Future Energy Llanwern

Preliminary Environmental Information Report

Appendix 8I: Draft Shadow Habitat Regulations Assessment (sHRA)

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Future Energy Llanwern Limited

Contents

8.0 Draft Shadow Habitat Regulations Assessment (sHRA)

8.1 Introduction

8.1.1 This report has been prepared on behalf of Future Energy Llanwern Ltd in relation to the proposed application for a Development Consent Order (DCO) (the Application). It is in DRAFT form and accompanies the Preliminary Environmental Information Report (PEIR) which includes chapters on ecology and ornithology. It will be updated prior to the submission of the Environmental Statement.

8.1.2 The area within the PEIR Assessment Boundary, hereafter referred to as the 'Site' is located on the Gwent Levels south of Redwick and Summerleaze, near Newport (central OS grid reference ST 419 837).

Description of Proposed Development

8.1.3 This document accompanies the (DCO) application for a Nationally Significant Infrastructure Project (NSIP) comprising the construction, operation, maintenance and decommissioning of Future Energy Llanwern (the "Proposed Development") a ground mounted solar farm with a generating capacity of more than 350MW for a temporary period of 40 years.

8.1.4 The proposed developable area will be c.548ha. An area of 51.5ha is proposed for bird mitigation with further areas set aside for other ecological mitigation and enhancement.

Aims

8.1.5 This Draft Shadow Habitats Regulations Assessment (sHRA) has been produced to provide the Planning Inspectorate with technical information required to assess whether the Proposed Development may have an adverse impact on the integrity of any National Site Network site (also known as 'European sites'), either alone or in combination with other plans or projects in the local area as part of their responsibility as the 'competent authority' under Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended).

8.1.6 It will be updated prior to the submission of the Environmental Statement.

8.1.7 The aims of this report are to:

- Identify those National Site Network sites that fall within the potential zone of influence (ZoI) of the Proposed Development, by way of consideration of their qualifying interests, conservation objectives and favourable (or otherwise) conservation status;
- Identify any effects/impacts of the Proposed Development that are likely to have likely significant effects (LSEs) on the identified National Site Network either alone or in-combination; and
- Identify ways in which the Proposed Development can be modified to avoid/mitigate impacts on the National Site Network to an acceptable level.

8.1.8 This sHRA is based on the PV Layout Plan (**Figure 2-1a and b** of the PEIR) and should be read in conjunction with the corresponding application documents and drawings submitted with the Application, in particular:

- **Chapter 2: Description of Proposed Development;**
- **Chapter 8: Ecology and Chapter 9: Ornithology**
- **Appendix 9A: Winter Bird Survey;**
- **Appendix 9B: Breeding Bird Survey;**
- **Appendix 8H: Riparian Mammal Surveys;**
- **Appendix 8J: Outline Landscape and Ecological Management Plan;**
- **Appendix 2C: Crossing Schedule;**
- **Chapter 10 Water Environment;**
- **Chapter 13 Noise and Vibration**; and
- **Chapter 15 Transport and Access.**

Consultation

8.1.9 Natural Resources Wales (NRW) as part of their Discretionary Advice Service (DAS), provided advice on 27 September 2024 (ref CAS-264330-X0X8). This stated in part B (i) that:

"We note there are fields of your site along the sea wall. There must be adequate consideration of functionally linked land that supports features of River Usk and Severn Estuary Special Area of Conservation (SAC), SPA and Ramsar site, given the sensitivity of the features."

8.1.10 The reens and ditches but also the grassland habitats of the Gwent Levels all have functional linkage which means they provide supporting habitat for essential life cycle processes of some or all the features of the SPA, SAC and SSSI, and contributes a proportion of the whole estuary population of various species. Therefore, effects upon these sites could reduce the estuary populations of the species, which may have an adverse effect on site integrity in view of the conservation objectives of the site. For example, given the reen and riparian habitats connect with the River Usk SAC it is known that commuting otters are supported in this wider environment. Otters are a feature of the River Usk SAC as well as being a European Protected Species in their own right. We recommend solar panel construction avoid these fields."

8.1.11 The Scoping Opinion issued by the Planning Inspectorate on 29 January 2025 (case reference: EN010171) included the following comments of relevance to this report:

"*3.5.2 - Severn Estuary Ramsar (ornithological features) and SPA - operation The Scoping Report proposes to scope this matter out on the basis that the operational phase is unlikely to cause direct or indirect effects as by nature solar schemes do not create noise or damage once in place. Visual disturbance is also proposed to be scoped out due to the high sea wall between the site and the estuary.*

8.1.12 In the absence of evidence that the site does not provide functionally linked land that supports the ornithological features of the Severn Estuary Ramsar and SPA, and evidence demonstrating clear agreement with relevant consultation bodies, the Inspectorate is not in a position to agree to scope these matters out of the assessment.

8.1.13 Accordingly, the ES should include an assessment of these matters or the information demonstrating agreement with the relevant consultation bodies and the absence of likely significant effect.

8.2 HRA Requirement

National Site Network

8.2.1 European Council Directive 92/43/EEC (known as the Habitats Directive) and Council Directive 2009/147/EC (codified version of Directive 79/409/EEC as amended) 'the Wild Birds Directive' established a network of internationally important sites (i.e. Special Areas of Conservation (SACs) and Special Protection Areas (SPAs)) designated for their ecological status. Special Areas of Conservation[1] (SACs) are designated under the Habitats Directive and promote the protection of flora, fauna and habitats. Special Protection Areas (SPAs) are designated under the Birds Directive in order to protect rare, vulnerable and migratory birds. These sites form a Europe-wide network of designated sites known as 'Natura 2000'

8.2.2 In the UK, these formerly EU-protected sites have been merged into a National Site Network by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

8.2.3 In addition to sites designated under the above legislation, UK Government policy (NPPF paragraph 194 and Circular 06/2005 refer) states that 'potential' SPAs, 'possible' SACs and internationally important wetlands listed under the Ramsar Convention 1971 (Ramsar sites) are afforded the same protection as SPAs and SACs for the purpose of considering development proposals that may affect them.

8.2.4 The term 'Habitats Regulations Assessment' is used to cover the process of assessing the effects of a project or plan on National Site Network sites and Ramsar sites.

Legislative Context

8.2.5 The Conservation of Habitats and Species Regulations 2017 (as amended) provides

[1] Those sites that have been adopted by the European Commission and formally designated by the government of each country in whose territory the site lies

protection to the National Site Network.

8.2.6 Under Part 6 ‘Assessment of Plan and Projects’, Regulation 63 (1) of these regulations, an appropriate assessment needs to be undertaken by the competent authority in respect of any plan or project which:

- “Is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects); and,
- Is not directly connected with or necessary to the management of that site”.

8.2.7 As the Application is not necessary to the management of the site for nature conservation, the Planning Inspectorate, as the relevant competent authority, is required to carry out an HRA to ensure that the development decision does not adversely affect the integrity of National Site Network.

HRA Process

8.2.8 The HRA comprises:

- An initial assessment, ‘screening’, of whether the proposal either alone or in combination with other plans or projects is likely to have a significant effect on the National Site Network. This screening process is focused on the ‘Likely Significant Effect’ (LSE) test. This is essentially a risk assessment process that seeks to understand whether there are any mechanisms for identified impacts arising from the project to adversely affect the National Site Network (e.g. cause-effect pathway); and,
- If a likely significant effect cannot be ruled out, an Appropriate Assessment to determine whether the proposal will adversely affect the integrity of the National Site Network.

8.2.9 A significant effect can be defined as an ‘effect that is likely to undermine the site’s conservation objectives’.

8.2.10 Following the People Over Wind ruling (case C323/17) in April 2018, ‘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’ and therefore

this screening is undertaken in the absence of standard mitigation.

8.3 Sites Scoped into Assessment

8.3.1 Four National Site Network sites lie within 10km of the Site and have been scoped into the assessment:

- Severn Estuary/ Môr Hafren SAC
- Severn Estuary SPA
- River Usk/ Afon Wysg SAC
- Wye Valley and Forest of Dean Bat Sites/ Safleoedd Ystlumod Dyffryn Gwy a Fforest y Ddena SAC

8.3.2 National Site Network locations in relation to the application site are shown in **Figure 8.9.1**.

8.3.3 The Proposed Development was not considered to have effects on the National Site Network beyond 10km as no potential pathways have been identified.

8.4 Screening Assessment

Factors affecting NSN Sites

8.4.1 The Assessment takes into account the current state of the National Site Network, the main sensitivities and the range and scale of potential impacts from the Proposed Development.

8.4.2 During the screening exercise, Standard Data Forms produced by JNCC have been used to identify threats, pressures and activities with high impacts on the site's designated features. In addition, Site Improvement Plans (SIP) which have been developed by NRW and Natural England for each site, have been used to identify current and predicted issues affecting the condition of the notified/ qualifying features.

Likely Significant Effect (LSE) Test

8.4.3 **Table 8I-1** below details the characteristics of the National Site Network and

identifies potential pathways for LSEs as a result of the Proposed Development. These potential effects are as follows:

Alone:

- Potential for siltation/pollution of adjacent reen network during construction and decommissioning and subsequently entering Severn Estuary. Potential impacts both on SAC habitats and SPA supporting habitat.
- Potential for behavioural changes in birds utilising the Site due to construction or presence of infrastructure, which are associated with the Severn Estuary SPA (functionally linked land).
- Change in land management leading to loss of habitat for birds associated with the Severn Estuary SPA (functionally linked land).
- Potential for siltation/pollution during construction and decommissioning entering Severn Estuary SAC via reen network and impacting notified/ qualifying habitats.
- Impacts to otter (feature of River Usk SAC) using the Site as part of functionally linked land, either via pollution or creation of structures within waterways.

