

# 6.5.A. Wider Works Habitat Survey Report

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# 1. Introduction

## 1.1 Introduction

1.1.1 This report has been prepared on behalf of National Grid Electricity Transmission plc (NGET) who seek to construct and operate the Pentir to Trawsfynydd Reinforcement Project (the 'Project').

1.1.2 This report concerns the section of the Project relating to Wider Works (the proposed works) and is a Technical Appendix to the Environmental Statement (ES) **Volume 6 Wider Works, Chapter 5: Likely Significant Effects** being submitted as part of the Environmental Impact Assessment (EIA), which accompanies the consent applications for the Project.

## 1.2 Description of the Project

1.2.1 This document considers the Wider Works elements comprising:

- Installation of approximately 23.5 kilometres (km) of fibre optic cable along the existing 4ZC overhead line between Tower 4ZC070 and 4ZC140.
- Reconductoring of the 'coastal' B circuit between Tower 4ZC005 to 4ZC027 and Tower 4ZC044 and 4ZC070.

## 1.3 Introduction to the Habitats Report

1.3.1 This report provides baseline information on habitats and botanical plant species that could potentially be affected by the proposed works associated with Wider Works. Baseline information was obtained through desk-based assessments and the following field surveys during 2024:

- Extended Phase 1 habitat survey.
- Botanical survey.

1.3.2 Baseline data presented in this document has been used to inform the assessment in the **Environmental Statement (ES) Volume 6, Chapter 5: Likely Significant Effects**.

1.3.3 This report details the baseline information collated for habitats present in the Study Area (defined in paragraph 1.3.5) and identifies relevant legislation and planning policy relating to plants and habitats, which are outlined in **Section 2** of this report.

1.3.4 This report is supported by the following figures<sup>1</sup>:

- **Figure 6.5.A.1** – Phase 1 Habitat Survey.
- **Figure 6.5.A.2** – Relevant Statutory Designated Sites for Habitats.
- **Figure 6.5.A.3** – Relevant Non-Statutory Designated Sites for Habitats.

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<sup>1</sup> Note, the Study Area defined in the Environmental Statement, Volume 6: Wider Work, differs from the survey study area set out in this report which was defined prior to final design detail being available.

- **Figure 6.5.A.4** – Habitats of Principal Importance and Ancient Woodland.
- **Figure 6.5.A.5** – Notable Plants and Fungi and Invasive Non-Native Species.

## Study Area and Survey Areas

1.3.5

The Study Area discussed in this report is defined as the boundary of the Wider Works site and a 2 km buffer. This area was used for the desk-based assessment to collate existing ecological records relating to sites statutory designated for nature conservation (statutory designated sites were habitats and plant species are listed as a qualifying feature). A larger Study Area for statutory designated sites is applied and discussed in the **ES Volume 6, Chapter 5: Likely Significant Effects**, where applicable. This report presents only the details of non-statutory designated sites, ancient woodland and Habitats of Principal Importance (HoPI), notable plant and fungi species and invasive non-native plant species (INNPS) in the Wider Works site, along with a 50 metre (m) buffer, as identified through professional judgment for their potential to be most affected by the proposed works.

**Table 1.1** details where each survey type was carried out. The Survey Area locations were determined using professional judgement of the likely extent of impacts on plants and habitats.

Table 1.1 – Survey Area

Survey Type	Survey Area	Justification for the Survey Area
Extended Phase 1 habitat survey. Invasive Non-Native Plant Species (INNPS) were also recorded where observed.	The Wider Works site and to a maximum of 50 m where viewable or access was permitted between Tower 4ZC005-027 and Tower 4ZC044 and 070.	The Wider Works site, plus a 50 m buffer is an appropriate Survey Area for the works proposed between Tower 4ZC005-027 and Tower 4ZC044 and 070. Habitats that are likely to be impacted by the proposed works are in the Wider Works site. In relation to the potential for protected or notable species, the 50 m buffer covers, for example, the 30 m distance at which direct effects to badger could occur and acknowledges that badger setts present beyond this distance are unlikely to be impacted by the proposed works, e.g. through disturbance during the works.
	The Wider Works site only, where access was permitted, between Tower 4ZC070 and 140.	The Wider Works site only is an appropriate Survey Area for the proposed works between Tower 4ZC070 and 140 due to the minimal required works which comprise visiting each Tower with a vehicle and pulling fibre

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optic cable between Towers so that it wraps around the existing earth wire.

Botanical survey.	Appropriate locations in the Wider Works site.	The Wider Works site is an appropriate Survey Area. Habitats that are likely to be impacted by the proposed works are in the Wider Works site.
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## Objectives

1.3.6 The objectives of the surveys and report are to:

- Review existing ecological data to identify any sites designated for nature conservation (international, national or local) in the Study Area (**Appendix A: Figure 6.5.A.2 and Figure 6.5.A.3**).
- Identify the presence of Habitats of Priority Importance (HoPI) in the Study Area (**Appendix A: Figure 6.5.A.4**).
- Identify and categorise habitats present in the Survey Area (see definition in **Table 1.1**).
- Provide maps showing habitat types and their location in the Survey Area (**Appendix A: Figure 6.5.A.1**).
- Use this information to determine whether notable habitat and plants could be affected by the proposed works (see paragraph 3.1.5).
- Inform the mitigation requirements for the proposed works to prevent or reduce any negative impacts on habitats present.

## 2. Legislation

### 2.1 Introduction

- 2.1.1 This section lists the legislation, planning policy framework and guidance that is relevant to plants and habitats.
- 2.1.2 More detailed information can be found in **Volume 8, Appendix 1.1.A: Legislation, Policy and Guidance**.

### 2.2 Legislation

- 2.2.1 The following legislation is relevant to Ecology and Nature Conservation:
  - The Conservation of Habitats and Species Regulations 2017 (as amended) (the “Habitats Regulations” (Ref 2.1)).
  - The Countryside and Rights of Way Act 2000 (Ref 2.2).
  - The Hedgerows Regulations 1997 (Ref 2.3).
  - Wildlife and Countryside Act 1981 (as amended) (Ref 2.4).
  - The Environment Act (2021) (Ref 2.5).
  - The Natural Environment and Rural Communities Act 2006 (NERC) (Ref 2.6).
  - The Environment (Wales) Act 2016 (Ref 2.7).
  - Regulation (EU) 1143/2014 on the prevention and management of the introduction and spread of invasive alien species (Ref 2.8).
  - The Invasive Alien Species (Enforcement and Permitting) Order 2019 (as amended) (Ref 2.9).

### 2.3 Planning Policy

- 2.3.1 The following planning policy is relevant to Ecology and Nature Conservation:
  - Planning Policy Wales – Edition 12 (2024) (Ref 2.10).
  - Anglesey and Gwynedd Joint Local Development Plan 2011 – 2026 (Ref 2.11).
  - Anglesey and Gwynedd Joint Local Development Plan Review Report (Ref 2.12).
  - Eryri Local Development Plan 2016 - 2031 (Ref 2.13).
  - Eryri Local Development Plan Review Report 2023 (Ref 2.14)

## 2.4 Guidance

2.4.1 The following guidance is relevant to Ecology and Nature Conservation:

- The International Union for Conservation of Nature Red List of Threatened Species 2022 (Ref 2.15).
- UK Biodiversity Framework (Joint Nature Conservation Committee (JNCC)) on behalf of the Four Countries' Biodiversity Group (2024) (Ref 2.16).
- Natur Gwynedd Biodiversity Action Plan (BAP) (Ref 2.17).
- The Vascular Plant Red Data List for Wales (Ref 2.18).
- The Vascular Plant Red Data List for Great Britain (Ref 2.19).

# 3. Methodology

## 3.1 Desk Study

### Designated Sites

3.1.1 The desk study incorporates a review of all international and national statutory designated sites for nature conservation in the Study Area to identify sites that have habitats and/or plants as their qualifying feature.

3.1.2 It also includes a review of non-statutory designated Wildlife Sites (WS) and Candidate WS (cWS). WS are of local nature conservation value and in some cases the quality of habitat may be equal to that found on a Site of Special Scientific Interest (SSSI) but may not meet the national criteria for selection as a SSSI, which receive statutory protection. Although cWS have not been designated, they are included in this report, as they may be deemed to meet the criteria for Wildlife Sites.

### Existing Records

3.1.3 Ecological data for the Study Area were gathered from the following sources:

- JNCC website (Ref 3.1) for site information and designation details of Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar Sites.
- Natural Resources Wales (NRW) website (Ref 3.2) for information on statutory designated sites of nature conservation interest such as SSSI and to confirm reasons for designation.
- DataMapWales website (Ref 3.3) to identify the location of Habitats of Principal Importance (HoPI) and Ancient Woodland.
- Woodland Trust Ancient Tree Inventory (Ref 3.4) for records of Veteran and Ancient trees.
- Natur Gwynedd Biodiversity Action Plan website (Ref 2.17) for biodiversity action plan habitats and species.
- Aerial photography (Google Earth).
- Cofnod, the local environmental records centre for North Wales.

3.1.4 Protected and notable habitats and species record data (including INNS) have been provided by Cofnod. Data is refreshed on a six-monthly basis; the date of the latest refresh provided is November 2024. Only records in the last ten years (2014-2024) are included in the baseline.

3.1.5 Protected and notable habitats and species data include those listed under Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (as amended) (Ref 2.4), Schedules 2 and 4 of The Conservation of Habitat and Species Regulations 2017 (as amended) (Ref 2.1) and Habitats and Species of Principal Importance listed under Section 7 of the Environment (Wales) Act 2016 (Ref 2.7). INNS are species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (Ref 2.4) and as species of European Union (EU) concern listed in the EU Invasive Alien Species Regulation 2014 (Ref 2.8).

## 3.2 Field Surveys

### Phase 1 Habitat Survey

3.2.1 Phase 1 habitat survey is a standard method of environmental audit and involves categorising different habitat types and habitat features in the Survey Area and recording these using standard Phase 1 habitat survey codes as described in the Handbook for Phase 1 Habitat Survey: A technique for environmental audit (Ref 3.5). The approach applied accords with the Guidelines for Preliminary Ecological Appraisal published by the Chartered Institute of Ecology and Environmental Management (CIEEM) (Ref 3.6).

3.2.2 The Phase 1 Habitat survey was carried out (where access was safe) between May and September 2024.

### Botanical Surveys

3.2.3 At this stage of the assessment, assignment of habitats to specific National Vegetation Classification (NVC) communities was not undertaken. However, where habitats were identified, through desk study, as potentially notable, species-rich or likely to qualify as HoPI, and where potential impacts from the Wider Works were anticipated, more detailed botanical surveys were carried out. These surveys aimed to confirm whether the habitats met HoPI status by recording plant species and assessing habitat types, using comparison with UK Biodiversity Action Plan Priority Habitat Descriptions (Ref 3.7) These additional surveys took place between July and September 2024.

3.2.4 All instances of invasive non-native plant species (INNPS) in the Wider Works site were recorded during the field surveys.

## 3.3 Assumptions and Limitations

3.3.1 The aim of a desk study is to characterise the baseline context of a proposed development and provide valuable background information that would not be captured by surveys alone. Information obtained during a desk study is dependent upon people and organisations having made and submitted records for the area of interest. A lack of records for a particular habitats or species does not necessarily mean that the habitats or species do not occur in the search area. Likewise, the

presence of records for habitats and species does not automatically mean that these still occur or are relevant in the context of the Wider Works site.

3.3.2 Where habitat boundaries coincide with physical boundaries recorded on Ordnance Survey maps the resolution is as determined by the scale of mapping. Elsewhere, habitat mapping is estimated in the field and recorded by hand-held GPS. Where areas of habitat are provided, they are approximate and should be verified by measurement on site where required for design or for the works. While indicative locations of trees are recorded this does not replace requirements for detailed specialist Arboricultural survey to British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction.

3.3.3 There were access restrictions to parts of the Wider Works site, and these areas could not be surveyed:

- Land at Tower 4ZC027, immediately north and west of this Tower.
- Land between Tower 4ZC050 and 4ZC052.
- Land between Tower 4ZC075 and 4ZC078.
- Land between Tower 4ZC089 and 4ZC090.
- A section of land between Tower 4ZC103 and 4ZC104.
- A section of land between Tower 4ZC129 and 4ZC131.

3.3.4 Habitats were not surveyed where they were obviously residential gardens or buildings.

# 4. Results

## 4.1 Desk Study Results

### Important Ecological Features (Designated Sites)

4.1.1 The results of the desk study are shown in the following figures:

- **Figure 6.5.A.2** – Relevant Statutory Designated Sites for Habitats.
- **Figure 6.5.A.3** – Relevant Non-Statutory Designated Sites for Habitats.
- **Figure 6.5.A.4** – Habitats of Principal Importance and Ancient Woodland.
- **Figure 6.5.A.5** – Notable Plants and Fungi and Invasive Non-Native Species.

4.1.2 **Error! Reference source not found.** summarises the international and national nature conservation designations in the Study Area, with habitats and/or plant species as their qualifying feature.

Table 4-1 – Statutory Designated Sites for Nature Conservation in the 2 km Study Area

Designated site	Reason for designation	Location of designated site
Afon Gwyrfa a Llyn Cwellyn Special Area of Conservation (SAC)	<p>Annex I habitats that are a primary reason for selection of this SAC:</p> <ul style="list-style-type: none"> <li>• Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> or of the <i>Isoëto-Nanojuncetea</i>.</li> <li>• Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation.</li> </ul> <p>Annex II species that are a primary reason for selection of this SAC are:</p> <ul style="list-style-type: none"> <li>• Atlantic salmon (<i>Salmo salar</i>.)</li> <li>• Floating water-plantain(<i>Luronium natans</i>).</li> </ul>	In Wider Works site between Tower 4ZC120-121
Coedydd Derw a Safleoedd Ystlumod Meirion/Meirionnydd Oakwoods and Bat Sites SAC	<p>Annex I habitats that are a primary reason for selection of this SAC:</p> <ul style="list-style-type: none"> <li>• Old sessile oakwoods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles.</li> <li>• Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) (Priority feature).</li> </ul> <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this SAC:</p> <ul style="list-style-type: none"> <li>• Watercourses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation.</li> </ul>	In Wider Works site between Tower 4ZC012-16

Designated site	Reason for designation	Location of designated site
	<ul style="list-style-type: none"> <li>• Northern Atlantic wet heaths with <i>Erica tetralix</i>.</li> <li>• European dry heaths.</li> <li>• <i>Tilio-Acerion</i> forests of slopes, screes and ravines (priority feature).</li> <li>• Bog woodland (priority feature).</li> </ul> <p>Annex II species lesser horseshoe bat (<i>Rhinolophus hipposideros</i>) is a primary reason for selection of this site.</p>	
Corsydd Eifionydd/Eifionydd Fens SAC	<p>Annex I habitat that is a primary reason for selection of this SAC:</p> <ul style="list-style-type: none"> <li>• Transition mires and quaking bogs.</li> </ul> <p>Annex II species that are a primary reason for selection of this SAC :</p> <ul style="list-style-type: none"> <li>• Marsh fritillary butterfly (<i>Euphydryas aurinia</i>).</li> <li>• Slender green feather-moss (<i>Drepanocladus (Hamatocaulis) vernicosus</i>).</li> </ul>	In Wider Works south-west of Tower 4ZC080-82
Pen Llyn a'r Sarnau/ Llyn Peninsula and the Sarnau SAC	<p>Annex I habitats that are a primary reason for selection of this SAC:</p> <ul style="list-style-type: none"> <li>• Sandbanks which are slightly covered by sea water all the time.</li> <li>• Estuaries.</li> <li>• Coastal lagoons (priority feature).</li> <li>• Large shallow inlets and bays.</li> <li>• Reefs.</li> </ul>	0.33 km north of Tower 4ZC027

Designated site	Reason for designation	Location of designated site
	<p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this SAC:</p> <ul style="list-style-type: none"> <li>• Mudflats and sandflats not covered by seawater at low tide.</li> <li>• <i>Salicornia</i> and other annuals colonizing mud and sand.</li> <li>• Atlantic salt meadows <i>Glauco-Puccinellietalia maritimae</i>.</li> </ul> <p>Submerged or partially submerged sea caves.</p>	
Migneint-Arenig-Ddualt SAC	<p>Annex I habitats that are a primary reason for selection of this SAC:</p> <ul style="list-style-type: none"> <li>• Blanket bog.</li> <li>• European dry heath.</li> </ul> <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this SAC:</p> <ul style="list-style-type: none"> <li>• North Atlantic wet heaths with <i>Erica tetralix</i>.</li> <li>• Natural dystrophic lakes and ponds.</li> <li>• Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea-uniflorae</i> or of the <i>Isoëto-Nanojuncetea</i>.</li> <li>• Old sessile oak woods with <i>Ilex</i> and <i>Brachypodium</i> in the British Isles.</li> </ul>	1.68 km north-west of Tower 4ZC005
Afon Gwyrfa i Llyn Cwellyn SSSI	Llyn Cwellyn is an important example of a large, deep oligotrophic to mesotrophic lake. The clear water of the lake is typical of nutrient poor conditions with low alkalinity throughout the year. The area is one of the best in the	In Wider Works site between Tower 4ZC120-121

Designated site	Reason for designation	Location of designated site
	<p>United Kingdom for floating water-plantain, a nationally scarce plant.</p> <p>The Afon Gwyrfai is one of the best examples in the United Kingdom of an oligotrophic to mesotrophic river with submerged beds of aquatic plants, especially its <i>Callitricho-Batrachion</i> vegetation community.</p>	
Coedydd De Dyffryn Maentwrog SSSI	<p>The SSSI is of special biological interest, including semi-natural broadleaved woodland, a rare moss, liverworts, lichens and slime moulds. This SSSI consists of four woodlands on the southern side of the Vale of Ffestiniog, Ceunant Llennyrch, Ceunant Llechrwd, Coed Camlyn and Y Winllan Plantation, in the village of Maentwrog, including the gorge on the Afon Prysor</p>	In Wider Works site between Tower 4ZC012-13
Llystyn Isaf SSSI	<p>Llystyn Isaf is notified for its botanical interest. The site consists of grazing pasture, adjoining the Afon Dwyfach at an altitude of 90 m which supports a range of acidic and neutral grassland vegetation types. Wood bitter-vetch (<i>Vicia orobus</i>) is uncommon nationally and it occurs here in its only known meadow locality in West Gwynedd. The drier neutral grassland communities are the main features of interest. There are also patches of wet heath present, while the streamlines and adjoining wet flushed areas support a range of characteristic wetland plants. Fen meadow vegetation is also present in the southern part of the SSSI.</p>	In Wider Works site, between Tower 4ZC070 and 4ZC071
Pant Cae Haidd SSSI	<p>The SSSI supports the last remaining examples of a scarce fen meadow type in lowland Gwynedd.</p> <p>The fen meadow grades into base-rich flush vegetation. Patches of rush pasture occur in the south-eastern enclosures and there are small areas of drier acidic grassland, dense scrub and bracken (<i>Pteridium aquilinum</i>).</p>	Immediately adjacent to Wider Works site, east of Tower 4ZC124-126

Designated site	Reason for designation	Location of designated site
Cors Gyfelog SSSI	<p>The SSSI consists of a mosaic of wet poor fen, wet woodland and acid wet heath; it is an extensive area of wetland with relatively little damage through drainage. The SSSI also qualifies for the slender green feather-moss associated with acidic flushes throughout the site, for the important assemblage of bryophytes including the nationally rare liverwort (<i>Scarpinia paludicola</i>) which is scattered through the wetland habitat.</p>	0.1 km south-west of Tower 4ZC080-82
Morfa Harlech SSSI	<p>The estuary is one of three outstanding, small, bar-built drying estuaries found in Britain and is a feature of the Pen Llyn a'r Sarnau (SAC).</p> <p>The extensive beach at Morfa Harlech is characterised by typical biotopes of an exposed, sandy shore and is the most typical example of an exposed sandy shore in Cardigan Bay.</p> <p>The sand dunes at Morfa Harlech are one of the largest moderately calcareous systems in Britain. The mobile dune communities and the humid dune slack communities (in seasonally wet hollows) are of European importance.</p> <p>There are two plant species listed under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) (Ref 2.4): Welsh mudwort (<i>Limosella australis</i>) and petalwort (<i>Petalophyllum ralfsii</i>).</p>	0.33 km to the north and west of Tower 4ZC027
Tiroedd a Glannau Rhwng Cricieth ac Afon Glaslyn SSSI	<p>The site is of special interest for its reedswamp, grazing marsh and fen meadow together with an area of fen woodland. Good examples of the transition from fen to open water are shown, through a range of swamp and aquatic communities. Coastal and grassland communities also grade into the fen vegetation. The dune habitats at Morfa Bychan are of special interest because of their botanical communities. The dune system is complementary to the larger system at Morfa Harlech.</p>	0.86 km south-east of Tower 4ZC044-46

Designated site	Reason for designation	Location of designated site
Cors Llanllyfni SSSI	<p>This SSSI is designated for its biological interest, including a population of the internationally important slender green feather-moss. Most of the SSSI consists of wet heath. There is an intricate mix of other communities due to the small-scale variation in topography and hydrology: dry heath, acid grassland and spring-fed flushes. A small area to the north-west of the site consists of improved and semi-improved grassland.</p>	0.89 km west of Tower 4ZC090-95
Coedydd Dyffryn Ffestiniog (Gogleddol) SSSI	<p>The SSSI is of special interest for its biological features: seminatural broadleaved woodland, woodland bird assemblage, moss, liverwort, lichen and slime mould assemblages.</p> <p>The SSSI is a component part of the Meirionnydd Oakwoods and Bat Sites SAC.</p>	0.91 km north-west of Towers 4ZC012-26
Coed y Rhygen SSSI	<p>Designated as a woodland containing Atlantic bryophytes of special interest. Developed on the thin, skeletal soils formed on the low, hard ridges of Cambrian Grits on the western shore of Llyn Trawsfynydd, the wood is of the wood sage/oak/birch <i>Teucrium scorodonia/Quercus/Betula</i> type.</p>	1.12 km south of Tower 4ZC012
Llyn Padarn SSSI	<p>Biologically designated due to being one of only three remaining natural localities in Wales for Arctic charr (<i>Salvelinus alpinus</i>), a glacial relict fish species.</p> <p>Llyn Padarn also has some aquatic plant interest, notably floating water-plantain and small quillwort (<i>Soetes echinospora</i>).</p>	1.32 km south-east of Tower 4ZC136
Llwyn y Coed SSSI	<p>A small grazed sessile oakwood of the <i>Teucrium scorodonia</i> – <i>Quercus/Betula</i> (wood sage-oak/birch) type on a steep rocky north-east facing slope. The principal interest of the wood is its Atlantic flora which includes both British species of filmy ferns (<i>Hymenophyllum wilsonii</i>) and</p>	1.54 km south-east of Tower 4ZC135

Designated site	Reason for designation	Location of designated site
	<p>(<i>Hymenophyllum tunbrigense</i>) and an abundance of oceanic mosses, liverworts and lichens. It is one of the most important woodland sites in North Gwynedd for its woodland Atlantic bryophyte flora. The continuity of a broadleaved tree cover on this ancient woodland site has helped this flora to survive.</p>	
Coed Tremadog SSSI	<p>Coed Tremadog is selected for its biological interest as an example of wood sage/oak/birch <i>Teucrium scorodonia</i>/<i>Quercus</i>/<i>Betula</i> woodland type for its vascular plant species richness and sub-habitat diversity.</p> <p>Rare and uncommon plants are present, and the woodland is of entomological interest for its Dipteron fauna of fungus gnats and flat-footed flies.</p>	1.57 km east of Tower 4ZC005
Cors Graianog SSSI	<p>Cors Graianog is a relatively undisturbed example of an acidic basin mire. The present peatland surface, lying at c.170 m, is partially developed over old peat-cuttings and includes ombrogenous vegetation, poor-fen swamp, willow carr and peripheral acidic flushes.</p>	1.66 km east of Tower 4ZC071-76
Migneint-Arenig-Dduallt SSSI	<p>The following UK Biodiversity Action Plan habitats are found in the site: blanket bog, upland calcareous grassland, upland heathland and upland oakwoods.</p> <p>The SSSI is a large upland site that is of special interest for biological and geological features. The habitats of special interest are blanket bog, dry heath, montane heath, wet heath, flushes, lakes, woodland as well as a mixture of habitats comprising acid, neutral and calcareous grassland, rush pasture, bracken, ledge communities, swamp, running water and cliff and scree vegetation.</p> <p>The SSSI holds one of the largest areas of blanket bog in Wales and is also of European importance for dry dwarf-</p>	1.68 km north-east of Tower 4ZC005

Designated site	Reason for designation	Location of designated site
	<p>shrub heath habitat. The ombrotrophic mire (mire dependent on rain for nutrients) and acid grassland that dominate the site are intersected throughout by an extensive network of flushes; mainly acid, species-poor flushes. Several rocky ravines are included in the site and provide suitable conditions for interesting ferns such as oak fern (<i>Gymnocarpium dryopteris</i>) and several nationally scarce bryophytes including the moss (<i>Rhynchostegium alopecuroides</i>).</p>	
Afon Ddu SSSI	<p>There are areas of botanically interesting mire and wet heath adjacent to parts of the river and around Llyn Du which are also important in providing a protective buffer to the river channel and the freshwater pearl mussels (<i>Margaritifera margaritifera</i>) therein.</p>	1.72 km north of Tower 4ZC005-7.
Ceunant Llennyrch National Nature Reserve (NNR)	<p>Part of the Meirionnydd Oakwoods and Bat Sites SAC; important habitats include old sessile oakwoods and alluvial alder/ash woods.</p>	In Wider Works site between Tower 4ZC012-16
Cors Gyfelog NNR	<p>The NNR consists of a mosaic of wet poor fen, wet woodland and acid wet heath; it is an extensive area of wetland with relatively little damage through drainage. The NNR also qualifies for the slender green feather-moss associated with acidic flushes throughout, for the important assemblage of bryophytes including a nationally rare liverwort which is scattered through the wetland habitat.</p>	0.13 km south-west of Tower 4ZC081-83
Coed Camlyn NNR	<p>Atlantic rainforest on the steep-sided banks of the River Dwyryd.</p>	1.02 km north of Tower 4ZC014-16
Coed y Rhyan NNR	<p>Atlantic rainforest on the shores of Llyn Trawsfynydd.</p>	1.1 km south of Tower 4ZC012
Coed Tremadog NNR	<p>See Coed Tremadog SSSI.</p>	1.57 km east of Tower 4ZC005

<b>Designated site</b>	<b>Reason for designation</b>	<b>Location of designated site</b>
Dudley Quarry Local Nature Reserve (LNR)	The reserve was created on the site of a former granite quarry. A mixed woodland on the lower sheltered slopes of Moel Smytho.	1.32 km north-east of an access close to Tower 4ZC117

4.1.3 The desk study recorded 305 non-statutory designated sites in the 2 km Study Area. **Table 4-2** summarises those in or in 50 m of the Wider Works site, and the reason for their designation.

**Table 4-2: Non-statutory Designated Sites for Nature Conservation in 50 m of the Wider Works site**

<b>Description</b>	<b>Reason for designation</b>	<b>Location of designated Ssite</b>
Afon Dwyfach candidate Wildlife Site (cWS)	Marshy grassland and acid flush.	In Wider Works site between Tower 4ZC077-79
Afon Dwyfor cWS	Running water.	In Wider Works site between Tower 4ZC061-62
Afon Rhythallt cWS	Running water.	In Wider Works site between Tower 4ZC139-140
Afon Rhythallt Mosaic cWS	Broadleaved woodland, coniferous woodland and neutral grassland.	In Wider Works site between Tower 4ZC138-139
Afon Rhythallt (North Bank) cWS	Semi-improved neutral grassland and marshy grassland.	In Wider Works site between Tower 4ZC139-140
Below Bron Haul cWS	Marshy grassland.	In Wider Works site between Tower 4ZC089-90
Bont y Chrychddwr Wildlife Site (WS)	Semi-improved neutral grassland.	In Wider Works site between Tower 4ZC093-95
Braich Moel Smytho cWS	Dry heath and acid grassland mosaic.	In Wider Works site over access road for Tower 4ZC117
Braich-y-saint cWS	Acid grassland.	In Wider Works site between Tower 4ZC055-56
Brithdir-isaf cWS	Semi-improved neutral grassland and marshy grassland.	In Wider Works site between Tower 4ZC093-95
Bryncir cWS	Marshy grassland.	In Wider Works site between Tower 4ZC074-75
Bryn-ychain cWS	Acid grassland.	In Wider Works site between Tower 4ZC087-89

Description	Reason for designation	Location of designated Ssite
Cae Haidd cWS	Semi-improved neutral grassland, marshy grassland and acid grassland.	In Wider Works site between Tower 4ZC110 and 4ZC112
Carmel cWS	Semi-improved neutral grassland.	In Wider Works site at Tower 4ZC107
Clogwyn Melyn cWS	Acid grassland, dry heath and acid grassland mosaic and bracken.	In Wider Works site between Tower 4ZC100-101
Coed Bryn-twr/Wern cWS	Broadleaved woodland, acid grassland and standing water.	In Wider Works site at Tower 4ZC045
Coed yr Eglwys cWS	Broadleaved woodland and neutral grassland.	In Wider Works site at Tower 4ZC046
Derwin cWS	Marshy grassland and wet heath and acid grassland mosaic.	In Wider Works site between Tower 4ZC074-76
Derwyn-fawr cWS	Marshy grassland and acid grassland.	In Wider Works site between Tower 4ZC 078-81
Dolwar Heath cWS	Marshy grassland.	In Wider Works site between Tower 4ZC065-67
Dol-wenith cWS	Marshy grassland and neutral grassland.	In Wider Works site between Tower 4ZC095-96
East of Cors Gyfelog cWS	Wet heath and acid grassland mosaic.	In Wider Works site between Tower 4ZC083-84
Ffynnon Beuno cWS	Acid grassland, acid and neutral flush, marshy grassland and broadleaved woodland.	In Wider Works site between Tower 4ZC116-117
Gaerwen cWS	Coniferous woodland, wet heath and acid grassland mosaic.	In Wider Works site between Tower 4ZC115-116
Garnedd cWS	Marshy grassland and dry dwarf shrub heath.	In Wider Works site between Tower 4ZC116-117
Glan Cedron cWS	Acid, neutral and marshy grassland and coniferous woodland.	In Wider Works site over access road Tower 4ZC052-53

Description	Reason for designation	Location of designated Ssite
Glan dwr cWS	Dry heath and acid grassland mosaic and neutral grassland.	In Wider Works site between Tower 4ZC110-111
Glanrafon Bach cWS	Marshy grassland.	In Wider Works site between Tower 4ZC121-125
Glan-yr-afon cWS	Semi-improved neutral grassland.	In Wider Works site between Tower 4ZC120-122
Gwernddwyrdd WS	Acid grassland, broadleaved woodland and marshy grassland. Qualifying Habitat comprises lowland acid grassland and valley mire with bog and acid fen vegetation.	In Wider Works site between Tower 4ZC046-50
Hafod Las cWS	Dry dwarf shrub heath.	In Wider Works site between Tower 4ZC133-134
Hafod Owen cWS	Semi-improved neutral grassland.	In Wider Works site between Tower 4ZC132-133
Hafod-rhug isaf cWS	Broadleaved woodland, acid grassland, acid flush and marshy grassland.	In Wider Works site between Tower 4ZC126-129
Llecheiddior Ganol cWS	Marshy grassland, acid and neutral flush and acid grassland.	In Wider Works site between Tower 4ZC070-72
Llystyn Isaf cWS	Marshy grassland and wet heath and acid grassland mosaic.	In Wider Works site between Tower 4ZC069-72
Meirionnydd Oakwoods Important Plant Area (IPA)	Noted for lichens and bryophytes of the broadleaved deciduous woodland: oceanic woodland habitat. Oceanic woodland: Atlantic hazelwoods.	In Wider Works site between Tower 4ZC012-16
Moel Bron-y-rhiw (West) cWS	Semi-improved neutral grassland.	In Wider Works site between Tower 4ZC091-92
North of Caerau cWS	Acid grassland.	In Wider Works site between Tower 4ZC084-88
Parc y Gleision cWS	Bracken, dry dwarf shrub heath and acid grassland.	In Wider Works site between Tower 4ZC133-134

Description	Reason for designation	Location of designated Ssite
Tan y Coed Terrace cWS	Broadleaved woodland, semi-natural neutral grassland and marshy grassland.	In Wider Works site between Tower 4ZC133-135
Ty'n-pant-bach Quarry cWS	Semi-improved neutral grassland and bracken.	In Wider Works site between Tower 4ZC090-91
Ty'n-y-berllan cWS	Broadleaved woodland and neutral grassland.	In Wider Works site over access road between Tower 4ZC044-45
West bank of Afon Dwyfor cWS	Broadleaved woodland, marshy grassland and acid flush.	In Wider Works site between Tower 4ZC061-62
Ymwllch Fawr cWS	Broadleaved woodland.	In Wider Works site between Tower 4ZC056-58
Ynys-ddu cWS	Acid grassland.	In Wider Works site between Tower 4ZC058-60
Ystumcegid-isaf cWS	Marshy grassland, wet heath and acid grassland mosaic, broadleaved woodland and acid flush.	In Wider Works site between Tower 4ZC058-62

## Wildlife Trust Sites

4.1.4 Cofnod records no North Wales Wildlife Trust (NWWT) sites in the Study Area.

## Habitats

### Ancient Woodland

4.1.5 There are 19 sites of Ancient Woodland in the Study Area, 6 sites of Restored Ancient Woodland, 10 sites of Ancient Semi-Natural Woodland and 3 sites of Ancient Woodland of Unknown Category. These are shown on **Appendix A, Figure 6.5.A.4.**

4.1.6 Ancient Semi Natural Woodland is in the Wider Works site between Tower 4ZC012-13, 4ZC015-16, 4ZC047-48, 4ZC057-58 and 4ZC120-121.

4.1.7 Restored Ancient Woodland is in the Wider Works site between Tower 4ZC044-45 and 4ZC126-127.

4.1.8 Ancient Woodland of Unknown Category is in the Wider Works site between Tower 4ZC006-7.

## Ancient or Veteran Trees

4.1.9 A review of the Woodland Trust, Ancient Tree Inventory (Ref 3.4) identified an ancient ash (*Fraxinus excelsior*) tree and a veteran ash in the Study Area, approximately 0.04 km south-west of the working area at Tower 4ZC014.

4.1.10 The Arboricultural survey (**Volume 8, Appendix 4.6.J: High Level Arboricultural Impact Assessment**) identified a further nine individual trees in the Wider Works site with characteristics that qualify them as ancient or veteran.

## Important Ecological Features (Habitats)

4.1.11 Data supplied by Datemap Wales (Ref 3.3) identified the HoPI shown in **Table 4-3** in the Study Area. These are shown on **Appendix A, Figure 6.5.A.4**.

**Table 4.3 – Important Ecological Features (HoPI) in the Study Area**

<b>Habitat</b>	<b>Environment (Wales) Act 2016 Priority Habitat</b>	<b>Gwynedd BAP</b>	<b>Location of important ecological features</b>
Blanket bog	✓	✓	Between Tower 4ZC020-21.
Coastal floodplain and grazing marsh	✓		Between Tower 4ZC026-27, extending southwards approximately 3 km, and immediately adjacent to the east of the Wern Substation (Tower 4ZC044), extending approximately 3 km east.
			Bisecting Wider Works between Tower 4ZC096-99, adjacent to the River Llyfni.
Lowland dry acid grassland	✓	✓	Numerous areas of this habitat throughout Wider Works.
Lowland fens and reedbeds (lowland wetland)	✓	✓	Bisects or abuts access roads at Tower 4ZC007, 4ZC010 and 4ZC014. Between Tower 4ZC010-11, 4ZC016-19, 4ZC023-27, south of 4ZC062, 4ZC071-72, east of 4ZC122 and south-west of 4ZC127
Lowland heathland	✓	✓	Between Tower 4ZC016-26, 4ZC060-61, 4ZC070-71, 4ZC075-76, 4ZC080-81, 4ZC082-83 and north-east of 4ZC070.
Lowland meadow	✓	✓	Between Tower 4ZC071-72.

Habitat	Environment (Wales) Act 2016 Priority Habitat	Gwynedd BAP	Location of important ecological features
Open mosaic habitat of previously developed land	✓		0.04 km east of Tower 4ZC090-91.
Purple moor grass and rush pasture	✓	✓	Numerous areas of this habitat throughout Wider Works site.
Raised bog	✓	✓	Between Tower 4ZC020-21.
Traditional orchard	✓		Between Tower 4ZC098-101

4.1.12 Further HoPI present in the Wider Works site, but not currently identified by Datamap Wales (Ref 3.3) are:

- Hedgerows.
- Rivers.
- Standing water or ponds.
- Deciduous woodland.
- Wet woodland.

## Protected and Notable Plant Species

4.1.13 Records of protected and notable flowering plant, fern, lower plant and lichen species were requested from Cofnod as part of the desk study. Four records of bluebell (*Hyacinthoides non-scripta*) were confirmed in the Wider Works site in the last 10 years (since 2014), with a further three records within 50 m. Bluebell is listed on Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) (Ref 2.4) and on the Natur Gwynedd BAP (Ref 2.15).

4.1.14 Prostrate Signal-moss (*Sematophyllum demissum*) was recorded in the Wider Works site in 2020. Globeflower (*Trollius europaeus*) was recorded within 50 m of the Wider Works site in 2014. These species are listed in Section 7 of the Environment (Wales) Act 2016 (Ref 2.7).

4.1.15 Records of fungi were also requested from Cofnod. None listed in Section 7 of the Environment (Wales) Act 2016 (Ref 2.7) were recorded in 50 m of the Wider Works site in the last 10 years (since 2014), although 22 records of waxcap (*Hygrocybe* sp.) were recorded in the Wider Works site between Tower 4ZC013-15 and a further 161 within 50 m. A Species Action Plan for waxcaps is included in the Natur Gwynedd BAP (Ref 2.15).

## Invasive Non-Native Plant Species

4.1.16 The following INNPS which are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (Ref 2.4) and The Invasive Alien Species (Enforcement and Permitting) Order 2019 (Ref 2.9) were recorded in the Wider Works site and in the 50 m buffer identified by the Cofnod data search:

- Himalayan balsam (*Impatiens glandulifera*).

- Japanese knotweed (*Reynoutria japonica*).

4.1.17 The INNPS Sitka spruce (*Picea sitchensis*) and butterfly bush (*Buddleja davidii*) records were identified in the Wider Works site and in the 50 m buffer. Although not listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (Ref. 2.4)), these species are listed as invasive non-native species of interest to Wales (INNS Portal DataMap Wales – Ref. 4.1).

## 4.2 Field Surveys

### Habitat Overview in the Survey Area

4.2.1 The Wider Works site comprises a variety of woodland, grassland, heathland, and wetland habitats, many of which qualify as HoPIs. Areas of semi-natural broadleaved woodland, including ancient woodland, are present alongside smaller parcels of plantation, mixed woodland, and former sycamore planting. Scattered trees and scrub, enhance habitat connectivity across the landscape.

4.2.2 Grasslands range from acid grasslands to more widespread semi-improved and improved pasture and are interspersed by areas of heathland, marshy grassland, mire and lowland fen.

4.2.3 Field boundaries are formed by fences, hedgerows, dry stone walls and cloddiau (dry stone outers with compacted earth, or earth and rubble cores). A network of streams, ditches, and rivers traverses the Wider Works site. Descriptions of the habitats in the Wider Works site are shown in **Appendix C**. A plan of the Wider Works site showing the location and distribution of the habitats recorded during the Phase 1 habitat survey and further botanical survey are provided on **Figure 6.5.A.1 Phase 1 Habitat Survey Results in Appendix A**. Example photographs are shown in **Appendix B**.

### General Habitat Descriptions

4.2.4 To facilitate reporting, the Wider Works site has been divided into three sections:

- Trawsfynydd Substation – Glaslyn (between Towers 4ZC005 – 4ZC027).
- Glaslyn – Bryncir (between Towers 4ZC045 – 4ZC070).
- Bryncir – Pentir (between Towers 4ZC070 – 4ZC140).

### Trawsfynydd Substation – Glaslyn

#### Woodland and Scrub

##### *Broad-leaved Semi-natural Woodland*

4.2.5 Between Tower 4ZC007-4ZC009 there is an area of wet woodland dominated by willow (*Salix* sp.) with occasional birch (*Betula* sp.). The understorey is relatively bare, with bramble (*Rubus fruticosus* agg.) and ivy (*Hedera helix*) present. Targeted botanical surveys confirmed this woodland meets the Wet woodland HoPI criteria.

4.2.6 Targeted botanical surveys of oak dominated woodland between Tower 4ZC010-4ZC011 concluded this woodland meets the criteria for Upland oakwood HoPI.

4.2.7 Between Tower 4ZC012 - 4ZC016 blocks of woodland are in or are connected to the Coedydd Derw a Safleoedd Ystlumod Meirion/Meirionnydd Oakwoods and Bat Sites SAC, Ceunant Llennyrch NNR and Coedydd De Dyffryn Maentwrog SSSI. In one of

these blocks, the broadleaved semi-natural woodland is in a steep-sided valley, with the Afon Prysor flowing in valley bottom. The canopy is dominated by birch, oak (*Quercus* sp.) and rowan (*Sorbus aucuparia*), with occasional ash, hawthorn (*Crataegus monogyna*) and Douglas fir (*Pseudotsuga menzeisii*). Locally, bracken and a diverse range of ferns are widespread. The canopy is 75% closed, with occasional clearings where active regeneration is occurring. The woodland is undisturbed, only lightly grazed and the trees appear to be in good health. This woodland is recorded as Ancient Semi Natural Woodland.

4.2.8 A further narrow strip of broadleaved semi-natural woodland, approximately 5 m wide is growing beneath the overhead line. This woodland is oak dominated with occasional willow (ash, rowan and hawthorn. The canopy cover is 60% full. There is active regeneration in areas, although it is heavily grazed. There are some clearings, and the trees appear to be in good health. The woodland connects to the Coed y Derw a Safleoedd Ystlumod Meirion/Meirionnydd Oakwoods and Bat Sites SAC.

4.2.9 Between Tower 4ZC022 - 4ZC024 broadleaved semi-natural woodland extends along a reservoir outflow. The trees are semi-mature to mature, with younger trees also present. The canopy is dense and comprises silver birch (*Betula pendula*), downy birch (*Betula pubescens*), goat willow (*Salix caprea*), alder (*Alnus glutinosa*), hawthorn and blackthorn (*Prunus spinosa*). The ground flora is dominated by bracken. The woodland thins out to the west.

4.2.10 Woodland blocks between Tower 4ZC024 - 4ZC026 comprise young and self-seeded silver birch, rowan, willow and oak, forming a patchy canopy.

### ***Mixed Semi-Natural Woodland***

4.2.11 This section of the Wider Works site includes a block of mixed semi-natural woodland, which forms part of a larger area of semi-mature to mature mixed woodland surrounding the Trawsfynydd Substation. This woodland has a full canopy (70%) and is dominated by sycamore (*Acer pseudoplatanus*) with birch and occasional Scot's pine (*Pinus sylvestris*), Douglas fir, hawthorn and beech (*Fagus sylvatica*).

4.2.12 The understorey is dominated by bramble with bracken and occasional bilberry (*Vaccinium myrtillus*) and curled dock (*Rumex crispus*).

### ***Mixed Plantation Woodland***

4.2.13 There is one stand of mixed plantation woodland between Tower 4ZC016-4ZC018 on the southern edge of this section of the Wider Works site. The canopy is full (75%) and dominated by silver birch, oak and goat willow with occasional Douglas fir and Scot's pine. Grey willow (*Salix cinerea*), hawthorn and rowan are also present. There is active regeneration in some areas with self-set willow and birch present. The understorey comprises tufted hair-grass (*Deschampsia cespitosa*), perennial rye-grass (*Lolium perenne*), red fescue (*Festuca rubra*), male fern (*Dryopteris filix-mas*) and the occasional bryophyte (*Polytrichum commune*). The woodland extends northwards into heathland habitats.

### ***Dense or Continuous Scrub***

4.2.14 There are patches of dense or continuous scrub between Tower 4ZC018-4ZC019 on a rocky outcrop. Species comprise European gorse (*Ulex europaeus*), with scattered juniper (*Juniperus communis*), willow and bracken. Targeted botanical survey confirms this habitat contributes to the mosaic of Lowland heathland HoPI which extends up to Tower 4ZC021.

4.2.15 A further stand of dense or continuous scrub is between Tower 4ZC023-4ZC025. This is gorse dominated scrub of singular age on a steep rocky outcrop with scattered bracken in the understorey.

### **Scattered Scrub**

4.2.16 Scattered scrub is present throughout this section of the Wider Works site, typically in the grassland habitats, comprising scattered European gorse, willow, and birch with bracken.

### **Broadleaved Parkland or Scattered trees**

4.2.17 Scattered trees of varied age are throughout this section of the Wider Works site. Frequently recorded species include silver birch, downy birch, sycamore, ash, oaks including sessile oak (*Quercus petraea*), rowan, hawthorn, blackthorn and hazel (*Corylus avellana*).

### **Coniferous Plantation Woodland**

4.2.18 There are two areas of recently felled coniferous woodland in this section of the Wider Works site. Between Tower 4ZC009-4ZC010 scattered rowan, sycamore and hawthorn saplings are regenerating, with patches of scattered bramble scrub, and rush (*Juncus* spp.) making up the understorey.

4.2.19 The area between Tower 4ZC020-4ZC021 comprises recently felled stumps, with woody debris, including limbs and branches. The ground layer supports ruderal herbs and scattered scrub. The area is currently sheep grazed, and patches of bare ground cover less than 5% of the surface.

## **Grassland and Marsh**

### **Unimproved Acid Grassland**

4.2.20 There is one area of unimproved acid grassland at Tower 4ZC015. This area has been excluded from grazing. Fescue (*Festuca* sp.) and common bent (*Agrostis capillaris*) are the dominant grasses. Other species recorded include purple moor-grass (*Molinia caerulea*), heath bedstraw (*Galium saxatile*), sheep's sorrel (*Rumex acetosella*), bilberry, oval sedge (*Carex leporina*) and sweet vernal-grass (*Anthoxanthum odoratum*). Bracken is encroaching.

### **Semi-improved Acid Grassland**

4.2.21 There are several areas of semi-improved acid grassland in this section of the Wider Works site. These areas are heavily grazed and whilst they support typical acid indicators including fescue, tormentil (*Potentilla erecta*), sheep's sorrel, heath bedstraw, and field wood-rush (*Luzula campestris*), there are also species that indicate a level of nutrient enrichment such as perennial rye-grass, common mouse-ear (*Cerastium fontanum*) and white clover (*Trifolium repens*).

4.2.22 Waxcap fungi *Hygrocybe pratensis*, *Hygrocybe chlorophana* and *Hygrocybe ceracea* were recorded along with common puffball (*Lycoperdon perlatum*) and golden fairy club (*Clavulinopsis laeticolor*) in grassland between Tower 4ZC013 - 4ZC015.

4.2.23 Targeted botanical surveys have concluded that the semi-improved acid grassland qualifies as Lowland dry acid grassland HoPI between Towers 4ZC010-4ZC011 and Towers 4ZC016-4ZC017.

## **Improved Grassland**

4.2.24 There are several areas of improved grassland, all are heavily grazed and dominated by perennial rye-grass with white clover.

## **Marsh or Marshy Grassland**

4.2.25 This habitat is scattered throughout this section of the Wider Works site with those areas that are grazed, being floristically more diverse. Targeted botanical surveys concluded that these areas of marshy grassland meet the criteria for purple moor-grass and rush pasture HoPI.

4.2.26 These areas are typically dominated by purple moor-grass and rush species, including soft rush (*Juncus effusus*), compact rush (*Juncus conglomeratus*), jointed rush (*Juncus articulatus*) and sharp-flowered rush (*Juncus acutiflorus*). Other species recorded include occasional bog myrtle (*Myrica gale*), cross-leaved heath (*Erica tetralix*), marsh thistle (*Cirsium palustre*), *Sphagnum* spp., creeping bent (*Agrostis stolonifera*), Yorkshire fog (*Holcus lanatus*), common bent, tormentil and marsh bedstraw (*Galium palustre*). Scattered bracken is also present throughout.

## **Poor Semi-improved Grassland**

4.2.27 Poor-semi-improved grassland is present between Tower 4ZC019 - 4ZC021. This comprises two sheep grazed fields dominated by perennial rye-grass and red fescue, with occasional sweet vernal-grass. Scattered bracken and occasional tormentil indicate an acidic influence.

## **Tall Herb and Fern**

### **Continuous Bracken**

4.2.28 Patches of continuous bracken, of varying size, are present in this section of the Wider Works site. These occur along woodland edges, on rocky outcrops and around the edge of a reservoir. In some areas, gorse and scattered trees are interspersed amongst the bracken stands.

## **Heathland**

### **Wet Dwarf Shrub Heath**

4.2.29 Between Tower 4ZC016 - 4ZC019, wet dwarf shrub heath becomes prevalent, dominated by cross-leaved heath, purple moor-grass and bog myrtle. Small areas of wetter mire vegetation are also present, including species such as bog asphodel (*Narthecium ossifragum*). In the drier areas, purple moor-grass is more dominant and bog myrtle is more common. Scattered patches of willow and birch scrub are also found throughout the area.

4.2.30 Heather is more frequent on raised ground, while grasses are more dominant in the lower-lying areas. Targeted botanical surveys confirm this habitat represents the Lowland heathland HoPI, although the area between Tower 4ZC018-4ZC019 forms part of a mosaic of Lowland fen, Lowland heathland and purple moor-grass and rush pasture HoPI.

### **Dry Heath and Acid Grassland Mosaic**

4.2.31 Between Tower 4ZC016 - 4ZC019 there are also areas of dry heath and acid grassland mosaic. Shorter, fescues and bent-grass dominated swards are present beneath the pylons; taller stands of bracken and purple moor-grass are more frequent uphill of the pylons. Surrounding the pylons there is a mosaic of gorse,

heather, grass species, bilberry, bracken and bare rock. As the topography rises the habitat becomes drier, and supports increased cover of heather (*Calluna vulgaris*), purple moor-grass and fescue. Targeted botanical surveys confirm these areas qualify as Lowland heathland HoPI.

4.2.32 There is a single semi-mature stand of Pontic rhododendron on northern edge of the Wider Works site.

## Fen

### Valley Mire

4.2.33 Between Tower 4ZC017 - 4ZC019, the wet heath (as previously described) becomes wetter as it extends eastwards, exhibiting characteristics of a valley mire habitat. These areas are fed by small streams forming open water pockets amongst wavy hair-grass (*Deschampsia flexuosa*) and purple moor-grass, mixed with cross-leaved heath and interspersed with *sphagnum* mounds. These areas are waterlogged, with some areas of floating vegetation, pools and ditches containing wetland plants including marsh cinquefoil (*Comarum palustre*), marsh St. John's-wort (*Hypericum elodes*), bog bean (*Menyanthes trifoliata*), marsh bedstraw and marsh pennywort (*Hydrocotyle vulgaris*). Targeted botanical surveys confirm the habitat is representative of Lowland fen HoPI.

## Open Water

### Standing Water

4.2.34 Between Tower 4ZC021 - 4ZC022 there is a large reservoir with steep earth and stone banks. The reservoir is deep, lacking both emergent and submerged vegetation.

### Running Water

4.2.35 Throughout this section of the Wider Works site is a network of streams and ditches with rocky substrates. The streams vary from shallow and slow flowing to fast flowing channels, and open or shaded by woodland. Similarly, the ditches vary with some holding slow-moving water and others with a barely perceptible flow.

4.2.36 The Afon Prysor runs between Tower 4ZC012 - 4ZC013. This is a fast-flowing river with a stony substrate.

4.2.37 To the west of Tower 4ZC022 is a fast-flowing reservoir outfall which runs to the end of this section of the Wider Works site, up to Tower 4ZC027. This watercourse is of variable depth and has small waterfalls, pools and varied widths of channel. At the time of the field survey, turbidity was low. The watercourse has a rocky substrate, and no emergent or submerged vegetation was recorded.

## Boundaries

### Wall

4.2.38 Throughout this section of the Wider Works site, fields are bisected by numerous drystone walls.

### Dry Ditch

4.2.39 Between Tower 4ZC013 - 4ZC014, there is a dry ditch dominated by soft rush, along the field boundary. This ditch likely holds water through the winter months. Tree planting has been undertaken on the banks.

# Glaslyn – Bryncir

## Woodland and Scrub

### ***Broad-leaved Semi-natural Woodland***

4.2.40 There are several blocks of broadleaved semi-natural woodland in this section of the Wider Works site varying in size, age and species composition.

4.2.41 There are three main areas of mature semi-natural broadleaved woodland between Tower 4ZC045 and 4ZC057. Canopy composition includes oak, ash, sycamore, field maple (*Acer campestre*), willow species and occasional holly (*Ilex aquifolium*) but the ground flora is poor. Woodland between Tower 4ZC046 -4ZC048 is subject to low intensity cattle and sheep grazing. Targeted botanical surveys confirm these areas qualify as Wood pasture HoPI. Pontic rhododendron is present in all three areas.

4.2.42 Between Tower 4ZC058 - 4ZC062 the woodland canopy composition changes, becoming dominated by species of willow and alder with a ground flora of soft rush and meadowsweet (*Filipendula ulmaria*).

4.2.43 There is also a secondary wet woodland south of Tower 4ZC070 colonising the drier parts of the marshy grassland. The canopy consists of hazel, eared willow (*Salix aurita*), hawthorn, grey willow, blackthorn, with an understory of bramble and European gorse. Targeted botanical survey confirms this woodland qualifies as Wet woodland HoPI.

### ***Broadleaved Plantation Woodland***

4.2.44 Between Tower 4ZC061 - 4ZC062 there is a small area of enclosed mature sycamore trees. These trees were originally planted but are currently unmanaged.

### ***Mixed Plantation Woodland***

4.2.45 Between Tower 4ZC063 - 4ZC064 there is a small area of planted non-native conifers, now mature. There is some natural regeneration of broadleaved trees beneath (willow) and bramble scrub.

### ***Dense or Continuous Scrub***

4.2.46 Two areas of dense or continuous scrub are in this section of the Wider works site, one between Tower 4ZC048 - 4ZC049, and a second just south of Tower 4ZC070.

4.2.47 The first comprises dense gorse and bramble on a rocky outcrop in an area of marshy grassland. The area south of Tower 4ZC070 is also dominated by gorse and bramble.

### ***Broadleaved Parkland or Scattered Trees***

4.2.48 Broadleaved parkland or scattered trees are found throughout this section of the Wider Works site, primarily associated with linear features such as field boundaries, ditches and watercourses.

4.2.49 The trees range in age from juvenile to very mature, with several trees showing veteran features such as extensive hollowing, decay and deadwood habitat. Species recorded include hawthorn, rowan, ash, willow, grey willow, oak, silver birch, sycamore, sessile oak, pedunculate oak (*Quercus robur*) and holly.

## Grassland and Marsh

### ***Semi-improved Acid Grassland***

4.2.50 There are three areas of semi-improved acid grassland in this section of the Wider Works site.

4.2.51 The first is between Tower 4ZC045 - 4ZC046, is occasionally grazed and has a varied sward with locally frequent bracken. Perennial rye-grass and red fescue are frequent with occasional white clover and creeping buttercup (*Ranunculus repens*). Acid indicators include occasional tormentil sheep's sorrel and field wood-rush. In the damper areas, lesser spearwort (*Ranunculus flammula*) and marsh thistle are present.

4.2.52 The second area is between Tower 4ZC046 - 4ZC048 and is partially grazed with scattered gorse scrub and bracken. The sward is varied with an average of six species per metre squared ( $m^2$ ). There is a clear acidic influence, but the presence of nutrient tolerant species reduces the quality of the grassland. Species recorded include common bent-grass, Yorkshire fog, sweet vernal-grass, tormentil, greater bird's-foot-trefoil (*Lotus pedunculatus*), common sorrel (*Rumex acetosa*), perennial rye-grass and fescue species with occasional meadow buttercup (*Ranunculus acris*), cock's-foot (*Dactylis glomerata*), heath bedstraw, creeping soft-grass (*Holcus mollis*) and red clover (*Trifolium pratense*).

4.2.53 The third area, between Tower 4ZC055 - 4ZC057, consists of grazed grassland showing a clear acidic influence, with species such as heath bedstraw, sheep's sorrel and tormentil. Signs of nutrient enrichment are present, indicated by the presence of perennial rye-grass and Yorkshire fog. The targeted botanical survey between Towers 4ZC055-4ZC056 concluded that this area qualifies as Lowland dry acid grassland HoPI. The targeted surveys also concluded that the semi-improved acid grassland between Towers 4ZC046-4ZC048 lack the free draining soils required to qualify for the HoPI but instead they contribute to the mosaic of Wood pasture HoPI.

### ***Improved Grassland***

4.2.54 Improved grassland is found throughout this section of the Wider Works site. These grasslands are heavily grazed resulting in a species-poor homogeneous sward dominated by perennial rye-grass. Other grass species present include annual meadow grass (*Poa annua*), Yorkshire fog, sweet vernal-grass and crested dog's-tail (*Cynosurus cristatus*). Forbs are limited to occasional creeping buttercup, white clover, dandelion (*Taraxacum officinale* agg.) and spear thistle (*Cirsium vulgare*).

### ***Marsh or Marshy Grassland***

4.2.55 Parcels of marsh or marshy grassland are present throughout this section of the Wider Works site. These are generally grazed and dominated by purple moor-grass, soft rush and sharp-flowered rush.

4.2.56 Other species recorded in these parcels include tormentil, greater bird's-foot-trefoil, marsh bedstraw, marsh violet (*Viola palustre*), marsh willowherb (*Epilobium palustre*), lady fern (*Athyrium felix-femina*), lemon-scented fern (*Oreopteris limbosperma*), lesser skullcap (*Scutellaria minor*) and heath spotted-orchid (*Dactylorhiza maculata*).

4.2.57 A parcel of marshy grassland between Tower 4ZC062 and 4ZC063 is grazed by cattle. The sward is generally rank in structure, but there are some open areas due to cattle grazing (including some heavily poached areas). The water table is close to the surface despite a slope and the area supports marsh bedstraw and cuckooflower (*Cardamine pratensis*) with occasional forget-me-not (*Myosotis* sp.), marsh thistle, marsh willowherb, lesser spearwort, marsh pennywort and meadow buttercup and

rare heath spotted-orchid. There is also some scattered bracken and hawthorn and gorse scrub.

4.2.58 A further stand lies between Tower 4ZC065 and ZC066. This area is dominated by purple moor-grass with sweet vernal-grass, Yorkshire fog, soft rush, sharp-flowered rush and red fescue with occasional wild angelica (*Angelica sylvestris*), greater bird's-foot-trefoil and marsh thistle. There is a small area closer to Tower 4ZC065 that is more species-poor, dominated by soft rush and Yorkshire fog. The area to the north towards Tower 4ZC066 is more diverse with the mosses *Sphagnum fallax*, *Sphagnum rubellum* *Pleurozium schreiberi* and *Hylocomium splendens* with hare's-tail cottongrass (*Eriophorum vaginatum*), cross-leaved heath, cranberry (*Vaccinium oxycoccus*), heather (*Calluna vulgaris*), purple moor-grass, devil's-bit scabious (*Succisa pratensis*), and heath wood-rush (*Luzula multiflora*). The far northern end of this habitat (beneath Tower 4ZC066) is degraded, with bare peat exposed and eroding.

4.2.59 Targeted botanical surveys have identified the areas of marshy grassland between Towers 4ZC055 - 4ZC056 and Towers 4ZC070 – 4ZC072 as qualifying as purple moor-grass rush pasture HoPI.

### **Tall Herb and Fern**

#### **Continuous Bracken**

4.2.60 Patches of continuous bracken, of varying size, are in this section of the Wider Works site. Dense, homogenous stands have been recorded in woodland clearings and along a roadside.

### **Flush and Spring**

#### **Acid or Neutral Flush**

4.2.61 Between Tower 4ZC060-4ZC061 there is a botanically diverse acid flush with soft rush and sharp-flowered rush sharing dominance. Mosses (*Sphagnum fallax*) and (*Polytrichum commune*) dominate the ground layer. Diverse forbs are present including marsh bedstraw, creeping forget-me-not (*Myosotis secunda*), lesser spearwort, marsh violet, white sedge (*Carex canescens*), marsh St. John's-wort, marsh willowherb, cuckooflower and marsh cinquefoil.

### **Fen**

#### **Basin Mire**

4.2.62 Between Tower 4ZC069 and 4ZC70, is an area of fen dominated by purple moor-grass with sharp-flowered rush and *Sphagnum subnitens* and *Sphagnum fallax*. Other species recorded include devil's-bit scabious, tormentil, marsh violet, greater bird's-foot-trefoil, flea sedge (*Carex pulicaris*), lousewort (*Pedicularis sylvestris*), meadowsweet, skullcap (*Scutellaria* sp.), marsh willowherb, common valerian, marsh thistle and marsh bedstraw. The area extends into the Tower 4ZC070 working area.

#### **Flood-plain Mire**

4.2.63 This is a botanically diverse habitat adjacent to the Afon Dwyfor between Tower 4ZC061 - 4ZC062. The area is dominated by sharp-flowered rush with abundant purple moor-grass with *Sphagnum fallax* and *Sphagnum palustre*. A wide variety of forbs were recorded including ragged-robin (*Silene flos-cuculi*), bog bean, common valerian (*Valeriana officinalis*), devil's-bit scabious, heath spotted-orchid, tormentil, marsh cinquefoil, greater bird's-foot trefoil, marsh willowherb and marsh violet.

Sedges recorded comprised white sedge, greater tussock-sedge (*Carex paniculata*) and bottle sedge (*Carex rostrata*).

### **Open Water**

#### **Running Water**

4.2.64 Throughout this section of the Wider Works site is a network of streams and ditches with rocky substrates. The streams range from shallow and slow flowing to fast flowing; with some open and others shaded by woodland. Similarly, the ditches vary with some holding slow-moving water and others with a barely perceptible flow.

4.2.65 There are two rivers flowing through this section of the Wider Works site: the Afon Dwyfor and the Afon Dwyfach.

4.2.66 The Afon Dwyfor flows between Tower 4ZC061 - 4ZC062. It is a fast-flowing river approximately 14 m wide, with 1.2 m high rocky and earth banks with a boulder and rock substrate. The water was clear and approximately 60 centimetres (cm) deep at the time of survey. Aquatic macrophytes were largely absent, although hemlock water-dropwort (*Oenanthe crocata*) was recorded on some of the rocky outcrops and along the bank in addition to reed sweet-grass (*Glyceria maxima*).

4.2.67 The Afon Dwyfach flows just south of Tower 4ZC070. The river is fast-flowing, approximately 12 m wide with a boulder and cobble substrate and was approximately 40 cm deep at the time of survey. Wet woodland is present on parts of both banks. Japanese knotweed is present on the western bank. There is also a well vegetated ditch between the area of fen and marshy grassland with marsh St John's-wort, *Sphagnum fallax*, lesser spearwort, water horsetail (*Equisetum fluviatile*) and water mint (*Mentha aquatica*).

### **Boundaries**

#### **Defunct Hedge – Species-Poor**

4.2.68 Four species-poor defunct hedges were recorded in this section of the Wider Works site. A defunct hedge between Tower 4ZC058 - 4ZC059 runs along a field margin and comprises hawthorn, gorse and blackthorn. A second, between Tower 4ZC063 - 4ZC064, is a gappy gorse and hawthorn hedge on top of earth banks adjacent to a former access track. There is also an unmanaged, mature hawthorn hedge in this location. Finally, there is a fourth defunct hawthorn hedge between Tower 4ZC068 - 4ZC069.

#### **Hedge With Trees – Native Species-Rich**

4.2.69 Associated with field boundaries, often adjacent to a wall, native species-rich hedgerows with trees are all unmanaged. These hedgerows are primarily dominate by hawthorn and blackthorn; other species recorded include goat willow, field maple, gorse and guelder rose (*Viburnum opulus*), pedunculate oak, ash and rowan.

#### **Hedge With Trees – Species-Poor**

4.2.70 Two species-poor hedgerows with trees are in this section of the Wider Works site, one of which is dominated by hawthorn with frequent ash trees.

#### **Intact Hedge – Species-poor**

4.2.71 Two intact species-poor hedgerows have been recorded in this section of the Wider Works site. Between Tower 4ZC054 and 4ZC055 there is a species-poor hedge

bisecting the fields dominated by hawthorn with occasional blackthorn and field maple. The second is an intact hawthorn hedge between Tower 4ZC068 - 4ZC069.

### **Wall**

4.2.72 Throughout this section of the Wider Works site, numerous drystone walls bisect the fields.

### **Earth Bank**

4.2.73 From Tower 4ZC061 onwards, cloddiau boundaries are frequent, often associated with woodland ground-flora indicators.

## **Bryncir – Pentir**

### **Woodland and Scrub**

#### ***Broad-leaved Semi-Natural Woodland***

4.2.74 There are several blocks of broadleaved semi-natural broadleaved woodland in this section of the Wider Works site which vary in size, age and species composition.

4.2.75 Wet woodland is present typically dominated by willow species including eared willow and grey willow with other species such as hazel, hawthorn and blackthorn. Enhanced botanical survey close to Tower 4ZC070 confirms woodland here qualifies as Wet woodland HoPI.

4.2.76 Between Tower 4ZC116 - 4ZC117 there is a semi-natural woodland on steep sided gulley, either side of a fast to moderate flowing stream. The canopy is dominated by oak species and ash. The sub-canopy comprises goat willow, hazel, rowan and hawthorn. The ground includes primrose (*Primula vulgaris*), greater stitchwort (*Rabelera holostea*), opposite-leaved golden-saxifrage (*Chrysosplenium oppositifolium*) and yellow pimpernel (*Lysimachia nemorum*).

