Neutral Grassland

**Grassland - Modified Grassland**
- g4 - Modified Grassland

**Heathland and Shrub - Hedgerows**
- h2a - Hedgerow (Priority Habitat)

**Heathland and Shrub - Dense Scrub**
- h3 - Dense Scrub
- h3d - Bramble Scrub
- h3h - Mixed Scrub

**Sparsely Vegetated Land - Supralittoral Sediment**
- s3a - Coastal Sand Dune

**Urban - Built-up Areas and Gardens**
- u1 - Built-up Area and Garden
- u1b5 - Building

**Woodland and Forest - Broadleaved Mixed and Yew Woodland**
- w1g - Other Woodland; Broadleaved

**Rivers and Lakes - Standing Open Water and Canals**
- r1 - Standing Open Water and Canal

**Rivers and Lakes - Rivers and Streams**
- r2 - Rivers and Streams

**Marine Inlets and Transitional Waters - Littoral Sediment**
- t2h - Beach

Secondary Codes

| | |
|---|---|
| 10 - Scattered scrub | 33 - Ancient woodland site |
| 11 - Scattered trees | 36 - Plantation |
| 12 - Scattered bracken | 37 - Semi-natural woodland |
| 14 - Scattered rushes | 38 - Secondary woodland |
| 15 - Rushes dominant | 39 - Freshwater - man-made |
| 16 - Tall herb / ephemeral | 40 - Freshwater - heavily modified |
| 17 - Ruderal | 41 - Freshwater - natural |
| 19 - Ponds (Priority Habitat) | |
| 25 - Coastal and flood plain grazing marsh | |



PROJECT TITLE:

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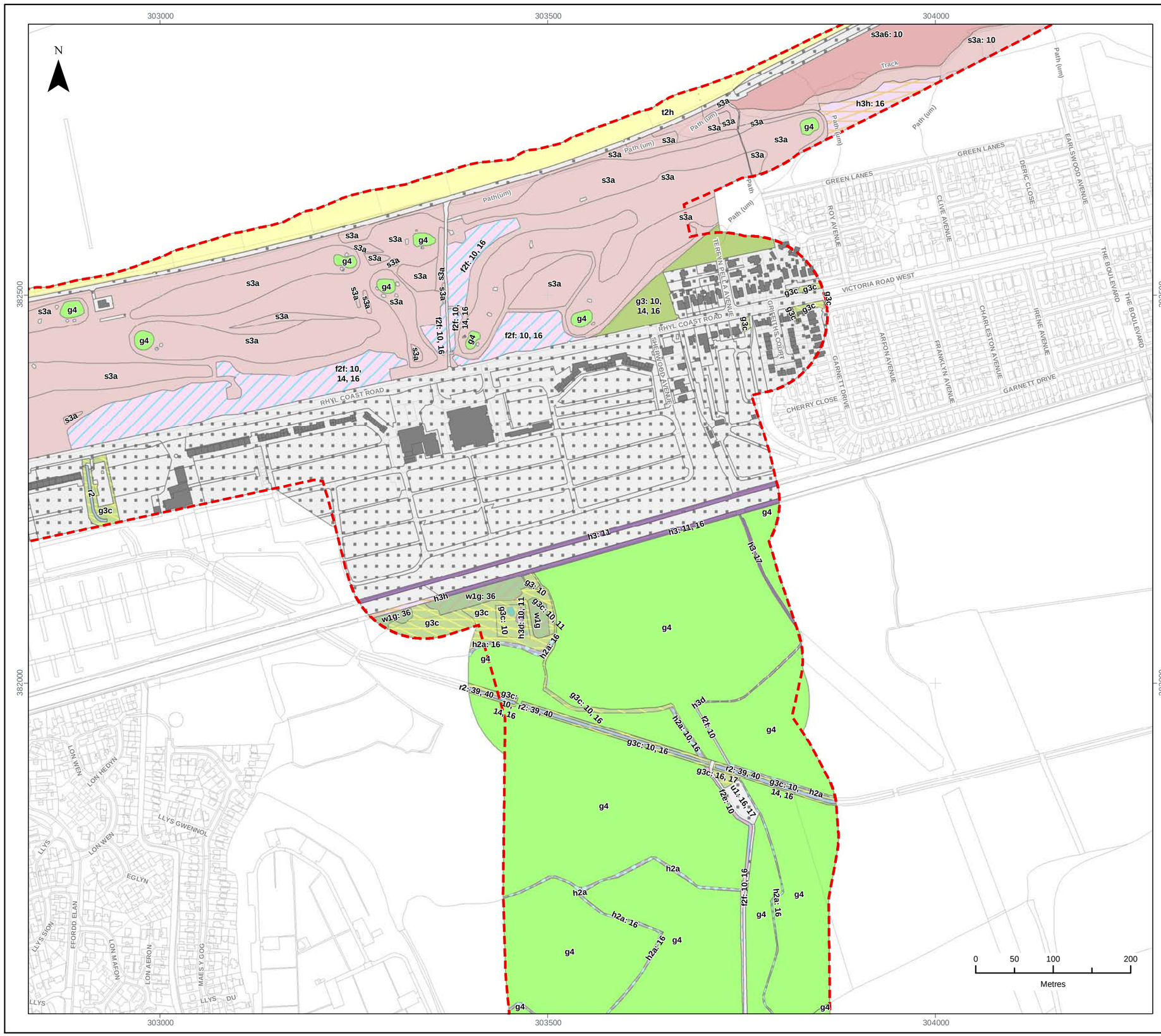
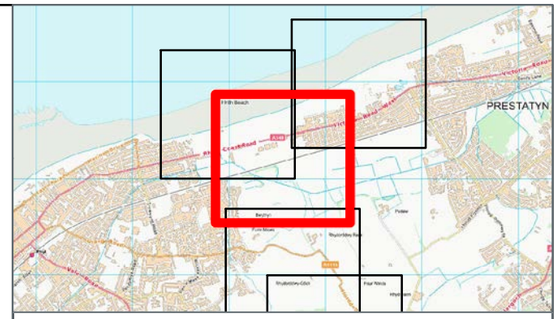
Offshore Wind Farm




## LEGEND

- Habitat Survey Area

**Wetland - Fen Marsh and Swamp**
- f2e - Reedbeds
- f2f - Other Swamp

**Grassland - Neutral Grassland**
- g3 - Neutral Grassland
- g3c - Other Neutral Grassland

**Grassland - Modified Grassland**
- g4 - Modified Grassland

**Heathland and Shrub - Hedgerows**
- h2a - Hedgerow (Priority Habitat)

**Heathland and Shrub - Dense Scrub**
- h3 - Dense Scrub
- h3d - Bramble Scrub
- h3h - Mixed Scrub

**Sparsely Vegetated Land - Supralittoral Sediment**
- s3a - Coastal Sand Dune
- s3a6 - Shifting Dunes with Marram (H2120)

**Urban - Built-up Areas and Gardens**
- u1 - Built-up Area and Garden
- u1b5 - Building

**Woodland and Forest - Broadleaved Mixed and Yew Woodland**
- w1g - Other Woodland; Broadleaved

**Rivers and Lakes - Standing Open Water and Canals**
- r1 - Standing Open Water and Canal

**Rivers and Lakes - Rivers and Streams**
- r2 - Rivers and Streams

**Marine Inlets and Transitional Waters - Littoral Sediment**
- t2h - Beach

Secondary Codes
- 10 - Scattered scrub
- 11 - Scattered trees
- 12 - Scattered bracken
- 14 - Scattered rushes
- 15 - Rushes dominant
- 16 - Tall herb / ephemeral
- 17 - Ruderal
- 19 - Ponds (Priority Habitat)
- 25 - Coastal and flood plain grazing marsh
- 33 - Ancient woodland site
- 36 - Plantation
- 37 - Semi-natural woodland
- 38 - Secondary woodland
- 39 - Freshwater - man-made
- 40 - Freshwater - heavily modified
- 41 - Freshwater - natural



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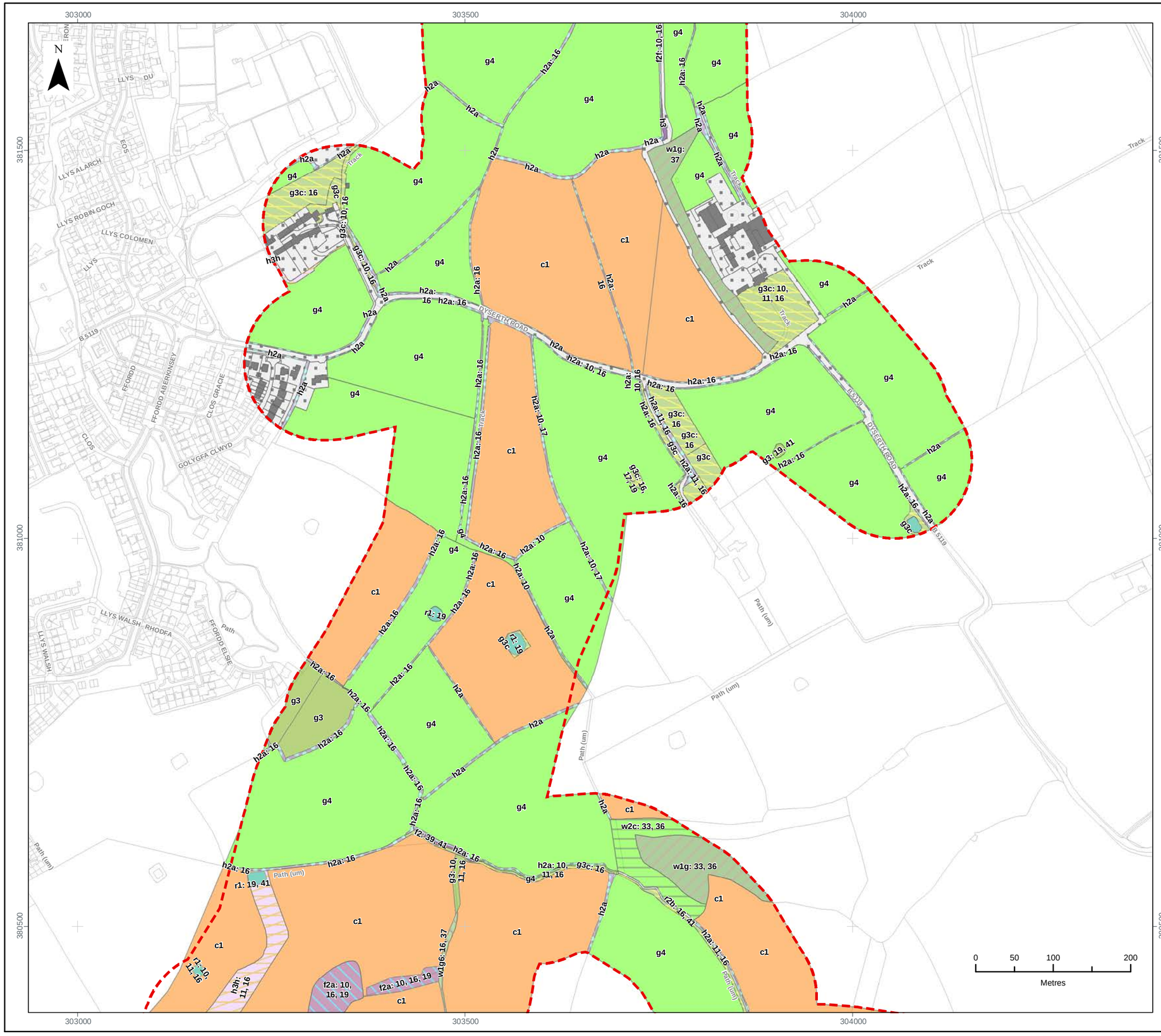


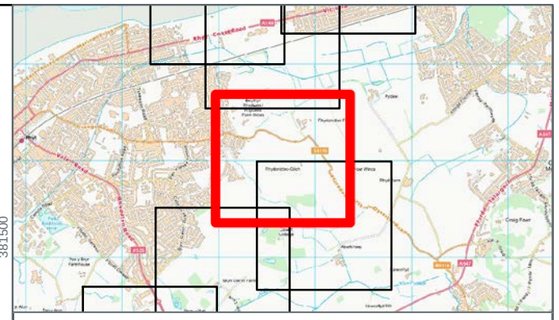

## LEGEND

- Habitat Survey Area

**Cropland - Arable and Horticulture**
- c1 - Arable and Horticulture

**Wetland - Fen Marsh and Swamp**
- f2 - Fen Marsh and Swamp
- f2a - Lowland Fen
- f2f - Other Swamp

**Grassland - Neutral Grassland**
- g3 - Neutral Grassland
- g3c - Other Neutral Grassland

**Grassland - Modified Grassland**
- g4 - Modified Grassland

**Heathland and Shrub - Hedgerows**
- h2a - Hedgerow (Priority Habitat)

**Heathland and Shrub - Dense Scrub**
- h3 - Dense Scrub
- h3h - Mixed Scrub

**Urban - Built-up Areas and Gardens**
- u1 - Built-up Area and Garden
- u1b5 - Building

**Woodland and Forest - Broadleaved Mixed and Yew Woodland**
- w1g - Other Woodland; Broadleaved
- w1g6 - Line of Trees

**Woodland and Forest - Coniferous Woodland**
- w2c - Other Coniferous Woodland

**Rivers and Lakes - Standing Open Water and Canals**
- r1 - Standing Open Water and Canal

**Rivers and Lakes - Rivers and Streams**
- r2b - Other Rivers and Streams

Secondary Codes

| | |
|---|---|
| 10 - Scattered scrub | 33 - Ancient woodland site |
| 11 - Scattered trees | 36 - Plantation |
| 12 - Scattered bracken | 37 - Semi-natural woodland |
| 14 - Scattered rushes | 38 - Secondary woodland |
| 15 - Rushes dominant | 39 - Freshwater - man-made |
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| 17 - Ruderal | 41 - Freshwater - natural |
| 19 - Ponds (Priority Habitat) | |
| 25 - Coastal and flood plain grazing marsh | |



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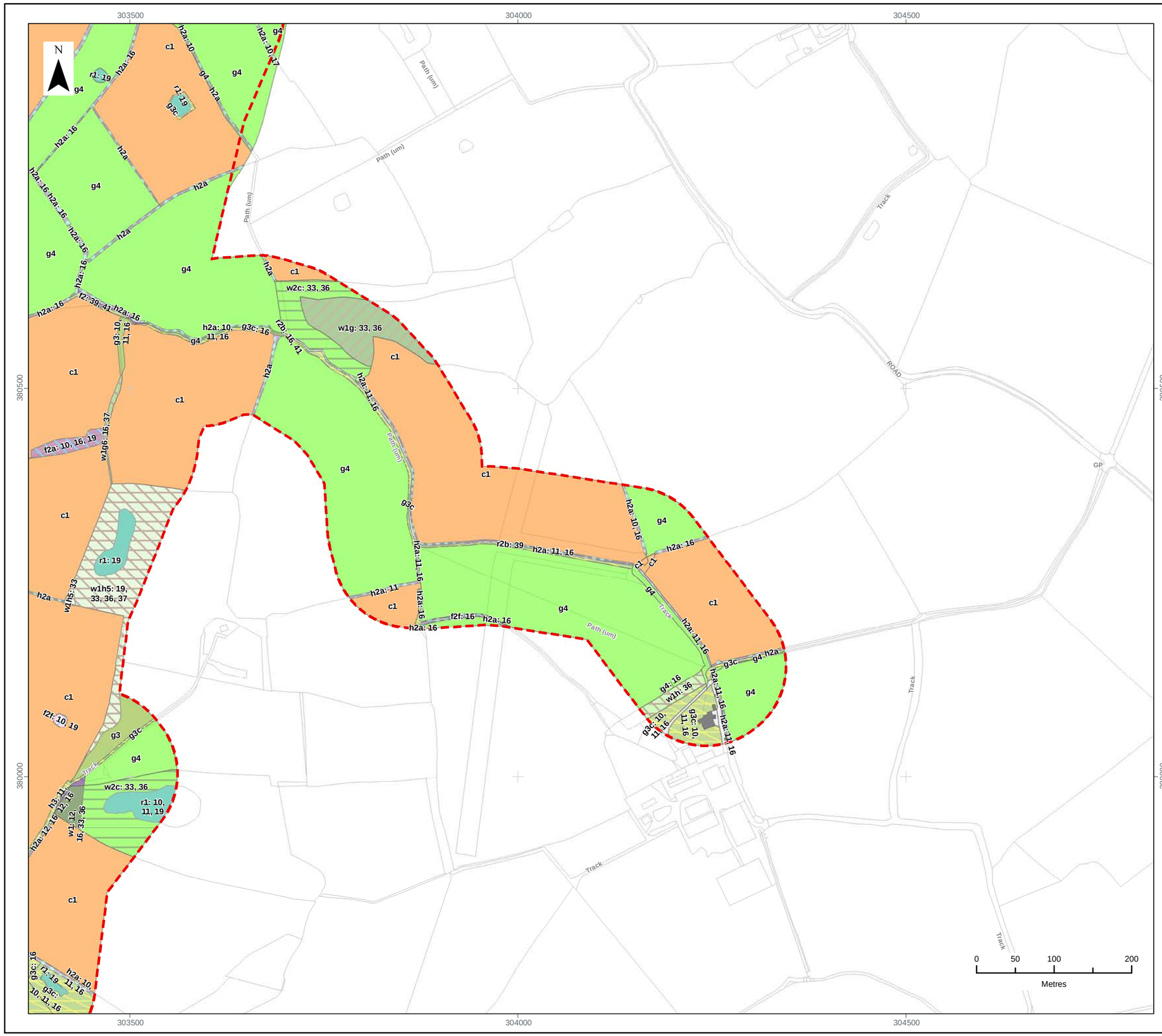
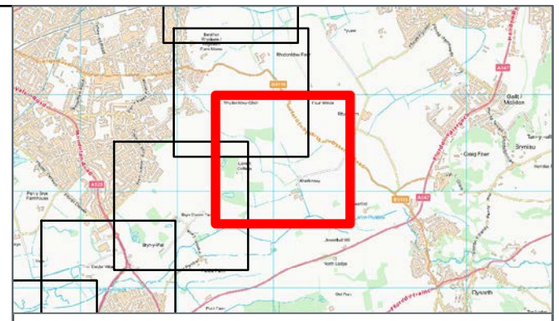
Offshore Wind Farm



## LEGEND

- Habitat Survey Area

**Cropland - Arable and Horticulture**
- c1 - Arable and Horticulture

**Wetland - Fen Marsh and Swamp**
- f2 - Fen Marsh and Swamp
- f2a - Lowland Fen
- f2f - Other Swamp

**Grassland - Neutral Grassland**
- g3 - Neutral Grassland
- g3c - Other Neutral Grassland

**Grassland - Modified Grassland**
- g4 - Modified Grassland

**Heathland and Shrub - Hedgerows**
- h2a - Hedgerow (Priority Habitat)

**Heathland and Shrub - Dense Scrub**
- h3 - Dense Scrub

**Urban - Built-up Areas and Gardens**
- u1 - Built-up Area and Garden
- u1b5 - Building

**Woodland and Forest - Broadleaved Mixed and Yew Woodland**
- w1 - Broadleaved Mixed and Yew Woodland
- w1g - Other Woodland; Broadleaved
- w1g6 - Line of Trees
- w1h - Other Woodland; Mixed
- w1h5 - Other Woodland; Mixed; Mainly Broadleaved

**Woodland and Forest - Coniferous Woodland**
- w2c - Other Coniferous Woodland

**Rivers and Lakes - Standing Open Water and Canals**
- r1 - Standing Open Water and Canal

**Rivers and Lakes - Rivers and Streams**
- r2b - Other Rivers and Streams

Secondary Codes
10 - Scattered scrub
11 - Scattered trees
12 - Scattered bracken
14 - Scattered rushes
15 - Rushes dominant
16 - Tall herb / ephemeral
17 - Ruderal
19 - Ponds (Priority Habitat)
25 - Coastal and flood plain grazing marsh
33 - Ancient woodland site
36 - Plantation
37 - Semi-natural woodland
38 - Secondary woodland
39 - Freshwater - man-made
40 - Freshwater - heavily modified
41 - Freshwater - natural



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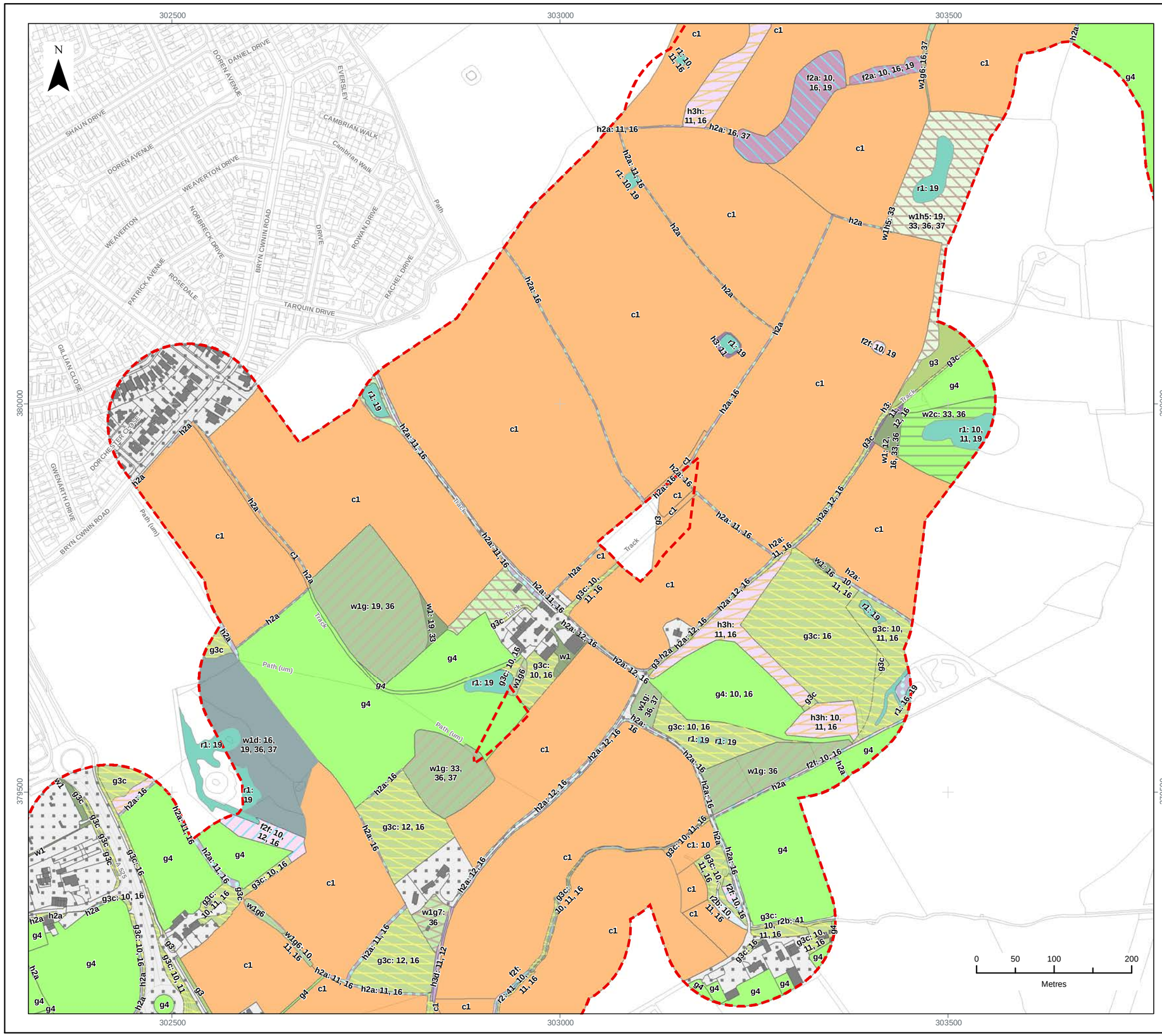


