



WESTFIELD PILL DECK REFURBISHMENT

Notice

This document and its contents have been prepared and are intended solely as information for Pembrokeshire County Council and use in relation to the bridge deck refurbishments at Westfield Pill.

AtkinsRéalis UK Limited assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

No liability is accepted for any costs claims or losses arising from the use of this document, or any part thereof, for any purpose other than that which it has specifically been prepared or for use by any party other than Pembrokeshire County Council.

The information which AtkinsRéalis has provided has been prepared by an environmental specialist in accordance with the Code of Professional Conduct of the Chartered Institute of Ecology and Environmental Management. AtkinsRéalis confirms that the opinions expressed are our true and professional opinions.

This document does not purport to provide legal advice.

This document has 61 pages including the cover.

Document history

Document title: Habitats Regulations Assessment

Document reference:

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1.0	For Authorisation	RM	MB	SC		August 2024
2.0	Update to include day and night works	CH	RM	MB		December 2024

Client signoff

Client	Pembrokeshire County Council
Project	WESTFIELD PILL DECK REFURBISHMENT
Job number	5227258
Client signature/date	



Contents

Executive Summary.....	5
1. Introduction.....	6
1.1. Terms of reference.....	6
1.2. The Site.....	6
1.3. The Proposed Scheme	6
1.4. Background to HRA	7
1.5. Legal Context to HRA	8
1.6. Consultation	8
2. Methods.....	10
2.1. Overview	10
2.2. Preliminary steps	10
Identification of sites for consideration	10
Discounting sites	11
Data gathering	11
Field survey information	12
Effect pathways	12
Obtaining information on other projects and plans	13
2.3. Stage 1: Screening for Likely Significant Effects (LSE)	14
Alone	14
2.4. Stage 2: Appropriate Assessment	14
3. Stage 1 - Screening	16
3.1. European Sites Identified for Screening	16
List of European Sites Identified	16
European Sites Discounted	16
3.2. Information on European Sites Identified for Screening	17
3.3. Stage 1 Screening Results	21
Identified effect pathways	21
Likely Significant Effect Screening - Alone	22
Likely Significant Effect Screening – In-combination	39
Stage 1 Screening Conclusions	42
4. Stage 2 - Appropriate Assessment.....	44
4.1. Introduction	44
4.2. Mitigation and Control Measures	44
General measures	44
Effect Specific Measures	44
4.3. Assessment of Effects	45



Changes to water quality	45
Species disturbance (visual, noise, vibration)	46
4.4. In-combination Assessment.....	48
5. Conclusions	51
Appendix A. Scheme Location.....	53
Appendix B. Scheme Detail	55
Appendix C. European Sites Identified	56
C.1. European Site Locations.....	56



Executive Summary

The Westfield Pill road bridge carries the A477 highway over the Cleddau Ddu at Neyland, Pembroke Dock, Wales. The existing bridge requires repairs to the parapet and the replacement of the expansion joints as standard maintenance of the bridge. The works will be undertaken entirely from the bridge deck, using day time and night time working. No vegetation clearance is required to facilitate the works.

- Seven European Sites were identified for consideration. The West Wales Marine SAC, North Pembrokeshire Woodlands SAC, Castlemartin Coast SPA and Skomer, Skokholm and the Seas off Pembrokeshire SPA were subsequently scoped out of any further assessment as there was no route or mechanism for a Likely Significant Effect (LSE). The remaining three European Sites were considered further:
 - Pembrokeshire Marine SAC located 150 m of the Site and 875 m south of the Site;
 - Limestone Coast of South West Wales SAC located 8.5 km southwest of the Site; and
 - Pembrokeshire Bat sites and Bosherton Lakes SAC located 8 km to the east of the Proposed Scheme at its closest point.

The Screening Assessment, within this document, concluded that there is potential for LSE alone on the Pembrokeshire Marine SAC and Pembrokeshire Bat Sites and Bosherton Lakes SAC. This is as a result of water quality impacts to qualifying habitats of the Pembrokeshire Marine SAC; and disturbance impacts to lesser horseshoe bat species present/potentially present within the bridge abutments, which could be functionally linked to the bat populations associated with the Pembrokeshire Bat Sites and Bosherton Lakes SAC. The Screening Assessment has therefore concluded that these elements should be taken through to the second stage of HRA, Appropriate Assessment. An Appropriate Assessment was undertaken to assess more precisely the ecological impacts of the Scheme on the European Site in view of its qualifying features and conservation objectives. Mitigation measures to alleviate impacts are also considered at this stage.