4.2.77 Between Tower 4ZC120 -4ZC121 there is a mature semi-natural woodland, with mixed deciduous species, in a steep-sided valley with the Afon Gwrfai at the base. This woodland has a diverse structure with the canopy dominated by oak species, ash and alder. The understorey comprises hazel, goat willow, holly, rowan, gorse and bramble. There is a diverse ground flora with greater woodrush (*Luzula sylvatica*), wild garlic (*Allium ursinum*), wood sorrel (*Oxalis acetosella*), opposite-leaved golden-saxifrage, dog's mercury (*Mercurialis perennis*), enchanter's nightshade (*Circaea lutetiana*), remote sedge (*Carex remota*), yellow pimpernel and common cow-wheat (*Melampyrum pratense*). Himalayan balsam is present throughout. Datamap Wales (Ref 3.3) identifies this area as Ancient semi-natural woodland.

#### ***Dense or Continuous Scrub***

4.2.78 There are several areas of dense scrub throughout this section of the Wider Works site, primarily associated with field boundaries, watercourses or adjacent to roads and tracks. The species composition of the stands vary, but frequently comprise gorse, bramble, hawthorn, blackthorn and willow species.

#### ***Scattered Scrub***

4.2.79 Several areas of scattered scrub are in this part of the Wider Works site. The form and composition vary, but these include scattered hawthorn and gorse scrub at field boundaries and scattered gorse and willow species scrub in marshy grassland. Hawthorn and gorse scrub is recorded in neutral and acid grassland, scattered gorse

and bramble scrub in bracken dominated areas and scattered hawthorn and bramble scrub along field boundaries.

### ***Broadleaved Parkland or Scattered Trees***

4.2.80 Broadleaved parkland or scattered trees are found throughout this section of the Wider Works site, primarily associated with linear features such as field boundaries, roads, ditches and watercourses.

4.2.81 The trees range in age from juvenile to very mature. Species recorded include hazel, alder, hawthorn, rowan, ash, grey willow, goat willow, oak, birch, sycamore, pedunculate oak and holly.

### ***Coniferous Parkland or Scattered Trees***

4.2.82 There is a line of mature cypress (*Cypressus sp.*) trees between two parcels of semi-improved grassland, just north of Tower ZC135.

## **Grassland and Marsh**

### ***Semi-improved Acid Grassland***

4.2.83 There are several areas of semi-improved acid grassland in this section of the Wider Works site.

4.2.84 These grasslands are grazed and support acid indicators such as heath bedstraw, tormentil, sheep's fescue, mat-grass (*Nardus stricta*), heath woodrush, sheep's sorrel, purple moor grass and wavy hair grass.

### ***Unimproved Neutral Grassland***

4.2.85 There is one area of unimproved neutral grassland in the Wider Works site between Tower 4ZC119 -4ZC120. This is a species-rich meadow with diverse grasses and a high incidence of forb species. Species recorded include yellow rattle (*Rhinanthus minor*), Yorkshire fog, sweet vernal-grass, sheep's fescue (*Festuca ovina*), common cats-ear (*Hypochaeris radicata*), crested dog's-tail, lesser trefoil (*Trifolium dubium*), red clover, betony (*Stachys officinalis*), eyebright (*Euphrasia sp.*), bluebell, meadow buttercup, common knapweed (*Centaurea nigra*) and lesser stitchwort (*Stellaria graminea*).

### ***Semi-improved Neutral Grassland***

4.2.86 Semi-improved neutral grassland is in the Wider Works site from Tower 4ZC093 northwards.

4.2.87 Most of the grasslands are grazed and typically support a range of grass species but with limited forbs. Species recorded include common bent, crested dog's-tail, cock's-foot, sweet vernal-grass, Yorkshire fog, perennial rye-grass, white clover and creeping buttercup.

4.2.88 Other areas have been left unmanaged and have become slightly more diverse with more forb species including common knapweed, eyebright, red clover, selfheal (*Prunella vulgaris*), common cat's-ear and common spotted orchid (*Dactylorhiza fuchsiae*).

### ***Poor Semi-improved Grassland***

4.2.89 Surveys recorded areas of grazed poor semi-improved grassland in this section of the Wider Works site. These fields are dominated by grasses, such as perennial rye-grass and Yorkshire fog, with limited forb cover. Creeping thistle (*Cirsium arvense*), scattered rushes, dock (*Rumex sp.*) and common nettle are also present.

## **Improved Grassland**

4.2.90 Improved grassland is found throughout this section of the Wider Works site. These grasslands are heavily grazed, resulting in a species-poor homogeneous sward.

## **Marsh or Marshy Grassland**

4.2.91 Parcels of marsh or marshy grassland are present; generally grazed and dominated by purple moor-grass, soft rush and sharp-flowered rush.

4.2.92 Other species recorded in these parcels include tormentil, greater bird's-foot-trefoil, marsh bedstraw, cuckooflower, marsh thistle and marsh pennywort.

4.2.93 An area between Tower 4ZC121 - 4ZC122 is grazed by horses in the southern section, but left ungrazed and more botanically diverse, in the north. Species present include soft rush, jointed rush, sharp-flowered rush, common bent, purple moor-grass, Yorkshire fog, greater bird's-foot-trefoil, marsh cinquefoil and field wood-rush, common cottongrass (*Eriophorum angustifolium*), bog bean, ragged-robin, heath spotted-orchid and marsh bedstraw.

## **Tall Herb and Fern**

### **Continuous Bracken**

4.2.94 Patches of continuous bracken have been recorded along field boundaries, roads and on banks growing with scattered scrub. The stands between Tower 4ZC092 - 4ZC093 between 4ZC139 - 4ZC140, adjacent to the Afon Seiont, also contains Himalayan balsam.

### **Scattered Bracken**

4.2.95 Scattered bracken is present in two locations is scattered throughout the grassland habitat.

## **Other Tall Herb and Fern**

### **Tall Ruderal**

4.2.96 Patches of typical ruderal species have been recorded including rosebay willowherb (*Chamaenerion angustifolium*), common nettle and creeping thistle.

## **Heathland**

### **Wet Heath and Acid Grassland Mosaic**

4.2.97 There is one area of wet heath and acid grassland mosaic between Tower 4ZC109 - 4ZC110. Species present include cross-leaved heath, heather, purple moor-grass, spiked sedge (*Carex spicata*), Yorkshire fog, hard rush (*Juncus inflexus*), soft rush, sweet vernal-grass, tormentil, wavy hair-grass, common bent, heath wood-rush and meadow buttercup.

## **Flush and Spring**

### **Acid or Neutral Flush**

4.2.98 There is an acid flush present in an area of marshy grassland between Tower 4ZC081 - 4ZC082. The flush is dominated by soft rush with *Polytrichum commune*, star sedge (*Carex echinata*), common sedge (*Carex nigra*), velvet bent (*Agrostis canina*), sweet vernal-grass, tormentil, *Sphagnum auriculatum*, *Sphagnum palustre*, *Sphagnum subnitens*, bog pimpernel (*Lysimachia tenella*) and marsh violet. Similar

flushes are present between Tower 4ZC082 -4ZC084, Tower 4ZC086 - 4ZC087 and Tower 4ZC089 -4ZC090.

4.2.99 There is a neutral flush in an area of improved grassland between Tower 4ZC084 - 4ZC085. This is dominated by small sedges including carnation sedge (*Carex panicea*), common yellow sedge (*Carex demissa*) and flea sedge with *Sphagnum auriculatum*, heath-grass (*Danthonia decumbens*), heath rush (*Juncus squarrosum*), tormentil, mat-grass, marsh thistle, and sneezewort (*Achillea ptarmica*). Similar neutral flushes are present between Tower 4ZC085 - 4ZC086.

## Fen

4.2.100 In the marshy grassland between Tower 4ZC072 and 4ZC073 there is a wetter area supporting fen species including *Sphagnum subnitens*, carnation sedge, bog pimpernel and star sedge. The area is heavily grazed by cattle.

4.2.101 There is an area of acid fen just south of Tower 4ZC075. *Sphagnum* species including *Sphagnum subnitens*, *Sphagnum auriculatum*, *Sphagnum falax*, *Sphagnum Papillosum* and *Sphagnum inundadtum* are present. Other species include carnation sedge, purple moor-grass, tormentil, lousewort, bog asphodel (*Narthecium ossifragum*), sharp-flowered rush, greater bird's-foot trefoil, star sedge, marsh violet, devil's-bit scabious, common cottongrass, bulbous rush (*Juncus bulbosus*), common yellow sedge, Yorkshire fog, heath wood-rush, heath spotted-orchid, heather, lesser spearwort, marsh pennywort and bog pimpernel.

4.2.102 There is a small area of fen to the south of Tower 4ZC140 adjacent to Afon Seiont. Species recorded include meadowsweet, reed canary-grass (*Phalaris arundinacea*), great willowherb (*Epilobium hirtosutum*), Yorkshire fog and hemlock water-dropwort with occasional soft rush and rare common valerian. Scattered gorse and willow scrub is present (approximately 5% cover) and Himalayan balsam.

## Basin Mire

4.2.103 Between Tower 4ZC079 and 4ZC080, is a wetter area in the marshy grassland featuring more diverse fen vegetation including *Sphagnum* species, ragged-robin, white sedge, common valerian and greater tussock-sedge.

## Open Water

### Running Water

4.2.104 Throughout this section of the Wider Works site is a network of streams and ditches with a variety of substrates. The streams range from shallow and slow flowing to fast flowing and may be open or shaded by woodland. Similarly, the ditches vary with some holding slow-moving water and others with a barely perceptible flow.

4.2.105 Six rivers flowthrough this section of the Wider Works site.

4.2.106 The Afon Dwyfach meanders between Tower4ZC070 - 4ZC080. A tributary of the Afon Dwyfach is present adjacent to Tower 4ZC081 and is shaded by mature trees.

4.2.107 The Afon Crychddwr runs adjacent to Tower 4ZC093. This is a fast-flowing river with a rocky substrate. The banks are lined with mature trees and Japanese knotweed and Himalayan balsam are present.

4.2.108 The Afon Llyfni flows between Tower 4ZC098 - 4ZC099.

- 4.2.109 The Afon Llifon flows from east to west, just south of Tower 4ZC109. The river has a stone and sandy substrate and is of moderate flow. There are undercut earth banks, with heavy poaching in parts. Himalayan balsam is present on the banks.
- 4.2.110 The Afon Gwrfai flows between Tower 4ZC120 -d 4ZC121. This is a fast-flowing river approximately 15 m wide with a pebble-boulder substrate. The river was approximately 50 cm deep at the time of survey. The river banks are heavily wooded with greater woodrush and Himalayan balsam present.
- 4.2.111 The Afon Seiont flows between Tower 4ZC139 - 4ZC140. The river is approximately 15 m wide, with submerged floating vegetation in the channel and marginal vegetation on the banks (including Himalayan balsam).

## **Cultivated or Disturbed Land**

### **Arable**

- 4.2.112 Tower 4ZC131 is in an arable (wheat) crop field with minimal field margins. No survey data is available as access was not permitted at the time of survey. Several fields in this section of the Wider Works site have also been set aside for silage production.

### **Amenity Grassland**

- 4.2.113 Between Tower 4ZC081 - 4ZC082 and Tower 4ZC111 - 4ZC 112 there are gardens associated with the adjacent residential properties.
- 4.2.114 Residential gardens are also present between Tower 4ZC133 – 4ZC134 and Tower 4ZC135 – 4ZC136. These areas were not surveyed due to the lack of land access.

### **Boundaries**

#### **Defunct Hedge – Species-poor**

- 4.2.115 Species-poor defunct hedges were recorded along field boundaries. All are unmanaged and comprise hawthorn and blackthorn. Sycamore is present with occasional alder, goat willow and ash in the hedge between Tower 4ZC114 - 4ZC115, and gorse is present in the hedge between Tower 4ZC122 -4ZC124.

#### **Hedge With Trees – Native Species-Rich**

- 4.2.116 Two native species-rich hedges with trees are present in this section of the Wider Works site. One is running adjacent to a road, just to the north of Tower 4ZC096. This is a mature hedge with trees; species comprise sessile oak, sycamore, blackthorn, hawthorn, hazel, apple (*Malus* sp.), dog rose (*Rosa canina*), honeysuckle (*Lonicera periclymenum*) and holly. Common nettle, cleavers (*Galium aparine*) and bracken are abundant at the base with some red campion (*Silene dioica*) also present.
- 4.2.117 The second runs beneath Tower 4ZC139. This is a shrubby hedge with hazel, gorse, hawthorn, blackthorn and mature pedunculate oak.

#### **Hedge With Trees – Species-Poor**

- 4.2.118 Species-poor hawthorn hedges are present, intersperse with semi-mature and mature trees. Accompanying tree species include ash, silver birch, oak, rowan, cherry, holly and sycamore. A mature privet (*Ligustrum* species) hedge is also present with a mature ash alongside a mature gorse and bramble hedge. These features occur between an area of marshy grassland and a road, adjacent to a ditch lined with regular immature pedunculate oak trees.

## **Intact Hedge – Native Species-rich**

4.2.119 A single intact native species-rich hedge is in this section of the Wider Works site. This is a tall hedge to the east of Tower 4ZC140. The hedge comprises field rose (*Rosa arvensis*), dog rose, hawthorn, goat willow and ash.

## **Intact Hedge – Species-poor**

4.2.120 Species-poor hedges in this section of the Wider Works site are primarily hawthorn although several are interspersed with other species including goat willow, gorse and bramble.

## **Wall**

4.2.121 Throughout this section of the Wider Works site, numerous drystone walls bisect and divide the fields.

## **Dry Ditch**

4.2.122 There is a dry ditch in a semi-improved field adjacent to Tower 4ZC118, that likely contains flowing water during wet periods.

4.2.123 There is also a 0.5 x 0.3 m dry ditch between Tower 4ZC122 - 4ZC121. This ditch is heavily vegetated with perennial rye-grass, Yorkshire fog and meadow buttercup.

4.2.124 A third dry ditch is present between Tower 4ZC122 - 4ZC124. The ditch runs along a field boundary and was dry at the time of survey but likely holds water in wetter seasons, as indicated by presence of ephemeral wetland species including floating sweet-grass (*Glyceria fluitans*) soft rush and marsh bedstraw.

## **Earth Bank**

4.2.125 In this section of the Wider Works site, cloddiau are again a feature, often associated with woodland ground-flora indicators such as wood sage (*Teucrium scorodonia*) and bluebell.

4.2.126 These cloddiau are present primarily between Tower 4ZC085 - 4ZC089, Tower 4ZC094, and Tower 4ZC177 - 4ZC122.

## **Miscellaneous**

### **Buildings**

4.2.127 Residential and agricultural buildings are close to Tower 4ZC135 and 4ZC134.

### **Bare Ground**

4.2.128 Between Tower 4ZC095 - 4ZC096 there is an access track comprising a mixture of exposed soil and rock.

## **Invasive Non-native Plant Species**

4.2.129 INNPs are found throughout the Wider Works site. Himalayan balsam has been recorded along watercourses, in marshy grassland and in woodland understorey. Japanese knotweed was identified near watercourses and along boundary features, while Monbretia (*Crocosmia x crocosmiiflora*) was recorded close to Tower 4ZC133, having escaped from a nearby garden. Pontic rhododendron was recorded frequently within the Wider Works site, typically within the woodland understorey.

4.2.130 Additionally, Cherry laurel (*Prunus laurocerasus*) was recorded between Tower 4ZC056-57 and butterfly bush was recorded between Tower 4ZC091-92. Although

not listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (Ref 2.4)), these species are listed as invasive non-native species of interest to Wales (INNS Portal DataMap Wales - Ref 4.1).

4.2.131 All recorded occurrences of INNPs in the Wider Works site during the field surveys are shown on **Figure 6.5.A.5.** in **Appendix A.**

## Botanical Survey Results

4.2.132 Where habitats had been identified through desk study as potentially notable, species-rich or likely to qualify as HoPI, and where potential impacts from the Wider Works were anticipated, more detailed botanical surveys were carried out.

4.2.133 **Table 4.4** reports on the results of these more detailed botanical surveys and includes an assessment as to whether the habitats surveyed met HoPI criteria, using comparison with UK Biodiversity Action Plan Priority Habitat Descriptions (Ref 4.2).

**Table 4.4 – Botanical Survey Results**

<b>Tower</b>	<b>Habitats</b>	<b>HoPI or justification otherwise</b>
4ZC006-4ZC007	B1.2 - Acid grassland - semi-improved	Semi-improved grassland around Tower 4ZC007, with clear acidic influence. High incidence of competitive species (perennial rye-grass and clovers) indicating improvement. Partly identified on DataMap Wales (Ref 3.3) as Lowland acid grassland HoPI, however the grassland does not meet the relevant criteria due to lack of free draining soil and relatively high incidence of competitive species.
4ZC007-4ZC009	A1.1.1 - Broadleaved woodland - semi-natural	Wet willow woodland along north-western edge of Wider Works site. Qualifies as Wet woodland HoPI.
4ZC009-4ZC010	B1.2 - Acid grassland - semi-improved  B5 – Marsh or marshy grassland	Grazed grassland with heavily acidic influence, with damper and drier patches.  The grassland is identified as potentially being Lowland dry acid grassland on DataMap Wales (Ref 3.3), however it is generally lacking in free draining soils.
4ZC010-4ZC011	A1.1.1 - Broadleaved woodland - semi-natural  B1.2 - Acid grassland - semi-improved	Area of damp, grazed pasture where rushes are controlled by mowing. Qualifies as purple moor-grass and rush pasture HoPI.  Oak dominated, semi-natural broadleaved woodland. This woodland qualifies as Upland oakwoods HoPI and links to the Coedydd Derw a Safleoedd

Tower	Habitats	HoPI or justification otherwise
	B5 – Marsh or marshy grassland	Ystlumod Meirion/Meirionnydd Oakwoods and Bat Sites SAC. Heavily grazed field with abundant acidic indicators. Qualifies as Lowland dry acid grassland HoPI.
4ZC016-4ZC017	A1.3.2 - Mixed woodland – plantation  B1.2 - Acid grassland - semi-improved  D2 - Wet dwarf shrub heath  D5 - Dry heath and acid grassland	Marshy grassland surrounding pylon. Qualifies as purple moor grass and rush pasture HoPI. Mapped on DataMap Wales (Ref 3.3) as Lowland fens HoPI, however it does not meet the criteria for this habitat (soft rush dominated).  Plantation mixed woodland. Partly identified on DataMap Wales (Ref 3.3) as Lowland dry acid grassland HoPI but does not fit this habitat.  Grazed acidic grassland. Partly identified on DataMap Wales (Ref 3.3) as Lowland heathland HoPI and Lowland dry acid grassland HoPI. Qualifies as Lowland dry acid grassland HoPI.  Wet dwarf shrub heath in mosaic with valley mire habitat. Qualifies as Lowland fens HoPI. Partly mapped on DataMap Wales (Ref 3.3) as Lowland acid grassland HoPI but does not fit this habitat.
4ZC017-4ZC018	A1.3.2 - Mixed woodland – plantation  D2 - Wet dwarf shrub heath  D5 - Dry heath and acid grassland  E3.1 - Fen - valley mire	Area of dry heath and acid grassland mosaic. Qualifies as Lowland heathland HoPI. Partly mapped on DataMap Wales (Ref 3.3) as Lowland dry acid grassland HoPI but has dwarf shrub cover >25%.  Continuation of woodland plantation from previous section. Partly mapped on DataMap Wales (Ref 3.3) as Lowland dry acid grassland HoPI but does not fit this habitat.  Continuation of wet heath in mosaic with valley mire habitat from previous section. Qualifies as Lowland fens HoPI.

Tower	Habitats	HoPI or justification otherwise
		Area of dry heath and acid grassland mosaic. Qualifies as Lowland heathland HoPI.
	A2.1 - Scrub – dense or continuous  B5 – Marsh or marshy grassland  D2 - Wet dwarf shrub heath	Wet heath (as described above) becomes wetter, fed by small streams forming open water, interspersed with locally abundant <i>Sphagnum</i> mounds. Qualifies as Lowland fens HoPI.  Gorse patches on rocky outcrops. Contributes to mosaic of Lowland heathland HoPI.
	D5 - Dry heath and acid grassland  E3.1 - Fen - valley mire	Area of lightly sheep grazed marshy grassland, dominated by purple moor-grass and rush species. Identified on DataMap Wales (Ref 3.3) as Lowland fens HoPI but does not fit this habitat. Qualifies as purple moor-grass and rush pasture HoPI.  Continuation of wet heath as in previous section, though becoming drier with greater incidence of purple moor-grass and bog myrtle. Mosaic of Lowland fens HoPI, Lowland heathland HoPI and purple moor-grass and rush pasture HoPI.
		Continuation of dry heath mosaic from previous section. Qualifies as Lowland heathland HoPI.
	B1.2 - Acid grassland - semi-improved	Continuation of mire vegetation from previous section. Qualifies as Lowland fens HoPI.
	A1.1.1 - Broadleaved woodland - semi-natural  B1.2 - Acid grassland - semi-improved	Acidic grassland with significant wet influence. Identified on DataMap Wales (Ref 3.3) as Lowland dry acid grassland HoPI. Acid influence is present, however it is generally lacking in free draining soils.  Mature woodland mosaic with acidic grassland and marshy grassland. Cattle and sheep grazed to low intensity. Qualifies as Wood pasture HoPI.

Tower	Habitats	HoPI or justification otherwise
	C1.1 - Bracken – continuous	Grazed acidic grassland in free-range, rough grazing unit. Mapped on DataMap Wales (Ref 3.3) as Lowland dry acid grassland HoPI but lack of free draining soils, and lack of enclosure. Contributes to mosaic of Wood Pasture HoPI.
4ZC047-4ZC048	A1.1.1 - Broadleaved woodland - semi-natural  B1.2 - Acid grassland - semi-improved  B5 – Marsh or Marshy grassland	Dense bracken in clearings in woodland. Contributes to mosaic of Wood Pasture HoPI.  Continuation of mature woodland wood pasture from previous section. Meets Wood pasture HoPI.  Continuation of acid grassland from previous section. Contributes to mosaic of Wood Pasture HoPI.
4ZC055-4ZC056	B1.2 - Acid grassland - semi-improved  B5 – Marsh or marshy grassland	Marshy grassland qualifies as purple moor-grass and rush pasture HoPI. Partly mapped on DataMap Wales (Ref 3.3) as Lowland dry acid grassland HoPI but does not fit this habitat.  Grazed acidic grassland. Qualifies as Lowland dry acid grassland HoPI.
4ZC060-061	B5 – Marsh or Marshy grassland	Marshy grassland in low lying area. Identified on DataMap Wales (Ref 3.3) as Lowland dry acid grassland HoPI but water table close to surface. Qualifies as purple moor-grass and rush pasture HoPI.
4ZC070-4ZC071	A1.1.1 - Broadleaved woodland - semi-natural  B5 – Marsh or marshy grassland	Marshy grassland qualifies as purple moor-grass and rush pasture HoPI. Mapped on DataMap Wales (Ref 3.3) purple moor-grass and rush pasture HoPI and Lowland heathland HoPI but does not fit this secondary habitat.  Secondary wet woodland adjacent to river. Qualifies as Wet woodland HoPI.

Tower	Habitats	HoPI or justification otherwise
		Continuation of marshy grassland from previous section. Qualifies as purple moor-grass and rush pasture HoPI. Himalayan balsam present.
4ZC071-4ZC072	A1.1.1 - Broadleaved woodland - semi-natural	Continuation of wet woodland from previous section on both sides of river. Qualifies as Wet woodland HoPI.
	B5 – Marsh or marshy grassland	Continuation of marshy grassland from previous section. Qualifies as purple moor-grass and rush pasture HoPI.

# 5. Conclusion

## 5.1 Phase 1 Habitat Survey and Botanical Survey

5.1.1 The Wider Works site supports a variety of habitats, many of which are recognised as HoPIs. Numerous areas of broadleaved semi-natural woodland are present throughout the Wider Works site, including Upland oakwood HoPI, Wet woodland HoPI, and areas of Wood pasture HoPI, with some of these woodlands designated as Ancient Woodland or located within protected sites. Areas of broadleaved and mixed plantation woodland and felled coniferous woodland are present to minor extents. These woodlands are complemented by scattered broadleaved trees and dense and scattered scrub, contributing to landscape connectivity, particularly along field boundaries. A variety of grassland habitats are present throughout the Wider Works site. Areas of Lowland dry acid grassland HoPI, and species-rich unimproved grassland support notable plant diversity, including waxcap fungi. Marshy grasslands, qualifying primarily as purple moor-grass and rush pastures HoPI are widespread. Improved and semi-improved neutral and acidic grasslands are also common, generally supporting more species-poor, agriculturally managed communities. Heathland habitats are well represented, with Lowland heathland HoPI, wet heath and acid grassland mosaics, and isolated patches of dry heath contributing to habitat complexity, particularly between Tower 4ZC016 and 4ZC019. Wetland habitats, including Lowland fen HoPI, valley mire, basin mire, and floodplain mire, are present in both small, isolated patches and larger mosaics with heath and grassland. A network of watercourses, including streams, ditches, and rivers, intersects the Wider Works site, ranging from slow-flowing channels to faster streams. A reservoir is present between Tower 4ZC021 and 4ZC022. Hedgerows of varying ecological quality, along with drystone walls, earth banks (cloddiau), and open drains, contribute linear connectivity and provide niche habitats, often supporting more diverse plant assemblages than adjacent farmland. Built elements, such as agricultural and residential buildings, occur sporadically across the site, alongside associated gardens, bare ground from farming activity, and areas of hardstanding related to infrastructure.

5.1.2 Habitats in the Wider Works site will be temporarily lost or disturbed during the proposed works. However, they will be allowed to re-establish or reinstated to their former habitat type on completion of the works so there will be negligible long-term effects. Statutory and non-statutory designated sites have been identified in the Study Area. Designs have been revised to avoid as far as is possible direct and indirect impacts to these sites. Any habitat disturbance will be minimised and temporary. Indirect impacts to statutory and non-statutory sites, for example from dust, will be mitigated by standard environmental protection measures, which will be outlined in the Works Environmental Management Plan (WEMP). This will include suitable measures to suppress dust, reduce site runoff and reduce spillage risk and water pollution risk.

## 5.2 Potential Impacts and Constraints

5.2.1 Potential effects on habitats and plants from the proposed works and the mitigation measures proposed, are provided in **ES Volume 6, Chapter 5: Likely Significant Effects**.

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# Appendix A – Figures

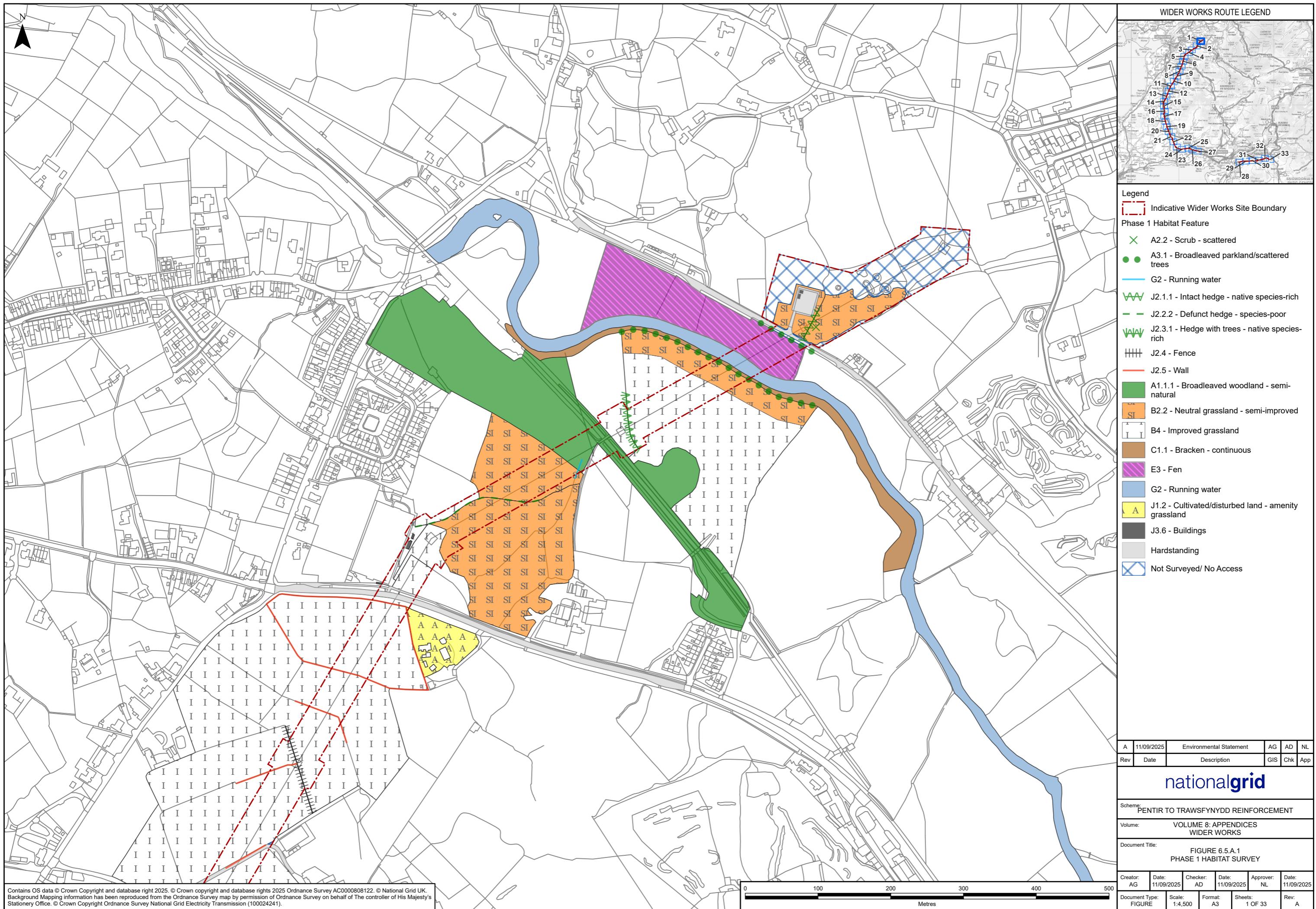
Figure 6.5.A.1 – Phase 1 Habitat Survey.

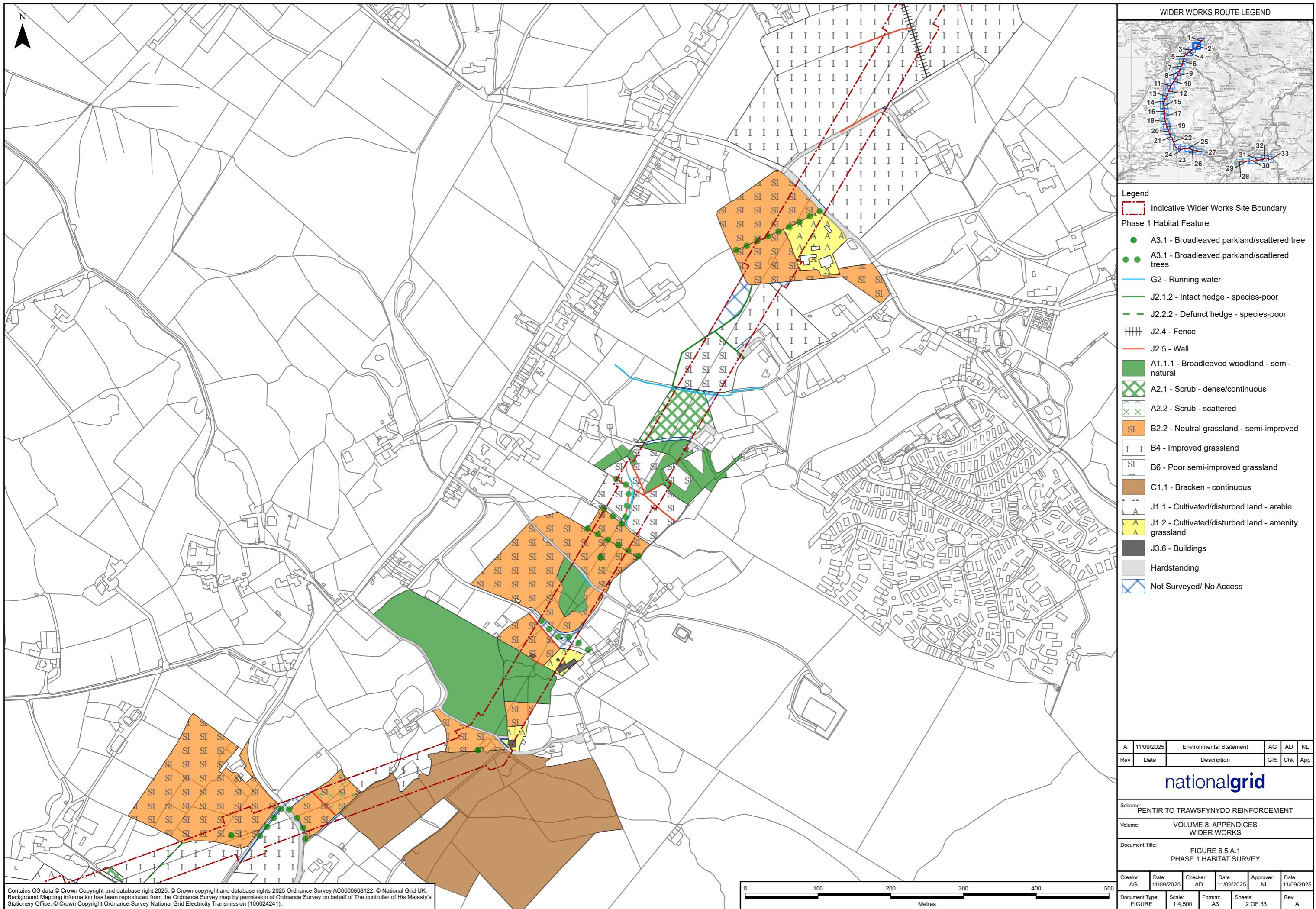
Figure 6.5.A.2 – Statutory Designated Sites for Nature Conservation within 2 km.

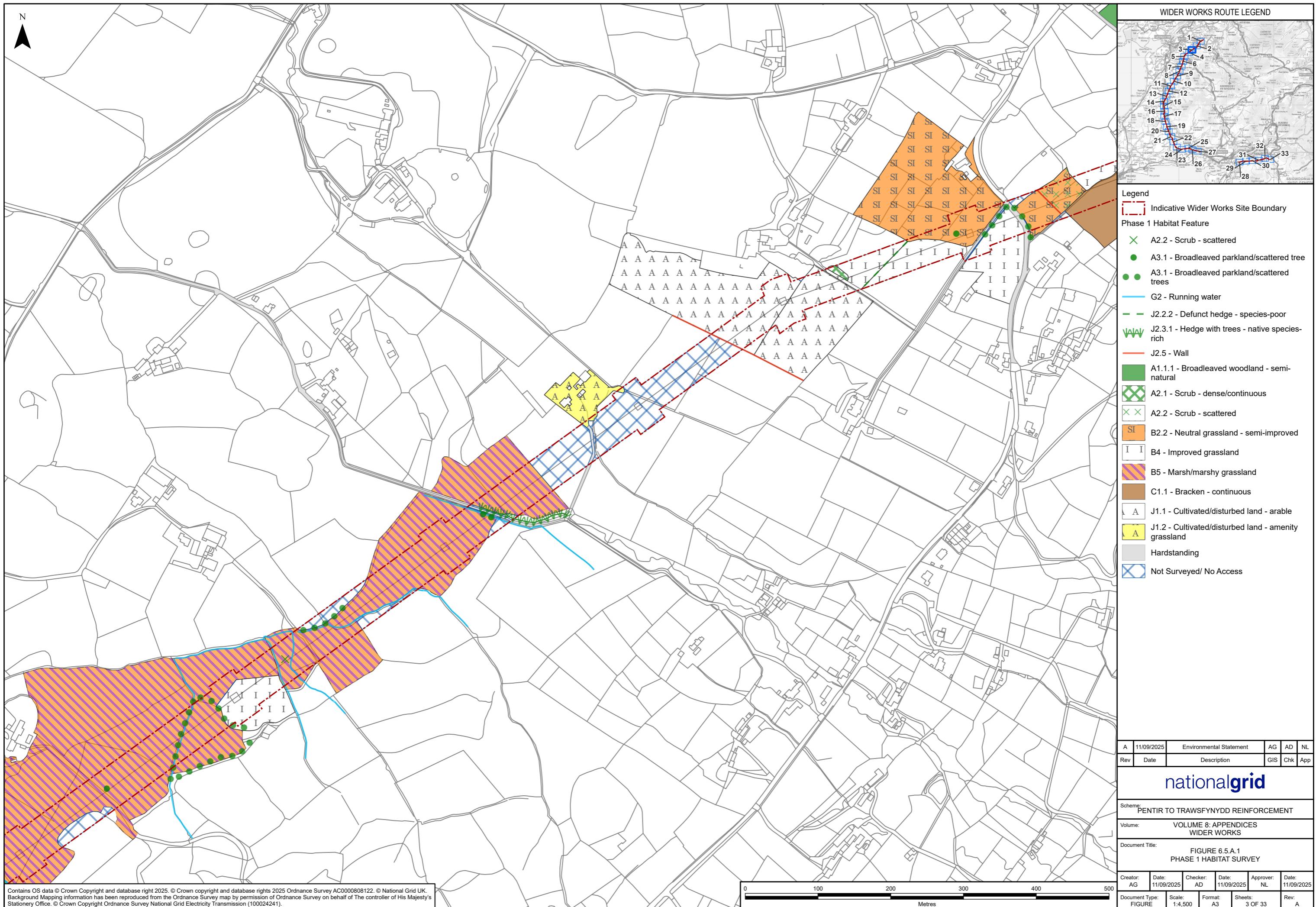
Figure 6.5.A.3 – Non-statutory Designated Sites for Nature Conservation within 50 m.

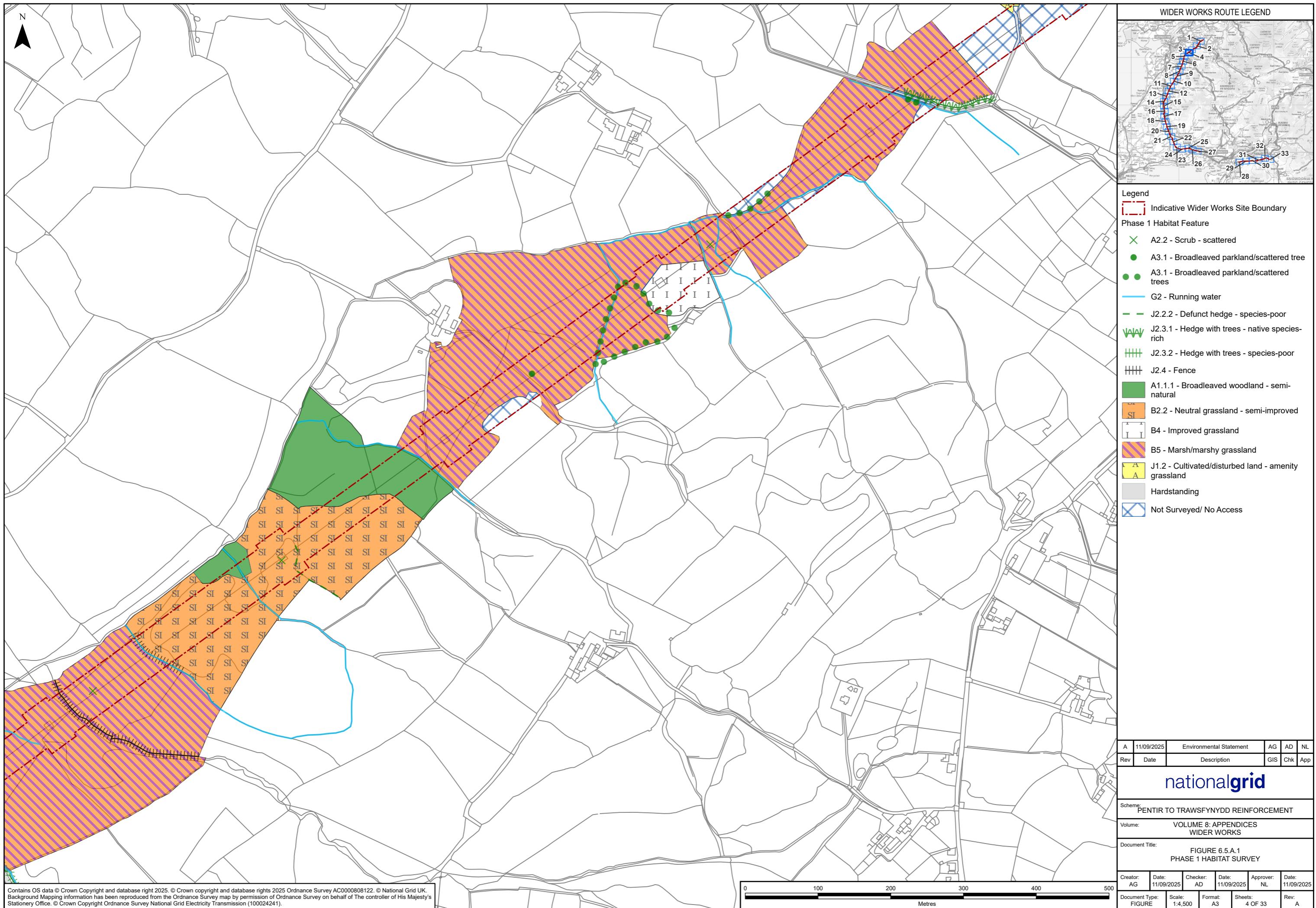
Figure 6.5.A.4 – HoPI and Ancient Woodland within 50 m.

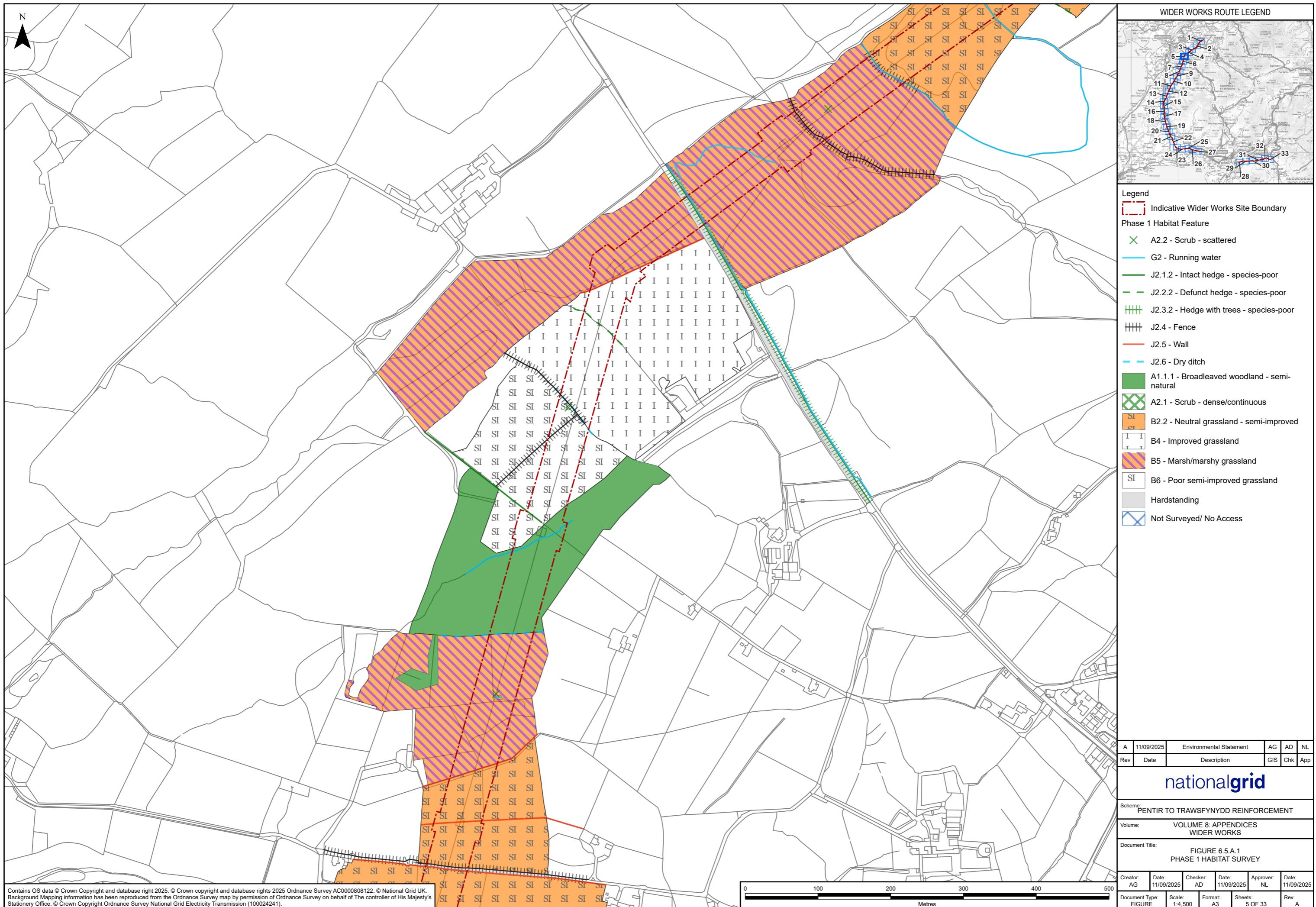
Figure 6.5.A.5 – Notable Plants and Fungi and INNS within 50 m.

