Chapter 8

Ecology

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8. Ecology

8.1 Introduction

8.1.1 This chapter provides an assessment of the likely significant ecological effects arising from construction, operation, maintenance and decommissioning of the Project.

8.1.2 A detailed description of the Project and Project Site is provided in **Chapter 3: Project and Site Description**. A glossary of terms and list of abbreviations used in this chapter is provided at the start of this PEIR.

8.1.3 Potential effects on the valued ecological features are interrelated with effects from air quality, noise, water quality, landscape and lighting. This chapter should be read in conjunction with **Chapter 6: Air Quality**, **Chapter 7: Noise and Vibration**, **Chapter 9: Water Quality and Resources**, **Chapter 11: Landscape and Visual Effects** and **Chapter 17: Cumulative Impacts**.

8.1.4 Previous ecological surveys have been undertaken by BSG Ecology in 2014 and the baseline reports are contained within the Appendices referred to thought this chapter. It should be noted that the current boundary of the Project Site is now smaller than the site boundary used by BSG Ecology and Parsons Brinckerhoff. The current Project Site boundary is fully within the previous site boundary and therefore the surveys previously undertaken have captured the current Project Site boundary (Figure 8.1). A summary of the previous reports utilised in this assessment is contained within Section 8.4.

a) Objectives of the Assessment

8.1.5 The aims of the ecology assessment are to:

- Identify relevant ecological features (i.e. designated sites, habitats, species or ecosystems) which may be affected;
- Provide an objective and transparent assessment of the likely significant ecological effects and residual effects of the Project;
- Facilitate objective and transparent determination of the effects of the project in terms of national, regional and local policies relevant to nature conservation and biodiversity; and
- Set out what steps would be taken to adhere to legal requirements relating to the relevant ecological features concerned.

8.2 Changes since the 2014 PEIR

8.2.1 There have been changes to the design as a result of design evolution and consultation as detailed in **Chapter 3: Project and Site Description**. To aid the reader, Table 8-1 below outlines the changes to this assessment compared with the 2014 PIER.

Table 8-1: A summary of Changes since the 2014 PEIR to the Ecology Assessment

Section	Changes since the 2014 PEIR	Section Reference
Baseline	The following surveys have been completed since the 2014 PEIR: • Extended Phase 1 Habitat survey completed by AECOM in 2017; • Great crested newt (Triturus cristatus) survey completed by AECOM in 2017; • Reptile survey completed by AECOM in 2017; • Otter (Lutra lutra) and water vole (Arvicola amphibius) survey completed by AECOM in 2017; • Dormouse (Muscardinus avellanarius) survey completed by AECOM in 2017; • Badger (Meles meles) survey completed by AECOM in 2017; and, • Bat roost assessment and activity survey completed by AECOM in 2017. Survey works are ongoing for breeding birds and bat activity and will be completed by the time of DCO Application. Since habitats and management within the Project Site boundary have not changed significantly since the 2014 surveys, the 2017 results will be augmented with the results from previous surveys as follows. • Breeding bird surveys part-completed by AECOM in 2017, ongoing in March/April 2018 and to be augmented by breeding bird survey undertaken by BSG Ecology in 2014; and, • • Bat activity surveys part-completed by AECOM in 2017, ongoing in 2018 and to be augmented by bat activity survey undertaken by BSG Ecology in 2014.	Section 8.5
Methodology	The methodology for bat surveys and assessment in 2014 paid due regard to Hundt, L. (2012) Bat Surveys: Good Practice Guidelines, 2nd Edition, Bat Conservation Trust. The methodology for bat surveys and assessment in 2017 paid due regard to Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed.). The Bat Conservation Trust, London.	Table 8-6
	The methodology for the water vole survey in 2014 paid due regard to Strachan, R. & Moorhouse, T. (2006) Water Vole Conservation Handbook 2nd Ed. WildCRU, Oxford. The methodology for the water vole survey in 2017 paid due regard to Dean, M.,Strachan, R., Gow, D. and Andres, R. (2016). The Water Vole Mitigation Handbook (The Mammal	

Section	Changes since the 2014 PEIR	Section Reference
	Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.	
	All other survey methodology of the 2014 and 2017 surveys paid due regard to the same guidance.	
Significance of Effect	Residual effects in the 2014 PEIR were assessed to be not significant for all receptors apart from Ancient Woodland where the loss of habitat was deemed to be significant at the Local level. Residual effects in the 2017 PEIR have been assessed to be not significant for all receptors.	Table 8-17 and Table 8-18

8.3 Legislation, Policy and Guidance

8.3.1 This section identifies and describes legislation, policy and guidance of relevance to the assessment of the likely significant ecological effects associated with the construction, operation, maintenance and decommissioning of the Project.

8.3.2 Legislation and policy has been considered on an international, national, regional and local level. The following is considered to be relevant to the ecological assessment as it has influenced the assessment of sensitivity of receptors and requirements for mitigation or the scope and/or methodology of the PEIR.

a) International and National Legislation

i. Designated Sites and Habitats

8.3.3 A variety of sites are designated in the UK, under Conventions, Directives and Regulations for their nature conservation importance and interest. The general aim of these designations is to conserve and protect ecological resources, as well as raising awareness and understanding. Other non-statutory sites are afforded some protection through local plans. Table 8-2 outlines the most common statutory and non-statutory designations.

Table 8-2: Summary of relevant legislation with regards to designated sites

Designation	Brief Description
Special Areas of Conservation (SAC)	SACs are sites selected to conserve the natural habitat types and species of wild flora and fauna listed in the Annexes of the Habitats Directive (further information regarding the Habitats Directive is set out in more detail in Table 8.3 below). They are the best areas to represent the range and variety of habitats and species within the European Union (EU).
Special Protection Area (SPA)	SPAs are strictly protected sites for the most important habitats for rare and migratory birds within the EU classified in accordance with Article 4 of the Birds Directive information regarding the Birds Directive is set out in more detail in Table 8.3 below).
Ramsar Sites	Ramsar Sites are wetlands of international importance. Ramsar Sites

Designation	Brief Description
	are protected, through the planning system, under the Wildlife and Countryside Act 1981 (as amended), and the Countryside and Rights of Way Act 2000 through their notification as SSSIs and through other regulatory systems addressing water, soil and air quality.
National Nature Reserve (NNR)	NNRs are nationally important areas of wildlife habitat and geological formations in Britain. NNRs are designated and protected under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981 (as amended). They receive additional protection under the Countryside and Rights of Way Act 2000. They are managed for the benefit of nature conservation.
Site of Special Scientific Interest (SSSI)	A SSSI is a site of at least national importance for nature conservation designated under the Wildlife and Countryside Act 1981 (as amended) due to its special interest in terms of flora, fauna or geological or physiographical features. Protection afforded to SSSI's was strengthened by the Countryside and Rights of Way Act 2000. It should be noted that under the Countryside and Rights of Way Act 2000 owners of SSSIs must give Natural Resources Wales (NRW) written notice before they begin any of the operations listed in the notification as likely to damage the special interest features, or if they allow others to carry out these activities. None of the listed operations can be carried out without NRW's consent.
County Wildlife Site (Local site)	A County Wildlife Site is a non-statutory site designated by a local authority as being of local nature conservation value.
Ancient Woodland Inventory	Ancient Woodland is a term applied to woodlands which have existed from at least Medieval times to the present without ever having been cleared for uses other than wood or timber production. A convenient date used to separate ancient and secondary woodland is about the year 1600. In special circumstances semi-natural woods of post-1600 but pre-1900 origin are also included.
Wildlife Trust Reserve	These non-statutory sites are managed by the Wildlife Trusts with the purpose of conserving wildlife.

ii. Species

8.3.4 In addition to habitats, a number of species have been afforded protection through international/European and national law. Other species are considered to contribute to our 'quality of life'. Although these species do not benefit from legal protection, they can be material considerations in the planning process. The Countryside and Rights of Way Act 2000, the Wildlife and Countryside Act 1981 (as amended), the Protection of Badgers Act 1992 and the Conservation of Habitats and Species Regulations 2017 are the main legislative framework for protection of wild animals in the UK. Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) covers birds which are protected by special penalties, Schedule 5 covers other animals which are protected and Schedule 8 covers plants which are protected.

8.3.5 Species including bats, otters and great crested newts are listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2017. Badgers are protected under their own Act: The Protection of Badgers Act 1992. Activities affecting protected species must usually be conducted under licence obtained from the appropriate body (in Wales, this is Natural Resources Wales).

8.3.6 Developers must be able to show that all reasonable measures have been taken to ensure that protected species are not subject to disturbance. The habitats which regularly support the Conservation of Habitats and Species Regulations 2017Schedule 2 species, the Wildlife and Countryside Act 1981 (as amended) Schedule 1 species and some Wildlife and Countryside Act 1981 (as amended) Schedule 5 species are also protected from disturbance and destruction. Again, all reasonable precautions should be taken to ensure that this does not happen. The Countryside and Rights of Way Act 2000 has strengthened enforcement powers and introduced a new offence of “reckless disturbance” that applies to both protected sites and species. Table 8-3 below provides a summary of the relevant legislation with regards to protected and priority species.

Table 8-3: Summary of relevant legislation with regards to protected and priority species

Legislation	Brief Description
The Habitats Directive	The Habitats Directive 1992 (Directive 92/43/EEC sets out the legal framework requiring EU member states to protect habitat sites supporting vulnerable and protected species, as listed within the Directive. The need for an assessment of impacts on Natura 2000 sites (the collective name for European designated sites, including SPAs and SACs) is set out within Article 6 of the Directive. The Directive is transposed into UK law through the Conservation of Habitats and Species Regulations 2017) (the "Habitats Regulations") and the Wildlife & Countryside Act 1981 (as amended).
The Birds Directive	The Directive on the Conservation of Wild Birds (Directive 2009/147/EC (the codified version of Council Directive 79/409/EEC as amended)) provides a framework for the protection, management and control of all species of naturally occurring wild birds in the European territory of Member States, including the UK. The provisions of the Birds Directive are transposed into UK law by the Conservation of Habitats and Species Regulations, 2017 and the Wildlife & Countryside Act 1981 (as amended).
Wildlife and Countryside Act (1981) (as amended)	The Wildlife and Countryside Act 1981 (as amended) is the principal mechanism for the legislative protection of wildlife in Great Britain. This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and (partially) the Birds Directive and the Habitats Directive are implemented in the UK. The Countryside and Rights of Way Act 2000 has strengthened this legal protection (see below). A small number of plant species are listed under Schedule 9 of

Legislation	Brief Description
	the Wildlife and Countryside Act 1981, as amended, which includes species such as Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*), montbretia (*Crocosmia x crocosmiiflora*), giant hogweed (*Heracleum mantegazzianum*) and some cotoneaster species (Cotoneaster sp.). It is illegal to plant or to cause these plants to grow in the wild, and legal disposal methods for vegetation and soil subject to disturbance or clearance from a site must be used.
Convention on Biological Diversity and the Countryside and Rights of Way Act 2000	The Countryside and Rights of Way Act 2000 provides a statutory framework for biodiversity conservation. The Act places a duty on Government Departments and the National Assembly for Wales to have regard for the conservation of biodiversity and maintain lists of species and habitats for which conservation steps should be taken or promoted, in accordance with the Convention on Biological Diversity. Schedule 9 of the Act amends SSSI provisions of the Wildlife and Countryside Act 1981, including provisions to change SSSIs and providing increased powers for their protection and management. The provisions extend powers for entering into management agreements; place a duty on public bodies to further the conservation and enhancement of SSSIs; increases penalties on conviction where the provisions are breached; and introduce a new offence whereby third parties can be convicted for damaging SSSIs. Schedule 12 of the Act amends the species provisions of the Wildlife and Countryside Act 1981, strengthening the legal protection for threatened species. The provisions make certain offences 'arrestable' and create a new offence of reckless disturbance. The UK Biodiversity Action Plan (BAP) was published in 1994, and was the UK Government's response to the Convention on Biological Diversity (CBD), which the UK signed up to in 1992. It provides the framework for fulfilling the UK's responsibilities towards the Convention on Biological Diversity. Conservation of biodiversity (the variety of life on earth) is an essential element of sustainable development.
Environment (Wales) Act 2016	The Environment (Wales) Act puts in place the legislation needed to plan and manage Wales' natural resources in a more proactive, sustainable and joined-up way. Part 1 relates to the sustainable management of natural resources. This ensures that the way in which the use of and the impacts on natural resources do not result in long term decline. The aim is to sustainably manage natural resources in a way and rate that meets the needs of present and current generations without compromising the needs of future generations. The Act also contains at section 7, a duty for the Welsh Ministers to prepare and publish a list of the living organisms and types of

Legislation	Brief Description
	habitat which in their opinion are of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales. This section replaces the duty in section 42 of the NERC Act 2006.
Protection of Badgers Act 1992	The Protection of Badgers Act 1992 makes it an offence to wilfully take, kill, injure or ill-treat a badger, possess a dead badger or any part of a badger. Sett interference includes damaging or destroying a sett, obstructing access to a sett, and disturbing a badger whilst it is occupying a sett. The Act defines a badger sett as 'any structure or place, which displays signs indicating the current use by a badger' and Natural England takes this definition to include seasonally used setts. Work that may disturb badgers or their setts is illegal without a development licence from the relevant statutory body (in this case Natural Resources Wales).
The Hedgerow Regulations 1997	The Hedgerow Regulations (1997) make provision for the protection of important hedgerows in England and Wales. The regulations affect hedgerows which are 20m or more in length, or connected at both ends to another hedgerow of any length. They relate to hedgerows which are on, or adjoining land used for the following purposes: agriculture or forestry; the breeding or keeping of horses, ponies or donkeys; common land; village greens; and SSSIs (They do not include hedges that are attached to, or marking the boundaries of a private house. It is an offence to intentionally or recklessly remove or cause or permit another person to remove a hedgerow or intentionally or recklessly remove, or cause or permit another person to remove, a hedgerow which is the subject of a hedgerow retention notice.

b) National Planning Policy

i. National Policy Statements

National Planning Policy Statement for Energy EN-1

8.3.7 Section 5.3 of the Overarching National Policy Statement for Energy (EN-1) (July 2011) (Ref. 8.1) contains policies relating to biodiversity and geological conservation, in this chapter only biodiversity will be considered

8.3.8 Section 4.3 of EN-1 refers to the requirement to consider whether a project is likely to have a significant effect on a European site either alone or in combination with other plans or projects. EN-1 requires the EIA for an NSIP to clearly set out "any effects on internationally, nationally and locally designated sites of ecological importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity".

8.3.9 The NPS sets out policies in relation to each of the following types of designated sites of relevance to the Project:

- International sites (Ramsar, SAC, SPA (including proposed sites);
- SSSIs;
- Marine Conservation Zones;
- Regional and local sites (e.g. Local Nature Reserves (LNR));
- Ancient Woodland and veteran trees;
- Biodiversity within developments; and,
- Protection of habitats and other species (i.e. species and habitats of principle importance nationally, or species and habitats of regional importance.

International sites

8.3.10 Section 5.3.9 of EN-1 identifies Ramsar sites as the most important sites for biodiversity. Section 5.5.9 states that the applicant should be particularly careful to identify any effects of physical changes on the integrity and special features of Marine Conservation Zones, candidate SACs, coastal SACs and candidate coastal SACs, coastal SPAs and potential coastal SPAs, Ramsar sites, Sites of Community Importance (SCIs) and potential SCIs and Sites of Special Scientific Interest.

Regional and local sites

8.3.11 Regional and local sites are covered under section 5.3.13 of EN-1 which acknowledges the importance of such sites and that the Secretary of State should give due consideration to such regional or local designations. However, it goes on to state that given the need for new infrastructure, these designations should not be used in themselves to refuse development consent.

Ancient Woodland and veteran trees

8.3.12 Section 5.3.14 of EN-1 sets out that Ancient Woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. It states that the Secretary of State should not grant development consent for any development that would result in its loss or deterioration unless the benefits (including need) of the development, in that location outweigh the loss of the woodland habitat.

Biodiversity within developments

8.3.13 Section 5.3.15 of EN-1 states that Development proposals provide many opportunities for building-in beneficial biodiversity or geological features as part of good design. When considering proposals, the Secretary of State should maximise such opportunities in and around developments, using requirements or planning obligations where appropriate.

Protection of habitats and other species

8.3.14 Section 5.3.17 of EN-1 sets out that other species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales and thereby requiring conservation action. The Secretary of State should

ensure that these species and habitats are protected from the adverse effects of development by using requirements or planning obligations. The Secretary of State should refuse consent where harm to the habitats or species and their habitats would result, unless the benefits (including need) of the development outweigh that harm. In this context the Secretary of State should give substantial weight to any such harm to the detriment of biodiversity features of national or regional importance which it considers may result from a proposed development.

Mitigation

8.3.15 The NPS also requires the applicant to demonstrate that its proposals include appropriate mitigation measures such as: habitats will, where practicable, be restored after construction works have finished; and opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site landscaping.

8.3.16 Where the applicant cannot demonstrate that appropriate mitigation measures will be put in place the Secretary of State should consider what appropriate requirements should be attached to any consent and/or planning obligations entered into. The Secretary of State will need to take account of what mitigation measures may have been agreed.

ii. Planning Policy Wales (9th Ed. November 2016)

8.3.17 Planning Policy Wales (PPW) sets out the land use planning policies of Welsh Government.

8.3.18 **Chapter 5: Alternatives Considered**, Conserving and Improving the Natural Heritage and the Coast, outlines Welsh Government's objectives for the conservation and improvement of natural heritage. The relevant measures in place to conserve landscape and biodiversity include:

- Statutory designations;
- Non-statutory designations;
- LANDMAP Information System (LANDMAP describes and evaluates
- aspects of the landscape and provides the basis of a consistent Wales-wide approach to landscape assessment);
- Development plans and the conservation and improvement of the natural heritage;
- Development management and the conservation and improvement of the natural heritage;
- Development management and statutory designations;
- Trees and woods; and,
- Protected species.

8.3.19 Paragraph 5.3.10 states that "potential SPAs and candidate SACs (included in the list sent to the European Commission) should be treated in the same way as classified SPAs and designated SACs. Sites which the UK and the European Commission have agreed as Sites of Community Importance and which are to be designated as SACs attract the same legal protection as if they had already been

designated. The same considerations should, as a matter of policy, be applied to listed Ramsar sites".

8.3.20 Paragraph 5.2.9 states that "Local planning authorities should seek to protect trees, groups of trees and areas of woodland where they have natural heritage value or contribute to the character or amenity of a particular locality. Ancient and semi-natural woodlands are irreplaceable habitats of high biodiversity value which should be protected from development that would result in significant damage."

8.3.21 Paragraph 5.5.4 states that "For all planning applications likely to result in disturbance or harm to a protected species or likely to have a significant adverse effect on sites of more than local importance, or on a designated area, local planning authorities should seek the advice of Natural Resources Wales and should always consult them before granting permission".

iii. Technical Advice Note 5 (TAN5) Nature Conservation and Planning (September 2009)

8.3.22 The Planning Policy Wales (PPW) is supplemented by a series of Technical Advice Notes. TAN 5 provides guidance on how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. It provides advice on areas including the key principles of positive planning for nature conservation, nature conservation in Local Development Plans and development management procedures. It also provides advice on development affecting designated sites and habitats, in addition to protected or priority habitats and species.

8.3.23 Key Principles include that the town and country planning system in Wales should integrate nature conservation into all planning decisions; that the town and country planning system should look for development to provide a net benefit for biodiversity conservation with no significant loss of habitats or populations of species, locally or nationally and that they should ensure that the UK's international and national obligations for site, species and habitat protection are fully met in all planning decisions.

c) Local Development Plans

8.3.24 Local Development Plans (LDPs) must be produced by every Local Planning Authority in Wales. Any development proposal will be tested against the policies within the LDP. The LDPs follow the planning guidance provide in PPW, including biodiversity and natural heritage policies. These include protecting designated sites and other areas of importance for biodiversity conservation; safeguarding protected species and priority species, including those listed in local biodiversity action plans and retaining, creating and enhancing features of importance for biodiversity conservation where appropriate.

8.3.25 Relevant local planning policies for CCS are detailed in the adopted City and County of Swansea Unitary Development Plan:

8.3.26 Table 8-5 provides a summary of relevant local planning policies. For the precise wording of each specific policy please refer back to the source document.

Table 8-4: Summary of relevant Unitary Development Plan policies

Planning Policy	Purpose / Relevant Sections
SP1 Creating a Quality Environment	Sustainable development will be pursued as an integral principle of the planning and development process. Development proposals designed to a high quality and standard, which enhance townscape, landscape, sense of place, and strengthen Swansea Waterfront identity, will be favoured.
SP2 - Creating a Quality Environment	The countryside will be protected and conserved, with green wedges shaping the urban form and safeguarding the distinctive interplay of town and country. Village character will be protected.
SP3 - Creating a Quality Environment	The natural, built, and cultural heritage of the County will be protected and enhanced to safeguard from materially harmful development.
Siting and Location - EV2	The siting of new development should give preference to the use of previously developed land over greenfield sites, and must have regard to the physical character and topography of the site and its surroundings by: i. Avoiding locations that would have a significant adverse impact on prominent buildings, landscapes, open spaces and the general locality, including loss of visual amenity, ii. Effectively integrating with the landscape, seascape or coastline by utilising topography to integrate into the contours of the site and avoiding conspicuous locations on prominent skylines and ridges, iii. Retaining important views into and out of the site, iv. Taking into account and where possible retaining site features including existing buildings, topography, landscape, archaeological and water features, trees and hedgerows, and, where appropriate: v. Undertaking, at the earliest opportunity, an assessment of species and habitats on site and, where planning permission is granted, implementing any necessary mitigation measures, ix. Determining whether the proposal would be at risk from flooding, increase flood risk off-site, or create additional water run-off, xiii. Having full regard to existing adjacent developments and the possible impact of environmental pollution from those developments, as well as the creation of any environmental pollution to the detriment of neighbouring occupiers (including light, air and noise).
Rural Development - EV21	In the countryside non-residential development will only be permitted where it can be demonstrated that: iii. It is an appropriate development associated with farm diversification, sustainable tourism and recreation, or nature conservation and does not adversely affect the viability of an established farm unit.

Planning Policy	Purpose / Relevant Sections
Rural Development - EV22	The countryside throughout the County will be conserved and enhanced for the sake of its natural heritage, natural resources, historic and cultural environment and agricultural and recreational value through: i. The control of development, and ii. Practical management and improvement measures.
Sites of International Importance - EV25	Development, alone or in combination with other plans or projects, which is likely to adversely affect the integrity of a European protected site (SAC, Marine SAC, SPA and Ramsar Sites) and is not directly connected with or necessary to the management of the site, will not be permitted unless: i. There are imperative reasons of over-riding public interest, including those of a social or economic nature, which are sufficient to override the reasons for designation, and ii. There is no alternative solution. Where such development is permitted, planning conditions and/or obligations will be used to secure all compensatory measures necessary to ensure that the overall coherence of the European Site is protected.
SSSIs and National Nature Reserves - EV27	Development that significantly adversely affects the special interests of sites designated as SSSIs and NNRs will not be permitted unless the need for the development is of such significance that it outweighs the national importance of the designation. Where development is permitted, planning conditions and/or obligations will be used to protect and enhance those interests and where necessary provide effective mitigation and compensatory measures.
Sites of Local Importance - EV28	Within locally designated areas the natural heritage will be preserved and enhanced wherever possible. Development that would significantly adversely affect the special interest of Local Nature Reserves will not be permitted unless the need for the development is of such significance that it outweighs the importance of the designation. Development that would significantly adversely affect SINCs or RIGs, or which would not provide for appropriate compensatory or mitigation measures will not be permitted, unless it can be demonstrated to meet appropriate social or economic needs where the benefits in such terms would outweigh the harm to the feature concerned. Where development is permitted which would damage the nature conservation value of the site, such damage will be kept to a minimum, and appropriate mitigation or compensatory measures sought.
Trees, Woodland and Hedgerow	Protection and improved management of woodlands, trees and hedgerows which are important for their visual amenity, historic

Planning Policy	Purpose / Relevant Sections
Protection - EV30	environment, natural heritage, and/or recreation value will be encouraged, with priority being given to: i. Protecting the remaining areas of ancient semi natural woodland and planted ancient woodland sites, ii. Promoting new planting with species appropriate to the location, where there is no conflict with other land uses or nature conservation interests, and iii. Ensuring that where management involves commercial felling and replanting, protection of amenity interests is achieved.
Environmental Enhancement - EV32	Environmental improvement schemes will be implemented at a number of locations shown on the Proposals Map. These are intended to: i. Improve visual appearance, natural heritage value and recreation potential, ii. Improve the setting of industrial, commercial and residential developments and transport corridors, and iii. Maintain, extend and improve the quality of the urban greenspace network in line with the aims of the 'Greening the City' strategy
Protection of Controlled Waters - EV34	Development proposals that may impact upon the water environment will only be permitted where it can be demonstrated that they would not pose a significant risk to the quality and or quantity of controlled waters. Initiatives that lead to improvements in the quality of surface water will be approved subject to satisfactory ecological and visual safeguards.
Protection of Controlled Waters - EV35	Development that would have an adverse impact on the water environment due to: i. Additional surface water run off leading to a significant risk of flooding on site or an increase in flood risk elsewhere, and/or ii. A reduction in the quality of surface water run-off, will only be permitted where it can be demonstrated that appropriate alleviating measures can be implemented. Sustainable drainage systems (SUDS) will be encouraged wherever they would be effective and practicable, so as to ensure that development does not increase run off, and potentially damage important landscape features and protected species and habitats. Where SUDS are not provided then any conventional drainage system utilised must improve the status quo.
Air, Noise and Light Pollution EV40	Development proposals will not be permitted that would cause or result in significant harm to health, local amenity, natural heritage, the historic environment or landscape character because of significant levels of air, noise or light pollution.

8.3.27 CCS has also submitted the Swansea Local Development Plan 2010 – 2025 to the Secretary of State for Examination in public. This is an emerging development plan, and is not part of the statutory development plan. However, its policies are a material consideration and relevant policies are set out below.

8.3.28 Table 8-5 provides a summary of relevant local planning policies. For the precise wording of each specific policy please refer back to the source document.