In combination

- As above

Table 8I-1 Screening Assessment for LSEs

Site Name	Distance from Site	Qualifying Features[2]	Conservation Objectives[3]	Threats, pressures and activities with negative impacts on the site (taken from Standard Data Form[4] and SIP where available[5])	Risk of Significant Effect?
Severn Estuary SPA	20m	24,700.91ha site comprising a large estuary with extensive intertidal mud-flats and sand-flats, rocky platforms and islands. Saltmarsh fringes the coast backed by grazing marsh with freshwater ditches and occasional brackish ditches. The seabed is rock and gravel with sub-tidal sandbanks. The Severn Estuary qualifies[6] under Article 4.1: - by regularly supporting 3.9% of the Great Britain	- Maintain the gadwall population and its supporting habitats in favourable condition; and - Maintain the waterfowl assemblage and its supporting habitats in favourable condition.	Coastal Squeeze Change in land Management Changes in species distributions	No – no impacts to sea defences **Yes** – changes in land use and management on functionally linked land can affect species composition/ behavioural changes, habitat availability and quality. **Yes** - Possible SPA species distribution change by reduction in winter foraging or

[2] https://sac.jncc.gov.uk/# ; https://jncc.gov.uk/our-work/list-of-spas/
[3] https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/protected-areas-of-land-and-seas/find-protected-areas-of-land-and-sea/?lang=en
[4] https://sac.jncc.gov.uk/#
[5] https://publications.naturalengland.org.uk/publication/4590676519944192
[6] https://jncc.gov.uk/jncc-assets/SPA-N2K/UK9015022.pdf

	population of the Annex 1 species Bewick's swan *Cygnus columbianus bewickii* Under Article 4.2 as it regularly supports the following migratory species of International importance: - European white-fronted goose *Anser albifrons albifrons* - Gadwall *Anas strepera* - Dunlin *Calidris alpina alpina*; - Redshank *Tringa totanus*. - Shelduck *Tadorna tadorna*. Assemblage Qualification - 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 84,317 individual waterfowl (5 year peak	Water Pollution Air Pollution: impact of atmospheric nitrogen Deposition Marine consents and permits: minerals and waste, e.g. aggregate extraction, dredging. Fisheries: Recreational marine and estuarine Fisheries: Commercial marine and estuarine Invasive species (marine) Marine litter Marine pollution	disturbance during construction and operation. **Yes** - Potential for minor silt or fuel pollution or herbicides via reen network feeding into estuary impacting supporting habitat of SPA qualifying features. Potential for positive effects from reduction in grazing pressure/ arable land uses thereby reducing nutrients entering watercourses. No. Renewable energy likely to have positive effect generally. Reduction in agricultural inputs. No pathways identified – applicable to SAC only. No pathways identified.

		mean 1991/2 - 1995/6[7]) including: Bewick's swan, shelduck, gadwall, dunlin, redshank.		incidents	No pathways identified. No pathways identified – applicable to SAC only. No pathways identified. No pathways identified.
Severn Estuary/ Môr Hafren SAC	20m	**Annex I habitats (primary reason for site selection):** - Estuaries - Mudflats and sandflats not covered by seawater at low tide. - Atlantic salt meadows (Glauco-Puccinellietalia maritimae) **Annex I habitats present as a qualifying feature, but not a primary reason for site selection:** - Sandbanks which are slightly covered by sea water all the time.	- The conservation objective for the "estuaries" feature of the Severn Estuary SAC is to maintain the feature in favourable condition; - The conservation objective for the "subtidal sandbanks" feature of the Severn Estuary SAC is to maintain the feature in favourable condition;	J02 - Human induced changes in hydraulic conditions G01 - Outdoor sports and leisure activities, recreational activities. SIP – Public Access/Disturbance Physical modification (e.g. within supporting	No – Proposed Development will not impact local hydrology. No. The Site does have public rights of way, but the development type is not likely to bring additional visitors into the SAC for beach activities/ angling etc.

[7] This was the average count at the time of the designation in 1995, the 2097/20-2023/24 moving average is 78,096 birds.

	- Reefs. **Annex II species that are a primary reason for selection:** - Sea lamprey *Petromyzon marinus* - River lamprey *Lampetra fluviatilis* - Twaite shad *Alosa fallax.*	- The conservation objective for "mudflats and sandflats" feature of the Severn Estuary SAC is to maintain the feature in favourable condition; - The conservation objective for the "Atlantic salt meadow" feature of the Severn Estuary SAC is to maintain the feature in favourable condition; - The conservation objective for the "reefs" feature of the Severn Estuary SAC is to maintain the feature in a favourable condition; - The conservation objective for the river lamprey feature of the Severn Estuary SAC is to maintain the feature in a favourable condition; - The conservation objective for the sea lamprey feature of	habitats such as rivers, causing barriers to migratory fish). Impacts of development/ E06 - Other urbanisation, industrial and similar activities Coastal squeeze Change in land Management/ A02 - Modification of cultivation practices Changes in species Distributions Water Pollution	No pathways likely to cause any physical modification to the SAC or supporting habitat. **Yes** – Potential for impacts to SAC habitat e.g. run-off and siltation via reen/ ditch network. No – no impacts to sea defences. **Yes** – changes in land use during operation could impact SAC habitat via reen/ ditch network, although this is likely to be positive due to reduction in agricultural impacts. No – development will not introduce modifications which will impact SAC species. Potential positive climate effects

		the Severn Estuary SAC is to maintain the feature in a favourable condition; and - The conservation objective for the twaite Shad feature of the Severn Estuary SAC is to maintain the feature in a favourable condition. Further information can be found here[8].	Air Pollution: impact of atmospheric nitrogen Deposition/ M01 - Changes in abiotic conditions Marine consents and permits: minerals and waste Fisheries: Recreational marine and estuarine Fisheries: Commercial marine and estuarine Marine litter Marine pollution incidents	as a result of renewable energy. **Yes** - Potential for minor silt or fuel pollution via reen network feeding into estuary impacting SAC habitat. Potential for positive effects from reduction in grazing pressure/ arable land uses thereby reducing diffuse pollution entering watercourses. No. Proposed Development likely to have positive effect generally due to reduction in agricultural inputs. No pathways identified.

[8] https://cdn.cyfoethnaturiol.cymru/673887/severn-estuary-sac-spa-and-ramsar-reg-33-advice-from-ne-and-ccw-june-09.pdf

					No pathways identified. No pathways identified. No pathways identified. No pathways identified.
River Usk/ Afon Wysg SAC	3.7km west	**Annex I habitats present as a qualifying feature, but not a primary reason for site selection:** - Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation **Annex II species that are a primary reason for selection:** - Sea lamprey - Brook lamprey *Lampetra planeri*	For fish species[9]: - The Conservation Objective for the watercourse must be met - The population of the feature in the SAC is stable or increasing over the long term - The natural range of the feature in the SAC is neither being reduced nor is likely	A04 – grazing B07- Forestry activities H01 - Pollution to surface waters (limnic	No pathways for adverse effects. Potential for positive effects from reduction in grazing pressure/ arable land uses thereby reducing diffuse pollution entering watercourses, if linked via reens/ ditches.

[9] https://cdn.cyfoethnaturiol.cymru/673384/river_usk-sac-core-plan.pdf

	- River lamprey - Twaite shad - Atlantic salmon *Salmo salar* - Bullhead *Cottus gobio* - Otter *Lutra lutra.* **Annex II species present as a qualifying feature, but not a primary reason for site selection:** - Allis shad *Alosa alosa.*	to be reduced for the foreseeable future. - There is, and will probably continue to be, a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis. For otter: - The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC, as determined by natural levels of prey abundance and associated territorial behaviour. - The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those	& terrestrial, marine & brackish H05 - Soil pollution and solid waste (excluding discharges) J02 - Human induced changes in hydraulic conditions B02 - Forest and Plantation management & use J03 - Other ecosystem modifications	No pathways identified – no woodland/ forest affected. Yes - Potential for minor silt or fuel pollution via reen network during construction which could impact otter as part of functionally linked land. Potential for positive effects from reduction in grazing pressure/ arable land uses thereby reducing diffuse pollution entering watercourses. No pathways for adverse effects. No – Proposed Development will not impact local hydrology. No pathways identified – no woodland/ forest effected.

		reaches that are potentially suitable to form part of a breeding territory and/or provide routes between breeding territories. The whole area of the Usk SAC is considered to form potentially suitable breeding habitat for otters. - The size of breeding territories may vary depending on prey abundance. The population size should not be limited by the availability of suitable undisturbed breeding sites. Where these are insufficient, they should be created through habitat enhancement and where necessary the provision of artificial holts. No otter breeding site should be subject to a level of disturbance that could have an	**Yes** – potential for introduction of bridges/ culverts on site to affect commuting or foraging populations of otter, linked to the SAC.

		adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance must be managed. - The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc. at road bridges and other artificial barriers. For Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation - The Conservation Objective for the watercourse must be met. - The natural range of the plant communities represented within this feature should be

			stable or increasing in the SAC. The natural range is taken to mean those reaches where predominantly suitable habitat exists over the long term. Suitable habitat and associated plant communities may vary from reach to reach. - The area covered by the feature within its natural range in the SAC should be stable or increasing. - More information on the typical species expected to be found with each management unit in the SAC is required.		
Wye Valley and Forest of Dean Bat Sites/	9.5km north-east	**Annex II species that are a primary reason for selection:** - Lesser horseshoe bat *Rhinolophus hipposideros*	For both species[10]: - The site will support a sustainable population in the Wye Valley area.	Physical modification (of roosts)/ J03 – Other ecosystem modifications	No pathways identified – the proposed development will not modify any roosts.