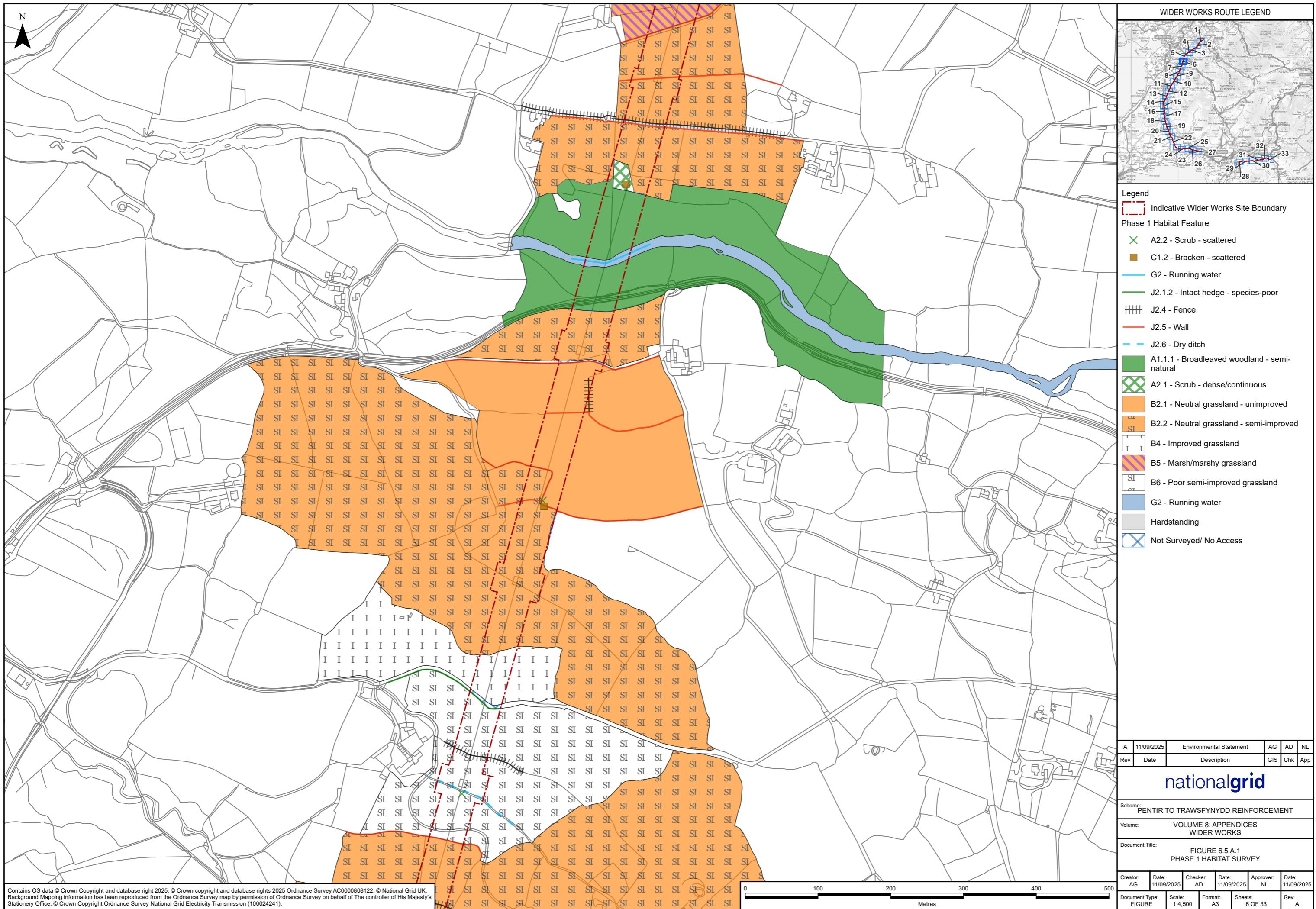


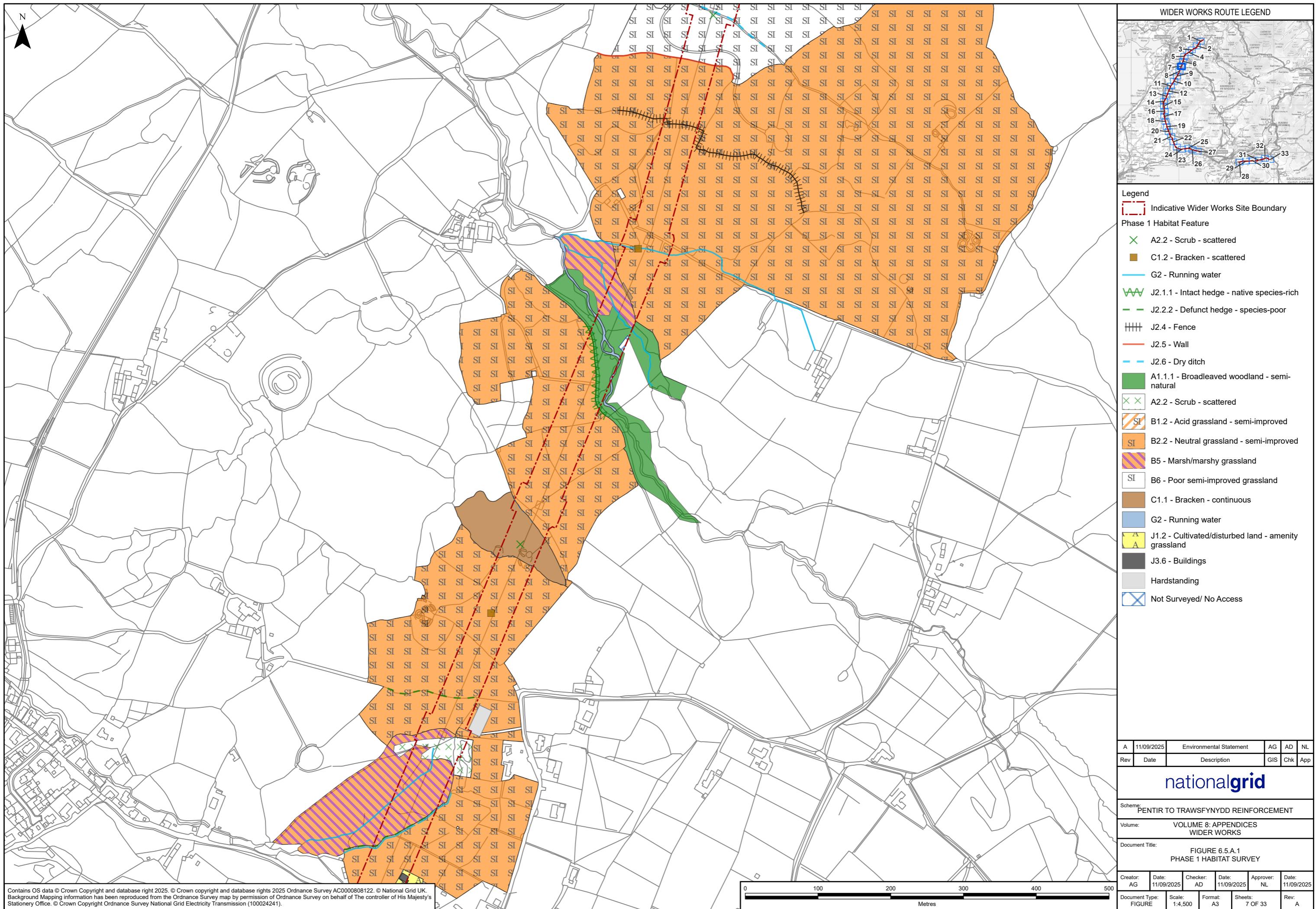


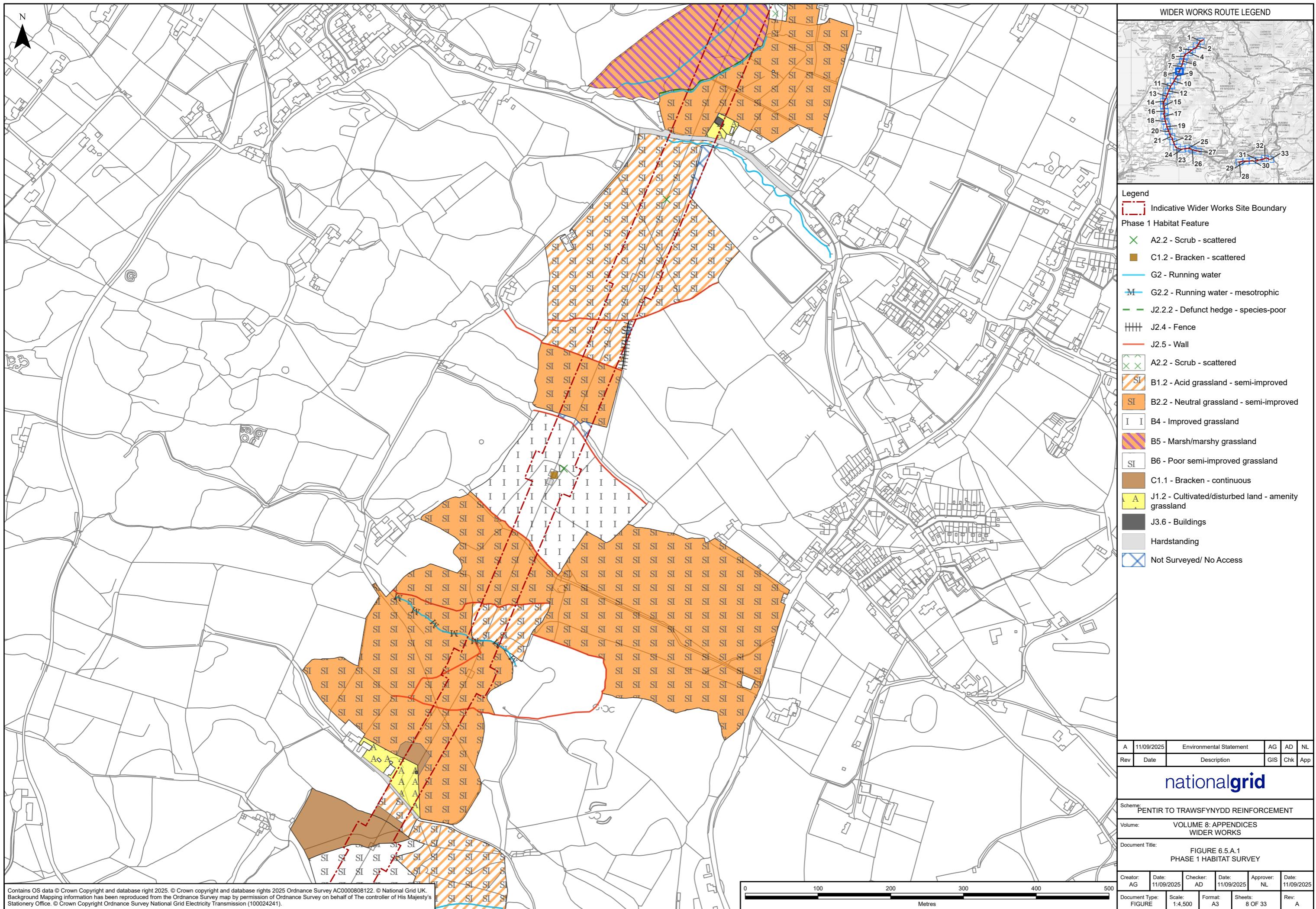


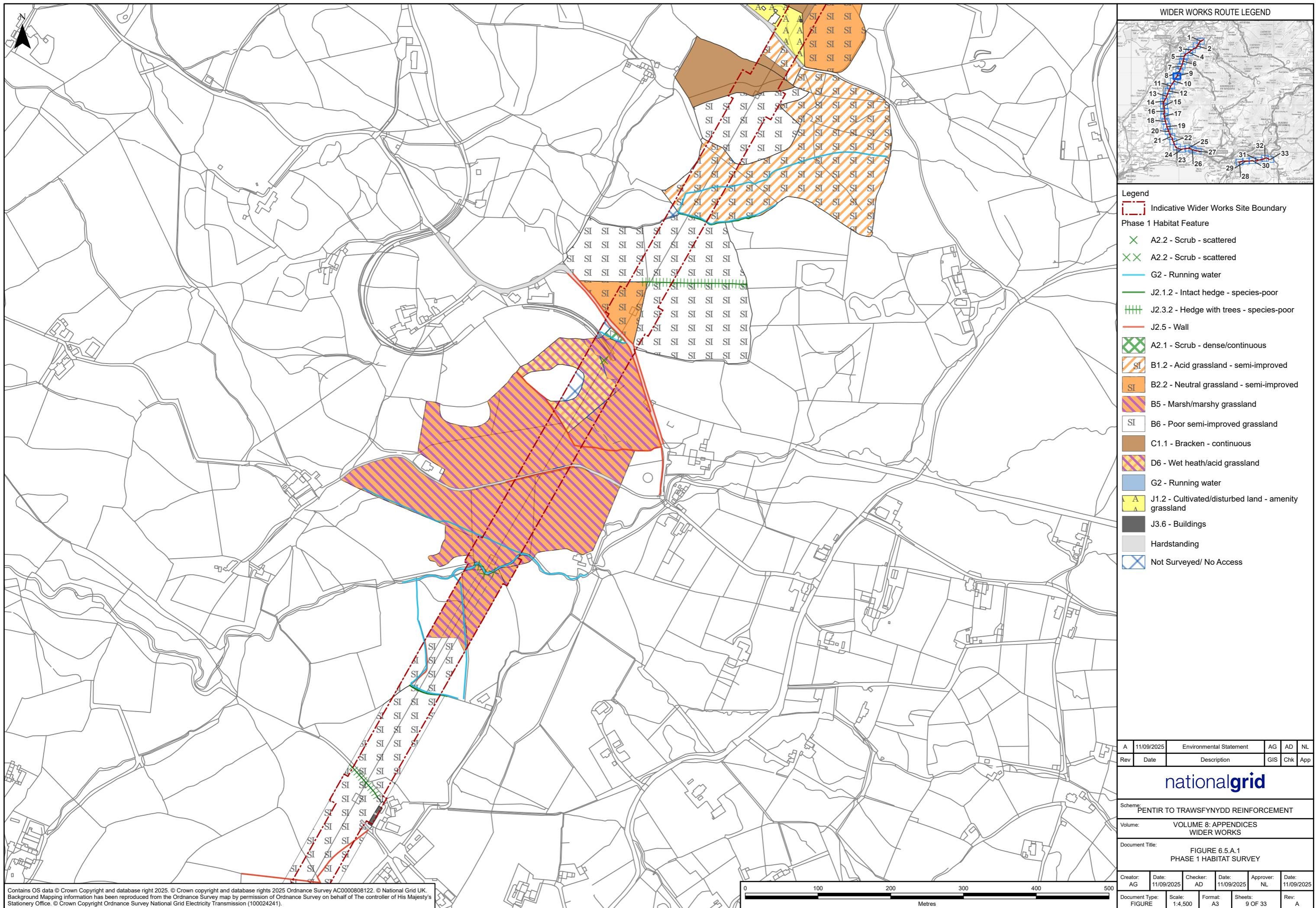






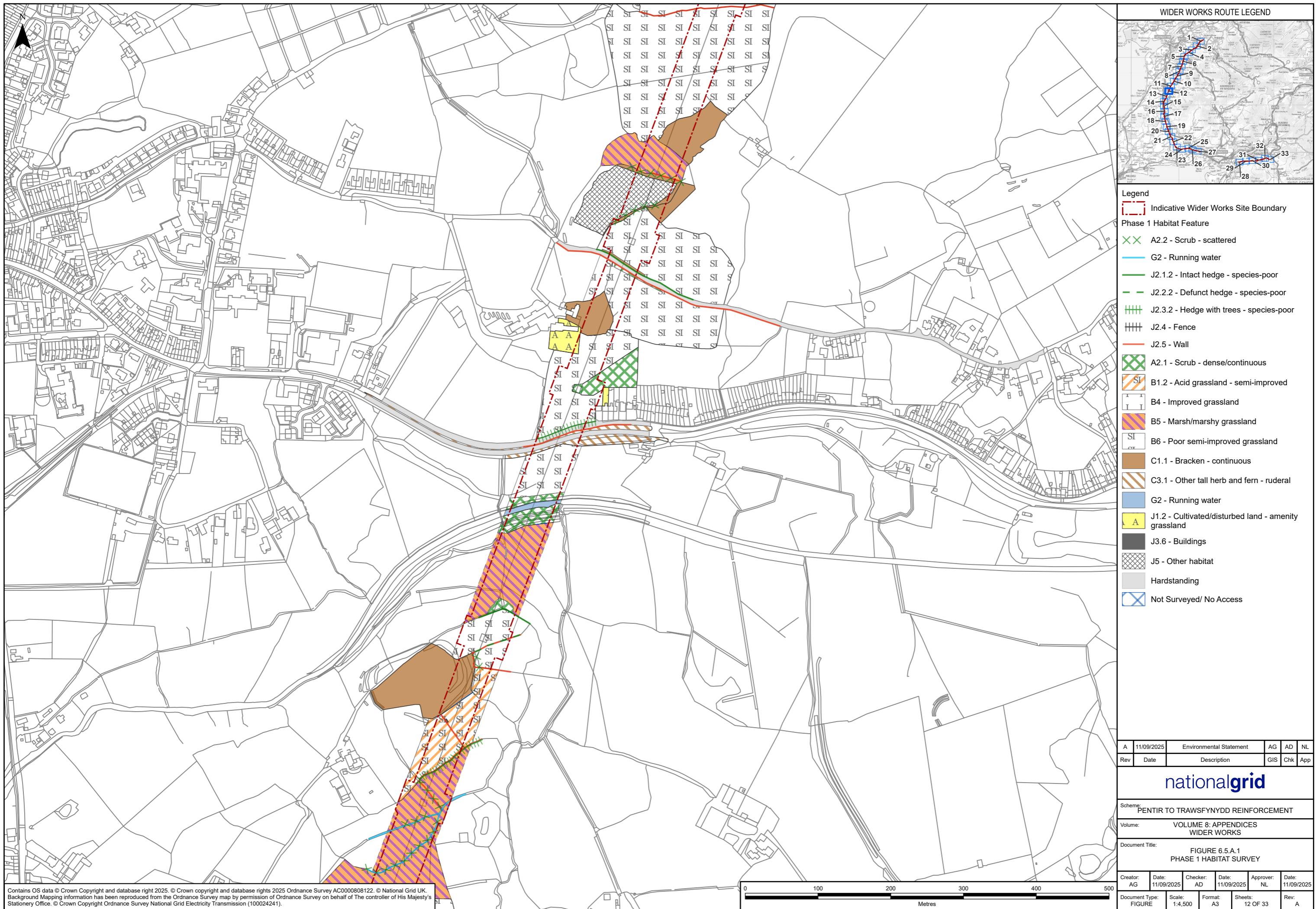


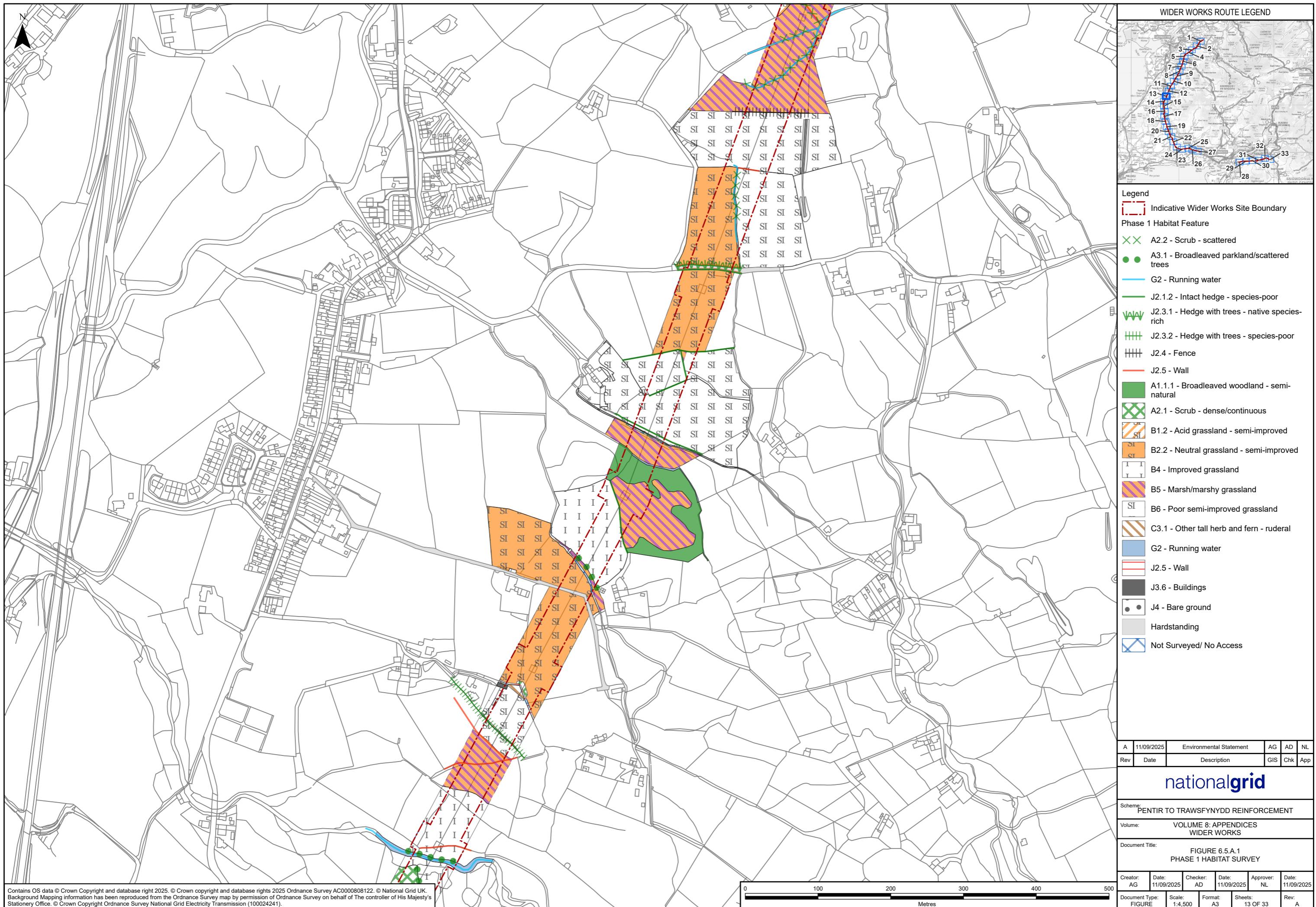


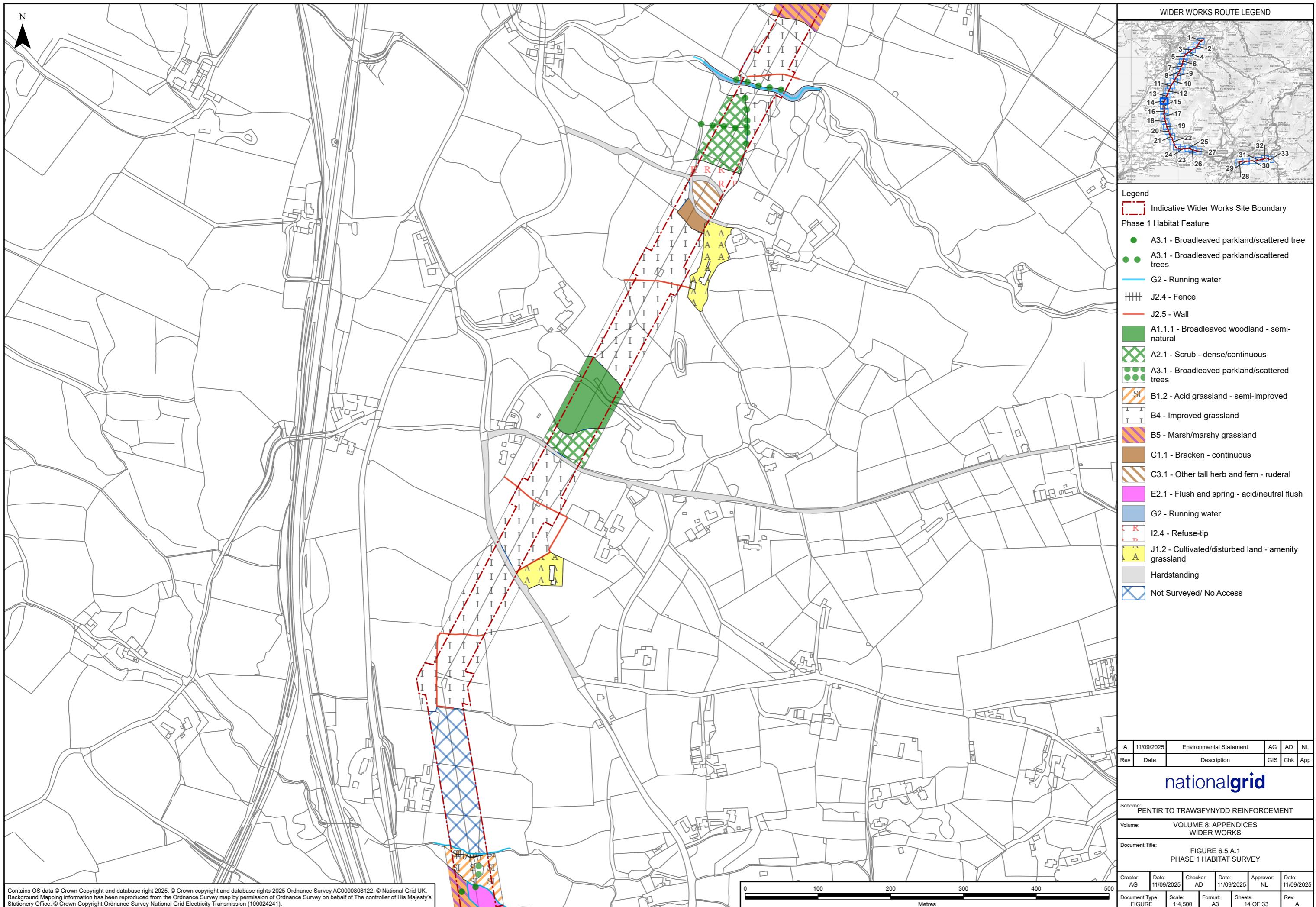


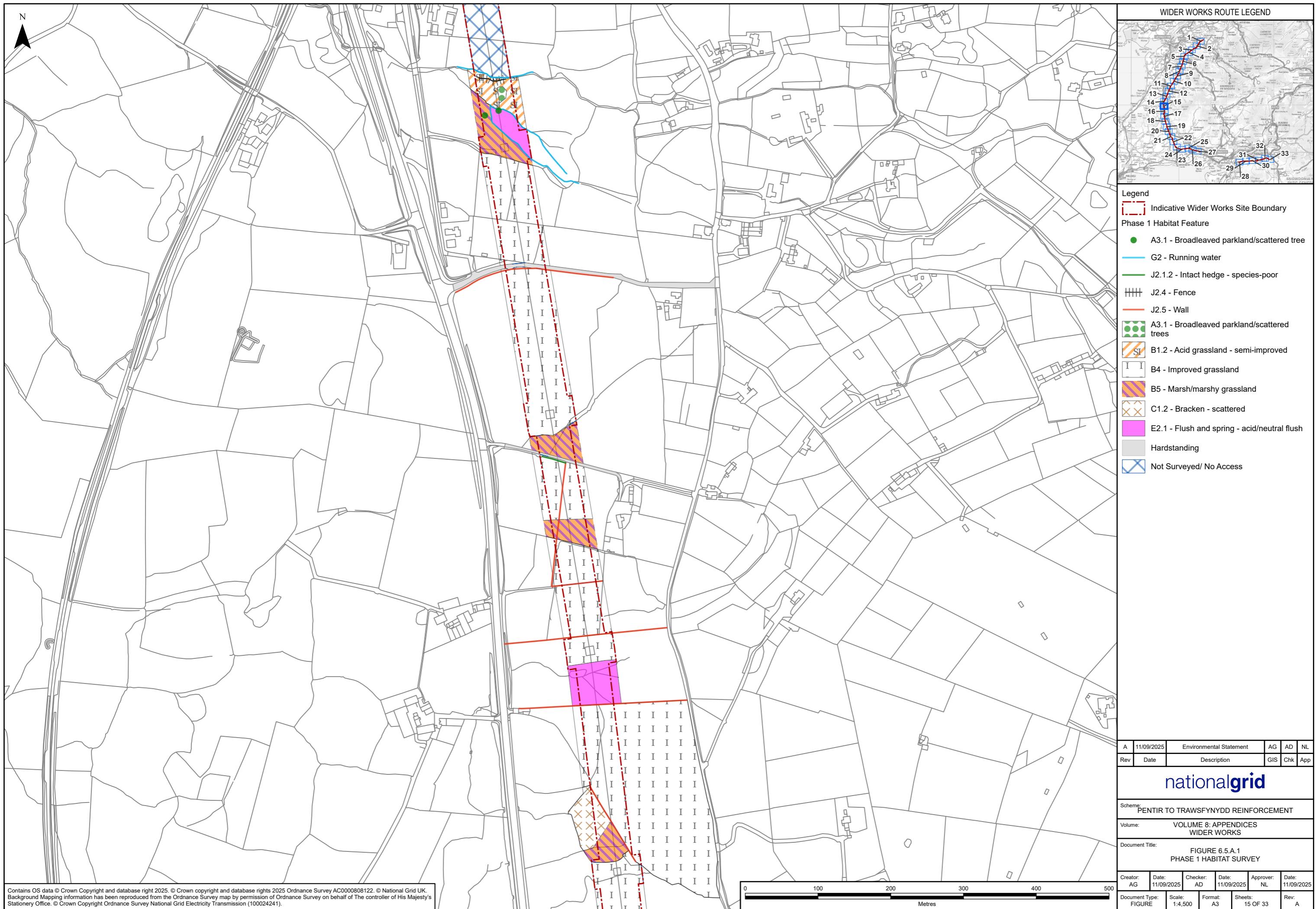


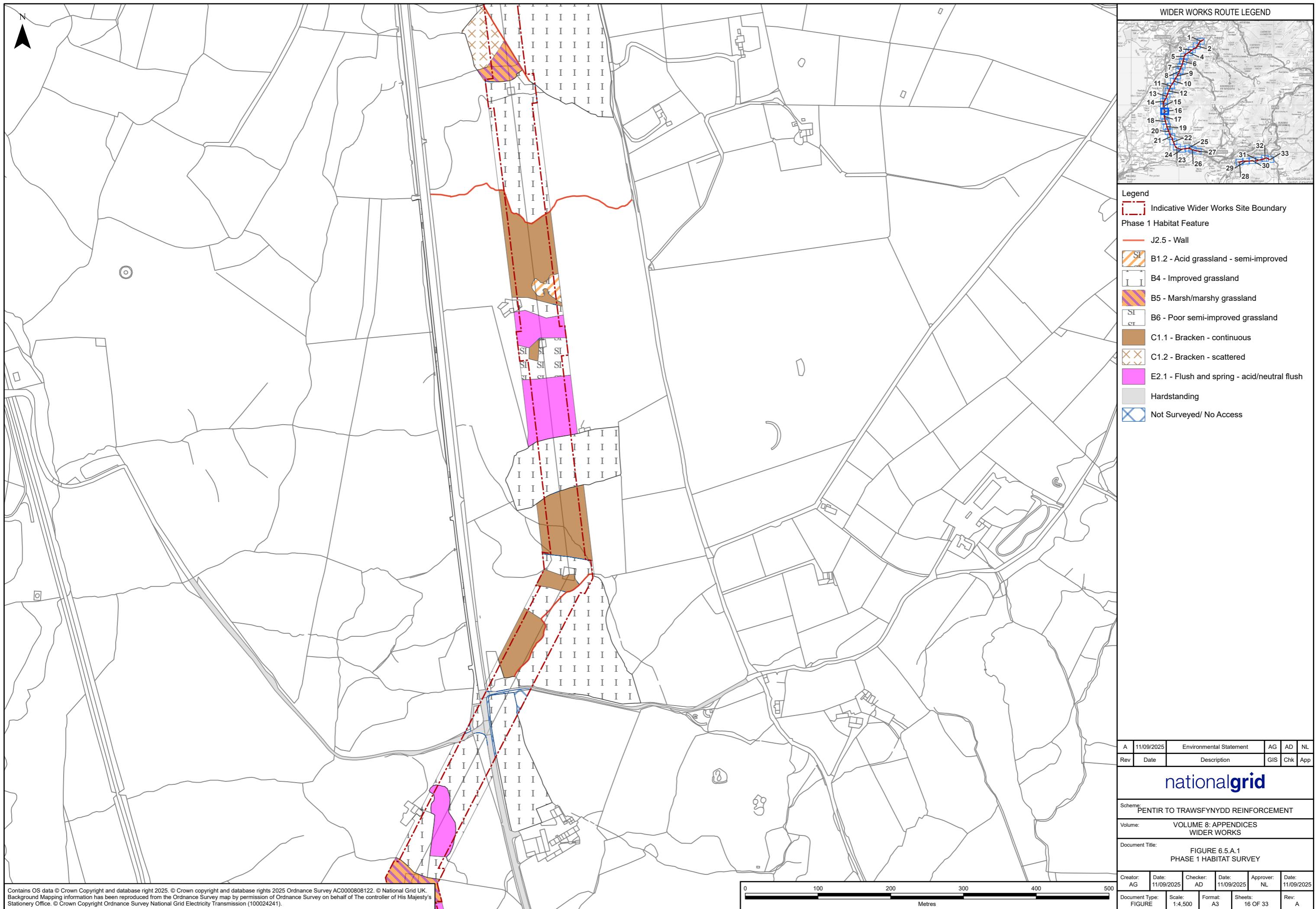


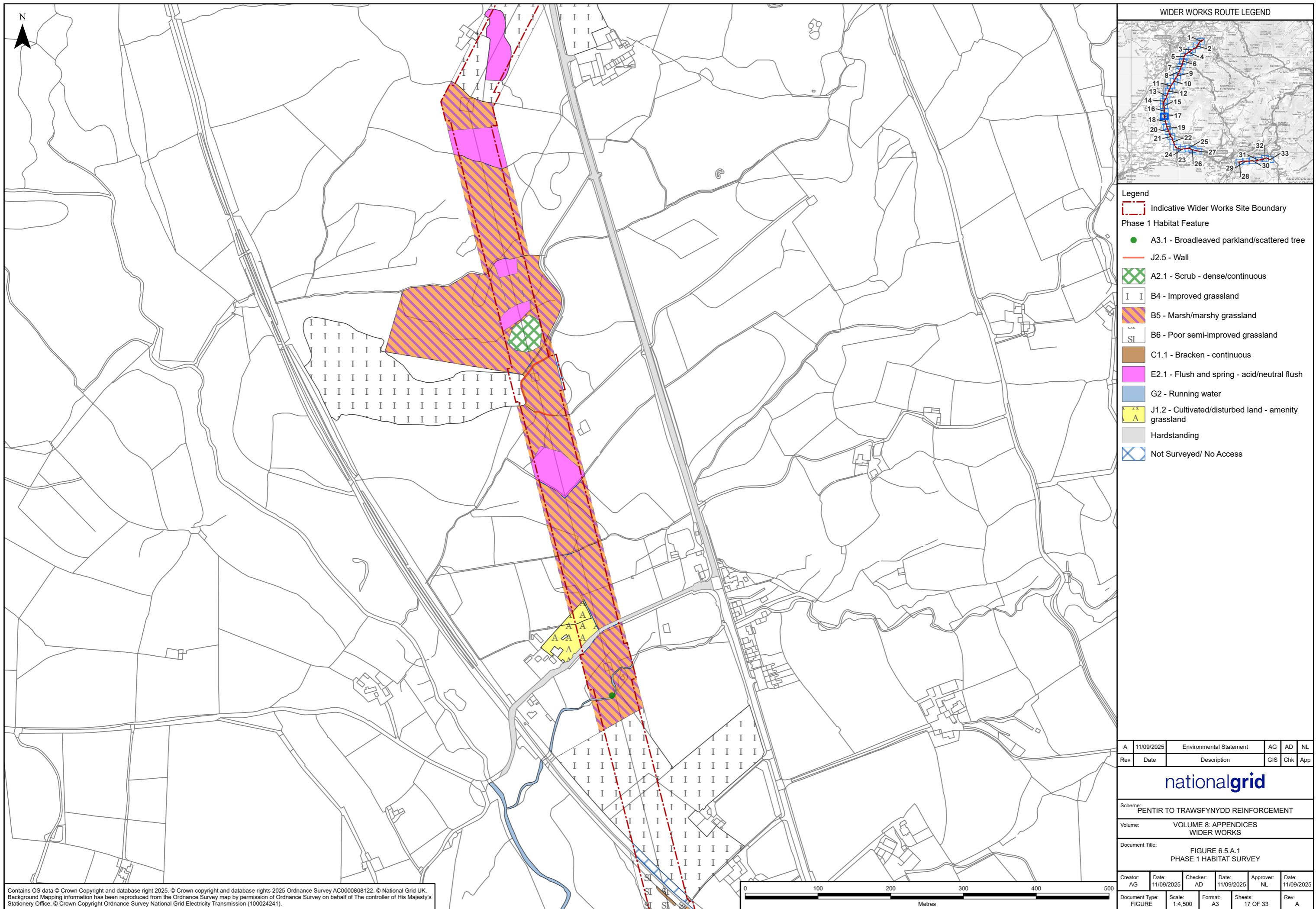


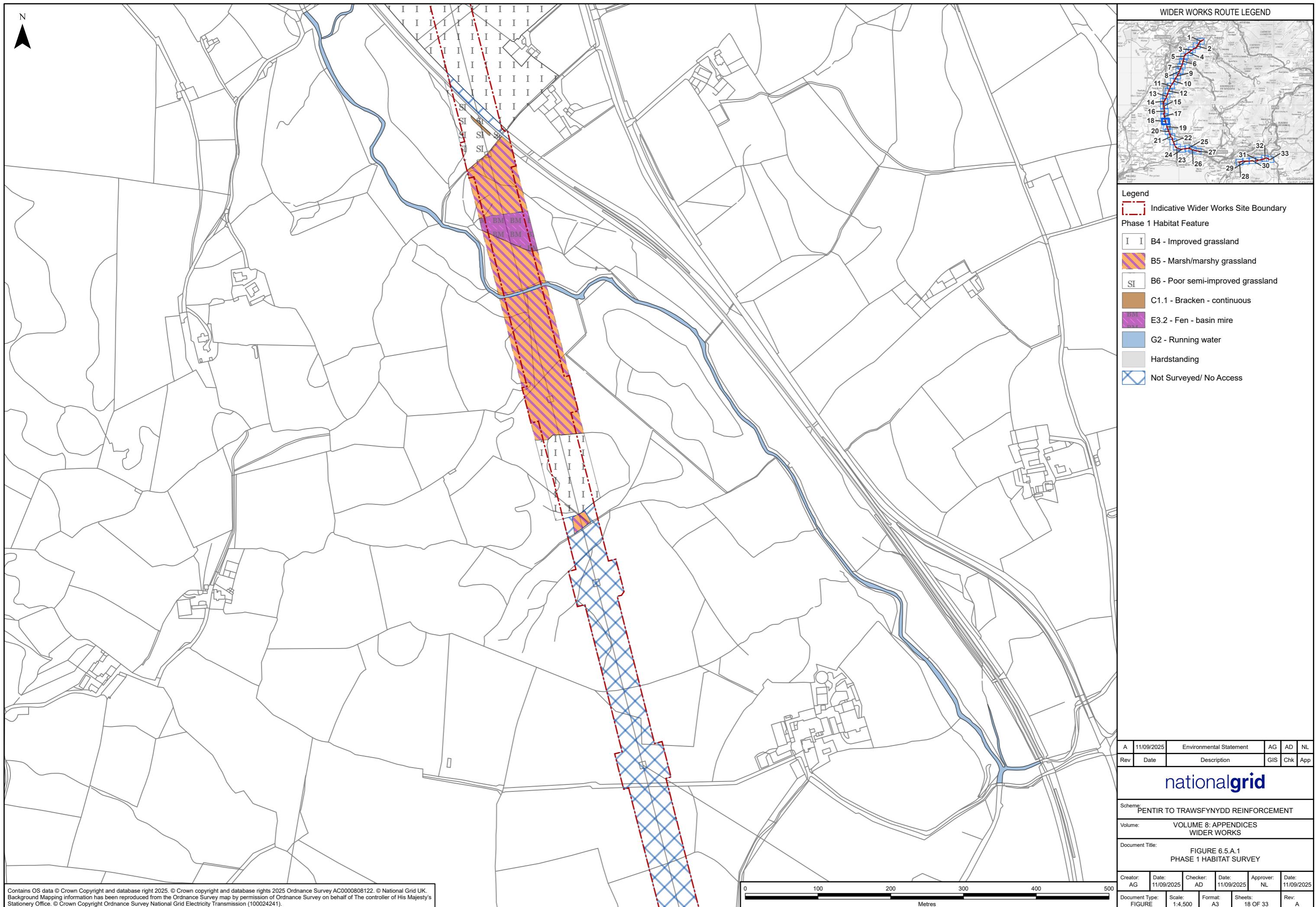




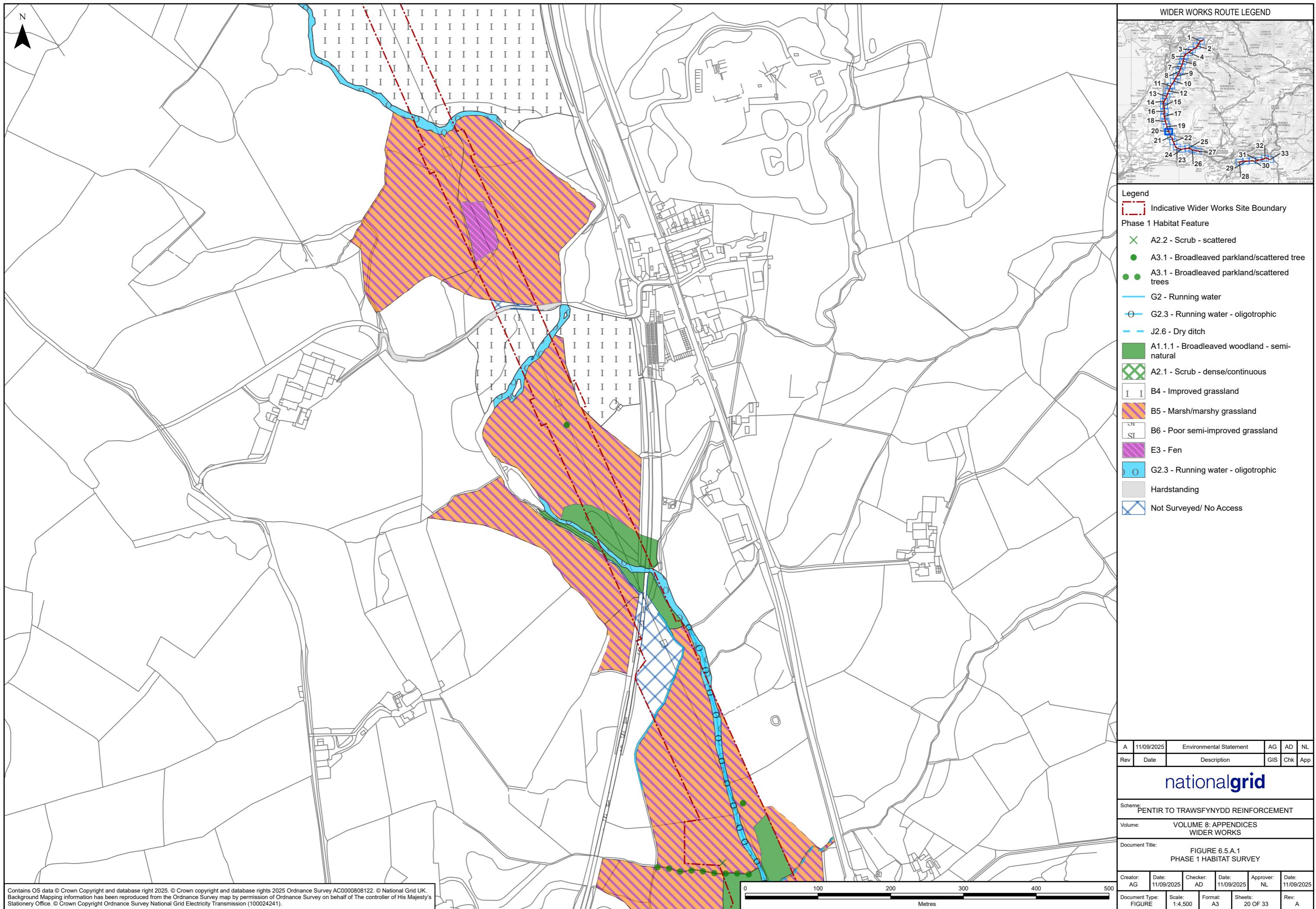


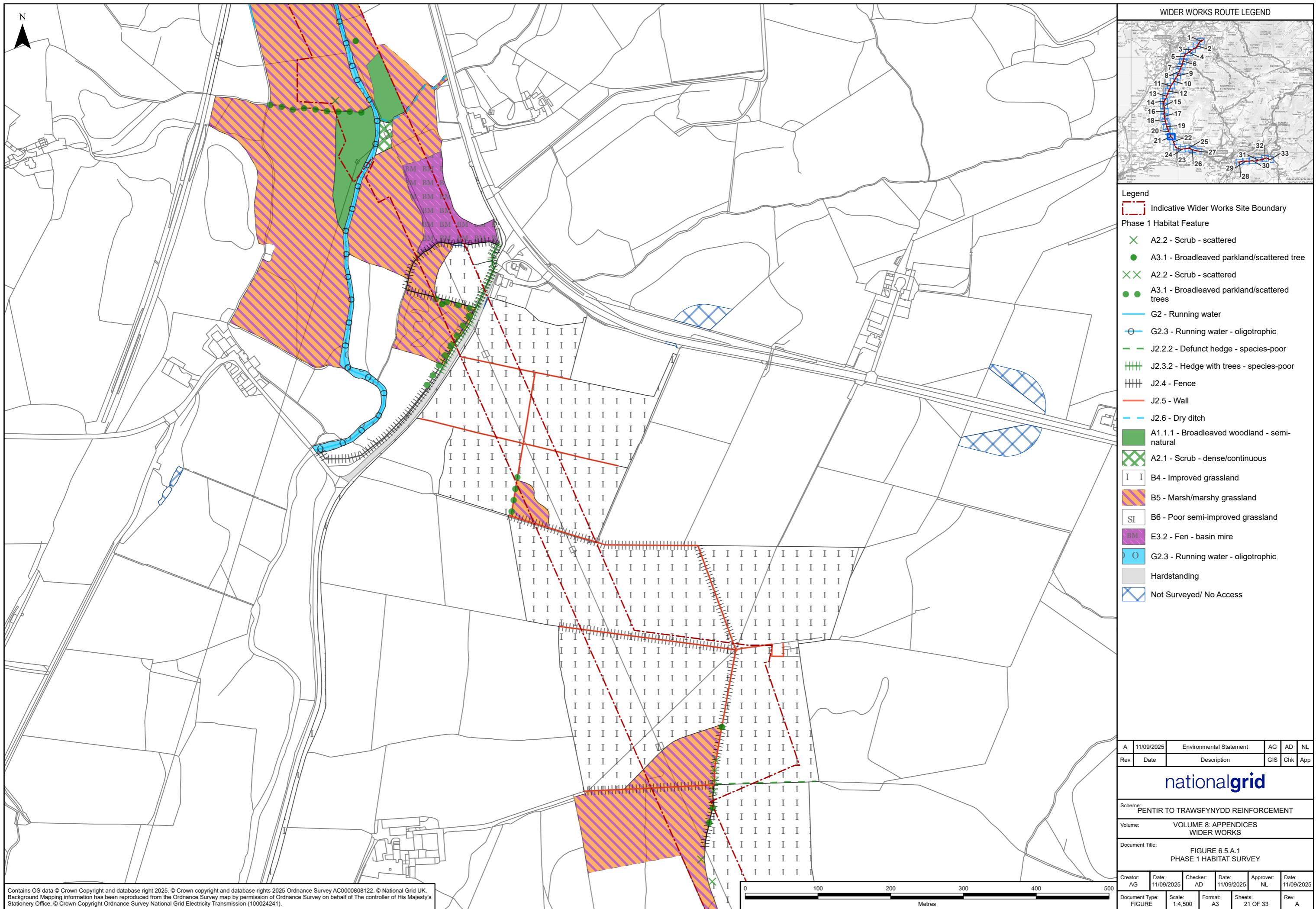


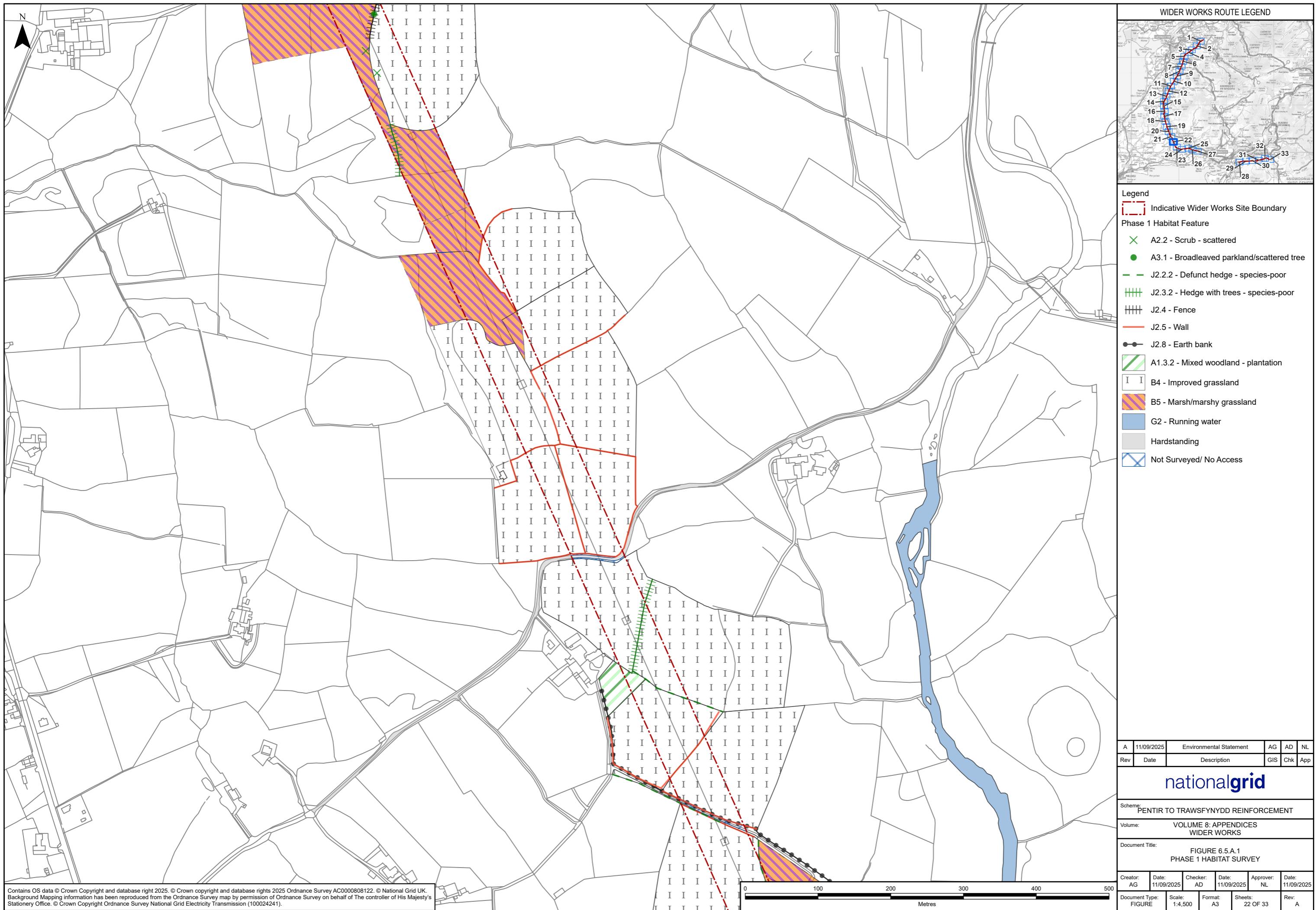


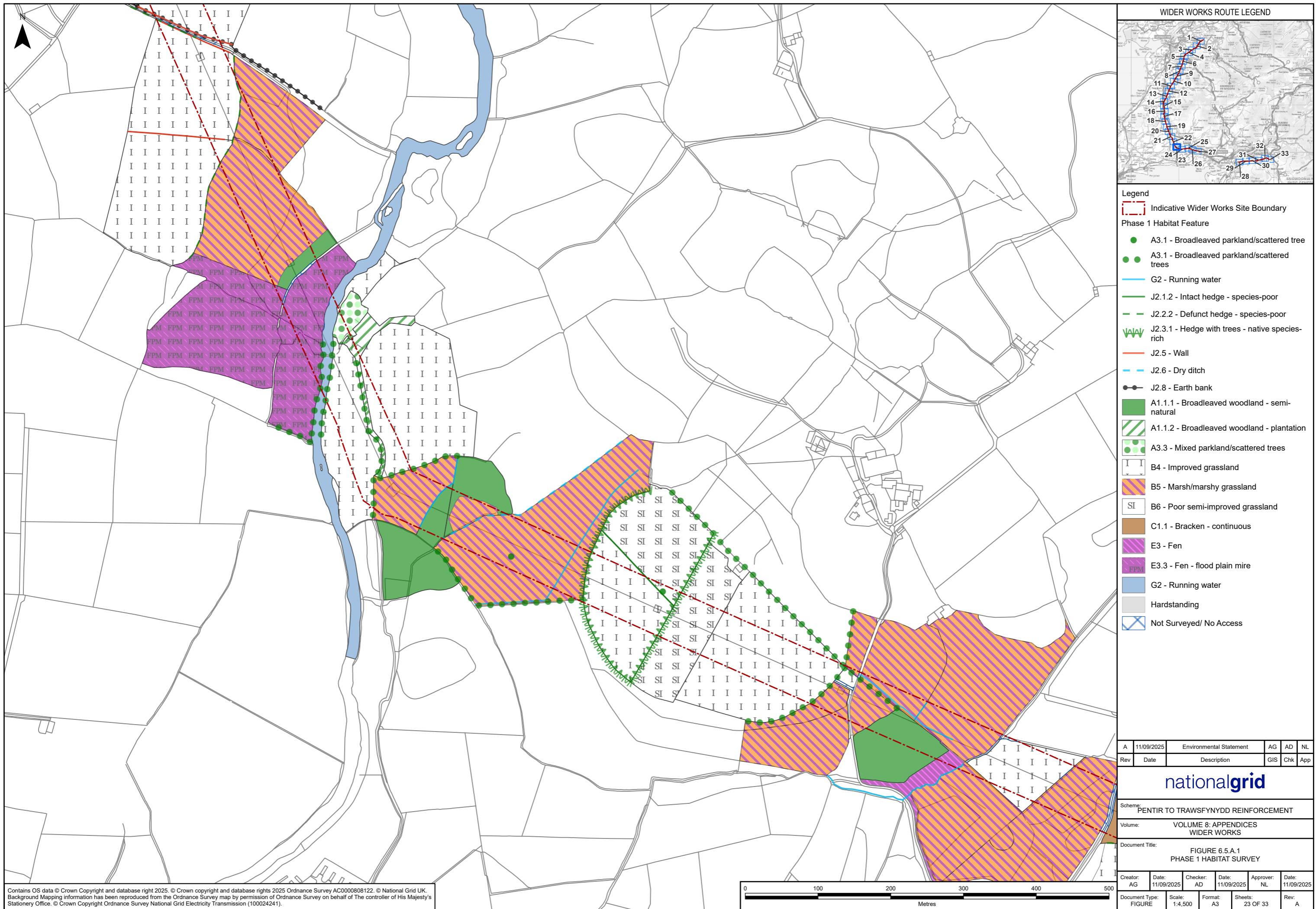


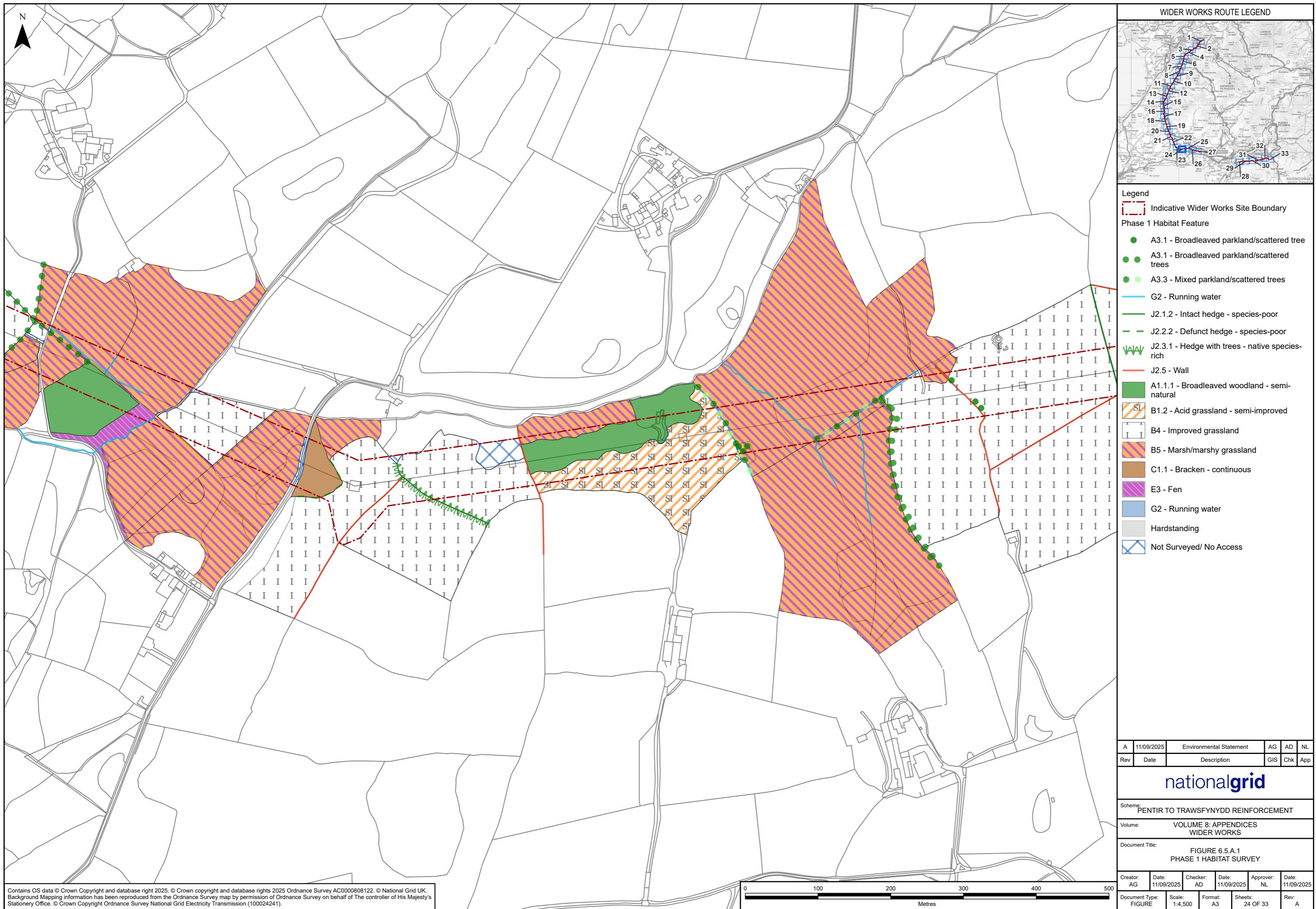


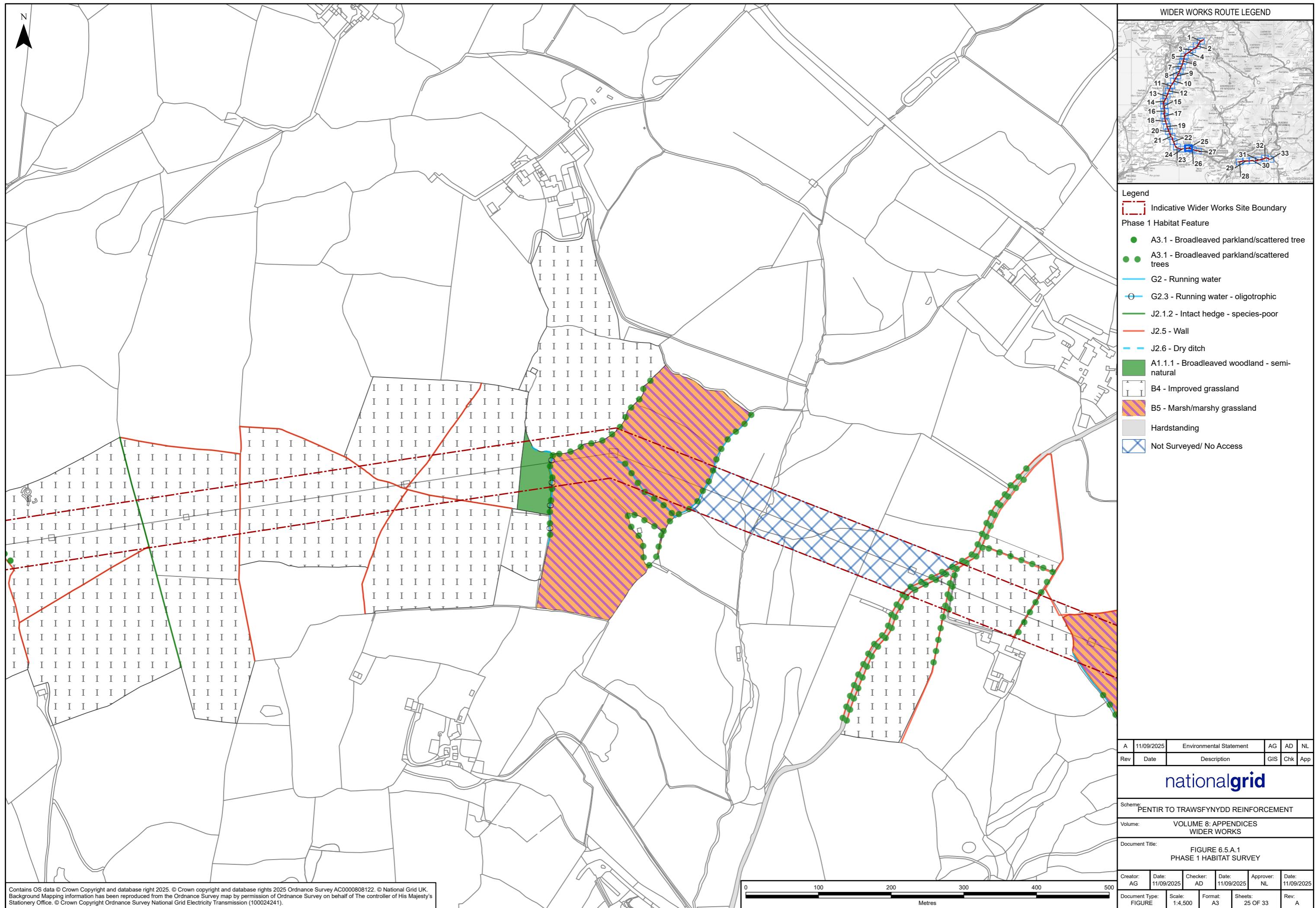


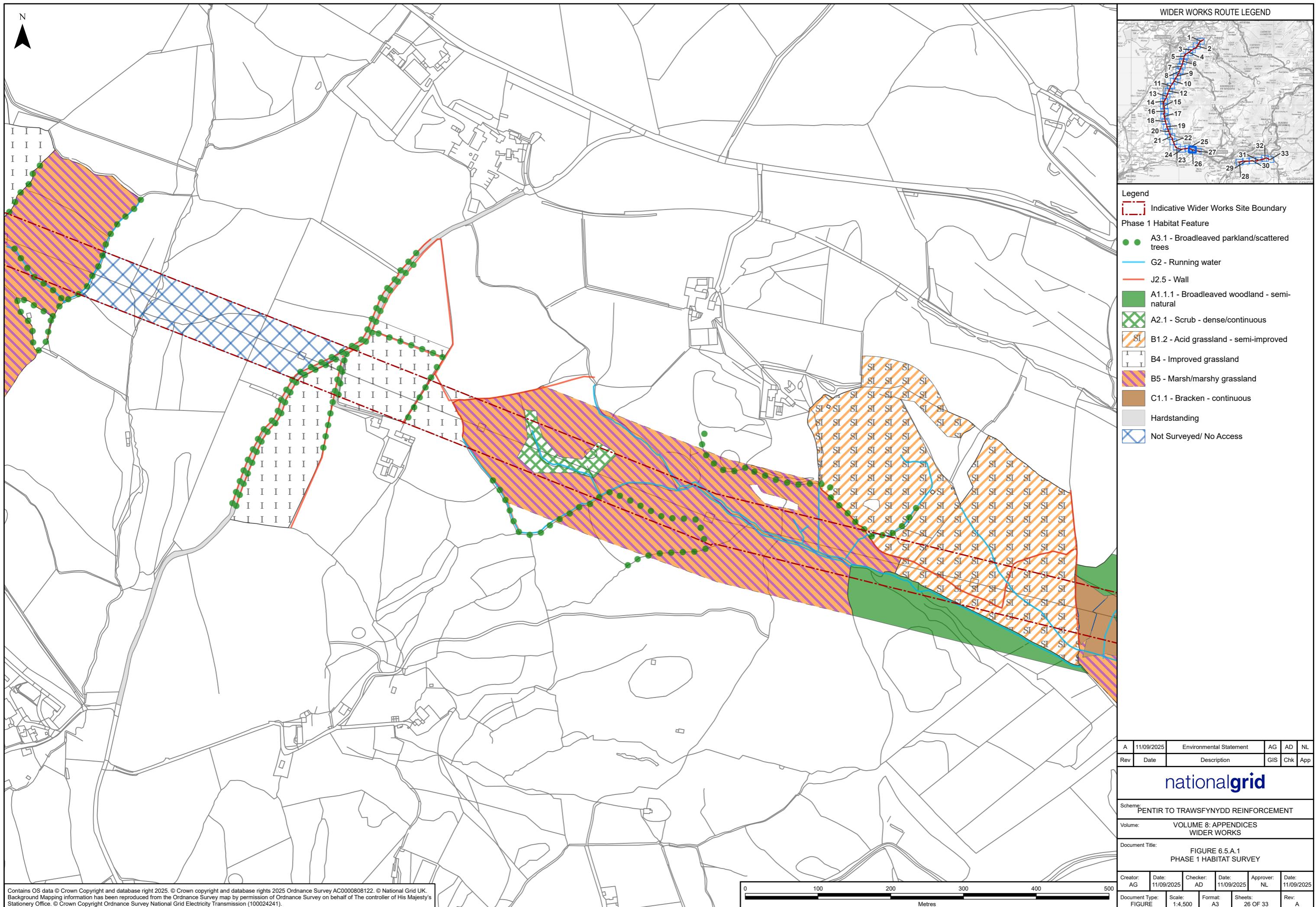






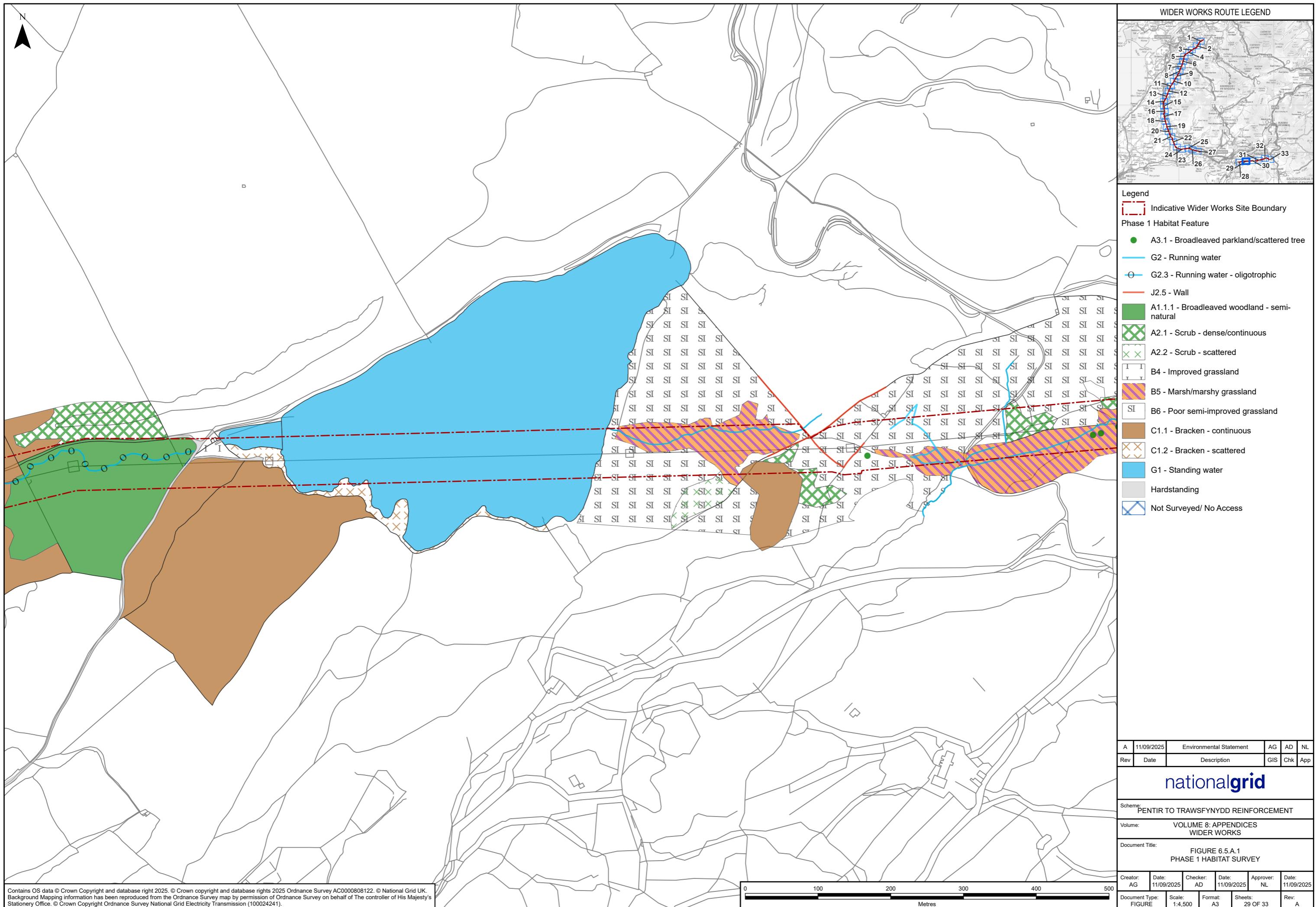


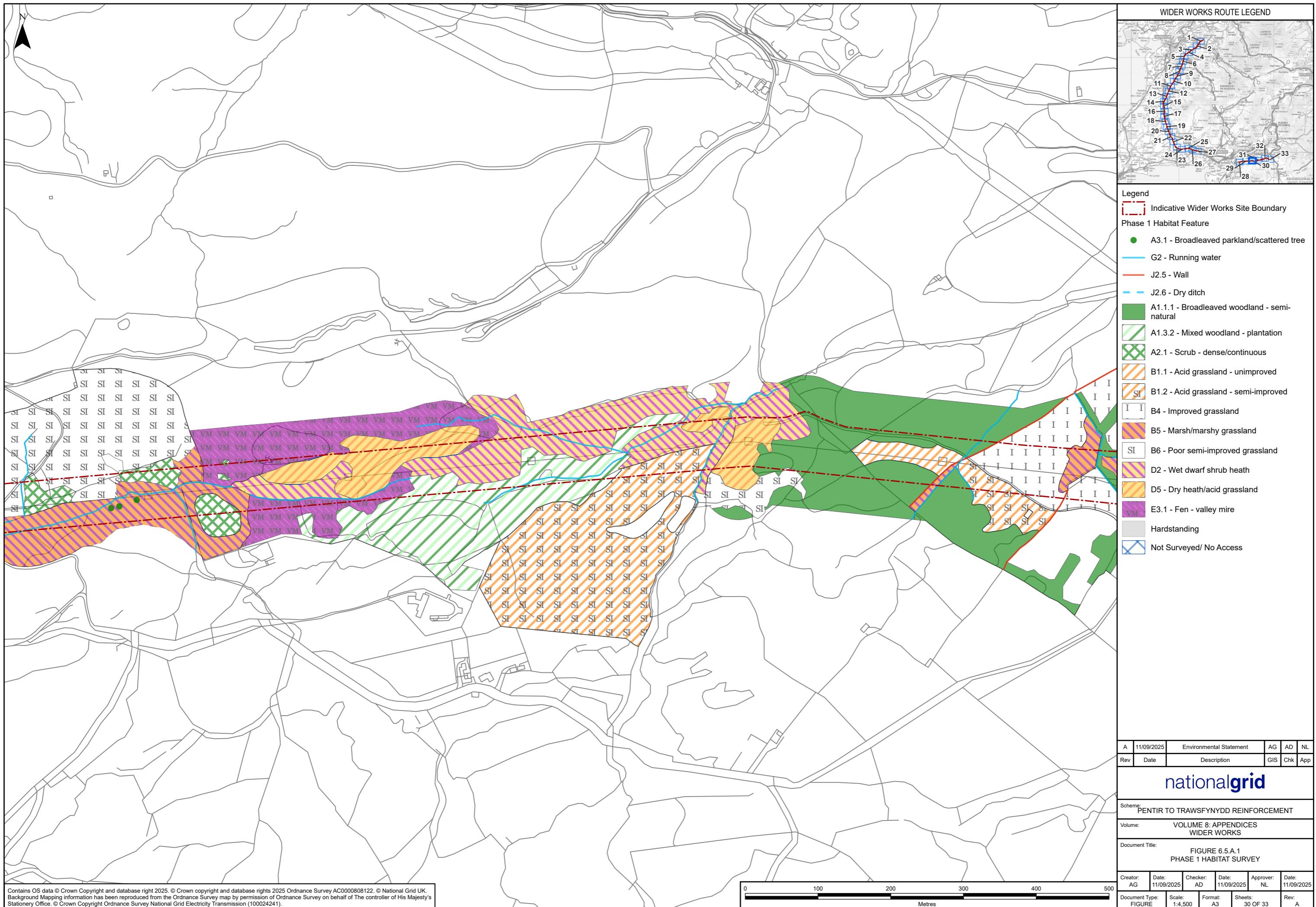


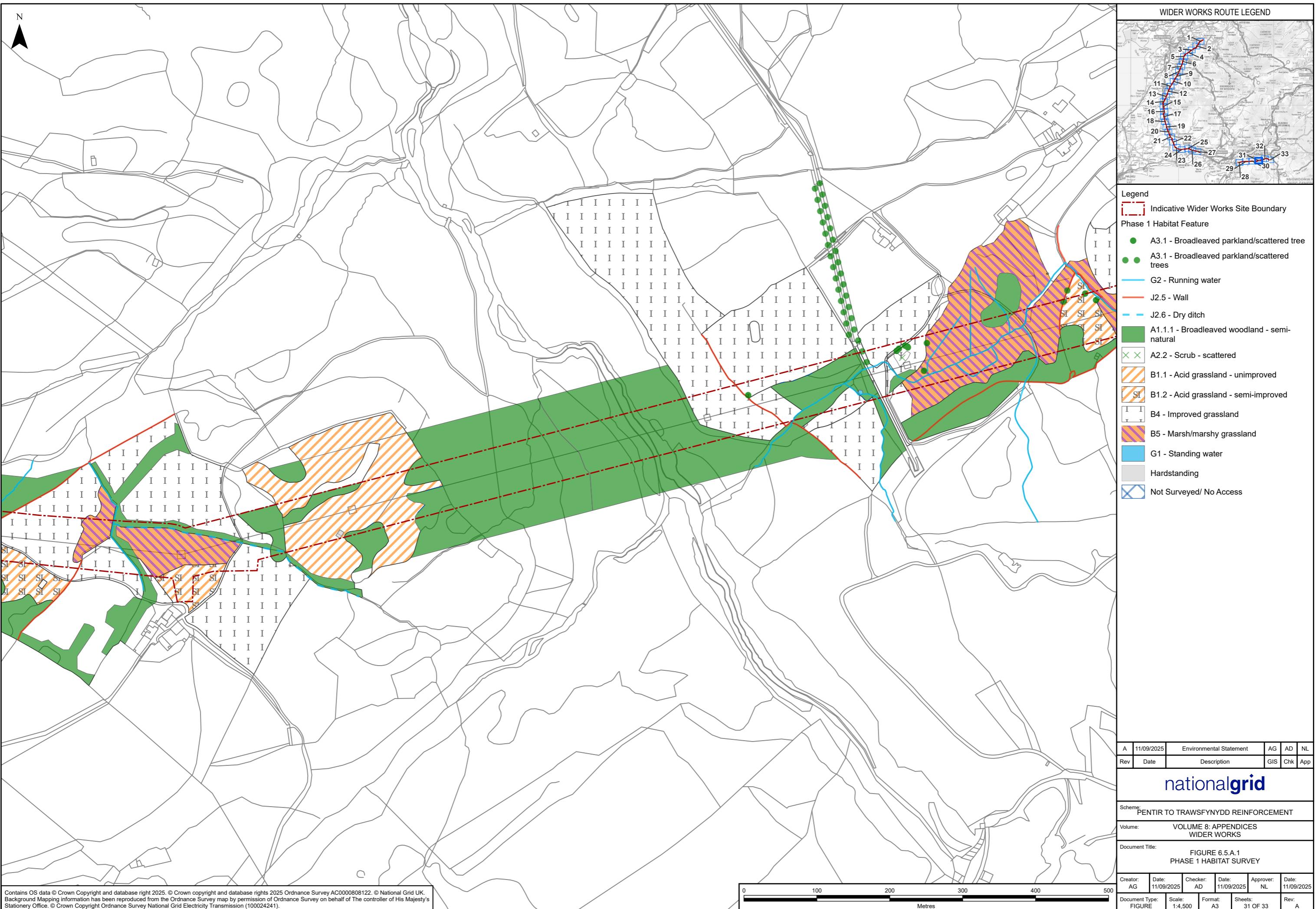


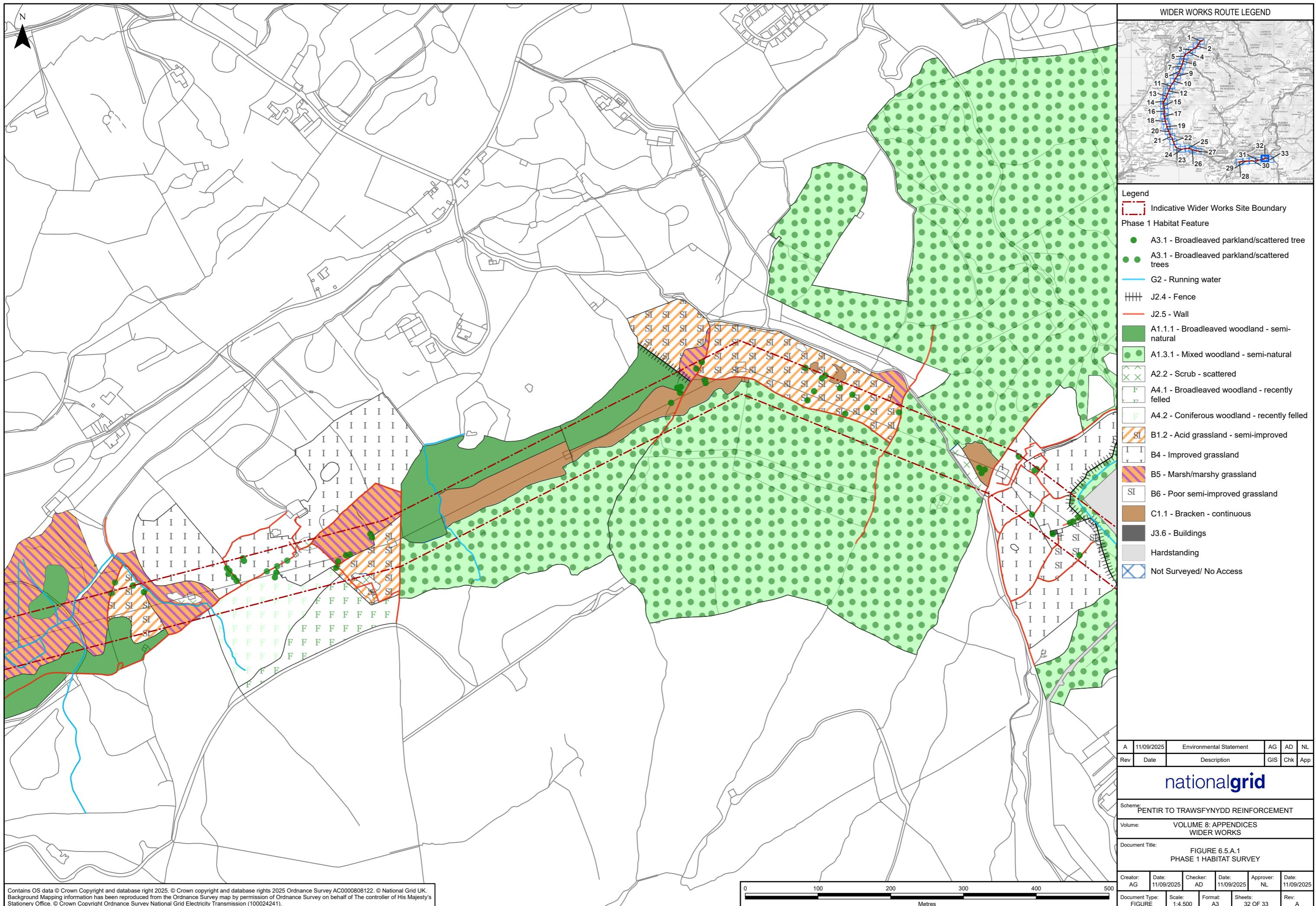


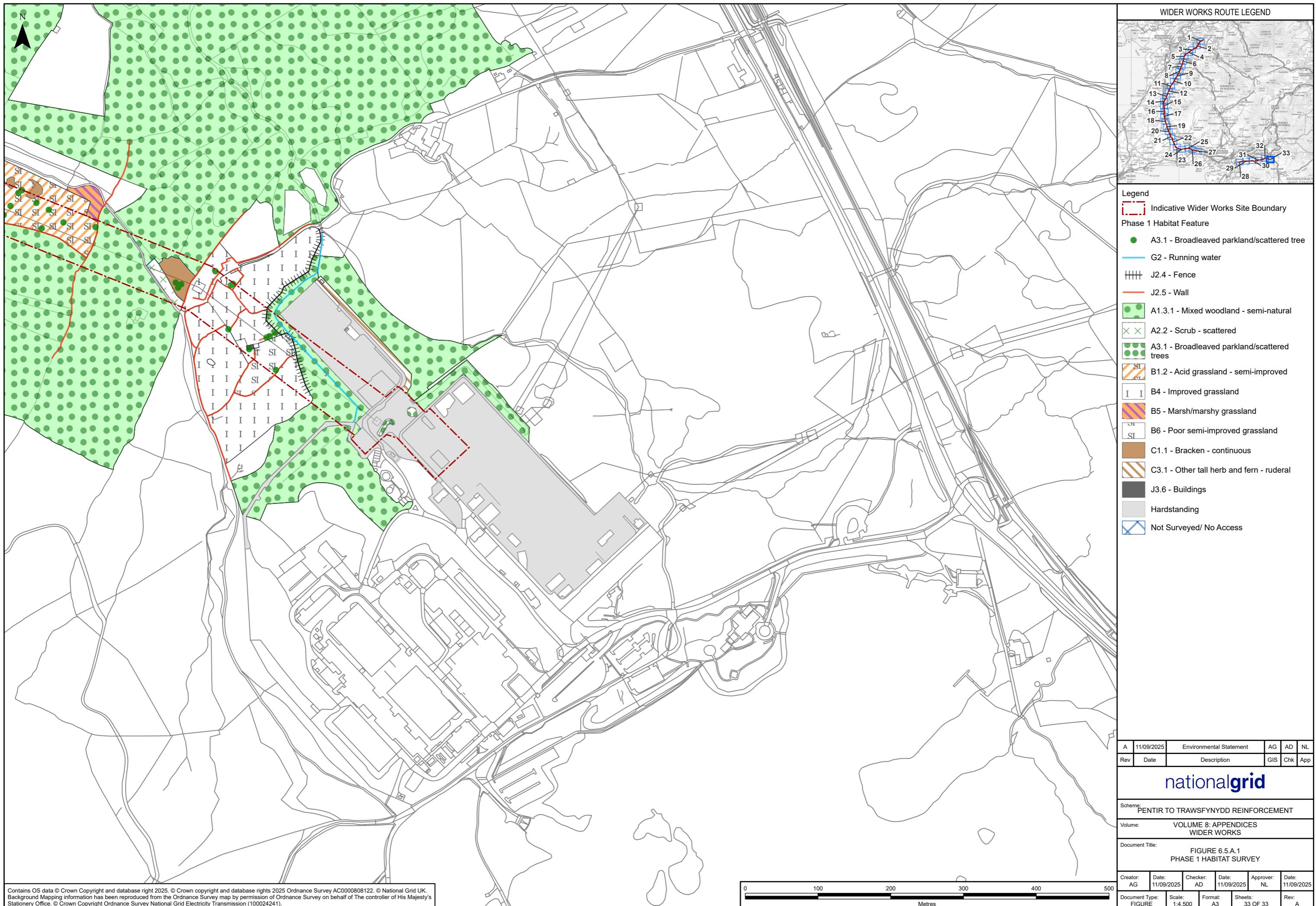


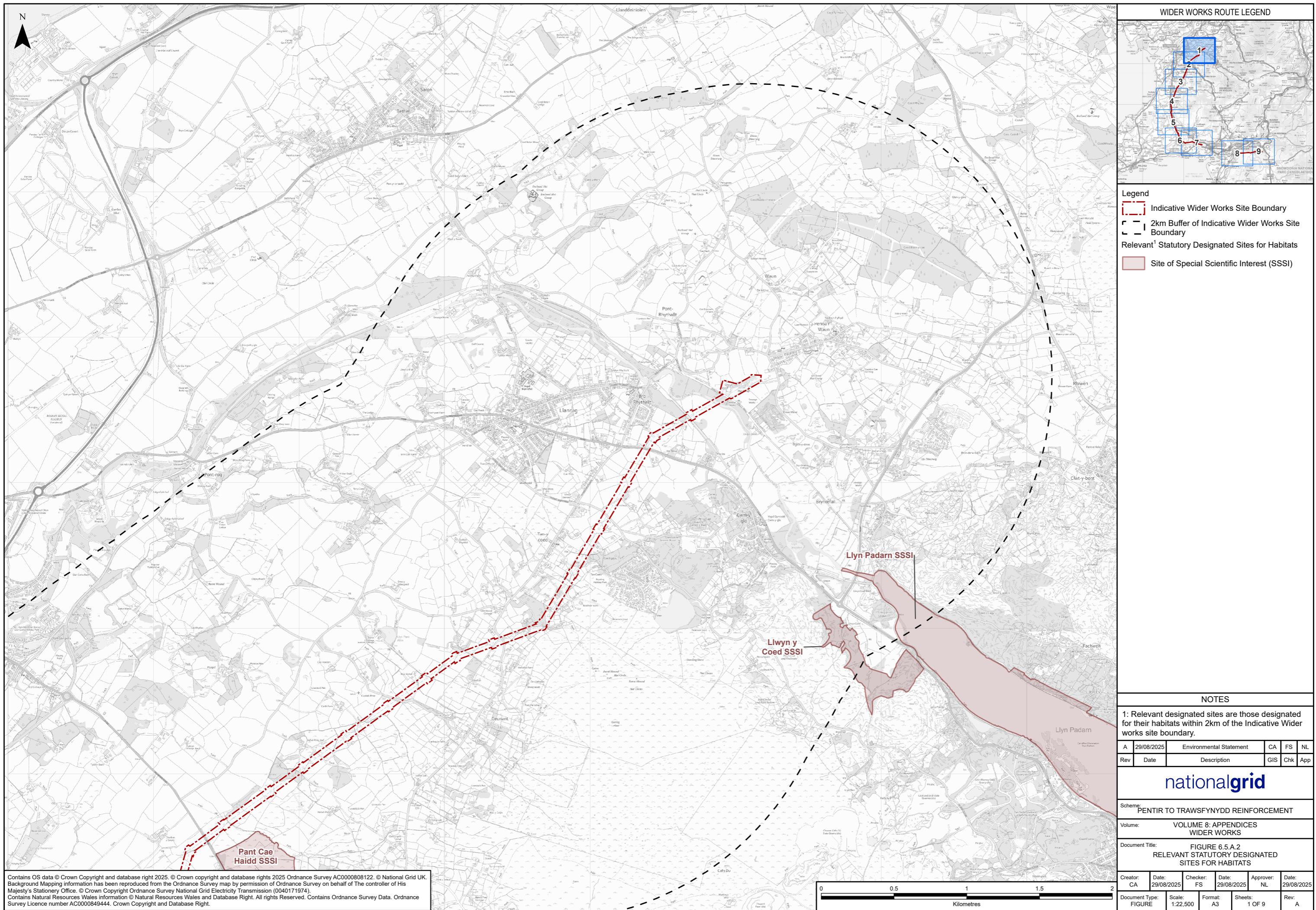


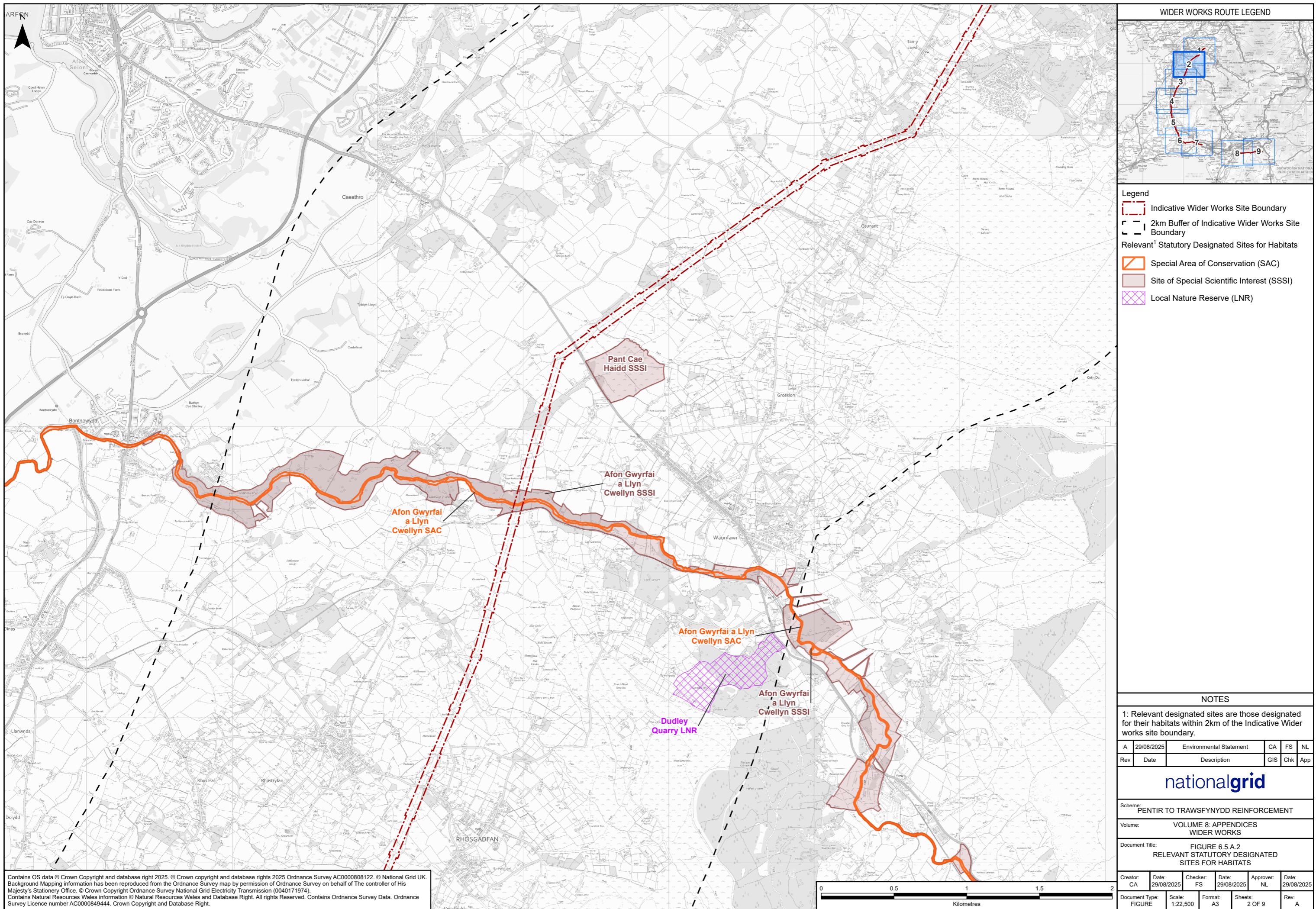


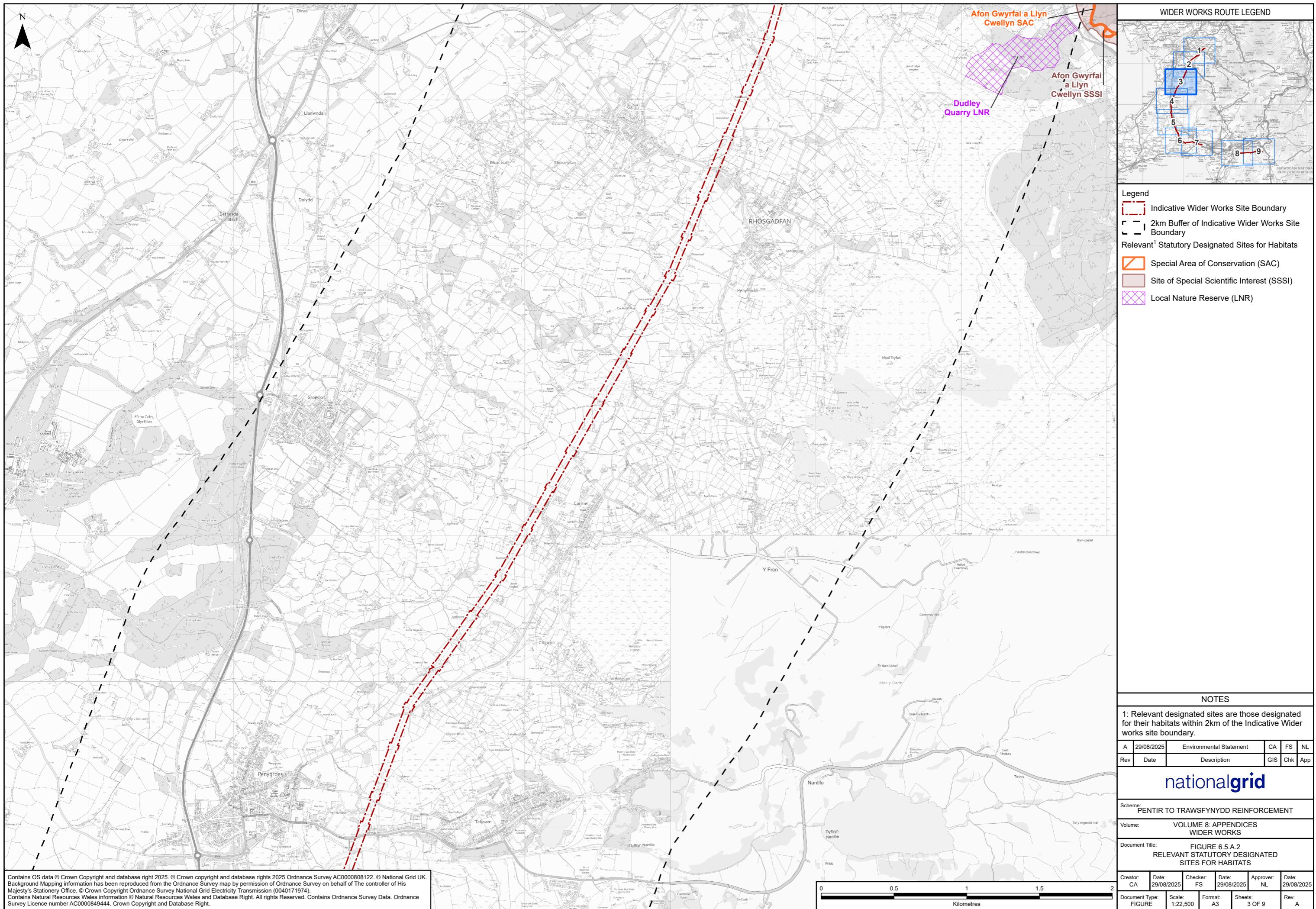


