



Llandyfaelog Substation Shadow Habitat Regulations Assessment Report



On behalf of **National Grid**
nationalgrid



Shadow Habitat Regulations Assessment Report

Llandyfaelog

October 2025

Prepared for:
National Grid Electricity Transmission

Prepared by:
Stantec UK Limited

Project Number:
331201429

Shadow Habitat Regulations Assessment Report

Revision	Description	Date	Author	Quality Check	Independent Review
V1	First Issue	October 2025	HM	HE	HE



Shadow Habitat Regulations Assessment Report

The conclusions in the Report titled **Shadow Habitat Regulations Assessment Report** Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk. This report is considered valid for a period of 18 months. Should works not commence within this timeframe, an update survey and assessment may be required to provide the most up to date assessment of the Site habitats and its potential to support protected and notable species.

Stantec has assumed all information received from National Grid Electricity Transmission (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided by the Client to applicable authorities having jurisdiction and to other third parties in connection with the project, Stantec disclaims any legal duty based upon warranty, reliance or any other theory to any third party, and will not be liable to such third party for any damages or losses of any kind that may result.

Prepared by:

Signature
Hannah Mitchell

Printed Name

Reviewed by:

Signature
Helen Evriviades

Printed Name

Approved by:

Signature
Helen Evriviades

Printed Name



Contents

Executive Summary	1
1 Introduction	2
1.1 Overview	2
1.2 Site Location and Project Description	2
1.3 Requirement for Habitats Regulations Assessment	2
2 Methods	4
2.1 Overview	4
2.2 HRA Stages	4
2.3 Assessment Approach	5
3 Screening: European Site Consideration	7
3.1 Consideration of European Sites for Inclusion	7
3.2 Summary of European Sites.....	7
3.3 Conservation Objectives, Factors Affecting Site Integrity and Conservation Status	8
4 Screening for Likely Significant Effects	10
4.1 Overview	10
4.2 Identification of potential pressures or threats and consideration of impact pathways	10
5 Appropriate Assessment	14
5.1 Overview	14
5.2 Assessment.....	14
6 Conclusion	16
7 Figures	17

Figures

Figure 1 Site Location Plan	17
Figure 2 European Designated Sites	18

Tables

Table 3-1 Summary of European Sites	7
Table 3-2: Conservation Objectives, Factors Affecting Site Integrity ('threats and pressures') and Conservation Status of European Sites	8
Table 4-1: Rationale for Likely Significant Effect from Impact Arising from the Project	11



Executive Summary

Stantec UK Limited was commissioned by National Grid Electricity Transmission to produce a shadow Habitat Regulations Assessment (sHRA) to support a planning application for the proposed construction of a new substation and associated infrastructure at Llandyfaelog, Carmarthenshire. The project involves the construction of a substation, access road from the A484, modification works to the existing 400kV Overhead Line (OHL) to connect the substation to the existing OHL and associated drainage, and hard and soft landscaping. (hereafter referred to as the 'Project').

The sHRA identified four European sites within approximately 10 km of the centre of the Project site:

- Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd Special Area of Conservation (SAC);
- Afon Tywi / River Tywi SAC;
- Carmarthen Bay Dunes / Twyni Bae Caerfyrddin SAC; and,
- Bae Caerfyrddin / Carmarthen Bay Special Protection Area (SPA).

The screening of likely significant effects within this sHRA found an absence of impact pathways and/or effects on Carmarthen Bay Dunes / Twyni Bae Caerfyrddin SAC and Bae Caerfyrddin / Carmarthen Bay SPA in association with their identified threats and pressures. As such, no likely significant effects on the integrity of the qualifying features of these European sites are anticipated during construction or operation of the Project, either alone or in combination with other plans or projects.

Likely significant effects on the qualifying features of the Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd SAC and the Afon Tywi / River Tywi SAC, resulting from pollution via surface run-off during the construction and operational phases of the Project, could not be ruled out. Therefore, further appropriate assessment was undertaken to determine whether this pressure could lead to an adverse effect on the integrity of these European sites.

Subject to the implementation of the proposed mitigation measures, specifically, the pollution prevention strategies outlined in the Construction Environmental Management Plan and the Sustainable Drainage System Strategy, the Project is not anticipated to result in pollution-related effects on the Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd SAC or the Afon Tywi / River Tywi SAC, either alone or in combination with other plans or projects. Consequently, this sHRA and appropriate assessment has concluded that there would be no significant adverse effects on the integrity of these European sites as a result of pollution via surface run-off.

This sHRA can be used to inform Carmarthenshire County Council in their undertaking of their own HRA (as competent authority). It is however recommended that the competent authority should consult with Natural Resources Wales in relation to the conclusions of their sHRA screening and appropriate assessment.

Disclaimer

This Executive Summary contains an overview of the key findings and conclusions. However, no reliance should be placed on any part of the executive summary until the whole of the report has been read.



