



Appendix 3.12

Habitat Regulations Assessment: Stage 1 Screening Report (July, 2022)

BARRY BIOMASS FACILITY

Habitat Regulations Assessment: Stage 1

Screening Report

Prepared for: Biomass UK No. 2 Limited

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1.0 Introduction

SLR Consulting Ltd. (SLR) was commissioned by Biomass UK No.2 Ltd to prepare a Habitat Regulations Assessment (HRA) Stage 1 Screening assessment in relation to the commencement of operations at Barry Biomass Plant, Barry (NGR ST 12605 67691) (the 'Development') and illustrated on Figure 1-1. Biomass UK No. 2 Ltd began development of the site in 2016. The Development is currently fully constructed, but not operational, due to concerns regarding the extent of the negative environmental impacts the site has potential to have once operational.

The Development falls completely within the administration of Vale of Glamorgan Council (VoGC), to whom an appeal against the issued Enforcement Order has been made by the appellant (Biomass UK No. 2 Ltd).

In accordance with Regulation 63(2) of the Conservation of Habitats and Species Regulations (2017) (as amended); this report provides detail and assessment in respect of likely significant effects on European Sites which is a collective term that describes Special Area of Conservation (SACs), candidate Special Area of Conservation (cSACs), Special Protection Areas (SPAs), potential Special Protection Areas (pSPAs) and in accordance with Government policy, Ramsar sites. This information is intended to enable the local planning authority to determine the application in the light of any identified effects upon European Sites.

1.1 Purpose of the Report

This report serves to identify any aspects of the Development that would be likely to lead to significant effects upon any sites afforded protection under the Habitats Regulations. Where the absence of likely significant effects on European Sites cannot be concluded from Stage 1 assessment, further assessment and reporting is required to provide the information to inform the competent authority's determination of the need for Stage 2 Appropriate Assessment and to serve as the basis of that assessment. The information provided by the applicant is referred to as a Stage 2 Shadow Appropriate Assessment or a Statement to Inform the Appropriate Assessment.

This report includes a Stage 1 – Screening Assessment only; a more detailed report to inform a Stage 2 - Appropriate Assessment has not been deemed necessary in this instance. The purpose of this report is to provide supporting information to inform the competent authority, in this case PEDW, as to the need for an Appropriate Assessment of the proposals and to determine the appeal in accordance with regulation 63(2) of the Conservation of Habitats and Species Regulations (2017) as amended.

1.2 Objectives of Habitat Regulations Assessment

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures to be addressed. Natural Resources Wales is also commonly consulted in the process of screening projects to establish whether an appropriate assessment is required and the scope of such an assessment.

The stages of the HRA are:

- Stage 1: Screening: the process which identifies whether effects upon European Sites of a plan or project are possible, either alone or in combination with other plans or projects and considers whether these effects are likely to be significant. This is broken down into:
 - Confirm whether the project or plan is connected with site management;
 - Examine the nature of the proposed works – are they a project or plan;
 - Identify whether there are potential effects on European Sites based on proximity criteria; and
 - Assess the likely significant effects including in-combination effects.

- Stage 2: Appropriate Assessment: the detailed consideration of the effect on the integrity of the European site of the plan or project, either alone or in combination with other plans or projects, with respect to the site's conservation objectives and its structure and function.
- Stage 3: Assessment of alternative solutions: the process which examines alternative ways of achieving the objectives of the plan or project that avoid adverse effects on the integrity of the European site.
- Stage 4: Assessment where no alternative solutions exist and where adverse effects remain: an assessment of whether the development is necessary for imperative reasons of overriding public interest (IROPI) and, if so, of the compensatory measures needed to maintain the overall coherence of the European network.

The HRA process is further described in Section 3.1.

1.3 Evidence of Technical Competence and Experience

This report was written by Charlie Kempson BSc (Hons) MSc, a Project Ecologist at SLR. Charlie has experience in a range of ecological assessments, including in support of Preliminary Ecological Assessment (PEAs) and Habitats Regulations Assessment (HRAs). This includes experience in vegetation survey, and protected species surveys including for badger, great crested newt, bats, and reptiles – as well as an understanding of the legal frameworks within the United Kingdom and their application in regard to developments. Charlie has a BSc (Hons) in Zoology and an MSc in Conservation Biology. He is a qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

This report was reviewed by Bob Edmonds CEnv MCIEEM. Bob Edmonds is a Technical Director at SLR with twenty years professional consultancy experience as an ecologist. Bob is Technical Discipline Manager for SLR's Ecology Team, which currently has around 60 permanent staff. Recently, Bob has specialised in ecological impact assessment, biodiversity net gain and protected fauna survey and mitigation. He has experience in a range of ecological survey methods and techniques, including botanical, mammal and herpetofauna survey. Bob has been a member of the Professional Standards Committee of Chartered Institute of Ecology and Environmental Management since 2014, which focusses upon providing guidance to the profession and improving practice.