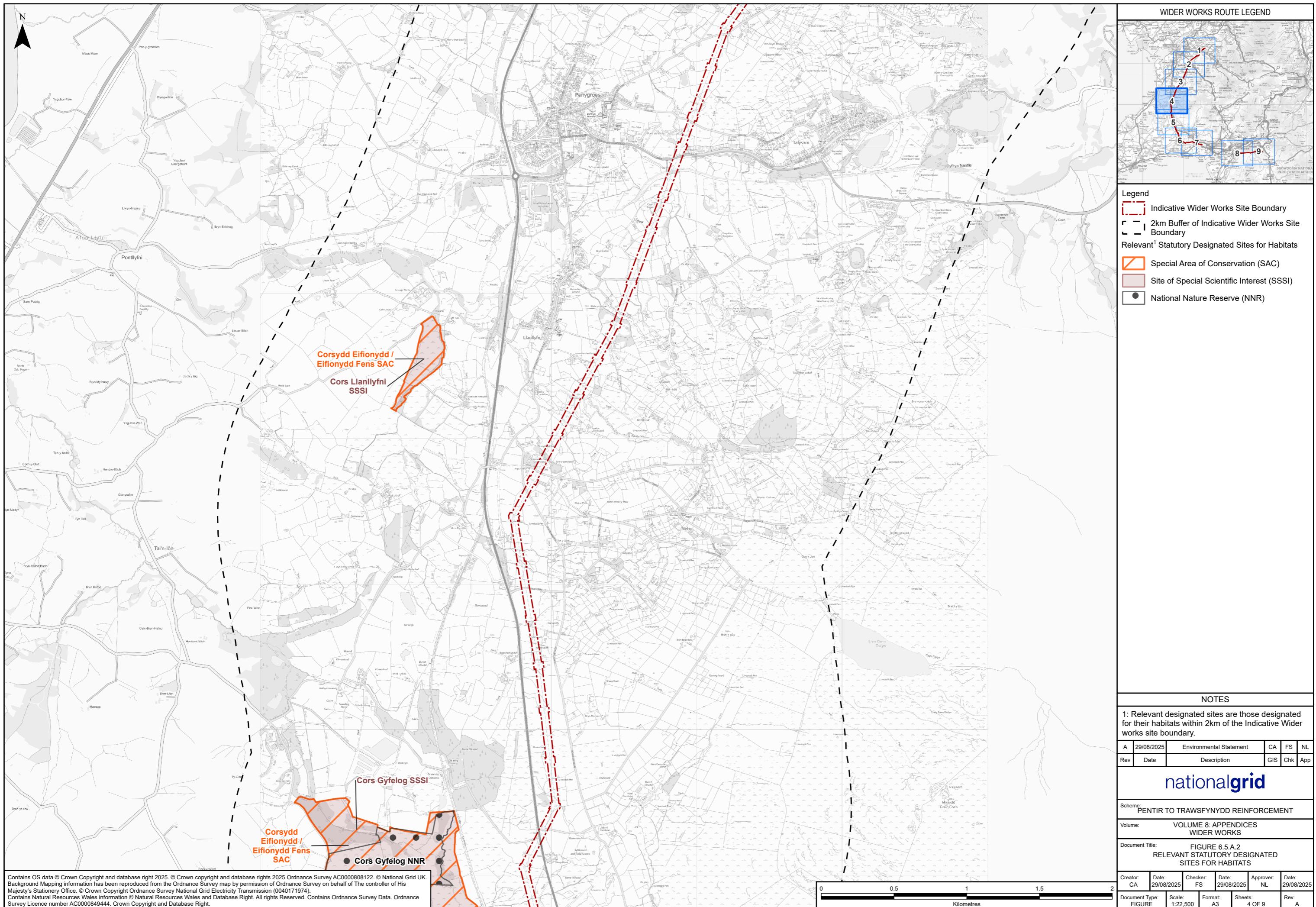


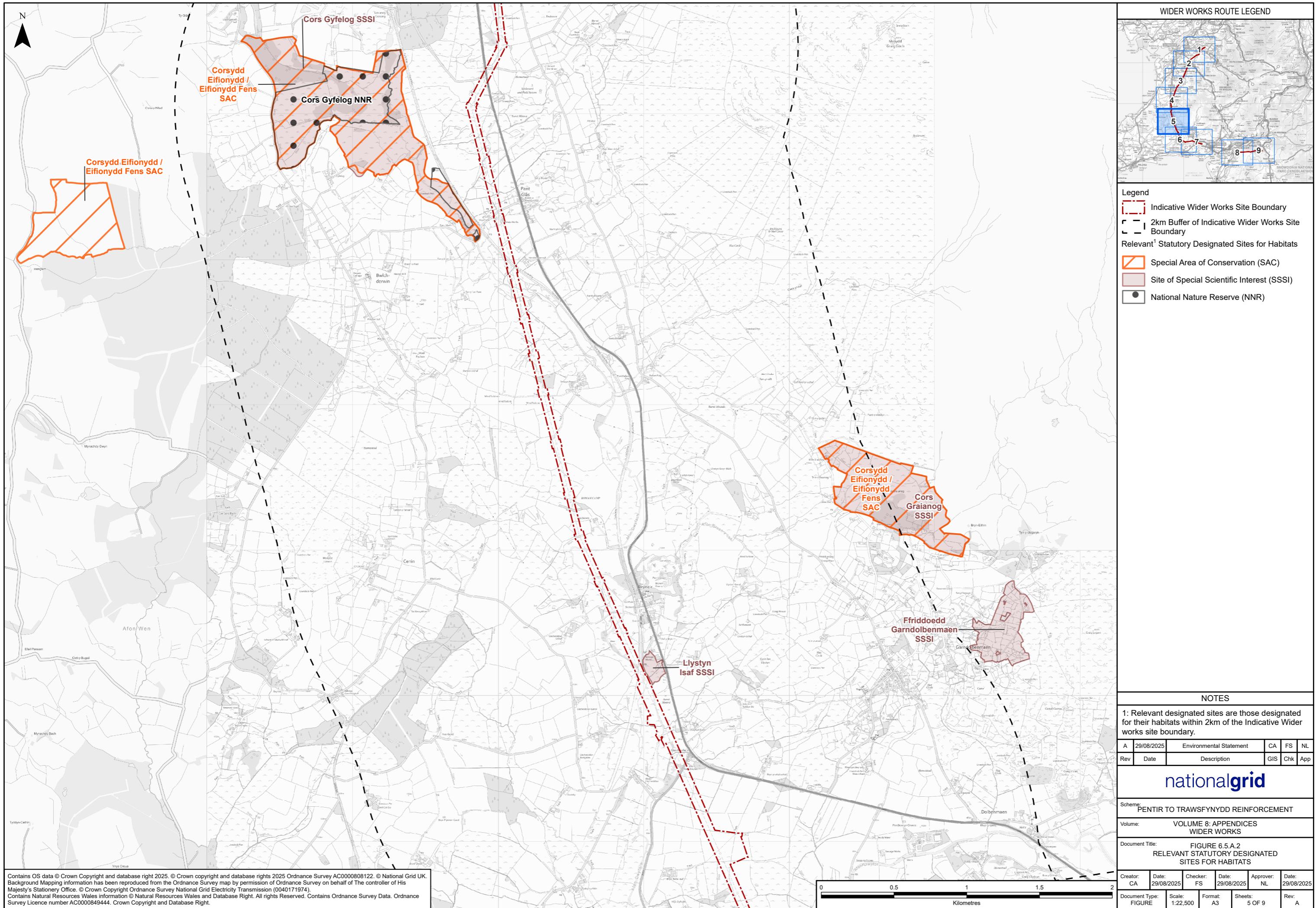


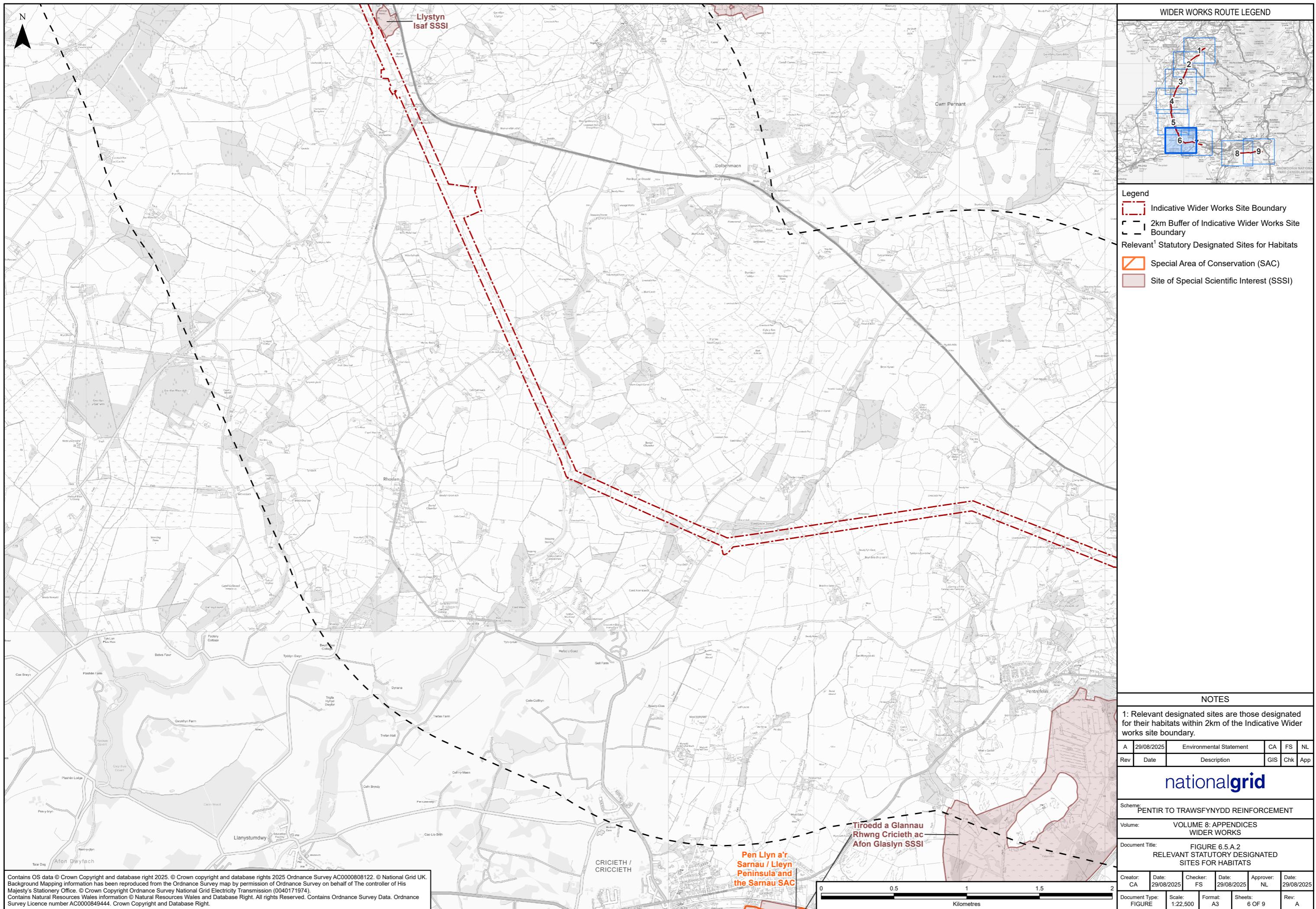


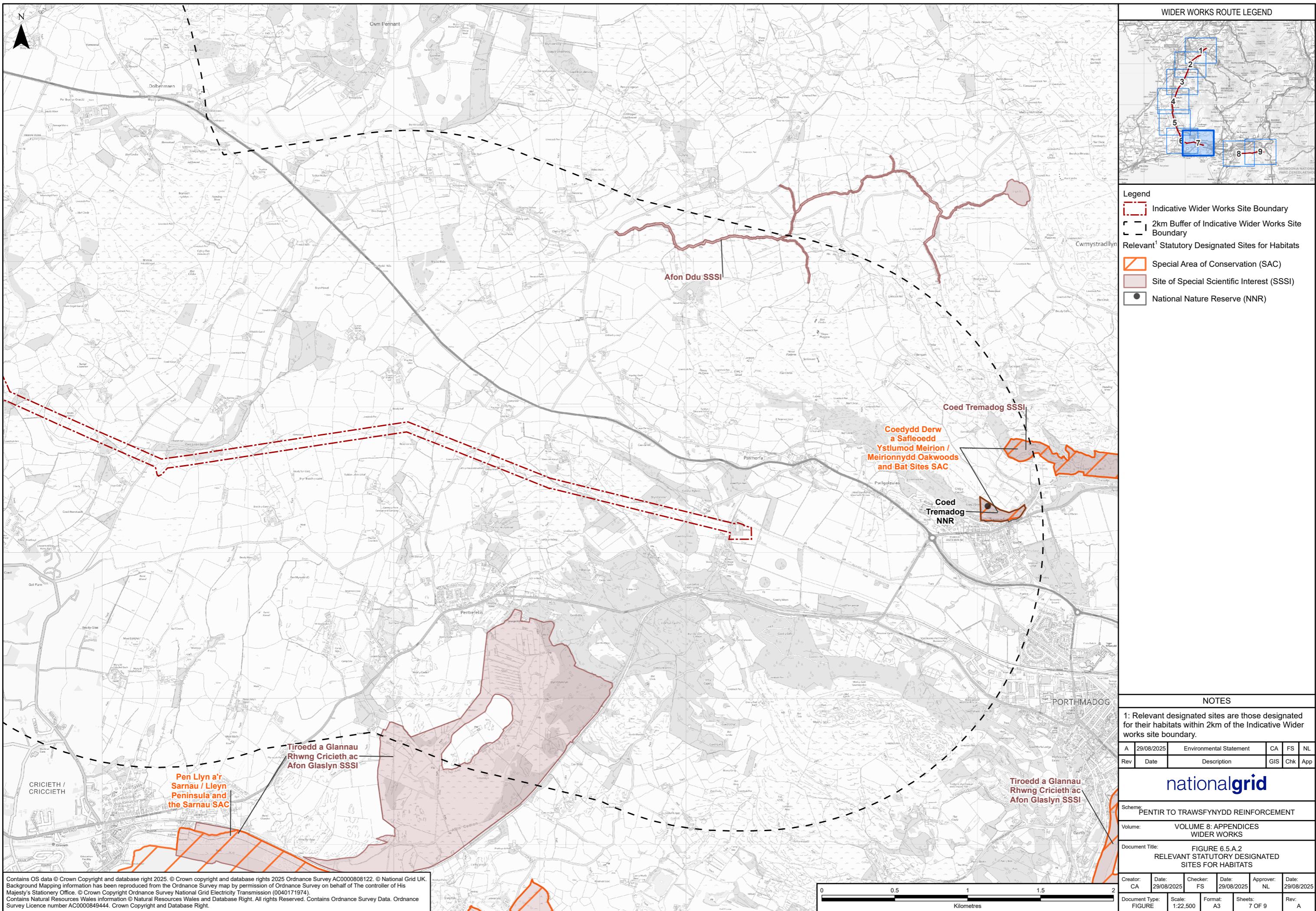


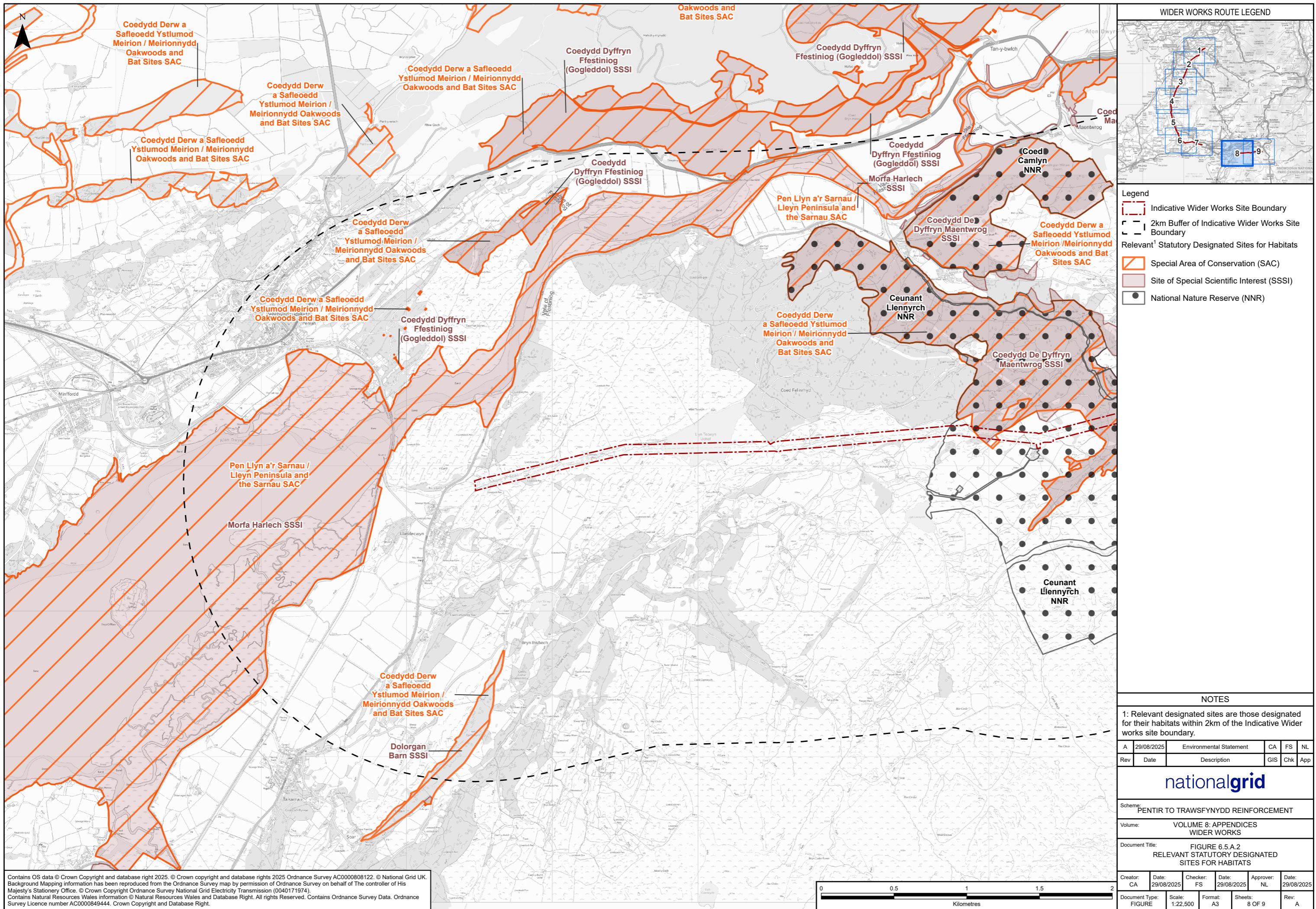


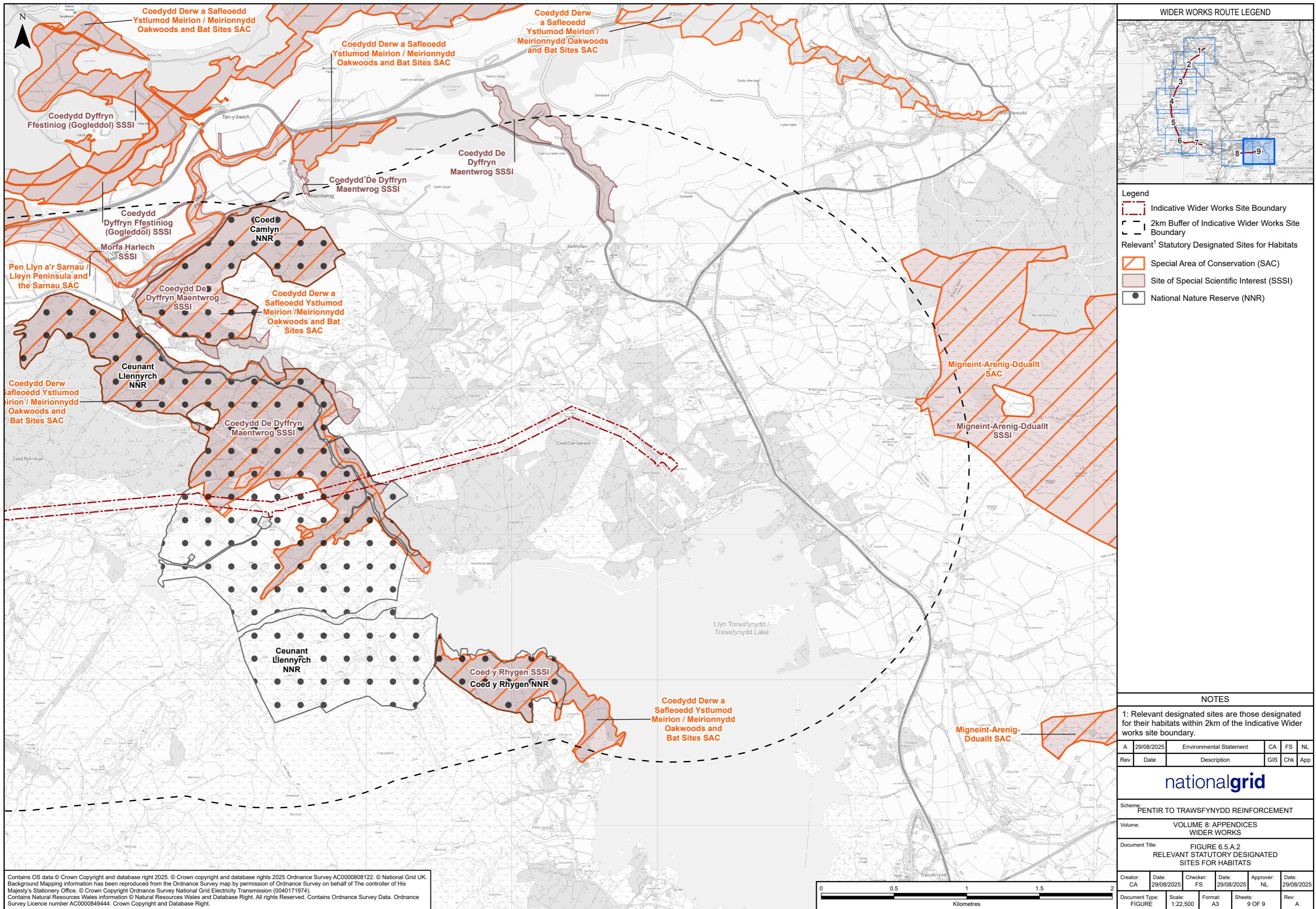


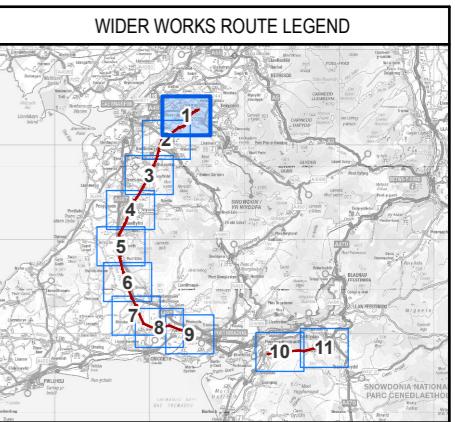
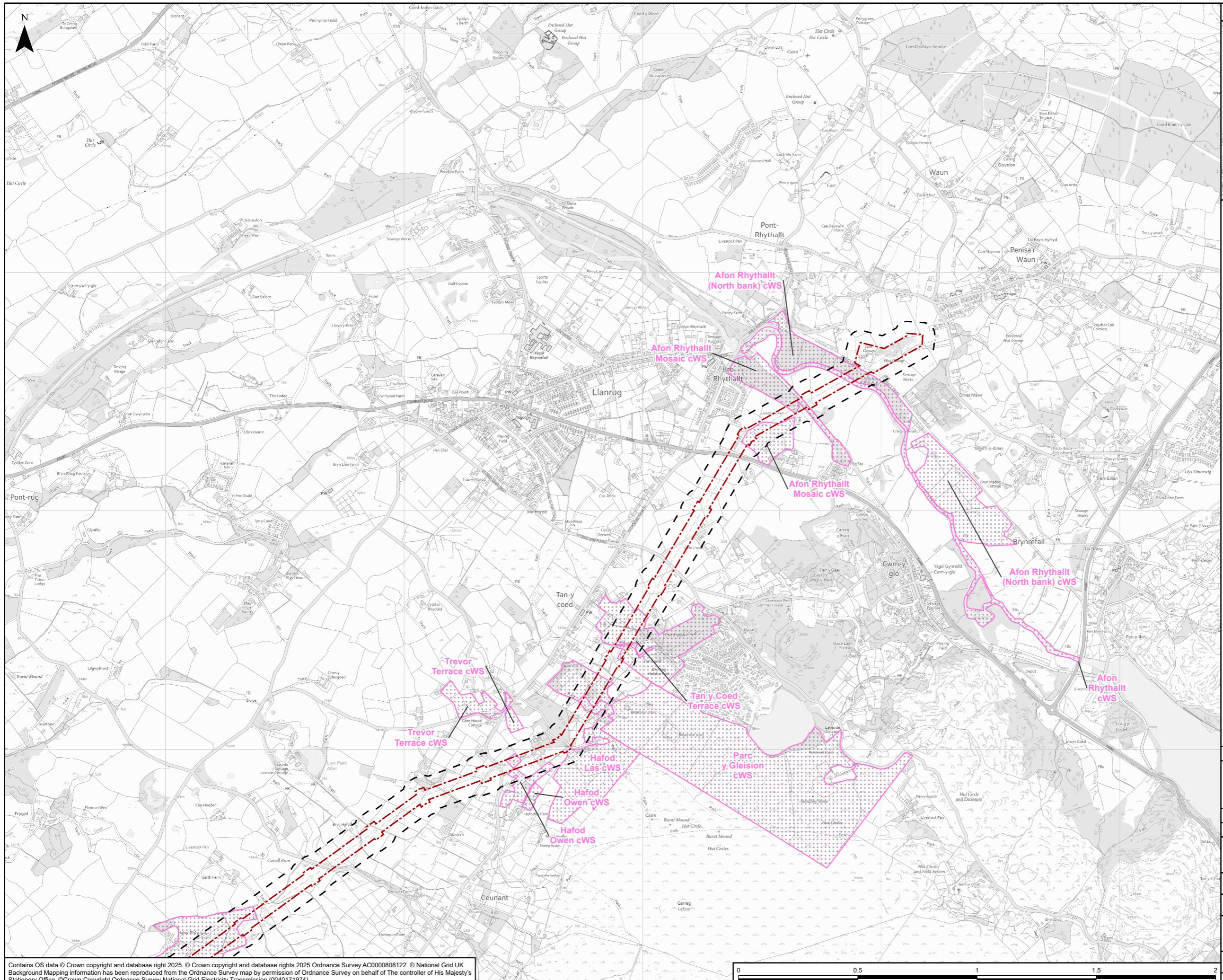


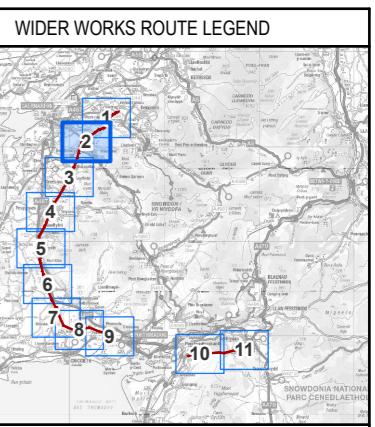
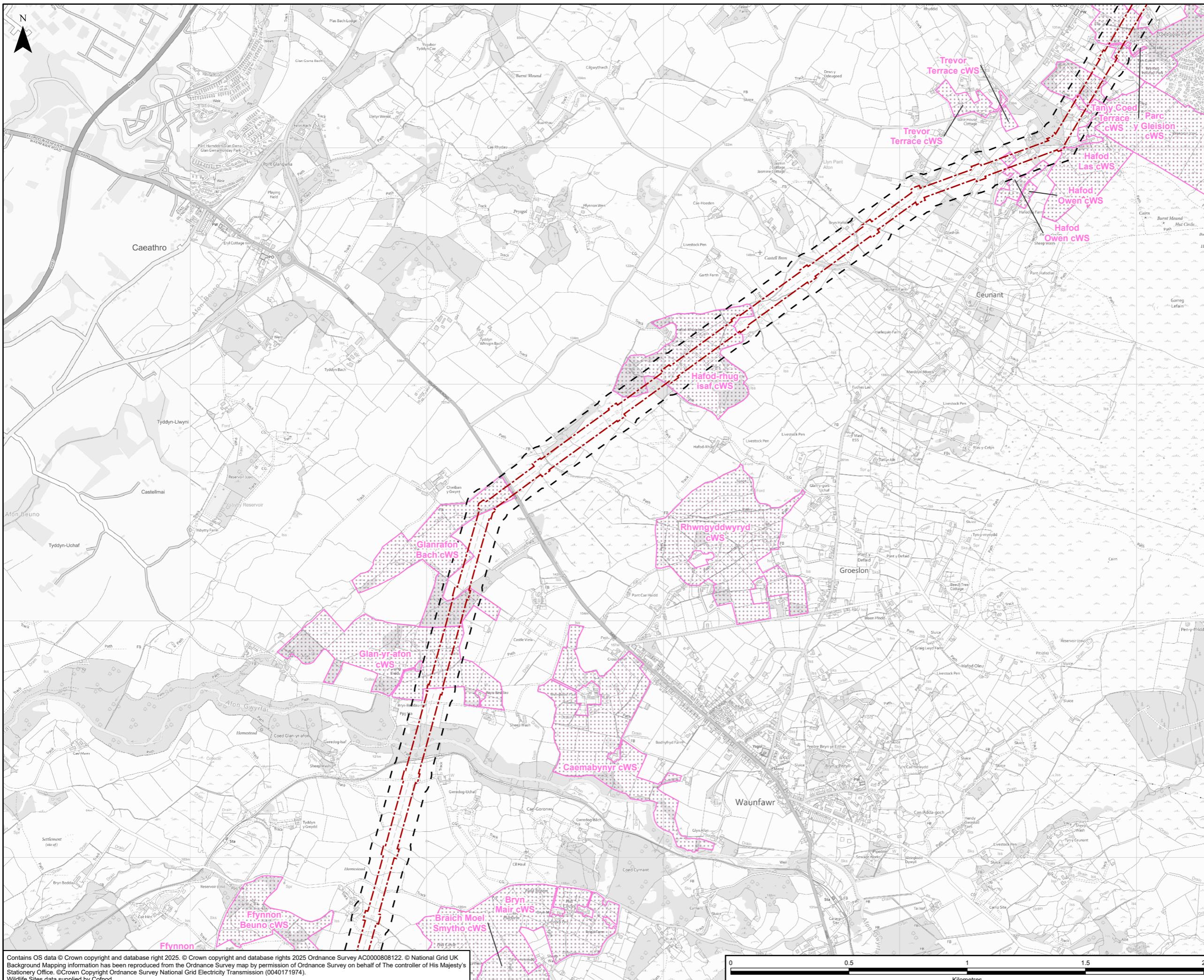












#### NOTES

1. Relevant designated sites are those designated for their habitats within 50m of the Indicative Wider works site boundary.
2. Wildlife Sites data supplied by Cofnod.

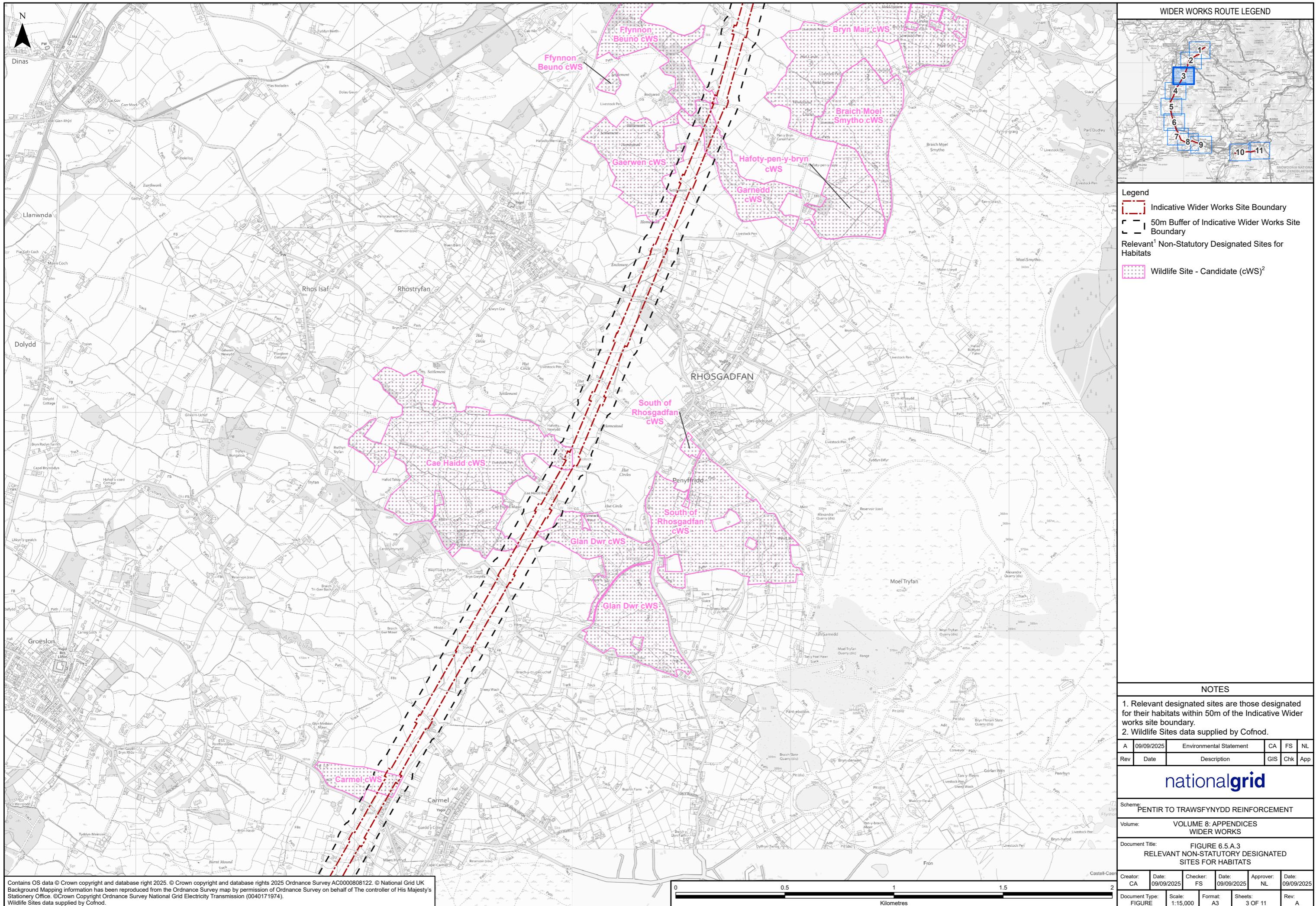
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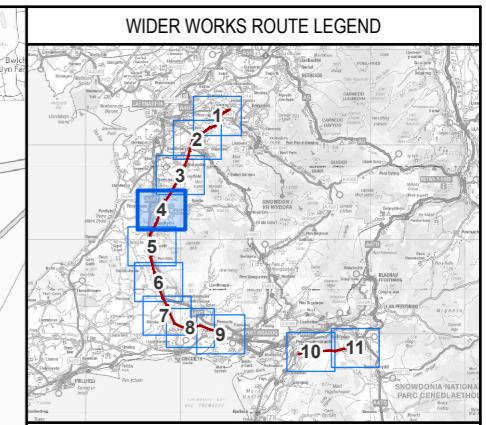
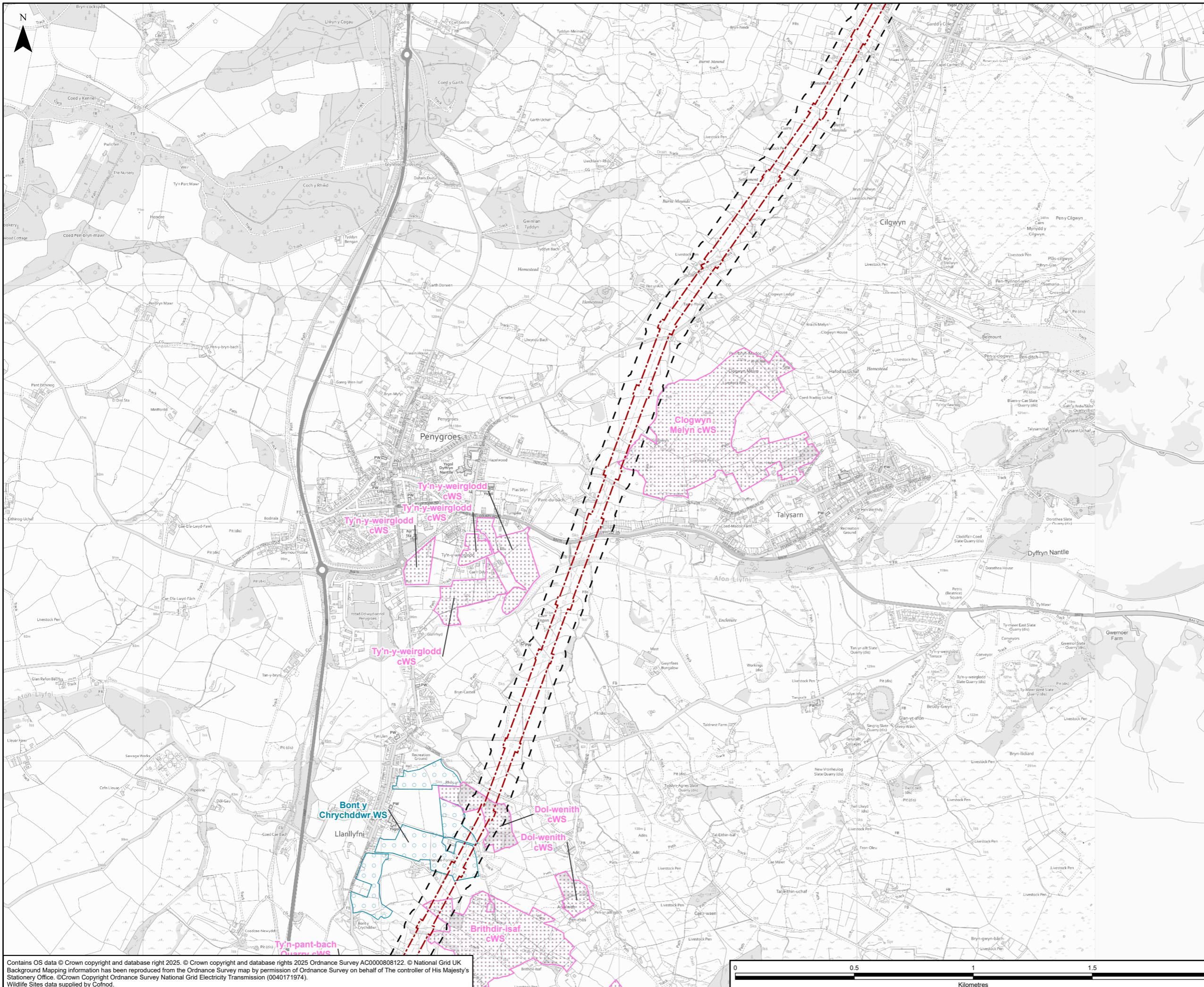
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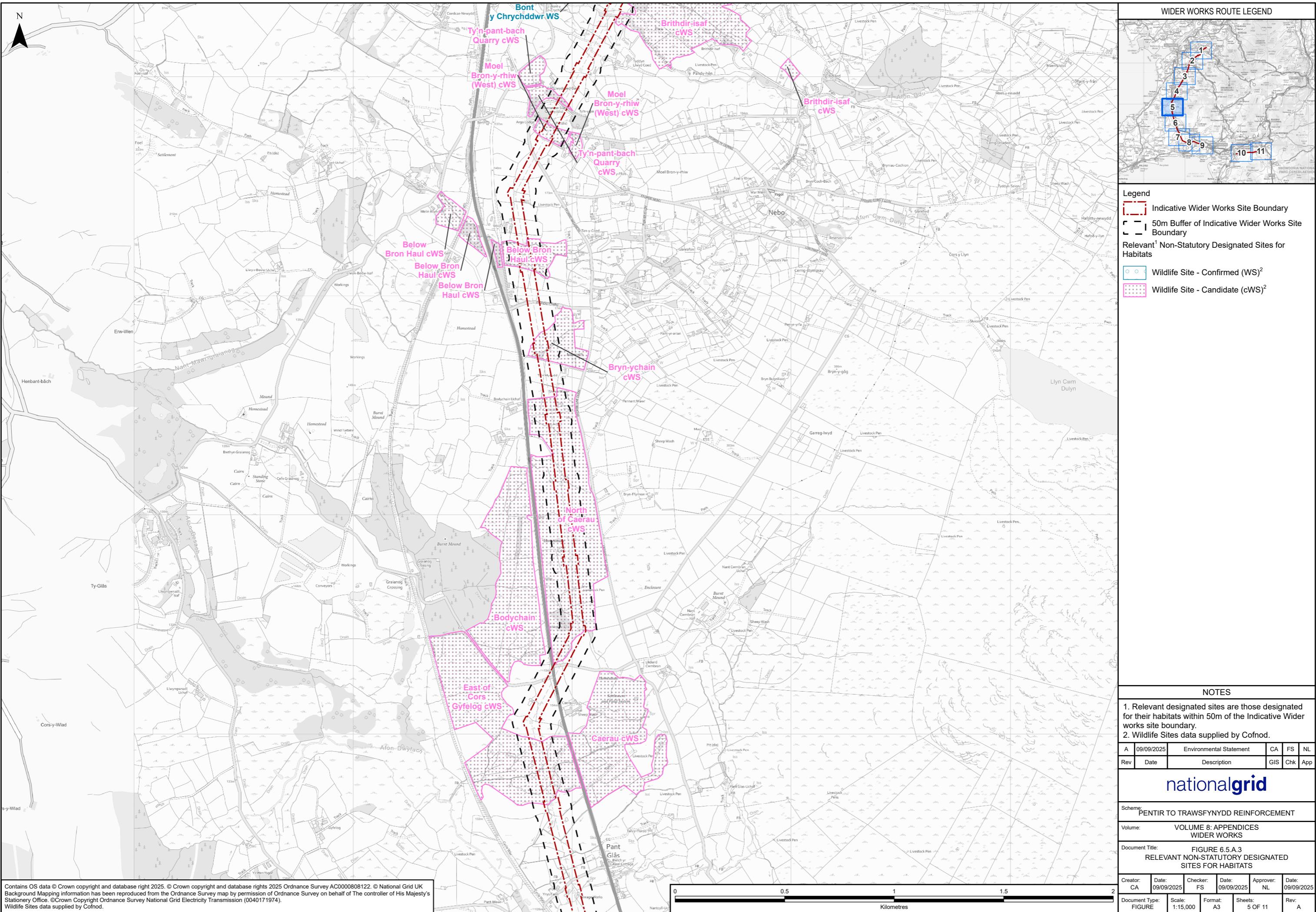
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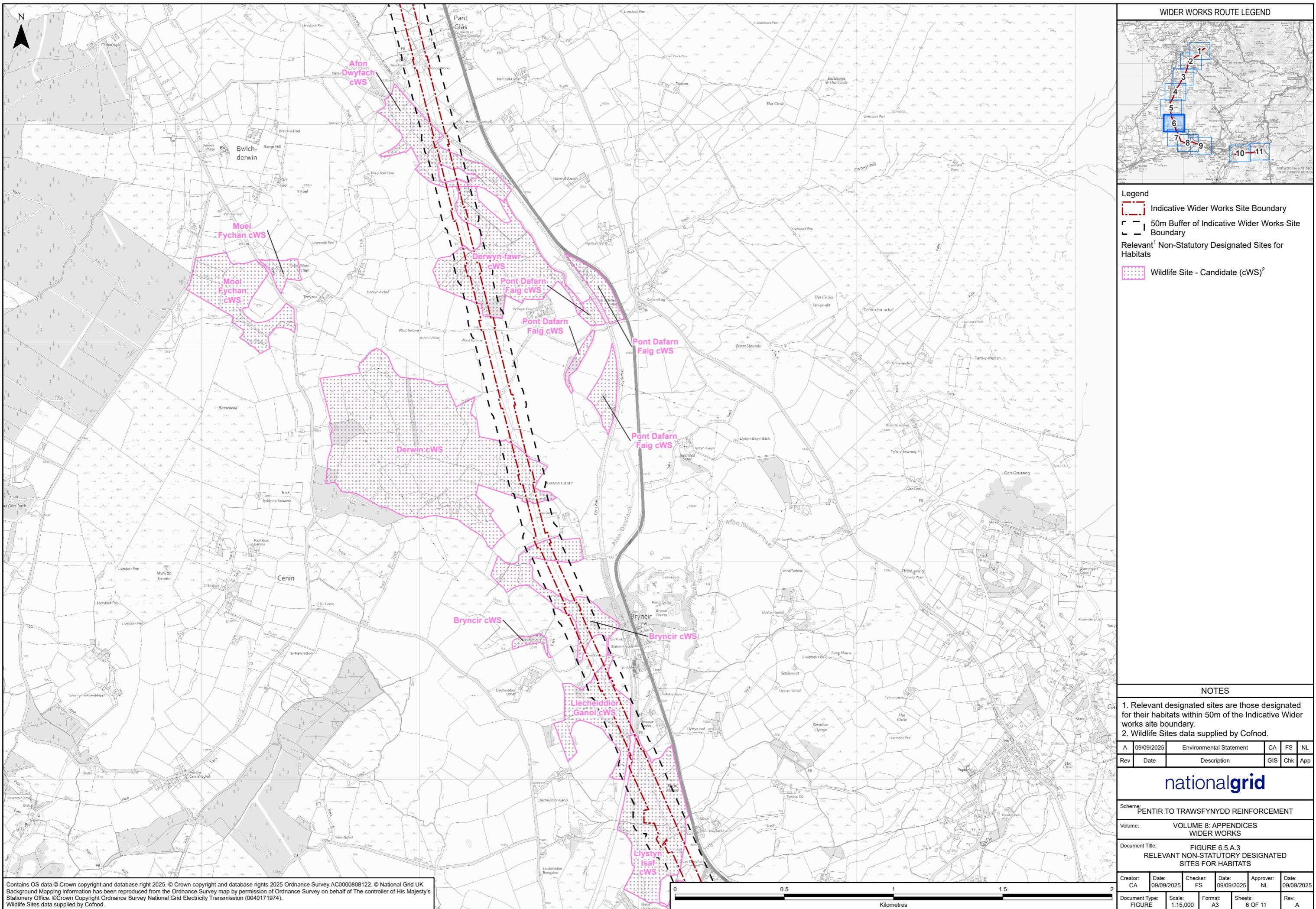
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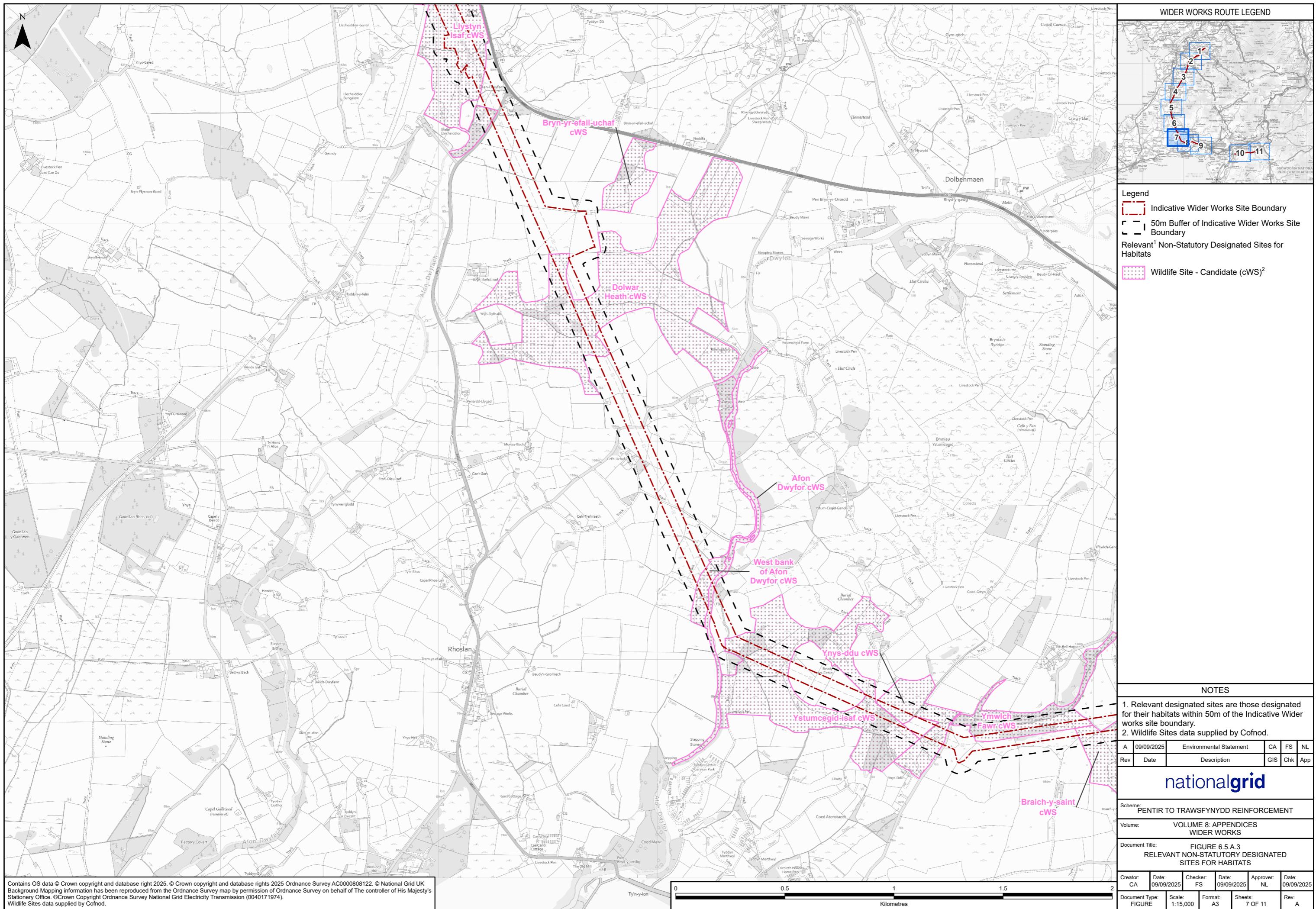
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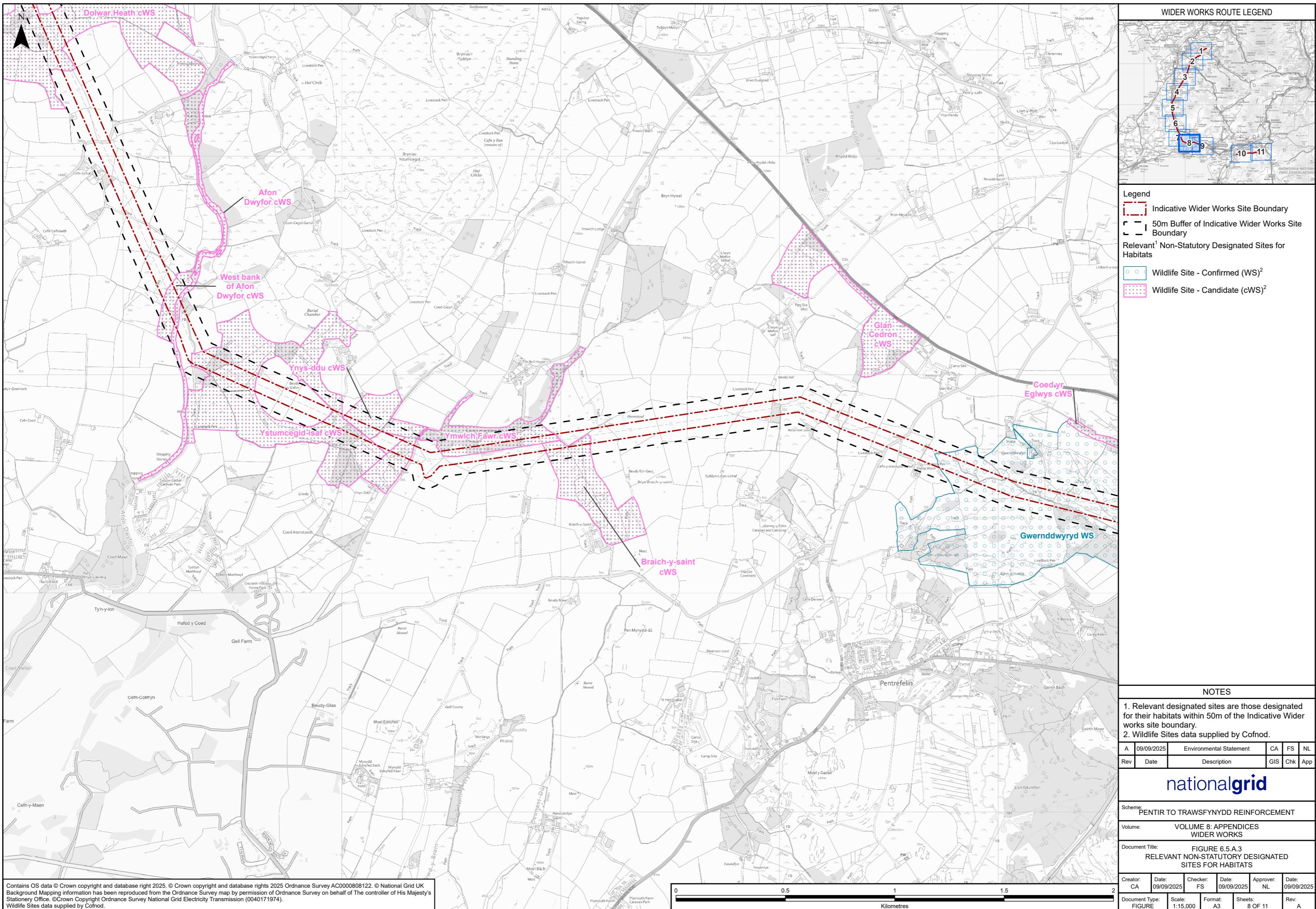