1 Introduction

1.1 Overview

- 1.1.1 Stantec UK Limited (Stantec) was commissioned by National Grid Electricity Transmission (NGET) to produce a shadow Habitats Regulations Assessment (sHRA) to support a planning application for the proposed construction of a new substation and associated infrastructure at Llandyfaelog, Carmarthenshire; hereafter referred to as 'the Project'

1.2 Site Location and Project Description

- 1.2.1 The Project is comprised of the following principal elements:
- Construction of a single level platform (260 metres (m) by 640 m) on which an Air Insulated Substation (AIS) is sited measuring 155 m by 602 m.
 - Bellmouth access to the A484 with an operational access road to connect the platform to the A484.
 - Modification works to the existing 400kV Overhead Line (OHL) to connect the substation to the existing OHL involving the installation of two new towers (pylons) and one replacement tower (pylon) circa 18 m and 62 m.
 - Associated drainage, and hard and soft landscaping.
- 1.2.2 The Project site boundary (hereafter referred to as "the Site") comprises agricultural grassland fields bound by hedgerows with an area of ancient woodland to the south of the Site.
- 1.2.3 The Project site boundary is shown in **Figure 1** and encompasses the area required for delivery of the Project, including the area beyond the proposed built development footprint which is proposed for habitat creation and management for the purposes of achieving a net benefit for biodiversity through the Project.
- 1.2.4 This sHRA addresses the consideration of the direct and indirect ecological effects associated with the Project on European sites (defined below).

1.3 Requirement for Habitats Regulations Assessment

- 1.2.1. Under the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations)¹, a HRA is required for all plans and projects which may have 'likely significant effects' on European sites and are not directly connected with or necessary to the management of the European site. These include:
- Special Areas of Conservation (SACs) designated under European Council Directive 92/43/EEC(a) on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive); and,
 - Special Protection Areas (SPAs) designated under the European Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive).

¹ The Conservation of Habitats and Species Regulations. (2017). The Conservation of Habitats and Species Regulations 2017 (as amended). UK Statutory Instruments. [Online] Available at: <https://www.legislation.gov.uk/ukSI/2017/1012/contents>



- 1.2.2. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019² introduced a number of changes to the 2017 Regulations following Brexit. Most of these changes involved transferring functions from the European Commission to the appropriate authorities in England and Wales. The 2019 changes included the creation of a “National Site Network” within the UK territory comprising those sites formerly included in the Natura 2000 network. The National Site Network includes existing SACs and SPAs; these sites are referred to as “European sites” in government guidance.
- 1.2.3. In accordance with Paragraphs 6.4.29 and 6.4.30 of Planning Policy Wales³, potential SPAs and possible SACs, listed or proposed Ramsar, are provided the same protection as SACs and SPAs, and are therefore also considered in this report accordingly, where appropriate. Together, these are all hereafter referred to as 'European sites'.
- 1.2.4. Regulation 63 of the Habitats Regulations requires a competent authority to make an ‘appropriate assessment’ of the implications of the plan or project for that site in view of its conservation objectives, before deciding to undertake or give consent for a plan or project which (a) is likely to have a significant effect on a European site (either alone or in-combination with other plans or project), and (b) is not directly connected with or necessary to the management of that site. In light of the conclusions of the assessment, the ‘competent authority’ may proceed with or consent to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site. Carmarthenshire County Council are in this instance the ‘competent authority’ under the responsibilities of the 2019 Regulations for the planning application. This Shadow Habitats Regulations Assessment is written with the purpose of Carmarthenshire County Council being able to adopt this report as their own Habitats Regulations Assessment, to fulfil their responsibilities as ‘competent authority’.

² The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations. (2019). The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. UK Statutory Instruments. [Online] Available at: <https://www.legislation.gov.uk/ukdsi/2019/9780111179512/contents/data.html>

³Welsh Government. (2024). Planning Policy Wales, Edition 12, February 2024 [Online] Available at: <https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf>



2 Methods

2.1 Overview

- 2.1.1. This document has been prepared based on the methodology for HRA set out in 'The HRA Handbook'⁴. The HRA Handbook provides a regularly updated source of guidance on the understanding and interpretation of the Habitats Regulations and consistency in applying the requirements of the legislation. It is considered that this is the best practice methodology currently available for HRA. The HRA Handbook sets out a four-stage approach to HRA (as illustrated in **Plate 2.1** below) and emphasises the iterative nature of the process.