[10] https://www.naturalresources.wales/media/674312/Wye%20Valley%20Bats%20Core%20Plan%20TRK%2031%20Oct%2007%20_A_.pdf

Safleoedd Ystlumod Dyffryn Gwy a Fforest y Ddena SAC	- Greater horseshoe bat *R. ferrumequinum.*	- The population will be viable in the long term, acknowledging the population fluctuations of the species. - Buildings, structures and habitats on the site will be in optimal condition to support the populations. - Sufficient foraging habitat is available, in which factors such as disturbance, interruption to flight lines, and mortality from predation or vehicle collision, changes in habitat management that would reduce the available food source are not at levels which could cause any decline in population size or range. - Management of the surrounding habitats is of the appropriate type and sufficiently secure to ensure	Public access/ disturbance/ G01 - Outdoor sports and leisure activities, recreational activities J02 - Human induced changes in hydraulic conditions Habitat connectivity	No. The development type will not bring additional visitors to the SAC roosts. No pathways identified – the Proposed Development will not affect hydraulic conditions. No – the SIP states that a good feeding area within a radius of about 4km around the maternity roosts is critical for the long-term survival of the site's population. Furthermore, the Site lies outside the 'Sensitive Locations' detailed within the Wye Valley and Forest of Dean Bat SAC: Development Management – Horseshoe Bat activity survey and

		there is likely to be no reduction in population size or range, nor any decline in the extent or quality of breeding, foraging or hibernating habitat. - There will be no loss or decline in quality of linear features (such as hedgerows and tree lines) which the bats use as flight lines – there will be no loss of foraging habitat use by the bats or decline in its quality, such as due to over-intensive woodland management. - All factors affecting the achievement of the foregoing conditions are under control	assessment guidance (2021[11]).

[11] https://www.fdean.gov.uk/media/q1jnfo54/wv-fod-bat-sac-development-management-survey-and-assessment-guidance-vr-july-2021.pdf

Summary

8.4.4 The assessment process found that the Proposed Development will not involve any direct land take of any of the National Site Network, however indirect LSEs on the **Severn Estuary SPA** and **SAC** and **River Usk SAC** cannot be ruled out

8.5 Information for Appropriate Assessment

Severn Estuary SAC

Severn Estuary SAC Existing Condition

8.5.1 NRW Evidence Report giving an indicative site level feature condition assessment in 2017 found that the SAC was largely in unfavourable condition[12], as illustrated in **Plate 8I-1** below.

Plate 8I-1: Indicative condition assessments for Severn Estuary SAC (source: NRW, 2018)

Table 1: Summary of indicative condition assessments for Severn Estuary SAC.

Designated Features	Indicative condition assessment	Confidence in assessment
• Estuaries	Unfavourable	Medium
• Mudflats and sandflats not covered by seawater at low tide	Unfavourable	Medium
• Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	Unfavourable	Medium
• Sandbanks which are slightly covered by seawater all the time	Favourable	Low
• Reefs	Unknown	Not Applicable
• Sea lamprey (*Petromyzon marinus*)	Unfavourable	High
• River lamprey (*Lampetra fluviatilis*)	Unfavourable	High
• Twaite shad (*Alosa fallax*)	Unfavourable	High

8.5.2 The report notes the following activities as directly impacting the condition of features within the SAC: coastal squeeze, water quality issues, coastal defences (hold the line) and barriers to migration (fish).

SSSI

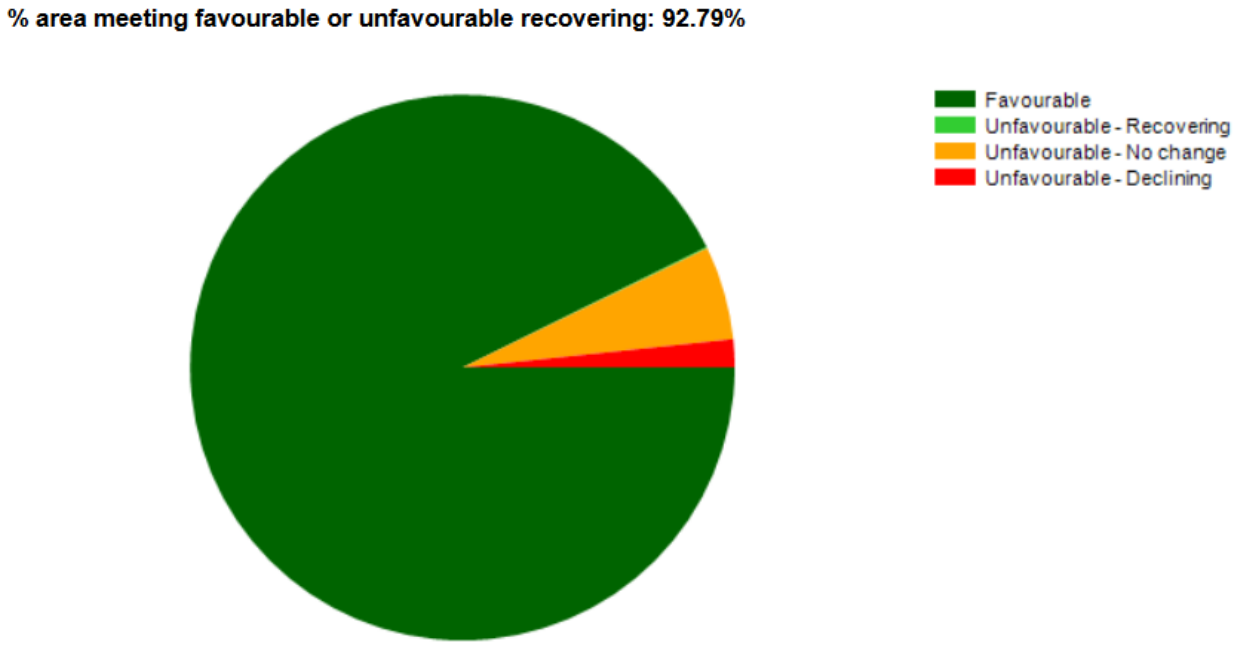
8.5.3 The Severn Estuary designation is underpinned by 82 units of the River Severn Site of Special Scientific Interest (SSSI).

8.5.4 The overall condition of the Severn Estuary SSSI units, assessed in 2024, indicates that 92.71% (9270.60ha) is in favourable condition, 0.08% (8.01ha) is unfavourable – recovering, 5.54% (553.67ha) is unfavourable with no change and 1.67% (166.83

[12] https://cdn.cyfoethnaturiol.cymru/684391/severn-sac-ica-2018.pdf

ha) is unfavourable and declining[13] (**Plate 8I-2**).

Plate 8I-2: Severn Estuary SSSI Unit Condition Summary (source: Natural England, 2024)



Identification of Potential Pathways

8.5.5 The Site is fully outside the boundary of the Severn Estuary SAC, however, it is within c. 20m at the closest point. The Site does not contain any notified/ qualifying features of the SAC, and is not considered to provide functionally-linked land for species associated with the SAC. This is because the reen/ ditch network has not been identified as a known location for fish species sea lamprey, river lamprey and twaite shad during their freshwater phase. Lamprey occur in estuaries and easily accessible rivers with clear water and suitable areas of gravels, silt or sand [14],[15]. Twaite shad require flowing water (rivers) with stones and gravels to spawn[16].

8.5.6 The following pathways to potential adverse effects have been identified.

[13] https://designatedsites.naturalengland.org.uk/ReportUnitConditionSummary.aspx?SiteCode=S1002284&ReportTitle=Severn%20Estuary%20SSSI

[14] https://sac.jncc.gov.uk/species/S1095/#:~:text=It%20occurs%20in%20estuaries%20and,for%20the%20burrowing%20juvenile%20ammocoetes.

[15] https://sac.jncc.gov.uk/species/S1099/#:~:text=The%20river%20lamprey%20Lampetra%20fluviatilis,weirs%20or%20dams%20impede%20migration.

[16] https://sac.jncc.gov.uk/species/S1103/

- Run-off, pollution and siltation resulting in downstream impacts via reen/ ditch network, adversely effecting SAC habitats and supporting habitats for notified/ qualifying species.

- Changes in land use/ management could impact SAC notified/ qualifying features via reen/ ditch network, although this is likely to be positive due to reduction in agricultural impacts and grazing pressure.

Run off

8.5.7 This will be fully assessed to inform the Environmental Statement, on completion of the Water Environment chapter.

Siltation and Water Pollution

Construction and Decommissioning

8.5.8 Siltation, dust pollution or fuel/chemical spill affecting the Severn Estuary SAC during the majority of construction and decommissioning are considered to be of very low risk. This is due to the 12m and 7m buffer zones which are incorporated around the network of reens and ditches respectively as part of the inherent design. An outline Construction Environmental Management Plan (oCEMP) has been prepared [**Appendix 2A**]; this and the more detailed CEMP which will follow this will detail how these are to be marked out and protected from accidental vehicle tracking and storage of material/ machinery during works.

8.5.9 However, some operations such as hedge cutting and new cable/ vehicular crossing point installation will take place prior to construction where there is an increased risk of minor pollution incidents, in particular increased siltation to the watercourses.

8.5.10 If an accidental pollution event or siltation was to occur, it is likely to be small, very localised and isolated. The CEMP will detail avoidance, mitigation and remediation measures in the event of fuel spills. If silt managed to get from the reen and ditch system into the estuary via the reen network this is highly unlikely to result in a significant effect on the Natura sites, as the river and estuarine system itself moves and deposits huge quantities of silt as part of its natural processes. The addition of small amount of additional silt would have negligible effect on the integrity of the

National Site Network.

Operation

8.5.11 Regular annual/biannual hedge cutting would take place, as well as regular ditch and reen management practices that already takes place on major reens and ditches on Site by NRW.

8.5.12 Furthermore, the installation of the solar panels will change some fields from arable to grassland which will have the positive effect of reducing the amount of silt entering reens across the Site during ploughing operations and potentially reducing the amount of management they need.

