Chapter 07:
Ecology & Woodlands

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7.1 Introduction

7.1.1 This section describes the findings of two assessments carried out for the proposed overhead line. The first relates to the ecological assessment, which includes assessment of protected species and habitats, including woodlands and hedgerows (and includes reference to commercial plantations). The second assessment, a tree survey, covers smaller groups and individual trees affected by the proposals.

7.1.2 The assessments cover the life of the overhead line, including construction, operation and decommissioning as set out in Chapter 4.0: Project Description. Where significant adverse ecological impacts or effects are identified, the assessment proposes mitigation measures to prevent, reduce, or offset them and then re-assesses the residual effects remaining after mitigation. The most likely significant effects on protected species and habitat are likely to occur during the construction stage with possibly some effects during operation, through access and maintenance requirements. The effects of decommissioning are described together with those of the construction phase as the latter necessitates similar activities and potential effects.

7.1.3 The ecology assessment also includes proposals for environmental measures to enhance habitats. The same applies to the trees assessment, although in this case this also includes reference to tree planting.

7.1.4 The proposed 132kV overhead line connection, comprises 35km of new overhead line on approximately 394 wood pole supports between the new Bryn Dadlau and the existing Welshpool substations. To provide scope for adjusting the precise alignment of the overhead line through subsequent detailed design stages, the overhead line is sited within a 100m wide corridor.

7.1.5 The ecological assessment was undertaken by Jane Walsh Ecological Consultant.

7.1.6 The tree survey work was carried out by ProArb Ltd in June 2009.

Surveys

7.1.7 The initial walkover survey was undertaken in August 2008 following selection of a Preferred Route. As discussed in the following sections, because further amendments were made to the Preferred Route as it evolved into the Proposed Route, an extended Phase 1 Survey was then undertaken in June, July and August 2009 to update the original (2008) Phase 1 Report.

7.1.8 Consultations with the Powys County Ecologist in June 2009 revealed concerns regarding the possible presence of dormice within woodlands and hedges in the study area. These consultations led to the introduction of a dormouse survey using nest tubes. Owing to the late introduction of the survey within the project schedule, the tubes will be left in-situ through to the 2010 survey season in order to gain one full season survey data.

7.2 Scoping and Consultations

7.2.1 In order to determine the content of the ES, a Scoping Report was submitted to the Department of Energy and Climate Change (DECC). A copy of this document is included at Appendix A.

7.2.2 The Scoping Report noted that there are 21 Sites of Special Scientific Interest (SSSIs) present within the study area.

7.2.3 There are six statutory protected sites within 2km of the overhead line:

- Gwaun Bryn (Bryn Pasture) SSSI - located 1.2km north of Leighton, near Welshpool
- Kingswood Meadow SSSI - 1.2km to east near Forden
- Montgomery Canal SSSI/SAC - located 1.2km to west (at its closest point)
- River Teme SSSI - 1.2km to south
- Gweurnydd Camnan SSSI - 1km to south
- Gweunydd Esgairdraenllwyn SSSI & River Wye SAC - 1.5km to south of the survey corridor

7.2.4 The Afon Ithon SSSI, Afon Wye SAC is located greater than 2km away, south of the route corridor. The River Ithon lies inside the survey corridor near Blackgate, however this is approximately 3km upstream from the SSSI/SAC, between proposed poles 319 and 320.

7.2.5 Montgomery Wildlife Trust Reserves located close to the overhead line include:

- Llyn Coed y Dinas - 1km to west (SJ223052)
- Dolydd Hafren - 1.5km to west (SJ198005)
- Montgomery Canal - 2km to west (SJ169967)
- Severn Farm Pond Reserve - 1km to west (SJ228068).
- Small area of wet woodland - 1.2km to west (SJ227063)

7.2.6 The Scoping Report stated that the following direct and indirect effects would be assessed:

- Habitat loss/change
- Habitat fragmentation
- Disturbance/damage to wildlife
- Effect on water quality

7.2.7 The Scoping Report explained that a 100m corridor Phase 1 habitat survey would be carried out and that reference would be made to construction effects, including construction traffic.

7.2.8 To ensure that the assessment was as well informed as possible and that the concerns and interests of stakeholders were taken into consideration, considerable consultation was undertaken throughout the development of the scheme.

7.2.9 A Consultation Report describing the Preferred Route was sent out to statutory bodies, landowners and interested parties in July 2008. A copy of this document is included at Appendix C. This was followed by three rounds of public exhibitions in July/August 2008, December 2008 & April 2009. At the end of the consultations, an initial Proposed Route was identified, which was then subject to three months of detailed design and refinement between May - July 2009 at which point it became the final Proposed Route, which is the subject of this ES. Throughout this period, dialogue continued with the relevant consultees, including members of the public and affected landowners. Further detail regarding the scoping and consultation process is provided in Chapter 2.0: EIA Methodology & Significance Criteria and in SP Manweb's (SPEN) August 2009 document, Feedback Report of Scoping Reponses and Pre-Application Public Consultation Responses, a copy of which is included at Appendix B.

7.2.10 The project generated a high level of interest and, whilst over half the comments related either directly or indirectly to concerns about impact on the landscape or on views, there were some concerns relating to impact on ecology and nature conservation interests.

7.2.11 In response to the scoping, the Welsh Assembly Government requested that the assessment must include impacts on commercial plantations, bird collisions, and pollution risks to watercourses in the construction stages. No other issues were raised through the consultation stages.

7.2.12 CCW in its response dated 6 August 2008 advised that sufficient information be provided in terms of European sites to enable the project to be properly assessed in the context of these sites. For this project, these include two Special Areas of Conservation (SACs) and these are the Montgomery Canal and the River Wye, including one of its tributaries the River Ithon. The Montgomery Canal lies approximately 1.2km to the west of the corridor at its closest point. The River Wye lies 1.5km south of the survey corridor at Camnan Bridge. The CCW response also suggests the requirement for NVC surveys where appropriate and a number of protected species surveys including bats, badgers, reptiles, otters and water voles and great crested newts. The full CCW response is detailed in Appendix H.

7.2.13 As agreed with CCW, because the construction of the overhead line is predicated on the re-powering and extension of the Llandinam wind farm, the baseline conditions for this ES assume the presence of this wind farm.

7.2.14 The points and comments raised by consultees both in response to the scoping exercise and to the consultations, which formed part of the route selection process were incorporated into the assessment where appropriate.

Cumulative Effects

7.2.15 For the purposes of this ES, cumulative ecological effects are considered to result from additional changes caused by the proposed overhead line in combination with other existing or proposed overhead lines in the area. This potentially includes the network connections of the Llanbadarn Fynydd, Garreg Lwyd and Llaithddu wind farms. Although these are (November 2009) the subject of planning applications, there is currently insufficient information in the public domain regarding their connections to include them in the cumulative assessment.

Sources of Information and Guidance

7.2.16 Relevant ecological survey and environmental impact assessment guidance includes:

- JNCC (1993) Handbook for Phase 1 Habitat Survey – a technique for environmental audit. England Field Unit, Nature Conservancy Council.
- Institute of Ecology and Environmental Management (2006) Guidelines for Ecological Impact Assessment in the United Kingdom (version 7 July 2006).
- Relevant scientific literature as specified in the relevant parts of this chapter.

7.2.17 The tree survey work carried out by ProArb Ltd is based on SPEN's technical requirements for overhead line and substation installation and maintenance and the opinion of the arboriculturalist on tree and hedgerow clearance.

7.3 Assessment Methodology & Significance Criteria

General

7.3.1 This section summarises the methods used for the ecological and woodland assessments. In respect of ecology, this included desk study and habitat and protected species surveys. For the tree survey, this included a walkover survey. The full methodology for ecology with references and dates of surveys is set out at Appendix I.

Stage 1: Baseline

7.3.2 The initial step in any ecology or woodland appraisal is to record the existing ecological conditions throughout the study area. The data collected forms the basis from which the occurrence, estimation of magnitude and significance of any effects of the development may be identified and assessed. Data collected and reviewed includes:

Desk Top Survey

7.3.3 The desktop survey extended to within 2km of the proposed overhead line route and was carried out with regard to the 100m corridor and line design as described in Chapter 4.0: Project Design.

7.3.4 As part of the initial August 2008 ecological survey work, a review of previous reports on the site and surrounding land was undertaken. The following reports were reviewed:

- URS (May 2008): Llandinam Windfarm Environmental Statement and EIA
- CCW: Vegetation Assessment for Proposed Wind Farm, Llandinam
- CCW: Mynydd yr Hendre – Breeding Bird Survey. Llandinam BBS windfarm
- CCW Phase 1 Habitat Plans
- Gillespies (2006): 132kV Overhead Line Connection from Bryn Dadlau to Welshpool 132kV Substation Routing Study Report
- Gillespies (2006): 132kV Overhead Line Connection from Bryn Dadlau to Welshpool 132kV Substation Scoping Study Report and Feedback Report of Scoping Reponses and Pre-Application Public Consultation Responses

7.3.5 In addition to the scoping responses mentioned above, consultations with the following organisations were also undertaken as part of the 2008 survey:

- Countryside Council for Wales (CCW)
- Powys Biodiversity Information service (BIS)
- Powys County Council's Biodiversity Officer
- Montgomeryshire Wildlife Trust (MWT)
- The Welsh Kite Trust
- The County Bird recorder (Brayton Holt)
- Radnor Bird Group
- Montgomeryshire Barn Owl group
- The Vincent Wildlife Trust (VWT)
- RSPB
- Mid-Wales Red Squirrel Project

7.3.6 The County Bird Recorder, Brayton Holt, initially responded to SPEN in December 2007 with concerns over potential effects on birds, in particular breeding waders. Three issues were raised: the presence of 30-40 whooper swans, and mute swans that overwinter in the Aberhafesp area. These birds commute to Llyn Hir, Llyn Mawr and Llyn Du. Secondly, the presence of 50-80 mute swans regularly recorded in the Mid-Wales Airport and on the Montgomery Canal through the winter. Lastly, over 1000 Canada geese are known to commute between Llyn Coed-y-Dinas, Dolydd Hafren and Lymore Park Nature Reserves

7.3.7 The County Bird Recorder was contacted again in October 2008 following the further refinement of the route corridor. On this occasion the response was positive, confirming that with the route further defined, his concerns were no longer relevant.

7.3.8 RSPB gave no specific records for the area, however they expressed concerns regarding the presence of barn owl and red kite.

7.3.9 Montgomeryshire Barn Owl Group provided records of known breeding sites, More information is provided in the Confidential Ecology Report. It should be noted that the list provided is not exhaustive and that there is potential for undiscovered sites to exist.

7.3.10 The Welsh Kite Trust were consulted with regard to known breeding sites within 2km of the route corridor. Their concern was whether the overhead line was routed within 500m of a nesting site. The closest record currently on their database is located 790m from the proposed route at Blue Lins Brook. The Confidential Ecology Report provides more details of the red kite breeding sites in relation to the proposed overhead line.

7.3.11 Similarly, in addition to the scoping responses, comments were received from:

- Powys Biodiversity Information Service (BIS)
- Montgomeryshire Wildlife Trust (MWT)

Field Surveys

7.3.12 As mentioned previously, two ecological walkover surveys were carried out:

- Initial Phase 1 Habitat Survey: August 2008
- Extended Phase 1 Habitat Survey: June/July 2009

7.3.13 Owing to the repetitive nature of the surveys, it is considered that the surveys were adequate to obtain a representative sample of the presence of habitats and species present or potentially using the area. A copy of the survey is included at Appnedix K.

7.3.14 As noted above, the tree survey is based on a desk top study including aerial photographs of trees within the proposed 100m corridor, followed by a detailed walkover survey. A copy of the results of the survey is included at Appendix J.

7.3.15 Other field surveys undertaken during the 2009 survey season included:

- Great crested newt presence/absence surveys
- Bat flight path and transect surveys
- Dormouse nest tube surveys (ongoing)
- Reptile surveys
- Breeding bird surveys
- Wintering bird and vantage point surveys

These are included at Appendices K to R.

Stage 2: Project Description and Mitigation Strategy

7.3.16 The second stage of the assessment process is a description of the project, focussing on those aspects that may affect the ecological resource. It includes a description of the strategy adopted throughout the scheme design to avoid, reduce and offset significant effects.

Stage 3: Assessment of the Effects of the Development

7.3.17 In order to assess the potential effects on ecological receptors their nature conservation importance and sensitivity is first be evaluated and to do this a range of criteria including rarity must be considered to assign a nature conservation value.

7.3.18 Rarity is usually the most important criterion and is described in terms of rarity within a geographical unit. Each main ecological receptor is also described in terms of ecological function. This gives an assessment of the likely sensitivity of the receptor. Table 7.1 sets out the thresholds used in assessing nature conservation importance or value.

7.3.19 The assessment of an ecological receptor's sensitivity to change due to development is derived from professional experience and the use of scientific literature in order to understand the likely response of a receptor to impacts and effects associated with a development.

TABLE 7.1 NATURE CONSERVATION IMPORTANCE LEVELS

Value	Example
Very high (International importance)	Habitats or species that form part of the cited interest within an internationally protected site or candidate site (e.g. SAC, cSAC, SPA, pSPA, Ramsar site) A receptor (e.g. habitat or population) either unique or sufficiently unusual to be considered as being one of the highest quality examples in a international/national context that the site is likely to be designated as an SSSI.
High (National importance)	Habitats or species that form part of the cited interest within a nationally designated site (SSSI, ASSI, NNR, MNR). A habitat or population which is either unique or sufficiently unusual to be considered as being one of the highest quality examples in a national/regional context for which the site could be potentially designated a SSSI

Medium (Regional importance)	Habitats or species that form part of the cited interest of a local Nature Reserve, or some local-level designated sites depending on specific site conditions. Viable areas of internationally important habitats (e.g. priority BAP habitats), present in quality and extent at regional level of importance. Population of a species which is either unique or sufficiently unusual to be considered as being of nature conservation value at up to county context (e.g. nationally scarce), Sites supporting critical habitats for a regularly occurring regionally significant number of nationally important species (e.g. priority UK BAP).
Low (Local importance)	High: Sites, features/ wildlife site which may include amenity and educational criteria in urban areas. Sites containing viable areas of any priority habitat identified the UK BAP or Local Authority BAPs. Sites supporting viable breeding populations of species known to be local rarities (e.g. included in LBAP), and/or supplying critical elements of their habitat requirements. Any regularly occurring, locally significant population.
	Moderate: Feature/habitats or species which are not considered to qualify for non-statutory designation but which provide locally important semi-natural habitats (i.e. approx 10km radius from the site). Populations of any species of conservation importance in the context of the local area (i.e. approx 10km radius from the site).
	Low: Features/.habitats or species which are not considered to qualify for non-statutory designation but which provide locally important semi-natural habitats in the context of the immediate surrounding area (e.g. species rich hedgerows, ponds etc.).
Negligible	Commonplace feature of little or no habitat/historical significance. Loss of such a feature would not be seen as detrimental to the ecology of the area.

** Where species or habitats occur in more than one level, the highest value is applicable.*

7.3.20 Having identified a receptor's sensitivity, methodologies set out in published guidance such as IEEM's Guidelines for Ecological Impact Assessment in the UK, 2006) are then used to assess the effect of significance. Having been identified the ecological effects are then ranked according to the comparative severity of their effect on the ecological feature/receptor. Consideration is given to a range of parameters including whether the effect is adverse or beneficial, its magnitude, extent, duration, reversibility and timing/frequency. The effect levels (magnitude) are ranked into one of five groups taking into account scale and duration of effects and is set out in Table 7.2.

TABLE 7.2 THRESHOLDS OF MAGNITUDE

Magnitude	Description
Total/Near total	Would cause the loss of a major proportion or whole feature/population, or cause sufficient damage to a feature to immediately affect its viability.
High	Major effects on the feature/population, having sufficient effect to alter the nature of the feature in the short-long term and affect its long-term viability. e.g. more than 20% habitat loss or damage.
Medium	Effects that are detectable in short and long-term, but which should not alter the long-term viability of the feature/population e.g. between 10-20% habitat loss or damage.
Low	Minor effects. Either of sufficiently small-scale or of short duration to cause no long-term harm to the feature/population e.g. less than 10% habitat loss or damage.
Negligible	Minimal change on a very small scale
Neutral	A potential impact that is not expected to affect the feature/population in any way, therefore no effects are predicted.
Duration definitions	Long-term: 15-25 years Medium term: 5-15 years Short-term: < 5 years

7.3.21 Magnitude categories do not take into account the nature conservation value of an ecological receptor being effected, and therefore, in isolation cannot provide an assessment of the relative significance of the effect. Determination of effect significance involves a combination of the effect magnitude and the nature conservation value/sensitivity. Table 7.3 indicates how magnitude and sensitivity can be combined to produce a matrix of significance thresholds; however, these can be amended using professional judgement.

7.3.22 For the purpose of the EIA Regulations (2000), any effects assessed as moderate or major are regarded as significant. Other effects are considered not significant.

TABLE 7.3 TABLE INDICATING THE DETERMINATION OF SIGNIFICANCE

Effect Magnitude	Nature Conservation Value of Receptor				
	Very High	**High**	**Moderate**	**Low**	**Negligible**
Total/Near Total	Major	Major	Major	Moderate	Minor
High	Major	Major	Major-Moderate	Moderate	Minor
Medium	Major	Major-moderate	Moderate	Moderate-Minor	Minor
Low	Moderate-Minor	Moderate-Minor	Moderate-Minor	Minor	Minor
Neutral	None				

Stage 4: Detailed Mitigation & Residual Effects

7.3.23 The final stage of the assessment process is the identification of detailed management measures envisaged to prevent, reduce and, where possible, offset any significant adverse effects of the development. Residual effects are those effects, which remain after mitigation. The significance of these is re-assessed using the methods outlined previously.

7.3.24 Mitigation measures are also specified where effects are considered not significant as part of a best practice approach to development, and as a positive conservation measure.

Limitations in Undertaking the Assessment

7.3.25 There were no limitations in carrying out the assessment. However, to monitor dormouse populations, nest tubes shall continue to be monitored through the 2010 survey season.

7.4 Baseline

Introduction

7.4.1 The proposed overhead line runs through open countryside to the east of the Severn Valley, linking the Llandinam wind farm to an existing substation at Welshpool as shown in Figure 1.1: Wind Farm Connection Strategy. The 35km of overhead line is supported on approximately 394 wood poles between 12m – 16m in height and approximately 100m apart. The overhead line starts at the new substation at Bryn Dadlau (SO 04758363), which is situated to the south-west of Newtown on the Waun Ddubarthog ridge, an elevated plateau lying around 400m AOD. Running eastwards from here, it crosses the main Llandrindod Wells to Newtown road, skirts the prominent ridge of Glog and traverses the southern slopes of the Mule Valley below Kerry Hill. South of the village of Kerry, near Block Wood, it swings northwards, passing east of the village itself, and then cutting across the Mule Valley again, following a course through the undulating and well-wooded countryside east of the Severn Valley. It then passes west of the village of Llandyssil before dropping down to the lower slopes above the Severn Valley near Caerhowel and converging on the Shrewsbury to Machynlleth rail line some 1.5km to the north-west of Montgomery. It continues to run northwards close to the railway except to avoid settlement pockets such as Cilcewydd, before connecting into the existing substation on the B4381, approximately 1km east of Welshpool (SJ 24130673).

7.4.2 The following baseline description is based on the desktop survey, which extended to within 2km of the overhead line route and the Phase 1 survey of the 100m wide overhead line corridor, including legally protected species and valued ecological receptors.

Legislative & Planning Policy Context

7.4.3 Planning Policy is covered in Chapter 5.0: Planning Considerations, and includes UK, Welsh and Development Plan Policies.

7.4.4 The assessment has been undertaken with regard to the following relevant legislation and nature conservation policy:

- Wildlife & Countryside Act 1981 (as amended)
- The Conservation (Natural Habitats & c.) Regulations 1994 (The Habitats Regulations).
- EC Council Directive 92/43/EEC on the Conservation of Natural Habitat and Wild Fauna and Flora (The Habitats Directive).
- Powys County Council Local Biodiversity Action Plan (Powys LBAP).
- The UK Biodiversity Action Plan (UK BAP).
- Protection of Badgers Act, 1992.
- Section 74 of the Countryside and Rights of Way Act 2000.
- The NERC Act 2006.
- The Hedgerows Regulations 1997
- BS5837 (2005) Trees in Relation to Construction.
- BS3998 (1989) Recommendations for Tree Work.

7.4.5 Conservation policies arising from Local and National Biodiversity Action Plans (LBAP) and UKBAP) have been considered for their relevance to the proposals. These include the relevant habitat and species action plans.

Habitat Action Plans

- Upland oak woodland (UKBAP, LBAP)
- Lowland wood-pasture and parkland (UKBAP, LBAP)
- Wet woodlands (UKBAP, LBAP)
- Conifer woodland (LBAP)
- Farmland (LBAP)
- Scrub and fridd (LBAP)
- Linear habitats (hedges and verges), (UKBAP, LBAP)
- Rivers and streams (UKBAP, LBAP)
- Mesotrophic waters (UKBAP, LBAP)
- Lowland raised bog (UKBAP, LBAP)
- Rhos pasture (LBAP)
- Lowland meadows (LBAP)
- Lowland dry acid grassland (UKBAP, LBAP)
- Upland calcareous grassland (UKBAP, LBAP)
- Upland and lowland heath (UKBAP, LBAP)

Species Action Plans

- Otter (UKBAP)
- Brown Hare (UKBAP, LBAP)
- Slow-worm (UKBAP. LBAP)
- Common lizard (UKBAP)
- Adder (UKBAP)
- Grass snake (UKBAP).

7.4.6 Planning policies specific to protected species and woodland planting include those in the Powys Unitary Development Plan (Powys UDP) as follows:

Policy ENV 7 – Protected Species: need to avoid developments which contravene protected species legislation)

Policy ENV 9 – Woodland Planting: new planting will be encouraged)

(refer to Table 5.1 for full policy references)

Statutory Designated Nature Conservation Sites

7.4.7 There are no statutory designated sites within the 100m survey corridor.

7.4.8 There are two locations that are of international importance and are designated as SACs. These are the Montgomery Canal and the River Wye and are shown on Figure 7.1: Study Area & Designations. The Montgomery Canal lies some 1.2km to the west of the corridor at its closest point, with the River Severn lying between it and the proposed overhead line. The River Wye lies 1.5km south of the survey corridor at Camnan Bridge. These sites are of international importance and therefore their nature conservation value is considered very high.

7.4.9 In addition, there are also 21 SSSIs present within the original study area (that of the 2008 Preferred Route on which the desktop survey was based).

7.4.10 There are six statutory protected sites within 2km of the proposed overhead line and are shown on Figure 7.1: Study Area & Designations.

- Gwaun Bryn (Bryn Pasture) SSSI - located 1.2km north of Leighton, near Welshpool
- Kingswood Meadow SSSI - 1.2km to east near Forden
- Montgomery Canal SSSI/SAC - located 1.2km to west (at its closest point)
- River Teme SSSI - 1.2km to south
- Gweurnydd Camnan SSSI - 1km to south
- Gweunydd Esgairdraenllwyn SSSI & River Wye SAC - 1.5km to south of the survey corridor

7.4.11 The River Ithon SSSI, River Wye SAC is located further than 2km south of the route corridor. The River Ithon lies inside the corridor near Blackgate, however, this is approximately 3km upstream from the SSSI/SAC, between Poles 319 and 320.

7.4.12 There is one proposed SSSI site located west of Newtown near the River Severn.

7.4.13 The above sites are of national importance and their nature conservation value is therefore considered high.

Non-statutory Designated Nature Conservation Sites

7.4.14 A number of non-statutory designated nature conservation sites are located within the survey area. These include Powis Castle Estate, which lies some 1km to the west of the overhead line. The site comprises parkland habitat with lichens, fungi, saproxylic invertebrates and probable bat interest. This site is considered to be of county value and therefore the nature conservation value is medium (Regional Medium).

7.4.15 There are no Montgomeryshire Wildlife Trust (MWT) Reserves within the 100m survey corridor, but there are five reserves within the wider study area and are shown on Figure 7.1: Study Area & Designations.

- Llyn Coed y Dinas - 1km to west (SJ223052)
- Dolydd Hafren - 1.5km to west (SJ198005)
- Montgomery Canal - 2km to west (SJ169967)
- Severn Farm Pond Reserve - 1km to west (SJ228068).
- Small area of wet woodland - 1.2km to west (SJ227063)

7.4.16 The Wildlife Trust Reserves are considered to be of county value and therefore their nature conservation value is considered to be medium (Regional Medium).

Ancient Woodland designations

7.4.17 The CCW Ancient Woodland Inventory indicates that there are four ancient semi-natural woodland sites within or immediately adjacent to the proposed overhead line:

- Poles 41-42: The route corridor crosses an area of broad-leaved woodland.
- Poles 156-160: An area of broad-leaved woodland located on the western edge of the route corridor.
- Pole 180: An area of broad-leaved woodland lies north of the route corridor.
- Poles 254-255: An area of broad-leaved woodland located directly below the route corridor.

7.4.18 These areas are considered to be of low nature conservation value.

Habitats & Flora

7.4.19 Initial consultations for the 2008 survey report from the Biodiversity Information Service (BIS) provided several records within 1km of the survey corridor for a number of plants. All are of conservation concern. These include:

- Floating water plantain (Luronium natans), esthwaite waterweed (Hydrilla verticillata), flat-stalked pondweed (Potamogeton friesii), long-stalked pondweed (Potamogeton praelongus), smooth stonewort (Nitella flexillis), pointed stonewort (Nitella mucronata) along the Montgomery Canal.
- Mudwort (Limosella aquatica) found on the River Severn, Dolydd Hafren Reserve and SJ213026 approximately 1km west of the route corridor.
- Touch-me-not balsam (Impatiens noli-tangere), corn spurrey (Spergula arvensis) and field woundwort (Stachys arvensis) at Dolydd Hafren Reserve.
- Box (Buxus sempervirens) is found in the church grounds at Fforden and Llanmewerig and at Edderton Hall, Cilcewydd.
- Lesser quaking-grass (Briza minor) is found 400m away from the route corridor at SJ242059, Leighton.
- The lichens (Buellia stellulata), (Calicium abietinum), (Catapyrenium squamulosum), (Lepraria nivalis) and (Rimularia badioatra) are found at SO0584 near Llandinam proposed wind farm site.
- Wild pansy (Viola tricolor) is found at SO 060835, directly on the proposed route, and at SO085832, 600m distant.
- Narrow-leaved bitter-cress (Cardamine impatiens) is found at SO086833, 600m away.
- Meadow saffron (Cochicum autumnale) is found at SO160929 1km away, and at SO195999 on the western side of the A483.
- Greater butterfly-orchid (Platanthera chlorantha) is found at SO167956 approximately 2km west of the route corridor.

7.4.20 There are a number of species of conservation concern further than 1km away from the route corridor, but it is unlikely that these will be affected.

7.4.21 A number of habitats present within the vicinity of the proposed overhead line have Habitat Action Plans associated with them under the Powys LBAP. These include: upland oak woodland; lowland wood-pasture and parkland; wet woodlands; conifer woodland; scrub and fridd; linear habitats (hedges and verges); rivers and stream; mesotrophic waters; lowland raised bog; rhos pasture; lowland meadows; lowland dry acid grassland; upland calcareous grassland; and, upland and lowland heath.

7.4.22 The July ecological 2009 survey highlighted that the proposed overhead line route passes through a wide variety of habitat. Semi-improved, sheep grazed acid grassland was most common at the southern end of the corridor, and improved grassland of limited botanical interest, and arable land most common towards the northern end. A number of species-rich hedgerows and broadleaved woodlands are also found along the route. Target Notes from the Phase 1 Habitat Maps are included at Appendix K and the distribution of habitats is shown in the accompanying figures. Figure 7.2 summarises the ecological constraints.

7.4.23 The Phase 1 Habitat Surveys noted the presence of marshy grassland, poor semi-improved acid grassland, improved grassland, tall herb and fern, scrub and bracken, hedgerows, mature trees, broadleaved woodland, mixed woodland, coniferous plantations, running water and standing water. The surveys also included the recording of woodland habitats through the survey corridor and noted semi-natural broad-leaved woodland, mixed plantation, conifer plantation, and scattered trees.

7.4.24 Some of these habitats present within the survey corridor are included in the Powys LBAP, notably: scrub and fridd (bracken/acid grassland), rhos pasture (marshy/damp grasslands), linear habitats (hedges and verges), rivers and streams, and farmland.

7.4.25 **Semi-improved Acid Grassland** – Acid grassland is listed in the UKBAP, however, taking into account the modification of this habitat type (largely species poor), owing to intensive sheep grazing, its nature conservation value is considered **low** (Local Low).

7.4.26 **Marshy Grassland/Rhos Pasture** – Taking into account the local importance of this habitat and its species poor content, its nature conservation value is considered **low** (Local Low).

7.4.27 **Improved Grassland** – This species poor habitat and the regular occurrence of such habitat means that its nature conservation value is considered **low/ negligible** (Local low).

7.4.28 **Riparian Habitats** – The presence of otter was noted on the River Mule. The species is likely to utilise all of the watercourses within the study area, for foraging or commuting and potentially breeding. Other rivers present within or close to the survey corridor included: the River Severn, River Camlad, Nant Mehell, and the Camnant. Rivers and streams are priority habitats on UKBAP and LBAP, and potential otter habitat. These areas are therefore considered of **low** (Local High) nature conservation value.

7.4.29 The River Ithon is located between Poles 319-320 and is linked some 3km downstream to the River Ithon SSSI and River Wye SAC. Because of the international importance of the site and its connectivity to the proposed route corridor via the River Ithon, the nature conservation value of the site is considered **very high** (International Importance).

7.4.30 **Semi-natural Broad-leaved Woodland** – There are several areas of semi-natural broad-leaved woodland present within the survey corridor. Some of these are replanted ancient woodland sites, notably: Target Notes (TN) 25, 55, 56, 65, 66, 69, 75, 83, and 84. Taking into account the local importance of this type of habitat the nature conservation value is considered **low** (Local High).

7.4.31 **Coniferous Plantation** – An area of coniferous plantation is located towards the southern end of the proposed route corridor (TN 97). The plantation is connected to the River Ithon via a small tributary stream. Considering the habitat connectivity to the Ithon SSSI and SAC its nature conservation value is considered **very high** (International Importance).

7.4.32 **Mixed Plantation** - A small area of mixed woodland is located south of Forden, near the railway line. Given the small size and condition of this habitat its nature conservation value is considered **low** (Low Local).

7.4.33 **Scrub and Fridd** – Areas of scrub and fridd (bracken) are scattered throughout the survey corridor. Although this type of habitat is included in the Powys LBAP, taking into account its local importance and its regular occurrence, its nature conservation value is considered **low** (Low Local).

7.4.34 **Hedgerows** – Most of the hedges along the proposed route are recorded as species poor. Species present include hawthorn (Crataegus monogyna), hazel (Corylus avellana) and blackthorn (Prunus spinosa). Mature hedergow trees included: oak (Quercus petraea), ash (Fraxinus excelsior) and sycamore (Acer psuedoplantanus). A number of defunct hedges and wire fence boundaries were also recorded. Generally hedges are very common in the area and their nature conservation value is therefore considered **low** (Local High).

Trees

7.4.35 The Tree Schedule at Appendix J shows that tree species located within the corridor are dominated by: oak, ash, sycamore, beech, hawthorn and willow, with some rowan, alder and hazel. These are of varying age and character and some have ecological value. Approximately 1379 trees were surveyed within 30m of the proposed overhead line (i.e. the falling distance). In respect of those trees with habitat value, all of these species are common in the locality and are considered of **low** (Local Low) nature conservation value.

Legally Protected Species

Badger

7.4.36 One badger sett was recorded within the survey corridor (Sett A), and three setts were recorded close to the survey corridor (Setts B, C, and D). The locations of the setts are recorded in the Confidential Ecology Report. The status and activity of the setts are described below.

Sett A: A 20 entrance main sett located on a bank in an area of gorse scrub within the survey corridor.
Sett B: A nine entrance main sett located west of the proposed overhead line at the northern end of the survey corridor near Leighton. The sett lies outside the survey corridor to the west of the overhead line route in improved grassland adjacent to a large hedge. At the time of the survey all nine entrances were well used with badger hairs, footprints, fresh digging, bedding and well-worn paths all noted.
Sett C: A five entrance probable main sett located outside the survey corridor to the east of the proposed overhead line corridor. At the time of the survey all five entrances were well used with hairs, bedding, and fresh digging all noted.
Sett D: A badger sett located beyond 100m from the survey corridor.

7.4.37 None of the setts will be lost as a result of the proposed overhead line.

7.4.38 Badgers are protected under the Wildlife & Countryside Act and the Protection of Badgers Act. The population present within the study area is considered of **low** (Local Low) nature conservation value.

Bats

7.4.39 The July 2009 Phase 1 survey included a detailed inspection of trees. A number of mature trees with high potential to support roosting bats were noted. The majority of the trees recorded with bat potential were oak and ash, however one black poplar and one sycamore were noted. Trees were noted as having potential for bats owing to their size and maturity, the presence of dead wood, rot holes, cracks and crevices in bark, and/or the presence of ivy, which may obscure cracks and crevices, or be of value itself as a bat roost. The location of the trees is shown in Figure 7.2.

7.4.40 Individual trees are described in target notes 2, 3, 9, 10, 11, 12, 13, 16, 17, 21, 22, 23, 24, 26, 27, 28, 31, 32, 33, 34, 35, 36, 37, 38, 40, 41, 42, 43, 45, 47, 51, 52, 53, 54, 59, 61, 62, 63, 64, 67, 68, 70, 73, 78, 79, 90, and 92. Target notes are in Appendix K.

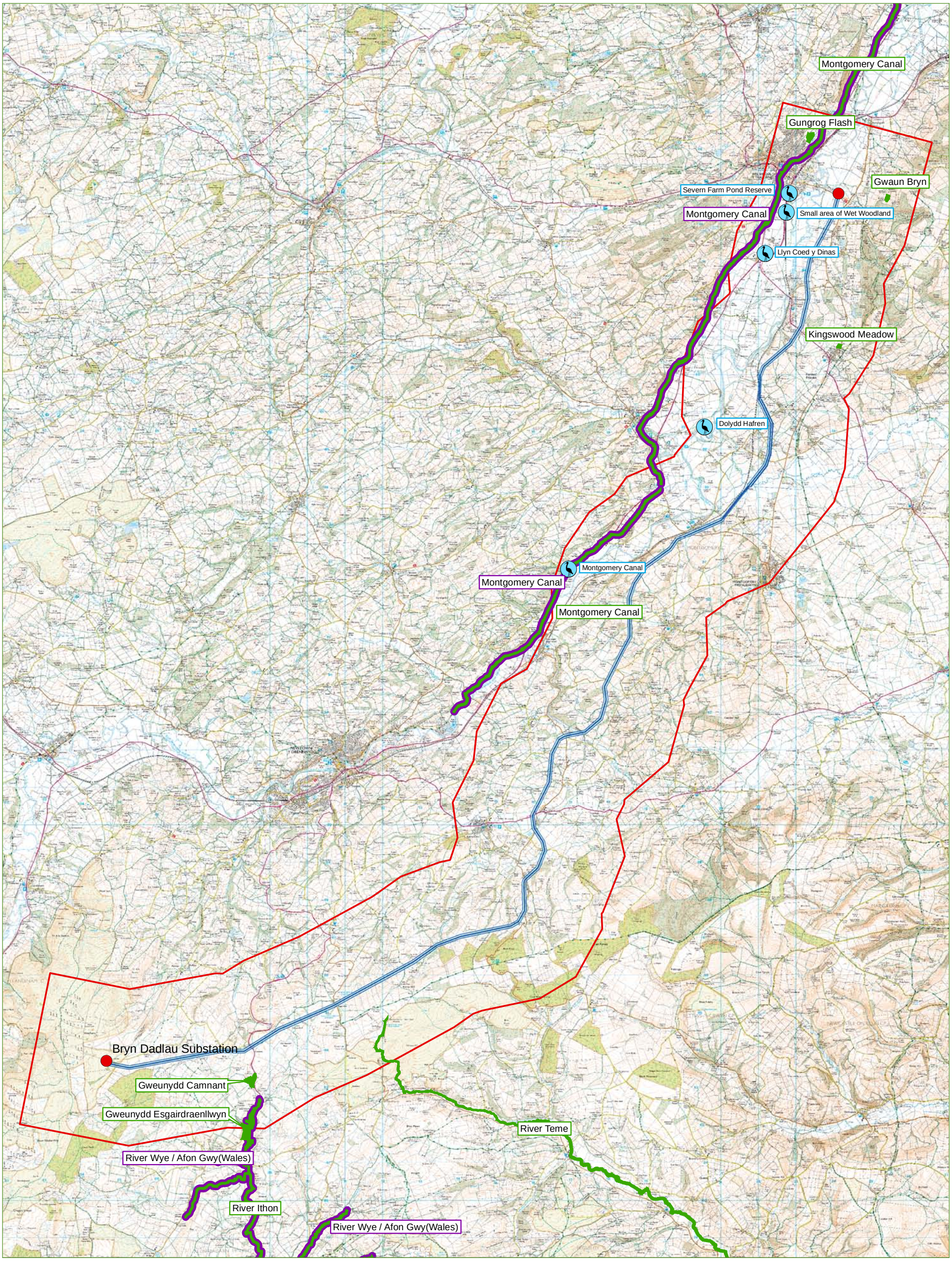

Figure 7.1

Study Area & Designations

NTS

Key:

- Substations
- Ecological Study Area
- Proposed Route
- SAC
- SSSI
- Wildlife Trust Reserve

North

SP ENERGY NETWORKS

GILLESPIES

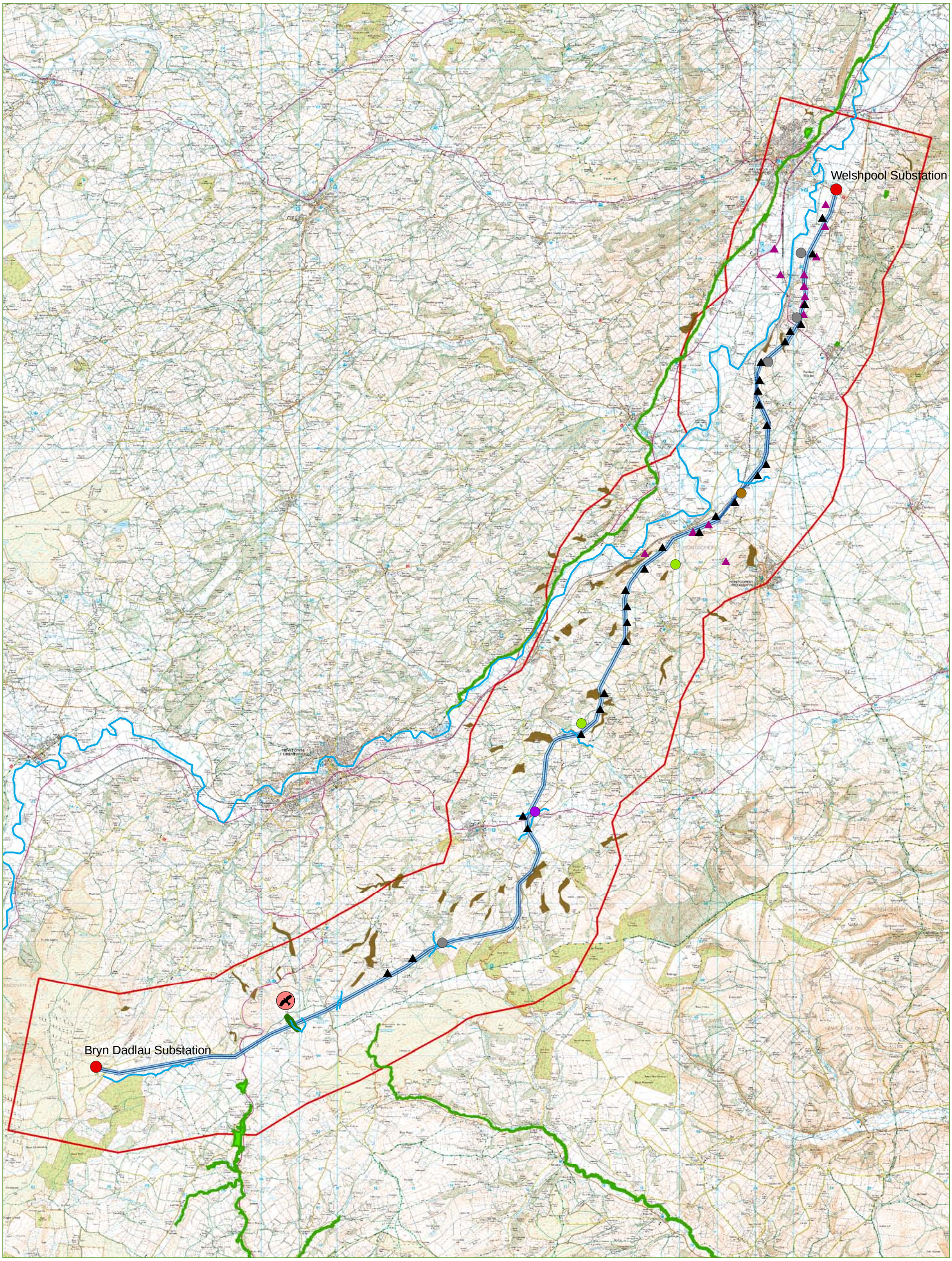

Figure 7.2

Constraints Plan

NTS

Key:

- Substations
- Ecological Study Area
- Proposed Route
- Badgers
- Otters
- Great Crested Newts
- Water Voles
- Red Kite
- Bat Roost Trees
- Bat Hedges
- SSSI
- Ancient Woodland
- Rivers
- Coniferous Plantation

North

SP ENERGY NETWORKS

GILLESPIES

7.4.41 Taking into account that bats and their roosts are protected by European and British law, their population status and the presence of suitable foraging and roosting habitat, all bat species present in the area are considered of **low** (Local High) nature conservation value.

7.4.42 Road based transect surveys were undertaken to assess bat activity within 1km of the overhead line.

Date	Transect	Common Pipistrelle	Soprano Pipistrelle	Noctule	Myotis sp.
28/05/09	1 (South)	89	41	7	1
30/07/09	2 (Mid)	30	101	13	2
30/07/09	3 (North)	43	39	1	1
	TOTAL	162	181	21	4

7.4.43 Transect survey results create a picture of species distribution within the landscape. A total of 368 bat passes were recorded during the transect surveys, the distribution of which suggests several areas showing greater activity or 'hot spots' of bat activity. These areas of high activity are mainly centred on the villages of Kerry, Forden and Llanmerwig. The southernmost section of the overhead line route shows a distinct lack of bat activity, however, this pattern is predictable given the altitude and habitat types of the area. Bats are protected by European and British Law, and are included in the Powys LBAP. The population present within the study area is therefore considered of low (Local High) nature conservation value.

7.4.44 Passive monitoring of hedgerows was undertaken to assess usage of bats from 5 roost sites of significance identified within 2km of the overhead line route.

Anabat No.	Grid Reference	Common Pipistrelle	Soprano Pipistrelle	Noctule	Myotis sp.	Lesser Horseshoe	Nathusius' Pipistrelle	Total bat Passes/category	
1	SJ 23276 03540	151	190	9	8	0	0	358	High
2	SJ 23281 03815	385	353	7	52	2	0	799	High
3	SJ 23316 04018	51	66	4	13	0	0	134	Med
4	SJ 23296 04280	29	160	3	9	2	0	203	Med
5	SJ 23293 04590	92	229	9	10	0	0	340	High
6	SJ 23611 05053	116	207	1	36	1	0	361	High
7	SJ 23551 05350	10	35	13	2	1	0	61	Low
8	SJ 23843 05853	37	161	14	3	0	1	216	Med
9	SO 19094 97238	163	379	13	2	0	0	557	High
10	SO 19939 97826	6	12	7	0	0	0	25	Low
11	SO 20363 97809	40	91	13	3	0	0	147	Med
12	SO 20778 98004	7	184	4	14	0	0	209	Med
13	SJ 23858 06430	35	155	21	0	0	0	111	Med
14	SJ 23471 05947	13	54	3	19	0	0	89	Low
15	SJ 22504 05265	29	50	41	6	18	0	144	Med
16	SJ 22664 04590	2	31	5	1	0	0	39	Low
17	SO 21646 97404	139	77	4	5	0	0	225	Med
18	SO 21236 97029	141	67	3	2	0	0	213	Med
19	SO 20951 95664	15	8	1	0	0	0	24	Low
20	SO 21036 96321	10	1	3	22	0	0	36	Low
Species Pass Totals		**1471**	**2510**	**178**	**207**	**24**	**1**	**4291**	

7.4.45 No barbastelle records were obtained through the monitoring.

7.4.46 A total of 24 lesser horseshoe passes were recorded, 18 of which were made at monitoring point 15. It is likely that this was an individual bat foraging along the hedgerow due to its position, call timings and significant distance from known roost sites. Other lesser horseshoe passes recorded are low in numbers and from monitoring points set on hedgerows close to known roosts. Passive monitoring showed a wide range of activity levels recorded on hedgerows by a diverse range of species. Where activity levels were shown to be medium or high relative to other hedgerows within this study, and where hedgerow are of high quality, mitigation will be employed resulting in no significant negative effect. The population present within the study area is considered to be of low (Local High) nature conservation value. The locations of the hedgerows recorded as High and Medium activity levels for bats are shown in Figure 7.2: Ecological Constraints Plan.