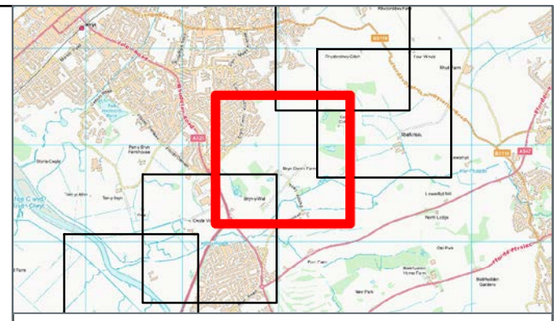

## LEGEND

- Habitat Survey Area

**Cropland - Arable and Horticulture**
- c1 - Arable and Horticulture

**Wetland - Fen Marsh and Swamp**
- f2a - Lowland Fen
- f2f - Other Swamp

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- h3h - Mixed Scrub

**Urban - Built-up Areas and Gardens**
- u1 - Built-up Area and Garden
- u1b5 - Building

**Woodland and Forest - Broadleaved Mixed and Yew Woodland**
- w1 - Broadleaved Mixed and Yew Woodland
- w1d - Wet Woodland
- w1g - Other Woodland; Broadleaved
- w1g6 - Line of Trees
- w1g7 - Other Broadleaved Woodland Types
- w1h - Other Woodland; Mixed
- w1h5 - Other Woodland; Mixed; Mainly Broadleaved

**Woodland and Forest - Coniferous Woodland**
- w2c - Other Coniferous Woodland

**Rivers and Lakes - Standing Open Water and Canals**
- r1 - Standing Open Water and Canal

**Rivers and Lakes - Rivers and Streams**
- r2 - Rivers and Streams
- r2b - Other Rivers and Streams

Secondary Codes

| | |
|---|---|
| 10 - Scattered scrub | 33 - Ancient woodland site |
| 11 - Scattered trees | 36 - Plantation |
| 12 - Scattered bracken | 37 - Semi-natural woodland |
| 14 - Scattered rushes | 38 - Secondary woodland |
| 15 - Rushes dominant | 39 - Freshwater - man-made |
| 16 - Tall herb / ephemeral | 40 - Freshwater - heavily modified |
| 17 - Ruderal | 41 - Freshwater - natural |
| 19 - Ponds (Priority Habitat) | |
| 25 - Coastal and flood plain grazing marsh | |



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

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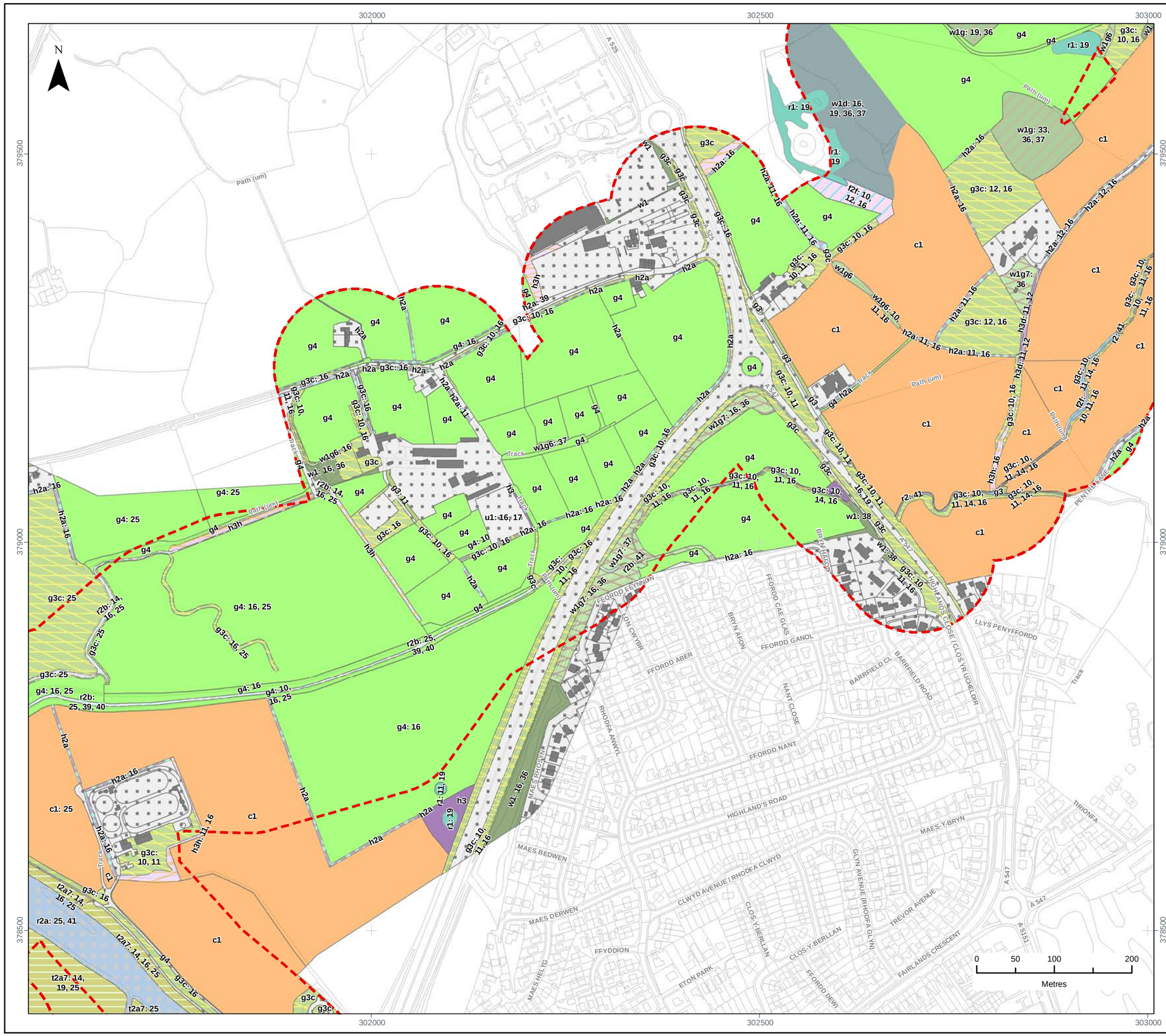


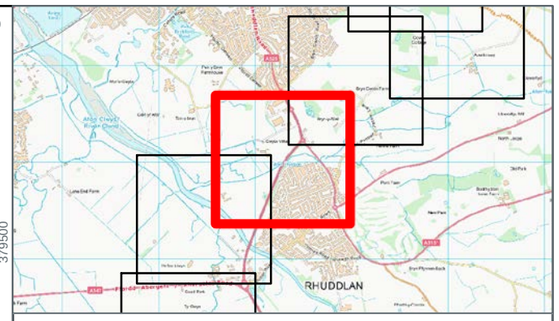


## LEGEND

- Habitat Survey Area

**Cropland - Arable and Horticulture**
- c1 - Arable and Horticulture

**Wetland - Fen Marsh and Swamp**
- f2f - Other Swamp

**Grassland - Neutral Grassland**
- g3 - Neutral Grassland
- g3c - Other Neutral Grassland

**Grassland - Modified Grassland**
- g4 - Modified Grassland

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- w1d - Wet Woodland
- w1g - Other Woodland; Broadleaved
- w1g6 - Line of Trees
- w1g7 - Other Broadleaved Woodland Types

**Rivers and Lakes - Standing Open Water and Canals**
- r1 - Standing Open Water and Canal

**Rivers and Lakes - Rivers and Streams**
- r2 - Rivers and Streams
- r2a - Rivers (Priority Habitat)
- r2b - Other Rivers and Streams

**Marine Inlets and Transitional Waters - Littoral Sediment**
- t2a7 - Atlantic Salt Meadows (H1330)

Secondary Codes
10 - Scattered scrub
11 - Scattered trees
12 - Scattered bracken
14 - Scattered rushes
15 - Rushes dominant
16 - Tall herb
17 - Ruderal / ephemeral
19 - Ponds (Priority Habitat)
25 - Coastal and flood plain grazing marsh
33 - Ancient woodland site
36 - Plantation
37 - Semi-natural woodland
38 - Secondary woodland
39 - Freshwater - man-made
40 - Freshwater - heavily modified
41 - Freshwater - natural



PROJECT TITLE:

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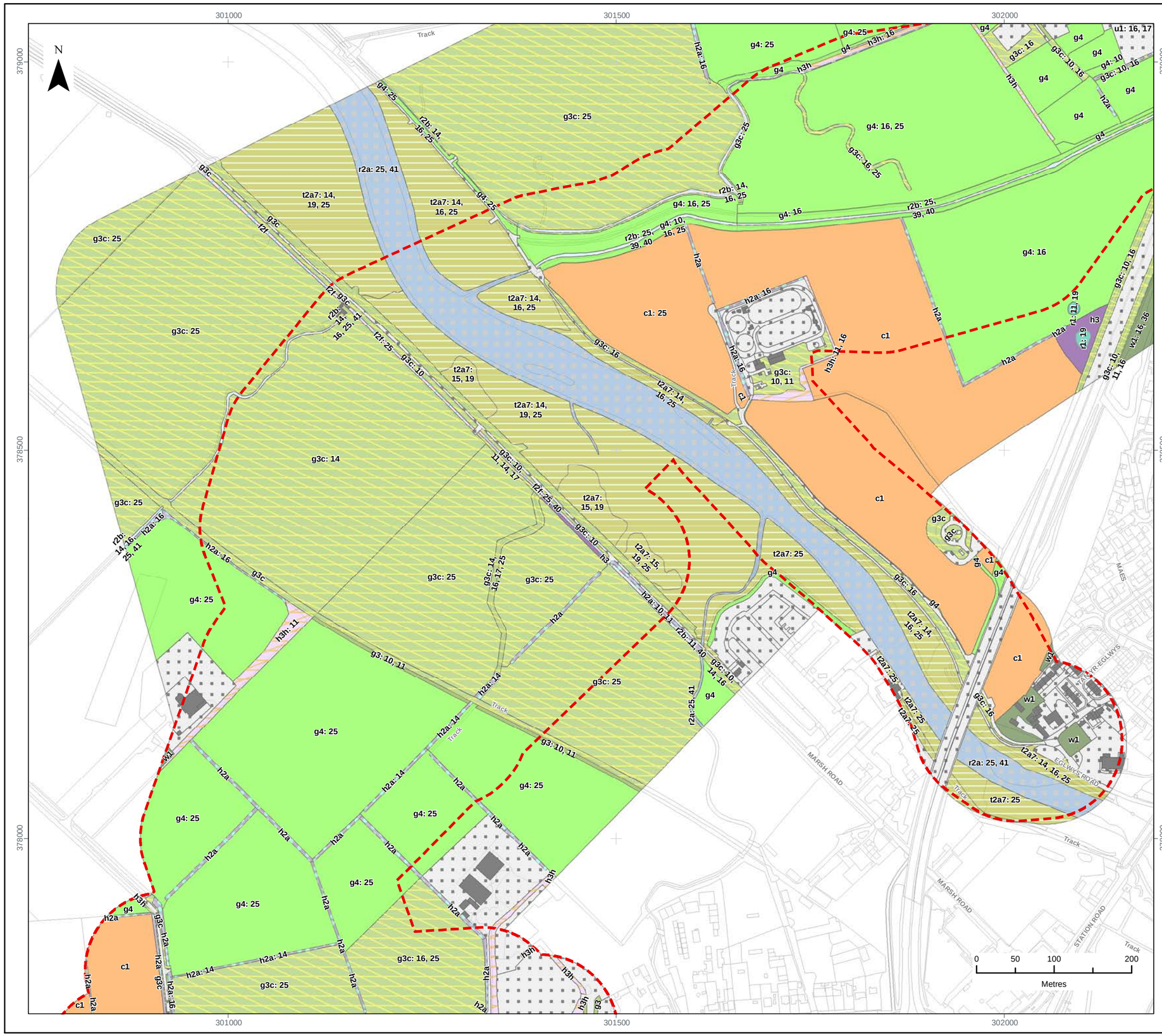


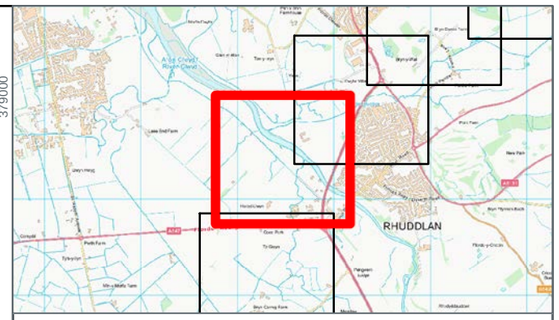


## LEGEND

- Habitat Survey Area

**Cropland - Arable and Horticulture**
- c1 - Arable and Horticulture

**Wetland - Fen Marsh and Swamp**
- f2f - Other Swamp

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- g3c - Other Neutral Grassland

**Grassland - Modified Grassland**
- g4 - Modified Grassland

**Heathland and Shrub - Hedgerows**
- h2a - Hedgerow (Priority Habitat)

**Heathland and Shrub - Dense Scrub**
- h3 - Dense Scrub
- h3h - Mixed Scrub

**Urban - Built-up Areas and Gardens**
- u1 - Built-up Area and Garden
- u1b5 - Building

**Woodland and Forest - Broadleaved Mixed and Yew Woodland**
- w1 - Broadleaved Mixed and Yew Woodland

**Rivers and Lakes - Standing Open Water and Canals**
- r1 - Standing Open Water and Canal

**Rivers and Lakes - Rivers and Streams**
- r2a - Rivers (Priority Habitat)
- r2b - Other Rivers and Streams

**Marine Inlets and Transitional Waters - Littoral Sediment**
- t2a7 - Atlantic Salt Meadows (H1330)

Secondary Codes

| | |
|---|---|
| 10 - Scattered scrub | 33 - Ancient woodland site |
| 11 - Scattered trees | 36 - Plantation |
| 12 - Scattered bracken | 37 - Semi-natural woodland |
| 14 - Scattered rushes | 38 - Secondary woodland |
| 15 - Rushes dominant | 39 - Freshwater - man-made |
| 16 - Tall herb / ephemeral | 40 - Freshwater - heavily modified |
| 17 - Ruderal | 41 - Freshwater - natural |
| 19 - Ponds (Priority Habitat) | |
| 25 - Coastal and flood plain grazing marsh | |



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

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| 1 | 21/06/2021 | First Issue | JRS | JC |
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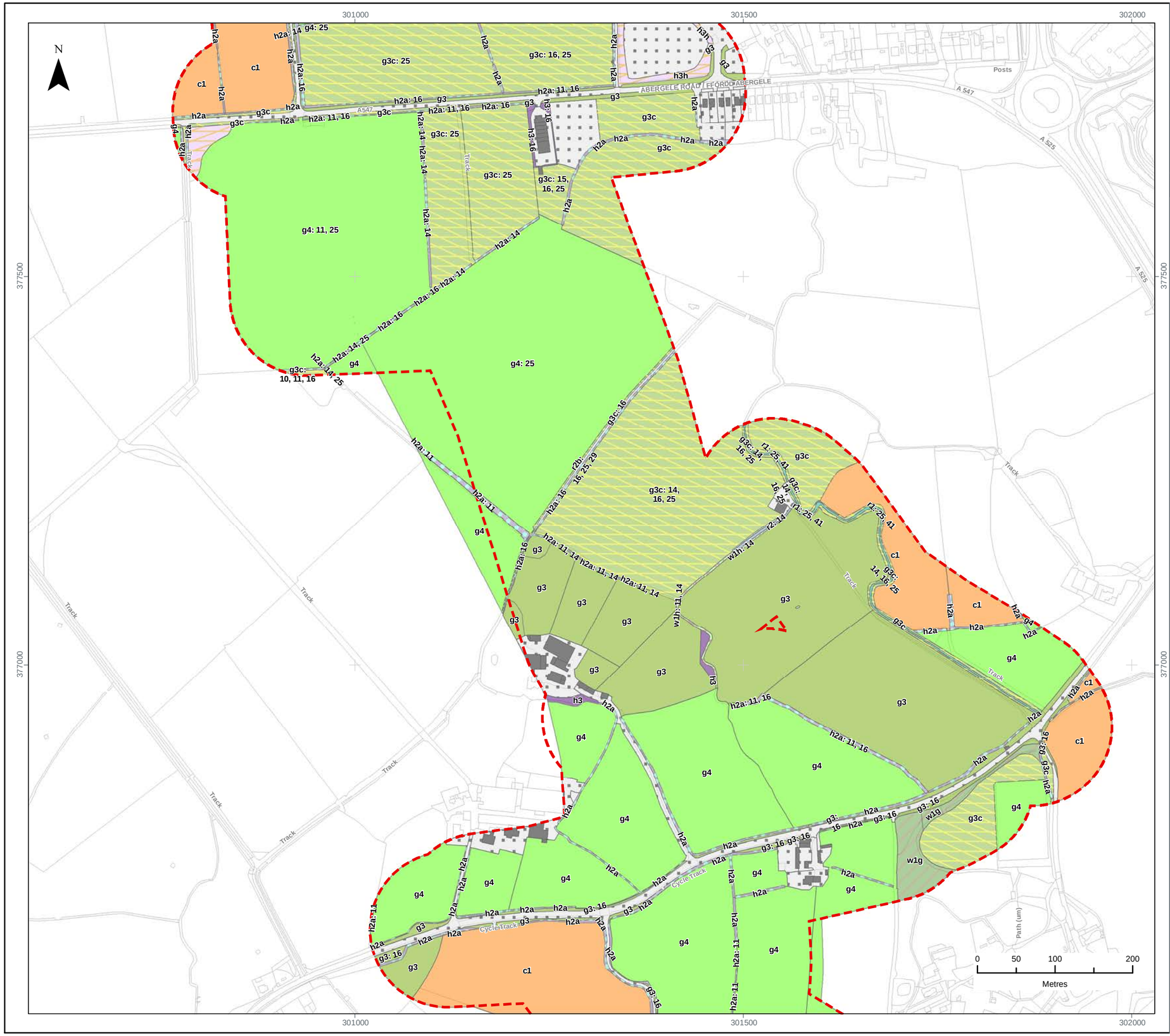
FIGURE NUMBER:

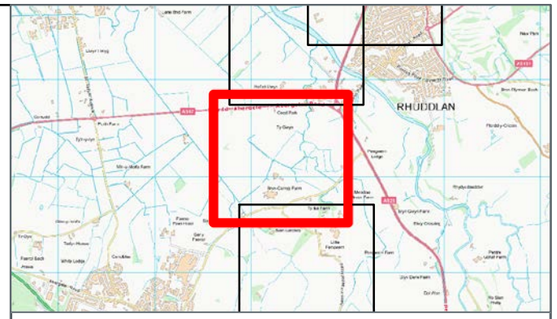
FIGURE 1



| SCALE: | PLOT SIZE: | DATUM: | COORDINATE SYSTEM: |
|---|---|---|---|
| 1:5,000 | A3 | ODN | British National Grid |

Fferm Wynt Alltraeth
AWEL Y MÔR
Offshore Wind Farm




## LEGEND

- Habitat Survey Area
- r2b - Other Rivers and Streams

**Cropland - Arable and Horticulture**
- c1 - Arable and Horticulture

**Grassland - Neutral Grassland**
- g3 - Neutral Grassland
- g3c - Other Neutral Grassland

**Grassland - Modified Grassland**
- g4 - Modified Grassland

**Heathland and Shrub - Hedgerows**
- h2a - Hedgerow (Priority Habitat)

**Heathland and Shrub - Dense Scrub**
- h3 - Dense Scrub
- h3h - Mixed Scrub

**Urban - Built-up Areas and Gardens**
- u1 - Built-up Area and Garden
- u1b5 - Building

**Woodland and Forest - Broadleaved Mixed and Yew Woodland**
- w1g - Other Woodland; Broadleaved
- w1h - Other Woodland; Mixed

**Rivers and Lakes - Standing Open Water and Canals**
- r1 - Standing Open Water and Canal

**Rivers and Lakes - Rivers and Streams**
- r2 - Rivers and Streams

Secondary Codes

| | |
|---|---|
| 10 - Scattered scrub | 33 - Ancient woodland site |
| 11 - Scattered trees | 36 - Plantation |
| 12 - Scattered bracken | 37 - Semi-natural woodland |
| 14 - Scattered rushes | 38 - Secondary woodland |
| 15 - Rushes dominant | 39 - Freshwater - man-made |
| 16 - Tall herb / ephemeral | 40 - Freshwater - heavily modified |
| 17 - Ruderal | 41 - Freshwater - natural |
| 19 - Ponds (Priority Habitat) | |
| 25 - Coastal and flood plain grazing marsh | |



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

FIGURE TITLE:

# HABITAT PLAN

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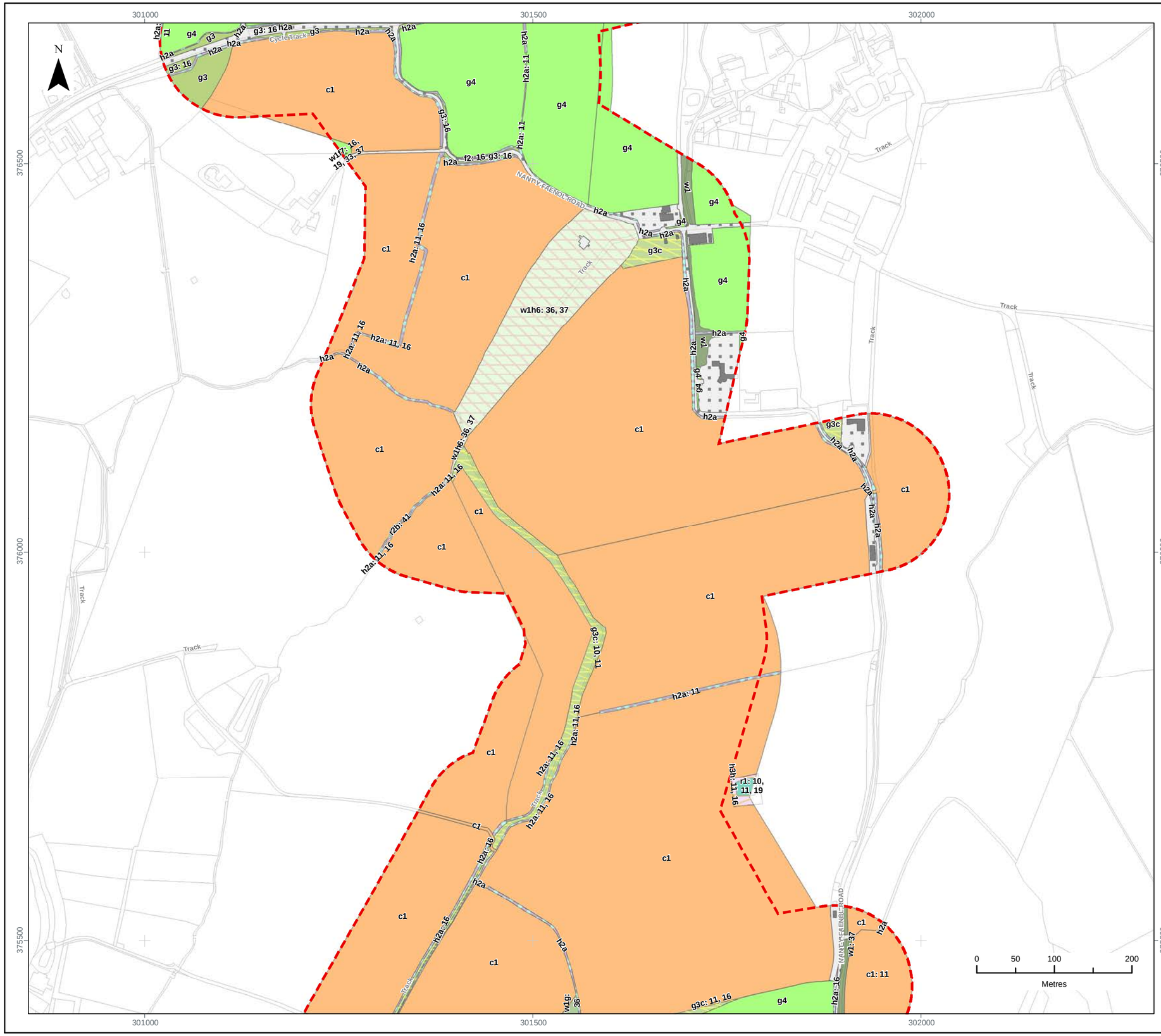