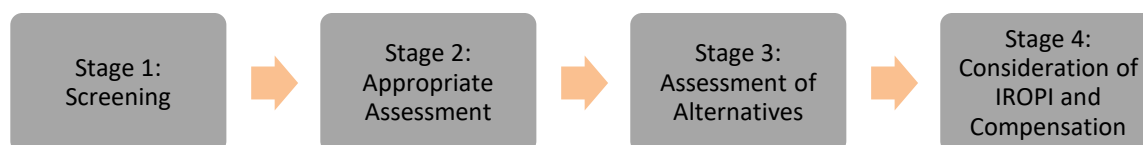


Plate 2-1: Process of HRA

2.2 HRA Stages

Stage 1: Screening

- 2.2.1. The screening stage involves the determination of the European sites which could potentially be affected by the project and their determining interests; and whether the development could result in a 'likely significant effect', either alone or in-combination with other plans and projects.
- 2.2.2. HRA case law (the 'Dilly Lane' case, 2008) determined that mitigation measures that were 'incorporated into the project' or which 'formed part of the project' could be taken into account at the screening 'likely significant effect' test stage of HRA (as long as they were effective). The ruling judge accepted that certain facets of a project, which are intended to avoid or reduce negative impacts on a European site (i.e. mitigation), can still be regarded as 'incorporated into the project' if they are promoted that way by the developer.
- 2.2.3. However, a court ruling (Coillte vs People Over Wind⁵) concluded that mitigation measures intended to avoid or reduce impacts on a European site could not be regarded as part of 'the project' and thus should not be taken into account at the screening stage of HRA when judging whether 'likely significant effects' on the integrity of a European site could occur.
- 2.2.4. In the light of the most recent ruling, it is now generally accepted that any measures inherently part of the scheme design which are not specifically incorporated into the scheme for ecological reasons, but nonetheless reduce ecological effects, can be considered at the screening stage. Measures which have been specifically added to the project for the purpose of avoiding or reducing its harmful effects on a European site (described as 'mitigation' in this report) should not be considered at the screening stage and an appropriate assessment is

⁴ Tyldesley, D. and Chapman, C. (2013) The Habitats Regulations Assessment Handbook. Nov 2024 edition. UK, DTA Publications Ltd <https://www.dtapublications.co.uk/>

⁵ People over Wind, Case C323/17 European Court of Justice, 12th April 2018.

required. This approach is supported by articles in the Habitats Regulations Assessment Journal⁶.

- 2.2.5. In the event that likely significant effects are identified at the screening stage, on the basis of objective information and in the absence of mitigation / avoidance measures, the competent authority should proceed to the next stage of assessment (stage 2: appropriate assessment).

Stage 2: Appropriate Assessment

- 2.2.6. The appropriate assessment stage is an assessment of whether the potential likely significant effects identified through screening would result in an adverse effect on the integrity of the qualifying features of the European site concerned. At this stage, the consideration of mitigation measures to address the likely significant effects is undertaken. The precautionary principle should be applied, with the focus being on objectively demonstrating, with supporting evidence, that there will be no adverse effects on the integrity of the qualifying features of the European site. Where this is not possible, adverse effects must be assumed.
- 2.2.7. Only where the competent authority considers that the project will not adversely affect the integrity of the European site and/ or appropriate mitigation measures can be put in place, can planning permission be granted.
- 2.2.8. Where it is not possible to identify appropriate mitigation measures to address the identified effects, or uncertainty remains, consideration of stage 3 (assessment of alternatives) and stage 4 (consideration of 'imperative reasons of overriding public interest' (IROPI)) is required.

Stage 3: Assessment of Alternatives

- 2.2.9. The assessment of alternatives stage should identify and assess alternatives to the project that have been considered. Alternative solutions could include, for example, a project of a different scale, a different location, and an option of not having the project at all (the 'do nothing' approach).

Stage 4: Consideration of IROPI and Compensatory Measures

- 2.2.10. Where it can be demonstrated that there are no alternative solutions to the project, that would have a lesser effect or avoid an adverse effect on the integrity of the European site, the project may still be carried out if the competent authority is satisfied that the scheme must be carried out for Imperative Reasons of Overriding Public Interest (IROPI). If adverse effects on the European site cannot be mitigated for, compensatory measures must be confirmed, in addition to confirmation of IROPI.

2.3 Assessment Approach

- 2.3.1. Given the above methodology, **Sections 3 and 4** follow the staged process outlined for HRA screening. Firstly, European sites are identified (along with their 'qualifying features,' 'conservation objectives' and 'factors affecting site integrity'), following which a screening assessment is provided which considers whether the development could result in a 'likely significant effect', either alone or in-combination with other plans and projects.

⁶ Tyldesley, D. and Chapman, C. (various dates) The Habitats Regulations Assessment Journal, DTA Publications Ltd <https://www.dtapublications.co.uk/>



- 2.3.2. The approach for the in-combination assessment is such that where no impact pathways are identified and/ or there is no appreciable effect resulting from the project, then there is no mechanism by which perceivable in-combination effects with other projects or plans could occur.
- 2.3.3. Where impact pathways or appreciable effects are identified, the potential for likely significant effects in-combination with other plans and projects is considered. Conclusions are then drawn as to whether likely significant effects are anticipated.
- 2.3.4. Where likely significant effects cannot be ruled out, further assessment (stage 2: appropriate assessment) to determine whether there would be an adverse effect on the integrity of the European site concerned, is undertaken (**Section 5**).