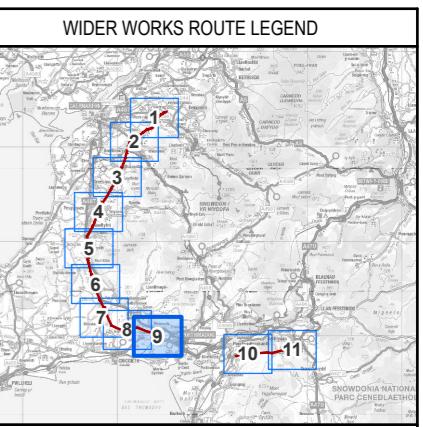
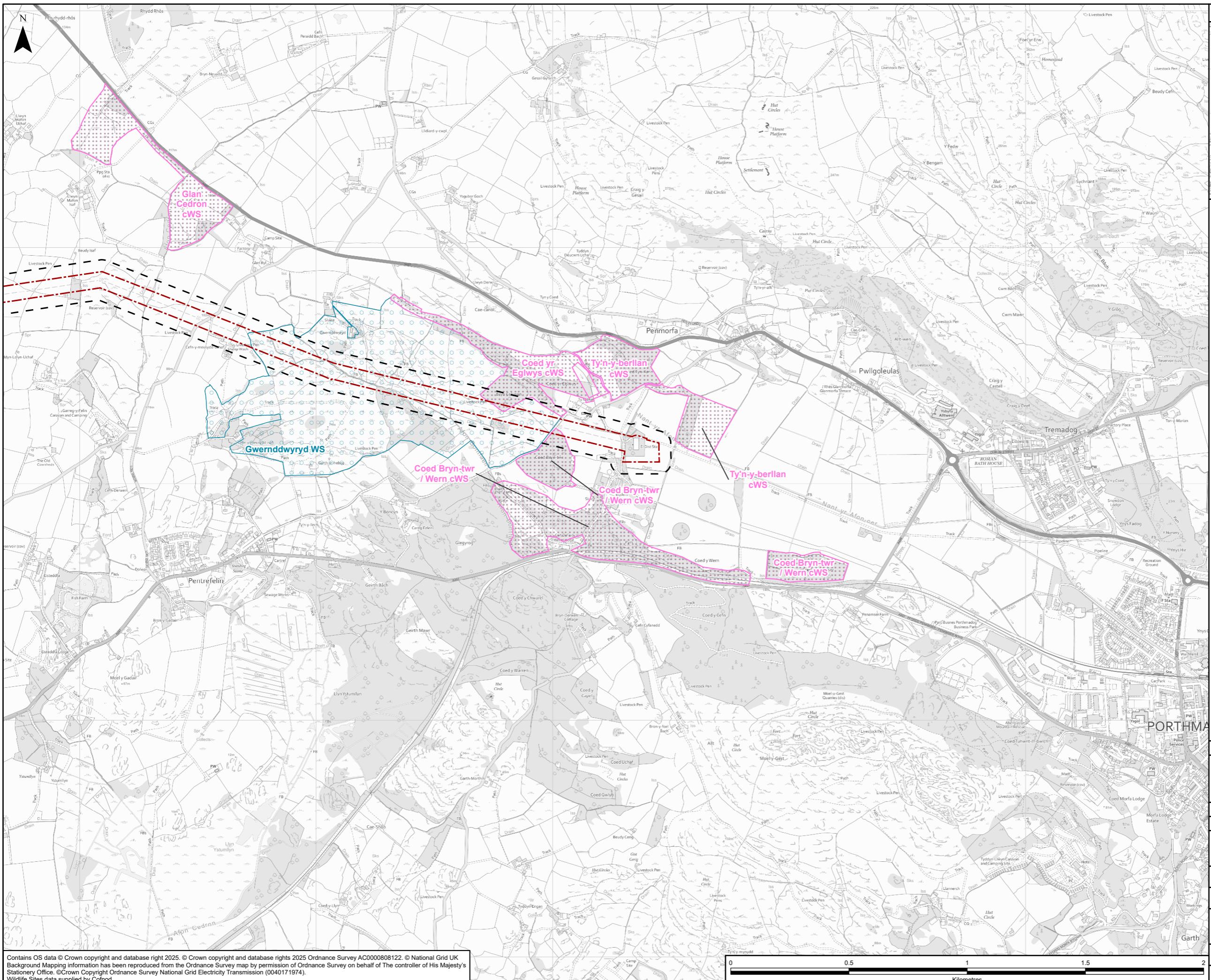


