The Abergelli Power Gas Fired Generating Station Order

5.5 No Significant Effects Report

Planning Act 2008
The Infrastructure Planning
(Applications: Prescribed Forms and Procedure) Regulations 2009

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1. No Significant Effects Report

1.1 Introduction

a) Background

1.1.1 This report represents a Habitats Regulations Assessment (HRA) Screening Document prepared as part of the Environmental Impact Assessment for Abergelli Power Project (hereafter referred to as the 'Project).

1.1.2 The report is designed to serve two key functions:

- To assist Abergelli Power Limited (APL, hereafter referred to as the Applicant) by making it easier to undertake and consult on a Habitat Regulations Assessment; and,
- To act as a confirmatory checklist that can be used to ensure that the relevant information needed for a Habitats Regulations Assessment has been undertaken.

b) The Habitats Directive and Habitat Regulations

1.1.3 The need for an assessment of impacts on Natura 2000 sites (the collective name for European designated sites, including Special Protection Areas (SPA) and Special Areas of Conservation (SAC)) is set out within Article 6 of the Habitats Directive, and transposed into UK law by the Habitats Regulations. The ultimate aim of the Habitats Directive 1992 is to "maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest" (Article 2(2)). This aim relates to habitats and species, not the European Sites themselves, although the European Sites have a significant role in delivering favourable conservation status.

1.1.4 It is a requirement of the Habitats Directive 1992 and the Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations' (Plate 1.1)) that plans and projects are subject to 'Appropriate Assessment' if it is likely that they will lead to significant adverse effects on a Natura 2000 site, either alone or in combination with other plans or projects. It is the duty of the competent authority (the Secretary of State in relation to the Project) to make the determination as to whether significant adverse effects are likely and, if necessary, to then undertake the Appropriate Assessment. The promoter of the Project can be asked to supply information to inform those assessments and decisions.

1.1.5 The Habitats Directive applies the precautionary principle to European Sites. Consent should only be granted for plans and projects once the relevant competent authority has ascertained either that no likely significant effects will arise or (through the Appropriate Assessment) that there will be no adverse effect on the integrity of the European Site(s) in question. Where an appropriate assessment has been carried out and results in an assessment of adverse effects on integrity, or if uncertainty remains, consent must only be granted if there are no alternative

solutions and there are imperative reasons of over-riding public interest (IROPI) for the development, and compensatory measures have been secured.

1.1.6 Throughout this report, the term 'Habitat Regulations Assessment' is used to refer to the overall procedure required by the Habitat Regulations, as described above.

1.1.7 All the European sites referenced in this document are shown in Figure 1.

Plate 1.1: The legislative basis for Appropriate Assessment

Habitats Directive 1992

Article 6 (3) states that:

"*Any plan of project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives."*

Conservation of Habitats and Species Regulations 2017

Regulation 63 states that:

"*A competent authority, before deciding to … give any consent for a plan or project which is likely to have a significant effect on a European site … must make an appropriate assessment of the implications… for that site in view of that site's conservation objectives… The competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site".*

1.1.8 This report has been prepared having regard to all relevant case law relating to the Habitats Regulations – in particular, the recent European Court of Justice case of People Over Wind, Peter Sweetman v Coillte Teoranta (C-323/17) has been taken into account as it directly concerns the approach to screening under the Habitats Regulations (the stage prior to appropriate assessment).

1.1.9 The case held that "it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site" (paragraph 40). This establishes that 'mitigation measures' cannot be taken into account at the screening stage, but it is important to note that not all mitigation measures are excluded from consideration – only those "intended to avoid or reduce the harmful effects of the… project *on that site*" (emphasis added). Mitigation measures which are (for example) intended to avoid effects on a local watercourse and which is not part of the European site, can be taken into account.

1.1.10 Where mitigation measures are mentioned in this report, they are therefore ones which may reduce or avoid harmful effects on certain (local) habitats or species, but they are not relied on to avoid or reduce harmful effects on the European sites discussed below. Such measures will, at most, ensure that a conclusion of no LSE in respect of a European site reached separately, is confirmed.

1.1.11 Preparation of this report has involved reference to Planning Inspectorate Advice Note Ten: Habitat Regulations Assessment relevant to Nationally Significant Infrastructure Projects (November 2017).

1.1.12 PINS Advice Note Ten requires an evaluation of the potential for the Project to require other consents which could also require Habitats Regulations Assessment by different competent authorities, and a statement as to whether the DCO boundary of the project overlaps with devolved administrations or other European Economic Area (EEA) States.

1.1.13 It is confirmed that the DCO boundary of the project does not overlap with areas of devolved administrations or with those of other EEA States.

1.1.14 The following competent authorities will need to conduct an HRA:

- the Secretary of State, in relation to the DCO application; and,
- Natural Resources Wales (NRW), in relation to the environmental permit application.

c) Project Description

1.1.15 The Project Site is approximately 30.66ha and is located near to the village of Felindre, Swansea (see Figure 1). The Project development proposals are for a proposed 299MW Open Cycle Gas Turbine (OCGT) power station. The Project comprises the following principal elements:

- A new Power Generation Plant;
- A new Electrical Connection; and,
- A new Gas Connection.

1.1.16 The Power Generation Plant, Gas Connection and Electrical Connection together with their construction access/laydown and future maintenance access/laydown requirements are referred to as the Project.

1.1.17 A detailed description of the Project is provided in Chapter 3 of the Environmental Statement (ES) (Ref. 1.1). A summary is provided in Table 1-1 below.

Table 1-1: Project Components

Project Component	Description	Consenting Route
Power Generation Plant	An Open Cycle Gas Turbine (OCGT) peaking power generating station, fuelled by natural gas and capable of providing a rated electrical output of up to 299 Megawatts (MW). The Power Generation Plant comprises: • Generating equipment including one Gas Turbine Generator with one exhaust gas flue stack and	*Development Consent Order (DCO) pursuant to the Planning Act 2008*

Project Component	Description	Consenting Route
	Balance of Plant (BOP) (together referred to as the 'Generating Equipment') which are located within the 'Generating Equipment Site'; • An Access Road to the Project Site from the B4489 which lies to the west, formed by upgrading an existing access road between the B4489 junction and the Swansea North Substation (the Substation) and constructing a new section of access road from the Substation to the Generating Equipment Site; and • A temporary construction compound for the storage of materials, plant and equipment as well as containing site accommodation and welfare facilities, temporary car parking and temporary fencing (the Laydown Area. A small area within the Laydown Area will be retained permanently (the Maintenance Compound). • Ecological Mitigation Area – area for ecological enhancement within the Project Boundary. • Permanent parking and drainage to include: a site foul, oily water and surface water drainage system.	
Gas Connection	The Gas Connection will be in the form of a new above ground installation (AGI) and underground gas connection (the Gas Pipeline). This is to bring natural gas to the Generating Equipment from the National Transmission System. The Gas Pipeline will follow an approximate north-south route corridor, between the National Gas Transmission System south of Rhyd-y-pandy Road and the Generating	*The Gas Connection will be consented through the Town and County Planning Act (TCPA) and is not part of the DCO Application. Though this Project element is not part of the DCO Application, APL is likely to seek powers of compulsory acquisition over the land required for the Gas Connection.*

Project Component	Description	Consenting Route
	Equipment Site.	
Electrical Connection	This is an underground electrical cable to export power from the Generating Equipment to the National Grid Electricity Transmission System (NETS).	*The Electrical Connection will be consented through Permitted Development and is not part of the DCO Application. Though this Project element is not part of the DCO Application, APL is likely to seek powers of compulsory acquisition over the land required for the Electrical Connection.*

1.1.18 Table 1-2 provides indicative maximum and minimum dimensions for the main plant items which will be present at the Generating Equipment Site. The ground level at the Generating Equipment Site will be approximately 90 m AOD and the heights in Table 1-2 are measured from this level.

Table 1-2: Parameters for Assessment

Building or Structure	Maximum Height (m)	Minimum Height (m)	Maximum Length (m)	Maximum Width (m)
Gas turbine generator (including gas turbine, generator, air inlet filter house, air inlet duct, exhaust diffuser, and auxiliaries such as lube oil system, air dryers, fuel gas filter package, instrument air system, compressor washing)	27	-	50	40
Exhaust gas emission flue stack	45	35	-	12
Control room/office/ workshop	7	-	45	25
Emergency Generator	6	-	13	5
Gas receiving station (including compression station, emergency generator, Joule-Thompson boilers and other auxiliary control cabinets))	10	-	70	50
Gatehouse	4.5	-	9	8
Demineralised water tank	7	-	7	7
Fire water tank	15	-	15	15
Above ground installation (AGI)	3	-	85	35
Minimum offtake connection (MOC)	3	-	35	30
Gas Pipeline inspection gauge facility	3	-	35	35
Fin Fan Coolers	10	-	28	14
Transformer compound (including generator step up transformer, unit and other transformers, connection to underground cable and associated equipment.)	15	-	65	60

1.1.19 The need and alternatives for the Project are discussed in detail Chapter 5 Alternatives Considered of the ES (Ref. 1.1).

1.1.20 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.

1.1.21 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; below ground structures would remain in situ so as to avoid unnecessary disturbance of above ground habitats and/or species. Any decommissioning phase would be likely to be of a similar duration to construction i.e. 22 months.

1.1.22 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 Gas Pipeline, for example.

1.2 Designated Sites Scoped into HRA Screening

1.2.1 Table 1-3, Table 1-4 and Table 1-5 provide a description of all the Natura 2000 sites within 10km of the Power Generation Plant and which are scoped into the HRA Screening. The tables set out the distance of the relevant Natura 2000 site from the proposed stack, and justification for inclusion in the HRA Screening. This approach is in line with the consultation response received from NRW (email dated 13 September 2017).

Table 1-3: Crymlyn Bog SAC and Ramsar

Summary of Designating Features	Justification for Inclusion in HRA Screening
Crymlyn Bog SAC and Ramsar **6.7km south-east** Crymlyn Bog, which covers approximately 299ha, comprises floodplain-valley mire located within a lowland coastal context and is the most extensive wetland of its type in Wales. The mire features a complex mosaic of vegetation types, supporting examples of swamp, tall herb fen, fen meadow and carr communities. The site supports an exceptionally wide range of rich and poor fen communities, some of which bear a close floristic affinity to certain floodplain mires in East Anglia. The presence of significant areas of saw sedge (*Cladium mariscus*) swamp is notable in extensive stands of this uncommon vegetation type, occurring at only three other sites in Wales. Crymlyn Bog is part of a larger inter-estuarine complex which includes the adjacent Pant y Sais fen.	
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*).	Supports habitats sensitive to nitrogen and acid deposition.

Summary of Designating Features	Justification for Inclusion in HRA Screening
Ramsar Designated under Ramsar Criterion 1: 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. Designated under Ramsar Criterion 2: 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. Designated under Ramsar Criterion 3: The site supports 199 vascular plant species including 17 regionally-uncommon and one nationally rare.	

Table 1-4: Carmarthen Bay and Estuaries SAC

Summary of Designating Features	Justification for Inclusion in HRA Screening
Carmarthen Bay and Estuaries SAC **7km west** Carmarthen Bay and Estuary is an example of a large estuarine site covering approximately 66,092ha on the south coast of Wales, encompassing the estuaries of the Rivers Loughor, Tâf and Tywi (coastal plain estuaries) and the Gwendraeth (a bar-built estuary). Carmarthen Bay is also an example of an extensive shallow bay which varies considerably in salinity, wave action, tides, and sediment types and therefore has a wide, varied range of flora and fauna associated with each of the zones. The estuary complex includes the sandbank of Helwick Bank, which is a linear shallow subtidal sandbank that is unusual in being highly exposed to wave action and tidal action, as well as several other smaller sandbanks in relatively shallow waters. The site also includes extensive areas of intertidal mudflats and sandflats as well as being a representative of pioneer glass wort (Salicornia spp.) saltmarsh which has a full transition sequence to upper salt-meadow and important sand dune habitats.	
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*	Hydrological connectivity between the Project Site via the Afon Llan and Afon Lliw. Supports habitats sensitive to nitrogen deposition.

Summary of Designating Features	Justification for Inclusion in HRA Screening
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.	

Table 1-5: Burry Inlet SPA and Ramsar

Summary of Designating Features	Justification for Inclusion in HRA Screening
Burry Inlet SPA and Ramsar **8.6km south-west** Burry Inlet is a large estuarine complex covering approximately 6,628ha and 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 (2,200ha). The estuary experiences wide tidal fluctuations (about 8m) which have the consequence of exposing a large extent of intertidal sediments on a 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 (79/409/EEC) 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*	Hydrological connectivity between the Project Site via the Afon Llan and Afon Lliw. Supports habitats sensitive to nitrogen and acidit deposition.

Summary of Designating Features	Justification for Inclusion in HRA Screening
ostralegus, pintail *Anas acuta*, whimbrel *Numenius phaeopus*. **Ramsar** Designated under Ramsar Criterion 5: *Assemblages of international importance.* Species with peak counts in winter: 41655 waterfowl (5 year peak mean 1998/99-2002/2003). Designated under Ramsar Criterion 6: *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 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: • Pintail, *Anas acuta*, NW Europe 2687 individuals, representing an average of 4.4% of the population (5 year peak mean 1998/9 – 2002/3); • Oystercatcher, *Haematopus ostralegus ostralegus*, Europe & NW Africa – wintering 14861 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: • 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).	