Otters & Water Voles

7.4.47 Evidence of otters in the form of fresh spraints (droppings) was found on the River Mule at Glan-Mule Bridge (TN 77), Figure 7.2. No holts or potential holt sites were found within the survey corridor. Otters are protected by European and British Law, and are included in the Powys LBAP. The population present within the study area is therefore considered of **low** (Local High) nature conservation value.

7.4.48 No evidence of water vole was noted within the survey corridor at the time of the survey. A potential water vole ditch was noted close to the railway line near Hendomen (TN 42), and at the far southern end of the survey corridor (TN96), Figure 7.2. Water voles have suffered a drastic decline of over 70% in recent years across the UK as a whole and are a species targeted for action in both the UK national and Powys LBAP. Although no evidence of water vole was found at the time of the survey, the potential habitats should be considered of **low** (Local High) nature conservation value.

Dormice

7.4.49 Following consultation with the Powys CC ecologist in June 2009, who highlighted the possibility of dormice being present along the route, dormice nest tubes were erected. These were located in dense hedges in patches of blackthorn (Prunus spinosa) where hazel (Corylus avellana) is dominant and in broadleaved woodlands where hazel is numerous. The tubes are to be left in-situ through to 2010 (checks in spring 2010 and Autumn 2010) in order to obtain a full season survey results. Tubes were checked in September 2009 and found to be negative for dormice.

7.4.50 Although no evidence of dormice has been recorded up to this time, the potential habitats should be considered of **low** (Local High) nature conservation value. This will, however, be reviewed on completion of the surveys in 2010.

Hares

7.4.51 A brown hare was noted at the northern end of the survey corridor. No other sightings were noted during the walkover surveys. Brown hare are a Section 74, UKBAP and Powys LBAP species. Their conservation value is considered **low** (Local High).

Reptiles/Amphibians

7.4.52 Thirty-five potential great crested newt ponds were identified within 500m of the overhead line and surveyed in 2009.

7.4.53 Great crested newts were recorded at two of the 35 ponds surveyed, ponds 22 and 28b. The location of these great crested newt ponds is shown in Figure 7.2: Ecological Constraints.

7.4.54 Pond 22 lies around 460m south of the survey corridor at 'Rhydyware'. Pond 28b is located approximately 160m north of the survey corridor at 'Fronheulog' and is linked via a hedge to the proposed cable route. A maximum of four great crested newts were recorded in each pond over a period of 6 evening surveys. The presence of great crested newts in low numbers is considered of **low** (Local High) nature conservation value.

7.4.55 Reptile surveys using artificial refugia, undertaken during 2009 were negative. There are however, habitats present within the survey corridor such as grassland and scrub that represent potential habitat for species such as: slow-worm, adder, grass snake and common lizard.

7.4.56 Records of common lizard, grass snake, adder and slow-worm within 2km of the overhead line, were provided by Powys BIS. All four species are included in the UKBAP, whilst slow-worm is also included in the Powys LBAP. All these species are therefore considered of **low** (Local High) nature conservation value. Given the small size of the areas with potential for reptiles, owing to their inclusion in the UKBAP, this group is therefore considered of **low** (Local High) nature conservation value.

Birds

7.4.57 Breeding bird surveys were carried out in April and May 2009 in accordance with the standard published methods for Breeding Bird Surveys (BBS) as stated in Gilbert, G, Gibbons, D W, and Evans, J. Bird Monitoring Methods. R.S.P.B. (1998). The full report can be found at Appendix N.

7.4.58 Fifty-nine species were recorded in total along the route with a number of these Red and Amber Listed by the RSPB. Some are also Schedule 1 EU species, listed under Section 42 of the Natural Environment and Rural Communities Act 2006 (NERC Act), included in Section 74 of the CRoW Act 2000 or recognised as UK BAP species.

- **Red kite**: A Schedule 1 bird species and Amber Listed. It is nesting in a stand of broadleaved woodland near Pole 318. The population present within the study area is of regional importance, and therefore the nature conservation value is considered **low** (Local High).
- **Bullfinch**: This species is listed under the NERC Act, Crow Act and UK BAP, is it also 'red listed' by the RSPB. Bullfinch were recorded in dense hawthorn and blackthorn hedges adjacent to the railway between Poles 54 and 55, and Poles 94 and 125. The population present within the study area is of regional importance, and therefore the nature conservation value is considered **low** (Local High).
- **Yellowhammer**: This species is listed under the NERC Act, Crow Act and UK BAP, is it also Red Listed. They were recorded in, or near, arable land near Poles 117 – 121 near Llandyssil, Pole 146, 171 and 176 – 180. The population present within the study area is of regional importance, and therefore the nature conservation value is considered **low** (Local High).
- **Starlings**: This species is listed under the NERC Act and UK BAP, is it also Red Listed. They were recorded in a mixed flock with fieldfares near Poles 257 – 260 foraging on an area of marshy grassland. They were also recorded in the scattered trees around poles 393 – 393. The population present within the study area is of regional importance, and therefore the nature conservation value is considered **low** (Local High).
- **House Sparrow**: This species is listed under the NERC Act and UK BAP, is it also Red Listed. They were recorded at numerous locations where the proposed overhead line passes close to urban dwellings. These were near poles 9-10, 17, 52, 62, 95-96, 102, 153-155, 161, 171, 178, 183, 186, 189, 192. The population present within the study area is of regional importance, and therefore the nature conservation value is considered to be **low** (Local High).
- **Song thrush**: This species is listed under the NERC Act, Crow Act and UK BAP, is it also Red Listed. They were recorded singing near poles 40 – 41 in broadleaved woodland in Edderton Dingle, poles 81 – 87 in a broadleaved woodland strip adjacent to the railway, near Poles 156, 170, 201 and 383 and near Pole 394 in an area of planted coniferous woodland. The population present within the study area is of regional importance, and therefore the nature conservation value is considered **low** (Local High).
- **Skylark**: This species is listed under the NERC Act, Crow Act and UK BAP, is it also Red Listed. They were recorded in suitable nesting habitat near Poles 117-119, 285, 294 – 309, 325 – 330, 350 – 355 and 379 – 384. The population present within the study area is of regional importance, and therefore the nature conservation value is considered **low** (Local High).
- **Curlew**: This species is listed under the NERC Act and Crow Act, is it also Amber Listed. They were recorded near Poles 4 – 6 near the River Severn and near Pole 180 in a silage field. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Dunnock**: This species is listed under the NERC Act, Crow Act and UK BAP, is it also Amber Listed. This species was recorded in numerous locations with suitable nesting habitat present near Poles 9 –10, 40-41, 49-51, 65, 67, 69, 73, 92-95, 128-129, 131, 136 –137, 161, 166, 178, 190, 315, 320, 324, 350, 368. The population present within the study area is of regional importance, and therefore the nature conservation value is considered **low** (Local High).
- **Fieldfare**: This species is a Schedule 1 species and is Red Listed by the RSPB. It was recorded in a mixed flock with starlings near poles 257 – 260 foraging on an area of marshy grassland. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Willow Warbler**: This species is Amber Listed. It was recorded singing in suitable nesting habitat near Poles 40-41, 43-45, 158-160, 270-272 and 315. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Swallow**: This species is Amber Listed. It was recorded singing in suitable nesting habitat near Poles 8-12, 17-24, 48 – 52, 58, 67-75, 101-102, 130, 141 – 142, 150 – 151, 164, 176-177, 184, 285-290, 310, 316 – 319, 321 – 323, 324 – 343, 352, 361-371, 390-393. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Stock Dove**: This species is Amber Listed. It was recorded singing in suitable nesting habitat near Poles 41-42. The population present within the study area is of local importance, and therefore the nature conservation value is considered to be **low** (Low Local).
- **Snipe**: This species is Amber Listed. It was recorded in suitable nesting habitat near pole 79 in the River Camlad bank vegetation and near Pole 292 in marshy grassland. The population present within the study area is of local importance, and therefore the nature conservation value is considered to be **low** (Low Local).
- **Red Start**: This species is Amber Listed. It was recorded singing in suitable nesting habitat near Poles 134 – 135, 153-155, 157-160 and 315. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Mute Swan**: This species is Amber Listed. It was recorded swimming on the River Severn near Poles 3-4. The population present within the study area is of local importance, and therefore the nature conservation value is considered to be **low** (Low Local).
- **Mistle Thrush**: This species is Amber Listed. It was recorded singing in suitable nesting habitat near Poles 157 and 394. The population present within the study area is of local importance, and therefore the nature conservation value is considered to be **low** (Low Local).
- **Meadow Pipit**: This species is Amber Listed. It was recorded singing in suitable nesting habitat near Poles 286 –309, 324 – 343, 351 – 362 and 381 – 388. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Greylag goose**: This species is Amber Listed. It was recorded flying over the proposed line near the River Camlad near Poles 81 – 83. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Black-headed Gull**: This species is Amber Listed. It was recorded feeding on the recently ploughed fields alongside the River Severn near Poles 5-23, and flying over Pole 55. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).

7.4.59 A wintering vantage point bird survey was carried out between November 2008 and March 2009. The full report can be found in Appendix M.

7.4.60 Collation of data search results and consultations led to two areas being the main focus of the survey work. These were the area around the Mid Wales Airport and around Welshpool, where over 1000 Canada geese are known to commute between Llyn Coed-Y-Dinas (SJ 222 052), Dolydd Hafren Nature Reserve (SJ 206 006) and Lymore Park (SO 231 962). The issue was not one of conservation concern for the geese but one of awareness.

Vantage Point A Surveys

- **Buzzard**: Recorded during every survey, both foraging and roosting. The buzzard is one of the commonest raptors, following a major range expansion in the 1990s, the buzzards distribution is widespread and is not a species of conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Canada Goose**: Recorded commuting along the river valley and grazing in improved grassland fields within the valley bottom during every survey. Grazing Canada geese peak counts reached 250 on 29th January 2009. Commuting flocks reached a peak count of 40, flying east up river valley on 12th February 2009. With an estimated resident population of 82,550 in the UK it is often regarded as a pest species. The Canada goose is not a species of conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Carrion Crow**: This common and widespread, resident species was recorded foraging and commuting during every survey undertaken. The carrion crow is not a species of conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Cormorant**: Individual cormorants were recorded on a number of occasions commuting up and down the River Severn. The UK holds internationally important wintering numbers but is not a species of conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Jackdaw**: Recorded during every survey undertaken. The jackdaw is not a species of conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Mallard**: Three were recorded on the 20th January and 27th March 2009 commuting in an easterly direction, north of the vantage point. The mallard is a common and widespread duck species; however, it is Amber Listed due to recent non-breeding population decline. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Mute Swan**: Severn were recorded on 20th January 2009 flying east, on the north side of the River Severn. This common and widespread resident species and is not of conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Shelduck**: A single shelduck was recorded flying west up the River Severn on the 20th January 2009. The shelduck is Amber Listed due to its important, localised non-breeding population. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Starling**: Recorded foraging and commuting during every survey undertaken, mainly over and within in the fields of improved grassland to the north of the vantage point. Flock size peaked at approximately 140 individuals on the 29th January 2009. Grazed grassland is the preferred foraging habitat of the starling which feeds predominantly on soil borne invertebrates. The starling is Red Listed due to the rapid decline (>50%) in the UK breeding population in the last 25 years. The population present within the study area is of regional importance, and therefore the nature conservation value is considered **low** (Local high).

Vantage Point B Surveys

- **Buzzard**: A single bird was recorded flying within the fields to the south of the vantage point on 10th December 2008. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Canada Geese**: Recorded flying east up the Camlad to the south of the vantage point on 27th March 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Carrion Crow**: Recorded foraging and commuting during every survey undertaken, mainly over and within in the fields to the south of the vantage point. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Herring Gull**: Two were recorded on the 3rd December 2008 and 29th January 2009 flying in an easterly direction to the south of the vantage point. The herring gull is Amber Listed due to a moderate decline of 25-49% in the UK breeding population over the last 25 years. The population present within the study area is of regional importance, and therefore the nature conservation value is considered **low** (Local High).
- **Jackdaw**: Recorded during every survey undertaken, mainly over and within in the fields to the south and north of the vantage point. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Rook**: Recorded in low numbers foraging and commuting during every survey undertaken, mainly over and within in the fields to the south of the vantage point. The rook is not a species of conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered to be **low** (Low Local).
- **Starling**: Recorded foraging and commuting during every survey undertaken, mainly over and within in the fields of improved grassland to the north of the vantage point and the arable fields to the south. Flock size peaked at approximately 200 individuals. The population present within the study area is of regional importance, and therefore the nature conservation value is considered **low** (Local high).

Llyn Coed-y-Dinas - Spot Check Monitoring

- **Coot**: This common and widespread resident species was recorded in low numbers during virtually every visit to Llyn Coed-y-Dinas, with a peak count of 7 on the 27th March 2009. It is not a species of conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Cormorant**: A peak count of 7 cormorants was recorded on the 20th January 2009, although it was a regularly observed at the reserve. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Canada Goose**: Regularly recorded at the reserve with a peak count of 453 on 29th January 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Domestic Goose**: A peak count of 12 domestic geese was recorded on the 12th February 2009, it is not a species of conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Goosander**: Recorded during several surveys with a peak of 6 on the 12th February 2009. It is commonly seen on upland rivers of N England, Scotland and Wales in summer, while in winter they move to lakes, gravel pits and reservoirs and occasionally to sheltered estuaries. The goosander is not a species of conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Great Crested Grebe**: Two were recorded on the 27th March 2009. The UK holds a wintering population of 19,140 individuals and is not a species of conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered to be **low** (Low Local).
- **Heron**: Recorded several times with a peak count of 2 on the 20th January 2009. It is widespread and common and is therefore not a species of conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Lapwing**: A peak count of 60 were recorded on 12th February 2009. Large numbers of North European birds arrive in autumn for the winter; the UK has 154 thousand pairs in summer and is Red Listed due to its recent breeding population decline (1981-2007). The population present within the study area is of regional importance, and therefore the nature conservation value is considered **low** (Local high).
- **Little Egret**: An individual was recorded on the 27th February 2009. The UK has 800-900 individuals over wintering and is Amber status due to it localised summer breeding population of 160 pairs. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Mallard**: Recorded in during every visit to the reserve, with a peak of 110 individuals recorded on the 12th February 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Moorhen**: A single individual was recorded on the 3rd and 25 November 2008. This is a common and widespread resident species and is not of conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Mute Swan**: Four individuals were recorded on the 3rd November 2008. This common and widespread resident species and is not of conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).

- **Oystercatcher**: Two were recorded on the 27th March 2009. The oystercatcher is Amber Listed due to it localised non-breeding populations, an important breeding population and important non-breeding population. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Pochard**: Four individuals were seen on the 12th December 2008. The pochard is Amber Listed due to is status as a Species of European Concern and its important non-breeding population which has been in recent decline. The population present within the study area is of local importance, and therefore the nature conservation value is considered to be **low** (Low Local).
- **Teal**: Recorded during several surveys with a peak count of 9 on the 29th January 2009. The teal is an Amber Listed species due to its recent non-breeding population decline. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Tufted Duck**: Recorded on a number of surveys with a peak count of 18 on the 25th November 2008. The tufted duck is Amber Listed due to its status as a Species of European Concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered to be **low** (Low Local).
- **Wigeon**: Eight were recorded on the 3rd November 2008. The wigeon is Amber Listed due to its important localised non-breeding population. The population present within the study area is of local importance, and therefore the nature conservation value is considered to be **low** (Low Local).

Ddol Hafren - Spot Check Monitoring

- **Coot**: This common and widespread resident species was regularly recorded at Ddol Hafren, with a peak count of 3 on the 29th January 2009. It is not a species of conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Canada Goose**: Regularly recorded at the reserve with a peak count of 560 on 25th November 2008. The population present within the study area is of local importance, and therefore the nature conservation value is considered to be **low** (Low Local).
- **Curlew**: Recorded several times with a peak count of 49 on the 25th November 2008. The Curlew is Amber Listed due to its status as a Species of European Concern, the important breeding and non-breeding population and its recent breeding population decline. The population present within the study area is of regional importance, and therefore the nature conservation value is considered to be **low** (Local High).
- **Goosander**: Recorded during several surveys with a peak of 5 on the 12th February 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Heron**: Recorded several times with a peak count of 2 on the 29th January 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Lapwing**: A peak count of 12 lapwings was recorded on 3rd December 2008. The population present within the study area is of regional importance, and therefore the nature conservation value is considered **low** (Local high).
- **Little Grebe**: Three were recorded on the 29th January 2009. The little grebe is Amber Listed due to its recent breeding population decline. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Mallard**: Regularly recorded in low numbers at the site with a peak count of 10 individuals recorded on the 20th January 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Moorhen**: Two were recorded on the 3rd December 2008. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Snipe**: A single bird was recorded on the 20th and 29th January 2009. The snipe is an Amber list species due to its status as a Species of European Concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Teal**: Recorded during several surveys with a peak count of 24 on the 27th February 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).

Lymore Park Upper Lake Spot Check Monitoring

- **Coot**: Recorded during every visit to the site, with a peak count of 13 on the 12th February and 27th March 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Gadwall**: Two were recorded on the 29th January 2009. The gadwall is an Amber Listed species due to its status as a Species of European Concern and its important non-breeding population. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Mallard**: Recorded in during every visit to the site, with a peak of 16 individuals recorded on the 12th February 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Moorhen**: Regularly recorded in low numbers with a peak of 8 on the 20th and 29th January 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Mute Swan**: Six individuals were recorded on the 20th and 29th January 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Red-breasted Merganser**: A single bird was recorded on the 27th February 2009. The red-breasted merganser is not a species conservation concern. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Teal**: Recorded during several surveys with a peak count of 4 on the 20th January 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Tufted Duck**: Two were recorded on 3rd November 2008. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Wigeon**: Recorded during a number of surveys with a peak count of 23 on the 12th February 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).

Lymore Park Lower Lake- Spot Check Monitoring

- **Coot**: Recorded in low numbers during every visit to the site, with a peak count of 17 on the 10th December 2008. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Canada goose**: Recorded during several surveys with a peak of 7 on the 27th March 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Little Grebe**: A single bird was recorded on both the 3rd December 2008 and 27th March 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Mallard**: Recorded in during every visit to the site, with a peak of 72 individuals recorded on the 27th March 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Moorhen**: Regularly recorded at the site with a peak count of 8 recorded on both the 29th January and 12th February 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Mute Swan**: Recorded during every survey with a peak of 8 on the 20th and 29th January 2009. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Black Swan**: A single bird was recorded on the 18th November 2008. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Teal**: Recorded during several surveys with a peak count of 12 on the 10th December 2008. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).
- **Wigeon**: Recorded on several occasions with a peak count of 36 on 10th December 2008. The population present within the study area is of local importance, and therefore the nature conservation value is considered **low** (Low Local).

7.5 Project Description & Mitigation Strategy

Project Description

7.5.1 The design evolution, project description and construction details of the proposed overhead line are described in Chapter 3.0: Design Evolution and 4.0: Project Description. The project includes the erection of 35km of overhead line on (mainly) double wood pole supports within a 100m wide corridor, between the Bryn Dadlau and Welshpool substations. The overhead line is proposed in response to the grid connection application to SP Manweb from the developers of the Llandinam wind farm.

Mitigation Strategy

7.5.2 The purpose of mitigation is to avoid, reduce and where possible offset any significant adverse ecological effects resulting from the proposed overhead line.

7.5.3 The main strategy for minimising the negative effects of the overhead line on the ecology of the area is avoidance through careful planning, design and routeing. This is the strategy adopted by SPEN in the preceding routeing study, which led to the identification of the Proposed Route under consideration in this ES. A route has been developed, which together with other constraints, responds to the ecological resource of the study area and seeks to avoid specific locations that are considered particularly sensitive to development of this type.

7.5.4 Another important factor in mitigating the overhead line is the technical design of the line itself. Historically overhead lines with a capacity of 132kV have used steel lattice towers approximately 26m high. Advances in overhead line technology now means that lines of this voltage can be supported by wood poles, with steelwork carrying the insulators and cables. By using wood poles, there is no requirement for large concrete foundations, which reduces potential disturbance of sites of ecological interest. This new technical design has been recently installed on the New Kinmel Bay to Moelfre 132kV overhead lime connection near Rhyl, North Wales, where it has proved to result in a reduced environmental effect compared to the more traditional steel lattice towers. Images of the wood pole supports proposed for this scheme are provided in Photographs 4.1 and 4.2.

7.5.5 Where negative effects are unavoidable, the reduction of any remaining conflict with nature conservation and ecological assets (and any other environmental constraints) necessitates detailed consideration of site characteristics and the introduction, where possible (and with the agreement of the local land owner), of specific measures designed to address identified adverse effects. These are addressed later in this chapter.

7.5.6 Residual effects are those effects, which remain after mitigation.

7.5.7 In summary, aspects of the scheme, which are intended to avoid or reduce potential impacts on the nature conservation and ecological resource are set out below:

- Pole selection – use of wood pole supports rather than steel towers which require substantial concrete foundations.
- Avoidance of areas with high tree cover to minimise requirements for tree felling and pruning.
- Micro-siting of poles in discussion with landowners to minimise the need for new site access tracks.
- Utilising existing field accesses wherever possible, to minimise the need for new site access tracks.
- Using a qualified and experienced arboriculturalist to manage existing vegetation.
- Using site derived topsoil to reinstate around poles.

7.6 Assessment of Effects

7.6.1 This section examines the potential effects of the proposed overhead line on sensitive ecological receptors.

7.6.2 As has been described previously, ecological effects arise from a variety of sources at any or all stages in the lifecycle of the development. As previously noted, for the purposes of this assessment, short-term effects are those associated with the construction and decommissioning periods. Medium and long-term, reversible effects are associated with the operational life of the development. Where any effect is identified, an assessment is made of its significance. In the context of the development, all significant ecological effects are considered adverse effects.

7.6.3 In the following assessment, aspects of the scheme, which are likely to give rise to potential adverse nature conservation effects, are described first, followed by an assessment of those effects (including cumulative effects). These are presented as a series of summary tables. Where potential effects have been assessed as significant, detailed mitigation measures are proposed to address them. Finally, an assessment is made of the significance of the effect following mitigation and a statement made on whether any residual effects remain.

Sources of Effect

During Construction and Decommissioning

7.6.4 The activities and features, which have the potential to affect sensitive ecological receptors during construction and decommissioning phases, include:

- Clearance of woodlands and hedgerows (Including hedgerow trees).
- Introduction of personnel and plant with associated additional traffic movements.
- Construction and removal of new site access tracks.
- Temporary site compounds and storage areas.
- Construction and dismantling of the overhead line.
- Reinstatement works.

7.6.5 These can result in potential loss/fragmentation of habitats, vegetation or protected or other species and can occur either in isolation or cumulatively from the combined effects of the above. Additionally, and one which is of particular concern to the Environment Agency, is the potential pollution of run-off and watercourses from excavations, machinery and fuel through accidental spillage and grease/oil from vehicles.

During Operation

7.6.6 The main operational and maintenance effects of the development, which will commence immediately once the construction period has finished and any associated machinery, vehicles or temporary buildings has been removed, will arise due to the addition of a number of new structures within the countryside.

- 35km of 132kV overhead line on wood pole supports.
- Occasional maintenance operations, including management of previously unmanaged vegetation.

7.6.7 These can result in:

- Potential loss of sensitive habitats through the retention of permanent structures.
- Potential damage to sensitive habitats from maintenance works which may require vehicle access and temporary working areas.
- Potential collision risk (birds).
- Potential disturbance to protected and other species.
- Potential cumulative effects on habitats of the above from the combined effects of the development with other proposed similar developments.

7.6.8 The above effects can result in significant adverse effects on sensitive ecological receptors. The process however, that led to the development of the Proposed Route sought to avoid or minimise the magnitude of these effects by taking into account the known ecological constraints, e.g. areas of sensitive habitat, watercourses, protected species resting sites, and important trees or hedgerows.

7.6.9 Where potential effects have been assessed as being significant, mitigation measures have been proposed to address them. These measures include: avoiding or minimising effects through alterations to the scheme layout and/or minimising effects through programming and best practice methods.

Sensitive Ecological Receptors

7.6.10 Having considered the scoping consultations, desk study and subsequent site surveys, the following habitats and species have been identified as sensitive receptors for the purposes of this assessment:

HABITATS

- Riparian habitats, notably the Rivers Severn, Camlad, Mule, Camnant and Nant Mehell, a tributary of the River Mule.
- River Ithon – connected to SSSI and Wye SAC some 3km to the south.
- Conifer Plantation (Pole 322-323) – connected to SSSI and Wye SAC some 3km to the south.
- Hedgerows.

SPECIES

- Otter – **Low** (Local High) overall site conservation value
- Water vole – **Low** (Local High) overall site conservation value
- Bats (Potential roost trees) – **Low** (Local High) overall site conservation value
- Bat flight paths – **Low** (Local High) overall site conservation value
- Dormice – **Low** (Local High)
- Brown hare **Low** (Local High)
- Great crested newts – **Low** (Local High)
- Reptiles – **Low** (Local High) overall site conservation value
- Birds – **Low** (Local High) overall site conservation value BBS and wintering birds survey

7.6.11 The June 2009 tree survey indicated that approximately 300 trees will need to be felled and 20-30 sections of hedgerow (although most of these will be replaced) prior to site construction work commencing. These trees include a range of broad-leaved species including: oak, birch, ash and alder.

7.6.12 Trees, woodlands and hedgerows are common throughout the area. None were identified as individually important other than for bat roosts and this issue is considered separately. They are therefore not considered sensitive receptors and are not considered further here.

7.6.13 Whilst there are some habitats present within the survey corridor that are included in the Powys LBAP (notably: hedgerows, rhos pasture; scrub and fridd), these are considered as having low conservation value and/or because significant adverse affects are considered to be highly unlikely. In addition, some species (e.g. badger) are not included as they are also considered as being of low or negligible nature conservation value, or because significant adverse effects are considered to be highly unlikely (e.g. small mammals having a relatively low nature conservation value and small extent of potential habitat loss/damage).

Assessment of Effects During Construction and Decommissioning

Habitats and Flora

7.6.14 The potential magnitude of the effects on habitats associated with the construction phase of the development, which includes providing and creating working areas (both storage areas and working areas around poles) and access for construction traffic, are summarised below, along with their significance levels. Damage could occur through a number or sources, including plant trafficking which can lead to physical damage to habitats, pollution (e.g. sedimentation, dust pollution, and point pollution incidents). Damage and disturbance effects can also lead to the loss of vegetation and/or changes to vegetation communities. The habitats considered particularly sensitive to damage during construction are the watercourses.

7.6.15 The main effects are considered to arise from short term excavation of ground levels for pole installation.

7.6.16 The magnitude of the effect on habitats is considered in terms of the potential for:

- Habitat loss
- Disturbance
- Change and effect on water quality

7.6.17 On the basis that this will involve limited and temporary works restricted to a marked area (approximately 225m^2) around each pole, controlled access for 4-wheel drive vehicles or track machines only, dedicated construction access tracks and the small scale nature of the construction teams, the disturbance is anticipated to be low. The estimated unmitigated effects on habitats due to construction are therefore considered to be as follows:

TABLE 7.4 PREDICTED UNMITIGATED EFFECTS ON HABITATS & FLORA DURING CONSTRUCTION & DECOMMISSIONING

Habitat Receptor	Conservation Value	Magnitude	Effect	Duration	Significance
River Severn	Low (Local High)	Low	Minor adverse	Short-term	Not significant
River Mule	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
River Camlad	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Nant Mehell	Low (Local High)	Low	Minor adverse	Short-term	Not significant
River Camnant	Low (Local High)	Low	Minor adverse	Short-term	Not significant
River Ithon	Very High	Low	Moderate-minor adverse	Short-term	Not significant
River Ithon tributary Poles 322-323 (and including coniferous woodland)	Very High	Low	Moderate-minor adverse	Short-term	Not significant
Hedge-rows	Low (Local High)	Medium	Moderate-minor adverse	Medium term	Not significant

7.6.18 This next section considers potential effects caused by sediments arising from excavations during construction, e.g. wood pole foundations, temporary storage of spoil, construction of substation access track, temporary access tracks which may cause pollution and affect fish, important fish habitats, aquatic flora and other aquatic species. Other forms of pollution may come from synthetic chemicals such as oil and grease, fuel etc. These could result in direct pollution into the aquatic environment or indirectly through seepage from surrounding habitats. The predicted unmitigated effects on the habitat and flora are summarised in Table 7.5.

TABLE 7.5 PREDICTED UNMITIGATED EFFECTS ON HABITATS & FLORA DUE TO POLLUTION DURING CONSTRUCTION & DECOMMISSIONING

Habitat Receptor	Conservation Value	Magnitude	Effect	Duration	Significance
River Severn	Low (Local High)	Low	Minor adverse	Short-term	Not significant
River Mule	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
River Cam-lad	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Nant Mehell	Low (Local High)	Low	Minor adverse	Short-term	Not significant
River Cam-nant	Low (Local High)	Low	Minor adverse	Short-term	Not significant
River Ithon	Very High	Low	Moderate-minor adverse	Short-term	Not significant
River Ithon tributary Poles 322-323 (including coniferous woodland)	Very High	Low	Moderate-minor adverse	Short-term	Not significant
Hedge-rows	Low (Local High)	Low	Minor adverse	Medium term	Not significant

Fauna - Construction Phase Effects

7.6.19 Potential effects on fauna include habitat loss and disturbance effects identified previously, which could lead to a potential loss of or disturbance to species as well as disturbance due to noise, vibrations and human/vehicle movement.

7.6.20 With regard to some of the ecological receptors present, i.e. otters, bats, and potentially; water vole, these are largely nocturnal and crepuscular and so less affected by this phase of the development.

7.6.21 There is however, potential for the loss of mature trees that may support roosting bat species. Bat species are likely to forage in habitats near the overhead line, and potentially use some of the trees as roosting sites. The loss of a small number of potential roost sites is unlikely to have an effect on the local bat populations. With respect to the potential effect on bat flight paths, this could occur where poles are located in, or adjacent to established hedgerows. Bats are nocturnal, and provided mitigation measures are in place to maintain the continuity of these hedgerows, they are unlikely to be effected by this phase of the development.

7.6.22 Reptiles and amphibians are generally diurnal. The early morning and late evening construction activities may affect crepuscular and nocturnal species, especially during autumn, winter and early spring when days are short. The resulting disturbance will however be temporary.

7.6.23 Construction activities may have an effect on breeding and non-breeding birds. The loss of mature trees, woodland and hedgerows that may support a number of nesting and foraging species may cause an effect on species such as red kite, raven, woodpecker, red start, willow warbler, thrushes and owls, due to a loss of nesting and feeding habitat. The Red Kite Trust has expressed concerns regarding the construction phase of the development owing to the risk of disturbance during the nesting season. A number of ground nesting birds have been recorded as nesting below, and in close proximity to, the proposed overhead line in areas of marshy grassland. These species include curlew, meadow pipit and skylark. They may be disturbed by construction traffic along access and egress routes, and due to the loss of any areas of marshy grassland during construction. Loss of, or disturbance to other grassland areas could affect carrion crow, jackdaw, rook, swift, swallow, meadow pipit and skylark by depriving them of primarily foraging habitat. The resulting disturbance will however be temporary.

7.6.24 Based on the consultation results, data search, Phase 1 Habitat Survey, Breeding Bird Survey and Wintering Bird survey the effects are anticipated to be minor adverse and short-term. However, in areas where trees and hedges are removed the effect will be longer term.

7.6.25 Dormice are secretive and nocturnal animals that inhabit areas dominated by hazel. It should be noted that dormice have not been confirmed to be present within the survey corridor as surveys will not be completed until autumn 2010. Some of the vegetation present within the survey corridor however, represents potential dormouse habitat. The disturbance or removal of hazel hedgerows may break the connectivity of a population between two nearby woodlands, which could be detrimental to the dormouse population. The predicted effect on dormice is therefore assessed.

7.6.26 The magnitude and significance of these activities have been summarised in Tables 7.6a and 7.6b below.

TABLE 7.6A: PREDICTED UNMITIGATED EFFECTS ON FAUNA DURING CONSTRUCTION & DECOMMISSIONING

Habitat Receptor	Conservation Value	Magnitude	Effect	Duration	Significance
Otter	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Water Vole	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
Bat – Potential roost trees	Low (Local High)	Medium	Moderate-minor adverse	long-term	Not significant
Bat – Flight paths	Low (Local High)	Medium	Moderate-minor adverse	Medium-term	Not significant
Dormice	Low (Local High)	Medium	Moderate-minor adverse	Medium-term	Not significant
Brown hare	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
Great crested newt	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
Reptile	Low (Local High	Low	Minor Adverse	Short-term	Not significant

TABLE 7.6B: PREDICTED UNMITIGATED EFFECTS ON BIRDS DURING CONSTRUCTION & DECOMMISSIONING

Habitat Receptor	Conservation Value	Magnitude	Effect	Duration	Significance
Breeding birds	Low (Local High)	Medium	Moderate-minor adverse	Medium-term	Not significant
Wintering birds	Low (Local High)	Low	Minor Adverse	Short-term	Not significant

7.6.27 There are a number of potential different pollution incidents adversely affecting habitats supporting fauna possible during construction.

7.6.28 The potential for run-off from construction areas, storage compounds and site compounds may indirectly affect mammal and bird receptors due to adverse affects on their habitat and/or prey sources (e.g. otter, water vole, bat and bird) and this is included in the fauna section below. The effect magnitude and significance of potential pollution incidents are summarised in Tables 7.7a and 7.7b below.

TABLE 7.7A: PREDICTED UNMITIGATED EFFECTS ON FAUNA DUE TO POLLUTION DURING CONSTRUCTION & DECOMMISSIONING

Habitat Receptor	Conservation Value	Magnitude	Effect	Duration	Significance
Otter	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Water Vole	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
Bat – Potential roost trees	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
Bat – Flight paths	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
Dormice	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
Brown hare	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
Great crested newt	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
Reptile	Low (Local High)	Low	Minor Adverse	Short-term	Not significant

TABLE 7.7B: PREDICTED UNMITIGATED EFFECTS ON BIRDS DUE TO POLLUTION DURING CONSTRUCTION & DECOMMISSIONING

Habitat Receptor	Conservation Value	Magnitude	Effect	Duration	Significance
Breeding birds	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Wintering birds	Low (Local High)	Low	Minor Adverse	Short-term	Not significant

Assessment of Effects During Operation

Habitats and Flora

7.6.29 Habitat loss may occur during the construction phase of the development, however, this may continue through the operational phase, e.g. if turves are not properly stored and/or replaced at wood pole sites. Overall, there will be very limited habitat loss.

7.6.30 There is potential for further habitat loss or damage because of changes to surface hydrology. However, because the area affected is relatively small, the magnitude of change is low resulting in an effect, which is long term minor adverse and therefore not significant.

7.6.31 There may be temporary damage/disturbance during maintenance or emergency work, resulting habitat loss or damage. In addition, maintenance operations may require use of machinery that could inadvertently result in pollution of surrounding habitats. The potential unmitigated effects of operational and maintenance activities on habitats are summarised in Table 7.8.

TABLE 7.8 PREDICTED UNMITIGATED EFFECTS ON HABITATS & FLORA DURING OPERATIONAL & MAINTENANCE ACTIVITIES

Habitat Receptor	Conservation Value	Magnitude	Effect	Duration	Significance
River Severn	Low (Local High)	Low	Minor adverse	Short-term	Not significant
River Mule	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
River Camlad	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Nant Mehell	Low (Local High)	Low	Minor adverse	Short-term	Not significant
River Camnant	Low (Local High)	Low	Minor adverse	Short-term	Not significant
River Ithon	Very High	Low	Moderate-minor adverse	Short-term	Not significant
River Ithon tributary (Poles 322-323)	Very High	Low	Moderate-minor adverse	Short-term	Not significant
Hedgerows	Low (Local High)	Low	Minor adverse	Short-term	Not significant

7.6.32 The potential for pollution of habitats will be much lower than during the construction and decommissioning phases. Activities likely to cause pollution may include vehicular access to site for maintenance and emergency work, which may involve crossing small streams and watercourses, or the leakage/spillage of chemicals on site including: oil, grease and fuel. The potential unmitigated effects of pollution due to operational and maintenance activities on habitats are summarised in Table 7.9

TABLE 7.9 PREDICTED UNMITIGATED EFFECTS ON HABITATS & FLORA DUE TO POLLUTION DURING OPERATIONAL & MAINTENANCE ACTIVITIES

Habitat Receptor	Conservation Value	Magnitude	Effect	Duration	Significance
River Severn	Low (Local High)	Low	Minor adverse	Short-term	Not significant
River Mule	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
River Camlad	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Nant Mehell	Low (Local High)	Low	Minor adverse	Short-term	Not significant
River Camnant	Low (Local High)	Low	Minor adverse	Short-term	Not significant
River Ithon	Very High	Low	Moderate-minor adverse	Short-term	Not significant
River Ithon tributary (Poles 322-323)	Very High	Low	Moderate-minor adverse	Short-term	Not significant
Hedgerows	Low (Local High)	Low	Minor adverse	Short-term	Not significant

Fauna

7.6.33 The overhead line is not considered to represent a significant barrier to the movement of key fauna receptors.

7.6.34 Otters may commute along the watercourses present within the survey corridor; however, there will be limited disturbance and no loss of habitat, therefore there will be no significant effects on the otter population.

7.6.35 Water voles have not been confirmed to be present within the survey corridor; however, there is potential habitat present. Access to pole sites for operational and maintenance activities will be along existing access tracks therefore disturbance to potential water vole habitats is not anticipated.

7.6.36 Bat species are likely to forage in the locality; however, the amount of habitat loss/disturbance is unlikely to have a significant effect on the bat populations present. With respect to potential bat flight paths, any interruption of flight paths caused by the loss of sections of hedges to install the wood pole supports could have an effect on bat species. The effects are however anticipated to be low and short-term as hedges will be replanted as part of the mitigation strategy.

7.6.37 No disturbance is anticipated to potential dormouse habitat once the construction phase is completed and any affected hedge boundaries have been restored. Although during operation, there may be general hedge cutting maintenance activities for safety clearance for overhead line cables, this is unlikely to have an impact on dormice.

7.6.38 Where access is required to sites within 500m of the recorded great crested newt ponds the effects of disturbance from maintenance activities are anticipated to be very low. The areas around these sites are improved grassland pasture of limited value for newts. Access across these areas to the overhead line is likely to be infrequent, is of a temporary nature and is therefore unlikely to have an effect on great crested newt populations.

7.6.39 Disturbance to reptile habitat is anticipated to be low and temporary.

7.6.40 With respect to birds, consultations with the Red Kite Trust, RSPB and the County Bird Recorder along with breeding bird survey results, suggest that the overhead cables will not have a significant effect on bird populations. The effects are therefore anticipated to be low and not significant. The likely effect of the potential disturbance of over-wintering birds is not considered significant. All of the habitats affected by the proposed overhead line are very common in this vicinity and none of them are exceptionally high quality. With respect to the MWT reserves: Llyn Coed y Dinas is approx 1km west of the route, Dolydd Hafren lies approx 1.5km west of the route, Montgomery Canal is around 2km to the west and the Severn Farm Pond Reserve is approximately 1km west of the proposed route corridor. The birds have the opportunity to forage elsewhere in this vicinity in very similar habitat without resulting in excessive energy loss. The disturbance will also be short-term and temporary and have considerably less effect than disturbance during the nesting season.

7.6.41 The potential for collisions with the overhead line is probably the most significant likely effect. This represents a long-term, permanent hazard to certain groups of birds, primarily the larger species such as swans and to a lesser extent the smaller wildfowl. These species frequently fly at low altitude in poor light conditions. Collisions with overhead lines also tend to be fatal.

7.6.42 The potential unmitigated effects on fauna due to operational and maintenance activities are summarised in Tables 7.10a and 7.10b. It is unlikely that any significant effects will arise during operation and maintenance of the development.

TABLE 7.10A: PREDICTED UNMITIGATED EFFECTS ON FAUNA DURING OPERATIONAL & MAINTENANCE ACTIVITEIS

Habitat Receptor	Conservation Value	Magnitude	Effect	Duration	Significance
Otter	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Water Vole	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
Bat – Potential roost trees	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Bat – Flight paths	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Dormice	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Brown hare	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Great crested newt	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
Reptile	Low (Local High)	Low	Minor Adverse	Short-term	Not significant

TABLE 7.10B: PREDICTED UNMITIGATED EFFECTS ON BIRDS DURING OPERATIONAL & MAINTENANCE ACTIVITEIS

Habitat Receptor	Conservation Value	Magnitude	Effect	Duration	Significance
Breeding birds	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Wintering birds	Low (Local High)	Low	Minor Adverse	Short-term	Not significant

7.6.43 The potential for pollution of habitats will be much lower than during the construction and decommissioning phases, and only likely to affect otter, bats, water vole, reptile and birds through potential effects on their prey/food populations. The potential unmitigated effects of potential pollution affecting these species due to operational and maintenance activities are summarised in Tables 7.11a and 7.11b.

TABLE 7.11A: PREDICTED UNMITIGATED EFFECTS ON FAUNA DUE TO POLLUTION RISK DURING OPERATIONAL & MAINTENANCE ACTIVITIES

Habitat Receptor	Conservation Value	Magnitude	Effect	Duration	Significance
Otter	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Water Vole	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
Bat – Potential roost trees	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Bat – Flight paths	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Dormice	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Brown hare	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Great crested newt	Low (Local High)	Low	Minor Adverse	Short-term	Not significant
Reptile	Low (Local High)	Low	Minor Adverse	Short-term	Not significant

TABLE 7.11B: PREDICTED UNMITIGATED EFFECTS ON BIRDS DUE TO POLLUTION RISK DURING OPERATIONAL & MAINTENANCE ACTIVITIES

Habitat Receptor	Conservation Value	Magnitude	Effect	Duration	Significance
Breeding birds	Low (Local High)	Low	Minor adverse	Short-term	Not significant
Wintering birds	Low (Local High)	Low	Minor Adverse	Short-term	Not significant

Summary

7.6.44 The assessment suggests that no significant nature conservation effects will occur because of the proposed overhead line. Further information will be provided in respect of the ongoing dormouse surveys in 2010.

7.6.45 Careful planning and design have ensured that a route has been developed, which responds to the specific nature conservation characteristics of the area and, which avoids specific features that are considered particularly sensitive to development of this type.

7.6.46 Whilst there are no likely significant effects identified, a number of trees will be lost to facilitate construction of the development. This tree loss may result in potential habitat loss for bats.

Cumulative Effects

7.6.47 Cumulative effects relate to the potential for identified effects to act in combination on the same ecological receptors so that the combined effects result in a greater total magnitude and potentially greater significance level.

7.6.48 Cumulative effects include:

- Those arising from the project being assessed.
- Those arising from the project in addition to those from other proposed development.
- Those arising from the proposed project in combination with those that are anticipated to arise from completed development projects.

7.6.49 The first type is dealt with in this chapter. The second types of effect include the combined effects of the proposed overhead line along with any existing overhead lines in the study area. The final type of effects are restricted to proposals that have the potential to interact with species which are considered to be of at least local high conservation value, and that are potentially sensitive to overhead lines.

7.6.50 In this respect, streams and watercourses are not considered particularly sensitive to overhead lines and the effects are anticipated to be not significant and largely encountered during the construction phase.