2.0 Relevant Legislation and Policy

2.1 European Nature Directives (Habitats and Birds)

Previously the Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora), served as the basis for the designation of Special Areas of Conservation. Similarly, Special Protection Areas were classified under the Birds Directive (Council Directive 2009/147/EEC on the Conservation of Wild Birds). The provisions for designation of these sites have now been incorporated into national legislation and collectively these are referred to as the UK national site network (previously referred to as the Natura 2000 network). In general terms, these sites are considered to be of exceptional importance for rare, endangered or vulnerable habitats and species within the UK's territory (and previously within Europe). The sites designated for nature conservation under the Habitats and Birds Directives may be referred to as 'European sites'.

Following the UK's withdrawal from the EU on 31st of January 2020; the legislation underpinning the protection of European sites has been updated. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019¹ effectively carries over and transposes EU law on this matter into UK domestic law.

¹ <http://www.legislation.gov.uk/uksi/2019/579/contents/made>

2.2 Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations') transpose the requirements of Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law and under this legislation the assessment of the implications for European sites or Habitats Regulations assessment is required where plans or projects have the potential to effect European sites and where those projects are not connected with or necessary to the management of such sites.

In such cases, Regulation 63 of the Conservation of Habitats and Species Regulations 2017, requires that the competent authority makes an Appropriate Assessment of the implications for European site or sites in view of a site's conservation objectives, before deciding to undertake, or give consent, permission or other authorisation for, a plan or project which:

- a. is likely to have a significant effect on a European site, either alone or in combination with other plans and projects; and
- b. is not directly connected with or necessary to the management of that site.

A person applying for any such consent, permission or other authorisation must provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable them to determine whether an appropriate assessment is required.

3.0 HRA: Screening Methodology

This section of the report sets out the methods of gathering the information to support the preparation of this report.

3.1 Process Outline

It is the purpose of the HRA screening stage to determine, on a precautionary basis, whether a plan or project has the potential to cause a likely significant effect on one or more European sites. Following the precautionary principle, the conservation objectives of a site should prevail where there is uncertainty and harmful effects are assumed in the absence of evidence to the contrary. If a likely significant effect is identified, an Appropriate Assessment is required to determine whether it can be concluded that the plan or project alone, or in combination with other plans and projects, will not result in an adverse effect on the integrity of one or more European sites.

The HRA screening stage has been characterised by the European Commission in the guidance document 'Assessment of plans and projects significantly affecting European sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC' ("the European Commission Guidance") as a four-step process. These steps are:

- determining whether the project or plan is directly connected with or necessary to the management of the site;
- describing the project or plan and the description and characterisation of other projects or plans that in combination have the potential for having significant effects on the European site;
- identifying the potential effects on the European site;
- assessing the significance of any effects on the European site."

When each of these steps has been worked through there are two potential outcomes:

1. One or more likely significant effects on designated features of European sites are identified, or there is uncertainty about the absence of likely significant effects, and the project requires an Appropriate Assessment (Stage 2); or
2. There is an absence of likely significant effects on designated features of European sites as there is no pathway by which such effects could occur and therefore there is no requirement for an Appropriate Assessment. This is also known as 'screening out' the need for further assessment.

The person applying for permission for a plan or project must provide sufficient information to the competent authority, where there are likely significant effects on European sites; to enable the competent authority to assess whether an Appropriate Assessment is required.

In order to determine whether a plan or project is capable of resulting in one or more likely significant effects on a European site it is necessary to understand the activities associated with the construction, operation and maintenance or decommissioning (if relevant) of a project and the effects that this may have on designated features of European sites.

Through the use of this *activity – change – effect* concept, it is possible to identify potential European sites (and their qualifying features) that may be subject to likely significant effects through the determination of a series of search parameters (see Section 3.2). These search parameters can then be extended to identify the other plans and projects that require consideration within the assessment of in combination effects.

3.2 Identification of the European sites that could be affected by a project

The European sites that should be considered within the screening process are those where there is the potential, on a precautionary basis, for a likely significant effect to be identified for the project alone and in combination with other plans and projects.

Key to determining which European sites are included within this consideration is an understanding of the activities associated with a project, the geographical scale over which changes due to the different activities may be detectable and the types of receptors (in other words designated features) susceptible to them². An effective and efficient way to determine these relationships in a structured and transparent way is through the use of an *activity – change – effect* model.

Central to the identification of European sites for consideration within the HRA process is the ability to define evidence-based search parameters. In order to achieve this, the following steps are followed:

- Identification of the project activities associated with the construction, operation and maintenance or decommissioning (if applicable) phases that have the potential to result in changes to background environmental parameters (for example air quality, land take).
- Determination of the changes that could occur as a result of the activities identified.
- Determination of the distance over which these changes may occur based on published literature, outputs from the ecological assessment process and/or professional judgement.
- Identification of the potential designated features³ (for example based on Annex II species listed on the Habitats Directive and Annex I birds listed on the Birds Directive, including functional habitat requirements) that may be affected by the identified changes.