Table 8-5: Summary of relevant local planning policies

Planning Policy	Purpose / Relevant Sections
ER 1 Climate Change	To mitigate against the effects of climate change, adapt to its impacts, and to ensure resilience, development proposals should take into account: i. Reducing carbon emissions; ii. Protecting and increasing carbon sinks; iii. Adapting to the implications of climate change at both a strategic and detailed design level; iv. Promoting energy and resource efficiency and increasing the supply of renewable and low carbon energy; v. Avoiding unnecessary flood risk by assessing the implications of development proposals within areas susceptible to flooding and preventing development that unacceptably increases risk; and, vi. Maintaining ecological resilience.
ER 2 Strategic Green Infrastructure Network	Development will be required to maintain or enhance the extent, quality and connectivity of the County's multi-functional green infrastructure network, and where appropriate: i. Create new interconnected areas of green infrastructure between the proposed site and the existing strategic network; ii. Fill gaps in the existing network to improve connectivity; and/or, iii. In instances where loss of green infrastructure is unavoidable, provide mitigation and compensation for the lost assets.
ER 6 Designated Sites of Importance for Nature Conservation	Development will not be permitted that would result in a likely significant adverse effect to sites of international or national nature conservation importance. Development that would affect locally designated sites of nature conservation importance should maintain or enhance the nature conservation interest of the site. Where this cannot be achieved development will only be permitted where it can be demonstrated that: i. The need for the development outweighs the need to protect the site for nature conservation purposes; ii. There is no satisfactory alternative location for the development that avoids nature conservation impacts; and, iii. Any unacceptable harm is kept to a minimum by effective avoidance measures and mitigation, or where this is not feasible compensatory measures must be put in place to ensure that there

Planning Policy	Purpose / Relevant Sections
	is no overall reduction in the nature conservation value of the area.
ER 8 Habitats and Species	Development proposals that would have a significant adverse effect on the continued viability of habitats and species, including those identified as priorities in the UK or Swansea Local Biodiversity Action Plan, will only be permitted where: i. The need for development outweighs the nature conservation importance of the site; ii. The developer demonstrates that there is no satisfactory alternative location for the development which avoids nature conservation impacts; iii. Effective mitigation measures are provided by the developer; And, iv. Any unavoidable harm is minimised by effective mitigation to ensure that there is no reduction in the overall nature conservation value of the area. Where this is not feasible, compensation measures designed to conserve, enhance, manage and, where appropriate, restore natural habitats and species must be provided.
ER 9 Ecological Networks and Features of Importance for Biodiversity	Development proposals will be expected to maintain, protect and enhance ecological networks and features of importance for biodiversity. Particular importance will be given to maintaining and enhancing the connectivity of ecological networks which enable the dispersal and functioning of protected and priority species. Development proposals that could result in a significant adverse effect on the connectivity of ecological networks and features of importance for biodiversity will only be permitted where: i. The need for the development outweighs the nature conservation value of the site; ii. It can be demonstrated that there is no satisfactory alternative location for the 102 PPW sections 5.5.11 – 5.5.12 and TAN 6 Nature Conservation and Planning (2009) Chapter 6 development; iii. A connected element of the natural resource is retained as part of the design of the development; and, iv. Compensatory provision will be made of comparable ecological value to that lost as a result of the development.
ER 11 Trees and Development	Development that would adversely affect trees, woodlands and hedgerows of public amenity, natural/cultural heritage value, or that provide important ecosystem services will not normally be permitted. Ancient Woodland, Ancient Woodland Sites, Ancient and Veteran trees merit specific protection and development will not normally be permitted that would result in:

Planning Policy	Purpose / Relevant Sections
	i. Fragmentation or loss of Ancient Woodland; ii. The loss of an Ancient or Veteran tree; iii. Ground damage, loss of understorey or ground disturbance to an area of Ancient Woodland or Ancient or Veteran Tree's root protection area; iv. A reduction in the area of other semi natural habitats adjoining Ancient Woodland; v. Significant alteration to the land use adjoining the Ancient Woodland; vi. An increase in the likely exposure of Ancient Woodland, Ancient or Veteran Tree to air, water or light pollution from the surrounding area; vii. Alteration of the hydrology in a way that might impact on Ancient Woodland, Ancient or Veteran Trees; viii. Destruction of important connecting habitats relating to Ancient Woodland; ix. Degradation of important archaeological or historical features within Ancient Woodland or associated with Ancient or Veteran trees; x. Destruction of Plantations on Ancient Woodland Sites (PAWS); and/or, xi. Development within 15m of Ancient Woodland.

8.4 Methodology

a) Scope of the Assessment

8.4.1 The scope of this assessment has been determined through a formal Environmental Impact Assessment (EIA) scoping process. The Secretary of State issued a scoping opinion in August 2014. Comments raised in the EIA Scoping Opinion and other consultation have been taken into account in the development of the assessment methodology and these are detailed where relevant in this chapter.

i. Desk-Based Study

8.4.2 The objectives of the desk study are to review the existing information available in the public domain concerning species and habitats to identify the following:

- Internationally, nationally and locally designated sites, up to 2 km from the Project Site boundary using the Multi Agency Geographic Information for the Countryside (MAGIC) website (www.magic.gov.uk) in accordance with published guidelines (Ref. 8.2);
- Natura 2000 sites, up to 10 km from the Project Site boundary (see Table 8-7 for justification on search distances);
- Protected and Priority species records and records of locally designated sites up to 2 km from the Project Site boundary, using the South East Wales Biodiversity Records Centre (SEWBReC) in accordance with published guidelines (Ref. 8.2);

- SACs and SSSIs designated for bats within a 10 km radius of the Project Site boundary in accordance with Bat Conservation Trust (Ref. 8.3) recommendations;
- Section 7 list of Species and Habitats of Principal Importance for Conservation of Biological Diversity in Wales;
- Ancient Semi-Natural Woodland (ASNW), Plantation on Ancient Woodland Site (PAWS), Restored Ancient Woodland Site (RAWS) or Ancient Woodland Site of Unknown category (AWSU) within or adjacent to the Project Site boundary using Ancient Woodland Inventory 2011 dataset downloaded from the Lle website;
- Tree Protection Orders (TPO's) from CCS;
- Local/county recorders for bryophytes, flora, moths, butterflies, amphibians, reptiles, birds, bats, mammals, and the County Ecologist were contacted for local records or knowledge about the Project Site; and,
- Aerial photographs and Ordnance Survey (OS) maps were reviewed to identify features of ecological interest surrounding the Project Site boundary including ponds within 500 m, nearby areas of ecological interest and features connecting these habitats (hedgerows, watercourses, railway lines).

ii. Field Survey Methods

8.4.3 A Preliminary Ecological Appraisal (PEA) (Ref. 8.4) was undertaken in May 2017. Included within the PEA were a Phase 1 Habitat survey and an appraisal of the potential of the Project Site to support protected or notable species. The results of this survey combined with the desk top assessment informed the need for further ecological surveys.

8.4.4 Table 8-6 provides a summary of the surveys undertaken, coupled with their extent and limitations. The species scoped in were determined through an assessment of known range, habitat preferences and desk-based data. The detailed methodologies are outlined in each of the respective baseline technical appendices (Appendix 8.1 – 8.11). The table explains where data from the ecology surveys undertaken by BSG Ecology in 2014 will be used to inform the assessment and why this is considered to be appropriate and identifies limitations on the survey data obtained by AECOM in 2017.

Table 8-6: A Summary of Field Surveys and their Limitations

Survey Type	Description	Date(s)	Appendix and Limitations	Comments
Phase 1 Habitat survey	The survey involved a site walkover of all accessible land within the Project Site boundary and preliminary assessment of key habitats, land use and ecological features. The main habitats present were recorded using standard Phase 1 Habitat Survey methodology as described in the Handbook for Phase 1 Habitat Survey: A technique for Environmental Audit (Ref. 8.6). The plant species defining the habitat types within the Project Site boundary were recorded. Evidence of any invasive plant species subject to legal controls was recorded. The Project Site was assessed for its potential to support protected or notable species in order to identify potential ecological constraints and to guide recommendations for further surveys.	May 2017	**Appendix 8.1** There were no significant limitations associated with the Phase 1 Habitat Survey. During the Phase 1 Habitat survey some areas adjacent to but outside of the Project Site boundary were not accessible at the time of survey and as such these habitats were surveyed from the road at a distance and some areas within the Project Site boundary were not accessible due to the presence of horses; these habitats were surveyed at a distance. It is possible that evidence of some species, including invasive non-native plant species may not have been recorded due to access limitations.	Site conditions not significantly different to those in 2014.
National Vegetation Classification (NVC) survey	BSG Ecology used the Phase 1 Habitat survey to identify Section 42 habitats of the NERC Act 2006 (now Section 7 habitats of the Environment (Wales) Act 2016); these habitats plus any designated site habitats within the Project Site boundary were selected for inclusion in the NVC survey.	June, July, September and November 2014	**Appendix 8.2** There were no significant limitations associated with the NVC survey.	Site conditions as documented in the Phase 1 Habitat Survey undertaken by AECOM were not significantly different to those recorded in 2014 and as such the 2014 NVC survey results provide an accurate representation of the habitats currently present within the Project Site boundary; there is no requirement for an updated NVC.
Invasive species	A dedicated survey for invasive species was undertaken by BSG Ecology in 2014. Invasive species were recorded during the 2017 Phase 1 survey.	July 2014 & May 2017	**Appendix 8.1** The scale of the Project Site and the presence of dense areas of scrub or woodland understorey in some areas mean that it is possible that small stands or individual plants of invasive species could have been missed during the walkover survey. In addition, the presence of horses in some fields restricted access to some areas of the Project Site although these areas were assessed using binoculars and it is likely, given the heavily grazed nature of these fields, that most invasive plant species would have been visible using binoculars. It is considered that the majority of the Project Site was surveyed adequately and that overall the distribution of invasive species across the Survey Site has been mapped accurately.	Site conditions when visited in 2017 were not significantly different to those recorded in 2014. An update to survey will be required prior to the production of the final management plan and/or implementation of control measures.
Invertebrates	BSG Ecology conducted invertebrate surveys for moths, marsh fritillary (adult and larval stages), terrestrial beetles, and aquatic macroinvertebrates in ponds and watercourses.	June – September 2014	**Appendix 8.3** There were no significant limitations associated with the invertebrate survey.	Site conditions as documented in the Phase 1 Habitat Survey undertaken by AECOM were not significantly different to those recorded in 2014 and as such the 2014 invertebrate survey results provide an accurate representation of the species likely to be present within the Project Site boundary; this is no requirement for an updated invertebrate survey.

<table>
<tr><th>Survey Type</th><th>Description</th><th>Date(s)</th><th>Appendix and Limitations</th><th>Comments</th></tr>
<tr>
<td>Great crested newt</td>
<td>A total of 26 ponds were identified within proximity of the Project Site.

An HSI Assessment was undertaken on all ponds within 500m of the Site and ponds outside of the 500m but clustered with ponds within the 500m of the Project Site boundary.

Following the HSI Assessment, of the 26 ponds identified, two were classed as poor (a further survey was undertaken on one of these) nine were dry and seven were not accessible and therefore could not be surveyed either due to no land access agreement or dense vegetation restricting access.

Manual surveys were based on English Nature ‘Great Crested Newt Mitigation Guidelines’ (2001) (Ref. 8.7), using three methods where possible.</td>
<td>May – June 2017</td>
<td>Appendix 8.4
Of the 26 ponds identified, seven were surveyed due to land access restrictions and dense vegetation. It is considered unlikely for these ponds to support great crested newt (GCN) given the lack of GCN records from the local records centre and the absence of GCN identified in other ponds during the surveys.
A summary of the manual survey and environmental DNA (eDNA) analysis limitations is given in the embedded table below.
<table>
<tr><th>Pond Number</th><th>Manual Survey Limitation</th><th>eDNA Survey Limitation</th></tr>
<tr><td>1b</td><td>Not possible to bottle trap or net due to deep and soft mud surrounding the waterbody.
Torched only from limited accessible areas.</td><td>Only 5% of pond perimeter accessible to sample.</td></tr>
<tr><td>4</td><td>Not possible to bottle trap or net due to deep and soft mud surrounding the waterbody.
Torched only from limited accessible areas.</td><td>Only 5% of pond perimeter accessible to sample.</td></tr>
<tr><td>7</td><td>A dead water shrew (Neomys fodiens) was found in one of the bottle traps during the first survey visit in Pond 7, therefore bottle trapping ceased for Pond 7 and the netting technique was used for future surveys.</td><td>None</td></tr>
<tr><td>8</td><td>A dead water shrew was found in one of the bottle traps during the first survey visit in Pond 7. Due to the proximity of Pond 8 to Pond 7 and the risk of trapping water shrews, bottle trapping ceased for Pond 8 and the netting technique was used for future surveys.</td><td>None</td></tr>
<tr><td>11</td><td>Only approximately 5% of edge is accessible. Low water level and steep sides, not suitable for bottle trapping and dense vegetation will restrict torching.
Small area was torched on 1st survey visit but ineffective. No further manual surveys were undertaken.</td><td>Only 5% of pond perimeter accessible to sample.</td></tr>
</table>
</td>
<td>Ponds 1b and 4 are within a cluster of ponds to the north west of the Project Site. No evidence of GCN was identified for other ponds within this cluster of ponds and therefore the manual survey limitation is not significant.
Pond 11 has previously been surveyed and no evidence of GCN was found Appendix 8.17). Therefore the manual survey limitation is not significant.
Pond 19b is connected to Pond 19a. Pond 19a was assessed to be poor as part of the HSI assessment. However, due to the limitation to the surveys on Pond 19b, manual surveys and an eDNA survey was undertaken on Pond 19a. No evidence of GCN was returned for Pond 19a and therefore the manual survey limitation on Pond 19b is not significant.
Usually a GCN eDNA water sample which has been taken from such a restricted area reduces the confidence in any negative result returned as GCN eDNA can be patchy depending upon where the animals have been in the pond. However on this occasion, given the lack of evidence of GCN within other ponds in close proximity of Ponds 1b, 4 and 11 and the previous survey undertaken on Pond 11 which returned no results for GCN (Appendix 8.17). The eDNA limitation on Ponds 1b, 4 and 11 is not significant.</td>
</tr>
</table>

Survey Type	Description	Date(s)	Appendix and Limitations	Comments
			17 — No manual surveys undertaken as access not granted within the required survey season time. — None 19b — Low water level, dense vegetation and soft mud. Not be suitable for bottle trapping, torching or egg searching. Access restricted by soft mud. Small area was torched on 1st survey visit but ineffective. No further manual surveys were undertaken on 19b. Manual surveys undertaken on Pond 19a undertaken as connected to Pond 19b. — No eDNA sample undertaken on Pond 19b. Pond 19a was sampled instead.	
Reptiles	A survey has been undertaken in accordance with the guidelines provided in Froglife (Ref. 8.8) and also the Herpetofauna Workers' Manual (Gent, T and Gibson, S 2003. Herpetofauna Workers' Manual. JNCC, Peterborough) (Ref. 8.9).	August – September 2014 September 2017	**Appendix 8.5** Several areas of habitat suitable for supporting reptiles within the Project Site boundary could not be surveyed using artificial refugia due to the presence of grazing livestock. Artificial refugia would pose a health and safety risk to the livestock as well as posing a risk of trampling to sheltering reptile utilising the artificial refugia. These areas lacked features where reptiles might be easily observed and as such a walkover survey of these areas was not considered appropriate. There is the potential for reptiles to have gone unrecorded in these areas. These areas have been indicated on Figure 2 of in Appendix 8.6.	None
Birds	Breeding bird survey follows BTO Common Bird Census methodology.	June 2017.	**Appendix 8.6** Two survey visits were conducted in June 2017. The second visit comprised of an evening survey only due to personal threats to the surveyor's health and safety that became apparent during the following early morning survey.	Site conditions not significantly different to those in 2014. The omission of the second part of the second survey visit in June is not considered to pose a significant limitation to the survey as the initial visit in June 2017 identified a very similar assemblage as recorded in 2014. Further surveys will be conducted in February and March 2018.
Bats	Ground and climbing inspection of trees for bat roost potential, ground inspection of buildings near to the Project Site boundary, emergence/re-entry surveys of suitable trees and buildings, and bi-monthly activity transects, and monthly static detector surveys. All bat work has been informed by the 2016 Bat Survey Guidelines (Ref. 8.3). Site valued as having High potential for supporting foraging and commuting bats.	June – October 2017	**Appendix 8.7** Following an initial ground-based assessment, trees which showed potential for supporting roosting bats were subject to a climbed survey There were 16 trees which were not climbed due to access and/or health and safety restrictions and there are two trees which were not climbed as they could not be re-found. These trees did not have their bat roost potential category altered from the ground-based assessment assigned category and all trees with a Moderate bat roost potential category subsequently had an emergence/re-entry surveys. Therefore this is not a significant limitation.	Bat activity transect surveys will be undertaken bi-monthly in April and May 2018. Until then, the BSG Ecology activity transect survey results for April and May 2014 will be used to inform the assessment for those months. Static detectors will be deployed monthly in April and May 2018. Analysis of static detector data collected in

Survey Type	Description	Date(s)	Appendix and Limitations	Comments
			Building 1 was not fully assessed due to time constraints (AECOM, 2017). However this building is approximately 120m outside of the Project Site boundary and no further surveys were considered necessary on this building. Therefore this is not a significant limitation. Access was not granted to Buildings 6, 7 and 8 (collectively known as Abergelli Farm) to the west of, but outside, the Project Site and these could not be assessed for their potential to support roosting bats. However, these buildings (BSG Buildings 3, 4 and 5) were previously assessed by BSG Ecology (Appendix 8.8). The previous results will be used in the assessment. The identification of a mine shaft and adit within the Project Site boundary was not made until after the completion of the 2017 emergence/re-entry surveys. These features could not be assessed for their potential to support roosting bats. However, there is potential that the adit is Building 4, and as such has been subject to roost assessment and emergence/re-entry survey; although the exact location of the adit cannot be currently confirmed. As such, there is potential for hibernating bats to be present within a newly identified mine shaft and adit. A number of limitations were identified for the walked transects, including occasionally missing listen points, completing the transect prior to the recommended finish time. These are not significant limitations. No bat activity transect surveys were undertaken in April or May and no static detectors were deployed in April or May. This is not considered a significant limitation as the numbers of bats were fairly homogenous across the survey months. The first two emergence/re-entry surveys of Building B4 in August are ten days apart, as opposed to 2 weeks, as recommended by guidelines. These limitations are detailed in the baseline report.	June – October 2017 will be undertaken in 2018 when a complete data set is available. Until then, the static detector results from the BSG Ecology report will be used to inform the assessment – see row below.
Static bat detectors	Monthly static detector surveys. Methods informed by the 2012 Bat Survey Guidelines (Ref. 8.10).	April – October 2014	**Appendix 8.8** The access route in the south-west of the Project Site (Access Road Option 2) and the western part of the land surrounding the Felindre Gas Compressor Station and the two National Grid 400 kV electrical substations were not included in the static surveys as access to these areas could not be arranged until late in June. This area is a small proportion of the Project Site that does not contain habitats significantly different to those present in other parts of the Project Site, and is unlikely to support a more diverse species assemblage than the rest of the Project Site. As such, it is not considered that this is a significant limitation to the survey methods.	Based on observations in 2017, habitats have not changed significantly since 2014.
Dormouse	The survey followed the guidelines set out in the Dormouse Conservation Handbook Second Edition (Ref. 8.11). Nest tubes (n = 129) were deployed in suitable	June – November 2017	**Appendix 8.9** On 26 June 2017 not all the tubes could be located due to extensive vegetation cover, 93 tubes were checked on this occasion; one all other occasions all of the tubes were checked.	Based on observations in 2017, habitats have not changed significantly since 2014.

Survey Type	Description	Date(s)	Appendix and Limitations	Comments
	habitat and checked once a month.		On 29 August 2017 three tubes had to be repositioned as they had fallen. On 29 September three tubes had to be repositioned as they had fallen. On 17 October 2017 it was noted that one of the tubes had fallen and snapped in half. These incidents are not considered to be a significant limitation.	
Otter and water vole	All watercourses within the Project Site boundary and extending to 100 m upstream/downstream of the Project Site boundary (where access allows) have been surveyed. Survey work followed that is recommended in Monitoring the Otter (Ref. 8.12) and the Water Vole Mitigation Handbook (Ref. 8.13).	June and September 2017	**Appendix 8.10** There was heavy rain the night before the second survey in September 2017 which had the potential to wash away spraint or faeces evidence. Two watercourses (Afon Llan and a tributary of the Afon Llan) were not accessible at the time of survey due to dense vegetation obscuring the view of the banks, and land access permissions. These watercourses were partially viewed and were assessed as having suitability to support both species. There is potential for signs of both species to have gone unrecorded.	None
Badger	A search for signs of badger activity was undertaken within the study area. The survey method will be based on the standard approach detailed in the Mammal Society publication Surveying Badgers (Ref. 8.14).	November 2017	**Appendix 8.11** There was heavy rain the night before and during the survey on the 21 November 2017 and the night before the survey on the 22 November 2017 which had the potential to wash away evidence of latrines and dung pits. A number of agricultural fields, a small parcel of woodland to the south and the woodland (Waun Ffyrdd) to the south-west were not accessible at the time of survey due to presence of horses, access restrictions or dense vegetation. These habitats were partially viewed using binoculars and were assessed as having suitability to support badger. Despite access limitations the results of the survey are considered to provide an accurate representation of badger activity within the study area (see Section b) Study Area below).	Despite access limitations the results of the survey are considered to provide an accurate representation of badger activity within the study area (see Section b) Study Area below).

b) Consultation

8.4.5 The scope of the assessment has also been informed by ongoing consultation with statutory consultees throughout the design and assessment process, including NRW and CCS.

8.4.6 A summary of the comments raised and responses are detailed in Table 8-7.

Table 8-7: Summary of consultation responses that have informed the scope and methodology of the ecological assessment

Consultee	Date	Comment	Response
SoS (Scoping Opinion, para.3.38)	August 2014	The SoS recommends that surveys are thorough, up to date and take account of other development proposed in the vicinity.	Each survey report sets out the methodology used in line with standard guidance. These are summarised in Table 8-6.
SoS (Scoping Opinion, para.3.38)	August 2014	These should include surveys for otter in accordance with the Recommendations of NRW.	Otter surveys have been undertaken in line with standard methodology. The results are presented in Appendix 8.10 of this PIER.
SoS (Scoping Opinion, para.3.39)	August 2014	The SoS recommends that the assessment considers any potential impacts on the nature conservation sites in this area	All designated sites within the zone of influence have been identified and assessment carried out in Section 8.7.
SoS (Scoping Opinion, para.3.40)	August 2014	The SoS notes the comments from NRW welcoming the resurveying of the locally significant habitats in Spring/Summer, and expects there to be discussions with the Planning Ecologist for the local planning authority with regards to sensitive siting of the development to mitigate impacts to nature conservation interests.	CCS and NRW have been consulted and have been provided with copies of survey reports. Detailed botanical surveys have been carried out in 2014 to inform the assessment and this information was used in the assessment in in Section 8.7.
SoS (Scoping Opinion, para.3.40)	August 2014	The SoS recommends that the proposals should fully address the need to protect and enhance biodiversity.	Addressed in Section 8.8 and in the Embedded Mitigation.
SoS (Scoping Opinion, para.3.40)	August 2014	The assessment should cover habitats species and processes.	Addressed in Section 8.7.
SoS (Scoping Opinion, para.3.41)	August 2014	The assessment should take into account air quality (including dust) and noise and vibration impacts, and cross reference should be made to these specialist reports.	This chapter takes account of the **Chapter: 6 Air Quality** and **Chapter 7: Noise** where relevant.
SoS (Scoping Opinion, para.3.43)	August 2014	The SoS notes the comments of NRW regarding the presence of peat on site, and expects the ES to contain further clarification about the location of the peat and the impact of the proposed development upon it.	Addressed in **Chapter 10: Geology, Ground Conditions and Hydrogeology**
SoS (Scoping Opinion, para.3.44)	August 2014	The SoS notes the comments of NRW regarding the potential impact to local watercourses and recommends the maintenance of open watercourses with wide buffer strips in the design of the development.	Buffer strips have been provided in the drainage strategy (Appendix E of Appendix 9.1 of the PEIR).
SoS (Scoping Opinion,	August 2014	The SoS notes that Burry Inlet Ramsar Site and SPA, Carmarthen Bay and Estuaries SAC and Crymlyn Bog Ramsar Site and SAC are all located with 10 km of the Project Site. The submitted information should be sufficient for the competent Authority (CA) to	Habitat Regulation Screening Assessment (Stage 1) has been prepared and the assessment is presented in the No Significant Effects Report (NSER, see Document Reference 5.5.0). The Report concluded that there would be no

Consultee	Date	Comment	Response
para.4.2)		make an appropriate assessment (AA) of the implications for the site if required by Regulation 61(1) of the Habitats Regulations. The applicant should note that the CA is the SoS.	significant effects on Burry Inlet Ramsar Site and SPA Carmarthen Bay and Estuaries SAC and Crymlyn Bog Ramsar Site and SAC and Stage 2, Appropriate Assessment was not required.
SoS (Scoping Opinion, para.4.5)	August 2014	Where there may be potential impacts on the SSSIs, the SoS has duties under sections 28(G) and 28(I) of the Wildlife and Countryside Act 1981 (as amended) (the W&C Act).	All impacts in relation to SSSIs have been addressed in Section 8.7.
SoS (Scoping Opinion, para.4.8)	August 2014	If applicants consider it likely that notification may be necessary under s28(I), they are advised to resolve any issues with the NCB before the DCO application is submitted to the SoS. If, following assessment by applicants, it is considered that operations affecting the SSSI will not lead to damage of the special interest features, applicants should make this clear in the ES. The application documents submitted in accordance with Regulation 5(2)(l) could also provide this information. Applicants should seek to agree with the NCB the DCO requirements which will provide protection for the SSSI before the DCO application is submitted.	All impacts in relation to SSSIs have been addressed in Section 8.7.
SoS (Scoping Opinion, para.4.9)	August 2014	Where a potential risk to an EPS is identified, and before making a decision to grant development consent, the CA must, amongst other things, address the derogation tests in Regulation 53 of the Habitats Regulations. Therefore the applicant may wish to provide information which will assist the decision maker to meet this duty.	Addressed in Section 8.7 ES and additional information will be provided where necessary. In line with the current baseline no EPS licence is required.
NRW	13/09/2017	Email response with regards to the approach for the Natura 2000 site search radius for the HRA. <u>Air Quality - Nature Conservation Interests</u> For all SSSI within at least 2 km, and all SAC/SPA/Ramsar within 10 km, of the proposed plant, information should be included in the ES as follows: Concentrations of NO_x (and SO^2 if present in emissions) emitted by the proposed plant compared to critical levels for sensitive habitats at the above sites. Proposed plant emissions (Process Contribution/PC) should be compared as a percentage of the relevant critical level as well being compared to the PC added to the background (PEC), to give percentage figures. Levels of nutrient Nitrogen deposition and Acid deposition derived from the proposed plant (PC) should also be compared to site relevant critical loads for the above sites, and should be similarly compared to the PC and PEC for each feature's most sensitive critical load value, to give percentage values. In relation to a Peaking Power facility which operates sporadically, the assessment must assess a worst case scenario i.e. the maximum number of hours that the plant will be able to operate, over a year. <u>Habitats Regulations Assessment</u> NRW advise that a Shadow Habitats Regulations Assessment (HRA) should be recorded by the applicant (as per PINS guidance Note 10). The HRA should test the likely significant effects of the development for all relevant receptor SAC, SPA and Ramsar sites, in light of impact pathways from the development itself (for example aerial emissions). These effects should be tested alone and if no likely significant effects concluded for a particular impact pathway on a site(s) alone, in-combination effects should then be tested for those parameters, according to any residual effects from this development and other relevant plans/projects. Any likely significant effects identified should lead to the recording of a shadow Appropriate Assessment (or Report to Inform an	A HRA has been undertaken in accordance with the requirement from NRW.

Consultee	Date	Comment	Response
		Appropriate Assessment, or similar) to assess such effects further.	
CCS	23/10/2017	Email response with regards to the request for comment on the scope of the ecological surveys. CCS advised that they would not be able to comment on an application prior to all survey work being completed and submitted. CCS will also require comment from NRW and likewise will not comment before all survey work is completed and submitted. CCS noted that the BSG Ecology reports that they had seen were robust but lacked analysis, conclusions and recommendations. CCS approved that the AECOM reports would be drawing conclusions based on the BSG Ecology work as well as the updated surveys. Based on the outcomes of the survey work CCS are likely to also require the following: An Ecological Management Plan detailing retained features, mitigation and enhancement for ecology. The document needs to include how any valued receptors identified and proposed mitigation/compensation areas will be monitored and managed in the long term (minimum 5 year rolling management plan). Construction Ecological Management Plan (CEMP) outlining how retained ecological features on and adjacent to the Project Site will be safeguarded during the construction phase. A lighting design strategy to identify those areas/features on-site that are particularly sensitive for nocturnal fauna. The strategy must show how and where external lighting will be installed (through the provision of appropriate lighting contour plans and technical specifications) so that it can be clearly demonstrated that areas to be lit will not disturb or prevent the above species crossing and utilising the Project Site.	Comments noted. An Ecological Management and lighting design strategy have been produced.

b) Study Area

8.4.7 Each study area is displayed on a figure in the applicable appendix as referred to in Table 8-6.

8.4.8 In accordance with the published guidance for the Phase 1 Habitat survey (Ref. 8.6) and the breeding bird survey (Ref. 8.15) the study area comprised the land within the Project Site boundary (Appendix 8.1, Figure 1; and Appendix 8.6, Figure 1, respectively).

