Fferm Solar Larnog

Environmental Statement

Volume II, Chapter 7: Biodiversity

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Issue Sheet

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7. Biodiversity

7.1. Project Background

7.1.1. This chapter presents the assessment of likely significant effects of the Fferm Larnog Solar (the 'Proposed Development') with respect to Biodiversity. The assessment is based on information obtained to date. It should be read in conjunction with the project description provided in **Chapter 5: Project Description**.

7.1.2. The assessment presented within this Environmental Statement (ES) chapter is informed by the following technical chapters and should be read in conjunction with:

- **Chapter 6: Landscape and Visual**.

7.1.3. This chapter also draws upon additional information to support the assessment, which is contained within the following technical appendices:

- **Appendix 7A: Preliminary Ecological Appraisal 2026**;
- **Appendix 7B: Habitats Regulations Assessment**;
- **Appendix 7C: Wintering Bird Survey Report**;
- **Appendix 7D: Bat Roost Survey Report**;
- **Appendix 7E: Bat Activity Report**;
- **Appendix 7F: Threatened Arable Plants**;
- **Appendix 7G: Net Benefit for Biodiversity**; and
- **Appendix 7H: Arboricultural Impact Assessment**.

7.1.4. This ES chapter describes:

- The legislation, policy and technical guidance that has informed the assessment (**Section 7.2**);
- The consultation and engagement that has been undertaken and how comments from consultees relating to Biodiversity have been addressed (**Section 7.3**);
- The study area utilised for the assessment (**Section 7.4**);
- The scope of the assessment for Biodiversity (**Section 7.5**);
- Methods used for baseline data gathering (**Section 7.6**);
- The overall baseline (**Section 7.7**);
- The methods used for the assessment (**Section 7.8** and **Section 7.9**);
- The embedded measures relevant to Biodiversity (**Section 7.10**);
- The assessment likely significant effects relevant to Biodiversity (**Section 7.11)**;
- Additional measures proposed (**Section 7.12**);
- The determined Biodiversity residual effects (**Section 7.13**); and
- The assessment of cumulative (inter-project) effects (**Section7.14**);
- Any monitoring requirements (**Section 7.15**);
- A summary of the significance conclusions (**Section 7.16**); and

- An outline of further work to be undertaken for the ES (**Section 7.17**).

7.1.5. This chapter has been prepared by WSP on behalf of Trydan Gwyrdd Cymru (hereafter 'the Applicant') in accordance with the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017, as amended[1]. A statement outlining the relevant expertise and qualifications of competent experts is provided in **Chapter 1: Introduction**.

7.2. Legislative Framework, Policy and Guidance

7.2.1. This section identifies the legislation, planning policy and technical guidance that has informed the assessment of effects with respect to Biodiversity. A summary of the relevant legislation applicable to Biodiversity is provided in **Table 7.1**.

Table 7.1 - Legislation relevant to the Biodiversity assessment

Legislation	Legislative Context
The Conservation of Habitats and Species Regulations 2017 (as amended)[2]	The Conservation of Habitats and Species Regulations 2017 ("the Habitats Regulations") transposed the Habitats Directive into English and Welsh law. The Habitats Regulations provided for the designation and protection of European sites, the protection of certain species (referred to as European Protected Species or EPS) and the adaptation of planning and other controls for the protection of European sites. Note that The Conservation of Habitats and Species Regulations 2017 were amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 to reflect the UK's exit from the EU. These largely carried forward the provisions and terminology of the 2017 Habitats Regulations, and so the term 'European site' is currently retained and for all practical purposes the definition is essentially unchanged, although the UK European sites are no longer legally part of the 'Natura 2000' network of protected sites, with this being replaced in the UK by the 'National Site Network' which comprises all existing Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) and any new SACs and SPAs designated under the 2019 Regulations (Ramsar sites do not form part of the network). For this reason, and to avoid confusion all sites which belong to the 'National Site Network' are hereafter referred to as 'International Sites'. This also has relevance if compensation measures are required for an adverse effect, as the relevant metric is the overall coherence of the 'National Site Network'. The 2019 Regulations establish management objectives for the 'National Site Network' which

[1] UK Government (2017). The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017. (Online) Available at: https://www.legislation.gov.uk/wsi/2017/567/contents. (Accessed July 2026).
[2] Conservation of Habitats and Species Regulations 2017 ("the Habitats Regulations") has been amended by (*inter alia*) the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 [online]. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111179512/contents?sort=year [Accessed September 2026].

Legislation	Legislative Context
	contribute to the conservation of UK habitats and species that are also of pan-European importance, and to the achievement of their favourable conservation status within the UK.
The Environment (Wales) Act 2016[3]	The Act makes provisions within Wales for the planning and managing of natural resources at national and local level. Section 6 of the Act introduces the biodiversity and resilience of ecosystems duty whereby public authorities are required to seek to maintain and enhance biodiversity so far as it is consistent with the proper exercise of those functions. Section 7 of the Act introduces a list of living organisms and types of habitats in Wales, known as Priority Species or Priority Habitats, which in Wales are considered of key significance to sustain and improve biodiversity.
The Wildlife and Countryside Act 1981 (as amended) (WCA)[4]	This Act consolidates and amends existing national legislation to implement the Bern Convention. This piece of legislation remains the primary UK mechanism for statutory site designations (e.g. Sites of Special Scientific Interest (SSSI)) and the protection of individual species listed under Schedules 5 and 8 of the Act, each subject to varying levels of protection.
Countryside and Rights of Way Act 2000[5]	This Act details further measures for the management and protection of SSSIs and strengthens wildlife enforcement legislation.
Hedgerows Regulations 1997[6]	Hedgerows may be protected under the Hedgerows Regulations 1997, which controls the removal of qualifying countryside hedgerows and provides additional protection to those meeting the criteria for an 'important' hedgerow.
Protection of Badgers Act 1992[7]	Provides protection to badgers *Meles meles* and their setts, making it an offence to kill, injure or take a badger, or to damage, destroy or obstruct access to a sett, or disturb a badger while occupying a sett. Development activities that would otherwise result in an offence may require an appropriate licence from Natural Resources Wales (NRW).

Policy

7.2.2. A summary of the relevant policy applicable to Biodiversity is provided in **Table 7.2**.

[3] The Environment (Wales) Act 2016. Available at: https://www.legislation.gov.uk/anaw/2016/3/contents [Accessed September 2026].
[4] The Wildlife and Countryside Act 1981 (as amended). Available at: https://www.legislation.gov.uk/ukpga/1981/69 [Accessed September 2026].
[5] Countryside and Rights of Way Act 2000. Available at: https://www.gov.uk/guidance/open-access-land-management-rights-and-responsibilities [Accessed September 2026].
[6] *UK Government (1997) The Hedgerows Regulations 1997, SI 1997/1160. Available at: https://www.legislation.gov.uk/uksi/1997/1160/contents (Accessed: 22 October 2026).*
[7] UK Government (1992) *Protection of Badgers Act 1992, c. 51*. Available at: https://www.legislation.gov.uk/ukpga/1992/51/contents (Accessed: 22 October 2026). [legislation.gov.uk]

Table 7.2 - Summary of Policy Relevant to Biodiversity

Policy	Policy Description
International Policy	
Ramsar Convention[8]	Ramsar sites are wetlands of international importance designated under the Ramsar Convention and are afforded protection through the UK planning system, with potential effects considered alongside other internationally designated sites.
National Planning Policy	
Future Wales – The National Plan 2040[9]	The Welsh national development framework sets the direction for development in Wales to 2040 and includes a Habitats Regulations Assessment. Policy 9 – Resilient Ecological Networks and Green Infrastructure outlines measures to ensure the enhancement of biodiversity, the resilience of ecosystems and the provision of green infrastructure.
Planning Policy Wales Edition 12 (PPW12)[10]	Chapter 6 of Planning Policy Wales (PPW) sets out the Welsh Government's objectives for Distinctive and Natural Places theme of planning policy topics which includes biodiversity and habitats. The Biodiversity and Resilience of Ecosystems section puts emphasis on planning authorities to have regard for the State of Natural Resources Report (SoNaRR) and Area Statements published by NRW.
PPW12[10] (para. 6.4.11-6.4.16) – Stepwise approach	Biodiversity enhancements that achieve Net Benefits for Biodiversity (NBB) must be delivered following the implementation of the 'stepwise approach' of firstly avoiding, then minimising, mitigating and, as a last resort, compensating for adverse impacts on the environment that occur as part of a development. Therefore, compensation should only be considered as a last resort, where it has been demonstrated clearly that adverse effects on the environment cannot be avoided or fully mitigated. If compensation is necessary, this must be delivered on-site where possible but off-site compensation can be sought if demonstrated that this is not possible.
NRW – DECCA Framework[11]	NRW have developed a framework for evaluating ecosystem resilience based on five attributes and properties specified in the Environment (Wales) Act 2016. This is referred to as DECCA and comprises the objectives listed:

[8] Joint Nature Conservation Committee (JNCC) (2026) Convention on Wetlands. Available at: https://jncc.gov.uk/our-work/convention-on-wetlands/ (Accessed: 22 October 2026)
[9] Welsh Government (2021). Future Wales: the national plan 2040. [online]. Available at: https://www.gov.wales/future-wales-national-plan-2040 [Accessed July 2026].
[10] Welsh Government (2024). Planning Policy Wales. Edition 12. [online]. Available at: https://www.gov.wales/planning-policy-wales [Accessed July 2026].
[11] Natural Resources Wales (n.d.). *Ecosystem Resilience in a Nutshell 1: What is ecosystem resilience?* Natural Resources Wales. Available at: https://naturalresources.wales/media/696279/ecosystem-resilience-in-a-nutshell-1-what-is-ecosystem-resilience.pdf (Accessed: 6 November 2026).

Policy	Policy Description
	Diversity – maintaining and enhancing diversity at every scale, including genetic, structural, habitat and between-habitat levels. This supports the complexity of ecosystem functions and interactions that deliver services and benefits. Extent – incorporating measures which maintain and increase the area of semi-natural habitat/features and linkages between habitats. In general, smaller ecosystems have reduced capacity to adapt, recover or resist disturbance. Condition – the condition of an ecosystem is affected by multiple and complex pressures acting both as short term and longer-term types of disturbance. Both direct and wider impacts should be considered, for example avoiding or mitigating pressures such as climate change, pollution, invasive species, land management neglect etc. Connectivity – this refers to the links between and within habitats, which may take the form of physical corridors, stepping stones in the landscape, or patches of the same or related vegetation types that together create a network that enables the flow or movement of genes, species and natural resources. Developments should take opportunities to develop functional habitat and ecological networks within and between ecosystems, building on existing connectivity. Adaptability to change – ecosystem resilience is a product of the above four attributes. Adaptability, recovery and resistance to/from a disturbance are defining features of ecosystem resilience. NRW define ecosystem resilience as "*An environment that can respond to pressures by resisting, recovering or adapting to change, and is able to continue to provide natural resources and benefits to people*".
Technical Advice Note 5 (TAN5) Nature Conservation and Planning 2009[12]	Welsh Government (WG) policy on positive planning for nature conservation and developments affecting designated sites and habitats, along with protected priority habitats and species. It brings together advice on sources of legislation relevant to various nature conservation topics which may be encountered by local planning authorities. It sets out the key principles of planning for nature conservation and addresses nature conservation in development control procedures. It also deals with the conservation of protected and priority species. It also outlines that developments that may adversely impact on sites designated for

[12] Welsh Assembly Government (2009) *Technical Advice Note 5: Nature Conservation and Planning*. Cardiff: Welsh Assembly Government. Available at: https://www.gov.wales/sites/default/files/publications/2018-09/tan5-nature-conservation.pdf (Accessed: 22 October 2026).

Policy	Policy Description
	their national nature conservation interest will generally not be permitted.
Local Planning Policy	
Vale of Glamorgan Local Development Plan 2011-2026[13]	Policies MG20 and MG21 of the Vale of Glamorgan Local Development Plan 2011-2026 seek to protect internationally, nationally and locally designated biodiversity sites, protected and priority species, and priority habitats. Development proposals are required to avoid unacceptable ecological impacts and support the conservation and enhancement of biodiversity resources.
Vale of Glamorgan Supplementary Planning Guidance (SPG)[14]	The Biodiversity and Development SPG supplements Policies MG20 and MG21 by providing detailed guidance on ecological assessment, survey requirements, impact avoidance and mitigation, and biodiversity enhancement measures that should be incorporated into development proposals.

Guidance

7.2.3. The key guidance documents applicable to this chapter are:

- Guidelines for the Ecological Impact Assessment (EcIA) in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Chartered Institute of Ecology and Environmental Management (CIEEM), 2018, updated 2024)[15]. Sets out the industry standard approach to EcIA for assessing the potential effects of a project on ecological features; and
- BS 42020:2013 Biodiversity[16] provides recommendations and guidance primarily for ensuring that actions and decisions taken at each stage of the planning process are informed by sufficient and appropriate ecological information.

7.3. Consultation

7.3.1. The overall ES assessment has been informed by ongoing stakeholder engagement through pre-screening advice, screening response and scoping response. An overview of the approach to consultation is provided in **Chapter 2: Approach to the EIA**.

[13] Vale of Glamorgan Council (2012). Vale of Glamorgan Local Development Plan 2011-2026
[14] Vale of Glamorgan Council (2018) *Biodiversity and Development: Supplementary Planning Guidance*. Vale of Glamorgan Local Development Plan 2011–2026. Available at: https://www.valeofglamorgan.gov.uk/Documents/Living/Planning/Policy/Biodiversity-and-Development-SPG-2018.pdf (Accessed: 22 October 2026).
[15] Chartered Institute of Ecology and Environmental Management (CIEEM) (2018, updated 2024) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Winchester: CIEEM.
[16] British Standards Institution (BSI) (2013) *BS 42020:2013 Biodiversity: Code of practice for planning and development*. London: British Standards Institution.

7.3.2. Following completion of an initial Preliminary Ecological Appraisal (PEA) of the Site in 2025, a request for statutory pre-application advice was submitted to the Vale of Glamorgan Council (hereafter, the 'Council') in December 2025. The Council's advice was received in March 2026, followed by a virtual meeting to discuss the advice and key ecological matters in further detail, this has been included in **Table 7.3**. The following outcomes relating to potentially sensitive ecological receptors were identified through this process and subsequently informed the EIA Scoping Report:

- A quantitative approach to assessing the number of Eurasian skylark *Alauda arvensis* nesting territories was agreed;
- Slow worm *Anguis fragilis* should be assumed present therefore, a suitable mitigation strategy should be prepared inclusive of compensatory measures;
- Consideration should be given to surveying for threatened arable plants;
- Consideration should be given to the enhancement of grassland habitats beneath the solar panels for foraging raptor species;
- Consideration should be given to fence design during construction, to include ample space for hedgehog *Erinaceus europaeus* (and other species) to move freely beneath them;
- Engagement with NRW should be undertaken regarding the proposed ornithology survey effort; and
- Engagement with invertebrate county recorders should be sought through South-East Wales Biological Records Centre (SEWBReC) to determine if unpublished records of carrot-mining bee *Andrena nitidiuscula* exist within the desk study area and what appropriate enhancements could be made for the species.