7.6.51 With respect to fauna, otters, water voles, great crested newts, dormice, reptiles, brown hare, bats and birds are assigned local high nature conservation values. However, all these species, with the exception of birds, are not considered to be sensitive to overhead lines, therefore these species will not be considered further with respect to cumulative effects. This section will therefore concentrate on the cumulative effects on birds.

7.6.52 The method used to assess cumulative effects is to determine what effects on species and habitats have been predicted (with reference to published Environmental Impact Assessments where available) and to assess the potential for the predicted effects (whether reported as significant or not for the separate proposals) to interact in combination (both for construction and operational effects) with the identified effects of the proposed overhead line.

Relevant Proposals

7.6.53 The proposals currently in place for the study area include: the wind farm itself, which will be connected to the proposed overhead line. The wind farm comprises 42 turbines on a site encompassing approximately 1,307ha.

7.6.54 An assessment of the potential impact of the wind farm on flora and fauna was published in an ES in April 2008. No significant effects on habitats or fauna were predicted. An ornithological assessment was also undertaken, which noted several species of high or moderate nature conservation importance. The predicted effects were however not likely to be significant in terms of the EIA Regulations.

7.6.55 Currently the guidance suggested for cumulative impact assessment is for species that are declining and/or not in favourable conservation status in Wales at regional level or above (RSPB 2005), and that species of high conservation importance or those vulnerable to wind farms may be targeted for cumulative assessments (SNH, 2005). No species of international importance or species from SPAs were recorded breeding within the study area during this assessment. Owing to the species composition and the lack of breeding species of international importance, it is considered unlikely that there would be any cumulative impacts.

7.7 Detailed Mitigation Measures & the Identification of Residual Effects

Introduction

7.7.1 Although no likely significant adverse effects have been identified in the assessment, there are a number of mitigation measures, which, can be introduced to reduce the risk of any adverse effects occurring.

Mitigation Measures – Construction & Decommissioning

Habitats and Flora

7.7.2 Although no significant adverse effects on habitats were identified during the assessments, mitigation measures are required to prevent any potential effects on flora and fauna during the construction and decommissioning phase (including vehicle leaks) as follows:

- Development of a Construction Method Statement (CMS), detailing best practice procedures to be followed for construction and decommissioning works (including reinstatement). This will include procedures for vegetation and soil stripping and storage, effective vegetation reinstatement storage of construction materials and pollution control measures. (a draft CMS is included at Appendix D)
- Surveys prior to construction.
- Micrositing of final locations of site infrastructure to minimise effects on sensitive habitats, in consultation with a qualified and experienced ecological advisor, with particular reference to wet areas and watercourses.
- Demarcation of sensitive habitats close to working areas and ensuring construction workers operate within these limits.

Pollution

7.7.3 There is potential for significant adverse effects to arise due to pollution incident occurring due to construction or decommissioning activities. Mitigation measures to prevent this include those set out in the draft CMS, included at Appendix D.

The CMS will include the following method statements:

- Use of designated working areas
- Water quality – oil, fuel and chemical contamination
- Tracks and drainage management. Where access is required through marshy grassland habitats, a track machine will be used in order to minimise disturbance to the habitat. Access to marshy areas will be avoided during particularly wet conditions. Where trees and or hedges are removed for temporary access purposes, cable safety clearances and/or the placement of the wood pole supports, replanting will be undertaken using stock of local provenance in order to compensate for any loss of nesting and foraging habitat.
- Avoidance of water crossings
- Management of storage areas
- Twice-daily inspection of vehicles for leaks.

In addition, all personnel will be familiar with EA guidance on pollution prevention.

To avoid pollution from oil and other pollutants there will be suitable containment facilities for on-site storage of chemicals and fuel and suitable disposal of chemical toilet waste off-site. These will be located at a distance greater than 50m from any watercourse.

Fauna

7.7.4 The presence of two European protected species were noted during the field surveys: otter and great crested newt. In addition, two Schedule 1 bird species were noted: red kite and fieldfare. As the results of field surveys are subject to change, a further walkover survey of the proposed overhead line route and access and egress routes will be undertaken prior to the start of the construction. The results of the survey will then be used to design any further appropriate mitigation measures.

7.7.5 One badger sett was recorded within the survey corridor (Sett A) and three setts (Setts B, C & D) were recorded close to the survey corridor. To avoid disturbance to these setts, a 30m protection zone will be demarcated around them.

7.7.6 Sett A is located within the 30m of proposed pole location Pole 267. A licence must be sought from CCW in order to disturb a sett. The licence application must include a method statement detailing the methods, timing and duration of the work (NB. Licences are normally only granted between 1st July and 30th November). The location of the pole will be sited in consultation with the site ecologist in order that disturbance is minimised and the risk of damage to the sett is reduced.

7.7.7 Prior to any tree felling, a detailed survey of any potential bat roost trees will be undertaken. Should work be required on any of the potential tree roosts then a further detailed survey will be carried out to establish if a roost is present, and if so to identify the status and type of roost.

7.7.8 Should a roost be identified then a licence will be required from the Welsh Assembly Government (WAG) together with a mitigation strategy outlining how and when the tree will be felled to reduce the possibility of injuring bats and how additional roosting opportunities for bats will be maintained.

7.7.9 Even if the detailed survey does not identify a bat roost in individual trees, mitigation and working methods are still proposed to further reduce the likelihood of encountering and injuring bats.

7.7.10 Where poles are located in or adjacent to established hedges and these have been identified as high or medium value with respect to their use by bats for foraging and navigating, mitigation will be implemented. This will involve the provision of nets or fencing to act as a temporary linear feature where gaps may be created to install poles. This will be followed by replanting on completion of the construction work. The position of these hedges in shown in Figure 7.2: Ecological Constraints Plan.

7.7.11 Otters are present on the River Mule at Glan-Mule Bridge at Glanmule. No resting sites were found near the survey corridor. In addition, otters are largely nocturnal and are therefore unlikely to suffer direct disturbance caused by the construction of the overhead line. Appropriate mitigation as outlined in the draft CMS will be implemented for working in proximity to the riparian habitat. In addition, a further survey of the area prior to construction work will be undertaken.

7.7.12 No evidence of water voles was confirmed during the survey, however some potential water vole habitat was noted (TN 50). Further survey of this area will be undertaken prior to the start of the construction work in order to establish if water voles are present/absent.

7.7.13 Dormice surveys will be completed in autumn 2010, however it is proposed to implement mitigation as good practice. Mitigation will involve the construction of temporary hedging where poles are to be placed in hedges and their removal is required for construction. This may take the form of fencing or brash piles, followed by new planting, in order to maintain the continuity of the habitat for dormice.

7.7.14 Great crested newts were recorded at two of the 35 ponds surveyed, ponds 22 and 28b. Pond 22 lies around 460m south of the survey corridor at 'Rhydyware'. Pond 28b is located approximately 160m north of the survey corridor at 'Fronheulog' and is linked via a hedge to the proposed overhead line route. A licence from WAG will be required in order to carry out construction work within 500m of the great crested newt breeding sites. Where proposed construction work or access and egress routes are located within 500m of the recorded great crested newt site, these areas will be subject to a terrestrial search immediately prior to the start of construction work.

7.7.15 There are a few small areas of grassland and scrub habitats present within the survey corridor that represent potential foraging and resting sites for reptiles. Where these areas have been identified a terrestrial search will be carried out immediately prior to the start of construction work, and include access and egress routes to pole sites.

7.7.16 Red kite were noted near the proposed overhead cable route at the southern end of the survey corridor, just west of the B4355. Whilst the Red Kite Trust has no concerns regarding the presence of the overhead line, concerns were raised with respect to the construction period and potential disturbance during the nesting season. The Red Kite Trust will therefore be further consulted regarding the timing and the location of any work, including access and egress routes in order that disturbance to red kites is avoided.

7.7.17 Fieldfares were noted within the survey corridor. Because this is mainly a winter visitor feeding along hedges and in pastures, no disturbance to this species is anticipated.

7.7.18 A number of breeding birds were recorded along the entire survey route. Should the proposed work be undertaken during the recognised bird-nesting season (1st March to 30th September, RSPB 2000), then a full nesting bird survey (including ground nesting birds) will be undertaken prior to the start of the construction work. Access and egress routes will be agreed prior to the start of the construction/ decommissioning work in order to avoid any particularly important habitats with respect to nesting birds, e.g. areas of marshy grassland, bracken, rush pastures etc.

Pollution

7.7.19 Measures proposed to manage and minimise the risk of pollution and to ensure that effects on watercourses and terrestrial receptors are minimised will also reduce effects on relevant fauna receptors.

Mitigation Measures – Operation

Habitats and Flora

7.7.20 **Habitat loss** - The direct loss of habitat to the built elements of the proposal (as a permanent effect, this has been considered under operational effects), is not considered to be significant, owing to the habitat type and quality and the quantity lost. The dispersed nature of the direct habitat loss in itself helps mitigate against significant habitats loss.

7.7.21 As described in Chapter 6.0: Landscape and Visual, subject to landowner agreement, SPEN proposes to replant lost sections of hedgerow and to replant twice the number of trees, which have to be removed to facilitate construction. All species used will be locally indigenous tree and shrub species. In time, this will compensate for the loss of habitat.

7.7.22 **Indirect habitat loss/degradation** - Although the operational effects of the proposed overhead line are not expected to give rise to significant effects, reduction in the magnitude of effects that will occur, will be possible through refinements of the detailed design, including the careful construction and siting of temporary access tracks and micro-siting of the wood pole supports.

7.7.23 **Damage due to maintenance activities** - Occasionally there will be the requirement to undertake general maintenance on the overhead line. Access will be confined to existing access tracks, farm access tracks and gateways. Method statements for scheduled maintenance and emergency work will be developed in accordance with best practice procedures.

Fauna

7.7.24 **Habitat loss/fragmentation/degradation** - The overhead line and access tracks will be designed to minimise disruption to the free movement of all species. Should any watercourse crossing be required (e.g. for temporary access tracks) these will be designed to allow free movement of otter (and other species) and alleviate habitat fragmentation in accordance with best practice.

7.7.25 **Disturbance** - Mitigation measures proposed for the construction phase will also apply to operational activities. Use of the access and egress routes will be required throughout the operational phase for maintenance activities and emergencies along the route. Disturbance from construction machinery and personnel, either during the breeding season when birds are nesting, during the moult when birds are vulnerable, or during the winter when bird energy levels are low, could have an impact on all bird species within the survey area. It is however anticipated that existing farm tracks and access routes will be used infrequently, therefore the impact on the surrounding birds and their habitats will not be significant.

7.7.26 With respect to collisions, consultations with RSPB, the Red Kite Trust, and the County Bird Recorder, together with the results of the breeding and wintering bird surveys suggest that the overhead cables will not have a significant effect on bird populations.

7.7.27 Overhead lines are often difficult for birds to see and can sometimes appear invisible due to background or low light conditions. There is a therefore a risk of collision along the route of primarily migratory species during periods of poor visibility. Examples of birds affected include wildfowl, such as ducks, swans and geese, as they are not as able to manoeuvre quickly around the lines. It is likely to have a greater impact during the autumn and winter when wildfowl bird numbers are at a peak and visibility can be poor.

7.7.28 Species recorded in the breeding bird survey with potential to collide with the cables include: Canada geese and mute swans, recorded foraging near the River Severn, Leighton. Greylag geese, Canada geese and grey heron were recorded flying over the proposed route near the River Camlad. However, as the proposed overhead line runs parallel to a strip of broadleaved woodland alongside the railway it is unlikely that the geese will collide with the overhead line. Moreover, bird deflectors fitted to the cables on the sections of the overhead line north of the River Camlad will reduce the likelihood of potential collision.

7.7.29 With regard to collision risk, there is a connection between the number of overhead cable levels and the collision rate (Bevanger and Broseth 2001). Where cables are arranged in more than one level, there is a greater chance of causing collisions than cables arranged on one level. The cable structure in the proposed scheme has three conductors on the same level. In light of this, the impact of collisions is not anticipated to be significant. However, bird flight diverters and/or fireflies can be used to help improve visibility during poor light conditions to help migratory birds avoid collisions. The firefly glows at night for up to ten hours, making it ideal for protecting night migrants. Whilst it is not considered likely that there will be any significant likelihood of bird collision with overhead cables, where deemed appropriate using wintering bird data, bird flight diverters and/or fireflies will be installed.

7.7.30 Electrocution is another effect experienced by birds along overhead lines. Raptors roost and perch on poles and may be electrocuted if they contact two energized components or an energized component and a grounded component. Those with the widest wingspan are most at risk of contacting two components at once and are also associated with collisions. However, electrocutions typically occur on voltages less than 69 kV where separation between the wires is minimal. Due to the wide spacing (1.5m) between conductors at 132kV, the effect of this scheme is not anticipated to be significant.

7.7.31 There is a risk of increased predation of ground nesting birds such as: meadow pipit, curlew and skylark, by raptors perching on the wood pole supports. These species are already Amber or Red Listed and are therefore vulnerable. Devices can be fitted to the poles to prevent or deter birds perching or roosting. SPEN are currently looking at methods to reduce the risk of predation from overhead lines, which would be possible to fit to the type of structure proposed here. Further liaison with the RSPB and SPEN's engineers will be carried out in order to develop appropriate detailed mitigation.

7.7.32 Post-operation monitoring will be carried out in order to determine the success of these mitigation measures.

7.7.33 **Pollution of Habitats** - Measures proposed above, in relation to habitats will also reduce the potential effects on habitats supporting fauna receptors.

Summary Mitigation

7.7.34 Table 7.12 summarises the above:

TABLE 7.12 SUMMARY OF MITIGATION

Receptor	Changes and potential effects	Is there the potential to contravene the legislation?	Mitigation Proposed
Statutory designated sites: *River Ithon*	No affects anticipated	Yes	The site is more than 3km from the proposed overhead line. The CMS and EA guidelines will be adhered to in order to avoid any effect on the site.
Non – statutory designated sites:	No affects anticipated	No	The site is more than 5.5km from the proposed overhead line, therefore no mitigation measures are anticipated.
Riparian habitats	Potential pollution of watercourses from construction vehicles and/or tree cutting equipment.	Yes	Contractors will be briefed and storage of materials and construction works carried out in accordance with conservation protocols produced by SPEN. Working methods and standard pollution prevention measures will be implemented to reduce the possibility of damage through spillage or other pollution.
Tree and hedge trimming and removal works, excluding those trees identified as having a high potential to support roosting bats.	Loss of tree and hedge habitat	Yes	Hedge gaps will be reinstated once works are complete. New tree planting (two new for each tree lost) will be carried out on a suitable site as close to the overhead line as is practicable. A suitable agreement and funding package covering the management and maintenance of the planting for the initial establishment period (5 years) will be implemented.
Bats	Harm or injury to bat species where large trees require felling to accommodate the overhead line.	Yes	Approximately 70 individual trees and three groups have been identified as having the potential to support roosting bats it is not clear at this stage which individual trees will be required to be felled or reduced to accommodate the overhead line. Where work is required on these identified trees: prior to the start of work, each of the trees will need to be inspected in detail to establish if roosting bats are present and if so what type of roost (e.g. maternity or hibernation) is present. Inspection could the take the form of a climbing survey using an endoscope, or if this is not possible an emergence or dawn survey carried out 3 times during the period May – July. If a roost is found to be present after inspection, then a WAG licence will need to be applied for detailing appropriate mitigation measures. Mitigation measures will include: ▫ Felling to be done under licence with an appropriate qualified licensed bat worker on hand. ▫ When the tree will be felled to avoid critical times of years for bats (felling during the periods March – May or September – November, will avoid the period when female bats are in maternity groups and prior to winter hibernation). ▫ How the tree will be felled – ideally in sections to avoid injuring any bats that might be present. ▫ How alternate roost provision will be maintained. For example If a large cavity is present and easily identified the tree should be felled so that the section retaining the cavity can be preserved and fastened to a neighbouring tree in the same aspect to preserve the roost. Or provision of bat boxes on adjacent trees, it is suggested that two bat boxes are provided for every potential cavity of hole that is lost. Boxes should be erected by a bat ecologist in a variety of aspects and elevations. If after detailed inspection no bats are thought to be present in an individual tree then the tree should be felled carefully in sections during the periods March – May or September – November, to avoid the key periods for bats. If however felling uncovers a bat roost then works will have to cease while the WAG is informed and the appropriate licence applied for.
Bats	Disruption of bat Flight paths as a result of hedge loss	Yes	Undertake bat flight path surveys to identify any affected areas. Where flight paths are affected temporary gap fillers, e.g. fencing and or netting will be provided during construction. On completion of the work, replanting will be undertaken in order to maintain the continuity of the feature. Fencing/netting will be retained in place until the plants are established.

Receptor	Changes and potential effects	Is there the potential to contravene the legislation?	Mitigation Proposed
Badgers	Disturbance to badgers in sett by construction activities and damage to setts and injury by machinery or falling in open excavations.	Yes	A badger sett has been identified within 30m of the location one of the poles supporting the overhead line. A survey will be conducted prior to construction works commencing to establish if the sett is active and to ensure no new badger setts have become established along the route. A CCW licence will be applied for to permit works within 30m of the badger sett. A licence will not be granted during the period December to June. Additional mitigation measures will include: ▫ Location of the sett will be fenced with demarcation fencing to avoid accidental damage and disturbance. ▫ Contractors will be briefed and works carried out in accordance with conservation protocols produced by SPEN systems. ▫ Construction works are temporary in nature and all excavations will be backfilled at the end of each working day to avoid injury to badgers that may fall in.
Water voles	Damage to potential habitat caused by pollution and/or damage to ditch banks by construction traffic.	Yes	A buffer zone should be maintained around the watercourse to avoid damage to the habitat. Construction traffic will utilise existing bridges as crossing points. Contractors will be briefed and works carried out in accordance with conservation protocols produced by SPEN.
Dormice	Removal of hedges for pole sites	Yes	Temporary hedging in the form of brash or fencing will be provided where hedges are removed in order to maintain the continuity of the habitat.
Great crested newts	Injury caused by construction traffic and falling into open excavations.	Yes	A WAG licence will be obtained following the production of a method statement in order to undertake construction work within 500m of the recorded newt ponds. Access and egress routes and pole sites will be agreed prior to the start of work. A terrestrial search will be undertaken by a licensed newt worker immediately prior to the start of the work. Should an animal be found, it will be moved to a safe location outside the construction corridor. Excavations will be back-filled at the end of each day. Should they be required to be left open, they will be covered or searched the following morning.
Reptiles and amphibians	Injury to reptiles caused by construction traffic and from falling into open excavations.		Contractors will be briefed and works carried out in accordance with conservation protocols produced by SPEN. Where possible the access/egress routes for construction traffic will utilise existing farm gateways. All access and egress routes will be agreed prior to the start of the work. A banksman will be provided for each vehicle requiring access to a site. All excavations will be backfilled at the end of each working day to avoid newts falling in.
Nesting birds	Disturbance or injury due to construction activities.	Yes	Should the construction work be undertaken between 1st March and 30th September then a nesting bird's survey will be carried out prior to construction works commencing. This will include ground nesting birds. Any hedge or other vegetation removal will be undertaken during the winter period, outside of the bird-breeding season (March – September, inclusive). Any hedge removal required will be reinstated once works have been completed. Nest boxes will be provided as compensation for loss of nesting habitat. Devices will be erected in order to prevent/discourage wooden poles being used as perches for raptors in areas identified as most vulnerable for ground nesting species.
Birds in flight.	Injury to birds due to collision with new overhead line.	No	Bird deflectors will be fitted to the cables where it is deemed appropriate using the wintering bird survey data.
Otters	Disturbance to otter habitat	Yes	A buffer zone will be maintained around the watercourse in order to avoid damage/disturbance to otter habitat.

Habitat Enhancement

7.7.35 Based on the limited effects identified in the preceding assessment, SPEN has proposed measures to address any potential minor adverse effects and to help enhance habitats and increase biodiversity. Whilst wholly dependant on landowner agreement for their implementation, these measures, which include hedgerow reinstatement and tree planting, are detailed in the draft Environmental Management Plan (EMP) in Chapter 11: Summary of Effects and Draft Environmental Management Plan and summarised below:

- To offset tree loss it is proposed to plant significantly more trees than the number being removed.
- New tree planting will be as close to the overhead line as is practicable and a suitable arrangement covering the planting and maintenance of the 5-year initial establishment period will be agreed with the owner of the selected planting sites.
- Where potential bird and dormouse nesting habitat is removed bird and dormouse nest boxes should be provided as additional habitat.
- Where potential bat roost trees are removed bat boxes should be provided as additional habitat.
- Where trees/vegetation is removed, brash and timber should be stacked on site to proved additional habitat for invertebrates and reptiles.
- The provision of artificial otter holts, will be considered in consultation with landowners and local wildlife trusts.
- Where agreement can be sought with landowners, watercourses/streams and ditches under pressure from grazing stock could be fenced in order to allow emergent vegetation to colonise.
- Financial assistance may also be made available for local wildlife groups for the purposed of increasing biodiversity in the local area.

7.8 Summary

7.8.1 It is considered that the proposed overhead line is not likely to result in any significant adverse long-term effects. If the mitigation measures discussed above are fully implemented any risk of adverse effects will be further reduced.

7.8.2 Protected species licences will be required with respect to badgers, bats and great crested newts. A bat licence will only be required if a roost is actually confirmed in any of the individual trees highlighted as having the potential to support them, and being required to be felled. Where work is completed in proximity to otter, water vole, bird, dormice, reptile and amphibian habitats, appropriate mitigation should provide adequate protection to the these habitats and species.

7.8.3 Erection of bird deflectors in appropriate locations will reduce the risk of birds colliding with the overhead line.

7.8.4 Erection of devices to discourage or prevent roosting on wood pole supports will reduce the risk of predation on ground nesting birds.

7.8.5 The proposed mitigation measures include steps that, if additional evidence for legally protected or conservation notable species is identified prior to or during construction, will be put in place.

7.8.6 Finally, enhancement measures have been suggested by SPEN to provide positive benefits for the area and these are referred to in the Chapter 11: Summary of Effects and Draft Environmental Management Plan

Chapter 08:
Cultural Heritage

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8.1 Introduction

8.1.1 This chapter presents the findings of the cultural heritage assessment carried out for the proposed overhead line. The assessment considers the effect of the proposed overhead line on the baseline cultural heritage of the area through which it passes and examines the direct and indirect effect of the overhead line on known and potential archaeological and historic sites and features (otherwise known as cultural heritage assets). It also includes an assessment (ASIDOHL) of the effect of the line on the Vale of Montgomery Historic Landscape, a copy of which is included at Appendix S.

8.1.2 The assessment covers the life of the overhead line, including construction, operation and decommissioning as set out in Chapter 4.0: Project Description. Where adverse cultural heritage impacts or effects are identified, it proposes mitigation measures to prevent, reduce, or offset them and then re-assesses the residual effects remaining after mitigation. The effects of decommissioning are described together with those of the construction phase as the latter necessitates similar activities and potential effects.

8.1.3 The assessment considers the likely effects of the overhead line on all cultural heritage assets, including archaeological sites, historic buildings and historic landscapes. Desk-based assessment and field surveys were undertaken to identify those cultural heritage assets that might be affected. The potential for the development area to contain buried and as yet unrecognised archaeological remains are also considered to be of importance.

8.1.4 The assessment includes an evaluation of potential cumulative visual effects on the setting of cultural heritage assets arising from the overhead line in conjunction with other existing or proposed overhead lines.

8.1.5 The proposed 132kV overhead line connection, comprises 35km of new overhead line on approximately 394 wood pole supports between the new Bryn Dadlau and the existing Welshpool substations. To provide scope for adjusting the precise alignment of the overhead line through subsequent detailed design stages, the overhead line is sited within a 100m wide corridor.

8.1.6 All parts of the assessment were undertaken, and this chapter prepared by staff of the Field Services section of the Clwyd-Powys Archaeological Trust (CPAT) who are based in Welshpool.

8.2 Scoping & Consultations

Scope of Assessment

8.2.1 Archaeology is the study of the past through the material remains of human activity that have survived to the present, be they visible monuments, buried sites or portable antiquities. Cultural heritage encompasses both archaeological remains and the built heritage, which together combine to characterise the historic environment. Cultural heritage assets can potentially include features dating from the earliest human occupation in this region, at least 12,000 years ago, through to 20th century buildings, townscapes and artefacts.

8.2.2 Cultural heritage assets include:

- World Heritage Sites
- Scheduled Ancient Monuments and many other unscheduled archaeological features
- Listed Buildings and other buildings of historic or architectural interest
- Conservation Areas and other significant townscapes
- Registered Landscapes of Special Historic Interest
- Registered Parks and Gardens of Special Historic Interest
- National Trust inalienable land
- Registered Historic Landscapes

8.2.3 At the beginning of the assessment, various cultural heritage assets, both designated and undesignated, and within and adjacent to the overhead line corridor, were identified. Relevant assets include Scheduled Ancient Monuments (SAMs), unscheduled archaeological features, Listed Buildings, Registered Landscapes of Special Historic Interest, Parks and Gardens of Special Historic Interest and Conservation Areas. There are no World Heritage Sites or National Trust inalienable lands within the area covered by this study.

Scoping

8.2.4 In order to determine the content of the Environmental Statement (ES), a Scoping Report was submitted to the Department of Energy and Climate Change (DECC). A copy of this document is included at Appendix A.

8.2.5 With respect to cultural heritage assets, the consultees provided the following comments and requirements for additional information to be included within the assessment.

- Preparation of an ASIDOHL for the Vale of Montgomery Historic Landscape.
- Consideration of indirect impacts on the setting of historic assets.
- Preparation of photomontages to help assess impacts on most important historic assets.
- Avoidance of direct impacts on Henfron Moated Site and Cross Ridge Dyke.

Consultations

8.2.6 To ensure that the assessment was as well informed as possible and that the concerns and interests of stakeholders were taken into consideration, considerable consultation was undertaken throughout the development of the scheme.

8.2.7 A Consultation Report describing the Preferred Route was sent out to statutory bodies, landowners and interested parties in July 2008. A copy of this document is included at Appendix C. This was followed by three rounds of public exhibitions in July/August 2008, December 2008 & April 2009. At the end of the consultations, an initial Proposed Route was identified, which was then subject to three months of detailed design and refinement between May - July 2009 at which point it became the final Proposed Route, which is the subject of this ES. Throughout this period, dialogue continued with the relevant consultees, including members of the public and affected landowners. Further detail regarding the scoping and consultation process is provided in Chapter 2.0: EIA Methodology & Significance Criteria and in SPEN's August 2009 document, Feedback Report of Scoping Reponses and Pre-Application Public Consultation Responses, a copy of which is included at Appendix B.

8.2.8 The project generated a high level of interest and, whilst over half the comments related either directly or indirectly to concerns about impact on the landscape or on views, there were a number of concerns relating to impact on cultural heritage features. In response to these concerns, SPEN made some changes to the route alignment.

8.2.9 The points and comments raised by consultees both in response to the scoping exercise and to the consultations, which formed part of the route selection process were incorporated into the landscape and visual assessment where appropriate.

Cumulative Effects

8.2.10 For the purposes of this ES, cumulative visual impacts on the setting of cultural heritage assets are considered to result from additional changes to visual amenity caused by the proposed overhead line in combination with other existing or proposed overhead lines in the area. This potentially includes the network connections of the Llanbadarn Fynydd, Garreg Lwyd and Llaithddu wind farms. Although these are (November 2009) the subject of planning applications, there is currently insufficient information in the public domain regarding their connections to include them in the cumulative assessment.

Sources of Information & Guidance

8.2.11 The revised Design Manual for Roads and Bridges (DMRB), Volume 11 Section 3 Part 2, HA 208/07 (August 2007) provides a suitable framework for environmental statement reports and considers in detail the cultural heritage as a whole. The approach to the cultural heritage, which it promotes, although designed for road developments is also relevant as a methodology for the proposed overhead line and has been adopted here.

8.2.12 The baseline survey of the assessment was undertaken with reference to the Code of Conduct 2006 and Standard Guidance for Archaeological Desk-Based Assessments (2001) produced by the IFA (now the IfA or Institute for Archaeologists), the regulatory body for the profession.

8.2.13 At various times during the compilation of this assessment, Cadw's inspector, was consulted about the approach to the cultural heritage, and offered views and advice without prejudice to any views and decisions that Welsh Assembly Government (WAG) and Cadw might reach in due course after the submission of the ES. Additionally, the Countryside Council for Wales (CCW) provided advice on the ASIDOHL process during the preparation of the assessment for the Vale of Montgomery Historic Landscape, again without prejudice to any views that he might reach on behalf of CCW on submission of the Environmental Statement (ES).

Study Area

8.2.14 For the purposes of this assessment, the corridor within which the proposed overhead line will be erected was defined as 100m in width (50m to either side of the line), by SPEN. It was also thought that assets outside of this corridor might be accidentally damaged during construction/decommissioning or by maintenance vehicles during operation, so a secondary corridor 200m wide was also be considered as shown in Figure 8.1: Designated Sites.

8.2.15 Designated (and normally statutorily protected) cultural heritage assets within 2km of the overhead line were examined to assess any potential indirect visual effects of upon their settings. Beyond this distance, it is considered that any visual effects will usually be insignificant in terms of the EIA Regulations, because of the size and appearance of the overhead line components. Designated sites include SAMs, and Listed Buildings. Historic Parks and Gardens and Historic Landscapes are not statutory designations, but are included in a non-statutory register compiled by Cadw and other organisations, and for practical purposes are taken into account in assessments of this scale.

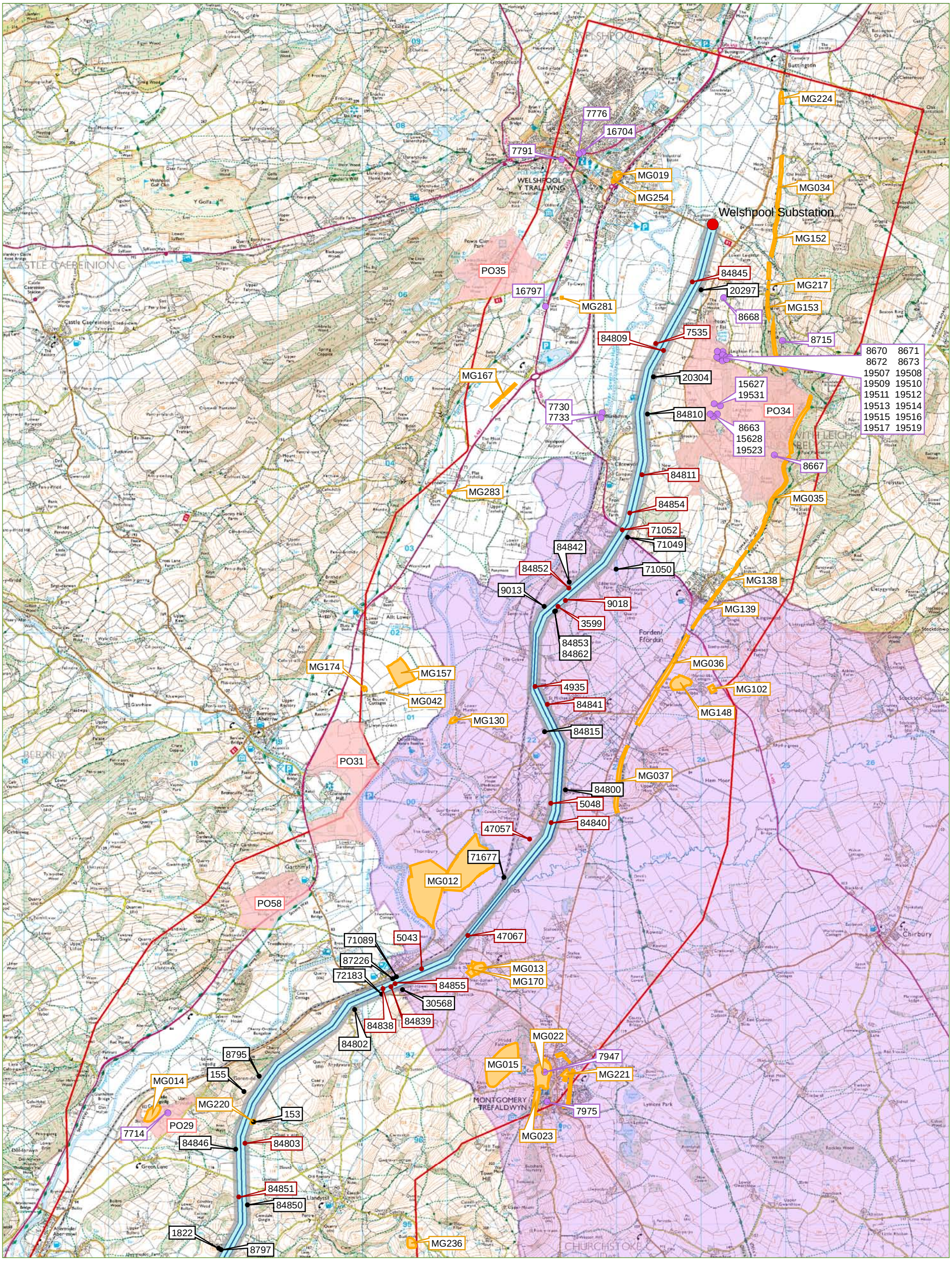

Figure 8.1

Designated Sites

NTS

SP ENERGY NETWORKS

GILLESPIES

8.3 Assessment Methodology & Significance Criteria

General

8.3.1 This section summarises the methods used for the cultural heritage assessment, and included desk-based and field surveys.

8.3.2 The specific objectives of the cultural heritage assessment are to:

- Identify the cultural heritage baseline
- Consider the proposals in terms of their potential to affect the archaeological and historic environment
- Assess the impacts of the construction, operation and decommissioning of the proposals upon archaeology and cultural heritage assets
- Identify measures to mitigate any likely significant adverse effects, where practicable

Stage 1: Baseline

8.3.3 The initial step in any cultural heritage assessment is to identify the existing cultural heritage resources of the study area. The data thus collected provides the basis from which the occurrence, estimation of magnitude and significance of any impacts of the overhead line may be identified and appraised.

8.3.4 As agreed with CCW, because the construction of the overhead line is predicated on the re-powered and extended Llandinam wind farm, the baseline conditions for the ES assume the presence of this wind farm (even though it is not currently present in the landscape).

Desk-top and Field Surveys

8.3.5 The initial desk-based assessment involved the examination of readily available primary and secondary records, including published, documentary, cartographic, and aerial photographic sources. Archives and repositories consulted included the following:

- The regional Historic Environment Record held and maintained by the Clwyd-Powys Archaeological Trust.
- Other records held by the same organisation in Welshpool.
- Coflein, the online record created and maintained by the National Monuments Record, part of the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW).
- The National Monuments Record held by the RCAHMW in Aberystwyth.
- The National Library of Wales in Aberystwyth.

8.3.6 Information was collated on all currently recorded designated monuments and buildings, and registered but undesignated parks, gardens and landscapes within 2km of the overhead line, and cognisance was also taken of cultural heritage assets, particularly designated ones, beyond this zone.

8.3.7 Following the completion of the desk-based study, a field survey was undertaken (April-June 2009) along a 200m wide corridor centred on the route of the overhead line. This survey recorded all visible cultural heritage features, identified areas with the potential to contain unrecorded, buried archaeological remains; and assessed the potential effects of the overhead line on those features and areas, and where appropriate their settings. No invasive archaeological investigation was carried out as part of this assessment.

8.3.8 Designated sites and monuments within 2km of the overhead line were also visited to assess its potential indirect visual effects upon their settings. For this purpose, designated sites include SAMs, Listed Buildings, Historic Parks and Gardens and Historic Landscapes.

8.3.9 Although the ASIDOHL is essentially a desk-based assessment, some field visits were also undertaken to specific features to assist in its preparation.

8.3.10 LANDMAP, as the formally adopted landscape assessment tool for Wales, has been used to inform the baseline assessment of the study area. The Historic Landscape dataset has been interrogated and a thematic map produced showing the overall evaluation of the study area. This is included within Appendix F.

Stage 2: Project Description and Mitigation Strategy

8.3.11 The second stage is the description of the project, involving a compilation of the information derived from the surveys, and focusing on those aspects of the overhead line, which may affect cultural heritage assets. It includes a description of the strategy adopted throughout the scheme design to avoid, reduce and offset identifiable effects.

Stage 3: Effects Assessment

8.3.12 Site specific and scheme wide effects of the overhead line on cultural heritage assets are assessed in the following categories:

- **Direct** – where there would be a physical impact or effect on a cultural heritage asset caused by the proposed overhead line.
- **Indirect** – where the setting of a cultural heritage asset may be affected, either physically or visually.
- **Cumulative** – where incremental effects arise due to the presence of other proposed schemes or from the interaction of different effects over time.
- **Uncertain** – where there is a risk that the works may affect a cultural heritage asset, for example, when it is unclear where the location or boundaries of a site lie, or where the baseline condition of a site cannot be established satisfactorily.

8.3.13 Effects are assessed in terms of their nature (beneficial/neutral/adverse), longevity and reversibility.

- Beneficial effects are those, which could contribute to the value of a cultural heritage asset through enhancement of existing features or introduction of new positive features.
- Neutral effects occur where a development neither contributes to nor detracts from the value of a cultural heritage asset.
- Adverse effects are those that detract from the value of a cultural heritage asset through a reduction in or disruption of valuable components, or through the introduction of new inappropriate characteristics.

Significance Criteria

8.3.14 The assessment of the effect of the overhead line on each of the cultural heritage assets identified during the baseline assessment is a function of the value or sensitivity of the asset combined with the magnitude of change likely to arise from it.

8.3.15 The sensitivity of a cultural heritage asset is a reflection of its perceived nature and appearance, its topography and the distribution and nature of other recorded archaeological features in the locality. Table 8.1 summarises the relative value (importance) of cultural heritage assets relevant to this assessment.

TABLE 8.1: DEFINITION OF VALUE/SIGNIFICANCE OF CULTURAL HERITAGE ASSETS

Very High	▫ World Heritage Sites (including those nominated). ▫ Assets of acknowledged international importance. ▫ Assets that can contribute significantly to acknowledged international research objectives.
High	▫ Scheduled Monuments (including those proposed). ▫ Undesignated monuments of which could potentially be worthy of scheduling. ▫ Grade I and Grade II* Listed Buildings. ▫ Assets that can contribute significantly to acknowledged national research objectives.
Medium	▫ Grade II Listed Buildings. ▫ Conservation Areas. ▫ Designated or undesignated assets that contribute to regional research objectives.
Low	▫ Designated and undesignated assets of local importance. ▫ Assets compromised by poor preservation and/or poor survival of contextual associations. ▫ Assets of limited value, but with the potential to contribute to local research objectives.
Negligible	▫ Assets with very little or no surviving cultural heritage interest.
Unknown	▫ The importance of the asset has not been ascertained.

8.3.16 The magnitude of effect provides a measure of the likely damage to a cultural heritage asset. The thresholds for assessing magnitude of effect are given in Table 8.2, which is derived from the DMRB Volume 11 Section 3 Part 2, Annex 5/13, 2007), but in modified form. Each cultural heritage sub-topic has its own set of factors, which are set out in detail in the DRMB.

TABLE 8.2: DEFINITION OF MAGNITUDE OF EFFECT

Major	▫ Change to most or all key cultural heritage elements, such that the asset is totally altered. ▫ Comprehensive changes to setting. ▫ Extreme visual effects.
Moderate	▫ Changes to many key cultural heritage elements, such that the asset is clearly modified. ▫ Considerable changes to setting which affect the character of the asset. ▫ Visual change to many key elements.
Minor	▫ Changes to key cultural heritage elements, such that the asset is slightly altered or different. ▫ Slight changes to setting. ▫ Slight visual changes to a few key elements.
Negligible	▫ Very minor changes to cultural heritage elements, or setting. ▫ Virtually unchanged visual effects.
No Change	▫ No change.

8.3.17 Table 8.3 combines these criteria to provide an assessment of whether or not an effect is considered significant. This table is also taken from DMRB.

TABLE 8.3: MATRIX FOR ASSESSING SIGNIFICANCE OF DIRECT AND INDIRECT IMPACTS ON CULTURAL HERITAGE ASSETS

Magnitude of impact	Value/Sensitivity of Cultural Heritage Asset				
	Very High	**High**	**Medium**	**Low**	**Negligible**
Major	Very Large	Large/Very Large	Moderate/ Large	Slight/ Moderate	Slight
Moderate	Large/Very Large	Moderate/ Large	Moderate	Slight	Neutral/ Slight
Minor	Moderate/ Large	Moderate/ Slight	Slight	Neutral/ Slight	Neutral/ Slight
Negligible	Slight	Slight	Neutral/ Slight	Neutral/ Slight	Neutral
No change	Neutral	Neutral	Neutral	Neutral	Neutral

8.3.18 The correlation of these two sets of criteria is ultimately a matter of professional judgement supported by a reasoned professional explanation of the rationale behind the conclusions that are drawn. For example, a highly valued cultural heritage asset may require only a limited amount of change to result in an impact that is assessed as moderate or major, whereas a greater magnitude of change is likely to be required to result in equivalent effects on a less sensitive cultural heritage asset.

Assessment of Indirect Impacts on the Settings of Cultural Heritage Assets

8.3.19 No detailed guidelines specific to an assessment methodology of the indirect effects on the setting of a designated feature have been produced by Cadw or any other national agency in Wales. The methodology adopted here, therefore, utilises the Guide to Good Practice for Assessing Landscapes of Historic Interest (ASIDOHLs) produced by Cadw and the CCW in conjunction with ICOMOS UK (Cadw 2003, revised in 2007). These guidelines were developed to promote good practice in the use of the two volumes of the Register of Landscapes of Historic Interest in Wales (Cadw 1998 and Cadw 2001). The guidelines are concerned primarily with historic landscapes rather than specific historic features, which may however represent elements of those landscapes. Nevertheless, some aspects of the ASIDOHL process can be usefully adopted in the assessment of indirect impacts. Specifically, the section on the assessment of indirect visual impacts (Cadw 2007, 21) offers helpful guidance in the assessment of impacts on historic features that are on, or at some distance from, the development site.

8.3.20 Each cultural heritage asset designated as being of national importance and lying within 2km of the boundary of the overhead line was individually assessed, through desk-top study and field survey. The assessment of the impacts on the setting of designated cultural heritage features was co-ordinated with the Landscape and Visual Assessment (Chapter 6.0), using where necessary the Zone of Theoretical Visual Influence (ZTV) and wireframe models. In Chapter 6.0, the proposed overhead line is considered to be at its limits of perceptibility if it is viewed at 1.5km when fully backclothed, and under 5km when skylined. Backclothing occurs where the overhead line is seen from a particular viewpoint against a solid backdrop. The backcloth will generally be provided by rising ground or woodland beyond the overhead line. Skylining occurs where the overhead line is seen outlined against the sky with no solid backcloth. The visual impact, which results from a section of an overhead line that is skylined, will generally be greater than the impact which results from a section of the overhead line that is backclothed. The ZTV and wireframe models take account of landform only and not existing vegetation or other visual obstructions such as buildings. Chapter 6.0 contains further information on visibility and perceptibility.

8.3.21 In assessing the significance of indirect impact, the matrix set out previously in Table 8.3 is useful, although guidance on its effective use provided by the DMRB is considerably less expansive for indirect visual impacts than for direct impacts. It should be noted that because the cultural heritage assets considered here are all designated as being of national importance, their value/sensitivity is automatically classed as high.

Stage 4: Detailed Mitigation & Residual Effects

8.3.22 The final stage of the assessment process is the description of the measures envisaged to prevent, reduce and, where possible, offset any significant adverse effects of the development. Residual impacts are those impacts, which remain after mitigation. The significance of these is re-assessed using the methods outlined previously.

Limitations in Undertaking the Assessment

8.3.23 There were no identifiable limitations in carrying out the cultural heritage assessment.

8.4 Baseline

Introduction

8.4.1 The proposed overhead line runs through open countryside to the east of the Severn Valley, linking the Llandinam wind farm to an existing substation at Welshpool as shown in Figure 1.1: Wind Farm Connection Strategy. The 35km of overhead line is supported on approximately 394 wood poles between 12m – 16m in height and approximately 100m apart. The overhead line starts at the new substation at Bryn Dadlau (SO 04758363), which is situated to the south-west of Newtown on the Waun Ddubarthog ridge, an elevated plateau lying around 400m AOD. Running eastwards from here, it crosses the main Llandrindod Wells to Newtown road, skirts the prominent ridge of Glog and traverses the southern slopes of the Mule Valley below Kerry Hill. South of the village of Kerry, near Block Wood, it swings northwards, passing east of the village itself, and then cutting across the Mule Valley again, following a course through the undulating and well-wooded countryside east of the Severn Valley. It then passes west of the village of Llandyssil before dropping down to the lower slopes above the Severn Valley near Caerhowel and converging on the Shrewsbury to Machynlleth rail line some 1.5km to the north-west of Montgomery. It continues to run northwards close to the railway except to avoid settlement pockets such as Cilcewydd, before connecting into the existing substation on the B4381, approximately 1km east of Welshpool (SJ 24130673).