8.4.9 In accordance with the published guidance (Ref. 8.8) the reptile study area comprised suitable and accessible habitat within the Project Site boundary (Appendix 8.5, Figure 1).

8.4.10 In accordance with the published guidance (Ref. 8.7) the great crested newt study area comprised suitable and accessible land within the Project Site boundary and within a 500 m buffer of the Project Site boundary, as well as a string of ponds extending outside of the buffer but in very close proximity to each other (Appendix 8.4, Figure 1).

8.4.11 The bat study area comprised the land within the Project Site boundary and the area within the Zone of Influence (ZoI) (Appendix 8.7 Figure 2). The Bat Survey Guidelines (Ref. 8.10) state that bat roost assessments must be considered within the Project Site boundary and the areas under the ZoI of the project. For potential bat roosts the ZoI was assessed to be all land within the Project Site boundary; and using professional judgement, within a 50 m buffer surrounding area where the Generating Equipment Site (see Assessment Method below) will be situated due to noise, vibration and lighting during construction, operation and decommissioning. For potential bat commuting and foraging habitat the transect routes for bat activity surveys covered all accessible land within or crossed by the Project Site boundary.

8.4.12 In accordance with the published guidance the otter (Ref. 8.12) and water vole study (Ref. 8.13) area comprised watercourses and water bodies within the Project Site boundary and within a 100 m radius of the Project Site boundary (Appendix 8.9, Figure 1).

8.4.13 In accordance with the published guidance (Ref. 8.11) the dormouse study area comprised suitable and accessible habitat within the Project Site boundary (Appendix 8.9, Figure 1).

8.4.14 In accordance with the published guidance (Ref. 8.14) the badger study area comprised suitable and accessible habitat within the Project Site boundary and within a 100 m buffer of the Project Site boundary (Appendix 8.11, Figure 1).

8.4.15 The study areas for the NVC survey (Appendix 8.2, Figures 1 & 2), invasive species, invertebrates (Appendix 8.3, Figures 1 & 2) and static bat detectors (Appendix 8.8, Figure 1) undertaken by BSG Ecology in 2014 (Appendix 8.8) were undertaken for a larger study area. The current Project Site boundary is smaller than the previous site boundary used by BSG Ecology but is encompassed by it

(Figure 8.1). Therefore the surveys undertaken by BSG Ecology have captured the current Project Site boundary. The results of the BSG Ecology surveys have been reviewed to extrapolate those results that are within the Project Site boundary only.

c) Assessment Method

8.4.16 The Ecological Impact Assessment (EcIA) has been undertaken with reference to the Chartered Institute for Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland (Ref. 8.2). A matrix-based approach has been used to ensure consistency across the PEIR. As per the CIEEM guidelines rankings are used with a clear definition of the criteria and thresholds that underpin them. See 'Sensitivity or Value of Receptors' and 'Magnitude' below.

8.4.17 The assessment describes the methods used to identify and assess the likely significant effects of the Project during the construction, operation and maintenance and decommissioning phases. Baseline conditions are then described and subsequently the impact assessment is undertaken taking into account avoidance and mitigation measures that are inherent to the design, including the use of best practice construction.

8.4.18 If necessary, additional mitigation, compensation and enhancement measures are then described followed by an assessment of the significance of residual effects. A summary of the assessment is provided, together with relevant conclusions.

8.4.19 The assessment is undertaken for each components of the Project as detailed in **Chapter 3: Project and Site Description**.

8.4.20 Data received through consultation, desk-based investigations and field-based investigations will be used to allow relevant ecological features (including designated sites, ecosystems, habitat and species) of value (or potential value) to be identified, and the main factors contributing to their value described and related to available guidance.

8.4.21 Ecological features may be important for multiple different reasons (e.g. rarity in a particular geographic context; role in habitat connectivity; or a species on the edge of their range). Relevant reasons for which an ecological feature is important are described and considered in order to assign each relevant ecological feature an overall value.

8.4.22 The value of ecological receptors identified is determined according to a geographical frame of reference and the conservation importance of a receptor. The value of receptors to be used in the EcIA is defined in Table 8-8.

Table 8-8: Evaluation of Value

Value / Sensitivity	Guidelines
Very High	The receptor has little or no ability to absorb change without fundamentally altering its present character, is of very high environmental value, or of international importance. For example: An internationally designated site e.g. SPA, SAC, Ramsar, or site considered worthy of such designation. A regularly occurring globally threatened species. A viable area of a habitat type listed in Annex 1 of the Habitats Directive (92/43/EEC), or smaller area of such habitat which is essential to maintain the viability of a larger whole. A regularly occurring population of internationally important species listed in Annex II of the Habitats Directive (92/43/EEC). Any regularly occurring population of internationally important species that are rare or threatened in the UK or of uncertain conservation status (including individual species listed on Annex 1 of the EC Birds Directive) and/or listed as a qualifying feature of an SPA, SAC or Ramsar site.
High	The receptor has low ability to absorb change without fundamentally altering its present character, is of high environmental value, or of national importance. For example: A nationally designated site e.g. a SSSI, NNR or site that meets the criteria for such designation. A regularly occurring population of individual species listed or included on a SSSI citation as a reason for designation of a SSSI. A regularly occurring significant population/number of any nationally important species i.e. listed on the Wildlife and Countryside Act (1981) (as amended). A viable area of priority habitat type as identified in the Section 7 List of Habitats of Principal Importance for Conservation of Biological Diversity in Wales, or smaller areas of such habitat which are essential to maintain the viability of a larger whole. A regularly occurring, substantial population of a nationally rare species i.e. a species that contributes to the integrity of an SAC or SSSI but which are not cited as species for which the site is designated (SACs) or notified (SSSIs). Species present in nationally important numbers (>1% UK population). Any regularly occurring highly significant population of any bird listed on the RSPB Red List of High Conservation Concern. A species assemblage that includes one or more nationally important species (as defined above) that occurs regularly in significant numbers.

Value / Sensitivity	Guidelines
Medium	The receptor has moderate capacity to absorb change without significantly altering its present character, has some environmental value, or is of regional importance. For example: Areas of internationally or nationally important habitats which are degraded but which could be readily restored. A regularly occurring, substantial population of a nationally scarce species i.e. priority species in the Section 7 List of Species of Principal Importance for Conservation of Biological Diversity in Wales. Viable areas of a Local BAP Priority habitat or small areas of such habitat which are essential to maintain the viability of the larger whole. A regularly occurring regionally significant population of a Local BAP Priority Species. Any regularly occurring significant population that is listed in a Local Red Data Book or a highly significant population of any bird listed on the RSPB Amber List of Medium Conservation Concern or substantial population of a regionally scare species. Species present in regionally important numbers (>1% regional population). Species occurring within SACs and SSSIs locally but not crucial to the integrity of the site. A site designated as a Local Nature Conservation Site (LNCS), Wildlife Site or Site of Interest for Nature Conservation (SINC).
Low	The receptor is tolerant of change without detriment to its character, is low environmental value, or local importance. For example: Areas identified as areas of conservation interest by organisations such as the local Wildlife Trust. A regularly occurring, substantial population of a species scarce in the local area or sites/features that are scarce within the locality or which appreciably enrich the local area's habitat resource. Species, habitats or features that are a key component of a Local Nature Conservation Site (LNCS) or LNR. Locally significant populations of Red and Amber List species. A good example of a common or widespread habitat in the local area.
Negligible	The receptor is resistant to change and is of little environmental value. For example: A degraded/impoverished example of a common or widespread habitat in the local area. A habitat which offers little value for nature conservation e.g. arable field. Populations of common and widespread species. A species considered to enrich the local ecological resource within the context of the Parish or Neighbourhood.

iii. Magnitude

8.4.24 Magnitude refers to size, amount, intensity and volume. It has been quantified where possible and expressed in absolute or relative terms e.g. the amount of habitat lost, percentage change to habitat area, percentage decline in a species population.

8.4.25 Magnitude will then be ascribed a value as per Chapter 4: Approach to Environmental Impact Assessment.

iv. Effect Definitions

8.4.26 In line with the CIEEM (2016) guidelines, the terminology used within the EcIA draws a clear distinction between the terms 'impact' and 'effect'. For the purposes of the EcIA these terms are defined as follows:

- Impact – Actions resulting in changes to an ecological feature. For example, demolition activities leading to the removal of a building utilised as a bat roost; and,
- Effect – Outcome resulting from an impact, acting upon the conservation status or structure and function of an ecological feature. For example, killing/injury of bats and reducing the availability of breeding habitat because of the loss of a bat roost may lead to an adverse effect on the conservation status of the population concerned.

8.4.27 When describing potential impacts (and where relevant the resultant effects) reference is made to the following characteristics:

- Beneficial/adverse – i.e. is the change likely to be in accordance with nature conservation objectives and policy:
  - Beneficial (i.e. positive) – a change that improves the quality of the environment, or halts or slows an existing decline in quality e.g. increasing the extent of a habitat of conservation value; or,
  - Adverse (i.e. negative) – a change that reduces the quality of the environment e.g. destruction of habitat or increased noise disturbance.
- Magnitude – the 'size', 'amount' or 'intensity' of an impact – this is informed on a quantitative basis where possible, and considers:
  - Spatial extent – the spatial or geographical area or distance over which the impact/effect occurs;
  - Duration – the time over which an impact is expected to last prior to recovery or replacement of the resource or feature. The likely duration of the impact should be quantified. Consideration has been given to how this duration relates to relevant ecological characteristics such as a species' lifecycle. However, it is not always appropriate to report the duration of impacts in these terms. The duration of an effect may be longer than the duration of an activity or impact;
  - Reversibility – i.e. is the impact temporary or permanent. A temporary impact is one from which recovery is possible or for which effective mitigation are both possible and an enforceable. A permanent effect is one from which recovery is either not possible, or cannot be achieved within a reasonable timescale (in the context of the feature being assessed); and

- Timing and frequency – i.e. consideration of the point at which the impact occurs in relation to critical life-stages or seasons.

8.4.28 For each phase of the Project the assessment is structured and reported by valued ecological receptor with relevant potential impacts on that feature described in turn, and then the overall effect arising from those impacts reported. For example, the impacts of roost loss, and light disturbance on retained roosts is documented, before a conclusion is reached on the overall effect on the conservation status of the local bat population concerned.

v. Assessment of Significance of Effects

8.4.29 A combination of the magnitude of the effect under consideration and the sensitivity of the receiving environment determines the significance of effect. This approach to the assessment of significance is outlined in **Chapter 4: Approach to Environmental Impact Assessment**.

8.4.30 It should be noted that this general approach is a framework and should not be treated as a matrix. Within the chapter the significance of effects will be explained with reference to that particular discipline.

8.5 Baseline Environment

8.5.1 This section describes the baseline environmental characteristics for the Project Site and surrounding areas with specific reference to ecology.

8.5.2 A summary of the baseline conditions has been provided in the following sections. Detailed information such as survey data has been provided for each element in Appendices 8.1 – 8.19.

a) Designated Sites

8.5.3 In addition to land within the Project Site the primary effects on the designated sites in the vicinity of the Project Site are as a result of emissions from the stack, which have the potential to alter the concentration of NOx and lead to a change in acid and nitrogen deposition. In lieu of any specific guidance on the NRW website, NRW have provided the following advice in consultation.

8.5.4 “Nature conservation-sites should be screened against the relevant standards if they occur within specified distance criteria, as detailed below:

- SPAs, SACs or Ramsar sites within 10 km of the proposed Project; and,
- SSSIs within 2 km of the location of the proposed Project.”

8.5.5 Given the advice provided within the recently withdrawn Environment Agency H1 guidance (Annex F Air Emissions) and the *Air emissions risk assessment for your environmental permit* guidance on the gov.uk website, it has been deemed appropriate to include a search for NNRs, LNRs, local wildlife sites and ancient woodland within 2 km of the Project also.

i. Statutory Designated Sites

8.5.6 Using the MAGIC website three internationally designated sites were identified within 10 km of the proposed exhaust gas flue stack of the Power Generation Plant within the Project Site boundary (given as SN 65577 01324 at the time of conducting the desk study); and one nationally designated site within 2 km of the Project Site boundary. The details of the sites are presented below in Table 8-9. The location of these sites in relation to the Project Site boundary is shown on Figure 8.2 – 8.3.

8.5.7 Statutory designated sites have been scoped in or out for further assessment in the EcIA, as detailed in Table 8-9, based upon a number of factors:

- Distance between the site and the Project Site boundary;
- Designation features e.g. habitats, species;
- Ecological connectivity or linkages (e.g. connecting watercourse/hydrology or movement of species) between the designated site and the Project Site; or
- A combination of the above.

8.5.8 Two distances have been provided; one from the Project Site boundary and another giving the distance from the proposed exhaust gas flue stack of the Power Generation Plant (given as SN 65577 01324 at the time of conducting the desk study) for assessing air quality effects.

Table 8-9: Statutory designated sites

Site and Statutory Designation and approximate distance/direction at nearest point	Distance to the proposed exhaust gas flue stack	Summary Designating Features	Scoped In/Out of EcIA and Justification;
Crymlyn Bog SAC and Ramsar 6.4 km south-east	6.8 km	**SAC** Annex I habitats that are a primary reason for selection of this site: • Transition mires and quaking bogs; and, • Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: • Alluvial forests with Alnus glutinosa *and Fraxinus excelsior* (Alno-Padion, *Alnion incanae*, *Salicion albae*). **Ramsar** <u>Designated under Ramsar Criterion 1:</u> Largest example of valley floodplain topogenous mire in South Wales, and one of the largest surviving fens in the west of Britain. Very few other sites are known to support a comparable complexity and diversity of vegetation. <u>Designated under Ramsar Criterion 2:</u> Supports a substantial population of the nationally-rare slender cotton-grass *Eriophorum gracile*, and a rich invertebrate fauna including many rare and highly localised species. <u>Designated under Ramsar Criterion 3:</u> The site supports 199 vascular plant species including 17 regionally-uncommon and one nationally rare.	**Scoped In**. Supports habitats sensitive to nutrient and nitrogen acid deposition.
Carmarthen Bay	7.2 km	A component part of the Carmarthen Bay and Estuaries/Bae Caerfyrddin ac Aberoedd European Marine Site. Partially overlaps	**Scoped In**. Supports habitats sensitive to

Site and Statutory Designation and approximate distance/direction at nearest point	Distance to the proposed exhaust gas flue stack	Summary Designating Features	Scoped In/Out of EcIA and Justification;
SAC 5.7 km west		Burry Port SPA and Ramsar. Annex I habitats that are a primary reason for selection of this site: • Sandbanks which are slightly covered by sea water all the time; • Estuaries; • Mudflats and sandflats not covered by seawater at low tide; • Large shallow inlets and bays; • Salicornia and other annuals colonizing mud and sand; and, • Atlantic salt meadows (Glauco-Puccinellietalia maritimae). Annex II species that are a primary reason for selection of this site: • Twaite shad Alosa fallax. Annex II species present as a qualifying feature, but not a primary reason for site selection: • Sea lamprey Petromyzon marinus; • River lamprey Lampetra fluviatilis; • Allis shad *Alosa alosa*; and, • Otter.	nutrient deposition; receptors are not sensitive to nitrogen acidity deposition; hydrological links via the Afon Llan.
Burry Inlet SPA and Ramsar 7.2 km south-west	8.9 km	A component site of the Carmarthen Bay and Estuaries/Bae Caerfyrddin ac Aberoedd European Marine Site. Partially overlaps the Carmarthen Bay SAC. Burry Inlet is a large estuarine complex located between the Gower Peninsula and Llanelli in South Wales. It includes extensive areas of intertidal sand- and mud-flats, together with large sand dune systems at the mouth of the estuary. The site contains the largest continuous area of saltmarsh in Wales (2,200 ha). The estuary experiences large tidal fluctuations (about 8 m) which has the consequence of exposing a large extent of intertidal sediments on a	**Scoped In**. Supports habitats sensitive to nutrient and nitrogen acid deposition; hydrological links via the Afon Llan.

Site and Statutory Designation and approximate distance/direction at nearest point	Distance to the proposed exhaust gas flue stack	Summary Designating Features	Scoped In/Out of EcIA and Justification;
		regular basis. These are mostly sandy, but muddy substrates are to be found in more sheltered areas. The Burry Inlet regularly supports large numbers of overwintering wildfowl and waders that feed in the saltmarshes and on the intertidal areas. **SPA** This site qualifies under Article 4.2 of the Birds Directive (2009/147/EC) by supporting populations of European importance of the following migratory species: <u>Over winter</u>: • Oystercatcher *Haematopus ostralegus*, 13,590 individuals representing at least 1.5% of the wintering Europe& Northern/Western Africa population (5 year peak mean 1991/2 - 1995/6); and, • Pintail *Anas acuta*, 1,772 individuals representing at least 3.0% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6). <u>Assemblage qualification: A wetland of international importance.</u> The area qualifies under Article 4.2 of the Directive (2009/147/EC) by regularly supporting at least 20,000 waterfowl. Over winter, the area regularly supports 34,962 individual waterfowl (5 year peak mean 1991/2 – 1995/6) including: curlew *Numenius arquata*, black-tailed godwit *Limosa limosa islandica*, dunlin *Calidris alpina alpina*, knot *Calidris canutus*, shoveler *Anas clypeata*, shelduck *Tadorna tadorna*, oystercatcher *Haematopus ostralegus*, pintail *Anas acuta*, whimbrel *Numenius phaeopus*. **Ramsar**	

Site and Statutory Designation and approximate distance/direction at nearest point	Distance to the proposed exhaust gas flue stack	Summary Designating Features	Scoped In/Out of EcIA and Justification;
		<u>Designated under Ramsar Criterion 5:</u> *Assemblages of international importance.* Species with peak counts in winter: 41,655 waterfowl (5 year peak mean 1998/99-2002/2003). <u>Designated under Ramsar Criterion 6:</u> *Species/populations occurring at levels of international importance.* Qualifying Species/populations (as identified at designation): Species with peak counts in spring/autumn: • Common redshank, *Tringa totanus*, 857 individuals, representing an average of 0.7% of the GB population (5 year peak mean 1998/9 – 2002/3). Species with peak counts in winter: • Northern pintail, *Anas acuta*, NW Europe 2,687 individuals, representing an average of 4.4% of the population (5 year peak mean 1998/9 – 2002/3); • Eurasian oystercatcher, *Haematopus ostralegus*, Europe & NW Africa – wintering 14,861 individuals, representing an average of 1.4% of the population (5 year peak mean 1998/9 – 2002/3); and, • Red knot, *Calidris canutus islandica*, W & Southern Africa (wintering) 3618 individuals, representing an average of 1.2% of the GB population (5 year peak mean 1998/9 – 2002/3). Species/populations identified subsequent to designation for possible future consideration under Criterion 6. Species with peak counts in winter:	

Site and Statutory Designation and approximate distance/direction at nearest point	Distance to the proposed exhaust gas flue stack	Summary Designating Features	Scoped In/Out of EcIA and Justification;
		• Northern shoveler, *Anas clypeata*, NW & C Europe 467 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9 – 2002/3).	
Nant Y Crimp SSSI 1.3 km west	2.3 km	Nant y Crimp is of special interest for its wet pastures, species-rich neutral grasslands and semi-natural woodland as well as associated scrub, which are host to several uncommon plant species. Notable plant species recorded at the site include petty whin *Genista anglica*, cranberry *Vaccinium oxycoccos*, narrow buckler fern *Dryopteris carthusiana* and whorled caraway *Carum verticillatum*, the latter an Atlantic species characteristic of unimproved pastures in the South Wales coalfield. In addition, there is also a colony of the marsh fritillary butterfly *Euphydryas aurinia* at the site. This is a declining species confined, in South Wales to wet agriculturally unimproved pastures where its food plant, devil's bit scabious *Succisa pratensis*, grows in profusion.	**Scoped In**. Supports habitats sensitive to nutrient and nitrogen acid deposition.

ii. Non-Statutory Designated Sites

8.5.9 The desk study identified 12 non-statutory designated sites within 2 km of the Project Site boundary, one is a Wildlife Trust Reserve and 11 are Sites of Nature Conservation Interest (SNCIs). Details of the sites are presented below in Table 8-10. The location of these sites in relation to the Project Site is shown on Figures 8.2 – 8.3.

8.5.10 Non-statutory designated sites have been scoped in or out for further assessment in the EcIA, as detailed in Table 8-10, based upon a number of factors:

- Distance between the site and the Project Site boundary;
- Designation features e.g. habitats;
- Ecological connectivity or linkages (e.g. connecting watercourse/hydrology or movement of species) between the site and the Project Site; or
- A combination of the above.

8.5.11 Two distances have been provided; one from the Project Site boundary and another giving the distance from the proposed exhaust gas flue stack of the Power Generation Plant for assessing air quality effects.

Table 8-10: Non-statutory designated sites

Site and Statutory Designation and approximate distance/direction at nearest point from boundary	Distance to the proposed exhaust gas flue stack	Summary Designating Features	Scoped In/Out of EcIA and Justification
Llety-Morfil SNCI Within the Project Site boundary	6 m	Supporting the habitats: native wet woodland, ancient woodland, structurally-diverse and species-rich scrub, and purple moor-grass and rush pasture; and the Section 7 listed butterfly, wall *Lasiommata megera*.	**Scoped In**. Within the Project Site boundary.
Coed Barcud Wildlife Trust Reserve Adjacent to the north-eastern Project Site boundary.	1.1 km	A previously improved grassland field, planted up to become a future woodland. Within the boundary of Rhoas Fawr SNCI.	**Scoped In**. Close proximity to the Project Site boundary.
Rhos Fawr SNCI Adjacent to the northern Project Site boundary	1.1 km	Supporting the habitats: woodland containing ancient woodland indicator species, structurally-diverse and species-rich scrub, species-rich neutral grassland, purple moor-grass and rush pasture, and watercourse with exposure/erosion features; and a number of Section 7 listed bird species.	**Scoped In**. Close proximity to the Project Site boundary.
Felindre Grasslands SNCI Adjacent to the west of the Project Site boundary.	1.6 km	Native wet woodland, lowland mixed deciduous woodland, structurally-diverse and species-rich gorse scrub, and purple moor-grass and rush pasture; and a number of Section 7 listed invertebrate and bird species, and the Schedule 1 listed birds barn owl *Tyto alba* and Northern goshawk *Accipiter gentilis*.	**Scoped In**. Close proximity to the Project Site boundary.
Middle Llan SNCI Adjacent to the southern Project Site boundary	450 m	Supporting the habitats: Continuous semi-natural linear vegetation and watercourse with exposure/erosion features.	**Scoped In**. Close proximity to the Project Site boundary.

Site and Statutory Designation and approximate distance/direction at nearest point from boundary	Distance to the proposed exhaust gas flue stack	Summary Designating Features	Scoped In/Out of EcIA and Justification
Rhyd-Y-Pandy Valley and Grasslands SNCI 70m east	530 m	Supporting the habitats: native wet woodland, woodland containing ancient woodland indicator species, gorse stands, lowland meadow, species-rich neutral grassland, structurally-diverse and species-rich scrub, purple moor-grass and rush pasture, reedbeds, and watercourse with exposure/erosion features; and a number of Section 7 listed invertebrate and bird species, and the Schedule 1 listed birds barn owl and red kite *Milvus milvus*.	**Scoped In**. Close proximity to the Project Site boundary.
Waun Garn Wen SNCI 130m west	630 m	Supporting the habitats: native wet woodland, structurally-diverse and species-rich scrub, purple moor-grass and rush pasture, and watercourse with exposure/erosion features; and a number of Section 7 listed invertebrate and bird species.	**Scoped In**. Close proximity to the Project Site boundary.
Pant Lasau SNCI 120m south	690 m	Supporting the habitats: native wet woodland, lowland mixed deciduous woodland, gorse stands, lowland fen, structurally-diverse and species-rich scrub, purple moor-grass and rush pasture, and watercourse with exposure/erosion features; and a number of Section 7 listed invertebrate and bird species.	**Scoped In**. Close proximity to the Project Site boundary.
Lower Lliw Resivoir SNCI 460m north	1.6 km	Supporting the habitats: woodland containing ancient woodland indicator species, gorse stands, species-rich bracken, structurally-diverse and species-rich scrub, purple moor-grass and rush pasture, and watercourse with exposure/erosion features; and a number of Section 7 listed invertebrate and bird species, and the Schedule 1 listed birds kingfisher *Alcedo atthis*, merlin *Falco columbarius* and red kite.	**Scoped In**. Potential hydrological pathway via field drains and the Nant y Tarw; potential for aerial deposition.
Cefn Forest Stream SNCI	1.6 km	Supporting the habitats: woodland containing ancient woodland indicator species, upland mixed ash woodland, native wet	**Scoped In**. No hydrological

Site and Statutory Designation and approximate distance/direction at nearest point from boundary	Distance to the proposed exhaust gas flue stack	Summary Designating Features	Scoped In/Out of EcIA and Justification
230m west		woodland, lowland mixed deciduous woodland, lowland meadow, species-rich neutral grassland, structurally-diverse and species-rich scrub, degraded lowland heath, lowland fen, purple moor-grass and rush pasture, ponds, and watercourse with exposure/erosion features; and a number of Section 7 listed invertebrate and bird species, and the Schedule 1 listed barn owl.	pathways; however, potential for aerial deposition.
Cilfaen SNCI 760m west	1.5 km	Supporting the habitats: wet woodland, woodland containing ancient woodland indicator species, and purple moor-grass and rush pasture.	**Scoped In**. Potential for aerial deposition.
Middle Lliw SNCI 670m west	1.7 km	Supporting the habitats: ancient semi-natural woodland, woodland containing ancient woodland indicator species, structurally-diverse and species-rich scrub, gorse stands, species-rich neutral grassland, semi-improved lowland dry acid grassland, acid grassland with anthills, purple moor-grass and rush pasture, watercourse with exposure/erosion features, and species-rich bracken; and a number of Section 7 listed invertebrate species.	**Scoped In**. Potential hydrological pathway via field drains and the Nant y Tarw; potential for aerial deposition.
Ancient Woodland 1 Adjacent to the eastern Project Site boundary.	130 m	Ancient Semi Natural Woodland.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 2 Within Project Site boundary.	450 m	Ancient Woodland Site of Unknown Category.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 3	470 m	Restored Ancient Woodland Site.	**Scoped In**. Potential

Site and Statutory Designation and approximate distance/direction at nearest point from boundary	Distance to the proposed exhaust gas flue stack	Summary Designating Features	Scoped In/Out of EcIA and Justification
Adjacent to the northern Project Site boundary.			for aerial deposition.
Ancient Woodland 4 120 m south	570 m	Restored Ancient Woodland Site.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 5 320 m west	970 m	Restored Ancient Woodland Site.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 6 Within Project Site boundary.	1.1 km	Restored Ancient Woodland Site.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 7 470 m north-west	1.1 km	Ancient Semi Natural Woodland.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 8 580 m north-west	1.1 km	Ancient Semi Natural Woodland.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 9 360 m west	1.2 km	Restored Ancient Woodland Site.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 10 750 m north-east	1.3 km	Ancient Semi Natural Woodland.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 11 200 m north	1.4 km	Ancient Semi Natural Woodland.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 12	1.4 km	Plantation on Ancient Woodland Site.	**Scoped In**. Potential

Site and Statutory Designation and approximate distance/direction at nearest point from boundary	Distance to the proposed exhaust gas flue stack	Summary Designating Features	Scoped In/Out of EcIA and Justification
Within Project Site boundary.			for aerial deposition.
Ancient Woodland 13 810 m north-east	1.4 km	Ancient Semi Natural Woodland.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 14 960 m north-west	1.6 km	Ancient Semi Natural Woodland.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 15 970 m north-east	1.6 km	Ancient Semi Natural Woodland.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 16 1.3 km south-east	1.7 km	Ancient Semi Natural Woodland.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 17 730 m north-west	1.8 km	Ancient Semi Natural Woodland.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 18 1.1 km north-east	1.8 km	Restored Ancient Woodland Site.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 19 720 m north	1.8 km	Ancient Semi Natural Woodland.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 20 1.1 km north-east	1.9 km	Ancient Semi Natural Woodland.	**Scoped In**. Potential for aerial deposition.
Ancient Woodland 21 1.6 km south-east	2.0 km	Ancient Semi Natural Woodland.	**Scoped In**. Potential for aerial deposition.