1.3 Screening for Likely Significant Effects

a) Identification of Potential Impacts

1.3.1 All potential impacts from all stages of the Project have been considered. The potential pathways from all stages of the Project have been considered but the following pathways have been scoped out due to the design of the project, embedded mitigation detailed in the ES (Ref. 1.1), or the distance between the Project Site and the Natura 2000 sites making the pathway or effect unfeasible:

- Noise – As stated in Chapter 7: Noise and Vibration of the ES, the loudest noise during construction of the Project will be 92 dB at source and operation of the Project 55 dB at the Project Site Boundary. At a distance of over 6 km (for the nearest Natura 2000 site) this will reduce to well below existing ambient levels and will be inaudible. There are no Likely Significant Effect (LSE) on Natura 2000 sites within 10 km associated with noise;
- Vibration – As stated in Chapter 7: Noise and Vibration of the ES, in the absence of specific information on likely construction activities and plant, a qualitative assessment based upon professional judgement has been undertaken. Given the significant distance to residential receptors, this qualitative judgement made is that no significant vibration (medium or high magnitude impacts) is expected to result at residential NSRs from construction and therefore further assessment is scoped out. Given that the nearest Natura 2000 site is over 6 km from the nearest residential receptor it can be concluded that there will be no LSEs on Natura 2000 sites within 10 km during all stages of the Project associated with vibration;
- Construction dust and vehicle movements – Fine particulate in the size range of PM_{10} generated by construction activities and vehicle emissions can travel up to 1 km from a construction site if not adequately controlled, with larger dust particles travelling much shorter distances. The nearest Natura 2000 site is over 6 km away from the Project Site and, as such, there will be no LSEs on any Natura 2000 sites within 10km associated with dust;
- Direct habitat loss or fragmentation – There will be no construction or requirement to remove any habitat within any Natura 2000 site, as such there will be no LSEs on Natura 2000 sites within 10 km associated with direct habitat loss or fragmentation;
- Direct disturbance to species – There will be no construction or requirement to remove any habitat within any Natura 2000 site, as such there will be no LSEs on a Natura 2000 site within 10 km associated with direct disturbance to species;
- Alteration of management – The Project will not cause the alteration of site management actions at any Natura 2000 site within 10 km, as such there will be no LSEs on Natura 2000 sites associated with alteration of management;
- Increase in lighting – The nearest Natura 2000 site is over 6 km from the Project Site and as such light spill will not measurably increase onto Natura 2000 sites within 10 km. There will be no LSEs on Natura 2000 sites within 10 km associated with lighting from the Project. ; and
- Spread of invasive species –There will be no construction within, or requirement to access, any Natura 2000 site. The spread of invasive species into Natura 2000 sites will not be caused by the Project. There will be no LSEs on Natura 2000 sites associated with spread of invasive species.

1.3.2 The potential pathways by which the Project could impact the qualifying features of each Natura 2000 sites are as follows:

- Potential changes in water quality from construction of the Project, resulting in effects on habitats in Carmarthen Bay and Estuaries SAC and Burry Inlet SPA and Ramsar; and,
- Potential changes in air quality from operation of the Project, resulting in effects on habitats in Crymlyn Bog SAC and Ramsar, Carmarthen Bay and Estuaries SAC and Bury Inlet SPA and Ramsar.

1.3.3 Crymlyn Bog SAC and Ramsar site is not hydrologically connected to the Project Site. As such effects associated with water quality on Crymlyn Bog SAC and Ramsar site have been scoped out of any further assessment.

b) Potential Impacts on Water Quality

1.3.4 There is the potential for the Project to result in changes to water quality that could subsequently affect the habitats within the Natura 2000 sites identified above. There is a hydrological connection between the Project Site and Carmarthen Bay and Estuaries SAC and Burry Inlet SPA and Ramsar via the Afon Llan. Leaving the Project Site the Afon Llan flows for approximately 12 km before reaching the Afon Lliw and flowing into the Natura 2000 sites.

1.3.5 It envisaged that temporary toilets with appropriate foul waste facility will be in place during construction and maintenance operation and all foul waste generated during this period will be taken off-site for disposal at appropriate facilities by specialist contractors. Accordingly, no impact on water receptors is likely.

1.3.6 During operation the Project will either be unmanned or have a maximum of two toilets on site with approximately three shifts of five workers in a 24 hour period. A manned site will contribute nitrogen to Carmarthen Bay and Estuaries SAC and Burry Inlet SPA and Ramsar.

1.3.7 Connection to a public sewer is not deemed feasible. The drainage strategy has considered the use of either septic tanks within the site or a package sewage treatment plants for foul effluent. However, package treatment plants are the preferred option, subject to detailed design following completion of ground investigations. The choice of one or other of these disposal methods is not considered to have a material effect on the impact assessment. Due to the small quantity of foul water generated during operations, it is anticipated that treated water can be discharged via infiltration (soakaway) on site. In line with standard design practice, the foul water drainage system will be positioned to minimise the risk of inundation by floodwaters. Where there is an inadequate unsaturated zone beneath the site, the option of discharging to local watercourses will be adopted. Any discharges will be subject to the Environmental Permitting Regulations and will need to meet quality criteria set by NRW.

1.3.8 Chapter 9 (Water Quality and Flood Risk) of the ES (Ref. 1.1) identifies the sensitivity of the surface water and/or groundwater receptors (i.e. the tributary to

the east of the Afon Llan and/or Carmarthen Carboniferous Coal Measures groundwater body beneath the Project Site) likely to receive foul effluent from the Project Site as Medium. Taking into account the quantity of treated foul waste/wastewater likely to be generated from the packaged sewage treatment plant and dilution properties of these receiving receptors, the magnitude of pollution impacts from discharges is considered to be Negligible. Hence, the significance of effect is considered to be Negligible. There is considered to be no LSE associated with wastewater discharges resulting from the operation of the Project on Carmarthen Bay and Estuaries SAC and Burry Inlet SPA and Ramsar.

1.3.9 The embedded measures included in the construction and operation as a matter of course cover drainage and following best practice and guidelines, controlling pollution, storage of potential pollutants, and precautionary measures to limit the likelihood and effects of pollution incidents and/or runoff. These are deployed as standard to protect any surface watercourse. Similarly, the Project 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. They directly assist in avoiding effects on local watercourses (not Natura 2000 sites) and assist in strengthening the conclusion reached already that there will be no LSEs on any Natura 2000 sites within 10 km associated with water pollution.

1.3.10 Potential effects during decommissioning are likely to be the same as for construction and will be controlled similarly. There are considered to be no LSEs associated with water quality resulting from the decommissioning phase of the Project.

c) Potential Impacts on Air Quality

1.3.11 Transport related emissions are most relevant to sites within 200 m of a major road. The Design Manual for Roads and Bridges (DMRB) (Ref. 1.3) 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 Natura 2000 site that are forecast to receive anything other than a nominal short term change in vehicle flows as a result of the construction and operation of the Project. There are considered to be no LSEs associated with traffic emissions related air quality as a result of the construction or operation phases of the Project.

1.3.12 Potential effects of traffic related emissions during decommissioning are likely to be the same as for construction. There are considered to be no LSEs associated with traffic emission related air quality resulting from the decommissioning phase of the Project.

1.3.13 There is the potential for the Project to result in changes to air quality that could subsequently affect the habitats within the Natura 2000 sites identified above. The air quality assessment, Chapter 6 of the Project ES (Ref. 1.1), sets out predicted changes in concentrations of emissions associated with the construction, operational and decommissioning phases of the development.

1.3.14 The analysis is summarised in the matrices in Appendix B.

1.3.15 There are two measures of particular relevance in this assessment. The first is the concentration of oxides of nitrogen (known as NOx) in the atmosphere. The main importance is as a source of nitrogen, which is then deposited on adjacent habitats either directly (known as dry deposition, including directly onto the plants themselves) or washed out in rainfall (known as wet deposition). The deposited nitrogen can then have a range of effects, primarily growth stimulation or inhibition[1], but also biochemical and physiological effects such as changes to chlorophyll content. NOx may also have some effects which are un-related to its role in total nitrogen intake (such as the acidity of the gas potentially affecting lipid biosynthesis) but the evidence for these effects is limited and they do not appear to occur until high annual concentrations of NOx are reached. The guideline atmospheric concentration of NOx advocated by Government for the protection of vegetation is 30 micrograms per cubic metre (μgm^{-3}), known as the Critical Level (Ref. 1.4). This is driven by the role of NOx in nitrogen deposition and in particular in growth stimulation and inhibition. If the total NOx concentration in a given area is below the critical level, it is unlikely that nitrogen deposition will be an issue, unless there are other sources of nitrogen (e.g. ammonia). If it is above the critical level then local nitrogen deposition from NOx could be an issue and should be investigated.

1.3.16 The second important metric is a direct determination of the rate of the resulting nitrogen deposition. Calculating nitrogen deposition rates has the advantage of being habitat specific and, for many habitats, of being directly relatable to measurable effects on the ground through scrutiny of published dose-response relationships. In contrast, the NOx critical level is entirely generic and cannot be related to dose-response relationships. Unlike NOx, the nitrogen deposition rate below which current evidence suggests that effects should not arise is different for each habitat. The rate (known as the Critical Load) is provided on the UK Air Pollution Information System website (www.apis.ac.uk) and is expressed as a quantity (kilograms) of nitrogen over a given area (hectare) per year ($kgNha^{-1}yr^{-1}$). More recently, there has also been research compiled[2] which investigates nitrogen dose-response relationships in a range of habitats.

1.3.17 For completeness, rates of acid deposition were also calculated. Acid deposition derives from both sulphur and nitrogen. It is expressed in terms of kiloequivalents (keq) per hectare per year. The thresholds against which acid deposition is assessed are referred to as the Critical Load Function. The principle is similar to that for a nitrogen deposition Critical Load.

[1] The addition of nitrogen is a form of fertilization, which can have a negative effect on habitats over time by encouraging more competitive plant species that can force out the less competitive species that are more characteristic of such habitats.

[2] Compiled and analysed in Caporn, S., Field, C., Payne, R., Dise, N., Britton, A., Emmett, B., Jones, L., Phoenix, G., S Power, S., Sheppard, L. & Stevens, C. 2016. Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance. Natural England Commissioned Reports, Number 210.

1.3.18 The LSEs are assessed in relation to aerial pollutant concentrations (NOx only) and the resultant change in acid and nitrogen deposition at Natura 2000 sites within 10km of the proposed stack.

1.3.19 Table 1-6 presents the process contribution (PCs) from the proposed Project (worst case) and the resultant acid and nitrogen deposition rates in comparison to the relevant critical loads for each of the Natura 2000 sites identified within 10km of the Project Site. The worst case has been assumed to be the maximum number of hours that the plant can operate and a stack height of 35 m. The Power Generation Plant is a peaking site and will therefore only operate during periods of high power demand. It is therefore anticipated that the site will normally operate for 1,500 hours per year, but may operate for up to a maximum of 2,250 hours per year, as secured by a DCO Requirement in the draft DCO (Document Reference 3.1). The maximum number of hours that the plant can operate will be set out in the site's Environmental Permit and this operating period cannot be exceeded. A minimum stack height of 35 m has been proposed by APL for the proposed Project and a maximum height of 45 m. Air quality modelling informed the minimum and maximum stack height as presented in ES Appendix 6.1. The assessment of impacts at ecological receptors has, therefore, used a stack height of 35 m as this represents the worst-case in terms of dispersion.

1.3.20 For Natura 2000 sites where habitats are not the designated feature for the site (for example, an SPA with a designated feature of Oystercatcher), the effects of air quality have been assessed for the habitat on which the species or assemblage is reliant (for example, saltmarsh).

1.3.21 In April 2017 a High Court judgment[3] (colloquially known as the Ashdown Forest judgment) partially quashed the Lewes District and South Downs National Park Joint Core Strategy in England. This was on the basis that the HRA supporting the Joint Core Strategy only considered its own contribution in determining whether there would be a likely significant air quality effect on Ashdown Forest SPA. The judge ruled that the HRA had thus explicitly failed to undertake any form of assessment 'in combination' and that this was in contravention of the Conservation of Habitats and Species Regulations 2010 (now repealed and replaced by the 2017 Regulations). Previously, air quality impact assessments enabled likely significant effects to be immediately dismissed without further consideration if the contribution of the project in question fell below 1% of the critical level (for NOx) or critical load (for nitrogen deposition). In that context no assessment 'in combination' was required. However, in light of the above High Court judgment, this HRA does not rely on the use of that 1% threshold to dismiss the need to consider 'in combination' effects.

1.3.22 The information in Table 1-6 and 1-7 is based on the air quality modelling provided by the Applicant with a stack height of 35m (the worst case as noted above). The results of the modelling are set out in Appendix A, Table 1-9, Table 1-10 and Table

[3] Wealden District Council v Secretary of State for Communities and Local Government and others, 2017 [EWHC] 351 http://www.bailii.org/ew/cases/EWHC/Admin/2017/351.html [accessed 26/10/2017]

1-11 in which the worst case has been provided for each relevant Nature 2000 site using the receptor most sensitive to acid and nitrogen for each site.

1.3.23 In the tables below, nitrogen and acid deposition are rounded up to two decimal places to avoid false precision[4]. As such, the lowest deposition rates are reported as '< 0.01 kgN/ha/yr' and represent negligible deposition.

[4] Convention dictates that the number of significant figures used in the presentation of data should be limited to what is warranted by the precision of those data.