Legislative & Planning Policy Context

8.4.2 Planning policy is covered in Chapter 5.0: Planning Considerations. It includes UK-wide, Welsh national and local Development Plan policies.

8.4.3 The principal legislation relating to the archaeological heritage is the Ancient Monuments and Archaeological Areas Act (1979), which provides statutory protection to Scheduled Ancient Monuments. Buildings of cultural heritage interest are protected under the Planning (Listed Building and Conservation Areas) Act (1990), as amended.

8.4.4 A survey of historic parks and gardens in Wales was initiated by Cadw in 1992 and completed ten years later. Those considered to be of exceptional (Grade I), great (Grade II*) and special interest (Grade II) were published in six volumes, with that for Powys appearing in 1999, and together they form Part 1 of the Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales. The Register is advisory and the inclusion of a particular park or garden does not signify a statutory designation. Nevertheless, it is anticipated that statutory consultation on planning applications concerning gardens and parks on the Register will be introduced in Wales at some stage in the future.

8.4.5 Some historic landscapes in Wales are considered particularly significant and/or well preserved. These have been recorded in a Register of Landscapes of Historic Interest in Wales. Classed as either of outstanding or of special interest, these have been published in two volumes, which form Part 2 of the Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales published in 1998 and 2001. Again, this part of the Register is advisory but non-statutory.

8.4.6 Historic hedgerows are protected under the Hedgerow Regulations (1997). A hedgerow is deemed to be historic if it marks a parish or township boundary which pre-dates A.D. 1850, incorporates an archaeological feature, is part of or incorporates an archaeological site, marks the boundary of (or is associated with) an estate or manor which pre-dates A.D. 1600 or forms an integrated part of a pre-parliamentary enclosure.

8.4.7 Cultural heritage assets without statutory protection are curated by the archaeological advisors to the local planning authorities and afforded protection through local Development Plan policies. Those planning policies specific to the protection of cultural heritage assets include those in the Powys Unitary Development Plan (Powys UDP), as follows:

Policy ENV16: Landscape, Parks and Gardens of Special Historic Interest – development will be opposed where proposals unacceptably adversely affect the character or appearance of historic parks and gardens and their setting. In considering development proposals, the special historic interest of historic landscapes included in Part 2 of the Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales will be protected.

Policy ENV17: Ancient Monuments and Archaeological Sites - development that unacceptably affects the site or the setting of a scheduled ancient monument or an archaeological site of national importance will not be permitted and other sites of archaeological importance will be safeguarded where possible.

Policy ENV18: Development Proposals Affecting Archaeological Sites – where a proposal affects a site containing important archaeological remains, an archaeological field evaluation will be required.

Archaeological Importance and Potential of the Study Area

General

8.4.8 The overhead line passes through one of the most important prehistoric and later landscapes (or more correctly groups of landscapes) in the region and for this area, it is possible to construct a convincing narrative of the history of the landscape's development since the last glaciation ten thousand years ago. This does not mean, however, that its potential has been fully realised. Far from it: virtually every period and every site still has many aspects to be assessed and unravelled, and for this reason it is not particularly helpful to isolate the potential of individual cultural heritage assets, for virtually every one and even well-known monuments, such as Hen Domen, falls within this caveat.

Prehistoric

8.4.9 Towards the northern end of the overhead line, the major complexes of prehistoric funerary and ritual monuments (including barrows, pit circles, cursuses and even the occasional henge and standing stone) at Sarn-y-bryn-caled, south of Welshpool, and Dyffryn Lane, Berriew lie only a short distance away from the overhead line corridor. Further south, on and near the flanks of Kerry Hill, there is a barrow cemetery on Glog, whilst scattered more widely are individual barrows, some of which stand as earthworks, other reduced to cropmark ring ditches. A stone circle is found on the Kerry Hill, and a possible hengiform monument near the River Mule, east of Kerry village. The hillforts of the first millennium BC are represented by Ffridd Faldwyn above Montgomery, Beacon Ring overlooking Welshpool, Great Cloddiau Camp near Kerry, and the smaller Giant's Bank Camp. In addition, there is evidence of numerous, small defended homestead enclosures from the end of the prehistoric era in the Severn Valley. Mostly these show as cropmarks, and indicate that the area was heavily farmed from a multitude of small settlements. Just occasionally, earthworks enclosures such as Sibwll Wood camp survive.

Romano-British

8.4.10 The appearance of the Roman legions in the middle of the 1st century AD resulted in the imposition of a military fort at Forden, close to a significant crossing point of the Severn. Around Forden Gaer a civilian settlement (vicus) developed which spread sporadically over many hectares and again is only a short distance from the overhead line corridor. Roman roads, particularly that running from south-west to north-east crossed the area. Beyond the fort, settlement in small enclosures continued in the same vein as in the previous prehistoric era, even if settlement forms changed a little. Some of these have been identified through aerial photography, but undoubtedly, there are many others still to be found.

Early Medieval

8.4.11 For the period between the withdrawal of the Romans and the Norman Conquest, six and a half centuries later, the known history of the landscape is generally fairly quiet, but this is true for most regions. Nantcribba has been suggested as a possible early medieval defended site, though the evidence is at best equivocal. Much more significant is Offa's Dyke, one of the great linear earthworks of this and every other age. For several miles, the dyke and the overhead line follow irregularly parallel courses. Small dykes were also thrown up as defensive or boundary earthworks in the post-Roman era, and one of these, Crugyn Bank below Kerry Hill, has remnants of it crossed by the overhead line.

Medieval

8.4.12 The Norman Conquest with its feudal society led to new forms of archaeological monument being developed. Several examples of the motte and bailey castle, the defensive structure preferred by Norman lords, are to be found within a short distance of the overhead line corridor, one of them – Hen Domen – amongst the most famous examples of its type in Britain because of the extensive excavations there in the 1980s. As the strategic value of the motte and bailey waned, so stone castles were built and Montgomery Castle, the direct successor of Hen Domen, emerged further east and a town was planned as an economic measure beside it. Welshpool too was a planned town, at least in part, but its church site almost certainly goes back into the pre-Conquest era and there may have been a contemporary settlement by it. Kerry too was in existence at this time and was the most important church in the district.

8.4.13 There must have been many individual farms, but few of these can now be recognised, although a higher status site surrounded by a moat survives at Henfron, very close to the proposed overhead line. Many of the fields that still spread across the landscape may have originated in this period, and some open fields were even earlier, as is demonstrated by the ridge and furrow sealed beneath the banks of Hen Domen motte. There were also commons, as around Forden, which were enclosed only in the 18th or even the 19th century.

Post-medieval

8.4.14 Many of the buildings close to the overhead line were built in the centuries after 1500, but the most important dwellings are the homes of the gentry or of those who aspired to that status, such as Leighton Hall, Glansevern Hall, Garthmyl and, from an even higher echelon, Powis Castle. The Severn Valley was a favoured place for the upper classes from the 17th century and sometimes before. The landscape as a whole also changed though it may be difficult to distinguish the alterations of the last five centuries from those that preceded them.

Assessment of Importance of Cultural Heritage Features

8.4.15 Each site of cultural heritage interest within the 100m corridor identified during the baseline study is shown as point data in Figure 8.1: Designated Sites and included in Table 8.4. The final column in the tables offers an assessment of the importance of each cultural heritage asset based on the criteria summarised in Table 8.1.

8.4.16 This and subsequent lists are ordered by PRN. These are the Primary Record Numbers given to all known archaeological and cultural heritage sites in the Historic Environment Record (HER) for the Powys region. Assets newly discovered during the present study have been given PRNs by courtesy of the staff of the HER.

TABLE 8.4: CULTURAL HERITAGE ASSETS WITHIN THE 100M CORRIDOR

PRN	Name	Site type	Period	NGR	Description	Value
1052	Fron Heulog Earthwork	Field system	Post Medieval	SO1750092500	Earthwork once thought to be a continuation of the early medieval Wantyn Dyke, but subsequently considered to be a lynchet. Now completely ploughed out.	Negligible
3599	Pen y Lan Wood enclosure	Defended enclosure	Iron Age	SJ2231002305	Trapezoidal triple-ditched enclosure c.87m by 80m, with no obvious entrance, although much of the presumed NW side not visible. There are no visible remains of the enclosure in a pasture field.	Medium
4935	White House Cropmark	Field system	Post Medieval	SJ2204001360	Cropmarks of field boundaries, roughly rectangular, c.88m by 55m. No traces of any earthworks.	Low
5043	Montgomery Station field system	Field system	Post Medieval	SO2070098020	Holloway, c.200m long, with normal offsets (showing as cropmarks) probably represents a pre-railway field system. Perhaps related to Hen Domen (PRN 165). No visible evidence.	Low
5048	Woodlands enclosure	Defended enclosure	Iron Age	SO2222799977	Cropmark of a single-ditched square enclosure, c. 50m x 50m; corners rounded with possible entrance on W side. No surface traces of the site remain.	Medium
7076	Cilthriew Enclosure	Enclosure	Medieval	SO1596788808	Hilltop earthwork enclosure. Main part is ovoid and encircles the summit, with additional earthwork compartment on the NE. The main enclosure shows as a shallow ditch or a 4m-wide terrace; an entrance visible on the SW.	Medium
7535	Whitehouse Farm enclosure	Defended enclosure	Iron Age	SJ2346505418	The cropmarks of a D-shape enclosure, c.51m by 48m, but with no obvious entrance. No visible evidence of the enclosure.	Medium
8121	Blaen Cwm y Ddalfa House Site	House	Post Medieval	SO1343186725	Site of a house or farm. The ranges of buildings depicted on the 1st edition OS map have been largely destroyed and only the upslope (W) wall of one range survives, up to 8m long and 0.5m high, partly buried and in poor condition, lying to NW of the new stock shed.	Low
9018	Pen y Lan Holloway	Trackway	Post Medieval	SJ2240002380	A track on land at Pen y Lan farm, visible as two parallel cropmarks running for at least 150m and 7m apart. The track runs SSW-NNE before turning towards the E. No surface evidence of the trackway.	Low
11004	Castell Collen - Caersws	Road	Roman	SO0652183944	The line of a Roman road is predicted here but no physical evidence of it. Stretches of road recorded to the N and S.	Unknown
15937	Rhiw Dan Tin macehead	Find	Neolithic	SO1430087100	Chance find of an oval cushion macehead with a central hourglass perforation.	Low
15940	Station Bank flints	Find	Neolithic	SO1600090000	Flint collection of 17 nodules, flakes, blades, chunk, knifes, a scraper together with a shoe buckle of 18th century date.	Low
22751	Bryn Dadlau Quarry	Quarry	Post Medieval	SO0479983670	Quarry shown on modern OS map, but now the site of wind farm buildings. No earlier remains evident.	Negligible
22812	Cilthriew Quarry II	Quarry	20th century	SO1590488713	A modern quarry with no visible evidence of earlier use. Material probably used for the nearby farm track.	Negligible
22868	The Gables Quarry I	Quarry	Post Medieval	SO1806293484	Small quarry shown on modern OS map.	Low
22875	Maenllwyd Clay Pit	Clay pit	Post Medieval	SO1723492388	A clay pit shown on modern OS maps. No visible evidence at this grid reference so perhaps filled in.	Negligible
38714	Bryn Cwmyrhiwdre mound I	Round barrow	Bronze Age	SO0800783950	Scheduled prehistoric burial mound on a natural shelf above a boggy area. Rounded mound is c.15m across and 1.2m high; no sign of disturbance.	High
38813	Bryn Cwmyrhiwdre mound II	Round barrow	Bronze Age	SO0794083950	Considered a duplicate of PRN 38714: no other mounds or barrows in this locality.	Negligible
47057	Wroxeter - Forden	Road	Roman	SO2197799554	The line of the Roman road from Wroxeter to Forden Gaer is claimed to be here but has yet to be substantiated.	Unknown
47067	Lydham-Forden-Dolgellau road	Road	Roman	SO2124598412	Projected line of possible Roman road. Alignment not confirmed but must be in this locality if authentic.	Unknown
54980	Gwynant old road	Road	Post Medieval	SO0852584162	Former minor road alignment now bisected by a reconstructed section of the A483. Surviving earthworks on either side of the main road, comprising a raised earthwork about 7m wide and 0.5m high. Runs from the trackway to Crugyn Bank at the recorded NGR to the minor road leading to the windfarm on the west of the main road at SO 08325 84119.	Low
71052	Fron Farm milestone	Milestone	Post Medieval	SJ2306903216	Milestone set in NE roadside verge of the A490. Sandstone, round-headed, but metal inscription plate has gone.	Low
71443	Rhiw Dan Tin ridge and furrow	Ridge and furrow	Post Medieval	SO1427087075	Large area of faint ridge and furrow across almost the entire field; now in poor condition, but where visible the separation of 3-4m suggests a post-medieval origin.	Low
78800	Old Neuadd Bank, sheepfold	Sheep fold	Post Medieval	SO0910584473	Small structure shown on 1963 6" OS map, possibly sheepfold or field barn. There are very slight earthworks alongside the fence at SO 0911084476.	Low
84803	Hen Fron Reservoir	Reservoir	Post Medieval	SO1860895959	A small reservoir, depicted on the OS 1st edition of 1889; well preserved with a substantial bank on downslope side, 2.5m high.	Low
84806	Blaen Cwm y Ddalfa ridge and furrow	Ridge and furrow	Post Medieval	SO1335086770	Area of possible ridge and furrow seen on aerial photograph, but no longer extant.	Negligible
84807	Blaen Cwm y Ddalfa Barn	Barn	Post Medieval	SO1341886741	Barn Meadow is recorded in the Kerry Tithe apportionment, but now no surviving evidence of a farmstead of which the barn was a part except perhaps for Blaen Cwm y Ddalfa (PRN 8121).	Negligible
84809	Gwyn's Barn stone	Stone	Unknown	SJ2355805334	Stone depicted on 1st edition 1:10560 OS map of 1889.	Negligible
84811	Cil-Cewydd Building	Building	Post Medieval	SJ2330203864	Building shows on 1st edition 1:10560 OS map of 1889, but there is now no visible surviving structure. Brick and stone rubble about 100m to the north at a bend in the field boundary.	Low
84818	Maenllwyd Footbridge	Footbridge	Post Medieval	SO1650191706	Footbridge depicted on the 1st edition 1:10560 OS map of 1889.	Negligible
84819	Glan-mule Milestone	Milestone	Post Medieval	SO1601690240	Milestone depicted on the 1st edition 1:10560 OS map of 1889.	Negligible

84831	Bryn Dadl Turbary	Turbary	Post Medieval	SO0479083590	Turbary noted in the Mochdre Tithe Apportionment. Now no visible evidence of the turbary.	Negligible
84832	Cwm-y-rhiwdre Hill Public Turbary	Turbary	Post Medieval	SO0719583927	Turbary noted in the Mochdre Tithe Apportionment. Land improved at the given NGR. No surviving evidence of peat cutting.	Negligible
84836	Great Cloddiau, Cyfer De	Field system	Medieval	SO1631191007	Name Cyfer De (South Covert) recorded on Kerry Tithe apportionment, the term 'cyfer' perhaps a reflection of open-field agriculture of earlier date. No visible evidence of any open-field agriculture.	Low
84838	Caerhowel Cowhouse	Barn ?	Post Medieval	SO2024397788	The field-name Cowhouse and close recorded in the Montgomery Tithe apportionment.	Negligible
84839	Caerhowel, Maes y Pwll	Field system	Medieval	SO2033797812	The field-name Maes y Pwll recorded in the Montgomery Tithe apportionment, the term 'maes' generally reflecting open-field agriculture of earlier date.	Low
84840	Woodlands Cross ? Piece	Cross ?	Unknown	SO2223199749	The field-name Cross Piece recorded in the Forden Tithe apportionment. No surface evidence of any features relating to the name, which therefore remains unexplained.	Negligible
84841	Whitehouse Pound Ground	Pound ?	Post Medieval	SJ2218701151	The field-name Pound Ground recorded in the Forden Tithe apportionment; no traces of anything of interest.	Negligible
84844	Glanmiheli reservoir	Reservoir	Post Medieval	SO16158980	Reservoir on 1st edition 1:10560 OS map of 1889.	Low
84845	Leighton Brickworks Pond	Reservoir ?	19th Century	SJ23900615	A series of linear depressions on 1946 APs. On the ground earthworks extend for around 120m. One pond at NNE end has a brick-built access chamber; another to the SSW has a broad channel running off it. Could be associated with former estate brickworks, the gas works, or part of an estate-farm slurry management system.	Medium
84851	Cwmdale Quarry	Quarry	Post Medieval	SO18549532	A former quarry now largely turfed and covered with trees.	Low
84852	Pen-y-lan Wood sheep pens	Sheep pens	20th Century	SJ2244002525	A group of pens including a dipping bath and a dilapidated wooden building. The building is of World War II military origin and was presumably bought by the then landowner in the immediate post-war period.	Low
84854	Fron Farm quarry	Quarry ?	Post Medieval	SJ2315803417	Possible former quarry hollow, measuring c.20m E/W by 15m and 0.7m deep. Profile smoothed by land improvement.	Negligible
84855	Caerhowel holloway	Holloway	Medieval ?	SO2038497844	Holloway, around 6m to 7m wide and up to 0.5m deep -runs downhill at right angles to the contours. Visible for almost the full length of the field.	Low
84857	Wood Cottage building I	Building	19th century	SO1619088910	Building depicted on the OS 1st edition. On the ground, a brick structure of indeterminate shape and an adjoining scoop perhaps associated. Possibly a hut related to the nearby quarries or an agricultural structure.	Low
84858	Wood Cottage building II	Building	19th century ?	SO1620088920	Building depicted on OS 1st edition. No visible surface remains. Probably of similar construction (i.e. including bricks) to PRNs 84857 and 84859.	Negligible
84860	Wood Cottage quarry I	Quarry	Post Medieval	SO1615088890	Pond depicted on OS 1st edition. At present, the shallow pond lies in the bottom of a quarry scoop, about 20m diameter and 1.0m deep.	Low
84861	Wood Cottage quarry II	Quarry	Post Medieval	SO1610588920	Large quarry depicted on OS 1st edition, cut into steep ENE slope. Some shale visible. Measures 50m by 30m and up to 8m deep.	Low
84863	Bryn Dadlau bank	Sheep shelter ?	Post Medieval	SO0529983591	L-shaped earthwork up to 0.8m high, each arm c.50m long, meeting at a right angle. The arms run NNW and ENE from the given NGR. Perhaps a sheep shelter or part of an abandoned enclosure.	Unknown
84864	Bryn Cwmyrhiwdre quarry I	Quarry ?	Post Medieval	SO0739983987	A possible quarry on a W-facing slope, in the form of a scoop about 12m in diameter and up to 1.8m deep.	Low
84865	Bryn Cwmyrhiwdre quarry II	Quarry ?	Post Medieval	SO0738183911	Possible quarry showing as a 1.2m deep depression on a W-facing slope. Could also have been the site of a spring.	Low
84866	Wood Cottage quarry III	Quarry	Post Medieval	SO1617188904	Sub-circular quarry cut into a steep WSW-facing slope. It interrupts the line of an old trackway, which has then been diverted around it. 20m in diameter and up to 3m deep	Low
84867	Blaen-cwm-y-ddalfa quarry	Quarry	Post Medieval	SO1378686903	Area of fairly shallow quarrying overlooking a small stream. A series of shallow scoops for extracting slatey shale, perhaps used as a poor quality roofing material.	Low
84868	Crugyn Bank Dyke E	Short Dyke	Early Medieval	SO1123785522	Short, newly discovered section of the Crugyn Bank Dyke (PRN 1882), linking known sections. Comprises a ditch on its S side, measuring 7m across overall and up to 0.5m high. It runs between SO 1121185522 and SO 1123785522.	High

Significant Sites within the 100m Corridor

8.4.17 There are two sites of **high** value within the 100m corridor, designated or undesignated, namely the scheduled Bryn Cwmyrhiwdre round barrow and the newly discovered section of the Crugyn Bank Dyke.

8.4.18 There are five sites of **medium** value, namely the enclosures at Pen y Lan Wood, Woodlands, Cilthriew and Whitehouse Farm, and the Leighton Brickworks Pond earthworks.

TABLE 8.5: CULTURAL HERITAGE ASSETS BEYOND THE 100M CORRIDOR BUT WITHIN THE 200M CORRIDOR

PRN	Name	Site type	Period	NGR	Description	Value
153	Henfron Moat	Moated site	Medieval	SO1871096210	Medieval moated site, the moat itself still water-filled. About 34m square. The low-lying island revetted with dry-stone walling on each side, and the moat varying from 5m-9m wide.	High
155	Goron Ddu enclosure	Hillfort	Iron Age/Roman	SO1860096570	Cropmark of irregularly shaped, quadrilateral enclosure, with rounded corners approximately 80m NW/SE and 60m NE/SW. Double-ditched with out-turned entrance on E side of internal ditch; geophysics survey in 2008.	Medium
1822	Cuckoo Hall hillfort	Hillfort	Iron Age/Roman	SO1829794715	Treble-ditched ovate enclosure, 132 x 89m with no obvious entrance. Ditches to W show as cropmarks, those to E as parchmarks and slight earthworks. Located on low ridge. Later house platforms cut into earthworks on SE side. Excavations in 1993 produced a single potsherd of probable Roman date from upper fill of ditch.	High
1896	Black Gate Enclosure	Enclosure	Iron Age/Roman	SO1061585248	Sub-circular earthwork enclosure on a very gentle slope at the natural saddle/watershed between the Mule and Ithon river catchments. The site is approximately 45m in diameter and is defined by a low bank about 4m-5m wide and up to 0.4m high, with hints of an external ditch. A possible entrance gap, 5m wide, lies on the SW side.	Medium
8040	Fron Henlog ridge and furrow	Ridge and furrow	Post Medieval	SO1720092500	Ridge and furrow system. No visible evidence of ridge and furrow at the location given.	Negligible
8795	Llandyssil Smithy Site	Blacksmiths workshop	Post Medieval	SO1878096750	The site of a smithy, depicted on earlier maps. There are now no traces of any former building in recently ploughed field.	Low
8797	Pen y Foel farmstead	Farmstead	Post Medieval	SO1833094700	Two house platforms are set into the bank of an earlier enclosure. Buildings are thought to have occupied the platforms until around 1900, but the platforms could be medieval in origin.	Medium
9013	Pen y Lan Cottage Site	House	Post Medieval	SJ2215002310	A cottage gone by 1915. Formerly set on a platform with fragments of brick and stone visible, but the site now occupied by a modern pond, though some stones and hand-made bricks present.	Negligible
20297	Leighton workshop and cottages	House	Post Medieval	SJ24000605	Workshop and cottages forming part of the Leighton Hall Estate buildings.	High
20304	Gwyn's House	House	Post Medieval	SJ2344005020	Stone farmhouse. No further details.	Unknown
30568	Caerhowel, `Home Farm' outbuildings	Farm building	Post Medieval	SO2047497774	Grade II listed group of late 18th-century/earlier 19th-century outbuildings ranged round four sides of the farmyard at Caerhowel Home Farm; single-storey with loft, brick walls and slate, hipped roofs.	Medium
42047	Cilthriew, Mile marker	Mile marker	19th century	SO1577388613	Grade II listed, cast-iron milepost, giving mileages to four places, on the north-east side of the Kerry Station to Anchor road.	Medium
43111	Melin Maenllwyd	Mill	Post Medieval	SO1700092500	There was a mill on this spot in 1673.	Unknown
71049	Edderton Hall, Lodge	Lodge	Post Medieval	SJ2313503125	Lodge depicted on the 1st edition 1:10560 OS map of 1889.	Low
71050	Edderton Hall, fish pond I	Fishpond	Post Medieval	SJ2300002750	Fish pond in grounds of Edderton Hall depicted on the 1st edition 1:10560 OS map of 1889.	Low
71089	Montgomery Railway Station	Railway station	19th century	SO2040097930	Railway station depicted on 1st edition OS map of 1889. Engineering works on the 1978 OS map.	Low
71677	Fflos railway bridge	Railway bridge	19th century	SO2167099100	Railway bridge crossing the river Camlad. Horizontal steel girders with stone abutments to either side and a central stone pier.	Low
72183	Caerhowel, The Old Smithy	House	Post Medieval?	SO2023097720	A small timber-framed house, previously a smithy. Depicted on the 1st edition 1:10560 OS map of 1889.	Medium
84800	Hem farm farmstead	Farm	Post Medieval?	SJ2240000141	Farmstead, but no description nor information on historical significance	Unknown
84802	Court Calmore	Farm	Post Medieval?	SO1990697541	Farmstead, but no description nor information on historical significance	Unknown
84805	Glanmiheli farmstead	Farm	Post Medieval?	SO1612990028	Farmstead, but no description nor information on historical significance.	Unknown
84810	Old Lodge Quarry II	Quarry ?	Post Medieval	SJ2336904584	Possible quarry depicted on 1st edition 1:10560 OS map of 1889, now water filled.	Low
84815	Forden building	Building	Post Medieval	SJ2215300830	Building on the 1st edition OS map of 1889, termed a house with garden in Forden Tithe apportionment.	Low
84828	Cwm-y-rhiwdre Hill Quarry I	Quarry	Post Medieval	SO0783284067	Quarry depicted on the 1st edition 1:10560 OS map of 1889.	Low
84829	Camnant Ford	Ford	Post Medieval	SO0713483790	Ford depicted on the 1st edition 1:10560 OS map of 1889. No further information.	Negligible
84842	Upper Llan Derry	Place name	Unknown	SJ2244402595	The field-name Upper Llan Derry recorded in the Forden Tithe apportionment; significance uncertain.	Unknown
84846	Bron y Gwillt track ?	Trackway?	Unknown	SO18509589	A possible trackway or former field boundary showing on a 1948 AP as parallel ditches. Field visit identified a level terrace c.4m wide, which could be a trackway or a lynchet.	Low
84847	Cwm-y-rhiwdre Hill Quarry II	Quarry	20th Century	SO07708390	Quarry, probably for agricultural stone, shows on 1948 AP.	Negligible
84850	Cwmdale Holloway	Holloway	Unknown	S018649523	Well-preserved section of holloway c. 3.5m wide and up to 0.75m deep. Further S, a terrace 3m wide where it contours around the top of Cwmdale Dingle, before petering out in pasture.	Low
84853	Pen-y-lan quarry	Quarry	Post Medieval	SJ2228002257	Quarry hollow approximately 20m across and 2m deep.	Low
84856	Wood Cottage	House	Post Medieval	SO1621588900	Site of an old farmstead, depicted on the OS 1st edition map in late 19th century. Heavily disturbed by modern activity and little remains of the buildings except for some stone lines and heaps; section of wall is visible in one disturbed heap. Some brick, stone and cast iron visible.	Low
84859	Wood Cottage building III	Building	Post Medieval	SO1622088925	Building depicted on OS 1st edition map. A few bricks at this location are perhaps the remains of a wall. Otherwise nothing visible.	Low
84862	Pen y Lan Wood quarry	Quarry	Post Medieval	SJ22270225	Area of quarrying approximately 15m in diameter and 2m deep beside a small dingle.	Low
87226	Montgomery Station sawmill	Saw mill	19th century	SO2035897907	A steam-operated sawmill stood at or near the station in the last decade of the 19th century.	Low

Significant Sites outside of the 100m but within the 200m Corridor

8.4.19 There are three sites of **high** value within the 200m corridor, namely Henfron Moat, Cuckoo Hall hillfort and Leigthon workshop and cottages.

8.4.20 There are six sites of **medium** value, namely the Goron Ddu enclosure, Black Gate Enclosure, Pen y Foel farmstead, Caerhowel, `Home Farm' outbuildings, Cilthriew, Mile marker, Caerhowel and The Old Smithy.

8.4.21 The assessment of importance of cultural heritage features is summarised in Table 8.6.

TABLE 8.6: SUMMARY TABLE OF SITES AND THEIR VALUES

Value	Within 100m of OHL	Within 100-200m of OHL
Very High	0	0
High	2	3
Medium	5	6
Low	23	15
Negligible	20	4
Unknown	4	6

8.4.22 No marshes, bogs or other natural features with potentially significant palaeoenvironmental deposits have been recognised within the corridor.

Designated Cultural Heritage Assets within Two Kilometres of the Proposed Overhead Line

8.4.23 The identification of designated assets within 2km of the proposed overhead line is based on information provided by Cadw and also utilises the published Register of Landscapes, Parks and Gardens.

8.4.24 Each of these designated sites was assessed to establish whether there is likely to be any indirect, visible impact as a result of the proposed overhead line. The location of these sites is shown as point data in Figure 8.1: Designation Sites and the sites themselves are described in Table 8.7. Those within the 100m and 200m corridors are also included in Tables 8.4 and 8.5 respectively. The final column in Table 8.7 provides an assessment of the importance of each cultural heritage site based on the criteria summarised in Table 8.1.

TABLE 8.7: DESIGNATED CULTURAL HERITAGE ASSETS WITHIN TWO KILOMETRES OF THE PROPOSED OVERHEAD LINE

Site designation	Name	Description	NGR	Distance to OHL	Value
MG012	Forden Gaer Roman Site	A 1st century AD Roman fort and surrounding civilian settlement (vicus). The scheduled area is large, extending over more than 43 hectares, with parts of the vicus lying closer to the overhead line than the fort itself.	SO209990	0.3	High
MG013	Hen Domen Mound & Bailey Castle	A medieval earthwork castle, important because of its early origin and because extensive excavations make it one of the best understood sites of its type in the UK.	SO213980	0.2	High
MG014	Cefn Bryntalch Motte & Bailey	A medieval earthwork castle with a motte 8m high, covered by sparse trees.	SO175963	1.0	High
MG015	Ffridd Faldwyn Camp	A multi-ramparted late Iron Age hillfort, possibly with a Neolithic predecessor, sited above and to the west of Montgomery.	SO216968	1.2	High
MG019	Domen Castell Mound and Bailey Castle	A motte and bailey castle, presumably constructed in the 12th century, on the edge of Welshpool.	SJ230074	1.2	High
MG022	Montgomery Castle	The successor to Hen Domen, Montgomery Castle is a stone castle that was built in the early 13th century.	SO221967	1.6	High
MG023	Montgomery town defences	The medieval defences comprising a bank and ditch and including towers and gates are of 13th century date.	SO220964	1.8	High
MG034	Offa's Dyke: Goppas Wood	Major linear earthwork attributed to King Offa at the end of the 8th century.	SJ249072	0.8	Very High
MG035	Offa's Dyke: Leighton Park	Major linear earthwork attributed to King Offa at the end of the 8th century.	SJ250042	1.4	Very High
MG036	Offa's Dyke: Nant-Cribau Park	Major linear earthwork attributed to King Offa at the end of the 8th century.	SJ235014	1.4	Very High
MG037	Offa's Dyke: Hem Road	Major linear earthwork attributed to King Offa at the end of the 8th century.	SJ230004	0.7	Very High
MG042	Maen Beuno	A prehistoric standing stone, 1.6m high.	SJ202012	1.7	High
MG048	Two Tumps Round Barrows	Two Bronze Age burial mounds set on a ridge, both about 24m in diameter and just over 100m apart.	SO118851	0.6	High
MG050	The Moat Mound and Bailey Castle	A well-preserved motte and bailey of medieval date, immediately to the south of Kerry.	SO146894	1.5	High
MG055	Kerry Hill Stone Circle	A stone circle of eight stones, with a low circular bank just outside the ring, together with a barrow 170m to the north-east. Both are presumed to be Bronze Age in origin.	SO158861	1.1	High
MG062	Crugyn Bank Dyke	A linear earthwork lying across both sides of a valley and, based on radiocarbon dating, built during the early medieval period.	SO106855	Corridor	High
MG063	Two Tumps Dyke	A linear earthwork lying across both sides of a valley and, based on radiocarbon dating, built during the early medieval period.	SO118847	0.4	High
MG080	Tomen Madoc Castle Mound	Medieval earthwork castle mound but no known bailey	SO144908	1.5	High
MG086	Polyn y Groes-Ddu Barrow	A Bronze Age burial cairn about 12m diameter and 1m high, set on a local summit.	SO036836	1.1	High
MG102	Nant-Cribau Moated Site	A rectangular water-filled moated homestead of medieval date.	SJ241013	1.9	High
MG109	Crugynau Round Barrow	Scheduled as a Bronze Age burial mound, this is a natural mound.	SO107840	1.0	High
MG112	Giant's Bank Camp	A small defended enclosure, its earthworks set at the end of a ridge. Probably of Iron Age date.	SO151922	1.2	High
MG121	Glog Round Barrows	A group of eight Bronze Age burial mounds.	SO092853	0.5	High
MG122	Crugyn Round Barrows	A group of five Bronze Age burial mounds which may be seen as extending the Glog Round Barrow group eastwards to create a single barrow cemetery over 2km long.	SO104858	0.5	High
MG130	Lower Min-y-Llyn Castle Mound	Medieval earthwork castle mound, but no visible bailey.	SJ210009	0.9	High
MG135	Fron Derw Wood Camp	A small D-shaped earthwork enclosure containing the platform for a round-house. A farmstead of Iron Age or Romano-British date.	SO171889	0.9	High

MG136	Sibwll Wood Camp	D-shaped earthwork enclosure, presumably a defended farmstead of Iron Age or Romano-British date.	SO180895	1.6	High
MG138	Offa's Dyke: Court House Farm	Major linear earthwork attributed to King Offa at the end of the 8th century.	SJ243027	1.3	Very High
MG139	Offa's Dyke: Welshpool-Churchstoke Road	Major linear earthwork attributed to King Offa at the end of the 8th century.	SJ242022	1.3	Very High
MG148	Nant-Cribau Castle Mound	A natural rock knoll 13m high adapted as a medieval motte and encircled by an earthwork bailey.	SJ237014	1.6	High
MG152	Offa's Dyke: Goppas Wood	Major linear earthwork attributed to King Offa at the end of the 8th century.	SJ248065	0.7	High
MG153	Offa's Dyke: Pentre Section	Major linear earthwork attributed to King Offa at the end of the 8th century.	SJ247058	0.8	Very High
MG157	Dyffryn Lane Ring Ditches & Pit Alignments	Monument complex of Late Neolithic or Early Bronze Age date that includes a henge with a barrow inside it.	SJ204015	1.4	High
MG167	Llwyn-Wron Cursus,	Neolithic cursus monument nearly 400m long, visible as cropmarks from the air but no ground traces.	SJ216047	1.4	High
MG168	Great Cloddiau enclosure	A double-ditched enclosure revealed through cropmarks, probably a defended farmstead of Iron Age or possibly Romano-British date,	SO156908	0.5	High
MG169	Great Cloddiau Camp	A large, ridge-top sited hillfort defended by a single rampart circuit, almost certainly Iron Age in origin.	SO158909	0.3	High
MG170	Hen Domen Pre-Conquest Fields	Around and sealed beneath Hen Domen is a field system, presumed to be late Saxon in date	SO212980	0.2	High
MG172	Glanmule hengiform monument	Bronze Age ring ditch visible only as a cropmark, perhaps of hengiform type, and presumably originally a barrow.	SO165906	0.3	High
MG174	Site E of Plas-Llwyn (cropmark)	A sub-rectangular enclosure containing a possible hall of early medieval date.	SJ200013	1.9	High
MG177	Pen-y-gelli enclosure	A triple-ditched enclosure, presumably a defended farmstead of Iron Age and perhaps Romano-British date.	SO176910	1.1	High
MG217	Offa's Dyke: Pentre Farm	Major linear earthwork attributed to King Offa at the end of the 8th century.	SJ248061	0.8	Very High
MG208	Wantyn Dyke	Early medieval boundary dyke, one of the largest in Powys	SO187913	1.1	High
MG220	Henfron Moated Site	A moated homestead of medieval date.	SO187962	<0.1	High
MG221	Montgomery town, adjacent to Westmead	A protected area of the medieval town within the defences.	SO224967	1.9	High
MG224	Offa's Dyke: School House	Major linear earthwork attributed to King Offa at the end of the 8th century.	SJ249083	1.7	Very High
MG236	Cefn Llan hillfort	Enclosure situated on low hill consisting of a sub-rectangular platform 60m by 40m. Original entrance to the south.	SO205947	1.9	High
MG237	Mount Pleasant Enclosure	Double-ditched enclosure with some surviving earthworks. Probably a defended farmstead of Iron Age date on the evidence of radiocarbon dates	SO189936	0.9	High
MG240	Hill Tenement Enclosure	A circular hillslope enclosure, interpreted as a defended farmstead of Iron Age or Romano-British date.	SO180885	1.9	High
MG253	Waun Lluest Owain huts	A rectangular long hut set on an artificial terrace, with a probable prehistoric round hut beside it.	SO036841	1.1	High
MG254	Railway Transfer Dock at Welshpool	A rare railway transfer dock connecting narrow and broad gauge railways, built in 1903; the last surviving example in Wales.	SJ229073	1.2	High
MG256	Block Wood Round Barrow	Bronze Age barrow, about 14m in diameter on the Kerry ridge, within a recently felled forestry plantation.	SO152863	0.9	High
MG257	Barrow west of Cae-Betin Wood	A ridge-sited Bronze Age burial mound, 20m in diameter and 1.7m high.	SO125864	0.2	High
MG280	Bryn Cwmyrhiwdre Round Barrow	Well-defined Bronze Age burial mound on a natural knoll, about 15m in diameter and 1.2m high. Unfortunately, the scheduled area as depicted in the official digital data from Cadw is incorrect and the centre of the actual barrow is 25m to the north-east. Both positions lie within the corridor.	SO079839	Corridor	High
MG281	Coed y Dinas Round Barrow	A Bronze Age burial mound, 25m diameter but only 0.5m high on a river terrace.	SJ223059	1.3	High
MG283	Llwynderw Round Barrow	A large well-preserved Bronze Age burial mound, 25m in diameter and 1.5m high.	SJ210036	1.8	High
MG290	Polyn y Groes Ddu Round Cairn II	A well-preserved Bronze Age burial cairn, about 6.5m in diameter and 0.5m high.	SO036836	1.1	High
RD250	Banc Gorddwr, round barrow	Two Bronze Age burial mounds, the latter about 12.5m in diameter and 0.9m high.	SO 110837	1.4	High
LB7558	St Michael and All Angels church, Kerry	An important church, originating as a mother church for the region, with some 12th century fabric in it and set in a semi-curvilinear churchyard.	SO14719010	1.2	High
LB7561	Dolforgan Hall	A brick-built gentry home from about 1790	SO14309030	1.6	High
LB7714	Cefn Bryntalch Hall	See PGW (Po) 29 below	SO17699632	0.6	High
LB7730	Glanhafren	The house is early 18th-century, of painted brick remodelled in the mid-Victorian period.	SJ22830460	0.4	High
LB7733	Glanhafren great barn	Adjacent to Glanhafren House is a large farm barn, essentially of cruciform design, associated with the Leighton Park Estate and built in 1871. There are other features in the complex that are Grade II listed.	SJ22820454	0.4	High
LB7776	Saint Mary's church, Welshpool	The church is 14th century, although on the site of a much earlier building,	SJ22550766	1.7	High
LB7791	Nos 5 & 6 High Street, Welshpool	5 and 6 High Street appears to have been a town house in the late 17th century,	SJ22350759	1.9	High
LB7947	Montgomery Castle	See above Mg023	SO22159680	1.8	High
LB7975	Llwyn Cottage and Rock House, Montgomery	See above Mg221	SO22189645	1.9	High

LB8663	Leighton Hall	Leighton Hall with its associated estate buildings was built in Gothic style for a Liverpool industrialist between 1850 and 1856.	SJ241130458	0.8	High
LB8667	Leighton Farm poultry house	The poultry house is a detached element of the model farm at Leighton Hall and was constructed in 1861	SJ24860410	1.5	High
LB8668	Leighton, Holy Trinity church	The church was built between 1851-53 and is regarded as one of the best examples of a Victorian Estate church in Wales.	SJ24260595	0.3	High
LB8670	Leighton Farm piggery and sheep shed	The model farm at Leighton Hall was constructed during the second half of the 19th century, and contains 16 separately listed elements, all Grade II*.	SJ24250528	0.6	High
LB8671	Leighton Farm fodder storage building	See LB8670	SJ24300525	0.6	High
LB8672	Leighton Farm fodder storage building	See LB8670	SJ24340525	0.6	High
LB8673	Leighton Farm former root shed	See LB8670	SJ24300523	0.6	High
LB8715	Moel y Mab slurry tank. Grade II*	Slurry tank constructed on the top of a hillock, Moel y Mab, in the early 1850s as a reservoir for manure slurry, which was then pumped on to fields on Leighton Estate.	SJ24960545	1.2	High
LB15627	Footbridge and boundary wall on N side of Leighton Hall	See LB8663	SJ24150470	0.8	High
LB15628	Footbridge E of Leighton Hall Tower	See LB8663	SJ24190458	0.8	High
LB16704	Former Powysland Museum & Library, Welshpool	The museum and library were built in 1873-4.	SJ22600768	1.7	High
LB16797	Powis Estate sawmill	The sawmill was probably built between 1820-1830 and was water-powered. It was re-equipped in the 1890s, and continues in use.	SJ22160585	1.4	High
LB17008	St Llwchaiarn's church, Llanmerewig	A hill-top church in a curvilinear churchyard, built in the 13th century but mainly a Victorian re-build.	SO15779317	1.2	High
LB19507	Leighton Farm threshing barn and granary	See LB8670	SJ24250525	0.6	High
LB19508	Leighton Farm cart shed	See LB8670	SJ24290523	0.6	High
LB19509	Leighton Farm mill and tank house	See LB8670	SJ24250532	0.6	High
LB19510	Leighton Farm stockyard I	See LB8670	SJ24270527	0.6	High
LB19511	Leighton Farm stockyard II	See LB8670	SJ24230527	0.6	High
LB19512	Leighton Farm stockyard III	See LB8670	SJ24200527	0.6	High
LB19513	Leighton Farm hay storage building	See LB8670	SJ24220526	0.6	High
LB19514	Leighton Farm stockyard IV	See LB8670	SJ24250523	0.6	High
LB19515	Leighton Farm former office and stock houses	See LB8670	SJ24210524	0.6	High
LB19516	Leighton Farm stable	See LB8670	SJ24250521	0.6	High
LB19517	Leighton Farm west stockhouse	See LB8670	SJ24180525	0.6	High
LB19519	Leighton Farm former sheep-drying shed	See LB8670	SJ24190532	0.6	High
LB19523	Leighton Hall Tower	See LB8663	SJ24140455	0.8	High
LB19531	Footbridge E of Serpentine Pond at Leighton Hall	See LB8663	SJ24220468	0.8	High
PGW (Po) 29	Cefn Bryntalch	Cefn Bryntalch is 'an exceptionally important Queen Anne revival house of c.1870', accompanied by a largely intact contemporary formal garden'.	SO177964	0.6	High
PGW (Po) 31	Glansevern Hall	Glansevern Hall was built at the beginning of the 19th century and the garden and park features will be of contemporary or more recent date.	SJ196001	1.6	High
PGW (Po) 34	Leighton Hall	Leighton Hall was built in the 1850s and its surrounding landscape was largely laid out around this time, though some of the boundaries may be of an earlier date.	SJ242046	0.2	High
PGW (Po) 35	Powis Castle	Powis Castle came into existence in the 12th century and from the 15th century was gradually transformed into a mansion. The garden and pleasure grounds lie in front of and downslope to the south-east of the castle itself	SJ217064	1.7	High
PGW (Po) 58	Garthmyl Hall	Garthmyl Hall is a Victorian gentry house built in the Classical style. It has well-preserved grounds laid out in the mid-19th century	SO190989	1.2	High

8.4.25 Table 8.8 summarises the types of designated site and the numbers of such sites within two kilometres of the overhead line.