The outcome of these steps is a series of search parameters based on potential pathways of effect that can then be used to determine both the European sites for inclusion within the HRA process, due to their physical proximity to the project site, and those linked by way of mobile fauna and associated functional habitat.

3.3 Identifying in combination effects and other plans or projects for inclusion

Effects on European sites may result from a proposed development alone and/or in combination with other plans or projects; these potential cumulative effects are described as ‘in combination effects’ in the Habitats Regulations. Within the published literature the main references that provide relevant and current guidance, are:

- Planning Inspectorate (2017). Habitat Regulations Assessment relevant to Nationally Significant Infrastructure Projects;
- Planning Inspectorate (2019) Advice Note 17 Cumulative Effects; and
- Assessment of plans and projects in relation to European sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/: EN.pdf (europa.eu).

These sources have informed the methods used for the in-combination assessment in the case of the project.

² This includes habitats and species that are not designated features but help underpin the conservation objectives of a European site (for example habitats supporting designated features). This is in line with recent case law – Case C-461/17 *Holohan v An Bord Pleanala*.

³ Based on baseline environmental survey and desk-study information.

The identification of plans and projects to include within the in-combination assessment follows the same methodology as that outlined in Section 3.2 for the identification of European sites relevant to a project. Key to the inclusion of other plans and projects within the assessment are the spatial and temporal overlaps that may occur due to the scale of potential changes (for example overlaps in the zones of disturbance caused by simultaneous construction activity) or the areas over which potential receptors may travel (for example a bird may pass through several areas where development is proposed when moving between roosting and feeding grounds in or between designated sites).

Following the identification of plans and projects within the search areas, an initial screening is then undertaken to filter out minor proposals (for example extensions to existing dwellings, minor street works, changes of use etc.) with no potential to cause likely significant effects in combination and those with no potential to overlap with a project due to differing timescales. Those that are to be included within the in-combination assessment are then considered with regard to the identified potential effects. The list of plans and projects identified will also be used to inform stage 2 of the HRA process (should one be required).

3.4 Determining Likely Significant Effects

The HRA screening process uses the threshold of likely significant effects to determine whether effects on European sites should be the subject of further assessment. The Habitats Regulations do not define the term likely significant effect. However, in the Waddenzee case (Case C-127/02) the European Court of Justice found that a likely significant effect exists if it cannot be excluded on the basis of objective information that the plan or project will have significant effects on the conservation objectives of the site concerned, whether alone or in combination with any other project. The Advocate General's opinion of the Sweetman case (Case C-258/11) further clarifies the position by noting that for a conclusion of a likely significant effect to be made "*there is no need to establish such an effect...it is merely necessary to determine that there may be such an effect*".

Under the Habitat Regulations an effect is likely if:

- 1) it cannot be excluded, in that it is capable of having an effect, on the basis of objective information; and
- 2) it is likely to undermine the site's conservation objectives, after all aspects of the plan or project have been considered alone and in combination with other plans and projects.

A precautionary approach has been taken to the screening process (Stage 1). Only those designated features and European sites where it can be demonstrated that there is no likelihood of a significant effect occurring (based on the criteria and approach outlined above) have been screened out. This screening assessment does not consider any mitigation measures that are necessary to reduce or avoid likely significant effects on European sites. This follows the judgement of the Court of Justice of the European Union⁴ (CJEU) where it was concluded that the need for measures to avoid or reduce harmful effects presupposes that there is a likely significant effect, and consequently consideration at Stage 2 is required.

Within the screening assessment, each potential effect is considered using information from surveys undertaken to inform the HRA process, published literature (where available), other available baseline data, modelling outputs, the project design and professional judgement (informed by CIEEM, 2018⁵). Where a potential effect has been identified but no likely significant effect is predicted the evidence and reason for reaching this conclusion is provided.

⁴Case C-323/17 People Over Wind v Coillte Teoranta.

⁵ Chartered Institute of Ecology and Environmental Management (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal.

3.5 Baseline Data Collation

Baseline information for the HRA has been gathered through desk study. The collation of data focusses on those designated sites and project activities where the potential for significant effects could be reasonably thought to occur when consideration is given to the project and in-combination effects with other projects.

Due to the nature of the project, *i.e.*, that the facility has been built but is not yet in operation, it was considered unnecessary to collect any site-specific field survey data to support this assessment.

3.5.1 Desk review

While the Habitats Regulations do not limit the consideration of European Sites, the nature of the proposed project is likely to be associated with two potential sources of likely significant effects. These are:

- direct or indirect effects from the operation of the facility itself; and
- indirect effects associated with operational use of the road network.

The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries. The zone of influence will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2018).