3 Screening: European Site Consideration

3.1 Consideration of European Sites for Inclusion

3.1.1 There is no clear guidance on which European sites should be taken into consideration in the HRA for a plan or project⁷. Where a site is located within the catchment of a European site designated on account of the aquatic habitats it supports, an increased 'Zone of Influence' (Zol) may be required to account for hydrological connectivity at a catchment scale. Where a European site includes mobile species as qualifying features, it is necessary to consider potential likely significant effects that could occur in areas used by these species outside the boundary of the European site. As such, areas of land outside a European site, which contribute to the status of its qualifying features and conservation objectives, may also require consideration. Furthermore, the potential for distant effects of a project to have an "in-combination" effect with other plans and project on the qualifying features of a European site should also be considered.

3.1.2 For the purpose of this HRA, a Zol of 10 km from the Project site boundary has been used.

3.2 Summary of European Sites

3.2.1 The European sites, located within approximately 10 km of the centre of the Project site are provided in Table 3-1 including their distance from the Project site, qualifying features. The European site locations are shown in **Figure 2**.

Table 3-1 Summary of European Sites

European Site	Location from the Project site	Qualifying Features
Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC	Located 1.4 km west of the Project site, ecologically connected via ditches and watercourses	Annex I habitats that are a primary reason for site selection: • 1110 Sandbanks which are slightly covered by sea water all the time • 1130 Estuaries • 1140 Mudflats and sandflats not covered by seawater at low tide • 1160 Large shallow inlets and bays • 1310 <i>Salicornia</i> and other annuals colonizing mud and sand • 1330 Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>) Annex II species that are a primary reason for site selection: • 1103 Twaite shad <i>Alosa fallax</i> Annex II species present as a qualifying feature: • 1095 Sea lamprey <i>Petromyzon marinus</i> • 1099 River lamprey <i>Lampetra fluviatilis</i> • 1102 Allis shad <i>Alosa alosa</i> • 1355 Otter <i>Lutra lutra</i>
Afon Tywi / River Tywi SAC	Located 4.3 km north of the Project site, located upstream of hydrological connections to the Project site.	Annex II species that are a primary reason for site selection: • 1103 Twaite shad • 1355 Otter Annex II species present as a qualifying feature: • 1095 Sea lamprey • 1096 Brook lamprey <i>Lampetra planeri</i> • 1099 River lamprey • 1102 Allis shad • 1163 Bullhead <i>Cottus gobio</i>

⁷ The 'Zone of Influence' in the context of HRA refers to the area around a designated European site where development activities have the potential to result in a significant impact.

European Site	Location from the Project site	Qualifying Features
Carmarthen Bay Dunes / Twyni Bae Caerfyrddin SAC	Located 8.6 km south west of the Project site.	Annex I habitats that are a primary reason for site selection: • 2110 Embryonic shifting dunes • 2120 "Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")" • 2130 "Fixed coastal dunes with herbaceous vegetation ("grey dunes")" * Priority feature • 2170 Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) • 2190 Humid dune slacks Annex II species that are a primary reason for site selection: • 1014 Narrow-mouthed whorl snail <i>Vertigo angustior</i> • 1395 Petalwort <i>Petalophyllum ralfsii</i> • 1903 Fen orchid <i>Liparis loeselii</i>
Bae Caerfyrddin / Carmarthen Bay SPA	Located 9.7 km south west of the Project site.	Designated for overwintering common scoter <i>Melanitta nigra</i>

3.3 Conservation Objectives, Factors Affecting Site Integrity and Conservation Status

3.3.1 A summary of the relevant conservation objectives for each of the identified European sites, along with a summary of factors affecting their integrity ('threats and pressures') and associated conservation status of the qualifying features, as described in the report for Advice provided by Natural Resources Wales are provided in **Table 3-2**.

Table 3-2: Conservation Objectives, Factors Affecting Site Integrity ('threats and pressures') and Conservation Status of European Sites

European Site	Relevant Conservation Objectives ⁸	Threats and Pressures ⁹	Conservation Status ¹⁰
Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC	The overall distribution and extent of the qualifying habitats within the SAC and each of its main component habitats are stable or increasing, subject to natural change. The hydro-morphological and chemical elements necessary for the structure and function of the qualifying habitats are stable or improving, subject to natural change. The abundance, distribution and diversity of species within component habitats and communities necessary for the structure and function of the qualifying habitats are stable or improving, subject to natural variability. The qualifying species populations that use the SAC are restored to favourable condition and are stable or increasing in the long-term.	• Invasive non-native species • Pollution to surface waters (limnic & terrestrial, marine & brackish) • Hunting, fishing or collecting activities • Air pollution, air-borne pollutants • Changes in abiotic conditions • Marine water pollution • Human induced changes in	• Sandbanks which are slightly covered by seawater all the time - Favourable • Estuaries – Unfavourable • Mudflats and sandflats not covered by seawater at low tide - Unfavourable • Large shallow inlets and bays - Unfavourable • Salicornia and other annuals colonizing mud and sand – Favourable • Atlantic salt meadows – Unfavourable • Twaite shad – Unfavourable • Sea lamprey – Favourable