With due consideration given to the information provided for the Appropriate Assessment, it is considered that with the mitigation proposed, the Proposed Scheme will not adversely affect the integrity of the Pembrokeshire Marine SAC and the Pembrokeshire Bat Sites and Bosherton Lakes SAC, alone or in-combination with other plans or projects. All other European Sites were discounted at Stage 1 Screening, therefore this report concludes that the Proposed Scheme will have no adverse effects on the integrity of any European Site.



1. Introduction

1.1. Terms of reference

- 1.1.1. AtkinsRéalis has been appointed by Pembrokeshire County Council to provide a Habitats Regulations Assessment (HRA) for bridge deck refurbishments at Westfield Pill (hereafter referred to as 'the Proposed Scheme'). The location of the Proposed Scheme is shown on the Site Location Plan in Appendix A, Figure A.1.
- 1.1.2. HRA is required by Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations') for all plans and projects which may have a likely significant effect on, and are not directly connected with or necessary to the management of, a European Site¹.

1.2. The Site

- 1.2.1. The location of the Site is shown in Figure A.1, Appendix A, it is centred at Ordnance Survey national grid reference (OSNGR) SM 96774 06041.
- 1.2.2. The Site comprises entirely of hardstanding, the road deck of the A477 Westfield Pill road bridge over the Cleddau Ddu at Neyland, Milford Haven. The Site is approximately 215 m in length and 12 m width which is the length of the bridge between the abutments and across the single lane road including the pavements.
- 1.2.3. The Site sits above the Cleddau Ddu waterway which leads to the Milford Haven waterway. The bridge itself sits over 30 m above the Cleddau Ddu. Immediately adjacent to the abutments of the bridge the river corridor is heavily wooded with a small marina present on the river downstream of the bridge. Habitats to the south west of the bridge comprise a localised urban housing estate, habitats north west, north east and south east of the bridge comprise agricultural fields.

1.3. The Proposed Scheme

- 1.3.1. The Proposed Scheme comprises bridge repairs to the Westfield Pill road bridge in Neyland, Pembroke Dock, Wales. The overbridge carries the A477 highway over the Cleddau Ddu. The bridge runs at a height of over 30m over the habitats beneath the bridge which comprise of the Westfield Pill river and wooded river banks. Refurbishment works are required to the road bridge including the repair and replacement of the expansion joints, and the repair and replacement of the parapet. This will include the removal of the

¹ This is defined as a Special Area of Conservation (SAC) or Special Protection Area (SPA), which as a matter of government policy (Ministry of Housing, Communities and Local Government (2023) National Planning Policy Framework (NPPF). Paragraph 181) also includes possible SACs (pSAC), potential SPAs (pSPA), listed or proposed Ramsar sites (wetland sites of international importance, as designated under the Ramsar Convention 1971) and any site identified, or required, as compensatory measures for adverse effects on any of the above listed designations. Following the changes made to the Conservation of Habitats and Species Regulations 2017 (as amended) by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, SACs and SPAs in the UK no longer form part of the EU's Natura 2000 network, but form the UK's national site network. The term 'Habitats Sites' is sometimes now used instead of 'European Sites' following the UK's departure from the EU.



existing expansion joints and parapet through localised concrete break outs. The existing bridge deck surface will be planed and the arisings and debris removed from Site. The expansion joints will be replaced like-for-like. The bridge deck, following the completion of the works, will be re-surfaced and re-waterproofed. All works will be undertaken from the bridge deck, without the need for any vegetation clearance. Works to the expansion joints will be undertaken at night under a full road closure. Works to the parapet and resurfacing will be undertaken during daytime shifts using road closures.

- 1.3.2. The details of the Proposed Scheme, as they are currently understood, are shown in Appendix B, Figure B-1.
- 1.3.3. Timescales for the commencement and duration of construction works for the Proposed Scheme are commencement in February 2025 for a duration of no longer than three months.