Site and Statutory Designation and approximate distance/direction at nearest point from boundary	Distance to the proposed exhaust gas flue stack	Summary Designating Features	Scoped In/Out of EcIA and Justification
Ancient Woodland 22 960 m north-west	2.0 km	Ancient Semi Natural Woodland.	**Scoped In**. Potential for aerial deposition.

b) Protected Species Records

8.5.12 A wide range of historical records of protected and/or notable species were received from SEWBReC. Relevant records are reported in the PEA and corresponding technical baseline reports (Appendices 8.1 – 8.19). Historic records and survey results are considered together in the evaluation of ecological features below.

c) Phase 1 Habitat Survey

8.5.13 The land within the Project Site boundary supports woodland, rows of trees, standalone trees, dense and scattered scrub, improved grassland, semi-improved grassland, marshy grassland, tall ruderal vegetation, running water, fences and bare ground (hard standing).

8.5.14 A summary of data collected during the Phase 1 Habitat survey is presented in Table 8-11 below.

Table 8-11: Phase 1 Habitats within the Project Site boundary

Habitat Type	Description	Extent
Broadleaved Woodland – Semi-Natural	There are areas of semi-natural broadleaved woodland, including areas of wet woodland, RAWS and ASWU, within the Project Site boundary.	1.76 ha
Broadleaved Woodland – Plantation	There is one small area of broadleaved plantation woodland located within in the south of the Project Site boundary.	0.02 ha
Scrub – Dense/ Continuous	There are several areas of dense scrub, predominantly found in the south of the Project Site boundary, but with one are in the north and one in the centre of the Project Site boundary.	0.25 ha
Scrub – Scattered	Several areas of scattered scrub are found within the south of the Project Site boundary.	0.04 ha
Rows of Trees – Broadleaved	Rows of trees are predominantly located in between grassland fields and along road edges. The majority of these are located on top of earth banks constructed with stone and earth and covered in grass.	1.4 km
Standalone Trees	There are four standalone oak trees within the Project Site boundary.	4
Ruderal – Tall Herb and Fern	There are two areas of tall ruderal vegetation.	0.02 ha
Semi-Improved Neutral Grassland	There is semi-improved neutral grassland present on road and track sides both within and adjacent to the Project Site boundary. There are several semi-improved grassland fields within the centre of the Project Site boundary.	5.08 ha
Marshy Grassland	There are frequent areas of marshy grassland dominated within the Project Site boundary. Marshy grassland areas are predominantly located in the south.	9.08 ha

Habitat Type	Description	Extent
Improved Grassland	Areas of improved grassland are dominant throughout the Project Site boundary. The majority of these are sheep and horse grazed.	16.55 ha
Running Water	There are several wet ditches (watercourses) across the Project Site boundary.	2.6 km
Standing Water	There are three ponds within the Project Site boundary.	3
Hedgerow with Trees – Species – Rich	There is one native species-rich hedgerow alongside the access road to the Felindre Gas Compressor Station.	72 m
Hedgerow with Trees – Species – Poor	There is one species-poor hedgerow within the Project Site boundary.	91 m
Intact Hedgerow – Species – Poor	There are two intact species-poor hedgerows within the Project Site boundary.	236 m
Earth Bank	There are several grass covered raised earth banks within the Project Site boundary.	274 m
Buildings	There are two buildings within the Felindre Gas Compressor Station within the south of the Project Site boundary.	0.02 ha
Fences	There is frequent fencing including security and barbed wire fencing throughout the Project Site boundary. The fences have no ecological value.	3.9 km

d) NVC Survey

8.5.15 Land within the Project Site boundary identified as being potentially 'habitats of principal importance for nature conservation' or identified as a SNCI was selected for inclusion in the NVC survey by BSG Ecology; habitats included areas of woodland, grassland and mire.

8.5.16 NVC habitats within the Project Site boundary comprise:

- Two woodland communities/sub-communities;
  - W6e Alnus glutinosa – Urtica dioica woodland, Betula pubescens sub-community;
  - W10 Quercus robur – Pteridium aquilinum – Rubus fruticosus woodland.
- Two mire sub-communities
  - M23a Juncus effusus/acutiflorus - Galium palustre rush-pasture, Juncus acutiflorus sub-community;
  - M25a Molinia caerulea – Potentilla erecta mire, Erica tetralix sub-community.

- Two neutral grassland NVC sub-communities;
  - MG6a Lolium perenne – Cynosurus cristatus grassland, typical sub-community; and
  - MG10a Holcus lanatus – Juncus effusus rush pasture, typical sub-community.

8.5.17 All of these NVC communities are situated in one area within the Project Site boundary, adjacent to and partially within an area of Llety-Morfil SNCI.

e) Invasive Plant Species

8.5.18 Three invasive species subject to legal controls were identified within the Project Site boundary during the Phase 1 Habitat survey – Rhododendron *Rhododendron ponticum*, Japanese knotweed and Himalayan balsam.

8.5.19 During the 2014 survey, BSG Ecology identified five invasive species subject to legal controls: Japanese knotweed; Himalayan balsam; rhododendron; floating pennywort *Hydrocotyle ranunculoides*; and montbretia *Crocosmia × crocosmiiflora*.

8.5.20 The most frequently recorded species in both surveys were Japanese knotweed and Himalayan balsam. Japanese knotweed was found to be strongly associated with roads and trackways within the Project Site. Himalayan balsam was found to be strongly associated with woodland, stream corridors and ditches across the Project Site.

8.5.21 Rhododendron was found on the edge of woodlands and dense scrub in the south of the Project Site.

8.5.22 Montbretia was recorded in one location within the Project Site boundary along the existing Access Road.

8.5.23 Floating pennywort was found in Pond 16.

f) Protected Species Surveys

i. Invertebrates

8.5.24 Several records of notable moths and the protected marsh fritillary butterfly *Euphydryas aurinia* were returned from the local records centre.

8.5.25 Invertebrate surveys were carried out by BSG Ecology for moths, beetles, and aquatic macroinvertebrates (in ponds and watercourses). There is no habitat with the potential to support marsh fritillary within the Project Site boundary and they are considered to be absent from the survey area.

8.5.26 Only one pond was sampled by BSG Ecology within the Project Site boundary (Pond 16). Thirty two different species were recorded during the pond survey. The samples were generally dominated by Coleoptera (beetles), followed by Hemiptera (bugs). No scarce or threatened aquatic invertebrates were identified within the samples.

8.5.27 The watercourses were sampled and samples were analysed to at least family level as required to obtain a score for water quality for the watercourse sections sampled; where possible species were also recorded for completeness and so that any rare species collected would be identified. The report did not highlight any rare species and concluded the watercourses were of generally good quality.

8.5.28 Notable or Priority beetle, butterfly and moths species identified during the survey from within the Project Site boundary are given in Table 8-11 below. Thirteen Section 7 species of moth were recorded during the survey. Their habitat requirements fit with the habitats present within the Project Site boundary, and as such it is likely they are present across the Project Site.

Table 8-12: Notable and Priority beetle, butterfly and moth species from within the Project Site boundary

Species	Status	Notes
Nitulid beetle (*Epuraea distincta*)	Nationally Scarce	This saproxylic species is associated with fungi (notably bracket fungi) on trees, especially in wet woodland. Samples were taken from two pitfall traps in the woodland in the east of the Project Site.
Melandryid beetle (*Orchesia micans*)	Nationally Scarce	This saproxylic species was found on the remnants of fungus on a single birch tree in the woodland in the east of the Project Site.
Small heath butterfly (*Coenonympha pamphilus*)	Section 7 species	Widespread and common, and found in a fairly wide variety of habitats with its main food plants being grasses. Specific location not given, although majority of butterflies were recorded in a narrow strip of flower-rich habitat in the southern-most part of the area that was surveyed.
Dusky brocade moth (*Apamea remissa*)	Section 7 species	The moth is associated with grasses, and there are patches of tall grassland along tracks, roads and on waste ground within the Survey Site.
Garden tiger moth (*Arctia caja*)	Section 7 species	This species has become scarce in eastern Glamorgan, but remains common in the south and west.
Latticed heath moth (*Chiasmia clathrata*)	Section 7 species	Common and widespread in southern Glamorgan.
Broom moth (*Melanchra pisi*)	Section 7 species	Locally, the favoured larval food plant is bracken.
Shoulder-striped wainscot moth (*Mythimna comma*)	Section 7 species	The larvae feed on a range of grasses.
White ermine moth (*Spilosoma lubricipeda*)	Section 7 species	The larvae feed on a range of herbaceous plants.
Buff ermine moth (*Spilosoma luteum*)	Section 7 species	The larvae have wide ranging feeding preferences.

Species	Status	Notes
Blood vein moth (*Timandra comae*)	Section 7 species	Common across England and Wales. The moth is associated with a variety of herbaceous plants, but docks in particular, so it would have been well suited to the field margins and woodland within the Project Site boundary.
Cinnabar moth (*Tyria jacobaeae*)	Section 7 species	The moth is almost exclusively associated with common ragwort (*Jacobaea vulgaris*) and there are some small patches of this plant within the Survey Site, many of which support larvae of this species.
Ear moth agg. moth (*Amphipoea oculea*)	Section 7 species	The three ear moths that have been recorded in Glamorgan are all either uncommon or rare in the county.
Small phoenix moth (*Ecliptopera silaceata*)	Section 7 species	Common, widespread resident in Glamorgan, and found in a range of habitats.
Dusky thorn moth (*Ennomos fuscantaria*)	Section 7 species	Occurs wherever the food plant, ash is found.
Rosy rustic moth (*Hydraecia micacea*)	Section 7 species	Occurs in a wide range of habitats including gardens, waste ground, pasture, fens, marshes and woodland rides.

ii. Amphibians

8.5.29 Records of common toad *Bufo bufo*, palmate newt *Lissotriton helveticus* and common frog *Rana temporaria* were returned from the local records centre.

8.5.30 Twenty-six ponds were subject to a Habitat Suitability Index (HSI) assessment to assess suitability for support breeding GCN. From the results of the HSI assessment and where access allowed seven ponds were subject to further surveys for GCN including eDNA analysis.

8.5.31 No GCNs were recorded during the surveys and the eDNA analysis returned negative results for each of the ponds for GCN. A number of the ponds were found to support common toads, smooth newts *Lissotriton vulgaris*, and/or palmate newts.

8.5.32 The majority of the habitat suitable for supporting common amphibians is present in the south of the Project Site boundary. The dominance of improved grassland fields with fenced boundaries in the north limits the suitability of the area for supporting amphibians.

8.5.33 It is considered unlikely that GCN will be present within any of the ponds that were not surveyed or within 500 m of these ponds in surrounding habitat given the absence of GCN from all nearby ponds surveyed. The development will require the removal of three ponds (Ponds 16, 22 and 23). Pond 22 currently supports palmate newts and is likely to support other amphibians including frogs and toads as well as a range of common aquatic invertebrates. Pond 16 was dry. Pond 23

could not be assessed but if it contains water has the potential to support common amphibians.

iii. Reptiles

8.5.34 The desk study confirmed the presence of slow-worm (*Anguis fragilis*), grass snake *Natrix helvetica helvetica*, adder (*Vipera berus*) and common lizard *Zootoca vivipara* within 2 km, and the presence of grass snake and common lizard within the Project Site boundary.

8.5.35 During the 2017 reptile survey, a total of 51 adult and juvenile common lizard observations were recorded, with a peak count of six adults recorded on one survey visit. Observations of common lizard were recorded from across the reptile survey area within the Project Site boundary. The majority of records were from the verges either side of the grassy track running through the centre of the Project Site and from the semi-improved neutral grassland present around the National Grid site.

8.5.36 During the course of the reptile survey, male, female, and juvenile common lizards were recorded, which confirmed that there was a breeding population present within the Project Site boundary.

8.5.37 Based on the survey results and the criteria laid out in Froglife Advice Sheet 10 (Ref. 8.8), the Site supports a 'Good population' of common lizard.

8.5.38 The Project Site does not meet the criteria for a 'Key Reptile Site'.

8.5.39 No grass snakes were identified within the 2017 reptile survey area including the area with the highest abundance during the 2014 surveys. However, there is the potential for grass snake to be present within the Project Site boundary and to have gone unrecorded since:

- Grass snake are wide ranging;
- Pond 16, where the majority of the 2014 records were from, was mostly dry throughout the 2017 reptile survey period, making the areas less suitable for supporting grass snake; and,
- The area in the north of the reptile survey area where grass snake were recorded in 2014 could not be accessed for survey in 2017 due to grazing livestock.

8.5.40 As such, it should be assumed grass snake is likely to be present at low densities within the Project Site boundary and surrounding habitat.

iv. Breeding Birds

8.5.41 The BSG Ecology surveys identified nine Section 7 bird species (previously referred to as species of principal importance for nature conservation in S42 of the NERC Act 2006, now repealed by Environment (Wales) Act 2016) comprising cuckoo *Cuculus canorus*, grasshopper warbler *Locustella naevia*, dunnock *Prunella modularis*, house sparrow *Passer domesticus*, linnet *Carduelis cannabina*, lesser

redpoll *Acanthis cabaret*, skylark *Alauda arvensis*, song thrush *Turdus philomelos*, and tree pipit *Anthus trivialis* were considered likely to breed on-site.

8.5.42 All nine Section 7 species recorded are also red-listed species of conservation concern in Wales, with the exception of dunnock (which is amber-listed). An additional seven amber-listed species, bullfinch *Pyrrhula pyrrhula*, mistle thrush *Turdus viscivorus*, meadow pipit *Anthus pratensis*, reed bunting *Emberiza schoeniclus*, common redstart *Phoenicurus phoenicurus*, whitethroat *Sylvia communis* and willow warbler *Phylloscopus trochilis* were also considered to have bred.

8.5.43 No territories of species listed under Schedule 1 Part 1 of the Wildlife & Countryside Act 1981 (as amended) (Schedule 1 species) were recorded, although two Schedule 1 species were recorded during the surveys, as follows. A pair of red kite was recorded mobbing a peregrine falcon *Falco peregrinus* in May. A pair of red kite was also recorded flying over the breeding bird survey area on the same survey day. Given the timing of the records, and that at least one pair were recorded during survey it is likely that red kite breed locally but that the single record of peregrine referred to a transient bird. No evidence was found to suggest breeding of either species occurred within the breeding bird survey area during 2014.

8.5.44 The single breeding bird survey undertaken in 2017 revealed the same nine Section 7 bird species as recorded during the 2014 survey (cuckoo, grasshopper warbler, dunnock, house sparrow, linnet, lesser redpoll, skylark, song thrush and tree pipit). Nine further species listed on the Amber List were also recorded (bullfinch, common redstart, meadow pipit, mistle thrush, meadow pipit, reed bunting, stock dove, whitethroat and willow warbler) although no species listed on Schedule 1 were recorded within the Project Site boundary. The survey results from 2017 are largely found to be in line with what was identified in 2014 and there is no significant difference in species breeding within the Project Site between the two surveys.

v. Bats

8.5.45 The desk study identified no sites designated for bats within 10 km of the Project Site boundary. The desk study confirmed the presence of the following species from within 2 km of the Project Site boundary: Daubenton's *Myotis daubentonii*, Natterer's *Myotis nattereri*, Noctule *Nyctalus noctule*, pipistrelle species *Pipistrellus sp.*, common pipistrelle *Pipistrellus pipistrellus,* soprano pipistrelle *Pipistrellus pygmaeus,* long-eared species *Plecotus sp.,* brown long-eared *Plecotus auritus* and generic records of bat species *Chiroptera*. None of these records of bats were from within the Project Site.

8.5.46 The desk study identified the following records of known roost sites within 2 km of the Project Site:

- A noctule tree roost approximately 1 km north-west of the Project Site boundary;

- Common pipistrelle roost approximately 1.3 km east of the Project Site boundary;
- A common pipistrelle roost approximately 1.8 km south-east of the Project Site boundary;
- A common pipistrelle roost approximately 1 km southeast of the Project Site boundary;
- A common pipistrelle roost approximately 1 km north-west of the Project Site boundary;
- A soprano pipistrelle roost approximately 2 km south-west of the Project Site boundary;
- A soprano pipistrelle roost approximately 2 km north-west of the Project Site boundary;
- A long-eared bat and brown-long-eared bat roost approximately 1.6 km east of the Project Site boundary; and
- A long-eared bat and brown long-eared bat roost approximately 1.1 km north-west of the Project Site.

8.5.47 The specific locations of the bat roosts are confidential.

Bat Roosts

8.5.48 There are no buildings suitable for supporting bats within the Project Site.

8.5.49 Buildings adjacent to the Project Site were assessed. None of the buildings surveyed by AECOM supported bat roosts. Previous surveys by BSG in 2014 confirmed roosts in buildings not surveyed by AECOM in 2017 (Appendix 8.8).

- AECOM Building 1: Unknown Roost Status. Not surveyed by AECOM or BSG Ecology, Building is approximately 125m from the Project Site boundary.
- AECOM Building 2: Confirmed as a long-eared and pipistrelle roost by BSG in 2014 (Appendix 8.8). Not surveyed by AECOM. It is approximately 120 m outside of the Project Site boundary.
- AECOM Building 3: No Roost.
- AECOM Building 4: No Roost.
- AECOM Building 5: No Roost.
- AECOM Building 6: No Roost.
- AECOM Building 7: Confirmed as a lesser horseshoe, long-eared and pipistrelle roost by BSG Ecology in 2014 (Appendix 8.8). Not surveyed by AECOM. It is approximately 90 m outside of the Project Site boundary.
- AECOM Building 8: Unknown Roost Status. BSG Ecology internal inspection did not find evidence of bats but not all areas were accessible (Appendix 8.8). Due to the bat roost features identified by BSG Ecology an internal inspection only is not sufficient to determine if this building is being used as a bat roost. Not surveyed by AECOM. The building is approximately 65 m from the Project Site boundary.

8.5.50 Tree 19 is a lone male or non-breeding female common pipistrelle summer roost. No other trees were identified as bat roosts.

8.5.51 The mine shaft and adit may have the potential to support hibernating bats. Surveys have not been undertaken to confirm this.

Bat Activity – Walked Transects

8.5.52 At least 10 species of bat were recorded foraging and/or commuting in close proximity of and within the Project Site. The following species have been identified during bat surveys at the Project Site:

- Lesser horseshoe;
- Common pipistrelle;
- Soprano pipistrelle;
- Nathusius' pipistrelle;
- Daubenton's;
- Natterer's;
- Mytois species;
- Noctule;
- Serotine;
- Long-eared species; and,
- Indeterminate species.

8.5.53 Nathusius' pipistrelle and serotine were not identified during the BSG 2014 activity transect surveys (Appendix 8.8). Leisler's bat was identified during the BSG Ecology 2014 activity transect surveys (Appendix 8.8) but was not identified during the 2017 transect surveys.

8.5.54 Common and soprano pipistrelles were the most commonly recorded species in the Project Site during 2017. Overall pipistrelle species comprised 86.7 % of all passes recorded on the transect surveys; they were also the most commonly recorded species during the emergence/re-entry surveys. Pipistrelle species comprised of 89.5% of the passes recorded on the North Transect and 84.6% of the passes recorded on the South Transect.

8.5.55 Pipistrelle species were similarly the most commonly recorded species during the BSG Ecology 2014 transects surveys (Appendix 8.8).

8.5.56 Two passes of Nathusius' pipistrelle were recorded during the July transect surveys, one record from the South Transect and one record from the North Transect, making up 0.2% of total bat passes.

8.5.57 Overall Myotis species comprised 9.8% of the total calls recorded on the transect surveys. Myotis species comprised 7.7% of the passes recorded on the North Transect and 11.5% of the calls recorded on the South Transect

8.5.58 Activity levels for Myotis species during the 2017 transects surveys were comparable with the activity levels recorded during the BSG Ecology 2014 transect surveys (Appendix 8.8).

8.5.59 Overall noctule and serotine bats comprised 1.8% of the passes recorded on transect surveys. Noctule and serotine bats comprised of 1.9% of the passes recorded on the North Transect and 1.8% of the passes recorded on the South Transect. BSG Ecology did not breakdown these species into percentages but figures are comparable between years.

8.5.60 Long-eared and possible long-eared bat comprised a total of 0.5% of the passes recorded on the North Transect and 0.6% recorded on the South Transect surveys. BSG Ecology did not breakdown these species into percentages but figures are comparable between years.

8.5.61 There was a single lesser horseshoe bat pass, recorded on the South Transect, equating to 0.2% of the total passes for the South Transect and 0.1% of the total passes for the Project Site. This was recorded in August 2017. BSG Ecology also recorded a single pass of lesser horseshoe on the South Transect.

8.5.62 Higher levels of activity were recorded in the Southern Transect (513 bat passes; 15.2 Bat Activity Index (BAI)), compared to the Northern Transect (427 bat passes, 13. 2 BAI). The bat activity levels across the Project Site however are broadly similar. In total 940 bat passes were recorded.

8.5.63 Bat activity was recorded across the Project Site (Figure 5.1). Vegetated stream or wet ditch corridors appear to be important for bats within the Project Site. The distribution of bat calls suggests the following general patterns of activity. This is a qualitative assessment only:

- Pipistrelle bats were recorded across the Project Site;
- Myotis Species showed some association with mature tree lines and/or areas near water;
- Noctule and Serotine bats were primarily recorded at height over open fields across the Project Site;
- Long-eared bats showed some association with mature tree lines and are focused more towards the centre and south-east of the Project Site. The passes recorded are within approximately 315m to 700m of the BSG confirmed long-eared roost in Building 7 and approximately 270m and 850m of the BSG confirmed long-eared roost in Building 2; and
- The single lesser horseshoe was recorded on the South Transect along a mature tree line approximately 900 m south of the closest known lesser horseshoe roost in Building 2.

8.5.64 Bat activity was recorded at the Project Site between June and October 2017. Bat surveys for April and May are due to be undertaken in 2018 with the results to be included in the ES for DCO submission, or supplementing the DCO Application prior to examination.

8.5.65 August had the highest BAI for both transects. The North Transect had a BAI of 17.4 and the South Transect had a BAI of 24.9.

8.5.66 For the North Transect, the second highest BAI was 14.5 in June, and the third highest was 14.0 in July.

8.5.67 For the South Transect, the second highest BAI was 15.5 in July and the third highest was 14.5 in October.

8.5.68 Young bats are typically born in June and July and during August the young are starting to leave the roosts to fly and feed. October is part of the bat mating period

and a time when bats are extensively foraging for food as they are looking to store fat for the winter hibernation period. The general ecology of bat species is likely to influence the temporal activity for the Project Site.

Bat Activity – Static Detectors

8.5.69 Static detector units D2, D3, D4 and D8 from the 2014 survey have been used to assess bat activity within the Project Site boundary.

8.5.70 Table 8-13 gives details of the number of passes and relative activity recorded during automated detector surveys.

Table 8-13: Number of bat passes (B) and relative activity (B/h) at automated detector locations from the 2014 survey

Detector number	Survey Duration* (hrs)	Number of bat passes (B)	Relative activity B/h
D2	108.93	3573	32.8
D3	36.93	4273	115.7
D4	24.69	3898	157.9
D8	34.43	2613	75.9
Total	**204.98**	**14357**	**70.0**

**This information was not directly extracted from the 2014 report. Survey duration was derived by dividing the number of bat passes by the relative activity.*

8.5.71 The relative activity of bat species recorded at the detector locations is presented in Table 8-14.

Table 8-14: The relative activity of bat species recorded at all detector locations

	Detector Number				
Species	**D2**	**D3**	**D4**	**D8**	**Total B/h***
Nathusius' pipistrelle	0.0	0.0	0.0	<0.01	**<0.01**
Common / Nathusius' pipistrelle	<0.1	0.1	<0.1	<0.1	**<0.1**
Common pipistrelle	14.6	19.1	13.4	22.7	**16.6**
Common / soprano pipistrelle	0.2	0.6	1	0.7	**0.5**
Soprano pipistrelle	5.2	2.6	13.0	9.5	**6.4**
Greater horseshoe bat	0.0	0.0	0.0	1.0**	**<0.1**
Lesser horseshoe bat	0.0	<0.1	<0.1	0.0	**<0.1**
Long-eared bat sp.	<0.1	<0.1	<0.1	<0.1	**<0.1**
Myotis species	0.9	1.6	2.7	2.2	**1.5**
Noctule	0.2	0.3	0.2	0.1	**0.2**
Noctule / Leisler's bat	<0.1	0.1	0.1	<0.1	**<0.1**
Serotine / Leisler's bat	0.0	0.0	0.0	0.2	**<0.1**

	Detector Number				
Serotine	0.0	<0.1	0.0	<0.1	**<0.1**
Noctule / Leisler's bat / serotine	0.0	0.0	0.0	0.2	**<0.1**
Unidentified bat species	0.0	0.0	0.0	0.2	**<0.1**
Total	**21.1**	**24.4**	**30.5**	**36.7**	**25.6**

*This information was not directly extracted from the 2014 report. Bat counts were derived by multiplying the relative activity of bats at each logger location by the total number of survey hours at that logger location. The bat passes per hour were calculated by dividing the bats counts by total number of hours at each logger location. For the purposes of these calculations, the values provided as <0.1 were rounded to 0.1 and the value provided as <0.01 were rounded to 0.01.
**Extrapolating the text from the 2014 report it was possible to change the count for greater horseshoe to n=1 (see summary text below).

8.5.72 Across the survey season, the highest relative activity rate recorded was for common pipistrelle, at an average of 16.6 B/h followed by soprano pipistrelle (6.4 B/h). The next most frequently recorded species were *Myotis* sp. (1.5 B/h) and noctule (0.2 B/h).

8.5.73 The data presented in Table 8-15 below indicates that overall bat activity dropped from spring (April and May; 58.8 B/h) to summer (June – August; 20.9 B/h) and again in autumn (September and October 15.4 B/h).

Table 8-15: Number of passes (B) and relative activity (B/h) of bats at each detector location

Detector number	Spring (April-May)		Summer (June-August)		Autumn (September-October)		Total B/h
	B	B/h	B	B/h	B	B/h	
D2	1240	26.3	2333	27.3	547	8.8	**21.2**
D3	3252	87.1	1021	11.9	258	4.1	**24.4**
D4	1508	79.2	2390	27.9	1198	19.2	**30.5**
D8	2501	60.9	112	4.7	1778	30.5	**35.6**
Total	**8501**	**58.8**	**5856**	**20.9**	**3781**	**15.4**	**27.0**

8.5.74 *Myotis* bats were recorded at all of the static locations and during every deployment. The nocturnal activity of *Myotis* bats showed that passes were typically being recorded first by detectors at around 40 minutes after sunset, with a peak around one hour after sunset and consistent activity throughout the night until around 40 minutes before sunrise.

8.5.75 Noctule bats were recorded at all of the static locations. The nocturnal activity of Noctule bats showed that passes were typically being recorded first by detectors at around 20 minutes after sunset, and a peak in activity around 40 minutes after

sunset followed by consistently low activity throughout the night until around 20 minutes before sunrise.

8.5.76 Serotine passes were recorded at detectors D3 and D8, in the woodland in the east of the Project Site and the woodland around the Felindre Gas Compressor Station in the west respectively. All passes of Leisler's bat / serotine occurred at detector D8. All of the bat passes were recorded within the first 60 minutes after sunset with the exception of one Leisler's bat pass and one Leisler's bat / serotine pass which were both recorded in the middle of the night.