Table 1-6: Potential Effects of Air Quality – NOx Daily and Annual Process Contributions and Predicted Environmental Concentrations, and Process Contributions and Predicted Environmental Concentrations as a % of the Air Quality Standard

Name	Distance from stack (km)	Most sensitive receptor / most sensitive habitat on which a receptor is reliant	NOx Daily (µg/m3)		NOx Annual (µg/m3)		NOx Daily (µg/m3)		NOx Annual (µg/m3)	
			PC	PC as % AQS	PC	PC as % AQS	PEC	PEC as % AQS	PEC	PEC as % AQS
Carmarthen Bay and Estuaries SAC	7.2	Estuaries	3.70	5%	0.01	0.02%	27.5	37%	11.98	40%
Crymlyn Bog SAC/Ramsar	6.8	Transition mires and quaking bogs	3.62	5%	0.00	0.01%	35.4	47%	15.90	53%
Burry Inlet SPA and Ramsar	8.9	Saltmarshes	3.35	4%	0.01	0.02%	24.5	33%	10.79	36%

Table 1-7: Potential Effects of Air Quality – Nitrogen and Nitrogen Acid

Name	Distance from stack (km)	Most sensitive receptor / most sensitive habitat on which a receptor is reliant	Nitrogen						
			Empirical Critical Load Nitrogen (kg N/ha/yr)	Process Contribution (35m stack) (kg N/ha/yr)	Background (kg N/ha/yr)	Process Contribution as a percentage of the Min CL	Process Contribution as a percentage of the Max CL	PEC as % Min CL	PEC as % Max CL
Carmarthen Bay and Estuaries SAC	7.2	Estuaries	20-30	<0.01	15.1	<0.1%	<0.1%	76%	50%
Crymlyn Bog SAC/Ramsar	6.8	Transition mires and quaking bogs	5-10	<0.01	11.5	<0.1%	<0.1%	230%	115%
Burry Inlet SPA and Ramsar	8.9	Saltmarshes	20-30	<0.01	15.1	<0.1%	<0.1%	76%	50%
Name	**Distance from stack (km)**	**Most sensitive receptor / most sensitive habitat on which a receptor is reliant**	**Nitrogen Acid**						
			Critical Load Nitrogen acid (keq H^+/ha/yr – HNO_3)	**Process Contribution (35m stack) (keq H+/ha/yr – HNO_3)**	**Background (keq H+/ha/yr – HNO_3)**	**Process Contribution as a percentage of CLF**		**PEC as % CLF**	
Carmarthen Bay and Estuaries SAC	7.2	Estuaries	Not sensitive	<0.01	1.33	N/A		N/A	
Crymlyn Bog SAC/Ramsar	6.8	Transition mires and quaking bogs	0.70	<0.01	1.06	<0.1%		153%	
Burry Inlet SPA and Ramsar	8.9	Saltmarshes	2.02	<0.01	1.33	<0.1%		66%	

1.4 Summary of Likely Significant Effects Screening

a) Water Quality

1.4.1 Due to the standard-practice use of mobile welfare facilities during construction and operational maintenance, there will be no inputs of treated wastewater and runoff and/or pollution during construction and operational maintenance.

1.4.2 During operation discharges from the package treatment plant will be controlled via an Environmental Permit. There will be very low levels of discharges due to the low numbers of people on Site during operation. The discharges will disperse over a long distance before entering Carmarthen Bay and Estuaries SAC and Burry Inlet SPA and Ramsar.

1.4.3 There will be no LSEs on any Natura 2000 sites within 10 km associated with water quality.

b) Air Quality

1.4.4 Only NOx has been modelled as an emitted pollutant; no other relevant pollutants are expected (such as sulphur dioxide). Impacts due to emissions of sulphur dioxide and, by inference deposition of sulphur, have been scoped out of the assessment since natural gas is an inherently low sulphur fuel. However, background levels of sulphur deposition are considered in the assessment of acidification.

1.4.5 For all receptors, the annual (long-term) average and 24hr (short-term) average PEC (Predicted Environmental Concentration i.e. the total concentration including the Project) for NOx is forecast to be well below the critical level of 30 micrograms/cubic metre (for long-term NOx) and 75 micrograms/cubic metre (for short-term NOx). Since the critical level will not be breached there are no grounds to conclude a likely significant effect based on atmospheric concentrations alone.

i. Nitrogen Disposition

1.4.6 Considering the forecast change in nitrogen deposition rates due to the Project, the PC is extremely small being less than 0.01kgN/ha/yr in all instances. This is so small that it effectively represents no forecast change in nitrogen deposition, compared to the baseline.

1.4.7 For Carmarthen Bay and Estuaries SAC and Burry Inlet SPA and Ramsar site, where the current background levels for nitrogen are within the critical loads for the most sensitive receptor or most sensitive habitat on which a receptor is reliant at each of the sites, these increases are concluded not to have a LSE on either site.

1.4.8 For Crymlyn Bog SAC and Ramsar the background level is already in exceedance of the critical load for nitrogen for the most sensitive receptor or most sensitive habitat on which a receptor is reliant at the site. However, the increase arising from

the Project is deemed to be so small that it can be concluded the increase will not have a LSE on the site.

1.4.9 In published data on nitrogen dose-response relationships (Ref. 1.5) it has been shown that no habitats studied to date are responsive to such small incremental changes in nitrogen deposition. For example, Table 21 of Caporn et al 2016 (Ref. 1.5) list all investigated habitats including heathland, bogs, sand dunes and acid grassland. Even the most sensitive habitat presented in the table (sand dunes) required a dose of at least 0.1 kgN/ha/yr (an order of magnitude greater than the PC of the Project) to effect a change in species richness (defined as a reduction of at least 1 species), even at a very low background deposition rate of 5 kg/ha/yr. Most habitats studied required a considerably greater dose at low background rates. Habitats that were studied that are pertinent to this Project included bog (raised and blanket). Bog is the most sensitive out of all the receptors for the Natura 2000 sites with a critical load of 5 – 10 kgN/ha/yr.

1.4.10 The studies also indicate that the effect of adding a given amount of nitrogen is not simple, linear and additive as is often assumed but depends heavily on the existing nitrogen deposition. As such the response of vegetation to nitrogen deposition is far more subtle that the 'black and white' critical load concept suggests. In bog, for example, at background deposition rates of 15 – 20kgN/ha/yr an increase of 3.3kgN/ha/yr would be required to reduce species richness by one species. Note that this does not mean any species would be 'lost' from the affected area, just that one species would occur at a reduced frequency. The study illustrates the fairly subtle effect of nitrogen deposition at moderately high background rates.

1.4.11 Although woodland and fen are not included in the report in terms of deriving dose-response relationships the report indicates that the same broad pattern of response can be applied to fen and woodland habitats (at least at woodland edges which will be more exposed to pollutants).

1.4.12 As such, the extremely small PC of than 0.01kgN/ha/yr would have no perceptible effect on any of the habitats within any of the Natura 2000 sites.

ii. Nitrogen Acid Deposition

1.4.13 None of the receptors for Carmarthen Bay and Estuaries SAC are sensitive to nitrogen acid deposition.

1.4.14 For Crymlyn Bog SAC and Ramsar the PC is less than 0.01keqH+/ha/yr and so low as to be effectively zero. Although the background level is above the critical load for the most sensitive receptor, any increase less than 0.01keqH+/ha/yr will not cause a measurable exceedance of the critical load for nitrogen acid at the site.

1.4.15 For Burry Inlet SPA and Ramsar the PC is less than 0.01keqH+/ha/yr and so low as to be effectively zero. Furthermore, the background level is below the critical load for the most sensitive receptor, and as such any increase less than 0.01keqH+/ha/yr will not cause an exceedance of the critical load for nitrogen acid at the site.

1.5 In-Combination Effects

1.5.1 The Conservation of Habitats and Species Regulations 2017 state that when considering whether a specific plan or project is likely to have a significant effect on a Natura 2000 Site, consideration should be given to the effect of the proposal alone and in-combination with other plans and projects. Part of the HRA process is to identify the plans, programmes and projects that could have in-combination effects. The PINS Advice Note Ten: Habitat Regulations Assessment relevant to Nationally Significant Infrastructure Projects (January 2016) states that in assessing in-combination effects the following projects should be considered:

- Projects that are under construction;
- Permitted application(s) not yet implemented;
- Submitted application(s) not yet determined;
- All refusals subject to appeal procedures not yet determined;
- Projects on the National Infrastructure's programme of projects[5]; and
- Projects identified in the Swansea Unitary Development Plan and emerging development plans (Swansea Deposit Local Development Plan) with appropriate weight being given as they move closer to adoption, recognising that much information on relevant proposals will be limited and the degree of uncertainty which may be present.

1.5.2 The projects which have been researched are shown in Table 1-8 below. Table 1-12 in Appendix C provides the results of a screening exercise for each of the developments to demonstrate that there are no Likely Significant Effects from the Project in-combination with other projects. The Table 1-12 briefly summarises the level of data or information available in relation to each project, which in all cases is limited. On the basis of the information available, using professional judgment and adopting the precautionary principle, it is considered that the screening exercise is robust.

Table 1-8: Projects Considered In-Combination

# / Planning Application		Name	Description
Under Construction			
1	2006/0773 (varied by 2009/1520 and 2011/1143) and consecutive temporary planning permissions 2007/2513, 2009/0062, 2009/1585, 2011/1311 and 2014/0913 (varied by 2016/1270)	Felindre Business Park	Strategic business park for B1 and B2 uses to accommodate emerging industries, high tech manufacturing, high level services, ancillary uses, associated car parking, landscaping and access roads (outline). The site has been laid out and is effectively a serviced site, however no buildings have been constructed. Park and ride schemes also operate on match days to the Liberty football stadium; and for car parking for the Driver and Vehicle Licensing Agency (DVLA) site in Longview Road, Morriston.

[5] https://infrastructure.planninginspectorate.gov.uk/projects/

#	Planning Application	Name	Description
2	2013/0135	Abergelli Solar Farm	Installation of ground mounted array of solar panels, inverter substations and 2.4 m high fencing on land at Abergelli Farm. This development will be located adjacent to the Gas Connection.
3	2013/0865	Cefn Betingau Phase 1, Morriston	Construction of 9MW solar park consisting of installation of up to 135,000 pv panels and 9 inverter/transformer cabins and a single control building
4	2014/0739	Gelliwern Isaf Solar Park	6MWe solar park at Gelliwern Isaf Farm - installation of a solar PV array, construction of a storage room, invertor cabin, a substation, switchgear building and fencing
5	2014/1022	Brynwhilach Solar Park	Construction of 12.69MWe solar park consisting of installation of up to 47,000 pv panels and 8 inverter/transformer stations, 2 substations, storage container, new access tracks, security fencing/cctv and associated equipment and infrastructure work.
6	2007/1250 (varied by 2017/0325/S73)	Former J R Steelworks, Bryntywod (Griffiths Waste Management)	Retention of use of land as timber recycling centre including processing of wood, wooden materials, associated plant and machinery and previously tipped inert material together with on-site storage of wood chip material, construction of building for the dry storage of recycled wood waste and the creation of a 1m high clay bund around southern, western and northern boundaries of the site without complying with conditions 2, 3, 5, 9, 10, 11, 14 and 16 of planning permission 2007/1250 granted 11th December.
7	2012/1221	Mynydd y Gwair Wind Farm	Installation of 16 wind turbines (maximum height to blade tip of 127 m with a hub height of 80 metres), with a maximum generating capacity of 48MWe, associated tracks and ancillary infrastructure.
8	2014/0977	Parc Ceirw, Cwmrhydyceirw Quarry, Swansea	Proposed 250 to 300 residential properties, within a site of approximately 14 ha. The site was formerly an old quarry.
Permitted but not implemented			
9	2013/0795	Tyle Coch Mawr Wind Farm	Installation of four 5 kW wind turbines 20.7 m to tip and associated infrastructure.
10	2013/1835	Felindre Business Park	Construction of park and ride/share car park (approximately 480 spaces) with new vehicular access, security office, toilet, engineering and associated works,

# / Planning Application		Name	Description
			including lighting, fencing, drainage attenuation and landscaping.
11	2015/1529 (appeal ref 4369653)	Llettyr Morfil Farm	Construction of a 4.9 MW solar park (approx. 8.8 ha) including photovoltaic panels, four inverter stations, centre station, new access tracks, security fencing, security cameras and associated equipment and infrastructure works. Allowed on appeal in June 2016
12	2015/0308	Plot 8 Felindre Strategic Business Park	Two/three storey private hospital development with associated landscaping, site roads and car parking
13	2016/1522	Griffiths Waste Management Site, Bryntywod Llangyfelach Swansea SA5 7LP	Demolition of existing waste management facility buildings and construction of replacement buildings and associated infrastructure
14	2008/0912	Former Walters Yard Pontlliw Swansea	Construction of 67 dwellings with associated access, roads, parking, open space and demolition of existing buildings. Approved with S106 in March 2016.
Submitted but not determined			
15	2011/0345	Land at Llewellyn Road, Penllergaer	Construction of up to 200 residential units with associated access (outline).
16	2012/0721	Royal Fern Golf Resort	Application to vary Condition 8 of Outline Planning Permission 2008/0154 to extend the period for the submission of the reserved matters for a further three years in relation to the proposed development of 18 hole championship and 9 hole par 3 golf courses, golf club house including health facilities, sauna, swimming pool, gymnasium, golf school and academy, 80 golfing lodges, approximately 135 housing plots, green keepers flat, associated infrastructure, car parking and landscaping (outline).
17	2017/1822/OUT	Land West Of Llangyfelach Road Tirdeunaw	Outline planning application (with all matters reserved apart from strategic access junctions) for residential led mixed use development, to be developed in phases, including up to 1950 dwellings, link road, local centre provision of a primary school, community facilities, Public Open Space including facilities for children, and areas of landscaping (including sustainable drainage systems), outdoor sports provision including playing pitches, associated services, infrastructure and engineering

# / Planning Application		Name	Description
			works including new vehicular access, improvements to the existing highway network, new roads, footpaths / cycleways, and ancillary works.
18	2016/1478	Land North Of Garden Village Swansea	Hybrid planning application (with all matters reserved apart from strategic access) for residential-led mixed use development, to be developed in phases, including approximately 750 residential units; provision of 1 no. Primary school; circa 280m2 - 370m2 flexible A1-A3 / D1 floorspace; open space including parks; natural and semi natural green space; amenity green spaces; facilities for children and young people; outdoor sports provision including playing pitches; associated services, infrastructure and engineering works including new vehicular accesses, improvement works to the existing highway network, new roads, footpaths/cycleways; landscaping works (including sustainable drainage systems), ecological mitigation works and ancillary works. Submitted in July 2016 and currently pending determination. (The application would be referable to Welsh Ministers if the Council are minded to approve).
19	2017/0986/FUL	Former Civic Centre Penllergaer Swansea SA4 9GH	Construction of 80 no. residential units with associated access and landscaping
Identified / Allocated (and not referenced above)			
20	UDP Policy EC1(3)	Swansea Vale Strategic Mixed-Use Site	25 ha allocated employment land
21	UDP Policy EC1(10)	Land at Bryntywod, Felindre (Local Employment Site)	15.8 ha allocated employment land
22	UDP Policy EC1(12)	Penllergaer Business Park (Local Employment Site)	8.2 ha allocated employment land
23	UDP Policy HC13	West of Morriston Hospital	Hospital related activities
24	LDP Policy SD G	Northwest of M4 J46, Llangyfelach	Comprehensive mixed use development of up to 850 homes during the Plan period, incorporating a mix of low-medium and high density residential, a new district centre with commercial units, primary school, a mix of public realm, open space and play