1.4. Background to HRA

- 1.4.1. According to the Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations'), before deciding to undertake or give any consent for a plan or project, '*...which is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and is not directly connected with or necessary to the management of that site,*' the Competent Authority must '*make an appropriate assessment of the implications of the plan or project for that site in view of that site's conservation objectives.*'
- 1.4.2. The proposed scheme will be undertaken under the general development planning order The Town and Country Planning (Miscellaneous Amendments and Modifications relating to Crown Land) (Wales) Order 2006 and separate planning permission is not required. This therefore confers Competent Authority duties on Pembrokeshire County Council.
- 1.4.3. According to Regulation 75 of the Habitats Regulations, where planning is permitted under a general development order and likely significant effects on any European Site cannot be discounted, project works can only be begun where the local planning authority have provided written approval (under Regulation 77). This document presents an assessment of whether the project is likely to have significant effects on any European Site and, therefore, whether Regulation 77 approval is required.
- 1.4.4. The Scheme is not directly connected with, or necessary to, the nature conservation management of any European Site.
- 1.4.5. UK Government policy: Planning Policy Wales², states that potential Special Protection Areas (pSPA) and possible Special Areas of Conservation (pSAC), listed or proposed Ramsar sites³ and sites identified, or required, as compensatory measures for adverse effects on habitats sites, pSPAs, pSACs, and listed or proposed Ramsar sites, which have been formally proposed, should also be considered European Sites. Hereafter, all of the above designated nature conservation sites are referred to as 'European Sites'.
- 1.4.6. The stages of the HRA process are:

² Planning Policy Wales: Edition 12. February 2024. Welsh Government. <https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf> [Accessed July 2024]

³ Defined by the Convention on Wetlands of International Importance, especially as waterfowl habitat (otherwise known as the 'Ramsar Convention'). <https://www.ramsar.org/>

- **Stage 1 - Screening:** To assess whether a plan or project either alone or in combination with other plans and projects is likely to have a significant effect on a European Site.
- **Stage 2 - Appropriate Assessment:** To determine whether, in view of a European Site's conservation objectives, the project or plan (either alone or in combination with other projects and plans) would have an adverse effect (or risk of this) on the integrity of the site with respect to the conservation objectives. If adverse impacts are anticipated, potential mitigation measures to alleviate impacts should be proposed and assessed.
- **Stage 3⁴ – Derogations (allow exceptions):** Where a project or plan is assessed as having an adverse residual impact (or risk of this) on the integrity of a European Site, it may qualify for a derogation. Three legal tests must be applied in the following order:
 1. There are no feasible alternative solutions that would be less damaging or avoid damage to the site.
 2. The proposal needs to be carried out for imperative reasons of overriding public interest.
 3. The necessary compensatory measures can be secured.

1.4.7. This report comprises Stage 1 - HRA Screening of the project and Stage 2 Appropriate Assessment.

1.5. Legal Context to HRA

- 1.5.1. A critical part of the HRA Screening process is determining whether or not the proposals are likely to have a significant effect on European Sites, and therefore, if they will require an Appropriate Assessment. The concept of likely significant effects ('LSE') as embodied in Regulation 63(1) is central to their operation. Its interpretation is well established in law and guidance and embraces the precautionary principle.
- 1.5.2. The HRA process has been subject to a number of clarifications arising from legal case law. In relation to screening, the two key outcomes of these clarifications are as follows:
- In screening 'likely significant effects'; 'likely' should be interpreted as there being a risk or possibility which cannot be excluded on the basis of objective information^{5, 6}
 - When undertaking screening "*..measures that are intended to avoid or reduce the harmful effects of the envisaged project on the site concerned*" should be discounted⁷. Broadly speaking this means that mitigation measures intended specifically to avoid an impact on a European Site cannot be relied on to conclude that likely significant effects can be discounted.

1.6. Consultation

- 1.6.1. Under Regulation 63(3) of the Habitats Regulations, the appropriate nature conservation body, in this case Natural Resources Wales, must be consulted at Stage 2 Appropriate Assessment.
- 1.6.2. Since Likely Significant Effects could not be discounted at all European Sites and Appropriate Assessment is required, Natural Resources Wales have been made aware of this project and consideration will be given to their advice and comments throughout the HRA process. A draft of this

⁴ Derogations stages were previously described as two separate stages, but now commonly grouped together.

⁵ Case C – 127/02 Waddenzee, reference for a preliminary ruling from the Raad van State: Landelijke Vereniging tot Behoud van de Waddenzee, Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij, 7th September 2004.

⁶ Bagmoor Wind Limited v The Scottish Ministers, Court of Sessions (2012) CS1H 93.

⁷ Peter Sweetman v Coillte Teoranta, Case C-323/17



report will be made available to Natural Resources Wales for comment. NRW have not yet commented on this HRA.



2. Methods

2.1. Overview

2.1.1. The Habitats Regulations Assessment Handbook⁸ outlines that screening for appropriate assessment requires gathering sufficient information to objectively conclude whether effects on a European Site will be significant or not. On this basis, screening to ascertain whether appropriate assessment is required covers four themes:

- Determining whether the plan (or project) is directly connected with or necessary to the management of the European Site.
- Identifying the potential effects on the European Site.
- Assessing the likely significant effect (LSE) on the European Site.
- Describing the plans (or projects) and characterising other plans (or projects) that in combination have the potential for having significant effects on the European Site.