8.5.77 Only one Nathusius' pipistrelle pass was recorded, during the autumn at D8 (in the south east of the Project Site). The nocturnal activity of all pipistrelle bats showed that passes were typically being recorded first by detectors at around 20 minutes after sunset, with a peak from 40 to 80 minutes after sunset. There was constant activity recorded throughout the night until around 20 minutes before sunrise, with a secondary peak around 60 to 40 minutes before sunrise.

8.5.78 Long-eared bat sp. was recorded at all detectors with peak activity levels at D2 on the eastern side of the Project Site next to a stream and row of trees.

8.5.79 Four lesser horseshoe bat passes were recorded across two detector locations, D3 and D4, located on the eastern side next to woodland and in the south of the Project Site, respectively. A single pass was recorded from D3 on 18 June 2014, with two passes recorded from D4 on 25 April 2014. Bat passes were recorded between 1 – 1.5 hours after sunset or 55 minutes – 1.5 hrs before sunrise in spring and summer, and in the middle of the night (23:45) in autumn.

8.5.80 One greater horseshoe bat pass was recorded at detector D8, in the west of the Project Site, during the middle of the night in September 2014.

vi. Dormouse

8.5.81 No records of dormouse were returned from the local records centre. No evidence of dormouse was identified during the field surveys.

vii. Water Vole

8.5.82 No records of water vole were returned during the desk study.

8.5.83 Four watercourses that had potential for supporting water vole were recorded within the water vole survey area. Two of these had limited potential for water vole due to the relative isolation of these watercourses within the landscape (i.e. not connected to watercourses with potential to support water vole). Burrows suitable for water vole were found but there was no evidence of current occupancy. It was therefore not possible to determine if the burrows had been excavated by brown rat or water vole. It is likely that water vole are absent from the water vole survey area.

viii. Otter

8.5.84 A total of thirteen watercourses within the otter survey area were suitable for supporting commuting otter and two watercourses were suitable for supporting foraging otter, holt and couch creation. One potential couch was identified with a trampled vegetation track leading to it which suggested occasional use by a mammal. Two mammal tracks were identified; these may have been fox or another mammal. No spraints, holts, footprints, anal jelly or other signs were identified during the otter surveys.

8.5.85 One couch and slide next to a watercourse with a pathway leading from an area of marshy grassland, and feeding remains and a spraint were identified during the badger survey. These were recorded outside of the otter survey area but adjacent to a watercourse that through and immediately adjacent to the Project Site boundary.

8.5.86 Due to the confirmed presence of otter upstream from the Project Site in 2015, the presence of spraints and a footprint from a nearby pond in May 2017 and the presence of a couch, slide pathway, feeding remains and a spraint from a watercourse that flows through and immediately adjacent to the Project Site boundary it can be concluded that otters are still active in the locality. As such it is likely that otters use the suitable watercourses within the otter survey area and Project Site boundary for occasional forging, commuting, resting and holt creation; although no evidence of holts was identified during the survey.

ix. Brown Hare

8.5.87 No records of brown hare (*Lepus europaeus*) were returned from the local records centre.

8.5.88 Sightings of brown hare were made during surveys for other species. A targeted survey for brown hare was not undertaken.

8.5.89 Scrub, woodland edge and grassland habitat present throughout the Project Site boundary are suitable for supporting the species.

x. Badger

8.5.90 A number of badger records were returned from the local records centre, including:

- Adjacent to the Project Site boundary, near to the Felindre Gas Compressor Station site;
- 350 m south;
- Penllergaer Valley Woods;
- 1 km south;
- 1.4 km south; and
- 1.5 km north.

8.5.91 The badger survey area contains suitable habitat for supporting badgers. The scrub, woodland edge and grassland habitat present throughout the Project Site boundary are suitable for supporting the species. A total of five badger setts were

recorded during the survey (one of which was immediately adjacent to the Project Site boundary and the other four were well outside of the Project Site boundary).

8.5.92 The survey identified signs of badger actively using the Project Site. Badger signs recorded included latrines, dung pits and mammal paths. It is therefore likely that badger use the Project Site on a regular basis for foraging and to commute between foraging areas within the wider landscape.

g) Evaluation of Ecological Features

8.5.93 Table 8-16 below summarises the evaluation of ecological features of nature conservation interest within the Project Site boundary for each habitat and species/species group, and within 2 km of the Project Site boundary for each designated site, which could potentially be affected by the Project and are assessed within the EcIA.

Table 8-16: Evaluation of Ecological Features

Feature – Site/Habitat/Species	Evaluation Rationale	Value / Sensitivity of Feature
Statutory Designated Sites		
Crymlyn Bog SAC and Ramsar	A statutory designated site that supports habitats and species assessed to be of international and national importance.	Very High
Carmarthen Bay SAC	A statutory designated site that supports habitats and species assessed to be of international importance.	Very High
Burry Inlet SPA and Ramsar	A statutory designated site that supports habitats and species assessed to be of international importance.	Very High
Nant Y Crimp SSSI	A statutory designated site that supports habitats and species assessed to be of national importance.	High
Non-Statutory Designated Sites		
Llety-Morfil SNCI	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Coed Barcud Wildlife Trust Reserve boundary.	A non-statutory designated site that supports habitat assessed to be of local importance.	Low
Rhos Fawr SNCI	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Felindre Grasslands SNCI	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium

Feature – Site/Habitat/Species	Evaluation Rationale	Value / Sensitivity of Feature
Middle Llan SNCI	A non-statutory designated site that supports habitats assessed to be of county importance.	Medium
Rhyd-Y-Pandy Valley and Grasslands SNCI	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Waun Garn Wen SNCI	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Pant Lasau SNCI	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Cefn Forest Stream SNCI	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Lower Lliw Resivoir SNCI	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Cilfaen SNCI	A non-statutory designated site that supports habitats assessed to be of county importance.	Medium
Middle Lliw SNCI	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 1	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 2	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 3	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 4	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 5	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 6	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 7	A non-statutory designated site that supports	Medium

Feature – Site/Habitat/Species	Evaluation Rationale	Value / Sensitivity of Feature
	habitats and species assessed to be of county importance.	
Ancient Woodland 8	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 9	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 10	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 11	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 12	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 13	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 14	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 15	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 16	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 17	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 18	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 19	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 20	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium

Feature – Site/Habitat/Species	Evaluation Rationale	Value / Sensitivity of Feature
Ancient Woodland 21	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Ancient Woodland 22	A non-statutory designated site that supports habitats and species assessed to be of county importance.	Medium
Habitats		
Broadleaved Woodland – Semi-Natural	This habitat is botanically diverse and contributes to the variety of resources in the local area. Lowland mixed deciduous woodland is a Section 7 habitat. Areas of semi-natural broadleaved woodland within the Project Site boundary that are also designated as SNCI and Ancient Woodland are evaluated under the designated sites section of this table.	Medium
Broadleaved Woodland – Plantation	This habitat contributes to the variety of resources in the local area. Lowland mixed deciduous woodland is a Section 7 habitat.	Medium
Scrub – Dense/ Continuous	This habitat contributes to the variety of resources in the local area, but consists of widespread and abundant species.	Low
Scrub – Scattered	This habitat contributes to the variety of resources in the local area, but consists of widespread and abundant species. Areas of scrub within the Project Site boundary that are also designated as SNCI are evaluated under the designated sites section of this table.	Low
Rows of Trees – Broadleaved	This habitat contributes to the variety of resources in the local area, but consists of widespread and abundant species.	Low
Standalone Trees	This habitat contributes to the variety of resources in the local area, but consists of widespread and abundant species.	Low
Ruderal – Tall Herb and Fern	This habitat contributes to the variety of resources in the local area, but consists of widespread and abundant species.	Low
Semi-Improved Neutral Grassland	Although this habitat is botanically diverse and contributes to the variety of resources in the local area, it consists of widespread and abundant species and is currently tightly grazed, reducing the value. Neutral grassland lowland meadows are a	Low

Feature – Site/Habitat/Species	Evaluation Rationale	Value / Sensitivity of Feature
	Section 7 habitat.	
Marshy Grassland	This habitat is botanically diverse and contributes to the variety of resources in the local area. Areas of marshy grassland within the Project Site boundary that are also designated as SNCI are evaluated under the designated sites section of this table. Purple moorgrass and rush pastures are a Section 7 habitat; a small area of marshy grassland within the Project Site boundary can be classified as this habitat type. Areas of marshy grassland within the Project Site boundary that are also designated as SNCI are evaluated under the designated sites section of this table.	Medium
Improved Grassland	Improved grassland is the dominant habitat within the Project Site boundary and beyond in the wider landscape. At the time of survey, it was being utilised for grazing horses and sheep. Improved grassland is botanically poor and has no more than local value. Due to the negligible valuation, this feature will be scoped out of any further assessment.	Negligible
Running Water	This habitat contributes to the variety of resources in the local area.	Low
	One watercourse (Afon Llan) can be classed as a Section 7 habitat (river).	Medium
Standing Water	This habitat contributes to the variety of resources in the local area. Ponds are a Section 7 habitat.	Medium
Hedgerow with Trees – Species – Rich	This habitat is botanically diverse and contributes to the variety of resources in the local area. Hedgerows are a Section 7 habitat.	Medium
Hedgerow with Trees – Species – Poor	This habitat contributes to the variety of resources in the local area. Hedgerows are a Section 7 habitat.	Medium
Intact Hedgerow – Species – Poor	This habitat contributes to the variety of resources in the local area. Hedgerows are a Section 7 habitat.	Medium
Earth Bank	Earth banks are evaluated under the habitat which they support – for example, grassland. As	N/A

Feature – Site/Habitat/Species	Evaluation Rationale	Value / Sensitivity of Feature
	such, this feature will be scoped out of any further assessment.	
Buildings	Buildings within the Project Site boundary have no ecological value.	Negligible
Fences	Fences have no ecological value. Due to the negligible valuation, this feature will be scoped out of any further assessment.	Negligible
Hard Standing	Hard standing has no ecological value. Due to the negligible valuation, this feature will be scoped out of any further assessment.	Negligible
Protected / Priority Species		
Invertebrates	Nationally Scarce beetle species were identified during the field surveys. These species have a restricted distribution across the UK and are important at the regional level. Priority invertebrate (beetle, butterfly and moth) species were identified during the field surveys. The majority of the Section 7 invertebrate species identified are known to be common throughout the region and/or UK. The Section 7 species identified are important at the local level.	Medium
Amphibians	Populations of common toads, palmate newts and/or smooth newts were identified during field surveys. Common toad is a Section 7 species. Amphibians are important at the local level.	Medium
Reptiles	A 'Good' breeding population of common lizard was identified during the field surveys. It is assumed that grass snake is present based on the results of the 2014 survey. Reptiles are protected under the Wildlife and Countryside Act 1981 (as amended) and both species recorded during the surveys are Section 7 species. Reptiles are important at the district level.	Medium
Breeding Birds	Surveys identified a locally important breeding bird assemblage. Included within the assemblage are nine Section 7 species, eight red-listed species and eight amber-listed species. No Schedule 1 species were identified as breeding during the field surveys.	Medium
Bats	Surveys identified a regularly occurring	High

Feature – Site/Habitat/Species	Evaluation Rationale	Value / Sensitivity of Feature
	significant population/number of internationally important and protected species. Included within the assemblage are six Section 7 species.	
Dormouse	No dormice were identified survey any of the field surveys. It is likely dormice are absent from the Project Site and will be scoped out of any further assessment.	N/A
Water Vole	No current evidence of water vole was identified during the field surveys and it is likely that water vole are absent from the water vole survey area. However, the habitat within the Project Site remains suitable for water vole. Water vole is protected under the Wildlife and Countryside Act 1981(as amended) and is listed as a Section 7 species. Water vole is important at the site level.	Low
Otter	It is likely that otters use the suitable watercourses within the otter survey area and Project Site boundary for occasional forging, commuting, resting and holt creation; although no evidence of holts was identified during the survey. Otters are protected under The Conservation of Habitats and Species Regulations 2010 (as amended) and the Wildlife and Countryside Act 1981(as amended), and are listed as a Section 7 species. Otter are important at the site level.	Low
Brown Hare	The presence of brown hare was confirmed through field surveys. The species is abundant throughout the UK although is declining nationally. Brown hare is a Section 7 species. Brown hare is important at the site level.	Low
Badger	Current legislation protects badger setts from disturbance, damage and/or destruction and the badger from persecution but does not confer any special conservation status.	Low

8.6 Embedded Mitigation

8.6.1 As detailed in **Chapter 3: Project and Site Description**, a number of embedded mitigation measures have been identified through the iterative EIA process and have been incorporated into the design and construction planning of the Project.

8.6.2 As these mitigation measures have been embedded into the design, are legal requirements or are standard practices that will be implemented, the assessment of effects assumes that they are in place.

8.7 Assessment of Effects

8.7.1 This section presents the findings of the ecological assessment for the construction phase, operation and maintenance phase and the decommissioning phase of the Project.

8.7.2 This section identifies any significant effects that are predicted to occur and Section 8.8 highlights any additional mitigation and monitoring measures that are proposed to reduce or eliminate the identified significant effects.

a) Construction

8.7.3 Approximate habitat loss calculations below are provided for each of the Project elements. It should be noted that the Electrical Connection will run to the side of the Access Road constructed as part of the Power Generation Plant and a small area of hard standing. As such there is no habitat loss associated with the Electrical Connection as this is associated with the Access Road and is therefore not discussed further.

i. Statutory Designated Sites

8.7.4 There is a hydrological link between the Project Site and Carmarthen Bay SAC and Burry Inlet SPA and Ramsar via the Afon Llan. There are springs, with their associated streams and drainage ditches within the Project Site which discharge into the Afon Llan. The Afon Llan links with the Afon Lliw and the River Loughor. The Afon Llan flows for approximately 12 km before reaching the designated sites.

8.7.5 Discharges into to Afon Llan or any other watercourses linking to the Afon Llan will be controlled via various measures as outlined in the embedded mitigation. The embedded mitigation covers drainage and following best practice and guidelines, controlling pollution, storage of potential pollutants, and precautionary measures will help to limit the likelihood and effects of pollution incidents and/or runoff. Discharges will not perceptively increase the flow of the Afon Llan.

8.7.6 There are considered to be no effects on statutory designated sites with regards to water discharges due to the Site preparation works and embedded mitigation measures, in addition to the large dispersal distance within the Afon Llan from the Project Site to the designated sites.

8.7.7 Transport related emissions are most relevant to sites within 200 m of a major road. The Design Manual for Roads and Bridges (DMRB) identifies 200 m as the distance beyond which the contribution of traffic emissions to local pollutant concentrations is considered to be negligible. There are no roads within 200 m of any statutory site that are forecast to receive anything other than a nominal change in vehicle flows as a result of this Project. There are considered to be no effects associated with transport-related emissions generated during construction

8.7.8 There are considered to be no additional effects on statutory designated sites in relation to the construction of the Project due to the distances between the Project and the site and the lack of pathways between the Project and the sites.

ii. Non-Statutory Designated Sites

8.7.9 The embedded mitigation within the CEMP will control movement of people, vehicles and machinery on to and around the Project Site during the construction phase and to help prevent the degradation and destruction associated with increased foot traffic, trampling and/or tracking over of retained non-statutory designated site habitat.

8.7.10 As detailed in Section 8.7 (a)(i), all non-statutory designated sites within 200 m of the Project Site boundary are greater than 200 m from a major road. There are deemed expected to be no effects associated with transport-related emissions generated during construction.

8.7.11 As defined by the Institute of Air Quality Management (IAQM) guidance, ecological receptors should be considered within 50 m of potential dust sources and 50 m of the routes used by construction vehicles on the public highway, up to 500 m from the Project Site entrance. The following non-statutory designated sites are present within 500 m of the Project Site entrance to the north: Rhos Fawr SNCI, Rhyd-Y-Pandy Valley and Grasslands SNCI, Waun Garn Wen SNCI, Coed Barcud Wildlife Trust Reserve, Ancient Woodland 11; and within 500 m of the Project Site entrance to the south: Cefn Forest Steam SNCI, Felindre Grasslands SNCI, Lletty-Morfil SNCI, Ancient Woodland 6, Ancient Woodland 12. Part of the Power Generation Plant construction site falls within the Llety-Morfil SNCI. There are no additional non-statutory designated sites within 50 m of the construction routes or potential dust sources.

8.7.12 Indirect impacts on the sites listed above (Table 8-15) from dust generation have been considered but vehicle flows on the access route and Access Road will be temporary and little dust generation is expected, particularly given the embedded mitigation with regards to measures for controlling dust generation which could include wetting of the Access Road if needed. Moreover these impacts are reversible as soon as construction ceases. There are expected to be no effects associated with dust generated during construction requiring additional mitigation.

8.7.13 The embedded mitigation with regards to following good practice and guidelines, controlling pollution, storage of potential pollutants, and precautionary measures will help to limit the likelihood and effects of pollution incidents and/or runoff; and the embedded mitigation with regards to measures for controlling dust will help to limit the likelihood of increases of nutrient inputs non-statutory designated site habitats.

8.7.14 There are no designated features within the non-statutory designated sites that are sensitive to lighting. Construction-related lighting on non-statutory designated sites has not been considered any further.

8.7.15 For woodlands with root protection zones within the Project Site boundary the embedded mitigation for all retained trees to be protected from any damage in accordance with BS5837:2012 Trees in Design, Demolition and Construction, Recommendations will help protect trees, scrub, woodland and hedgerows within non-statutory designated sites from direct damage and implement root protection zones.

8.7.16 There will be loss of Lletty-Morfil SNCI habitats and Ancient Woodland habitat, as detailed below. There will be no loss of habitat within the other non-statutory designated sites.

Lletty-Morfil SNCI

8.7.17 During the construction of the Power Generation Plant there will be a permanent loss of 0.45 ha (1.30%) of Lletty-Morfil SNCI comprising 0.28 ha of broadleaved semi-natural woodland and 0.17 ha of marshy grassland. The SNCI is considered to be of medium sensitivity with the extent of habitat loss being a medium magnitude, therefore resulting in a **Moderate** effect. This is considered to be significant.

8.7.18 During construction of the Gas Connection there will be a temporary loss of 103 m^2 (0.03%) of Lletty-Morfil SNCI comprising 51 m^2 of semi-improved neutral grassland and 52 m^2 of improved grassland. Given the same sensitivity as above, the extent of habitat loss is considered to medium magnitude, therefore resulting in a **Moderate** effect. This is considered to be significant.

Middle Llan SNCI, Pant Lasau SNCI and Ancient Woodland 4

8.7.19 There is a hydrological link between the Project Site and Middle Llan SNCI, Pant Lasau SNCI and Ancient Woodland 4 via the Afon Llan. There are springs, with their associated streams and drainage ditches within the Project Site which discharge into the Afon Llan. The Afon Llan flows through each of these sites.

8.7.20 Discharges into to Afon Llan or any other watercourses linking to the Afon Llan will be controlled via various measures as outlined in the embedded mitigation. The embedded mitigation covers drainage and following best practice and guidelines, controlling pollution, storage of potential pollutants, and precautionary measures will help to limit the likelihood and effects of pollution incidents and/or runoff. Discharges will not perceptively increase the flow of the Afon Llan.

8.7.21 There are considered to be no effects on non-statutory designated sites with regards to water discharges due to the Site preparation works and embedded mitigation measures.

Ancient Woodland 2 and Ancient Woodland 6

8.7.22 Ancient Woodland is shown to be present over non-wooded habitats such as open grassland, hard standing and buildings. The habitat loss calculations for Ancient Woodland have only considered those areas which are wooded.

8.7.23 During the construction of the Power Generation Plant there will be a permanent loss of 0.09 ha (0.84%) of Ancient Woodland 2 habitat. No habitat loss is anticipated for Ancient Woodland 6 with regards to the widening of the Access Road. Habitat loss is afforded Medium magnitude resulting in a **Moderate** effect. Loss of Ancient Woodland habitat is considered a significant effect.

iii. Habitats

8.7.24 The embedded mitigation for a CEMP will control movement of people, vehicles and machinery on to and around the Project Site during the construction phase and to help prevent the degradation and destruction associated with increased foot traffic, trampling and/or tracking over of retained habitats.

8.7.25 As detailed in Section 8.7 (a)(i), all habitats within the Project Site boundary are greater than 200 m from a major road. There are expected to be no effects associated with transport-related emissions generated during construction.

8.7.26 For reasons given in Section 8.7 (a)(ii), indirect impacts on the sites from dust generation have been considered but vehicle flows on the access route and Access Road will be temporary and little dust generation is expected, particularly given the embedded mitigation with regards to measures for controlling dust generation which could include wetting of the Access Road if needed. Moreover these impacts are reversible as soon as construction ceases. There are deemed to be no effects associated with dust generated during construction requiring additional mitigation.

8.7.27 The embedded mitigation with regards to following best practice and guidelines, controlling pollution, storage of potential pollutants, and precautionary measures will help to limit the likelihood and effects of pollution incidents and/or runoff; and the embedded mitigation with regards to measures for controlling dust will help to limit the likelihood of increases of nutrient inputs on retained habitats.

8.7.28 The embedded mitigation for all retained trees to be protected from any damage in accordance with BS5837:2012 Trees in Design, Demolition and Construction, Recommendations will help protect trees, scrub and hedgerows from direct damage and implement root protection zones.

8.7.29 Where habitats are present within designated sites (for example, Lletty-Morfil SNCI), the habitat loss calculations have been undertaken for the designated site only so as to not falsely over-represent habitat loss. A breakdown of habitat types to be removed has been provided for the designated sites above.

<u>Broadleaved Woodland – Semi-Natural</u>

8.7.30 During the construction of the Power Generation Plant there will be a permanent loss of 0.49 ha of broadleaved semi-natural woodland. Due to the small area and isolated nature of the habitats to be removed habitat loss is afforded Low magnitude resulting in a **Minor** effect. Loss of broadleaved semi-natural woodland habitat is not considered a significant effect.

8.7.31 There is no requirement to remove broadleaved semi-natural woodland habitat for the Gas Connection and Electrical Connection elements of the Project.

Dense/Continuous Scrub

8.7.32 During the construction of the Power Generation Plant there will a permanent loss of 0.01 ha of dense/continuous scrub.

8.7.33 During the construction of the Gas Connection there will be a temporary loss of 0.02 ha of dense/continuous scrub.

8.7.34 Due to the small area and isolated nature of the habitats to be removed habitat loss is afforded Low magnitude resulting in a **Negligible** effect. Loss of dense-continuous scrub is not considered a significant effect.

Rows of Trees – Broadleaved

8.7.35 During the construction of the Power Generation Plant there will be a permanent loss of approximately 500 m of the row of trees habitat and a temporary loss of 140 m for laydown areas.

8.7.36 During the construction of the Gas Connection there will be a temporary loss of approximately 350 m of the row of trees habitat.

8.7.37 Loss of this habitat type will reduce connectivity across the Project Site and to the wider landscape. Although there is an abundance of this habitat type within the Project Site boundary and wider landscape the loss of this habitat may have a long term effect on species utilising the habitat. As such this habitat loss is afforded High magnitude resulting in a **Moderate** effect. Loss of the row of trees habitat is therefore a significant effect.

Standalone Trees

8.7.38 During the construction of the Power Generation Plant there will potentially be a loss of up to two standalone trees.

8.7.39 During the construction of the Gas Connection there will potentially be a loss of up to two standalone trees.

8.7.40 The trees are located on the edge of the Project Site boundary, and as such construction works may be able to avoid removing them. There is an abundance of this habitat type within the Project Site boundary and wider landscape. Habitat loss is afforded Medium magnitude resulting in a **Minor** effect. Loss of standalone trees is not considered a significant effect.

Semi-Improved Neutral Grassland

8.7.41 During the construction of the Power Generation Plant there will be a permanent loss of 0.72 ha and a temporary loss of 0.06 ha for laydown areas of semi-improved neutral grassland.

8.7.42 During the construction of the Gas Connection there will be a temporary loss of 1.02 ha of semi-improved neutral grassland.

8.7.43 There is an abundance of this habitat type within the Project Site boundary and wider landscape. Habitat loss is afforded Medium magnitude resulting in a minor effect. Loss of semi-improved neutral grassland is therefore not a significant effect.

Marshy Grassland

8.7.1 During the construction of the Power Generation Plant there will a permanent loss of 1.55 ha loss and a temporary loss of 1.98 ha for laydown areas of marshy grassland. There is an abundance of this habitat type within the Project Site boundary and wider landscape. Habitat loss is afforded Medium magnitude resulting in a **Moderate** effect. Loss of marshy grassland is therefore a significant effect and will require additional mitigation.

8.7.2 During the construction of the Gas Connection there will be a temporary loss of 0.01 ha of marshy grassland. Due to the small area of the habitat to be removed habitat loss is afforded Low magnitude resulting in a **Negligible** effect. Loss of marshy grassland is not considered a significant effect.

Running Water

8.7.3 During the construction of the Power Generation Plant and the Gas Connection there is shown to be a loss of the running water habitat; however, cut off drainage ditches will be placed around the uphill perimeter of the Project Site. These new drainage ditches will be designed to carry the surface runoff around the Project Site and downstream back to the original drainage ditches/watercourses; and existing field drainage that will cross the Access Road will be culverted or bridged for a short length. Overall there will be no loss of running water habitat and therefore the effect is **Negligible** and no mitigation is required.

8.7.4 The embedded mitigation with regards to the CEMP, following best practice and guidelines, controlling pollution and runoff, sediment loads, storage of potential pollutants, and precautionary measures will help to limit the likelihood and effects of pollution incidents and/or runoff, and control dust and sediment loads on aquatic habitats.

8.7.5 Discharges into to Afon Llan or any other watercourses linking to the Afon Llan will be controlled via various measures as outlined in the embedded mitigation. The embedded mitigation covers drainage and following best practice and guidelines, controlling pollution, storage of potential pollutants, and precautionary measures will help to limit the likelihood and effects of pollution incidents and/or runoff. Discharges will not perceptively increase the flow of the Afon Llan and as such there will be no scouring of the watercourse.

Standing Water

8.7.6 The Power Generation Plant component of the Project will require the removal of standing water – Pond 16 and Pond 22. Pond 16 is temporal and Pond 22 holds water year round.

8.7.7 The construction of the Gas Connection may require the removal of Pond 23. Pond 23 holds water year round. Pond 23 is on the edge of the Project Site boundary and it may be possible that construction works can avoid the pond.

8.7.8 Although there is an abundance of this habitat type within the Project Site boundary and wider landscape, the loss of this habitat may have a long term effect on species utilising the habitat. Habitat loss is afforded Medium magnitude resulting in a **Moderate** effect. Loss of standing water is therefore a significant effect and will require additional mitigation.

8.7.9 The embedded mitigation with regards to the CEMP, following best practice and guidelines, controlling pollution and runoff, sediment loads, storage of potential pollutants, and precautionary measures will help to limit the likelihood and effects of pollution incidents and/or runoff, and control dust and sediment loads on aquatic habitats.

Hedgerows – Species-Poor

8.7.10 During the construction of the Power Generation Plant there will a permanent loss of 140 m of hedgerow habitat.

8.7.11 During the construction of the Gas Connection there will be a temporary loss of 180 m of hedgerow habitat.

8.7.12 Loss of this habitat type will reduce connectivity across the Project Site and to the wider landscape. Although there is an abundance of this habitat type within the Project Site boundary and wider landscape the loss of this habitat may have a long term effect on species utilising the habitat. As such this habitat loss is afforded Medium magnitude resulting in a **Moderate** effect. Loss of the hedgerow habitat is therefore a significant effect and will require additional mitigation.