# / Planning Application		Name	Description
			provision, new community buildings, and a strategic business park
25	LDP Policy SD A	South of Glanffrwd Road, Pontarddulais	Comprehensive, residential led, development of up to 720 homes, incorporating a primary school, leisure and recreation facilities, public open space and appropriate community facilities, employment and commercial uses
26	LDP Policy SD C	South of A4240, Penllergaer	Comprehensive, residential led, mixed use development of up to 750 homes during the Plan period (and up to 1,000 homes beyond the Plan period), incorporating primary school, leisure and recreation facilities, public realm, public open space and appropriate community and commercial uses
27	LDP Policy SD E	North of Clasemont Road, Morriston	Comprehensive, residential led, mixed use development of up to 675 homes during the Plan period, incorporating primary school, leisure and recreation facilities, public realm, public open space and appropriate community and commercial uses
28	LDP Policy SI 4	Morriston Hospital	Land adjacent to Morrison Hospital is safeguarded solely for the future development and expansion of the Hospital. Development at this location is restricted to healthcare related uses in association with the beneficial use of Morriston Hospital. Proposals must be delivered alongside appropriate new and enhanced highway infrastructure that will significantly improve the existing substandard road access leading to the site. A new access road is proposed as part of this proposal (Strategic Transport Strategy Table 9.2) to resolve road capacity issues from the roundabout immediately north of M4 J46.
29	LDP Policies RP7 and RP8 , paragraph 2.14.28 (Preferred Locations)	Former Tip Site, Felindre	Preferred areas for new waste management facilities include the former Tip site at Felindre. The site at Felindre is identified specifically for the potential to accommodate a Combined Heat and Power (CHP) Facility which could provide heat or power for adjacent proposed developments.
30	LDP Policy H1.11	Land at Ramsey Road, Clydach	60 dwellings
31	LDP Policy H1.21	Land east of	90 dwellings

# / Planning Application		Name	Description
		Pontarddulais Road, Gorseinon	
32	LDP Policy H1.26	Land at Carmel Road and Bryntirion Road, Pontlliw	100 dwellings
33	LDP Policy H1.30	Land north of Llewellyn Road, Penllergaer	50 dwellings
34	LDP Policy H1.31	Land at Bolgoed Road, Pontarddulais	50 dwellings

a) Water Quality

1.5.3 There are no inputs during construction in relation to water quality from the Project that can act in combination with other projects and this will be the same for decommissioning.

1.5.4 The inputs from Project wastewater discharges during operation are likely to be so small as to be well within the natural daily fluctuations of the nutrient levels within the Carmarthen Bay and Estuaries SAC and Burry Inlet SPA and Ramsar and therefore immeasurable in-combination with other projects. There is considered to be no LSE as a result of wastewater discharges from the Project acting in-combination with wastewater discharges from other projects.

b) Air Quality

1.5.5 Transport related emissions are most relevant to sites within 200 m of a major road. The Design Manual for Roads and Bridges (DMRB) (Ref. 1.3) 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 Natura 2000 site that are forecast to receive anything other than a nominal short term change in vehicle flows as a result of this Project.

1.5.6 There will be extremely low traffic flows expected as part of the construction and operation of the Project, and the operational traffic flows from the Project will not make a significant contribution to any in-combination effects and will be within the average daily variations of traffic flows.

1.5.7 A number of projects are likely to contribute to local pollutant concentrations through traffic emissions – using M4 Junction 46 and the B4489. However, there are no Natura 2000 sites located within 200 m of these locations.

1.5.8 There is no opportunity for a LSE as a result of traffic emissions from the Project acting in-combination with traffic emissions from other projects.

1.5.9 Projects with point source emissions have been considered for the in-combination assessment where deposition of those emissions may be geographically coincident with this Project. Two projects have been identified to be included in the in-combination assessment:

- 2015/1716. Land at Abergelli Farm near Felindre Swansea SA5 7NN. Emergency standby electricity generation facility comprising: modern modular diesel generator units (up to 14 in total), transformers, diesel storage tanks, boundary treatment including acoustic screening, access improvements and associated works.
- LDP Policies RP7 and RP8, paragraph 2.14.28 (Preferred Locations). Former Tip Site, Felindre. Preferred areas for new waste management facilities include the former Tip site at Felindre. The site at Felindre is identified specifically for the potential to accommodate a Combined Heat and Power (CHP) Facility which could provide heat or power for adjacent proposed developments.

1.5.10 The planning application for the Land at Abergelli emergency standby electricity generation facility was refused on 16 October 2015. The applicant has stated that there is no intention of resubmitting the application or to appeal of the decision notice (and the time for submitting an appeal has now expired).

1.5.11 The Former Tip Site, Felindre Combined Heat and Power (CHP) Facility is a preferred location in the Deposit Local Development Plan policy, and is therefore at an early stage in the (potential) consenting process. As such no planning application or background information is available to undertake in-combination air quality modelling or assessment. The Deposit Local Development Plan is currently at Examination and as a result only limited weight can be attached to the allocation.

1.6 Conclusion

a) Introduction

1.6.1 This section summarises the potential effects of the proposed Project and considers whether the requirement to proceed to Stage Two of the HRA process (Appropriate Assessment) is triggered in relation to the proposed Project.

1.6.2 An Appropriate Assessment is necessary when the screening exercise concludes that a project, alone or in combination with other plans or projects, is likely to give rise to significant effects on a Natura 2000 site. When required, an Appropriate Assessment considers the impact of the project on the integrity of the Natura 2000 site having regard to the site's conservation objectives.

b) Potential Effects

1.6.3 There are no LSEs on Natura 2000 sites within 10 km of the proposed development associated with water quality – as a result of wastewater discharges, pollution or runoff - or air quality – nitrogen and nitrogen acid deposition as a result of NOx emissions - from the proposed Project alone or in-combination with projects.

1.6.4 No other impacts arising from the construction, operation or decommissioning of the Project have the potential to have an impact on any Natura 2000 sites.

1.6.5 Therefore the Appropriate Assessment – Stage Two of the HRA – process is not required.

1.6.6 The Applicant remains committed to consultation with NRW and will continue to discuss the air quality aspects of the proposed development in the period before Examination of the DCO application. It is the Applicant's intention to agree a Statement of Common Ground with NRW covering the matters included in this report and it is proposed that further meetings and dialogue will take place as necessary between the Applicant and NRW with that objective.

References

Ref. 1.1 AECOM. (2018). Abergelli Power Project Environmental Statement.

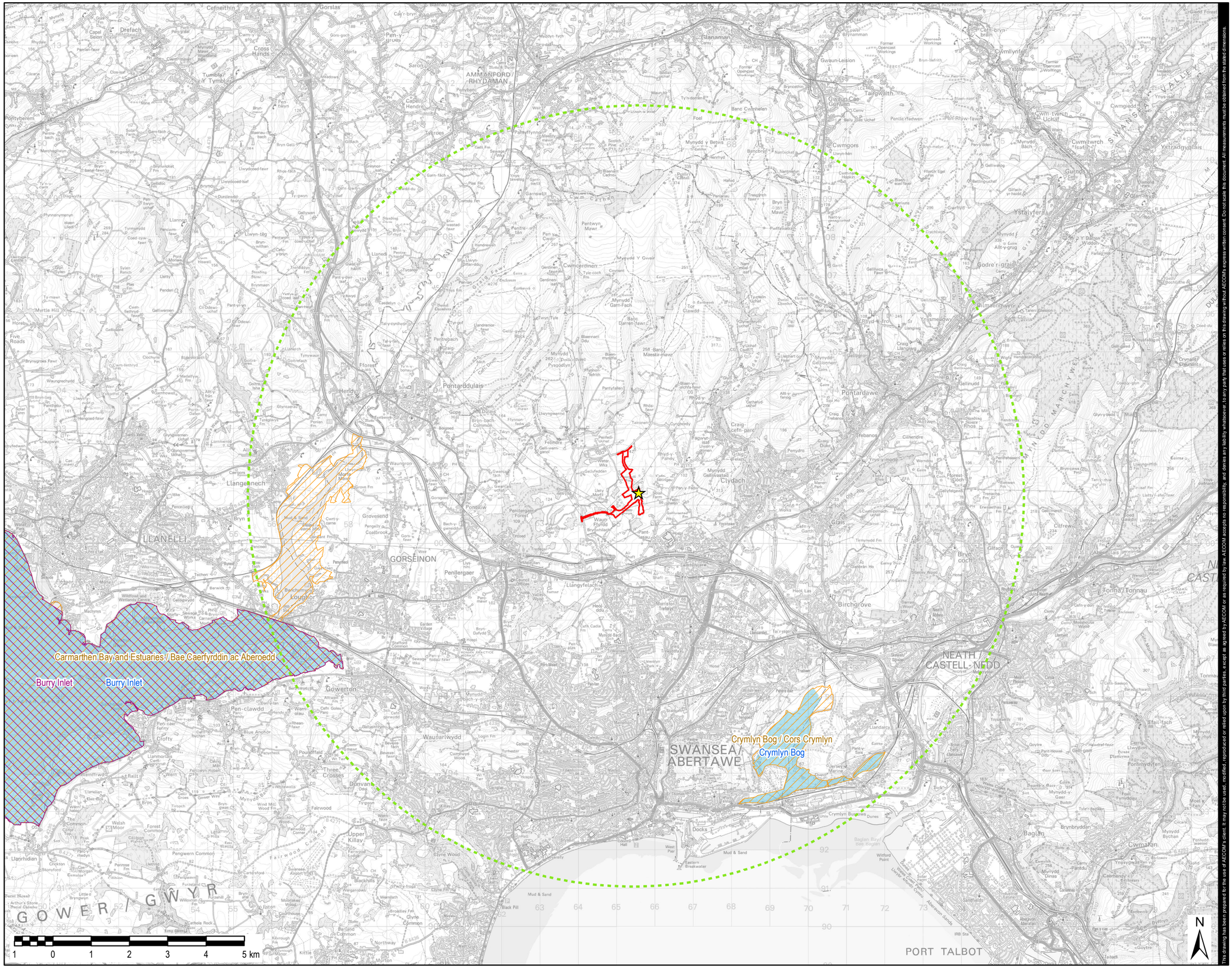
Ref. 1.2 WSP (2017). Abergelli Power Station Outline Lighting Strategy. November 2017.

Ref. 1.3 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. 1.4 APIS (2017). Critical Loads and Critical Levels - a guide to the data provided in APIS, Section 3.3 Critical Levels, Table 1: Critical levels of air pollutants Available at http://www.apis.ac.uk/overview/issues/overview_Cloadslevels.htm#_Toc279788054 [Access on 29/11/2017].

Ref. 1.5 Caporn, S., Field, C., Payne, R., Dise, N., Britton, A., Emmett, B., Jones, L., Phoenix, G., S Power, S., Sheppard, L. & Stevens, C. (2016). Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance. Natural England Commissioned Reports, Number 210.

Figure 1.1 Location of Project Site and Natura 2000 Sites



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Project Title:

ABERGELLI POWER PROJECT

Client:

Abergelli power
A Drax Group company

LEGEND

- Proposed Stack Location
- Project Site Boundary
- 10km Study Area
- Special Protection Area
- Special Area of Conservation
- Ramsar

AECOM Internal Project No:

60542910

Drawing Title:

LOCATION OF PROJECT SITE AND NATURA 2000 SITES

Scale at A3: 1:90,000

Drawing No:			Rev:
FIGURE 1.1			005
Drawn:	**Chk'd:**	**App'd:**	**Date:**
GM	CC	CA	03/05/18

Filename: P:\UKCDF1-IE\Projects\Environmental\Jobs - Potential\2017\2017 Q1\Abergelli Power Station\010 GIS\02_Maps\EC - Ecology\Designations\F1_1_Natura 2000 sites_v1.mxd

Appendix A Air Quality Modelling: Table 1-9, Table 1-10 and Table 1-11

Table 1-9: Process Contributions of NOx

Natura 2000 Site	Most Sensitive Habitat Type	NOx Daily (µg/m3)		NOx Annual (µg/m3)		NOx Daily (µg/m3)		NOx Annual (µg/m3)	
		PC	PC as % AQS 75 µg/m3	PC	PC as % AQS 30 µg/m3	PC	PC as % AQS 75 µg/m3	PC	PC as % AQS 30 µg/m3
Carmarthen Bay and Estuaries SAC	Estuaries	3.70	5%	0.01	0.02%	27.5	37%	11.98	40%
Crymlyn Bog SAC & Ramsar	Transition mires and quaking bogs	3.62	5%	0.00	0.01%	35.4	47%	15.90	53%
Burry Inlet SPA & Ramsar	Saltmarsh	3.35	4%	0.01	0.02%	24.5	33%	10.79	36%

Table 1-10: Process Contributions, Critical Loads and Predicted Environmental Concentration of Nitrogen

Natura 2000 Site	Most Sensitive Habitat Type	Process Contribution	CL (kg N/ha/yr)	CL (kg N/ha/yr)	PC as % Min CL	PC as % Max CL	N Dep (kg N/ha/yr)	PEC	PEC as % Min CL	PEC as % Max CL
			Min CL	Max CL			Background	Max		
Carmarthen Bay and Estuaries SAC	Estuaries	0.001	20	30	0.00%	0.00%	15.1	15.1	76%	50%
Crymlyn Bog SAC & Ramsar	Transition mires and quaking bogs	0.001	5	10	0.01%	0.01%	11.5	11.5	230%	115%
Burry Inlet SPA & Ramsar	Saltmarsh	0.001	20	30	0.00%	0.00%	15.1	15.1	76%	50%

Table 1-11: Process Contributions, Critical Loads and Predicted Environmental Concentration of Nitrogen Acid

Natura 2000 Site	Most Sensitive Habitat Type	Process Contribution	Critical Load (keq/ha/yr) Max			Process Contribution	Background	PEC	
			CLminN	CLmaxN	CLmaxS	% CLF		PEC	% CLF
Carmarthen Bay and Estuaries SAC	Estuaries	0.0001	N/A	N/A	N/A	0.00%	1.33	1.41	0%
Crymlyn Bog SAC & Ramsar	Transition mires and quaking bogs	0.00004	0.32	0.70	0.37	0.01%	1.06	1.06	153%
Burry Inlet SPA & Ramsar	Saltmarsh	0.0001	0.44	2.02	1.58	0.00%	1.33	1.33	66%

Appendix B HRA Screening Matrices for the Abergelli Power Project

Planning Inspectorate

Advice Note 10

Habitats Regulations Assessment

HRA Screening Matrices for the Abergelli Power Project

Potential Effects

Potential effects upon the European site(s)* which are considered within the submitted HRA report (AECOM, 2017) are provided in the table below.