Scoping Opinion

7.3.3. An Environmental Impact Assessment (EIA) Scoping Report was submitted to the Council in June 2026 in accordance with the EIA Regulations, seeking confirmation of the proposed scope and methodology for the EIA in relation to the Proposed Development.

7.3.4. **Table 7.3** summarises the pre-scoping engagement with the County ecologist, Scoping Opinion and how these have been considered and addressed in the ES.

Table 7.3 - Summary of engagement in relation to biodiversity

Consultee	Summary of Engagement	Response and consideration in the ES
B-lines		
County ecologist	Although B-Lines are not statutory designations, their importance for habitat connectivity and pollinators is recognised. They are considered within the assessment through the relevant habitats and associated	Impacts on habitats containing plant species that support invertebrate pollinators will be avoided and the existing plant species assemblages will be supplemented with additional

Consultee	Summary of Engagement	Response and consideration in the ES
	mitigation and enhancement measures.	plant species important to pollinators to enhance the functionality of the b-lines site throughout the lifetime of the Proposed Development (**Appendix 6G: Outline LEMP** and **7G: NBB**).
Bats (Chiroptera)		
NRW	Requested climbed endoscope inspections of trees with potential roost features (PRFs) where direct and indirect impacts may occur and assessment of any confirmed roosts	Climbed endoscope inspections and bat activity surveys have been completed in line with good practice[17]. The ES presents the findings of these surveys and assesses any effects on roosting, commuting and foraging bats where relevant. Full survey reports are presented in **Appendix 7D: Bat Roost Survey Report** and **7E: Bat Activity Report**.
County ecologist	Supported the Applicant's proposed survey approach, including tree climbed endoscope inspections and activity surveys.	
Great Crested Newt (GCN) *Triturus cristatus*		
NRW	Advised that waterbodies within 250 m should be surveyed and GCN scoped into the EIA due to nearby records (650 m from Site), suitable terrestrial habitat on Site, and the presence of ponds within wider survey area.	Desk study records were obtained from SEWBREC. In accordance with standard ecological practice and CIEEM guidelines[18],[19],[20] only records from the previous 10 years were used to inform the baseline unless older records were considered particularly relevant. In the absence of suitable breeding habitat for GCN on the Site and dispersal barriers between the record 1.37 km from Site (that was returned during the 2025 desk study), resulting in limited impact pathways, additional species-specific surveys are not considered proportionate.
County Ecologist	The PEA carried out in 2025 identified suitable terrestrial habitat on site for GCN, but no suitable aquatic habitat and the nearest records of species returned in desk study was 1.37 km away. The County Ecologist did not raise any specific concerns regarding GCN. It was agreed that a precautionary approach for common amphibians	

[17] Collins, J. (ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 4th edn. London: Bat Conservation Trust.
[18] CIEEM (2025) *Guidelines for Accessing and Using Biodiversity Data in the UK*. Winchester: Chartered Institute of Ecology and Environmental Management. Available at: CIEEM Biodiversity Data Guidance (Accessed: 14 October 2026)
[19] CIEEM (2017a) *Guidelines for Preliminary Ecological Appraisal*. 2nd edn. Winchester: Chartered Institute of Ecology and Environmental Management.
[20] CIEEM (2017b) *Guidelines for Ecological Report Writing*. Winchester: Chartered Institute of Ecology and Environmental Management

Consultee	Summary of Engagement	Response and consideration in the ES
	was appropriate and GCN-specific surveys were not necessary.	A precautionary approach to construction of the Proposed Development is to be adopted. Mitigation measures will be outlined within the outline Construction Environmental Management Plan (oCEMP) (**Appendix 5A: Outline CEMP**).
NRW – following request for details of GCN records on 10 September 2026 (post receipt of Scoping consultation response)	*The records we have referenced are those adjacent to the Sully Brook on the edge of Cosmeston Lake country park. The records appear to be from 1988 and 2006 from the LRC. We advise that you contact SEWBREC for further information on these records.*	
Dormouse *Muscardinus avellanarius*		
NRW	Advised dormouse should be scoped into the EIA due to adjacent records and the potential for habitat management and limited access-related habitat losses.	The Applicant acknowledges the presence of records within the wider area beyond the Site and that dormouse is presumed to be present within suitable connected habitats on Site such as hedgerows on Site[21]. The current design has sought to avoid direct impacts on habitats suitable for dormouse wherever possible. Woodland, scrub, hedgerows and habitat connectivity will be retained, with any hedgerow widening at access locations limited to the minimum extent necessary. Given the retention of the principal habitat features likely to support the species, significant direct effects on dormouse are not anticipated. In these circumstances, species-specific dormouse surveys are not considered necessary to inform the assessment. This approach is considered proportionate to the nature and scale of the likely impacts arising from the Proposed Development.
County Ecologist	Agreed with Applicant dormouse surveys could be scoped out given retention of hedgerows, scrub and woodland and connecting habitats. Current design also includes a provision for using existing field access points during construction, but at certain locations, existing gaps in hedgerows will be widened marginally e.g. maximum of 1 – 2 m, to allow sufficient access width for construction machinery. The widening and number of locations where this occurs will be kept to the minimum. It was agreed that precautionary method of working (PMW) to be adopted during general construction works.	

[21] Dormouse populations function at a landscape scale. Where a dormouse record is connected to an area of continuous, potentially suitable habitat, it is reasonable to assume that dormice may use the connected habitat.

Consultee	Summary of Engagement	Response and consideration in the ES
		The Proposed Development could impact dormouse indirectly through disturbance impacts (increased lighting, groundworks, vibration and dust) associated with general construction activities, clearance of arable land or marginal widening of existing access points between fields at select locations only. The Proposed Development includes embedded mitigation measures, such as sensitive vegetation clearance, protection of retained habitats and sensitive lighting design. Long-term habitat management measures would be secured through the oCEMP and outline Landscape and Ecological Management Plan (oLEMP). To appropriately inform and ensure embedded mitigation measures are sufficient, disturbance of dormouse has been assessed.
Marsh fritillary *Euphydryas aurinia*		
NRW	Requested habitat suitability assessment and surveys where suitable habitat occurs.	The habitats recorded on Site are not considered suitable to support marsh fritillary. In particular, the grasslands are not considered likely to support devil's-bit scabious *Succisa pratensis*, the species' principal larval foodplant. No devil's-bit scabious has been identified during surveys undertaken to date, including during the update PEA in June 2026.
County Ecologist	No specific comments on marsh fritillary.	
Breeding birds		
NRW	Recommended full breeding bird surveys to inform the ES.	Any habitat loss will be restricted to arable fields. The current design has sought to avoid direct impacts on habitats suitable for breeding birds wherever possible. Woodland, scrub and hedgerows will be retained, with any widening of existing field access points limited to the minimum extent necessary.
County Ecologist	The County ecologist agreed that breeding bird surveys could be scoped out based on habitat retention (hedgerows, scrub and woodland all being retained). In addition, the current design also includes a provision for using existing field access points during construction, but at	

Consultee	Summary of Engagement	Response and consideration in the ES
	select locations only, existing gaps field access points will be widened marginally e.g. maximum of 1 – 2 m, to allow sufficient access width for construction machinery. The widening and number of locations where this occurs will be kept to the minimum. It was agreed that there would be limited impacts to breeding birds due to the loss of arable land which is actively harvested.	The design of the Proposed Development retains the marginal habitats, including hedgerows and trees, that provide suitable breeding bird habitat. As these habitats will be retained and there is no identified pathway for direct habitat loss arising from the Proposed Development, breeding bird surveys have not been considered necessary. Potential indirect impacts on bird breeding would be managed through an oCEMP throughout the Proposed Development.
Eurasian Skylark		
NRW	Expressed concern regarding reliance on a worst-case quantitative assessment without supporting survey data.	Potential impacts on Eurasian skylark have been assessed in **Section 7.11** of the ES based on a targeted species-specific assessment based on a precautionary worst-case quantitative scenario (**Appendix 7C: Wintering Bird Survey Report**). The Applicant considers that the proposed worst-case quantitative assessment approach remains appropriate. This approach has been accepted by the County Ecologist and provides a precautionary assessment of the potential effects on Eurasian skylark territories within the Site. Further justification for the methodology **Appendix 7C: Wintering Bird Survey Report**, compensation and enhancement measures that will deliver a net benefit for the species are outlined in **Section 7.12** detailed in **Appendix 7G: NBB**. On this basis, species-specific surveys are not considered necessary to inform the assessment.
County Ecologist	Accepted a worst-case quantitative assessment approach for Eurasian skylark territories in lieu of surveys. Discussed that compensatory measures would need to provide a net benefit for the species.	

Consultee	Summary of Engagement	Response and consideration in the ES
Wintering Birds		
NRW	Requested further information on survey methodology and results before agreeing impacts can be scoped out. Highlighted potential links with Severn Estuary SPA, Ramsar and SSSI features.	The ES includes a summary of the survey methodologies **Section 7.6**, results and assessment of potentially linked land associated with the Severn Estuary SPA, Ramsar and SSSI in **Section 7.7** with the HRA report in **Appendix 7B: HRA** and the full wintering bird survey report in **Appendix 7C: Wintering Bird Survey Report** details the assessment of the potential impacts on qualifying ornithological features of the SPA designation.
County Ecologist	Encouraged early engagement with NRW but did not raise concerns regarding the survey strategy.	
Severn Estuary SPA		
NRW	Requested consideration of disturbance and displacement of qualifying bird features, and consideration of functionally linked habitat.	Given the proximity of the designated sites, the ES and HRA **(Appendix 7B: HRA)** considers potential disturbance, displacement and functionally linked habitat effects on qualifying ornithological features of the SPA designation as determined in **Appendix 7C: Wintering Bird Survey Report**.
County Ecologist Position	No conflicting advice provided in relation to NRW engagement.	
Protected species licensing		
NRW	Requested that licensing requirements and favourable conservation status tests are addressed where relevant.	Consideration of EPS licensing requirements is standard practice where impacts on EPS are identified. No EPS have been identified within the Site or relevant survey areas that would necessitate consideration of licensing requirements. Dormouse and bat records identified in the wider area are presumed or present on Site, respectively, however habitats suitable for these EPS is going to be retained and indirect impacts managed through oCEMP and oLEMP.
County Ecologist	No conflicting advice provided in relation to NRW engagement.	
Habitat management and biodiversity enhancement		
NRW	Requested long-term management, monitoring and security of mitigation, compensation and enhancement measures.	The requirement for long-term habitat management and biodiversity enhancement is consistent with planning policy

Consultee	Summary of Engagement	Response and consideration in the ES
County Ecologist	Supported ecological enhancement, habitat management and connectivity improvements across the Site.	and the positions of both NRW and the County Ecologist. These measures will be delivered through the Net Benefit for Biodiversity Report **(Appendix 7G: NBB)** and oLEMP.

7.4. Study Area

7.4.1. The Study Area was defined on a precautionary basis to ensure that the Zone of Influence (ZoI) relevant to all ecological features was covered during baseline data collection activities. ZoIs are the areas within which a potentially significant effect associated with the Proposed Development may be identified for a particular ecological feature. ZoIs vary between ecological features depending on the environmental change.

7.4.2. The Study Area comprises the Site and the surrounding areas encompassed by the feature-specific ZoIs identified in **Table 7.4.** Its extent therefore varies according to the ecological feature and potential impact pathway being considered.

Table 7.4 - Potentially sensitive features ZoI/desk study search areas

Feature	ZoI/Desk Study Search Areas
Statutory sites designated as being of national and international importance for nature conservation	International sites within 2 km and national sites within 2 km of the Site Boundary. Sites with bats as qualifying features within 2 km of the Site Boundary.
Non statutory sites designated as being important for nature conservation	Sites within 2 km of the Site Boundary.
AWI woodland sites	Sites within 2 km of the Site Boundary.
Waterbodies	Waterbodies within 500 m of the Site Boundary.
Protected and notable species	Species records within 2 km of the Site Boundary. Study Areas vary depending on ecological feature.

7.4.1. The land within the Site Boundary and the adjacent area is hereafter referred to as the 'Survey Area'. (these areas are shown on **Figure 7.1: Site Boundary and Survey Area** (Volume III of the ES)).

7.4.2. Following confirmation of the design layout, it was established that the Site remained entirely within the wider area that had been subject to comprehensive ecological surveys during the 2025 PEA and subsequent survey work undertaken prior to the layout changes. The assessment detailed here refers to baseline data for the Site and the Survey Area.

7.4.3. Measurements of distances between the Site and features identified during the 2025 desk study have not been adjusted to reflect the relatively minor changes that the updated Site Boundary would incur.

7.5. Scope of Assessment

7.5.1. The assessment has been undertaken in accordance with the rationale for scoping of biodiversity impacts into the EIA for the Proposed Development. Ecological features considered include protected and notable species, habitats and designated sites.

7.5.2. The ES assesses likely significant effects (including direct, indirect and cumulative effects), sets out mitigation and compensation measures, and identifies any technical limitations encountered.

Elements Scoped into the Assessment

7.5.3. Taking into account the scoping and consultation process, those ecological features for which the Proposed Development has the potential to result in significant effects have been scoped into the detailed assessment and are summarised in **Table 7.5.**

Table 7.5 - Elements Scoped into the Assessment

Element Scoped in	Relevant Phase	Ecological Features and Justification
Loss, alteration or degradation of habitats on-site which may be used by protected species populations associated with internationally and nationally designated nature conservation sites	Construction and decommissioning	Internationally designated site within 2 km, and any underpinning nationally designated sites; Severn Estuary SAC/SPA. In accordance with the Council's EIA screening response, it was advised that a Habitats Regulations Assessment would be expected (see **Appendix 7B: HRA**). Loss of arable land that may be suitable to support assemblages of bird that are designated features of the Severn Estuary SAC/SPA/Ramsar site.

Element Scoped in	Relevant Phase	Ecological Features and Justification
Alteration or degradation of habitats or protected species populations associated with locally important nature conservation sites.	Construction, operation and decommissioning.	Non statutory designed sites within 100 m: B-Line; Lavernock Point Wildlife Trust Reserve WTR, Lavernock Point East SINC, Ty-r-Orsaf SINC. Potential impact pathways include increased risk of dust, sediment transport, water-borne pollutants and light spill. Risks of pollution events would be greatest during construction and decommissioning but would still be relatively limited given the nature of the Proposed Development. Risk of light spill into surrounding habitats that support species identified at baseline, such as commuting and foraging bats and potentially dormouse and nesting birds utilising the retained habitats around the Proposed Development.
Direct mortality of protected and/or notable species, and loss of their habitats.	Construction and decommissioning.	Construction will primarily result in the loss of arable habitats in the Proposed Development Area, with all habitats of high ecological value including woodland, scattered trees and hedgerows being retained as far as possible. The Site contains habitat suitable to support the following protected and/or notable species/species assemblages to be present within areas of habitat loss, and these species are scoped in for further assessment: breeding Eurasian skylark, wintering birds, badger, hedgehog *Erinaceus europaeus*, widespread reptile species, and widespread amphibian species in their terrestrial stage (excluding GCN), protected and/or notable invertebrate species and threatened arable plants. Potential impact pathways include accidental mortality of protected and notable species during vegetation clearance and groundworks.