8.4.26 There are no Conservation Areas within the corridor. The nearest is Kerry Sawmills which at its closest is 180m from the edge of the corridor. Others within 1km are Llandyssil, Leighton Park and Leighton Centre. Several others, including Kerry, Montgomery and Welshpool lie within 2km.

TABLE 8.8: DESIGNATED CULTURAL HERITAGE ASSETS WITHIN TWO KILOMETRES OF THE DEVELOPMENT: SUMMARY

Designated site	Within the corridor	Within 1km	Within 1-2km
SAMs	2	20	34
Listed buildings	0	25	11
Historic parks and gardens	0	2	3
Conservation areas	0	4	3

Historic Landscapes

8.4.27 Most of the proposed overhead line lies beyond the historic landscapes that appear in the Register of Landscapes of Historic Interest in Wales, but in the northern part of the route, it crosses the north-western side arm of the Vale of Montgomery historic landscape. An outline description of this landscape appears in the Register of Landscapes of Outstanding Historic Interest in Wales (Cadw et al 1998) and much fuller information about its component parts is to be found in the Bro Trefaldwyn (Vale of Montgomery) Historic Landscape Characterization (Britnell et al 2000). The assessment of the impact of the overhead line on the Vale of Montgomery is considered in an ASIDOHL at Appendix S.

Historic Hedgerows

8.4.28 As discussed earlier in this chapter, various criteria have been used to classify historic hedgerows. In the context of this cultural heritage assessment, those that are most relevant are where a hedgerow incorporates or is part of an archaeological site and where it marks a pre -1850 parish or township boundary. In this region there is so little published information on estate or manorial boundaries that an assessment is not feasible.

8.4.29 A further criterion (as exemplified in The Hedgerows Regulations of 1997 – SI No.1160) is ambiguous in stating that the regulation applies to a hedgerow that is recorded in a document held "….at a Record Office as an integral part of a field system pre-dating the Enclosure Acts". It is not clear whether this means the era of the enclosure acts, i.e. the 18th and 19th centuries, or specific Enclosure Acts relating to the specific parish in which the field system occurs. If the former, many hedgerows might come within the criterion, if the latter very few.

8.4.30 During the course of the field survey, attention was paid to the nature of the field boundaries, and the different types recorded. This has facilitated a check on where a pole position and a boundary coincide. Generally where hedges do not have an accompanying bank and are unvaryingly straight they have been assumed to be of the enclosure period. Where there is a bank, whether of lynchet or standard form, it could be pre-enclosure or later, but in order to err on the side of caution it is included in Table 8.9.

TABLE 8.9 HISTORIC HEDGEROWS

Pole no	Nature of boundary	Value	Likelihood of direct impact
32	Lynchet with fence on top	High	High potential
60	Lynchet with hedge	High	High potential
115	Parish boundary between Forden and Llandyssil, but relict hedge only	High	Low potential
166	Lynchet with hedge	High	High potential
172	Lynchet with hedge	High	High potential
221	Hedge on bank	High	High potential
243	Lynchet with hedge	High	High potential

Landscape Trends

8.4.31 For comments on how the baseline landscape of the area is changing or may change in the near future, the reader is referred to section 6.4 of Chapter 6.0: Landscape and Visual.

8.5 Project Description & Mitigation Strategy

Project Description

8.5.1 The design evolution, project description and construction details of the proposed overhead line are described in Chapter 3.0: Design Evolution and 4.0: Project Description. The project includes the erection of 35km of overhead line on (mainly) double wood pole supports within a 100m wide corridor, between the Bryn Dadlau and Welshpool substations. The overhead line is proposed in response to the grid connection application to SP Manweb from the developers of the Llandinam wind farm.

Mitigation Strategy

8.5.2 The purpose of mitigation is to establish measures designed to prevent, reduce and, where possible, offset any significant adverse effects of the proposed development on local cultural heritage.

8.5.3 The main strategy for minimising the negative effects of the overhead line on the cultural heritage resource of the area is avoidance through careful planning, design and routeing. This is the strategy adopted by SP Energy Networks (SPEN) in the preceding routeing study, which led to the identification of the Proposed Route under consideration in this ES. A route has been developed, which together with other constraints, responds to the cultural heritage resource of the study area and seeks to avoid specific locations that are considered particularly sensitive.

8.5.4 Another important factor in mitigating the indirect visual impact of the overhead line is the technical design of the line itself. Historically overhead lines with a capacity of 132kV have used steel lattice towers approximately 26m high. Advances in overhead line technology now means that lines of this voltage can be supported by wood poles, with steelwork carrying the insulators and cables. By using wood poles, there is no requirement for large concrete foundations, which reduces potential disturbance of sites of cultural heritage interest. Images of the wood pole supports proposed for this scheme are provided in Photographs 4.1 and 4.2.

8.5.5 Where negative effects are unavoidable, the reduction of any remaining conflict with cultural heritage assets (and any other environmental constraints) necessitates detailed consideration of site characteristics and, the introduction of specific measures designed to address identified adverse effects. These are addressed later in this chapter.

8.5.6 Residual effects are those effects, which remain after mitigation.

8.5.7 In summary, aspects of the scheme, which are intended to avoid or reduce potential impacts on the cultural heritage resource are set out below:

- Pole selection – use of wood pole supports rather than steel towers, which require substantial concrete foundations
- Micro-siting of poles to minimise effects on sensitive cultural heritage assets
- Utilising existing field accesses wherever possible, to minimise the need for new site access tracks

8.6 Assessment of Impacts

8.6.1 As described previously, impacts on the cultural heritage may arise from a variety of sources at any or all stages in the life-cycle of the development. For the purposes of this assessment, the terminology follows that laid out in the Design Manual for Roads and Bridges (DMRB), Volume 11 Section 3 Part 2, HA 208/07), page 4/2. Short-term temporary impacts are those associated with the construction and decommissioning periods and are reversible. Long-term temporary impacts are those lasting more than 15 years but are still reversible, and are thus associated with the operational life of the development. Permanent impacts are not reversible.

8.6.2 Where an impact is identified, an assessment is made of its significance. In the context of this development, all impacts on cultural heritage assets are considered adverse.

8.6.3 In the following assessment, aspects of the proposed overhead line, which are likely to give rise to potential cultural heritage impacts are defined first, followed by an assessment of those impacts on individual assets. These are presented as a series of summary tables. Where potential impacts have been assessed as significant, detailed mitigation measures are proposed. Finally, an assessment is made of the significance of the residual impact following mitigation.

Sources of Impact

During Construction & Decommissioning

8.6.4 The activities and features, which have the potential to damage or destroy cultural heritage assets during the construction and decommissioning phases, whether currently recorded or not, include:

- Clearance of trees and hedgerows
- Intrusion of personnel and plant, with associated additional traffic movements and ground disturbance
- Construction and removal of temporary site access tracks (if necessary)
- Excavation of foundations, including temporary hardstandings
- Temporary site-compound and site-storage areas.
- Reinstatement works
- Storage of excavated spoil or construction materials on or close to cultural heritage assets

8.6.5 Direct impacts on cultural heritage sites are normally permanent and irreversible. Indirect impacts may be temporary or permanent depending on their nature.

8.6.6 Following completion of construction and decommissioning activities, all personnel, plant and construction equipment will be removed from site and re-instatement works carried out. The reader is referred to Chapter 4.0: Project Description and the draft Construction Method Statement (CMS) included at Appendix D.

During Operation

8.6.7 The main operational impacts of the proposed overhead line will commence immediately after the construction period and will arise because of the addition of 35km on new overhead line on approximately 394 wood pole supports into the countryside. These have the potential to affect the setting of cultural heritage assets by, for example, downgrading views to or from a site or introducing new elements into the landscape surrounding a site. Such effects will persist throughout the lifetime of the overhead line and are classed as long-term temporary impacts.

8.6.8 Additionally, adverse impacts such as those identified during construction could also arise during ongoing access and maintenance. However, the process that led to the development of the Proposed Route has sought to avoid or minimise the magnitude of these impacts on known cultural heritage assets. In addition, once constructed, the overhead line will require only occasional maintenance visits.

8.6.9 When potential impacts have been assessed as being significant, mitigation measures have been proposed to address them where possible. These measures include avoiding or minimising impacts through alterations to the scheme layout and/or minimising effects through programming and best practice methods.

Assumptions

8.6.10 The assessment of impacts is based upon the scheme described in Chapter 4.0: Project Description. It takes into account the following factors:

- At the time of the assessment, the locations of temporary storage areas for plant and equipment, additional working areas for stringing operations and construction accesses were not known although the selection of locations would comply with the requirements of the Environmental Management Plan (EMP) a copy of which is included at Appendix D. The impacts of these elements have therefore not been assessed within this section. Instead, the assessment considers the 'worst case scenario'. This assumes that a direct impact could occur upon all cultural heritage sites within the proposed 100m wide corridor within which micro siting of wood poles may occur post-consent.
- Sites close to but outside the corridor have been taken account of, as it is presumed that construction traffic for the line will need to utilise land outside the corridor.

Assessment of Direct Impacts

8.6.11 Descriptions of the potential direct impacts of the proposed overhead line on all cultural heritage assets within the 100m corridor and outside of the 100m but within the 200m corridor are provided in Tables 8.10 and 8.11. These identify the number, name and type of each asset, its value or sensitivity, the predicted magnitude of the impact before mitigation and the resulting significance.

8.6.12 In these tables, the magnitude of effect before mitigation is an assessment of the impact that would occur if a site were damaged during the construction process, either through the construction process itself or through gaining access. Mitigation in many cases would involve not touching or crossing the asset and its surrounding area, but in some instances mitigation may involve recording the asset (or elements of it) before the impact occurs.

Sites wthin the 100m Corridor

8.6.13 In summary, 48 sites have been identified, which could receive permanent and irreversible direct impacts, as listed in Table 8.10. Twenty-five of these potential impacts would be considered to be of minor magnitude were they to occur, twenty of moderate magnitude and three of major magnitude. For the remaining assets listed in Table 8.9, any impact would have a negligible effect or no effect whatsoever.

TABLE 8.10: PREDICTED DIRECT IMPACTS ON CULTURAL HERITAGE SITES WITHIN THE 100M CORRIDOR BEFORE AND AFTER MITIGATION

PRN	Name	Site type	Value/ Sensitivity	Magnitude of impact before mitigation	Magnitude of impact after mitigation	Significance of impact
1052	Fron Heulog Earthwork	Field system	Negligible	Minor	Minor	Neutral/Slight
3599	Pen y Lan Wood enclosure	Hillfort	Medium	Moderate	Minor	Slight
4935	White House Cropmark	Field system	Low	Moderate	Minor	Neutral/Slight
5043	Montgomery Station field system	Field system	Low	Minor	Minor	Neutral/Slight
5048	Woodlands enclosure	Defended enclosure	Medium	Moderate	Minor	Slight
7076	Cilthriew Enclosure	Enclosure	Medium	Moderate	Minor	Slight
7535	Whitehouse Farm enclosure	Defended enclosure	Medium	Moderate	Minor	Slight
8121	Blaen Cwm y Ddalfa House Site	House	Low	Minor	Negligible	Neutral/Slight
9018	Pen y Lan Holloway	Trackway	Low	Minor	Negligible	Neutral/Slight
11004	Castell Collen - Caersws	Road	Unknown	Moderate	Moderate	Slight
15937	Rhiw Dan Tin macehead	Find	Low	Minor	Minor	Neutral/Slight
15940	Station Bank flints	Find	Low	Minor	Minor	Neutral/Slight
22751	Bryn Dadlau Quarry	Quarry	Negligible	No change	No change	Neutral
22812	Cilthriew Quarry II	Quarry	Negligible	Minor	Minor	Neutral/Slight
22868	The Gables Quarry I	Quarry	Low	Minor	No change	Neutral/Slight
22875	Maenllwyd Clay Pit	Clay pit	Negligible	Minor	Negligible	Neutral/Slight
38714	Bryn Cwmyrhiwdre mound I	Round barrow	High	Major	Negligible	Slight
38813	Bryn Cwmyrhiwdre mound II	Round barrow	Negligible	No change	No change	Neutral
47057	Wroxeter - Forden	Road	Unknown	Moderate	Moderate	Slight
47067	Lydham-Forden-Dolgellau road	Road	Unknown	Minor	Minor	Slight
54980	Gwynant old road	Road	Low	Minor	Negligible	Neutral/Slight
71052	Fron Farm milestone	Milestone	Low	Major	No change	Neutral
71443	Rhiw Dan Tin ridge and furrow	Ridge and furrow	Low	Minor	Minor	Neutral/Slight

78800	Old Neuadd Bank, sheepfold	Sheep fold	Low	Moderate	Negligible	Neutral/Slight
84803	Hen Fron Reservoir	Reservoir	Low	Minor	Negligible	Neutral/Slight
84806	Blaen Cwm y Ddalfa ridge and furrow	Ridge and furrow	Negligible	Negligible	Negligible	Neutral
84807	Blaen Cwm y Ddalfa Barn ?	Barn	Negligible	Minor	Minor	Neutral/Slight
84809	Gwyn's Barn stone	Stone	Negligible	Negligible	Negligible	Neutral
84811	Cil-Cewydd Building	Building	Low	Moderate	Negligible	Neutral/Slight
84818	Maenllwyd Footbridge	Footbridge	Negligible	Negligible	Negligible	Neutral/Slight
84819	Glan-mule Milestone	Milestone	Negligible	Minor	No change	Neutral
84831	Bryn Dadl Turbary	Turbary	Negligible	Minor	Minor	Neutral/Slight
84832	Cwm-y-rhiwdre Hill Public Turbary	Turbary	Negligible	Minor	Minor	Neutral/Slight
84836	Great Cloddiau, Cyfer De	Field system	Low	Minor	Minor	Neutral/Slight
84838	Caerhowel Cowhouse	Barn	Negligible	Minor	Minor	Neutral/Slight
84839	Caerhowel, Maes y Pwll	Field system	Low	Minor	Minor	Neutral/Slight
84840	Woodlands Cross ? Piece	Cross	Negligible	Negligible	Negligible	Neutral
84841	Whitehouse Pound Ground	Pound	Negligible	Minor	Minor	Neutral/Slight
84844	Glanmiheli reservoir	Reservoir	Low	Minor	Negligible	Neutral/Slight
84845	Leighton Brickworks Pond	Reservoir	Medium	Minor	Negligible	Neutral/Slight
84851	Cwmdale Quarry	Quarry	Low	Minor	No change	Neutral
84852	Pen-y-lan Wood sheep pens	Sheep pens	Low	Moderate	Negligible	Neutral/Slight
84854	Fron Farm quarry	Quarry	Negligible	Minor	Negligible	Neutral/Slight
84855	Caerhowel holloway	Holloway	Low	Moderate	Negligible	Neutral/Slight
84857	Wood Cottage building I	Building	Low	Moderate	Negligible	Neutral/Slight
84858	Wood Cottage building II	Building	Negligible	Moderate	Negligible	Neutral
84860	Wood Cottage quarry I	Quarry	Low	Moderate	No change	Neutral
84861	Wood Cottage quarry II	Quarry	Low	Moderate	No change	Neutral
84863	Bryn Dadlau bank	Sheep shelter	Unknown	Moderate	Negligible	Neutral/Slight
84864	Bryn Cwmyrhiwdre quarry I	Quarry	Low	Moderate	No change	Neutral
84865	Bryn Cwmyrhiwdre quarry II	Quarry	Low	Moderate	No change	Neutral
84866	Wood Cottage quarry III	Quarry	Low	Moderate	No change	Neutral
84867	Blaen-cwm-y-ddalfa quarry	Quarry	Low	Moderate	Negligible	Neutral/Slight
84868	Crugyn Bank Dyke E	Short Dyke	High	Major	Minor	Moderate/ Slight

Sites Beyond the 100m Corridor & Within the 200m Corridor

8.6.14 Twenty-eight sites have been identified which could receive permanent and irreversible direct impacts, as listed in Table 8.11. Seventeen of these potential impacts are considered to be of minor magnitude were they to occur, nine of moderate magnitude and two of major magnitude. For the remaining assets listed, no discernible impact has been identified.

TABLE 8.11: CULTURAL HERITAGE ASSETS OUTSIDE THE 100M CORRIDOR BUT WITHIN THE 200M CORRIDOR BEFORE AND AFTER MITIGATION

PRN	Name	Site type	Value/ Sensitivity	Magnitude of impact before mitigation	Magnitude of impact after mitigation	Significance of impact
153	Henfron Moat	Moated site	High	Moderate	No change	Neutral
155	Goron Ddu enclosure	Hillfort	Medium	Moderate	No change	Neutral
1822	Cuckoo Hall hillfort	Hillfort	High	Moderate	No change	Neutral
1896	Black Gate Enclosure	Enclosure	Medium	Moderate	No change	Neutral
8040	Fron Henlog ridge and furrow	Ridge and furrow	Negligible	No change	No change	Neutral
8795	Llandyssil Smithy Site	Blacksmiths workshop	Low	No change	No change	Neutral
8797	Pen y Foel farmstead	Farmstead	Medium	Major	No change	Neutral
9013	Pen y Lan Cottage Site	House	Negligible	Minor	No change	Neutral
20297	Leighton Estate, workshop and cottages	House	High	Minor	No change	Neutral
20304	Gwyn's House	House	Unknown	Minor	No change	Neutral
30568	Caerhowel, `Home Farm' outbuildings	Farm building	Medium	Minor	No change	Neutral
42047	Cilthriew, Mile marker	Mile marker	Medium	Major	No change	Neutral
43111	Melin Maenllwyd	Mill	Unknown	Minor	No change	Neutral
71049	Edderton Hall, Lodge	Lodge	Low	Minor	No change	Neutral

71050	Edderton Hall, fish pond I	Fishpond	Low	No change	No change	Neutral
71089	Montgomery Railway Station	Railway station	Low	No change	No change	Neutral
71677	Fflos railway bridge	Railway bridge	Low	No change	No change	Neutral
72183	Caerhowel, The Old Smithy	House	Medium	Minor	No change	Neutral
84800	Hem farm farmstead	Farm	Unknown	Minor	No change	Neutral
84802	Court Calmore	Farm	Unknown	Minor	No change	Neutral
84805	Glanmiheli farmstead	Farm	Unknown	Minor	No change	Neutral
84810	Old Lodge Quarry II	Quarry	Low	Minor	No change	Neutral
84815	Forden building	Building	Low	Minor	No change	Neutral
84828	Cwm-y-rhiwdre Hill Quarry I	Quarry	Low	Minor	No change	Neutral
84829	Camnant Ford	Ford	Negligible	No change	No change	Neutral
84842	Upper Llan Derry	Place name	Unknown	Minor	Minor	Neutral/Slight
84846	Bron y Gwillt track ?	Trackway	Low	Minor	Minor	Neutral/Slight
84847	Cwm-y-rhiwdre Hill Quarry II	Quarry	Negligible	Minor	No change	Neutral
84850	Cwmdale Holloway	Holloway	Low	Moderate	No change	Neutral
84853	Pen-y-lan quarry	Quarry	Low	Moderate	No change	Neutral
84856	Wood Cottage	House	Low	Moderate	No change	Neutral
84859	Wood Cottage building III	Building	Low	Moderate	No change	Neutral
84862	Pen y Lan Wood quarry	Quarry	Low	Moderate	No change	Neutral
87226	Montgomery Station sawmill	Sawmill	Low	Minor	Minor	Neutral/Slight

Assessment of Indirect Effects

8.6.15 The following section, together with Table 8.12, summarises the predicted long-term but temporary indirect effects on the setting of designated sites within 2km of the proposed overhead line. The accompanying photographs and photomontages provided in Appendix T offer a representative series of views illustrating the appearance and perceptibility of the proposed overhead line from a range of locations in the surrounding landscape within which the designated sites are located. The locations of the sites are shown on Figure 8.1: Designated Sites.

Scheduled Ancient Monuments

8.6.16 *MG012 Forden Gaer Roman Site SO209990 (Viewpoint 37)*
The whole complex occupies the valley bottom where the River Camlad flows into the Severn. The essential setting is the valley floor and includes both rivers, but not the rising ground to the south and north-east which provides a perimeter to the landscape over which all this Roman activity spreads, nor the west bank of the Severn. The critical views from the military fort were in every direction, even if it is assumed that the view to the west was of greatest importance. The same is true today, and being little more than 500m away the overhead line will interfere significantly with the outlook to the east, even though the railway embankment may mask the lower parts of the poles, and more particularly to the south-east where the line rises onto higher ground below Hen Domen. Critical views to the fort and its surroundings are from the higher ground in the immediate vicinity, so uninterrupted views from the south-east will be compromised by the overhead line. The magnitude of the visual impact is considered **major** and the significance **large**.

8.6.17 *MG013 Hen Domen Mound and Bailey SO213980 (Viewpoint 23)*
MG170 Hen Domen Pre-Conquest Fields SO 212980
A medieval castle mound, and around and sealed beneath it is a field system, presumed to be Late Saxon in date. The castle was positioned on high ground to overlook the Severn Valley and control the major river crossing at Rhydwhyman. On this basis, the essential setting extends down to the Severn. Critical views from the motte and bailey are impeded by the tree cover on the earthworks, while any consideration of views to the site need to take into account that it is the position of the site rather than the earthworks themselves that will be visible from a distance to observers, because of the vegetation. Whilst the view from the valley floor may be considered the most important, views from any direction could be significant. The magnitude of the visual impact is considered **moderate**, and locally **major** because of the setting, and the significance **large**.

8.6.18 The field system is of different form in that the earthworks are slight and it is impossible to recognise the field system from a distance, thus hampering any views of it. An observer looking out from the field system will be aware of the overhead line, but it is questionable whether this would constitute a critical view. The essential setting of the field system is the ground that it currently occupies for there can be no certainty that it extended further than the scheduled area. The magnitude of the visual impact is thus considered **moderate** and the significance **moderate**.

8.6.19 *MG014 Cefn Bryntalch Mound & Bailey Castle SO175963 (Viewpoint 36)*
The essential setting is the knoll on which the castle is set, part of a longer ridge running eastwards, and its location immediately above the valley of the Severn is of particular significance. Critical views to the site are from the east. The presence of the overhead line is not relevant and from the far side of the Severn Valley where, because of the distance involved, the overhead line will have only a minimal visual impact. The more critical views from the castle site are westwards and southwards. The magnitude of the visual impact is considered **minor** and the significance **slight**.

8.6.20 *MG015 Ffridd Faldwyn Camp SO216968 (Viewpoint 66)*
The position is a dominant one, and the hill provides the essential setting for the hillfort, although it could be argued that with its exceptional outlook to the north-west and north-east, the fort's setting is considerably more extensive in those directions, taking in much of the lower ground that it commands. Critical views to the hillfort will not be affected by the overhead line, but views from it to the north-west where lie Forden Gaer and the tree-covered site of Hen Domen, will certainly be impaired. The visual impact is considered **moderate** and the significance **moderate**.

8.6.21 *MG019 Domen Castell Mound and Bailey Castle SJ230074*
The earthworks lie on the opposite bank of the Severn, more than 1km from the terminal of the overhead line. Today the setting of the castle extends little further than the edge of its earthworks, because of the presence of the much later railway, road and industrial buildings, although in the past it would have been rather wider, taking in the land around it which it controlled. Views both into and put of the site are severely restricted by surrounding trees. The visual impact is thus considered **negligible** and the significance **slight**.

8.6.22 *MG254 Railway Transfer Dock at Welshpool SJ229073*
This lies below Domen Castell and what is applicable to the castle is equally applicable to the transfer dock. The visual impact is considered **negligible** and the significance **slight**.

8.6.23 *MG022 Montgomery Castle SO221967 (Viewpoint 56)*
At its closest the overhead line is 1.7km away, but because of the natural topography together with nearby woodland, the first view of the overhead line will be to the north-north-west at a distance of nearly 2km. The essential setting of the castle encompasses the town below, but is in no way compromised by the overhead line. The only critical view that will take in the overhead line is to the north-north-west where the landscape is busy with the trappings of prolonged agricultural and settlement activity over many centuries. The overhead line will be obvious but it will be so distant that the visual impact is considered **minor** and the significance **slight**.

8.6.24 *MG023 Montgomery town defences SO220964*
The same constraints affecting the castle also affect the town (see above), and the urban build-up here further restricts views from and to the defences. The visual impact is considered **negligible** and the significance **slight**.

8.6.25 *MG221 Montgomery medieval town, part adjacent to Westmead SO224967*
For comments see MG023 - Montgomery town defences – above.

8.6.26 *MG034 Offa's Dyke: Goppas Wood SJ249072*
MG035 Offa's Dyke: Leighton Park SJ250042
MG152 Offa's Dyke: Goppas Wood SJ248065
MG153 Offa's Dyke: Pentre Section SJ247058
MG217 Offa's Dyke: Pentre Farm SJ248061
MG224 Offa's Dyke: School House SJ249083
Five contiguous sections with a combined length of nearly 2.5km are designated individually, north of Leighton Park, with a sixth section (Mg224) at a greater distance. At its closest the overhead line runs about 650m to the west. The essential setting of the dyke is the landscape it passes through and the area that it overviews; set on slightly rising ground at the base of Long Mountain, the dyke here overlooks much of the valley floor which thus constitutes its setting and through which the overhead line passes. Critical views to the dyke are primarily from the west, although views from above it to the east may also be significant, while the main views from the dyke look westwards. It should be stressed that in view of the length of the dyke, views will be variable along the length and locally will be affected by the level of surrounding tree cover and the natural undulations of the land. There can be little doubt that locally there will be a visual impact on the dyke and along this length it is considered **moderate** and the significance **large**.

8.6.27 *MG036 Offa's Dyke: Nant-Cribau Park SJ235014 (Viewpoint 58)*
MG037 Offa's Dyke: Hem Road SJ230004
MG138 Offa's Dyke: Court House Farm SJ243027
MG139 Offa's Dyke: Welshpool-Churchstoke Road SJ242022
Four contiguous sections with a combined length of nearly 3.5km are designated individually, north of Leighton Park. At its closest the overhead line runs about 650m to the west. The essential setting of the Dyke is the landscape it passes through and the area that it overviews: here the dyke passes across the undulating ground that forms the southern tail of Long Mountain, as does the overhead line, but in addition there will be distant views of the overhead line cutting across the Camlad Valley. Critical views are much the same as those defined above for Mg034 et al. At its closest the overhead line may result in a **moderate** visual impact, although elsewhere and more frequently it will be minor. The significance is thus **large**, but more normally **moderate** and even **slight** in places.

8.6.28 *MG042 Maen Beuno SJ202012*
MG174 Dyffryn Lane enclosure I SJ200013
MG157 Dyffryn Lane Ring Ditches and Pit Alignments SJ204015
Two of these three scheduled sites form part of a more extensive prehistoric landscape on the valley floor, the standing stone, the henge and several barrows being the visible elements at surface level, while the hall is undated, but if early medieval in origin, adds another dimension to this landscape. The essential setting is thus the whole of the river terrace from the west side of the main road across to the river, although it would be difficult and certainly misleading to define a boundary to this prehistoric landscape. No one viewpoint emerges as being more significant than the any other. The only view that may be compromised by the overhead line is looking eastwards from or across the river terrace when the poles will be very distant and the height of the landscape on the east side of the river may even prevent any intervisibility. The visual impact is considered **minor** and the significance **slight**.

8.6.29 *MG048 Two Tumps Round Barrows SO118851*
The ridge that represents the essential setting of the barrows is too distant for the overhead line to have any significant effect. Critical views from the barrows are along the ridge, but also down into the Mule Valley, where the overhead line may be visible though only distantly. At closer quarters, the overhead line will be screened by the natural topography. Critical views to the barrows are also along the ridge, while views from lower ground to the north may pick them out only as faint and unintelligible undulations in the even line of the ridge, because of the distances involved. The visual impact is thus considered **minor** and the significance **slight**.

8.6.30 *MG050 The Moat Mound and Bailey Castle, Kerry SO146894*
The earthwork occupies a gentle knoll on a ridge and it is the latter than represents the essential setting of the earthwork castle. Views of the castle and from it are obscured by the woodland that cover both the mound and bailey, so it is the setting rather than site itself which might be affected visually - and it might be argued that the Severn-Trent Water installation which has been permitted immediately outside its northern boundary has already fundamentally impaired the setting. Coupled with the distance involved, the visual impact is considered **minor** and the significance **slight**.

8.6.31 *MG055 Kerry Hill Stone Circle and barrow SO158861*
MG256 Block Wood Round Barrow SO152863
The stone circle occupies part of the broad, flat Kerry ridge and with the two barrows nearby forming a group the setting encompasses them all. No one critical view can be suggested for the group. The stone circle looks down towards the head of the Nant Rhydyfedw valley and its position suggests that views to and from the south were the most important. The nearby barrow less than 200m to the north-east is on the flat crest of the ridge and its most important vistas are along this natural level. The Block Wood barrow is similar but in addition would have had views over the lower ground to the north, where the overhead line is routed. In addition, the intervisibility of the monuments may have been important, even if we cannot be certain that the monuments were in contemporary use. However, because of the lower altitude of the overhead line and the shielding effects of the surrounding forestry, there is not likely to be any visual impact and the significance is considered **no change**. It should be noted that the conifer plantations around the Block Wood barrow have recently been cleared opening up vistas to the north, but this is presumed to be a temporary situation and that replanting will occur.

8.6.32 *MG062 Crugyn Bank Dyke SO106855 (Viewpoint 26)*
MG063 Two Tumps Dyke SO118847
In the past these two lengths of earthwork have been treated as separate entities but they actually appear to be part of the same feature. Such is the length of this linear feature, together with its high visibility as an earthwork, that its essential setting is a large one, taking in much of the head of the valley that it crosses. Equally, the length and nature of the earthwork results in different critical views, both from and to it, in different places. Added to this, the overhead line passes over the top of the earthwork, with the result that the visual impact will be **major** and the significance **very large**.

8.6.33 *MG080 Tomen Madoc Castle Mound SO144908*
The castle's setting is the ridge high above the Mule Valley on which it was built, and this is not likely to be affected except in the most general terms. Views from the castle mound may take in the overhead line to the east, but this will be distant and partially masked by the trees on top of the mound. Views of the castle are unlikely to be compromised in any way. The visual impact is thus considered **minor** and the significance **slight**.

8.6.34 *MG086 Polyn y Groes-Ddu Round Barrow SO036836*
MG290 Polyn y Groes Ddu Round Cairn II SO036836
These adjacent cairns are set on a ridge already occupied by the Llandinam wind farm, with one of the turbines 100m away and at least ten more off to the east and north-east. Whilst it might be argued that the introduction of the overhead line will increase the cumulative impact on the ancient monuments, it is the existing turbines, both larger in size and closer, which dominate the setting and the views. Consequently the visual impact is considered **minor** and the significance **slight**.

8.6.35 *MG102 Nant-Cribau Moated Site SJ241013*
This site lies on flattish ground behind Nantcribba Farm. Historically, although it may have been a successor to the motte and bailey castle 400m to the west and thus part of the same medieval landscape, its essential setting is this flattish saddle of land, for the higher ground to east and west was eschewed by the builders. Because of its position, the overhead line, which is situated lower down the valley side, is unlikely to be visible, and the farm buildings and the ridge with Nantcribba motte and bailey will also mask views from the moat. Very distant views of the moat from the north-east might encompass the overhead line but at a distance of several kilometres it would be barely perceptible. The visual impact is considered **minor** or even **neutral** and the significance **slight**.

8.6.36 MG109 Crugynau Round Barrow SO107840
RD250 Banc Gorddwr round barrow SO 110 837
These occupy a broad flat ridge which should be identified as the essential setting for both monuments, but the Crugynau Round Barrow is in fact a natural mound whose integrity as a scheduled ancient monument must thus be in question. The overhead line runs to the north-east and may well be visible from the mound about 1km away. It is the views from the mound that may be compromised rather than views to it, which are unlikely to be affected, nor is it setting. The visual impact is considered **moderate** and the significance **moderate**.

8.6.37 *MG112 Giant's Bank Camp SO151922*
This is in a prominent location and the enclosure commands both the ridge and the ground that falls away from it. This setting, however, is not affected by the overhead line, nor are views to the enclosure from higher ground to the south and south-east. The view from the enclosure may well encompass the overhead line, which is only a little lower, but over 1.3km away. At this distance, the visual impact is likely to be **minor** and the significance **slight**.

8.6.38 *MG121 Glog Round Barrows SO092853*
These barrows are spaced for a distant of more than one kilometre along a high ridge, and it is this ridgeline that provides the essential setting for them all. It is symbolic too, as below Glog are the sources of the rivers Ithon, which flows southwards towards the Wye, the Mule flowing north-eastwards towards the Severn, and a little further away the Teme running off to the south-east. Critical views are primarily along the ridge taking in the intervisibility of these broadly contemporary features, and any views across the ridge are not likely to be affected. The views from some of the barrows to the overhead line, which is at a lower altitude, may be masked by the flatness of the ridge, but others may see the upper part of some of the poles, which at their closest will be about 600m away. The impact on the group as a whole is considered **minor** and the significance **slight**.

8.6.39 *MG122 Crugyn Round Barrows SO104858*
As with Glog, the setting is the ridge on which the barrows have been thrown up. Whilst views of the barrows won't be affected, the overhead line may be visible from some of them to the south and at a greater distance to the south-east. Although the impact on the group as a whole is considered **minor** and the significance **slight**, in certain localities, the significance could increase to **moderate**.

8.6.40 *MG130 Lower Min-y-Llyn Castle Mound SJ210009*
The mound utilises the edge of the river terrace beside the Severn and it is this riverside setting, which was important. The mound is now tree-covered, and any views to and from it will be blocked by this vegetation. The visual impact is considered **minor** and the significance **slight**.

8.6.41 *MG135 Fron Derw Wood Camp SO171889*
Its essential setting is the slope that it occupies but not the high ground above it. Critical views westwards will potentially encompass the overhead line, but these will be restricted by the coniferous woodland which envelops the whole enclosure and blocks views both to and from it. The visual impact is likely to be **minor** and the significance **slight**.

8.6.42 *MG136 Sibwll Wood Camp SO180895*
Like the enclosure in Fron Derw Wood, this camp occupies sloping ground, which creates its essential setting. Similarly it lies in woodland, which will restrict views to and from it. Given the distances involved – over 1.6km at the closest, there is not likely to be any visual impact and the significance will be **neutral**.

8.6.43 *MG148 Nant-Cribau Castle Mound SJ237014*
The essential setting of this castle is the ridge that it occupies and the surrounding ground that it commands, which in this muted terrain is quite extensive. However, its distance from the overhead line (1.4km at the closest), its setting is unlikely to be compromised and it is unlikely that views of the castle will affected. The terrain is such that the line will be observed from the top of the mound, primarily looking to the south-west and perhaps the north-west. Because of the distance involved, the visual impact will be no more than **minor** and the significance **slight**.

8.6.44 *MG167 Llwyn-Wron Cursus SJ216047*
This cursus lies on the valley floor of the Severn with the overhead line on the opposite side of the valley at a slightly higher altitude. The essential setting is a wide swathe of the valley floor, which originally could have encompassed other prehistoric funerary and ritual monuments, which are not now statutorily designated, but all lie on the west side of the river. This setting will not be affected by the overhead line, and the absence of visible traces of the monument means that views of it are not relevant. A viewpoint from the site of the cursus looking eastwards might conceivably encompass sections of the top of the overhead line across hedge lines and the railway but the visual impact will be **minor** and the significance **slight**.

8.6.45 *MG281 Coed y Dinas Round Barrow SJ223059*
This lies a little over 1km to the north of the cursus, and arguably is an element of the same long-lived prehistoric landscape. The comments on Mg167 are equally applicable here and the visual impact of the overhead line is considered **minor** and the significance **slight**.

8.6.46 *MG168 Great Cloddiau enclosure SO156908*
This occupies what is almost the highest point of a flat-topped ridge. The essential setting is the ridge. As this is likely to be a successor settlement to Great Cloddiau camp (see below), the latter should be included in the setting. The absence of any visible remains dilutes views of the site, with the only critical view arguably eastwards to the camp. The visual impact is considered **moderate** and the significance **slight**.

8.6.47 *MG169 Great Cloddiau Camp SO158909 (Viewpoints 33 & 52)*
The overhead line runs to the south and east of the camp, the setting of which is much of the ridge that it occupies, particularly immediately to the east, which its position favours. This position too strengthens the belief that the critical views from the hillfort are to the east and south, over the Mule Valley. Whilst views of the hillfort can be achieved from almost any direction, it is the views from the south-east across what is a largely open landscape that are the most significant. It is these views that will clearly be compromised by the proposed overhead line. For these reasons, the visual impact on the site is considered **major** and the significance **large**.

8.6.48 *MG172 Glanmule hengiform monument SO165906*
Lying on a gently rising riverine terrace just above the River Mule, the ring ditch and its valley setting will have the overhead line as a backdrop to the north-west. There will therefore be some visual impact, with views to the site of the barrow (from the east) and from it westwards, even if they are partially restricted by the rising ground and intervening hedge boundaries. This impact is considered **moderate** and the significance **moderate**.

8.6.49 *MG177 Pen-y-gelli defended enclosure SO176910*
This enclosure occupies gently undulating ground in a large loop of the River Mule. Its essential setting is the ground that it occupies, together with further ground around it that might have been in contemporary use. Defining this specifically is not possible. Its almost level situation favours no single critical view, although the most likely is from the south across the Mule. As there is no above ground evidence, the view is of landscape rather than historic remains. Similarly, the views from the site of the enclosure embrace the whole circuit, and long lengths of the overhead line are likely to be visible to the west, albeit at a distance. Visual impact is likely to be **minor** to **moderate** and the significance **moderate**.

8.6.50 *MG208 Wantyn Dyke SO187913*
Lying on the east side of the Mule Valley on a north-west to south-east alignment, this cross dyke is one of the longest of the shorter dykes in the region. Its essential setting is the ground across which it runs whether ridges, valleys of hillsides. Defining how wide that corridor might be is virtually impossible as it varies considerably along its length, only part of which is statutorily designated. Facing westwards, the critical views of the dyke at the time that it was thrown up would have been from at the west and thus the overhead line is unlikely to have any impact. Contemporary views of the dyke, however, could be rather wider including from the east, but again in view of the varying topography across which the dyke travels, the prospect will vary from place to place. Visual impact is likely to be **minor** and the significance **slight**.

8.6.51 *MG220 Henfron Moated Site SO187962 (Viewpoint 55)*
Henfron Moated Site sits on a spur running off a hilltop to the east, a position chosen because of its relative flatness and the presence of a natural water supply. The essential setting, then, is restricted to the spur and this will be compromised by the overhead line although perhaps not significantly. Views to the moated site from the east and more distantly from the north encompass the woodland vegetation surrounding the moat rather than the earthwork itself. Critical views from the moat itself, however, range from the north-east, through the west, to the south-west and inevitably will take in the overhead line at close quarters. The visual impact is considered to be **major** and the significance **large**.

8.6.52 *MG236 Cefn Llan hillfort SO205947*
The hilltop on which the Cefn Llan enclosure sits provides the essential setting of this defended site, together with the hill slopes below, which it controlled. Another hill of similar height lies to the north-west and shields a significant part of the overhead line from the view of the enclosure. Any critical views of the fort would need to be from higher ground, and this occurs to the north and north-east and thus would be generally unaffected by the overhead line. Visual impact is considered to be **minor** and the significance **slight**

8.6.53 *MG237 Mount Pleasant Enclosure SO189936*
It occupies the north-eastern flank of a low hill, and it is this position together with a restricted amount of land around it that provides the essential setting. Critical views of the enclosure are likely to be from the south-west and north-east, and thus unlikely to be effected by the overhead line. Views westwards from the enclosure are likely to encompass the overhead line only intermittently because of the undulating landscape. Intervisibility with other contemporary farmsteads is unlikely to be compromised. The potential visual impact is considered **minor** and the significance **slight**.

8.6.54 *MG240 Hill Tenement Enclosure SO180885*
This enclosure is positioned on an east-facing slope, which focuses on the head of a valley, which represents the setting of the farmstead. Views to and from the enclosure will not be affected by the overhead line because of intervening hills and the significance is therefore considered **neutral**.

8.6.55 *MG253 Waun Lluest Owain huts SO036841*
The earthworks are set on a ridge already occupied by the Llandinam wind farm, with one turbine less than 100m to the west and three virtually in line with the proposed overhead line and others to the north and south. The introduction of the overhead line may increase the cumulative impact on the enclosure but not significantly, given that the existing turbines, both larger in size and closer, dominate the setting and the views. The visual impact of the overhead line is considered **minor** and the significance **slight**.

8.6.56 *MG257 Barrow west of Cae-Betin Wood SO125864 (Viewpoints 50 & 67)*
The ridge top on which this and a neighbouring, but unscheduled, barrow are positioned is considered the essential setting. It is an open landscape resulting from late enclosure on which only the field boundaries and the plantation set just below the ridge crest have been imposed. Because of this, it will be compromised by the overhead line. The most critical view of the barrow, from higher ground to the south, will be interrupted, while views from the slightly higher, unscheduled barrow to the north-east will have the overhead line as a backdrop. The visual impact is thus considered **major** and the significance **large**.

8.6.57 *MG280 Bryn Cwmyrhiwdre Round Barrow SO079839 (Viewpoint 2)*
Despite the incorrect location (see Table 8.7), this barrow still lies within the corridor, and the overhead line passes within 30m of the centre of the barrow. Its setting is the flat shelf, which it occupies, and this can be seen from all directions, even from the north, which has the most restricted field of view. Views to the barrow and from it in all directions except southwards will inevitably be compromised by the construction of the overhead line. The visual impact is therefore considered **major** and the significance **very large**.

8.6.58 *MG283 Llwynderw Round Barrow SJ210036*
This round barrow lies on the valley floor of the Severn and such is its distance from the overhead line that its setting will not be compromised by the introduction of the overhead line. Views from the barrow and on to it from the higher ground to the west will encompass the overhead line, but at such a distance, the effect will be **minor** and the significance **slight**.

Listed Buildings and Features

8.6.59 *7776 Saint Mary's church, Welshpool Grade I SJ22550766*
7791 Nos 5 & 6 High Street, Welshpool Grade II SJ22350759*
16704 Former Powysland Museum & Library, Welshpool Grade II SJ22600768*
These three top-graded buildings in Welshpool have the town core as their essential setting, though because of their disparate dates each contemporary setting will differ slightly. Critical views to and from the listed buildings will not be significantly altered by the inclusion of the overhead line in the landscape, for at its nearest it will be around 1.5km away with views masked by other buildings. The exception may be a view over the church from the higher ground of the churchyard with the overhead line a distant feature behind already existing industrial units. The potential visual impact is considered **minor** and the significance **slight**, almost neutral.

8.6.60 *7947 Montgomery Castle Grade I SO22159680*
7975 Llwyn Cottage and Rock House Grade II SO22189645*
The castle and elements of the town have already been considered as a SAM(see above Mg023 & 221).

8.6.61 *8663 Leighton Hall Grade I SJ241130458*
15627 Footbridge and boundary wall on N side of Leighton Hall Grade II SJ24150470*
15628 Footbridge E of Leighton Hall Tower Grade II SJ24190458*
19523 Leighton Hall Tower Grade I SJ24140455
19531 Footbridge E of Serpentine Pond at Leighton Hall Grade II SJ24220468*
The various listed structures and buildings of Leighton Hall have been grouped together here.

8.6.62 The hall and its gardens are situated on the lower western slopes of Long Mountain about 45m above the floor of the Severn Valley. The ground here is relatively level and the hall is placed well back from the lip of the slope down onto the valley floor. The essential setting of the hall takes in not only the relatively small area of parkland around the house, but also the model farm to the north (see below) and the pasture and woodland around both. Note too that the essential setting of the gardens have been even more widely delineated by Cadw.

8.6.63 Critical views from the house look westwards (from its main front) across parkland to the river valley, north-westwards across open ground and eastwards to the rising slopes of Long Mountain. There is also a tower that rises above the main hall and presumably offers more extensive views in all directions. Critical views to the hall are from the north-west, from the gardens to the north and east and from the tree-clad slopes over to the east. There is little doubt that the overhead line will be visually intrusive in places, although existing overhead lines are a feature of the landscape and intervening trees and topography will screen some views. The visual impact is therefore considered **moderate** and the significance **moderate**.