Guidance provided by Highways England et al (2020⁶) on the assessment of likely significant effects for highways projects has been referred to. The guidance sets out a structured approach to identifying when European Sites should be subject to screening based on a range of project related criteria. These criteria, with slight amendment, support screening where a project:

- is within 10km of a European site or functionally linked land;
- is within 30km of a SACs, where bats are noted as one of the qualifying interests;
- has an affected road network (ARN) which lies within 200m of a European Site.

⁶ Highways England, Transport Scotland, Welsh Government and Department for Infrastructure (2020). Design Manual for Roads and Bridges. Sustainability & Environment Appraisal. LA 115 Habitats Regulations assessment.

Figure 2 shows the location of those European Sites within a 15km radius of the Development Site, and Table 1 provides justification for the level of evidence provided for those sites identified within the 15km radius.

Table 1 - Consideration of European Sites within 15km

Site Name and Designation		EU Code	Distance to Application Site (km)	Screening criteria triggered	Comment
CARDIFF WOODS	BEECH	UK0030109	14	NO	
SEVERN RAMSAR	ESTUARY	UK11081	3.9	YES	Within 10km of the development, within 200m of the ARN (M4)
SEVERN SAC	ESTUARY	UK0013030	6	YES	Within 10km of the development, Within 200m of the ARN (M4)
SEVERN SPA	ESTUARY	UK9015022	3.9	YES	Within 10km of the development, within 200m of the ARN (M4)

Given the nature of the application and the sensitivity of the sites, three European sites have been identified as requiring screening either on account of the proximity of the application site or on the basis of their location relative to the affected road network.

4.0 Detailed Description of the Development

A full description of the Development is provided within documents supporting the Appeal, including Chapter 5: Description of the Development of the Appeal ES (July 2022). The biomass facility has been fully constructed but is not operational due to an Enforcement Order. The appellant is appealing the Enforcement Order issued by Vale of Glamorgan Council in September 2022, which if successful would lead to the beginning of plant operations.

4.1 Likely Direct, Indirect or Secondary Impacts

4.1.1 Description of Development

The site of the Development is located off Woodham Road, Barry (NGR ST 12605 67691). The Site is rectangular, approximately 1.07ha in area and bordered by David Davies Road to the south, and Ffordd-y-Mileniwm to the north. The plant itself is approximately 0.74ha.

The Development is a renewable energy generation facility, designed to recover energy from pre-prepared mixed waste wood feedstocks using gasification. The gasification facility is an Advanced Thermal Treatment (ATT) process that produces a combustible synthesis gas, which is then used to raise steam and generate electricity, through steam cycle turbine generation. The gasification plant is designed to process heat and to raise steam in a conventional tube boiler for the production of renewable electricity in a steam turbine. The annual average export capacity of the Barry Biomass Facility is 10MWe.⁷

4.1.2 Emissions

Point Source

The Development will act as a point source for emissions. Designated sites within 10km will be screened for their susceptibility to air pollution, and potential risks posed by the beginning of plant operations.

The air quality assessment which was carried out by Entran Ltd. for the 2022 Appeal Environmental Statement (Chapter 9: Air Quality) concluded that impacts of the Development on NO_x, SO₂, NH₃ and HF concentrations at all internationally designated sites (as described in full in Section 5 below) was insignificant in accordance with the Environment Agency screening criteria. The likelihood of adverse effects on the identified ecological receptors from the operation of the plant with regard to air quality is deemed to be insignificant.

Traffic

In accordance with IAQM (2020)⁷, the following thresholds of change have been used to screen the need for qualitative assessment;

- change in annual average daily traffic (AADT) flows of ≥ 1000 vehicles, or;
- change in AADT of ≥ 200 heavy duty vehicles (HDVs).

This level of change is assessed for the project in isolation and the project in-combination with committed development.

Where the level of change is below this 'indicative criterion for assessment' then no further modelling is required and a screening conclusion of no likely significant effect on the site can be reached.

⁷ Institute of Air Quality Management (2020). [air-quality-impacts-on-nature-sites-2020.pdf](https://www.iaqm.co.uk/air-quality-impacts-on-nature-sites-2020.pdf) ([iaqm.co.uk](https://www.iaqm.co.uk))

Traffic assessment included within the Appeal ES (2022), prepared by Vectos (Transport Technical Note dated July 2022 which is appended to the ES) predicts 19 total daily HGVs movements will be incoming or outgoing from the Site. The plant has between 17-20 employees. It is unknown where these employees will be commuting from to get to the plant; this report assumes some level of additional traffic on the M4 due to commuting employees. SSSI units within 200m of the ARN will be screened for their susceptibility to air pollution, and potential risks posed by the beginning of plant operations.

For the purposes of considering the worst-case scenario, whereby all HGV deliveries/removal trips converge on a singular day, the total daily HGV movements considered for this assessment is 19 (38 two-way movements).