Element Scoped in	Relevant Phase	Ecological Features and Justification
Disturbance of protected and/or notable species	Construction and decommissioning	Ecological surveys have identified the presence of, or potential for the following protected and/or notable species/species assemblages to be present within areas of habitat loss, and these species are scoped in for further assessment: bats, wintering birds, badger, dormouse, hedgehog, widespread reptile species, widespread amphibian species in their terrestrial stage (excluding GCN). Construction and decommissioning activities will result in an increase in noise, visual disturbance and light spill.
Cumulative effects	Construction	The Proposed Development is in an area with several other plans and projects which have either come forward or are expected to come forward, including the development of the land at Lower Cosmeston Farm in terms of cumulative effects on biodiversity highlighted by the Council (Eurasian skylark). There is potential for non-significant effects arising from the Proposed Development alone to combine with those from other plans and projects, during the construction phase.

Elements Scoped Out of the Assessment

7.5.4. Ecological features and associated impact pathways for which significant effects are not considered likely have been scoped out of detailed assessment. The features and impacts scoped out, together with the justification for their exclusion, are summarised in **Table 7.6**.

Table 7.6 - Elements scoped out of the assessment

Elements Scoped Out	Justification
Loss, alteration or degradation of common and widespread habitats and species that are not identified as Habitats or Species of Principal Importance (Section 7 Priority Habitats and Species).	Effects on common and widespread habitats and species will not be considered as they do not meet the criteria for requiring full EcIA identified in the CIEEM Guidelines; and are therefore not considered to be a material consideration for decision-making.

Elements Scoped Out	Justification
Loss or alteration/degradation of Section 7 Priority Habitats.	Section 7 Priority Habitats (hedgerows will be retained, with limited widening of existing access gaps where required). Therefore, these have been scoped out of further assessment.
Loss of habitat associated with marsh fritillary *Euphydryas aurinia*	Marsh fritillary is not considered a relevant receptor for the Proposed Development as suitable habitat and the principal larval foodplant, devil's-bit scabious, have not been identified on Site.
Loss of habitat to support protected or notable species.	Woodland, scattered trees and hedgerows, which may support these species (badger, dormouse, breeding birds (excluding Eurasian skylark)) will be retained as far as possible and therefore no direct impacts are envisaged, and the species are scoped out for habitat loss.
Great-crested newts	Waterbodies within the Site were considered to be ephemeral and unlikely to support GCN during their aquatic (breeding) life phases. The B4267 Lavernock Road to the north of the Site, Sully Brook to the north-east of the Site, and a large property north of the Site provide additional barriers to movement. Therefore, it is considered unlikely that GCN will be encountered within the Site.
Loss of breeding bird habitat (excluding Eurasian skylark)	Any habitat loss will be restricted to arable fields. Any potential effects on Eurasian skylark are being assessed through a targeted species-specific assessment based on a precautionary worst-case scenario.

Spatial Scope

7.5.5. The spatial scope of the assessment of biodiversity covers the area of the Proposed Development contained within the Site Boundary together with the ZoIs that have formed the basis of the study area described in **Table 7.4.**

7.5.6. Through an understanding of the activities associated with the Proposed Development and the resulting environmental change, it is possible to identify ecological features that will not be subject to potentially significant effects (for example due to an absence of effect pathways or where the predicted magnitude of change is low), or certainty that incorporated measures will be entirely successful in preventing a significant effect occurring. In order to identify such ecological features, all the activities and consequent environmental changes associated with the construction, operation and decommissioning of the Proposed Development have therefore been considered.

Temporal Scope

7.5.7. The temporal scope of the assessment of Biodiversity is consistent with the period over which the Proposed Development would be carried out and therefore covers the following phases:

- Construction: Anticipated to commence in 2028 and last for approximately 6-9 months, followed by a commissioning period of approximately 3 months;
- Operation: The Proposed Development would have a design life of up to 40 years; and
- Decommissioning: Approximately 6-9 months.

7.6. Baseline Data Collection

Desk Study

7.6.1. A summary of the organisations that have supplied data, together with the nature of that data is outlined in **Table 7.7.**

Table 7.7 - Data sources used to inform the Biodiversity assessment

Aspect	Data Source	Data Provided
Statutory sites	Magic: www.magic.gov.uk JNCC: http://jncc.defra.gov.uk/page-4 NRW: http://lle.gov.wales/home	Boundary data Citations Other site information e.g. Conservation Objectives; Management Plans; etc.
Non-statutory sites	SEWBReC[22]	Boundary data Citations
AWI woodlands, and other conservation-notable habitats	SEWBReC	Boundary data
Species records, including Priority Species and other conservation-notable species	SEWBReC	Species records, including location, year, number of records, and specific information relating to the record (e.g. if an otter record was for, for example, a live sighting, a holt, or other evidence).
Waterbodies	Ordnance Survey mapping	Boundary data

Site Visit/Surveys

7.6.2. Where relevant, site visits, surveys and data collection exercises have been undertaken to inform the assessment and establish the baseline conditions for Biodiversity. These activities have been carried out in accordance with relevant legislation, guidance and recognised industry best practice.

7.6.3. **Table 7.8** provides a summary of the site visits and surveys undertaken in support of this assessment, including the survey type, scope of works, and survey period. Where surveys have informed the identification of features, baseline conditions, constraints, or mitigation requirements, this is described within the relevant sections of this chapter.

Table 7.8 - Site visits/assessments undertaken

Survey/Assessment Type	Summary of Assessment/Survey/Status
PEA	A Phase 1 habitat survey of the Site plus 30 m around the Site was undertaken to classify, map and evaluate the vegetation communities, in accordance with best practice guidelines[23]. The survey was 'extended' to identify the presence or potential presence of species of importance for biodiversity conservation and/or species that are afforded legal protection. This included an assessment of habitats for suitability for badger and a Daytime Bat Walkover (DBW with ground-level tree assessment (GLTA) and potential roost assessment (PRA) to assess the suitability of the Site to support bats[24]. Habitats were described and mapped following the JNCC Phase 1 classification methods within the entirety of the Site[25]. A desk study[26]was completed to support the PEA. The desk study was undertaken using publicly available data sources and data from SEWBReC. The desk study and extended Phase 1 habitat survey completed in June 2025 was reviewed and appropriately updated [27] in June 2026. The updated Phase 1 habitat survey reports on finding from the ZoI/desk study search areas are detailed in **Table 7.4** and field surveys covered the Site and wider Survey Area extending east of the Site. Report is provided as **Appendix 7A: PEA 2026**.

[23] Chartered Institute of Ecology and Environmental Management (CIEEM) (2017a). Guidelines for Preliminary Ecological Appraisal. CIEEM, Winchester.
[24] Collins J. (ed.) (2023) Bat Surveys for Professional Ecologists, Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London.
[25] JNCC (2016). Handbook for Phase 1 habitat survey – a technique for environmental audit. JNCC, Peterborough.
[26] In 2025, a 3 km search radius was selected for protected and/or notable species records because the Site measured approximately 1 km across. The larger search radius was therefore applied to ensure that records within at least 2 km of the Site Boundary were captured. In 2026, the Site remains just under 1 km across and, consequently, this minor boundary change does not warrant excluding records located between 2 km and 3 km from the Site. Retaining these records also ensures adequate coverage to the west of the Site, accounting for the change in the position of the original BNG reference point relative to the current Site Boundary. Records immediately adjacent to the eastern extent of the 2025 site boundary have been revised and approximate distances updated.
[27] All Section 7 Priority Habitats/Species statuses identified both field and desk study data sets have been reviewed and appropriately updated in the 2026 PEA in light of the recent publication of a revised list of Section 7 Priority Habitats/Species. The Welsh Government published a revised Section 7 list of Habitats and Species of Principal Importance in Wales on 20 March 2026

Survey/Assessment Type	Summary of Assessment/Survey/Status
Wintering birds survey/indicative skylark territory assessment	Five wintering bird survey visits were undertaken between November 2025 and March 2026 in line with guidelines[28] to assess use of the Survey Area by wintering birds, including qualifying species of the Severn Estuary SPA and Ramsar site. Data from February and March 2026 visits were also used to estimate potential Eurasian skylark breeding territories based on research[29, 30]. Surveys were carried out for the Survey Area and a further area extending from the southwest of the Site. Report provided as **Appendix 7C: Wintering Bird Survey Report.**
Bat roost surveys: Close inspection surveys of PRFs in trees	Following the DBW and in accordance with guidelines[24], 21 trees were subject to close inspection surveys on 17 and 18 June 2025. Five trees assessed as being suitable to support multiple roosting bats (PRF-M) were subject to additional surveys on 29 July, 10 August and 11 December 2025. No bats, or evidence of use by bats, were identified during the close inspection surveys. Report provided as **Appendix 7D: Bat Roost Survey Report.**
Bat activity surveys	Bat activity surveys were carried out across the Site and Survey Area to determine levels of bat activity that may be supported by suitable habitats identified on Site. Bat activity surveys were carried out during May, June and September 2025. Report provided as **Appendix 7E: Bat Activity Report.**
Threatened arable plant survey	Searches of field margins cultivated areas and accessible tramlines for threatened arable plants. Surveys completed on 2 – 3 June and 26 – 27 August 2026. Surveys covered the Site and wider Survey Area extending east of the Site. Report provided as **Appendix 7F: Threatened Arable Plants**.

7.7. Baseline Conditions

Existing Baseline Conditions

Site Context and Surrounding Habitats

7.7.1. The Site predominantly comprises arable fields separated by hedgerows and lines of trees, with parcels of woodland throughout. A disused railway track runs from east to west across the Site. Cosmeston Lakes, which are flooded limestone quarries, are located to the north of the Site.

[28] Bird Survey & Assessment Steering Group (2025). Bird Survey Guidelines for assessing ecological impacts.
[29] Browne, S., Vickery, J.A. and Chamberlain, D.E. (2000).
[30] Ferguson-Lees, J., Castell, R. and David Ian Leech (2011). A field guide to monitoring nests. Thetford British Trust For Ornithology.

Designated Sites

7.7.2. A total of three overlapping international statutory designated sites were identified within 2 km of the Site, all three of which lie approximately 160 m east of the Site Boundary. A description of the sites is presented in **Table 7.9** and their locations are shown in **Figure 7.2: International Statutory Designated Sites within 2 km of the Site** (Volume III of the ES).

7.7.3. The desk study identified six statutory designated sites of national or local importance within 2 km of the Site. A description of these sites is presented in **Table 7.9** and their locations are shown in **Figure 7.3: National Statutory Designated Sites within 2 km of the Site** (Volume III of the ES).

7.7.4. The desk study identified 14 non-statutory nature conservation sites within 2 km of the Site. Of these, three non-statutory designations sit adjacent to the Site: Lavernock Point East SINC, Ty-r-Orsaf SINC, and the Lavernock Point Wildlife Trust Reserve (WTR). The B-Lines designation is located within the Site.

7.7.5. No AWI woodlands were identified within 2 km of the Site. All other relevant non-statutory sites are shown in **Figure 7.4: Non-Statutory Designated Sites within 2 km of the Site** (Volume III of the ES).

Table 7.9 - Designated sites identified in Study Area

Site Name	Designation	Approx. Distance & orientation from Site	Description
Severn Estuary (Wales)	SAC	160 m east	The Severn Estuary is designated as a SAC due to the presence of the following: Annex I habitats: • Estuaries; • Mudflats and sandflats not covered by seawater at low tide; and • Atlantic salt meadows *Glauco-Puccinellietalia maritimae*. Annex II species: • Sea lamprey *Petromyzon* marinus; • River lamprey *Lampetra fluviatilis*; and • Twaite shad *Alosa fallax*.

Site Name	Designation	Approx. Distance & orientation from Site	Description
			The following Annex I habitats are present as a qualifying feature, but not a primary reason, for selection of this site: • Sandbanks which are slightly covered by sea water all the time; and, • Reefs.
Severn Estuary (Wales)	SPA	160 m east	The Severn Estuary SPA supports the following qualifying features: • An internationally important wintering population of Bewick's swan *Cygnus columbianus bewickii*; and • Over 20,000 waterfowl in winter, including internationally important numbers of European white-fronted goose *Anser albifrons albifrons*, shelduck *Tadorna tadorna*, gadwall *Anas strepera*, dunlin *Calidris alpina*, and redshank *Tringa totanus*. It also supports nationally important wintering populations of a further ten species, nationally important passage populations of four species, and a nationally important breeding population of one species.
Severn Estuary (Wales)	Ramsar	160 m east	Ramsar criteria present: • Unusual estuarine communities, reduced diversity and high productivity;

Site Name	Designation	Approx. Distance & orientation from Site	Description
			• The run of migratory fish between sea and river via estuary, including salmon *Salmo salar*, sea trout *Salmo trutta*, sea lamprey, river lamprey, allis shad *Alosa alosa*, twaite shad and eel *Anguilla anguilla*; • Migratory birds during spring and autumn; • High fish diversity, with over 110 species recorded. The species listed in bullet point two use the Severn Estuary as a key migration route to their spawning grounds. It is also an important feeding and nursery ground, particularly for allis shad and twaite shad; • 70919 waterfowl with peak counts in winter, and thus an assemblage of international importance; • Peak counts of tundra swan *Cygnus columbianus bewickii*, greater white-fronted goose, common shelduck, gadwall, dunlin, and common redshank; • Supporting lesser black-backed gull *Larus fuscus graellsii* during the breeding season; • Supporting ringed plover *Charadrius hiaticula*, which has peak counts in spring/autumn; and, • Supporting Eurasian teal *Anas crecca*, and Northern pintail *Anas acuta*, both with peak counts in winter.

Site Name	Designation	Approx. Distance & orientation from Site	Description
Penarth Coast	SSSI	Adjacent to the Site, South	This coastal section is regarded as the type locality for the Penarth Group, showing an extensive section from the Blue Anchor Formation to the Lower Lias. The site also includes some species of rich calcareous grassland and cliff-top scrub which supports several plant species of limited occurrence.
Severn Estuary	SSSI	160 m east	The Severn Estuary SSSI forms part of a larger area which includes the Upper Severn Estuary SSSI and Bridgwater Bay SSSI. The larger area of the Severn Estuary is designated as a SPA under the 'EEC Wild Birds Directive' and a Wetland of International Importance under the Ramsar Convention. The estuarine fauna includes internationally important populations of waterfowl, invertebrate populations of considerable interest, and large populations of migratory fish, including the nationally rare allis shad.
Cosmeston Lakes Country Park	Local Nature Reserve (LNR)	13 m north	Cosmeston Lakes Country Park LNR includes the following habitats: coastal grassland, reedbeds, meadows, lakes and ponds, woodland, rocky shores, dunes, cliffs, farmland and commons.