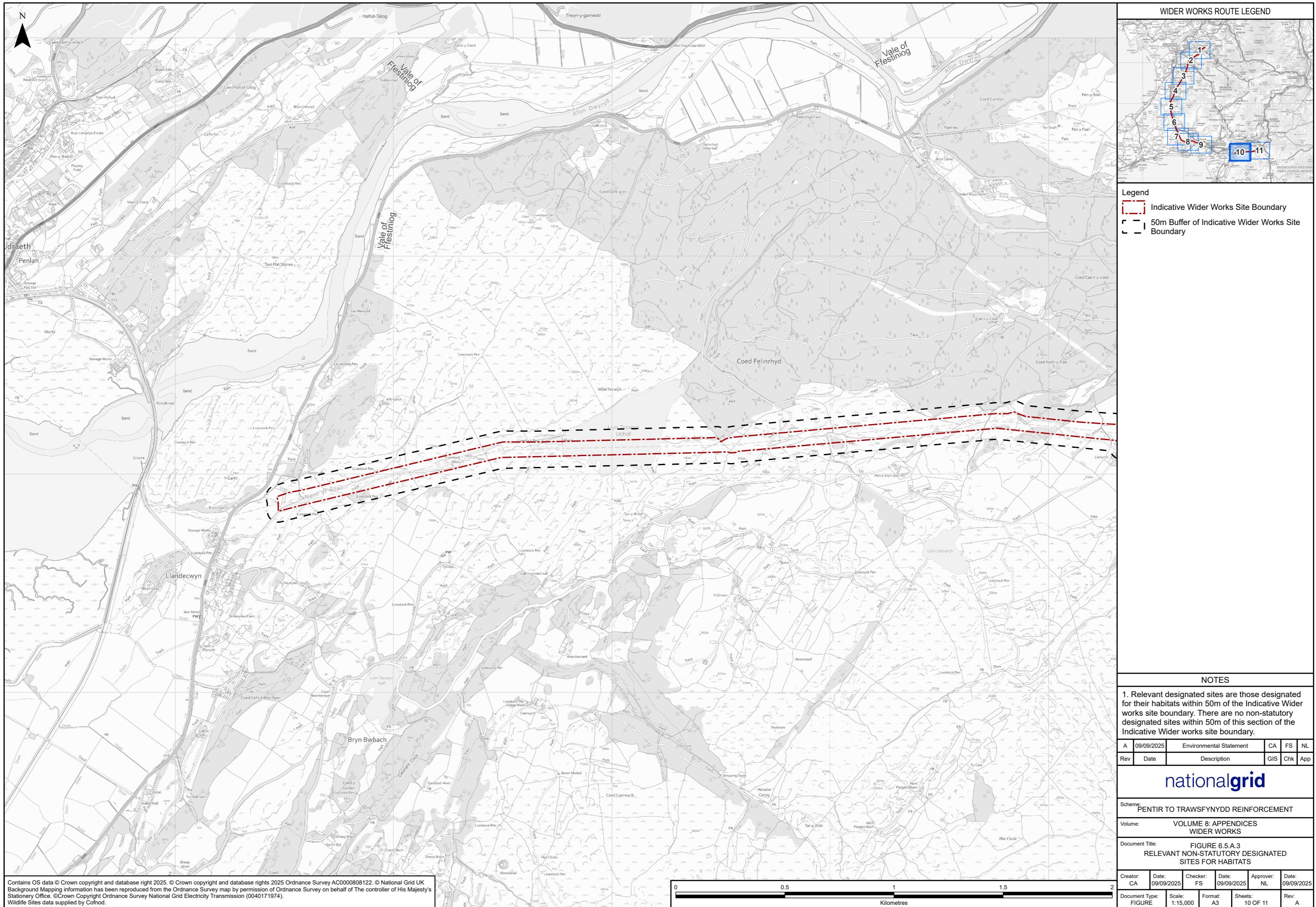


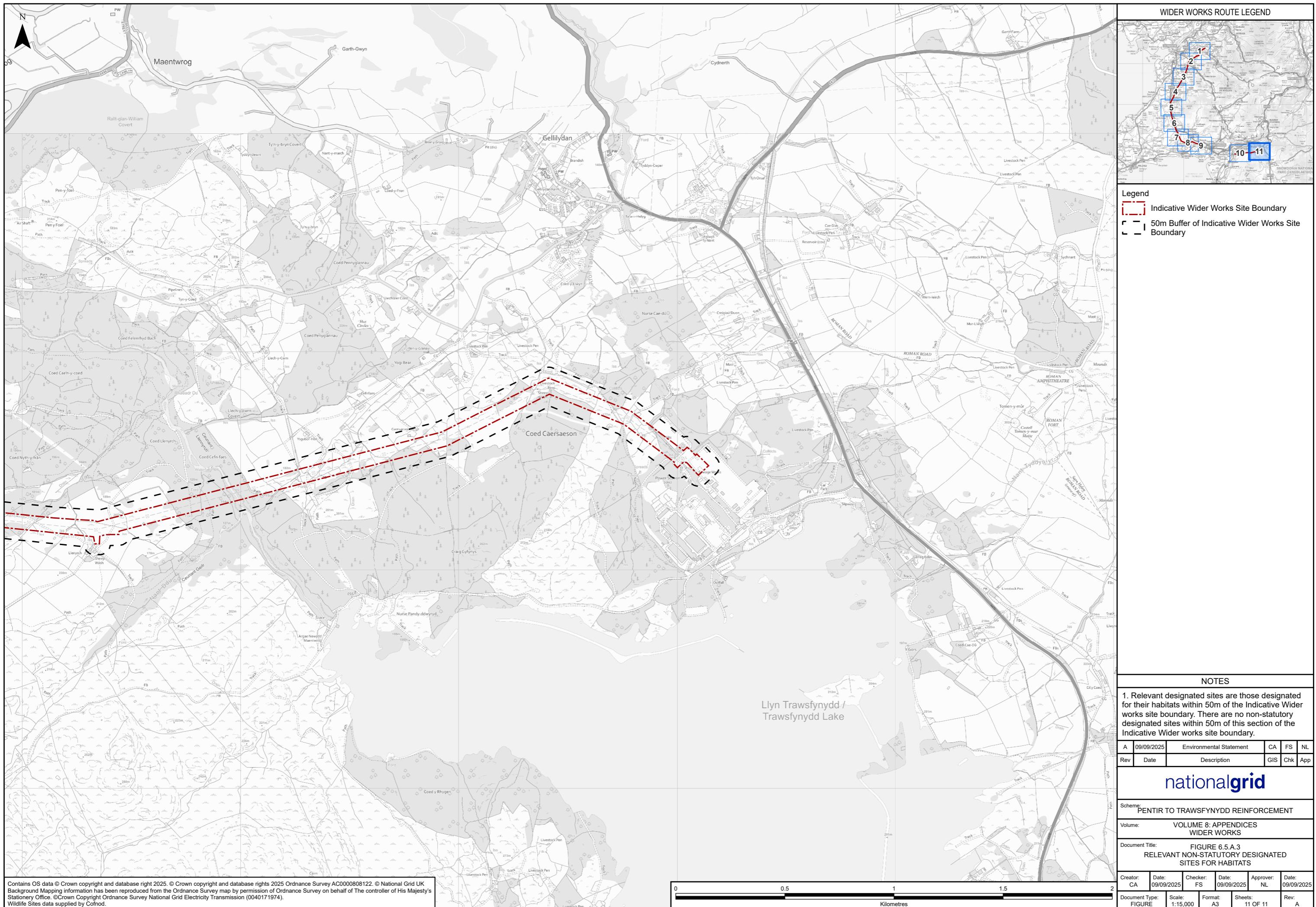


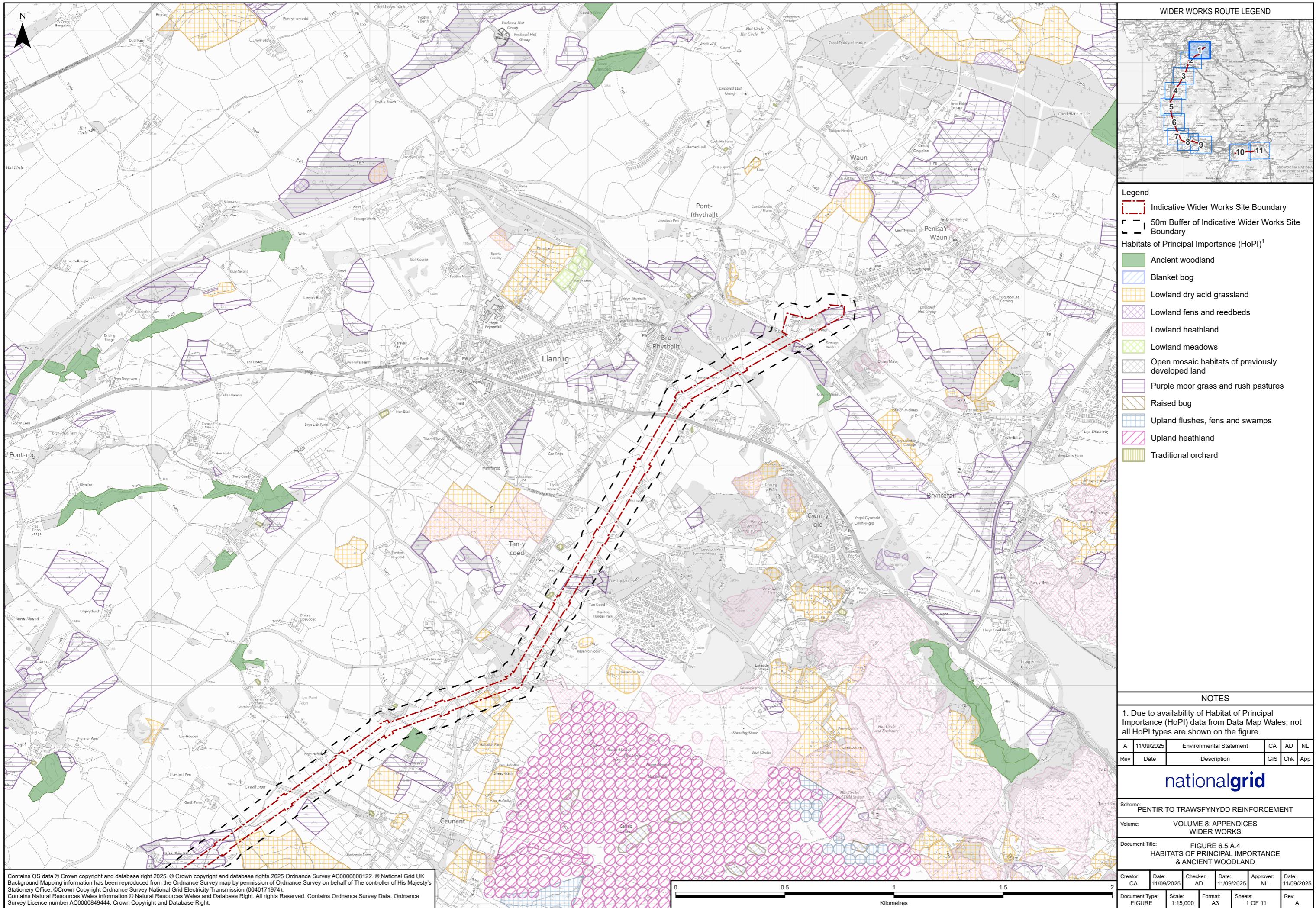


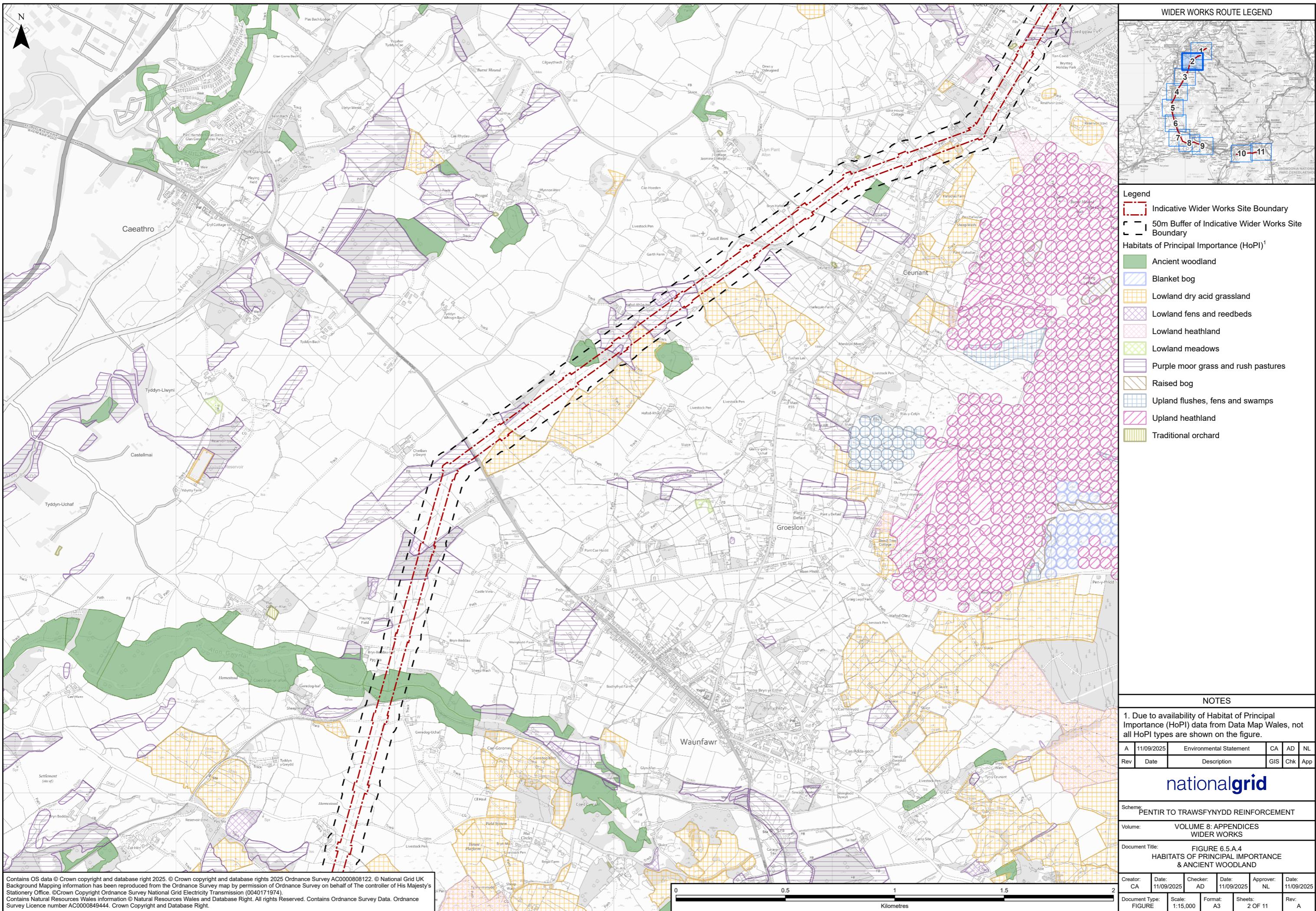


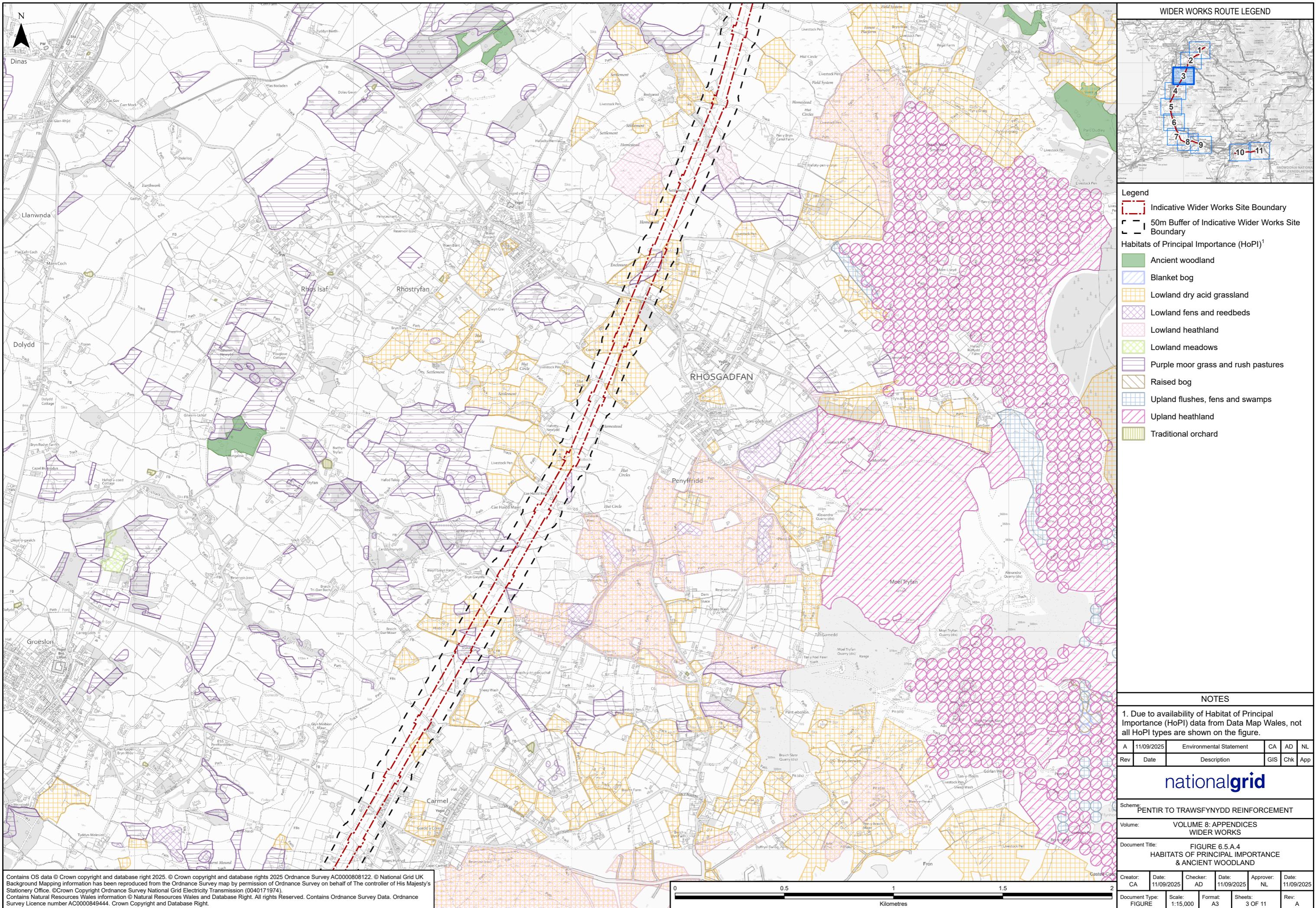


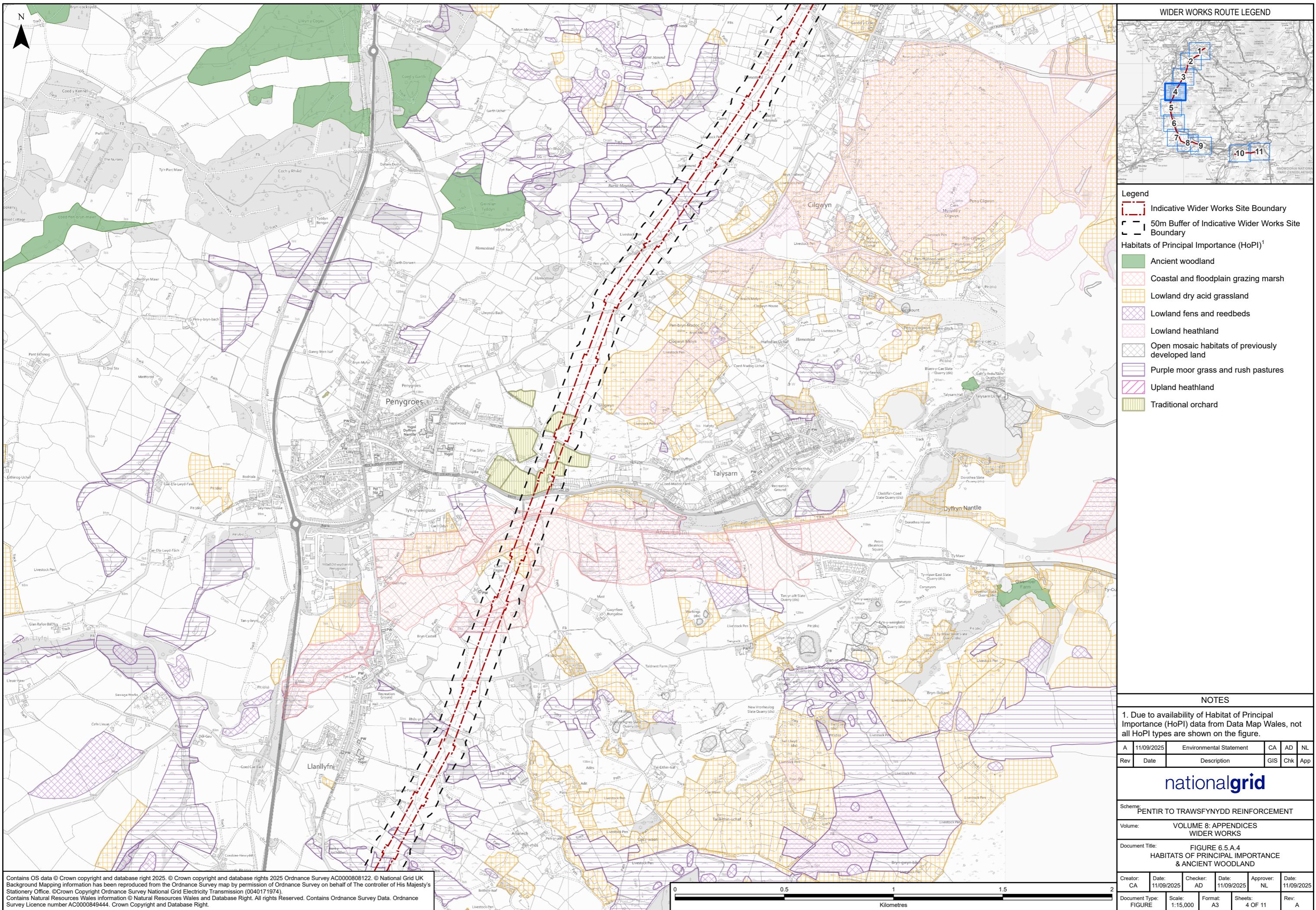


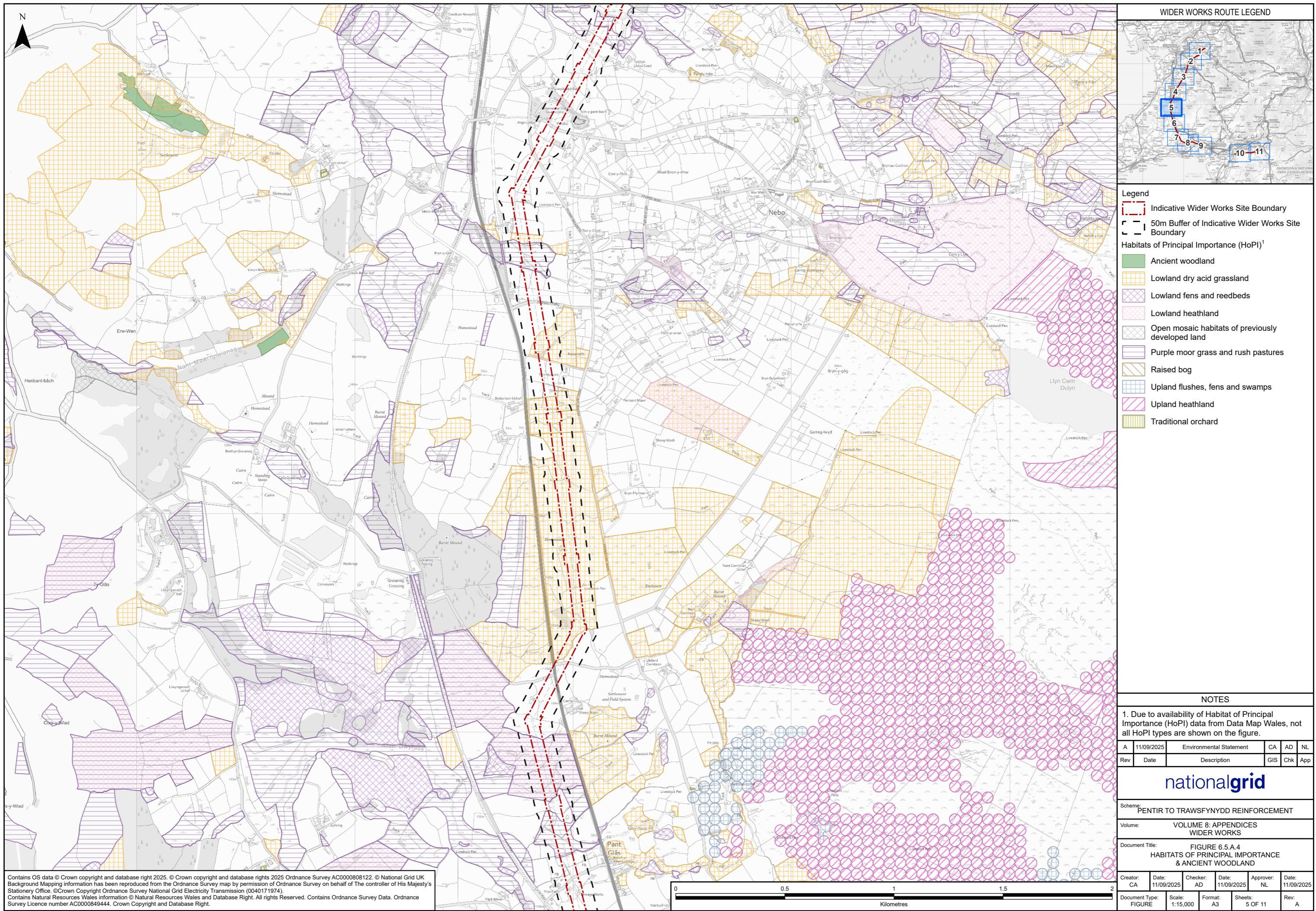


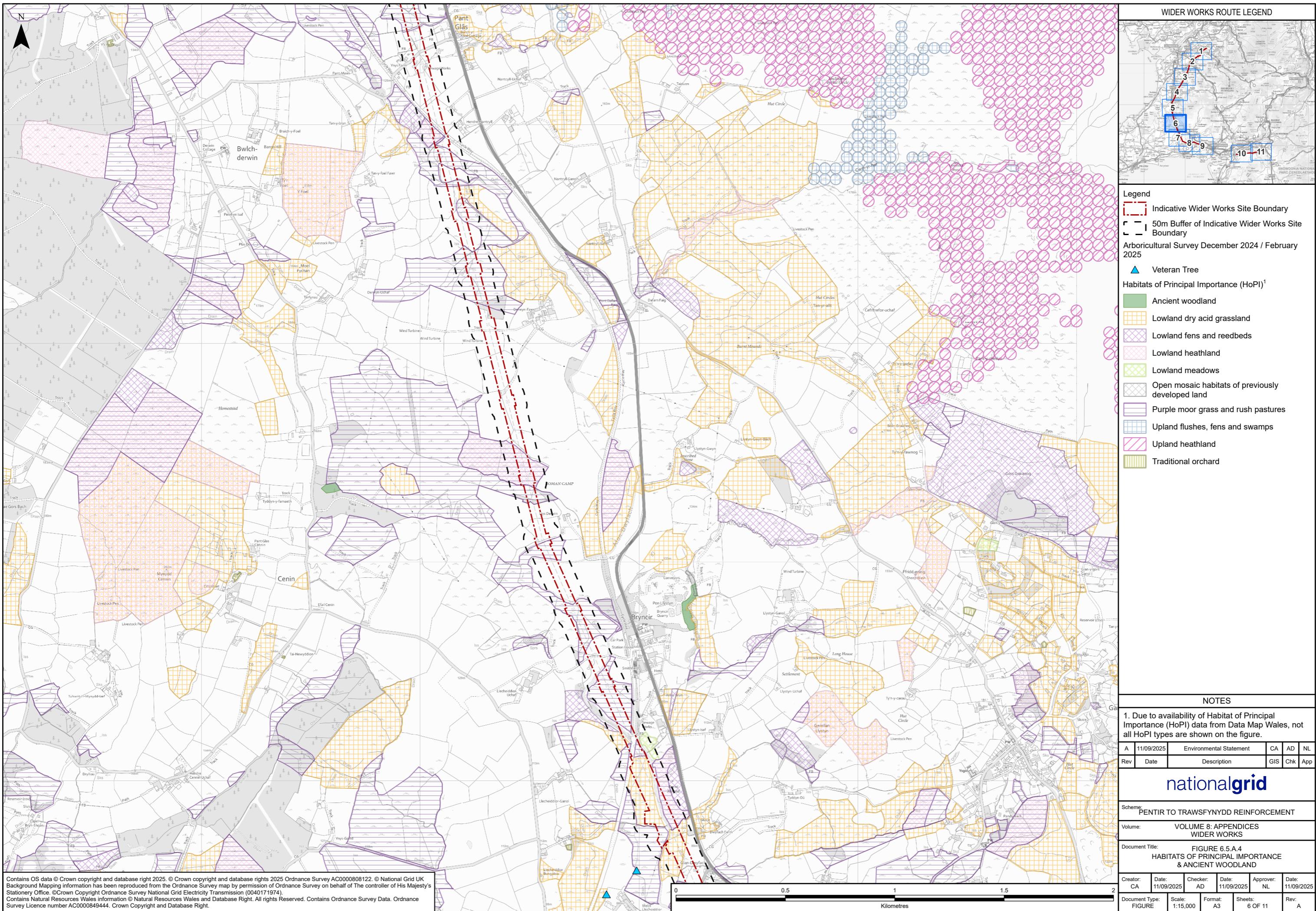


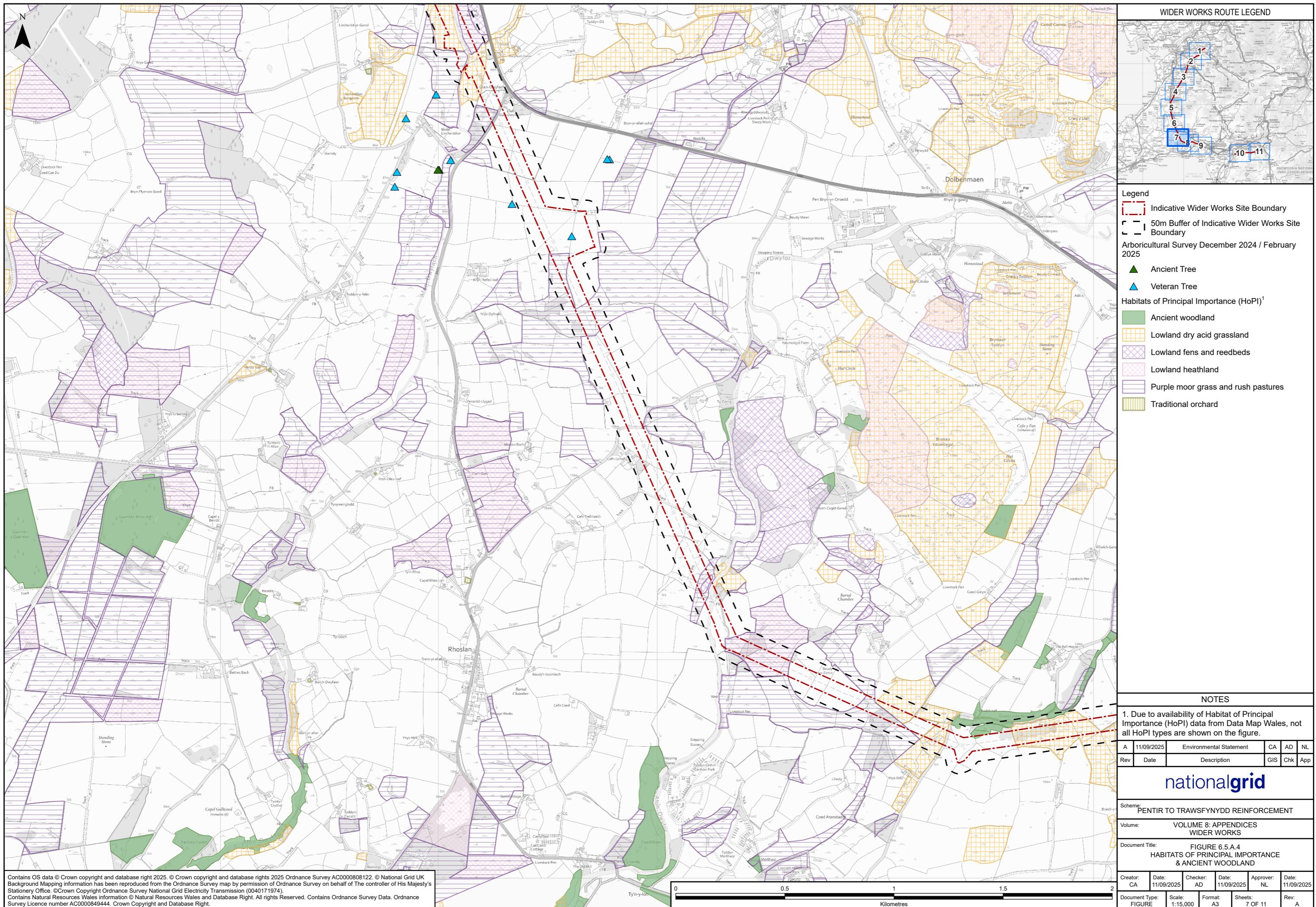


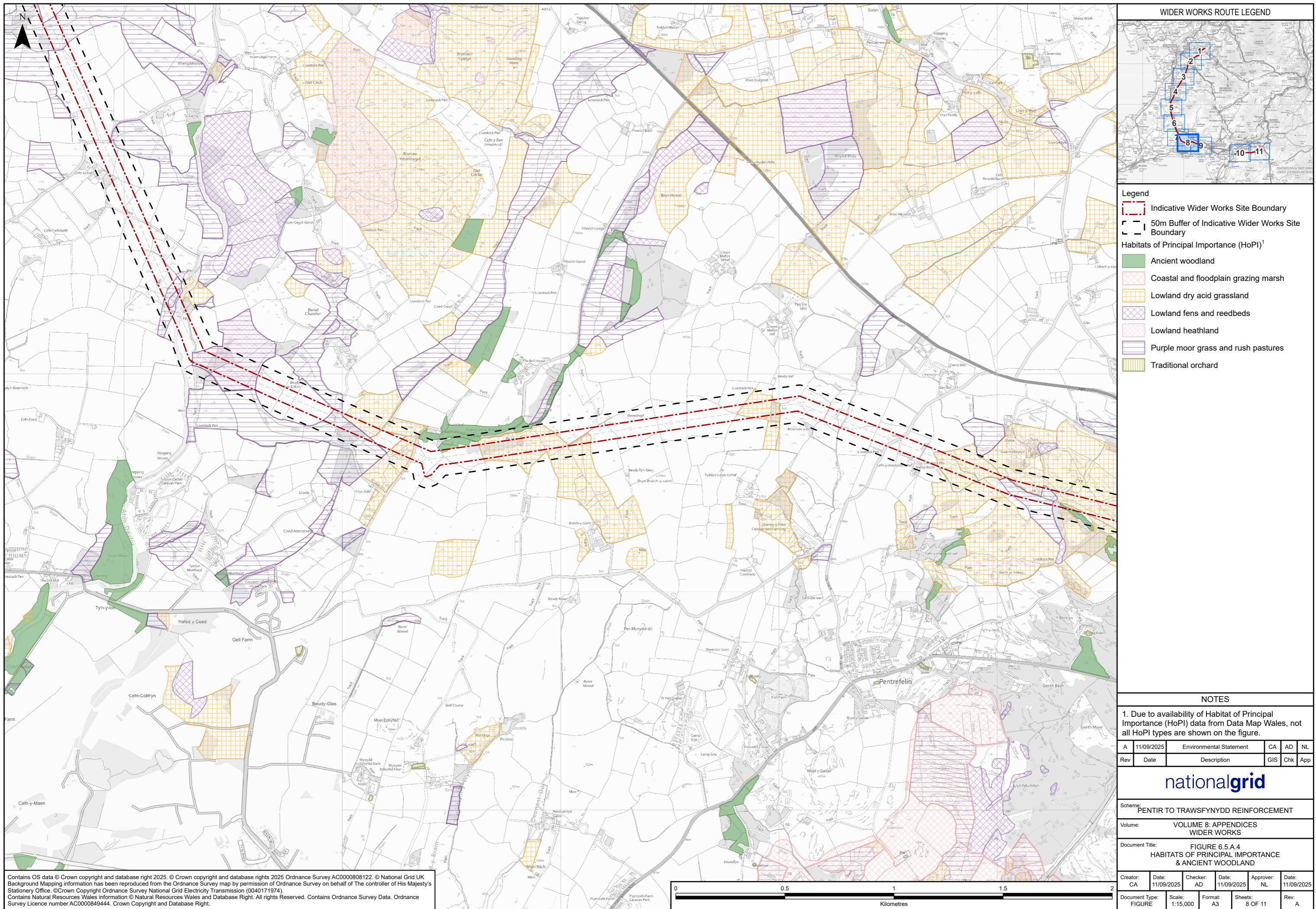


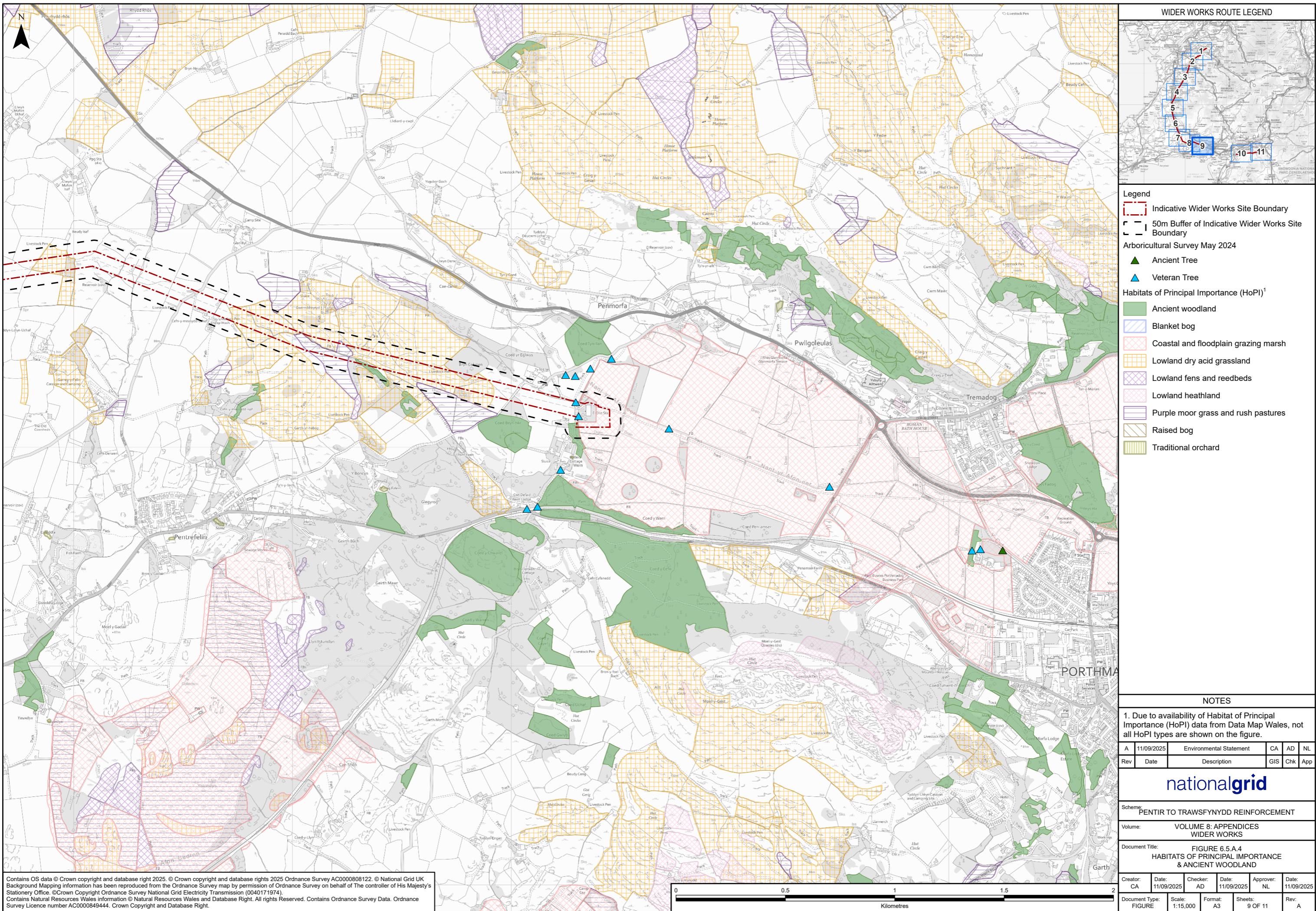


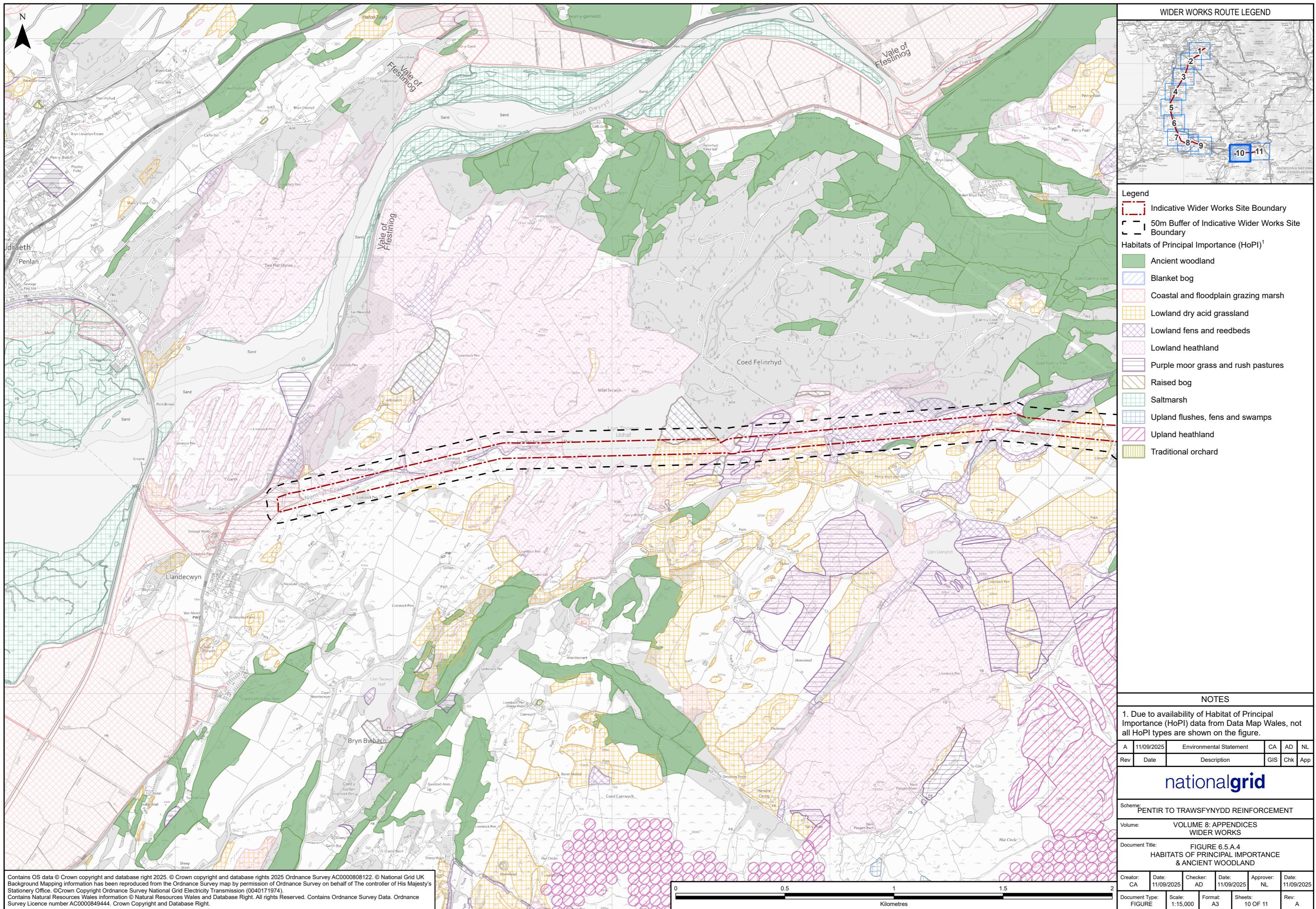


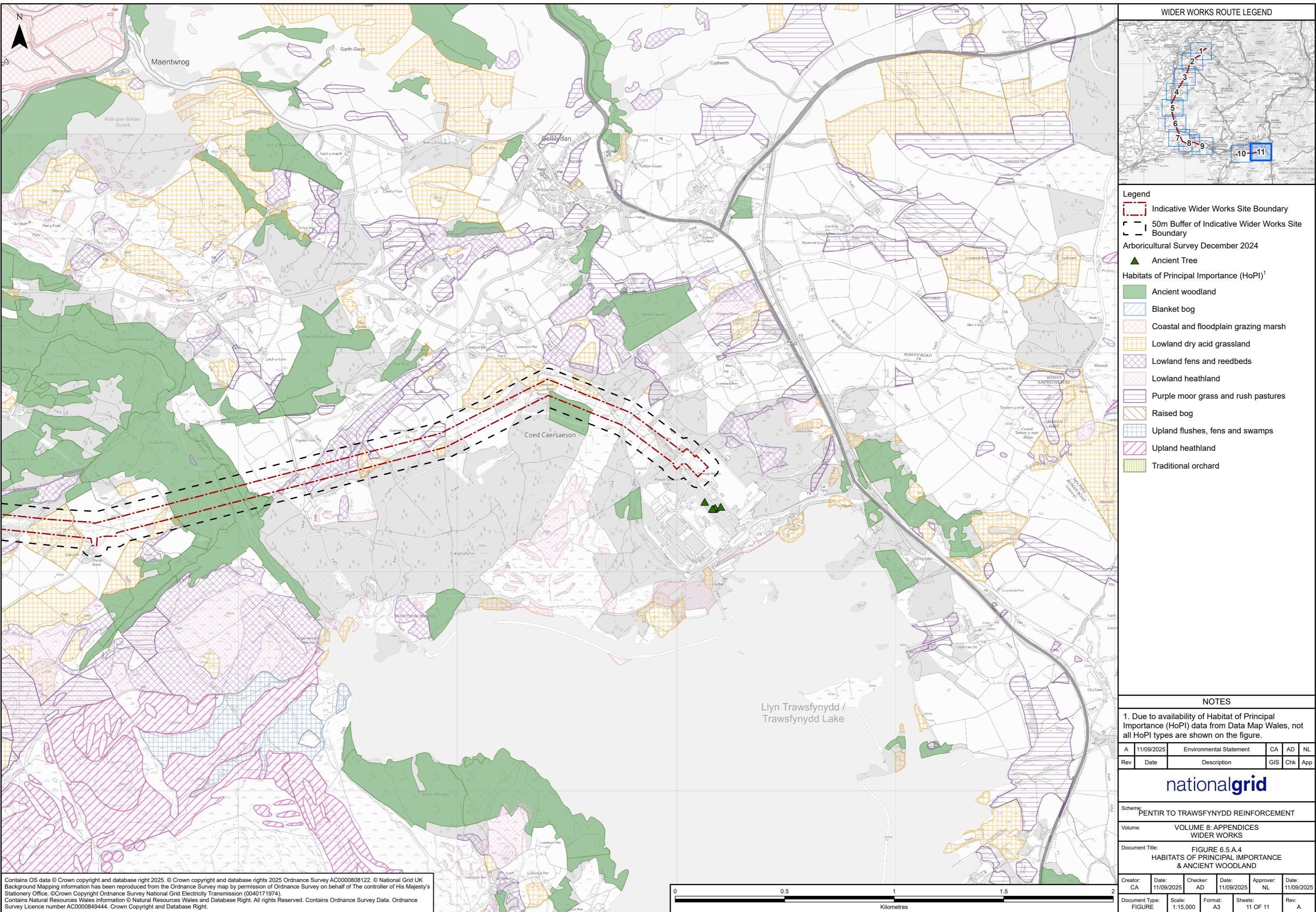


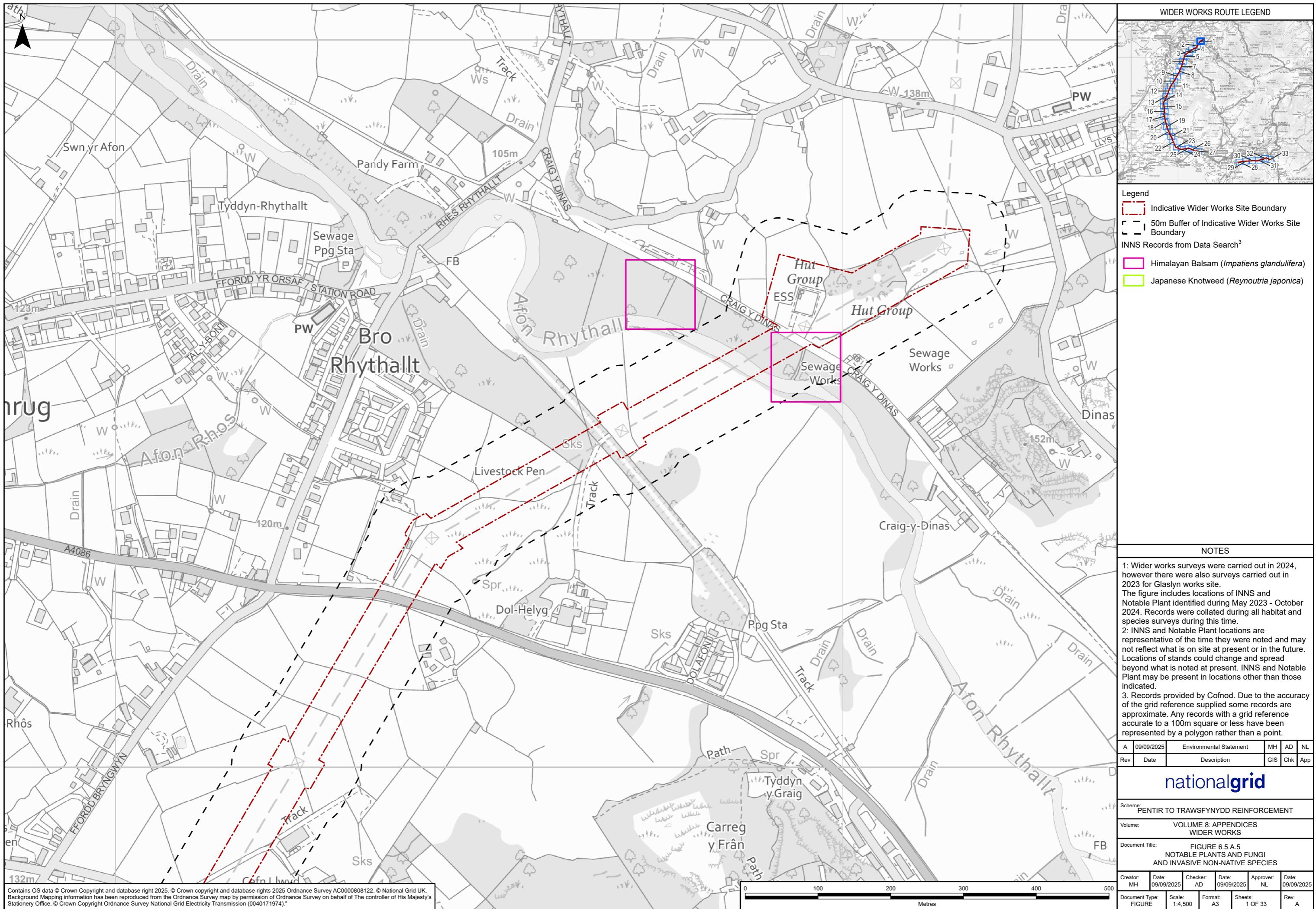


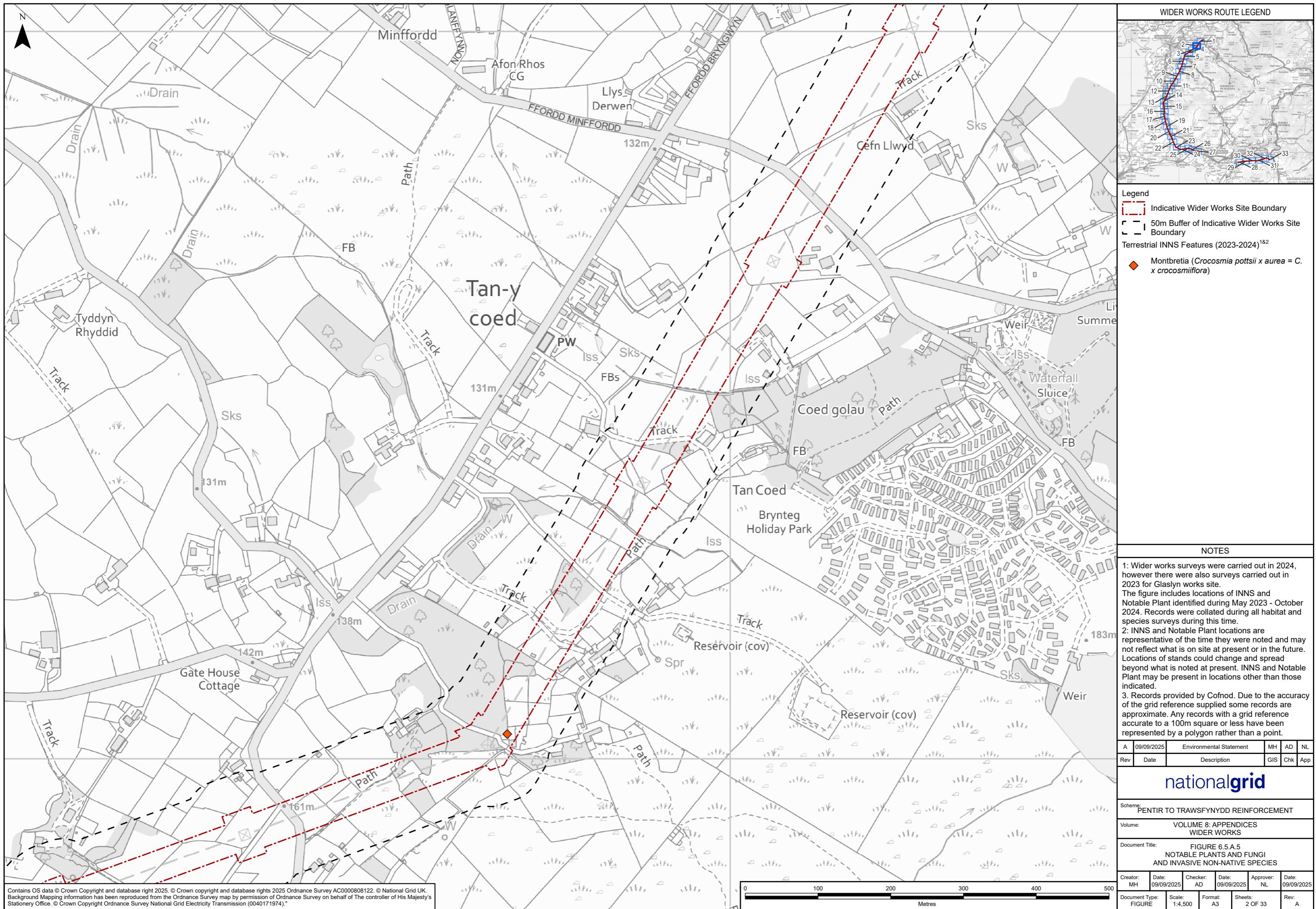


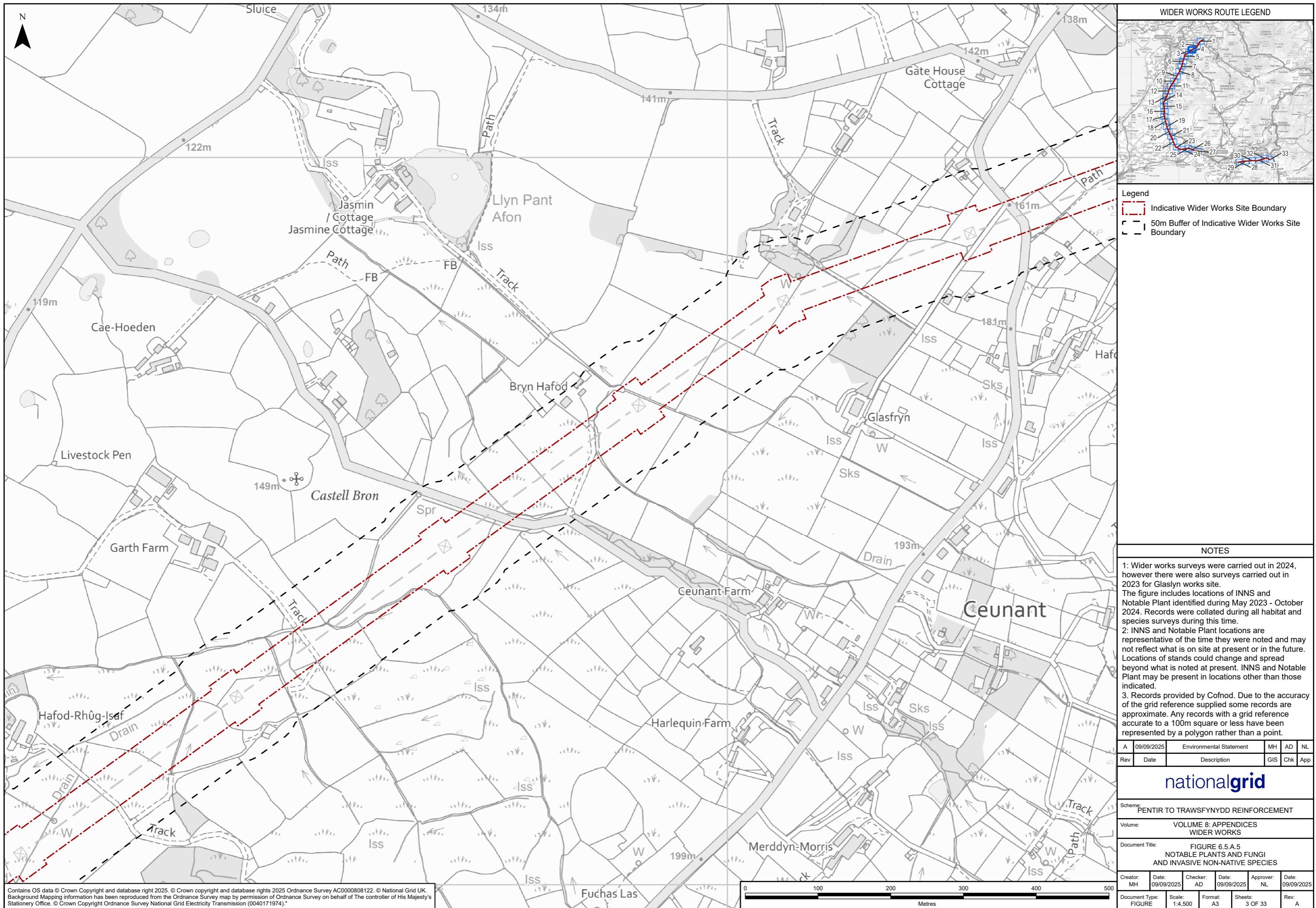


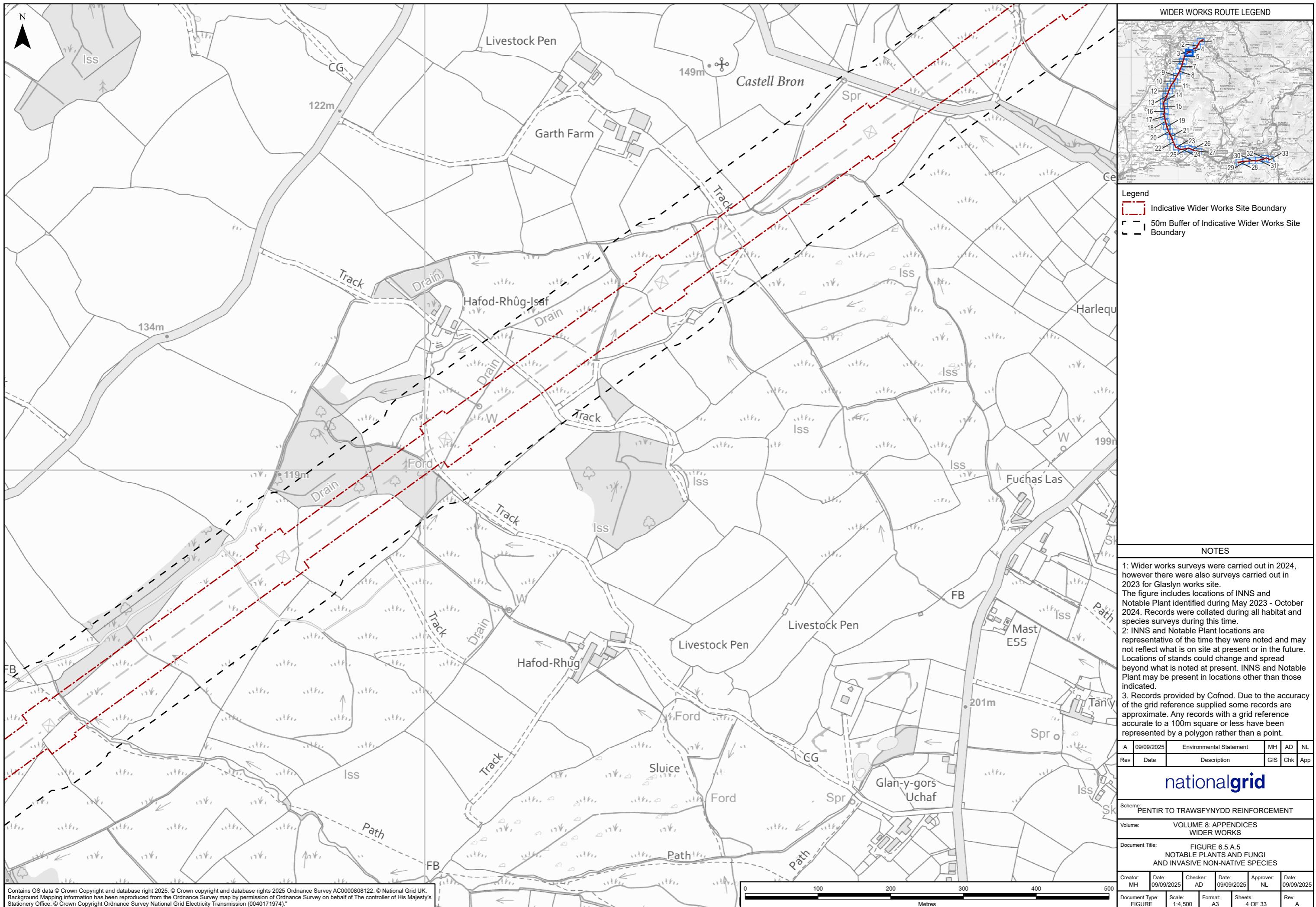


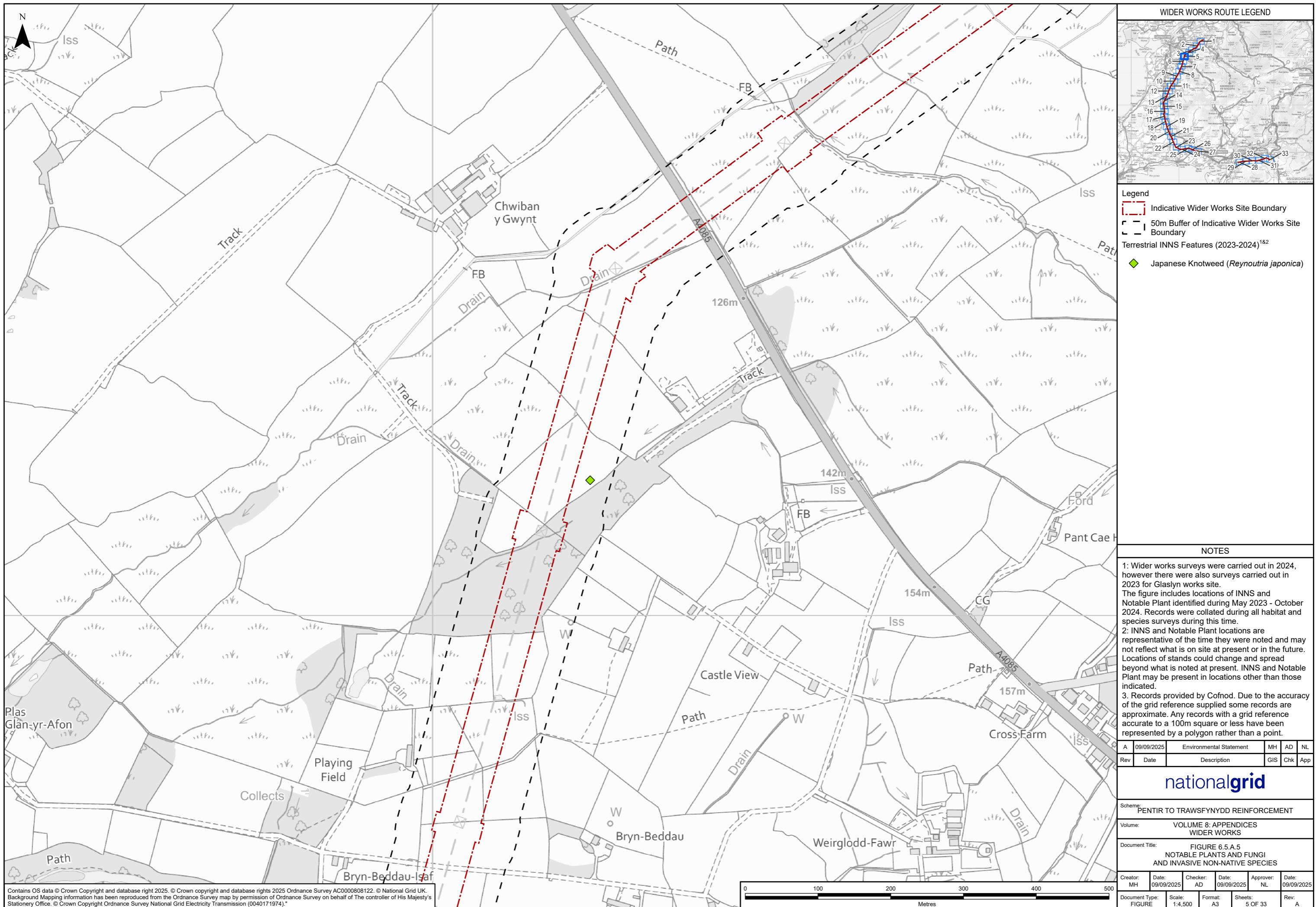


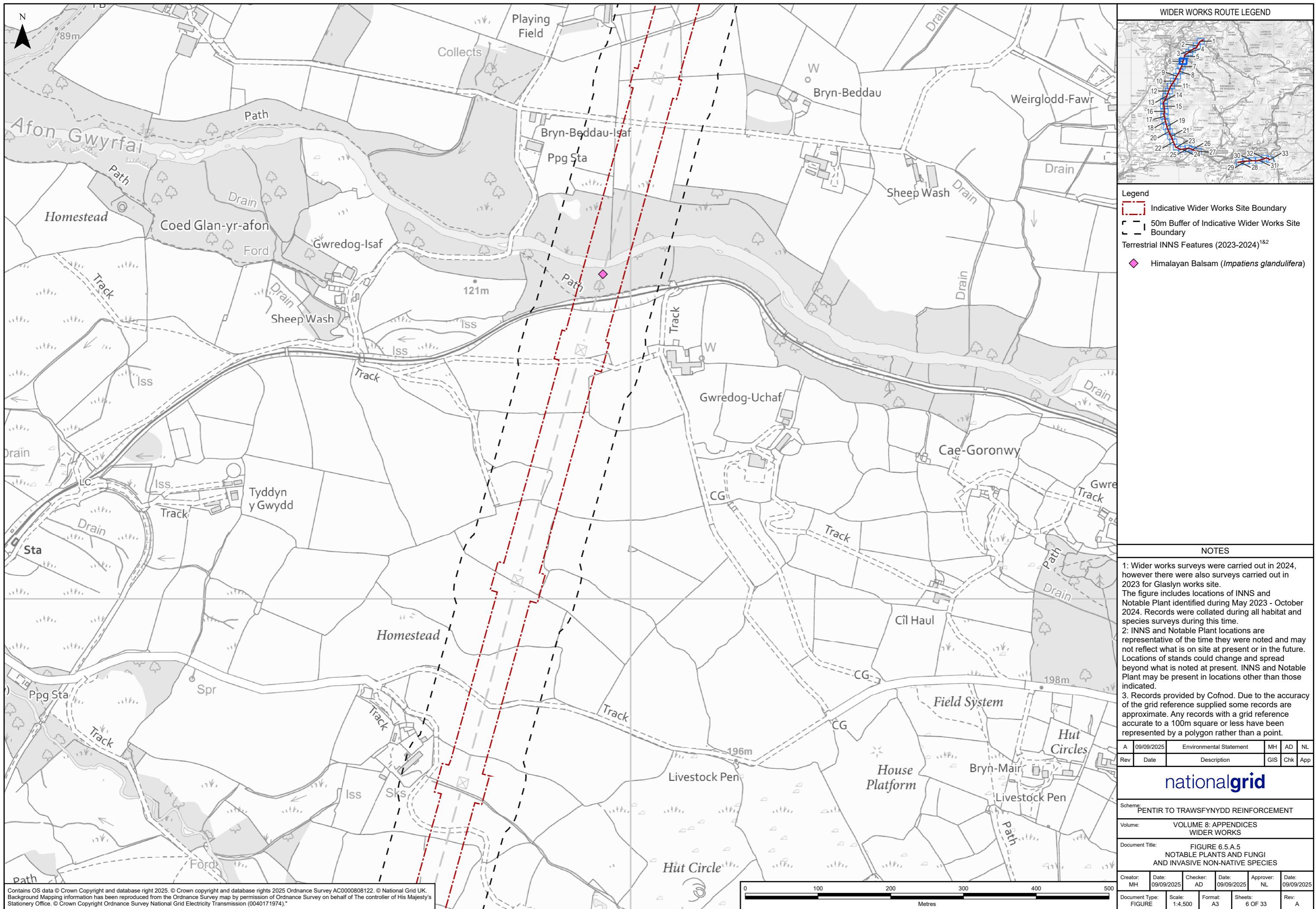


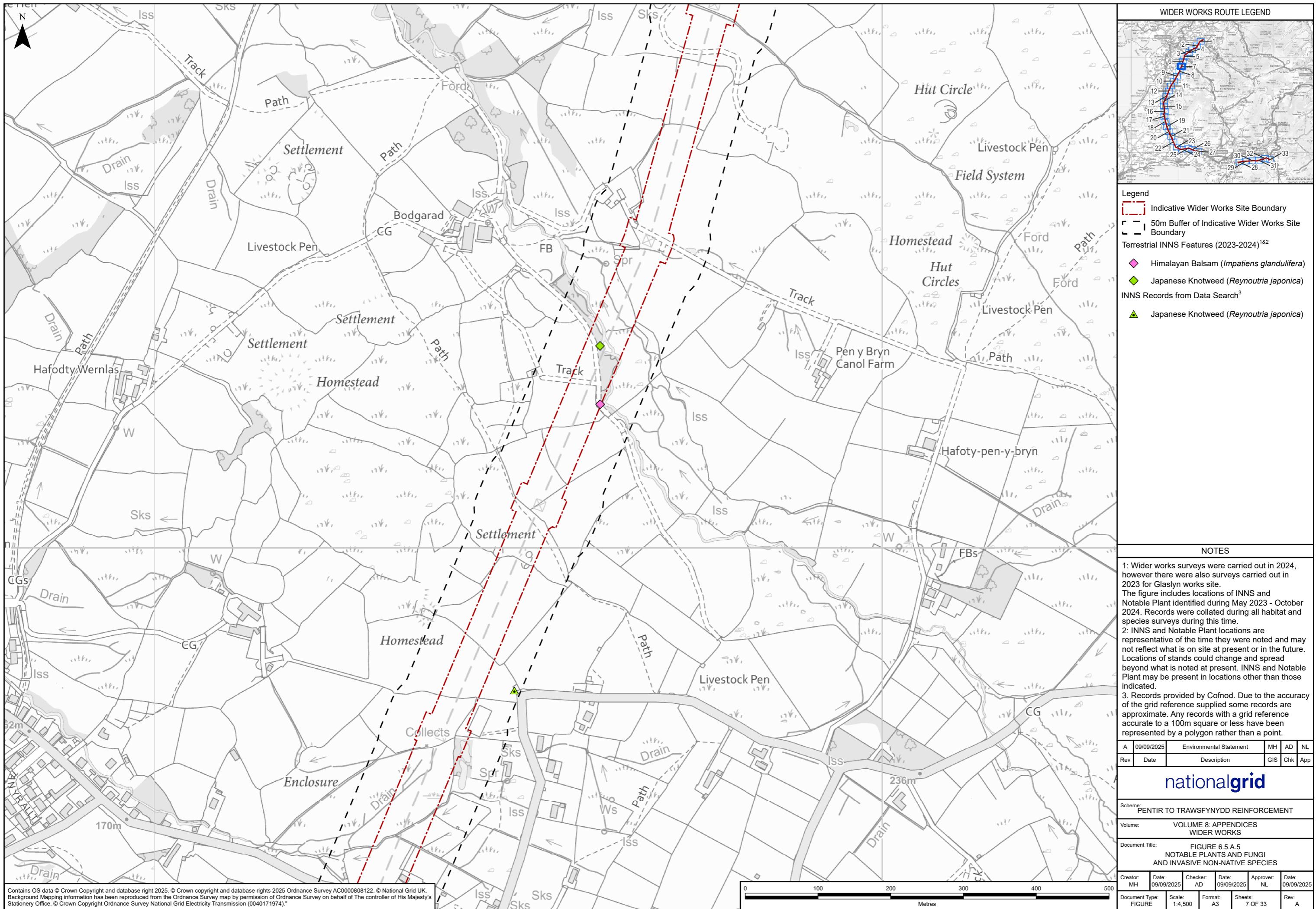


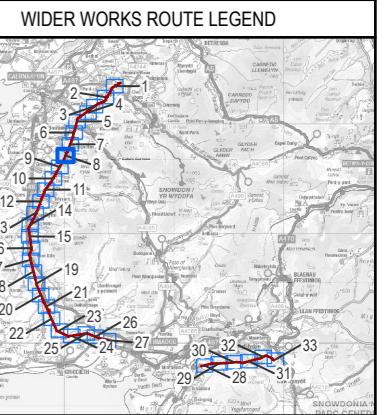
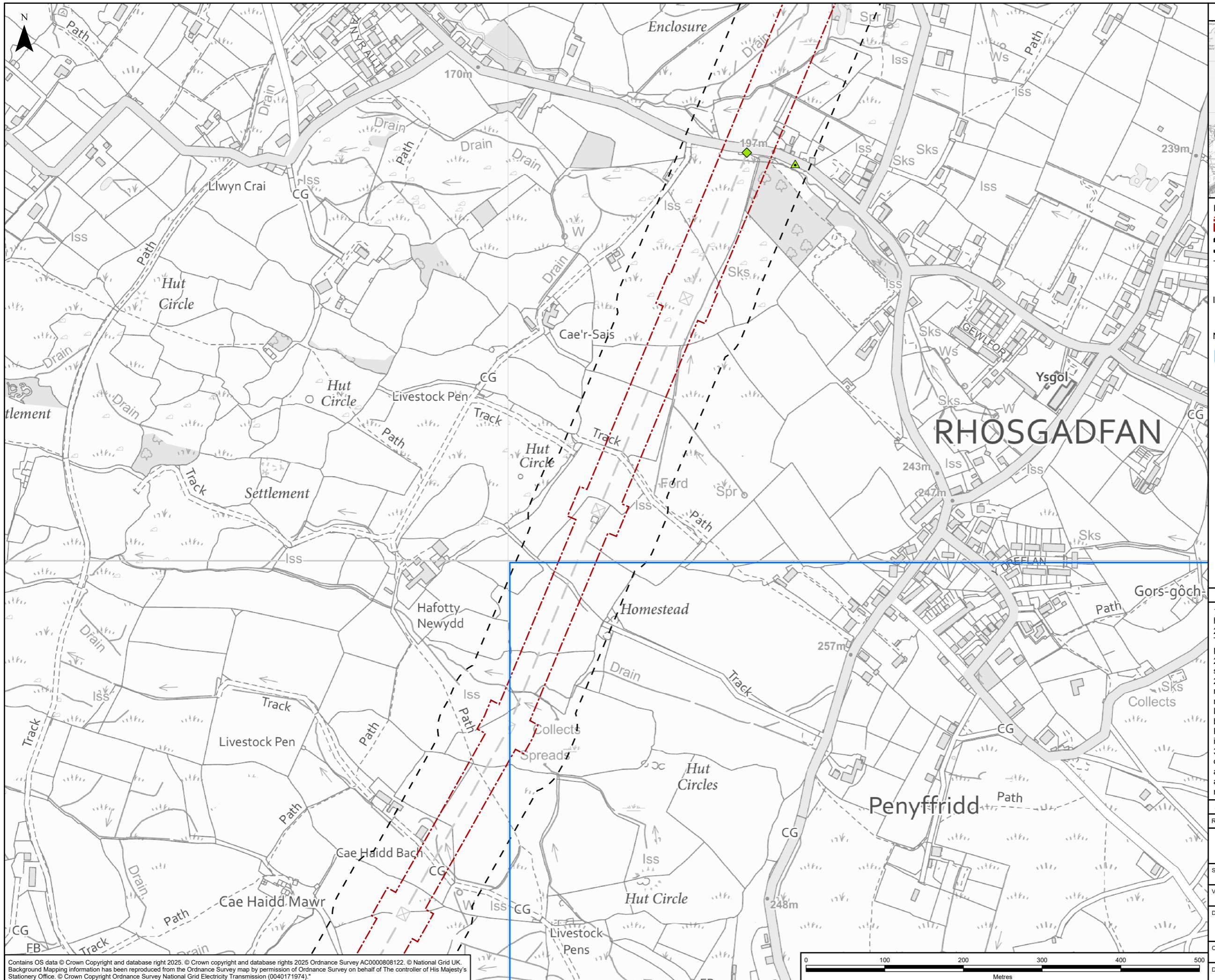