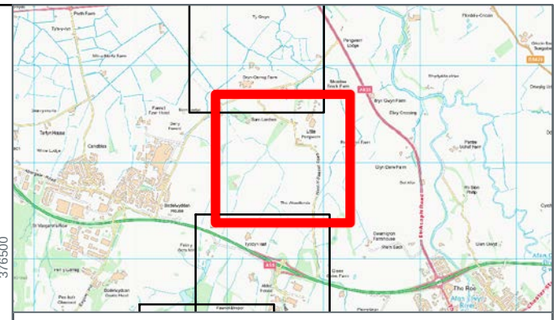

## LEGEND

- Habitat Survey Area

**Cropland - Arable and Horticulture**
- c1 - Arable and Horticulture

**Wetland - Fen Marsh and Swamp**
- f2 - Fen Marsh and Swamp

**Grassland - Neutral Grassland**
- g3 - Neutral Grassland
- g3c - Other Neutral Grassland

**Grassland - Modified Grassland**
- g4 - Modified Grassland

**Heathland and Shrub - Hedgerows**
- h2a - Hedgerow (Priority Habitat)

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- w1 - Broadleaved Mixed and Yew Woodland
- w1f7 - Other Lowland Mixed Deciduous Woodland
- w1g - Other Woodland; Broadleaved
- w1h6 - Other Woodland; Mixed; mainly Conifer

**Rivers and Lakes - Standing Open Water and Canals**
- r1 - Standing Open Water and Canal

**Rivers and Lakes - Rivers and Streams**
- r2b - Other Rivers and Streams

Secondary Codes

| | |
|---|---|
| 10 - Scattered scrub | 33 - Ancient woodland site |
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| 19 - Ponds (Priority Habitat) | |
| 25 - Coastal and flood plain grazing marsh | |



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

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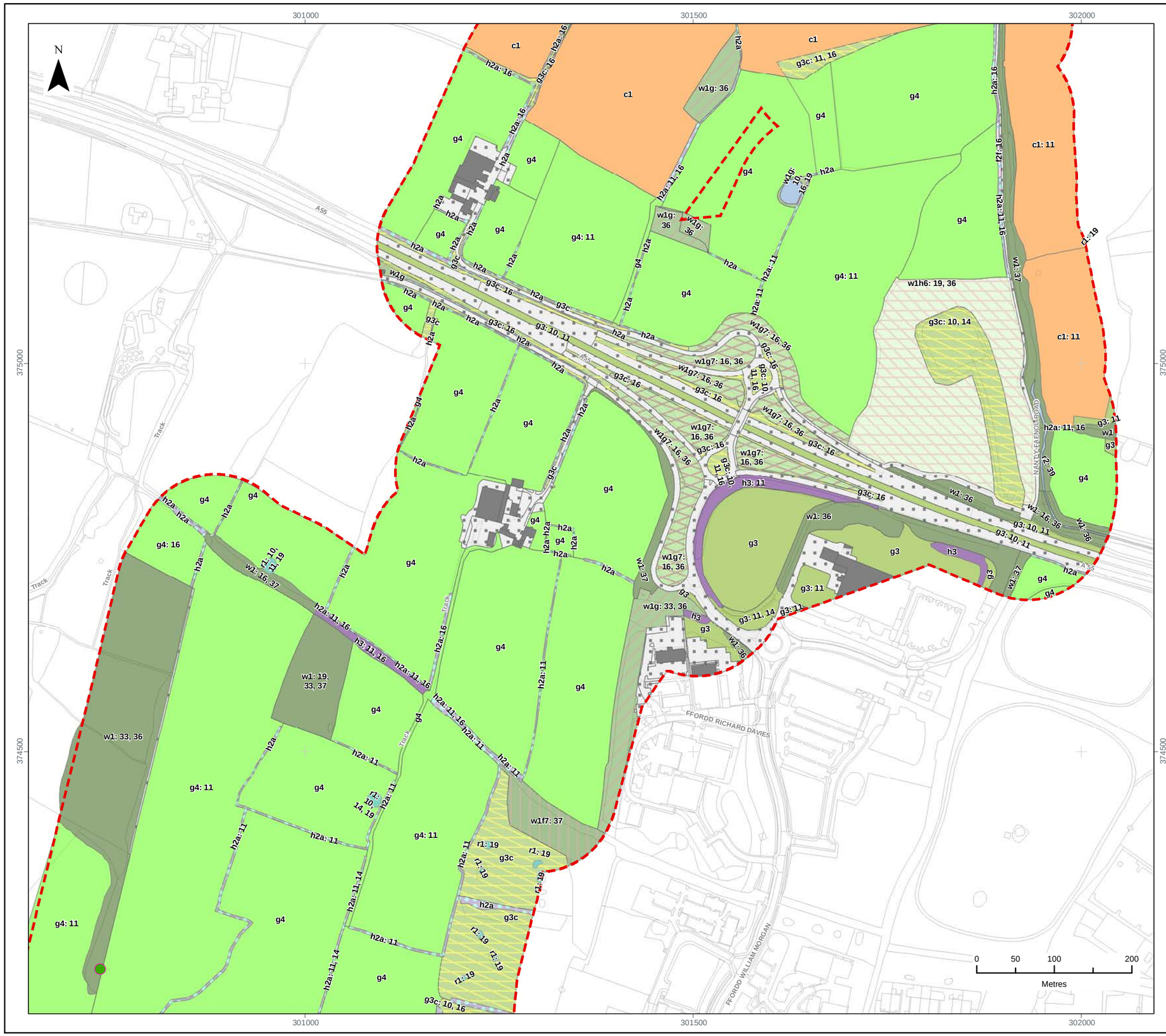
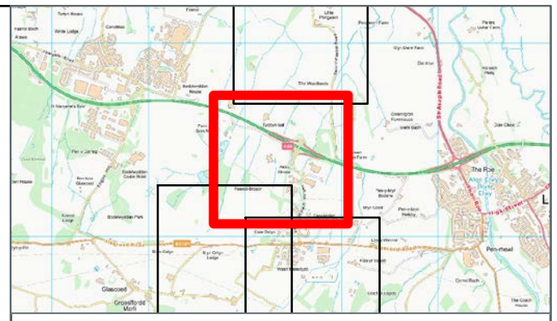
Offshore Wind Farm



## LEGEND

- Habitat Survey Area
- Veteran Tree Location

**Cropland - Arable and Horticulture**
- c1 - Arable and Horticulture

**Wetland - Fen Marsh and Swamp**
- f2f - Other Swamp

**Grassland - Neutral Grassland**
- g3 - Neutral Grassland
- g3c - Other Neutral Grassland

**Grassland - Modified Grassland**
- g4 - Modified Grassland

**Heathland and Shrub - Hedgerows**
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- w1 - Broadleaved Mixed and Yew Woodland
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- w1g - Other Woodland; Broadleaved
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**Rivers and Lakes - Standing Open Water and Canals**
- r1 - Standing Open Water and Canal

**Rivers and Lakes - Rivers and Streams**
- r2 - Rivers and Streams

Secondary Codes
- 10 - Scattered scrub
- 11 - Scattered trees
- 12 - Scattered bracken
- 14 - Scattered rushes
- 15 - Rushes dominant
- 16 - Tall herb / ephemeral
- 17 - Ruderal
- 19 - Ponds (Priority Habitat)
- 25 - Coastal and flood plain grazing marsh
- 33 - Ancient woodland site
- 36 - Plantation
- 37 - Semi-natural woodland
- 38 - Secondary woodland
- 39 - Freshwater - man-made
- 40 - Freshwater - heavily modified
- 41 - Freshwater - natural



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

FIGURE TITLE:

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AWEL Y MÔR
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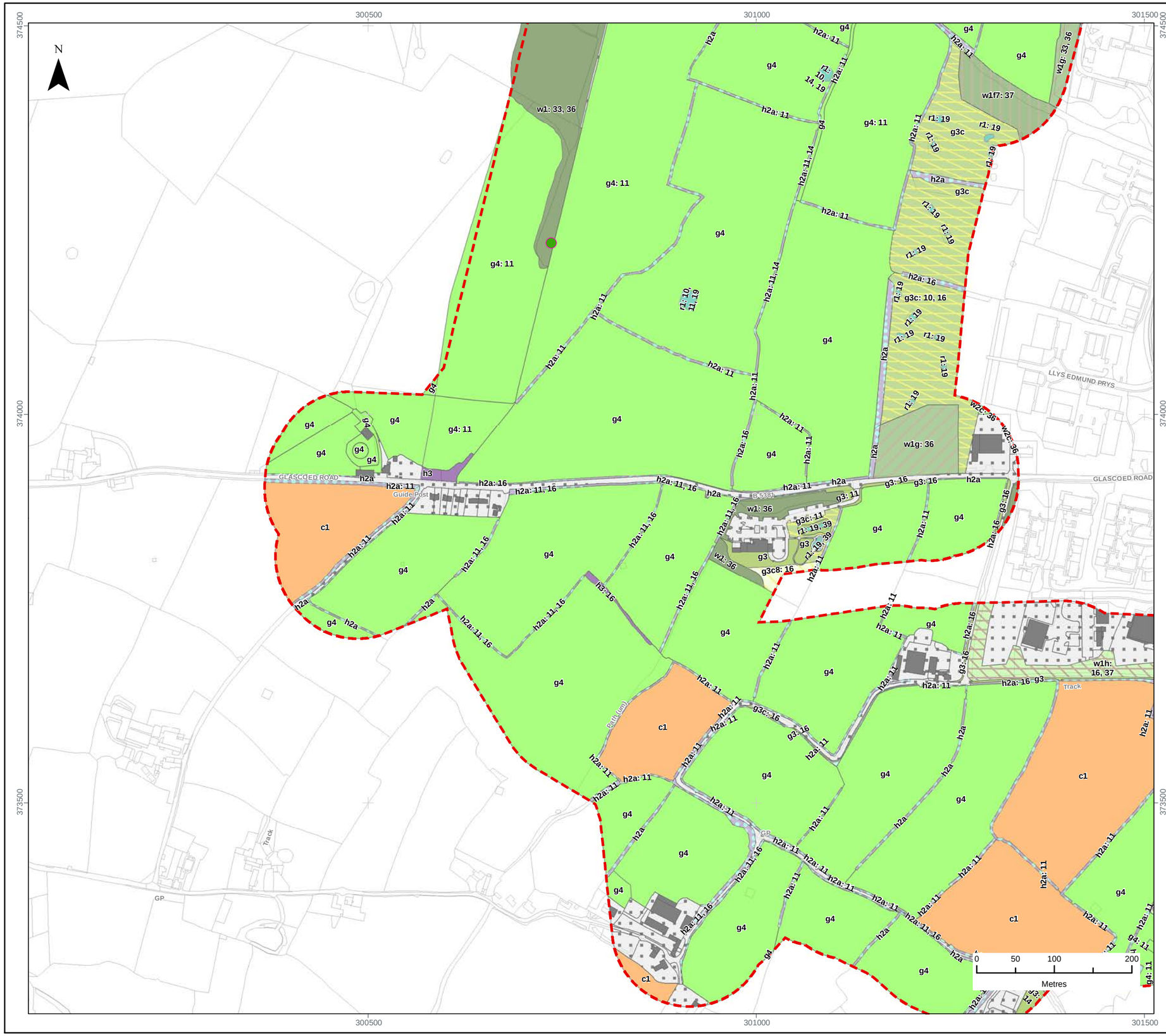


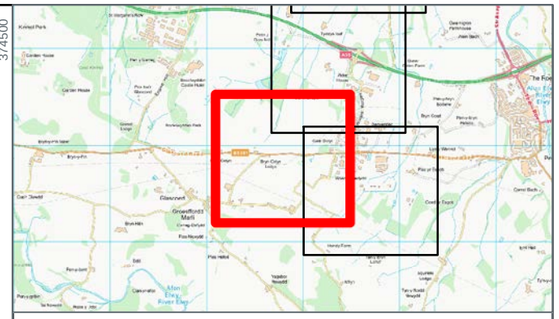

## LEGEND

- Habitat Survey Area
- Veteran Tree Location

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- c1 - Arable and Horticulture

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- g3c8 - Holcus-Juncus Neutral Grassland

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- g4 - Modified Grassland

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- w1h - Other Woodland; Mixed

**Woodland and Forest - Coniferous Woodland**
- w2c - Other Coniferous Woodland

**Rivers and Lakes - Standing Open Water and Canals**
- r1 - Standing Open Water and Canal

Secondary Codes

| | |
|---|---|
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PROJECT TITLE:

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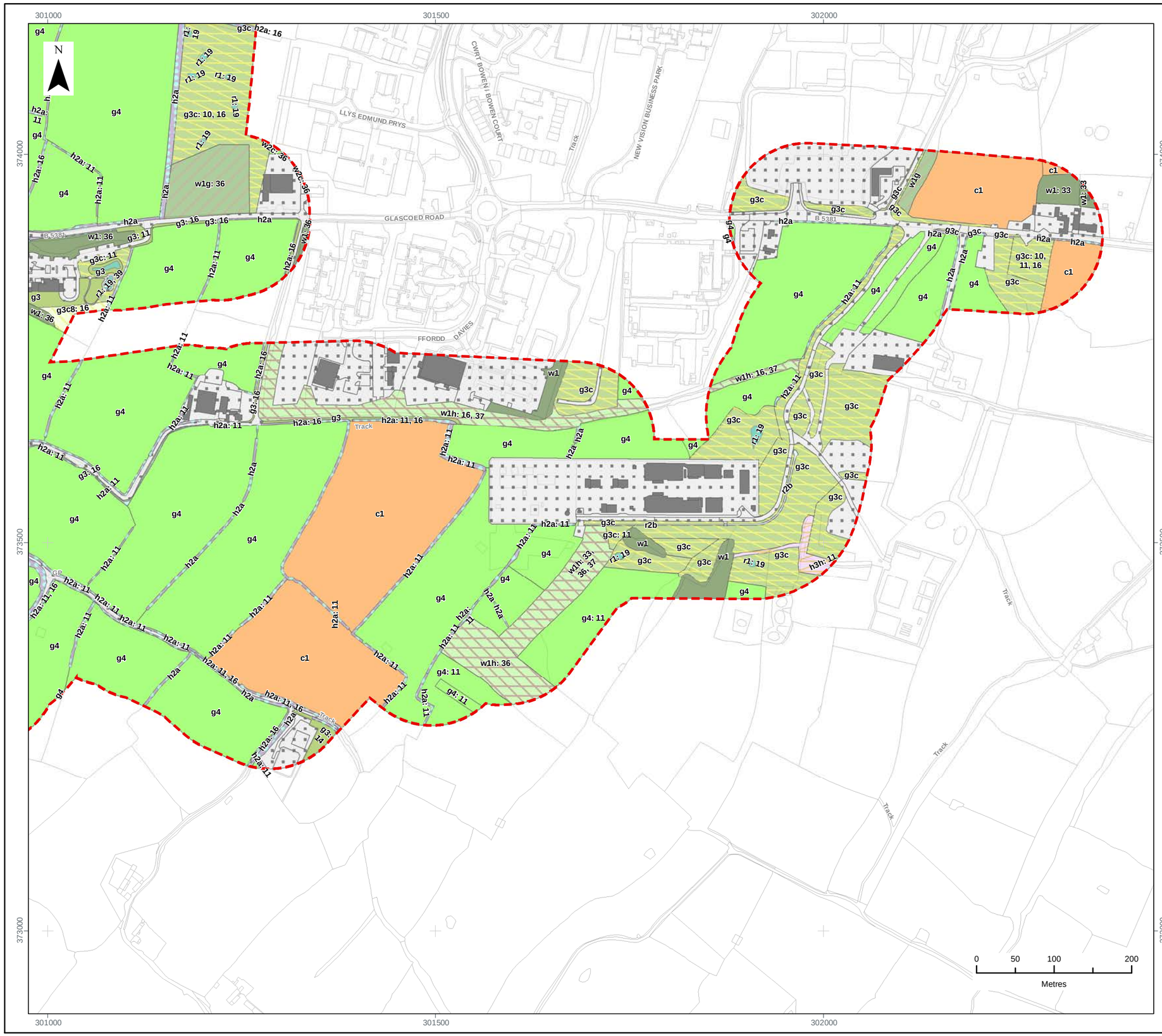
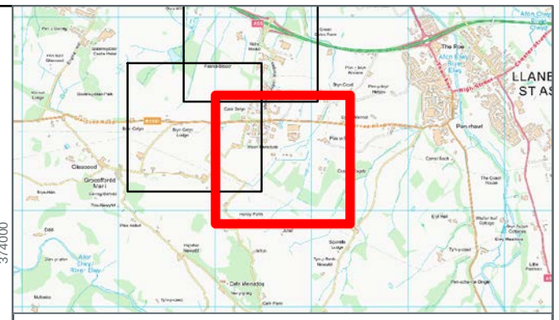
AWEL Y MÔR
Offshore Wind Farm



## LEGEND

- Habitat Survey Area

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PROJECT TITLE:

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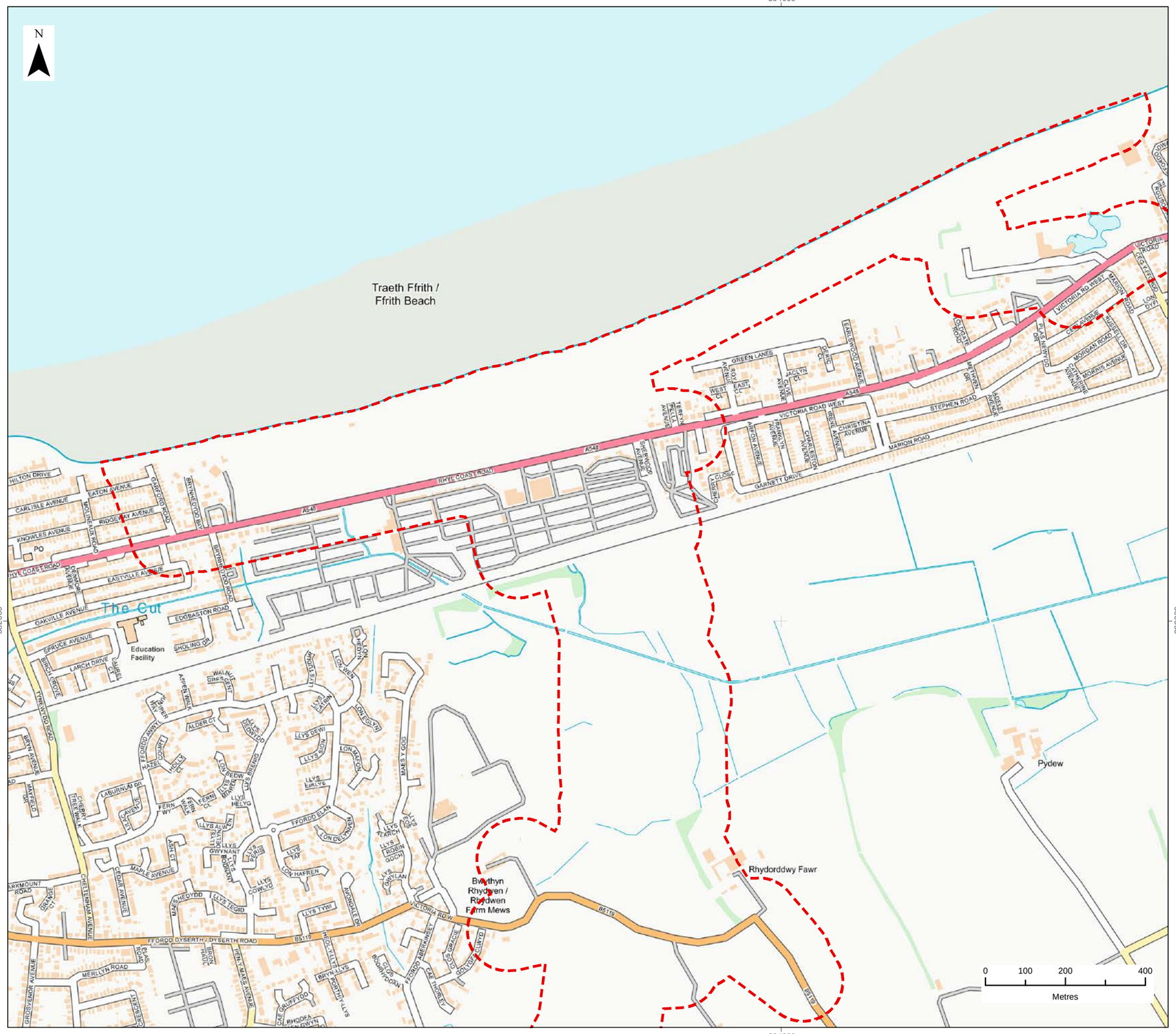
Fferm Wynt Alltraeth
AWEL Y MÔR
Offshore Wind Farm

# FIGURE 2

Hedgerows Subject to Assessment




LEGEND

Habitat Survey Area

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*AWEL Y MÔR OFFSHORE WINDFARM*

FIGURE TITLE:

## HEDGEROWS SUBJECT TO ASSESSMENT

| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 21/06/2021 | Draft | JRS | JC |
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FIGURE NUMBER:

FIGURE 2



| SCALE: | PLOT SIZE: | DATUM: | COORDINATE SYSTEM: |
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Fferm Wynt Alltraeth
AWEL Y MÔR
Offshore Wind Farm

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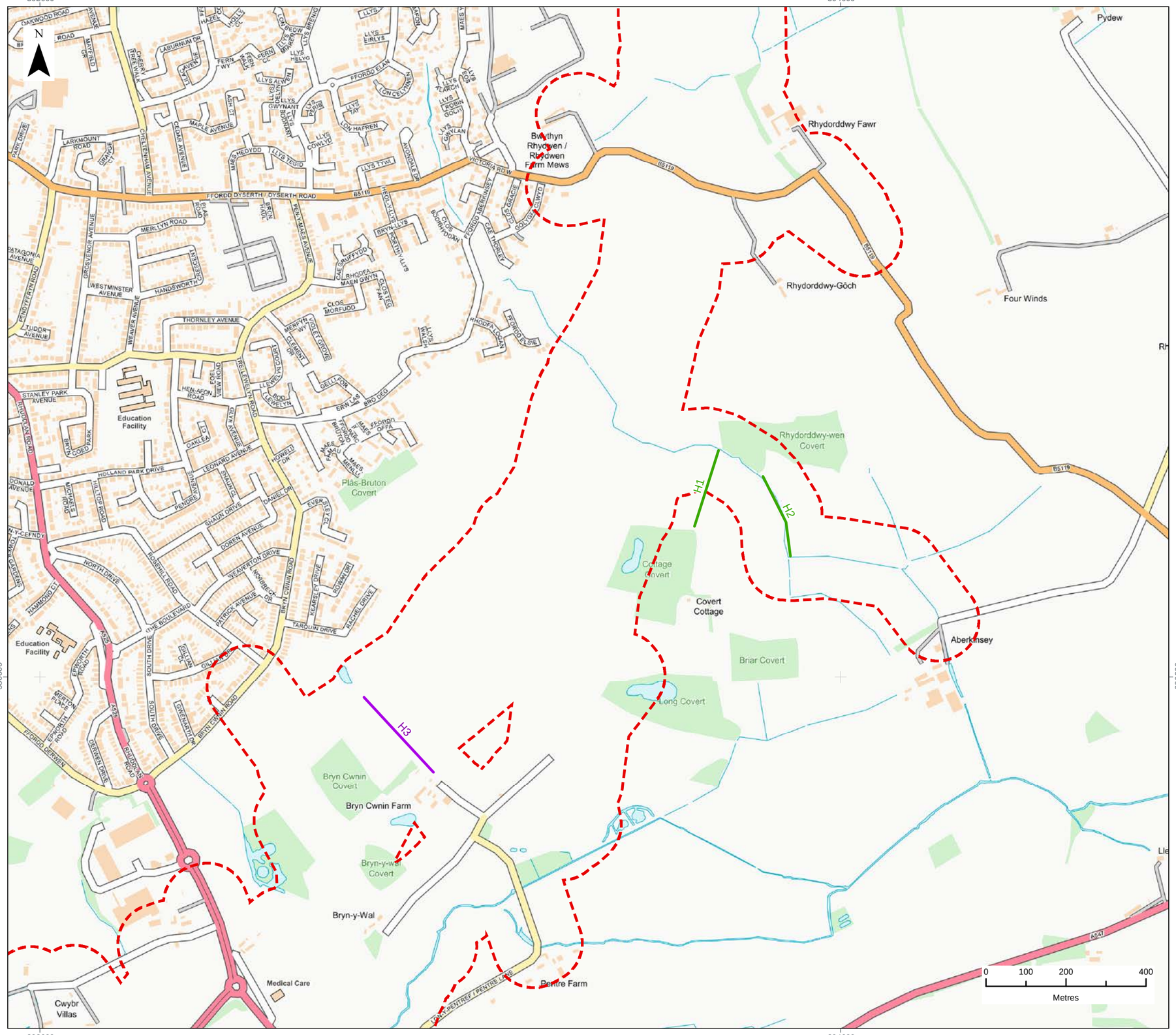