4.1.3 Disturbance

The Development itself, as well as the ARN can both cause disturbances (noise and visual) to species present within the designated sites in their proximity. Designated sites within 2km of the Site, and SSSI units within 200m of the ARN will be screened for their susceptibility to noise and visual disturbances, and potential risks posed by the beginning of plant operations.

Noise

Acoustic modelling undertaken by Sol Acoustics as part of the 2022 Appeal ES (Chapter 8: Noise and Vibration) has shown that noise disturbance on the ecological receptors is predicted to be insignificant. This is predominantly due to the fact that the most sensitive receptors (Severn Estuary Ramsar and SPA) are of a substantial enough distance away from the site that negligible noise can be heard from the Development.

Visual

According to the Waterbird Disturbance Mitigation Toolkit (Cutts et al. 2013)⁸, the distance of the Site from the ecological receptors rules out any visual disturbance effects on relevant bird species (Dunlin, Ringed Plover, Common Redshank, Common Shelduck) from beginning plant operations.

4.1.4 Ground and Surface Water

The facility has been screened for surface runoff and spills. The proximity of the Site to the docks (located on the Northern shore of the Bristol Channel) also makes it susceptible to risk of flooding.

The surface runoff risk present has been acknowledged as insignificant in light of the hydrological modelling performed on the site which is reported in the SLR Flood Risk and Drainage Technical Note (July 2022)⁹ which is appended to the Appeal ES.

Flooding

With regards to flooding, modelling from the July 2022 Flood Risk and Drainage Technical Note has shown that across the 25-year lifetime of the facility (up to 2047), the Site would remain free from flooding for the 1% annual exceedance probability (AEP) tidal flood. The facility would be inundated to a depth of approximately 0.2m for the 0.1% AEP flood. However, this would not affect the wood storage hall, only the process buildings closer to the site entrance, and therefore means that flooding and the resultant surface runoff and spills are not considered to pose a likely significant effect to identified European designated sites.

⁸ Cutts et al. (2013). [Waterbird Disturbance Mitigation Toolkit](#).

⁹ SLR (2022). Barry Biomass Facility. Technical Note: Flood Risk and Drainage.

5.0 Description of the European Sites

5.1 SEVERN ESTUARY RAMSAR

5.1.1 Site Characteristics

The Ramsar is 24,662.98ha. The unique funnel shape of the Severn Estuary causes it to have the second-largest tidal range in the world. The species-poor invertebrate community includes high densities of ragworms, lugworms and other invertebrates forming an important food source for passage and wintering waders. One of the largest intertidal zones in the UK is present at Severn Estuary, comprised of mudflats, sandbanks, shingle and rocky platforms.¹⁰

The site crosses the border between Wales and England. Reference has been made to the 2009 version of the site's conservation objectives¹¹, published in a joint document by Natural England, Countryside Council for Wales (the predecessor of NRW) and Welsh Assembly Government. There are no more recent updates available in relation to this site from relevant Welsh authorities.

5.1.2 Key Features – Habitats

The Information Sheet for this Ramsar site indicates that it meets Ramsar criterion 1 and specifically:

- Contains particularly good examples of;
 - sandbanks which are slightly covered by sea water all the time;
 - estuaries;
 - mudflats and sandflats not covered by seawater at low tide, and;
 - Atlantic salt meadows.

5.1.3 Key Features – Species

The Information Sheet for this site Ramsar indicates that it meets Ramsar criterion 4, specifically as it;

- is important for the run of migratory fish between sea and river, including;
 - salmon;
 - sea trout;
 - sea lamprey;
 - river lamprey;
 - allis shad;
 - twaite shad, and;
 - eel.

It also meets Ramsar criterion 8, specifically;

- supporting one of the most diverse fish assemblages in Britain, with over 110 species, and;

¹⁰ JNCC (2008). [Ramsar Data Sheet](#)

¹¹ <https://naturalresources.wales/media/673887/severn-estuary-sac-spa-and-ramsar-reg-33-advice-from-ne-and-ccw-june-09.pdf>

- being an important feeding and nursery ground for many fish species.

It also meets Ramsar criterion 6, specifically;

- Qualifying species/populations of international importance;
 - tundra swan;
 - greater white-fronted goose,
 - common shelduck;
 - gadwell;
 - dunlin;
 - common redshank;
 - lesser black-backed gull;
 - ringed plover;
 - Eurasian teal, and;
 - northern pintail.

The site contains the following noteworthy flora:

- **Higher plants:**

Limonium britannicum, subspecies *celticum*, *Euphorbia portlandica*, *Vulpia membranacea*, *Centaurium littorale*, *Equisetum variegatum*, *Bupleurum tenuissimum*, and *Marrubium vulgare*;

- **Lower plants:**

Petalophyllum ralfsii;

- **Other species (Invasive and/or non-native species):**

Spartina anglica, *Hippophae rhamnoides*, *Rosa rugosa*, *Clematis vitalba*;

The site contains the following noteworthy fauna:

- **Birds:**

Herring gull; little egret; ruff; whimbrel; Eurasian curlew; common greenshank; Eurasian wigeon; northern shoveler; common pochard; water rail, and; spotted redshank.