8.6.64 *8670 Leighton Farm piggery and sheep shed Grade II* SJ24250528*
8671 Leighton Farm fodder storage building Grade II SJ24300525*
8672 Leighton Farm fodder storage building Grade II SJ24340525*
8673 Leighton Farm former root shed Grade II SJ24300523*
19507 Leighton Farm threshing barn and granary Grade II SJ24250525*
19508 Leighton Farm cart shed Grade II SJ24290523*
19509 Leighton Farm mill and tank house Grade II SJ24250532*
19510 Leighton Farm stockyard I Grade II SJ24270527*
19511 Leighton Farm stockyard II Grade II SJ24230527*
19512 Leighton Farm stockyard III Grade II SJ24200527*
19513 Leighton Farm hay storage building, Grade II SJ24220526*
19514 Leighton Farm stockyard IV Grade II SJ24250523*
19515 Leighton Farm former office and stock houses Grade II SJ24210524*
19516 Leighton Farm stable Grade II SJ24250521*
19517 Leighton Farm west stockhouse Grade II SJ24180525*
19519 Leighton Farm former sheep-drying shed Grade II SJ24190532*

8.6.65 The model farm at Leighton Hall was constructed during the second half of the 19th century, and contains 16 separately listed elements, all Grade II*. The essential setting must include Leighton Hall itself and also the surrounding grounds which were worked from the farm itself and which create a wider setting than that identified for Leighton Hall Park (for which see below). This could be assumed to include the fields between the farm and the river and thus there will be some direct impact from the overhead line on the setting.

8.6.66 The critical views from and to the model farm and its buildings are likely to be from all directions, with perhaps the exception of the south, where in the past views from the hall to the farm are not likely to have been welcomed. However, the boundaries around the farm include a significant number of trees and a gently sloping ridge rises in front of the farm before the ground drops again into the valley where the overhead line runs. Together these moderate the potential visual impact of the overhead line. Because of this, it is likely that there will only be views of the overhead line to the north-east. Thus, there is likely to be a limited visual impact on the listed buildings and this is considered **minor** and the significance **moderate**.

8.6.67 *8667 Leighton Farm poultry house Grade II* SJ24860410*
This is separate from both Leighton Hall and from the model farm itself, and is surrounded by plantations. It has its own setting which is restricted to a limited area around the building itself, but the boundary of the registered park for Leighton (see below) has been drawn by Cadw to include the Poultry House, giving it a wider landscape setting as well. Views of the Poultry House are restricted by the trees around it, and the overhead line is more likely to have a visual impact for the observer from the building. Because of the distance involved and the presence of trees immediately in front of the building, the likely impact is considered **minor** and the significance **slight**.

8.6.68 *8668 Leighton, Holy Trinity church Grade II* SJ24260595 (Viewpoints 59 & 63)*
The setting for the church is its surrounding churchyard and the annexed patch of ground between the churchyard and the road. To this might be added the nearby north lodge. However, whilst the church undoubtedly forms part of the broader Leighton Hall landscape, it lies outside the registered historic park and cannot be claimed as part of the essential setting of that feature. Distant views of the church from the west will be affected by the overhead line, which will be visible at a distance of 400m from the church and be an addition to the landscape backdrop from viewpoints to the east. But from the churchyard itself, the overhead line will be intermittently shielded by trees which populate many of the field boundaries in this area. The visual impact is likely to be **moderate** and the significance **moderate**.

8.6.69 *8715 Moel y Mab slurry tank Grade II* SJ24960545*
The slurry tank was constructed on the top of a hillock known as of Moel y Mab in the early 1850s as a reservoir for manure slurry, which was then pumped on to fields on the Leighton Estate. The setting is the tree-shrouded hill, and the view of the slurry tank is deliberately obscured by conifers. Similarly, it is assumed that views from the slurry tank are restricted. The potential visual impact is considered to be **minor** and the significance **slight**.

8.6.70 7730 Gl*anhafren Grade II* SJ22830460*
7733 Glanhafren great barn Grade II SJ22820454*
Glanhafren is a gentry home and adjacent is a large farm barn, essentially of cruciform design, associated with the Leighton Park Estate and built in 1871. There are other features in the complex that are Grade II listed. Glanhafren has a riverside setting on the west bank of the Severn, with fields and some trees. The presence of the railway line to the west and a caravan park on the opposite bank of the river has adversely affected this rural setting. The house faces east so it is the critical views from the house rather than to it, which are likely to be affected. At under 500m the overhead line will be visible, but through a partial screen of trees and over the tops of the caravans. Because of this, the potential visual impact is considered **minor** and the significance **slight**.

8.6.71 *16797 Powis Estate sawmill Grade II* SJ22160585*
The setting is the sawmill's own working area, the canal which passes it to the west and arguably the modern road running to the east which has served it. At a distance of nearly 1.5km the setting will not be affected, and views from and to the sawmill (from the west) will encompass the overhead line only as a distant landscape feature beyond the embanked bypass and the river. The visual impact will be **minor** and the significance **slight**.

8.6.72 *7714 Cefn Bryntalch Hall Grade II* SO17699632*
See historic parks and gardens section below.

8.6.73 *17008 St Llwchaiarn's church, Llanmerewig Grade II* SO15779317*
The essential setting of the church with its churchyard is the ridge top that it occupies and the adjacent farm and other buildings that make up the small community. At a distance of 1.2km this elevated setting will not be affected by the overhead line, nor will views of the church be affected. Any views of the overhead line from the church are likely to be intermittent and distant, and perhaps most likely to the south-east. The visual impact will be **minor** and the significance **slight**.

8.6.74 *7558 St Michael and All Angels church, Kerry Grade I SO14719010*
An important church, originating as a mother church for the region, with some 12th-century fabric in it and set in a semi-curvilinear churchyard. Its setting is not only the historic village that lies to the south and west but also the land running down to the River Mule to the north and off to the south, which lie within the original enclosure of the mother church. This will not be any physical impact on the church or its setting from the overhead line, but there will be distant views of the line from the church's setting looking down the valley. Because of the distance involved, but more because of the shielding effect of other buildings (except from the top of the church tower), the visual impact will be **minor** and the significance **slight** or perhaps even **neutral**.

8.6.75 *7561 Dolforgan Hall Grade II* SO14309030*
The essential setting of the house is the gardens and grounds, the wood pastureland than runs down to the River Mule to the south, and perhaps some of the woodland to the north. This setting will not be affected visually by the overhead line. The overhead line may be visible down the valley but at 1.7km it will be distant and some screening will be provided by the wood pasture. The visual impact will be **minor** and the significance **slight**.

Historic Parks and Gardens

8.6.76 *PGW (Po) 29 Cefn Bryntalch Grade II* SO177964*
The garden as defined by Cadw is small, no more than 2.6ha, and the essential setting, which encompasses it on all sides, adds another 14ha. The garden itself contains many trees, thus shielding any views. Instead, it is the essential setting that is more likely to have some views of the overhead line around 800m to the east, although these may be limited by intervening higher ground. Critical views from Cefn Bryntalch across its gardens are to the south-west and north-east, neither of which will be affected by the overhead line. Critical views to the garden are from the east, and the overhead line is thus of no significance. The magnitude of the visual impact is considered **minor** and the significance **slight**.

8.6.77 *PGW (Po) 34 Leighton Hall Grade I SJ242046 (Viewpoint 65)*
The boundary of this landscape as defined by Cadw takes in the model farm buildings to the north and runs to the wooded slopes of Long Mountain on the east. At its closest, the overhead line could be within 300m of the boundary. The essential setting of the registered park and garden (again as defined by Cadw) includes plantations that form a boundary to the east where they may have been part of the 'pleasure grounds' of the estate, to the south and south-west. There will be no direct impact (see above comment) by the overhead line on this setting. The one significant view identified by Cadw is north-westwards from the hall, when the overhead line will be just over one kilometre distant. However, while almost any view westwards from the historic park/garden could encompass the overhead line, the natural topography will probably moderate the impact. Views across the historic park/garden from the east will include the overhead line as part of the backdrop, whilst views from the west towards the hall and its parkland will certainly encompass the overhead line as well as the registered landscape behind it. As with Leighton Hall itself, the potential visual impact is considered **moderate** and the significance **moderate**.

8.6.78 *PGW (Po) 35 Powis Castle Grade I SJ217064 (Viewpoint 41)*
Powis Castle came into existence in the 12th century and from the 15th century was gradually transformed into a mansion. The garden and pleasure grounds lie in front of and downslope to the south-east of the castle itself. The essential setting as defined by Cadw surrounds the garden and pleasure grounds on all sides, extending on to higher ground to the north. The 2km study area boundary passes through the defined garden area, so the overhead line will at worst be a distant feature in the valley landscape. Its presence will not affect the setting of the garden, but it ay be distantly visible in views from the castle, from its gardens and from the higher ground to the north-west looking across the registered area However, these will be interrupted by trees around and beyond the park. Because of the distance involved, the potential visual impact is considered **minor** and the significance **slight**.

8.6.79 *PGW (Po) 31 Glansevern Hall Grade II* SJ196001*
Glansevern Hall was built at the beginning of the 19th century and the garden and park features will be of contemporary or more recent date. The park is defined by Cadw as being about 40ha in area on all sides of the hall, while the essential setting is identified as land on three sides, running down to the river, but not extending across the main road to the west. Glansevern lies fractionally beyond the 2km study area boundary on the opposite side of the Severn. The park and its setting will not be affected by the overhead line. The park's low-lying location and the intervening distance will reduce the visibility of the overhead line whether from, or eastwards to, the garden. The visual impact is considered **minor** and the significance **slight** or perhaps even **neutral**.

8.6.80 *PGW (Po) 58 Garthmyl Hall Grade II SO190989 (Viewpoint 57)*
The boundary of the 'park' as determined by Cadw occupies a rectangular tract of ground on the north side of the main Welshpool to Newtown road, with the house at its centre. The essential setting extends the sensitive area of Garthmyl to the south-west and to the south-east, but not in other directions. At its closest, Garthmyl Hall's registered parkscape lies around 1.2km away to the south-east. Both the house and some of the park are well screened by trees and the overhead line is not likely to have an impact. Other parts, however, are more exposed, and ground that forms the essential setting south-east of the main road may have distant views of the overhead line across the river, though these will be limited by the flat terrain of the valley floor. The significant views from the hall according to Cadw are to the south-south-west and the south-west. The former may encompass the overhead line but at a distance of almost 2km, the latter not at all. Views across the park from the higher ground to the north-west will encompass the overhead line in the distance. Overall, the visual impact will be **minor** and the significance **slight**.

8.6.81 Table 8.12 summarises the assessment of the predicted indirect impacts on the setting of designated sites within 2km of the proposed overhead line. This shows that very large visual impacts are likely to occur on the setting of Crugyn Bank Dyke, Two Tumps Dyke and Bryn Cwmyrhiwdre Round Barrow, whilst a large impact is likely to occur on a further fifteen sites.

TABLE 8.12: PREDICTED INDIRECT IMPACTS ON THE SETTING OF DESIGNATED SITES WITHIN 2KM OF THE PROPOSED OVERHEAD LINE

Site designation	Name	NGR	Distance to OHL corridor	Value	Significance of impacts
MG012	Forden Gaer Roman Site	SO209990	0.3	High	Large
MG013	Hen Domen Mound & Bailey Castle	SO213980	0.2	High	Large
MG014	Cefn Bryntalch Mound & Bailey Castle	SO175963	1.0	High	Slight
MG015	Ffridd Faldwyn Camp	SO216968	1.2	High	Moderate
MG019	Domen Castell Mound and Bailey Castle	SJ230074	1.2	High	Slight
MG022	Montgomery Castle	SO221967	1.6	High	Slight
MG023	Montogmery town defences	SO220964	1.8	High	Slight
MG034	Offa's Dyke: Goppas Wood	SJ249072	0.8	Very High	Large
MG035	Offa's Dyke: Leighton Park	SJ250042	1.4	Very High	Large
MG036	Offa's Dyke: Nant-Cribau Park	SJ235014	1.4	Very High	Large
MG037	Offa's Dyke: Hem Road	SJ230004	0.7	Very High	Large
MG042	Maen Beuno	SJ202012	1.7	High	Slight
MG048	Two Tumps Round Barrows	SO118851	0.6	High	Slight
MG050	The Moat Mound and Bailey Castle	SO146894	1.5	High	Slight

MG055	Kerry Hill Stone Circle	SO158861	1.1	High	Neutral
MG062	Crugyn Bank Dyke	SO106855	Corridor	High	Very large.
MG063	Two Tumps Dyke	SO118847	0.4	High	Very large
MG080	Tomen Madoc Castle Mound	SO144908	1.5	High	Slight
MG086	Polyn y Groes-Ddu Round Barrow	SO036836	1.1	High	Slight
MG102	Nant-Cribau Moated Site	SJ241013	1.9	High	Slight
MG109	Crugynau Round Barrow	SO107840	1.0	High	Moderate
MG112	Giant's Bank Camp	SO151922	1.2	High	Slight
MG121	Glog Round Barrows	SO092853	0.5	High	Slight
MG122	Crugyn Round Barrows	SO104858	0.5	High	Slight/Moderate
MG130	Lower Min-y-Llyn Castle Mound	SJ210009	0.9	High	Slight
MG135	Fron Derw Wood Camp	SO171889	0.9	High	Slight
MG136	Sibwll Wood Camp	SO180895	1.6	High	Neutral
MG138	Offa's Dyke: Court House Farm	SJ243027	1.3	Very High	Large
MG139	Offa's Dyke: Welshpool-Churchstoke Road	SJ242022	1.3	Very High	Large
MG148	Nant-Cribau Castle Mound	SJ237014	1.6	High	Slight
MG152	Offa's Dyke: Goppas Wood	SJ248065	0.7	Very High	Large
MG153	Offa's Dyke: Pentre Section	SJ247058	0.8	Very High	Large
MG157	Dyffryn Lane Ring Ditches & Pit Alignments	SJ204015	1.4	High	Slight
MG167	Llwyn-Wron Cursus,	SJ216047	1.4	High	Slight
MG168	Great Cloddiau enclosure	SO156908	0.5	High	Slight
MG169	Great Cloddiau Camp	SO158909	0.3	High	Large
MG170	Hen Domen Pre-Conquest Fields	SO212980	0.2	High	Moderate
MG172	Glanmule hengiform monument	SO165906	0.3	High	Moderate
MG174	Cropmark Site E of Plas-Llwyn	SJ200013	1.9	High	Slight
MG177	Pen-y-gelli enclosure	SO176910	1.1	High	Moderate
MG208	Wantyn Dyke	SO187913	1.1	High	Slight
MG217	Offa's Dyke: Pentre Farm	SJ248061	0.8	Very High	Large
MG220	Henfron Moated Site	SO187962	<0.1	High	Large
MG221	Montgomery town, part adjacent to Westmead	SO224967	1.9	High	Slight
MG224	Offa's Dyke: School House	SJ249083	1.7	Very High	Large
MG236	Cefn Llan hillfort	SO205947	1.9	High	Slight
MG237	Mount Pleasant Enclosure	SO189936	0.9	High	Slight
MG240	Hill Tenement Enclosure	SO180885	1.9	High	Neutral
MG253	Waun Lluest Owain huts	SO036841	1.1	High	Slight
MG254	Railway Transfer Dock at Welshpool	SJ229073	1.2	High	Slight
MG256	Block Wood Round Barrow	SO152863	0.9	High	Neutral
MG257	Barrow west of Cae-Betin Wood	SO125864	0.2	High	Large
MG280	Bryn Cwmyrhiwdre Round Barrow	SO079839	Corridor	High	Very Large
MG281	Coed y Dinas Round Barrow	SJ223059	1.3	High	Slight
MG283	Llwynderw Round Barrow	SJ210036	1.8	High	Slight
MG290	Polyn y Groes Ddu Round Cairn II	SO036836	1.1	High	Slight
RD250	Banc Gorddwr, round barrow	SO 110837	1.4	High	Moderate
LB7558	St Michael and All Angels church, Kerry	SO14719010	1.2	High	Slight
LB7561	Dolforgan Hall	SO14309030	1.6	High	Slight
LB7714	Cefn Bryntalch Hall	SO17699632	0.6	High	Slight
LB7730	Glanhafren	SJ22830460	0.4	High	Slight
LB7733	Glanhafren great barn	SJ22820454	0.4	High	Slight
LB7776	Saint Mary's church, Welshpool	SJ22550766	1.7	High	Slight
LB7791	Nos 5 & 6 High Street, Welshpool	SJ22350759	1.9	High	Slight
LB7947	Montgomery Castle	SO22159680	1.8	High	Slight
LB7975	Llwyn Cottage and Rock House, Montgomery	SO22189645	1.9	High	Slight
LB8663	Leighton Hall	SJ241130458	0.8	Moderate	Moderate
LB8667	Leighton Farm poultry house	SJ24860410	1.5	High	Slight
LB8668	Leighton, Holy Trinity church	SJ24260595	0.3	High	Moderate
LB8670	Leighton Farm piggery and sheep shed	SJ24250528	0.6	High	Slight
LB8671	Leighton Farm fodder storage building	SJ24300525	0.6	High	Slight
LB8672	Leighton Farm fodder storage building	SJ24340525	0.6	High	Slight
LB8673	Leighton Farm former root shed	SJ24300523	0.6	High	Slight
LB8715	Moel y Mab slurry tank	SJ24960545	1.2	High	Slight
LB15627	Footbridge and boundary wall -N side of Leighton Hall	SJ24150470	0.8	Moderate	Slight
LB15628	Footbridge E of Leighton Hall Tower	SJ24190458	0.8	Moderate	Slight
LB16704	Former Powysland Museum & Library, Welshpool	SJ22600768	1.7	High	Slight
LB16797	Powis Estate sawmill	SJ22160585	1.4	High	Slight
LB17008	St Llwchaiarn's church, Llanmerewig	SO15779317	1.2	High	Slight

LB19507	Leighton Farm threshing barn and granary	SJ24250525	0.6	High	Slight
LB19508	Leighton Farm cart shed	SJ24290523	0.6	High	Slight
LB19509	Leighton Farm mill and tank house	SJ24250532	0.6	High	Slight
LB19510	Leighton Farm stockyard I	SJ24270527	0.6	High	Slight
LB19511	Leighton Farm stockyard II	SJ24230527	0.6	High	Slight
LB19512	Leighton Farm stockyard III	SJ24200527	0.6	High	Slight
LB19513	Leighton Farm hay storage building	SJ24220526	0.6	High	Slight
LB19514	Leighton Farm stockyard IV	SJ24250523	0.6	High	Slight
LB19515	Leighton Farm former office and stock houses	SJ24210524	0.6	High	Slight
LB19516	Leighton Farm stable	SJ24250521	0.6	High	Slight
LB19517	Leighton Farm west stockhouse	SJ24180525	0.6	High	Slight
LB19519	Leighton Farm former sheep-drying shed	SJ24190532	0.6	High	Slight
LB19523	Leighton Hall Tower	SJ24140455	0.8	High	Moderate
LB19531	Footbridge E of Serpentine Pond at Leighton Hall	SJ24220468	0.8	High	Slight
PGW (Po) 29	Cefn Bryntalch	SO177964	0.6	High	Slight
PGW (Po) 31	Glansevern Hall	SJ196001	1.6	High	Slight
PGW (Po) 34	Leighton Hall	SJ242046	0.2	Moderate	Moderate
PGW (Po) 35	Powis Castle	SJ217064	1.7	High	Slight
PGW (Po) 58	Garthmyl Hall	SO190989	1.2	High	Slight

Assessment of Effects on Historic Landscapes

8.6.82 The overhead line crosses the western fringes of the Vale of Montgomery (Bro Trefaldyn) historic landscape, as defined in the Register of Landscapes of Outstanding Historic Interest in Wales. This consists of nineteen historic landscape character areas (HLCAs) as defined in a report compiled in 2000, and eight of these, including five traversed by the overhead line, have been assessed in the ASIDOHL. Five HLCAs will witness a direct physical impact through the erection of poles to carry the overhead line, but in every case the loss of ground and the amount of disturbance will be extremely small, while indirect physical impacts are adjudged to be non-existent. Visual impacts will arise from the appearance of the overhead line as viewed from within the various historic landscape character areas, and on the basis of the assessment the significance of the impact on the registered Historic Landscapes a whole is considered to be **moderate**.

Assessment of Effects on Historic Hedgerows

8.6.83 In total, seven potentially historic hedgerows have been identified, which could be directly affected by the proposed overhead line.

TABLE 8.13 ASSESSMENT OF EFFECT ON HISTORIC HEDGEROWS

Pole no	Nature of boundary	Value/Sensitivity	Mitigation	Magnitude of impact after mitigation	Direct impact	Significance of impact
32	Lynchet with fence on top	High	Watching brief	No change	High potential	Neutral
60	Lynchet with hedge	High	Watching brief	No change	High potential	Neutral
115	Parish boundary between Forden and Llandyssil, but relict hedge only	High	Watching brief	No change	Low potential	Neutral
166	Lynchet with hedge	High	Watching brief	No change	High potential	Neutral
172	Lynchet with hedge	High	Watching brief	No change	High potential	Neutral
221	Hedge on bank	High	Watching brief	No change	High potential	Neutral
243	Lynchet with hedge	High	Watching brief	No change	High potential	Neutral

Cumulative Effects

8.6.84 Some cumulative visual effects may occur along the length of the proposed overhead, particularly towards the northern end of the route where existing overhead lines run along the valley of the Severn in the vicinity of Leighton. For further information, the reader is referred to Viewpoint Assessment in Chapter 6.0: Landscape and Visual.

8.7 Detailed Mitigation Measures & the Identification of Residual Impacts

Introduction

8.7.1 The assessment area for the proposed overhead line extends over a large tract of countryside, and inevitably, a significant number of sites of cultural heritage interest (assets) have been identified within or close to the route corridor.

8.7.2 In the light of the assessment above, this section provides a description of the measures adopted to mitigate the identified impacts on cultural heritage assets, together with a consideration of the residual effects of the proposed overhead line on the cultural heritage assets.

Mitigation Measures – Direct Impacts

General

8.7.3 Several potentially significant impacts on cultural heritage assets are identified in the assessment, and mitigation measures are suggested here. Even for less severe impacts, mitigation measures have been put forward to prevent damage and/or destruction to particular assets, specifically during the construction and decommissioning phases.

8.7.4 Individual components of the overhead line will require occasional maintenance. Access will be confined to existing access tracks, farm tracks and gateways. Method statements for scheduled maintenance and emergency work will be developed in accordance with best practice procedures. The method statements will cover all potential maintenance activities and set out best practice procedures and measures to be followed so that the potential for damage or disturbance to cultural heritage assets is minimised.

8.7.5 Mitigation in general is covered as follows:

- Development of a Construction Method Statement (CMS), detailing best practice procedures to be followed for construction and decommissioning works (including reinstatement). This will include procedures for defining site access to avoid cultural heritage features and protect them from disturbance.
- The positions of cultural heritage assets will be taken into account when defining access routes, working areas and temporary storage areas and, as necessary when micro-siting wood pole positions, all in compliance with the EMP.
- The archaeological sites identified along the course of the route may represent only a part of the total cultural heritage asset. In terms of on-site construction, the most practical and effective mitigation for sites, which may survive only as sub-surface deposits, involves carrying out a watching brief in potentially sensitive areas during the excavations for the installation of poles and stays. In the event that something of significance is identified, sufficient time should be allowed to ensure that an adequate record of the remains is made.

Specific

8.7.6 The following section considers those cultural heritage assets that lie within the proposed 100m wide overhead line corridor, for which a variety of strategies are recommended. There is the possibility of accidental damage to assets in the 200m wide corridor during access for on-site works, but this is entirely unpredictable and the only mitigation that can be recommended for those assets is that they be avoided (i.e. preservation in situ).

8.7.7 The following is a description of the standard archaeological measures which can be used in mitigation.

8.7.8 **Preservation in situ**: where a site is considered to be of sufficient significance, it should be preserved in its present form, condition and location. This mitigation may also be recommended where sites of lesser importance can be easily avoided. This can generally been achieved through the micro-siting of pole positions. Where this option is specified for an asset/site, it will almost inevitably need to be demarcated (see below) to prevent accidental damage during construction work.

8.7.9 **Preservation by record**: where proposals will inevitably lead to the loss of a site sufficient recording should be undertaken to provide a full, accurate and permanent record of its nature, form, significance and dating. Preservation by record can take a number of forms, depending on the nature of the site in question, and may be achieved with or without excavation and could include any or all of the following: written record; drawn record; photographic record; artefactual record; survey and, environmental sampling.

8.7.10 **Excavation**: where a feature of local or minor significance is to be wholly removed as part of the development, its complete excavation may be required in advance of any construction works.

8.7.11 **Evaluation**: where insufficient information exists regarding a site for a decision to be made regarding its future management a programme of investigative work may be proposed. Such investigation may include geophysical survey, topographical survey and trial excavation.

8.7.12 **Watching brief**: a watching brief may be recommended to include archaeological monitoring of all relevant groundworks in order to identify and record any previously unknown archaeological remains, which may be revealed. Sufficient time must be allowed for adequate recording of any remains that are encountered.

8.7.13 **Demarcation**: this is an option taken to protect assets, which are to be preserved within the working area, by defining them as 'no-go' areas during the construction and decommissioning phases, through the use of barrier fencing or the like. In effect it is an extension of 'preservation in-situ (para 8.7.8, above). Clear and readily identifiable means must be used to demarcate assets, specifically to ensure that there is no confusion with other markings used during the construction process. Site staff should be made aware of these markings when they receive their site induction.

8.7.14 To inform this section of the report the same tabular format as in previous sections is used, which is appropriate given the level of consistency in the recommended strategies. Generally, it should be assumed that the suggested mitigation for sites with very high, high or medium values would be preservation in situ. Where necessary, preservation by record would usually be recommended for sites of low and negligible value, unless circumstances specific to a particular site dictated otherwise. Assets of unknown value or uncertain area/extent might require evaluation, as might some sites in the higher categories, depending on the nature of the proposed impact. It should also be stressed that the archaeological curator for the region may decide on mitigation recommendations through consultation with the local authority. These may not necessarily correlate precisely with what is suggested here.

8.7.15 Most of the recommended mitigation is self-explanatory and requires no further elaboration. Exceptionally, the recommendations for some assets do need further explanation and this appears in the following text.

8.7.16 Where an asset listed in Table 8.10 as being within the 100m corridor is not shown in Table 8.14, it should be assumed that no mitigation is required.

TABLE 8.14: RECOMMENDED MITIGATION MEASURES FOR INDIVIDUAL CULTURAL HERITAGE ASSETS WITHIN THE 100M CORRIDOR

PRN	Name	Site type	Value/ Sensitivity	Recommended Mitigation	Magnitude of impact after mitigation	Significance of impact
1052	Fron Heulog Earthwork	Field system	Negligible	Preservation in situ	Minor	Neutral/Slight
3599	Pen y Lan Wood enclosure	Hillfort	Medium	Evaluation + Excavation/Preservation by record	Minor	Slight
4935	White House Cropmark	Field system	Low	Evaluation + Excavation/Preservation by record	Minor	Neutral/Slight
5043	Montgomery Station field system	Field system	Low	Watching brief	Minor	Neutral/Slight
5048	Woodlands enclosure	Defended enclosure	Medium	Preservation in situ	Minor	Slight
7076	Cilthriew Enclosure	Enclosure	Medium	Preservation in situ	Minor	Slight
7535	Whitehouse Farm enclosure	Defended enclosure	Medium	Evaluation + Preservation in situ + Watching brief	Minor	Slight
8121	Blaen Cwm y Ddalfa House Site	House	Low	Preservation in situ	Negligible	Neutral/Slight
9018	Pen y Lan Holloway	Trackway	Low	Preservation in situ	Negligible	Neutral/Slight
11004	Castell Collen - Caersws	Road	Unknown	Watching brief	Moderate	Slight
22868	The Gables Quarry I	Quarry	Low	Watching brief	No change	Neutral
22875	Maenllwyd Clay Pit	Clay pit	Negligible	Watching brief	Minor	Slight
38714	Bryn Cwmyrhiwdre mound I	Round barrow	High	Preservation in situ	Negligible	Slight
47057	Wroxeter - Forden	Road	Unknown	Watching brief	Moderate	Slight
47067	Lydham-Forden-Dolgellau road	Road	Unknown	Watching brief	Minor	Slight
54980	Gwynant old road	Road	Low	Preservation in situ	Negligible	Neutral/Slight
71052	Fron Farm milestone	Milestone	Low	Preservation in situ	No change	Neutral
71443	Rhiw Dan Tin ridge and furrow	Ridge and furrow	Low	Watching brief	Minor	Neutral/Slight
78800	Old Neuadd Bank, sheepfold	Sheep fold	Low	Preservation in situ	Negligible	Neutral/Slight
84803	Hen Fron Reservoir	Reservoir	Low	Preservation in situ	Negligible	Neutral/Slight
84806	Blaen Cwm y Ddalfa ridge and furrow	Ridge and furrow	Negligible	Watching brief	Negligible	Neutral
84809	Gwyn's Barn stone	Stone	Negligible	Watching brief	Negligible	Neutral
84811	Cil-Cewydd Building	Building	Low	Preservation in situ	Negligible	Neutral/Slight
84819	Glan-mule Milestone	Milestone	Negligible	Watching brief	No change	Neutral
84844	Glanmiheli reservoir	Reservoir	Low	Preservation in situ	Negligible	Neutral/Slight
84845	Leighton Brickworks Pond	Reservoir	Medium	Preservation in situ	Negligible	Neutral/Slight
84851	Cwmdale Quarry	Quarry	Low	Watching brief	No change	Neutral
84852	Pen-y-lan Wood sheep pens	Sheep pens	Low	Preservation in situ	Negligible	Neutral/Slight
84854	Fron Farm quarry	Quarry	Negligible	Watching brief	Negligible	Neutral/Slight
84855	Caerhowel holloway	Holloway	Low	Preservation in situ	Negligible	Neutral/Slight

84857	Wood Cottage building I	Building	Low	Preservation in situ	Negligible	Neutral/Slight
84858	Wood Cottage building II	Building	Negligible	Watching brief	Negligible	Neutral
84860	Wood Cottage quarry I	Quarry	Low	Watching brief	No change	Neutral
84861	Wood Cottage quarry II	Quarry	Low	Watching brief	No change	Neutral
84863	Bryn Dadlau bank	Sheep shelter	Unknown	Preservation in situ	Negligible	Neutral/Slight
84864	Bryn Cwmyrhiwdre quarry I	Quarry	Low	Watching brief	No change	Neutral
84865	Bryn Cwmyrhiwdre quarry II	Quarry	Low	Watching brief	No change	Neutral
84866	Wood Cottage quarry III	Quarry	Low	Watching brief	No change	Neutral
84867	Blaen-cwm-y-ddalfa quarry	Quarry	Low	Watching brief	Negligible	Neutral/Slight
84868	Crugyn Bank Dyke E	Short Dyke	High	Preservation in situ	Minor	Moderate/ Slight
	Historic Hedgerows	Hedgerow	High	Watching brief	Minor	Slight

8.7.17 *PRN 7535 Whitehouse Farm enclosure*. The corridor impinges slightly on the known layout of the enclosure, but as this is a sub-surface feature whose nature and form is discernible only from aerial photography, it is possible that the asset could be more extensive than is currently known. This cropmark enclosure will be subject to a watching brief.

8.7.18 *PRN 3599 Pen y Lan Wood enclosure*. As with Whitehouse Farm enclosure (above), the corridor impinges on the cropmark enclosure but the level is much greater. Geophysical survey in advance will inform micro-siting but some excavation to allow for preservation by record may be necessary.

8.7.19 *PRN 4935 White House Cropmark*. The cropmarks are assumed to relate to a field system but other interpretations are possible. As the corridor impinges significantly, a geophysical survey will be undertaken with the possibility of excavation depending on pole location.

8.7.20 *PRN 5048 Woodlands enclosure*. This cropmark appears to be reasonably well-defined and should be properly demarcated, with pole locations well away from it. However, if this is not feasible, geophysical survey and perhaps excavation may be necessary.

8.7.21 A watching brief should be conducted during the erection of any overhead line pole close to a known or suspected cultural heritage asset. A list of those pole locations to be so checked will be drawn up and agreed with the developer in advance of the start of the overhead line construction, and is likely to include poles close to those sites and hedgerows noted in the preceding paragraphs.

Mitigation Measures – Indirect Effects

General Mitigation Strategies

8.7.22 It is acknowledged that the visual impact of the proposed overhead line on a number of designated sites will be large, and in the case of two scheduled dykes (though elements of the same dyke system) and one of the barrows, very large.

8.7.23 Generally, because of the linear nature of the development, the size of many of the statutorily designated areas, and the impracticable scale of any mitigating measures, no specific mitigation is recommended for any of the indirect visual effects.

8.7.24 More specifically, the screening of some scheduled features through tree planting, such as the Bryn Cwmyrhiwdre round barrow (Mg280) or the Cae-betin barrow (Mg257) might be suggested, but in these instances, a tree belt would only add another intrusive element into the landscape. In the case of the former and perhaps the latter, it would also shield the site from any observers looking at it from the public right of way. The screening of specific buildings could also be considered, but generally, the difficulties outweigh the advantages. The most obvious contender is Leighton Church and churchyard. Any tree belt would need to be planted on private land beyond the churchyard boundary, but this could create its own problems for arguably it is the distant views of the church and churchyard from the valley floor that are of more interest than the views from the churchyard.

Residual Effects

8.7.25 Based on the usually limited physical impacts identified in the preceding sections and taking account of the proposed approach to managing and monitoring the risk of damage and disturbance to cultural heritage assets generally, the residual effect of the proposed overhead line is considered to be not significant.

8.7.26 As set out in Table 8.12, the indirect visual impacts remain as residual impacts that are highly variable in significance.

8.8 Summary

8.8.1 A number of cultural heritage assets have been identified both within and adjacent to the overhead line corridor, which might be adversely affected although in view of its length, that number is not excessive. Most are considered to be of low (local) or even negligible value, but there are some of medium (regional) significance, and a few of high (national) importance. Where possible direct impacts are identified, and appropriate mitigation measures have been identified. Assuming that these mitigation measures are successfully implemented, the overhead line should not have any significant long-term impact on the cultural heritage.

8.8.2 With regard to assets that are statutorily designated, there are two SAMs within the corridor. A further 20 SAMs and 25 Listed Buildings and other structures lie within 1km of the corridor. There are also two registered historic parks and gardens within 1km. This inevitably means that there will be a visual impact on certain designated sites, and that in some cases that impact will be large and in three cases very large.

8.8.3 The proposed overhead line traverses one registered historic landscape, the Vale of Montgomery, and an ASIDOHL concluded that the significance of the impact was likely to be moderate.

8.8.4 Some long term significant effects on cultural heritage assets. It is recognised that it is likely that Powys CC will consider that there is a conflict with policy. This particular policy matter will need, however, to be considered in the context of all other relevant policies in the UDP.

Chapter 09: Hydrology

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9.1 Introduction

9.1.1 This chapter presents the findings of the hydrology assessment carried out for the proposed overhead line. Under the EIA Regulations, it is necessary to prepare an Environmental Statement (ES) on the effects of the overhead line. As part of this, an assessment of the hydrological conditions of the study area and the potential effects of the overhead line on hydrology, flood risk, water quality and groundwater is required.

9.1.2 The hydrology assessment was undertaken by Jacobs Engineering UK Ltd., who was commissioned in 2007 to provide specialist advice on the development of the proposed design and routing for the overhead line. It covers the construction, operation and decommissioning stages of the scheme as set out in Chapter 4.0: Project Description. Where there are likely adverse significant effects on hydrology and the water environment it puts forward mitigation measures to prevent, reduce, or offset them and re-assesses the residual effects remaining after the implementation of mitigation. The effects of decommissioning are described in the construction phase as they include similar activities and potential effects.

9.1.3 This chapter reviews the baseline hydrological conditions of the study area and assesses the potential effects of the overhead line on surface hydrology, water quality and flood risk of the study area. The assessment is supported by the Level 1 Flood Risk Assessment (FRA) originally undertaken for the scheme's Routeing Study Report prepared in June 2008. From the scoping process, the Environment Agency stated that compliance with TAN15 is required, hence this being included in this chapter. A summary of the outcome of the FRA is included in this chapter alongside the assessment of the hydrological effects of the proposed development. A copy of the initial FRA is included at Appendix U.

9.2 Scoping & Consultations

9.2.1 The need to assess the effects of the proposals on hydrology was established through preliminary studies at a strategic level in the Routeing Study Report (June 2008) and the Scoping Report (July 2008), followed by more detailed review of routeing options and design iterations leading up to the selection of the proposed route in 2009.

9.2.2 Scoping consultation responses were received in respect of the proposals for assessment outlined in the Scoping Report, which identified a range of potential geological and hydrological effects, which required assessment. Further consultation with the Environment Agency was undertaken during August 2008 to agree the scope of the hydrological assessment. A copy of the Scoping Report and Feedback Report of Scoping Responses and Pre-Application Public Consultation are attached at Appendix A and Appendix B respectively.

9.3 Assessment Methodology & Significance Criteria

Assessment Methodology

9.3.1 The assessment of hydrological effects has followed the generic approach described in Chapter 2.0: EIA Methodology and Significance Criteria, summarised as follows:

- The baseline hydrological characteristics of the study area are described and evaluated in terms of their sensitivity to change.
- The magnitude of effects on the hydrological environment which are likely to occur because of the construction and operation of the overhead line are described.
- The significance of the likely effects is described, which is a function of the sensitivity of the resource and the magnitude of change.
- Mitigation measures are proposed for reducing the effects of significant adverse effects where identified.
- Any residual effects of the proposed overhead line on hydrology are described.

9.3.2 The assessment has been undertaken using guidance set out within the Design Manual for Roads and Bridges (DMRB) Section 3 Part 10 Road Drainage and the Water Environment (Highways Agency, May 2006)

9.3.3 Whilst this methodology has been produced for the assessment of impacts of highways development on the water environment, it lends itself to these proposals as it allows for the systematic ranking of hydrological features and impacts.

9.3.4 The criteria used for the evaluation of the baseline characteristics of the hydrological environment, and the magnitude of change brought about by the proposed overhead line, are derived from a range of information and guidance contained in legislation, strategic policy documents and best practice approaches.

Legislation and Policy Context

9.3.5 This assessment has been undertaken with due consideration of the requirements of key legislative and policy documents. General planning documents are discussed in Chapter 5.0: Planning Considerations, however relevant and local planning documents are outlined below:

Technical Advice Note 15 (TAN15) Development and Flood Risk (WAG, July 2004)

9.3.6 TAN15 provides guidance, which supplements the policy set out in the Welsh Assembly Government's strategic land use policy framework, Planning Policy Wales (March 2002), in relation to development and flooding. It provides a framework within which risks arising from both river and coastal flooding, and additional runoff from development in any location can be assessed.

9.3.7 The guidance includes the definition of different zones, A, B and C, based on flood risk. Zone C is further sub-divided into Zone C, Zone C1 and Zone C2, with Zone C1 being areas with flood defences and Zone C2 being areas without any flood defences. It should be noted in referring to Zones 2 and 3 as used by the EA in mapping the extent of the 1:1000 year and 1:100 year flood risk areas, that both these zones fall into Zone C, C1 and C2. Figure 1 of TAN 15 is reproduced in Table 9.1 and describes the different zones.

TABLE 9.1: TAN15 FLOOD ZONES (SOURCE - FIGURE 1 TAN15)

Description of Zone		Use within the precautionary framework
Considered to be at little or no risk of fluvial or tidal/coastal flooding.	A	Used to indicate that justification test is not applicable and no need to consider flood risk further.
Areas known to have been flooded in the past evidenced by sedimentary deposits.	B	Used as part of a precautionary approach to indicate where site levels should be checked against the extreme (0.1% AEP) flood level. If site levels are greater than the flood levels used to define adjacent extreme flood outline there is no need to consider flood risk further.
Based on EA extreme flood outline, equal to or greater than 0.1% AEP or 1 in 1000-year flood event (river, tidal or coastal).	C	Used to indicate that flooding issues should be considered as an integral part of decision making by the application of the justification test including assessment of consequences.
Areas of the floodplain, which are developed and served by significant infrastructure, including flood defences.	C1	Used to indicate that development can take place subject to application of justification test, including acceptability of consequences.
Areas of the floodplain without significant flood defence infrastructure.	C2	Used to indicate that only less vulnerable development should be considered subject to application of justification test, including acceptability of consequences. Emergency services and highly vulnerable development should not be considered.

9.3.8 Paragraph 6.2 of TAN15 states that "new development should be directed away from Zone C and towards suitable land in Zone A, otherwise to Zone B, where river or coastal flooding will be less of an issue". The guidance acknowledges that in some instances development may be required in areas at risk of flooding (i.e. Zones B and C). Figure 2 of TAN15 provides further detail on land uses permitted within the different flood zones, and utilities infrastructure is classed as "less vulnerable development". As such it is permissible in Zone C2 subject to meeting justification criteria defined in Section 6 and the provision of a flood risk assessment.

9.3.9 Section 6 of TAN15 includes the Justification Test which states:

"Development, including transport infrastructure, will only be justified if it can be demonstrated that:

i. Its location in Zone C is necessary to assist, or be part of, a local authority regeneration initiative or a local authority strategy required to sustain an existing settlement; or,

ii. Its location in Zone C is necessary to contribute to key employment objectives supported by the local authority, and other key partners, to sustain an existing settlement or region; and,

iii. It concurs with the aims of Planning Policy Wales (PPW) and meets the definition of previously developed land; and,

iv. The potential consequences of a flooding event for the particular type of development have been considered, and in terms of the criteria contained in Sections 5 and 7 and Appendix 1 (TAN15) found to be acceptable."

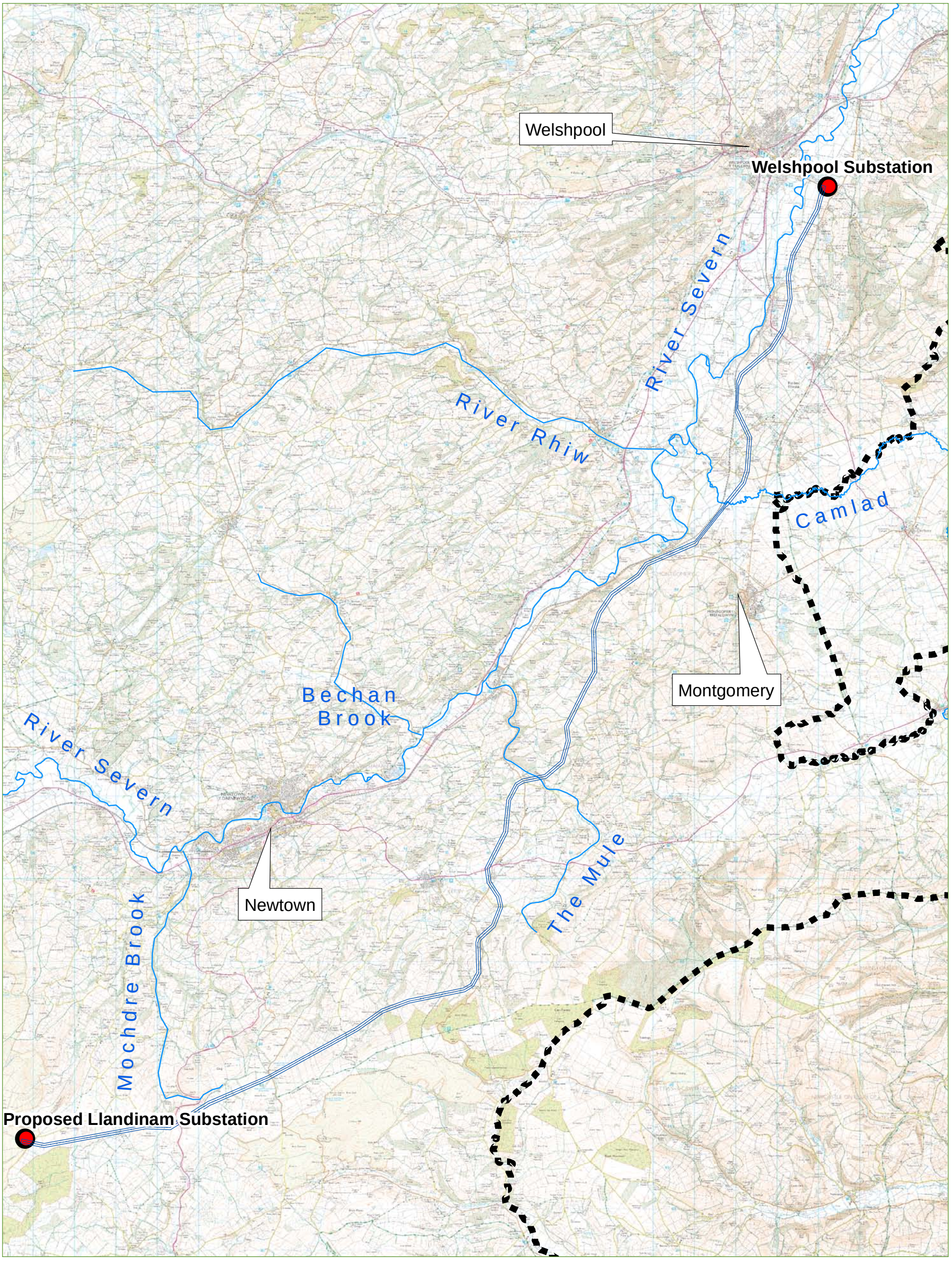

Figure 9.1

Landform & Drainage

NTS

Key:

Proposed OHL Route
Substation Locations
Watercourses
County Boundary

North

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Powys Unitary Development Plan Deposit Draft 2004 (as modified November 2007 and May 2008)

9.3.10 Several policies within the Powys UDP are relevant to the assessment of hydrological effects. Policy SP14 Development in Flood Risk Areas states that "…development will not be permitted within an area of high risk of flooding unless it can be demonstrated that the development is of strategic importance and that the consequences of any flooding would be acceptable for the development proposed and that it would not give rise to any unacceptable flooding impacts elsewhere". Policy DC9 Protection of Water Resources is also of particular relevance and relates to the need for development to avoid adverse effects on water quality, the quantity or flow of surface or ground water, the use of water, and should not lead to pollution of water resources. Policy DC13 Surface Water Drainage confirms that new development proposals would be permitted where there would be no adverse effect on flooding and flood management.