Effects considered within the screening matrices

Designation	Effects described in submission information	Presented in screening matrices as
Carmarthen Bay SAC **Burry Inlet SPA and Ramsar**	• Increase in nutrient inputs	• Water quality
Crymlyn Bog SAC and Ramsar **Carmarthen Bay SAC** **Burry Inlet SPA and Ramsar**	• Increase in concentration of NOx • Increase in deposition of Nitrogen • Increase in deposition of Acid	• Air quality

* As defined in Advice Note 10.

STAGE 1: SCREENING MATRICES

The European sites included within the screening assessment are:

Crymlyn Bog SAC

Crymlyn Bog Ramsar

Carmarthen Bay SAC

Burry Inlet SPA

Burry Inlet Ramsar

Evidence for, or against, likely significant effects on the European site(s) and its qualifying feature(s) is detailed within the footnotes to the screening matrices below.

Matrix Key:

✓ = Likely significant effect **cannot** be excluded
✖ = Likely significant effect **can** be excluded

C = construction
O = operation
D = decommissioning

HRA Screening Matrix 1 Carmarthen Bay and Estuaries SAC

Name of European site and designation: Carmarthen Bay and Estuaries SAC												
EU Code: UK0020020												
Distance to NSIP: 7km												
European site features	**Likely effects of NSIP**											
Effect	*Water quality*			*Water quality In combination effects*			*Air quality*			*Air quality In combination effects*		
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*
Estuaries	**×a,b**	**×b,c**	**×d**	**×e,f**	**×e,g**	**×e,f**	**×h**	**×h,j**	**×i**	**×e,j**	**×e,j,k,l**	**×e,j**
Sandbanks which are slightly covered by sea water all the time;	**×a,b**	**×b,c**	**×d**	**×e,f**	**×e,g**	**×e,f**	**×h**	**×h,j**	**×i**	**×e,j**	**×e,j,k,l**	**×e,j**
Mudflats and sandflats not covered by seawater at low tide;	**×a,b**	**×b,c**	**×d**	**×e,f**	**×e,g**	**×e,f**	**×h**	**×h,j**	**×i**	**×e,j**	**×e,j,k,l**	**×e,j**
Large shallow inlets and bays	**×a,b**	**×b,c**	**×d**	**×e,f**	**×e,g**	**×e,f**	**×h**	**×h,j**	**×i**	**×e,j**	**×e,j,k,l**	**×e,j**
Salicornia and other annuals colonizing mud and sand; and,	**×a,b**	**×b,c**	**×d**	**×e,f**	**×e,g**	**×e,f**	**×h**	**×h,j**	**×i**	**×e,j**	**×e,j,k,l**	**×e,j**

Atlantic salt meadows (Glauco-Puccinellietalia maritimae).	×a,b	×b,c	×d	×e,f	×e,g	×e,f	×h	×h,j	×i	×e,j	×e,j,k,l	×e,j
Twaite shad Alosa fallax	×a,b	×b,c	×d	×e,f	×e,g	×e,f	×h	×h,j	×i	×e,j	×e,j,k,l	×e,j
Sea lamprey Petromyzon marinus	×a,b	×b,c	×d	×e,f	×e,g	×e,f	×h	×h,j	×i	×e,j	×e,j,k,l	×e,j
River lamprey Lampetra fluviatilis	×a,b	×b,c	×d	×e,f	×e,g	×e,f	×h	×h,j	×i	×e,j	×e,j,k,l	×e,j
Allis shad Alosa alosa	×a,b	×b,c	×d	×e,f	×e,g	×e,f	×h	×h,j	×i	×e,j	×e,j,k,l	×e,j
Otter Lutra lutra	×a,b	×b,c	×d	×e,f	×e,g	×e,f	×h	×h,j	×i	×e,j	×e,j,k,l	×e,j

Evidence supporting conclusions:

a. Section 1.3.8 and Section 1.4.1 of the No Significant Effects Report states that the embedded mitigation for construction (to be secured under the Construction Environmental Management Plan (CEMP)) will include measures to control 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 best practice and guidelines. The drainage strategy for the Project Site 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. There are deemed to be no Likely Significant Effects on the features as a result of pollution and/or runoff generated during construction.

b. Section 1.3.7 and Section 1.4.1 of the No Significant Effects Report states that during construction and operational maintenance temporary toilets with appropriate foul waste facility will be in place and all foul waste generated during this period will be taken off-site for disposal at appropriate facilities. No impact on water receptors is expected and there are deemed to be no Likely Significant Effects on the features as a result of wastewater generated during construction and operational maintenance.

c. There is a hydrological connection between the Project Site and Carmarthen Bay and Estuaries SAC via the Afon Llan. Leaving the Project Site, the Afon Llan flows for approximately 12 km before reaching the Afon Lliw and flowing into the Natura 2000 site.

Sections 1.3.5 and 1.4.2 of the No Significant Effects Report state that the drainage strategy has considered the use of either septic tanks within the site or a package sewage treatment plants for foul effluent. However, package treatment plants are the preferred option, subject to detailed design following completion of ground investigations.
Due to the small quantity of foul water generated during operation, it is anticipated that treated water can be discharged via infiltration (soakaway) on site. The foul water drainage system will be positioned to minimise the risk of inundation by floodwaters.
Where there is an inadequate unsaturated zone beneath the site, the option of discharging to local watercourses will be adopted. Any discharges will be subject to the Environmental Permitting Regulations and will meet quality criteria set by NRW.
Chapter 9 (Water Quality and Flood Risk) of the Environmental Statement (Abergelli Power Project Environmental Statement, AECOM, 2018) states that given the quantity of treated wastewater likely to be generated from the packaged sewage treatment plant and dilution properties of the receiving receptors, the magnitude of pollution impacts from discharges is considered to be Negligible.
There are deemed to be no Likely Significant Effects associated with wastewater discharges resulting from the operation of the Project on the designated site features.

d. Sections 1.1.17 – 1.1.19 detail the decommissioning phase of the Project. Section 1.3.9 states that potential effects on water quality during decommissioning are likely to be the same as for construction and will be controlled similarly. There are considered to be no Likely Significant Effects associated with water quality resulting from the decommissioning phase of the Project.

e. Table 1-8 provides a list pf projects that have the potential to act in combination with the Project. Table 1-12 provides the results of a screening exercise for each of the projects to demonstrate that the effects from the Project acting in-combination with the projects are not significant. The Table briefly summarises the level of data or information available in relation to each project, which in all cases is limited.

f. Section 1.5.3 of the No Significant Effects Report states that there are no inputs during construction in relation to water quality from the Project that can act in combination with other projects, this is likely the same for decommissioning.

g. Section 1.5.4 of the No Significant Effects Report states that the inputs from Project wastewater discharges during operation are likely to be so small as to be within the natural daily fluctuations of the nutrient levels within the Carmarthen Bay and Estuaries SAC and therefore immeasurable in-combination with other projects. There is considered to be no Likely Significant Effect as a result of wastewater discharges from the Project acting in-combination with wastewater discharges from other projects.

h. Section 1.3.10 states that there are no roads within 200 m of any Natura 2000 site that are forecast to receive anything other than a nominal short term change in vehicle flows as a result of the construction and operation of the Project.

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 considered to be no Likely Significant Effects associated with traffic emissions related air quality as a result of the construction or operation phases of the Project.

i. Potential effects of traffic related emissions during decommissioning are likely to be the same as for construction. There are considered to be no Likely Significant Effects associated with traffic emission related air quality resulting from the decommissioning phase of the Project.

j. Sections 1.5.6 – 1.5.8 state there will be extremely low traffic flows expected as part of the construction and operation of the Project, and the operational traffic flows from the Project will not make a significant contribution to any in-combination effects and will be within the average daily variations of traffic flows. A number of projects are likely to contribute to local pollutant concentrations through traffic emissions - using M4 Junction 46 and the B4489. However, there are no Natura 2000 sites located within 200 m of these locations. This is likely to be the same for decommissioning. There is no opportunity for a Likely Significant Effect as a result of traffic emissions from the Project acting in-combination with traffic emissions from other projects.

k. Table 1-6, Table 1-7, Table 1-9, Table 1-10 and Table 1-11 of the No Significant Effects Report show the potential effects of NOx, nitrogen and nitrogen acidity on the most sensitive receptor of Carmarthen Bay and Estuaries SAC. Section 1.4.6 – 1.4.7 states that the process contributions are extremely small for nitrogen (<0.01kgN/ha/yr) and the current background levels for nitrogen are within the critical loads for the most sensitive receptor at the site the increase is concluded not to have a LSE on the site. Section 1.4.13 states that none of the receptors for the site are sensitive to nitrogen acidity deposition.

l. Table 1-8 and Sections 1.5.9 – 1.5.11 provide a summary of the projects and plans provided by the local authority for an in-combination assessment. One project that was refused planning has point source emissions; the promoter has stated they do not intend to resubmit the application or to appeal against the refusal. There is a point source emitter within the Local Development Plan; however there is no information on the plan since it is a preferred location only and as such it is not possible to obtain air quality data. It is concluded that there are no point source emitters that would contribute to an in-combination effect with the emissions from the proposed Project.

HRA Screening Matrix 2 Crymlyn Bog SAC

Name of European site and designation: Crymlyn Bog SAC												
EU Code: UK0012885												
Distance to NSIP: 6.7km												
European site features	**Likely effects of NSIP**											
Effect	*Water quality*			*Water quality In combination effects*			*Air quality*			*Air quality In combination effects*		
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*
Transition mires and quaking bogs	**×a**	**×a**	**×a**	**×a**	**×a**	**×a**	**×b**	**×b,e**	**×c**	**×d**	**×d,f**	**×d**
Calcareous fens with Cladium mariscus and species of the Caricion davallianae	**×a**	**×a**	**×a**	**×a**	**×a**	**×a**	**×b**	**×b,e**	**×c**	**×d**	**×d,f**	**×d**
Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)	**×a**	**×a**	**×a**	**×a**	**×a**	**×a**	**×b**	**×b,e**	**×c**	**×d**	**×d,f**	**×d**

Evidence supporting conclusions:

a. Crymlyn Bog SAC is not hydrologically connected to the Project Site. As such effects associated with water quality have been scoped out of any further assessment.

b. Section 1.3.10 states that there are no roads within 200 m of any Natura 2000 site that are forecast to receive anything other than a nominal short term change in vehicle flows as a result of the construction and operation of the Project. 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 considered to be no Likely Significant Effects associated with traffic emissions related air quality as a result of the construction or operation phases of the Project.

c. Potential effects of traffic related emissions during decommissioning are likely to be the same as for construction. There are considered to be no Likely Significant Effects associated with traffic emission related air quality resulting from the decommissioning phase of the Project.

d. Sections 1.5.6 – 1.5.8 state there will be extremely low traffic flows expected as part of the construction and operation of the Project, and the operational traffic flows from the Project will not make a significant contribution to any in-combination effects and will be within the average daily variations of traffic flows. A number of projects are likely to contribute to local pollutant concentrations through traffic emissions - using M4 Junction 46 and the B4489. However, there are no Natura 2000 sites located within 200 m of these locations. This is likely to be the same for decommissioning. There is no opportunity for a Likely Significant Effect as a result of traffic emissions from the Project acting in-combination with traffic emissions from other projects.

e. Table 1-6, Table 1-7, Table 1-9, Table 1-10 and Table 1-11 of the No Significant Effects report show the potential effects of NOx, nitrogen and nitrogen acidity generated during operation of the Project on the most sensitive receptor of Crymlyn Bog SAC. . Section 1.4.6 – 1.4.8 states that the process contributions are extremely small for nitrogen (<0.01kgN/ha/yr) and the current background levels for nitrogen are in exceedance of the critical loads for the most sensitive receptor at the site the increase is concluded not to have a LSE on the site due to the extremely low level of increase. Section 1.4.14 states that the process contribution for nitrogen acidity deposition is zero.

f. Table 1-8 and Sections 1.5.9 – 1.5.11 provide a summary of the projects and plans provided by the local authority for an in-combination assessment. One project that was refused planning has point source emissions; the promoter has stated they do not intend to resubmit the application or to appeal against the refusal. There is a point source emitter within the Local Development Plan; however there is no information on the plan since it is a preferred location only and as such it is not possible to obtain air quality data. It is concluded that there are no point source emitters that would contribute to an in-combination effect with the emissions from the proposed Project.