LEGEND

- Habitat Survey Area
- Hedgerow Subject to Assessment - Important Hedgerow
- Hedgerow Subject to Assessment

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FIGURE TITLE:

# HEDGEROWS SUBJECT TO ASSESSMENT

| VER | DATE | REMARKS | Drawn | Checked |
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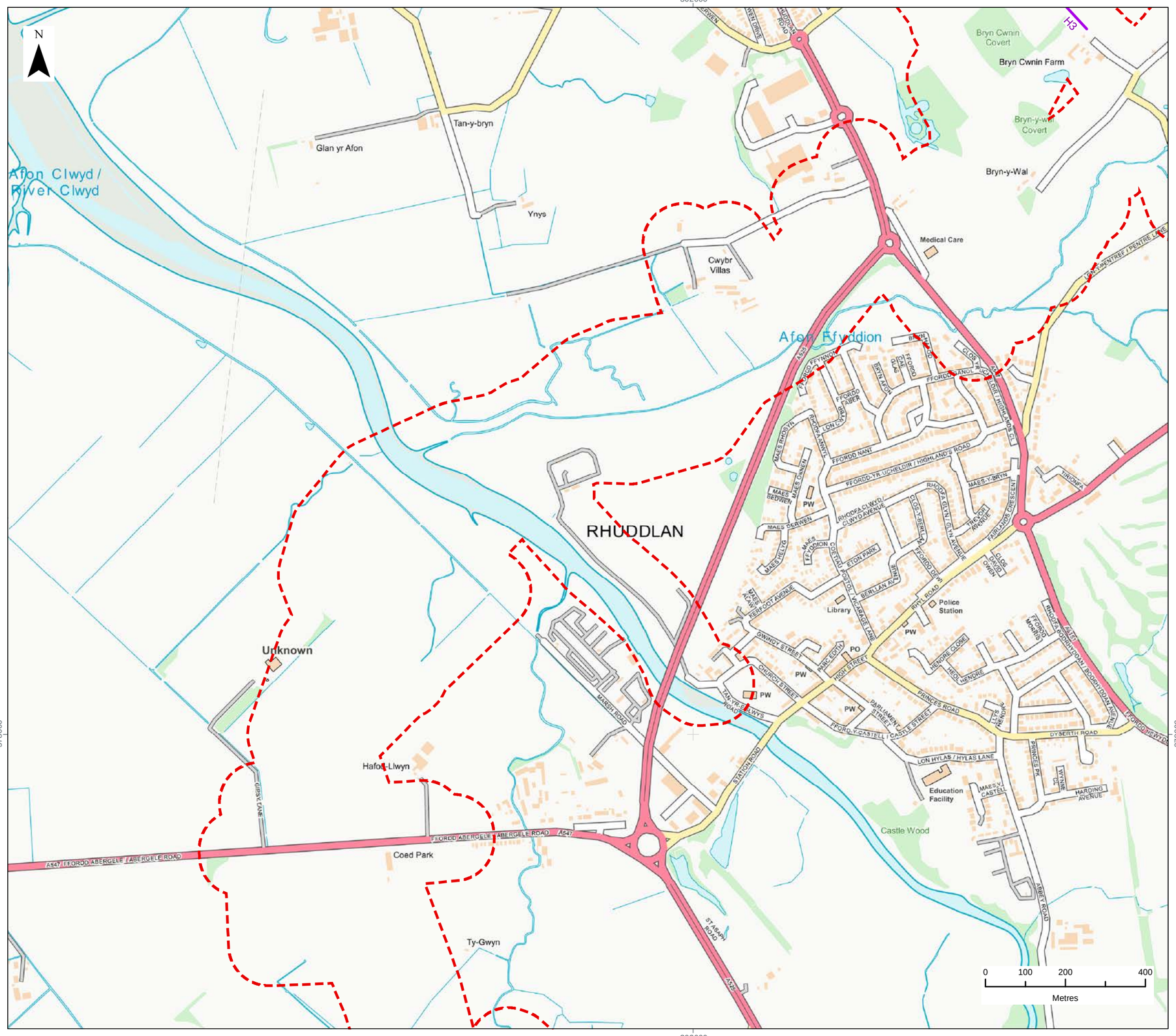


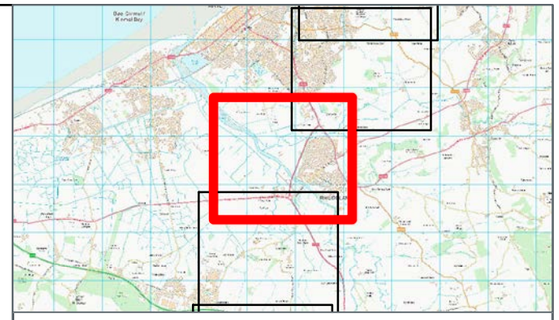

LEGEND

- Habitat Survey Area
- Hedgerow Subject to Assessment - Important Hedgerow

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PROJECT TITLE:

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FIGURE TITLE:

# HEDGEROWS SUBJECT TO ASSESSMENT

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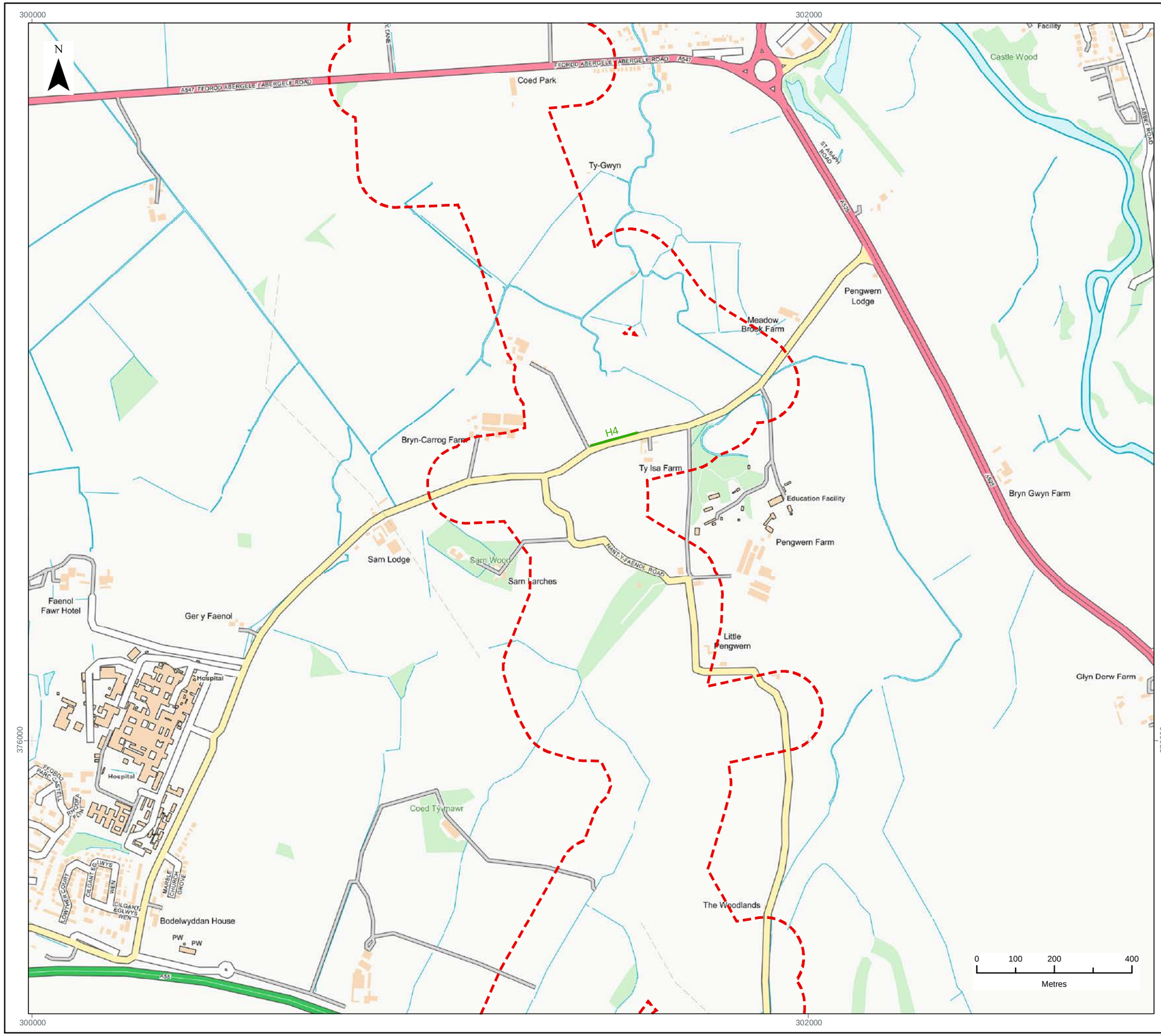


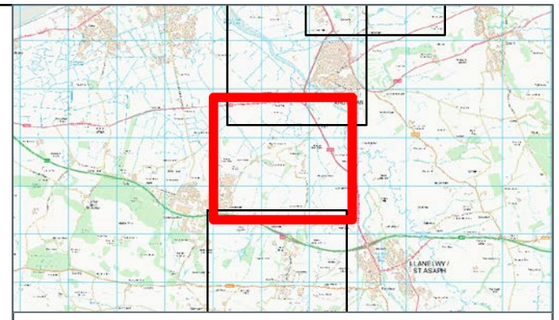

LEGEND

- Habitat Survey Area
- Hedgerow Subject to Assessment

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FIGURE TITLE:

# HEDGEROWS SUBJECT TO ASSESSMENT

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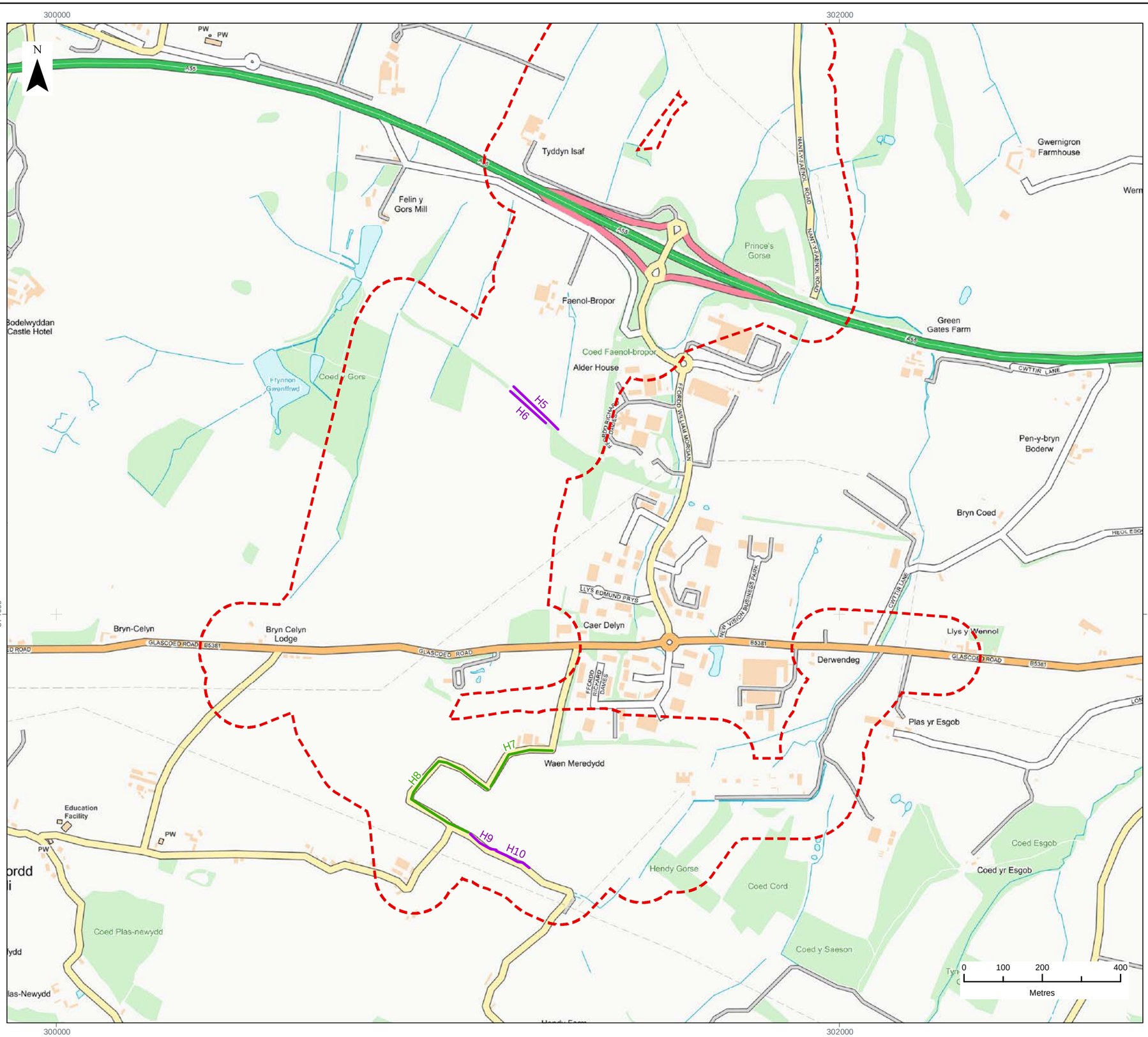


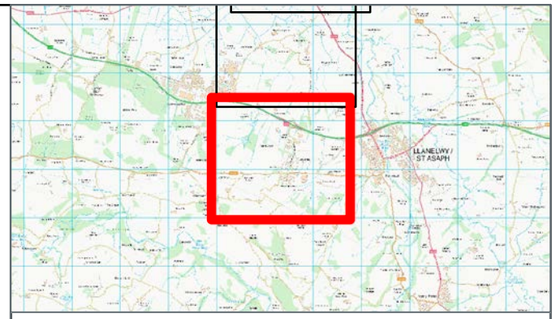


LEGEND

- Habitat Survey Area
- Hedgerow Subject to Assessment - Important Hedgerow
- Hedgerow Subject to Assessment



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

FIGURE TITLE:

# HEDGEROWS SUBJECT TO ASSESSMENT

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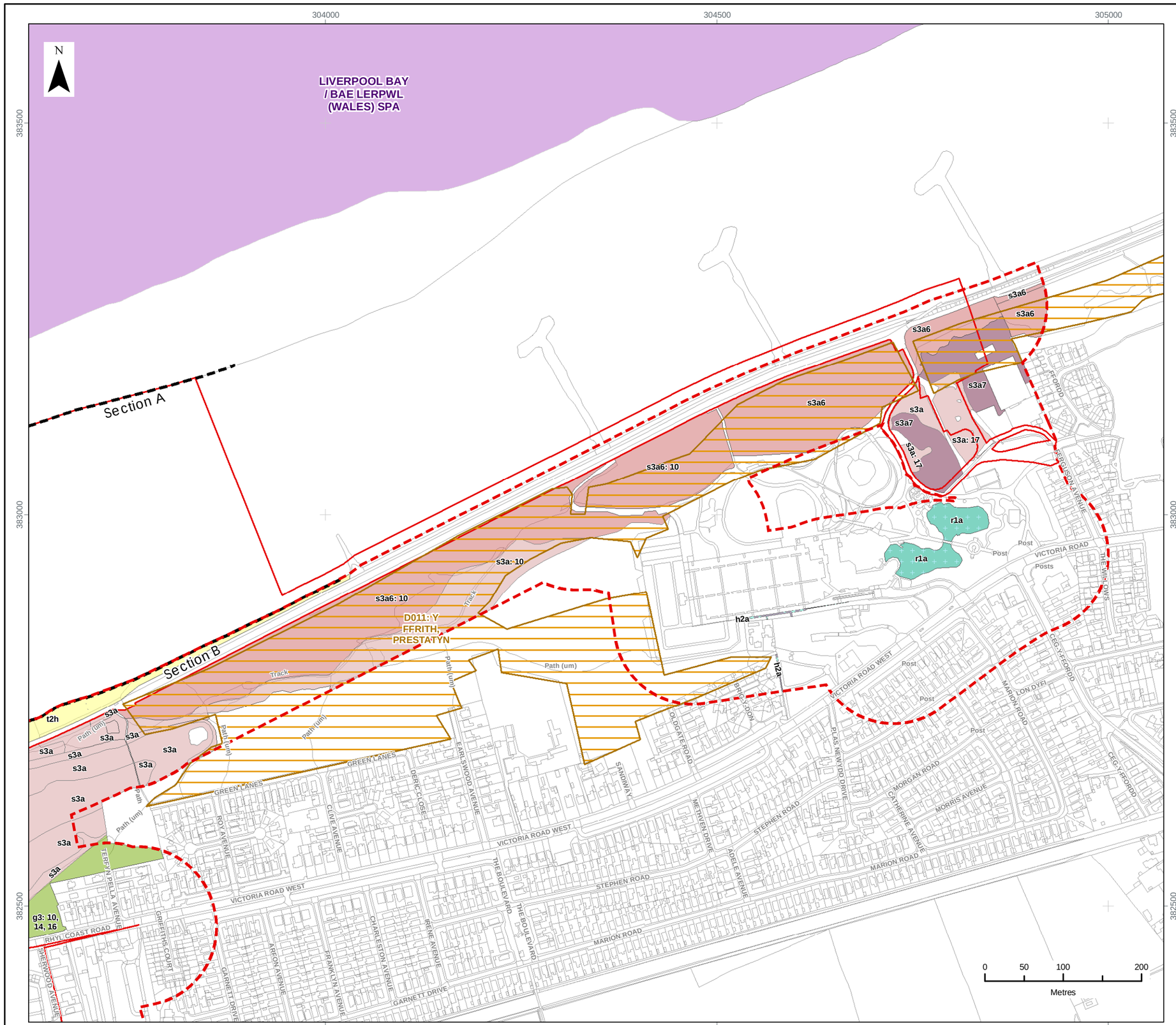
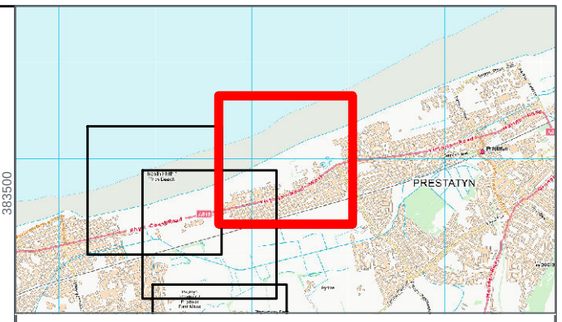
AWEL Y MÔR
Offshore Wind Farm

# FIGURE 3

Important Sites and Habitats




## LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Habitat Survey Area
- Special Protection Area (SPA)
- Local Wildlife Site

**Grassland - Neutral Grassland**
- g3 - Neutral Grassland

**Heathland and Shrub - Hedgerows**
- h2a - Hedgerow (Priority Habitat)

**Sparsely Vegetated Land - Supralittoral Sediment**
- s3a - Coastal Sand Dune
- s3a6 - Shifting Dunes with Marram (H2120)
- s3a7 - Dune Grassland (H2130)

**Rivers and Lakes - Standing Open Water and Canals**
- r1a - Eutrophic Standing Waters

**Marine Inlets and Transitional Waters - Littoral Sediment**
- t2h - Beach

Secondary Codes
10 - Scattered scrub
11 - Scattered trees
12 - Scattered bracken
14 - Scattered rushes
15 - Rushes dominant
16 - Tall herb
17 - Ruderal / ephemeral
19 - Ponds (Priority Habitat)
25 - Coastal and flood plain grazing marsh
33 - Ancient woodland site
36 - Plantation
37 - Semi-natural woodland
38 - Secondary woodland
39 - Freshwater - man-made
40 - Freshwater - heavily modified
41 - Freshwater - natural
47 - Native
55 - High forest
57 - Young trees - self-set
58 - Grazed
64 - Mown
66 - Frequently mown
75 - Active management
76 - Recent management
80 - Unmanaged
81 - Flailed hedgerow
86 - Accessible natural greenspace
94 - Green lane
117 - Dry
118 - Mesic
119 - Seasonally wet
120 - Wet
121 - Waterlogged
122 - Inundation vegetation
138 - Saline influence
147 - Falled dead wood abundant
148 - Flower forage abundant
159 - Standing dead



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

FIGURE TITLE:

# IMPORTANT SITES AND HABITATS

| VER | DATE | REMARKS | Drawn | Checked |
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| 1 | 26/02/2022 | ES Issue | JRS | JC |
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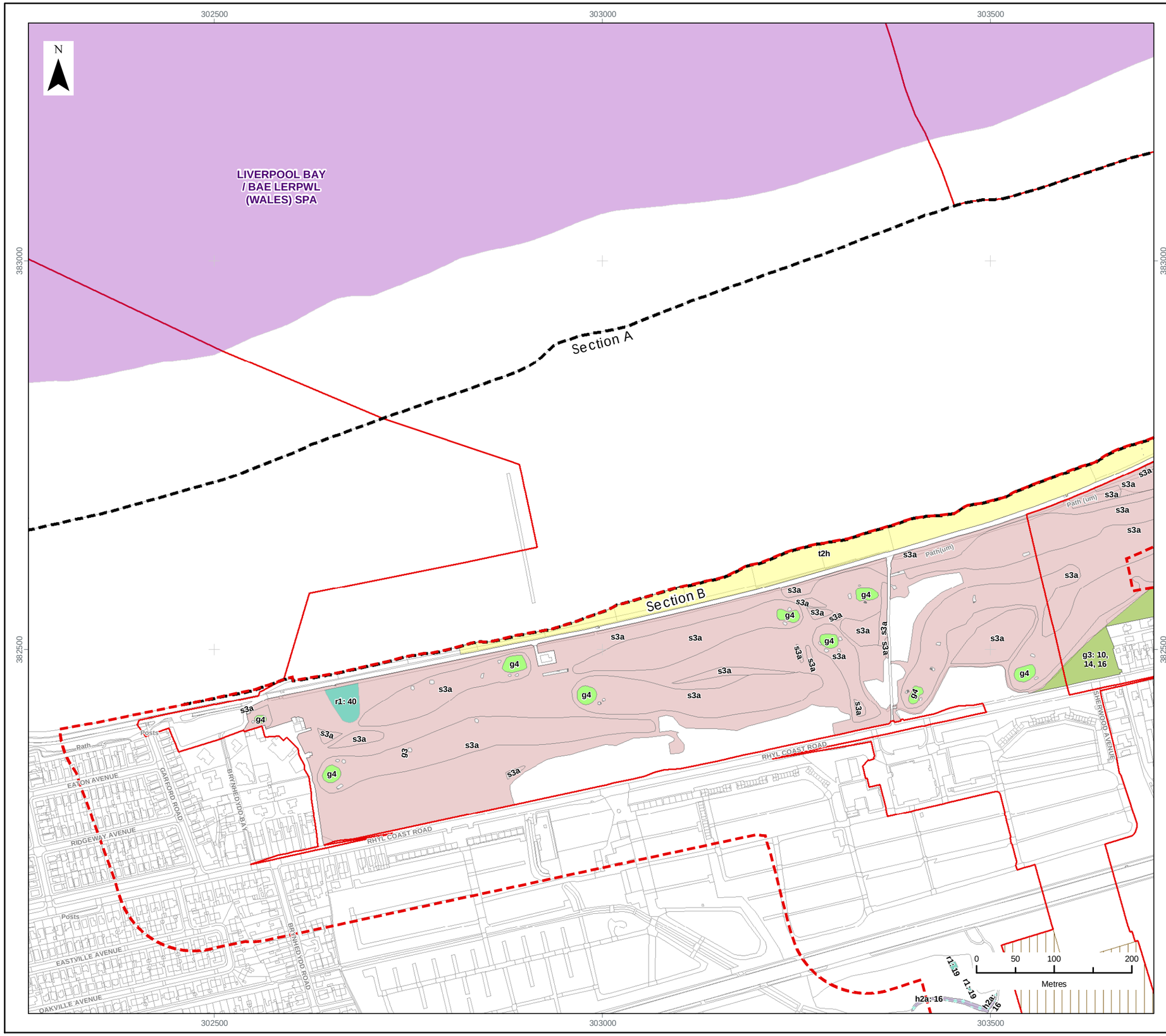
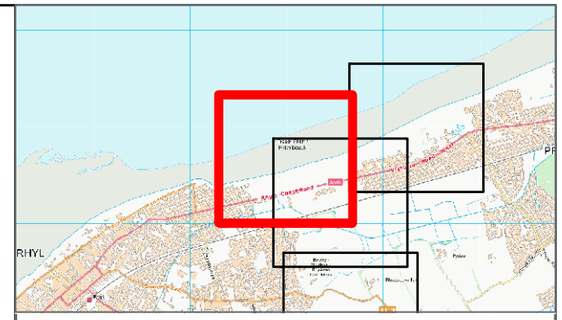
Fferm Wynt Alltraeth
AWEL Y MÔR
Offshore Wind Farm




## LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Proposed Transition Joint Bay Construction Compound
- Habitat Survey Area
- Special Protection Area (SPA)

Grassland - Neutral Grassland
- g3 - Neutral Grassland

Grassland - Modified Grassland
- g4 - Modified Grassland

Heathland and Shrub - Hedgerows
- h2a - Hedgerow (Priority Habitat)

Sparsely Vegetated Land - Supralittoral Sediment
- s3a - Coastal Sand Dune

Urban - Built-up Areas and Gardens
- u1 - Built-up Area and Garden

Rivers and Lakes - Standing Open Water and Canals
- r1 - Standing Open Water and Canal

Marine Inlets and Transitional Waters - Littoral Sediment
- t2h - Beach

Secondary Codes
10 - Scattered scrub
11 - Scattered trees
12 - Scattered bracken
14 - Scattered rushes
15 - Rushes dominant
16 - Tall herb
17 - Ruderal / ephemeral
19 - Ponds (Priority Habitat)
25 - Coastal and flood plain grazing marsh
33 - Ancient woodland site
36 - Plantation
37 - Semi-natural woodland
38 - Secondary woodland
39 - Freshwater - man-made
40 - Freshwater - heavily modified
41 - Freshwater - natural
47 - Native
55 - High forest
57 - Young trees - self-set
58 - Grazed
64 - Mown
66 - Frequently mown
75 - Active management
76 - Recent management
80 - Unmanaged
81 - Flailed hedgerow
86 - Accessible natural greenspace
94 - Green lane
117 - Dry
118 - Mesic
119 - Seasonally wet
120 - Wet
121 - Waterlogged
122 - Inundation vegetation
138 - Saline influence
147 - Falled dead wood abundant
148 - Flower forage abundant
159 - Standing dead



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

FIGURE TITLE:

# IMPORTANT SITES AND HABITATS

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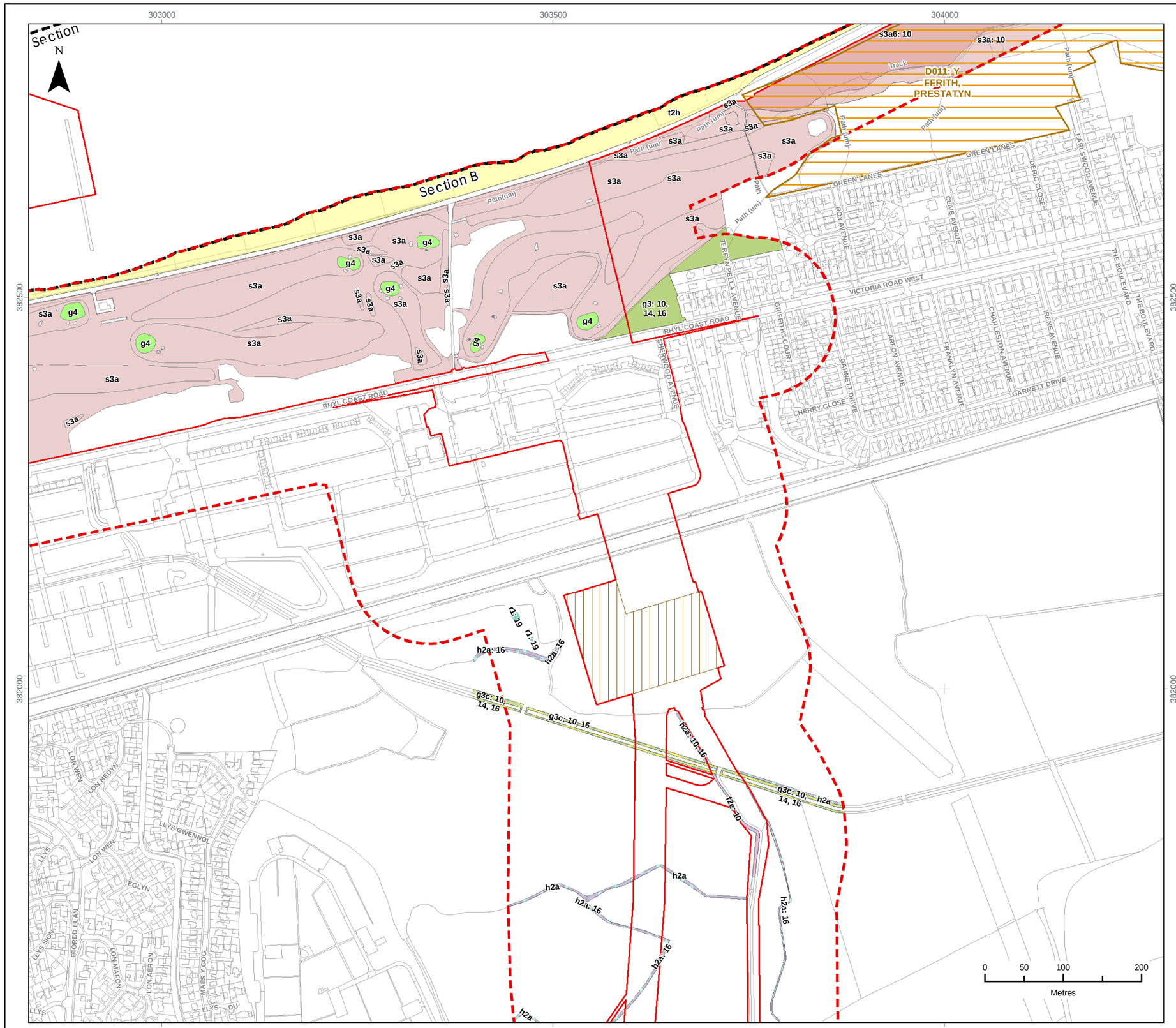


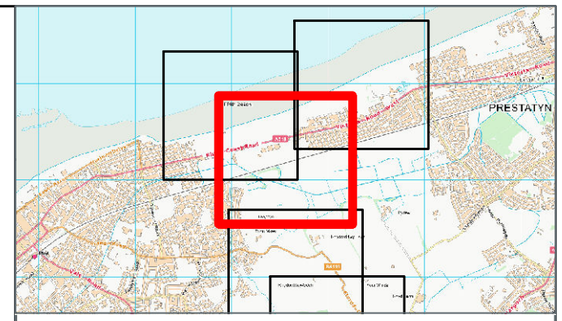


## LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Proposed Transition Joint Bay Construction Compound
- Habitat Survey Area
- Local Wildlife Site

**Wetland - Fen Marsh and Swamp**
- f2e - Reedbeds

**Grassland - Neutral Grassland**
- g3 - Neutral Grassland
- g3c - Other Neutral Grassland

**Grassland - Modified Grassland**
- g4 - Modified Grassland

**Heathland and Shrub - Hedgerows**
- h2a - Hedgerow (Priority Habitat)

**Sparsely Vegetated Land - Supralittoral Sediment**
- s3a - Coastal Sand Dune
- s3a6 - Shifting Dunes with Marram (H2120)

**Urban - Built-up Areas and Gardens**
- u1 - Built-up Area and Garden

**Rivers and Lakes - Standing Open Water and Canals**
- r1 - Standing Open Water and Canal

**Marine Inlets and Transitional Waters - Littoral Sediment**
- t2h - Beach

**Secondary Codes**

10 - Scattered scrub
11 - Scattered trees
12 - Scattered bracken
14 - Scattered rushes
15 - Rushes dominant
16 - Tall herb / ephemeral
17 - Ruderal
19 - Ponds (Priority Habitat)
25 - Coastal and flood plain grazing marsh
33 - Ancient woodland site
36 - Plantation
37 - Semi-natural woodland
38 - Secondary woodland
39 - Freshwater - man-made
40 - Freshwater - heavily modified
41 - Freshwater - natural
47 - Native
55 - High forest
57 - Young trees - self-set
58 - Grazed
64 - Mown
66 - Frequently mown
75 - Active management
76 - Recent management
80 - Unmanaged
81 - Flailed hedgerow
86 - Accessible natural greenspace
94 - Green lane
117 - Dry
118 - Mesic
119 - Seasonally wet
120 - Wet
121 - Waterlogged
122 - Inundation vegetation
138 - Saline influence
147 - Falled dead wood abundant
148 - Flower forage abundant
159 - Standing dead



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

FIGURE TITLE:

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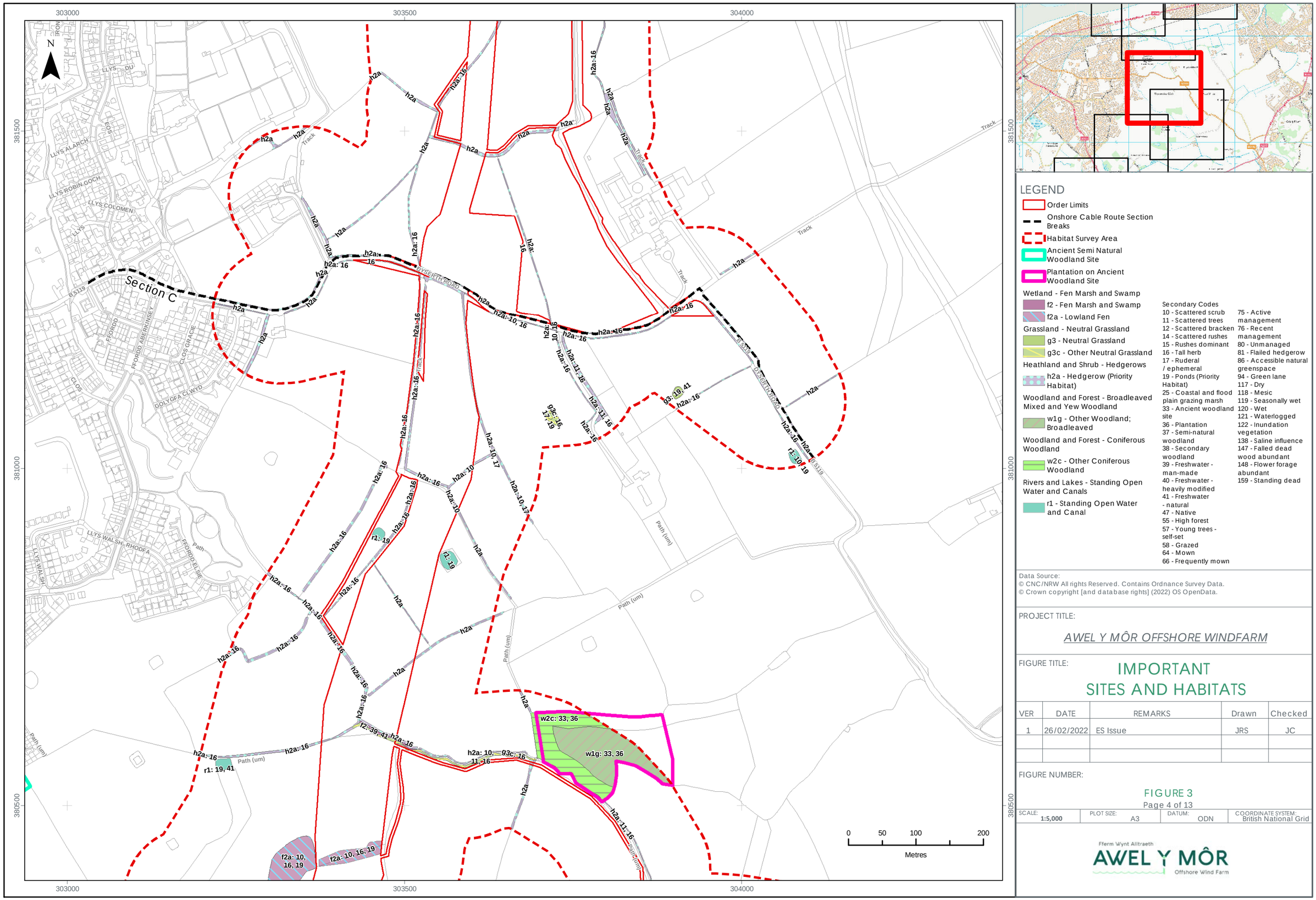




## LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Habitat Survey Area
- Ancient Semi Natural Woodland Site
- Plantation on Ancient Woodland Site

**Wetland - Fen Marsh and Swamp**
- f2 - Fen Marsh and Swamp
- f2a - Lowland Fen

**Grassland - Neutral Grassland**
- g3 - Neutral Grassland
- g3c - Other Neutral Grassland

**Heathland and Shrub - Hedgerows**
- h2a - Hedgerow (Priority Habitat)

**Woodland and Forest - Broadleaved Mixed and Yew Woodland**
- w1g - Other Woodland; Broadleaved

**Woodland and Forest - Coniferous Woodland**
- w2c - Other Coniferous Woodland

**Rivers and Lakes - Standing Open Water and Canals**
- r1 - Standing Open Water and Canal

Secondary Codes
10 - Scattered scrub
11 - Scattered trees
12 - Scattered bracken
14 - Scattered rushes
15 - Rushes dominant
16 - Tall herb
17 - Ruderal / ephemeral
19 - Ponds (Priority Habitat)
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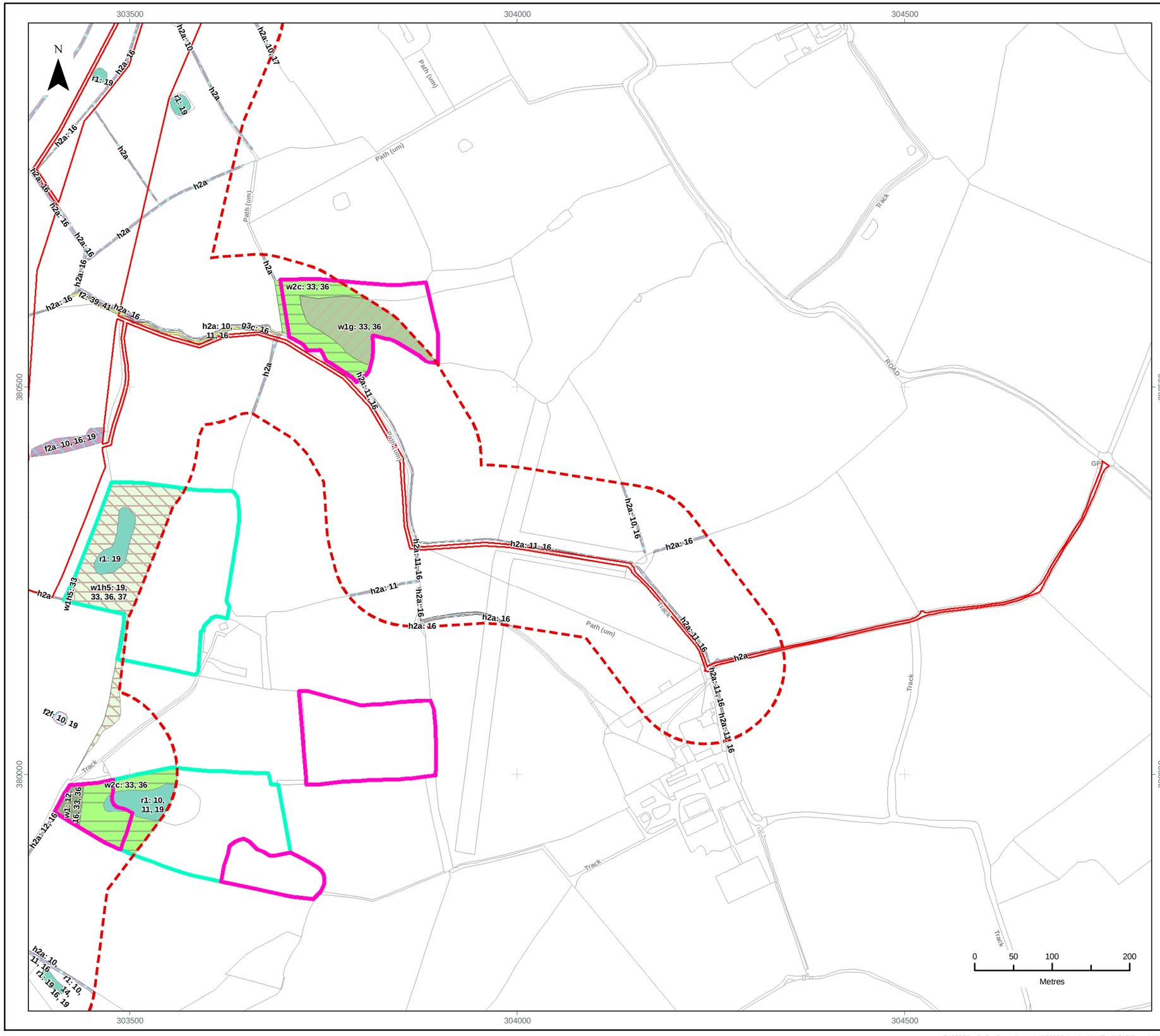


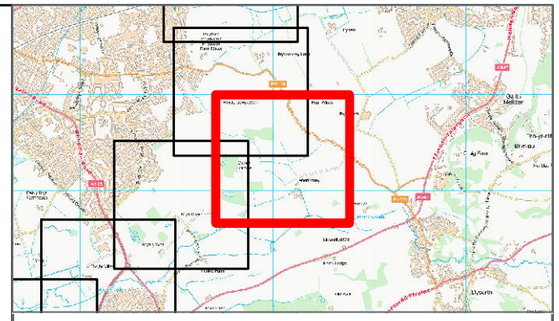

## LEGEND

- Order Limits
- Habitat Survey Area
- Ancient Semi Natural Woodland Site
- Plantation on Ancient Woodland Site

Wetland - Fen Marsh and Swamp
- f2 - Fen Marsh and Swamp
- f2a - Lowland Fen
- f2f - Other Swamp

Grassland - Neutral Grassland
- g3c - Other Neutral Grassland

Heathland and Shrub - Hedgerows
- h2a - Hedgerow (Priority Habitat)

Woodland and Forest - Broadleaved Mixed and Yew Woodland
- w1 - Broadleaved Mixed and Yew Woodland
- w1g - Other Woodland; Broadleaved
- w1h5 - Other Woodland; Mixed; Mainly Broadleaved

Woodland and Forest - Coniferous Woodland
- w2c - Other Coniferous Woodland

Rivers and Lakes - Standing Open Water and Canals
- r1 - Standing Open Water and Canal

Secondary Codes

10 - Scattered scrub
11 - Scattered trees
12 - Scattered bracken
14 - Scattered rushes
15 - Rushes dominant
16 - Tall herb
17 - Ruderal / ephemeral
19 - Ponds (Priority Habitat)
25 - Coastal and flood plain grazing marsh
33 - Ancient woodland site
36 - Plantation
37 - Semi-natural woodland
38 - Secondary woodland
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47 - Native
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76 - Recent management
80 - Unmanaged
81 - Flailed hedgerow
86 - Accessible natural greenspace
94 - Green lane
117 - Dry
118 - Mesic
119 - Seasonally wet
120 - Wet
121 - Waterlogged
122 - Inundation vegetation
138 - Saline influence
147 - Falled dead wood abundant
148 - Flower forage abundant
159 - Standing dead



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

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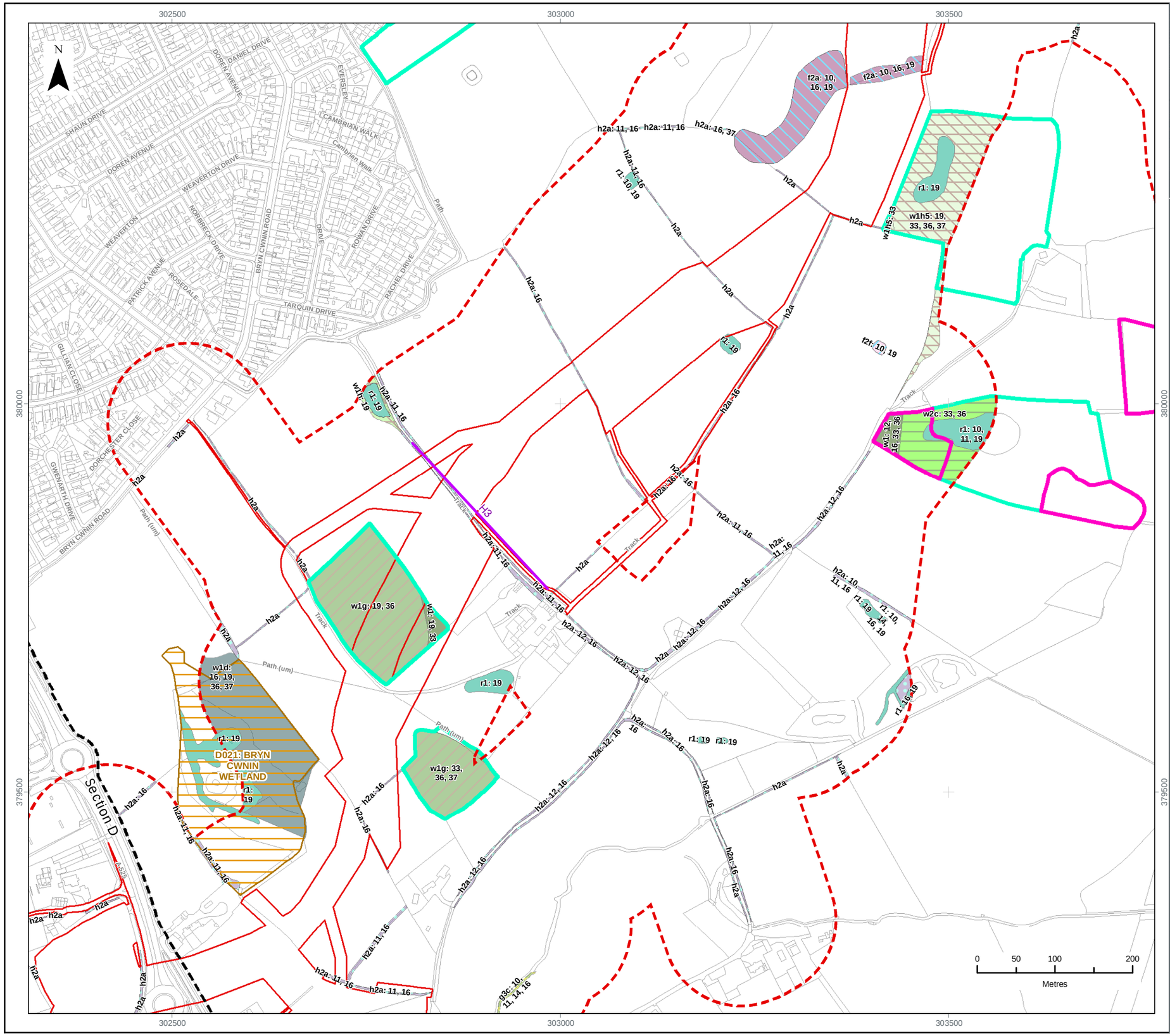