Assessment Criteria

9.3.11 Criteria for assessing the sensitivity of the water environment, magnitude of change and significance are set out in Tables 9.2 to 9.4 below.

TABLE 9.2: SENSITIVITY / IMPORTANCE CRITERIA

Importance	Criteria	Examples
Very High	Attribute has a high quality and rarity on a regional or national scale	RQO River Ecosystem Class RE1; EC Designated Salmonid/Cyprinid fishery; Site protected under EU or UK wildlife legislation (SAC, SPA, SSSI, Ramsar site) Major aquifer providing a regionally important resource or supporting protected wildlife site; SPZI Floodplain or defence protecting more than 100 properties from flooding.
High	Attribute has a high quality and rarity on a local scale	RQO River Ecosystem Class RE2; Major Cyprinid Fishery; Species protected under EU or UK wildlife legislation Major aquifer providing a locally important resource or supporting river ecosystem; SPZII Floodplain or defence protecting between 10 and 100 residential properties or industrial premises from flooding
Medium	Attribute has a medium quality and rarity on a local scale	RQO River Ecosystem Class RE3 or RE4 Aquifer providing water for agricultural or industrial use with limited connection to surface water; SPZIII Floodplain or defence protecting 10 or fewer properties from flooding
Low	Attribute has a low quality and rarity on a local scale	RQO River Ecosystem Class RE5 Non-aquifer Floodplain with limited constraints and a low probability of flooding of residential and industrial properties

TABLE 9.3: MAGNITUDE OF CHANGE CRITERIA

Magnitude	Criteria
High	▫ Loss of attribute e.g. salmonid / cyprinid fishery, protected wildlife site; river grade reduction / improvement ▫ Loss of aquifer integrity ▫ Significant increase in flood risk elsewhere .e.g. increase in flood levels, damages flood defences or prevents access to flood defences for maintenance,
Medium	▫ Loss of part/reduction in integrity and/or use of attribute e.g. effect on fishery production; effects on water quality but no change in grade ▫ Partial loss of, or change to an aquifer ▫ Increased cost and time required to maintain flood defences. Effects on potential future flood risk management options
Low	▫ Measurable effect but no change in integrity and/or use of attribute
Negligible	▫ No measurable effect and change in integrity and/or use of attribute

TABLE 9.4: SIGNIFICANCE OF EFFECT CRITERIA

Significance		Magnitude			
		High	Medium	Low	Negligible
Importance	Very High	Major	Major	Moderate	None
	High	Major	Moderate	Minor	None
	Medium	Moderate	Moderate	Minor	None
	Low	Moderate	Minor	Minor	None

Flood Risk Assessment

9.3.12 The FRA was carried out in accordance with the guidance in TAN15. As such, the FRA considered both the risk of flooding to the proposed overhead line and its potential effect on flood risk elsewhere. The results of the FRA have also been used to inform the assessment of magnitude of change brought about by the overhead line as part of the environmental impact assessment.

Desk Study and Information Sources

9.3.13 The assessment has been undertaken as a desk-based study of the proposed overhead line route between Llandinam and Welshpool. Information from a number of sources has been used, these include:

- 1:50 000 Ordnance Survey Maps
- 1:25 000 Ordnance Survey Maps
- Environment Agency Flood Zone Maps (June 2008 issue)
- Consultation with the Environment Agency Development Control Team
- Countryside Council for Wales
- British Geological Society website (www.bgs.ac.uk)
- British Geological Survey (1990), Mid Wales & Marches. Sheet 52oN 04oW. Solid Edition, Scale 1:250,000.
- British Geological Survey (1994), Montgomery. England and Wales Sheet 165. Solid and Drift Geology, Scale 1:50,000.
- Cave, R. and Hains, B.A., (2001), Geology of the Country around Montgomery and the Ordovician Rocks of the Shelve Area, Memoir of the British Geological Survey, Sheet 165 with part of Sheet 151 (Welshpool) (England and Wales).
- National Rivers Authority (1995), Groundwater Vulnerability Map of West Shropshire, Sheet 21. 1:100,000
- Institute of Geological Sciences 1:625k Hydrogeological Map of England & Wales
- British Waterways website (www.britishwaterways.co.uk)
- Catchment Abstraction Management Strategies (CAMS)
- Fluvial Severn Flood Risk Management Strategy (Environment Agency, 2006)
- Severn Catchment Flood Management Plan - Draft Report (May 2008)

9.4 Baseline

9.4.1 The baseline hydrological characteristics of the study area are described below in terms of the factors affecting hydrology (topography, geology, soils, climate), water quality, groundwater and flood risk.

Surface Water Hydrology

9.4.2 Surface water hydrology refers to the way in which water moves over land. Primarily, it is used to describe the flows in rivers and streams in an area. The surface water hydrological characteristics of an area are strongly influenced by topography (landform), geology, soil type and climate (precipitation).

Topography

9.4.3 The Severn Uplands are dominated on the western edge by the Cambrian Mountains and a section of the Snowdonia National Park. The upland section is characterised by steep-sided, incised river valleys through the Welsh Hills. The River Severn drops quickly in its first few kilometres, from 741m AOD (Above Ordnance Datum) at Plynlimon to 198m AOD at Llanidloes, just 19km downstream. Figure 6.5 Landform & Drainage illustrates the topography of the study area, whilst the main rivers are highlighted on Figure 9.1 Landform & Drainage.

Geology

9.4.4 A review of the published solid and drift geology maps and geological memoirs indicates that the study area is underlain by strata of Ordovician and Silurian age with extensive Quaternary drift deposits.

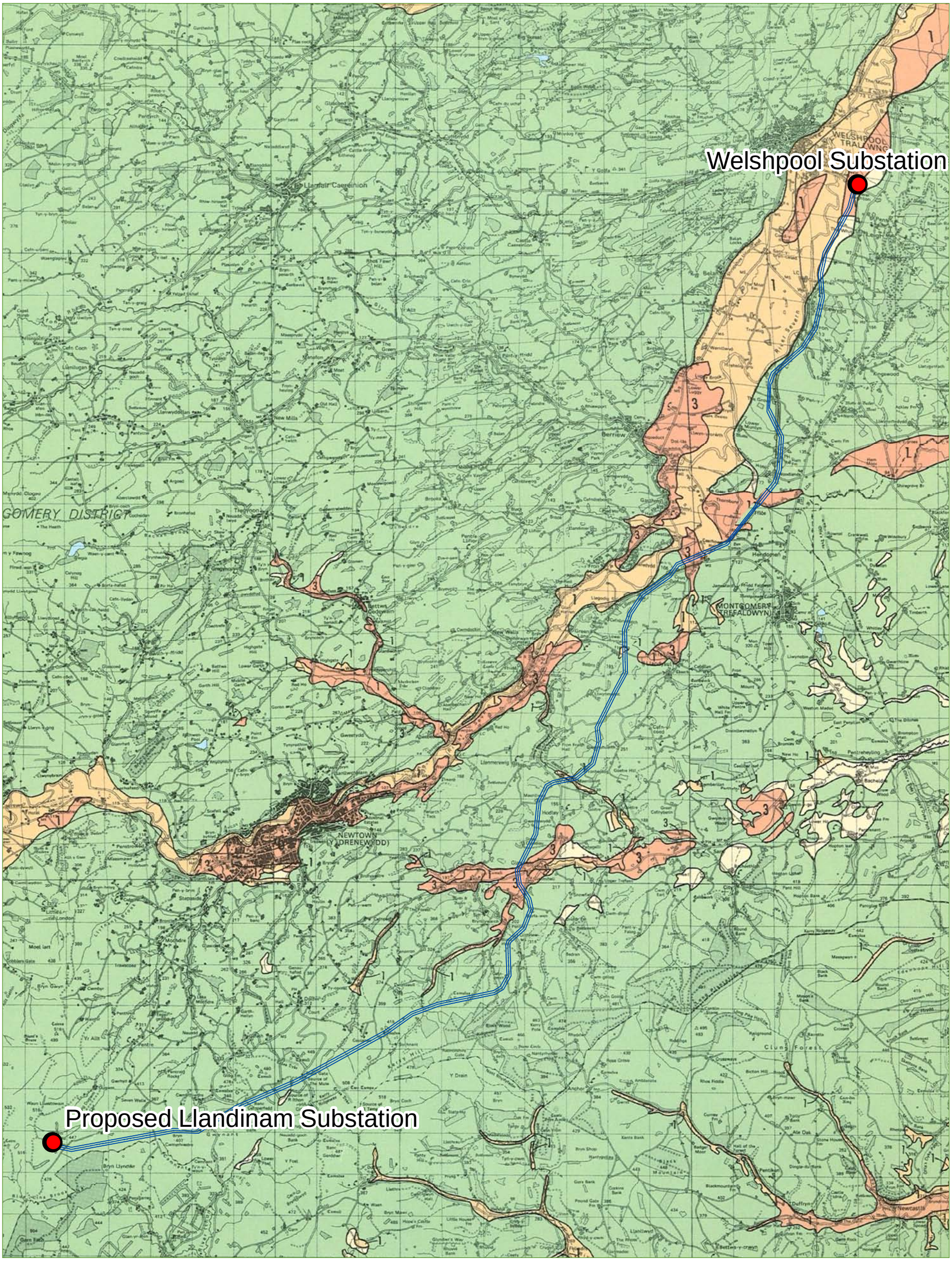

Figure 9.2

Groundwater Vulnerability

NTS

Key:

- Major Aquifer (Highly Permeable): High (H) 1, 2, 3, U*; Intermediate (I) 1, 2; Low
- Minor Aquifer (Variably Permeable): High (H) 1, 2, 3, U*; Intermediate (I) 1, 2; Low
- None Aquifer (Negligibly Permeable)
- Drift deposits of variable, but generally low, permeability occurring at the surface and overlying Major and Minor Aquifers are head (Clayey), peat, lacustrine deposits, glacial silts and till.

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9.4.5 The Ordovician strata are exposed to the north of the study area (between Welshpool and Montgomery) and consist largely of impermeable mudstones from the Carodoc Series. The Silurian strata comprise mainly impermeable siltstones and mudstones of the Ludlow and Wenlock Series and are exposed to the south of the study area.

9.4.6 Extensive Quaternary deposits cover the study area. Glacial Till is deposited over much of the low-lying topography. The geological memoir for the area indicates the thickness of the till is highly variable with recorded thicknesses ranging from 2m to 35m at some locations. Glacial Till is high in clay and largely impermeable.

9.4.7 Fan Deposits within the study area comprise silt and clay deposited by meltwater and sourced from the Glacial Till. The thickness of these Fan Deposits is unknown; however, they rest on gentle slopes and occupy small drainage hollows eroded by glacial meltwater. Although the hydraulic conductivity or the movement of infiltrating water is low, glacial deposits are known to sometimes contain high permeability localised sand and gravel layers.

Soils

9.4.8 Soils are typically thin on the hill slopes but are thicker on the valley bottoms adjacent to the river channels. However, in general, upland catchments tend to have substantially less soil coverage than lowland catchments.

9.4.9 Soils affect a number of factors relating to the time it takes rainfall to enter the river channel. The permeability of a soil affects the amount of rainfall, which will infiltrate into the soil rather than run-off the surface of it. It also affects the speed at which water will percolate through the soil into the underlying geology. The texture of the soil affects the amount of water that can be stored within it before it becomes saturated and can absorb no more water. Rainfall absorbed into the soil in turn reduces the amount of water that reaches the rivers.

9.4.10 The Soil Survey of England and Wales 1:250,000: Soils of Wales Map provides the most comprehensive and consistent coverage for Wales and indicates that soils in the study area comprise a range of brown earths, podzols and gleyed soils.

9.4.11 Loosely packed soils such as peat, which are common in the Severn Uplands, essentially act as a 'sponge' for rainfall and snowmelt. Soils such as these, with high water retention capacities, absorb and retain rainfall acting as a temporary store for water, releasing water to the river channel more slowly. The 1:250,000 map suggests that, whilst many of the soils have characteristically poor drainage and are seasonally waterlogged, there are no thick, amorphous raw peat soils within the study area, which would otherwise constrain the route of the proposed overhead line.

Climate

9.4.12 The climate of the Severn catchment is typical of western Britain, generally temperate and experiencing modest to high precipitation dependent on topography. Annual precipitation varies with topography; the Welsh Mountains can receive over 2,500 mm per annum.

9.4.13 Precipitation during autumn and winter, generally due to weather fronts and low-pressure systems (depressions), tends to be of higher volume than rainfall associated with summer (convective) storms.

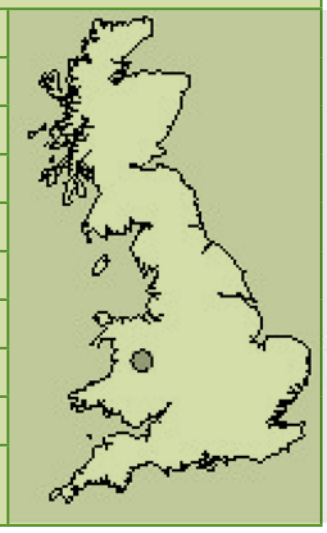
9.4.14 The combination of steep slopes, low soil cover, impermeable geology and high rainfall means that the surface water hydrology in the Upper Severn is associated with the rapid runoff of high volumes of water, especially in autumn and winter when the soils are more likely to be saturated. Peak flows in the Upper Severn and its tributaries are normally experienced within 24 hours of the rainfall starting.

9.4.15 Flows are augmented with water stored in reservoirs over the winter months or abstracted from the ground. Llyn Clywedog, in the headwaters of the Clywedog, provides limited flood mitigation (through attenuation) to the upper reaches of the Severn.

9.4.16 Table 9.5 contains the information from the gauging station at Abermule on the Upper Severn.

TABLE 9.5: DATA FROM ABERMULE GAUGING STATION (SOURCE - WWW.NWL.AC.UK)

Parameter	Data
Grid Reference:	32 (SO) 164 958
Operator:	EA
Local number:	2014
Catchment Area:	580.0 km2
Level of Station:	83.0 mOD
Max. Altitude:	740.0 mOD
Mean flow:	14.58 m3s-1
95% exceedance (Q95):	1.818 m 3s-1
10% exceedance (Q10):	35.87 m3s-1
1961-90 Av. Ann. Rainfall:	1259 mm



Note that the 1% annual probability flows at Llanymynech, approximately 10km downstream from Welshpool is 547 m3/s.

Surface Water Features

9.4.17 Figure 9.1: Landform and Drainage shows the location of the principal watercourses and surface water features in the study area. Most of the proposed overhead line is situated in the upper reaches of the River Severn Catchment in Powys, Wales. The River Severn is the longest river in Britain and has a total catchment of approximately 11,000km^2. However, at Welshpool the catchment is just over 900km^2.

9.4.18 The upper reaches of the Severn Uplands are dominated by the Cambrian Mountains, which receive high volumes of rainfall, and there are numerous watercourses that feed directly into the River Severn, which occupies the flat valley floor. The drift geology, comprising till, will not readily conduct infiltrating water and runoff is likely to be dominant over infiltration. This is supported by the presence of a dense network of small tributaries.

9.4.19 The proposed overhead line will overfly 70 watercourses (as identified on 1:25,000 OS Maps). Most of these watercourses are unnamed streams, with narrow, defined channels which will be crossed by the overhead line and will not be affected by the proposals. However, at several locations the overhead line will cross the more significant watercourses of the Rivers Mule and Camlad with the potential for the proposals to affect these watercourses through siting within recognised floodplains.

9.4.20 The proposed overhead line will also occupy the floodplain of the River Severn itself, where it nears the Welshpool substation.

9.4.21 Near the substation at Bryn Dadlau, the first 6km of the overhead line will pass across the very upper reaches of the River Wye catchment near the source of the Rivers Camnant and Ithon.

9.4.22 A review of the 1:25,000 OS maps has identified a range of waterbodies (ponds) in the study area. The overhead line will not directly cross any significant waterbodies. It will pass close to Llyn Dwr, a small lake (less than 5,000m^2) around 2km to the east of the proposed Bryn Dadlau substation.

9.4.23 There are 13 smaller waterbodies situated near the route of the overhead line, although none of these will be crossed by the line and will not be affected by the proposals.

9.4.24 There are no areas of significant wetland indicated on the 1:25, 000 OS maps, although there are three marsh areas along the route.

Water Quality

9.4.25 The Environment Agency's River Ecosystem (RE) classification system is used to designate river quality targets and comprises five hierarchical classes in order of decreasing water quality. Compliance with the target is measured using the General Quality Assessment (GQA), based on regular chemical and biological water quality assessment surveys at the monitoring stations. Chemical and biological water quality are graded between Grade A (Very Good) and Grade F (Bad).

9.4.26 The upper reaches of the River Severn is generally characterised by good chemical and biological water quality (GQA grades A and B). Tributaries that enter the river in the Severn Uplands are also of good quality. Table 9.6 shows the water quality parameters for key locations in the study area for which grading is available.

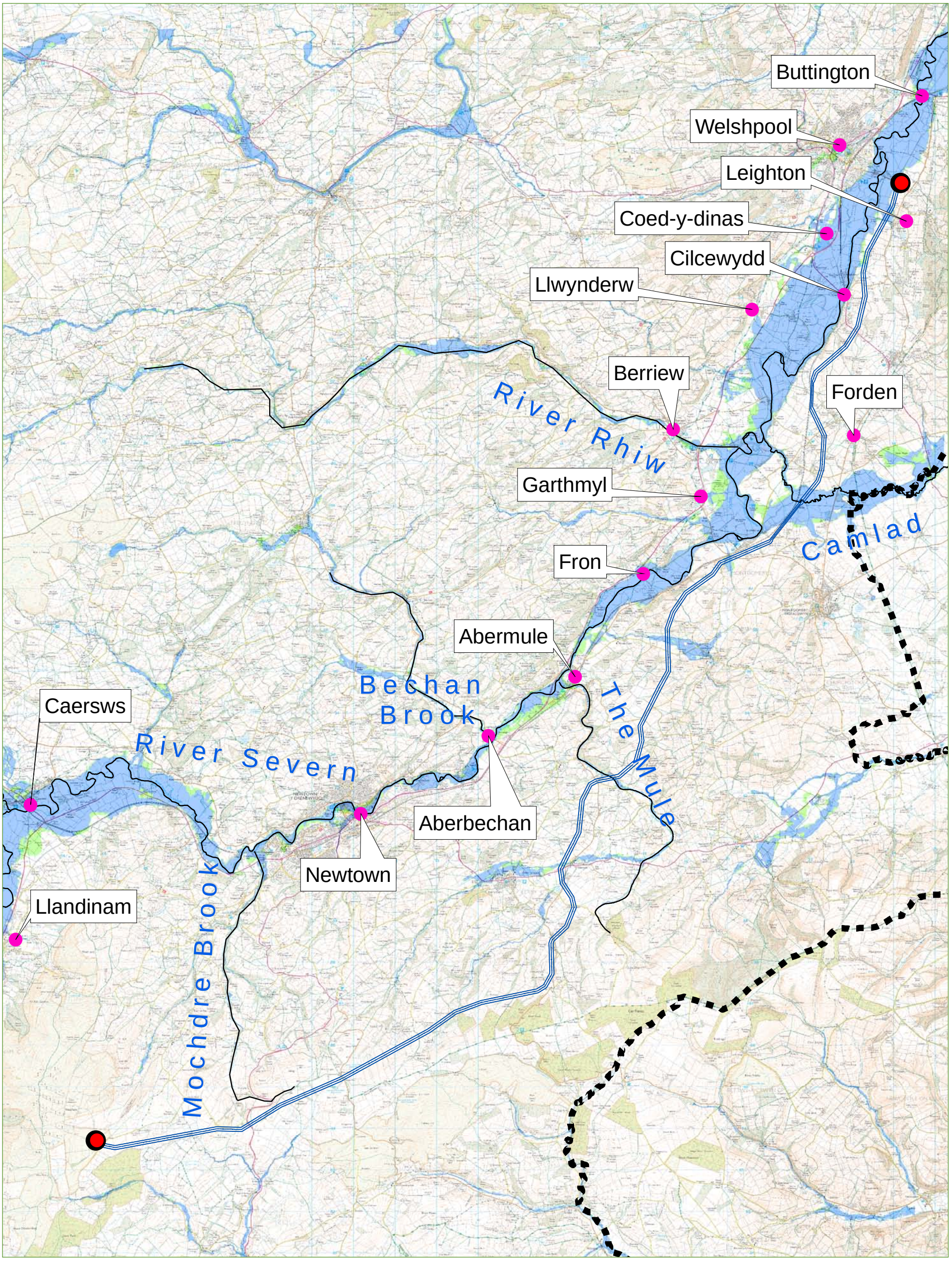


Figure 9.3

Flood Risk Overview

NTS

Key:

- Proposed OHL Route
- Substation Locations
- Flood Risk Receptor
- Watercourses
- EA Flood Zone 3
- EA Flood Zone 2

North

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TABLE 9.6: EXISTING WATER QUALITY PARAMETERS

River/ Afon	Location	Quality Parameters				RE Classification
		Chemistry	Biology	Nitrates	Phosphates	
Severn	Confluence of The Mule To Welshpool Stw	A	B	2	2	RE2
Camlad	Whitterage Br Chirbury To R.Severn	A	B	3	4	RE2
Severn	Confluence of Mochdre Bk To Newtown Stw	A	C	2	1	RE3
Severn	Newtown Stw To Conf. The Mule	A	A	2	2	RE1
Severn	Confluence of A. Cerist To confluence of. Mochdre Bk	A	A	2	2	RE1
The Mule	A489 Gilfach Br Kerry To R.Severn	A	B	3	3	RE2
Wye	Conf.R.Bidno - Conf.R.Tarenig	A	B	1	2	RE2

Groundwater

9.4.27 The underlying Ordovician and Silurian geology comprises impermeable rocks, which do not readily let water pass through. The high degree of deformation, alteration and cementation mean that they form poor aquifers. Groundwater flow is through secondary porosity and is dominated by fracture flow. This is typically at shallow depths, declining at greater depth where fractures become tighter and less common. The overlying till is also a poor hydraulic conductor and plays a significant role as an inhibitor to recharge, as well as a protective shield to any bedrock aquifers otherwise vulnerable to surface pollution.

9.4.28 A review of the Institute of Geological Sciences 1:625,000 Hydrogeological Map of England & Wales indicates that the study area is situated in a region categorised as containing 'concealed aquifers of limited potential, regions without significant groundwater. Region underlain by impermeable rocks, generally without groundwater except at shallow depth'. Figure 9.2: Groundwater Vulnerability illustrates the status of aquifers and groundwater in the study area. Most of the area is underlain by a non-aquifer, although parts of the River Severn corridor are underlain by a minor aquifer of variable permeability. Note that the groundwater at shallow depth is water perched above impermeable strata and will not be present in significant volumes, but may be locally important.

9.4.29 Due to the fact that both the solid and drift geology represent a limited potential for localised shallow groundwater, and because there are unlikely to be any permanent access tracks or concrete pole foundations, it is unlikely that there will be any significant adverse effects on the area's groundwater resource or existing soil quality. A detailed hydrological survey will therefore not be required. The draft Construction Method Statement (CMS) sets out best practice procedures to be followed for construction and decommissioning works (including reinstatement). This includes procedures for storage of construction materials and pollution control measures to limit potential effects on watercourses will be developed and implemented. A copy of the draft CMS is included at Appendix D.

Source Protection Zones

9.4.30 Source Protection Zones (SPZs) are identified by the Environment Agency (EA) to protect groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show locations where activities that cause pollution may contaminate groundwater supplies. There are three main SPZs (inner, outer and total catchment), which are used to delineate risk of contamination to water. The risk is greatest closest to the source within the inner zone. The EA uses the zones to implement pollution prevention measures in areas, which are at a higher risk, and to monitor the activities of potential polluters nearby.

9.4.31 There is only one SPZ in the region, which is situated near to Llandinam, approximately 5km north-west of the Bryn Dadlau substation.

Abstractions

9.4.32 Information on abstractions has been obtained from Catchment Abstraction Management Strategies (CAMS) produced by the EA. These are strategies for the management of water resources at a local level.

9.4.33 CAMS are usually undertaken for river catchments as a whole. The River Severn has been separated into a number of different CAMS due to large size of the Severn Catchment. Two separate CAMS are applicable to the study area. These are:

- Severn Corridor CAMS
- Severn Uplands CAMS

9.4.34 There are four abstraction points in close proximity, all of which are located in the Severn Uplands CAMS. All abstractions are relatively small, at less than 200m^3 per day. The current abstraction licences are primarily for agricultural purposes.

9.4.35 In the area highlighted as being sensitive to abstraction, however, an assessment of the resources has identified that there is likely to be water available for further abstraction if needed. Note that the River Mule has not been assessed as part of the CAMS.

Flood Risk

9.4.36 Generally, flooding on the Severn is caused by rainfall in the Welsh Mountains causing a flood wave to pass down the river. The wave generally slows as it passes down the Severn as the topography becomes flatter.

9.4.37 The rate of onset of flooding on the Upper Severn is relatively quick. This means that people generally have little time to react to the flooding.

Areas of Fluvial Flood Risk

9.4.38 The areas of fluvial flood risk, as indicated by the EA Flood Maps, are shown on Jacobs Figures 01 to 06 at Appendix V and Figure 9.3: Flood Risk Overview. The flood zones are based on data provided by the EA and categorise the 1:100 year (1% AEP) flood zone as Zone 3 and the 1:1000 year (0.1% AEP) flood zone as Zone 2. The Flood Maps are created for all watercourses with a catchment over 3km^2, using a generalised flood modelling approach.

9.4.39 From an examination of the Flood Maps, it can be clearly seen that the most areas with 1% AEP and 0.1% AEP flood extents are undeveloped. However, a number of settlements are also affected. Table 9.7 shows the number of properties within the 1% AEP flood extents at various settlements within the general area, according to the EA's Fluvial Severn Flood Risk Management Strategy (2006).

TABLE 9.7: PROPERTIES WITHIN THE 1% AEP FLOOD EXTENTS

Location	Number of Properties Considered at Risk 1% AEP
Llandinam	1
Caersws	158
Newtown	421
Aberbechan	1
Abermule	14
Garthmyl	10
Berriew	7
Forden	1
Trehelig	10
Llwynderw	1
Fron	8
Cilcewydd	11
Coed-y-dinas	2
Leighton	2
Welshpool	5
Buttington	11

History of Fluvial Flooding

9.4.40 The River Severn has a well-documented history of flooding. However, within the study area, the records of flooding are limited due to the rural nature of the area. An appendix to the Fluvial Severn Flood Risk Management Strategy contains the following information:

- 5th August 1852 - *"The violent and incessant rains which set in at the end of August.…The consequences were most extensive floods and inundations in every part of the country…..In the course of 24 hours the Severn rose from its ordinary channel and overflowed its banks……..."*
- February 1890 - *"Disastrous floods on the upper Severn; much suffering"*.
- 1916 Newtown - *"Disastrous [sic] floods in town"*.
- 13th November 1929 - *"One of the most serious floods experienced in Newtown occurred on the night of 12th/13th November, 1929. ...Although no-one was drowned, the 1929 flood created similar, if not worse havoc [to that of 1852]……."*

There is also unreferenced information available stating that Newtown was flooded in 1960 and 1964. (http://www.severntales.co.uk/river-severn-historical%20facts.html)

Flood Defences

9.4.41 Newtown is one of the few areas in the Upper Severn Catchment that is protected by permanent flood defences. There are fluvial flood defences on both the north and south banks. Construction began on the defences in 1966 by the Severn River Authority.

9.4.42 Llyn Clywedog, which is located on the Afon Clywedog, was designed as a river regulation reservoir, generally to boost low flows during the summer months. It also provides a negligible amount of flood attenuation local to the dam.

Summary of Hydrological Receptors

9.4.43 Table 9.8 below summarises the relevant hydrological receptors identified from the baseline situation and their general sensitivity (capacity to accommodate change).

TABLE 9.8: HYDROLOGICAL RECEPTORS & SENSITIVITY

Hydrological Receptor	Sensitivity
Water Quality	
River Severn	Very High
River Mule	High
River Camlad	High
Un-named watercourses crossed by Overhead Line	Very High
River Wye catchment	High
Llyn Dwr	Very High
Un-named surface waterbodies crossed by Overhead Line	Very High
Groundwater	
River Severn corridor Minor Aquifer	Medium
Llandinam Source Protection Zone	Very High
Flood Risk	
Llandinam	Medium
Caersws	Very High
Newtown	Very High
Aberbechan	High
Abermule	High
Garthmyl	Medium
Berriew	Medium
Forden	Medium
Trehelig	Medium
Llwynderw	Medium
Fron	Medium
Cilcewydd	High
Coed-y-dinas	Medium
Leighton	Medium
Welshpool	Medium
Buttington	High

9.5 Project Description and Mitigation Strategy

9.5.1 The proposed overhead line development has three main stages:

- Construction
- Operation
- Decommissioning

9.5.2 Works relating to the construction and decommissioning stage of the scheme will have similar activities and affects. Therefore, their effects have been considered together, whilst operational effects have been assessed separately.

9.5.3 The construction phase of the project is estimated to take some three to four weeks per kilometre resulting in a construction period of approximately 24 months. The construction time in the area of each pole is estimated to be five days. During the construction phase, access will be required along the line of proposed route. This will be carried out, as far as practicable, using existing access ways. However, in isolated areas a temporary access route is proposed. This will consist of un-surfaced access tracks suitable for four-wheel drive vehicles. Where the track is required to cross isolated watercourses temporary bridges will be constructed to allow access. Access will be required for mechanical excavators and four wheel drive trucks and trailers. Following completion of construction the ground will be reinstated.

9.5.4 During operation of the overhead line, local access will be required for maintenance of the poles and emergency works. Inspections will be carried out using four-wheel drive vehicles. The operational life of the wind farm is considered to be approximately 25 years. Following this, both the wind farm and proposed overhead line will be decommissioned and dismantled.

9.5.5 Decommissioning consists of the complete removal of the overhead line, using similar principles and techniques as in its construction. Access will be required along the line of the overhead line to remove the poles and foundations and allow landscaping and reinstatement of areas affected by the overhead line.

9.6 Assessment of Effects

9.6.1 The effects of the overhead line have been assessed based on the methodology discussed earlier in this section. The effects of the proposed scheme on groundwater, flood risk and water quality have been all assessed separately. Surface water hydrology and surface water features are not specifically assessed, but are instead addressed in flood risk.

9.6.2 The construction and decommissioning phases of the overhead line represent the most significant risk to environmental factors under consideration in this section. The construction of a temporary track, with associated structures represents a risk mainly to water quality, through the generation of particulates and pollutants, and to flood risk, as the structures themselves may represent a blockage risk.

9.6.3 These activities are described more fully in Chapter 4.0: Project Description and in the draft CMS.

Assessment of Effects on Water Quality - During Construction and Decommissioning

9.6.4 The activities assessed as having a potential effect on water quality receptors during the construction and decommissioning stage have been identified as:

- Ground disturbance due to vehicle movements, activities within temporary site compounds and excavation activities
- Construction and removal of new site access tracks
- Storage of potentially damaging materials and substances

9.6.5 The proposed locations of poles 115, 124, 168, 268, 302 and 305 lie within 10m of a watercourse. These locations are therefore likely to have a greater magnitude of effect than other pole locations as construction and decommissioning activities will be occurring in immediate proximity to the watercourse. However, the limited number of these locations means that the significance of the effect is likely to be small.

9.6.6 The construction of a temporary access route also has the potential to cause minor erosion of soils along the route. During heavy rainfall soil material may be washed into the watercourses by surface water runoff,

9.6.7 The use of vehicles for construction and access along the proposed route also poses the risk of spillage of contaminants, such as oil and hydraulic fluid.

9.6.8 The effects on water quality resulting from the construction and decommissioning works is not likely to be long lasting and on completion of the works, or after any spillage, the degrading effect will cease and water quality will recover. The effect is unlikely to be more significant than the routine use of agricultural vehicles, which currently occurs and would be localised to the watercourses close to the overhead line and access tracks. Low magnitude effects may be experienced in rivers and streams, which receive flows in turn from these watercourses. The watercourses affected are detailed in Table 9.9.

Assessment of Effects on Water Quality – During Operation

9.6.9 During the operational phase of the works there is unlikely to be any effect on water quality as only occasional access is required along the overhead line. This will be carried out using four-wheel drive vehicles and will therefore not generate significant erosion or pose a pollution hazard.

TABLE 9.9: ASSESSMENT OF EFFECTS ON WATER QUALITY

Water Quality		Construction & Decommissioning		Operation	
Watercourse	Sensitivity	Magnitude	Significance	Magnitude	Significance
River Severn	Very High	Negligible	None	Negligible	None
River Mule	High	Negligible	None	Negligible	None
River Camlad	High	Negligible	None	Negligible	None
Un-named watercourses crossed by OHL	Very High	Negligible	None	Negligible	None

River Wye catchment	High	Negligible	None	Negligible	None
Llyn Dwr	Very High	Negligible	None	Negligible	None
Un-named surface waterbodies crossed by OHL	Very High	Negligible	None	Negligible	None

Assessment of Effects on Groundwater – During Construction and Decommissioning

9.6.10 No activities have been identified that could have more than a negligible effect on groundwater during the construction and decommissioning phase of the scheme. The scheme does not propose deep piling or extensive excavations, which could lead to significant disruption of sub-surface flows during construction. Decommissioning of the overhead line will involve the removal of all structures and foundations but will also not involve deep excavation.

9.6.11 Construction and decommissioning activities have been assessed as having no likely significant effect on groundwater.

Assessment of Effects on Groundwater – During Operation

9.6.12 No activities have been identified that could have more than a negligible effect on groundwater during the operation and maintenance phase of the scheme, as there are no foreseeable mechanisms by which groundwater could be affected. In addition, groundwater in this area is not highly sensitive to change and has not been designated as a SPZ. The closest SPZ is at Llandinam, which is over 5km from the start of the overhead line route.

TABLE 9.10: ASSESSMENT OF EFFECTS ON GROUNDWATER

Groundwater Hydrological	Sensitivity	Magnitude	Significance
River Severn corridor Minor Aquifer	Medium	Negligible	None
Llandinam Source Protection Zone	Very High	Negligible	None

Assessment of Effects on Flood Risk - During Construction and Decommissioning

9.6.13 Flood risk was a material consideration in the development of the proposed route and every effort was made to avoid development in the floodplain. However, due to the length of the route and the nature of the landscape, there are sections of the overhead line that are required to cross rivers and associated floodplains. The effects that the proposed overhead line may have on flood risk are summarised in Table 9.11 and are discussed in more detail below.

9.6.14 The activities assessed as having a potential effect on flood risk during the construction and decommissioning stage have been identified as:

- Installation of temporary bridges for access to remote areas
- The use of site compounds and access tracks
- The storage of poles prior to installation

9.6.15 The installation of temporary steel bridges to allow for the crossing of minor watercourses by construction vehicles in remote locations is the only activity. There is the potential for these structures to present a risk of blockage, or to represent a constriction to flows. If the temporary structures held back flows, water levels would increase locally. However, as this would be localised and confined to remote areas the effects on any of the identified receptors would be negligible and the significance is assessed as none.

9.6.16 Poles being stored prior to use could increase flood risk if they became entrained into a watercourse during a flood event. The poles could be washed downstream where they could become lodged within structures that cross the channel, such as bridges. If this was to occur, the poles would cause a reduction in the flow capacity of the watercourse and water levels upstream of the structure would increase.

9.6.17 The risk of a serious blockage resulting from such an occurrence anywhere in the study area is considered low, as there are no vulnerable receptors downstream of most proposed storage locations, with one exception at Welshpool. However, due to the size of the river crossings, which have to be large to cross the River Severn, the potential for a blockage of the channel in this location is considered unlikely and magnitude of this event would be low.

9.6.18 The significance of the effects of construction and decommissioning on the identified receptors in the study area is shown in Table 9.11.

Assessment of Effects on Flood Risk - During Operation

9.6.19 The erection of poles in areas at risk of flooding is considered the only potential effect that the scheme could have on flood risk during operation. Where the situation of poles in Flood Zones has been unavoidable, the chosen locations are where water depths will be lowest (see Jacobs Figures 02 to 07 at Appendix W).

9.6.20 The proposed overhead line crosses six sections of Flood Zone along its length. Principally this involves the Rivers Camlad and Severn, where the widths of Flood Zone crossed are 1km and 500m respectively. The four other watercourse crossings are approximately 100-200m.

9.6.21 The crossing of the Camlad Flood Zone involves 9 poles (poles 78-87) and the crossing of the Severn Flood Zone three (Poles 7-9). In these locations flood depths have been estimated at between 0 and 2 metres.

9.6.22 In these latter locations, there is a greater potential for fast flowing floodwater to uproot or break the poles. The significant size of the poles means that they could present a blockage risk that could increase the risk of flooding elsewhere should they be carried off by floodwaters.

9.6.23 The risk of a significant blockage resulting from a damaged pole anywhere along the reach is considered low, as there are no vulnerable receptors downstream of such locations, with one exception at Welshpool, which has been assessed as being of medium sensitivity. However, the potential for a blockage of the channel in this location is considered low due to the large size of the river crossings over the River Severn.

9.6.24 In the other locations, either no poles are affected or the water is unlikely to be deep or fast flowing enough to damage the poles, and the effect is therefore considered negligible.

9.6.25 Because the poles will be in place for a number of years (estimated to be 25 years), climate change could increase the risk of flooding over the lifetime of the development. However, as the locations of the poles have already been chosen to minimise the depth of flooding and as result, the effects of climate change have also been minimised.

TABLE 9.11: ASSESSMENT OF EFFECTS ON FLOOD RISK

Flood Risk		Construction & Decommissioning		Operation	
Area	**Sensitivity**	**Magnitude**	**Significance**	**Magnitude**	**Significance**
Llandinam	Medium	Negligible	None	Negligible	None
Caersws	Very High	Negligible	None	Negligible	None
Newtown	Very High	Negligible	None	Negligible	None
Aberbechan	High	Negligible	None	Negligible	None
Abermule	High	Negligible	None	Negligible	None
Garthmyl	Medium	Negligible	None	Negligible	None
Berriew	Medium	Negligible	None	Negligible	None
Forden	Medium	Negligible	None	Negligible	None
Trehelig	Medium	Negligible	None	Negligible	None
Llwynderw	Medium	Negligible	None	Negligible	None
Fron	Medium	Negligible	None	Negligible	None
Cilcewydd	High	Negligible	None	Negligible	None
Coed-y-dinas	Medium	Negligible	None	Negligible	None
Leighton	Medium	Negligible	None	Negligible	None
Welshpool	Medium	Low	Minor	Low	Minor
Buttington	High	Negligible	None	Negligible	None

9.7 Detailed Mitigation Measures & Identification of Residual Effects

Water Quality

9.7.1 The risk to water quality associated with the proposed overhead line comes largely from the construction and decommissioning phase, which requires the construction of temporary access routes. This activity has the potential to adversely affect local water quality on smaller watercourses, through the erosion of soil material that could run off into adjacent watercourses.

9.7.2 This risk will be mitigated by the use of an appropriate geotextile in the immediate vicinity of watercourse crossings (approximately 10 metres either side) to minimise damage to the trafficked areas and surrounding ground and vegetation and thereby minimise erosion. Twice daily vehicle inspections will be carried out to check for erosion and spillages. Consent will be sought from the EA for all temporary works with potential to affect the channel of a main river or ordinary watercourse.

9.7.3 On completion of the scheme, the access way will be removed and the area affected returned to its former state. This will include landscaping of any areas affected by erosion and replanting of vegetation to consolidate affected soils.

9.7.4 During construction and decommissioning, there is also the potential for pollutants and waste materials to enter watercourses and affect water quality. The disposal of waste material will be carried out in accordance with the relevant waste management plans and all appropriate regulations governing waste disposal. 5m buffer strips between any watercourses and temporary access tracks (wherever possible) will help reduce the potential for damaging substances to enter the watercourse. Furthermore, all poles being situated within 10m from top of bank of designated watercourses (identified by the EA) will have written consent from the EA prior to works being commenced.

9.7.5 Regular maintenance and inspection of machinery and vehicles will also be carried to reduce the possibility of any leakages or failures, which could pollute the watercourses. There will be visual inspections of all plant and machinery for leaks before and after use on site.

9.7.6 All works that may enter within 7m of top of bank from a watercourse will require EA land drainage consent.

Groundwater

9.7.7 There is considered to be no likely significant effects to groundwater therefore no mitigation measures are necessary.

Flood Risk

9.7.8 The design of the proposed route of the overhead line included consideration of flood risk. Consequently, the significance of any effects is already low. However, several actions will be adopted to reduce flood risk further still.

9.7.9 The risk that poles, being stored prior to installation, could be washed into the watercourse during a flood event will be mitigated by ensuring any site compounds and storage areas are situated outside of recognised Flood Zones, as shown on Figure 9.3: Flood Risk Overview.

9.7.10 Poles, which have to be situated in the floodplain during the operation phase of the overhead line, will be sited to be as high above the relevant watercourse as possible. This has already been considered in the proposed route but any future amendments to the route will also follow this principle.

9.7.11 Poles situated in the floodplain will also be fitted with scour protection to ensure that floodwaters do not undermine their foundations and cause them to be washed away.

9.7.12 During the construction and decommissioning phases some sections of the temporary access route will be at risk of flooding and a number of structures are proposed to cross isolated watercourses. These will be constructed with consideration of any effect it could have on local flows and risk to the structures themselves.

9.7.13 In the event that temporary compounds and stores for materials are required, these will not be situated in Flood Zones B or C if it can be avoided. Where not avoidable, detailed Flood Consequence Assessments will be undertaken and proposed measures implemented.

Residual Effects

9.7.14 Residual risks are identified as those risks that remain after the appropriate mitigation measures have been developed and implemented.

9.7.15 Should the mitigation measures outlined above be implemented it is considered that the residual risks to and from the proposed overhead line are negligible and therefore, there are no likely significant environmental effects as a result of the development in respect of hydrology.

9.8 Summary

9.8.1 It is considered that, if the mitigation measures discussed above and detailed fully in the draft Construction Method Statement are successfully implemented, the construction, operation and decommissioning effects of the proposed overhead line on hydrology, groundwater, flood risk and water quality will not result in any likely significant adverse long term effects.