HRA Screening Matrix 3 Crymlyn Bog Ramsar

Name of European site and designation: Crymlyn Bog Ramsar												
Ramsar designation has no EU Code, [SAC] EU Code for this site is: UK0020020												
Distance to NSIP: 6.7km												
European site features	**Likely effects of NSIP**											
Effect	*Water quality*			*Water quality In combination effects*			*Air quality*			*Air quality In combination effects*		
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*
Ramsar criterion 1 Valley floodplain topogenous mire and fen habitats	**×a**	**×a**	**×a**	**×a**	**×a**	**×a**	**×b**	**×b,e**	**×c**	**×d**	**×d,f**	**×d**
Ramsar criterion 2 Slender cotton-grass (Eriophorum gracile)and invertebrate assemblage, including fen raft spider (Dolomedes plantarius)	**×a**	**×a**	**×a**	**×a**	**×a**	**×a**	**×b**	**×b,e**	**×c**	**×d**	**×d,f**	**×d**
Ramsar criterion 2 Peatland	**×a**	**×a**	**×a**	**×a**	**×a**	**×a**	**×b**	**×b,e**	**×c**	**×d**	**×d,f**	**×d**
Ramsar criterion 3	**×a**	**×a**	**×a**	**×a**	**×a**	**×a**	**×b**	**×b,e**	**×c**	**×d**	**×d,f**	**×d**

Plant species assemblage												

Evidence supporting conclusions:

a. Crymlyn Bog Ramsar is not hydrologically connected to the Project Site. As such effects associated with water quality have been scoped out of any further assessment.

b. Section 1.3.10 states that there are no roads within 200 m of any Natura 2000 site that are forecast to receive anything other than a nominal short term change in vehicle flows as a result of the construction and operation of the Project. 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 considered to be no Likely Significant Effects associated with traffic emissions related air quality as a result of the construction or operation phases of the Project.

c. Potential effects of traffic related emissions during decommissioning are likely to be the same as for construction. There are considered to be no Likely Significant Effects associated with traffic emission related air quality resulting from the decommissioning phase of the Project.

d. Sections 1.5.6 – 1.5.8 state there will be extremely low traffic flows expected as part of the construction and operation of the Project, and the operational traffic flows from the Project will not make a significant contribution to any in-combination effects and will be within the average daily variations of traffic flows. A number of projects are likely to contribute to local pollutant concentrations through traffic emissions - using M4 Junction 46 and the B4489. However, there are no Natura 2000 sites located within 200 m of these locations. This is likely to be the same for decommissioning. There is no opportunity for a Likely Significant Effect as a result of traffic emissions from the Project acting in-combination with traffic emissions from other projects.

e. Table 1-6, Table 1-7, Table 1-9, Table 1-10 and Table 1-11 of the No Significant Effects report show the potential effects of NOx, nitrogen and nitrogen acidity generated during operation of the Project on the most sensitive receptor or most sensitive habitat on which a receptor is reliant of Crymlyn Bog Ramsar. Section 1.4.6 – 1.4.8 states that the process contributions are extremely small for nitrogen (<0.01kgN/ha/yr) and the current background levels for nitrogen are in exceedance of the critical loads for the most sensitive receptor at the site the increase is concluded not to have a LSE on the site due to the extremely low level of increase. Section 1.4.14 states that the process contribution for nitrogen acidity deposition is zero.

f. Table 1-8 and Sections 1.5.9 – 1.5.11 provide a summary of the projects and plans provided by the local authority for an in-combination assessment. One project that was refused planning has point source emissions; the promoter has stated they

do not intend to resubmit the application or to appeal against the refusal. There is a point source emitter within the Local Development Plan; however there is no information on the plan since it is a preferred location only and as such it is not possible to obtain air quality data. It is concluded that there are no point source emitters that would contribute to an in-combination effect with the emissions from the proposed Project.

HRA Screening Matrix 4 Burry Inlet SPA

Name of European site and designation: Burry Inlet SPA												
EU Code: UK9015011												
Distance to NSIP: 8.6km												
European site features	**Likely effects of NSIP**											
Effect	*Water quality*			*Water quality In combination effects*			*Air quality*			*Air quality In combination effects*		
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*
Oystercatcher (Haematopus ostralegus)	**×a,b**	**×b,c**	**×d**	**×e,f**	**×e,g**	**×e,f**	**×h**	**×h,j**	**×i**	**×e,j**	**×e,j,k,l**	**×e,j**
Pintail (Anas acuta)	**×a,b**	**×b,c**	**×d**	**×e,f**	**×e,g**	**×e,f**	**×h**	**×h,j**	**×i**	**×e,j**	**×e,j,k,l**	**×e,j**
Overwinter waterfowl assemblage of international importance.	**×a,b**	**×b,c**	**×d**	**×e,f**	**×e,g**	**×e,f**	**×h**	**×h,j**	**×i**	**×e,j**	**×e,j,k,l**	**×e,j**

Evidence supporting conclusions:

a. Section 1.3.8 and Section 1.4.1 of the No Significant Effects Report states that the embedded mitigation for construction (to be secured under the Construction Environmental Management Plan (CEMP)) will include measures to control 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 best practice and guidelines. The drainage strategy for the Project Site 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. There are deemed to be no Likely Significant Effects on the features as a result of pollution and/or runoff generated during construction.

b. Section 1.3.7 and Section 1.4.1 of the No Significant Effects Report states that during construction and operational maintenance temporary toilets with appropriate foul waste facility will be in place and all foul waste generated during this period will be taken off-site for disposal at appropriate facilities. No impact on water receptors is expected and there are deemed to be no Likely Significant Effects on the features as a result of wastewater generated during construction and operational maintenance.

c. There is a hydrological connection between the Project Site and Burry Inlet SPA via the Afon Llan. Leaving the Project Site, the Afon Llan flows for approximately 12 km before reaching the Afon Lliw and flowing into the Natura 2000 site.
Sections 1.3.5 and 1.4.2 of the No Significant Effects Report state that the drainage strategy has considered the use of either septic tanks within the site or a package sewage treatment plants for foul effluent. However, package treatment plants are the preferred option, subject to detailed design following completion of ground investigations.
Due to the small quantity of foul water generated during operation, it is anticipated that treated water can be discharged via infiltration (soakaway) on site. The foul water drainage system will be positioned to minimise the risk of inundation by floodwaters.
Where there is an inadequate unsaturated zone beneath the site, the option of discharging to local watercourses will be adopted. Any discharges will be subject to the Environmental Permitting Regulations and will meet quality criteria set by NRW.
Chapter 9 (Water Quality and Flood Risk) of the Environmental Statement (Abergelli Power Project Environmental Statement, AECOM, 2018) states that given the quantity of treated wastewater likely to be generated from the packaged sewage treatment plant and dilution properties of the receiving receptors, the magnitude of pollution impacts from discharges is considered to be Negligible.
There are deemed to be no Likely Significant Effects associated with wastewater discharges resulting from the operation of the Project on the designated site features.

d. Sections 1.1.17 – 1.1.19 detail the decommissioning phase of the Project. Section 1.3.9 states that potential effects on water quality during decommissioning are likely to be the same as for construction and will be controlled similarly. There are considered to be no Likely Significant Effects associated with water quality resulting from the decommissioning phase of the Project.

e. Table 1-8 provides a list pf projects that have the potential to act in combination with the Project. Table 1-12 provides the results of a screening exercise for each of the projects to demonstrate that the effects from the Project acting in-

combination with the projects are not significant. The Table briefly summarises the level of data or information available in relation to each project, which in all cases is limited.

f. Section 1.5.3 of the No Significant Effects Report states that there are no inputs during construction in relation to water quality from the Project that can act in combination with other projects, this is likely the same for decommissioning.

g. Section 1.5.4 of the No Significant Effects Report states that the inputs from Project wastewater discharges during operation are likely to be so small as to be within the natural daily fluctuations of the nutrient levels within Burry Inlet SPA and therefore immeasurable in-combination with other projects. There is considered to be no Likely Significant Effect as a result of wastewater discharges from the Project acting in-combination with wastewater discharges from other projects.

h. Section 1.3.10 states that there are no roads within 200 m of any Natura 2000 site that are forecast to receive anything other than a nominal short term change in vehicle flows as a result of the construction and operation of the Project. 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 considered to be no Likely Significant Effects associated with traffic emissions related air quality as a result of the construction or operation phases of the Project.

i. Potential effects of traffic related emissions during decommissioning are likely to be the same as for construction. There are considered to be no Likely Significant Effects associated with traffic emission related air quality resulting from the decommissioning phase of the Project.

j. Sections 1.5.6 – 1.5.8 state there will be extremely low traffic flows expected as part of the construction and operation of the Project, and the operational traffic flows from the Project will not make a significant contribution to any in-combination effects and will be within the average daily variations of traffic flows. A number of projects are likely to contribute to local pollutant concentrations through traffic emissions - using M4 Junction 46 and the B4489. However, there are no Natura 2000 sites located within 200 m of these locations. This is likely to be the same for decommissioning. There is no opportunity for a Likely Significant Effect as a result of traffic emissions from the Project acting in-combination with traffic emissions from other projects.

k. Table 1-6, Table 1-7, Table 1-9, Table 1-10 and Table 1-11 of the No Significant Effects report show the potential effects of NOx, nitrogen and nitrogen acidity on the most sensitive habitat on which a receptor of Burry Inlet SPA is reliant . Section 1.4.6 – 1.4.7 states that the process contributions are extremely small for nitrogen (<0.01kgN/ha/yr) and the current background levels for nitrogen are within the critical loads for the most sensitive receptor at the site the increase is concluded not to have a LSE on the site. Section 1.4.15 states that the process contribution for nitrogen acidity deposition is so low (<0.01keqH+/ha/yr) that it will not cause an exceedance of the critical load for nitrogen acidity at the site.

l. Table 1-8 and Sections 1.5.9 – 1.5.11 provide a summary of the projects and plans provided by the local authority for an in-combination assessment. One project that was refused planning has point source emissions; the promoter has stated they

do not intend to resubmit the application or to appeal the refusal. There is a point source emitter within the Local Development Plan; however there is no information on the plan since it is a preferred location only and as such it is not possible to obtain air quality data. It is concluded that there are no point source emitters that would contribute to an in-combination effect with the emissions from the proposed Project.

HRA Screening Matrix 5 Burry Inlet Ramsar

Name of European site and designation: Burry Inlet Ramsar												
Ramsar designation has no EU Code, [SPA] EU Code for this site is: UK9015011												
Distance to NSIP: 8.6km												
European site features	**Likely effects of NSIP**											
Effect	*Water quality*			*Water quality In combination effects*			*Air quality*			*Air quality In combination effects*		
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*
Ramsar criterion 5 Overwinter wildfowl assemblage of international importance	**×a,b**	**×b,c**	**×d**	**×e,f**	**×e,g**	**×e,f**	**×h**	**×h,j**	**×i**	**×e,j**	**×e,j,k,l**	**×e,j**
Ramsar criterion 6 Common redshank (Tringa totanus totanus),	**×a,b**	**×b,c**	**×d**	**×e,f**	**×e,g**	**×e,f**	**×h**	**×h,j**	**×i**	**×e,j**	**×e,j,k,l**	**×e,j**
Ramsar criterion 6 Pintail	**×a,b**	**×b,c**	**×d**	**×e,f**	**×e,g**	**×e,f**	**×h**	**×h,j**	**×i**	**×e,j**	**×e,j,k,l**	**×e,j**
Ramsar criterion 6 Oystercatcher	**×a,b**	**×b,c**	**×d**	**×e,f**	**×e,g**	**×e,f**	**×h**	**×h,j**	**×i**	**×e,j**	**×e,j,k,l**	**×e,j**
Ramsar criterion 6 Red knot (Calidris	**×a,b**	**×b,c**	**×d**	**×e,f**	**×e,g**	**×e,f**	**×h**	**×h,j**	**×i**	**×e,j**	**×e,j,k,l**	**×e,j**

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Evidence supporting conclusions:

a. Section 1.3.8 and Section 1.4.1 of the No Significant Effects Report states that the embedded mitigation for construction (to be secured under the Construction Environmental Management Plan (CEMP)) will include measures to control 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 best practice and guidelines. The drainage strategy for the Project Site 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. There are deemed to be no Likely Significant Effects on the features as a result of pollution and/or runoff generated during construction.

b. Section 1.3.7 and Section 1.4.1 of the No Significant Effects Report states that during construction and operational maintenance temporary toilets with appropriate foul waste facility will be in place and all foul waste generated during this period will be taken off-site for disposal at appropriate facilities. No impact on water receptors is expected and there are deemed to be no Likely Significant Effects on the features as a result of wastewater generated during construction and operational maintenance.

c. There is a hydrological connection between the Project Site and Burry Inlet Ramsar via the Afon Llan. Leaving the Project Site, the Afon Llan flows for approximately 12 km before reaching the Afon Lliw and flowing into the Natura 2000 site. Sections 1.3.5 and 1.4.2 of the No Significant Effects Report state that the drainage strategy has considered the use of either septic tanks within the site or a package sewage treatment plants for foul effluent. However, package treatment plants are the preferred option, subject to detailed design following completion of ground investigations.
Due to the small quantity of foul water generated during operation, it is anticipated that treated water can be discharged via infiltration (soakaway) on site. The foul water drainage system will be positioned to minimise the risk of inundation by floodwaters.
Where there is an inadequate unsaturated zone beneath the site, the option of discharging to local watercourses will be adopted. Any discharges will be subject to the Environmental Permitting Regulations and will meet quality criteria set by NRW.
Chapter 9 (Water Quality and Flood Risk) of the Environmental Statement (Abergelli Power Project Environmental Statement, AECOM, 2018) states that given the quantity of treated wastewater likely to be generated from the packaged sewage treatment plant and dilution properties of the receiving receptors, the magnitude of pollution impacts from discharges is considered to be Negligible.