8.5.13 This is not considered to give rise to adverse effects on the integrity of the National Site Network.

Mitigation

8.5.14 Method Statements have been prepared for road construction and decommissioning (Nicholas O'Dwyer ref 533432-NOD-ZZ-XX-MS-C-00002), management of soil stockpiles (Nicholas O'Dwyer, 2025) and installation of cable trays across reens (Nicholas O'Dwyer ref 533432-NOD-ZZ-XX-MS-C-00003). These detail sensitive working practices including marking out buffer zones, installation of silt fences, dust control, storage of topsoil and reinstatement of habitats.

8.5.15 In addition to the inherent 7m and 12.5m buffers adjacent to reens and ditches respectively, a Construction and Environmental Management Plan (CEMP) will be implemented, which will include:

- Measures as detailed within the NetRegs Guidance for Pollution Prevention: Understanding your environmental responsibilities – good environmental practices: GPP 1 (Version 1.2 June 2021[17]) produced by NRW, the Northern Ireland Environment Agency (NIEA), the Scottish Environment Protection Agency (SEPA) and the Oil Care Campaign in or Near Water. Such measures

[17] https://www.netregs.org.uk/media/1898/guidance-for-pollution-prevention-1-2022-update.pdf

include:

- Safe storage of fuels, oils, chemicals and other materials, away from the watercourse buffers and flood zones and using bunding if appropriate.
- Creation of an incident response plan to deal with pollution events.
- Use of designated fuelling area, spill kits and pollution control equipment.

- Reducing the need for dewatering through the prevention of water entering excavations;
- Minimising the amount of exposed ground and soil stockpiles to reduce sedimentation;
- The use of silt fences at the base of stockpiles; and
- Plant and wheel washing in designated areas as appropriate.

8.5.16 These measures will also be incorporated into methods statements for operational activities such as hedge cutting and ditch and reen management.

Severn Estuary SPA

Severn Estuary SPA Existing Condition

Plate 8I-3: Indicative condition assessments for Severn Estuary SPA (source: NRW, 2018

Table 11: Indicative condition assessments for Severn Estuary SPA.
(i = indiv, p = pairs, 5-year peak mean = the mean of the annual peaks over 5 consecutive years)

Feature		Performance Indicator[1] (5-year peak mean 1988/9 to 1992/3)	5-year peak mean (2011/12 – 2015/16)[2]	Indicative condition assessment	Confidence in assessment	Wales population status		Comment
Common Name	***Latin Name***					**Long-term trend (1986-2016)[2]**	**Short-term trend (2000-2016)[2]**	
Bewick's swan (wintering)	*Cygnus columbianus*	289i	186i	Unfavourable	High	Decline	Decline	Numbers possibly affected by shift in winter spatial distribution i.e. short stopping. The decreases at the Severn Estuary reflect the chronic long-term (1989/90 – 2014/15) and short-term (2004/05 – 2014/15) declines throughout the UK where there has been 95% and 74% decreases respectively[3].
European white-fronted goose (wintering)	*Anser albifrons*	3,002i	204i	Unfavourable	High	Decline	Decline	Numbers possibly affected by shifts in winter spatial distribution i.e. short stopping. The decreases at the Severn Estuary reflect the chronic declines throughout the UK where there has been a 69% decrease in non-breeding birds between 1989/90 – 2014/15[3]
Dunlin (wintering)	*Calidris alpina*	41,683i	25,730i	Unfavourable	High	Decline	Decline	Numbers possibly affected by shift in winter spatial distribution i.e. short stopping. The decreases at the Severn Estuary reflect the chronic long-term (1989/90 – 2014/15) and short-term (2004/05 – 2014/15) declines throughout the UK where there has been 40% and 19% decreases respectively[3]
Redshank (wintering)	*Tringa totanus*	2,013i	4,642i	Favourable	High	Increase	Increase	Numbers can be affected by shifts in winter spatial distribution i.e. short stopping. The trend data for Wales show increases in numbers. This is the opposite to UK trends where there has been a 20% decrease in non-breeding birds between 1989/90 – 2014/15[3]
Shelduck (wintering)	*Tadorna tadorna*	2,892i	3,726i	Favourable	High	Increase	Decline	Numbers possibly affected by shift in winter spatial distribution i.e. short stopping. The increases for the Burry Inlet SPA do not reflect the short-term decline in Wales and the chronic long-term (1989/90 – 2014/15) and short-term (2004/05 – 2014/15) declines throughout the UK where there has been 32% and 27% decreases respectively[3]
Gadwall (wintering)	*Anas strepera*	330i	199i	Unfavourable	High	Increase	Increase	Reason(s) for unfavourable status are unknown and are opposite to both Welsh and UK long-term (1989/90 – 2014/15) and short-term (2004/05 – 2014/15) trends

Table notes:
1. Performance indicators taken from the conservation advice package for the site: http://naturalresources.wales/media/673887/severn-estuary-sac-spa-and-ramsar-reg-33-advice-from-ne-and-ccw-june-09.pdf
2. WeBS online Data base: https://app.bto.org/webs-reporting/?tab=alerts
3. Frost, *et. al.* (2017). *Waterbirds in the UK 2015/16: The Wetland Bird Survey*
4. Bewick's swan (w), European white-fronted goose (w) Shelduck (w) Dunlin (w, p) Redshank (w, p) Gadwall (w) Ringed plover (w, p), Whimbrel (p), Teal (w), Pintail (w), Wigeon (w), Pochard (w), Tufted duck (w), Grey plover (w), Curlew (w), Spotted redshank (w). w = wintering, p = passage
5. Comprising 17,502 wildfowl and 50,524 waders

8.5.17 The report identifies the following high or medium pressures for the features of the SPA:

- Access & recreation;

- Erosion/disturbance/damage, agriculture and land management impacts;
- Grazing type and/or timing (inc. shepherding); and
- Pollution and waste - diffuse sources.

Evaluation of baseline data

8.5.18 As the main designated interest of the Severn Estuary SPA is its wintering bird community, a suite of diurnal wintering bird surveys were carried over a two-year period (winter 2019-2021) and a further updated winter survey (2022 – 2023) (GE Consulting, 2025) on the following dates:

- October 2019, 2020, and 2022 (2 high-tide surveys, 2 low-tide surveys)
- November 2019, 2020, and 2022 (1 high-tide survey, 1 low-tide survey)
- December 2019, 2020, and 2022 (1 high-tide survey, 1 low-tide survey)
- January 2020, 2021, and 2023 (1 high-tide survey, 1 low-tide survey)
- February 2020, 2021, and 2023 (1 high-tide survey, 1 low-tide survey)
- March 2020, 2021, and 2023 (2 high-tide surveys, 2 low-tide surveys).

8.5.19 Nocturnal surveys were undertaken to record waders which may move and feed in the hours of darkness in response to tidal influence, as well as cryptic species and owls, on the following dates:

- October – March 2019/20, 2020/21, and 2022/23 (once per month).

8.5.20 The following **Article 4.2 migratory species** (as defined in Table 8-1) were found to use parts of the application area:

- Greater white-fronted goose;
- Dunlin;
- Shelduck;
- Common redshank; and

- Gadwall.

Bewick's swan were not recorded.

8.5.21 For ease of reference, a summary of SPA named species recorded during winter surveys at the Site is provided below in **Table 8I-2.** Full details are available within the Winter Birds technical appendix (GE Consulting, 2025).

Table 8I-2 Table 2 Winter Bird Survey Findings (SPA Qualifying Features)

English Vernacular Name	SPA Qualifying Species	Ramsar Criteria	BoCC5 Status	BoCC4 (Wales)	Survey Findings	Peak count across all surveys
European White-fronted Goose	Article 4.2	C6	Red	Red	- One record on Site from the nocturnal surveys – 13/03/21 in Field 15. - Additional sightings offsite (foreshore).	1
Gadwall	Article 4.2	C6	Amber	-	- Recorded on ten survey dates, and sightings were across just seven different fields. Peak counts ranged from one to six birds on a single survey date. - Highest numbers were recorded on 26/03/2021 when six birds were recorded within Fields 24 and 98 during a diurnal survey.	6

Shelduck	Article 4.2	C6	Amber	Red	- Shelduck were recorded on 23 dates, distributed across 33 different fields. Peak counts ranged from one and 48 birds on a single survey date. - Highest numbers were recorded on 25/02/2020 when 48 birds were recorded within Fields 121, 124 and 139, and on 05/03/2020 when 47 birds were recorded within Fields 106, 107, 119, 135 and 137, all during diurnal surveys.	48
Dunlin	Article 4.2	C6	Red	Red	- Dunlin were recorded on five dates in total (two diurnal and three nocturnal surveys). Peak counts ranged from one to 156 birds on a single survey date. - Highest numbers were a peak count of 156 (within Fields 119 and 126 collectively) on 16/01/2020 during a high	156

					tide survey. They were not recorded during a high-tide diurnal survey again.	
Common redshank	Article 4.2	C6	Amber	Red	- Redshank were recorded once onsite, within field 148 during a nocturnal survey. - Recorded commonly on the foreshore (offsite) during both high and low tide surveys.	1

8.5.22 Assessing the waterbird population on Site as a whole, the peak count across all survey periods was 258 waterbirds (comprising waterfowl, waders and wetland species). This was recorded on the 05/03/2020.

Assessment of Functionally Linked Land

8.5.23 Sites that support highly mobile species such as birds are more likely to rely upon supporting habitat outside of the designated area for the maintenance of species populations. For example, wintering birds may forage or loaf regularly on land outside of a designated site at particular times of the day or season (e.g. at high tide when foraging areas on mudflats are unavailable).