Broadleaved Woodland – Plantation, Scattered Scrub, Hedgerows – Species-Rich and Tall Ruderal

8.7.13 There will be no removal of broadleaved woodland – plantation, scattered scrub, and tall ruderal vegetation. There are considered to be no significant effects requiring mitigation.

iv. Species

Invertebrates

8.7.14 The Power Generation Plant requires the permanent removal of:

- A small proportion (0.45 ha representing 1.3% of total area) of Llety-Morfil SNCI, this has the potential to have a limited impact on the Section 7 listed butterfly, wall due to loss of habitat;
- A proportion (0.49 ha) of broadleaved semi-natural woodland, this has the potential to have a limited impact on the two Nationally Scarce beetles through partial loss of a habitat;
- Running and standing water, this has the potential to have a limited impact on common species only; and,
- Marshy grassland, semi-improved neutral grassland, scrub, standing water, this has the potential to have an impact on the Section 7 species of moth and butterfly identified during the field surveys.

8.7.15 The partial loss of a small proportion of the suitable invertebrate habitat available in the wider area is unlikely to have a long term effect on invertebrate species utilising the habitat. As such this habitat loss is afforded Low magnitude resulting in a **Minor** effect. Loss of habitat is therefore not a significant effect and will not require additional mitigation.

8.7.16 The Gas Connection requires the temporary removal of:

- A small proportion of Llety-Morfil SNCI, this has the potential to have a limited impact on the Section 7 listed butterfly, wall due to loss of habitat;
- Running and standing water, this has the potential to have a limited impact on common species only; and,
- Marshy grassland, semi-improved neutral grassland, scrub, standing water, this has the potential to have an impact on the Section 7 species of moth and butterfly identified during the field surveys.

8.7.17 Temporarily removed habitats will be reinstated once construction works are complete. Temporary habitat loss is afforded Low magnitude resulting in a **Minor** effect. Temporary loss of habitat is therefore not a significant effect and will not require additional mitigation.

Amphibians

8.7.18 The Power Generation Plant requires the permanent removal of standing water, scrub, broadleaved semi-natural woodland, species-poor hedgerows and semi-improved neutral grassland and the temporary removal of semi-improved neutral grassland, marshy grassland and rows of trees.

8.7.19 The Gas Connection requires the temporary removal of standing water (may be possible to avoid), scrub, semi-improved neutral grassland, marshy grassland, rows of trees and species-poor hedgerows.

8.7.20 Habitat removal has the potential to impact common amphibians due to the permanent and temporary reduction in suitable habitat, including permanent loss of

suitable breeding habitat (standing water). There is an abundance of suitable habitat within the Project Site boundary and the wider landscape. Loss of habitat is afforded Medium magnitude resulting in a **Moderate** effect. Loss of habitat is therefore a significant effect and will require additional mitigation.

8.7.21 During construction activities there is the potential for common amphibians to be injured or killed through removal of habitats. Injury of killing of common amphibians is afforded Medium magnitude, resulting in a **Moderate** effect. Injury or killing is therefore a significant effect and will require additional mitigation.

8.7.22 The embedded mitigation with regards to the CEMP, following best practice and guidelines, controlling pollution and runoff, storage of potential pollutants, dust, and precautionary measures will help to limit the likelihood and effects of trampling, pollution incidents and/or runoff, and dust on terrestrial and aquatic habitats with the potential to support amphibians.

Reptiles

8.7.23 The Power Generation Plant requires the permanent removal of standing water, scrub, broadleaved semi-natural woodland, species-poor hedgerows and semi-improved neutral grassland, and the temporary removal of semi-improved neutral grassland, marshy grassland and rows of trees.

8.7.24 The permanent removal of habitats has the potential to impact reptiles due to the loss of breeding, sheltering and foraging habitat. The loss of this habitat may have a long term effect on reptile species utilising the habitat. As such this habitat loss is afforded Medium magnitude resulting in a **Moderate** effect. Loss of reptile habitat is therefore a significant effect and will require additional mitigation.

8.7.25 The Gas Connection requires the temporary removal of standing water (may be possible to avoid), scrub, semi-improved neutral grassland, marshy grassland, rows of trees and species-poor hedgerows. Habitats will be reinstated once works are complete. Temporary habitats loss is afforded Low magnitude resulting in a **Minor** effect. Temporary loss of habitat is therefore not a significant effect and will not require additional mitigation.

8.7.26 Although the works are temporary in this area, the loss of standing water and mature trees must be considered permanent due to the time required for mature trees to grow and the change in ground conditions making it unlikely for the pond to reform without human intervention. Permanent habitat loss is afforded Medium magnitude resulting in a moderate effect. Habitat loss o is therefore a significant effect and will require additional mitigation. During all construction activities there is the potential for reptiles to be injured or killed through removal of habitats. Injury of killing of reptiles is afforded High magnitude resulting in a **Moderate** effect; and is therefore a significant effect and will require additional mitigation.

8.7.27 The embedded mitigation with regards to the CEMP, following best practice and guidelines, controlling pollution and runoff, storage of potential pollutants, control of dust, and precautionary measures will help to limit the likelihood and effects of

trampling, pollution incidents and/or runoff, and dust on habitats with the potential to support common reptiles.

Breeding Birds

8.7.28 The Power Generation Plant requires the permanent removal of habitat with the potential to support breeding birds (trees, woodland, hedgerows and scrub) and the temporary removal of habitat with the potential to support breeding birds (trees).

8.7.29 The Gas Connection requires the temporary removal of habitat with the potential to support breeding birds (trees, woodland, hedgerows and scrub).

8.7.30 The removal of habitat with the potential to support breeding birds will reduce the availability of suitable breeding habitat within the Project Site boundary. However, there is an abundance of suitable habitat within the Project Site boundary and wider landscape, and as such the loss of suitable breeding habitat within the Project Site boundary is unlikely to have a long term significant effect on breeding bird populations. Loss of habitat is afforded Low magnitude resulting in a **Minor** effect; and is therefore not a significant effect and will not require additional mitigation.

8.7.31 During the winter months working within the core hours (08:00 – 18:00) will require night time illumination. There will be illumination of the security cabin (24 hour, seven days a week facility). Night time illumination of and construction noise in the vicinity of features with the potential to supporting nesting birds have the potential to cause localised disturbance to nesting birds. Disturbance will be temporary and localised. Disturbance is afforded Low magnitude resulting in a **Minor** effect. As such disturbance is not significant and will not require additional mitigation.

8.7.32 There will be temporary impacts as a result of noise generated during construction and this may cause disturbance to breeding birds. Birds have been shown to quickly adapt to changes in noise levels. Noise levels for various type of construction equipment typically range from 55 dB to 83dB in the immediate vicinity of the equipment. As such there will be localised disturbance to birds and the increases are not going to be significant enough to effect the distribution or activity of breeding species. All species recorded during surveys are tolerant of regular noise where habitat remains suitable as evidenced by the distribution of breeding species recorded alongside busy roads for example. Effects of noise will be temporary and localised. Noise is afforded Low magnitude, resulting in a **Minor** effect, and as such noise effects are not significant and will not require additional mitigation.

8.7.33 The embedded mitigation with regards to the CEMP, following best practice and guidelines, controlling pollution and runoff, storage of potential pollutants, and precautionary measures will help to limit the likelihood and effects of pollution incidents and/or runoff, and dust on habitats with the potential to support breeding birds.

8.7.34 The embedded mitigation with regards the CEMP and protection of protected species during construction would include seeking to avoid vegetation removal

during breeding bird season (breeding season March – September) wherever possible, or an ecologist examining the vegetation for active nests immediately prior to removal.

Bats

8.7.35 Based on the current known distribution of bat roosts within the Project Site, there is no risk of killing or injuring bats during construction.

8.7.36 There is potential for hibernating bats to be present within a newly identified mine shaft and adit. There is potential for roosting bats to be present within Buildings 6, 7 and 8. There is potential for hibernating and roosting bats to be disturbed during construction works. There is the potential for new roosts to be formed in trees previously identified as having potential to support roosting bats but not confirmed as roosts during any of the surveys; there is the potential for new roosts to be disturbed, or bats injury or killed during construction. Disturbance, injury or killing is afforded High magnitude, resulting in a **Major** effect, and is considered a significant effect requiring further mitigation.

8.7.37 The Power Generation Plant requires the permanent removal of habitat with the potential to support foraging and commuting bats (broadleaved semi-natural woodland, hedgerows, mature trees lines semi-improved grassland and marshy grassland). Without mitigation, this will sever the connectivity to habitats either side of the Access Road, resulting in fragmentation of retained areas. This will impact on bats using the existing features in the landscape to commute and forage between these two areas. There is an abundance of foraging habitat within the wider landscape, and as such loss of small amounts of foraging habitat is afforded Low magnitude; due to the High value of the receptor (bats) this is considered a significant effect (Moderate Adverse) requiring mitigation. Severance of connectivity and fragmentation is afforded Medium magnitude resulting in a **Moderate** effect; this is considered a significant effect requiring mitigation.

8.7.38 The Gas Connection requires the temporary removal of habitat with the potential to support foraging and commuting bats (hedgerow, mature trees lines and woodland edges). Removal or severance of tree lines and hedgerow will sever the connectivity they provide and create fragmentation of retained habitat. This will impact on bats using the existing features in the landscape to commute and forage between these two areas. Severance of connectivity and fragmentation is afforded Medium magnitude, resulting in a **Moderate** effect; this is considered a significant effect requiring mitigation.

8.7.39 There will be an increase in external lighting at the Project Site during construction. There is currently no external lighting within the majority of the Project Site. Many species of bat are adverse to light, with different species having different tolerances. External lighting can make areas of previous foraging habitat unsuitable and fragment commuting routes. If external lighting for the proposed Project is poorly designed there is potential for a light spill onto hedgerows, tree lines, woodland edges and vegetated areas which will negatively impact on bats, severing commuting routes and impeding access to foraging habitat. Poorly

designed lighting also has the potential to affect areas outside the Project Site boundary. During the winter months working within the core hours (08:00 – 18:00) will require night time illumination. There will be illumination of the security cabin (24hr, seven days a week facility). Night time illumination of and construction noise in the vicinity of features with the potential to supporting bats has the potential to cause localised disturbance to commuting or foraging. The embedded mitigation measures with regards to lighting seek to limit impacts on bats. Effects from lighting as set out in the lighting plan are afforded Negligible magnitude, resulting in a **Minor** effect. This is not considered a significant effect and does not require mitigation.

8.7.40 The nearest known bat roost to the Project is approximately 90m (300 feet) from the Gas Connection element. Noise dissipates at a rate of 6 dB with the doubling of the distance (in feet). Given the loudest equipment used during construction will by 90 dB, the noise will be imperceptible at the nearest known bat roost. Similarly, vibration from construction equipment will not be perceptible at this distance. Effects from noise and construction equipment vibration are afforded Negligible magnitude resulting in a **Negligible** effect. This is not considered a significant effect and does not require mitigation.

8.7.41 The need for piling, and the type of any piling potentially required is not yet confirmed. Where piling, heavy earthworks, vibratory rollers or other significant vibration producing operations are proposed in close proximity to any existing sensitive receptors, further consideration would be given to potential impacts, once the contractor is appointed and the construction methods requirements are developed.

Water Vole

8.7.42 The Power Generation Plant is close to an area with potential for supporting water vole burrows (Watercourse 45). Although no recently occupied burrows were identified during the survey, it is possible that prior to construction new burrows are created in this area. There is the potential for this to cause disturbance of, harm or kill individual water voles during construction within 10 m of Watercourse 45. Disturbance, injury or killing are afforded High magnitude, resulting in a **Moderate** effect; and is therefore considered a significant effect and will require additional mitigation.

8.7.43 There will be temporary impacts as a result of noise and vibration generated during construction and this may cause disturbance to water voles.

8.7.44 The predicted noise level from construction equipment is expected to be a maximum of 90 dB 10 m from the source. The construction area at the boundary of the Power Generation Plant is between approximately 20 m (65 feet) and 80 m (260 feet) from the section of Watercourse 45 suitable for supporting water voles. In general background noise levels at watercourses are around 45 dB and noise dissipates at a rate of 6 dB with the doubling of the distance (in feet). The noise would therefore be around 60 dB at the closest point to Watercourse 45.

8.7.45 Water voles have been shown to quickly adapt to changes in noise levels and the occasional change in noise level is unlikely to be enough to deter water voles where Watercourse 45 is 20 m from the Power Generation Plant boundary. Further afield, as the noise level reduces in line to the background level it is likely that water voles will not be deterred from using these areas. Similarly, vibration from construction equipment will not be perceptible at this distance.

8.7.46 Effects of noise will be temporary and localised. Noise and construction equipment vibration is afforded Low magnitude, resulting in a **Negligible** effect, and as such noise effects are not significant and will not require additional mitigation.

8.7.47 The need for piling, and the type of any piling potentially required is not yet confirmed. Where piling, heavy earthworks, vibratory rollers or other significant vibration producing operations are proposed in close proximity to any existing sensitive receptors, further consideration would be given to potential impacts, once the contractor is appointed and the construction methods requirements are developed.

8.7.48 The embedded mitigation with regards to the CEMP, following best practice and guidelines, controlling pollution and runoff, storage of potential pollutants, and precautionary measures will help to limit the likelihood and effects of pollution incidents and/or runoff, and control dust on aquatic habitats with the potential to support water vole.

8.7.49 The embedded mitigation measures with regards to lighting and noise seeks to limit impacts on water vole.

8.7.50 There are no effects associated with the Electrical Connection or Gas Connection on water vole requiring mitigation.

Otter

8.7.51 The Power Generation Plant and the Access Road are shown to be near areas deemed suitable for supporting otters (Watercourses 9, 11, 12, 41 and 45 and Watercourses 27, 28 and 29, respectively). Although no recent activity was identified during the survey, it is possible that prior to construction new holts/couches are created or activity is present in this area. There is the potential to cause disturbance of otters during construction within 100 m of Watercourses 9, 11 12, 41 and 45 and Watercourses 27, 28 and 29. There is the potential to harm or kill individual otters during construction within 10 m of Watercourses 9, 11 12, 41 and 45 and Watercourses 27, 28 and 29. Additionally, night time illumination in the vicinity of Watercourses 9, 11 12, 41 and 45 and Watercourses 27, 28 and 29 has the potential to cause disturbance of otters. Disturbance, injury or killing are afforded High magnitude, resulting in a **Moderate** effect, and as such are considered significant effects and will require further mitigation.

8.7.52 The predicted noise level from construction equipment is expected to be a maximum of 90 dB at a distance of 10 m from the source. The construction area at the boundary of the Power Generation Plant are between approximately 80 m (260

feet) and immediately adjacent to Watercourses 9, 11, 12, 41 45 and the Access Road is immediately adjacent to Watercourses 27, 28 and 29. In general background noise levels at watercourses are around 45 dB and noise dissipates at a rate of 6 dB with the doubling of the distance (in feet). The noise would therefore be 90 dB at the closest point to the watercourses, and would dissipate to being imperceptible at about 40 m away.

8.7.53 The increase in perceptible noise level is likely to be enough to deter otter. However, no evidence of otter was found to be using these areas and any effects will be temporary and localised. Further afield, as the noise level reduces in line with the background level it is likely that otters will not be deterred from using these areas. Otters are known to use noisy areas (for example they are known to cross under busy roads) and will habituate to noise levels over time. Similarly, vibration from construction equipment will be perceptible only in the vicinity of the construction works.

8.7.54 Effects of noise will be temporary and localised. Noise and construction equipment vibration is afforded Low magnitude, resulting in a **Negligible** effect, and as such noise effects are not significant and will not require additional mitigation.

8.7.55 The need for piling, and the type of any piling potentially required is not yet confirmed. Where piling, heavy earthworks, vibratory rollers or other significant vibration producing operations are proposed in close proximity to any existing sensitive receptors, further consideration would be given to potential impacts, once the contractor is appointed and the construction method requirements are developed.

8.7.56 The Gas Connection is near an area suitable for supporting otters (Watercourse 6). Although no recent activity was identified during the survey, it is possible that prior to construction new holts/couches are created or recent activity is present in this area. There is the potential for this to cause disturbance of otters during construction within 100 m of Watercourse 6. There is the potential to harm or kill individual otters during construction within 10 m of Watercourse 6. Additionally, night time illumination and in the vicinity of Watercourse 6 have the potential to disturb otters. Disturbance, injury or killing are afforded High magnitude, resulting in a **Moderate** effect, and as such are considered significant effects and will require further mitigation.

8.7.57 Construction noise and vibration at Watercourse 6 will be imperceptible since it is approximately 90 m (290 feet) from the Gas Connection. Noise and construction equipment vibration at the Gas Connection is afforded Negligible magnitude, and as such noise effects are not significant and will not require additional mitigation.

8.7.58 The Electrical Connection is near areas suitable for supporting otters (Watercourses 27, 28 and 29). Although no recent activity was identified during the survey, it is possible that prior to construction new holts/couches are created or recent activity is present in this area. There is the potential to cause disturbance of otters during construction within 100 m of Watercourses 27, 28 and 29. There is the

potential harm or kill individual otters during construction within 10 m of Watercourses 27, 28 and 29. Disturbance, injury or killing are afforded High magnitude, resulting in a **Moderate** effect, and as such are considered significant effects and will require further mitigation.

8.7.59 The effects of noise and vibration for the Electrical Connection will be the same as for the Access Road. Effects of noise will be temporary and localised. Noise and construction equipment vibration is afforded Low magnitude, resulting in a **Negligible** effect, and as such noise effects are not significant and will not require additional mitigation.

8.7.60 The embedded mitigation with regards to the CEMP, following best practice and guidelines, controlling pollution and runoff, storage of potential pollutants, and precautionary measures will help to limit the likelihood and effects of pollution incidents and/or runoff, and control dust on aquatic habitats with the potential to support otter.

8.7.61 The embedded mitigation measures with regards to lighting and noise seeks to limit impacts on otter.

Brown Hare

8.7.62 The removal of grassland, broadleaved woodland and scrub habitats during construction of the Power Generation Plant and Gas Connection are unlikely to significantly impact local brown hare populations due to the abundance of this habitat type within the Project Site boundary and the wider landscape. Loss of habitat is afforded Low magnitude, resulting in a **Negligible** effect, and as such is not considered a significant effect and will not require further mitigation.

8.7.63 All construction work has the potential to disturb, injure or kill breeding, sheltering and foraging brown hares. Disturbance, injury or killing are afforded Medium magnitude, resulting in a **Minor** effect, and as such are not considered significant effects and will not require further mitigation.

Badger

8.7.64 Currently no construction works impede on badger setts. However, it is possible that prior to construction new setts are created within 30 m of the construction areas. Any works, in particular heavy machinery and ground breaking works, that takes place within 30 m of an active badger sett has the potential to cause a collapse of a sett and disturb, harm or kill a badger. Injury or killing are afforded High magnitude, resulting in a **Moderate** effect, and as such are considered significant effects and will require further mitigation.

8.7.65 The excavation of open trenches to facilitate the Gas Connection may obstruct badgers from commuting across the Project Site and badgers may become trapped in open trenches or excavations. Trapping is afforded High magnitude, resulting in a **Moderate** effect, and is considered a significant effect. As such it will require further mitigation.

8.7.66 Night time illumination in the vicinity of badger setts or foraging areas may deter badgers from using these areas and as such will be avoided. This is deemed to be of **Negligible** magnitude, resulting in a negligible effect, and not a significant effect requiring mitigation.

8.7.67 There is the potential for disturbance of badger during construction due to increased noise. The predicted noise level from construction equipment is expected to be a maximum of 90 dB 10 m from the source. The construction area at the boundary of the Power Generation Plant and Gas Connection is between approximately 100 m (330 feet) and 200 m (655 feet) from the active badger setts, and noise from construction equipment at these setts will be imperceptible.

8.7.68 The Access Road is immediately adjacent to an active badger sett; however, in this area the road is already made and used frequently by various size vehicles and as such it is assumed badgers are habituated to loud noise and road vibration at this sett.

8.7.69 Noise and vibration disturbance is afforded Negligible magnitude, resulting in a **Negligible** effect. This is not considered a significant effect and will not require further mitigation.

8.7.70 Badgers using the Project Site for commuting and foraging are likely to be disturbed in the immediate vicinity of the construction works at night but are likely to habituate to the higher background noise over time. The temporary increase in noise levels is not considered significant enough to deter them from returning. Therefore this effect is considered to be of Negligible magnitude, resulting in a **Negligible** effect. This is not considered a significant effect and will not require further mitigation.

8.7.71 The removal of scrub, woodland edge and grassland habitat during construction of the Power Generation Plant and Gas Connection will reduce the availability of suitable habitat for badgers within the Project Site boundary. However, there is an abundance of suitable habitat within the Site Boundary and wider landscape, and as such the loss of suitable habitat within the Site Boundary is unlikely to have a long term significant effect on badger populations. Loss of habitat is afforded Low magnitude, resulting in a **Negligible** effect; and is therefore not a significant effect and will not require additional mitigation.

Invasive Species

8.7.72 The potential for the construction of the Project to cause the spread of invasive species will be controlled due to the embedded mitigation to implement measures contained in relevant best practice guidance on the control and removal of invasive weed species, resulting in a **Minor adverse** effect; and is therefore not a significant effect and will not require additional mitigation.

b) Operation

i. Statutory Designated Sites

8.7.73 The four statutory designated sites were scoped in for assessment of air quality effects relating to the Power Generation Plant component of the Project only. A Habitat Regulations Assessment Screening exercise was undertaken and report written (Ref. 8.5). The results of the air quality modelling (**Chapter 6: Air Quality**) show that the Project's Process Contribution (PC) of NOx, and consequently the PC of nitrogen deposition and nitrogen acidity deposition are very small and so low as to be effectively zero (less than 0.01 kg/N/ha/yr and less than 0.01 keqH+/ha/yr, respectively). For all sites, the PC does not cause Critical Loads to be exceeded. In the case of Crymlyn Bog SAC and Ramsar site where the Critical Load for nitrogen and nitrogen acid is already in exceedance, the influence of nitrogen and nitrogen acid from the Project is not at a level where it would cause a significant effect. No project or plans were considered to have an in-combination effect with the Project associated with air quality- nitrogen and nitrogen acid deposition, as a result of NO_x emissions from the proposed Project. Effects in relation to air quality are considered **Negligible** and as such are not considered significant and will not require further mitigation.

8.7.74 There is a hydrological link between the Project Site and Carmarthen Bay SAC and Burry Inlet SPA and Ramsar via the Afon Llan. The Afon Llan flows for approximately 12 km before reaching the designated sites. There are springs, with their associated streams and drainage ditches within the Project Site which discharge into the Afon Llan. The Project incorporates welfare facilities which will require a site foul water drainage system. The foul water drainage system will either drain to a septic tank or a package treatment plant within the Project Site but outside any area at risk of flooding. The processed water would then discharge on-site or to a nearby watercourse (the Afon Llan, or a watercourse that links to the Afon Llan. Discharges will not perceptively increase the flow of the Afon Llan. Discharges into to Afon Llan or any other watercourses linking to the Afon Llan will be controlled via various measures as outlined in the embedded mitigation. The embedded mitigation covers drainage and following best practice and guidelines, controlling pollution, storage of potential pollutants, and precautionary measures will help to limit the likelihood and effects of pollution incidents and/or runoff. In line with the drainage strategy the site drainage will include filter drains / swales or oil interceptors as necessary to remove pollutants and all necessary treatment will take place within the Project Site before it is discharged to the existing watercourses. Effects in relation to discharges are considered **Negligible** and as such are not considered significant and will not require further mitigation.

8.7.75 As stated in **Chapter 12: Traffic, Transport and Access** the Project will employ 15 permanent staff in shifts, which will likely generate 30 movements per day (two movements per staff member). A demineralised water trailer and diesel fuel tanker will visit the Project Site periodically. Maintenance periods will occur annually. During these periods, there may be up to 40 additional staff on-site for a period of one month. Based on a vehicle occupancy level of 1.6, this will equate to an

additional 50 movements per day (25 arrivals during the AM peak hour, 25 departures during the PM peak hour). Transport related emissions are most relevant to sites within 200 m of a major road. The Design Manual for Roads and Bridges (DMRB) (Ref. 8.17) identifies 200m as the distance beyond which the contribution of traffic emissions to local pollutant concentrations is considered to be negligible. There are no roads within 200 m of any statutory site that are forecast to receive anything other than a nominal change in vehicle flows as a result of this Project. There are considered to be no effects associated with transport-related emissions generated during operation.

8.7.76 There are considered to be no effects on statutory designated sites in relation to the Gas Connection or Electrical Connection components of the Project due to the distances between the Project and the designated sites and the lack of pathways between the Project and the designated sites.

ii. Non-Statutory Designated Sites

8.7.77 Thirty-four non-statutory designated sites (one Wildlife Trust Reserve, 11 SNCIs and 22 Ancient Woodlands) were scoped in for assessment of air quality effects relating to the Power Generation Plant component of the Project. The results of the air quality modelling (**Chapter 6: Air Quality**) show that the Project's PC of NOx, and consequently the PC of nitrogen deposition and nitrogen acidity deposition are very small (less than 0.01 kg/N/ha/yr and less than 0.01 keqH+/ha/yr, respectively). For all sites, the PC does not cause Critical Loads for the most sensitive habitat type within the site to be exceeded. In the cases where the Critical Loads for nitrogen and nitrogen acidity are already in exceedance, the very slight increase in nitrogen or nitrogen acidity from the Project is not at a level where it would cause a significant effect. Effects in relation to air quality are considered **Negligible** and as such are not considered significant and will not require further mitigation.

8.7.78 Transport related emissions are most relevant to non-statutory designated sites within 200 m of a major road. The DMRB identifies 200 m as the distance beyond which the contribution of traffic emissions to local pollutant concentrations is considered to be negligible. All non-statutory designated sites within 200 m of the Project Site boundary are further than 200 m from a major road. There are deemed to be no effects associated with transport-related emissions generated during operation.

8.7.79 As defined by the IAQM guidance, ecological receptors should be considered within 50m of potential dust sources and 50 m of the routes used by vehicles on the public highway, up to 500 m from the Project Site entrance. The following non-statutory designated sites are present within 500 m of the Project Site entrance: Cefn Forest Steam SNCI, Felindre Grasslands SNCI, Lletty-Morfil SNCI, Ancient Woodland 6, and Ancient Woodland 12. Lletty-Morfil SNCI will be within 50 m of the operation access route. There are no additional non-statutory designated sites within 50 m of the operation access routes or potential dust sources. As stated in **Chapter 12: Traffic, Transport and Access**, the Project will employ 15 permanent staff in shifts, which will likely generate 30 movements per day (two movements per staff

member). A demineralised water trailer and diesel fuel tanker will visit the Project Site periodically. Maintenance periods will occur annually. During these periods, there may be up to 40 additional staff on-site for a period of one month. Based on a vehicle occupancy level of 1.6, this will equate to an additional 50 movements per day (25 arrivals during the AM peak hour, 25 departures during the PM peak hour). Increase to traffic during operation is afforded Low magnitude resulting in a **Minor adverse** effect, and is therefore not a significant effect and will not require additional mitigation.

8.7.80 There are no designated features within the non-statutory designated sites that are sensitive to lighting. Furthermore, embedded mitigation will help to limit light spill outside of the Power Generation Plant, and the Gas Connection and Electrical Connection will not be lit. Operation-related lighting on non-statutory designated sites has not been considered any further.

8.7.81 Runoff and pollution during any operational maintenance or repair works will be controlled and managed in a similar way as during construction. There are deemed to be no significant effects on statutory designated sites in relation to the Gas Connection or Electrical Connection components of the Project.

Middle Llan SNCI, Pant Lasau SNCI and Ancient Woodland 4

8.7.82 The Project incorporates welfare facilities which will require a site foul water drainage system. The foul water drainage system will either drain to a septic tank or a package treatment plant within the Project Site but outside any area at risk of flooding. The processed water would then discharge on-site or to a nearby watercourse (the Afon Llan or a water course connected to the Afon Llan).

8.7.83 There is a hydrological link between the Project Site and Middle Llan SNCI, Pant Lasau SNCI and Ancient Woodland 4 via the Afon Llan. There are springs, with their associated streams and drainage ditches within the Project Site which discharge into the Afon Llan. The Afon Llan flows through each of these sites.