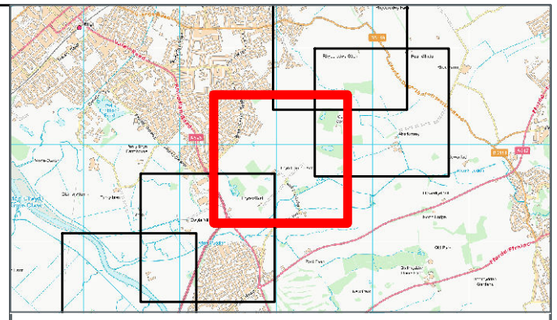

## LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Habitat Survey Area
- Local Wildlife Site
- Ancient Semi Natural Woodland Site
- Plantation on Ancient Woodland Site
- Important Hedgerow

**Wetland - Fen Marsh and Swamp**
- f2a - Lowland Fen
- f2f - Other Swamp

**Grassland - Neutral Grassland**
- g3c - Other Neutral Grassland

**Heathland and Shrub - Hedgerows**
- h2a - Hedgerow (Priority Habitat)

**Woodland and Forest - Broadleaved Mixed and Yew Woodland**
- w1 - Broadleaved Mixed and Yew Woodland
- w1d - Wet Woodland
- w1g - Other Woodland; Broadleaved
- w1h - Other Woodland; Mixed
- w1h5 - Other Woodland; Mixed; Mainly Broadleaved

**Woodland and Forest - Coniferous Woodland**
- w2c - Other Coniferous Woodland

**Rivers and Lakes - Standing Open Water and Canals**
- r1 - Standing Open Water and Canal

Secondary Codes
10 - Scattered scrub
11 - Scattered trees
12 - Scattered bracken
14 - Scattered rushes
15 - Rushes dominant
16 - Tall herb
17 - Ruderal / ephemeral
19 - Ponds (Priority Habitat)
25 - Coastal and flood plain grazing marsh
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36 - Plantation
37 - Semi-natural woodland
38 - Secondary woodland
39 - Freshwater - man-made
40 - Freshwater - heavily modified
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64 - Mown
66 - Frequently mown
75 - Active management
76 - Recent management
80 - Unmanaged
81 - Flailed hedgerow
86 - Accessible natural greenspace
94 - Green lane
117 - Dry
118 - Mesic
119 - Seasonally wet
120 - Wet
121 - Waterlogged
122 - Inundation vegetation
138 - Saline influence
147 - Falled dead wood abundant
148 - Flower forage abundant
159 - Standing dead



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

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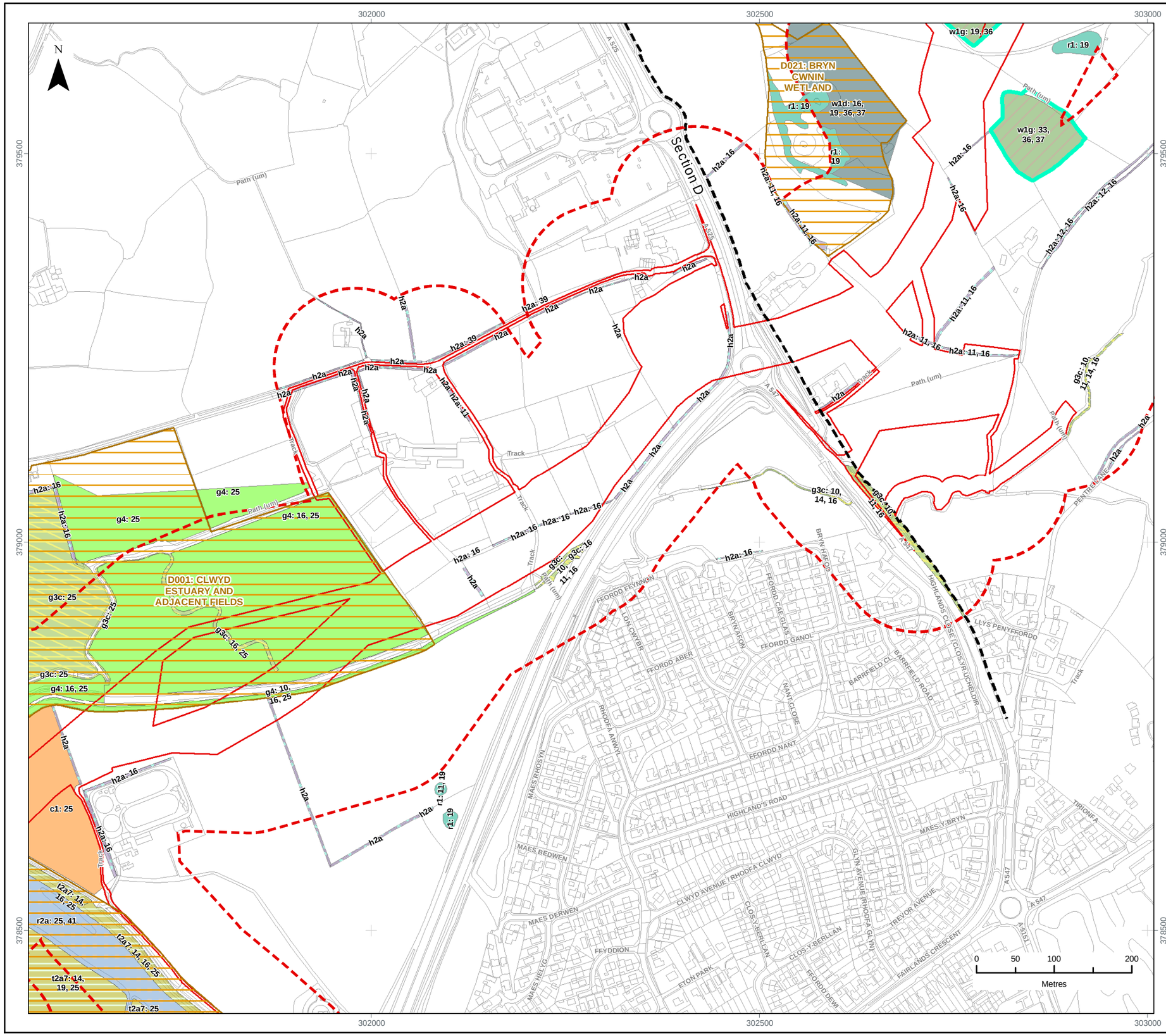


## LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Habitat Survey Area
- Local Wildlife Site
- Ancient Semi Natural Woodland Site

**Cropland - Arable and Horticulture**
- c1 - Arable and Horticulture

**Grassland - Neutral Grassland**
- g3c - Other Neutral Grassland

**Grassland - Modified Grassland**
- g4 - Modified Grassland

**Heathland and Shrub - Hedgerows**
- h2a - Hedgerow (Priority Habitat)

**Woodland and Forest - Broadleaved Mixed and Yew Woodland**
- w1d - Wet Woodland
- w1g - Other Woodland; Broadleaved

**Rivers and Lakes - Standing Open Water and Canals**
- r1 - Standing Open Water and Canal

**Rivers and Lakes - Rivers and Streams**
- r2a - Rivers (Priority Habitat)

**Marine Inlets and Transitional Waters - Littoral Sediment**
- t2a7 - Atlantic Salt Meadows (H1330)

**Secondary Codes**

10 - Scattered scrub
11 - Scattered trees
12 - Scattered bracken
14 - Scattered rushes
15 - Rushes dominant
16 - Tall herb
17 - Ruderal / ephemeral
19 - Ponds (Priority Habitat)
25 - Coastal and flood plain grazing marsh
33 - Ancient woodland site
36 - Plantation
37 - Semi-natural woodland
38 - Secondary woodland
39 - Freshwater - man-made
40 - Freshwater - heavily modified
41 - Freshwater - natural
47 - Native
55 - High forest
57 - Young trees - self-set
58 - Grazed
64 - Mown
66 - Frequently mown
75 - Active management
76 - Recent management
80 - Unmanaged
81 - Flailed hedgerow
86 - Accessible natural greenspace
94 - Green lane
117 - Dry
118 - Mesic
119 - Seasonally wet
120 - Wet
121 - Waterlogged
122 - Inundation vegetation
138 - Saline influence
147 - Falled dead wood abundant
148 - Flower forage abundant
159 - Standing dead



PROJECT TITLE:

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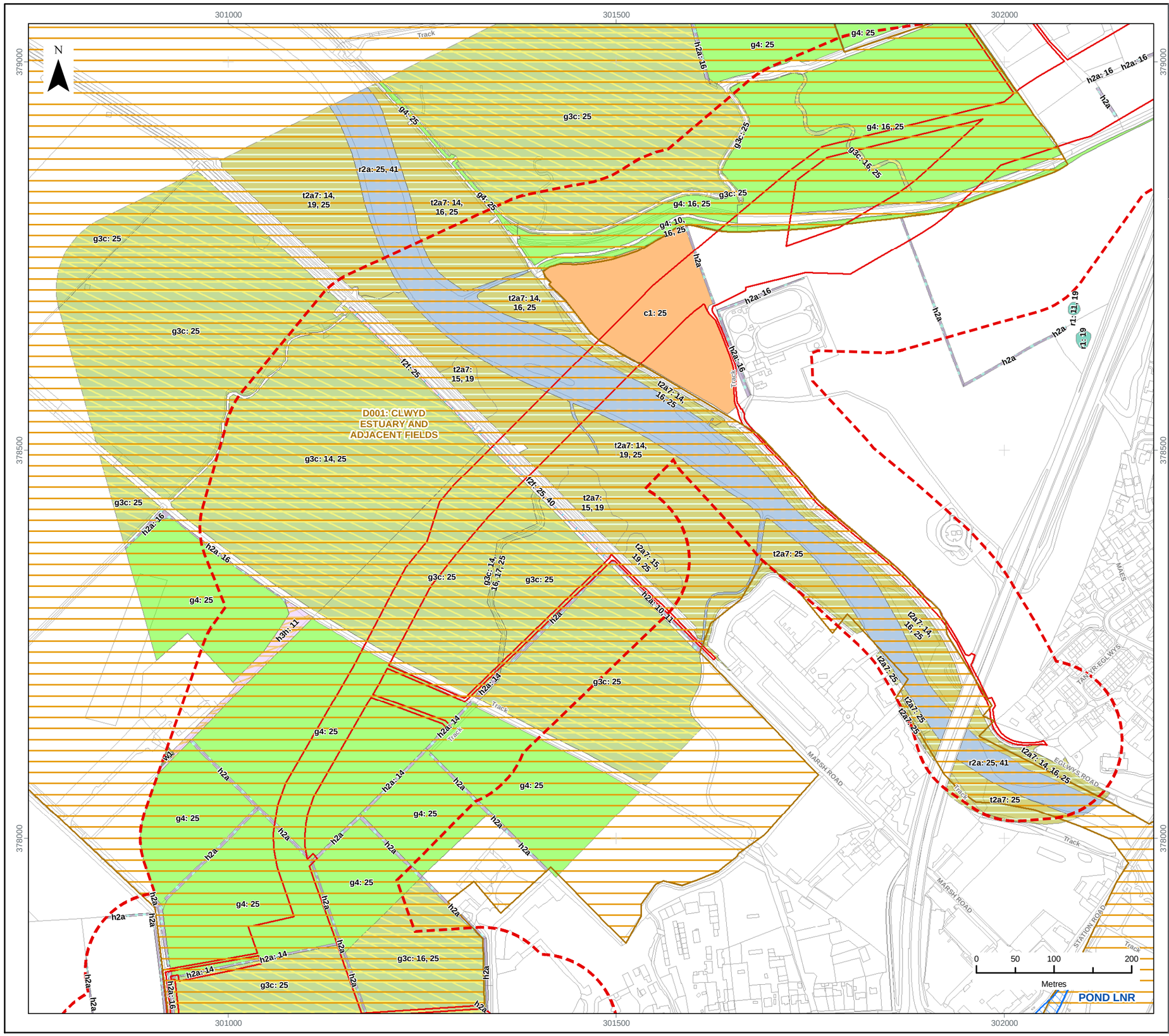


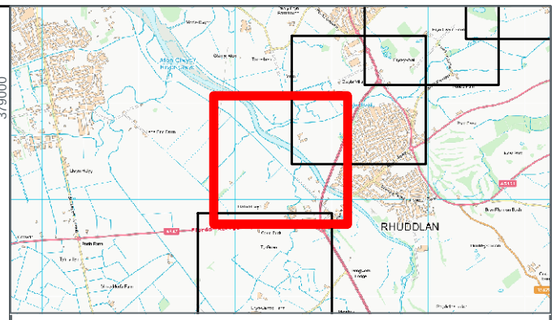


## LEGEND

- Order Limits
- Habitat Survey Area
- Local Nature Reserve (LNR)
- Local Wildlife Site

Cropland - Arable and Horticulture
- c1 - Arable and Horticulture

Wetland - Fen Marsh and Swamp
- f2f - Other Swamp

Grassland - Neutral Grassland
- g3c - Other Neutral Grassland

Grassland - Modified Grassland
- g4 - Modified Grassland

Heathland and Shrub - Hedgerows
- h2a - Hedgerow (Priority Habitat)

Heathland and Shrub - Dense Scrub
- h3h - Mixed Scrub

Woodland and Forest - Broadleaved Mixed and Yew Woodland
- w1 - Broadleaved Mixed and Yew Woodland

Rivers and Lakes - Standing Open Water and Canals
- r1 - Standing Open Water and Canal

Rivers and Lakes - Rivers and Streams
- r2a - Rivers (Priority Habitat)

Marine Inlets and Transitional Waters - Littoral Sediment
- t2a7 - Atlantic Salt Meadows (H1330)

Secondary Codes

10 - Scattered scrub
11 - Scattered trees
12 - Scattered bracken
14 - Scattered rushes
15 - Rushes dominant
16 - Tall herb
17 - Ruderal / ephemeral
19 - Ponds (Priority Habitat)
25 - Coastal and flood plain grazing marsh
33 - Ancient woodland site
36 - Plantation
37 - Semi-natural woodland
38 - Secondary woodland
39 - Freshwater - man-made
40 - Freshwater - heavily modified
41 - Freshwater - natural
47 - Native
55 - High forest
57 - Young trees - self-set
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64 - Mown
66 - Frequently mown
75 - Active management
76 - Recent management
80 - Unmanaged
81 - Flailed hedgerow
86 - Accessible natural greenspace
94 - Green lane
117 - Dry
118 - Mesic
119 - Seasonally wet
120 - Wet
121 - Waterlogged
122 - Inundation vegetation
138 - Saline influence
147 - Falled dead wood abundant
148 - Flower forage abundant
159 - Standing dead



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

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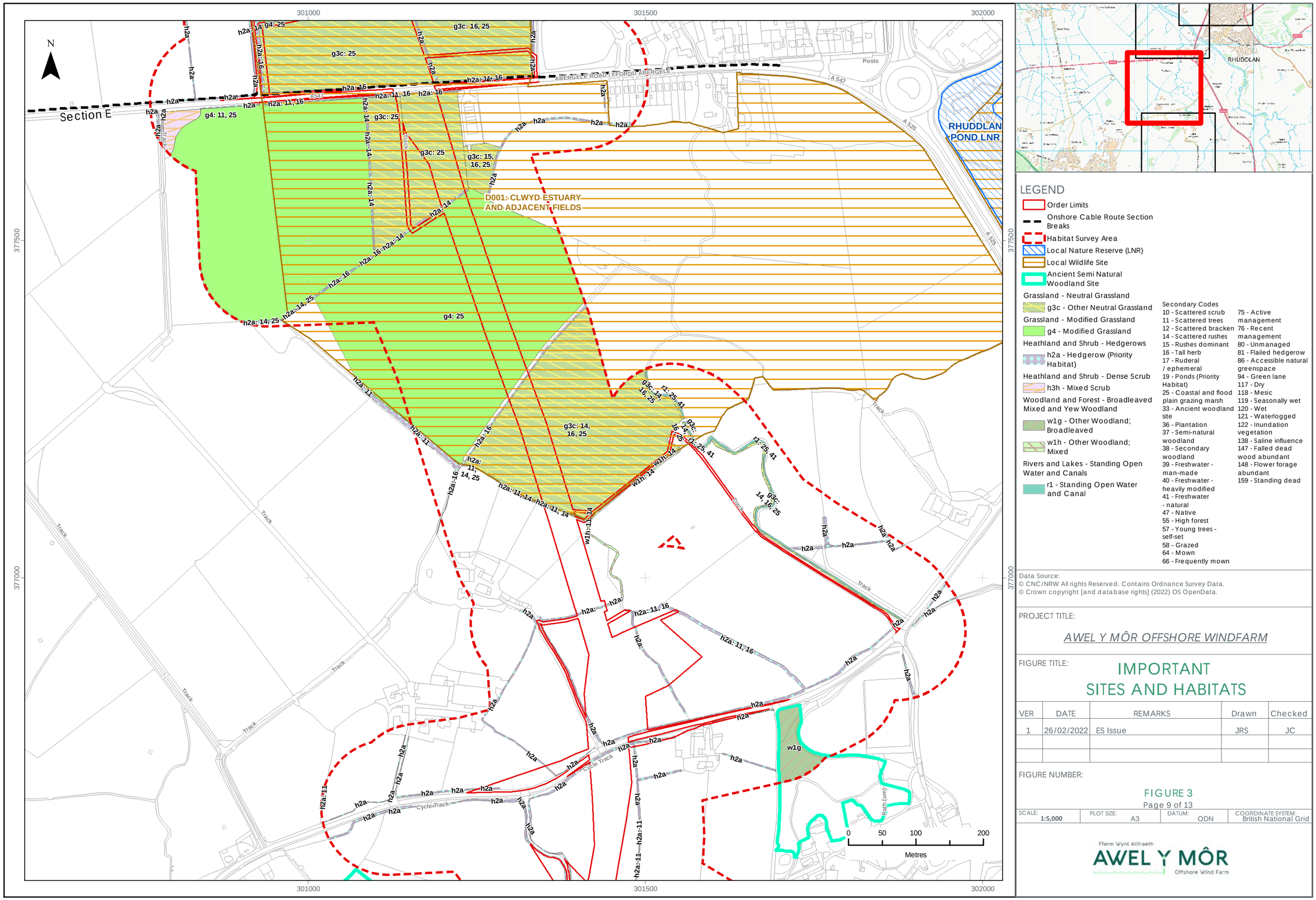





## LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Habitat Survey Area
- Local Nature Reserve (LNR)
- Local Wildlife Site
- Ancient Semi Natural Woodland Site

Grassland - Neutral Grassland
- g3c - Other Neutral Grassland

Grassland - Modified Grassland
- g4 - Modified Grassland

Heathland and Shrub - Hedgerows
- h2a - Hedgerow (Priority Habitat)

Heathland and Shrub - Dense Scrub
- h3h - Mixed Scrub

Woodland and Forest - Broadleaved Mixed and Yew Woodland
- w1g - Other Woodland; Broadleaved
- w1h - Other Woodland; Mixed

Rivers and Lakes - Standing Open Water and Canals
- r1 - Standing Open Water and Canal

Secondary Codes
- 10 - Scattered scrub
- 11 - Scattered trees
- 12 - Scattered bracken
- 14 - Scattered rushes
- 15 - Rushes dominant
- 16 - Tall herb
- 17 - Ruderal / ephemeral
- 19 - Ponds (Priority Habitat)
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- 122 - Inundation vegetation
- 138 - Saline influence
- 147 - Falled dead wood abundant
- 148 - Flower forage abundant
- 159 - Standing dead



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

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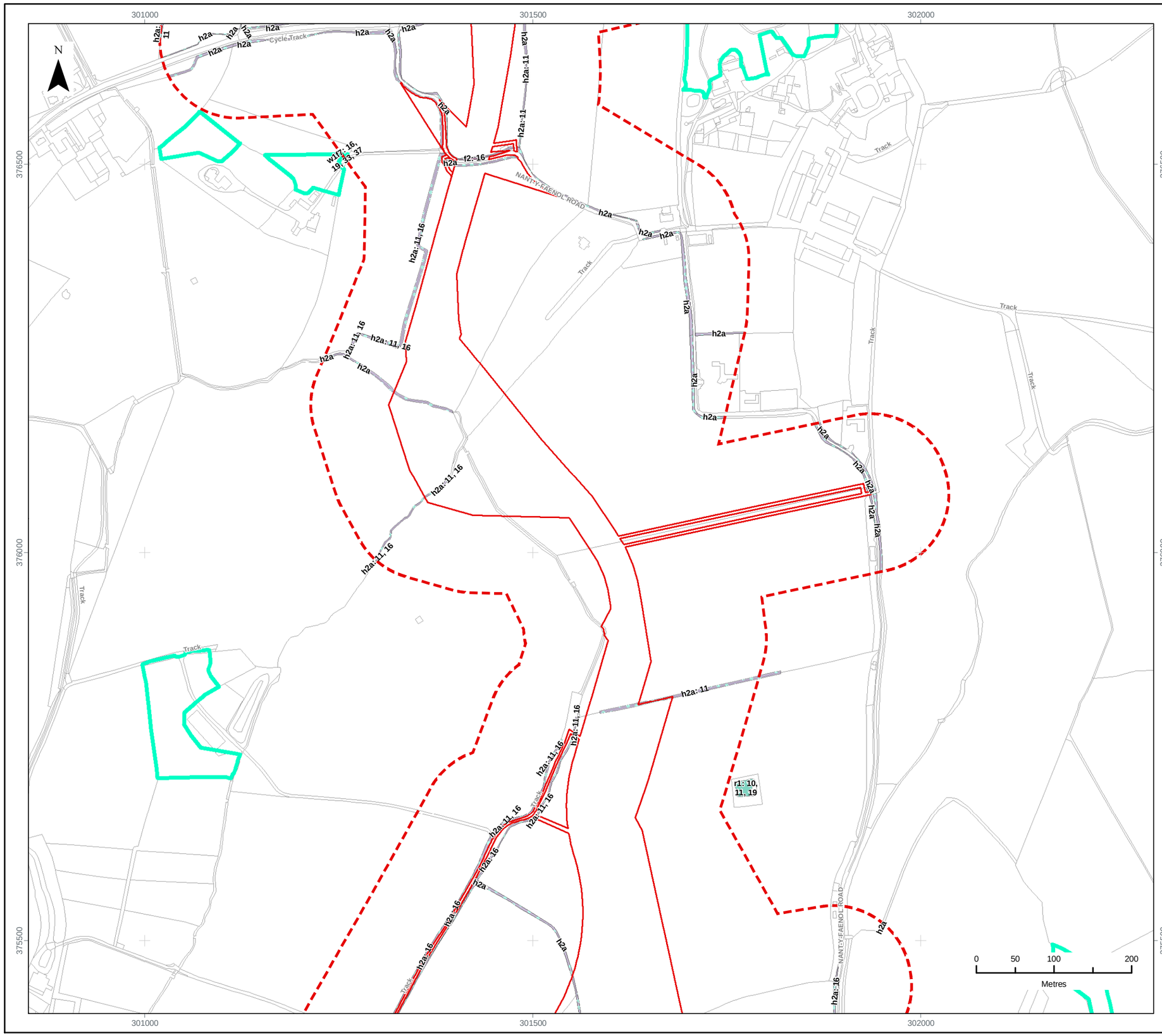