- **Invertebrates:**

Tenellia adspersa; *Corophium lacustre*, and; *Gammarus insensibilis*.

- **Fish:**

Alosa alosa; *Alosa fallax*; *Lampetra fluviatilis*, and; *Petromyzon marinus*.

5.1.4 Vulnerability

The Ramsar site information sheet¹² indicates that the following factors (past, present, or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects;

¹² JNCC (2008). [Ramsar Data Sheet](#).

- dredging;
- erosion, and;
- Recreational/tourism disturbance (unspecified).

5.2 SEVERN ESTUARY SAC

5.2.1 Site Characteristics

The site is indicated in the standard data form to be 73,714.11ha¹³ in size. It is primarily made up of tidal rivers, estuaries, mud flats, sand flats and lagoons (including saltwork basins), comprising 99% of the area. Salt marshes, salt pastures and salt steppes make up the other 1%.

5.2.2 Key Features – Habitats

The site contains the following Annex I habitats which are primary reasons for selection of this site;

- 1130 Estuaries;
- 1140 Mudflats and sandflats not covered by seawater at low tide, and;
- 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

The site also contains the following Annex I habitats as a qualifying feature for selection of the site:

- 1110 Sandbanks which are slightly covered by sea water all the time, and;
- 1170 Reefs.

5.2.3 Key Features – Species

The site contains the following Annex II species which are a primary reason for selection of this site;

- 1095 Sea lamprey;
- 1099 River lamprey, and;
- 1103 Twaite shad.

The site contains no Annex II species which are present as a qualifying feature.

5.2.4 Vulnerability

The Standard Data Form confirms that, at the time of designation, the site was exposed to a range of threats, pressures and activities including those which generate negative impacts. These are listed below;

- A02 – Modification of cultivation practices;
- E06 – Other urbanisation, industrial and similar activities;
- G01 – Outdoor sports and leisure activities, recreational activities;
- J02 – Human induced changes in hydraulic conditions, and;
- M01 – Changes in abiotic conditions.

¹³ JNCC (2015). [UK0013030.pdf \(jncc.gov.uk\)](https://www.jncc.gov.uk/publications/uk0013030.pdf)

5.2.5 Conservation Objectives

According to Natural England (2018), the conservation objectives for Severn Estuary SAC are to;

“Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- *the extent and distribution of qualifying natural habitats and habitats of qualifying species;*
- *the structure and function (including typical species) of qualifying natural habitats;*
- *the structure and function of the habitats of qualifying species;*
- *the supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;*
- *the populations of qualifying species, and;*
- *the distribution of qualifying species within the site.”¹⁴*

The site crosses the border between Wales and England. Reference has been made to the 2009 version of the site’s conservation objectives¹⁵, published in a joint document by Natural England, Countryside Council for Wales (the predecessor of NRW) and Welsh Assembly Government. There are no more recent updates available in relation to this site from relevant Welsh authorities.

5.3 SEVERN ESTUARY SPA

5.3.1 Site Characteristics

The site is indicated in the standard data form to be 24,487.91ha in size. It is primarily made up of tidal rivers, estuaries, mud flats, sand flats, and lagoons (including saltwork basins), covering 89% of the site area. Salt marshes, salt pastures, salt steppes, coastal sand dunes, sand beaches, machair and improved grassland make up the further 11%.¹⁶

5.3.2 Key Features – Habitats

The site contains no Annex I habitats which are primary reasons for selection of this site, or present as qualifying features.

5.3.3 Key Features – Species

The site contains the following Annex II species that are a primary reason for selection of this site;

- A501 gadwell;
- A394 greater white-fronted goose;
- A672 dunlin;
- A037 tundra swan;
- A048 common shelduck, and;

¹⁴ Natural England (2018). [European Site Conservation Objectives for Severn Estuary SAC](#)

¹⁵ <https://naturalresources.wales/media/673887/severn-estuary-sac-spa-and-ramsar-reg-33-advice-from-ne-and-ccw-june-09.pdf>

¹⁶ JNCC (2015). [UK9015022.pdf \(jncc.gov.uk\)](#)

- A162 common redshank.

5.3.4 Vulnerability

The Standard Data Form confirms that, at the time of designation, the site was exposed to a range of threats, pressures and activities including those which generate negative impacts. These are listed below;

- A02 – modification of cultivation practices;
- E02 - industrial or commercial areas;
- G01 – outdoor sports and leisure activities, recreational activities;
- J01 – fire and fire suppression, and;
- M01 – changes in abiotic conditions.