Site Name	Designation	Approx. Distance & orientation from Site	Description
Llynnoedd Cosmeston/Cosmeston Lakes	SSSI	142 m north	Llynnoedd Cosmeston/Cosmeston Lakes is situated 2 km south of Penarth. It includes two lakes, created from flooded limestone quarries, which are connected by a narrow channel. One of the lakes is of special interest as the only known site in Wales for the presence of starry stonewort *Nitellopsis obtusa*.
Sully Island	SSSI	1 km southwest	Sully Island supports notable sea-cliff exposures of the marginal facies of the Triassic Mercia Mudstone Group, including breccias and sands interpreted as lake-shore deposits, overlain by nodular evaporites and carbonates. The island is also an important roosting site for wintering waders within the Taff/Ely Estuary, supporting substantial proportions of the estuary's dunlin, grey plover *Pluvialis squatarola*, ringed plover, redshank and knot *Calidris canutus* populations within this area.
Cog Moors	SSSI	1.3 km north-west	Cog Moors is situated approximately 2 km east of Barry and consists of a series of fields adjacent to Sully Brook. This site is of special interest for its large continuous area of damp esotrophic (neutral) seminatural grassland, which is associated with several stands of tall sedges, and for populations of two uncommon plant species.

Site Name	Designation	Approx. Distance & orientation from Site	Description
Lavernock Point	WTR	Adjacent to the Site.	Lavernock is made up of multiple habitats, principally coastal Jurassic limestone grassland and scrub, along with ash wood and meadow. It hosts species including the purple hairstreak butterfly *Favonius quercus* and adder's tongue fern *Ophioglossum vulgatum*.
Lavernock Point East	SINC	Adjacent to the Site.	No information available from Council.
Ty-r-Orsaf	SINC	Adjacent to the Site.	No information available from Council.
B-Lines	B-Lines - Buglife	Within Site	The B-Lines are a series of 'insect pathways' which have been established by Buglife. They run throughout the British countryside and towns, and act as a restorative series of wildflower-rich habitat stepping stones. They link existing wildlife areas together, creating a network which provides large areas of brand-new habitat benefiting bees and butterflies.
Cosmeston Lakes	SINC	155 m north-west	Llynnoedd Cosmeston/Cosmeston Lakes is situated 2 km south of Penarth. It includes two lakes, created from flooded limestone quarries, which are connected by a narrow channel. One of the lakes is of special interest as the only known site in Wales for the presence of starry stonewort *Nitellopsis obtusa*.
Downs Wood	SINC	797 m north	No information available from Council.
Cog Moors	SINC	1 km north-west	Cog Moors is situated approximately 2 km east of Barry and consists of a series of fields adjacent to Sully Brook.

Site Name	Designation	Approx. Distance & orientation from Site	Description
Cogan Pond	SINC	1.1 km north-west	No information available from Council.
North of Cog Moors	SINC	1.7 km north-west	No information available from Council.
Pop Hill	SINC	1.7 km north-west	No information available from Council.

Habitat

7.7.6. The Phase 1 habitat survey recorded 14 habitat types within the Survey Area, their extent within the Site summarised in **Table 7.10** and their distribution in relation to the Site is shown on **Figure 7.6: Phase 1 Habitat Survey Map** (Volume III of the ES).

7.7.7. Four Phase 1 habitat types within the Site were identified as corresponding to two Section 7 Priority Habitats.

Lowland Mixed Deciduous Woodland

- A1.1.1 Semi-natural broadleaved woodland; and
- A1.3.1 Semi-natural mixed woodland.

Native Hedgerows

- J2.1.2 Intact native species-poor hedge; and
- J2.3.2 Native species-poor hedge and trees.

7.7.8. Detailed habitat descriptions are provided in **Appendix 7A: PEA 2026** (Volume IV of the ES).

Table 7.10 - Habitats within the Site and the Survey Area

Phase 1 habitat type	Section 7 Priority Habitat[31]	Summary	Area/length in Site Boundary (ha/m)
Area habitats (ha)			
A1.1.1 – Broadleaved woodland – Semi-natural	Yes	The woodland was predominantly ash- and oak-dominated semi-natural woodland with dense ivy/bramble understory. The habitat was considered to qualify as **Lowland Mixed Deciduous Woodland** Section 7 Priority Habitat.	0.87
A1.3.1 – Mixed woodland – Semi-natural	Yes	The woodland comprised mature and semi-mature broadleaved trees with approximately 20% Scots pine and a dense scrub understory. The habitat was considered to qualify as **Lowland Mixed Deciduous Woodland** Section 7 Priority Habitat.	0.13
A2.1 – Scrub – Dense/Continuous	No	The scrub was predominantly unmanaged, bramble-dominated scrub. Occurring along boundaries and field margins, providing connectivity between woodland areas.	0.83

[31] In the absence of definitions of Section 7 Priority Habitats, professional judgement and reference to UK BAP Priority Habitat definitions have been used to assess whether habitats identified qualify as Section 7 Priority Habitats. Where it is not possible to confidently assess a habitat as not qualifying as a Section 7 Priority Habitat, a precautionary approach has been assumed.

Phase 1 habitat type	Section 7 Priority Habitat[31]	Summary	Area/length in Site Boundary (ha/m)
B2.2 – Neutral grassland – Semi-improved	No	The grassland was Yorkshire fog-dominated, with a range of grass and herb species. The northern parcel was more diverse, while the second parcel contained a localised wet area and showed scrub encroachment.	0.59
C3.1 – Tall ruderal	No	One parcel was recorded on the Site and three within the wider Survey Area. Vegetation was dense and approximately 1.5 m high, characterised by common fleabane, Yorkshire fog and rosebay willowherb.	44.87
J1.1 – Arable	No	Arable land formed the majority of the Site and wider Survey Area, predominantly comprising cultivated fields with narrow margins supporting common grassland, ruderal and herbaceous vegetation.	0.07
Area Total			**47.37**[32]
Linear Habitats (m)			

[32] The difference between the total mapped habitat area and the defined Site area (46.54 ha) reflects minor cumulative discrepancies associated with habitat mapping; mapped areas are indicative of habitat extent rather than precise Site measurements.

Phase 1 habitat type	Section 7 Priority Habitat[31]	Summary	Area/length in Site Boundary (ha/m)
A3.1 – Parkland and scattered trees	No	Mature and semi-mature, scattered trees were recorded within the Site over other habitat types, with no saplings present. None were recorded within the wider Survey Area.	514
J2.1.2 – Intact hedge – Native species-poor	Yes	Hedgerows were predominantly hawthorn with bramble, dog rose and ivy, with some elder, hazel and ash. Hedgerows within the Site were considered to qualify as **Native Hedgerow** Section 7 Priority Habitat.	313
J2.3.2 – Hedge and trees – Native species-poor	Yes	One J2.3.2 hedgerow was recorded within the Site and two within the wider Survey Area. Hedgerows were predominantly hawthorn with ivy and bramble, with trees including elder and sycamore. Hedgerows within the Site were considered to qualify as **Native Hedgerow** Section 7 Priority Habitat.	2156

Phase 1 habitat type	Section 7 Priority Habitat[31]	Summary	Area/length in Site Boundary (ha/m)
J2.6 – Dry ditch	No	One dry ditch was recorded along the northern boundary of the Site and one within the northeastern part of the wider Survey Area. Both lacked vegetation indicative of wet conditions and were considered likely to remain dry for most or all of the year.	140
Linear Total			**3123**[33]

Bats

7.7.9. The desk study returned 15 bat records comprising at least four species/species groups: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Nathusius' pipistrelle *Pipistrellus nathusii*, and unidentified pipistrelle/bat species. The closest records were of common and soprano pipistrelle, both approximately 789 m from the Site. No records of bat roosts were returned.

7.7.10. A DBW, undertaken in 2025, identified trees, buildings and structures with potential to support roosting bats and assessed the suitability of habitats for foraging and commuting bats.

7.7.11. The Site provides suitable bat foraging habitat, including woodland, scrub and semi-improved grassland, while hedgerows and lines of trees provide commuting opportunities and connectivity with habitats in the wider landscape, including around Cosmeston Lakes. Overall, the Site was assessed as having moderate suitability for foraging and commuting bats.

7.7.12. Bat activity surveys recorded moderate bat activity across the Site, comprising at least nine bat taxa. Common pipistrelle was the dominant species, generally followed by soprano pipistrelle, while other species, including lesser horseshoe, were recorded less frequently. Full details are in **Appendix 7E: Bat Activity Report.**

[33] Minor discrepancies between the total mapped lengths of linear habitats and their actual extent reflect cumulative differences associated with habitat mapping; mapped lengths are indicative of habitat extent rather than precise measurements

7.7.13. The DBW identified 32 trees with potential roosting features (PRFs), 17 remain within the current Site Boundary and three are within the wider Survey Area. One structure (S1), comprising a stone arch bridge with a brick arch, was assessed as having low suitability to support roosting bats.

7.7.14. A total of 21 trees were subject to close inspection surveys. No bats or evidence of use by bats were identified. Six trees were subsequently downgraded to negligible suitability, with 14 trees retaining PRFs, comprising five PRF-M trees and nine PRF-I trees. It was concluded that bat roosts were likely absent from the trees surveyed at the time of survey and that maternity or other roosts of high conservation status were unlikely to have been present. Detailed results of the bat roost surveys are provided in **Appendix 7D: Bat Roost Survey Report.**

Dormouse

7.7.15. Three records of hazel dormouse were returned within 2 km of the Site, the closest being approximately 782 m from the Site.

7.7.16. Suitable dormouse habitat within the Site comprises woodland, dense bramble scrub and hedgerows, which provide nesting and foraging opportunities and connectivity to suitable habitat in the wider landscape. Woodland supports a range of potential food sources, including oak, hazel, ash and field maple.

Badger

7.7.17. The desk study returned with no records of badger in the last 10 years within 2 km of the Site.

7.7.18. No evidence of badger setts noted incidentally during the Phase 1 habitat survey on Site, although badger prints were identified in 2025 within the Survey Area. The Site provided suitable habitat for sett-building badgers in the form of woodlands and hedgerows, and suitable habitat for foraging badgers within the arable fields.

Hedgehog

7.7.19. Seventeen records of hedgehog within 2 km of the Site in the preceding 10 years were returned by the desk study, with the closest approximately 483 m from the Site. No evidence of hedgehog was recorded during the survey; however, grassland, scattered trees and broadleaved woodland provide suitable habitat for foraging, commuting, resting and nesting.

Birds

7.7.20. The desk study returned 937 records of 62 protected and/or notable bird species within 2 km of the Site, including 13 species listed on Schedule 1 of the WCA 1981, 38 Section 7 Priority Species and 45 species included on the Welsh Birds of Conservation Concern Red or Amber Lists (see **Annex B** of **Appendix 7A: PEA 2026**). Habitats within the Site, particularly woodland, scrub and hedgerows, provide suitable nesting and foraging habitat for breeding birds, while arable and grassland habitats provide additional foraging opportunities.

Wintering Birds

7.7.21. Wintering bird surveys undertaken between November 2025 and March 2026 recorded 44 bird species, including nine target species and 21 secondary species, comprising species identified as being of conservation interest for the purposes of the survey. Moderate flocks of Eurasian skylark, meadow pipit, redwing and chaffinch were recorded.

7.7.22. Arable habitats, particularly overwintering stubble, together with hedgerows and woodland field boundaries, provided foraging habitat for resident and migrant wintering birds. No qualifying species of the Severn Estuary SPA and Ramsar site were recorded using fields within the Survey Area; therefore, the Survey Area was not considered to represent Functionally Linked Land for these designated sites.

Eurasian Skylark – Breeding Territories

7.7.23. Surveys undertaken in February and March 2026 also identified ten potential Eurasian skylark territories across the Survey Area, comprising six within the Eastern Extent, three within the Central Extent and one within the Western Extent.

Amphibians

7.7.24. Five amphibian species were returned by the desk study within 2 km of the Site, including three GCN records, the closest approximately 1.37 km north. Waterbodies within the Site were considered ephemeral and unsuitable for breeding GCN, with additional barriers to movement; therefore, GCN were considered unlikely to occur within the Site. A common toad *Bufo bufo* was recorded during the field survey, and scrub, grassland and woodland provide suitable terrestrial habitat for widespread amphibians.

Reptiles

7.7.25. Fourteen records of slow worm were returned within 2 km of the Site in the preceding 10 years, with the closest approximately 530 m away. Two slow worms were recorded within the Site during the field survey. Suitable reptile habitat is present within semi-improved grassland, scrub, field boundaries and woodland edges, with potential refugia and hibernation features also identified (see **Figure 7, Appendix 7A: PEA 2026**).

Invertebrates

7.7.26. The desk study returned records of 13 invertebrate species listed as Priority Species under Section 7 of the Environment (Wales) Act 2016 within 2 km of the Site. The closest records were marsh fritillary and brown-banded carder bee *Bombus humilis*, both approximately 58 m from the Site. Suitable invertebrate habitat occurs within the Site, particularly along field margins, hedgerows and other areas identified in **Figure 7, Appendix 7A: PEA 2026.**

INNS of plant

7.7.27. Ten records of INNS of plant were returned within 2 km of the Site; however, no INNS were recorded within the Site during the Phase 1 habitat survey. Further details are provided in **Appendix 7A: PEA 2026.**

Notable Plants

7.7.28. The desk study returned one record of threatened arable plant, dwarf spurge *Euphorbia exigua*, located approximately 1.3 km and a single record of bluebell *Hyacinthoides non-scripta* a protected plant species approximately 1.6 km from Site.

7.7.29. Butcher's-broom *Ruscus aculeatus*, a Section 7 Priority Species, was recorded within a hedgerow during the field survey

7.7.30. Targeted arable plant surveys recorded two threatened arable species within the Survey Area: round-leaved fluellen *Kickxia spuria* and sharp-leaved fluellen *Kickxia elatine*. Records were concentrated within the eastern-most fields outside the Site, although a single round-leaved fluellen plant was recorded within the south-eastern part of the Site. Further details are provided in the Arable Plant Survey (**Appendix 7F: Threatened Arable Plants** – Volume IV of the ES).

Future Baseline Conditions

7.7.31. Determining a future baseline draws upon information about the likely future use and management of the Site in the absence of the Proposed Development, known population trends (for species), climate change and any other proposed developments (consented or otherwise) that may act cumulatively to affect ecological features.