⁸ From the report for Advice provided by Natural Resources Wales in fulfilment of Regulation 37(3) of the Conservation of Habitats and Species Regulations 2017 or Core Management Plan

⁹ From Natura 2000 Standard Data Form

¹⁰ From the report for Condition Assessments for the Designated Features, report for Advice provided by Natural Resources Wales in fulfilment of Regulation 37(3) of the Conservation of Habitats and Species Regulations 2017 or Core Management Plan

Shadow Habitat Regulations Assessment Report

European Site	Relevant Conservation Objectives ⁸	Threats and Pressures ⁹	Conservation Status ¹⁰
	The qualifying species populations that use the SAC continue to have unimpeded access to the habitats necessary to complete their life cycle. The quality of habitat and abundance of food supply is sufficient to restore the populations of qualifying species that use the SAC to favourable condition.	hydraulic conditions Outdoor sports and leisure activities, recreational activities	- River lamprey - Favourable - Allis shad – Unfavourable - Otter - Unfavourable
Afon Tywi / River Tywi SAC	The qualifying species populations that use the SAC are restored to favourable condition and are stable or increasing in the long-term. The qualifying species populations that use the SAC continue to have unimpeded access to the habitats necessary to complete their life cycle. The quality of habitat and abundance of food supply is sufficient to restore the populations of qualifying species that use the SAC to favourable condition.	- Pollution to surface waters (limnic & terrestrial, marine & brackish) - Human induced changes in hydraulic conditions - Changes in abiotic conditions	- Twaite shad and allis shad – Unfavourable - Otter - Favourable - Sea lamprey - Unfavourable - Brook lamprey and river lamprey - Unfavourable - Bullhead – Unfavourable.
Carmarthen Bay Dunes / Twyni Bae Caerfyrddin SAC	The overall aim is to see the natural coastal and dune forming processes that determine the dynamics and proportions of habitats around Carmarthen Bay continue, but to maintain the existing habitats where possible by management of factors within human control. Maintain or increase range of plant communities, with a high proportion of sparsely vegetated and open dune slacks or wet hollows. Maintain range of qualifying species within their habitats. Manage site to promote the natural diversity of the sand dune, including scrub control.	- Biocenotic evolution, succession - Abiotic (slow) natural processes - Invasive non-native species - Changes in abiotic conditions - Other ecosystem modifications - Human induced changes in hydraulic conditions - Air pollution, air-borne pollutants	- Embryonic shifting dunes - Favourable "Shifting dunes along the shoreline with Ammophila arenaria" - Favourable "Fixed coastal dunes with herbaceous vegetation" – Unfavourable declining - Dunes with Salix repens ssp. argentea and humid dune slacks – Unfavourable declining - Narrow-mouthed whorl snail – Unfavourable declining - Petalwort – Unfavourable declining - Fen orchid – Unfavourable declining
Bae Caerfyrddin / Carmarthen Bay SPA	The wintering population of common scoter is stable or increasing relative to the SPA target population. The wintering common scoter using the SPA continue to have access to, and can utilise, habitats necessary to maintain the population in favourable condition. The quality of habitat and abundance of food supply is sufficient to maintain the population of wintering common scoter that use the SPA in favourable condition.	- Air pollution, air-borne pollutants - Disturbance	Common scoter - Favourable



4 Screening for Likely Significant Effects

4.1 Overview

- 4.1.1 As identified within **Section 2.3**, the assessment approach taken in this report following the identification of the European sites within the ZOI of the Project, is to provide detail with respect to the potential for likely significant effects on European sites arising as a result of the Project alone, or in-combination with other projects or plans.

4.2 Identification of potential pressures or threats and consideration of impact pathways

- 4.2.1 As summarised in **Section 3**, the Natura 2000 Standard Data Forms and Site Improvement Plan have identified a number of vulnerabilities / threats relevant to each of the European sites which have potential to result in a likely significant effect. Consideration is given as to whether there are any conceivable impact pathways by which the Project could lead to likely significant effects, either alone or in combination with other plans and projects. The potential threats and pressures identified for each European site are summarised in **Table 4-1**.
- 4.2.2 Whilst the majority of the threats / pressures are not relevant to the Project (i.e., they are works or activities associated with the European site itself or relate to works or activities that are not relevant to the Project, consideration of those activities that could reasonably be attributed to the Project are made in **Table 4-1** for completeness.
- 4.2.3 The Project will be considered 'likely' to have an effect if, on the basis of objective information, it is clear that a significant effect could be caused, or could conceivably be caused, or if there is any uncertainty that the Project could have significant effects on any European site, either alone or in combination with other plans or projects. If, when considering each threat/pressure and potential impact pathways, a likely significant effect cannot be ruled out, as indicated by "Yes" in **Table 4-1**, that threat or pressure on that European site is considered further in the assessment. Those pressures/threats for where it is considered there is no conceivable potential impact pathway or effect from the Project are indicated by a "No". and do not need to be considered further.
- 4.2.4 An effect will be considered 'significant' if the site's conservation objectives could be undermined.
- 4.2.5 In assessing whether significant effects are likely, consideration has been given to the:
- extent and nature of the Project proposals, as summarised at **Section 1.2**;
 - primary/ embedded design measures;
 - likely effects during both construction and operation, based on the Project description and discussions with Stantec engineers and Allun Griffiths;
 - distance of the European sites from the Project site and the nature of any connectivity or impact pathways; and
 - existing technical information about the European sites and the species they support.