5.3.5 Conservation Objectives

The Site Conservation Objectives are listed as;

“Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- *The extent and distribution of qualifying natural habitats and habitats of qualifying species*
- *The structure and function (including typical species) of qualifying natural habitats*
- *The structure and function of the habitats of qualifying species*
- *The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely*
- *The population of qualifying specie, and,*
- *The distribution of qualifying species within the site.”¹⁷*

The site crosses the border between Wales and England. Reference has been made to the 2009 version of the site’s conservation objectives¹⁸, published in a joint document by Natural England, Countryside Council for Wales (the predecessor of NRW) and Welsh Assembly Government. There are no more recent updates available in relation to this site from relevant Welsh authorities.

¹⁷ Natural England (2019). [European Site Conservation Objectives for Severn Estuary SPA](#)

¹⁸ <https://naturalresources.wales/media/673887/severn-estuary-sac-spa-and-ramsar-reg-33-advice-from-ne-and-ccw-june-09.pdf>

6.0 Stage 1: Screening Assessment

6.1 Background Information

The underlying SSSIs provide background information on habitat types and condition on a more refined scale than the overall European sites that they support. The condition assessments undertaken by Natural England for those parts (SSSI units) of the European sites within 10km of the site, or 200m of the ARN, are summarised below¹⁹.

SSSI	SSSI Unit	Main Habitat	Condition	Threat Risk	Comments
SEVERN ESTUARY	028 NEW PILL	LITTORAL SEDIMENT	FAVOURABLE	HIGH	
	029 GRAVEL BANKS	LITTORAL SEDIMENT	FAVOURABLE	HIGH	
	030 SEVERN BEACH	LITTORAL SEDIMENT	FAVOURABLE	HIGH	
	031 ENGLISH STONES	LITTORAL SEDIMENT	FAVOURABLE	HIGH	
	032 NORTHWICK	LITTORAL SEDIMENT	FAVOURABLE	HIGH	
	033 DUN SANDS	LITTORAL SEDIMENT	FAVOURABLE	LOW	

There are a range of habitat types in proximity to the Development Site in varying conditions indicating an existing level of threat or pressure on these areas. These habitats and the species that they support are likely to respond differently to project changes and further understanding of the site interest features is required to inform understanding of the influence of any such changes.

6.2 SEVERN ESTUARY RAMSAR

The assessment of the Development is summarised in the following table. This provides information on which key characteristics of the site have been considered in identifying potential impacts.

Potential Impacts	Likely Changes to the site
Reduction of habitat area	Potential to changes to the European site due to reduction of habitat area are considered highly unlikely as a result of the Development.
Disturbance to key species	Potential changes to the European site are considered highly unlikely as a result of the Development.
Habitat or species fragmentation	Potential changes to the European site are considered highly unlikely as a result of the Development.
Reduction in species density	Potential changes to the European site are considered highly unlikely as a result of the Development.

¹⁹ Natural England (2022). [Designated Sites Search](#).

Potential Impacts	Likely Changes to the site
Changes in key indicators of conservation value (air quality, water quality, etc)	<p>Potential changes to the European site are considered highly unlikely as a result of the Development.</p> <p>The air quality assessment undertaken by Entran²⁰ concludes that there would be insignificant effects from traffic on the designated sites due to emissions being below threshold values for significant effects and receptors being at a suitable distance from emissions to mitigate significant negative effects.</p>
Climate change	<p>Potential changes to the European site are considered highly unlikely, and the Development would not contribute to these changes.</p> <p>The site would remain free from flooding for the 1% annual exceedance probability (AEP) tidal flood. The facility would be inundated to a depth of approximately 0.2m for the 0.1% AEP flood. Flooding and the resultant surface runoff and spills are not considered to pose a likely significant effect to the European designated sites.²¹</p>

The assessment of the significance of identified impacts is summarised in the following table.

Potential Impacts	Likely Significance
Reduction of habitat area	Absence of likely significant effects.
Disturbance to key species	Absence of likely significant effects.
Habitat or species fragmentation	Absence of likely significant effects.
Reduction in species density	Absence of likely significant effects.
Changes in key indicators of conservation value (water quality, etc)	Absence of likely significant effects.
Climate change	Absence of likely significant effects.

It can therefore be concluded that there is low/no potential for the aforementioned factors to have significant effects on Severn Estuary Ramsar as a result of plant operations beginning.

The outcome of screening is therefore considered to be: **Absence of Likely Significant Effects.**

²⁰ Entran (2022). Voluntary Environmental Statement (VES), Chapter 9.

²¹ SLR (2022). Barry Biomass Facility. Technical Note: Flood Risk and Drainage.

6.3 SEVERN ESTUARY SAC

The assessment of the Development is summarised in the following table. This provides information on which key characteristics of the site have been considered in identifying potential impacts.