There are deemed to be no Likely Significant Effects associated with wastewater discharges resulting from the operation of the Project on the designated site features.

d. Sections 1.1.17 – 1.1.19 detail the decommissioning phase of the Project. Section 1.3.9 states that potential effects on water quality during decommissioning are likely to be the same as for construction and will be controlled similarly. There are considered to be no Likely Significant Effects associated with water quality resulting from the decommissioning phase of the Project.

e. Table 1-8 provides a list pf projects that have the potential to act in combination with the Project. Table 1-12 provides the results of a screening exercise for each of the projects to demonstrate that the effects from the Project acting in-combination with the projects are not significant. The Table briefly summarises the level of data or information available in relation to each project, which in all cases is limited.

f. Section 1.5.3 of the No Significant Effects Report states that there are no inputs during construction in relation to water quality from the Project that can act in combination with other projects, this is likely the same for decommissioning.

g. Section 1.5.4 of the No Significant Effects Report states that the inputs from Project wastewater discharges during operation are likely to be so small as to be within the natural daily fluctuations of the nutrient levels within Burry Inlet Ramsar and therefore immeasurable in-combination with other projects. There is considered to be no Likely Significant Effect as a result of wastewater discharges from the Project acting in-combination with wastewater discharges from other projects.

h. Section 1.3.10 states that there are no roads within 200 m of any Natura 2000 site that are forecast to receive anything other than a nominal short term change in vehicle flows as a result of the construction and operation of the Project. 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 considered to be no Likely Significant Effects associated with traffic emissions related air quality as a result of the construction or operation phases of the Project.

i. Potential effects of traffic related emissions during decommissioning are likely to be the same as for construction. There are considered to be no Likely Significant Effects associated with traffic emission related air quality resulting from the decommissioning phase of the Project.

j. Sections 1.5.6 – 1.5.8 state there will be extremely low traffic flows expected as part of the construction and operation of the Project, and the operational traffic flows from the Project will not make a significant contribution to any in-combination effects and will be within the average daily variations of traffic flows. A number of projects are likely to contribute to local pollutant concentrations through traffic emissions - using M4 Junction 46 and the B4489. However, there are no Natura 2000 sites located within 200 m of these locations. This is likely to be the same for decommissioning. There is no opportunity for a Likely Significant Effect as a result of traffic emissions from the Project acting in-combination with traffic emissions from other projects.

k. Table 1-6, Table 1-7, Table 1-9, Table 1-10 and Table 1-11 of the No Significant Effects report show the potential effects of NOx, nitrogen and nitrogen acidity on the most sensitive habitat on which a receptor of Burry Inlet Ramsar is reliant. Section 1.4.6 – 1.4.7 states that the process contributions are extremely small for nitrogen (<0.01kgN/ha/yr) and the current background levels for nitrogen are within the critical loads for the most sensitive receptor at the site the increase is concluded not to have a LSE on the site. Section 1.4.15 states that the process contribution for nitrogen acidity deposition is so low (<0.01keqH+/ha/yr) that it will not cause an exceedance of the critical load for nitrogen acidity at the site.

l. Table 1-8 and Sections 1.5.9 – 1.5.11 provide a summary of the projects and plans provided by the local authority for an in-combination assessment. One project that was refused planning has point source emissions; the promoter has stated they do not intend to resubmit the application or to appeal against the refusal. There is a point source emitter within the Local Development Plan; however there is no information on the plan since it is a preferred location only and as such it is not possible to obtain air quality data. It is concluded that there are no point source emitters that would contribute to an in-combination effect with the emissions from the proposed Project.

Appendix C HRA Cumulative Assessment Screening Table 1-12

Projects considered for the in-combination assessment are presented in Table 1-8. The following table (Table 1-12) provides the results of a screening exercise for each of the projects to demonstrate that the effects from the Project acting in-combination with the projects are not significant. The Table summarises the level of data or information available in relation to each project, which in all cases is limited. On the basis of the information available, using professional judgment and adopting the precautionary principle, it is considered that the screening exercise is robust.

Table 1-12: Screening of Developments Considered in the Cumulative Assessment

Location	Development Name	Type of Development	Available Information	Documents / Reports available online?	Proximity to Site (km)	Likely to use same construction access route (M4 Junction 46, and B4489) Green = no cumulative effects anticipated	New roads within 200m of a European Site?	Emissions	Discharges	Likely Significant Effect?	
Under Construction											
1	Felindre Business Park	Business park	The aim of the Park is to home high-tech manufacturers, and research and technology industries. Submission indicated that reserved matters for the building plots would be sought within 10 years of consent, i.e. by mid-2021 – there have been no further submissions yet. Landscaping of the 61 ha site has been completed to schedule. The site includes 4 km of foul and storm drains, to prevent transport of pollutants. Remediation of the former tinplate works occurred between 1998 and 1999.	There is limited information available on the City and County of Swansea (CCS) planning portal.	0.9	Likely to use the M4 Junction 46 and B4489 Likely to use the same construction access.	No	During construction there is likely to be an increase in air emissions due to increase in vehicle movements. During operation, there is likely to be an increase in air emissions from commercial and industrial sources and operational traffic.	Potential discharges during construction, which has been ongoing for over 5 years.	Business Park site is in close proximity to Project Site. Landscaping and main earthworks have already been completed; however no buildings have been constructed. The construction date of the building plots is unknown. The Park is located more than 5km from the boundary of any European designated site. At such distances localised effects (including operation emissions) associated with proximity of development are unlikely. Emissions (from plant) and discharge will be controlled via the appropriate Environmental Permit, regulated by NRW.	Scoped Out
2	Abergelli Solar Farm	Solar farm	Approximately 37,000 panels, spaced 7 m apart, will be fixed at a height of 3 m above ground. The development is not predicted to have any adverse effects on the surrounding habitats or landscape, and the site will retain its public access. The project is predicted to have a 3 to 4 month construction period. The site will be drained using a SuDS system.	There is limited information available on the CCS planning portal.	0.2	Likely to use the M4 Junction 46 and B4489 Likely to use the same construction access.	No	Construction has already occurred; therefore there will be no emissions through this period. During operation, it is unlikely that there will be air emissions due to the nature of the development.	Construction has already occurred; therefore there will be no further discharges in this respect. During operation, it is unlikely that there will be discharges due to the nature of the development.	The solar farm is already constructed therefore no LSE during construction, No LSE anticipated during operation due to the nature of development.	Scoped Out

Location	Development Name	Type of Development	Available Information	Documents / Reports available online?	Proximity to Site (km)	Likely to use same construction access route (M4 Junction 46, and B4489) Green = no cumulative effects anticipated	New roads within 200m of a European Site?	Emissions	Discharges	Likely Significant Effect?	
3	Cefn Betingau Phase 1, Morriston	Solar farm	Approximately 40,000 panels will be fixed at a height of 3.5 m above ground.	There is limited information available on the CCS planning portal.	0.7	Likely to use different M4 junction (Junction 45).	No	Construction has already occurred; therefore there will be no emissions through this period. During operation, it is unlikely that there will be air emissions due to the nature of the development.	Construction has already occurred; therefore there will be no discharges in this respect. During operation, it is unlikely that there will be discharges due to the nature of the development.	The solar farm is already constructed therefore no LSE during construction. No LSE anticipated from emissions during operation due to the nature of development. Any discharges during operation will be controlled via the appropriate Environmental Permit, regulated by NRW.	Scoped Out
4	Gelliwern Isaf Solar Park	Solar farm	Series of solar power units, with an approximate 5 MW output.	There is limited information available on the CCS planning portal.	2.0	Likely to use different M4 junction (Junction 47).	No	Construction has already occurred; therefore there will be no emissions through this period. During operation, it is unlikely that there will be air emissions due to the nature of the development.	Construction has already occurred; therefore there will be no discharges in this respect. During operation, it is unlikely that there will be discharges due to the nature of the development.	The solar farm is already constructed therefore no LSE during construction. No LSE anticipated from emissions during operation due to the nature of development. Any discharges during operation will be controlled via the appropriate Environmental Permit, regulated by NRW.	Scoped Out
5	Brynwhilach Solar Park	Solar farm	Series of solar power units, with an approximate 12.7 MW output. Construction of the first phase took place between December 2016 and March 2017. The second phase of the solar farm on the western half of the site is due to be built at a later date. Pre-commencement conditions discharged and non-material amendments approved in early 2017 – submitted documents indicate development will be complete by mid/late-2018.	There is limited information available on the CCS planning portal.	0.3	Likely to use the M4 Junction 46 and B4489. Likely to use the same construction access.	No	During construction of the second phase, there is likely to be an increase in air emissions due to traffic. This is predicted to be complete by mid/late 2018 therefore this will not overlap with the Project. During operation, it is unlikely that there will be air emissions due to the nature of the development.	During operation, it is unlikely that there will be any discharges due to the nature of the development.	The solar farm is already constructed therefore no LSE during construction. No LSE anticipated from emissions during operation due to the nature of development. Any discharges during operation will be controlled via the appropriate Environmental Permit, regulated by NRW.	Scoped Out
6	Former J R Steelworks, Bryntywod (Griffiths Waste Management)	Waste management facilities	Plant and materials recycling facility, located on a former steelworks site. Development originally completed in 2013 though recent approval sought minor amendments.	There is limited information available on the CCS planning portal.	1.6	Likely to use the M4 Junction 46 and B4489 Likely to use the same construction	No	There may be an increase in vehicles and emissions during construction and operation.	There may be an increase in discharges during construction and operation.	The Former J R Steelworks is over 1.6 km from the Project Site therefore there are unlikely to be significant in-combination emissions from the Project Site. The minor amendments to the	Scoped Out

Location	Development Name	Type of Development	Available Information	Documents / Reports available online?	Proximity to Site (km)	Likely to use same construction access route (M4 Junction 46, and B4489) Green = no cumulative effects anticipated	New roads within 200m of a European Site?	Emissions	Discharges	Likely Significant Effect?	
						access				waste facility are not anticipated to be major works. Any emissions or discharges will be controlled via the appropriate Environmental Permit, regulated by NRW.	
7	Mynydd y Gwair Wind Farm	Wind farm	An onshore wind farm, consisting of 16 turbines, with an installed capacity of 33.6 MW. Construction is currently ongoing. Commenced in Feb 2017. Approved Construction Management Statement indicates 2 year construction phase.	There is limited information available on the CCS planning portal.	7.2	Likely to use different M4 junction (Junction 45), or the A483	No	There may be an increase in vehicles and emissions during construction.	There may be an increase in discharges during construction. Due to the nature of the project, there will also be no discharges to watercourses and limited traffic during operation.	The project is located over 7.2 km away from the Project Site, therefore localised effects from transport is unlikely to occur. Construction of the wind farm is also likely to be complete before the construction of the Project; therefore no cumulative effects are anticipated.	Scoped Out
8	Parc Ceirw, Cwmrhydyceirw Quarry, Swansea	Housing development	Proposed 250 to 300 residential properties, within a site of approximately 14 ha. The site was formerly an old quarry.	There is limited information available on the CCS planning portal.	1.7	Likely to use either different M4 junction (Junction 45), or M4 Junction 46 (southern exit)	No	During construction and operation, there is likely to be an increase in vehicles and emissions. .	There may be an increase in discharges during construction and operation.	Due to the distance of the Project Site from the Parc Ceirw development, and that the sites are separated by the M4 with different access routes, there will be no shared receptors or cumulative effects. Any emissions or discharges will be controlled via the appropriate Environmental Permit, regulated by NRW.	Scoped Out
Permitted but not Implemented											
9	Tyle Coch Mawr Wind Farm	Wind farm	Installation of four 5 kW turbines. Permission expires on 07/11/18. No condition details submitted yet	There is limited information available on the CCS planning portal.	5.0	Likely to use either the M4 Junction 46, or the A483	No	There may be an increase in vehicles and emissions during construction. Due to the nature of the project, there is not anticipated to be any significant emissions during operation	There may be an increase in discharges during construction. Due to the nature of the project, there is not anticipated to be any significant discharges to watercourses during operation.	Due to the distance of the Project Site from the Tyle Coch Mawr development, and that the sites will use different access routes, there will be no shared receptors or cumulative effects. Any emissions or discharges will be controlled via the appropriate Environmental Permit, regulated by NRW.	Scoped Out

Location	Development Name	Type of Development	Available Information	Documents / Reports available online?	Proximity to Site (km)	Likely to use same construction access route (M4 Junction 46, and B4489) Green = no cumulative effects anticipated	New roads within 200m of a European Site?	Emissions	Discharges	Likely Significant Effect?	
10	Felindre Business Park	Business park	Construction of park and ride/share car park (approximately 480 spaces) with new vehicular access, security office, toilet, engineering and associated works, including lighting, fencing, drainage attenuation and landscaping. Permission expires on 02/07/19. No condition details submitted yet.	There is limited information available on the CCS planning portal.	0.9	Likely to use the M4 Junction 46 and B4489 Likely to use the same construction access	No	During construction, there is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	Increased traffic is likely to be contained to peak times of use which may differ from construction traffic from the Project. Any discharges will be controlled via the appropriate Environmental Permit, regulated by NRW.	Scoped Out
11	Llettyr Morfil Farm	Solar Park	Series of solar power units, with an approximate 5 MW output. Most pre-commencement details approved in July 2017. Approved Construction Method Statement states 16-week construction period.	There is limited information available on the CCS planning portal.	0.2	Likely to use the M4 Junction 46 and B4489 Likely to use the same construction access	No	During construction, there is likely to be an increase in air emissions from construction traffic. During operation, it is unlikely that there will be air emissions due to the nature of the development.	There may be an increase in discharges during construction. Due to the nature of the project, there is not anticipated to be any significant discharges to watercourses during operation.	Increased traffic is likely to be contained to peak times of use which may differ from construction traffic from the Project and only for 16 weeks, compared to the Projects 22 month construction phase. Any discharges will be controlled via the appropriate Environmental Permit, regulated by NRW.	Scoped Out
12	Plot 8 Felindre Strategic Business Park	Business park	Two/three storey private hospital development with associated landscaping, site roads and car parking. Permission expires on 15/05/20. Some pre-commencement details approved in July 2016; others outstanding.	There is limited information available on the CCS planning portal.	0.9	Likely to use the M4 Junction 46 and B4489 Likely to use the same construction access	No	There is likely to be an increase in air emissions from construction and operational traffic. Plot is relatively small (one plot of the Felindre Business Park) and associated traffic, air pollution, and discharges will be minimal.	There may be an increase in discharges during construction and operation.	Increased traffic is likely to be contained to peak times of use which may differ from construction traffic from the Project. Emissions (from any plant) and discharges will be controlled via the appropriate Environmental Permit, regulated by NRW.	Scoped Out
13	Griffiths Waste Management Site, Bryntywod Llangyfelach Swansea SA5 7LP	Waste management facilities	Second part of the Former J R Steelworks' site. Demolition of existing waste management facility buildings and construction of replacement buildings and associated infrastructure. Permission expires on 21/09/21. Pre-commencement details approved in May 2017	There is limited information available on the CCS planning portal.	1.3	Likely to use the M4 Junction 46 and B4489 Likely to use the same construction access	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	Increased traffic is likely to be contained to peak times of use which may differ from construction traffic from the Project. Emissions (from any plant) and discharges will be controlled via the appropriate Environmental Permit, regulated by NRW.	Scoped Out
14	Former Walters Yard Pontlliw	Housing	Construction of 67 residential dwellings on a site of 2.2 ha.	There is limited information	2.8	Likely to use different M4	No	There is likely to be an increase in air emissions	There may be an increase in	This site and the Project will use different access routes; therefore	Scoped Out