8.5.24 Whether effects are likely to be significant away from the SPA itself largely depends on whether it is considered that the land on Site is 'functionally linked' to the SPA i.e. whether significant numbers of notified/ qualifying or assemblage species from the SPA use the land in question.

8.5.25 As a rough rule of thumb ≥1% of a notified/ qualifying species SPA population or assemblage has been used as a guide to start to assess whether land is likely to be Functionally Linked to an SPA. This is considered a conservative approach when compared to other studies (e.g. Bowland Ecology, 2021) where 0.5% of the Great

Britain population has been used. However, other factors need to be considered, such as regularity of use, type of use, availability of other suitable habitat in the area as well as the numbers of birds using the land. Stroud *et al.* (2001) defined 'regular' as when a threshold is met in two thirds of the season for which adequate data are available.

8.5.26 In addition, the land should be demonstrated to be essential to a notified/ qualifying species such that it is important in sustaining and maintaining the viability of the National Site Network population before it can be classed as functionally linked.

Greater white-fronted goose

8.5.27 The single greater white-fronted goose recorded represents 0.53% of the Severn Estuary population 5-year average 2019/20 to 2023/24 (187). Given the single occurrence across 18 separate nocturnal surveys, it is considered European white-fronted goose are not likely to be present on Site with any regularity; because of this the application area would not be considered functional linked to the SPA for this species.

Dunlin

8.5.28 The peak count of 156 dunlin represents 0.56% of the Severn Estuary population 5-year average 2019/20 to 2023/24 (27,695). Dunlin are not considered to be present on Site in consistently high numbers or with any regularity; because of this the Site would not be considered functional linked to the SPA for this species.

Shelduck

8.5.29 The peak count of 48 shelduck represents 0.62% of the Severn Estuary population 5-year average 2019/20 to 2023/24 (7696). This would not be considered functionally linked to the SPA for this species.

Gadwall

8.5.30 The peak count of six gadwall represents 2.5% of the Severn Estuary population 5-year average 2019/20 to 2023/24 (240). This would be considered functionally linked to the SPA for this species as it exceeds 1% of the average population. However in accordance with Stroud *et al.* (2001) this threshold would need to be exceeded in

two thirds of the season to be defined as ‘regular’ use.

8.5.31 The 1% threshold was exceeded on four occasions during diurnal surveys: on 26/03/2021 when six birds were recorded within Fields 24 and 98, on 05/12/2022 when five birds were recorded in Field 215, on 13/01/2023 when four birds were recorded in Fields 24 and 124, and on 15/03/23 when four birds were recorded in Field 124. Gadwall were recorded twice during nocturnal surveys, but only as individuals.

8.5.32 Across all surveys, gadwall were generally only observed once within an individual field, with the exception of Field 124 when gadwall were recorded on six separate occasions (out of 34 surveys).

8.5.33 This would not be considered regular use therefore although the Site is shown to be used by gadwall, it would not be considered ‘functionally linked land’.

Common redshank

8.5.34 The single redshank recorded represents 0.02% of the Severn Estuary population 5-year average 2019/20 to 2023/24 (4432). Given the single occurrence all surveys, it is considered redshank are not likely to be present on Site with any regularity; because of this the Site would not be considered functionally linked to the SPA for this species.

Assemblage

8.5.35 The published SPA assemblage as a whole in the original citation amounts to 68,026 individual waterbirds (5 year peak mean, 1988/89 – 1992/93)[18]. This was updated in the Natura 2000 form to 84,317 waterfowl (5 year peak mean, 01/04/1998)[19].

8.5.36 The peak count of all waterfowl species recorded within the application boundary over the three winter survey periods amounts to 258 birds, recorded on 05/03/2020. This equals 0.31% of the Severn Estuary SPA Assemblage as per the Natura 2000 figures. This figure falls below the 1% threshold and therefore the Site is not

[18] https://naturalresources.wales/media/673887/severn-estuary-sac-spa-and-ramsar-reg-33-advice-from-ne-and-ccw-june-09.pdf
[19] https://jncc.gov.uk/jncc-assets/SPA-N2K/UK9015022.pdf

considered likely to be functionally linked.

8.5.37 Taking into account the latest five-year moving average of 78,096 (19/20 – 23/24), the peak count would equate to 0.33% across all survey years.

Summary

8.5.38 **Table 8I-3** summarises the percentage of the Severn Estuary SPA main component assemblage species recorded on Site. The Article 4.1 qualifying species Bewick's swan was not recorded on Site during any surveys.

Table 8I-3: SPA populations of individual species recorded on Site and their percentage of the SPA population. Red shading denotes Functionally Linked Land (>1%)

Qualifying Criteria	Published Severn Estuary Population (based Natura 2000 Standard Data Form)	Latest 5-year Average SPA Population 2019/20 – 2023/24	Peak Count on Site	Percentage of Published Population on Site (%)	Percentage of Latest Average Population on Site (%)
Greater white-fronted goose	2664	187	1	0.04	0.53
Dunlin	44,624	27,695	156	0.35	0.56
Shelduck	3330	7696	48	1.44	0.62
Redshank	2330	4432	1	0.04	0.02
Gadwall	282	240	6	2.13	2.5
Assemblage	84,317	78,096	258	0.31	0.33

8.5.39 Taking account of the records on Site discussed above, it is considered that the Site would not qualify as functionally linked land for the Article 4.2 bird gadwall due to lack of regular use**.**

Identification of Potential Pathways

8.5.40 The Site is fully outside the boundary of the SPA, it is however within c. 20m at its closest point.

8.5.41 The following pathways to potential adverse effects have been identified.

- Potential for impacts to supporting habitat within the SPA e.g. run-off and

siltation.

- Behavioural changes to wintering SPA birds on the estuary due to disturbance (visual or noise).

Run-off and siltation

8.5.42 Refer to **Sections 5.1.4 and 5.1.5** above.

Noise/ Visual Disturbance to SPA Birds on the Estuary

Construction/ Decommissioning

8.5.43 The guidance within the Waterbird Disturbance Mitigation Toolkit (Cutts et al., 2013) classifies noise responses by birds as follows:

8.5.44 Low: noises of less than 55 dB at the bird are unlikely to cause a response. Noise between 55-72 dB in some highly disturbed areas may elicit a low level of disturbance provided the noise level was regular as birds will often habituate to a constant noise level.

8.5.45 Moderate: high level noise which has occurred over long periods so that birds become habituated to it or lower-level noise which causes some disturbance to birds. This includes occasional noise events above 55 dB, consistent elevated level noise between 60-72 dB over long periods and long-term regular noise above 72 dB, where birds have become habituated.

8.5.46 High: sudden noise event of over 60 dB (at the bird, not the source) or a more prolonged noise of over 72 dB may cause birds to move away from the works to areas which are less disturbed. Birds that remain in the affected area may not forage efficiently and if there are additional pressures on the birds (cold weather, extreme heat etc.) then this may impact upon the survival of individual birds or their ability to breed.

8.5.47 Preliminary assessment of noise and vibration for noise receptors on the Wales Coast Path (which is the closest measured noise receptor to the Severn Estuary SPA) has been made within PEIR Chapter 13: Noise and Vibration. This suggests that noise from screw piles for solar panels and inverters could have potentially have

significant impacts, with noise levels at up to 75 dB, for 1 – 3 days at a time when works are closest to the sea wall (e.g. 30m). This would constitute 'high level' noise disturbance to birds, although it is not clear how much noise the sea wall itself would attenuate. Therefore significant adverse effects could occur to birds on the estuary as a result of noise. Further assessment will be made in the ES on the receipt of more detailed noise assessments.

8.5.48 Construction will take place during daylight hours therefore impacts are not predicted at night.

8.5.49 Visual disturbance to SPA birds on the estuary is considered highly unlikely due to the presence of the sea wall which provides a robust visual barrier screening the Site (and construction activities) from SPA birds . There are no locations within the Site where the estuary is visible due to the height of the sea wall. There will be no use of the sea wall during construction or decommissioning. See **Section 5.2.7** for visual impacts to SPA birds using the site itself as part of functionally linked land.

Operation

8.5.50 Due to the nature of Proposed Development, there will be limited noise during the operational phase, although some operational noise was predicted to occur to the Wales Coast Path in PEIR Chapter 13: Noise and Vibration which will be assessed further in the ES.

8.5.51 Maintenance personnel will access the panels in vehicles, which as discussed above, will not be visible from the estuary. Furthermore, such activities will not be at a greater frequency or intensity than typical Site agricultural activities. There will be no increase in users of the Wales Coast Path as a result of the Proposed Development, which is visible from the estuary. No adverse effects are predicted during operation.

River Usk SAC

River Usk SAC Existing Condition

8.5.52 The River Usk SAC rises in the Black Mountains/ Y Mynydd Du or Y Mynyddoedd Duon in the west of the Brecon Beacons/ Bannau Brycheiniog National Park and

flows east and then south, to enter the Severn Estuary at Newport. The SAC is underpinned by the following component SSSI's:

- River Usk (Upper Usk) SSSI
- River Usk (Lower Usk) SSSI
- River Usk (Tributaries) SSSI
- Penllwyn-yr-hendy SSSI
- Coed Dyrysiog SSSI
- Coed Nant Menascin SSSI
- Coed Ynysfaen SSSI.

8.5.53 A 2020 Baseline Evaluation conducted by NRW of the condition of protected sites[20] showed that all notified and qualifying features of the SAC were in 'unfavourable' condition.

Baseline Data

8.5.54 Surveys for otter were undertaken across a period of two weeks in March 2024. This included a walkover of reens and ditches within the Site, searching for otter signs (footprints, runs, trails, spraint (faeces), anal jelly, urine burns, food remains, flattened grass (sometimes with spraint), slides couches and holts). Camera traps were used in targeted areas. Further surveys are proposed for autumn 2025.