7.7.32. The State of Mammals in Wales report[34] identifies that badger, dormouse, brown hare, and hedgehog numbers are stable across Wales, with otter, pine marten and polecat numbers increasing. Although for certain species, such as otter, other data sources indicate decline[35]. Given the lack of optimal habitat to support these species within the Site, it can be assumed that numbers are not likely to increase within the Site at such a level that the conservation status of these species with respect to the Site would change. The same is true for bats species, whose individual numbers across Wales are either increasing, stable, or data deficient (although greater horseshoe bats, Leisler's bat and serotine have been identified as species in peril[36]).

7.7.33. Similarly, the Plant Atlas summary report[37] identifies that invasive non-native species are increasing in abundance within Wales. Whilst no invasive non-native plant species have been identified within the Site, they are present in the local area as shown by desk study records and have potential to colonise the Site in the future. It is not possible to predict with confidence, how this will affect the future baseline nature conservation value. Mitigation to reduce/avoid spread as a result of the Proposed Development is however, incorporated into measures set out in this assessment.

7.7.34. Future baseline predictions for ornithological features were informed by published Welsh population trend data, including Birds of Conservation Concern Wales 4[38], the State of Birds in Wales report[39], NRW Habitats Regulations reporting[40] and relevant Section 7 species assessments. These sources indicate that several farmland and upland bird species continue to show declining population trends across Wales, while trends for other species are stable or increasing. In the absence of the Proposed Development, the bird assemblage present at the Site would be expected to broadly reflect these wider regional and national trends, subject to local habitat management and land use practices.

7.7.35. Climate change is likely to lead to changes in plant species abundance and diversity, which, in turn, is likely to affect species distributions and abundance. However, owing to the abundance of factors which may influence a site, and the unknown nature of these variables, it is not possible to provide further detail.

[34] Mathews F, Smith B, Harrower C, Coomber F in association with the Wales Mammal Biodiversity Action Forum. (2020). *The State of Mammals in Wales.* A report by the Mammal Society for Natural Resources Wales, produced in association with Wales Mammal Biodiversity Action Forum. The Mammal Society, London. ISBN: 978-0-9935673-6-0
[35] Kean EF, and Chadwick EA 2021. Otter Survey of Wales 2015-2018. NRW Report No: 519, NRW.
[36] Bosanquet, S., Howe, M., Dyer, S., Halliwell, E., Hatton-Ellis, T., Lindley, P. & Woodland, J. 2025. Terrestrial and Freshwater Species in Peril in Wales. Natural Resources Wales.
[37] Walker, K.J., Stroh, P.A., Humphrey, T.A., Roy, D.B., Burkmar, R.J. & Pescott, O.L. 2023. *Britain's Changing Flora. A Summary of the Results of Plant Atlas 2020.* Durham: Botanical Society of Britain and Ireland.
[38] Johnstone, I.G. et al. (2022). *Birds of Conservation Concern Wales 4: the population status of birds in Wales*. Milvus
[39] BTO, RSPB Cymru, NRW & WOS. *State of Birds in Wales*.
[40] NRW (2026). *Habitats Regulations 9A Report for Wales 2019-2024: Birds Data*.

7.7.36. In this instance, the future baseline in the absence of the Proposed Development is unlikely to be markedly different from the current baseline, as land use/management within the Site is anticipated to remain largely unchanged. It is therefore considered appropriate to focus on the current baseline for the purpose of this assessment.

7.8. Assessment Methodology and Significance Criteria

Assessment Approach

7.8.1. This section summarises the approach to and outcomes of the EIA scoping stage. The scope of the assessment is based upon a review of the baseline information detailed in the **Section 7.6**.

7.8.2. The CIEEM guidelines for EcIA[19] recognise that an appropriate EcIA cannot consider in detail every individual species or habitat that may potentially be present at a site or affected by a development. The EcIA process therefore aims to focus the assessment on those ecological features that could be 'significantly' affected by the Proposed Development (i.e. where the effects on the ecological features are of sufficient concern that they could influence the decision about whether or not planning permission should be consented; the 'significance test'), or for which the development could result in the contravention of relevant legislation.

7.8.3. The EcIA process therefore includes a 'scoping' stage which excludes those ecological features that will not be 'significantly' affected, and a 'detailed assessment' stage, which examines more closely the potential effects of the scheme on those ecological features that could be subject to 'significant' effects. Detailed assessments may also be undertaken where it is considered appropriate to examine the predicted effects on a feature in more detail, for example due to consultee comments.

Identification of Important Ecological Features

7.8.4. Assessment methods for all potentially significant effects upon ecological features are based on the methodology described in the Guidelines for EcIA in the UK[41].

7.8.5. CIEEM[41] defines a significant effect as one

"that either supports or undermines biodiversity conservation objectives for 'important ecological features'; or for biodiversity in general".

7.8.6. When considering potentially significant effects on ecological features, whether these be adverse or beneficial, the following characteristics of environmental change are taken into account[42]:

[41] CIEEM (2024) Guidelines for Ecological Impact Assessment in the UK.
[42] The definitions of the characteristics of environmental change are based on the descriptions provided in CIEEM (2019). Other chapters in this ES may use some of the same terms albeit with a different definition.

- Extent – the spatial or geographical area over which the environmental change may occur;
- Magnitude – the size, amount, intensity or volume of the environmental change;
- Duration – the length of time over which the environmental change may occur;
- Frequency – the number of times the environmental change may occur;
- Timing – the periods of the day/year etc. during which an environmental change may occur; and
- Reversibility – whether the environmental change can be reversed through restoration actions.

7.8.7. Effects were deemed significant if they are anticipated to affect the structure and function of a site, or impact upon the conservation status of a habitat, species or constituents of a species assemblage.

7.8.8. Baseline information obtained through the desk study and field surveys was used to identify ecological features that could be affected by the Proposed Development. In accordance with CIEEM guidance[41], these were evaluated using a geographic frame of reference to identify those requiring detailed assessment, taking account of relevant legislation and policy and the extent, quality and distribution of habitats and species populations.

Ecological Importance and Sensitivity

7.8.9. The ecological importance of a feature has been determined in accordance with the CIEEM EcIA Guidelines by considering the feature within an appropriate geographic frame of reference. The geographic categories used in this assessment are International, National (UK), National (Wales), County and Local. These categories describe the geographic scale at which a feature is considered important for the conservation of biodiversity; they do not simply reflect the geographic extent over which the feature occurs.

7.8.10. The geographic importance assigned to an ecological feature has been determined using relevant contextual information, including its conservation status, rarity, distribution, population size or habitat extent, quality, ecological function and contribution to the conservation of the feature within the relevant geographic area. Statutory designation, legal protection or identification as a priority habitat or species has informed this evaluation but does not, in isolation, determine the geographic level of importance. For example, a small length of Section 7 priority hedgerow would not automatically be of National (Wales) importance where its extent, quality and ecological function indicate that its contribution to the conservation of the habitat is principally at the Local or County scale. This reflects the CIEEM approach of determining importance in an appropriate geographic context

7.8.11. The wider EIA methodology expresses the relative importance or vulnerability of receptors using generic sensitivity categories. To integrate the CIEEM EcIA methodology[41] with this wider EIA framework, each geographic level of ecological importance has therefore been assigned a corresponding sensitivity category in **Table 7.11**. This is a methodological translation for the purposes of the EIA and does not imply that geographic importance and sensitivity are synonymous. The assessment of ecological effects continues to use the CIEEM geographic importance of the ecological feature when determining whether an effect is ecologically significant. The corresponding sensitivity category is provided to enable consistency with the terminology used elsewhere within the ES.

Table 7.11 - Sensitivity criteria

Geographic context of importance (Nature Conservation Value as amended from CIEEM EcIA Guidelines Geographic Scale)	Sensitivity	Definition
International	Very High	European sites (SPAs, SACs, cSACs and SCI), plus sites treated as such by national planning policy (pSPA, pSAC and Ramsar sites (designated under international convention)). Areas of habitat or populations of species which meet the published selection criteria for designation as a European site, but which are not themselves currently designated at this level (this would be agreed with NRW where applicable).

Geographic context of importance (Nature Conservation Value as amended from CIEEM EcIA Guidelines Geographic Scale)	Sensitivity	Definition
National (UK)	High	Nationally designated sites including SSSIs and NNRs. Areas (and the populations of species which inhabit them) which meet the published selection criteria guidelines for selection of biological SSSIs, but which are not themselves designated (this would be agreed with NRW where applicable). Section 7 habitats and species, Red listed and legally protected species that are not addressed directly in Part 2 of the "*Guidelines for Selection of Biological SSSIs*" but can be determined to be of national importance using the principles described in Part 1 of the guidance[43]. Areas of Ancient Woodland e.g. woodland listed within the AWI and ancient and veteran trees.
National (Wales)	Medium	Regularly occurring Section 7 habitats or populations of Section 7 species, Red listed and legally protected species may be of regional (Wales) importance in the context of published information on population size and distribution.
County (Vale of Glamorgan)	Medium	LNRs and Non-Statutory Designated sites including Biodiversity Areas and County Wildlife Sites. Areas which based on field data collected to inform the EcIA meet the published selection criteria for those sites listed above (for habitats or species, including those listed in relevant Local Biodiversity Action Plans) but which are not themselves designated.

[43] JNCC (2022). Guidelines for the Selection of biological SSSIs. Parts 1 and 2.

Geographic context of importance (Nature Conservation Value as amended from CIEEM EcIA Guidelines Geographic Scale)	Sensitivity	Definition
Local (Sully)	Low	Section 7 habitats and species, Red listed and legally protected species that based on their extent, population size, quality etc. are determined to be at a lesser level of importance than the geographic contexts above. Or Common and widespread semi-natural habitats and species that do not occur in levels elevated above those of the surrounding area. Areas of heavily modified or managed land uses (e.g. hard standing used for car parking, as roads etc.)

7.8.12. The geographic importance assigned to an ecological feature represents the scale at which its conservation would be considered relevant. A feature of County importance therefore makes a material contribution to biodiversity within the Vale of Glamorgan, for example because it forms part of a locally designated site network, meets relevant local wildlife site selection criteria, or supports a habitat or population that is notable in a county context. A feature of Local importance remains of ecological value but its contribution is principally confined to the Site and/or the surrounding Sully area and is not considered material at the wider Vale of Glamorgan scale. National (Wales) importance is reserved for features whose conservation is relevant in a Welsh context, based on their distribution, extent, population, quality or ecological function across Wales.

7.8.13. Ecological features of Local importance or below have generally not been taken forward as Important Ecological Features (IEF) requiring detailed assessment, where effects upon them would not be material to decision-making. Exceptions have been made where a feature requires specific consideration because of legal protection or other regulatory requirements, irrespective of its geographic importance, for example badgers and invasive non-native species.

7.8.14. This approach provides a proportionate assessment consistent with the CIEEM EcIA Guidelines. Scoping a feature out of detailed EcIA does not imply that it has no ecological value or that no effect could occur; rather, it indicates that effects on that feature are not considered sufficiently important in the relevant geographic context to require detailed assessment within the ES. Appropriate avoidance, mitigation and legal compliance measures nevertheless apply where relevant. Ecological features that are scoped into and out of detailed assessment are listed in **Table 7.5** and **Table 7.6**.

7.9. Sensitive Ecological Features

7.9.1. The importance and sensitivity of ecological features have been evaluated with reference to the quality or extent of designated sites or habitats, habitat or species rarity, the extent to which they are threatened throughout their range, their rate of decline, and their legal status. This level of importance was then qualified at a relevant geographical scale.

7.9.2. A list of existing and future receptors considered within Biodiversity is included in **Table 7.12.** The definition of the sensitivity and importance is provided within **Table 7.11** above.

Table 7.12 - Existing and future sensitive ecological features

Ecological Feature	Importance	Sensitivity	Summary of Justification
Severn Estuary (Wales) SAC, SPA and Ramsar site	International	Very High	Internationally designated nature conservation sites. Potential pathways include indirect pollution/runoff and, for the SPA/Ramsar site, disturbance/displacement of qualifying birds and effects on potentially functionally linked habitat. Wintering bird surveys did not identify qualifying SPA/Ramsar species using the Survey Area.
Penarth Coast, Severn Estuary, Llynnoedd Cosmeston/Cosneston Lakes, Sully Island and Cog Moors SSSIs	National (UK)	High	Nationally designated SSSIs and therefore valued at the National scale. Potential effects are principally indirect, including dust, sediment, contaminated runoff and construction disturbance; no direct habitat loss is proposed.

Ecological Feature	Importance	Sensitivity	Summary of Justification
Lavernock Point East and Ty-r-Orsaf SINCs, Lavernock Point WTR	County	Medium	The SINCs and WTR are locally designated nature conservation features and are treated in the chapter at County importance/Medium sensitivity.
Lowland mixed deciduous woodland and native hedgerows	National (Wales)	Medium	Section 7 Priority Habitats supporting ecological connectivity and associated protected/notable species. The Proposed Development principally affects arable land, with woodland and hedgerows retained and protected and use of existing accesses prioritised.
B-Line	Local	Low	The B-Line is treated separately as a Local importance/Low sensitivity feature because of its ecological connectivity and function for pollinators.
Bat assemblage	Local	Low	The Site provides suitable commuting and foraging habitat and has moderate suitability, with preliminary survey results indicating moderate bat activity. However, retention of the principal hedgerow, woodland and tree-line network maintains connectivity. On the current evidence, the assemblage is best treated as locally important rather than as a population demonstrably important at a Wales or national scale.
Dormouse (disturbance)	National (Wales)	Medium	Legally protected and Section 7 species assumed present within suitable connected habitat such as hedgerows. Direct habitat effects are largely avoided through retention of woodland, scrub, hedgerows and connectivity, but construction disturbance remains a pathway requiring assessment and mitigation.

Ecological Feature	Importance	Sensitivity	Summary of Justification
Badger	Local (Site[44])	Low	No records within 2 km in the preceding 10 years and no setts identified, although woodland and hedgerows provide suitable sett-building habitat and arable land provides foraging habitat. Included despite Local importance because the species has specific legal protection.
Hedgehog	Local	Low	Records occur within the wider area and suitable foraging, commuting, resting and nesting habitat occurs on Site. However, the evidence does not indicate a population elevated above the surrounding area, so Local importance is appropriate.
Wintering birds	Local (Site)	Low	Wintering bird surveys did not identify qualifying Severn Estuary SPA/Ramsar species using the Survey Area, and this chapter concludes the wintering bird assemblage is of no more than site-level importance.
Skylark	Local	Low	Section 7 species/species of conservation concern, but the recorded number of territories is not considered sufficient to represent a population of County importance. The feature is nevertheless taken forward because solar infrastructure would remove or displace open-field breeding habitat.
Widespread amphibians	Local	Low	Common toad and suitable terrestrial habitat were recorded, but the assemblage comprises widespread species and there is no evidence of importance above the Local scale. Potential effects comprise mortality, injury, entrapment and temporary displacement during construction.