Shadow Habitat Regulations Assessment Report

Table 4-1: Rationale for Likely Significant Effect from Impact Arising from the Project

European Site	Threat/ Pressure	Rationale for a Likely Significant Effect Arising from the Project	Likelihood of an Effect
Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC	Invasive non-native species	No known invasive species are known within the Project site. Japanese rose <i>Rosa rugosa</i> is located within proximity to the Project site. In the unlikely event that invasive species are identified on the Project site during construction then standard biosecurity measures will be followed during construction to prevent their spread.	No
	Pollution to surface waters (limnic & terrestrial, marine & brackish)	The Project is hydrologically linked to the SAC via ditches and watercourses to the SAC, as such, without mitigation there is a potential for pollution via surface water run-off to reach the SAC.	Potential
	Hunting, fishing or collecting activities	The Project will not involve hunting, fishing or collecting activities.	No
	Air pollution, air-borne pollutants	The Project will result in a <i>de minimus</i> change in journeys, which will not reach the 1000AADT threshold on roads within 200 m of the protected habitats. The air quality assessment¹¹ identified that construction activities have the potential to create dust impacts within 250 m of the Project site and recommended that in accordance with the Institute of Air Quality Management (IAQM) guidance¹² a package of mitigation measures is put in place to minimise the risk of elevated PM10 concentrations and dust soiling in the surrounding area. Although as the SAC is located over 250 m from the Project site no impacts from dust deposition is anticipated. Subsequently it has been assessed that the Project will not result in air quality impacts on the SAC alone or in combination with other projects or plans.	No
	Changes in abiotic conditions	The Project does not involve proposals which would result in a direct or indirect changes to the abiotic conditions of the SAC.	No
	Marine water pollution	The Project will not involve works within the marine environment.	No
	Human induced changes in hydraulic conditions	The Project will not result in hydrological changes to the SAC due to the design of the measures integrated within the design to manage surface water run-off from the Proposed Development to meet local Sustainable Drainage System (SuDS) Approval Body (SAB) requirement ¹³ . As such measures are an integrated part of the design for reasons of meeting local surface water management requirements of the SAB, this is not considered mitigation with respect to the consideration in this sHRA. As such, the Project will not result in hydrological changes to the SAC alone or in combination with other projects or plans, as it will not result in	No

¹¹ Stantec (2024) South Wales Substation, Air Quality Assessment.

¹² Institute of Air Quality Management (2024). Assessment of Dust from Demolition and Construction v2. IAQM, London

¹³ Stantec (2025) Llandyfaelog 400kV Substation – SuDS Strategy



Shadow Habitat Regulations Assessment Report

European Site	Threat/ Pressure	Rationale for a Likely Significant Effect Arising from the Project	Likelihood of an Effect
		significant decreases or increases to the water flows/ totals in the relevant catchments.	
	Outdoor sports and leisure activities, recreational activities	The Project will not result in any changes to public access or recreational pressures.	No
Afon Tywi / River Tywi SAC	Pollution to surface waters (limnic & terrestrial, marine & brackish)	The Project is hydrologically linked to the SAC via ditches and watercourses, although the Project site is located downstream there is a possibility that without mitigation pollution via surface water run-off may impact migratory species associated with the SAC.	Potential
	Human induced changes in hydraulic conditions	As the Project site is located downstream of the SAC, no changes in hydraulic conditions within the SAC as a result of the Project are considered likely.	No
	Changes in abiotic conditions	The Project does not involve proposals which would result in a direct or indirect changes to the abiotic conditions of the SAC.	No
Carmarthen Bay Dunes / Twyni Bae Caerfyrddin SAC	Biocenotic evolution, succession and abiotic (slow) natural processes	As the Project site is inland, it is not anticipated to influence coastal processes, and no interrelationships are expected between the Project site and the SAC.	No
	Invasive non-native species	No known invasive species are known within the Project site. Japanese rose <i>Rosa rugosa</i> is located within proximity to the Project site. In the unlikely event that invasive species are identified on the Project site during construction then standard biosecurity measures will be followed during construction to prevent their spread.	No
	Changes in abiotic conditions	The Project does not involve proposals which would result in a direct or indirect changes to the abiotic conditions of the SAC.	No
	Other ecosystem modifications	The Project does not involve proposals which would result in other ecosystem modifications of the SAC.	No
	Human induced changes in hydraulic conditions	The Project will not result in hydrological changes to the SAC due to the design of the measures integrated within the design to manage surface water run-off from the Proposed Development to meet local SAB requirement ¹⁴ . As such measures are an integrated part of the design for reasons of meeting local surface water management requirements of the SAB, this is not considered mitigation with respect to the consideration in this SHRA. As such, the Project will not result in hydrological changes to the SAC alone or in combination with other projects or plans, as it will not result in significant decreases or increases to the water flows/ totals in the relevant catchments.	No