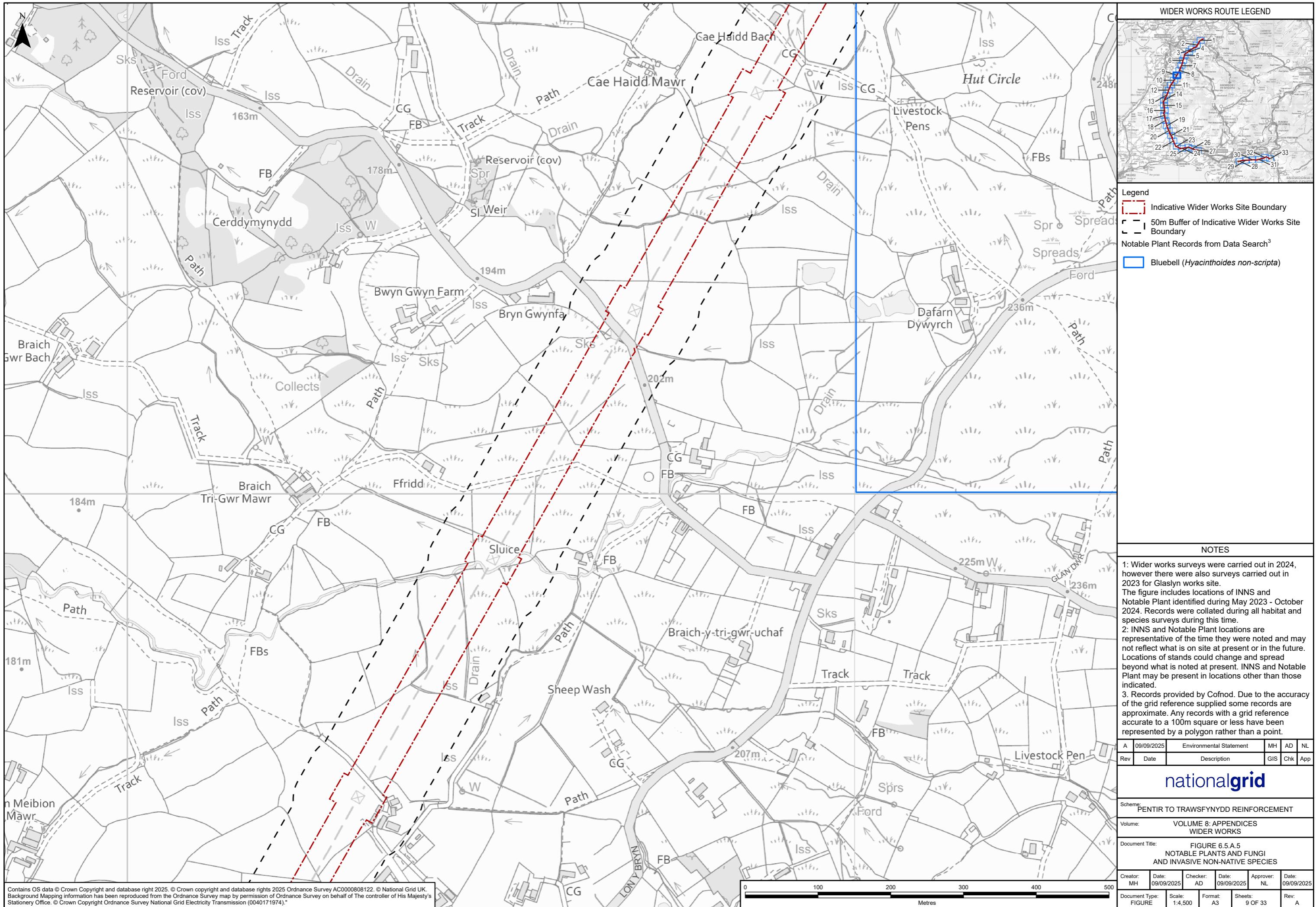


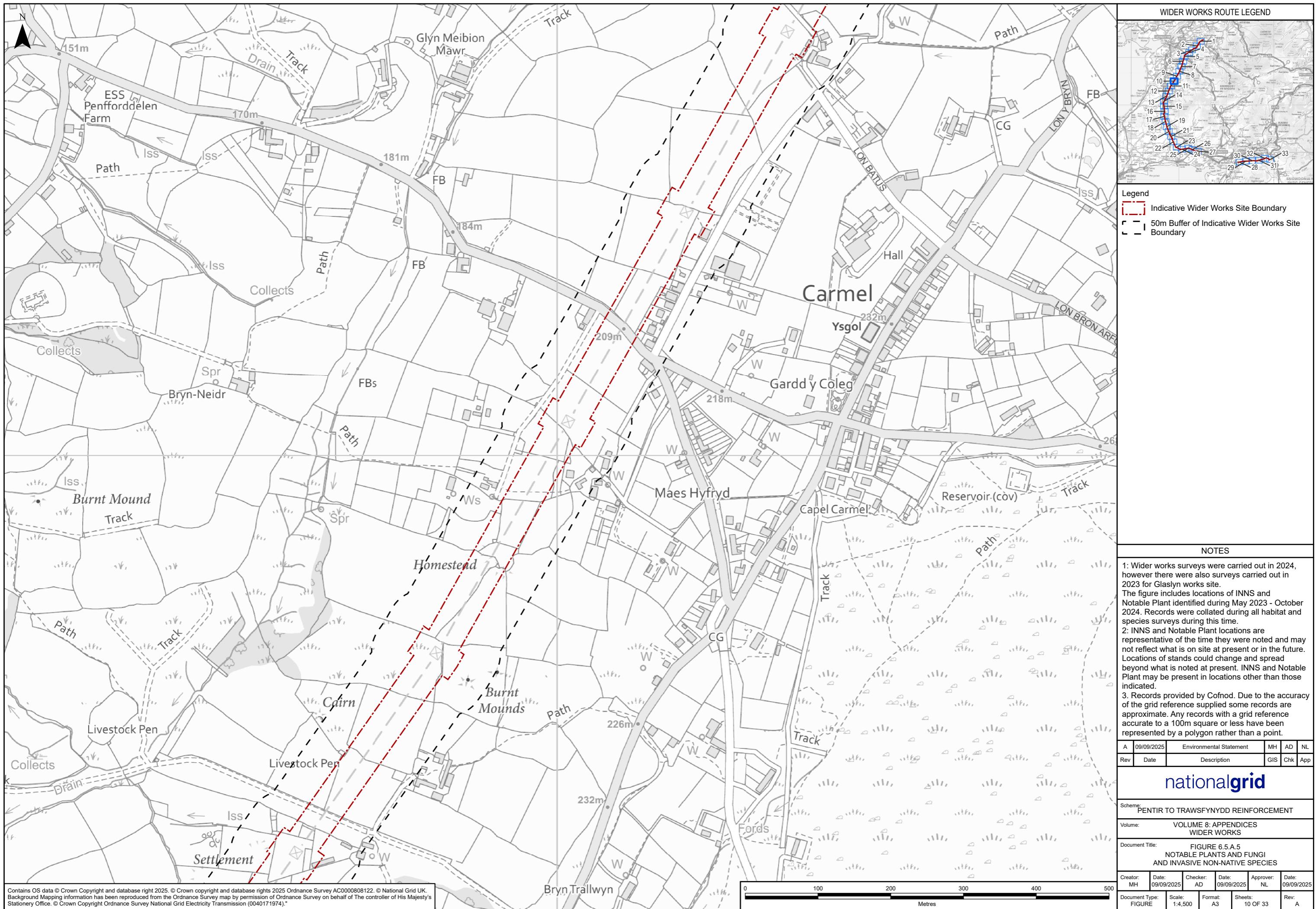


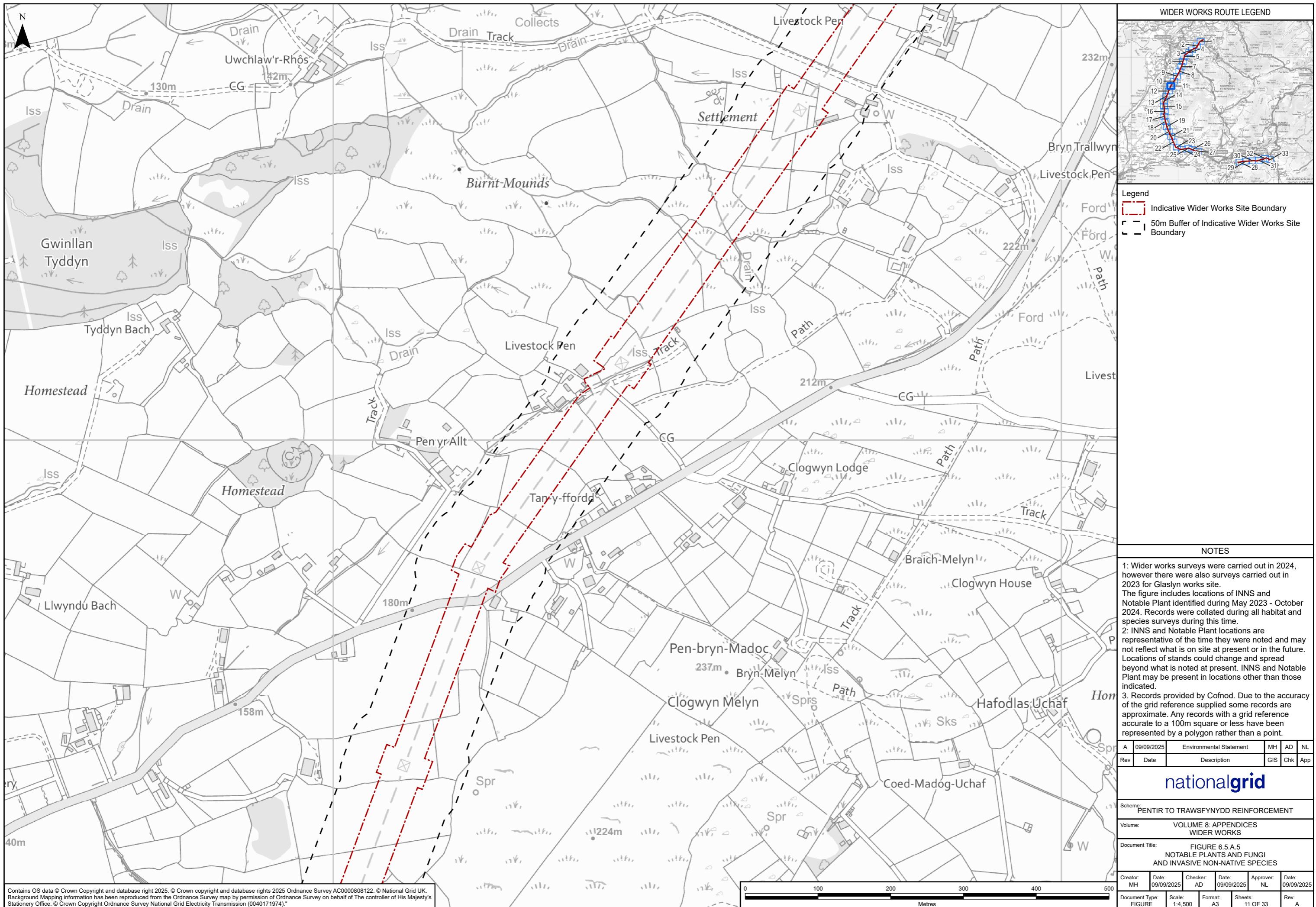


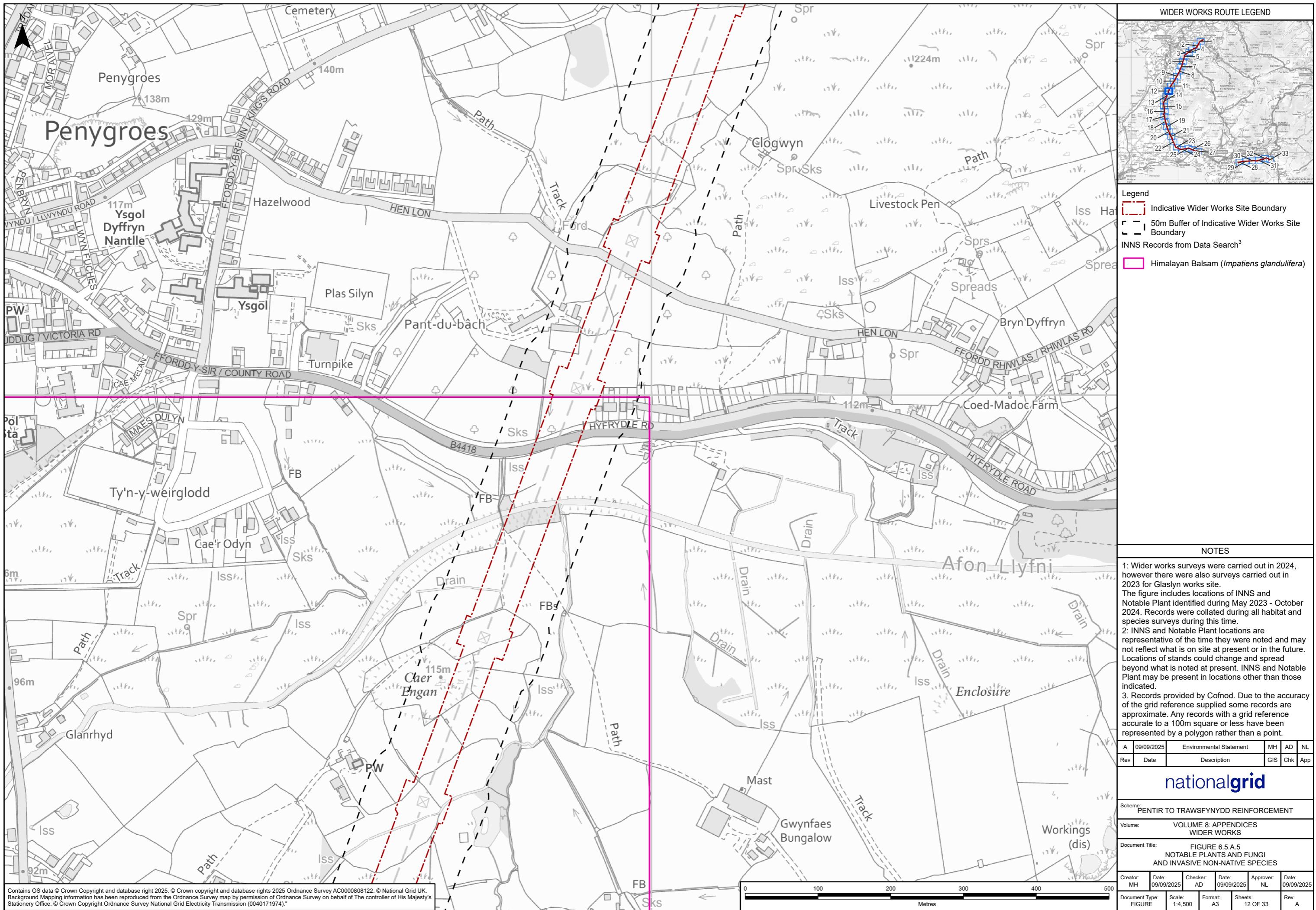


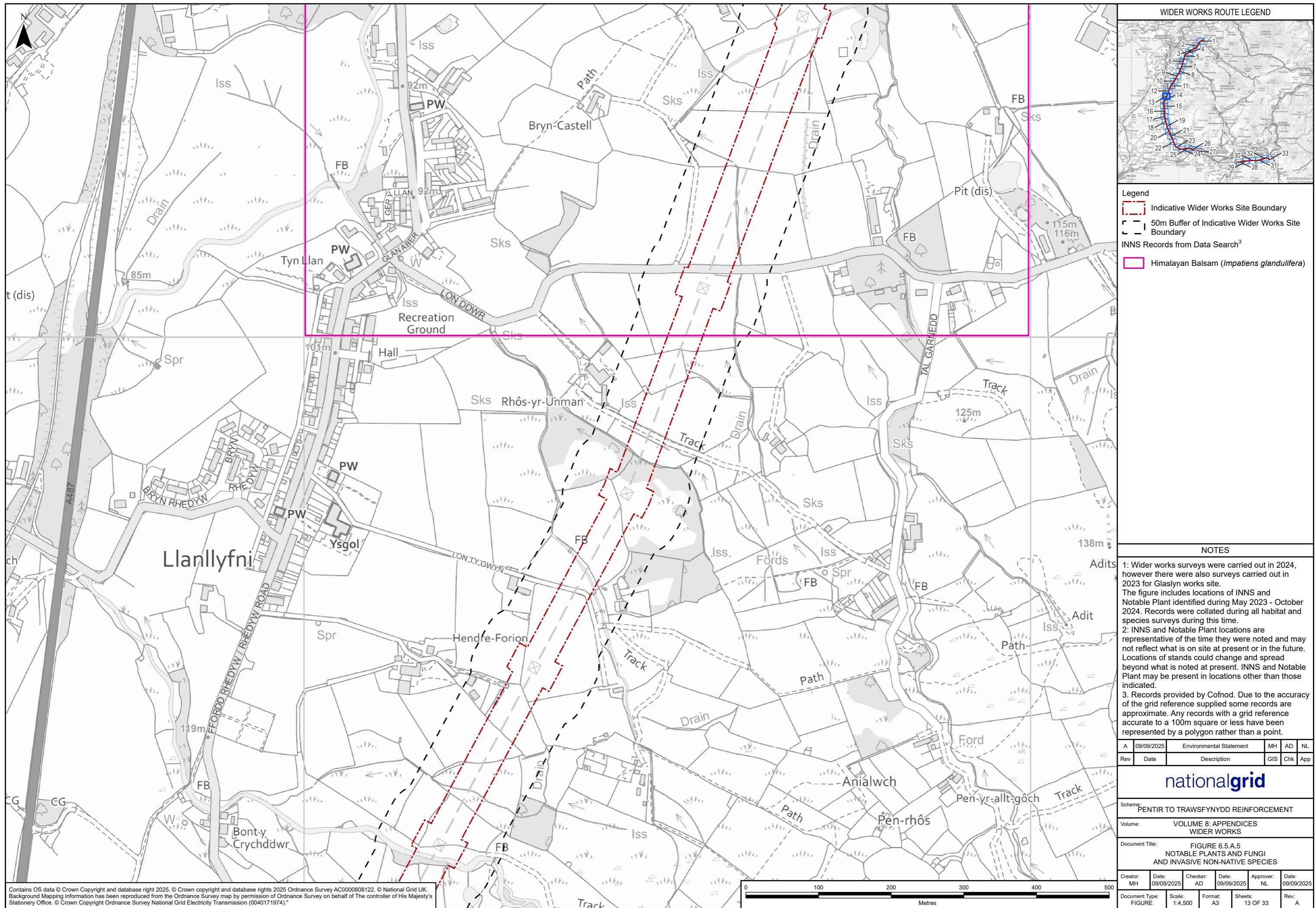


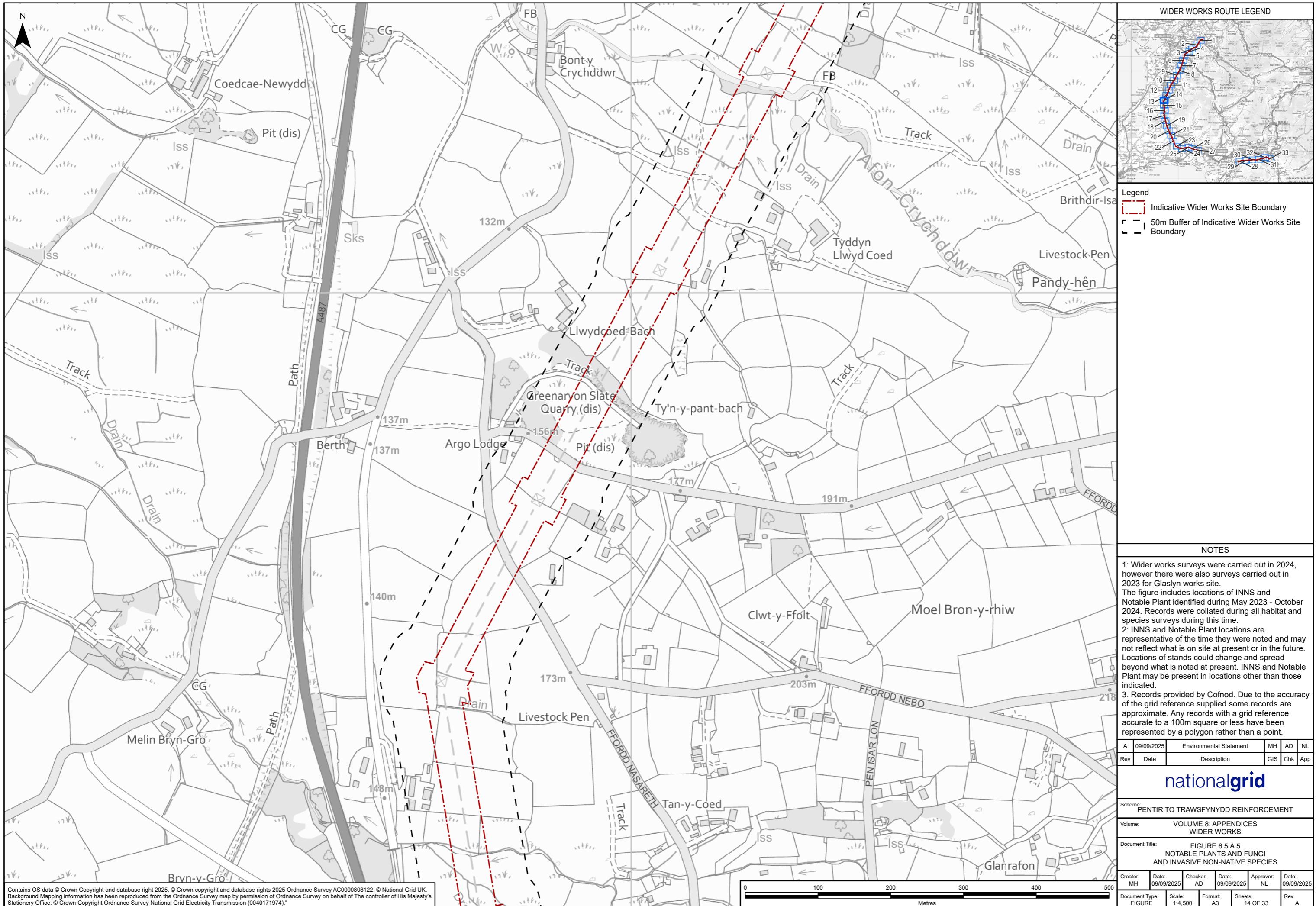




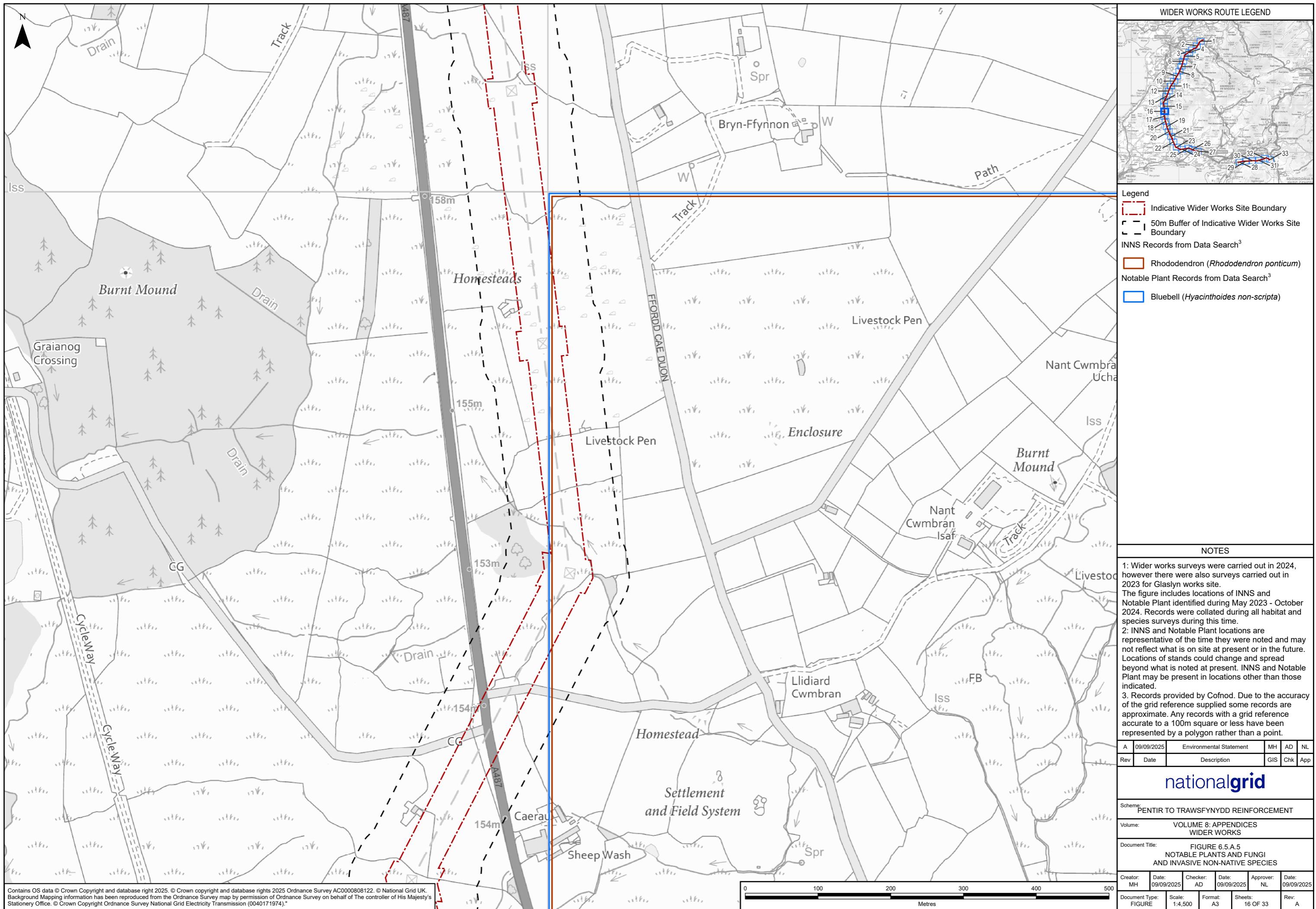


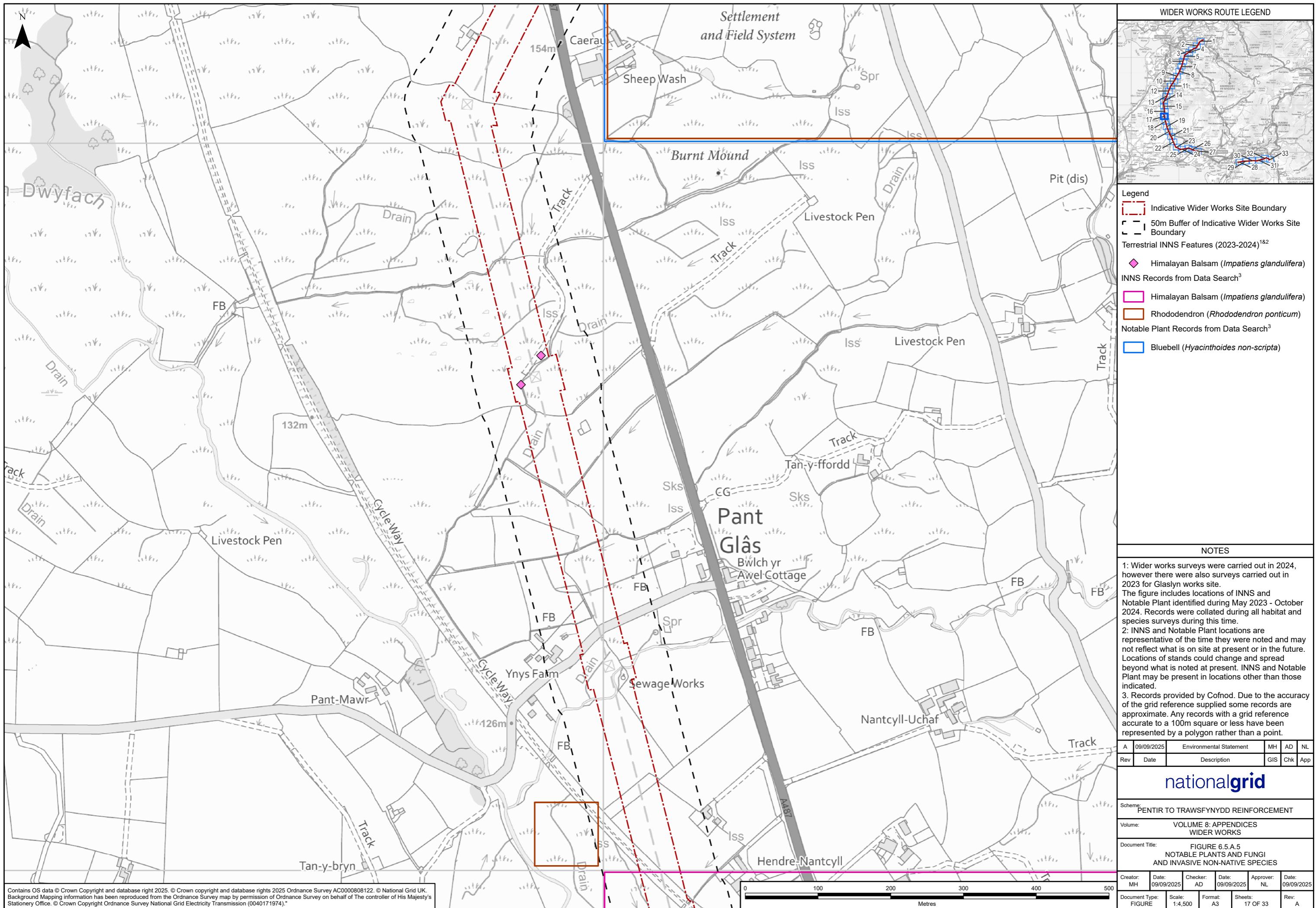


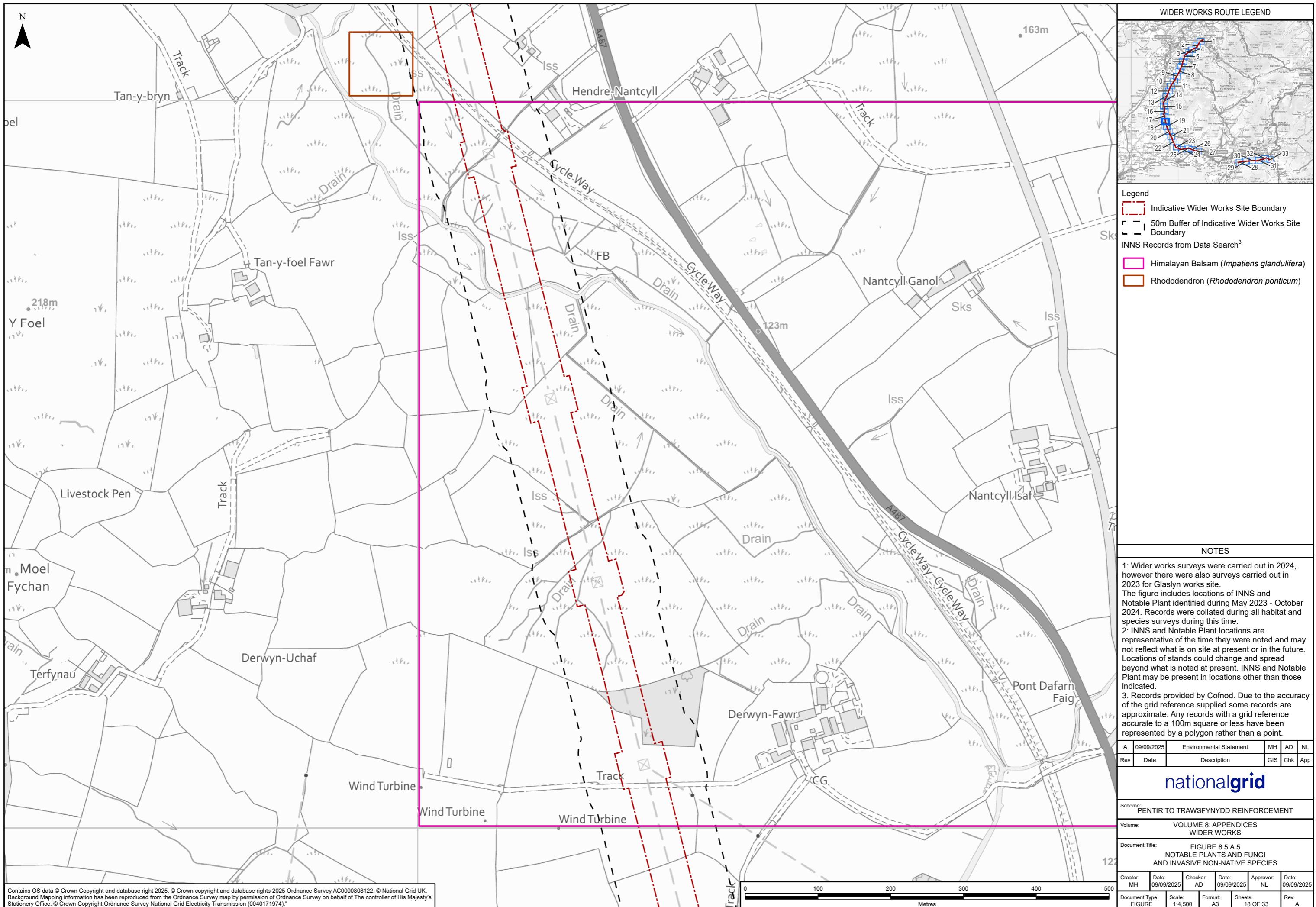


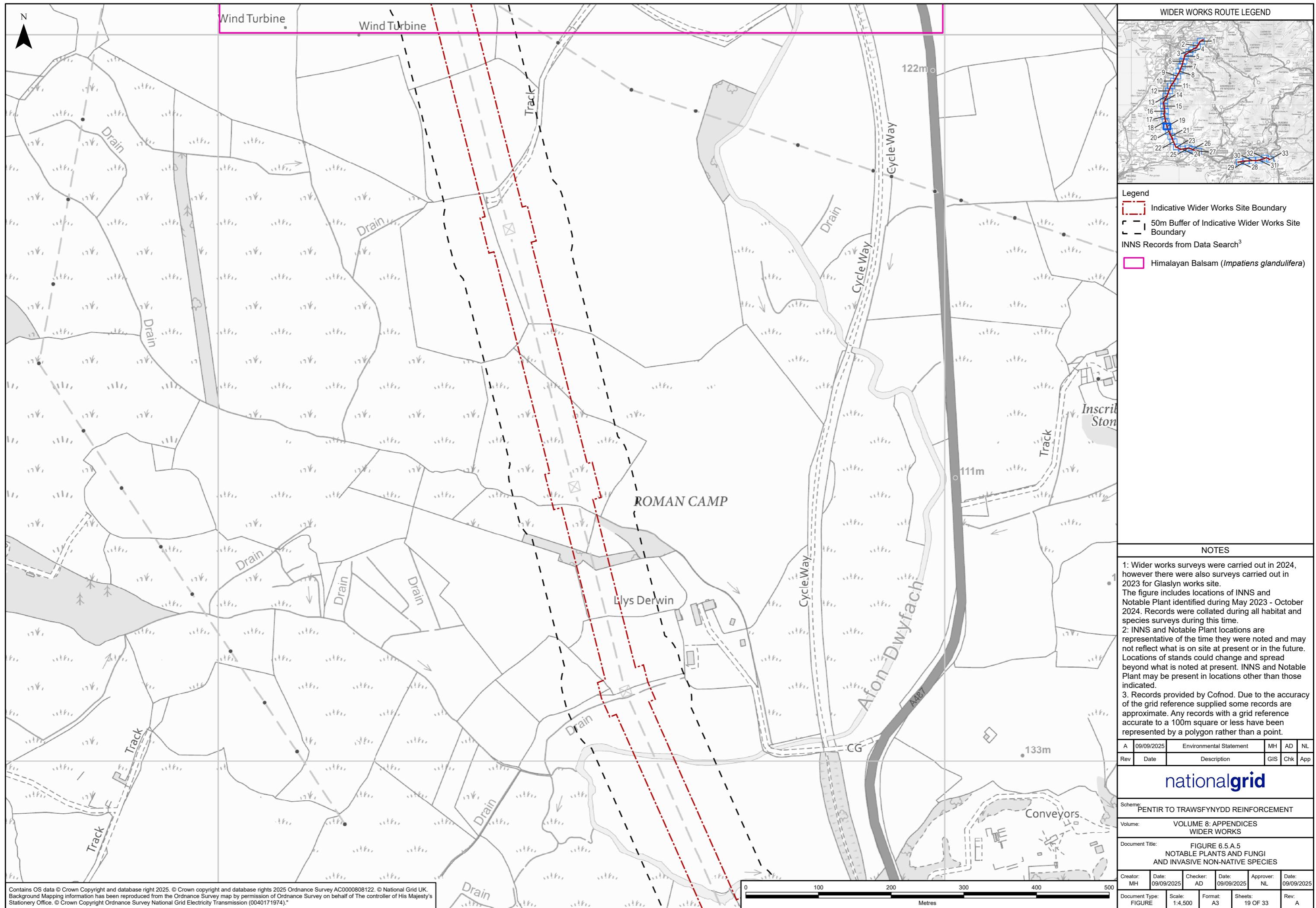


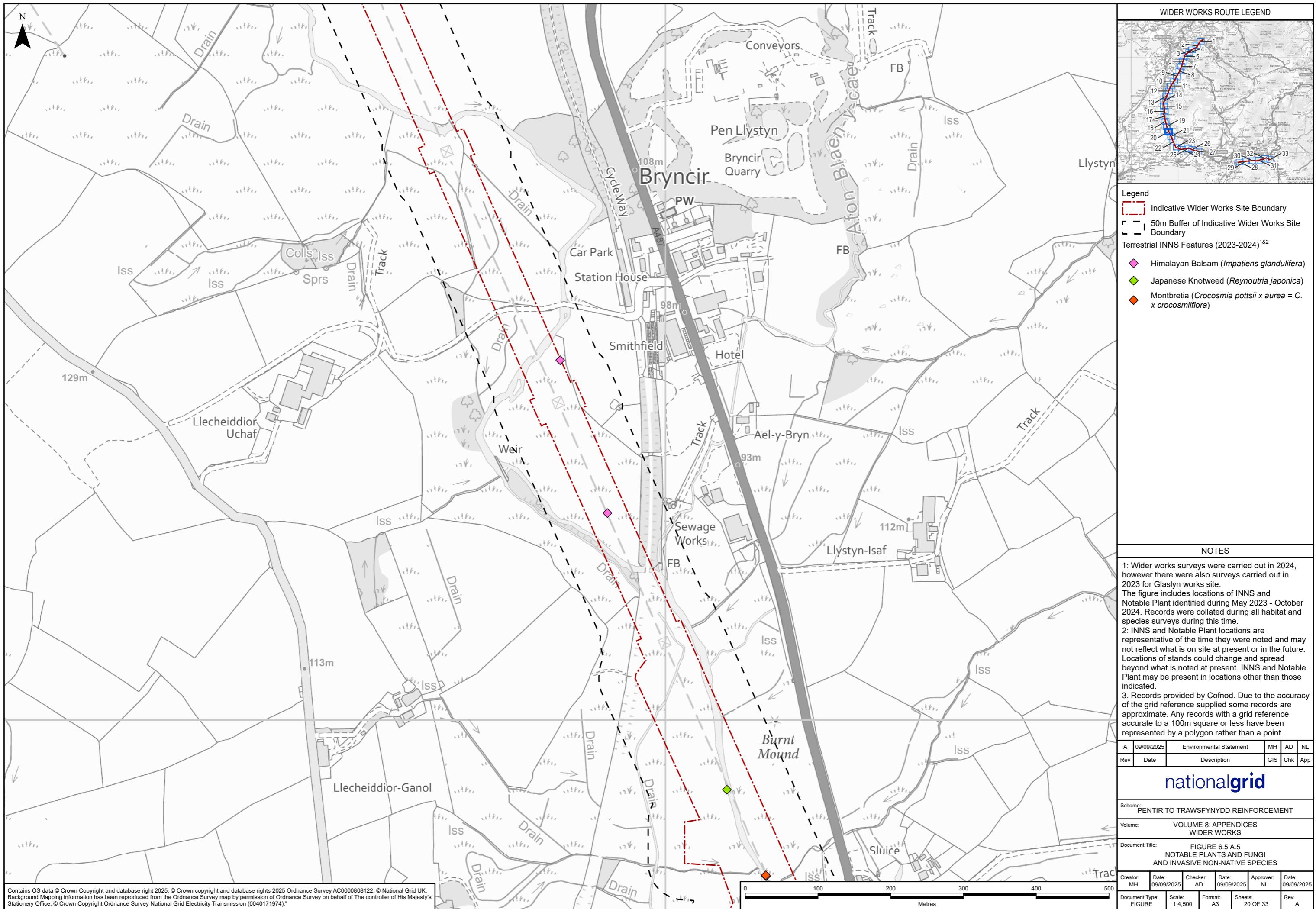


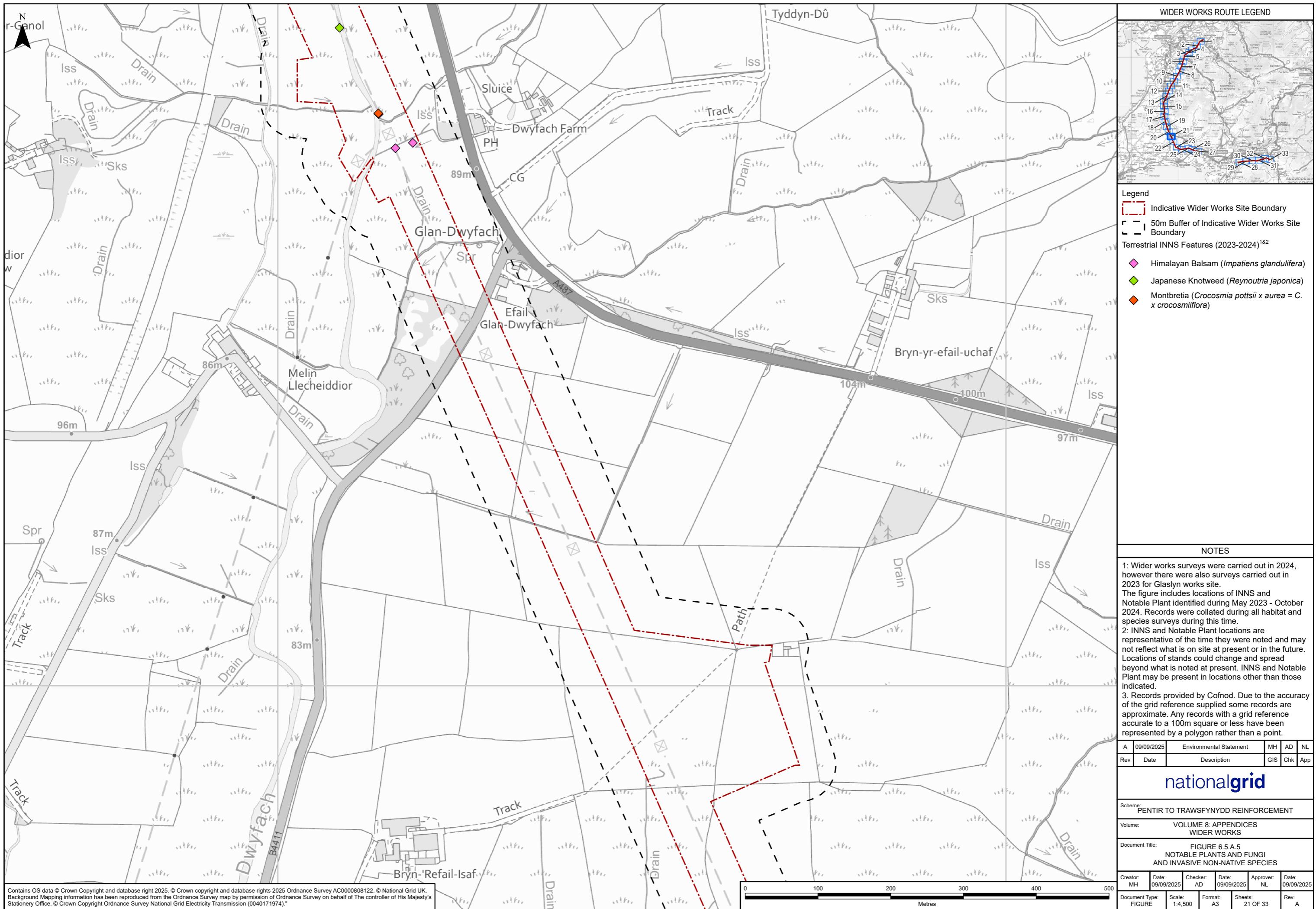


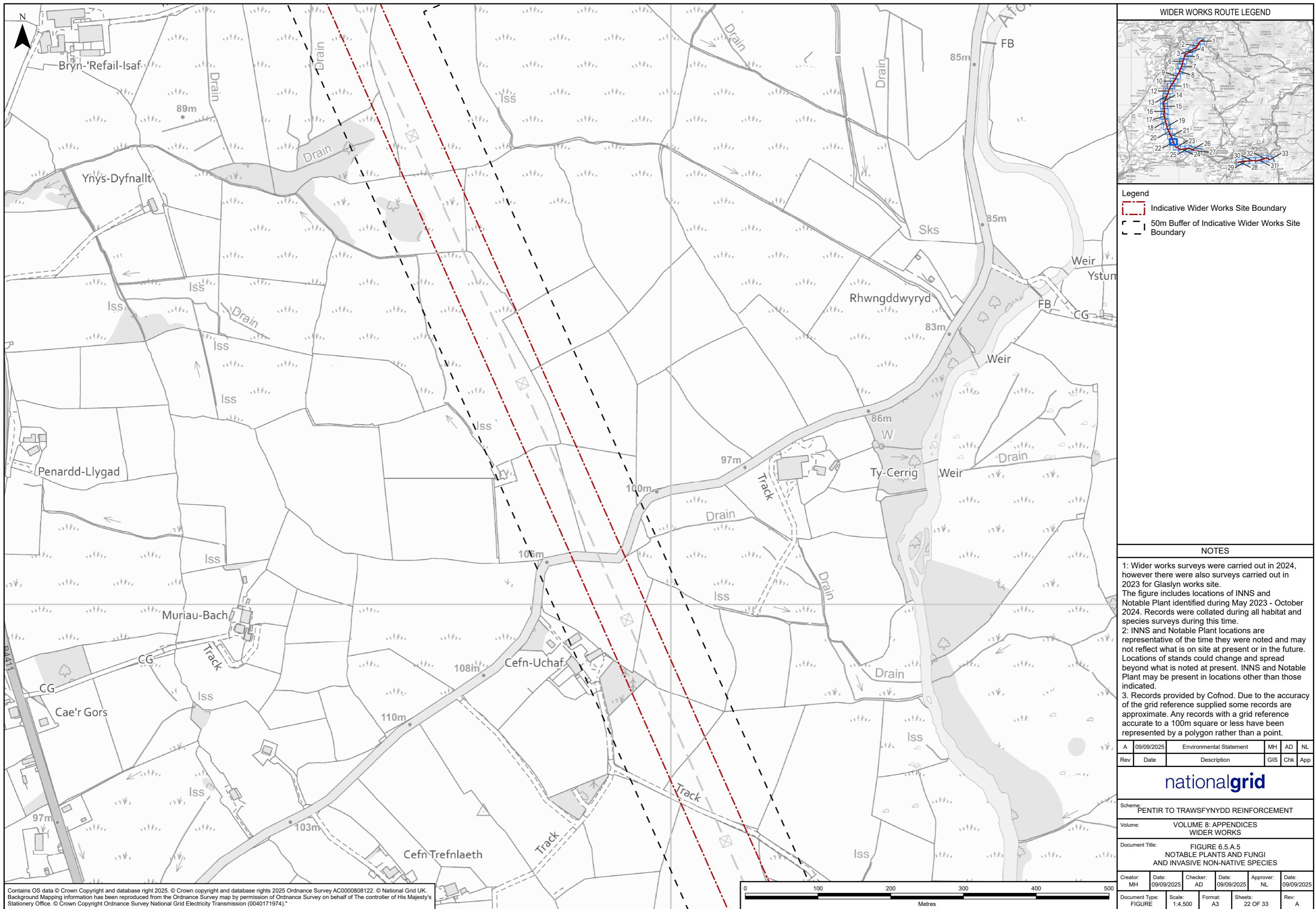


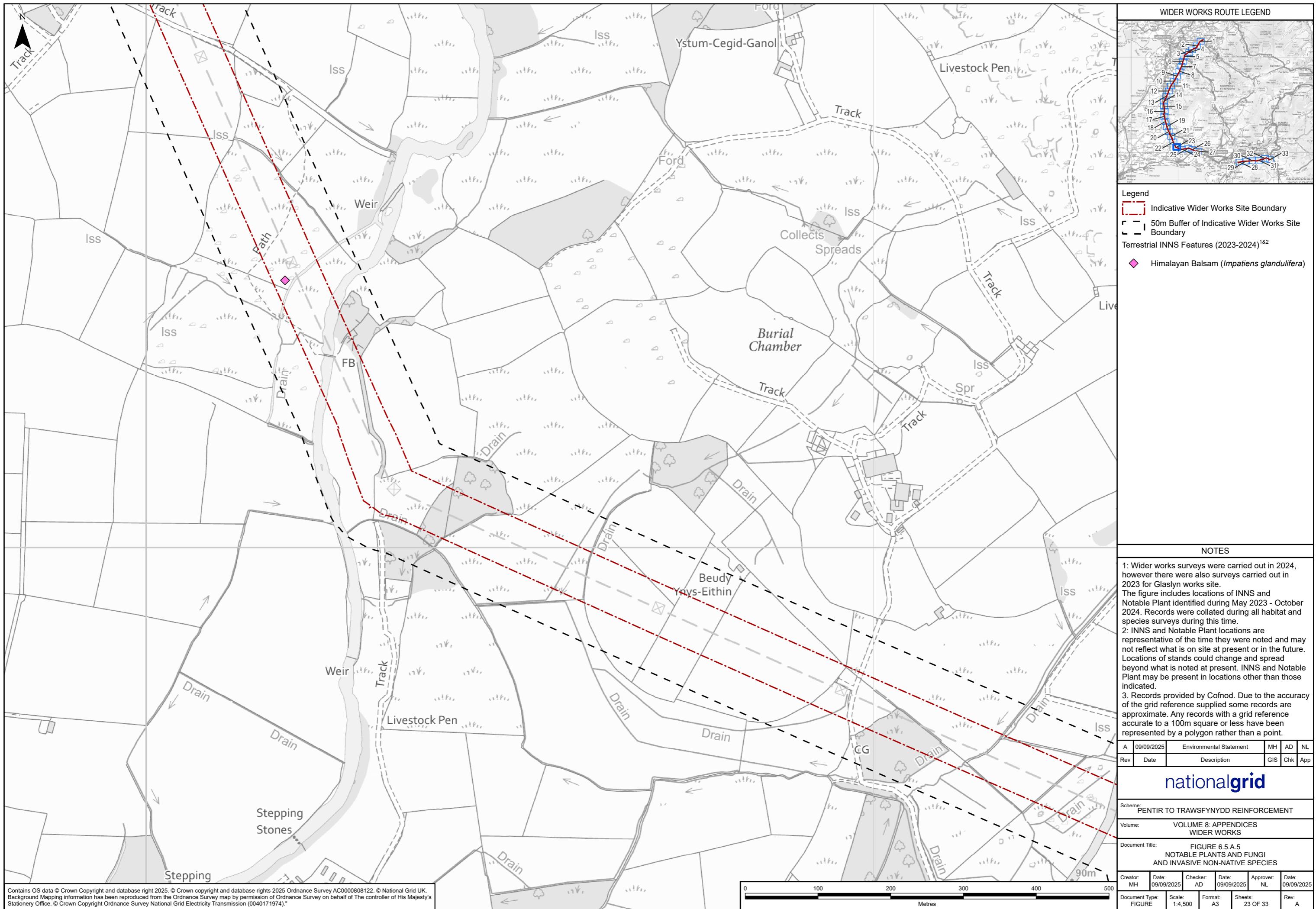


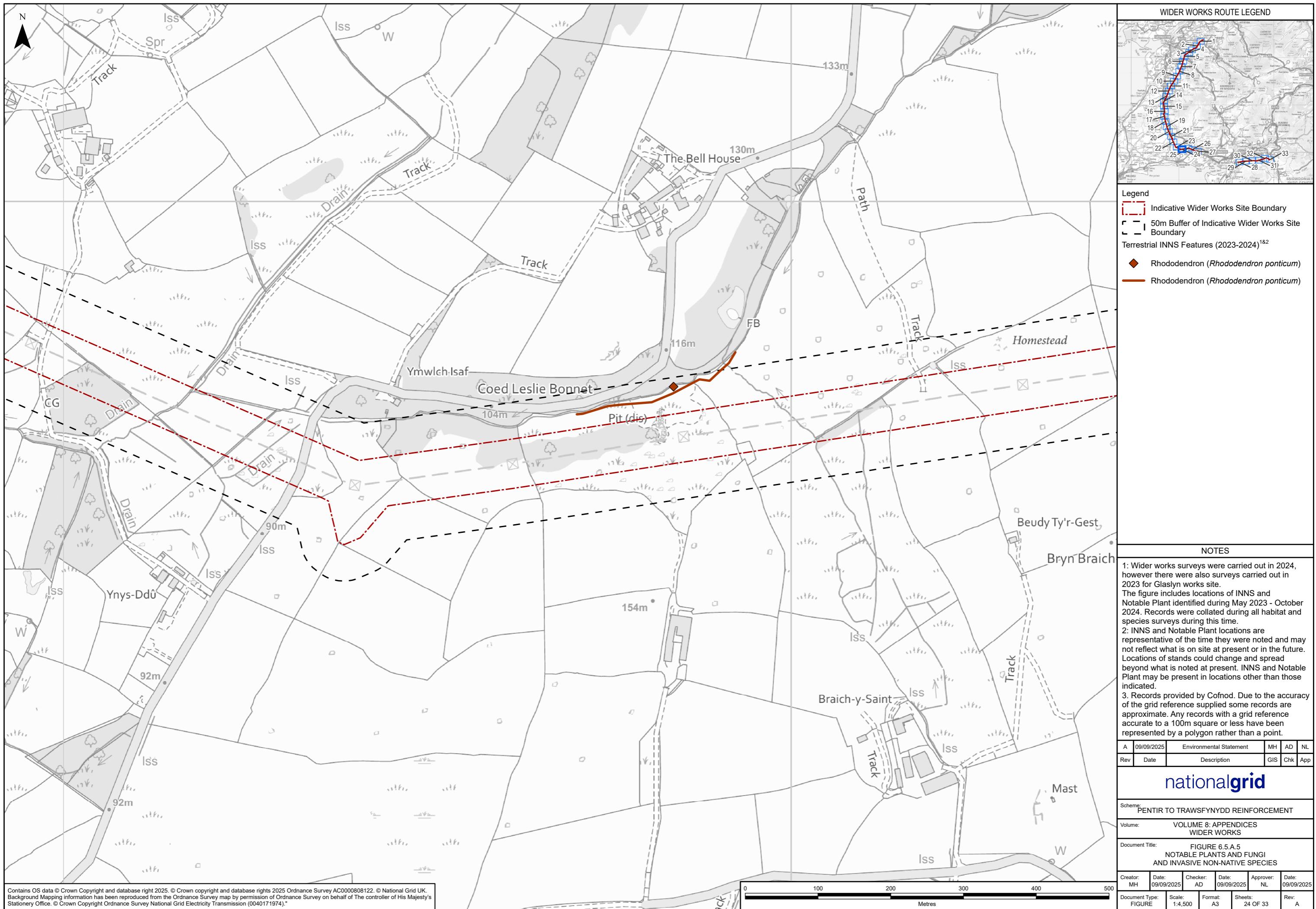


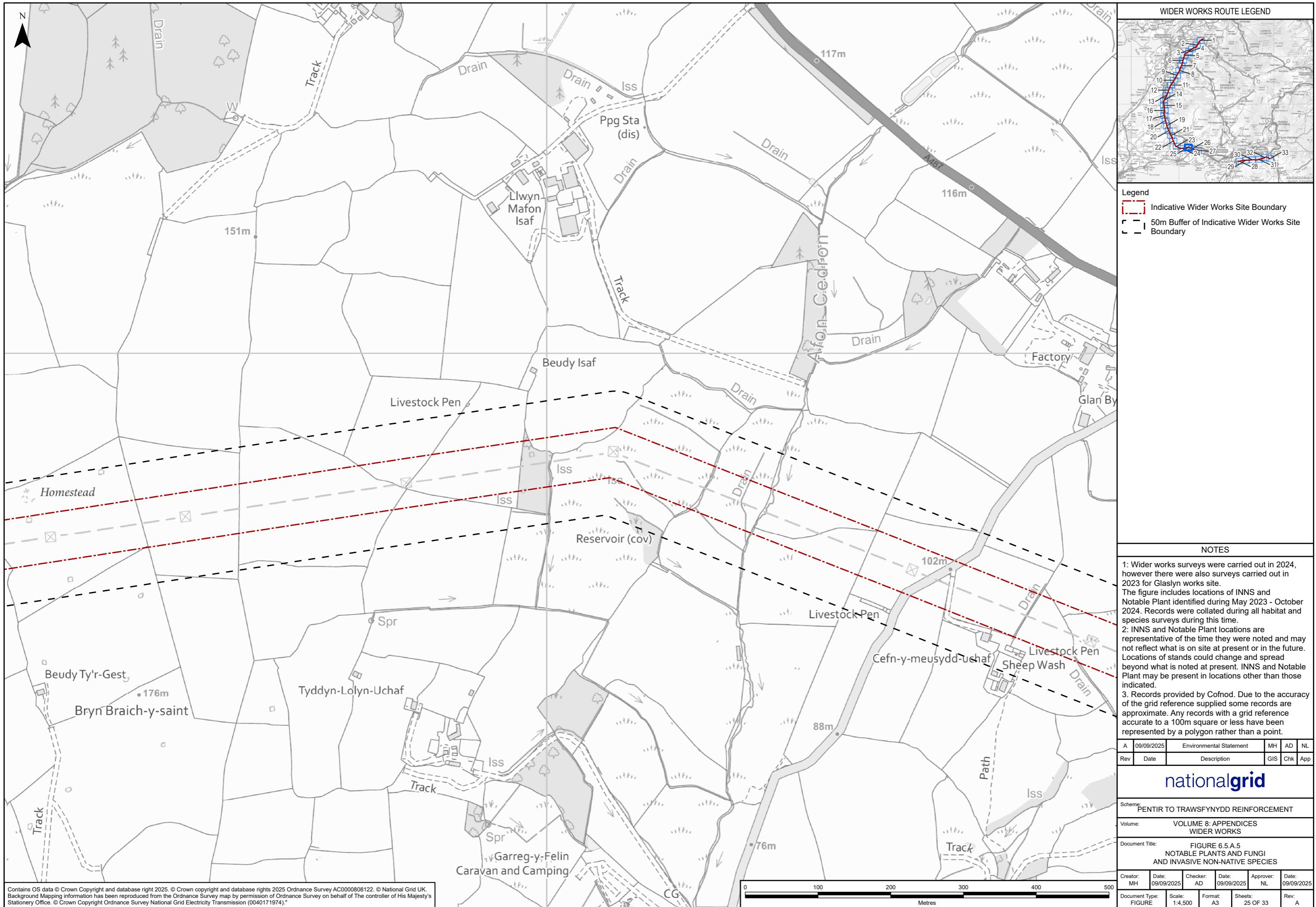


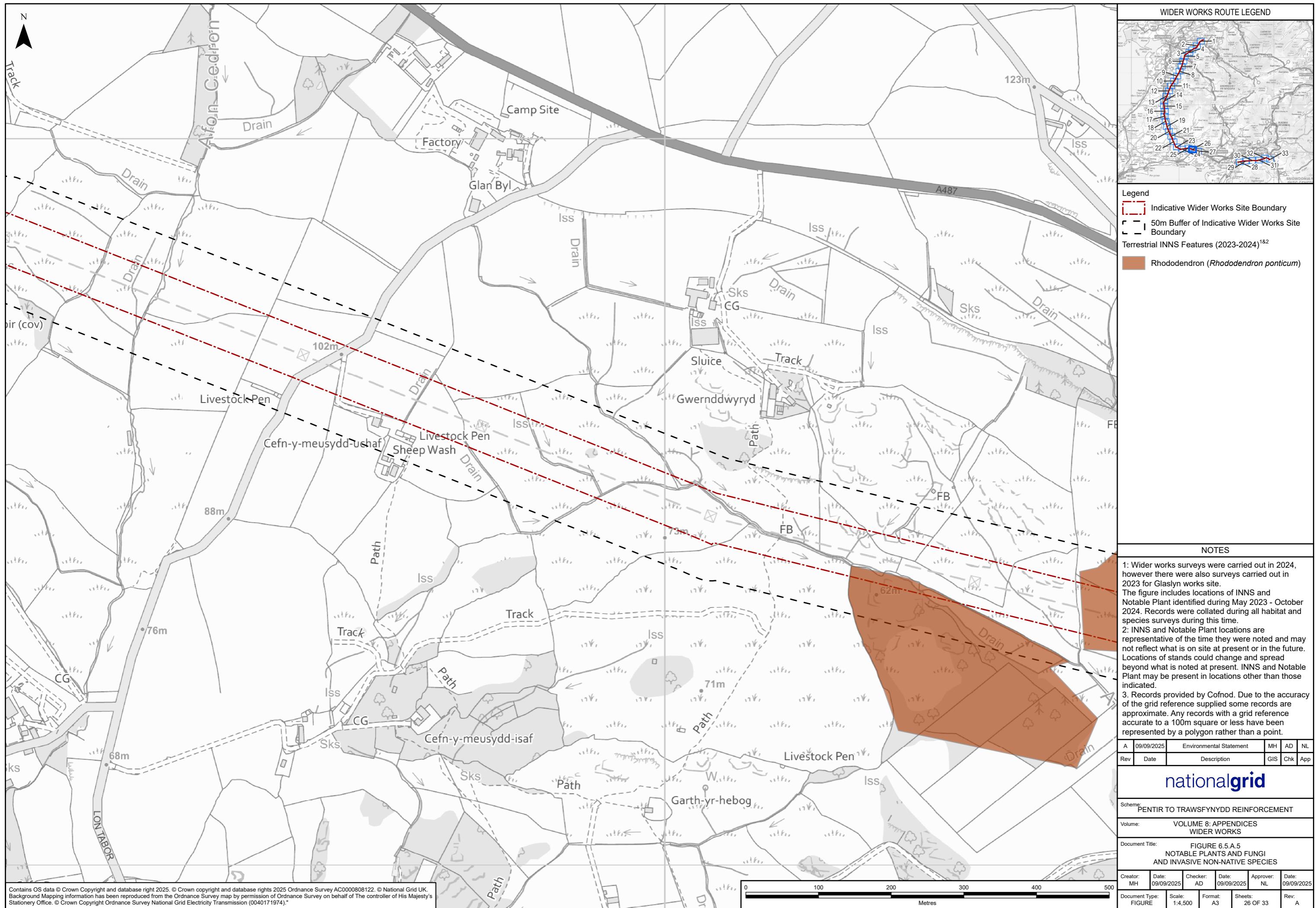


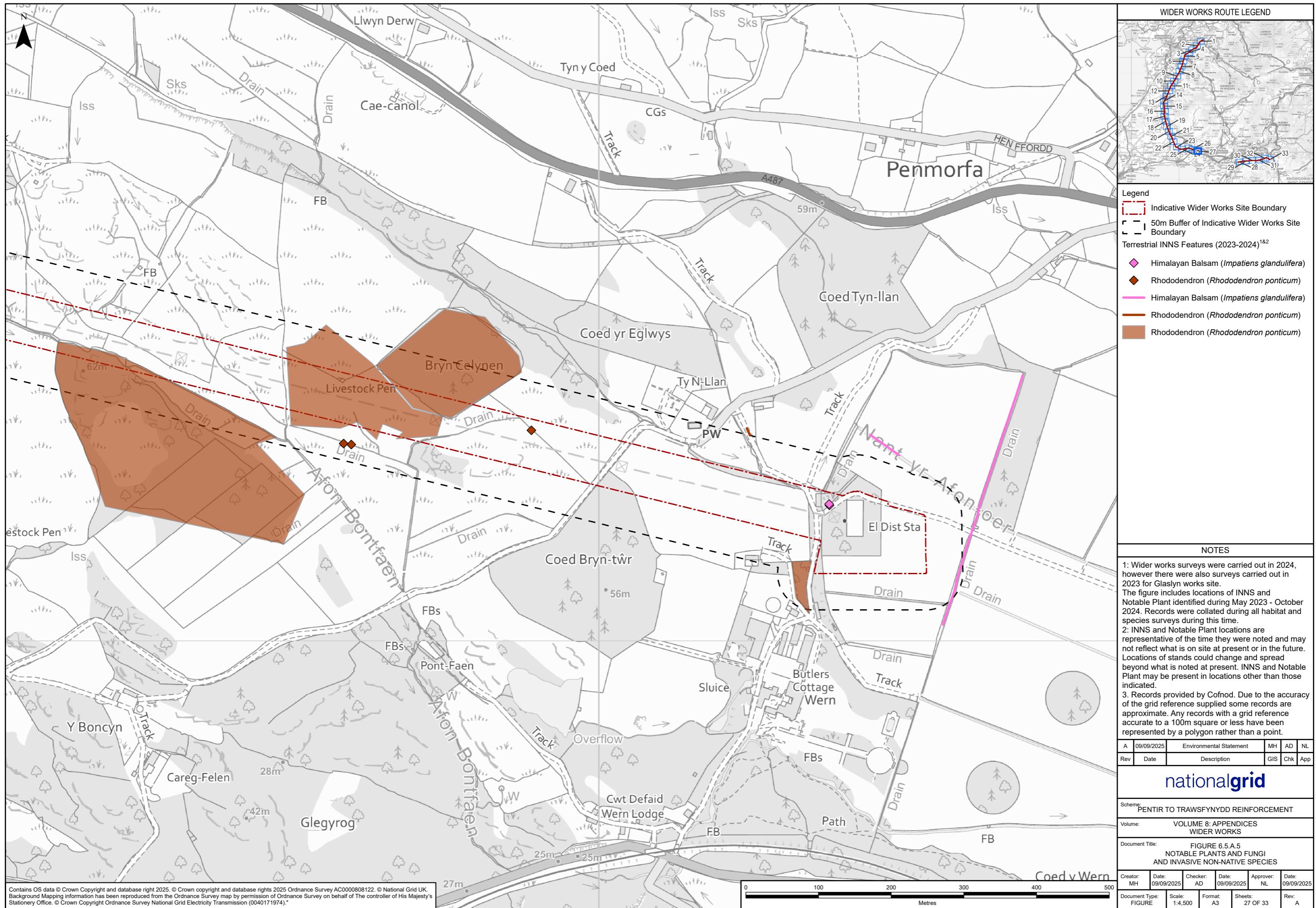


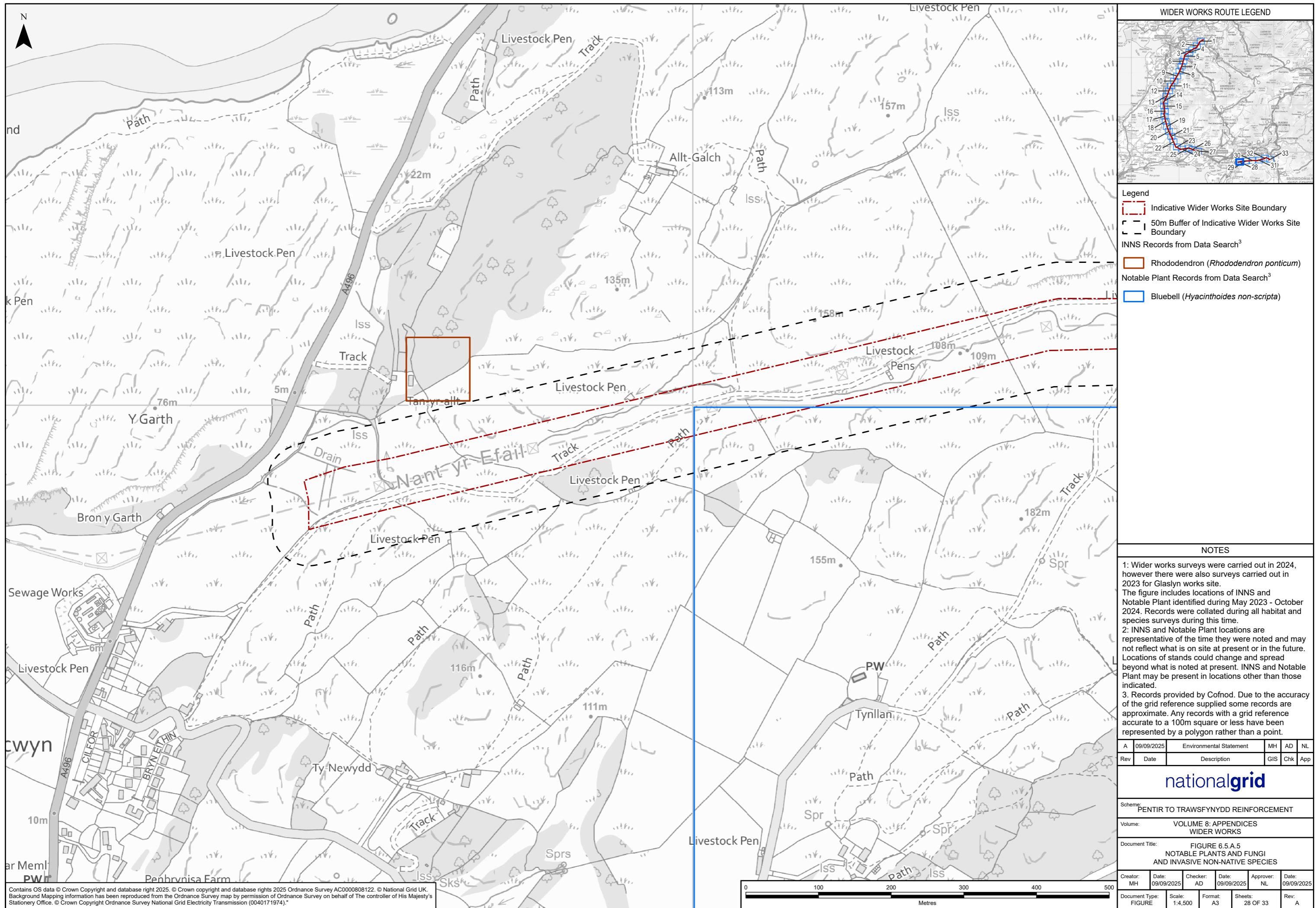


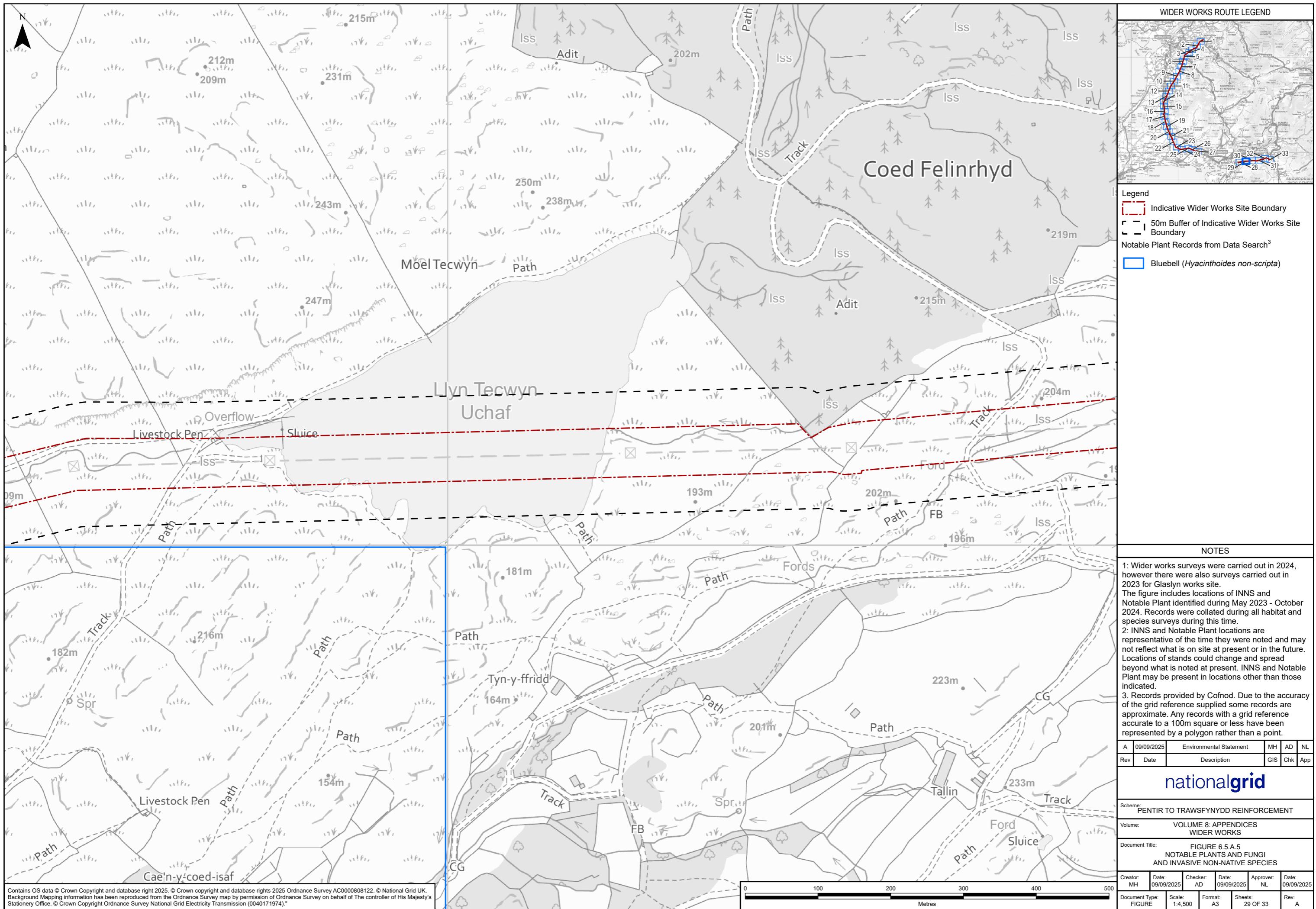


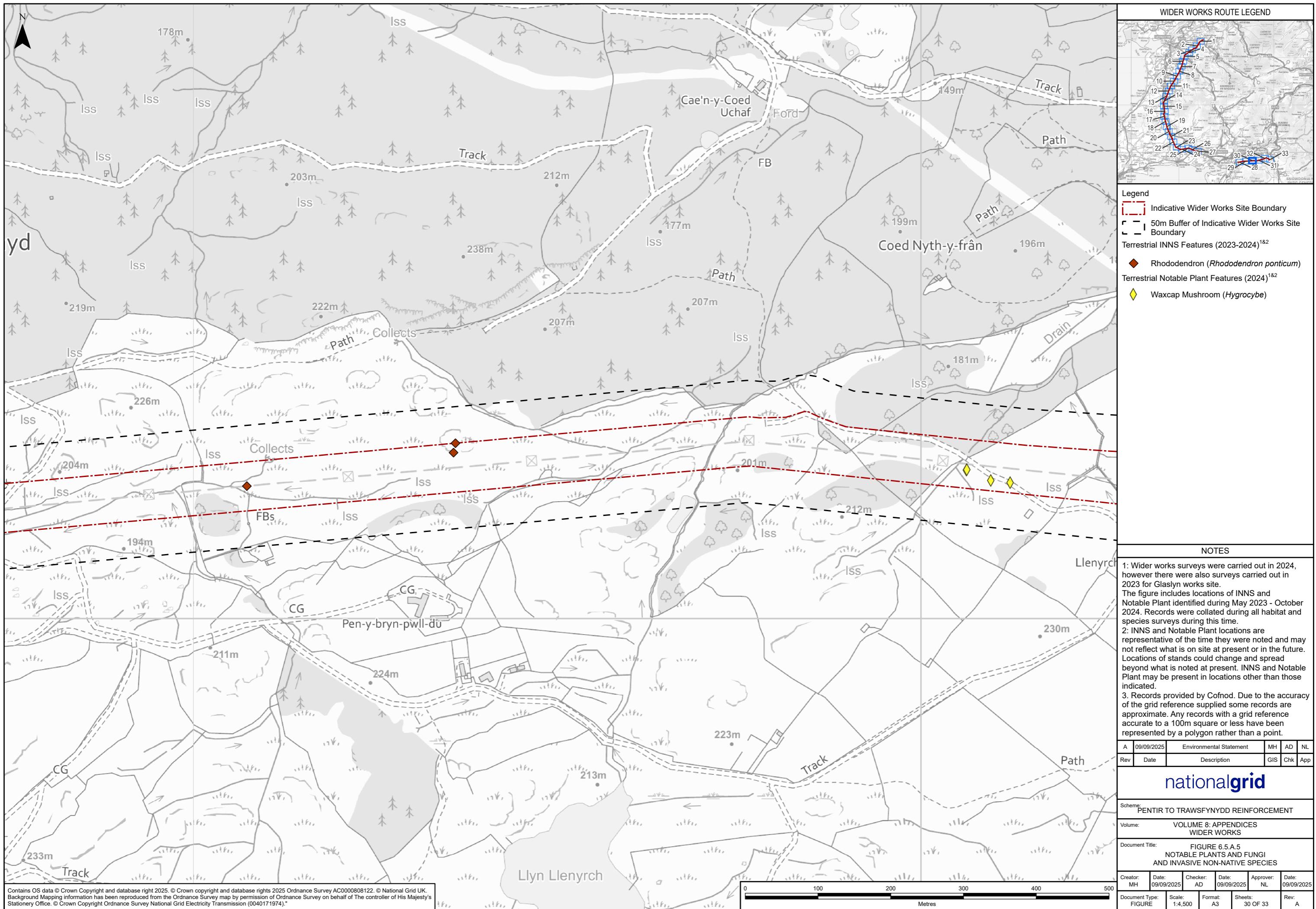


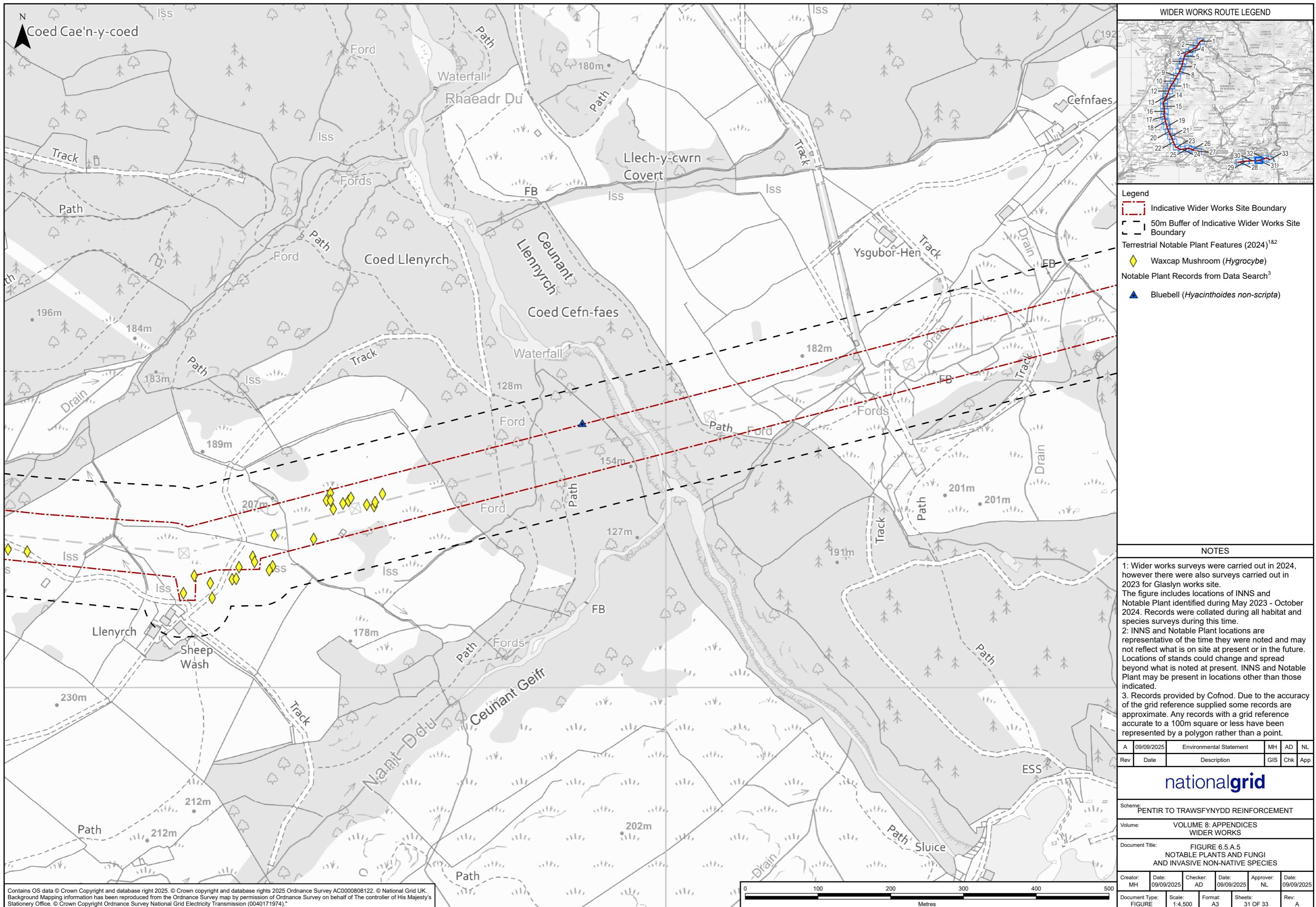


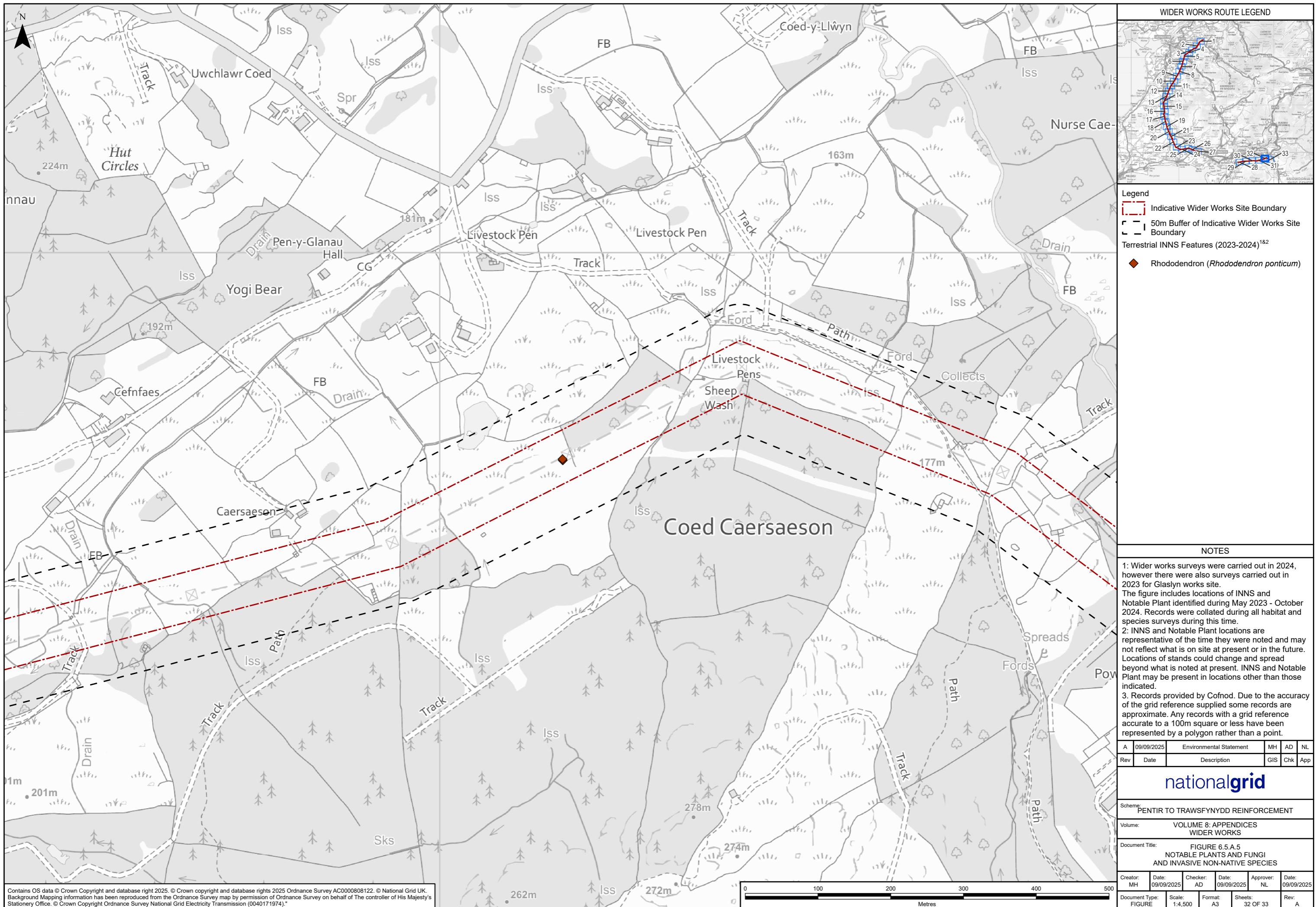














# Appendix B – Photos

## Phase 1 Habitat Survey Photos

Photograph	Description
	Plate 1: Intensive orchard between Towers 4ZC099-101.
	Plate 2: An example of the semi-natural broadleaved woodland, Upland oakwood HOPI between Tower 4ZC010-011.
	Plate 3: An example of Wet woodland HOPI south of Tower 4ZC061.

Photograph	Description
	<p>Plate 4: Example of scattered broadleaved trees, forming a linear feature between Tower 4ZC050-52.</p>
	<p>Plate 5: Example of semi-improved acidic grassland, qualifying as Lowland dry acidic grassland HoPI.</p>
	<p>Plate 6: Example of one of the waxcaps identified between Tower 4ZC013-015.</p>

Photograph	Description
	<p>Plate 7: Example of improved, grazed grassland between Tower 4ZC135-136.</p>
	<p>Plate 8: Example of purple moor grass and rush pasture HoPI between Tower 4ZC062-63.</p>
	<p>Plate 9: Example of species-poor, semi-improved grassland around Tower 4ZC060.</p>
	<p>Plate 10: Example of dense bracken between Tower 4ZC132-133.</p>

Photograph	Description
	<p>Plate 11: Example of sealed hardstanding and tall ruderal herbs adjacent to roads.</p>
	<p>Plate 12: Example of wet heath habitat between Tower 4ZC061-019.</p>
	<p>Plate 13: Example of dry heath habitat between Tower 4ZC061-018.</p>
	<p>Plate 14: Example of marshy grassland habitat south of Tower 4ZC066.</p>

Photograph	Description
	<p>Plate 15: Example of acidic flush in purple moor grass and rush pasture HoPI mosaic between Tower 4ZC081-083.</p>
	<p>Plate 16: Example of Fen – valley mire habitat in the lowland fen and heathland habitat mosaic between Tower 4ZC016-019.</p>
	<p>Plate 17: Example of acidic fen, south of Tower 4ZC075.</p>
	<p>Plate 18: Showing the reservoir between Tower 4ZC021-022.</p>

Photograph	Description
	<p data-bbox="763 190 1303 235">Plate 19: Showing the River Gwyrfa.</p>
	<p data-bbox="763 640 1435 707">Plate 20: Example of one of the many hedges at field boundaries.</p>

# Appendix C Phase 1 Habitat Data

Tower	Habitats	Description
4ZC005-4ZC006	A1.3.1 - Mixed woodland - semi-natural	Part of a wider semi-mature to mature mixed semi natural woodland surrounding the Trawsfynydd Substation (hardstanding) in the order between 15- 50 cm diameter at breast height (DBH) (average 30 cm DBH), canopy 70% full. Sycamore is dominant with birch and occasional Scots pine, Douglas fir, hawthorn and beech. Recognisable woodland ground flora and good spread of deadwood. Herbivore grazing evident, but reasonably undisturbed except on footpath.
	A3.1 - Broadleaved parkland or scattered trees	Eight scattered broadleaved trees are present at field boundaries in the Wider Works site; ash, hawthorn and blackthorn.
	B4 - Improved grassland	Heavily grazed and managed fields bisected by drystone walls and scattered broadleaved trees. Grassland has limited species and structural diversity and is dominated by perennial rye grass.
	G2 – Running Water	Shallow stream, slow flowing, rocky substrate.
4ZC006-4ZC007	J2.5 – Wall	Numerous drystone walls bisect fields.
	A1.3.1 - Mixed woodland - semi-natural	Part of a wider semi-mature to mature mixed semi natural woodland between 12-110 cm DBH (average 25 cm) canopy 65% full. Canopy dominated by sycamore with birch. No recognisable woodland ground flora and paucity of deadwood. Herbivore grazing evident, but reasonably undisturbed except on footpath.
	A3.1 - Broadleaved parkland or scattered trees	Two mature hazel and one mature ash in bracken, west of Tower 4ZC006. Eleven mature hawthorn, ash and rowan in acid grassland east of Tower 4ZC007.
	A2.2 – Scrub – scattered	Small patch of early successional European gorse scrub and scattered bracken.
	B1.2 - Acid grassland - semi-improved	Semi-improved grassland around Tower 4ZC007, with clear acidic influence. High incidence of competitive species (rye grass and clovers) indicates agricultural improvement. Moderately grazed and rushes mown.

Tower	Habitats	Description
	C1.1 - Bracken – continuous	A patch of dense bracken immediately west of Tower 4ZC006, with occasional, surrounded by stone wall, with two scattered mature hazel and one mature ash tree. Scattered patches of gorse in acid grassland.
4ZC007-4ZC008	A1.1.1 - Broadleaved woodland - semi-natural	Wet willow woodland along north-western edge, relatively bare understory (occasional bramble and ivy), no sign of INNPS, 10% deadwood throughout, no signs of silvicultural management. Trees appear similar age throughout (semi-mature). Willows are dominant with occasional birch.
	A3.1 – Broadleaved parkland or scattered trees	Mature rowan.
	A1.3.1 - Mixed woodland - semi-natural	Continued part of a wider semi-mature to mature mixed semi-natural woodland; on and beyond the southern boundary.
	A2.2 – Scrub – scattered	Scattered rowan, hazel, willow and birch scrub in the dense bracken.
	C1.1 - Bracken – continuous	Dense bracken at woodland edge below power lines.
4ZC008-4ZC009	A1.1.1 - Broadleaved woodland - semi-natural	Continued wet willow woodland along north-western edge.
	A1.3.1 - Mixed woodland - semi-natural	Continued part of a wider semi-mature to mature mixed semi-natural woodland; on and beyond the southern boundary.
	C1.1 - Bracken – continuous	Continued dense bracken at woodland edge below power lines.
	G2 – Running Water	Woodland stream, fast flowing, shaded and vegetated.
4ZC009-4ZC010	A2.2 – Scrub – scattered	Scattered gorse, blackthorn and hawthorn scrub in acid grassland.
	A3.1 – Broadleaved parkland or scattered trees	Two lines of mature hawthorn, sycamore, ash and oak with associated stone walls beneath power lines, DBH 30 cm, canopy broken with 30% gaps.
	A4.2 - Coniferous woodland - recently felled	Recently felled coniferous woodland, rowan, sycamore and hawthorn saplings present scattered throughout, also scattered scrub and rush understorey.

Tower	Habitats	Description
	B1.2 - Acid grassland - semi-improved	Grazed grassland with heavily acidic influence. Slope c.45-degrees north with damper and drier patches; red fescue), common bent, Yorkshire fog and heath bedstraw are present.
	B4 – Improved grassland	Heavily grazed, improved grassland dominated by perennial rye-grass with white clover.
	B5 – Marsh or marshy grassland	Area of damp grazed pasture where rushes are controlled by mowing. Soft rush, purple moor-grass, creeping bent and sharp-flowered rush. Yorkshire fog, common bent, tormentil and marsh bedstraw.
4ZC010-4ZC011	A1.1.1 - Broadleaved woodland - semi-natural	Semi natural broadleaved woodland extending south; oak dominated with rowan and ash, birch and hawthorn. Canopy 50% full, with an average DBH of 30 cm. Two age classes, with little rejuvenation as lower branches are actively grazed.
	A2.2 – Scrub – scattered	Scattered willow and birch scrub in marshy grassland below pylon.
	A3.1 - Broadleaved parkland or scattered trees	Line of mature trees (dominated by sessile oak) adjacent to grazed field. More than one tree represents ecological features such as cavities and loose bark, grazed land on either side of trees.
	B1.2 - Acid grassland - semi-improved	Heavily grazed field, rocky outcrops present throughout with scattered bracken. Acidic indicators: common bent, red fescue, sheep's sorrel, occasional tormentil and heath bedstraw.
	B5 – Marsh or marshy grassland	Marshy grassland surrounding pylon: varied sward height with scrub c.10% cover. Approximately seven species per m <sup>2</sup> . Water table at ground level. Purple moor grass, soft rush, jointed rush, marsh thistle and <i>Sphagnum</i> . Marshy grassland extends westwards, below pylons, however this area is dominated by soft rush and is less floristically diverse than adjacent grassland.
	G2 – Running water	Fast flowing stream, flowing south-north beneath power lines, mix of earth and rocky substrate, c. 0.5 m wide, 20 cm depth. Ditch network in marshy grassland: main ditch is c.60 cm depth, moderate flow, 45-degree bank, vegetation present on both banks, emergent and submerged vegetation present. Tributary ditches have slower flow, c.10 cm depth, with emergent vegetation choking the channels.

Tower	Habitats	Description
4ZC011-4ZC012	A1.1.1 - Broadleaved woodland - semi-natural	Semi natural broadleaved woodland beneath power lines: birch, hazel and oak dominated with some willow and hawthorn. Canopy 70% full, with an average DBH of 30 cm. Three storeys present along with rejuvenation, 3+ age classes present, with low grazing activity.
	A2.2 – Scrub – scattered	Scattered European gorse in improved grassland.
	A3.1 - Broadleaved parkland or scattered trees	Scattered hawthorn, hazel and oak species in improved grassland. Line of planted hazel, birch and rowan adjacent to large, above-ground water pipe
	B4 – Improved grassland	Heavily grazed grassland dominated by perennial rye grass and competitive forb species (white clover and dandelion).
	G2 – Running water	Continued main ditch, becoming faster flowing where gradient becomes steeper in woodland.
4ZC012-4ZC013	A1.1.1 - Broadleaved woodland - semi-natural	Semi natural broadleaved woodland in steep-sided valley with River Prysor flowing in valley bottom. Canopy dominated by birch, oak and rowan, with occasional ash, hawthorn and Douglas fir. Locally bracken and diverse ferns throughout. Canopy 75% full. Active regeneration, undisturbed and lightly grazed, some clearings.
	B1.2 - Acid grassland - semi-improved	Heavily grazed field with obvious acid influence (sheep's sorrel and occasional tormentil).
	G2 – Running water	River Prysor flowing in valley bottom. Fast flowing river with stone substrate.
4ZC013-4ZC014	A1.1.1 - Broadleaved woodland - semi-natural	Narrow strip of broadleaved woodland beneath power lines separating fields and fenced. c.5 m wide, oak dominated with occasional willow, ash, rowan and hawthorn. Canopy 60% full. Active regeneration in areas, heavily grazed, some clearings present.
	B1.2 - Acid grassland - semi-improved	Heavily grazed field with obvious acid influence (sheep's sorrel and occasional tormentil); semi-improved due to perennial rye-grass, white clover and crested dog's-tail. Updated waxcap survey in October 2024 highlighted the presence of waxcaps.
	B4 – Improved grassland	Heavily grazed grassland dominated by perennial rye grass and competitive forb species, with occasional soft rush.

Tower	Habitats	Description
	B5 – Marsh or Marshy grassland	Low lying area in grazed field dominated by soft and compact rush. Purple moor grass is present as are other wet acidic species. Not species diverse: 5-6 species per m <sup>2</sup> . Water table is close to surface.
	J2.6 - Dry ditch	Dry ditch at field boundary; likely holds water through the winter months.
4ZC014-4ZC015	A1.1.1 - Broadleaved woodland - semi-natural	Continuation of linear woodland feature as in previous section.
	B1.2 - Acid grassland - semi-improved	Grazed field with obvious acidic influence (fescue species, tormentil, sheep's sorrel, heath bedstraw, field wood rush) but also species indicating nutrient input (perennial rye grass, common mouse-ear, white clover). Updated waxcap surveys in October 2024 highlighted the presence of waxcaps, common puffball and golden fairy club.
	B4 – Improved grassland	Heavily grazed grassland with high incidence of competitive species.
	G2 – Running water	Narrow ditch (0.3 m) between grazing units, c.10 cm depth, earth bank and silt substrate, shallow banks, vegetation on both banks, shaded by trees.
4ZC015-4ZC016	A1.1.1 - Broadleaved woodland - semi-natural	Semi natural broadleaved woodland Canopy dominated by birch, oak and rowan, with occasional ash, hawthorn and Douglas fir. Bracken and diverse ferns throughout. Canopy 70% full. Active regeneration, undisturbed, moderately grazed and some clearings
	B1.1 - Acid grassland - unimproved	Free draining acid grassland excluded from grazing. Fescue and common bent are dominant; heath bedstraw, purple moor grass and sheep's sorrel, bilberry ( <i>Vaccinium myrtillus</i> ), oval sedge and sweet vernal are occasional. Bracken encroaching
4ZC016-4ZC017	A1.3.2 - Mixed woodland – plantation	Plantation mixed woodland on the southern edge of the Wider Works site, between 15-40 cm DBH, average 25 cm canopy, 75% full. Birch, oak and willow canopy species, occasional Douglas Fir and Scot's pine. Self-set willow and birch extending northwards into heathland habitats and beneath Tower 4ZC0017.
	B1.2 - Acid grassland - semi-improved	Small section of wider grazing area with anthills and high abundance of acid indicators: red fescue, common bent, purple moor-grass, tormentil, heath bedstraw, sweet vernal-grass, sheep's sorrel. Short, uniform sward due to grazing.

Tower	Habitats	Description
	D2 - Wet dwarf shrub heath	Wet dwarf shrub heath where cross-leaved heather, purple moor grass and bog myrtle) become prevalent. Small areas of wetter mire vegetation (including bog asphodel) are present. Scattered willow and birch scrub.
	D5 - Dry heath and acid grassland	Area of dry heath and acid grassland mosaic. Shorter, grass (bent, fescue) dominated area beneath pylon; taller bracken and purple moor-grass uphill (south) of pylon; mosaic of gorse, heather species, grass species., bilberry, bracken and bare rock around west, north and east of pylon.
	G2 – Running water	Narrow ditch (c.0.3 m depth), with slow or no perceptible flow through wet heath. Clear water.
4ZC017-4ZC018	A1.3.2 - Mixed woodland – plantation	Continuation of plantation from previous section with self-set birch and willow extending northward into wet heath.
	D2 - Wet dwarf shrub heath	Continuation of wet heath from previous section; purple moor grass becomes more dominant.
	D5 - Dry heath and acid grassland	Topography becomes higher from area of wet heath and valley mire; the habitat is drier, featuring greater heather and drier grasses (purple moor-grass and tufted grasses). Scattered scrub, and c.10% bracken cover. Single semi-mature stand of Pontic rhododendron on northern edge of the Wider Works site.
	E3.1 - Fen - valley mire	Wet heath (as previously described) becomes wetter as it extends eastwards, exhibiting valley mire habitat, fed by small streams forming open water pockets amongst tufts of tufted hairgrass and purple moor grass mixed with cross leaved heath, common heather interspersed with common cotton grass and <i>Sphagnum</i> mounds. Waterlogged, with some areas of floating vegetation and pools and ditches with aquatic plants: marsh cinquefoil (marsh St John's-wort, bog bean (marsh bedstraw and marsh pennywort (Bog myrtle, bog asphodel, heath milkwort ( <i>Polygala serpyllifolia</i> ), round-leaved sundew ( <i>Drosera rotundifolia</i> ), bottle sedge, <i>Pleurozium scheberi</i> and reindeer lichen ( <i>Cladonia</i> sp.) also recorded.
	G2 – Running water	Narrow ditches (c.0.5-1 m depth), with slow or no perceptible flow through wet heath and valley mire. Clear water.
4ZC018-4ZC019	A2.1 - Scrub – dense or continuous	Three patches of dense gorse scrub on rocky outcrops, higher than surrounding marshy habitats.

Tower	Habitats	Description
		Scattered rowan, willow and oak saplings, and high incidence of bluebell at ground level.
	B5 – Marsh or marshy grassland	Area of lightly sheep grazed marshy grassland, enclosed by stone walls. Dominated by purple moor grass and rush species. Occasional bog myrtle, cross leaved heath with scattered bracken. Patch of dense gorse in centre.
	D2 - Wet dwarf shrub heath	Continuation of wet heath as in previous section, though becoming drier with greater incidence of purple moor grass and bog myrtle.
	D5 - Dry heath or acid grassland	Continuation of dry heath mosaic from previous section.
	E3.1 - Fen - valley mire	Continuation of mire vegetation from previous section.
	G2 – Running water	Continuation of ditch from previous section. Additional ditch on edge of field boundary, adjacent to stone wall. Moderate flow with rocky substrate, 0.5 m wide, water c.10 cm depth.
4ZC019-4ZC020	A3.1 - Broadleaved parkland or scattered trees	Three scattered semi-mature rowan trees in marshy grassland.
	A2.1 - Scrub – dense or continuous	Patch of dense gorse scrub on rocky outcrop. Scattered willow and juniper, and scattered bracken.
	B5 – Marsh or marshy grassland	Continuation of marshy grassland from previous section.
	B6 - Poor semi-improved grassland	Two parcels of sheep grazed species-poor, semi-improved grassland: perennial rye-grass and red fescue, occasional sweet vernal-grass. Scattered bracken and occasional tormentil indicate acidic influence.
	G2 – Running water	Continuation of ditch from previous section. Two tributary ditches also flow into this ditch.
4ZC020-4ZC021	A2.1 - Scrub – dense or continuous	Patch of dense gorse scrub on rocky outcrop, with scattered bracken.
	A4.2 - Coniferous	Recently felled stumps, debris of limbs and branches remain on ground, currently sheep grazed, patches of

Tower	Habitats	Description
	woodland - recently felled	bare ground less than 5%. Ruderal herbs and scattered scrub present.
	B5 – Marsh or marshy grassland	Area of lightly sheep grazed marshy grassland, in low-lying area, sloping towards reservoir. Borders a ditch. Dominated by purple moor-grass and rush species . Occasional bog myrtle, cross leaved heath with scattered bracken.
	B6 – Poor semi-improved grassland	Continuation of sheep grazed grassland from previous section, featuring patches of dense gorse and bracken.
	C1.1 - Bracken – continuous	Patch of dense bracken on rocky outcrop in sheep grazed field. Scattered gorse.
	G2 – Running water	Shallow ditch with gentle sloping banks, 1 m width, c.5 cm depth (dry in sections). Slow flow rate, rocky substrate. Flowing westwards towards reservoir.
4ZC021-4ZC022	G1 – Standing water	Large reservoir with steep earth and stone banks. Deep, lacking both emergent and submerged vegetation
4ZC022-4ZC023	A1.1.1 - Broadleaved woodland - semi-natural	Woodland extending along outflow of reservoir. Semi-mature to mature, with young trees present: birch species, willow species, alder, hawthorn and blackthorn. Ground flora dominated by bracken. Dense canopy cover, 2-3 storeys present and no browsing damage. Woodland thins out to the west.
	B4 - Improved grassland	Sheep grazed grassland with perennial rye-grass and white clover. Scattered bracken.
	C1.1 - Bracken – continuous	Area of dense bracken, extending southwards and around the edge of the reservoir. Scattered gorse and tree saplings.
	G2 – Running water	Fast flowing outfall from reservoir, variable depth, small waterfalls, pools and varied widths of channel, low turbidity, rocky substrate, no emergent or submerged vegetation visible.
4ZC023-4ZC024	A1.1.1 - Broadleaved woodland - semi-natural	Continuation of woodland from previous section.
	A2.1 - Scrub – dense or continuous	Gorse dominated scrub of singular age on steep rocky outcrop with scattered bracken at understorey.
	A3.1 - Broadleaved	Scattered semi-mature to mature ash, silver birch, and downy birch throughout bracken.

Tower	Habitats	Description
	parkland or scattered trees	Dense bracken with occasional rowan, ash, silver birch, and downy birch scrub with scattered semi mature trees. Understory largely bare, with some bramble and occasional forbs and graminoids.
	C1.1 - Bracken – continuous  G2 – Running water	Continuation of stream from previous section.
4ZC024-4ZC025	A1.1.1 - Broadleaved woodland - semi-natural	New regeneration woodland with patchy canopy: rowan, willows and birches.
	A2.1 - Scrub – dense or continuous	Continuation of gorse scrub from previous section.
	A3.1 - Broadleaved parkland or scattered trees	Scattered rowan and birch in scrub and bracken.
	C1.1 - Bracken – continuous	Continuation of bracken from previous section.
	G2 – Running water	Continuation of stream from previous section.
4ZC025-4ZC026	A1.1.1 - Broadleaved woodland - semi-natural	Self-seeded woodland, no shrub layer.
	A3.1 - Broadleaved parkland or scattered trees	Scattered rowan and birch in scrub and bracken.
	B5 – Marsh or marshy grassland	Marshy grassland bordering stream. Dominated by tall grasses (such as tufted hairgrass) and soft rush.
	C1.1 - Bracken – continuous	Scattered bramble and bracken.
	G2 – Running water	Continuation of stream from previous section.
4ZC026-4ZC027	A3.1 - Broadleaved parkland or scattered trees	Scattered rowan and birch in bracken. Single mature sycamore. Line of semi-mature to mature silver birch, sycamore, ash, oak species, and rowan trees of varied age. Running beneath Tower 4ZC027 and extends off site to the west. Canopy continuous.

Tower	Habitats	Description
	C1.1 - Bracken – continuous	Continuation of bracken from previous section.
	G2 – Running water	Continuation of stream from previous section.
4ZC27-4ZC045	N/A	Outside the Wider Works site.
4ZC045-4ZC046	A1.1.1 - Broadleaved woodland - semi-natural	Mature woodland: sycamore and beech dominated with occasional holly and rhododendron. Relatively bare ground flora (with occasional bluebell), signs of felling in 10% of wood, deadwood present. Rhododendron present throughout.
	A3.1 - Broadleaved parkland or scattered trees	Two lines of broadleaved trees (dominated by hawthorn, occasional rowan, ash, willows, oaks, and silver birch), with continuous canopy over access track and marshy grassland. Trees range from juvenile to very mature on the order between 10 cm – 110 cm DBH.
	B1.2 - Acid grassland - semi-improved	Semi-improved grassland: perennial rye grass and Yorkshire fog, red fescue and occasional white clover and creeping buttercup ( <i>Ranunculus repens</i> ). Acidic influence present: bracken and occasional tormentil and sheep's sorrel. Damp influence: lesser spearwort (and marsh thistle occasional).
	B4 – Improved grassland	Heavily grazed grassland beneath Tower 4ZC045. Characterised by dominant grasses. Forbs limited to occasional creeping buttercup, white clover, dandelion and spear thistle.
	B5 – Marsh or marshy grassland	Lightly grazed with varied sward. Dominated by soft rush with perennial rye grass and Yorkshire fog, bracken.
	G2 – Running water	Ditch with associated line of trees and stone wall, running through grassland. Shaded along 50%, approximately 1 m width, 5-10 cm depth with sluggish flow.
4ZC046-4ZC047	A1.1.1 - Broadleaved woodland - semi-natural	Mature woodland, bracken largely present in ground flora and some open planes of bracken throughout, some Pontic rhododendron present (approximately 10% cover), c.5% deadwood throughout. Cattle and sheep grazed to low intensity.
	B1.2 - Acid grassland - semi-improved	Partially grazed. Scattered gorse scrub and bracken. Sward varied with an average of six species per m <sup>2</sup> . Clear acidic influence, but presence of nutrient tolerant species reduces quality of grassland. Common bent, Yorkshire fog, sweet vernal-grass, tormentil, greater

Tower	Habitats	Description
		bird's-foot-trefoil, common sorrel, bracken, perennial rye-grass, fescue species. Occasional: meadow buttercup, cock's-foot, heath bedstraw, creeping soft grass, red clover.
	C1.1 - Bracken – continuous	Dense bracken in clearings in woodland under power lines. Largely homogeneous species-poor sward.
	G2 – Running water	Small stream: 1 m width, 5 cm depth, fast flowing and shallow banks vegetated by soft rush and bramble throughout but lacking emergent or submerged species. Shaded by woodland along 90%. Second water course running through acid grassland: 1 m width, c.30 cm water depth, earth banks <45-degree angle slope, submerged and emergent plants present in (c.80% cover).
4ZC047-4ZC048	A1.1.1 - Broadleaved woodland - semi-natural	Continuation of mature woodland; from previous section.
	A3.1 - Broadleaved parkland or scattered trees	Line of mature trees in marshy grassland. Willow, ash, oak s, hawthorn and birch species. Undisturbed vegetated strip present extending 6 m from tree line and canopy continuous.
	B1.2 - Acid grassland - semi-improved	Continuation of acid grassland from previous section.
	B5 – Marsh or Marshy grassland	Marshy grassland occasionally grazed or mown (rush control) with varied sward. Average of six species per m <sup>2</sup> . Bracken and gorse scrub but coverage less than 20%. Recent damage afforded by agricultural ground disturbance (herbicide and exposing bare soil).
	G2 – Running water	Fast flowing shallow stream with moderately steep grassy and earth banks with occasional rocky banks, c.1 m width, 5 -10 cm depth although is likely deeper during rain. Reed sweet-grass present in water.
4ZC048-4ZC049	A2.1 - Scrub – dense or continuous	Patch of dense gorse and bramble scrub on rocky outcrop in marshy grassland.
	A3.1 - Broadleaved parkland or scattered trees	Continuation of line of trees along watercourse from previous section.

Tower	Habitats	Description
	B5 – Marsh or Marshy grassland	Continuation of marshy grassland from previous section.
	G2 – Running water	Continuation of stream from previous section.
4ZC049-4ZC050	A3.1 - Broadleaved parkland or scattered trees	Lines of mature trees bisecting improved grassland and lining minor highway. Hawthorn, ash, sycamore, sessile oak and holly. Stone wall and stock fence present at base. Some canopy gaps present. Potential cloddiau.
	B4 – Improved grassland	Three grazed fields bisected by stone walls and lines of trees. Sward homogeneous. Average of five species per m <sup>2</sup> , perennial rye-grass dominated with Yorkshire fog and occasional white clover and annual meadow grass ( <i>Poa annua</i> ).
	B5 – Marsh or Marshy grassland	Continuation of marshy grassland from previous section.
4ZC050-4ZC052	A3.1 - Broadleaved parkland or scattered trees	Lines of mature trees adjacent to watercourse and between grazed fields. Pedunculate oak dominates, with additional sessile oak, hawthorn and willow species.
	B4 – Improved grassland	Three grazed fields bisected by stone walls and lines of trees. Sward homogeneous. Average of five species per m <sup>2</sup> , perennial rye grass dominated with Yorkshire fog and occasional white clover and annual meadow grass.
	B5 – Marsh or marshy grassland	Grazed damp grassland with clear nutrient input: dominant perennial rye-grass and soft rush, occasional Yorkshire fog.
	G2 – Running water	Fast flowing ditch with rocky gravelly substrate c. 1.8 m width, 8 cm water depth and clear. Banks (1.5 m depth) steep in some areas, shallow in others. Shaded along length, lacking in channel aquatic vegetation, but marginal rushes present throughout.
	J2.5 – Wall	Numerous drystone walls bisect grazed fields, some of which may be cloddiau.
		Land access was not granted to most of this section. No survey data are available.
4ZC052-4ZC053	A1.1.1 – Broadleaved woodland – semi natural	Small parcel of hawthorn dominated woodland with oak, willow and blackthorn.