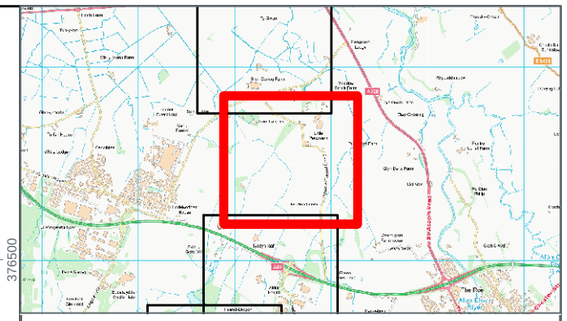

## LEGEND

- Order Limits
- Habitat Survey Area
- Ancient Semi Natural Woodland Site

Wetland - Fen Marsh and Swamp
- f2 - Fen Marsh and Swamp

Heathland and Shrub - Hedgerows
- h2a - Hedgerow (Priority Habitat)

Woodland and Forest - Broadleaved Mixed and Yew Woodland
- w1f7 - Other Lowland Mixed Deciduous Woodland

Rivers and Lakes - Standing Open Water and Canals
- r1 - Standing Open Water and Canal

Secondary Codes

10 - Scattered scrub
11 - Scattered trees
12 - Scattered bracken
14 - Scattered rushes
15 - Rushes dominant
16 - Tall herb
17 - Ruderal / ephemeral
19 - Ponds (Priority Habitat)
25 - Coastal and flood plain grazing marsh
33 - Ancient woodland site
36 - Plantation
37 - Semi-natural woodland
38 - Secondary woodland
39 - Freshwater - man-made
40 - Freshwater - heavily modified
41 - Freshwater - natural
47 - Native
55 - High forest
57 - Young trees - self-set
58 - Grazed
64 - Mown
66 - Frequently mown
75 - Active management
76 - Recent management
80 - Unmanaged
81 - Flailed hedgerow
86 - Accessible natural greenspace
94 - Green lane
117 - Dry
118 - Mesic
119 - Seasonally wet
120 - Wet
121 - Waterlogged
122 - Inundation vegetation
138 - Saline influence
147 - Falled dead wood abundant
148 - Flower forage abundant
159 - Standing dead



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

FIGURE TITLE:

# IMPORTANT SITES AND HABITATS

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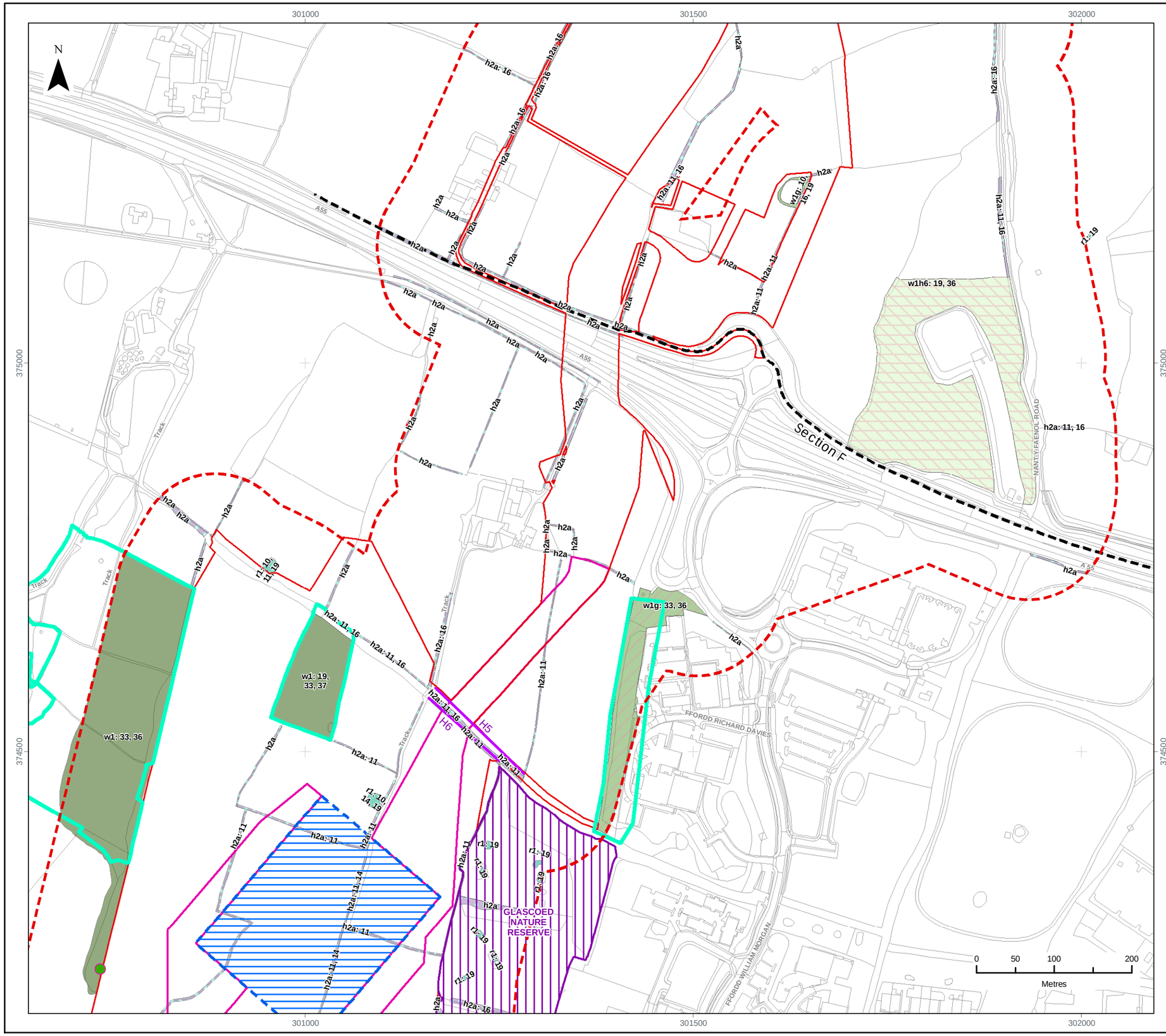


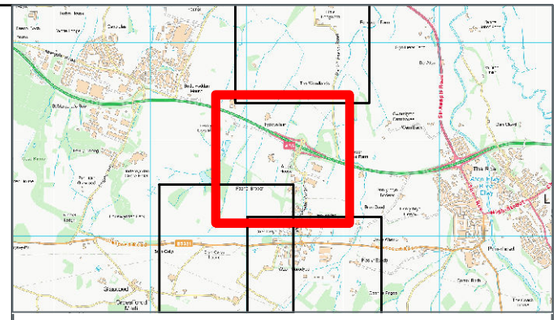

## LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Proposed Substation Cable Corridor Zone
- Proposed Onshore Substation (OnSS) Footprint
- Habitat Survey Area
- Other Nature Reserve
- Ancient Semi Natural Woodland Site
- Veteran Tree Location
- Important Hedgerow

Heathland and Shrub - Hedgerows

- h2a - Hedgerow (Priority Habitat)

Woodland and Forest - Broadleaved Mixed and Yew Woodland

- w1 - Broadleaved Mixed and Yew Woodland
- w1g - Other Woodland; Broadleaved
- w1h6 - Other Woodland; Mixed; mainly Conifer

Rivers and Lakes - Standing Open Water and Canals

- r1 - Standing Open Water and Canal

Secondary Codes

10 - Scattered scrub
11 - Scattered trees
12 - Scattered bracken
14 - Scattered rushes
15 - Rushes dominant
16 - Tall herb
17 - Ruderal / ephemeral
19 - Ponds (Priority Habitat)
25 - Coastal and flood plain grazing marsh
33 - Ancient woodland site
36 - Plantation
37 - Semi-natural woodland
38 - Secondary woodland
39 - Freshwater - man-made
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76 - Recent management
80 - Unmanaged
81 - Flailed hedgerow
86 - Accessible natural greenspace
94 - Green lane
117 - Dry
118 - Mesic
119 - Seasonally wet
120 - Wet
121 - Waterlogged
122 - Inundation vegetation
138 - Saline influence
147 - Falled dead wood abundant
148 - Flower forage abundant
159 - Standing dead



PROJECT TITLE:

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FIGURE TITLE:

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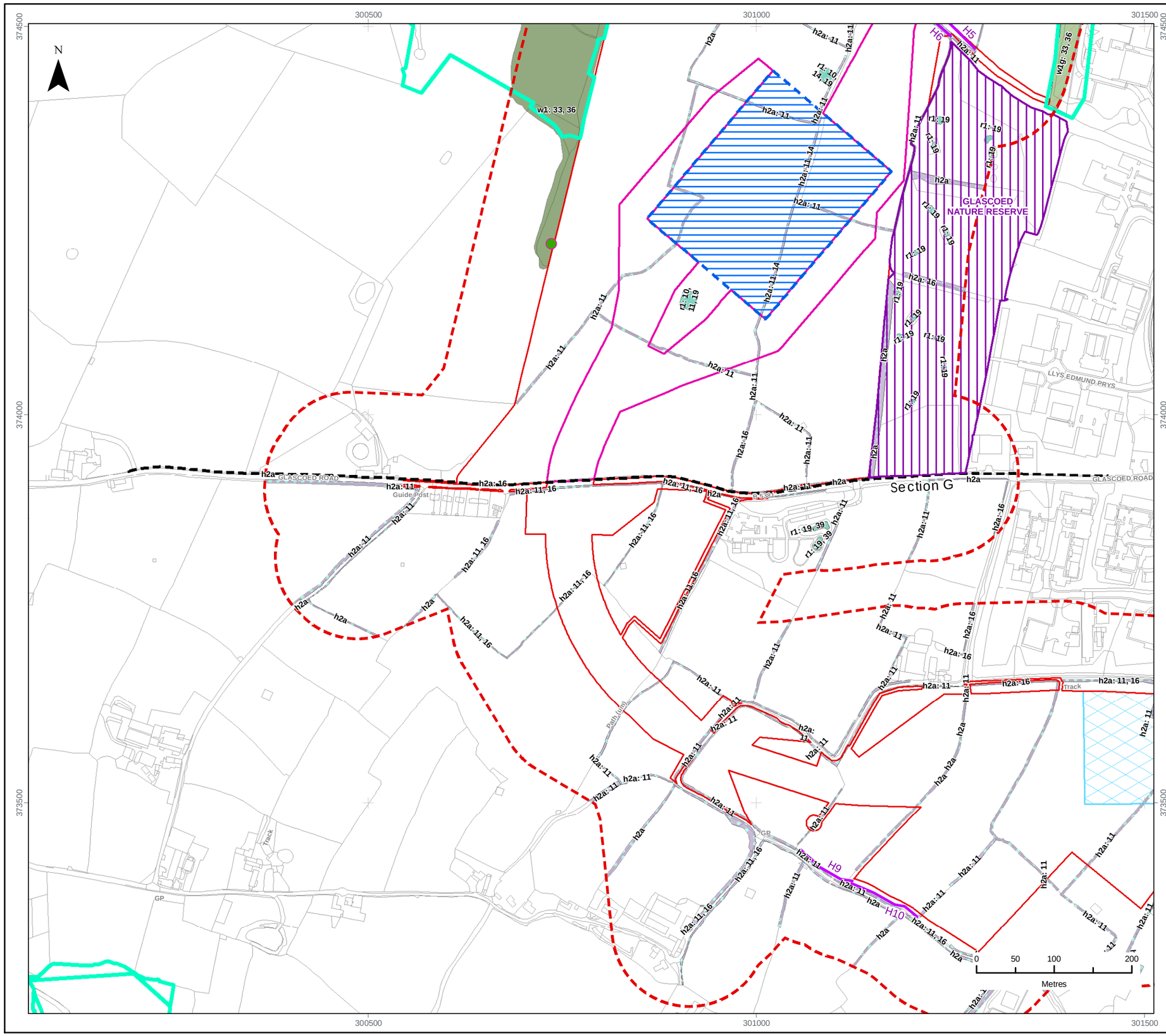


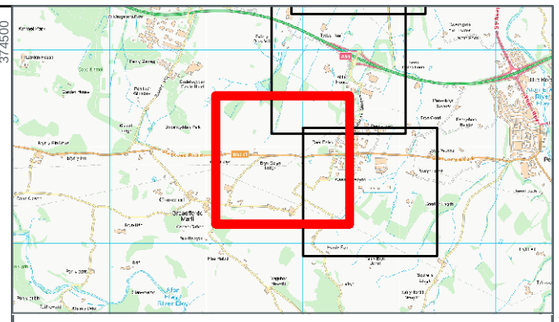

## LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Proposed Substation Cable Corridor Zone
- Proposed Onshore Substation (OnSS) Footprint
- Unlicenced Work Zone
- Habitat Survey Area
- Other Nature Reserve
- Ancient Semi Natural Woodland Site
- Veteran Tree Location
- Important Hedgerow

Heathland and Shrub - Hedgerows
- h2a - Hedgerow (Priority Habitat)

Woodland and Forest - Broadleaved Mixed and Yew Woodland
- w1 - Broadleaved Mixed and Yew Woodland
- w1g - Other Woodland; Broadleaved

Rivers and Lakes - Standing Open Water and Canals
- r1 - Standing Open Water and Canal

Secondary Codes
10 - Scattered scrub
11 - Scattered trees
12 - Scattered bracken
14 - Scattered rushes
15 - Rushes dominant
16 - Tall herb
17 - Ruderal / ephemeral
19 - Ponds (Priority Habitat)
25 - Coastal and flood plain grazing marsh
33 - Ancient woodland site
36 - Plantation
37 - Semi-natural woodland
38 - Secondary woodland
39 - Freshwater - man-made
40 - Freshwater - heavily modified
41 - Freshwater - natural
47 - Native
55 - High forest
57 - Young trees - self-set
58 - Grazed
64 - Mown
66 - Frequently mown
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76 - Recent management
80 - Unmanaged
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117 - Dry
118 - Mesic
119 - Seasonally wet
120 - Wet
121 - Waterlogged
122 - Inundation vegetation
138 - Saline influence
147 - Falled dead wood abundant
148 - Flower forage abundant
159 - Standing dead



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

FIGURE TITLE:

# IMPORTANT SITES AND HABITATS

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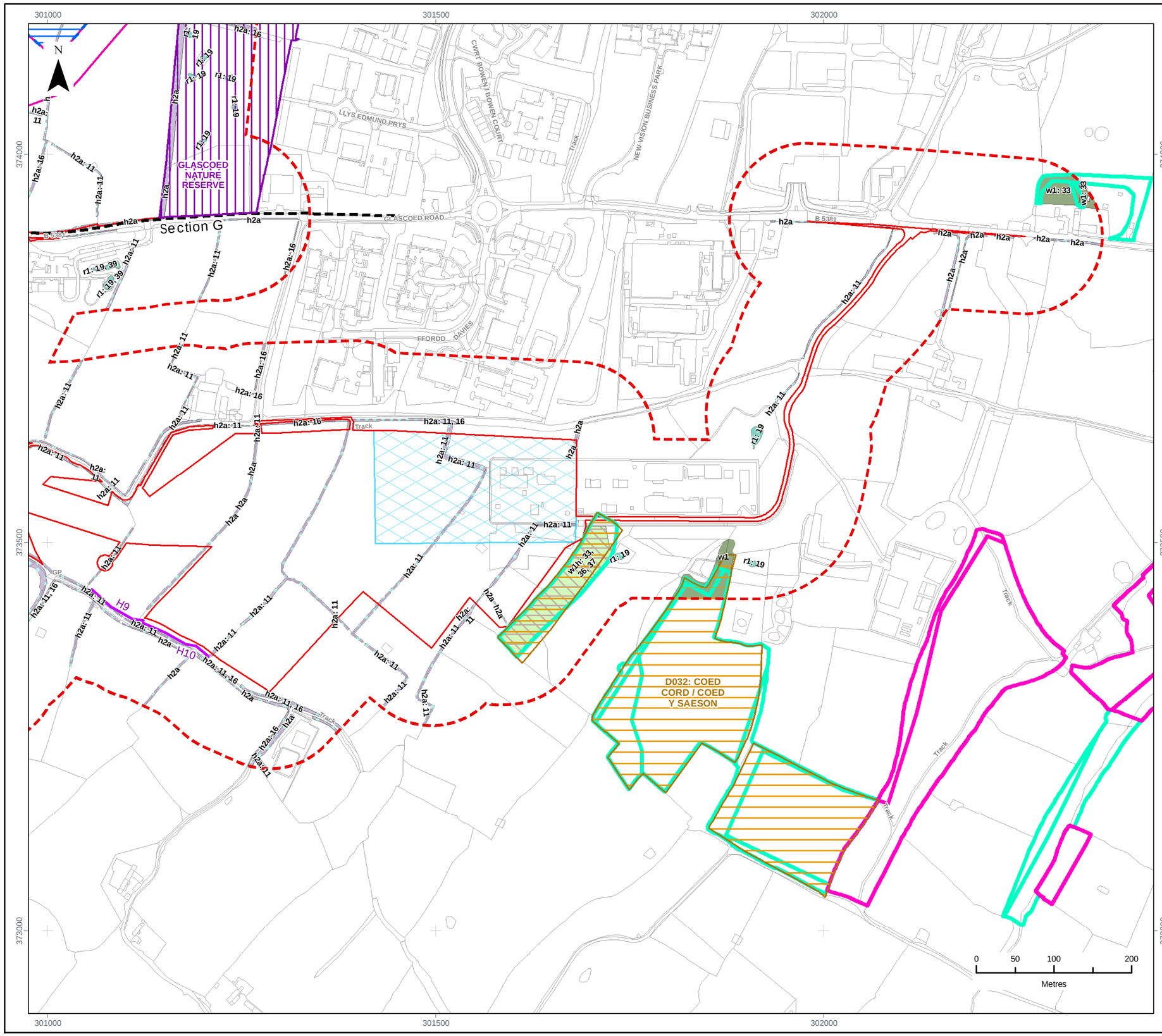
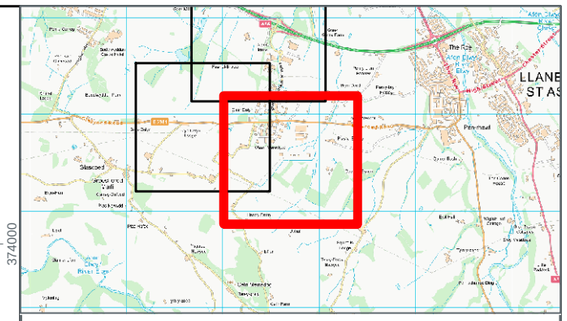
Offshore Wind Farm



## LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Proposed Substation Cable Corridor Zone
- Proposed Onshore Substation (OnSS) Footprint
- Unlicenced Work Zone
- Habitat Survey Area
- Local Wildlife Site
- Other Nature Reserve
- Ancient Semi Natural Woodland Site
- Plantation on Ancient Woodland Site
- Important Hedgerow

**Heathland and Shrub - Hedgerows**

- h2a - Hedgerow (Priority Habitat)

**Woodland and Forest - Broadleaved Mixed and Yew Woodland**

- w1 - Broadleaved Mixed and Yew Woodland
- w1h - Other Woodland; Mixed

**Rivers and Lakes - Standing Open Water and Canals**

- r1 - Standing Open Water and Canal

Secondary Codes

| | |
|---|---|
| 10 - Scattered scrub | 75 - Active management |
| 11 - Scattered trees | 76 - Recent management |
| 12 - Scattered bracken | 80 - Unmanaged |
| 14 - Scattered rushes | 81 - Flailed hedgerow |
| 15 - Rushes dominant | 86 - Accessible natural greenspace |
| 16 - Tall herb | 94 - Green lane |
| 17 - Ruderal / ephemeral | 117 - Dry |
| 19 - Ponds (Priority Habitat) | 118 - Mesic |
| 25 - Coastal and flood plain grazing marsh | 119 - Seasonally wet |
| 33 - Ancient woodland site | 120 - Wet |
| 36 - Plantation | 121 - Waterlogged |
| 37 - Semi-natural woodland | 122 - Inundation vegetation |
| 38 - Secondary woodland | 138 - Saline influence |
| 39 - Freshwater - man-made | 147 - Falled dead wood abundant |
| 40 - Freshwater - heavily modified | 148 - Flower forage abundant |
| 41 - Freshwater - natural | 159 - Standing dead |
| 47 - Native | |
| 55 - High forest | |
| 57 - Young trees - self-set | |
| 58 - Grazed | |
| 64 - Mown | |
| 66 - Frequently mown | |



PROJECT TITLE:

*AWEL Y MÔR OFFSHORE WINDFARM*

FIGURE TITLE:

# IMPORTANT SITES AND HABITATS

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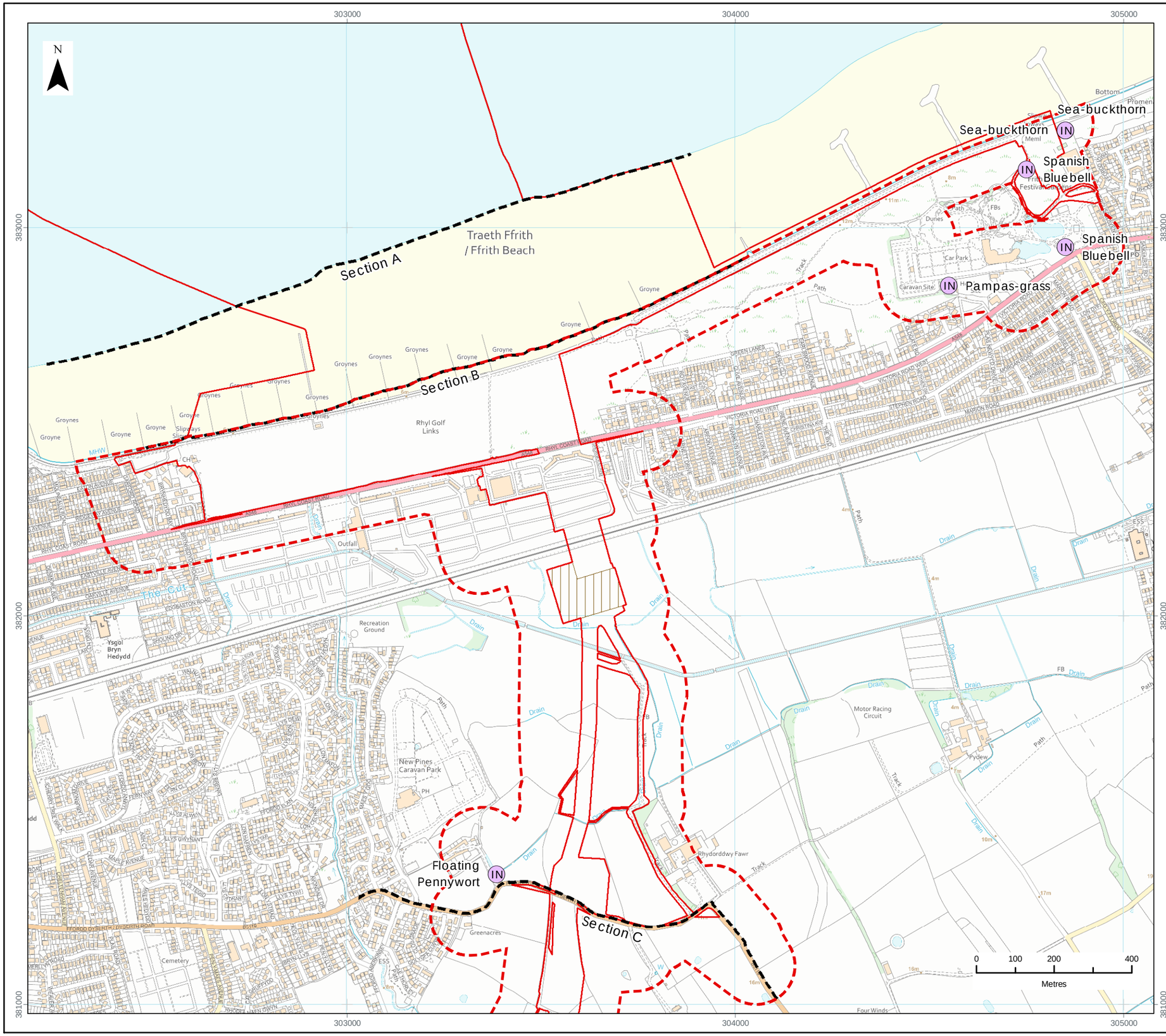