8.7.84 The embedded mitigation covers drainage and following best practice and guidelines, controlling pollution, storage of potential pollutants, and precautionary measures will help to limit the likelihood and effects of pollution incidents and/or runoff. There are considered to be Negligible effects on Middle Llan SNCI, Pant Lasau SNCI and Ancient Woodland 4 as a result of waste water discharges, therefore not significant and no additional mitigation will be required. Habitats

8.7.85 The retained semi-improved neutral grassland, marshy grassland and woodland within the Project Site boundary are sensitive to nitrogen deposition and nitrogen acidity deposition. The results of the air quality modelling (**Chapter 6: Air Quality**) show that the Project's PC of NOx, and consequently the PC of nitrogen deposition and nitrogen acidity deposition are very small (less than 0.01 kg/N/ha/yr and less than 0.01 keqH+/ha/yr, respectively). For all habitats, the PC does not cause Critical Loads to be exceeded. In the cases where the Critical Loads for nitrogen and nitrogen acidity are already in exceedance, the influence of nitrogen or nitrogen acidity from the Project is not at a level where it would cause a significant effect.

Effects in relation to air quality are considered **Negligible** and as such are not considered significant and will not require further mitigation.

8.7.86 The Project incorporates welfare facilities which will require a site foul water drainage system. The foul water drainage system will either drain to a septic tank or a package treatment plant within the Project Site but outside any area at risk of flooding. The processed water would then discharge on-site or to a nearby watercourse. Discharges will not perceptively increase the flow of the watercourse. Discharges will be controlled via various measures as outlined in the embedded mitigation.

8.7.87 The embedded mitigation covers drainage and following best practice and guidelines, controlling pollution, storage of potential pollutants, and precautionary measures will help to limit the likelihood and effects of pollution incidents and/or runoff. In line with the drainage strategy the site drainage will include filter drains / swales or oil interceptors as necessary to remove pollutants and all necessary treatment will take place on the site before it is discharged to the existing watercourses. Effects in relation to discharges are considered **Negligible** and as such are not considered significant and will not require further mitigation.

8.7.88 It is assumed that the potential effects on habitats for any partial underground cable or pipeline replacement or repairs in relation to the Gas Connection or Electrical Connection components of the Project will be the same or similar to those identified during the construction phase of the Project.

8.7.89 There will be no additional effects on habitats during the operational phase of the Project.

iii. Protected or Priority Species

8.7.90 It is assumed that the potential effects on species for any partial underground cable or pipeline replacement or repairs in relation to the Gas Connection or Electrical Connection components of the Project will be the same or similar to those identified during the construction phase of the Project.

8.7.91 Operational external lighting has been designed to reduce trespass and configured to avoid glare and spillage, and otherwise in accordance with the Outline Lighting Strategy (to be provided at DCO Application) undertaken in accordance with the Institution of Lighting Professionals guidelines. The strategy will seek to limit effects of lighting on habitats (and therefore species) adjacent to the Project Site. The administration buildings within the Power Generation Plant will be lit at all times as well the main access gate and footpaths. All other areas of the Power Generation Plant will generally not be lit during the night as lights will be operated by infrared motion detectors. The sensitivity of the infrared motion detectors will be set so as not to be activated by the movement of large mammals such as badgers and otters. The lighting strategy will ensure that all lighting columns will be fitted with cowls to reduce light spill and will be directed away from boundary features. The Gas Connection and Electrical Connection will not be lit.

Invertebrates

8.7.92 Invertebrate species such as moths are very sensitive to lighting and light levels as low as 0.1 lux has been shown to affect invertebrate activity (Ref. 8.18). The embedded mitigation will help to limit light spill outside of the Power Generation Plant. However, some types of lights have spectrums and wavelengths that are attractive to invertebrates. Effects in relation to lighting are deemed to be of Low magnitude, resulting in a **Minor** effect, and as such are not considered a significant and will not require further mitigation.

8.7.93 The Project incorporates welfare facilities which will require a site foul water drainage system. The foul water drainage system will either drain to a septic tank or a package treatment plant within the Project Site but outside any area at risk of flooding. The processed water would then discharge on-site or to a nearby watercourse. There are deemed to be no effects on aquatic invertebrates as a result of waste water discharges.

Amphibians

8.7.94 The Project incorporates welfare facilities which will require a site foul water drainage system. The foul water drainage system will either drain to a septic tank or a package treatment plant within the Project Site but outside any area at risk of flooding. The processed water would then discharge on-site or to a nearby watercourse. There are deemed to be no effects on amphibians as a result of waste water discharges.

Breeding Birds

8.7.95 Lighting can cause disruptions to bird behaviour. However, the embedded mitigation will limit light spill outside of the Project Site boundary and this will help limit the effects on breeding birds. There will be no significant operational effects on breeding birds as a result of lighting.

8.7.96 Operational noise can cause disturbance to birds although the assemblage of species recorded are tolerant of changes in noise and as such will become habituated to noise levels nearby. There will be no significant operational effects on breeding birds as a result of noise.

Reptiles

8.7.97 Reptiles are not considered to be sensitive to disturbance during operation in the form of noise or lighting. There will be no significant operational effects on reptiles as a result of noise or lighting.

8.7.98 Reptiles are sensitive to vibration. Vibration from the operation of the Power Generation Plant is unlikely to be perceivable to reptiles and therefore **Negligible** effects are anticipated, and as such are not considered significant and will not require further mitigation.

8.7.99 There is a risk of direct mortality from the use of the Access Road by operational traffic. However, this is considered to be of Low magnitude given the infrequent traffic envisaged, the numbers of reptiles likely to be moving across the Access Road and the low speed limits in place. This results in a **Minor** effect, and as such is not considered significant and will not require further mitigation.

Bats

8.7.100 There will be an increase in external lighting at the Power Generation Plant during operation. There is currently no external lighting within the majority of the Project Site. Many species of bat are adverse to light, with different species having different tolerances. External lighting can make areas of previous foraging habitat unsuitable and fragment commuting routes. If external lighting for the Power Generation Plant is poorly designed there is potential for a light spill onto hedgerows, tree lines, woodland edges and vegetated areas which will negatively impact on bats, severing commuting routes and impeding access to foraging habitat. Poorly designed lighting also has the potential to affect areas outside the Project Site boundary. The embedded mitigation measures with regards to lighting will limit impacts on surrounding habitats and bats. As such the impact from lighting is afforded Negligible magnitude resulting in a **Minor** effect; this is not considered a significant effect and will not require additional mitigation.

8.7.101 The nearest known bat roost to the Project is approximately 330m (1000 feet) from the Power Generation Plant boundary. Noise dissipates at a rate of 6 dB with the doubling of the distance (in feet). Given the noise during operation will be 55 dB at the Power Generation Plant boundary fence, the noise will be imperceptible at the nearest known bat roost. Similarly, vibration from operation will not be perceptible at this distance. Effects from noise and vibration are afforded Negligible magnitude, resulting in a **Negligible** effect. This is not considered a significant effect and does not require mitigation.

8.7.102 The need for piling, and the type of any piling potentially required is not yet confirmed. Where piling, heavy earthworks, vibratory rollers or other significant vibration producing operations are proposed in close proximity to any existing sensitive receptors, further consideration would be given to potential impacts, once the contractor is appointed and the construction methods requirements are developed.

Badger

8.7.103 The new Access Road has the potential to result in road traffic mortality of badgers. The Project will employ 15 permanent staff in shifts, which will likely generate 30 movements per day (two movements per staff member). A demineralised water trailer and diesel fuel tanker will visit the Project Site periodically. Regular night time access (when badgers are more active) is likely to comprise approximately fifteen one way journeys. Maintenance periods will occur annually. During these periods, there may be up to 40 additional staff on-site for a period of one month. Based on a vehicle occupancy level of 1.6, this will equate to an additional 50 movements per day (25 arrivals during the AM peak hour, 25 departures during the

PM peak hour). A 20 mph speed limit will be in place along the Access Road. This will reduce the likelihood of badger mortality incidents. This impact is considered to be of Low magnitude, resulting in a **Negligible** effect, and is therefore not significant and does not require additional mitigation.

8.7.104 There is the potential to cause disturbance of badger during operation due to increased lighting. The embedded mitigation will help to limit light spill outside of the Power Generation Plant. Effects in relation to lighting are deemed to be of Low magnitude, resulting in a **Negligible** effect, and as such are not considered a significant and will not require further mitigation.

8.7.105 Any new fencing has the potential to inhibit commuting routes across the Project Site. This impact is considered to be of Low magnitude and therefore not significant. However, where possible, measures should be put in place to allow the continued movement of badgers across the Project Site.

8.7.106 There is the potential for disturbance of badger during operation due to increased noise. The background noise as identified in **Chapter 7: Noise and Vibration** within the Project Site ranges from between 17dB (night time noise in an isolated location) and 50dB (day time noise near a road/active farm). The predicted operational noise level from plant is expected to be an average of 50 dB and a maximum of 55 dB at the boundary of the Power Generation Plant. The noise level at the nearest setts (an active annex and active main sett) is expected to be between 40 dB and 50 dB (similar to the noise of a babbling brook or light traffic). It is considered that badgers will habituate to the higher background noise since the area near to the setts will already be subject to sudden loud noises such as agricultural machinery passing nearby and farm workers. Badgers are known to tolerate high levels of noise, setts have been found next to motorways, major roads and railway lines (Ref. 8.20). Noise levels at the other setts are expected to be between 32 dB and 22 dB. This is unlikely to be enough to deter badgers from using these setts. Disturbance at the active annex and active main sett is afforded Low magnitude, resulting in a **Negligible** effect. This is not considered a significant effect and will not require further mitigation.

8.7.107 Badgers using the Project Site for commuting and foraging are likely to be disturbed in the immediate vicinity of the Power Generation Plant during the start-up of the facility only but are likely to habituate to the higher background noise over time and at increased distances from the Power Generation Plant. The increase in noise levels is not considered significant enough to deter them from returning. Therefore this effect is considered to be of Low magnitude, resulting in a **Negligible** effect. This is not considered a significant effect and will not require further mitigation.

8.7.108 There are no additional effects associated with the Electrical Connection or Gas Connection on otters requiring mitigation.

Water Vole

8.7.109 The Power Generation Plant is close to an area suitable for supporting water vole burrows (Watercourse 45). Although no recently occupied burrows were identified during the survey, it is possible that prior to construction new burrows are created in this area.

8.7.110 There is the potential for disturbance of water voles during operation due to increased noise. The predicted operational noise level from plant is expected to be an average of 50 dB and a maximum of 55 dB at the boundary of the Power Generation Plant, which is between approximately 20 m and 80 m from the section of Watercourse 45 suitable for supporting water voles. In general background noise levels at watercourses are around 45 dB. The change in noise level is unlikely to be enough to deter water voles where Watercourse 45 is 20 m from the Power Generation Plant boundary. Further afield, as the noise level reduces in line to the background level it is likely that water voles will not be deterred from using these areas. Given the extremely localised impact, noise is afforded Low magnitude and as such noise effects are not significant and will not require additional mitigation.

8.7.111 The Project incorporates welfare facilities which will require a site foul water drainage system. The foul water drainage system will either drain to a septic tank or a package treatment plant within the Project Site but outside any area at risk of flooding. The processed water would then discharge on-site or to a nearby watercourse. There are considered to be **Negligible** effects on water vole as a result of waste water discharges, therefore not significant and no additional mitigation will be required.

8.7.112 There are no effects associated with the Electrical Connection or Gas Connection on water vole requiring mitigation.

Otter

8.7.113 The new Access Road has the potential to result in road traffic mortality of otters. The Project will employ 15 permanent staff in shifts, which will likely generate 30 movements per day (two movements per staff member). A demineralised water trailer and diesel fuel tanker will visit the Project Site periodically. Regular night time access (when otters are more active) is likely to comprise approximately fifteen one way journeys. Maintenance periods will occur annually. During these periods, there may be up to 40 additional staff on-site for a period of one month. Based on a vehicle occupancy level of 1.6, this will equate to an additional 50 movements per day (25 arrivals during the AM peak hour, 25 departures during the PM peak hour). A 20 mph speed limit will be in place along the Access Road. This will reduce the likelihood of otter mortality incidents. This impact is considered to be of Negligible magnitude, resulting in a **Negligible** effect, and therefore not significant and does not require additional mitigation.

8.7.114 There is the potential for disturbance of otter during operation due to increased lighting. The embedded mitigation will help to limit light spill outside of the Power

Generation Plant. Effects in relation to lighting are considered to be of Low magnitude, resulting in a **Negligible** effect, and as such are not considered a significant and will not require further mitigation.

8.7.115 Any new fencing has the potential to inhibit commuting routes across the Project Site. This impact is considered to be of Low magnitude and therefore not significant. However, where possible, measures should be put in place to allow the continued movement of otters across the Project Site.

8.7.116 There is the potential for disturbance of otter during operation due to increased noise. The predicted operational noise level from plant is expected to be an average of 50 dB and a maximum of 55 dB at the boundary of the Power Generation Plant, which is between 80 m and immediately adjacent to water courses suitable for supporting otter. In general, background noise levels at watercourses are around 45 dB. The change in noise level is unlikely to be enough to deter otter in these areas. Otters have been shown to use areas with high levels of background noise such as under roads, in industrial buildings and close to quarries (Ref. 8.22). Further afield, as the noise level reduces in line to the background level it is likely that otters will not be deterred from using these areas. As otters generally use the site for commuting and foraging the increase in noise levels is not considered significant enough to deter them from returning as they are tolerant of relatively high levels of disturbance (Ref. 8.22) and will resume their previous activity. It is considered that otters will habituate to the higher background noise. Therefore this effect is considered to be of Negligible magnitude, resulting in a **Negligible** effect and therefore not significant and does not require additional mitigation.

8.7.117 The Project incorporates welfare facilities which will require a site foul water drainage system. The foul water drainage system will either drain to a septic tank or a package treatment plant within the Project Site but outside any area at risk of flooding. The processed water would then discharge on-site or to a nearby watercourse. There are considered to be no effects on otter as a result of waste water discharges.

8.7.118 There are no additional effects associated with the Electrical Connection or Gas Connection on otters requiring mitigation.

c) Decommissioning

8.7.119 The detailed decommissioning methodology cannot be finalised until immediately prior to decommissioning, but would be in line with relevant legislation and policy at that time.

8.7.120 The working assumption has been made for the purposes of this assessment that after 25 years, the Generating Equipment would be removed and the Generating Equipment Site re-instated to a similar condition as before construction. Any decommissioning phase would be likely to be of a similar duration to construction i.e. 22 months. However, it should be noted that it is common for power stations to run for a much longer period than 25 years.

8.7.121 A working assumption has been used that the Electrical Connection and Gas Connection would be decommissioned after 25 years. Elements of the Gas Connection and Electrical Connection may be left in situ as this is likely to cause less environmental effects than removal. This would be the case for the Pipeline, for example.

8.8 Mitigation and Monitoring

8.8.1 Additional mitigation measures have been proposed where a significant effect is predicted to occur. Embedded mitigation measures, which have been incorporated within the design of the Project or are standard practice measures that have been committed to are summarised in **Chapter 3: Project and Site Description**.

8.8.2 This section describes the proposed additional mitigation measures for the ecological assessment. Where other additional mitigation is required to reduce or eliminate a significant effect, this is referred to as additional mitigation. Additional mitigation measures have not been incorporated into the design of the Project and are therefore described in this section.

8.8.3 This section also describes any required monitoring regimes, including monitoring of specific receptors/resources, or monitoring the effectiveness of a mitigation measure. The requirements, scope, frequency and duration of a given monitoring regime are set out, as far as possible, in this section.

a) Mitigation

i. During Construction

8.8.4 Throughout the construction mitigation section areas of replacement habitats are referred to. The locations and areas for which are to be decided once the outline landscape plan is prepared and the locations of utilities confirmed. Indicative areas based on the previous layout of the landscaping plans are subject to change. The overall totals are as follows and that the same areas are referred to more than once:

- 0.91 ha of woodland/scrub;
- 5.04 ha of grassland (acid grassland/marshy grassland mosaic);
- 800 m of hedgerow; and,
- Two wildlife ponds.

<u>Lletty-Morfil SNCI</u>

8.8.5 Mitigation for the loss of SNCI habitat (broadleaved semi-natural woodland, dense/continuous scrub and marshy grassland) will include the provision of replacement habitats. An outline landscaping mitigating strategy is presented in Appendix Figure 11.10.

8.8.6 Indicative areas, based on the plan are as follows, although these figures are subject to change:

- 0.91 ha of woodland/scrub;

- 5.04 ha of grassland (acid grassland/marshy grassland mosaic);
- 800 m of hedgerow; and,
- Two wildlife ponds.

Ancient Woodland

8.8.7 Mitigation for the loss of Ancient Woodland habitat (broadleaved semi-natural woodland) will include the provision of replacement habitat, the location and area for which is to be decided once the Outline Landscaping Plan is prepared and the locations of utilities confirmed.

8.8.8 An indicative area, based on the previous layout of the landscaping plans of 0.91 ha of woodland/scrub habitat has been proposed, although this figure is subject to change.

Row of Trees – Broadleaved and Hedgerows – Species-Poor

8.8.9 Loss of rows of trees and hedgerows utilised by wildlife such as commuting and foraging bats, and commuting badgers will be mitigated for through the introduction of linear habitat with similar properties such as hedgerows. This is still under consideration and dialogue is ongoing with National Grid regarding the shared access route and any widening which may be required.

8.8.10 Mitigation measures will be confirmed in the DCO Application but could include that habitats temporarily removed will be reinstated and that mature trees removed may be replaced by standards of the same species or transplanted to a suitable location elsewhere within the Project Site boundary.

Marshy Grassland

8.8.11 Temporarily removed habitats will be reinstated. Mitigation for the loss of marshy grassland habitat will include the provision of replacement habitat, the locations and areas for which are to be decided once the outline landscape plan is prepared and the locations of utilities confirmed. After which, this part of the assessment will be updated for final submission. The indicative area, based on the previous layout of the landscaping plans, is 5.04 ha of grassland (acid grassland/marshy grassland mosaic); however, this area is subject to change.

Standing Water

8.8.12 Mitigation for the loss of standing water habitat will include the provision of replacement habitat, the locations and areas for which are to be decided once the outline landscape plan is prepared and the locations of utilities confirmed. After which, this part of the assessment will be updated for final submission. Provisionally, it has been suggested that two wildlife ponds will be provided as based on the previous layout of the landscaping plans.

Amphibians

8.8.13 Recommendations for reptiles below will help to limit the injury or killing of amphibians.

Reptiles

8.8.14 Mitigation for the loss of habitat suitable for supporting reptiles (dense/continuous scrub and grassland) will include the provision of replacement habitats based on the previous layout of the landscaping plans, the locations and areas for which are to be decided once further investigation on the Water Main and other utilities are confirmed. It is the intention to continue the consultation of likely areas within the Project Site boundary and confirm the required mitigation with the DCO Application. It is likely that any ecological mitigation will be incorporated into the Outline Landscape and Reinstatement Plan to be submitted with the DCO Application.

8.8.15 Indicative areas, based on the previous layout of the landscaping plans are as follows, although these figures are subject to change:

- 0.91 ha of woodland/scrub;
- 5.04 ha of grassland (acid grassland/marshy grassland mosaic);
- 800 m of hedgerow; and,
- Two wildlife ponds.

8.8.16 Based on the positive result from the surveys reptile translocation will be required in areas of suitable habitat with the Project Site boundary that are to be permanently or temporarily lost during construction.

8.8.17 The trapping and translocation programme will be designed following the guidance set out in Herpetofauna Groups of Britain and Ireland 1998 publication (Ref. 8.23).

8.8.18 Due to the 'Good' population of common lizard and the presence of low numbers of grass snakes within the survey area it is recommended that a trapping and translocation programme is undertaken to help protect any reptiles from being injured or killed. The actions involved in the proposed trapping and translocation are outlined below:

- Any construction areas suitable or known to support reptiles, including any routes in and out, areas for site compounds, offices or storage of materials/waste, will be fenced off using suitable fencing (drift or semi-permanent) to limit individuals attempting to enter the site from the adjacent land.
- No construction activities, including pedestrian access will be allowed outside of the fencing in areas of habitat suitable for supporting reptiles.
- A number of refugia (at a density of 50/ha) will be placed within the fenced area to attract reptiles.
- Each day, up to twice a day for a minimum of 60 days an ecologist will check the refugia for the presence of reptiles.
- Any reptiles or amphibians found will be captured for relocation to a pre-determined receptor site (see below).
- After 60 days the trapping can cease once there have been five consecutive days where no reptiles have been found.
- After the fenced area has been cleared of reptiles and prior to soil stripping the vegetation can undergo a process habitat management and hand searches for reptiles

- Supervision of the soil strip during construction work by a suitably qualified ecologist will be required to help protect injury or killing of reptiles.
- Any litter or rubble piles will be removed by hand under the supervision of an ecologist to avoid injuring or killing any reptiles. If the material is too heavy to be removed by hand it can be done so using a mini excavator carefully and slowly removing the material, under the supervision of an ecologist.

8.8.19 The receptor site for the trapped reptiles can be within the Project Site boundary, or alternatively a receptor site can be chosen off-site (within the same county or administrative area). However, there is a deficit of suitable receptor sites within the county and adjacent counties, and the costs associated with sorting and transporting trapped reptiles may be prohibitive.

8.8.20 For either option the receptor site will:

- Have habitat suitable for supporting reptiles (can be made suitable by undertaking habitat management works);
- Not currently support a population of the species of common lizard or support only small numbers of the species but being capable of supporting more given suitable habitat management works;
- Not be subject to planning or other threats in the foreseeable future;
- Be subject to a written, agreed and funded pre- and post-translocation management agreement and monitoring programme.

8.8.21 Any amphibians captured during the reptile trapping programme will be moved to a suitable location within the Project Site boundary.

8.8.22 To reduce the risk of individual reptiles being injured or killed, all works will proceed under a Method Statement agreed with the Local Biodiversity Officer/Country Ecologist prior to works commencing.

8.8.23 The risk of reptiles and the mitigation measures will be included in the site induction package and prior to any site clearance and construction tasks.

8.8.24 Full details will be provided in the Ecological Management Plan to be submitted with the DCO Application.

Breeding Birds

8.8.25 Habitat creation measures relating to the loss of the SNCI, broadleaved woodland, marshy grassland, hedgerows and lines of trees will provide additional areas for breeding birds post construction. Embedded landscape planting will also provide additional habitat for the species assemblage recorded.

Bats

8.8.26 To allow the most appropriate and effective mitigation measures to be determined and will be included in a subsequent CEMP or Ecological Mitigation Plan, the following surveys will be undertaken:

- Building assessments and further bat surveys on Buildings 6, 7 and 8 within the Abergelli Farm between May and September;

- Further to determining the suitability of the mine shaft, static bat detectors may be placed as near to the estimated locations of the mine shaft and adit as is safe to do so during December 2017, and January and February 2018. This will be undertaken with the aim of any bat activity being recorded in these areas, suggesting a nearby hibernation-site but only if the mine workings are declared safe; and;
- Pre-construction checks on trees scheduled for removal for their current bat roost potential with consideration of the seasonal survey timings (May – September).

8.8.27 Based on the current Project design a European Protected Species Licence (EPSL) is not a requirement. However, should the scope of the Project change and/or if further bat roosts are identified a EPSL may be required.

8.8.28 Mitigation for the loss of habitat suitable or supporting bats will include the provision of replacement habitats. Indicative areas, based on the previous layout of the landscaping plans are as follows, although these figures are subject to change:

- 0.91 ha of woodland/scrub;
- 5.04 ha of grassland (acid grassland/marshy grassland mosaic);
- 800m of hedgerow; and,
- Two wildlife ponds.

8.8.29 Maintain connectivity of foraging and commuting habitats by the retention of trees and hedgerows wherever possible and utilising 'brown hedgerows' of brash, to maintain connectivity during construction. For linear features identified as key forging or commuting habitat, where possible the Gas Connection should be installed using drilling to retain feature and connectivity across the Project Site. Embedded mitigation includes the provision of replacement habitats that will benefit foraging and commuting bats.

8.8.30 Night time working with its associated need for additional lighting should be avoided as far as possible within areas near to known roosts. There should be no night time illumination of the hedgerows, woodland or mature tree lines.

Water Vole and Otter

8.8.31 A pre-construction check for water vole burrows, otter holts/couches and activity of both species will be undertaken where construction is present within 100 m of watercourses as identified as suitable for supporting the species during the 2017 field surveys. The check should be undertaken the year before works are due to commence and if the area declared clear, habitat management undertaken to help reduce the quality of the habitats for burrow and holt/couch creation for the period leading up to and for the duration of construction in that area. Additional mitigation may be required as a result of the survey.

Badger

8.8.32 A pre-construction check for badger setts and activity will be undertaken where construction works are within 30 m of suitable habitats for badger sett creation.

8.8.33 Works likely to damage or destroy a badger sett will require a license to close the sett prior to works commencing. The terms of the license may stipulate the requirement for compensatory setts to be created should any main setts be destroyed and/or temporarily closed.

8.8.34 Excavations, if left unfilled overnight, should be covered to avoid badgers and other animals becoming trapped. Sloping escape ramps for badgers should be created by edge profiling trenches/excavations and/or excavations should be fitted with a scaffolding board ramp to allow any trapped animals to exit. Crossing places will be provided across open excavations for the duration of the works on the sections where known badger paths have been identified. Open pipework greater than 150 mm diameter that is left over night will be made secure by either filling in the end of the pipe or covering the end with a solid timber panel or similar.

8.8.35 Night time working with its associated need for additional lighting should be avoided as far as possible within areas near to setts and areas of known activity to reduce disturbance to badger when they are out of their setts and foraging. There should be no night time illumination of the hedgerows, woodland or setts.

8.8.36 The introduction of new woodland, scrub, species-rich grassland and hedgerows will increase opportunities for resting, breeding and foraging badger.

Invasive Species

8.8.37 It is recommend that an invasive species management plan is produced to control and eradicate the invasive species within the Project Site boundary. An updated invasive species survey should be undertaken to accurately assess invasive species and extents within the Project Site boundary prior to the production of the final management plan and/or implementation of control measures.

8.8.38 Details of control and eradication will be provided in the Ecological Management Plan.

ii. During Operation

Protected Species

8.8.39 The mitigation for partial underground cable or pipework replacement or repairs will follow best practice and any intrusive works will only commence after consultation with an ecologist to assess whether there are any impacts associated with the work.

8.8.40 Management of newly created habitats or compensatory features will be detailed in the Ecological Management Plan and will be designed to minimise disturbance or adverse effects on protected and/or priority species, such as avoiding vegetation management during nesting bird season, and cutting grass and scrub within the reptile receptor area to a height of no less than 150 mm.

Bats

8.8.41 The lighting should utilise warm light luminaire such as yellow or amber LED. White LED lamps have a broad spectrum of light with whilst yellow and amber LED lamps each have a specific, narrower spectrum and have peak wavelengths between 590 and 660 nm, which is less attractive to invertebrates. This in turn will reduce the number of bats that will be attracted to feed and be open to predation through increased visibility.

Badger and Otter

8.8.42 Any new fencing along the Access Road will continue to allow the movement of badger across the Project Site through the inclusion of badger/otter gates or large gaps between the bottom of the fence and the ground. Speed limits on the Access Road will be enforced to help reduce the likelihood of any traffic mortalities or collisions.

iii. During Decommissioning

8.8.43 The detailed decommissioning methodology cannot be finalised until immediately prior to decommissioning, works associated with decommissioning would be subject to a separate assessment (likely EcIA) and planning application at that time, and as such appropriate mitigation would be decided upon during that process.

b) Monitoring

8.8.44 Monitoring will be undertaken on any newly created or relocated habitats for at least five years from establishment.