[44] An ecological feature that has value within the Site but is common and widespread in the surrounding area, such that its loss or alteration would not materially affect the conservation status, distribution or ecological function of that feature at the Local (Sully) scale.

Ecological Feature	Importance	Sensitivity	Summary of Justification
Widespread reptiles	Local	Low	Slow worm was recorded and suitable habitat occurs along grassland, scrub, woodland edges and field boundaries. The population is considered local rather than elevated above the surrounding area.
Invertebrates	Local	Low	Section 7 invertebrate species occur in the wider area, with suitable habitat principally associated with field margins, hedgerows and other semi-natural features. The available evidence does not demonstrate an assemblage of County or Wales importance.
Rare arable plants	Local (Site)	Low	Threatened arable flora, including round-leaved and sharp-leaved fluellen, has been recorded within the wider landholding, with one round-leaved fluellen recorded within the Site. The current assessment explicitly treats the affected threatened arable plant feature as local (Site) important.
Butchers broom	Local (Site)	Low	Notable plant species recorded within the Site. The occurrence is not considered to represent a population of importance at the County or wider geographic scale; therefore, in accordance with the assessment criteria, the species is considered important at the local (Site) scale.

Magnitude of Impact

7.9.3. Impacts arising from the Proposed Development can be permanent or temporary, direct or indirect, and can be cumulative. These factors are brought together to assess the magnitude of the impact on particular IEFs and, wherever possible, the magnitude of the impact is quantified. Professional judgement is then used to assign the impacts on the IEFs to one of four classes of magnitude, defined in **Table 7.13**. Professional judgement is then used to assign the impacts on the IEFs to one of four classes of magnitude, defined in **Table 7.13**.

Table 7.13 - Description of magnitude of impact

Magnitude	Definition
High	A substantial change to the extent, integrity, function or conservation status of an ecological feature. An adverse impact may threaten the long-term sustainability of the feature; a beneficial impact may substantially enhance its conservation status.
Medium	A noticeable change to the extent, integrity, function or conservation status of an ecological feature, but which would not threaten its long-term sustainability. A beneficial impact would result in a noticeable improvement but would not substantially alter its conservation status.
Low	A small or localised change to an ecological feature that is detectable but would not materially alter its extent, integrity, function or conservation status.
Negligible	A very small or short-term change, within or close to normal variation, with no discernible lasting effect on the integrity, function or conservation status of an ecological feature.

7.9.4. Potential impacts are characterised initially in the absence of any mitigation, except where this is integral to the design of the Proposed Development (embedded measures).

Significance Criteria

7.9.5. This chapter reports on the likely significant Biodiversity effects for the construction, operational, and decommissioning phases of the Proposed Development.

7.9.6. The following criteria will be considered when determining significance:

- Relevant legislation and planning policy;
- International, national, regional, and local standards/guidance;
- Probability of occurrence of likely effect;
- Geographical extent of likely effect;
- Magnitude and complexity of likely effect;
- Sensitivity/value/importance of the feature/receiving environment;
- Duration (short up to one year, medium one to 10 years, or long-term over 10 years), frequency and reversibility of effect (temporary/permanent); and
- Inter-relationship between effects (both cumulatively and in terms of potential effect interactions).

Significance of Effects

7.9.7. The method for assessing significance of effect varies between environmental factors but in principle will be based on the environmental sensitivity (or value/importance) of a feature and the magnitude of change from baseline conditions. The magnitude of change will be assessed on a scale of high, medium, low, and negligible and sensitivity (or value/importance) will be assessed on a scale of very high/high, medium, low, and negligible (refer to **Table 7.14**).

Table 7.14 - Matrix for determining significance of effect

		Sensitivity (Value/Importance)			
		Very High/High	**Medium**	**Low**	**Negligible**
Magnitude of Change	**High**	Major	Moderate/Major	Minor/Moderate	Negligible
	Medium	Moderate/Major	Moderate	Minor	Negligible
	Low	Minor/Moderate	Minor	Negligible/Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

7.9.8. Unless otherwise stated, effects identified;

- **Moderate** or **Major** are generally considered **Significant** in EIA terms; and,
- effects assessed as **Minor** or **Negligible** are generally considered **Not Significant**, unless professional judgement indicates otherwise.

Assessment Assumptions and Limitations

7.9.9. To ensure transparency within the EIA process, the following limitations and assumptions have been identified relating to the collection of the ecological baseline data are relevant to the assessment. Survey specific limitations are captured in the reports appended to this chapter (**Appendix 7A to Appendix 7H**). Overall, it is not considered that these limitations affect the EIA.

- Ecological survey data is typically valid for 18-24 months unless otherwise specified, for example if conditions are likely to change more quickly due to ecological processes or anticipated changes in management. In this case, all ecological survey data has been collected in 2025 or 2026, or ratified by an updated PEA in 2026, and therefore can confidently contribute towards our understanding of the current ecological baseline of the Site;
- Habitat and botanical surveys are seasonally limited and throughout the spring and summer period certain botanical species will be more or less evident at different times (i.e. depending on the flowering season). The most recent habitat surveys of the Site (**Appendix 7A: PEA 2026**) were carried out in June 2026, within the optimal season for most of the habitat types identified. Incidental observations of late flowering species have been included; and
- Due to the scale of the Site, there is the potential that some refugia or hibernacula suitable to support reptiles and amphibians may have been undetected. However,

areas assessed as being directly affected by the Proposed Development were targeted during the survey, and a thorough walkover of all of these areas was undertaken. Therefore, this is not considered to affect the conclusions of this assessment, and no additional mitigation is required.

7.9.10. Overall, the information used to inform the baseline environment and assessment of effects for Biodiversity is considered sufficient, suitable and proportionate for the purposes of the EIA. Consequently, it is considered that the available information provides a robust basis upon which to assess the likely significant effects of the Proposed Development.

7.10. Embedded Mitigation

7.10.1. For the purposes of this assessment, embedded mitigation comprises measures incorporated into either the design or committed delivery of the Proposed Development. Measures embedded in delivery include standard construction environmental controls secured through the oCEMP, species-specific PMWs and other management plans. These committed measures have therefore been taken into account in determining the significance of effects.

7.10.2. A summary of the biodiversity related mitigation measures embedded into the Proposed Development to control, avoid or reduce any effects for the construction phase is provided in **Table 7.15**.

Table 7.15 - Summary of Embedded Mitigation

Ref	Potential Changes and Effects	Embedded Mitigation Measure	Compliance Mechanism
Surface water run-off	The introduction of toxic pollutants or sediments into the environment resulting in changes, loss or damage to habitats and the fauna they support.	Construction works would be undertaken using all necessary and practical measures to minimise the release of additional sediment-laden run-off into nearby waterbodies.	oCEMP, to be secured via planning condition.

Ref	Potential Changes and Effects	Embedded Mitigation Measure	Compliance Mechanism
General-species safeguarding	Death, injury or displacement during construction, e.g. due to entrapment within excavations or collisions with construction traffic.	Appropriate pre-construction surveys or inspections will be carried out. A method statement would be prepared under which: • Vehicle movement outside of daylight hours would be restricted, vehicle speeds controlled, and operatives warned of the presence of certain species to reduce the risk of collisions; • All excavations would have sloped sides or have a means of escape for entrapped animals. Excavations to be checked each morning by operatives prior to work within the excavation; • Activities would be restricted to normal working hours (so largely avoiding the hours of darkness, particularly in the summer when species are most active); and • Site lighting will be controlled to prevent incidental spillage on to features that may be used by nocturnal species, such as bats.	oCEMP, to be secured via planning condition
INNS of plants	Introduction of spread of INNS of plants	Biosecurity measures, such as boot wash stations, will be implemented throughout construction to avoid the introduction or spread of INNS. An INNS Management Plan will also be prepared.	INNS Management Plan secured via planning condition.
Habitats	Permanent or temporary land take/changes to habitats resulting in degradation or loss of habitats.	The Proposed Development has been designed to avoid direct impacts on international, national and locally designated sites of nature conservation and habitats of high ecological value, including all Section 7 Priority Habitat, woodland, scrub and scattered trees. This has been achieved through the siting of the Proposed Development outside of designated sites and through the avoidance of habitats of high ecological value during the design iteration process.	Embedded in design

Ref	Potential Changes and Effects	Embedded Mitigation Measure	Compliance Mechanism
Habitats	Permanent or temporary land take/changes to habitats resulting in degradation or loss of flight lines used by species. Potential disturbance and fragmentation effects associated with artificial lighting.	Existing hedgerows and field boundaries on-site will be retained and protected throughout the Proposed Development. Existing field access points will be used throughout the Proposed Development, with no new access points created, avoiding the unnecessary removal or severance of hedgerows. Some existing field access points may need to be widened (to allow for machinery/plant access during construction only), however these will be kept to the minimum and any habitat loss will be limited to fringe habitats only and temporary loss. Where night-time working is required during construction, a sensitive lighting strategy will be implemented through the CEMP. Lighting will be directed away from retained hedgerows, woodland edges, watercourses and other surrounding habitats, with light spill minimised as far as practicable. Operational lighting will be limited to that required for security and safety purposes and will be designed and positioned to minimise light spill onto retained and surrounding habitats, particularly habitats that may function as wildlife corridors or flight lines.	Embedded in design. Also, implemented through the CEMP, which would be secured via planning condition.

7.11. Assessment of Likely Significant Effects

7.11.1. The assessment of likely significant effects has been undertaken in accordance with the CIEEM EcIA approach described in this chapter. Ecological significance has therefore been determined by considering whether predicted changes would affect the integrity of a designated site or habitat, or the conservation status of a species or population, at the geographical scale at which the ecological feature is considered important. In reaching these conclusions, consideration has been given to the extent, magnitude, duration, frequency, timing and reversibility of predicted impacts.

7.11.2. The embedded measures described in **Table 7.15** have been taken into account within the assessment. These include avoidance of designated sites and habitats of higher ecological value through design; retention and protection of woodland, scrub, trees, hedgerows and field boundaries; use of existing field accesses wherever practicable; pollution and surface-water controls; species safeguarding measures; control of construction lighting; and biosecurity measures.

Construction Phase

Severn Estuary SAC

7.11.3. The Severn Estuary SAC is an ecological feature of International importance. No direct land-take or habitat loss within the SAC would occur as a result of the Proposed Development. The principal potential pathway for effects during construction is therefore indirect habitat degradation arising from sediment-laden runoff or accidental release of pollutants from the construction area.

7.11.4. The Proposed Development has been designed to avoid direct effects on internationally designated sites. Construction works would also be undertaken in accordance with the oCEMP (**Appendix 5A**), including measures to minimise the mobilisation and release of sediment and pollutants into the surrounding environment. These embedded measures would substantially reduce the potential for construction activities to affect the SAC.

7.11.5. Taking account of the absence of direct habitat loss and implementation of the embedded pollution-prevention measures, construction of the Proposed Development is not anticipated to result in any change capable of affecting the integrity of the SAC or the conservation status of its qualifying features.

7.11.6. The ecological feature is of International importance. The magnitude of change is assessed as Negligible and, taking account of the importance of the features and the characteristics of the predicted change, the resulting effect is considered to be **negligible adverse** (**Not Significant)**.

7.11.7. In accordance with the stepwise approach, impacts on the Severn Estuary SAC would be avoided through the absence of direct land-take or habitat loss and minimised through measures secured within the oCEMP to control sediment-laden runoff and accidental releases of pollutants during construction. Given the avoidance of direct effects and control of identified indirect pathways, no further mitigation or compensation is considered necessary.

Severn Estuary SPA and Ramsar site

7.11.8. The Severn Estuary SPA and Ramsar site are ecological features of International importance. Potential effects identified through the scoping process include disturbance and displacement of qualifying bird species, degradation or loss of functionally linked habitat and indirect effects associated with contaminated or sediment-laden runoff.

7.11.9. Five wintering bird survey visits were undertaken between November 2025 and March 2026. No qualifying species of the Severn Estuary SPA or Ramsar site were recorded using fields within the Survey Area and the surveyed land was consequently not considered to represent Functionally Linked Land for qualifying features of the designated sites.

7.11.10. No direct land-take from either designated site is proposed. Potential construction-related disturbance and pollution pathways would be controlled through implementation of the oCEMP (**Appendix 5A**). On the basis of the wintering bird survey results, absence of identified Functionally Linked Land and implementation of the embedded measures, the Proposed Development is not anticipated to affect the integrity of the SPA or Ramsar site or the conservation status of their qualifying bird populations.

7.11.11. The ecological features are of International importance. The magnitude of change is assessed as Negligible and, taking account of the importance of the features and the characteristics of the predicted change, the resulting effect is considered to be **negligible adverse** (**Not Significant)**.

7.11.12. In accordance with the stepwise approach, impacts on the Severn Estuary SPA and Ramsar site would be avoided through the absence of direct land-take and the avoidance of Functionally Linked Land, and minimised through measures secured within the oCEMP to control construction-related disturbance, pollution and surface-water runoff. Given the absence of qualifying bird species within the Survey Area and the control of identified indirect pathways, no further mitigation or compensation is considered necessary.

Designated Sites of National Importance

7.11.13. The baseline identifies a number of nationally designated sites within the study area, including Penarth Coast SSSI, Severn Estuary SSSI, Llynnoedd Cosmeston/Cosmeston Lakes SSSI, Sully Island SSSI and Cog Moors SSSI. These sites are considered ecological features of National importance. Potential effects principally comprise indirect degradation arising from construction-generated sediment, contaminated runoff, dust or disturbance where a pathway between the Proposed Development and the designated feature exists.

7.11.14. The Proposed Development has been designed to avoid direct effects on nationally designated sites. Potential indirect construction effects would be controlled through measures secured within the oCEMP (**Appendix 5A**), including controls relating to surface-water runoff and construction pollution. As no direct habitat loss would occur and the identified indirect pathways would be controlled, no change capable of materially affecting the integrity or conservation objectives of the nationally designated sites is anticipated.

7.11.15. The ecological features are of National importance. The magnitude of change is assessed as Negligible and, taking account of the importance of the features and the characteristics of the predicted change, the resulting effect is considered to be **Negligible adverse** (**Not Significant)**.

7.11.16. In accordance with the stepwise approach, impacts on nationally designated sites would be avoided through the absence of any direct land-take and minimised through measures secured within the oCEMP to control construction-related pollution, surface-water runoff, dust and accidental habitat degradation. Given the avoidance of direct effects and control of identified indirect pathways, no further mitigation or compensation is considered necessary.

Designated Sites of County Importance

7.11.17. Designated sites of County importance potentially affected by construction include Lavernock Point Wildlife Trust Reserve, Lavernock Point East SINC and Ty-r-Orsaf SINC. Potential effects identified during scoping include habitat degradation, dust, sediment transport and water-borne pollution.