¹⁴ Stantec (2025) Llandyfaelog 400kV Substation – SuDS Strategy



Shadow Habitat Regulations Assessment Report

European Site	Threat/ Pressure	Rationale for a Likely Significant Effect Arising from the Project	Likelihood of an Effect
	Air pollution, air-borne pollutants	The Project will result in a <i>de minimus</i> change in journeys, which will not reach the 1000AADT threshold on roads within 200 m of the protected habitats. The air quality assessment¹⁵ identified that construction activities have the potential to create dust impacts within 250 m of the Project site and recommended that in accordance with the Institute of Air Quality Management (IAQM) guidance¹⁶ a package of mitigation measures is put in place to minimise the risk of elevated PM10 concentrations and dust soiling in the surrounding area. Although as the SAC is located over 250 m from the Project site no impacts from dust deposition is anticipated. Subsequently it has been assessed that the Project will not result in air quality impacts on the SAC alone or in combination with other projects or plans.	No
Bae Caerfyrddin/ Carmarthen Bay SPA	Air pollution, air-borne pollutants	As above.	No
	Disturbance	The Project is located over 9.7 km from the SPA will not result in any changes to public access or recreational pressures.	No

¹⁵ Stantec (2024) South Wales Substation, Air Quality Assessment.

¹⁶ Institute of Air Quality Management (2024). Assessment of Dust from Demolition and Construction v2. IAQM, London



5 Appropriate Assessment

5.1 Overview

- 5.1.1 The screening stage of this sHRA (**Section 4**) found that likely significant effects on the qualifying features of Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC and Afon Tywi / River Tywi SAC could not be discounted during construction and operation, based on the absence of mitigation, as a result of pollution to surface waters either alone or in combination with other plans and projects. Accordingly, stage 2 of the HRA process (appropriate assessment) is required in relation to this threat.
- 5.1.2 No other European sites are considered to be impacted, and no other critical pathways have been identified.
- 5.1.3 The appropriate assessment outlined below considers whether there will be an adverse effect on the integrity of the Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC and/ or Afon Tywi / River Tywi SAC as a result of pollution to surface waters during the construction and operation phases of the Project. Where necessary, and accordance with case law, as identified within **Section 2**, the appropriate assessment will include consideration of measures put in place to mitigate what could otherwise lead to an adverse effect on the integrity of a European sites, including consideration of strategic mitigation.

5.2 Assessment

- 5.2.1 The Project site is hydrologically connected to the Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC and the Afon Tywi / River Tywi SAC via the A484's drainage ditches and watercourses. Although the Afon Tywi / River Tywi SAC is located upstream of the Project site there is the potential that pollution and siltation from the Project site via run-off to the River Tywi may impact migratory fish species and otter that form qualifying features of the SAC.
- 5.2.2 The Carmarthen Bay and Estuaries/Bae Caerfyrddin ac Aberoedd European Marine Site Advice provided by Natural Resources Wales¹⁷, the Condition Assessments for the Designated Features of Ardal Cadwraeth Arbennig Bae Caerfyrddin ac Aberoedd / Carmarthen Bay and Estuaries Special Area of Conservation¹⁸ and the Core Management Plan for the Afon Tywi/ River Tywi SAC¹⁹ outlines that diffuse pollution causing water quality and siltation issues is currently a factor affecting the following qualifying features: inlets & bays, estuaries, saltmeadows, *Salicornia*, mud and sandflats, twaite shad, allis shad, sea lamprey, brook lamprey, river lamprey, bullhead and otter.
- 5.2.3 Mitigation for potential pollution and siltation from the Project site via run-off during the construction phase of the Project would comprise measures described in a Construction Environmental Management Plan (CEMP) and mitigation for the operational phase of the Project would comprise measures outlined within the Sustainable Drainage System (SuDS) Strategy²⁰.

¹⁷ Natural Resources Wales (2018) Carmarthen Bay and Estuaries/Bae Caerfyrddin ac Aberoedd European Marine Site Advice provided by Natural Resources Wales in fulfilment of Regulation 37 of the Conservation of Habitats and Species Regulations 2017. March 2018

¹⁸ Wynter, E., Jackson-Bué, M., Cuthbertson, S. and Hatton-Ellis, M. 2025. Condition Assessments for the Designated Features of Ardal Cadwraeth Arbennig Bae Caerfyrddin ac Aberoedd / Carmarthen Bay and Estuaries Special Area of Conservation. NRW Evidence Report No. 906, 183pp, Natural Resources Wales, Cardiff.