8.5.55 Evidence of otter activity was found on several reens/ ditches, with activity focused on five key watercourses:

- Yoke Reen;
- Cock Street reens;

[20] https://naturalresources.wales/evidence-and-data/research-and-reports/protected-sites-baseline-assessment-2020/?lang=en

- Mead Lane;
- Monk's Ditch; and
- The sea wall reen running south of Mead Lane.

8.5.56 Field signs indicated otter were moving from the north to the south and along the sea wall area. Camera trapping surveys to date indicate that otter/s are using the main reens to disperse, commute and forage with a possible holt on the eastern watercourse of Field 98, a possible holt on two watercourses adjacent to Field 65 and a possible resting place within Field V3, west of the National Grid substation (refer to **Appendix 8H Riparian Mammal Surveys**).

Identification of Potential Pathways

8.5.57 The Site is fully outside the boundary of the SAC, and c. 3.7km west at its closest point. The Site does not contain any qualifying habitats of the SAC, and is not considered to provide functionally-linked land for fish species: sea lamprey, brook lamprey, river lamprey, twaite shad, Atlantic salmon and bullhead associated with the SAC, which occur in rivers/ tributaries in their freshwater phases. However, there are potential hydrological links due to the reen/ ditch network and the potential for the notified feature: otter, to use the Site as part of functionally linked land. Otters have very large territories (over 20km) (Chanin, 2003) therefore it is plausible that the Site could be used by otters from the SAC.

8.5.58 Functionally linked land would include habitat which provides essential ecological support for the otter population, such as foraging areas, holts, or corridors for movement and travel, and therefore performs a critical function for the favourable conservation status of the species.

8.5.59 The following pathways to potential adverse effects have been identified.

- Minor silt or fuel pollution via reen network during construction which could impact SAC habitats/ supporting habitats and habitat within functionally linked land. However, there are also likely positive effects from reduction in grazing pressure/ arable land uses thereby reducing diffuse pollution entering watercourses.

- The introduction of bridges/ culverts within onsite reens/ ditches could affect commuting or foraging otter, as part of functionally linked land, or directly impact holts/ resting places. In addition, security fencing during operation may prevent movement across terrestrial habitat.

Hydrology/ water quality

Construction and Decommissioning

8.5.60 There is considered to be a very low risk of siltation, dust pollution or fuel/chemical spill affecting the SAC offsite, or affecting otter utilising the Site's watercourse network during construction and decommissioning. This is due to the 12m and 7m buffer zones which are incorporated around reens and ditches respectively as part of the inherent design. An outline Construction Environmental Management Plan (oCEMP) has been prepared [Appendix 2A]; this and the more detailed CEMP which will follow this, will detail how these are to be marked out and protected from accidental vehicle tracking and storage of material/ machinery during works.

8.5.61 Some operations such as hedge cutting and new cable/ vehicular crossing point installation will take place prior to construction where there is an increased risk of minor pollution incidents, in particular increased siltation to the watercourses.

8.5.62 If an accidental pollution event or siltation was to occur, it is likely to be small, very localised and isolated. The CEMP will detail methods for clean up in the event of fuel spills.

Operation

8.5.63 Regular annual/biannual hedge cutting will take place, as well as regular ditch and reen management practices that already take place on major reens and ditches on Site by NRW. This is not considered to give rise to adverse effects on the integrity of the National Site Network as it would not be above current management levels.

8.5.64 The installation of the solar panels will change some fields from arable to grassland which will have the positive effect of reducing the amount of soil entering reens across the Site following agricultural cultivation (ploughing). Furthermore, a reduction in grazing is likely to result in an overall positive effect on water quality due

to reduced agricultural inputs (reduction in phosphates and nitrates from animal waste and slurry/ fertiliser spreading, reducing potential for eutrophication of aquatic environments).

Mitigation

8.5.65 In addition to the inherent 7m and 12m buffers adjacent to reens and ditches respectively, a Construction and Environmental Management Plan (CEMP) will be implemented, which will include:

- Measures as detailed within the NetRegs Guidance for Pollution Prevention: Understanding your environmental responsibilities – good environmental practices: GPP 1 (Version 1.2 June 2021[21]) produced by NRW, the Northern Ireland Environment Agency (NIEA), the Scottish Environment Protection Agency (SEPA) and the Oil Care Campaign in or Near Water. Such measures include:
  - Safe storage of fuels, oils, chemicals and other materials, away from the watercourse buffers and flood zones and using bunding if appropriate.
  - Creation of an incident response plan to deal with pollution events.
  - Use of designated fuelling area, spill kits and pollution control equipment.
- Reducing the need for dewatering through the prevention of water entering excavations;
- Minimising the amount of exposed ground and soil stockpiles to reduce sedimentation;
- The use of silt fences at the base of stockpiles; and
- Plant and wheel washing in designated areas as appropriate.

[21] https://www.netregs.org.uk/media/1898/guidance-for-pollution-prevention-1-2022-update.pdf

These measures will also be incorporated into methods statements for operational activities such as hedge cutting and ditch and reen management.

Otter

Construction and Decommissioning

8.5.66 No night-time construction/ decommissioning activities are proposed therefore impacts on commuting and foraging otter will not occur.

8.5.67 Installation of culverts and bridges may impact on holts/ resting places, either directly if new holts have been created prior to construction, or indirectly through noise disturbance and vibration, however, currently there will be no direct damage or destruction of a holt.

8.5.68 Disturbance is widely accepted as occurring at 100-200m[22],[23] from a natal den and 30m[24] from a non-breeding holt or resting place. Based on current evidence, the closest culvert installation to a 'possible holt' is c. 45m in Field 65, although there will be locations where panel installation is within c. 15-20m.

8.5.69 Decommissioning is unlikely to impact otter as there would be an option to leave culverts/ bridges in situ if otter holts/ resting places were identified in proximity.

Operation

8.5.70 As no night-time lighting is proposed and with the provision of the inherent reen/ ditch buffers, disturbance to otters during operation is considered very low risk. Emergency works may require vehicles and lighting at night, although this is unlikely to be frequent or for extended periods.

8.5.71 Whilst the culverts and bridges for cable crossings have the potential to restrict commuting/ foraging routes due to avoidance behaviours, these structures will be short in length and there is no risk of road traffic collision if otters leave the watercourse to avoid the culvert. Any bridge will span the watercourse to reduce

[22] https://cieem.net/wp-content/uploads/2019/07/natural-information-otters-and-development-2011.pdf
[23] https://cdn.cyfoethnaturiol.cymru/683858/ottersguidancewalessept2010v2.pdf
[24] https://www.nature.scot/sites/default/files/2018-09/Species%20Planning%20Advice%20-%20otter.pdf

impacts to bankside vegetation. This is not considered to give rise to significant effects.

8.5.72 Crossing points of main reens will comprise horizontal directional drilling (HDD) in order to avoid placing structures within the larger watercourses that could deter otter.

8.5.73 There is a chance that otter habitat will become fragmented following the installation of security fencing, however given the inherent design mitigation of 7 – 12m watercourse buffers this is unlikely to be significant.

Mitigation

8.5.74 The following measures will be followed to maintain the favourable conservation status of otters:

- An update survey of crossing points (and within suitable holt building habitat within 100m, e.g. reed beds and woodland) will be undertaken within 3 months prior to works.
- Exclusion zones around holts and shelters will be clearly marked – 100m for natal dens and 30m for other holts and shelters.
- Where possible, crossing points will be micro-sited to avoid exclusion zones.
- Any works within close proximity to these zones will be undertaken under a method statement and may require acoustic enclosures. This will be assessed once further construction information is known.
- Where necessary, measures will be employed within exclusion zones to reduce potential noise disturbance.
- If disturbance or damage cannot be avoided, an NRW European Protected Species (EPS) mitigation licence will be obtained, which may require construction of a replacement holt. As the majority of works are short-lived and temporary it is considered that the favourable conservation status of otter can be maintained.
- Security fencing to include a gap below (c. 300mm) to allow otter to cross the

Site, or with individual gaps every 100m.

- No night-time work in the proximity of otter habitat (watercourses) will take place, including two hours after sunrise and two hours before sunset.

8.6 Cumulative Assessment

8.6.1 A preliminary in-combination assessment has been undertaken which examines the result from the combined effects of the Proposed Development with other developments. A large number (>200) approved and pending applications across the Local Planning Authorities of Newport, Monmouthshire, Torfaen, Bristol City Council, South Gloucestershire and North Somerset Council were reviewed.

8.6.2 The main cumulative effects are considered to comprise displacement of birds during construction if developments are undertaken concurrently, e.g. as a result of noise or visual disturbance. Further analysis is provided in **Table 8I-4** below. This will be further assessed during the ES to determine when each development will take place, and whether additional mitigation is required, such as timing the Proposed Development, or avoiding phases close to the sea wall that generate high levels of noise, to avoid it being undertaken concurrently with other developments.

8.6.3 It is considered that cumulative effects of run-off/ pollution would not be significant as the implementation of the CEMP and reen/ ditch buffers would reduce the risk to negligible. It is also expected that that similar best practice measures to mitigate dust and water pollution impacts would be employed at all sites such that the overall cumulative effect would remain at worst as temporary.

8.6.4 Cumulative effects on otter are not considered likely as mitigation measures are in place to prevent any adverse effects on the favourable conservation status of this species, such that there cannot be any cumulative effects with other development sites.