8.8.45 Monitoring will be undertaken for any species with newly created compensatory habitats for at least five years following establishment; for example, artificial badger setts, the reptile receptor site and bat boxes to assess their effectiveness and inform any ongoing management.

8.9 Residual Effects

8.9.1 The following tables (Table 8-17 and Table 8-17) present a summary of the ecological impact assessment. They identify the receptor/s likely to be impacted, the level of effect and, where the effect is deemed to be significant, the tables include the mitigation proposed and the resulting residual effect.

Table 8-17: Ecology summary of effects arising during construction phase

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
Power Generation Plant					
Llety-Morfil SNCI	Habitat loss – there will be a permanent loss of 0.45 ha (1.30%), comprising 0.28 ha of broadleaved semi-natural woodland and 0.17 ha of marshy grassland.	Moderate adverse	Provision of replacement habitats. Indicative areas, based on the previous layout of the landscaping plans are as follows, although these figures are subject to change: • 0.91 ha of woodland/scrub; • 5.04 ha of grassland (acid grassland/marshy grassland mosaic); • 800 m of hedgerow; and, • Two wildlife ponds.	Minor adverse	Not Significant
Broadleaved Woodland – Semi-Natural	Habitat loss – there will be a permanent loss of 0.49 ha.	Minor adverse	None	Minor adverse	Not Significant
Dense/Continuous Scrub	Habitat loss – there will be a permanent loss of 0.01 ha.	Negligible	None	Negligible	Not Significant
Rows of Trees – Broadleaved	Habitat loss – there will be a permanent loss of approximately 500 m and a temporary loss of 140 m for laydown areas.	Moderate adverse	Replacement of features through the introduction of linear habitat with similar properties such as hedgerows. Mature trees will be replaced by standards of the same species or transplanted to a suitable location elsewhere within the Project Site boundary.	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
Standalone Trees	Loss of up to two trees.	Minor adverse	None	Minor adverse	Not Significant
Semi-Improved Neutral Grassland	Habitat loss – there will be a permanent loss of 0.72 ha and a temporary loss of 0.06 ha for laydown areas of semi-improved neutral grassland.	Minor adverse	None	Minor adverse	Not Significant
Marshy Grassland	Habitat loss – there will be a permanent loss of 1.55 ha loss and a temporary loss of 1.98 ha for laydown areas of marshy grassland.	Moderate adverse	Temporarily removed habitats will be reinstated. Mitigation for the loss of marshy grassland habitat will include the provision of replacement habitat. The indicative area, based on the previous layout, is 5.04 ha of grassland (acid grassland/marshy grassland mosaic).	Minor adverse	Not Significant
Running Water	Re-routing and culverting of ditches and streams.	Negligible	None	Negligible	Not Significant
Standing Water	Habitat loss – permanent removal of Ponds 16 and 22.	Moderate adverse	Mitigation for the loss of standing water habitat will include the provision of replacement habitat. Provisionally, it has been suggested that two wildlife ponds will be provided.	Minor adverse	Not Significant
Hedgerows	Habitat loss – there will be a permanent	Moderate adverse	Replacement of features through the introduction of linear habitat with	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	loss of 140 m of species-poor hedgerow.		similar properties such as hedgerows. Mature trees will be replaced by standards of the same species or transplanted to a suitable location elsewhere within the Project Site boundary.		
Invertebrates	Loss of habitat - permanent removal of habitat suitable for supporting a Section 7 listed butterfly, wall, two Nationally Scarce beetles, common species, and Section 7 species of moth and butterfly.	Minor adverse	None	Minor adverse	Not Significant
Amphibians	Permanent partial loss of suitable breeding, foraging and sheltering habitat including two ponds, broadleaved semi-natural woodland and semi-natural neutral grassland.	Moderate adverse	Mitigation for the loss of habitat suitable or supporting amphibians will include the provision of replacement habitats. Indicative areas, based on the previous layout of the landscaping plans are as follows, although these figures are subject to change: 0.91 ha of woodland/scrub; 5.04 ha of grassland (acid grassland/marshy grassland mosaic); 800m of hedgerow; and,	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
			Two wildlife ponds.		
	Potential for injuring or killing of amphibians during habitat removal, trampling and vehicular movements.	Moderate adverse	The mitigation in place for reptiles will help to limit the injury or killing of amphibians.	Minor adverse	Not Significant
Reptiles	Permanent partial loss of suitable breeding, forging and sheltering habitat including three ponds, broadleaved semi-natural woodland and semi-natural neutral grassland.	Moderate adverse	Mitigation for the loss of habitat suitable or supporting reptiles will include the provision of replacement habitats. Indicative areas, based on the previous layout of the landscaping plans are as follows, although these figures are subject to change: 0.91 ha of woodland/scrub; 5.04 ha of grassland (acid grassland/marshy grassland mosaic); 800m of hedgerow; and, Two wildlife ponds.	Minor adverse	Not Significant
	Potential for injuring or killing of reptiles during habitat removal, trampling and vehicular movements.	Moderate adverse	Due to the 'Good' population of common lizard within the survey area a trapping and translocation programme including exclusion fencing will be undertaken to help protect any reptiles from being injured or killed. All works will proceed under a Method Statement agreed with the Local	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
			Biodiversity Officer/Country Ecologist prior to works commencing.		
Breeding Birds	Permanent partial loss of suitable breeding, foraging and sheltering habitat including trees, woodland, hedgerows and scrub.	Minor adverse	None	Minor adverse	Not Significant
	Localised disturbance from night time illumination in winter months.	Minor adverse	None	Minor adverse	Not Significant
	Birds will adapt to localised construction noise.	Minor adverse	None	Minor adverse	Not Significant
Bats	Disturbance to hibernating bats in mine shaft and adit.	Major adverse	During December 2017, and January and February 2018 static bat detectors will be placed as near to the estimated locations of the mine shaft and adit as is safe to do so. This will be done with the aim of any bat activity being recorded in these areas, suggesting a nearby hibernation-site. Results will be used to inform any further mitigation to seek to avoid impacts on hibernating bats.	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	Disturbance, injury or killing of bats in newly formed roosts in trees previously confirmed as not supporting roosting bats during felling.	Major adverse	Pre-construction checks will be undertaken on trees scheduled for removal for their current bat roost potential with consideration of the seasonal survey timings. Results will be used to inform any further mitigation to seek to avoid impacts on roosting bats.	Minor adverse	Not Significant
	Loss of foraging habitat.	Moderate adverse	Mitigation for the loss of habitat suitable or supporting bats will include the provision of replacement habitats. Indicative areas, based on the previous layout of the landscaping plans are as follows, although these figures are subject to change: 0.91 ha of woodland/scrub; 5.04 ha of grassland (acid grassland/marshy grassland mosaic); 800m of hedgerow; and, Two wildlife ponds.	Minor adverse	Not Significant
	Severance of habitat connectivity either side of Access Road.	Moderate adverse	Maintain connectivity of foraging and commuting habitats by the retention of trees and hedgerows wherever possible and utilising 'brown hedgerows' of brash, to maintain connectivity during construction.	Minor adverse	Not significant
	Localised disturbance from	Moderate adverse	Night time working with its associated need for additional lighting should be	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	night time illumination in winter months.		avoided as far as possible within areas near to known roosts. There should be no night time illumination of the hedgerows, woodland or mature tree lines.		
	Noise disturbance on known roosts will be imperceptible.	Negligible	None	Negligible	Not Significant
Water Vole	There is the potential cause disturbance of, harm or kill individual water voles during construction within 10 m of Watercourse 45.	Moderate adverse	A pre-construction check for water vole burrows and activity of will be undertaken where construction is present within 100 m of watercourses as identified as suitable for supporting the species during the 2017 field surveys. Habitat management will be undertaken to help reduce the quality of the habitats for burrow creation for the period leading up to and for the duration of construction in that area. Additional mitigation may be required as a result of the survey.	Minor adverse	Not Significant
	Noise – water voles will adapt to noise and effects will be temporary.	Negligible	None	Negligible	Not Significant
Otter	There is the potential harm or kill individual otters	Moderate adverse	A pre-construction check for otter holts/couches and activity of will be undertaken where construction is	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	during construction within 10 m of Watercourses 9, 11 12, 41 and 45 and Watercourses 27, 28 and 29.		present within 100 m of watercourses as identified as suitable for supporting the species during the 2017 field surveys. Habitat management will be undertaken to help reduce the quality of the habitats for holt/couch creation for the period leading up to and for the duration of construction in that area.		
	Noise – otters will adapt to noise and effects will be temporary.	Negligible	None	Negligible	Not Significant
Brown Hare	Partial loss of suitable breeding, foraging and sheltering habitat including grassland, broadleaved woodland and scrub.	Negligible	None	Negligible	Not Significant
	There is the potential cause disturbance of, harm or kill individual brown hares during construction.	Minor adverse	None	Minor adverse	Not Significant
Badger	There is the potential harm or	Moderate adverse	A pre-construction check for badger setts and activity will be undertaken	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	kill individual badgers during construction within 30 m of a sett.		where construction works are within 30 m of suitable habitats for badger sett creation. Additional mitigation may be required as a result of the survey.		
	Permanent partial loss of suitable breeding, foraging and sheltering habitat including woodland, hedgerows, scrub and grassland.	Minor adverse	The introduction of new woodland, scrub, species-rich grassland and hedgerows will increase opportunities for resting, breeding and foraging badger.	Minor adverse	Not Significant
	Night time illumination in the vicinity of badger setts or foraging areas may deter badgers from using these areas and as such will be avoided.	Negligible	None	Negligible	Not Significant
	There is the potential for disturbance of badger during construction due to increased noise. Noise from	Negligible	None	Negligible	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	construction equipment at nearby setts will be imperceptible.				
	Badgers using the Project Site for commuting and foraging are likely to be disturbed in the immediate vicinity of the construction works at night time but are likely to habituate to the higher background noise over time.	Negligible	None	Negligible	Not Significant
Invasive Species	Potential for the construction of the Project to cause the spread of invasive species will be reduced due to the embedded mitigation to implement measures contained in relevant best practice guidance	Minor adverse	Recommend management plan is produced to control and eradicate the invasive species within the Project Site boundary. An updated invasive species survey should be undertaken to accurately assess invasive species and extents within the Project Site boundary.	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	on the control and removal of invasive weed species.				
Gas Connection					
Dense/Continuous Scrub	Habitat loss – there will be a temporary loss of 0.02 ha	Minor adverse	None	Minor adverse	Not Significant
Rows of Trees – Broadleaved	Habitat loss – there will be a temporary loss of 350 m.	Moderate adverse	Temporarily removed habitats will be reinstated. Mature trees will be replaced by standards of the same species or transplanted to a suitable location elsewhere within the Project Site boundary.	Minor adverse	Not Significant
Standalone Trees	Loss of up to two trees.	Minor adverse	None	Minor adverse	Not Significant
Semi-Improved Neutral Grassland	Habitat loss – there will be a temporary loss of 1.02 ha of semi-improved neutral grassland.	Minor adverse	None	Minor adverse	Not Significant
Marshy Grassland	Habitat loss – there will be a temporary loss of 0.01 ha of marshy grassland.	Minor adverse	Temporarily removed habitats will be reinstated. Mitigation for the loss of marshy grassland habitat will include the provision of replacement habitat. The indicative area, based on the previous layout, is 5.04 ha of grassland (acid grassland/marshy grassland mosaic).	Negligible	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
Standing Water	Habitat loss – temporary removal of Pond 23.	Moderate adverse	Mitigation for the loss of standing water habitat will include the provision of replacement habitat. Provisionally, it has been suggested that two wildlife ponds will be provided.	Minor adverse	Not Significant
Hedgerows	Habitat loss – there will be a temporary loss 180 m of species-poor hedgerow.	Moderate adverse	Temporarily removed habitats will be reinstated. Mature trees will be replaced by standards of the same species or transplanted to a suitable location elsewhere within the Project Site boundary.	Minor adverse	Not Significant
Invertebrates	Loss of habitat - temporary removal of habitat suitable for supporting the Section 7 listed butterfly, common species, and Section 7 species of moth and butterfly. Habitats will be reinstated after works are complete.	Minor adverse	None	Minor adverse	Not Significant
Amphibians	Temporary loss of suitable breeding, foraging and sheltering habitat	Moderate adverse	Mitigation for the loss of habitat suitable or supporting amphibians will include the provision of replacement habitats. Indicative areas, based on the	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	including a pond (may be possible to avoid), scrub, semi-improved neutral grassland, marshy grassland, rows of trees and species-poor hedgerows. Habitats will be reinstated once works are complete.		previous layout of the landscaping plans are as follows, although these figures are subject to change: 0.91 ha of woodland/scrub; 5.04 ha of grassland (acid grassland/marshy grassland mosaic); 800m of hedgerow; and, Two wildlife ponds.		
	Potential for injuring or killing of amphibians during habitat removal, trampling and vehicular movements.	Moderate adverse	The mitigation in place for reptiles will help to limit the injury or killing of amphibians.	Minor adverse	Not Significant
Reptiles	Temporary loss of suitable breeding, foraging and sheltering habitat including scrub, semi-improved neutral grassland, marshy grassland and species-poor hedgerows.	Minor adverse	None	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	Habitats will be reinstated once works are complete.				
	Although the works are temporary in this area, the loss of standing water (may be possible to avoid) and mature rows of trees must be considered permanent due to the time required for mature trees to grow and the change in ground conditions making it unlikely for the pond to reform without human intervention.	Moderate adverse	Mitigation for the loss of habitat suitable or supporting reptiles will include the provision of replacement habitats. Indicative areas, based on the previous layout of the landscaping plans are as follows, although these figures are subject to change: 0.91 ha of woodland/scrub; and, Two wildlife ponds.	Minor adverse	Not Significant
	Potential for injuring or killing of reptiles during habitat removal, trampling and vehicular movements.	Moderate adverse	Due to the 'Good' population of common lizard within the survey area a trapping and translocation programme including exclusion fencing will be undertaken to help protect any reptiles from being injured or killed. All works will proceed under a Method Statement agreed with the Local	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
			Biodiversity Officer/Country Ecologist prior to works commencing.		
Breeding Birds	Temporary removal of habitat with the potential to support breeding birds (trees, woodland, hedgerows and scrub). Habitats will be reinstated once works are complete.	Minor adverse	None	Minor adverse	Not Significant
	Localised disturbance from night time illumination in winter months.	Minor adverse	None	Minor adverse	Not Significant
	Noise generated during construction. Birds will adapt to localised construction noise.	Minor adverse	None	Minor adverse	Not Significant
Bats	Disturbance, injury or killing of bats in newly formed roosts in trees previously confirmed as not	Major adverse	Pre-construction checks will be undertaken on trees scheduled for removal for their current bat roost potential with consideration of the seasonal survey timings. Results will be used to inform any further mitigation	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	supporting roosting bats during felling.		to seek to avoid impacts on roosting bats.		
	Disturbance to hibernating bats in adit.	Major adverse	During December, January and February 2017 static bat detectors will be placed as near to the estimated locations of the adit as is safe to do so. This will be done with the aim of any bat activity being recorded in these areas, suggesting a nearby hibernation site. Results will be used to inform any further mitigation to seek to avoid impacts on hibernating bats.	Minor adverse	Not Significant
	Disturbance to roosting bats in Buildings 6, 7 & 8.	Major adverse	Building assessments and further bat surveys will be undertaken on Buildings 6, 7 and 8. Results will be used to inform any further mitigation to seek to avoid impacts on roosting bats.	Minor adverse	Not Significant
	Loss of foraging habitat.	Minor adverse	None	Minor adverse	Not Significant
	Severance of habitat connectivity through removal of hedgerows and tree lines.	Moderate adverse	Maintain connectivity of foraging and commuting habitats by the retention of trees and hedgerows wherever possible and utilising 'brown hedgerows' of brash, to maintain connectivity during construction. For linear features identified as key forging or commuting habitat, where possible the Gas Connection should be installed using drilling to retain feature and	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
			connectivity across the Project Site.		
	Localised disturbance from night time illumination in winter months are limited due to the embedded mitigation in the lighting plan.	Minor adverse	Night time working with its associated need for additional lighting should be avoided as far as possible within areas near to known roosts. There should be no night time illumination of the hedgerows, woodland or mature tree lines.	Minor adverse	Not Significant
	Noise disturbance on known roosts will be imperceptible.	Negligible	None	Negligible	Not Significant
Otter	There is the potential harm or kill individual otters during construction within 10 m of Watercourse 6.	Moderate adverse	A pre-construction check for otter holts/couches and activity of will be undertaken where construction is present within 100 m of watercourses as identified as suitable for supporting the species during the 2017 field surveys. Further mitigation measures may be required if activity is found. Habitat management will be undertaken to help reduce the quality of the habitats for holt/couch creation for the period leading up to and for the duration of construction in that area. Additional mitigation may be required as a result of the survey.	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	Noise – otters will adapt to noise and effects will be temporary.	Negligible	None	Negligible	Not Significant
Brown Hare	Partial loss of suitable breeding, foraging and sheltering habitat including grassland, broadleaved woodland and scrub.	Negligible	None	Negligible	Not Significant
	There is the potential cause disturbance of, harm or kill individual brown hares during construction.	Minor adverse	None	Minor adverse	Not Significant
Badger	There is the potential harm or kill individual otters during construction within 30 m of a sett.	Moderate adverse	A pre-construction check for badger setts and activity will be undertaken where construction works are within 30 m of suitable habitats for badger sett creation. Additional mitigation may be required as a result of the survey.	Minor adverse	Not Significant
	Trapping of badgers in open	Moderate adverse	Sloping escape ramps for badgers should be created by edge profiling	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	excavations and obstructing the movement of badger across the Project Site.		trenches/excavations and/or excavations should be fitted with a scaffolding board ramp to allow any trapped animals to exit. Crossing places will be provided across open excavations for the duration of the works on the sections where known badger paths have been identified. Open pipework greater than 150 mm diameter that is left over night will be made secure by either filling in the end of the pipe or covering the end with a solid timber panel or similar.		
	Night time illumination in the vicinity of badger setts or foraging areas may deter badgers from using these areas and as such will be avoided.	Negligible	None	Negligible	Not Significant
	There is the potential for disturbance of badger during construction due to increased noise and vibration. Noise and vibration	Negligible	None	Negligible	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	from construction equipment at nearby setts will be imperceptible. For some setts badgers will already be habituated to road noise and vibration.				
	Badgers using the Project Site for commuting and foraging are likely to be disturbed in the immediate vicinity of the construction works at night time but are likely to habituate to the higher background noise over time.	Negligible	None	Negligible	Not Significant
Invasive Species	Potential for the construction of the Project to cause the spread of invasive species will be reduced due to the embedded mitigation to implement	Minor adverse	Recommend management plan is produced to control and eradicate the invasive species within the Project Site boundary. An updated invasive species survey will be undertaken to accurately assess invasive species and extents within the Project Site boundary prior to the production of the final management plan and/or	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	measures contained in relevant best practice guidance on the control and removal of invasive weed species.		implementation of control measures.		
Electrical Connection					
Breeding Birds	Localised disturbance from night time illumination in winter months.	Minor adverse	None	Minor adverse	Not Significant
	Birds will adapt to localised construction noise.	Minor adverse	None	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
Otter	There is the potential harm or kill individual otters during construction within 10 m of Watercourses 27, 28 and 29.	Moderate adverse	A pre-construction check for otter holts/couches and activity of will be undertaken where construction is present within 100 m of watercourses as identified as suitable for supporting the species during the 2017 field surveys. Habitat management will be undertaken to help reduce the quality of the habitats for holt/couch creation for the period leading up to and for the duration of construction in that area. Additional mitigation may be required as a result of the survey.	Minor adverse	Not Significant
	Noise – otters will adapt to noise and effects will be temporary.	Negligible	None	Negligible	Not Significant

Table 8-18: Ecology summary of effects arising during operational phase

Receptor	Description of Effect	Classification of Effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
Power Generation Plant					
Invertebrates	Effects from operation lighting.	Minor adverse	None	Minor adverse	Not Significant
Reptiles	Vibration from the operation of the Power Generation Plant will be limited to the immediate area and as such will only deter reptiles from a localised area.	Negligible	None	Negligible	Not Significant
	Risk of direct mortality from the use of the Access Road by operational traffic.	Minor adverse	None	Minor adverse	Not Significant
Bats	Noise disturbance on known roosts will be imperceptible.	Negligible	None	Negligible	Not Significant
	Disturbance from lighting emitted from the Power Generation Plant. Embedded mitigation will limit light spill onto ecologically sensitive features.	Minor adverse	The lighting should utilise warm light luminaire such as yellow or amber LED. White LED lamps have a broad spectrum of light with whilst yellow and amber LED lamps each have a specific, narrower spectrum and have peak	Minor adverse	Not Significant

Receptor	Description of Effect	Classification of Effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
			wavelengths between 590 and 660 nm, which is less attractive to invertebrates. This in turn will reduce the number of bats that will be attracted to feed and be open to predation through increased visibility.		
Badger	Road traffic mortality along Access Road. However, there will be a low speed limit and traffic counts when otters are most active.	Negligible	None	Negligible	Not Significant
	New fencing inhibiting the movement of otter across the Project Site.	Negligible	Where possible, any new fencing will continue to allow the movement of otter across the Project Site.	Negligible	Not Significant
	Night time illumination in the vicinity of badger setts or foraging areas may deter badgers from using these areas and as such will be avoided.	Negligible	None	Negligible	Not Significant
	There is the potential for disturbance of badger during operation due to	Negligible	None	Negligible	Not Significant

Receptor	Description of Effect	Classification of Effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	increased noise and vibration. Noise and vibration from operation at nearby setts will be low and badgers will become habituated to the noise. Vibration will be imperceptible. For some setts badgers will already be habituated to road noise and vibration.				
	Badgers using the Project Site for commuting and foraging are likely to be disturbed in the immediate vicinity of the Power Generation Plant at night time but are likely to habituate to the higher background noise over time.	Negligible	None	Negligible	Not Significant
Water Vole	Noise will be localised and water voles will adapt to the noise.	Negligible	None	Negligible	Not Significant
	No effects on aquatic species from treated waste water.	Negligible	None	Negligible	Not Significant
Otter	Road traffic mortality along Access Road. However, there will be a	Negligible	None	Negligible	Not Significant

Receptor	Description of Effect	Classification of Effect	Additional Mitigation	Classification of Residual Effect	Significant / Not Significant
	low speed limit and traffic counts when otters are most active.				
	New fencing inhibiting the movement of otter across the Project Site.	Negligible	Where possible, any new fencing will continue to allow the movement of otter across the Project Site.	Negligible	Not Significant
	Noise – otters will adapt to noise and effects will be localised.	Negligible	None	Negligible	Not Significant
	No effects on aquatic species from treated waste water.	Negligible	None	Negligible	Not Significant

a) Project 'inter effects'

8.9.2 The predicted effects of the Project upon receptors to air quality are limited to those assets listed in Table 8-17 and Table 8-18, and as such no significant impacts are predicted from the Project.

8.10 Cumulative Effects

a) Assessment of Potential Cumulative Effects – Construction and Demolition

i. Description of baseline where cumulative impacts expected

8.10.1 The assessment of residual effects identified that the implementation of the Project would have no significant effects once mitigation measures have been fully implemented. The assessment of cumulative effects relies upon there being a perceptible effect as a result of the project being considered in order for this to be significant in combination with other projects. It is therefore considered that there is no potential for cumulative impacts on ecological receptors as a result of operation of the Project in combination with the identified other projects.

8.10.2 No further mitigation will be required.

b) Assessment of Potential Cumulative Effects – Operation

i. Description of baseline where cumulative effects expected

8.10.3 It is considered that there is no potential for cumulative impacts on ecological receptors as a result of operation of the Project in combination with the identified other schemes as all residual effects were considered not to be significant.

8.10.4 No further mitigation will be required.

8.11 Conclusions and Next Steps

8.11.1 This chapter has identified ecological designated sites, habitats, species or ecosystems which may be affected by the Project and assessed the likelihood of significant effects.

8.11.2 No residual significant effects have been identified for each component of the Project, or the Project as whole due to the embedded mitigation inherent within the design but also the application of additional mitigation where required.

8.11.3 The following surveys are ongoing and will be undertaken in 2018:

- Hedgerow survey in April 2018;
- Ongoing bat activity surveys in April and May 2018; and
- Breeding bird survey in March / April 2018;

8.11.4 Where possible the survey results will be provided in the DCO Application, or follow soon after submission. Any delayed results are not expected to materially change the impact assessment results. It is also intended to continue liaison with CCS and

NRW regarding the ecological mitigation required for reptiles and other species present onsite.

8.12 References

Ref. 8.1 Department of Energy and Climate Change (July 2011) Overarching National Policy Statement for Energy (EN-1) - https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/37046/1938-overarching-nps-for-energy-en1.pdf

Ref. 8.2 Chartered Institute of Ecology and Environmental Management (CIEEM) (2016). Guidelines for Ecological Impact Assessment in the UK and Ireland; Terrestrial, Freshwater and Coastal. Second Edition. January 2016.

Ref. 8.3 Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed). The Bat Conservation Trust, London.

Ref. 8.4 Chartered Institute of Ecology and Environmental Management (CIEEM) (2013). Guidelines for Preliminary Ecological Appraisal April 2016.

Ref. 8.5 AECOM (2017). Abergelli Power Station Preliminary Ecological Appraisal Abergelli Power Limited May 2017.

Ref. 8.6 Joint Nature Conservation Committee (2010 Ed.). Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit. JNCC. Peterborough

Ref. 8.7 English Nature (August 2001). Great Crested Newt Mitigation Guidelines. English Nature

Ref. 8.8 Froglife (1999). Advice Sheet 10 – Reptile Survey. An Introduction to planning, conducting and interpreting surveys for snake and lizard conservation.

Ref. 8.9 Gent, T. and Gibson, S. (2003). Herpetofauna Workers' Manual. JNCC, Peterborough.

Ref. 8.10 Hundt, L. (2012) Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust.

Ref. 8.11 Bright, P., Morris, P. and Mitchell-Jones, A. (2006). Dormouse Conservation Handbook Second Edition. English Nature, Peterborough.

Ref. 8.12 Chanin P (2003). Monitoring the Otter Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough.

Ref. 8.13 Dean, M.,Strachan, R., Gow, D. and Andres, R. (2016). The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.

Ref. 8.14 Harris, S., Cresswell, P. and Jefferies, D. (1991). Surveying Badgers. Occasional Publication No.9. The Mammal Society, London.

Ref. 8.15 Common Bird Census (CBC) (Marchant, 1983; Bibby et al. 1992.

Ref. 8.16 IAQM (2012). Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites. IAQM, London.

Ref. 8.17 DMRB (2007). Design Manual for Roads and Bridges, Volume 11 Environmental Assessment, Section 3 Environmental Assessment Techniques, Part 1 HA 207/07, Air Quality (May 2007).

Ref. 8.18 Institution of Lighting Professionals' Guidance Notes for the Reduction of Obstructive Light (2011)

Ref. 8.19 AECOM (2017). Abergelli Power Project No Significant Effects Report.

Ref. 8.20 C J Wilson and R G Byrnes (1996). The Management of Problems Involving Badgers (Meles meles). Protection of Badgers Act 1992 licensing cases dealt with on behalf of the Ministry of Agriculture, Fisheries and Food in England from 1992 to 1996. A report by the Farming and Rural Conservation Agency on behalf of the Ministry of Agriculture, Fisheries and Food.

Ref. 8.21 Bruce-White, C. and Shardlow, M. (2011). A Review of the Impact of Artificial Light on Invertebrates; Buglife – The Invertebrate Conservation Trust

Ref. 8.22 Chanin, P. (2003). Ecology of the European Otter (Lutra lutra) Conserving Natura 2000 Rivers Ecology Series No. 10.

Ref. 8.23 Herpetofauna Groups of Britain and Ireland (HGBI) (1998). Evaluating local mitigation/translocation programmes: Maintaining Best Practice and lawful standards. HGBI advisory notes for Amphibian and Reptile Groups (ARGs).