¹⁹ Natural Resources Wales (2022) Core Management Plan including Conservation Objectives for Afon Tywi/ River Tywi SAC

²⁰ Stantec (2025) Llandyfaelog 400kV Substation – SuDS Strategy



Construction - CEMP

- 5.2.4 Pollution via surface run-off will be prevented during the construction phase of the Project via pollution prevention measures with regards to pollutant or sediment run-off from the Site. These measures are described within the Outline CEMP²¹ and will be confirmed within the final CEMP, which will be secured by condition.

Operation - SuDS Strategy

- 5.2.5 The SuDS Strategy employs the use of National Grid standard substation design, SuDS basins, wetlands and swales to manage runoff generated by the Project including the substation and access road. The strategy provides sufficient volume of attenuation and long-term storage to accommodate all of the runoff generated by the new impermeable areas during the design rainfall event (whilst taking climate change into account). This means that for most events, discharges are likely to remain at, or close to, zero and will limit discharges to the 1 in 100 year greenfield runoff rate. This SuDS Strategy also incorporates elements that will help to clean surface water runoff and prevent pollution incidents.
- 5.2.6 The SuDS have been separated into two discrete systems: one for the substation itself, and one for the access road connecting the A484 to the substation. The substation SuDS will take advantage of the gravel platform design of the substation footprint which will provide a permeable storage area for runoff generated by the substation. This will provide long term storage volume at its base, in the form of a sump set above the base of the gravel. The attenuation volume will be discharged at a controlled rate into swales (with check dams/notch weirs) conveying surface water to a new ephemeral wetland area created using a natural block stone retaining wall across the existing contours. The swales will also intercept offsite runoff to prevent it running into the Project site and direct offsite flows to existing receptors, mimicking natural flow paths. The access road will be served by a filter strip and swale (with check dams/notch weirs) conveying runoff generated by the road to two basins that will provide sufficient attenuation volume and discharge at greenfield Qbar rate (mean annual maximum flow rate) to the A484's existing drainage network.
- 5.2.7 Most of the runoff generated by the Project will be clean (i.e. roof runoff). The Ciria SuDS Manual Simple Index Approach was used within the SuDS Strategy to assess the performance of the proposed SuDS features, of which they were found to be sufficient. Any pollutants from the substation will be filtered through the gravel substrate before discharging into a swale with periodic notch weirs, allowing sediment to settle before entering the main wetland which will ultimately discharge back into the downstream ditch, mimicking natural processes. The access road runoff will pass over a filter strip draining into a swale with notch weir check dams allowing sediment to settle before entering 2 ponds and then leaving the SuDS system into the existing A484 highway ditch network. Effective pollution control measures will be provided throughout the operational lifetime of the Project compliant with Ciria SuDS manual guidance on maintenance schedules.

Summary

- 5.2.8 With the implementation of the CEMP and the SuDS Strategy, the pollution via surface run-off would be reduced to zero or insignificant amounts. As such, no adverse effect on the integrity of the qualifying features of Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC and the Afon Tywi / River Tywi SAC during construction or operation, either alone or in combination with other plans and projects would occur.

²¹ Stantec (2025) Outline Construction Environmental Management Plan

6 Conclusion

- 6.1.1 The sHRA identified four European sites within 10 km of the Project site:
- Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC;
 - Afon Tywi / River Tywi SAC;
 - Carmarthen Bay Dunes / Twyni Bae Caerfyrddin SAC; and,
 - Bae Caerfyrddin / Carmarthen Bay SPA.
- 6.1.2 The screening of likely significant effects within this sHRA found an absence of impact pathways and/ or effects on Carmarthen Bay Dunes / Twyni Bae Caerfyrddin SAC and Bae Caerfyrddin / Carmarthen Bay SPA in association with their identified threats and pressures. As such, no likely significant effects on the integrity of the qualifying features of these European sites are anticipated during construction or operation of the Project, either alone or in combination with other plans or projects.
- 6.1.3 Likely significant effects on the qualifying features of the Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd SAC and the Afon Tywi / River Tywi SAC, resulting from pollution via surface run-off during the construction and operational phases of the Project, could not be ruled out. Therefore, further assessment was undertaken to determine whether this pressure could lead to an adverse effect on the integrity of these European sites. Subject to the implementation of the proposed mitigation measures, specifically, the pollution prevention strategies outlined in the Construction Environmental Management Plan and the Sustainable Drainage System Strategy which will be in place for the operational lifetime of the Project, the Project is not anticipated to result in pollution-related effects on the Carmarthen Bay and Estuaries / Bae Caerfyrddin ac Aberoedd SAC or the Afon Tywi / River Tywi SAC, either alone or in combination with other plans or projects. Consequently, this sHRA and appropriate assessment have concluded that there would be no significant adverse effects on the integrity of these European sites as a result of pollution via surface run-off.
- 6.1.4 This sHRA can be used to inform Carmarthenshire County Council in their undertaking of their own HRA (as competent authority). It is however recommended that the competent authority should consult with Natural Resources Wales in relation to the conclusions of their sHRA screening and appropriate assessment.

7 Figures

Figure 1 Site Location Plan



Shadow Habitat Regulations Assessment Report

Figure 2 European Designated Sites