Table 8I-4 Sites Assessed for In-combination Effects

Project	Planning Reference	Address	Status	Justification	Further assessment?
Newport City Council					
Battery energy storage system with associated infrastructure and works.	23/0949	Land At Uskmouth Power Station West Nash Road Nash Newport South Wales	Approved - 11/01/2024	The sHRA recorded gadwall using attenuation ponds equating to 11% of the total SPA population and within intertidal habitats at 1.2% of the population. In addition redshank and teal exceeded the 1% threshold within the foreshore. The sHRA screened in disturbance during construction (from human activity and noise) on the wintering bird assemblage, however habitats will be retained in the long-term. To mitigate visual disturbance hoarding will be used. However the sHRA states that "It is anticipated that the majority of construction activity would fall in the category of low to moderate level disturbance. Activities resulting in greater variation in noise levels would constitute a moderate level disturbance. During all high level noise disturbances and some moderate level noise disturbances, sensitive waterfowl would be expected moving away from the sources of noise into less disturbed locations, resulting in temporary displacement from a small part of the total foraging habitat used by small numbers of birds… The	Yes – there is potential for adverse effects on wintering birds where the construction periods for the Proposed Development overlaps specifically with construction of this development e.g. through displacement/ disturbance effects.

				broad duration of the enabling works and construction is anticipated to take approximately 12 months. Land raising is due to be completed over a 3-4 month period prior to the construction and installation of the BESS development. Therefore moderate and high disturbance effects would occur during, part or all of, a single winter period."	
Provision of an underground electricity transmission circuit	23/0858	Celtic Technology Centre Celtic Way Celtic Lakes Newport NP10 8BE	Approved - 06/12/2023	The sHRA states: "Wintering bird surveys have not recorded any significant numbers of the qualifying bird species of the Severn Estuary European Marine Site within the site. The only species recorded was mallard which forms one of the Severn Estuary SPA, wintering bird assemblage, which was recorded in low numbers (a maximum peak count of four individuals). Mallard is a common and widespread species. There is the potential for any wintering birds present to be subject to disturbance through increased noise or lighting during construction. However, due to the low numbers of wintering birds, particularly those associated with the European Sites, within the site and adjacent habitat, any effects to wintering populations associated with the Severn Estuary SPA and Ramsar are not considered to be significant.	No Cumulative Impacts anticipated

Installation of a 230 mw battery energy storage system (BESS).	22/0823	Uskmouth Power Station West Nash Road Nash Newport South Wales NP18 2BZ	Approved - 07/12/2022	The sHRA indicates that within offsite intertidal habitats, three Severn Estuary SPA birds/ assemblage species were recorded, with only redshank and were recorded in higher than very small number. The broad duration construction phase is anticipated to take approximately 12 months, with effects covering at least a full winter period. No piling will be required for the construction of the development (with the exception of the short duration works required for 132kV HV transformer supports) but the general construction activities will generate additional noise. To reduce noise levels across the attenuation pond, an acoustic barrier will be installed between the construction site and the attenuation pond. This will be aligned to the bank of the operational ditch for the land raising and extend beyond the north-west corner of the pond. The acoustic barrier would be moved to the boundary of the BESS compound construction area further from the pond margin following the completion of the building and profiling of the raised landform. Any footpaths between the construction staff car parks and the construction area will be sited away from the margin of the attenuation pond.	Yes – there is potential for adverse effects on wintering birds where the construction periods for the Proposed Development overlaps specifically with construction of this development e.g. through displacement/ disturbance effects.

				The sHRA states that “Under a precautionary approach, it is concluded that use of the attenuation pond by duck species would generally decrease during construction with dispersal into the Newport Wetlands. The level of effect would be highest during times when contractors on foot are working in the vicinity of the attenuation pond.”	
Removal of stored pulverised fuel ash (pfa) and the installation of a new battery energy storage system (BESS) with all associated drainage, infrastructure, engineering and associated utilities connections.	25/0407	Land At Uskmouth Power Station West Nash Road Nash Newport NP18 2BZ	Awaiting Decision	No sHRA is currently available however a NRW consultee comments state: Newport Wetlands SSSI and National Nature Reserve (NNR), the River Usk SAC and SSSI and the Severn Estuary SSSI, SPA, SAC and Ramsar are all located within 300m of the proposal site. Generally, in consideration of the mitigation measures detailed we agree with the conclusion that the development is unlikely to have an adverse effect upon the integrity of the River Usk SAC and the Severn Estuary SPA, SAC and Ramsar site. In particular, we request we are consulted on the CEMP.	No Cumulative Impacts anticipated
Construction and operation of a mill including storage of raw materials, to produce 'green' cement from	25/0069	South Dock East Way Road Alexandra Docks Newport South Wales	Awaiting Decision	This site is 200m from the River Usk SAC and 400m from the River Severn and does not contain any habitats of value for wintering birds. The sHRA states: “The Scheme is the type of proposed development considered likely to impact the nature conservation	No - it is not considered that cumulative effects will occur as the Proposed Development will not result in

recycled, non-hazardous, waste materials, storage of the product and onward distribution.				status of the European sites mentioned above due to increased traffic along roads adjacent to highly sensitive salt marsh habitats and the possibility of abstraction and outfalls into Alexandra Docks which flows into the River Usk." The proposed development will increase concentrations of NOx and ammonia, and nitrogen deposition fluxes within the salt marsh area of the River Usk SAC within 200 m of the A48.	cumulative air quality impacts.
Proposed solar development, new access and associated works.	21/0346	Land To West Of Docks Way Disposal Site Docks Way Newport South Wales	Approved - 01/12/2021	The Preliminary Ecological Appraisal report states that "The only SPA qualifying species seen within the development site boundary was a single Oystercatcher at the eastern edge of Field 1 on one of the seven winter survey visits undertaken… On the river and intertidal mud, up to 36 Redshank, 42 teal, 32 Canada Geese, 39 Grey Plover (on one visit only), at least 35 Mallard and a single Green Sandpiper were seen." The assessment further states "There is some potential risk of disturbance, but the birds are using both banks of the river and have been subject to considerable anthropogenic noise and visibility disturbance for many years as a consequence of heavy plant operating on the adjacent landfill site.	Yes – there is potential for adverse effects on wintering birds where the construction periods for the Proposed Development overlaps specifically with construction of this development e.g. through displacement/ disturbance effects.

				Works to install the PV panels are likely to produce considerably less noise than that which the birds currently experience and such noise would be for a relatively short period. On that basis, it is considered unlikely that there will be any significant adverse effects on waders or wildfowl as a consequence of the proposed development."	
Monmouthshire County Council					
The construction of industrial develoA20, B2 and B8 use and associated access, access road, parking, landscaping, swale and associated works. The proposal will deliver a combined total of 7,538m2 of industrial floorspace (B1, B2 and B8), 1,120m2 of	DM/2025/00852	Gwent Europark Bareland Street Magor NP26 3DB	Pending Consideration-Recommendation and/or Committee	NRW: "The proposal site is situated approximately 3.1km from the Severn Estuary Special Area of Conservation (SAC), Special Protection Area (SPA), Site of Special Scientific Interest and Ramsar. The proposal may impact these designations through potential permanent loss of functionally linked land... We advise that further information regarding overwintering birds is required to understand any potential effects the development may have on the SPA/Ramsar site."	Yes – there is potential for adverse effects on wintering birds where the construction periods for the Proposed Development overlaps specifically with construction of this development e.g. through displacement/ disturbance effects. Insufficient information currently available.

open storage provision, and 330m2 of office accommodation.					
Proposed erection of 3 additional storage tanks and associated works.	DM/2025/00251	Magor Brewery Effluent Treatment Plant Newport Road Magor Monmouthshire NP26 3RA	Pending Consideration-Recommendation and/or Committee	The ecology officer consultee comments state: “Insufficient information has been provided for the Local Planning Authority to carry out a Habitats Regulations Assessment. No assessment on wintering birds or shrill carder bee.” NRW comments: “We cannot rule out the proposal having a likely significant effect on the Severn Estuary SAC, the Severn Estuary SPA and the Severn Estuary Ramsar site at this stage”.	Yes – there is potential for adverse effects on wintering birds where the construction periods for the Proposed Development overlaps specifically with construction of this development e.g. through displacement/ disturbance effects. Insufficient information currently available.
South Gloucestershire Council					
Enhanced restoration of a former landfill Site with the importation of approximately 175,000m3 of restoration materials.	P25/01639/MW	Former Landfill Site Known As Northwick Landfill Severn Road Pilning South Gloucestershire	Awaiting decision	The Ecology Impact assessment states that “None of the birds noted on the SPA data sheet were observed flying between the SPA and the Site itself”. However consultee comment from the Ecology officer state that the Severn Estuary SPA/SAC/SSSI/RAMSAR is located approximately 30m to the west and	Yes – there is potential for adverse effects on wintering birds where the construction periods for the Proposed Development overlaps specifically with construction of

				that noise pollution and visual disturbance on SPA birds have not been adequately assessed.	this development e.g. through displacement/ disturbance effects. Insufficient information currently available.
Change of use of land to Use Class B8 open storage (Major)	23/04777/F	Former Lorry Park Chittening Industrial Estate Land To West Of Chittening Road Bristol BS11 0YB	Awaiting Decision	The EcIA report shows that no species listed on the citation for the Severn Estuary SPA were recorded on-site. It further states that “The site is circa 0.5 km east from the SPA which beyond the 500 m guide for noise disturbance”. Potential impacts also considered run off, but no adverse effects were predicted with good practice measures.	No Cumulative Impacts anticipated
Hybrid planning application comprising a mixed commercial/ industrial development for A1, A3, A5, C1, D1, D2, B2 and B8 use classes over seven plots (Area A-G). Full planning permission is sought for the development of	20/02903/P	Land At Access 18 Access 18 Bristol BS11 8HT	Granted subject to condition(s)	A Habitat Regulations Assessment states that: “Following the completion of wintering bird surveys at the site, none of the qualifying species listed under the SPA designation were recorded over wintering on the site.” And that “Direct impacts from noise and vibration during construction works and post-development are not predicted to have a likely significant effect of the Severn Estuary designated features. This is due to the intervening distance between the Severn Estuary SPA/SAC/Ramsar at a distance of 1.4 km (at its closest point) with intervening space containing large	No Cumulative Impacts anticipated

a hotel within Area F, access works to the site and to the identified proposed development plots, earthworks, ecological enhancements, the diversion of the existing public right of way, landscaping works across the whole site and other infrastructure works to support the proposed development. Outline planning permission is sought for the principle of employment development at Areas A, B, C, D, E and G and the principle of retail, non-	scale industrial and commercial premises, as well as the Port of Bristol.”