7.11.18. The Proposed Development has been designed to retain woodland, scrub, trees and other habitats of higher ecological value as far as practicable. Construction pollution and accidental habitat damage would be controlled through the oCEMP (**Appendix 5A**).

7.11.19. The ecological features are of County importance. The magnitude of change is assessed as Negligible and, taking account of the importance of the features and the characteristics of the predicted change, the resulting effect is considered to be **Negligible adverse** (**Not Significant)**.

7.11.20. In accordance with the step-wise approach, impacts on the County designated sites would be avoided and minimised through the retention and protection of woodland, scrub, trees and other habitats of higher ecological value, together with the implementation of construction pollution controls and measures to prevent accidental habitat damage through the oCEMP. Habitat management and enhancement associated with the Proposed Development would provide additional opportunities to maintain and strengthen ecological connectivity and habitat value during operation.

B-Line

7.11.21. The B-Line could potentially be affected by construction. Potential effects identified during scoping include habitat degradation, dust, sediment transport, water-borne pollution and degradation of habitat supporting pollinating insects.

7.11.22. In addition to measures outlined in **paragraph 7.11.18** to be included in the oCEMP that will also mitigate impacts in the B-line, the chapter identifies enhancement of plant assemblages of importance to pollinating insects as a means of strengthening the ecological function of the B-Line during operation. The embedded mitigation is therefore expected to maintain the principal ecological functions and connectivity of these features.

7.11.23. The ecological features are of Local importance. The magnitude of change is assessed as Negligible and, taking account of the importance of the features and the characteristics of the predicted change, the resulting effect is considered to be **Negligible adverse** (**Not Significant).**

7.11.24. In accordance with the stepwise approach, impacts on locally designated sites and the B-Line would be avoided and minimised through the retention and protection of higher-value habitats, implementation of construction pollution controls and measures to prevent accidental habitat damage. Enhancement of habitats of value to pollinating insects would provide additional opportunities to maintain and strengthen the ecological function of the B-Line during operation.

Section 7 Priority Habitats

7.11.25. The Site supports areas of lowland mixed deciduous woodland and native hedgerows, which are identified as Section 7 Priority Habitats. These habitats are considered ecological features of National (Wales) importance and medium sensitivity, reflecting their biodiversity value and their role in providing habitat and ecological connectivity for a range of protected and notable species.

7.11.26. The Proposed Development has been designed to retain woodland and hedgerows as far as practicable, with the principal areas of permanent and temporary land-take concentrated within arable habitats. Potential effects during construction principally comprise localised habitat loss or damage, fragmentation, dust deposition and accidental encroachment associated with construction activities. Retained Priority Habitats would be protected through measures secured within the oCEMP, including appropriate working methods and controls to prevent accidental habitat damage (see **Appendix 5A**).

7.11.27. Given the retention of these habitats as far as practicable and implementation of embedded mitigation, any loss or degradation would be limited and localised and would not materially alter the extent, integrity or ecological function of the Priority Habitat resource within the Site.

7.11.28. The ecological features are of National (Wales) importance. The magnitude of change is assessed as Low and, taking account of the importance of the features and the characteristics of the predicted change, the resulting effect is considered to be **minor adverse** (**Not Significant).**

7.11.29. In accordance with the stepwise approach, impacts on Priority Habitats would be avoided and minimised through the retention and protection of woodland and hedgerows, with habitat enhancement measures including strengthening through supplementary planting (see **Appendix 6G: Outline LEMP**) incorporated into the Proposed Development.

Dormouse

7.11.30. Dormouse are assumed to be present within suitable connected habitat on the Site, principally woodland, scrub and hedgerows. Dormouse are a legally protected and Section 7 species and are therefore considered an ecological feature of National (Wales) importance and medium sensitivity. Potential construction effects principally comprise noise, vibration, lighting and visual disturbance associated with works undertaken close to suitable habitat.

7.11.31. The Proposed Development has been designed to retain woodland, scrub, hedgerows and associated ecological connectivity as far as practicable. Construction activities close to suitable dormouse habitat would be undertaken in accordance with the oCEMP and an appropriate PMW, including clearly demarcated working areas, protection of retained vegetation and measures to avoid unnecessary lighting, noise and accidental encroachment (see **Appendix 5A**).

7.11.32. Taking account of the retention and protection of suitable habitat and the implementation of precautionary working measures, any disturbance would be temporary, localised and restricted to the construction and decommissioning phases. The Proposed Development would not materially affect habitat connectivity or the conservation status of the assumed dormouse population.

7.11.33. The ecological features are of National (Wales) importance. The magnitude of change is assessed as Negligible and, taking account of the importance of the features and the characteristics of the predicted change, the resulting effect is considered to be **Negligible adverse** (**Not Significant)**.

7.11.34. In accordance with the stepwise approach, impacts on dormouse would be avoided through the retention of woodland, scrub, hedgerows and habitat connectivity, and minimised through the protection of retained vegetation and implementation of precautionary working measures during construction and decommissioning. Should evidence of dormouse be identified during the works, activities within the affected area would cease and advice would be sought from the project ecologist, with any additional mitigation and licensing requirements agreed before works recommence. Given the retention of suitable habitat and implementation of these measures, no compensation is considered necessary.

Badger

7.11.35. No records of badger were returned within 2 km of the Site in the preceding 10 years, and no setts were recorded incidentally during the Phase 1 habitat survey. Woodland and hedgerows provide suitable sett-building habitat, while arable land provides suitable foraging habitat. Potential construction impacts principally comprise disturbance, injury or mortality associated with vegetation clearance, excavations and construction traffic.

7.11.36. Embedded species protection measures include appropriate pre-construction inspections, restrictions on vehicle movements outside daylight hours, control of vehicle speeds, provision of escape routes from excavations and checks of excavations before works recommence. These measures will be secured under the oCEMP and would substantially reduce the risk of construction-related disturbance, injury or mortality. Suitable sett-building habitat would largely be retained, and any remaining effects would be highly localised (**Appendix 5A**).

7.11.37. The ecological features are of Local (Site) importance. The magnitude of change is assessed as Negligible and, taking account of the importance of the features and the characteristics of the predicted change, the resulting effect is considered to be **Negligible adverse** (**Not Significant)**.

7.11.38. In accordance with the stepwise approach, impacts on badger would be avoided and minimised through the retention of suitable sett-building habitat where practicable and implementation of precautionary working measures, including pre-construction inspections, controls on vehicle movements and open excavations. Given the absence of identified setts and implementation of these measures, no further mitigation or compensation is considered necessary.

Eurasian Skylark

7.11.39. Arable land within the Site provides suitable breeding habitat for Eurasian skylark. Survey information collected during February and March 2026 identified ten potential breeding territories across the wider Survey Area, four of which were within the Site.

7.11.40. Construction of solar infrastructure in the arable fields will displace breeding skylark from habitat that would otherwise be available to support territories. Unlike the effects identified for boundary habitats and other ecological features, this effect cannot be fully avoided by retaining woodland and hedgerows or through standard oCEMP controls.

7.11.41. The ecological features are of Local importance. The magnitude of change is assessed as High and, taking account of the importance of the features and the characteristics of the predicted change, the resulting effect is considered **Significant**.

7.11.42. Residual effects and appropriate additional mitigation have been discussed further in **Section 7.13** and **Section 7.12**, respectively.

Threatened Arable Plants

7.11.43. Two threatened arable plant species, round-leaved fluellen and sharp-leaved fluellen, were identified within Site and the survey area outside of the site. Records were strongly concentrated within eastern fields outside the Site, although a single round-leaved fluellen plant within the boundary of the south-eastern-most field of the Site.

7.11.44. Where construction coincides with plant locations, potential impacts comprise direct loss of individual plants and changes to the cultivated or disturbed conditions upon which the species depend. In accordance with the stepwise approach, direct impacts on confirmed locations should firstly be avoided through design where practicable.

7.11.45. The Proposed Development layout retains all field boundaries including the location of this important plant species record. The layout is restricted within the arable land areas outside of the likely on Site distribution of this plant species.

7.11.46. The ecological features are of Local (Site) importance. The magnitude of change is assessed as Negligible and, taking account of the importance of the features and the characteristics of the predicted change, the resulting effect is considered to be **Negligible adverse** (**Not Significant)**.

7.11.47. In accordance with the stepwise approach, impacts on threatened arable plants would be avoided through retention of confirmed plant locations and restriction of the Proposed Development to arable areas outside their likely on-Site distribution. As direct effects on the identified plant locations are avoided through the design, no further mitigation or compensation is considered necessary.

Operational Phase

7.11.48. Potential operational ecological effects have been scoped out of detailed assessment because operational activities would principally comprise minor maintenance, inspections, cleaning, repair and replacement of components, water management and vegetation management. Existing hedgerows and field boundaries would remain protected and habitat management would be delivered through the oLEMP.

7.11.49. The principal remaining operational pathway is artificial lighting for security and safety purposes and would be limited and designed and managed to minimise unnecessary illumination of retained ecological features, including habitats used by commuting and foraging bats. Together with retention of hedgerows, woodland and field boundaries, these measures would maintain functional ecological connectivity across the Site.

7.11.50. Given the limited nature of operational activities, retention and management of habitats through the oLEMP, and limited and sensitive approach to operational lighting, no pathways for operational effects requiring detailed ecological assessment have been identified. Operational effects are therefore scoped out from further assessment.

7.11.51. Subject to implementation of these measures, operation of the Proposed Development is not anticipated to adversely affect identified IEFs at their relevant geographical scales. Operational effects are therefore scoped out from further detailed assessment.

Decommissioning Phase

7.11.52. The environmental changes arising during decommissioning are anticipated to be similar in nature to those arising during construction and would principally comprise temporary habitat disturbance, increased noise and visual stimuli, pollution or runoff risk, and potential injury or mortality of protected or notable fauna. The chapter identifies decommissioning effects as equivalent to those associated with construction.

7.11.53. Appropriate environmental controls equivalent in principle to those required during construction would therefore be implemented during decommissioning, adapted as necessary to reflect the ecological baseline, legislation and good-practice requirements applicable at the time.

7.11.54. Subject to implementation of these controls, decommissioning is not anticipated to affect the integrity or conservation status of identified IEFs at their relevant geographical scales and effects are therefore concluded to be **Not Significant**.

7.12. Additional Mitigation Measures

7.12.1. Embedded mitigation measures have been incorporated into the design of the Proposed Development and have been taken into account within the assessment of likely significant effects. Where significant adverse effects remain, additional mitigation measures may be required to avoid or reduce those effects.

7.12.2. Any additional mitigation measures identified through the assessment process are presented in **Table 7.16.**

Table 7.16 - Additional Mitigation Measures

Ref	Additional Mitigation Measures	Purpose	Relevant Phase	Residual Effect
BIO-01	Eight dedicated skylark plots will be created and maintained within suitable retained agricultural land to the east of the Proposed Development. The location and long-term management of these plots will be secured through the oLEMP. See **Appendix 6G: Outline LEMP** for full details	To mitigate for the loss or displacement of suitable skylark breeding habitat and maintain sufficient breeding opportunities such that the conservation status of the population is not adversely affected at the geographical scale at which it is valued.	Construction	Following implementation of sufficient mitigatory habitat, the residual effect is anticipated to be Negligible (Not Significant).

7.13. Residual Effects

7.13.1. Residual effects are the effects that remain following the implementation of all embedded and additional mitigation measures identified within this assessment.

7.13.2. Following implementation of the embedded mitigation measures alone, described in this chapter, no significant residual adverse effects are anticipated for the

- Severn Estuary SAC, SPA and Ramsar site;
- Designated sites of National and County importance;
- Roosting, commuting or foraging bats;
- Hedgehog;
- Widespread reptiles;
- Widespread amphibians;
- Protected and notable invertebrates; or,
- Threatened arable plants.

The embedded measures, including retention and protection of habitats of higher ecological value, pollution prevention, sensitive lighting and species safeguarding measures, are considered sufficient to avoid or reduce effects such that the integrity of designated sites and the conservation status of relevant species populations would not be adversely affected at their respective geographical scales.

Eurasian Skylark

7.13.3. For Eurasian skylark, the Proposed Development is predicted, on a precautionary worst-case basis, to result in the loss or displacement of four breeding territories. Following additional mitigation BIO-01, the magnitude of change reduces to Low, taking account of the importance of the features, the characteristics of the predicted change inclusive of BIO-01, the resulting residual effect is considered is considered to be **Negligible adverse** (**Not Significant)**.

7.13.4. In accordance with the stepwise approach, impacts on breeding skylark have been considered through avoidance and minimisation in the first instance; however, because the species requires open agricultural habitat, displacement from areas occupied by solar infrastructure cannot be fully avoided or mitigated through the retention of boundary habitats.

7.13.5. As a residual loss/displacement of breeding habitat remains, the provision and long-term management of dedicated skylark plots within suitable retained agricultural land will therefore provide compensatory habitat. This measure will contribute towards achieving a NBB by maintaining and enhancing opportunities for breeding skylark and will support ecosystem resilience in accordance with the DECCA framework, particularly through maintaining the extent and condition of suitable breeding habitat and its connectivity within the wider agricultural landscape, while supporting diversity and the capacity of the ecological network to adapt to change. The effectiveness of the measures should be secured through appropriate long-term habitat management and monitoring, with adaptive management implemented where monitoring identifies that the intended ecological outcomes are not being achieved.

7.14. Cumulative Effects

7.14.1. A cumulative effects assessment (CEA) has been undertaken for the Proposed Development which considers the combined impacts with other developments on the same single feature or resource (inter-project effects). The detailed method followed in identifying and assessing potential cumulative effects is set out in **Chapter 2: Approach to the EIA.**

7.14.2. A long list of developments was compiled through a review of planning applications, local development allocations and other committed developments within the Study Area. These developments were screened to identify those with the potential to interact with the Proposed Development and give rise to cumulative effects. The developments taken forward to the detailed CEA are presented in **Table 7.17.**

Table 7.17 - Developments Included within the Cumulative Effects Assessment

Development	Planning Reference	Development Description	Status	Distance from the Site (km)
Larnog Solar Farm - Grid Connection	Not stated	Separate grid connection between the Project Substation and either Penarth Primary Substation or Sully Grid Bulk Supply Point, anticipated to comprise underground electrical cabling predominantly within the public highway corridor and brought forward by NGED under a separate consenting process.	Unknown	Adjacent to the Site
Sully to Cosmeston Active Travel Route	2025/00493/RG3	Shared pedestrian and cycle route, including earthworks, landscaping and associated works between Sully and Cosmeston.	Consented	Adjacent to the Site
Land at Upper Cosmeston Farm, Lavernock Road, Penarth	2020/01170/OUT	Outline residential development including a primary school, community space and public open space, with all matters reserved other than access.	Consented	0.28
Land at Swanbridge Road, Sully - Phase 2	2025/00509/RES	Reserved Matters application for new homes and associated works pursuant to outline permission for residential development of up to 190 units.	Consented	0.62
LDES - Barry Power Station	2025/00807/FUL	Construction and operation of a 50 MW long-duration energy storage facility with associated equipment, access, drainage, infrastructure and engineering works.	Consented	2.3
Leckwith Quay	2020/01218/HYB	Hybrid residential development for up to 228 dwellings, with associated highway and bridge works, including demolition of the existing B4267 Leckwith Road Bridge.	Consented	6.4
Parc Worlton Solar Farm	DNS CAS-02112-T2N0G8	Solar farm with an installed generation capacity of 42 MW and associated infrastructure, including a 132 kV substation.	Consented	6.6

Development	Planning Reference	Development Description	Status	Distance from the Site (km)
Parc Dyffryn Solar Park	DNS/3267575	Solar photovoltaic generating station, battery storage and associated development with an installed generation capacity of approximately 65 MW.	Consented	8.2

7.14.3. The potential for cumulative effects has been considered for the construction and operational phases of the Proposed Development. The assessment takes account of the geographical and temporal overlap between the Proposed Development and other developments included within the cumulative assessment.