Tower	Habitats	Description
4ZC053-4ZC054	A3.1 - Broadleaved parkland or scattered trees	Continuation from previous section.
	B4 – Improved grassland	Grazed improved grassland with homogeneous sward. Average of five species per m <sup>2</sup> . Dominant perennial rye-grass, Yorkshire fog and occasional white clover, common mouse-ear, common daisy ( <i>Bellis perennis</i> ) and annual meadow grass.
	B5 – Marsh or marshy grassland	Continuation of marshy grassland from previous section.
	J2.5 – Wall	Numerous drystone walls bisect grazed fields.
4ZC054-4ZC055	B4 – Improved grassland	Two grazed fields with homogeneous sward. Dominant perennial rye grass, Yorkshire fog and occasional white clover, common mouse-ear, common daisy and annual meadow grass. Bisected by stone walls.
	J2.5 – Wall	Drystone walls bisect grazed fields.
	B4 – Improved grassland	Grazed improved grassland fields with homogeneous sward, four species per m <sup>2</sup> . Minor acidic influence (sheep's sorrel) but clearly nutrient enriched due to dominance of perennial rye-grass.
4ZC055-4ZC056	J2.1.2 - Intact hedge - species- poor	Species-poor hedge bisecting grazed fields. Hawthorn dominated with occasional blackthorn and field maple.
	J2.5 – Wall	Drystone walls bisect grazed fields, one of which is likely cloddiau.
	A3.1 - Broadleaved parkland or scattered trees	Line of mature trees with associated ditch. Canopy continuous, and undisturbed strip extending over 6 m in either direction. Oak species dominate with willows, hazel, holly, sycamore and bramble. Scattered mature hawthorn at field boundaries.
4ZC056-4ZC057	B1.2 - Acid grassland - semi-improved	Grazed grassland with clear acidic influence (heath bedstraw, sheep's sorrel, tormentil). Clear nutrient enrichment (perennial rye grass and Yorkshire fog), common bent and fescue species.
	B4 – Improved grassland	Grazed improved grassland fields with homogeneous sward, four species per m <sup>2</sup> . Minor acidic influence (sheep's sorrel) but clearly nutrient enriched due to dominance of perennial rye grass.

Tower	Habitats	Description
4ZC056-4ZC057	B5 – Marsh or marshy grassland	Marshy grassland in low lying area. Occasionally grazed. Varied sward and average of six species per m <sup>2</sup> . Dominated by soft rush, but Yorkshire fog, common sorrel and purple moor grass.
	G2 – Running water	One central ditch with three tributary channels. Moderate flow, 1 m width, 10 cm depth, earth bank and substrate, shaded by trees, tussocky grass along 100% of banks.
	J2.5 – Wall	Drystone walls bisect grazed fields. Potential cloddiau.
4ZC057-4ZC058	A1.1.1 - Broadleaved woodland - semi-natural	Mature woodland in the order between 10-120 cm DBH (average 40 cm). Canopy cover 80%. Fallen and standing deadwood present. Oak species dominated with occasional ash, sycamore, field maple and willow species.
	B1.2 - Acid grassland - semi-improved	Pontic rhododendron and cherry laurel present in low abundance.
4ZC058-4ZC059	J2.5 – Wall	Continuation of acid grassland from previous section.
	B1.2 - Acid grassland - semi-improved	Drystone walls bisect grazed fields. Potential cloddiau.
4ZC059	J2.5 – Wall	Continuation of acid grassland from previous section.
	B4 – Improved grassland	Heavily grazed pasture with dominant perennial rye and Yorkshire fog and white clover.
4ZC059	J2.3.1 - Hedge with trees - native species-rich	Drystone walls bisect grazing units.
	A1.1.1 - Broadleaved woodland - semi-natural	Unmanaged species-rich hedge (hawthorn, blackthorn, willow, field maple and gorse) with field maple and goat willow 30% canopy gaps. Associated with stone wall (cloddiau).
4ZC059	A3.1 - Broadleaved parkland or scattered trees	Wet willow woodland beneath power lines. Alder and willow species, marsh marigold ( <i>Caltha palustris</i> ) and meadowsweet in understorey.
	B4 – Improved grassland	Line of young rowan, semi-mature oak and mature oak and ash trees on earth stone wall (probable cloddiau).
		Grazed grassland with common bent and sweet vernal grass. Crested dog's-tail. Occasional common sorrel.

Tower	Habitats	Description
	B5 – Marsh or marshy grassland	Area of damp grazed grassland. Soft rush, purple moor grass and sharp-flowered rush. Occasional tormentil, greater bird's-foot-trefoil, marsh bedstraw, marsh violet, marsh willowherb lady fern and lemon-scented fern.
	C1.1 - Bracken – continuous	Dense bracken between grassland and road.
	G2 – Running water	Ditch network in marshy grassland with slow flow. Clear water, depth c.10 cm. Vegetation limited to marginal species in adjacent grassland. Shaded where it runs through wet woodland.
	J2.2.2 – Defunct hedge species- poor	Defunct hedge on field margin; hawthorn, gorse and blackthorn present.
	J2.5 – Wall	Drystone walls at edges of grazed fields
4ZC059-4ZC060	A3.1 - Broadleaved parkland or scattered trees	Line and scattered mature to semi-mature trees at field boundaries: oak species, ash, rowan and willow species on earth stone wall (probable cloddiau).
	B4 – Improved grassland	Two heavily grazed, improved pasture fields with walls and scattered trees at boundaries.
	B5 – Marsh or marshy grassland	Continuation of marshy grassland from previous section.
	J2.3.1 - Hedge with trees - native species-rich	Species-rich, unmanaged, intact hedge at field boundary, associated with wall (cloddiau). Dominated by blackthorn with hawthorn, gorse, guelder rose and bramble. Regular trees: pedunculate oak, rowan and goat willow.
	J2.5 – Wall	Drystone walls at edges of grazed fields (cloddiau).
4ZC060-4ZC061	A1.1.1 - Broadleaved woodland - semi-natural	Small area of grey willow dominated wet woodland.
	A3.1 - Broadleaved parkland or scattered trees	Three scattered mature oaks at field boundary and in marshy grassland.
	B4 – Improved grassland	Heavily grazed, improved pasture field with walls and scattered trees at boundaries.

Tower	Habitats	Description
	B5 – Marsh or marshy grassland	<p>Area of damp grazed grassland. Soft rush, and sharp-flowered rush, purple moor grass and greater bird's-foot-trefoil, occasional tormentil, marsh bedstraw, marsh violet, marsh willowherb, common sorrel, greater bird's-foot-trefoil, heath milkwort lesser skullcap and heath spotted orchid).</p> <p>Fragments of wet heath (D2) in marshy grassland (heathers and deer grass</p>
	E2.1 - Flush and spring – acid or neutral flush	<p>Botanically diverse stand of acid flush with soft rush and sharp flowered rush sharing dominance, <i>Sphagnum fallax</i> and <i>Polytrichum commune</i> moss dominate the ground layer. Diverse forbs present: marsh bedstraw, creeping forget-me-not (<i>Myotis secunda</i>), lesser spearwort, marsh violet, white sedge marsh St John's-wort, marsh willowherb, cuckoo flower and marsh cinquefoil.</p>
	J2.3.1 - Hedge with trees - native species-rich	Species-rich, unmanaged, intact hedge at field boundary, associated with wall (cloddiau). Blackthorn, hawthorn and bramble. Regular trees: pedunculate oak, ash and goat willow.
	G2 – Running water	Ditch running through marshy grassland. Rock and pebble substrate, low turbidity, low level invertebrate activity, culverted under track. Bank vegetation consistent with adjacent marshy grassland.
	J2.5 – Wall	Drystone walls at edges of grazed fields (potential cloddiau).
4ZC061-4ZC062	A1.1.1 - Broadleaved woodland - semi-natural	Small area of wet woodland just south of Tower 4ZC062. Canopy dominated by alder and grey willow, soft rush and meadowsweet at ground level.
	A1.1.2 - Broadleaved woodland - plantation	Small area of enclosed mature sycamore trees. Originally planted, but currently unmanaged.
	A3.1 - Broadleaved parkland or scattered trees	Riverbanks lined predominantly with willow species, and oak, with occasional ash, sycamore and alder. Occasional dead trees. Canopy continuous.
	B4 – Improved grassland	Improved grassland field leading down to river. Heavily grazed with scattered rushes.
		Botanically diverse fen adjacent to river. Purple moor grass and sharp flowered rush, with a wide variety of forbs. Ground flora is dominated by <i>Sphagnum fallax</i>

Tower	Habitats	Description
	E3.3 - Fen - flood plain mire	and <i>Sphagnum palustre</i> . Bog bean, common valerian, white sedge, tormentil, greater bird's-foot-trefoil and bottle sedge. Occasional ragged robin <i>i</i> , devil's-bit scabious and heath spotted-orchid.
	G2 – Running water	Fast flowing River Dwyfor, 14 m width, with 1.2 m rocky and earth banks. Water c. 60 cm depth. Boulder and rock substrate. Clear water. Limited macrophyte cover.
	J2.8 – Earth bank	Some field boundaries are earth banks with buried stone (cloddiau) and stock fences atop. Feature woodland ground-flora indicators in patches.
4ZC062-4ZC063	B4 – Improved grassland	Heavily grazed improved grassland, dominated by competitive grasses.
	B5 – Marsh or marshy grassland	Area of south-sloping marshy grassland (cattle grazed), dominated by sharp-flowered rush, soft rush and purple moor grass. Sward generally rank in structure, but some open areas due to cattle grazing (including some heavily poached areas). Water table close to surface despite slope. Marsh bedstraw and cuckooflower. Occasional forget-me-not, marsh thistle, marsh willowherb, lesser spearwort, marsh pennywort) and meadow buttercup. Very occasional heath spotted orchid. Some scattered bracken and hawthorn and gorse scrub.
	G2 – Running water	Shallow, slow flowing ditches in marshy grassland. No visible substrate. Bankside vegetation consistent with adjacent grassland.
	J2.2.2 – Defunct hedge – species-poor	Defunct hawthorn hedge. The majority of hawthorn have developed into trees due to lack of hedge management (potential cloddiau).
	J2.5 – Wall	Drystone walls bisecting grazed fields.
	J2.8 – Earth bank	Some field boundaries are earth banks with buried stone (cloddiau) and stock fences atop. Feature woodland ground-flora indicators in patches.
4ZC063-4ZC064	A1.3.2 - Mixed woodland - plantation	Small area of planted non-native conifers, now mature. Some broadleaved natural regeneration beneath (willow) and bramble.
	B4 – Improved grassland	Heavily grazed improved grassland field, dominated by competitive grasses, bisected by stone walls. Grassed over trackway with stone walls and earth banks on either side; vegetation dominated by competitive grasses with some bare patches.

Tower	Habitats	Description
	J2.2.2 - Defunct hedge - species-poor	Gappy gorse and hawthorn hedges atop earth banks (cloddiau) aside former access track.
	J2.3.2 - Hedge with trees - species-poor	Hawthorn dominated hedge with regular ash trees.
	J2.5 – Wall	Drystone walls bisecting grazed fields.
	J2.8 – Earth bank	Some field boundaries are earth banks with buried stone (cloddiau) and stock fences atop. Feature woodland ground-flora indicators in patches.
4ZC064-4ZC065	B4 – Improved grassland	Heavily grazed sheep pasture dominated by competitive grasses.
	J2.8 – Earth bank	Cloddiau boundary features with stock fences atop.
4ZC065-4ZC066	A3.1 - Broadleaved parkland or scattered trees	Scattered semi-mature grey willows in marshy grassland.
	B4 – Improved grassland	Heavily grazed sheep pasture dominated by competitive grasses.
	B5 – Marsh or marshy grassland	Dominated by purple moor grass with sweet vernal grass, Yorkshire fog, soft rush, sharp flowered rush and red fescue. Occasional wild angelica (, greater bird's-foot-trefoil and marsh thistle. Small area closer to Tower 4ZC065 is more species- poor, dominated by soft rush and Yorkshire fog. The area to the north towards Tower 4ZC066 is more diverse with the mosses <i>Sphagnum fallax</i> , <i>Sphagnum rubellum</i> , <i>Pleurozium schreberi</i> , <i>Hylocomium splendens</i> with hare's tail cotton grass, cross leaved heath, cranberry (, common heather purple moor grass, devil's-bit scabious, and heath wood rush). Northern end of this habitat (beneath tower) is degraded, with bare peat exposed and eroding.
	J2.3.2 Hedge with trees – species-poor	Species-poor hedge.
	J2.8 – Earth bank	Cloddiau boundary features with stock fences atop.
4ZC066-4ZC067	B4 – Improved grassland	Heavily grazed sheep pasture dominated by competitive grasses.
	B5 – Marsh or marshy grassland	Dominated by purple moor grass with sweet vernal grass, Yorkshire fog, soft rush, sharp flowered rush, and red fescue, devil's-bit scabious, greater bird's-

Tower	Habitats	Description
		foot-trefoil and marsh bedstraw. Small area closer to Tower 4ZC067 is more species-poor, dominated by soft rush and Yorkshire fog.
4ZC067-4ZC068	J2.8 – Earth bank	Cloddiau boundary features with stock fences atop.
4ZC068-4ZC069	B4 – Improved grassland	Heavily grazed sheep and cattle pasture dominated by competitive grasses, bisected by Cloddiau earth banks and stock fences.
	J2.8 – Earth bank	Cloddiau boundary features with stock fences atop.
4ZC069-4ZC070	B4 – Improved grassland	Heavily grazed sheep and cattle pasture dominated by competitive grasses, bisected by Cloddiau earth banks and stock fences. Scattered hawthorn trees at boundaries.
	J2.1.2 - Intact hedge - species-poor	Intact hawthorn hedge.
	J2.2.2 - Defunct hedge - species-poor	Defunct hawthorn hedge.
	J2.8 – Earth bank	Cloddiau boundary features with stock fences.
	A1.1.1 - Broadleaved woodland - semi-natural	Secondary wet woodland south of Tower 4ZC070 colonising the drier parts of the marshy grassland. Canopy consists of hazel, eared willow, hawthorn, grey willow, blackthorn, with an understory of bramble and European gorse. Qualifies as Wet woodland HoPI.
	A2.1 - Scrub – dense or continuous	Dense gorse and bramble scrub just south of Tower 4ZC070.
	A3.1 - Broadleaved parkland or scattered trees	Scattered semi-mature willow in marshy grassland.
	B4 – Improved grassland	Heavily grazed sheep and cattle pasture dominated by competitive grasses.
	B5 – Marsh or marshy grassland	Dominated by purple moor grass with sharp flowered rush, tormentil sweet vernal and soft rush. Devil's-bit scabious, greater bird's-foot-trefoil and marsh bedstraw also recorded. Himalayan balsam in northern section. Qualifies as purple moor grass and rush pasture HoPI.

Tower	Habitats	Description
	E3.2 – Fen – basin mire	Fen dominated by purple moor grass with sharp flowered rush, <i>Sphagnum subnitens</i> and <i>Sphagnum fallax</i> . Devil's-bit scabious, tormentil, marsh violet and greater bird's-foot-trefoil present. Occasional flea sedge, star sedge, (, lousewort, bog asphodel, , meadowsweet, skullcap, marsh willowherb, common valerian, marsh thistle and marsh bedstraw. Extends into Tower 4ZC070 working area. Qualifies as Lowland fen HoPI.
	G2 – Running water	River Dwyfach flowing just south of Tower 4ZC070. Fast flowing, c.12 m width, 40 cm depth. Boulder and cobble substrate. Wet woodland on part of both banks. Japanese knotweed on western bank. Well vegetated ditch between fen and marshy grassland with marsh St John's-wort and <i>Sphagnum fallax</i> , and lesser spearwort, water horsetail and water mint.
4ZC070-4ZC071	A1.1.1 - Broadleaved woodland - semi-natural	Wet woodland adjacent to eastern bank of River Dwyfach. Dominated by willow species and hazel. Ferns in ground layer. Qualifies as Wet woodland HoPI. On the western bank is an area of young secondary woodland.
	A2.2 – Scrub - scattered	Scattered gorse scrub in marshy grassland.
	B5 – Marsh or marshy grassland	Continuation of marshy grassland from previous section. Qualifies as Purple moor grass and rush pasture HoPI.
	G2 – Running water	Continuation of River Dwyfach and similar wet ditch in marsh grassland.
4ZC071-4ZC072	A1.1.1 - Broadleaved woodland - semi-natural	Continuation of wet woodland from previous section on both sides of river. Himalayan balsam in ground layer of eastern bank.
	A3.1 - Broadleaved parkland or scattered trees	Scattered grey and eared willow in marshy grassland.
	B5 – Marsh or marshy grassland	Continuation of marshy grassland from previous section. Additional area on eastern side of River Dwyfach, similar in composition but with scattered mature trees (grey and eared willow) and actively cattle grazed. Isolated patches of wet heath in habitat with cross-leaved heath, common heather, bog asphodel, <i>Sphagnum</i> species and heath spotted orchid.

Tower	Habitats	Description
4ZC072-4ZC073	G2 – Running water	Continuation of River Dwyfach bordered by wet woodland, and similar wet ditch in marshy grassland.
	B4 – Improved grassland	Heavily grazed improved pasture dominated by competitive grasses and soft rush.
	B5 – Marsh or marshy grassland	Continuation of marshy grassland from previous section; Himalayan balsam on eastern bank of river. Area of marshy grassland south of and surrounding Tower 4ZC073 similar in composition to this, more species-poor example in the centre of this section (likely due to heavy cattle poaching and grazing): Yorkshire fog and soft rush is also more abundant.
	E3 - Fen	Area in the centre of marshy grassland with wetter influence and fen species: <i>Sphagnum subnitens</i> and carnation sedge, bog pimpernel and star sedge. Heavily cattle grazed.
4ZC073-4ZC074	G2 – Running water	Continuation of River Dwyfach bordered by marshy grassland, and two similar wet ditches in marshy grassland.
	B4 – Improved grassland	Heavily grazed sheep pasture dominated by competitive grasses.
	B5 – Marsh or /marshy grassland	Dominated by soft rush (recently mown) with Yorkshire fog and sharp-flowered rush. Greater bird's-foot-trefoil and common sorrel. Occasional purple moor grass, tufted hairgrass and marsh bedstraw.
4ZC074-4ZC075	G2 – Running water	Continuation of River Dwyfach bordered by marshy grassland.
	A3.1 - Broadleaved parkland or scattered trees	Line of semi-mature willow species in fen habitat, with gorse and bramble at understorey.
	E3 - Fen	Acid fen just south of Tower 4ZC075. <i>Sphagnum</i> species, carnation sedge and purple moor grass. Tormentil, lousewort and bog asphodel.
	J1.1 - Arable	Improved grassland; currently ungrazed and likely grown as silage crop.
4ZC075-4ZC076	J2.3.2 - Hedge with trees - species-poor	Mature, dense shrubby hedge with scattered semi-mature trees.
		No access to land parcels. No survey data are available.

Tower	Habitats	Description
4ZC076-4ZC077		No access to land parcels. No survey data are available.
4ZC077-4ZC078		No access to land parcels. No survey data are available.
4ZC078-4ZC079	B4 – Improved grassland	Improved grassland dominated by competitive grasses.
	B5 – Marsh or marshy grassland	Area of marshy grassland dominated by sharp-flowered rush and grass species, with limited forb diversity.
		No access to some land parcels in this section. Incomplete survey data available.
4ZC079-4ZC080	B5 – Marsh or marshy grassland	Dominated by purple moor grass with sharp flowered rush, tormentil, sweet vernal and greater bird's-foot-trefoil. Southern section (around Tower 4ZC079) is species-poor and features false-oat grass ( <i>Arrhenatherum elatius</i> ).
	E3 – Fen – basin mire	Wetter area in marshy grassland featuring more diverse fen vegetation including <i>Sphagnum</i> species, ragged robin, white sedge, common valerian and greater tussock sedge.
	G2 – Running water	Continuation of River Dwyfach bordered by marshy grassland. Minor ditches present in marshy grassland and fen.
4ZC080-4ZC081	A3.1 - Broadleaved parkland or scattered trees	Lines of mature trees (predominantly willow species) adjacent to river and cycle path.
	B4 – Improved grassland	Improved grassland dominated by competitive grasses.
	B5 – Marsh or marshy grassland	Marshy grassland dominated by rush (soft and sharp-flowered) with greater bird's-foot-trefoil and Yorkshire fog. Occasional marsh bedstraw and tormentil.
	B6 - Poor semi-improved grassland	Grazed grassland dominated by Yorkshire fog with occasional cocksfoot, sweet vernal grass and pignut ( <i>Conopodium majus</i> ).
	C1.1 - Bracken – continuous	Band of dense bracken between grazed fields and cycle path.
	G2 – Running water	Tributary of River Dwyfach, lined and shaded by mature trees.

Tower	Habitats	Description
4ZC081-4ZC082	B5 – Marsh or marshy grassland	Continuation of marshy grassland from previous section, bisected by numerous ditches. Partially heavily grazed.
	E2.1 - Flush and spring – acid or neutral flush	Acid flush in lower area of marshy grassland. Soft rush, <i>Polytrichum commune</i> star sedge and velvet bent. <i>Sphagnum</i> species, sweet vernal grass and common sedge.
	G2 – Running water	Ditch network in marshy grassland.
	J1.2 – Cultivated or disturbed land - amenity grassland	Vegetated garden of adjacent residential property.
4ZC082-4ZC083	A2.1 - Scrub – dense or continuous	Dense gorse scrub in marshy grassland, leggy in parts.
	B4 – Improved grassland	Improved grassland dominated by competitive grasses.
	B5 – Marsh or marshy grassland	Continuation of marshy grassland from previous section, bisected by numerous ditches. Lower lying areas feature acidic flush habitats. Himalayan balsam beneath Tower 4ZC082. Species-poor (dominated by soft rush) beneath Tower 4ZC083.
	E2.1 - Flush and spring – acid or neutral flush	Lower lying areas of marshy grassland feature <i>Sphagnum</i> species and small sedge species
	G2 – Running water	Ditch network in marshy grassland.
4ZC083-4ZC084	B4 – Improved grassland	Improved grassland dominated by competitive grasses. Soft rush near Tower 4ZC084.
	E2.1 - Flush and spring – acid or neutral flush	Acid flush dominated by soft rush with <i>Sphagnum palustre</i> , <i>Sphagnum fallax</i> and <i>Polytrichum commune</i> in ground layer. Species-poor with few forbs.
	C1.1 - Bracken – continuous	Dense bracken stand at boundary of improved grassland and beneath Tower 4ZC084.
	J2.5 – Wall	Stone wall between improved grassland fields.
4ZC084-4ZC085	B1.2 – Acid grassland – semi-improved	Grassland beneath Tower 4ZC085 with clear acidic influence. Dominated by mat-grass, with heath woodrush, white clover, tormentil and sweet vernal grass.

Tower	Habitats	Description
	B4 – Improved grassland	Improved grassland dominated by competitive grasses.
	E2.1 - Flush and spring – acid or neutral flush	Neutral flush in wetter part of grassland. <i>Sphagnum</i> species and small sedges.
	C1.1 - Bracken – continuous	Area of dense bracken with grass common bent and smooth meadow grass understorey.
4ZC085-4ZC086	B1.2 – Acid grassland – semi-improved	Dominated by common bent, white clover, tormentil and yarrow ( <i>Achillea millefolium</i> ).
	B4 – Improved grassland	Improved grassland dominated by competitive grasses.
	E2.1 - Flush and spring – acid or neutral flush	Small neutral flush north of Tower 4ZC085, in wetter part of grassland. <i>Sphagnum</i> species and small sedges.
	C1.1 - Bracken – continuous	Dense bracken in improved grassland field.
	J2.8 – Earth bank	Cloddiau demarcating field boundary with stock fence atop.
4ZC086-4ZC087	B4 – Improved grassland	Improved grassland dominated by competitive grasses.
	B5 – Marsh or marshy grassland	Small area of species-poor marshy grassland dominated by soft rush with Yorkshire fog and common nettle.
	E2.1 - Flush and spring – acid or neutral flush	Small acidic flush south of Tower 4ZC087. Soft rush, <i>Sphagnum</i> species, and small sedges with sharp-flowered rush, <i>Polytrichum commune</i> , star sedge and greater bird's-foot-trefoil.
	C1.1 - Bracken – continuous	Small patch of dense bracken at field boundary
	G2 – Running water	Ditch network in marshy grassland and acidic flush.
	J2.8 – Earth bank	Cloddiau demarcating field boundary with stock fence.
4ZC087-4ZC088	B4 – Improved grassland	Improved grassland dominated by competitive grasses.
	B5 – Marsh or marshy grassland	Two areas of marshy grassland dominated by soft rush with Yorkshire fog, cuckoo flower and occasional meadow buttercup and common sorrel.

Tower	Habitats	Description
4ZC088-4ZC089	G2 – Running water	Ditch network in marshy grassland.
	J2.8 – Earth bank	Coddiau demarcating field boundary with stock fence.
4ZC089-4ZC090	B4 – Improved grassland	Improved grassland dominated by competitive grasses.
	J2.8 – Earth bank	Cloddiau demarcating field boundary with stock fence.
4ZC089-4ZC090	A3.1 - Broadleaved parkland or scattered trees	Scattered semi-mature eared and grey willow trees in acidic grassland.
	B1.2 – Acid grassland – semi-improved	Grazed grassland dominated acidic indicators: heath bedstraw, tormentil, sheep's fescue, sweet vernal grass and common bent. Multiple anthills present with <i>Polytrichum commune</i> covering.
	B5 – Marsh or marshy grassland	Marshy grassland dominated by soft rush with Yorkshire fog, sharp-flowered rush, marsh thistle, common sorrel and cuckoo flower.
	E2.1 - Flush and spring – acid or neutral flush	Flush dominated by soft rush in some areas and small sedges in others. <i>Sphagnum</i> species, star sedge, carnation sedge, purple moor grass, tormentil, bog pimpernel, flea sedge and common yellow-sedge.
	G2 – Running water	Ditch network in marshy grassland.
		No access to the northern half of this section. Survey data incomplete.
4ZC090-4ZC091	B4 – Improved grassland	Improved grassland dominated by competitive grasses.
	J2.8 – Earth bank	Cloddiau demarcating field boundary with stock fence.
4ZC091-4ZC092	A1.1.1 - Broadleaved woodland - semi-natural	Secondary woodland growing in the remains of an old quarry. Canopy is oak, birch and grey willow. <i>Buddleia</i> and <i>Pontic rhododendron</i> are present. Becomes less mature and scrubby on southern edge adjacent to road.
	A2.1 - Scrub – dense or continuous	Woodland is less mature adjacent to the road and becomes scrub (dominated by birch and willow).
	B4 – Improved grassland	Improved grassland dominated by competitive grasses.

Tower	Habitats	Description
4ZC092-4ZC093	A2.1 - Scrub – dense or continuous	Dense scrub dominated by bramble with semi-mature willow species. Himalayan balsam in understorey.
	A3.1 - Broadleaved parkland or scattered trees	Line of mature trees adjacent to bramble scrub and River Crychddwr.
	B4 – Improved grassland	Heavily grazed grassland dominated by competitive species.
	C1.1 - Bracken – continuous	Dense bracken with Himalayan balsam.
	G2 – Running water	River Crychddwr: Fast flowing river with rocky substrate. Banks lined with mature trees with Japanese knotweed and Himalayan balsam.
4ZC093-4ZC094	A2.1 - Scrub – dense or continuous	Strip of dense bramble at field boundary.
	B2.2 - Neutral grassland - semi-improved	Grazed grassland with 9-12 species per m <sup>2</sup> . Perennial rye grass, sweet vernal, crested dog's-tail, rough meadow grass ( <i>Poa trivialis</i> ), common bent, Yorkshire fog, red clover, common sorrel, ribwort plantain ( <i>Plantago lanceolata</i> ), common mouse-ear, selfheal, red clover, meadow buttercup, broadleaf plantain ( <i>Plantago major</i> ), sheep sorrel.
	B4 – Improved grassland	Heavily grazed grassland dominated by competitive species.
	B5 – Marsh or marshy grassland	Marshy grassland with sharp-flowered rush, soft rush, meadow sweet, greater bird's-foot-trefoil, marsh bedstraw and Yorkshire fog.
	B6 - Poor semi-improved grassland	Grazed grassland with scattered rushes. Average of eight species per m <sup>2</sup> : Yorkshire fog, crested dog's-tail, rough meadow grass, perennial rye grass, yarrow, creeping buttercup, white clover.
	C3.1 - Other tall herb and fern – ruderal	Small area dominated by common nettle and creeping thistle.
	G2 – Running water	Ditch between marshy grassland and semi-improved grassland.
	J2.3.2 - Hedge with trees - species-poor	Hawthorn dominated hedge at field boundary with some hazel at eastern end. Ash and silver birch present.

Tower	Habitats	Description
	J2.5 – Wall	Drystone wall between grazed fields.
	J2.8 – Earth bank	Cloddiau demarcating field boundary with stock fence atop.
4ZC094-4ZC095	A3.1 - Broadleaved parkland or scattered trees	Line of scattered mature sycamore and hawthorn trees in marshy grassland.
	B2.2 - Neutral grassland - semi-improved	Continuation of semi-improved grassland from previous section.
	B4 – Improved grassland	Heavily grazed grassland dominated by competitive species. Slightly more species-rich at boundaries with sweet vernal and tormentil present.
	B5 – Marsh or marshy grassland	Area of marshy grassland surrounding small stream with a line of scattered mature trees bisecting. Dominated by soft rush with cocksfoot, stinging nettle, Yorkshire fog, creeping buttercup and meadowsweet. Himalayan balsam is present. Area beneath Tower 4ZC095 dominated by soft rush.
	G2 – Running water	Watercourse through marshy grassland featuring Himalayan balsam: dry at time of survey.
	J2.1.2 - Intact hedge - species poor	Oak dominated mature hedge with scattered hawthorn and willow.
4ZC095-4ZC096	A1.1.1 - Broadleaved woodland - semi-natural	Naturally generated wet woodland in wet woodland and marshy grassland mosaic. Canopy is goat willow, silver birch, oak and rowan. Ground flora consistent with adjacent marshy grassland with greater soft rush abundance.
	A2.1 - Scrub – dense or continuous	Dense gorse scrub between field boundary and access track.
	B5 – Marsh or marshy grassland	Grazed marshy grassland: Yorkshire fog, soft rush, common bent, wavy hairgrass, marsh bedstraw, tormentil, bracken, marsh thistle, marsh pennywort, <i>Sphagnum</i> species and heath woodrush.
	G2 – Running water	Narrow stream flowing east-west through wet woodland
	J1.1 – Arable	Two fields with silage crop. Average of 6-8 species per m <sup>2</sup> . Common bent, Yorkshire fog, perennial rye grass,

Tower	Habitats	Description
		rough meadow grass, white clover, creeping buttercup, meadow buttercup. Soft rush at eastern boundary indicating marshy conditions. Slightly more botanically diverse grass crop field, with an average of 10-12 species per m <sup>2</sup> . Perennial rye grass, Yorkshire fog, rough meadow grass, sweet vernal, common cats-ear, creeping buttercup, common bent, field woodrush, meadow buttercup, white clover, black medic ( <i>Medicago lupulina</i> ), common sorrel, ribwort plantain.
	J2.1.2 - Intact hedge - species-poor	Hawthorn, goat willow, gorse and bramble between field boundary and access track. Hawthorn and bramble hedge bisecting poor semi-improved fields. Hawthorn, oak and goat willow hedge bisecting poor semi-improved and improved fields.
	J4 – Bare ground	Bare ground access track: mixture of exposed soil and rock.
4ZC096-4ZC097	A2.2 - Scrub – scattered	Line of scattered mature hawthorn scrub adjacent to watercourse in semi-improved grassland. Scattered elder ( <i>Sambucus nigra</i> ), sessile oak, willow, hawthorn and bramble at field boundary of marshy grassland.
	B5 – Marsh or marshy grassland	Grazed marshy grassland with rushes and grasses.
	B6 – Poor semi-improved grassland	Grazed grassland with an average of 6-8 species per m <sup>2</sup> . Scattered rushes.
	C3.1 - Other tall herb and fern – ruderal	Tall ruderal herbs adjacent to watercourse including Himalayan balsam.
	G2 – Running water	Narrow stream flowing south-north, bordered by tall ruderal riparian herbs, including Himalayan balsam. Two other well vegetated ditches flowing through marshy grassland with emergent vegetation.
	J2.1.2 - Intact hedge - species-poor	Mature hedge adjacent to road: sycamore, blackthorn, gorse and ash.
	J2.3.1 - Hedge with trees - native species-rich	Mature hedge adjacent to road with trees: sessile oak, sycamore, blackthorn, hawthorn, hazel, apple, dog rose, honeysuckle and holly.

Tower	Habitats	Description
4ZC097-4ZC098	A2.2 - Scrub - scattered	Scattered blackthorn and hawthorn scrub in bracken.
	B1.2 - Acid grassland - semi-improved	Cattle grazed pasture with acidic indicators (sheep's sorrel, wavy hairgrass). Mostly dry but some species indicative of wetter conditions recorded. Bracken along field boundaries.
	B5 – Marsh or marshy grassland	Continuation of marshy grassland from previous section.
	B6 – Poor semi-improved grassland	Grazed grassland with scattered stinging nettle and bracken. Perennial rye and Yorkshire fog.
	C1.1 - Bracken – continuous	Dense bracken on steep eastward-sloping bank, with scattered blackthorn and hawthorn scrub.
	J2.3.2 - Hedge with trees - species-poor	Line of mature oak trees with hawthorn, rowan and bramble hedge at base.
	J2.5 - Wall	Drystone wall bisecting grazed fields.
4ZC098-4ZC099	A2.1 - Scrub – dense or continuous	Dense scrub bordering Afon Llyfni: hawthorn, bramble, gorse, rowan and blackthorn. Himalayan balsam in the understorey.
		Small isolated patch of dense mixed scrub: hazel, hawthorn, blackthorn and willow. Cattle grazed and poached.
	B5 – Marsh or marshy grassland	Rush dominated marshy grassland. Cattle grazed.
	B6 – Poor semi-improved grassland	Continuation of poor semi-improved grassland from previous section. Similar grazed field north of Afon Llyfni. Poor-semi-improved grassland present at ground layer of planted fruit trees around Tower 4ZC099.
	C3.1 - Other tall herb and fern – ruderal	Ruderal herb roadside vegetation including abundant rosebay willowherb ( <i>Chamaenerion angustifolium</i> ), common nettle and false oat grass.
4ZC099-4ZC100	G2 – Running water	Afon Llyfni runs through this section.
	A2.1 - Scrub – dense or continuous	Dense bramble and gorse scrub beneath Tower 4ZC099.

Tower	Habitats	Description
	A3.1 - Broadleaved parkland or scattered trees	Line of mature alder trees adjacent to road.
	B6 – Poor semi- improved grassland	Continuation of poor semi-improved grassland from previous section.
	C1.1 - Bracken – continuous	Dense bracken on south-facing slope. Linear feature adjacent to wall and road.
	J2.1.2 – Species-poor - Intact hedge	Line of young alders.
4ZC100-4ZC101	A2.2 - Scrub - scattered	Scattered hawthorn, blackthorn, bramble along field boundary and in bracken.
	B5 – Marsh or marshy grassland - neutral	Wet and marshy grassland dominated by rushes.
	B6 – Poor semi- improved grassland	Continuation of poor semi-improved grassland from previous section. Species-poor grazed grassland south of Tower 4ZC101 with 6-8 species per m <sup>2</sup> .
	C1.1 - Bracken – continuous	Three areas of dense bracken, partially with scattered gorse scrub.
	J2.5 - Wall	Drystone walls between grazed fields.
4ZC101-4ZC102	B6 – Poor semi- improved grassland	Continuation of grazed poor semi-improved grassland from previous section.
	J 1.1 Arable	Grass (silage or hay) crop field with c.9 species per m <sup>2</sup> , including common bent, rough meadow grass, common sorrel, red clover, creeping buttercup and crested dog's-tail.
	J2.5 - Wall	Drystone walls between grazed fields.
4ZC102-4ZC103	A2.2 - Scrub – scattered	Scattered bramble and gorse scrub at field boundary with stock fence.
	J1.1 -Arable	A continuation of grassland from previous section. Also a mown (grass crop) grassland with low species diversity including Yorkshire fog, false oat and sweet vernal grass.
	J2.5 - Wall	Drystone walls between grazing units.

Tower	Habitats	Description
4ZC103-4ZC104	B5 – Marsh or marshy grassland	Habitat not surveyed due to access restrictions.
	B6 – Poor semi-improved grassland	Heavily grazed cattle pasture with 6-8 species per m <sup>2</sup> : including Yorkshire fog, false oat, sweet vernal, red and white clover and meadow buttercup. Additional horse grazed field similar in composition.
	J2.3.2 – Hedge with trees species-poor	Native unmanaged hedge: oak, cherry, holly and hawthorn.
	J2.5 - Wall	Drystone walls between grazed fields
No access in certain land parcels between Towers 4ZC103-104.		
4ZC104-4ZC105	A2.2 - Scrub – scattered	Scattered hawthorn and blackthorn scrub at field boundary with stock fence.
	B5 – Marsh or marshy grassland	Small fenced area of marshy grassland with Yorkshire fog, soft rush and occasional common sorrel and common nettle.
	B6 – Poor semi-improved grassland	Heavily grazed sheep pasture with c.6-8 species per m <sup>2</sup> : including Yorkshire fog, false oat, crested dog's-tail, white clover and creeping buttercup.
	C3.1 - Other tall herb and fern - ruderal	Area of common nettle.
4ZC105-4ZC106	A3.1 - Broadleaved parkland or scattered trees	Single mature sycamore at field boundary, south of Tower 4ZC106.
	A2.2 - Scrub – scattered	Scattered hawthorn and bramble scrub at field boundary with stock fence.
	B2.2 - Neutral grassland - semi-improved	Relatively species-rich grassland with some competitive species also present: Yorkshire fog, common bent, creeping buttercup, sweet vernal, common knapweed, white clover, common bird's-foot-trefoil and yellow rattle.
	B6 – Poor semi-improved grassland	Continuation of sheep grazed grassland from previous section.
C1.1 - Bracken – Area of dense bracken at edge of grazed pasture. continuous		

Tower	Habitats	Description
	J2.1.2 - Intact hedge - species-poor	Intact unmanaged, mature, hawthorn hedge with bramble and gorse.
4ZC106-4ZC107	J2.5 - Wall A3.1 - Broadleaved parkland or scattered trees	Drystone walls between grazed fields. Single mature hawthorn tree on dry stone wall.
	A2.1 - Scrub – dense or continuous	Patch of mature gorse scrub adjacent to road.
	B6 – Poor semi-improved grassland	Sheep and horse grazed fields. Generally species-poor (6-8 species per m <sup>2</sup> ). Crested dog's-tail is dominant.
4ZC107-4ZC108	J2.5 - Wall	Drystone walls between grazed fields.
	B6 – Poor semi-improved grassland	Continuation of sheep and horse grazed grassland from previous section.
4ZC108-4ZC109	J2.5 - Wall	Drystone walls between grazed fields.
	B5 – Marsh or marshy grassland	Marshy grassland dominated by soft rush. Himalayan balsam throughout. Good species abundance and diversity of acidic and wetland indicators. Some scattered bramble and bracken.
	B6 – Poor semi-improved grassland	Donkey grazed pasture with Yorkshire fog, perennial rye grass, red fescue, common bent and white clover.
	G2 – Running water	Narrow ditch at field boundary and in marshy grassland. Narrow stream: River Llifon flowing east-west, just south of Tower 4ZC109. Stone and sandy substrate, moderate flow, undercut earth banks, with heavy poaching in parts. Himalayan balsam on banks.
	J2.1.2 - Intact hedge - species-poor	Mature hawthorn hedge at field boundary.
4ZC109-4ZC110	J2.5 - Wall	Drystone walls between grazed fields.
	A2.1 - Scrub – dense or continuous	Goat willow, gorse and sycamore scrub adjacent to stream.

Tower	Habitats	Description
	B5 – Marsh or marshy grassland	Grazed marshy grassland with soft rush, dominant in the southern section but becoming less dominant to the north. Himalayan balsam throughout. Good species abundance and diversity of acidic and wetland indicators. Some scattered bramble and bracken.
	D6 - Wet heath and acid grassland	Area of wet heath with marshy and heathland species present: cross leaved heath, common heather, purple moor grass, spiked sedge, Yorkshire fog, hard rush, soft rush, sweet vernal, tormentil, wavy hair grass, common bent, heath woodrush and meadow buttercup.
	G2 – Running water	Small stream at northern edge of marshy grassland. Bordered by scattered scrub.
	J2.5 - Wall	Drystone wall adjacent to road.
4ZC110-4ZC111	B1.2 - Acid grassland - semi-improved	Purple moor grass dominated sheep pasture with scattered rushes (hard and soft). Sweet vernal grass, Yorkshire fog, common bent, tall fescue ( <i>Schedonorus arundinaceus</i> ), smooth meadow grass, crested dog's-tail and common bird's-foot-trefoil t.
	B2.2 - Neutral grassland - semi-improved	Species-rich grassland (c.16 species per m <sup>2</sup> ), however species are generally indicative of nutrient enrichment (and not indicators of unimproved grassland): Yorkshire fog, sweet vernal, crested dog's-tail, perennial rye, common bent, cocks foot, creeping thistle, oval sedge, red fescue, ribwort plantain, common mouse-ear, red clover, white clover, selfheal, common knapweed, creeping buttercup, meadow buttercup and common sorrel.
	B6 - Poor semi-improved grassland	Grazed grassland with c.6-8 species per m <sup>2</sup> .
	G2 – Running water	Narrow stream at field boundary and flowing through acid grassland. Banks dominated by rush species
	J2.3.2 – Hedge with trees - species-poor	Mature privet ( <i>Ligustrum</i> sp.) hedge with some hawthorn and a mature ash at field boundary.
4ZC111-4ZC112	B2.2 - Neutral grassland - semi-improved	Lightly sheep grazed pasture. Dominated by grasses with limited forbs. Common bent, crested dog's-tail, cock's-foot, sweet vernal, white clover and creeping buttercup. Average 6 species per m <sup>2</sup> .
	C1.1 - Bracken – continuous	Two areas of dense bracken cover at the edge of pasture fields.

Tower	Habitats	Description
	J1.2 – Cultivated or disturbed land - amenity grassland	Area of vegetated garden associated with adjacent residential property.
4ZC112-4ZC113	B1.2 - Acid grassland - semi-improved	Lightly sheep grazed grassland, continuation of neutral grassland with obvious acidic influence: tormentil and sheep's sorrel, purple moor grass, yarrow and eyebright.
	B2.2 - Neutral grassland - semi-improved	Continuation of neutral grassland from previous section.
	B4 – Improved grassland	Sheep grazed pasture dominated by competitive grasses and uniform sward.
	G2 – Running water	Narrow stream (c.60 cm wide) with shallow banks and rocky substrate. Diverse emergent and marginal species present: fool's watercress ( <i>Heloscadium nodiflorum</i> ), marsh ragwort ( <i>Jacobeaea aquatica</i> ), bog pondweed ( <i>Potamogeton polygonifolius</i> ), greater bird's-foot-trefoil, cuckoo flower, lesser spearwort, sedges and marsh bedstraw.
	J2.5 - Wall	Drystone wall separating grazed fields.
4ZC113-4ZC114	A2.2 - Scrub – scattered	Scattered mature blackthorn scrub beneath Tower 4ZC113. Scattered gorse in acid grassland.
	B1.2 - Acid grassland - semi-improved	Lightly grazed grassland with acidic influence. Minor wet influence increases to the north of the parcel with scattered rushes and cross-leaved heath. Purple moor grass, sweet vernal, sharp-flowered rush, soft rush, marsh willowherb, marsh bedstraw and small sedge species.
	B2.2 - Neutral grassland - semi-improved	Lightly sheep grazed field with scattered rush species, sweet vernal grass, Yorkshire fog, common bent, crested dog's-tail and white clover.
	B4 – Improved grassland	Continuation of improved grassland from previous section.
	J2.5 - Wall	Drystone wall separating grazed fields.
4ZC114-4ZC115	A2.2 - Scrub – scattered	Scattered gorse in acid grassland. Patch of mature willow species scrub at boundary of marshy grassland.
	B1.2 - Acid grassland - semi-improved	Continuation of acid grassland from previous section.

Tower	Habitats	Description
	B2.2 - Neutral grassland - semi-improved  B5 – Marsh or marshy grassland  G2 – Running water  J2.2.2 - Defunct hedge - species-poor	Mown grassland viewed from boundary fence only. Yorkshire fog, common bent, false oat grass and cocksfoot visible. Piles of rubble present at boundaries and Japanese knotweed present in northern field corner.  Juncus/Holcus dominated rush pasture with tall fescue and sweet vernal grass. Occasional Carex species, and purple moor grass. Diverse forbs present: marsh thistle, greater bird's-foot-trefoil, marsh bedstraw and meadowsweet.  Ditch with moderate flow, well vegetated predominantly by tall grass and ruderal species, gravelly substrate. Japanese knotweed on banks.  Defunct unmanaged hedge with stock fence at base. Sycamore, with occasional alder, goat willow and ash. Japanese knotweed at base.
4ZC115-4ZC116	A2.2 - Scrub – scattered	Scattered hawthorn and crab apple ( <i>Malus sylvestris</i> ) scrub in bracken.
	B2.2 - Neutral grassland - semi-improved	Lightly sheep grazed pasture with varied sward structure. Numerous grass species present: Yorkshire fog, common bent, sweet vernal and perennial rye grass and occasional crested dog's-tail. Limited forb presence.
	C1.1 - Bracken – continuous	Dense bracken south of Tower 4ZC116 with scattered scrub.
	J2.2.2 - Defunct hedge - species-poor	Defunct unmanaged hedge with stock fence at base. Blackthorn dominated.
4ZC116-4ZC117	A1.1.1 - Broadleaved woodland - semi-natural  A2.2 - Scrub – scattered	Semi-natural oak and ash woodland on steep sided gully, either side of fast-moderate flowing stream. Canopy dominated by oak species and ash. Sub-canopy goat willow, hazel, rowan and hawthorn. Woodland ground flora: primrose, greater stitchwort, opposite-leaved golden saxifrage and yellow pimpernel.
	B2.2 - Neutral grassland - semi-improved	Scattered gorse and bramble scrub in bracken.
		Lightly sheep grazed pasture with varied sward structure. Numerous grass species present: Yorkshire fog, common bent, sweet vernal, perennial rye grass and occasional crested dog's-tail. Limited forb presence.

Tower	Habitats	Description
		Scattered rushes in northern section with creeping thistle.
	C1.1 - Bracken – continuous	Small patch of dense bracken with scattered scrub on northern edge of woodland.
	G2 – Running water	Fast-moderate flowing, 2-4 m wide stream with gravel boulder substrate. Average depth 30-40 cm with some pools resulting from short areas of free-falling water. Partially dry ditch just south of Tower 4ZC17 with ephemeral wetland grasses and toad rush ( <i>Juncus bufonius</i> ) at margins.
	J2.1.2 – Intact hedge – native species-poor	Blackthorn dominated mature hedge at field boundary.
4ZC117-4ZC118	B2.2 - Neutral grassland - semi-improved	Continuation of grazed grassland from previous section with low incidence of scattered bracken and rushes. Diverse grasses but limited forb presence.
	B6 - Poor semi-improved grassland	Moderately sheep grazed field with largely uniform sward. Diverse grasses present but limited forb presence. Lime recently spread on field, indicating recent nutrient enrichment.
	J2.6 - Dry ditch	Dry ditch in semi-improved field. Likely has water flow during wet periods.
	J2.8 – Earth bank	Cloddiau demarcating field boundary with stock fence atop.
4ZC118-4ZC119	B2.2 - Neutral grassland - semi-improved	Sheep grazed grassland with varied sward structure. Diverse grasses but limited forb presence.
	B4 – Improved grassland	Rye grass dominated field, mown and sheep grazed. Very low incidence of forbs (white clover, broadleaved dock ( <i>Rumex obtusifolius</i> )). More varied grasses present at margins: Yorkshire fog, common bent, <i>Poa</i> species.
	B6 - Poor semi-improved grassland	Continuation of poor semi-improved grassland from previous section with recent lime spreading.
	J2.1.2 - Intact hedge - species-poor	Unmanaged gorse hedge at field boundary with stock fence running through.
4ZC119-4ZC120	A2.2 – Scrub – scattered	Mature rowan and mature hawthorn.

Tower	Habitats	Description
	B2.1 - Neutral grassland – unimproved	<p>Species-rich, unimproved meadow, diverse grasses and high incidence of forb species. 12-15 species per m<sup>2</sup>. Yellow rattle, Yorkshire fog, sweet vernal, sheep's fescue, common cats-ear, crested dog's-tail, lesser trefoil and red clover. Occasional: betony, eyebright. Very occasional bluebell, meadow buttercup, common knapweed and lesser stitchwort.</p> <p>An elevated area, east of the Wider Works site features less rank sward and tormentil (indicating an acidic influence).</p>
	B2.2 - Neutral grassland - semi-improved	<p>Continuation of sheep grazed grassland from previous section with varied sward structure. Diverse grasses but limited forb presence.</p>
	C1.2 – Bracken – scattered	<p>Scattered bracken in this section.</p>
	J2.8 – Earth bank	<p>Cloddiau demarcating field boundary with stock fence atop. Woodland indicators present in bank (bluebell, wood sage).</p>
4ZC120-4ZC121	A1.1.1 - Broadleaved woodland - semi-natural	<p>Mature native woodland, with mixed deciduous species, in steep-sided valley with River Gwrfai at base. Diverse structure. Canopy dominated by oak species, ash and alder. Understorey: hazel, goat willow, holly, rowan, gorse and bramble. Ground layer: greater woodrush, wild garlic, wood sorrel, opposite-leaved golden saxifrage, dog's mercury, enchanter's nightshade, remote sedge, yellow pimpernel and common cow-wheat. Himalayan balsam throughout.</p>
	A2.1 - Scrub – dense or continuous	<p>Patch of dense gorse scrub on south-facing slope.</p>
	B2.2 - Neutral grassland - semi-improved	<p>Three separate sheep grazed fields, with relatively diverse grasses, but limited forb species.</p> <p>Scattered Himalayan balsam in two northernmost fields.</p>
	C1.2 – Bracken - Bracken throughout grassland. scattered	<p>Bracken throughout grassland.</p>
	G2 – Running water	<p>Fast flowing River Gwrfai, c.15 m width, 50 cm depth. Pebble-boulder substrate. Banks heavily wooded with greater woodrush and Himalayan balsam.</p>
	J2.8 – Earth bank	<p>Cloddiau demarcating field boundary with stock fence atop.</p>

Tower	Habitats	Description
4ZC121-4ZC122	A1.1.1 - Broadleaved woodland - semi-natural	Mature wet woodland, with diverse age structure. Growth stunted (trimmed) under pylons. Birch species and willow species with holly, hazel and pedunculate oak also present. Water is close to surface, with some pools. Relatively dense bramble. Bryophytes, ferns and rushes in ground layer.
	B2.2 - Neutral grassland - semi-improved	Continuation of neutral grassland from previous section with diverse grasses and limited forb cover.
	B5 – Marsh or marshy grassland	Marshy grassland grazed by horses in southern section, but ungrazed (and more botanically diverse) in the north. Soft rush, jointed rush, sharp-flowered rush, common bent, purple moor grass, Yorkshire fog, greater bird's-foot-trefoil, marsh cinquefoil and field woodrush. Occasional common cottongrass, bog bean, ragged robin, heath spotted orchid and marsh bedstraw.
	G2 – Running water	Narrow ditches in marshy grassland, with bankside vegetation consistent with adjacent grassland. Narrow ditch on northern edge of wet woodland: rush species and, hemlock water-dropwort and floating sweetgrass at margins.
	J2.6 – Dry ditch	Dry ditch 0.5 m x 0.3 m heavily vegetated.
	J2.8 – Earth bank	Cloddiau demarcating field boundary with stock fence atop.
4ZC122-4ZC124	A2.2 - Scrub – scattered	Scattered hawthorn and gorse scrub at field boundaries.
	B4 – Improved grassland	Modified grassland field, mown and grazed.
	B6 - Poor semi- improved grassland	Heavily sheep grazed fields. Perennial rye grass, with other grasses. Limited forb cover. Creeping thistle, and scattered rushes.
	J2.2.1 – Native species-poor - defunct hedge	Unmanaged hawthorn and gorse hedge at field boundary.
	J2.6 - Dry ditch	Ditch at field boundary: Dry at time of survey but likely holds water in wetter seasons, as indicated by presence of ephemeral wetland species.
4ZC124-4ZC125	B4 – Improved grassland	Continuation of previous section.

Tower	Habitats	Description
	B5 – Marsh or marshy grassland	Sheep grazed grasslands either side of road, with rush species and sedges. Periodically waterlogged and features a varied sward.
	G2 – Running water	Narrow ditch between road and marshy grassland. Shaded by adjacent hedge. Moderate flow with rocky substrate. Average depth 10 cm. Shallow, narrow ditch flowing through northern section of marshy grassland. Banks dominated by rush species.
	J2.3.2 - Hedge with trees - species-poor	Mature gorse and bramble between marshy grassland and road, adjacent to a ditch. Regular immature pedunculate oak trees.
4ZC125-4ZC126	A1.1.1 - Broadleaved woodland - semi-natural	Linear strip of mature trees along watercourse, 5-6 m in height: hazel, hawthorn and pedunculate oak in canopy with blackthorn, gorse and elder in understorey. Extends to larger patch of woodland to the west.
	A2.2 - Scrub – scattered	Scattered gorse and willow species scrub in marshy grassland.
	B2.2 - Neutral grassland - semi-improved	Sheep grazed grassland with diverse grasses but limited forb cover.
	B5 – Marsh or marshy grassland	Marshy grassland with tall, rank structure. Rushes and purple moor grass are dominant with few forb species. Willow species and gorse scrub cover is c.20%. Narrow, shallow ditch flowing through marshy grassland, dominated by rushes.
	G2 – Running water	Stream flowing through steep woodland (45-degree slope) channel width c.1 m (seasonally up to 4 m). Rocky substrate. Moderate flow.
4ZC126-4ZC127	A1.1.1 - Broadleaved woodland - semi-natural	Part of wider mature woodland. Diverse species and structure, although trees under pylons are of relatively uniform age (average DBH 20 cm). Canopy trees: pedunculate oak, birch species, alder, rowan and goat willow. Dense bramble understorey, as well as wayfaring tree ( <i>Viburnum lantana</i> ) and honeysuckle. Ancient woodland indicators present at ground layer including bluebell.
	A2.2 - Scrub – scattered	Scattered gorse scrub beneath Tower 4ZC126.
	B2.2 - Neutral grassland - semi-improved	Continuation of sheep grazed grassland from previous section.

Tower	Habitats	Description
	B5 – Marsh or marshy grassland  G2 – Running water  J2.2.2 - Defunct hedge - species-poor	<p><i>Juncus/Holcus</i> dominated marshy grassland. Lightly sheep grazed, but sward is largely rank. Common bent is abundant, purple moor grass is limited as are forb species.</p> <p>Narrow ditch between woodland and marshy grassland. Channel width c.60 cm, bank full width of 2 m. Average depth 5 cm. Gravelly substrate. Moderate flow. Shaded by adjacent woodland. Narrow, rush dominated, ditch network in marshy grassland.</p> <p>Defunct blackthorn and hawthorn hedge at field boundary. Bracken at base.</p>
4ZC127-4ZC128	A3.1 - Broadleaved parkland or scattered trees  B5 – Marsh or marshy grassland  G2 – Running water	<p>Mature oak in marshy grassland. Line of trees in marshy grassland, adjacent to wet ditch; mature to semi-mature oak, willow, birch , and rowan.</p> <p>Continuation of rank, rush dominated grassland from previous section.</p> <p>Narrow, rush dominated, ditch network in marshy grassland.</p>
4ZC128-4ZC129	A2.2 - Scrub – scattered  A3.1 - Broadleaved parkland or scattered trees  B4 - Improved grassland  B5 – Marsh or marshy grassland  G2 – Running water	<p>Scattered mature gorse scrub in marshy grassland.</p> <p>Line of trees in marshy grassland, adjacent to wet ditch. Mature oak, willow and ash.</p> <p>Cattle grazed field, dominated by competitive grasses and e ruderal species.</p> <p>Continuation of rank, rush dominated grassland from previous section, though a slightly higher incidence of wetland forb species: marsh bedstraw and greater bird's-foot-trefoil.</p> <p>Two narrow ditches at field boundaries. Moderate flow with an average depth of 5 cm. Partially shaded by adjacent gorse and line of trees.</p>
4ZC129-4ZC130	A3.1 - Broadleaved parkland or scattered trees	Two mature trees (ash and goat willow) adjacent to road, ditch and marshy grassland.

Tower	Habitats	Description
	B5 – Marsh or marshy grassland  G2 – Running water  J2.3.2 - Hedge with trees - native species-poor	Continuation of rank, rush dominated grassland from previous section.  Narrow, rush dominated, ditch network in marshy grassland.  Gorse and hawthorn hedge at field boundary with mature sycamore trees.  No access to some parts of this section. No survey data available.
4ZC130-4ZC131	J1.1 – Cultivated or disturbed land - arable	Arable (wheat) crop field with minimal margins.  No access to most of this section. No survey data available.
4ZC131-4ZC132	A2.2 - Scrub – scattered	Former hedgerow at field boundary (width greater than 5 m). Dominated by blackthorn with occasional hawthorn, sycamore, hazel and ash.
	A3.1 - Broadleaved parkland or scattered trees	Two mature ash trees in semi-improved grassland.
	B2.2 - Neutral grassland - semi-improved	Heavily sheep grazed field. Common bent, sheep's fescue, Yorkshire fog, sweet vernal grass, white clover and creeping buttercup. Occasional perennial rye grass and marsh thistle.
	J1.1 – Arable	Modified grassland, dominated by perennial rye-grass and <i>Holcus</i> species. Tall uniform sward indicating use for grass crop.
	J2.2.2 - Defunct hedge - species-poor	Defunct mature hawthorn and blackthorn hedge at field boundary.
4ZC132-4ZC133	A2.2 - Scrub – scattered	Scattered bramble, rowan and birch species in dense bracken. Scattered mature hawthorn at semi-improved grassland boundaries.
	A3.1 - Broadleaved parkland or scattered trees	Line of mature sycamore, pedunculate oak and ash trees at field boundary. Line of semi-mature rowan and sycamore between grassland and road. Semi-mature sycamore trees beneath Tower 4ZC133.
	B2.2 - Neutral grassland - semi-improved	Continuation of semi-improved grassland from previous section, either side of road.

Tower	Habitats	Description
4ZC133-4ZC134	B4 - Improved grassland	Heavily horse grazed grassland, dominated by competitive grasses with broad-leaved dock and common ragwort ( <i>Senecio jacobaea</i> ).
	C1 – Bracken – continuous	Dense bracken (up to 2.2 m high). Scattered bramble, rowan and birch saplings. Scattered heather and purple moor grass. Young woodland emerging either side of powerlines.
	J2.5 – Wall	Cloddiau present along field boundary.
	A1.1.1 - Broadleaved woodland - semi-natural	Young, semi-natural woodland with mature ash and sycamore standards. Dense understorey: hawthorn, elder, birch and goat willow. Montbretia present in understorey, escaped from adjacent residential property.
	A2.2 - Scrub – scattered	Scattered hawthorn and gorse scrub in grassland.
	A3.1 - Broadleaved parkland or scattered trees	Line of mature birch and spruce ( <i>Picea</i> sp.). Line of mature holly. Line of mature ash trees showing early signs of dieback. Single <i>Eucalyptus</i> sp. tree in semi-improved grassland.
	B2.2 - Neutral grassland - semi-improved	Unmanaged parcel of grassland with scattered gorse and hawthorn scrub. Yorkshire fog, sheep's fescue, common bent and sweet vernal-grass. Generally low abundance of forb species, except in low lying western section where marsh bedstraw, common knapweed and selfheal are occasional. Small herb-rich meadow: common knapweed, hawkweed ( <i>Hieracium</i> sp.), red clover, eyebright, crested dog's-tail, common bent, sweet vernal-grass and common sorrel. Occasional common cats-ear and very occasional common spotted orchid.
	B6 - Poor semi-improved grassland	Horse paddock dominated by Yorkshire fog with tall ruderal species (broad-leaved dock and stinging nettle). Four small sheep grazed grasslands with Yorkshire fog, common bent and common sorrel. Occasional perennial rye-grass, compact rush and broad-leaved dock.
	G2 – Running water	Narrow stream running through woodland with moderate flow and rocky substrate. Narrow stream between semi-improved grassland fields with moderate flow and rocky substrate. Himalayan balsam on banks.

Tower	Habitats	Description
	J1.2 – Cultivated or disturbed land - amenity grassland	Residential gardens – not surveyed due to lack of land access.
4ZC134-4ZC135	J3.6 - Buildings A1.1.1 - Broadleaved woodland - semi-natural	Residential and agricultural buildings. Small section of wider woodland. Ash and sycamore canopy and Himalayan balsam in ground layer.
	A2.1 - Scrub – dense or continuous	Dense bramble scrub with scattered willow species. Himalayan balsam.
	B4 - Improved grassland	Heavily grazed pasture, dominated by competitive grasses and broad-leaved dock.
	B6 - Poor semi-improved grassland	Continuation of sheep pasture from previous section. Grazed field with Yorkshire fog, common bent, perennial rye-grass, creeping and meadow buttercup and white clover. Marsh foxtail ( <i>Alopecurus geniculatus</i> ) in low-lying area.
	G2 – Running water	Narrow stream with moderate flow, rocky banks and gravel and pebble substrate. Average depth 10 cm. Marginal wetland species are present including Himalayan balsam.
	J2.1.2 - Intact hedge - species poor	Shrubby unmanaged hedge, viewed from distance only due to lack of land access.
4ZC135-4ZC136	A3.2 - Coniferous parkland scattered trees	Line of mature Cypress ( <i>Cupressus</i> sp.) between fields.
	B2.2 - Neutral grassland - semi-improved	Horse grazed field with a varied sward structure, dominated by grasses: common bent, perennial rye grass, Yorkshire fog, broad-leaved dock, crested dog's-tail and hawkweed species, occasional sweet vernal-grass, common knapweed, selfheal and red clover.
	B4 – Improved grassland	Second similar grassland but not currently grazed (uniform sward structure) with eyebright species. Heavily cattle grazed fields bisected by drystone walls and fences. Dominated by competitive grasses with white clover.

Tower	Habitats	Description
4ZC136-4ZC138	J1.2 – Cultivated or disturbed land - amenity grassland	Residential gardens – not surveyed due to lack of land access.
	J2.5 – Wall	Dry stone walls bisecting grazed fields.
	J3.6 - Buildings	Residential and agricultural buildings.
	B2.2 - Neutral grassland - semi-improved	Sheep grazed grassland with varied sward structure: , Yorkshire fog, common bent, crested dog's-tail, false oat, cocksfoot, compact rush, soft rush, marsh thistle, creeping thistle, white clover. Occasional lesser trefoil.
	B4 – Improved grassland	Continuation of heavily grazed grassland.
4ZC138-4ZC139	J2.5 – Wall	Dry stone walls bisecting grazed fields.
	A1.1.1 - Broadleaved woodland - semi-natural	Small section of wider woodland block. Hazel with occasional goat willow, birch, ash and pedunculate oak. Sheep grazed understorey.
	B2.2 - Neutral grassland - semi-improved	Continuation of sheep grazed grassland from previous section. Second field with less rush and thistle cover; varied grasses but limited forb presence: common bent, Yorkshire fog, perennial rye-grass, red fescue and white clover, occasional sheep's fescue, sweet vernal-grass, creeping thistle, and very occasional bird's-foot-trefoil.
	G2 – Running water	Narrow stream flowing through woodland. Average depth c.5 cm, width 2 m with gravel substrate.
	J2.2.2 - Defunct hedge - species-poor	Defunct hawthorn and gorse hedge between grasslands. Bracken at base.
4ZC139-4ZC140	A3.1 - Broadleaved parkland or scattered trees	Line of mature trees adjacent to river. Hazel trees coppiced beneath pylons. Line of mature goat willows at edge of fen.
	B2.2 - Neutral grassland - semi-improved	Narrow strip between improved grassland and river with greater botanical diversity: crested dog's-tail, sweet vernal-grass, eyebright, red clover and common bent. Occasional soft brome ( <i>Bromus hordeaceus</i> ) and red bartsia ( <i>Odontites vernus</i> ). Small area of unmanaged grassland beneath Tower 4ZC140 with grasses and occasional forbs (common knapweed, meadow buttercup and hawkweed sp.).
	C1.1 - Bracken – continuous	Dense bracken strip adjacent to River Seiont with Himalayan balsam.

Tower	Habitats	Description
	E3 – Fen	Small area of fen adjacent to River Seiont. Meadowsweet, reed canary grass (, great willowherb, Yorkshire fog and hemlock water dropwort. Occasional soft rush and common valerian. Scattered gorse and willow scrub (c.5% cover). Himalayan balsam.
	G2 – Running water	River Seiont, c.15 m wide, with submerged floating vegetation in channel and marginal vegetation on banks (including Himalayan balsam).
	J1.1 – Arable	Tall, uniform sward (indicating use as grass crop), dominated by competitive grasses (perennial rye grass, Yorkshire fog and soft brome) with red clover. Tall hedge east of Tower 4ZC140. Field rose, dog rose, hawthorn, goat willow and ash.
	J2.1.1 - Intact hedge - native species-rich	
	J2.3.1 - Hedge with trees - native species-rich	Shrubby hedge with mature pedunculate oak trees beneath Tower 4ZC139. Gap beneath power lines: dense bracken, Himalayan balsam, hazel, gorse, hawthorn and blackthorn.