Potential Impacts	Likely Changes to the site
Reduction of habitat area	Potential to changes to the European site due to reduction of habitat area are considered highly unlikely as a result of the Development.
Disturbance to key species	Potential to changes to the European site due to disturbances to key species are considered highly unlikely as a result of the Development.
Habitat or species fragmentation	Potential changes to the European site are considered highly unlikely as a result of the Development.
Reduction in species density	Potential changes to the European site are considered highly unlikely as a result of the Development.
Changes in key indicators of conservation value (air quality, water quality, etc)	Potential changes to the European site are considered highly unlikely as a result of the Development. The air quality assessment undertaken by Entran ²² concludes that there would be insignificant effects from traffic on the designated sites due to emissions being below threshold values for significant effects and receptors being at a suitable distance from emissions to mitigate significant negative effects.
Climate change	Potential changes to the European site are considered highly unlikely , and the Development would not contribute to these changes. The Site would remain free from flooding for the 1% annual exceedance probability (AEP) tidal flood. The facility would be inundated to a depth of approximately 0.2m for the 0.1% AEP flood. Flooding and the resultant surface runoff and spills are not considered to pose a likely significant effect to the European designated sites. ²³

The assessment of the significance of identified impacts is summarised in the following table.

Potential Impacts	Likely Significance
Reduction of habitat area	Absence of likely significant effects.
Disturbance to key species	Absence of likely significant effects.
Habitat or species fragmentation	Absence of likely significant effects.

²² Entran (2022). Voluntary Environmental Statement (VES), Chapter 9.

²³ SLR (2022). Barry Biomass Facility. Technical Note: Flood Risk and Drainage.

Potential Impacts	Likely Significance
Reduction in species density	Absence of likely significant effects.
Changes in key indicators of conservation value (water quality, etc)	Absence of likely significant effects.
Climate change	Absence of likely significant effects.

It can therefore be concluded that there is low/no potential for the aforementioned factors to have significant effects on Severn Estuary SAC as a result of plant operations beginning.

The outcome of screening is therefore considered to be: **Absence of Likely Significant Effects.**

6.4 SEVERN ESTUARY SPA

The assessment of the Development is summarised in the following table. This provides information on which key characteristics of the site have been considered in identifying potential impacts.

Potential Impacts	Likely Changes to the site
Reduction of habitat area	Potential changes to the European site due to reduction of habitat area are considered highly unlikely as a result of the Development.
Disturbance to key species	Potential changes to the European site due to disturbance to key species are considered highly unlikely as a result of the Development.
Habitat or species fragmentation	Potential changes to the European site due to habitat or species fragmentation are considered highly unlikely as a result of the Development.
Reduction in species density	Potential changes to the European site due to reduction in species density are considered highly unlikely as a result of the Development.
Changes in key indicators of conservation value (air quality, water quality, etc)	<p>Potential changes to the European site due to changes in key indicators of conservation value are considered highly unlikely as a result of the Development.</p> <p>The air quality assessment undertaken by Entran²⁴ concluded that there would be insignificant effects from traffic on the designated sites due to emissions being below threshold values for significant effects and receptors being at a suitable distance from emissions to mitigate significant negative effects.</p>
Climate change	<p>Potential changes to the European site due to climate change are considered highly unlikely, and the Development would not contribute to these changes.</p> <p>The site would remain free from flooding for the 1% annual exceedance probability (AEP) tidal flood. The facility would be inundated to a depth of approximately 0.2m for the 0.1% AEP flood. Flooding and the resultant surface</p>

²⁴ Entran (2022). Voluntary Environmental Statement (VES), Chapter 9.

Potential Impacts	Likely Changes to the site
	runoff and spills are not considered to pose a likely significant effect to the European designated sites. ²⁵

The assessment of the significance of identified impacts is summarised in the following table.

Potential Impacts	Likely Significance
Reduction of habitat area	Absence of likely significant effects
Disturbance to key species	Absence of likely significant effects
Habitat or species fragmentation	Absence of likely significant effects.
Reduction in species density	Absence of likely significant effects
Changes in key indicators of conservation value (water quality, etc)	Absence of likely significant effects.
Climate change	Absence of likely significant effects.

It can therefore be concluded that there is low/no potential for the aforementioned factors to have significant effects on Severn Estuary SPA as a result of plant operations beginning.

The outcome of screening is therefore considered to be: **Absence of Likely Significant Effects.**

6.5 Screening Assessment

6.5.1 In-Combination Effects

No in-combination effects associated with the Development and other plans or projects have been identified for the sites considered above. The outcome of screening would in this case not be influenced by in-combination effects.

²⁵ SLR (2022). Barry Biomass Facility. Technical Note: Flood Risk and Drainage.

7.0 Conclusion

This Stage 1 screening assessment has concluded that there is an absence of likely significant effects upon the Severn Estuary Ramsar, Severn Estuary SPA and Severn Estuary SAC as a result of the operation of the Barry Biomass Plant (the Development). Due to the absence of a likely significant effect, no additional reporting against the Habitat Regulations is considered necessary.

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