7.14.4. Eurasian Skylark is specifically considered within the cumulative assessment, as it has already been identified that the Proposed Development will incur loss or displacement of breeding territories for this species, requiring additional mitigation (beyond embedded measures).

7.14.5. The cumulative assessment considers whether the interaction of effects from multiple developments could result in effects that are greater than those identified for the Proposed Development in isolation. Where no credible pathway for cumulative effects has been identified, this is stated and justified within the assessment.

Larnog Solar Farm – Grid Connection

7.14.6. Details regarding the grid connection is set out in **Chapter 5: Project Description** and **Appendix 2A: Grid Connection Appraisal**. As the grid connection would be brought forward by NGED and would be subject to a separate consenting process from the Proposed Development it is considered a cumulative development within the EIA.

7.14.7. It is assumed that the grid connection works would take place concurrently with the construction phase of the Proposed Development. The route is anticipated to comprise underground cable installation, predominantly within existing highway corridors, thereby avoiding sensitive ecological habitats where practicable. Localised vegetation removal may however be required where the cable routes pass through existing hedgerows from the Project Substation, albeit these would be limited in extent.

7.14.8. Habitats and other ecological features located in close proximity to the indicative cable routes, including hedgerows, trees, grassland, aquatic habitats, as well as TPOs, would require consideration during detailed design and routing, including the application of appropriate stand-off distances, micrositing and standard construction best practice where necessary. Whilst temporary disturbance effects, including noise, dust and pollution risks, may occur during construction, it is anticipated that these would be managed through the implementation of standard good practice measures.

7.14.9. On this basis, likely significant cumulative effects are not predicted.

Sully to Cosmeston Active Travel Route

7.14.10. Planning documents for the consented Sully to Cosmeston Active Travel Route scheme was reviewed, including the Ecological Impact Assessment (EcIA) report. Parts of the scheme are located adjacent to the northern boundary of the Proposed Development and therefore qualitatively, there is potential for significant cumulative effects if both developments are constructed simultaneously.

7.14.11. It is however anticipated that similar to the Proposed Development, the Sully to Cosmeston Active Travel Route scheme would follow best practice guidelines for environmental matters during construction including control of noise, lighting, vibration and INNS, safeguarded through a CEMP. Furthermore, Eurasian skylark are not noted within the scheme's EcIA report as being a consideration.

7.14.12. On this basis, likely significant cumulative effects are not predicted.

Land at Upper Cosmeston Farm, Lavernock Road, Penarth

7.14.13. The consented Land at Upper Cosmeston Farm development is located approximately 0.28 km from the Site and concerns the construction of a residential development, a primary school, community space and public open space.

7.14.14. The scheme's baseline ecology reports, ES Biodiversity chapter and Non-Technical Summary was reviewed. A range of protected/notable species were confirmed to be present within the Site, including one probable Eurasian skylark breeding territory. The corresponding ES chapter concluded that likely significant effects on the relevant IEF's identified, following application of mitigation (which includes implementation of a CEMP and habitat replacement), was not predicted.

7.14.15. On this basis, likely significant cumulative effects are not predicted.

Land at Swanbridge Road, Sully - Phase 2

7.14.16. The consented scheme entails a Reserved Matters application for new homes and associated works pursuant to outline permission for residential development of up to 190 units, located 0.62 km from the Proposed Development.

7.14.17. The scheme's baseline ecology reports were reviewed, which identified the Site as being used by breeding skylark. One breeding territory was confirmed present during surveys in 2017, whilst attempted breeding by at least five skylark pairs were observed during surveys in 2024. The reports identify that these breeding territories would be lost as a result of the scheme, and mitigation measures include the provision of 10 skylark plots within retained land (a ratio of 2:1).

7.14.18. There is potential for cumulative effects in relation to Eurasian skylark to occur, if Land at Swanbridge Road and the Proposed Development are constructed simultaneously, however this is considered unlikely due to the difference in consent dates (Cumulative development consented in 2024). However, with the measures proposed as part of both developments, which entail an overall net benefit in compensatory habitat for skylark, with both developments utilising a ratio of 2:1 for creation of skylark plots, any cumulative effect is anticipated to be Not Significant.

7.14.19. It is also anticipated that similar to the Proposed Development, the Land at Swanbridge Road scheme would follow best practice guidelines for environmental matters during construction including control of noise, lighting, vibration and INNS, safeguarded through a CEMP.

7.14.20. On this basis, likely significant cumulative effects are not predicted.

LDES - Barry Power Station, Leckwith Quay, Parc Worlton Solar Farm and Parc Dyffryn Solar Park

7.14.21. Planning documents for these schemes were reviewed and all four schemes do not anticipate any significant effects on any relevant IEFs following the application of mitigation.

7.14.22. On this basis, likely significant cumulative effects with the Proposed Development are not predicted.

7.15. Monitoring Requirements

7.15.1. Any monitoring requirements identified through the assessment process are summarised in **Table 7.18.**

Table 7.18 - Monitoring Requirements

Ref	Monitoring Requirement	Purpose	Monitoring Period	Responsibility
MON-01	Ecological compliance monitoring during construction, including checks of retained habitats and implementation of ecological measures prescribed within the oCEMP and precautionary	To confirm implementation of embedded mitigation and species safeguarding measures, including protection of retained habitats, pollution controls, excavation safeguards and lighting controls.	During construction, at frequencies appropriate to the works being undertaken.	Suitably qualified ecologist/Ecological Clerk of Works (ECoW), where required.

Ref	Monitoring Requirement	Purpose	Monitoring Period	Responsibility
	methods of working.			
MON-02	Monitoring of habitat creation, enhancement and management measures secured through the oLEMP and NBB proposals, including measures supporting ecological connectivity and pollinators.	To demonstrate successful establishment and management of habitat enhancement measures and delivery of the ecological objectives of the oLEMP.	In accordance with the monitoring programme specified within the final oLEMP.	Suitably qualified ecologist or appointed habitat-management contractor, as specified within the oLEMP.
MON-03	Monitoring of dedicated skylark plots and associated management, where required by the final mitigation strategy.	To establish whether the mitigatory habitat is being created and managed as prescribed and is delivering suitable breeding habitat for skylark. Monitoring should inform remedial/adaptive management where objectives are not being achieved.	In accordance with the monitoring period and frequency established within the final skylark mitigation strategy/oLEMP.	Applicant/suitably qualified ecologist.

7.16. Summary

7.16.1. **Table 7.19** determines the summary of each IEF, how it is likely to be affected, how it will be mitigated for, and what the residual effects and monitoring requirements will include.

Table 7.19 - Summary of significant effects

Feature and Summary of Predicted Effects	Embedded Mitigation	Sensitivity of Feature	Magnitude of Change	Significance of Effect	Additional Mitigation	Residual Effect	Monitoring
Severn Estuary SAC: potential indirect degradation of qualifying habitats and species through sediment-laden runoff or accidental pollution during construction and decommissioning. No direct land-take is proposed.	Surface-water, sediment and pollution controls secured through the oCEMP.	Very High	Negligible	Negligible (Not Significant)	None required	Negligible (Not Significant)	Construction compliance monitoring under MON-01.
Severn Estuary SPA and Ramsar site: potential disturbance or displacement of qualifying birds, degradation of functionally linked habitat and indirect pollution effects. Wintering bird surveys recorded no qualifying species using the Survey Area and the land was not considered Functionally Linked Land.	Construction disturbance, runoff and pollution controls through the oCEMP; protection of retained habitats.	Very High	Negligible	Negligible (Not Significant)	None required	Negligible (Not Significant)	Construction compliance monitoring under MON-01.

Feature and Summary of Predicted Effects	Embedded Mitigation	Sensitivity of Feature	Magnitude of Change	Significance of Effect	Additional Mitigation	Residual Effect	Monitoring
Nationally designated sites, including Penarth Coast, Severn Estuary, Llynnoedd Cosmeston/Cosmeston Lakes, Sully Island and Cog Moors SSSIs: potential indirect degradation through dust, sediment, contaminated runoff or construction disturbance. No direct habitat loss is proposed.	Avoidance through design; pollution, sediment and surface-water controls secured through the oCEMP.	High	Negligible	Negligible (Not Significant)	None required	Negligible (Not Significant)	Construction compliance monitoring under MON-01.
Locally designated sites, including Lavernock Point WTR, Lavernock Point East SINC and Ty-r-Orsaf SINC: potential habitat degradation, dust, sediment transport, water-borne pollution and disturbance.	Retention of woodland, scrub, trees and field boundaries; avoidance through design; construction controls through the oCEMP.	Medium	Negligible	Negligible (Not Significant)	None required	Negligible (Not Significant)	MON-01 construction compliance and MON-02 habitat monitoring.
B-Line and associated pollinator habitat: potential degradation or loss of habitat supporting pollinating insects and reduced	Retention of field boundaries and semi-natural habitats; protection during construction;	Low	Negligible	Negligible (Not Significant)	None beyond committed oLEMP/NBB enhancement	Negligible (Not Significant)	MON-02 habitat establishment and management monitoring.

Feature and Summary of Predicted Effects	Embedded Mitigation	Sensitivity of Feature	Magnitude of Change	Significance of Effect	Additional Mitigation	Residual Effect	Monitoring
ecological connectivity.	enhancement with plant species of value to pollinators through the oLEMP/NBB proposals.						
Section 7 Priority Habitats, including semi-natural woodland and native hedgerows: potential direct loss through limited widening of existing gaps to facilitate access. The Proposed Development principally affects arable land, with higher-value habitats retained as far as practicable.	Avoidance through design; retention and protection of woodland, scrub, trees and hedgerows; use of existing field accesses; access widening limited to the minimum necessary.	Medium	Low adverse	Minor Adverse (Not Significant)	None required beyond the oLEMP/NBB commitments	Minor Adverse (Not Significant)	MON-01 construction compliance and MON-02 habitat condition and establishment monitoring.
Roosting bats: potential disturbance or damage to PRFs and disturbance from artificial lighting. Close inspections recorded no bats or evidence of bat use, although PRF-	Retention of woodland, trees and PRFs; lighting controls; pre-construction inspections where required; normal working-hour restrictions.	Low	Negligible adverse	Negligible (Not Significant)	None required under the current design. The status of identified PRFs will be reviewed	Negligible (Not Significant)	MON-01 construction compliance; pre-construction inspection where required.

Feature and Summary of Predicted Effects	Embedded Mitigation	Sensitivity of Feature	Magnitude of Change	Significance of Effect	Additional Mitigation	Residual Effect	Monitoring
M and PRF-I trees remain present.					prior to construction through the PMW. Should the status of any PRF change, the requirement for further assessment, mitigation and, where applicable, licensing will be reviewed accordingly.		
Dormouse: indirect effects from construction on habitats suitable for Dormouse	Retention of hedgerows, woodland, tree lines and field boundaries; use of existing accesses; minimisation of access widening; wildlife-sensitive construction and operational lighting.	Medium	Negligible	Negligible (Not Significant)	None	Negligible (Not Significant)	MON-01 construction compliance
Commuting and foraging bats:	Retention of hedgerows,	Low	Low adverse	Negligible (Not Significant)	None required,	Negligible (Not Significant)	MON-01 construction

Feature and Summary of Predicted Effects	Embedded Mitigation	Sensitivity of Feature	Magnitude of Change	Significance of Effect	Additional Mitigation	Residual Effect	Monitoring
potential fragmentation of flight lines, localised loss of foraging habitat and disturbance from lighting. The Site has moderate suitability and preliminary results indicate moderate bat activity.	woodland, tree lines and field boundaries; use of existing accesses; minimisation of access widening; wildlife-sensitive construction and operational lighting.				subject to review against the final Bat Activity Report		compliance and MON-02 monitoring of retained and enhanced habitats.
Badger: potential mortality, injury, entrapment or temporary displacement during vegetation clearance, excavation and vehicle movements.	Pre-construction checks of suitable habitat; restrictions on vehicle movements outside daylight hours; control of vehicle speeds; covering excavations or provision of suitable escape routes; and checks of open excavations before works recommence.	Low	Negligible	Negligible (Not Significant)	None required beyond embedded mitigation.	Negligible (Not Significant)	No species-specific monitoring required.

Feature and Summary of Predicted Effects	Embedded Mitigation	Sensitivity of Feature	Magnitude of Change	Significance of Effect	Additional Mitigation	Residual Effect	Monitoring
Threatened arable plants, comprising round-leaved fluellen and sharp-leaved fluellen: potential loss of individuals and alteration of cultivated or disturbed habitat. Most records occur outside the Site, but the relationship between one round-leaved fluellen record, the final boundary and development footprint requires confirmation.	Avoidance of suitable marginal habitats around arable fields.	Low	Negligible	Negligible (Not Significant)	None required	Negligible (Not Significant)	MON-01 construction compliance
Skylark: four breeding territories will be lost following installation of solar infrastructure within arable fields. Ten potential territories were identified across the wider Survey Area. Embedded measures do not avoid the change to arable breeding habitat.	Embedded mitigation measures can reduce the effects of habitat displacement but cannot avoid them. Although retained boundary habitats provide some supporting habitat, they do not mitigate the	Low	High	Likely Significant prior to additional mitigation	BIO-01: Eight dedicated skylark plots will be created and maintained within suitable retained agricultural land to the east of the Proposed Development.	Negligible (Not Significant)	MON-03 skylark mitigation monitoring, as defined by the final mitigation strategy/oLEMP.

Feature and Summary of Predicted Effects	Embedded Mitigation	Sensitivity of Feature	Magnitude of Change	Significance of Effect	Additional Mitigation	Residual Effect	Monitoring
	loss of open-field breeding habitat.						

7.17. Further Work to be Undertaken

7.17.1. The final assessment of potentially significant effects will be reported in the final ES. No further survey or data collection is anticipated to be required to inform the final assessment.