Location	Development Name	Type of Development	Available Information	Documents / Reports available online?	Proximity to Site (km)	Likely to use same construction access route (M4 Junction 46, and B4489) Green = no cumulative effects anticipated	New roads within 200m of a European Site?	Emissions	Discharges	Likely Significant Effect?	
	Swansea	development	Development of associated access, roads, parking, open space, and demolition of existing buildings. Permission expires on 21/09/21. Pre-commencement details approved in May 2017	available on the CCS planning portal.		junction (Junction 47)		from construction and operational traffic.	discharges during construction and operation.	there will be no shared receptors or cumulative effects. Emissions (from any plant) and discharges will be controlled via the appropriate Environmental Permit, regulated by NRW.	
Submitted but not Determined											
15	Land at Llewellyn Road, Penllergaer	Housing development	Outline application for the construction of 200 residential dwellings	There is limited information available on the CCS planning portal.	3.4	Likely to use different M4 junction (Junction 47)	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	This site and the Project sites will use different access routes; therefore there will be no shared receptors or cumulative effects.	Scoped Out
16	Royal Fern Golf Resort	Recreational development	Application of a high quality leisure and visitor facilities, within a 150 ha site.	There is limited information available on the CCS planning portal.	3.0	Likely to use the M4 Junction 46 (southern exit)	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	The development is a significant distance away and separated by the M4. As such, any cumulative effects on air quality or effluent discharges during construction and operation are unlikely.	Scoped Out
17	Land West Of Llangyfelach Road Tirdeunaw	Housing development	Outline planning application for the construction of 1950 dwellings. These will be constructed in phases. Development of associated access, a primary school, roads, parking, open space, and demolition of existing buildings.	There is limited information available on the CCS planning portal.	2.9	Likely to use the M4 Junction 46 (southern exit)	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	The development is a significant distance away and separated by the M4. As such, any cumulative effects on air quality or effluent discharges during construction and operation are unlikely. Emissions (from any plant) and discharges will be controlled via the appropriate Environmental Permit, regulated by NRW.	Scoped Out
18	Land North Of Garden Village Swansea	Housing development	Outline planning application for the construction of 750 dwellings. These will be constructed in phases. Development of associated access, a primary school, roads, parking, open space, and demolition of existing buildings.	There is limited information available on the CCS planning portal.	5.2	Likely to use different M4 junction (Junction 47)	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	This site and the Project will use different access routes; therefore there will be no shared receptors or cumulative effects.	Scoped Out

Location	Development Name	Type of Development	Available Information	Documents / Reports available online?	Proximity to Site (km)	Likely to use same construction access route (M4 Junction 46, and B4489) Green = no cumulative effects anticipated	New roads within 200m of a European Site?	Emissions	Discharges	Likely Significant Effect?	
19	Former Civic Centre Penllergaer Swansea SA4 9GH	Housing development	Application or the construction of 80 residential dwellings.	There is limited information available on the CCS planning portal.	2.4	Likely to use different M4 junction (Junction 47)	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	Both of these sites will use different access routes, therefore there will be no shared receptors or cumulative effects.	Scoped Out
Identified / Allocated (but not referenced above)											
20	Swansea Vale Strategic Mixed-Use Site	Business park	25 ha allocated employment land	There is limited information available on the CCS planning portal.	3.0	Likely to use different M4 junction (Junction 20)	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	Both the Swansea Vale and the Project will use different access routes, therefore there will be no shared receptors or cumulative effects. This is also an allocated site with aspirational development opportunities which are not reasonably foreseeable to assess at this stage.	Scoped Out
21	Land at Bryntywod, Felindre (Local Employment Site)	Business park	15.8 ha allocated employment land	There is limited information available on the CCS planning portal.	0.6	Likely to use the M4 Junction 46 and B4489 Likely to use the same construction access	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	Increased traffic is likely to be contained to peak times of use which may differ from construction traffic from the Project. Emissions (from any plant) and discharges will be controlled via the appropriate Environmental Permit, regulated by NRW. This is also an allocated site with aspirational development opportunities which are not reasonably foreseeable to assess at this stage.	Scoped Out
22	Penllergaer Business Park (Local Employment Site)	Business park	8.2 ha allocated employment land	There is limited information available on the CCS planning portal.	2.0	Likely to use different M4 junction (Junction 48)	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	This site and the Project will use different access routes; therefore there will be no shared receptors or cumulative effects. This is also an allocated site with aspirational development opportunities which are not reasonably foreseeable to assess at this stage.	Scoped Out
23	West of Morriston	Hospital	Space allocated for hospital	There is limited information	1.0	Likely to use different M4	No	There is likely to be an increase in air emissions	There may be an increase in	This site and the Project will use different access routes; therefore	Scoped Out

Location	Development Name	Type of Development	Available Information	Documents / Reports available online?	Proximity to Site (km)	Likely to use same construction access route (M4 Junction 46, and B4489) Green = no cumulative effects anticipated	New roads within 200m of a European Site?	Emissions	Discharges	Likely Significant Effect?	
	Hospital	development	expansion related activities	available on the CCS planning portal.		junction		from construction and operational traffic.	discharges during construction and operation.	there will be no shared receptors or cumulative effects. This is also an allocated site with aspirational development opportunities which are not reasonably foreseeable to assess at this stage.	
24	Northwest of M4 J46, Llangyfelach	Housing development	Residential and mixed-use development of approximately 850 houses, plus associated development, including a primary school, leisure and recreational facilities, open space, and community facilities.	There is limited information available on the CCS planning portal.	1.0	Likely to use the M4 Junction 46 and B4489 Likely to use the same construction access	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	Increased traffic is likely to be contained to peak times of use which may differ from construction traffic from the Project. Emissions (from any plant) and discharges will be controlled via the appropriate Environmental Permit, regulated by NRW. This is also an allocated site with aspirational development opportunities which are not reasonably foreseeable to assess at this stage.	Scoped Out
25	South of Glanffrwd Road, Pontarddulais	Housing development	Residential and mixed-use development of approximately 720 houses, plus associated development, including a primary school, leisure and recreational facilities, open space, and community facilities. It is predicted that 486 residential dwellings will be constructed between 2020 to 2025.	There is limited information available on the CCS planning portal.	6.0	Likely to use different M4 junction (Junction 48)	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	This site and the Project will use different access routes; therefore there will be no shared receptors or cumulative effects. Emissions (from any plant) and discharges will be controlled via the appropriate Environmental Permit, regulated by NRW. This is also an allocated site with aspirational development opportunities which are not reasonably foreseeable to assess at this stage.	Scoped Out
26	South of A4240, Penllergaer	Housing development	Residential and mixed-use development of approximately 750,000 houses, plus associated development, including a primary school, leisure and recreational facilities, open space, and community facilities. It is predicted that 644 residential dwellings will be constructed between 2019 to 2025.	There is limited information available on the CCS planning portal.	3.5	Likely to use different M4 junction (Junction 47)	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	This site and the Project will use different access routes; therefore there will be no shared receptors or cumulative effects. Emissions (from any plant) and discharges will be controlled via the appropriate Environmental Permit, regulated by NRW. This is also an allocated site with aspirational development opportunities which are not	Scoped Out

Location	Development Name	Type of Development	Available Information	Documents / Reports available online?	Proximity to Site (km)	Likely to use same construction access route (M4 Junction 46, and B4489) Green = no cumulative effects anticipated	New roads within 200m of a European Site?	Emissions	Discharges	Likely Significant Effect?	
										reasonably foreseeable to assess at this stage.	
27	North of Clasemont Road, Morriston	Housing development	Residential and mixed-use development of approximately 675,000 houses, plus associated development, including a primary school, leisure and recreational facilities, open space, and community facilities. It is predicted that 490 residential dwellings will be constructed between 2020 to 2025.	There is limited information available on the CCS planning portal.	1.7	Likely to use the M4 Junction 46 (southern exit)	No	During construction, there is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	The development is a significant distance away, and is separated from the Site by the M4. As such, the cumulative air quality, effluent discharges, traffic impacts during construction and operation are unlikely. Both of these sites will use different access routes, therefore there will be no shared receptors or cumulative effects. Emissions (from any plant) and discharges will be controlled via the appropriate Environmental Permit, regulated by NRW. This is also an allocated site with aspirational development opportunities which are not reasonably foreseeable to assess at this stage.	Scoped Out
28	Morriston Hospital	Hospital development	Space allocated for future hospital expansion related activities	There is limited information available on the CCS planning portal.	0.5	Likely to use different M4 junction (Junction 45)	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	This site and the Project will use different access routes; therefore there will be no shared receptors or cumulative effects. Emissions (from any plant) and discharges will be controlled via the appropriate Environmental Permit, regulated by NRW. This is also an allocated site with aspirational development opportunities which are not reasonably foreseeable to assess at this stage.	Scoped Out
29	Former Tip Site, Felindre	Waste management facilities	Preferred area for the new waste management facilities. The site is a former tip site. The site has also been identified as a potential location for a combined Heat and Power (CHP) Facilities.	There is limited information available on the CCS planning portal.	0.4	Likely to use the M4 Junction 46 and B4489 Likely to use the same construction access	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	Increased traffic is likely to be contained to peak times of use which may differ from construction traffic from the Project. Emissions (from any plant) and discharges will be controlled via the appropriate Environmental Permit, regulated by NRW. This is also an allocated	Scoped Out

Location	Development Name	Type of Development	Available Information	Documents / Reports available online?	Proximity to Site (km)	Likely to use same construction access route (M4 Junction 46, and B4489) Green = no cumulative effects anticipated	New roads within 200m of a European Site?	Emissions	Discharges	Likely Significant Effect?	
										site with aspirational development opportunities which are not reasonably foreseeable to assess at this stage.	
30	Land at Ramsey Road, Clydach	Housing development	Outline application for the construction of 60 residential dwellings Construction Start 2020/21 Construction Complete 2021/22	There is limited information available on the CCS planning portal.	3.3	Likely to use different M4 junction (Junction 45)	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	This site and the Project will use different access routes, and are a significant distance from one another; therefore there will be no shared receptors or cumulative effects. Emissions (from any plant) and discharges will be controlled via the appropriate Environmental Permit, regulated by NRW. This is also an allocated site with aspirational development opportunities which are not reasonably foreseeable to assess at this stage.	Scoped Out
31	Land east of Pontarddulais Road, Gorseinon	Housing development	Space allocated for residential dwellings. Construction Start 2023/24 Construction Complete 2025/26	There is limited information available on the CCS planning portal.	5.1	Likely to use different M4 junction (Junction 47)	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	This site and the Project will use different access routes, and are a significant distance from one another; therefore there will be no shared receptors or cumulative effects. Emissions (from any plant) and discharges will be controlled via the appropriate Environmental Permit, regulated by NRW. The construction phases of the housing development and the Project are unlikely to overlap therefore no cumulative effects are likely. This is also an allocated site with aspirational development opportunities which are not reasonably foreseeable to assess at this stage.	Scoped Out
32	Land at Carmel Road and Bryntirion Road, Pontlliw	Housing development	Outline application for the construction of 90 residential dwellings Construction Start 2019/20	There is limited information available on the CCS planning portal.	3.1	Likely to use different M4 junction (Junction 47)	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	This site and the Project will use different access routes, and are a significant distance from one another; therefore there will be no shared receptors or cumulative	Scoped Out

Location	Development Name	Type of Development	Available Information	Documents / Reports available online?	Proximity to Site (km)	Likely to use same construction access route (M4 Junction 46, and B4489) Green = no cumulative effects anticipated	New roads within 200m of a European Site?	Emissions	Discharges	Likely Significant Effect?	
			Construction Complete 2022/23							effects. Emissions (from plant) and any discharges will be controlled via the appropriate Environmental Permit, regulated by NRW. This is also an allocated site with aspirational development opportunities which are not reasonably foreseeable to assess at this stage.	
33	Land north of Llewellyn Road, Penllergaer	Housing development	Space allocated for residential dwellings. Construction Start 2023/24 Construction Complete 2024/25	There is limited information available on the CCS planning portal.	3.7	Likely to use different M4 junction (Junction 47)	No	There is likely to be an increase in air emissions from construction and operational traffic.	There may be an increase in discharges during construction and operation.	This site and the Project will use different access routes, and are a significant distance from one another; therefore there will be no shared receptors or cumulative effects. Emissions (from plant) and any discharges will be controlled via the appropriate Environmental Permit, regulated by NRW. This is also an allocated site with aspirational development opportunities which are not reasonably foreseeable to assess at this stage.	Scoped Out
34	Land at Bolgoed Road, Pontarddulais	Housing development	Outline application for the construction of 100 residential dwellings Construction Start 2019/20 Construction Complete 2020/21	There is limited information available on the CCS planning portal.	4.8	Likely to use different M4 junction (Junction 48)	No	There is likely to be an increase in air emissions from construction and operational traffic. .	There may be an increase in discharges during construction and operation.	This site and the Project will use different access routes, and are a significant distance from one another; therefore there will be no shared receptors or cumulative effects. Emissions (from plant) and any discharges will be controlled via the appropriate Environmental Permit, regulated by NRW. This is also an allocated site with aspirational development opportunities which are not reasonably foreseeable to assess at this stage.	Scoped Out