Chapter 10:
Other Issues

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10.1 Introduction

10.1.1 As noted in Chapter 2.0: EIA Methodology and Significance Criteria, it was decided by the Environmental Impact Assessment (EIA) project team that, following the scoping exercise and consultation, it was unlikely that any significant effects would arise from the proposed overhead line in respect of the following issues:

- Geology and Soils
- Tourism and Recreation
- Traffic and Transport
- Noise & Lighting
- Electro Magnetic Fields (EMF)
- Waste Management

10.1.2 On this basis, a decision was therefore taken not to make these topics the subject of an environmental impact assessment following detailed analysis by the project team and the outcome of the consultations. The reasons why this is the case are as follows:

10.2 Geology & Soils

Background

10.2.1 The initial routeing study work in this project involved gathering environmental constraints information including geology and soils. Such information is necessary because it can indicate where unsuitable ground conditions may prove a constraint in terms of constructing the overhead line. Rock outcrops, soil stability and soil depth all potentially affect the construction and installation of the wood pole supports of the overhead line.

10.2.2 As discussed in the Routeing Study Report, these potential constraints were considered when assessing the route options. Considerable effort was made to avoid areas of deep soft or wet ground both for engineering and ecological purposes. Nevertheless, the Proposed Route crosses a large section of upland where underlying peat deposits could give rise to issues. The scoping response from the Countryside Council for Wales (CCW) advised that peat is unlikely to be present along the route, except at the southern end. The British Geological Society do not have any available maps of the southern end (Poles 301 – 394) of the route. Feedback from SPEN's ground survey teams points to soft ground near Poles 380 – 384 and 394. However, they have been unable to determine whether this is in excess of 2m deep. In the light of this, the presence of peat cannot be discounted.

10.2.3 The likelihood that peat deposits are limited and restricted, combined with the small footprint of the pole erection sites, means that there is unlikely to be any significant effect on these deposits. This will be confirmed following more detailed ground surveys prior to construction.

Assessment of Issues

10.2.4 Given the above, no significant environmental effects are likely to arise.

10.3 Tourism & Recreation

Background

10.3.1 An appraisal of the recreational resource of the study area was also carried out during development of the proposed overhead line route and information on this issue was included in the Routeing Study Report. This work identified that the study area is popular with visitors and has a number of attractions including long distance footpaths and cycleways as well as historic castles, parks and gardens. The public rights of way network is shown in Figure 6.9: Tourism and Recreation. It includes a number of long distance walking or cycling routes of regional or national significance.

10.3.2 With a knowledge that local interest groups consider there to be sufficient interest in local footpaths and bridlepaths in the area, the Scoping Report (see Appendix A) proposed that visual impacts on users of footpaths and open access areas would be included in the EIA. This was borne out in the responses to the Scoping Report, the only issue in this topic commented on being the potential effect of the overhead line on Kerry Ridgeway.

10.3.3 A concern was raised in the consultations with CCW and Powys County Council about the likelihood of the proposed overhead line directly affecting any footpaths through obstruction. Table 10.1 sets out the proximity of all footpaths that either cross the route of the line or lie within approximately 100m of individual footpaths to the nearest pole. This shows that 7 poles lie within 10m of a footpath, the closest being 4m. On this basis, it is considered that there will be no significant effects. This will be further controlled through a requirement in the EMP that requires no pole position to change where it would bring it closer to an existing right of way.

TABLE 10.1: DISTANCE FROM POLES & STAYS TO AFFECTED FOOTPATHS

Pole Number	Distance from Pole/Stay to Footpath
1	82
9	47
22	42
36	110
44	26
59	10
63	41
70	40
71	32
87	53
101	47
103	47
120	20
129	23
129	10
129	24
134	39
136	28
142	14
146	24
150	11
154	4
154	47
160	84
163	48
189	39
192	16.2
194	32.6
198	16.3
204	12.1
207	30.7
210	14.9
220	23
228	21
239	9
242	10
271	26
272	34
284	34
284	13
309	28
325	8
334	6
341	44
342	25
347	36
361	19
369	13

Assessment of Issues

10.3.4 Whilst detailed design of the overhead line has avoided any direct effects on the footpaths, there remain in some locations potential visual effects for footpath users. These have been assessed in Chapter 6.0: Landscape and Visual.

10.4 Traffic & Transport

Background

10.4.1 Overhead line proposals are not normally considered in respect to traffic and transport issues because the associated levels of vehicles in the project are relatively low, there is never any likelihood of traffic having an effect on traffic flow and road networks.

10.4.2 In respect of the likely significant environmental effect of the traffic generated by the overhead line, the following information is provided to indicate that the traffic generation is not significant.

- Light vehicles (including 4x4) and vans bringing construction staff to site.
- Deliveries of components (e.g. wood poles, steelwork, conductors, ducts, cable drums).
- Deliveries of plant at the start and finish of the construction period (e.g. tractors and tree felling/chipping equipment, excavators, tensioners, mobile elevated working platforms).

10.4.3 Table 10.2 indicates the approximate number of vehicle movements associated with the construction and operation of the overhead line.

TABLE 10.2: ESTIMATED VEHICLE MOVEMENTS - OVERHEAD LINE

Vehicle Movements	Construction - Numbers per Day	Operation - Numbers per Month
Staff Vehicles	1-2 (light vehicles)	0.5
Deliveries of components	1 (HGV)	-
Deliveries of plant	1 (at start and finish) HGV	-

10.4.4 For these reasons, traffic and transport has not been included in the Scoping Report and not surprisingly, this issue has not attracted any response or comments otherwise in the consultation process.

10.4.5 The main issue of concern with respect to traffic is the creation of construction and maintenance accesses and then accessing otherwise inaccessible fields with construction vehicles. This is in terms of visual, ecological and cultural heritage issues. In this case, construction and maintenance traffic issues have also been raised at the scoping stage in terms of effects on geology and soils, on the pollution of watercourses and on visual amenity.

10.4.6 In terms of any significant effects arising from construction traffic on visual amenity, this issue is addressed in Chapter 6.0: Landscape and Visual. With only a short construction period at individual pole locations and maintenance being very infrequent, no significant visual effects are identified. In respect of cultural heritage issues, the potential for significant effects has also been assessed and mitigation measures stated. These measures require all recorded sites within the 100m corridor to be specified on a plan held by contractors and any sites within the working corridor to be demarcated to be unaffected.

10.4.7 In terms of any potential ecological effects, these are identified in Chapter 7.0: Ecology. This section concludes that, based on the proposals and the nature conservation value of the study area, no significant ecological effects will arise. Consequently, no mitigation measures in this respect are specified. The main likely effects relating to disruption and disturbance to habitats and pollution risk result from vehicle leaks. As discussed in section 10.2 above, this is covered through a requirement to inspect all site vehicles twice daily. In respect of habitat loss and disturbance, surveys are required prior to construction to identify areas to be avoided or where necessary, licences need to be submitted seeking permission from the relevant authority, to avoid any unacceptable damage by construction vehicles.

Assessment of Issues

10.4.8 Given the above, no other significant traffic and transport related environmental effects are likely to arise.

10.5 Noise & Lighting

Background

10.5.1 Construction noise levels are likely to be low and will be experienced predominantly during the day between 0800 and 1800 hours. These effects will move along the line as each new pole is erected. During construction, contractors will be required to maintain low noise levels near dwellings or other noise sensitive receptors by employing sufficiently silenced machinery and by distancing, or where practicable, screening noisy activities or items of plant as outlined in BS5228: 2009.

10.5.2 Once operational, noise from overhead lines is occasionally generated when the conductor surface electric stress exceeds the inception level for corona discharge activity. Whilst transmission line conductors are designed to operate below this threshold, surface contamination on conductors will cause a local enhancement of electric stress and possibly initiate discharge activity. At each discharge site, a limited electrical breakdown of the air occurs. A portion of the energy associated with the corona process is released as acoustic energy and radiates into the air as sound pressure waves. The highest noise levels generated by a line usually occur during rain. Water droplets collect on the surface of the conductor and may initiate corona discharge. The number of droplets, and hence the noise level will depend primarily on the rate of rainfall. This is not a significant noise level however and no significant effects can be considered to arise.

10.5.3 In respect of lighting, there are no lighting requirements for the overhead line.

Assessment of Issues

10.5.4 Given the above, no significant environmental effects are likely to arise.

10.5.5 Whilst no significant effects have been identified, any noise from the substation will be subject to assessment by the local authority's Environmental Health requirements and a condition imposed on the S37 consent if necessary.

10.6 EMF Radiation

Background

10.6.1 Electric and magnetic fields and the electromagnetic forces they represent are an essential part of the natural world. Their sources are the charged fundamental particles of matter (principally electrons and protons). Electromagnetic forces are responsible for the physical properties of materials and they mediate all the processes of chemistry, including those of life itself. Measurable electric and magnetic fields occur naturally within the body in association with nerve and muscle activity. We are also exposed to natural electric fields in the atmosphere as well as the natural magnetic field of the Earth (to which a magnetic compass responds).

10.6.2 Electric field strengths are measured in volts per metre (V/m). The natural atmospheric electric field at ground level is normally about 100V/m in fine weather and may rise to many thousands of volts per mere during thunderstorms. Magnetic fields (for practical purposes) measured in microtesla (T). The Earth's natural magnetic field is approximately 50 T in this country.

10.6.3 All overhead power line produce EMFs and these tend to be highest directly under a line and decrease to the sides at increasing distance. EMFs produced by overhead lines are usually much lower than the International Commission on Non-Ionising Radiation Protection (ICNIRP) exposure levels.

10.6.4 The health Protection Agency's Radiation Protection Division (HPA RPD) provides advice on standards of protection for exposure to non-ionising radiation, including the extremely low frequency (ELF) EMFs arising from the transmission and use of electricity. In March 2004, the National Radiological Protection Board (NRPB), (now the HPA RPD), published new advice which recommended that the UK follow the exposure guidelines published by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) in 1998. These guidelines form the basis of an EU Recommendation on public exposure and a Directive on occupational exposure. The electricity industry complies with these ICNIRP guidelines on a voluntary basis. For electric fields, the guideline level for human exposure 5000 volts per metre and for magnetic fields, it is 100 microteslas.

10.6.5 The Stakeholder advisory group on ELFs and EMFs, known as SAGE was established by the Department of Health to explore the implications and make practical recommendations for a precautionary approach to power frequency electric and magnetic fields. SAGE's first interim report was published in 2007. The Government's response to this assessment is set out in its October 2009 document, 'The Government Response to the Stakeholder Advisory Group on Extremely Low Frequency Electric and Magnetic Fields (ELFs EMFs) Recommendations'. One of the conclusions of this response is that the available evidence does not support the mandatory introduction of corridors around overhead lines as proposed by some members of SAGE.

10.6.6 The draft National Policy Statement for Electricity Networks Infrastructure (EN-5) published in 2009, confirms, "the balance of scientific evidence over several decades of research has not proven a causal link between EMFs and cancer or any other disease". The HPA keeps under review emerging scientific research and/or studies that may link EMF exposure with various health problems and will consider the possible need for introducing further precautionary measures.

10.6.7 The Department of Health's Medicines and Healthcare Products Regulatory Industry (MHRA) does not consider that transmission line EMFs constitute a significant hazard to the operation of pacemakers.

10.6.8 There is little evidence that exposure of crops, farm animals and natural ecosystems to transmission line EMFs has any agriculturally significant consequences.

10.6.9 There is no direct statutory provision in the planning system relating to protection from EMFs and the construction of new overhead power lines near residential or other occupied buildings. However, the Electricity, Safety, Quality and Continuity Regulations 2002 set out the minimum height, position, insulation and protection specifications at which conductors can be strung between towers to ensure clearance of objects. The design of the proposed overhead line complies with these requirements.

Assessment of Issues

10.6.10 Given the above, no significant environmental effects are likely to arise as a result of EMFs generated by the proposed development.

10.6.11 Whilst it is not considered likely that there will be any significant environmental effects arising as a result of EMFs, SPEN considers that even a remote possibility of a health risk must be taken seriously, because very large numbers of people are exposed to power-frequency fields from both overhead and underground power lines and from many other sources, including domestic appliances. Further studies are in progress in this country and elsewhere to establish whether or not there is any genuine health risk. SPEN will continue to act upon the current advice of the Government and HPA in this matter.

10.7 Waste Management

Background

10.7.1 Wastes will be generated and will require management at a number of construction stages including:

- Tree felling and clearance of vegetation across the area proposed for construction of the overhead lines and substation
- Stripping of topsoil and overburden and storage for reuse
- Excavation of materials for construction of wood pole erection
- Construction of ancillary works, including access tracks and temporary storage areas
- Occupation of temporary construction premises

10.7.2 Measures to reduce potential environmental effects associated with the storage and transportation of wastes will include:

- Re-using materials in landscape works
- The careful location of stockpiles and other storage areas
- The use of good practice in the design of waste storage areas and the use of suitable waste containers
- The use of sheeting, screening, and damping where appropriate and practicable
- The control and treatment of runoff from soil and waste soil stockpiles
- Minimising storage periods
- Minimising haulage distances
- The sheeting of vehicles

10.7.3 All wastes will be identified, classified, quantified and, where practicable, appropriately segregated. Any materials that cannot be reused will be disposed of according to relevant waste management legislation, which will serve to address a number of possible environmental effects. This includes:

- The Duty of Care imposed by Section 34 of the Environmental Protection Act 1990
- Site Waste Management Plan Regulations 2008.

10.7.4 The EMP will define the approach that the contractor will adopt to ensure that waste arising from construction will be handled and disposed of in accordance with the relevant waste and environmental regulations.

Assessment of issues

10.7.5 Given the above, no significant environmental effects are likely to arise.

10.7.6 Whilst no significant effects have been identified, any waste generated from the construction of the overhead line will be subject to the local authority's waste disposal requirements.

Chapter 11:
Summary of Effects & Draft Environmental Management Plan

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11.1 Introduction

11.1.1 The routeing process undertaken to identify the Proposed Route is described in Chapter 3.0: Design Evolution. This process allowed SPEN to identify a technically feasible grid connection, which causes the least disturbance to people and the environment.

11.1.2 The identification and subsequent iterative process of the grid connection design was undertaken through three distinct, but interrelated, process:

- The collection of environmental information across a broad range of technical issues
- Extensive consultation with a wide range of consultees
- Technical studies into appropriate and feasible ways to provide the grid connection

11.1.3 The combination of these studies has resulted in the overhead line as proposed in Chapter 4.0: Project Description, and assessed within the subsequent sections of this Environmental Statement (ES).

11.1.4 Table 11.1 sets out all the significant environmental effects identified in the preceding technical sections, including the effect before mitigation, type of mitigation proposed and residual effect remaining after mitigation measures have been put in place.

11.1.5 Table 11.2 forms the basis for the draft Environmental Management Plan (EMP), which will be developed in more detail following a grant of consent for the scheme. The EMP sets out the mitigation measures identified in Table 11.1, but also includes additional measures, which are intended to mitigate for effects, which are not considered significant, but which are identified.

11.2 Summary of Environmental Effects

11.2.1 Table 11.1 shows that the routeing and technical solutions (including mitigation) adopted for this project have resulted in a proposal in which the residual effects of the overhead line have been limited to some landscape and visual and cultural effects.

11.2.2 The significant effects identified in the landscape and visual assessment are in all cases local to the overhead line and are the direct result of the line being viewed in close proximity or in areas where there is little tree cover to provide screening. The result of this is that views of the overhead line will be limited and localised. Beyond the immediate setting of the overhead line, its presence will be little perceived by most observers, as it will blend into the background of trees and landform.

11.2.3 With respect to cultural heritage assets, there are a number of designated sites that will experience a significant effect on their setting. This is inevitable given the length of the line and the number of designated sites in proximity to it.

11.2.4 The proposed overhead line traverses one Registered Historic Landscape, the Vale of Montgomery, and an ASIDOHL concluded that the significance of the effect was likely to be moderate.

11.3 Cumulative Effects

11.3.1 Within each technical section, cumulative effects, that is the combined effects of the development with other proposed or existing overhead lines within the area were considered. Whilst there are a number of areas where the proposed overhead line will be seen next to an existing line, only in one location (Viewpoint 19) has the residual effect been assessed as significant.

11.4 Draft Environment Management Plan

11.4.1 The draft EMP set out in Table 11.2, includes mitigation measures developed in response to significant environmental effects identified in the preceding technical sections. It also includes additional measures, which are being proposed by SPEN, which are intended to mitigate for effects, which are not considered significant, but which are identified.

11.4.2 The draft EMP will become part of the project documentation as the project design continues and will be included in the documents that contractors will be required to adhere to. Figure 11.1: Environment Mitigation Plan indicates where these measures will be carried out along the route.

11.4.3 Reference is also made in Chapter 7.0: Ecology, to habitat enhancement. A number of measures are proposed including introduction of bird boxes to provide additional habitat and exploring measures that can be agreed with local wildlife groups, in association with the Powys CC. This is in recognition of SP Manweb's duty of care to the environment and proactive view that projects should go beyond those mitigation measures required to reduce effects by seeking to bring positive improvements to the environment.

11.4.4 SP Manweb's current view is that potential environmental proposals should be discussed and developed in conjunction with local wildlife groups. The implementation of these schemes will be the subject of a condition linked to the works starting on site and then becoming operational.

11.5 Conclusion

11.5.1 The routeing and technical solutions adopted for the proposed overhead line have resulted in a proposal that gives rise to significant effects within localised areas and these are only in relation to landscape and visual and cultural heritage setting. This is inevitable given the nature and length of the scheme. Close proximity to the overhead line will give rise to such effects and the identification of these effects cannot be further mitigated.

11.5.2 In most cases, these identified effects, whilst significant, will be experienced in locations, which are either somewhat remote or not generally visible to a wide audience.

11.5.3 Given the length of the line, the relatively limited number of significant adverse environmental effects indicates that SPEN have complied with their dual obligation to provide a technically feasible and economically viable grid connection, which causes the minimum disturbance to people and the environment.

TABLE 11.1: SUMMARY OF MITIGATION IN RESPONSE TO SIGNIFICANT ENVIRONMENTAL EFFECTS

Environmental Effects	Effect	Type of Mitigation if Possible	Residual Effect	EMP Ref
Landscape and Visual				
Operation				
Visual effects on bridleway just off A483 near Gwynant (viewpoint 03)	Moderate	Tree and hedgerow planting along field boundaries to provide backcloth.	Moderate	EMP 1
Visual effects at Glanmiheli, Glanmule (viewpoint 07)	Moderate	Extend hedgerow planting along field boundary on western side of B4368.	Minor	EMP 2
Visual effects on B4368 north of Glanmule (viewpoint12)	Moderate	None proposed.	Moderate	-
Visual effects at Upper Maenllwyd (viewpoint 13)	Moderate	Additional tree and hedgerow planting along both sides of B4368.	Moderate	EMP 3
Visual effects at junction of B4385 and B4386 at Caerhowel (viewpoint 14)	Moderate	New and supplementary tree and hedgerow planting along both sides of B4385, and at junction with B4386.	Moderate	EMP 4
Visual effects on A490 at Halmar Drive, Fron (viewpoint 19)	Moderate	New and additional tree and hedgerow planting along both sides of A490.	Moderate	EMP 5
Visual effects on A483 north of Camnant (viewpoint 25)	Moderate	New blocks of tree planting along lane to wind farm to west of A483. New tree and hedgerow planting along both sides of A483.	Moderate	EMP 6
Visual effects on B4355 at Crugyn Bank Dyke (viewpoint 26)	Moderate	None proposed.	Moderate	-
Visual effects on bridleway south of Glog (viewpoint 27)	Moderate	New blocks of tree planting along bridleway to screen views.	Minor	EMP 7
Visual effects on minor road east of Borfa-wen (viewpoint 32)	Moderate	Additional tree planting within existing hedgerows both sides of lane.	Minor	EMP 8
Visual effects on bridleway near Cae-betin Wood (viewpoint 50)	Moderate	None proposed.	Moderate	-
Visual effects on bridleway above Cilthriew (viewpoint 51)	Moderate	Additional tree planting within existing hedgerow to south of Cilthriew.	Moderate	EMP 9

Visual effects on Fron Bank/ Cilcewydd	Moderate	New and additional tree and hedgerow planting along both sides of A490 (as viewpoint 19). New planting to west of Edderton Lodge and along rear boundary of Halmar Drive properties.	Minor	EMP 5 & 10
Visual effects on local Rights of Way	Moderate	Localised tree, hedgerow and woodland planting in certain locations.	Moderate	-
Visual effects on Open Access Areas	Moderate	Extension of woodland to improve backcloth.	Moderate	-
Visual effect on A483	Moderate	Additional tree and hedgerow planting along lane to wind farm to west of A483 (as viewpoint 25).	Moderate	EMP 6
Visual effect on A489	Moderate	New and additional tree and hedgerow planting along both sides of A489.	Moderate	-
Visual effect on A490	Moderate	New and additional tree and hedgerow planting along both sides of A490 (as viewpoint 19).	Moderate	EMP 5
Visual effect on B4355	Moderate	None proposed.	Moderate	-
Visual effect on B4368	Moderate	Extend hedgerow planting along field boundary on western side of B4368 (as viewpoint 07). Additional tree and hedgerow planting along both sides of B4368 (as viewpoint 13).	Moderate	EMP 2 & 3
Visual effect on B4386	Moderate	New and additional tree and hedgerow planting along both sides of B4385, and at junction with B4386 (as viewpoint 14).	Moderate	EMP 4
Visual effect on B4385	Moderate	New and additional tree and hedgerow planting along both sides of B4385, and at junction with B4386 (as viewpoint 14).	Moderate	EMP 4
Visual effect on local road network	Moderate	None proposed.	Moderate	-
Cultural Heritage				
Operation				
Potential damage to Pen y Lan Wood enclosure	Moderate	Evaluation + Excavation/Preservation by record	Slight	EMP 11
Potential damage to Woodlands enclosure	Moderate	Preservation in situ	Slight	EMP 12
Potential damage to Cilthriew Enclosure	Moderate	Preservation in situ	Slight	EMP 13
Potential damage to Whitehouse Farm enclosure	Moderate	Evaluation + Preservation in situ + Watching brief	Slight	EMP 14
Potential damage to Bryn Cwmyrhiwdre mound I	Large/ Very Large	Preservation in situ	Slight	EMP 15
Potential damage to Crugyn Bank Dyke E	Large/ Very Large	Preservation in situ	Moderate / Slight	EMP 16
Potential damage to Henfron Moat	Moderate/ Large	Avoidance	Neutral	-
Potential damage to Goron Ddu enclosure	Moderate	Avoidance	Neutral	-
Potential damage to Cuckoo Hall hillfort	Moderate/ Large	Avoidance	Neutral	-
Potential damage to Black Gate Enclosure	Moderate	Avoidance	Neutral	-
Potential damage to Pen y Foel farmstead	Moderate/ Large	Avoidance	Neutral	-
Potential damage to Cilthriew, Mile marker	Moderate/ Large	Avoidance	Neutral	-
Impact on setting of Forden Gaer Roman Site (MG012)	Large	None proposed	Large	-
Impact on setting of Hen Domen Mound & Bailey Castle (MG013)	Large	None proposed	Large	-
Impact on setting of Ffridd Faldwyn Camp (MG015)	Moderate	None proposed	Moderate	-
Impact on setting of Offa's Dyke: Goppas Wood (MG034)	Large	None proposed	Large	-
Impact on setting of Offa's Dyke: Leighton Park (MG035)	Large	None proposed	Large	-
Impact on setting of Offa's Dyke: Nant-Cribau Park (MG036)	Large	None proposed	Large	-
Impact on setting of Offa's Dyke: Hem Road (MG037)	Large	None proposed	Large	-
Impact on setting of Crugyn Bank Dyke (MG062)	Very Large	None proposed	Very Large	-
Impact on setting of Two Tumps Dyke (MG063)	Very Large	None proposed	Very Large	-
Impact on setting of Crugynau Round Barrow (MG109)	Moderate	None proposed	Moderate	-
Impact on setting of Offa's Dyke: Court House Farm (MG138)	Large	None proposed	Large	-
Impact on setting of Offa's Dyke: Welshpool-Churchstoke Road (MG139)	Large	None proposed	Large	-
Impact on setting of Offa's Dyke: Goppas Wood (MG152)	Large	None proposed	Large	-
Impact on setting of Offa's Dyke: Pentre Section (MG153)	Large	None proposed	Large	-
Impact on setting of Great Cloddiau Camp (MG169)	Large	None proposed	Large	-
Impact on setting of Hen Domen Pre-Conquest Fields (MG170)	Moderate	None proposed	Moderate	-
Impact on setting of Glanmule hengiform monument (MG172)	Moderate	None proposed	Moderate	-
Impact on setting of Pen-y-gelli enclosure (MG177)	Moderate	None proposed	Moderate	-
Impact on setting of Offa's Dyke: Pentre Farm (MG217)	Large	None proposed	Large	-
Impact on setting of Henfron Moated Site (MG220)	Large	None proposed	Large	-
Impact on setting of Offa's Dyke: School House (MG224)	Large	None proposed	Large	-
Impact on setting of Barrow west of Cae-Betin Wood (MG257)	Large	None proposed	Large	-
Impact on setting of Bryn Cwmyrhiwdre Round Barrow (MG280)	Very Large	None proposed	Very Large	-
Impact on setting of Banc Gorddwr, round barrow (RD250)	Moderate	None proposed	Moderate	-
Impact on setting of Leighton Hall (LB8663)	Moderate	None proposed	Moderate	-
Impact on setting of Leighton, Holy Trinity church (LB8668)	Moderate	None proposed	Moderate	-
Impact on setting of Leighton Hall Tower (LB19523)	Moderate	None proposed	Moderate	-
Impact on setting of Leighton Hall (PGW (Po) 34)	Moderate	None proposed	Moderate	-

TABLE 11.2: DRAFT ENVIRONMENTAL MANAGEMENT PLAN

Mitigation for Significant Effects		
EMP Ref	**ES Significant Effect**	**Type of Mitigation Proposed**
EMP 1	Visual effects on bridleway just off A483 near Gwynant (viewpoint 03)	Tree and hedgerow planting along field boundaries to provide backcloth.
EMP 2	Visual effects at Glanmiheli, Glanmule (viewpoint 07)	Extend hedgerow planting along field boundary on western side of B4368.
EMP 3	Visual effects at Upper Maenllwyd (viewpoint 13)	Additional tree and hedgerow planting along both sides of B4368.
EMP 4	Visual effects at junction of B4385 and B4386 at Caerhowel (viewpoint 14)	New and supplementary tree and hedgerow planting along both sides of B4385, and at junction with B4386.
EMP 5	Visual effects on A490 at Halmar Drive, Fron (viewpoint 19)	New and additional tree and hedgerow planting along both sides of A490.
EMP 6	Visual effects on A483 north of Camnant (viewpoint 25)	New blocks of tree planting along lane to wind farm to west of A483.
EMP 7	Visual effects on bridleway south of Glog (viewpoint 27)	New blocks of tree planting along bridleway to screen views.
EMP 8	Visual effects on minor road east of Borfa-wen (viewpoint 32)	Additional tree planting within existing hedgerows both sides of lane.
EMP 9	Visual effects on bridleway above Cilthriew (viewpoint 51)	Additional tree planting within existing hedgerow to south of Cilthriew.
EMP 10	Visual effects on Fron Bank/ Cilcewydd	New planting to west of Edderton Lodge and along rear boundary of Halmar Drive properties.
EMP 11	Potential damage to Pen y Lan Wood enclosure	Evaluation and excavation/preservation by record. Geophysical survey to be undertaken in advance of construction works in order to inform, as necessary, micro-siting.
EMP 12	Potential damage to Woodlands enclosure	Preservation in situ with demarcatation, and poles to be located at a suitable distance. However, if this is not feasible, geophysical survey and perhaps excavation may be necessary.
EMP 13	Potential damage to Cilthriew Enclosure	Preservation in situ
EMP 14	Potential damage to Whitehouse Farm enclosure	Evaluation + Preservation in situ + Watching brief. Geophysical survey to be undertaken in advance of construction works in order to inform, as necessary, micro-siting.
EMP 15	Potential damage to Bryn Cwmyrhiwdre mound I	Preservation in situ
EMP 16	Potential damage to Crugyn Bank Dyke E	Preservation in situ
ES Additional Mitigation Proposed		
EMP Ref	**Effect**	**Type of Mitigation Proposed**
Ecology		
EMP 17	Potential pollution of watercourses	Contractors briefed and storage of materials and construction works carried out in accordance with SP Manweb's conservation protocols. Working methods and standard pollution prevention measures implemented to reduce the possibility of damage through spillage or other pollution.
EMP 18	Loss of hedge habitat	Hedge gaps reinstated once works are complete.
EMP 19	Loss of trees	New tree planting (two new for each tree lost) will be carried out at suitable sites in conjunction with agreement from landowners and PCC/CCW.
EMP 20	Disruption/ loss to bats during construction and operation	Where work is required to trees identified with potential to support roosting bats, prior to the start of work each of the trees will need to be inspected in detail to ascertain if roosting bats are present and if so what type of roost. If a roost is found to be present after inspection, then a Welsh Assembly Government (WAG) licence will need to be applied for detailing appropriate mitigation measures. Mitigation measures would include: ▫ Felling to be done under licence. ▫ Tree felling to be undertaken during March-May or September-November to avoid critical times of the year for bats. ▫ Tree to be felled in sections to avoid injury. ▫ Provision of alternate roost provision will be maintained. E.g. provision of bat boxes on adjacent trees. If after detailed inspection no bats are thought to be present then the tree should be felled carefully in sections during the periods March-May or September-November. If however felling uncovers a bat roost then works to cease while WAG is informed and the appropriate licence applied for.
EMP 21	Disruption of bat flight paths during construction due to hedge loss	Undertake bat flight path surveys to identify any affected areas. Where flight paths are affected temporary gap fillers, e.g. fencing and or netting will be provided during construction. On completion of the work replanting will be undertaken in order to maintain the continuity of the feature. Fencing/netting will be retained in place until the plants are established.
EMP 22	Disturbance/ loss to badgers during construction and operation	For badger setts indentified within 30m of a pole a survey will be conducted prior to construction works to establish if the sett is active and to ensure no new badger setts have become established along the route. A licence from CCW will be applied for to permit works within 30m of the badger sett. Additional mitigation measures include: ▫ Location of the sett will be fenced to avoid accidental damage and disturbance. ▫ Contractors briefed and works carried out in accordance with SP Manweb's conservation protocols. ▫ All excavations backfilled at the end of each working day to avoid injury to badgers that may fall in.
EMP 23	Disturbance/ loss of water voles during construction	Buffer zone to be maintained around the watercourse to avoid damage to the habitat. Construction traffic to utilise existing bridges as crossing points. Contractors to be briefed and works carried out in accordance with SP Manweb 's conservation protocols.
EMP 24	Disturbance to dormice during construction	Temporary hedging in the form of brash or fencing to be provided where hedges are removed in order to maintain the continuity of the habitat.
EMP 25	Injury to great crested newts during construction	A licence from WAG will be obtained following the production of a method statement in order to undertake construction work within 500m of the recorded newt ponds. Access and egress routes and pole sites to be agreed prior to the start of work. A terrestrial search to be undertaken by a licensed newt worker immediately prior to the start of the work. Should an animal be found it will be moved to a safe location outside the construction corridor. Excavations will be back-filled at the end of each day. Should they be required to be left open they will be covered or searched the following morning.
EMP 26	Injury to reptiles during construction	Contractors to be briefed and works carried out in accordance with SP Manweb 's conservation protocols. Where possible the access/egress routes for construction traffic will utilise existing farm gateways. All access and egress routes will be agreed prior to the start of the work. A banks-man will be provided for each vehicle requiring access to a site. All excavations will be backfilled at the end of each working day to avoid newts falling in.

EMP 27	Disturbance or injury to nesting birds during construction	Should the construction work be undertaken between 1st March and 30th September then a nesting bird's survey will be carried out prior to construction works commencing. This will include ground nesting birds. Any hedge or other vegetation removal will be undertaken during the winter period, outside of the bird breeding season (March – September, inclusive). Any hedge removal required will be reinstated once works have been completed. Nest boxes will be provided as compensation for loss of nesting habitat. Devices will be erected in order to prevent/discourage wooden poles being used as perches for raptors in areas identified as most vulnerable for ground nesting species.
EMP 28	Injury to birds during operation	Bird deflectors to be fitted to the overhead cables where it is deemed appropriate using the wintering bird survey data.
EMP 29	Disturbance to otter habitat during construction	A buffer zone to be maintained around the watercourse in order to avoid damage/disturbance to otter habitat.
Cultural Heritage		
EMP 30	Potential damage to Fron Heulog Earthwork	Preservation in situ
EMP 31	Potential damage to White House Cropmark	Evaluation and excavation/preservation by record. Geophysical survey to be undertaken in advance of construction works in order to inform, as necessary, micro-siting.
EMP 32	Potential damage to Montgomery Station field system	Watching brief
EMP 33	Potential damage to Blaen Cwm y Ddalfa House Site	Preservation in situ
EMP 34	Potential damage to Pen y Lan Holloway	Preservation in situ
EMP 35	Potential damage to Castell Collen - Caersws	Watching brief
EMP 36	Potential damage to The Gables Quarry I	Watching brief
EMP 37	Potential damage to Maenllwyd Clay Pit	Watching brief
EMP 38	Potential damage to Wroxeter - Forden	Watching brief
EMP 39	Potential damage to Lydham-Forden-Dolgellau road	Watching brief
EMP 40	Potential damage to Gwynant old road	Preservation in situ
EMP 41	Potential damage to Fron Farm milestone	Preservation in situ
EMP 42	Potential damage to Rhiw Dan Tin ridge and furrow	Watching brief
EMP 43	Potential damage to Old Neuadd Bank, sheepfold	Preservation in situ
EMP 44	Potential damage to Hen Fron Reservoir	Preservation in situ
EMP 45	Potential damage to Blaen Cwm y Ddalfa ridge and furrow	Watching brief
EMP 46	Potential damage to Gwyn's Barn stone	Watching brief
EMP 47	Potential damage to Cil-Cewydd Building	Preservation in situ
EMP 48	Potential damage to Glan-mule Milestone	Watching brief
EMP 49	Potential damage to Glanmiheli reservoir	Preservation in situ
EMP 50	Potential damage to Leighton Brickworks Pond	Preservation in situ
EMP 51	Potential damage to Cwmdale Quarry	Watching brief
EMP 52	Potential damage to Pen-y-lan Wood sheep pens	Preservation in situ
EMP 53	Potential damage to Fron Farm quarry	Watching brief
EMP 54	Potential damage to Caerhowel Holloway	Preservation in situ
EMP 55	Potential damage to Wood Cottage building I	Preservation in situ
EMP 56	Potential damage to Wood Cottage building II	Watching brief
EMP 57	Potential damage to Wood Cottage quarry I	Watching brief
EMP 58	Potential damage to Wood Cottage quarry II	Watching brief
EMP 59	Potential damage to Bryn Dadlau bank	Preservation in situ
EMP 60	Potential damage to Bryn Cwmyrhiwdre quarry I	Watching brief
EMP 61	Potential damage to Bryn Cwmyrhiwdre quarry II	Watching brief
EMP 62	Potential damage to Wood Cottage quarry III	Watching brief
EMP 63	Potential damage to Blaen-cwm-y-ddalfa quarry	Watching brief
EMP 64	Potential damage to historic hedgerows	Watching brief & photographic record
Hydrology		
EMP 65	Risk to water quality during construction	Geotextile to be use in the immediate vicinity of all watercourse crossings. Twice daily vehicle inspections to check for erosion and spillages. EA consent to be sought for all temporary works with the potential to affect the channel of a main river or ordinary watercourse. Reinstatement of all affected areas to their former state following completion of construction works. To include landscaping of areas affected by erosion and replanting of vegetation to consolidate affected soils. Disposal of waste materials to be carried out in accordance with waste management plans and regulations. Wherever possible a 5m buffer strip to be maintained between any watercourses and temporary access tracks. All poles situated within 10m from top of bank of designated watercourse (as identified by the EA) to have written consent from the EA prior to commencement of works. All machinery and vehicles to be regularly inspected and maintained to reduce likelihood of leakages and failures. Any works within 7m of top of bank from a watercourse will require EA land drainage consent.
EMP 66	Flood risk during construction	Location of site compounds and storage areas outside of recognised Flood Zones. If temporary compounds and stores for materials are required, these will not be situated in Flood Zones B or C if it can be avoided. Where not avoidable, detailed Flood Consequence Assessments will be undertaken and proposed measures implemented. Consideration during construction of temporary access tracks that are at risk of flooding, of the potential impact they may have on local flows and the risk to the structures themselves.
EMP 67	Flood risk during operation	All poles situated in the floodplain to be sited as high above the relevant watercourse as possible. All poles situated in the floodplain to be fitted with scour protection.
Geology & Soils		
EMP 67	Avoid pollution to soils from construction activity	Maintain twice daily inspection of construction vehicles and restrict storage of materials to main temporary working areas
EMP 68	Peat	Avoid prior to construction

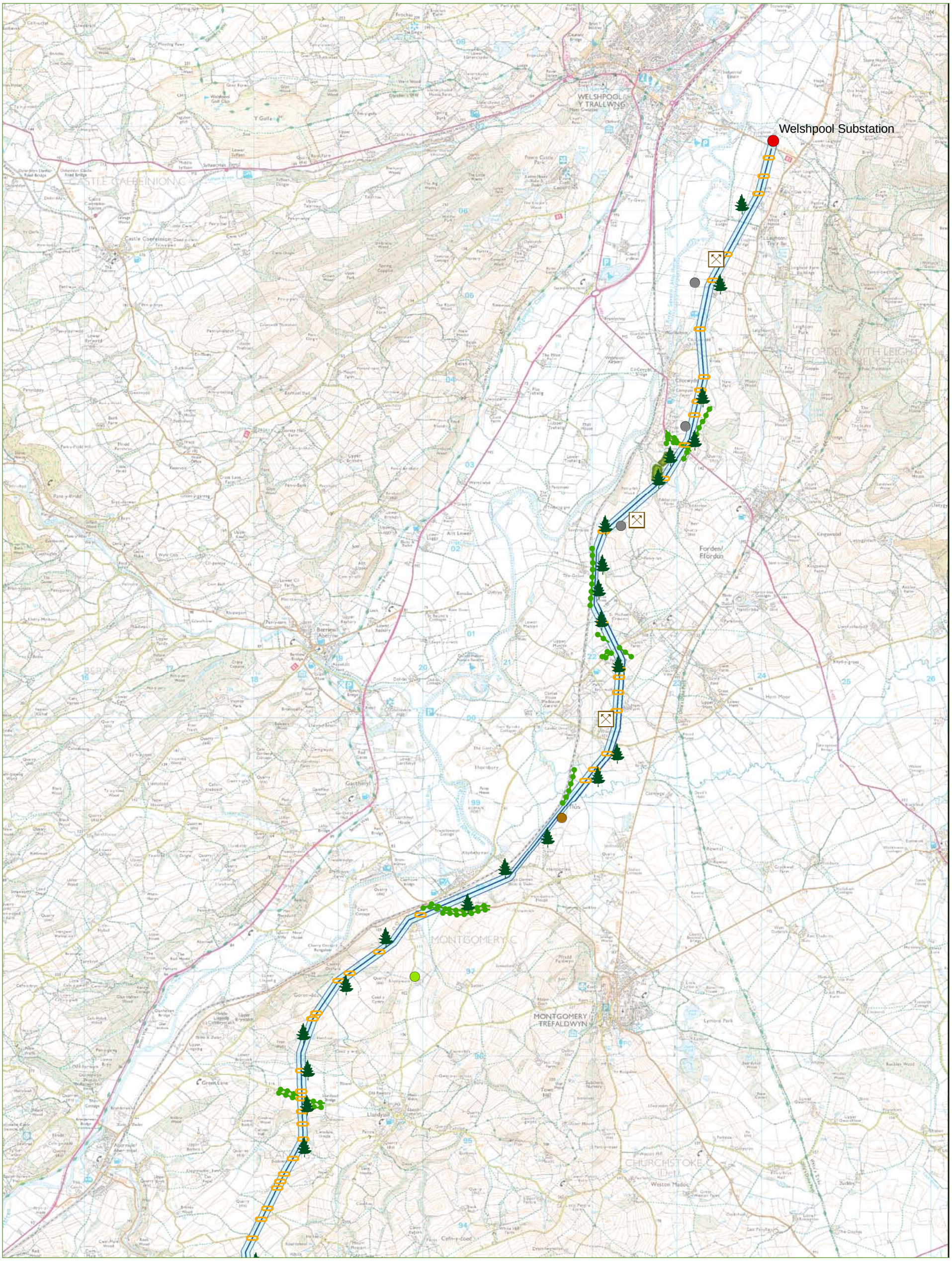
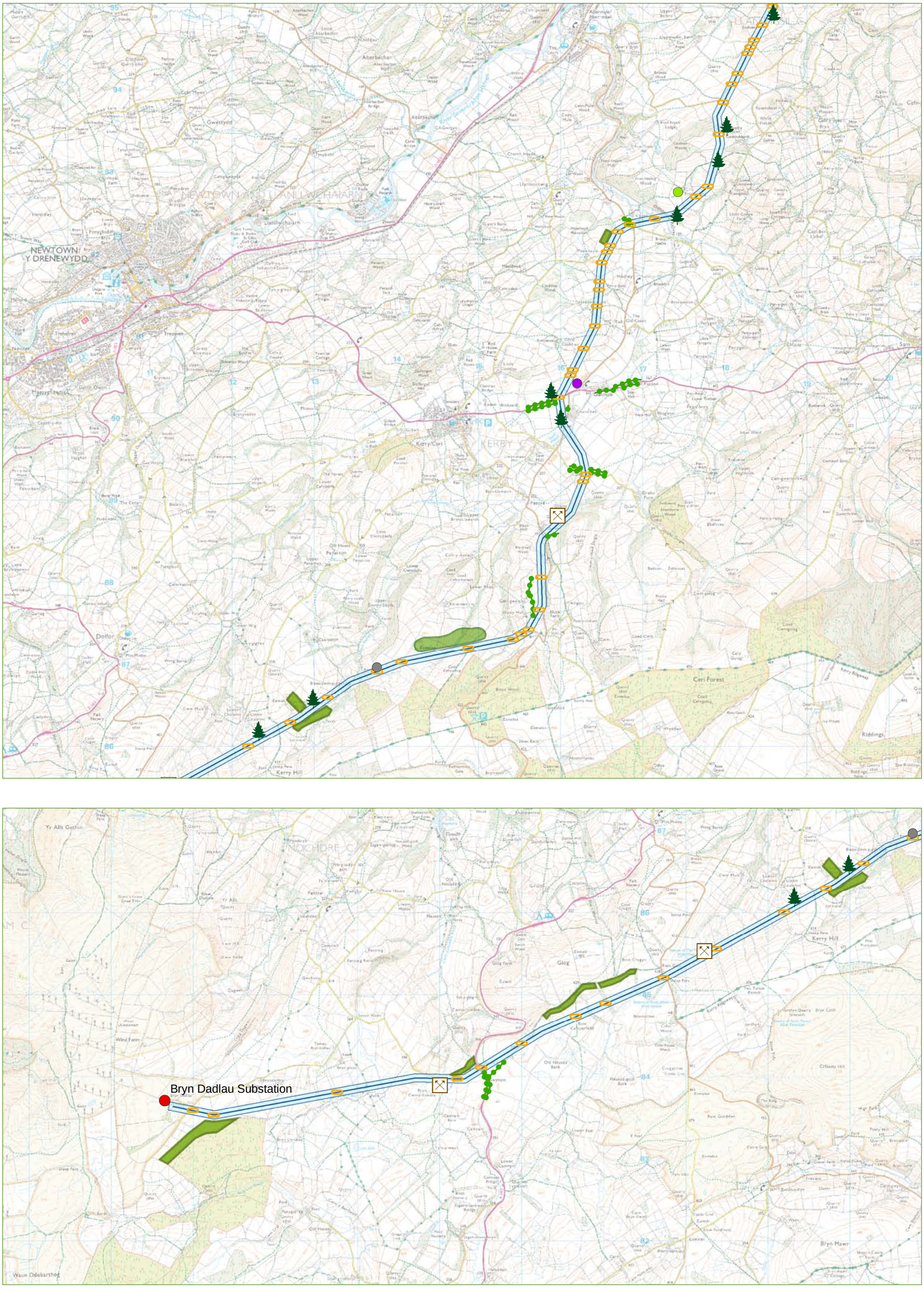


Figure 11.1

Environment Mitigation Plan

NTS


NEWTOWN/
Y DRENEWYDD
Aberbechan
Gwestydd
Llanllwchaiarn
Treowen
Kerry/Cerri
Dolfor
Kerry Hill
Ceri Forest
Riddings
Yr Allt Gethin
Glog
Bryn Dadlau Substation
Bryn Mawr