residential institutions and assembly and leisure uses at Area F. EIA Development & Departure.					
DNS					
Erection of a solar farm comprising ground mounted, fixed position solar panels, with a combined installed generating capacity of up to 99.9 MW, underground cabling, grid connection, associated infrastructure, landscaping and environmental enhancements, for a period of up to 40 years.	DNS/3279787 - Craig y Perthi Solar Farm	Land between the M4 Motorway and the South Wales Main Line Railway, near Llanwern, Underwood and Bishton	Awaiting Decision	The sHRA submitted with the application rules out adverse effects based on mitigation provided e.g. bird mitigation fields, however, there would be potential for displacement effects during construction.	Yes – there is potential for adverse effects on wintering birds where the construction periods for the Proposed Development overlaps specifically with construction of this development e.g. through displacement/ disturbance effects.
The installation of a solar park with an	DNS/3220457 - Rush Wall Solar Park Ltd	Land near the village of Redwick, south	Examination	The effects to passage and wintering SPA assemblage species at the Rush Wall Solar Park were assessed as	No Cumulative Impacts anticipated

approximate design capacity of 75MW. Development includes ancillary electrical equipment and infrastructure, access tracks, security fencing and CCTV.		east of Newport, Wales on the Caldicot Levels		being adverse, short term and not significant to wintering and passage birds of the SPA during construction. All other impacts to the SPA or SPA species were considered negligible and not significant.	
Erection of a Renewable Energy Hub comprising ground mounted solar panels, battery storage units (160 units) with a combined installed generating capacity of up to 125MW, underground cabling, grid connection hub, associated infrastructure, landscaping and environmental enhancements	DNS/3216558 - Wentlooge - Renewable Energy Hub	Land on the Wentlooge Levels to the West of Hawse Lane	Appealed and resubmitted	The ES states that following mitigation the only adverse effects on birds are loss of wintering habitat for lapwing. Whilst this is not an SPA named species, it is part of the assemblage.	As the Proposed Development will not have adverse effects on wintering lapwing, no cumulative effects are predicted.

for a temporary period of 40 years					
Renewable Energy & Green Hydrogen Production Facility including ground-mounted solar PV, wind turbine, hydrogen electrolysers, hydrogen and energy storage and ancillary and associated infrastructure and cabling.	DNS CAS-01960-J2H3X5 - Magor Net Zero	Land at Magor, Monmouthshire	Appeal	Only scoping report available. Severn Estuary/ impacts to birds scoped in however further information on wintering bird surveys or assessment of effects not available.	Insufficient information available at this stage.

8.7 Overall Assessment

8.7.1 There are potential for effects on wintering birds associated with the Severn Estuary SPA during construction as a result of noise disturbance.

8.7.2 The main pathway for cumulative effects is if developments within proximity to the Severn Estuary SPA take place concurrently, resulting in birds being displaced from multiple sites at the same time. Mitigation could include timing of construction so that developments are not undertaken at the same time, or avoiding disturbing activities (i.e. high levels of noise) close to the estuary during winter.

8.7.3 However, subject to the Proposed Development being undertaken in accordance with the mitigation detailed above, along with any additional measures detailed within the Water Environment and Noise and Vibration chapters of the Environmental Statement, adverse impacts on the integrity of the National Site Network are not anticipated.

8.7.4 This draft sHRA will be updated during the ES process on receipt of the above information.

8.8 References

Chanin P. (2003) *Ecology of the European Otter.* Conserving Natura 2000 Rivers Ecology Series No 10. English Nature, Peterborough.

Cutts N., Hemingway K. and Spencer J. (2013) *Waterbird Disturbance Mitigation Toolkit: Informing Estuarine Planning & Construction Projects*. Produced by the Institute of Estuarine and Coastal Studies.

Bowland Ecology (2021). Thresholds for functionally linked land supporting Special Protection Areas (SPAs) waterbirds in the North West of England (Natural England Commissioned Report: NECR361). Available at: https://publications.naturalengland.org.uk/publication/6303434392469504

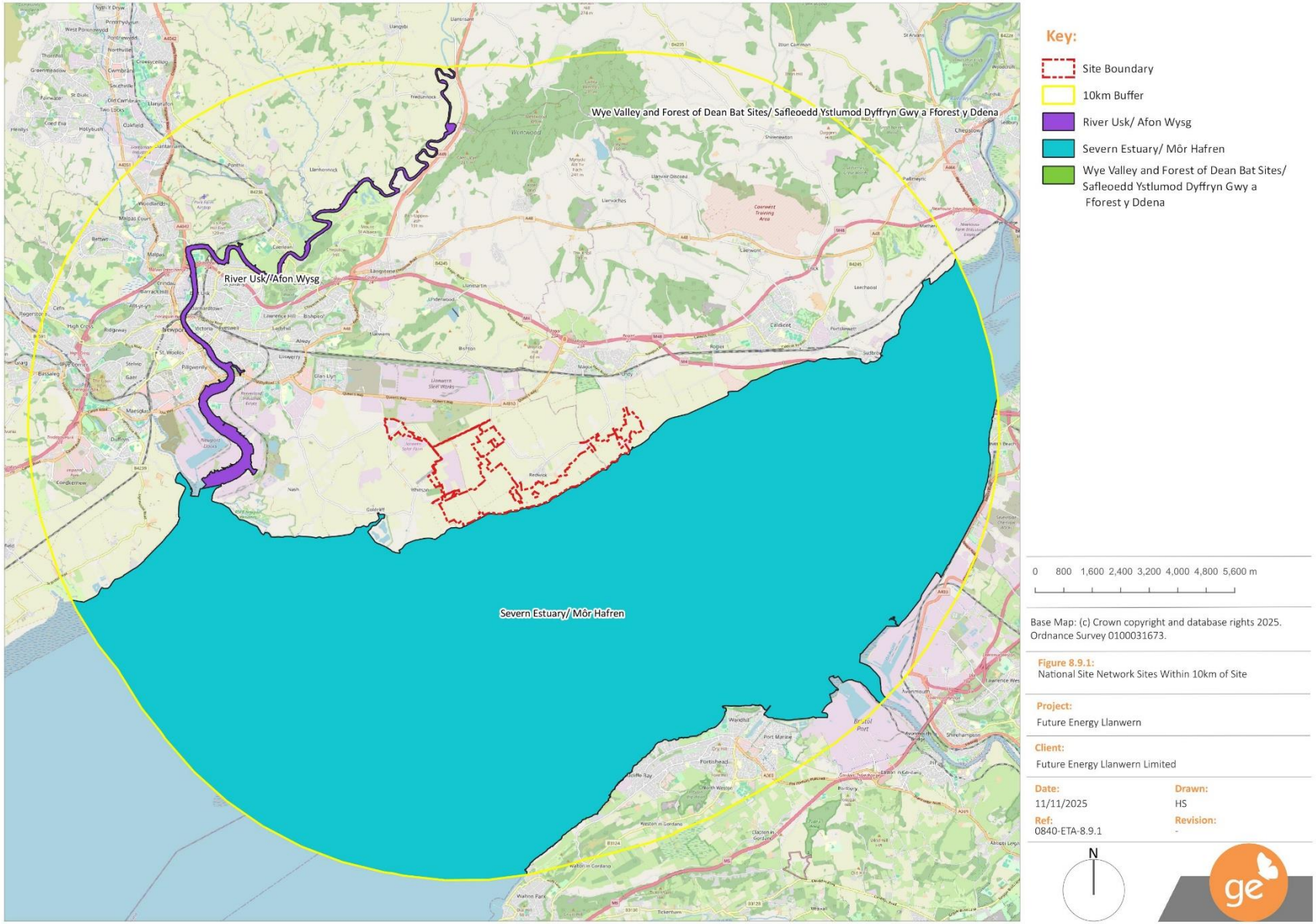
Natural England (2024). Severn Estuary SSSI Unit Condition Summary.

NetRegs Guidance for Pollution Prevention: GPP 1 (Version 1.2, June 2021). Produced by NRW, NIEA, SEPA, and the Oil Care Campaign NRW (2017, 2018).

Nicholas O'Dwyer. Crossing Schedule (Ref: 533432-NOD-ZZ-XX-RP-C-00001).

Nicholas O'Dwyer (2025). Method Statements for road construction, cable tray installation, and stockpile management (Refs: 533432-NOD-ZZ-XX-MS-C-00002 and 00003).

Stroud et al. (2001). Definition of "regular" use in bird surveys.


Wye Valley and Forest of Dean Bat Sites/ Safleoedd Ystlumod Dyffryn Gwy a Fforest y Ddena
River Usk/ Afon Wysg
Severn Estuary/ Môr Hafren
Key:
Site Boundary
10km Buffer
River Usk/ Afon Wysg
Severn Estuary/ Môr Hafren
Wye Valley and Forest of Dean Bat Sites/ Safleoedd Ystlumod Dyffryn Gwy a Fforest y Ddena
0 800 1,600 2,400 3,200 4,000 4,800 5,600 m
Base Map: (c) Crown copyright and database rights 2025. Ordnance Survey 0100031673.
Figure 8.9.1:
National Site Network Sites Within 10km of Site
Project:
Future Energy Llanwern
Client:
Future Energy Llanwern Limited
Date:
11/11/2025
Drawn:
HS
Ref:
0840-ETA-8.9.1
Revision:
-
N