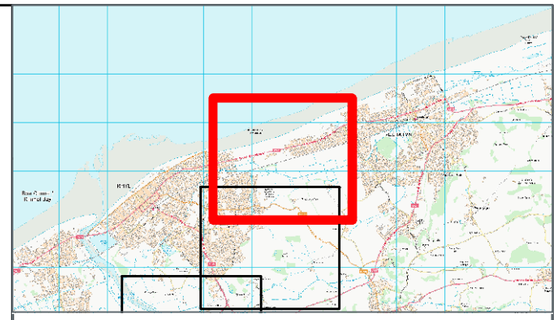

LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Proposed Transition Joint Bay Construction Compound
- Habitat Survey Area
- IN Invasive and Non-Native Species (Derived from Cofnod)

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FIGURE TITLE:

# INVASIVE AND NON-NATIVE SPECIES

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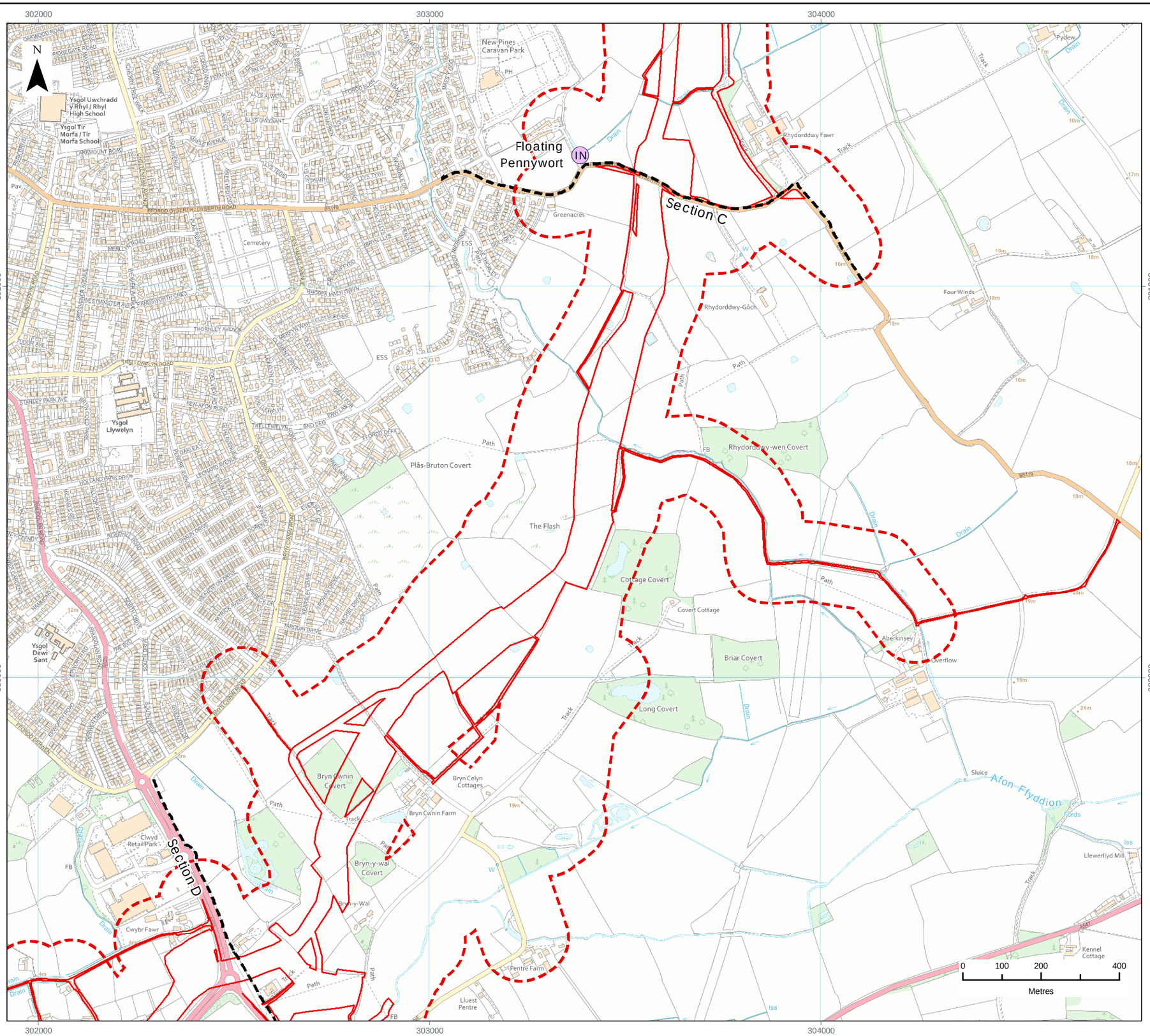


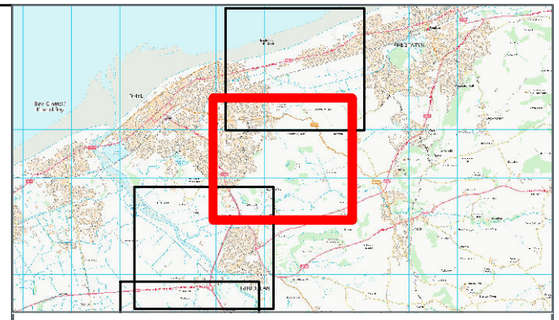

LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Habitat Survey Area
- IN Invasive and Non-Native Species (Derived from Cofnod)

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FIGURE TITLE:

# INVASIVE AND NON-NATIVE SPECIES

| VER | DATE | REMARKS | Drawn | Checked |
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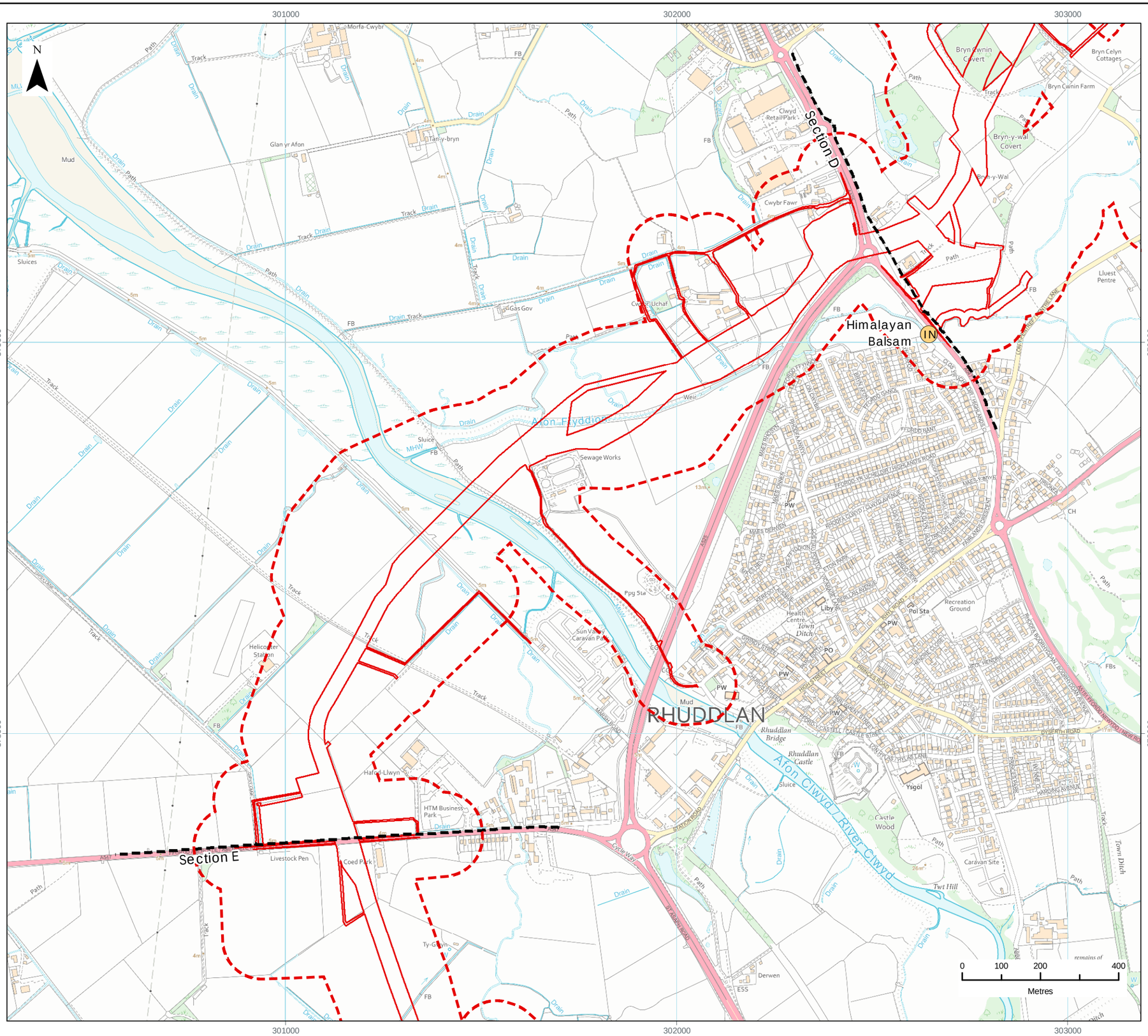


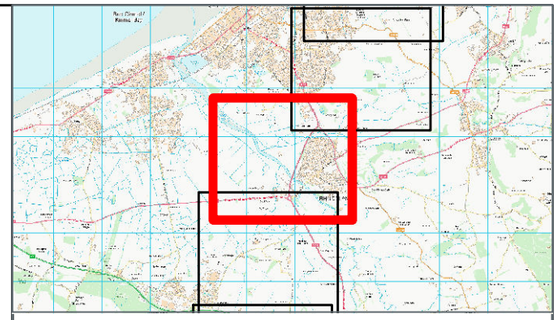

LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Habitat Survey Area
- IN Invasive and Non-Native Species (Field Survey Record)

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FIGURE TITLE:

# INVASIVE AND NON-NATIVE SPECIES

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Offshore Wind Farm

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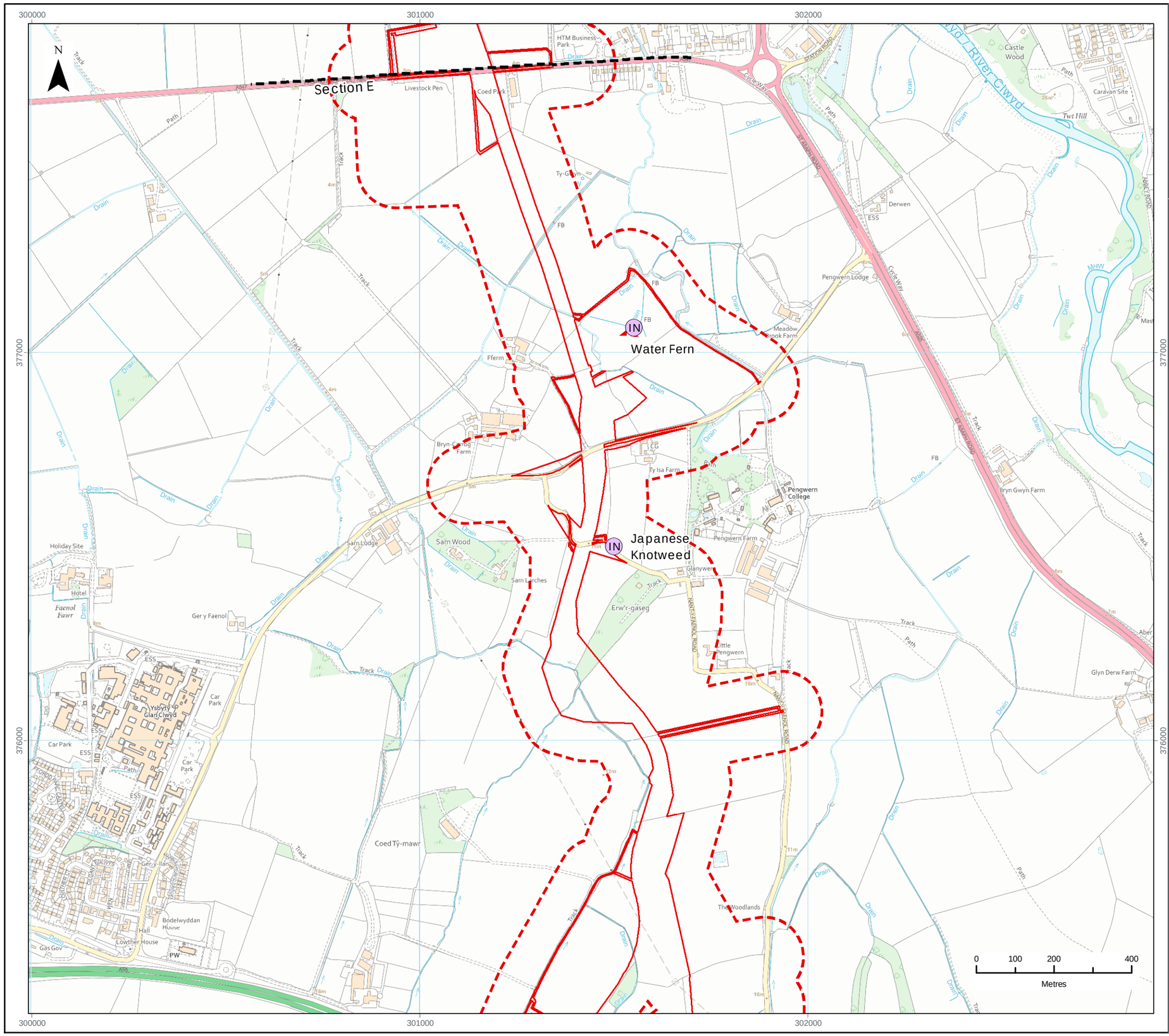


LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Habitat Survey Area
- IN Invasive and Non-Native Species (Derived from Cofnod)

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FIGURE TITLE:

# INVASIVE AND NON-NATIVE SPECIES

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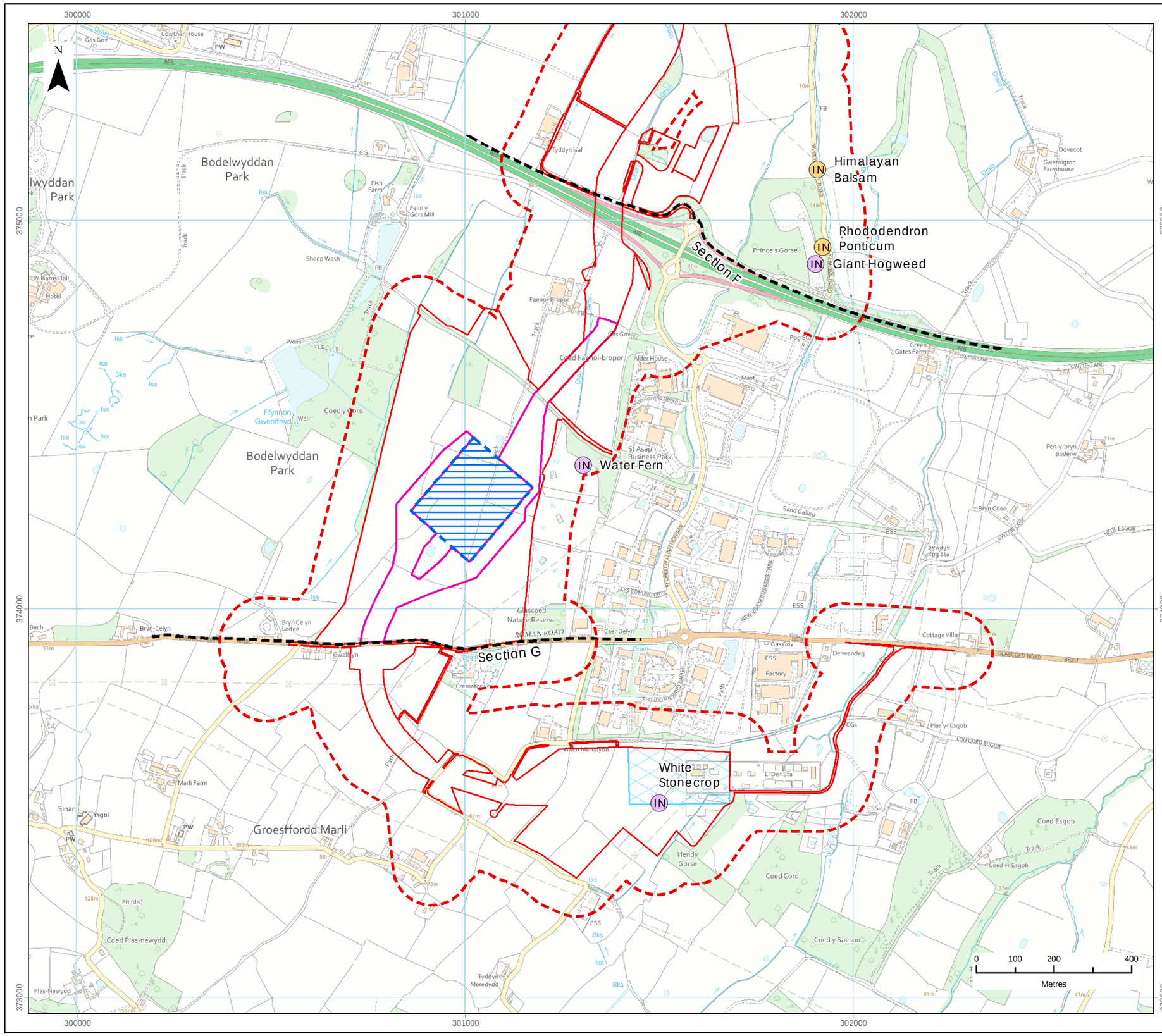


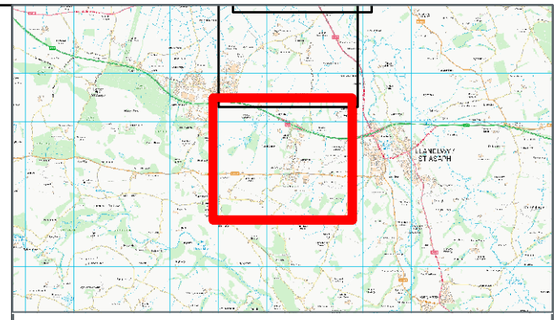

LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Proposed Substation Cable Corridor Zone
- Proposed Onshore Substation (OnSS) Footprint
- Unlicenced Work Zone
- Habitat Survey Area
- IN Invasive and Non-Native Species (Derived from Cofnod)
- IN Invasive and Non-Native Species (Field Survey Record)



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FIGURE TITLE:

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# APPENDIX A

List of Locally Important Plant Species Recorded within the Survey Area (Cofnod Data)

| Scientific name | English Name |
|---|---|
| *Allium vineale* | Wild Onion |
| *Ammophila arenaria* | Marram |
| *Anchusa arvensis* | Bugloss |
| *Apium graveolens* | Wild Celery |
| *Armeria maritima* | Sea Pink |
| *Aster tripolium* | Sea Aster |
| *Atriplex glabriuscula* | Babington's Orache |
| *Atriplex littoralis* | Grass-leaved Orache |
| *Atriplex portulacoides* | Sea-purslane |
| *Bolboschoenus maritimus* | Sea Club-rush |
| *Cakile maritima* | Sea Rocket |
| *Carex arenaria* | Sand Sedge |
| *Carex distans* | Distant Sedge |
| *Centaurea scabiosa* | Greater Knapweed |
| *Cerastium semidecandrum* | Little Mouse-ear |
| *Chenopodium ficifolium* | Fig-leaved Goosefoot |
| *Chenopodium rubrum* | Red Goosefoot |
| *Cochlearia anglica* | English Scurvygrass |
| *Convallaria majalis* | Lily-of-the-valley |
| *Echium vulgare* | Viper's-bugloss |
| *Erodium moschatum* | Musk Stork's-bill |
| *Eryngium maritimum* | Sea-holly |
| *Euphorbia lathyris* | Caper Spurge |
| *Euphorbia paralias* | Sea Spurge |
| *Euphorbia portlandica* | Portland Spurge |
| *Geranium pusillum* | Small-flowered Crane's-bill |
| *Geranium sanguineum* | Bloody Crane's-bill |
| *Glaux maritima* | Sea-milkwort |
| *Juncus gerardii* | Saltmarsh Rush |
| *Juncus maritimus* | Sea Rush |
| *Kickxia elatine* | Sharp-leaved Fluellen |
| *Lactuca serriola* | Prickly Lettuce |
| *Lamium amplexicaule* | Henbit Dead-nettle |

| Scientific name | English Name |
|---|---|
| *Lemna gibba* | Fat Duckweed |
| *Lepidium heterophyllum* | Smith's Pepperwort |
| *Leymus arenarius* | Lyme-grass |
| *Lysimachia vulgaris* | Yellow Loosestrife |
| *Malva arborea* | Tree-mallow |
| *Oenanthe lachenalii* | Parsley Water-dropwort |
| *Ononis spinosa* | Spiny Restharrow |
| *Plantago maritima* | Sea Plantain |
| *Polypodium interjectum* | Intermediate Polypody |
| *Polypodium vulgare x interjectum = P. x mantoniae* | Polypody |
| *Populus nigra* | Black-poplar |
| *Populus nigra subsp. betulifolia* | Black Poplar |
| *Puccinellia distans* | Reflexed Saltmarsh-Grass |
| *Puccinellia maritima* | Common Saltmarsh-grass |
| *Ranunculus aquatilis* | Common Water-crowfoot |
| *Raphanus raphanistrum subsp. maritimus* | Sea Radish |
| *Sagina apetala subsp. apetala* | Annual Pearlwort |
| *Salix repens* | Creeping Willow |
| *Sanguisorba officinalis* | Great Burnet |
| *Sinapis alba* | White Mustard |
| *Sparganium emersum* | Unbranched Bur-reed |
| *Spergularia media* | Greater Sea-spurrey |
| *Spergularia rubra* | Sand Spurrey |
| *Stellaria pallida* | Lesser Chickweed |
| *Suaeda maritima* | Annual Sea-blite |
| *Trifolium scabrum* | Rough Clover |
| *Triglochin maritimum* | Sea Arrowgrass |
| *Vicia lathyroides* | Spring Vetch |

# APPENDIX B

Hedgerow Survey Sheets

## EUROPEAN OFFICES

### United Kingdom

**AYLESBURY**
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**BELFAST**
belfast@slrconsulting.com

**BRADFORD-ON-AVON**
T: +44 (0)1225 309400

**BRISTOL**
T: +44 (0)117 9064280

**CARDIFF**
T: +44 (0)2920 491010

**CHELMSFORD**
T: +44 (0)1245 392170

**EDINBURGH**
T: +44 (0)131 3356830

**EXETER**
T: +44 (0)1392 490152

**GLASGOW**
T: +44 (0)141 3535037

**GUILDFORD**
T: +44 (0)1483 889800

**LONDON**
T: +44 (0)203 6915810

**MAIDSTONE**
T: +44 (0)1622 609242

**MANCHESTER** (Denton)
T: +44 (0)161 5498410

**MANCHESTER** (Media City)
T: +44 (0)161 8727564

**NEWCASTLE UPON TYNE**
T: +44 (0)191 2611966

**NOTTINGHAM**
T: +44 (0)115 9647280

**SHEFFIELD**
T: +44 (0)114 2455153

**SHREWSBURY**
T: +44 (0)1743 239250

**STIRLING**
T: +44 (0)1786 239900

**WORCESTER**
T: +44 (0)1905 751310

### Ireland

**DUBLIN**
T: +353 (0)1 296 4667

### France

**GRENOBLE**
T: +33 (0)4 76 70 93 41

Fferm Wynt Alltraeth

AWEL Y MÔR

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Wiltshire SN5 6PB
T +44 (0)8456 720 090
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