2.1.2. The preliminary steps in the assessment have been based on these themes.

2.2. Preliminary steps

2.2.1. In the first instance the Proposed Scheme was considered to determine whether it is directly connected with or necessary to the management of the European Site.

Identification of sites for consideration

2.2.2. The following selection criteria based on National Highways Design Manual for Roads and Bridges (DMRB) standard LA 115 Habitats Regulations Assessment⁹, based on the geographic extent of any impacts which could arise as a result of the Proposed Scheme and as explained below, have been used to determine what European Sites to consider in the HRA screening assessment:

- All European Sites within 2 km of the Proposed Scheme, or functionally linked land (see below).
- All European Sites up to 30 km from the Proposed Scheme where bats are a qualifying interest feature.
- All European Sites up to 20 km from the Proposed Scheme where birds are a qualifying interest feature (see below).
- All European Sites upstream or downstream of watercourses either within, adjoining or crossed by the Proposed Scheme.
- All European Sites which have a potential hydrological or hydrogeological linkage to a European Site containing a groundwater dependent terrestrial ecosystem (GWDTE).

⁸ Tyldesley, D., and Chapman, C., (2013) *The Habitats Regulations Assessment Handbook*, (September 2020) edition UK: DTA Publications Limited. Available at: www.dtapublications.co.uk (Accessed July 2024).

⁹ DMRB LA 115 - Habitats Regulations Assessment. Available at: [LA 115 - Habitats Regulations assessment - DMRB \(standardsforhighways.co.uk\)](http://standardsforhighways.co.uk)

- All European Sites within 200 m of an affected road network (ARN) which triggers the criteria for assessment of European Sites LA 105¹⁰.

2.2.3. The core range for many species for example breeding and non-breeding bird species, otter and fish can extend beyond the boundaries of SAC, SPA and Ramsar site designations, meaning land beyond a designated site boundary having 'functional linkage' with the designated sites. Functional linkages include key flyways, foraging areas, breeding or roost sites. Although core ranges of species can vary from very short distances to tens of kilometres or more, for inland sites in this region a distance of 20 km is considered to be sufficient and precautionary in this instance.

2.2.4. The core range for Annex II bat species can extend beyond the boundaries of SAC designations, meaning land beyond a designated site boundary having functional linkage with the SAC. Functional linkages include key habitat resources surrounding a communal roost (e.g. maternity roost and/ or hibernation site), which will have an important influence on the conservation status of colonies utilising the roost. Current BCT guidelines¹¹ indicate that the Core Sustainance Zone (CSZ) for lesser horseshoe bat, greater horseshoe bat and Bechstein's bat is typically a 3 km radius around communal roosts, and 6 km for barbastelle bat; however, this will vary according to the quality and accessibility of habitats. Dietz and Keifer (2016)¹² states that whilst foraging, barbastelle bats typically utilise habitats at a distance of up to 7 km from nursery colonies, although individual barbastelle bats have been recorded travelling between 3.8 km and 20 km from nursery roosts in south west England (Greenway 2004¹³; Zeale 2009¹⁴). However, as the Proposed Scheme falls under DMRB as detailed above a 30 km search radius for bat SACs has been considered.

Discounting sites

2.2.5. Following the identification of European Sites for consideration, an initial 'coarse screening' (also sometimes referred to as 'Stage 0 screening') was undertaken to ascertain whether any of the European sites identified could be discounted as irrelevant. Sites were only discounted where there was no conceivable effect pathway that could be considered. Where this is the case the reasons for discounting are presented in the Results section.

Data gathering

2.2.6. Baseline information used to describe the location and characteristics of European Sites and Conservation Objectives was taken from following sources:

- Multi-Agency Geographic Information for the Countryside (MAGIC) Webmap¹⁵;
- Joint Nature Conservation Committee (JNCC) Natura 2000 Standard Data Forms¹⁶; and

¹⁰ DMRB LA 105 – Air Quality. Available at: [10191621-07df-44a3-892e-c1d5c7a28d90 \(standardsforhighways.co.uk\)](https://standardsforhighways.co.uk/10191621-07df-44a3-892e-c1d5c7a28d90) Accessed January 2024).

¹¹ Collins, J. (ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)*. London: Bat Conservation Trust.

¹² Dietz C., and Keifer A. (2016) *Bats of Britain and Europe*. Bloomsbury Naturalist, London.

¹³ Greenway, F (2004). *Advice for the management of flightlines and foraging habitats of the barbastelle bat *Barbastella barbastellus**. Peterborough: English Nature.

¹⁴ Zeale, M.R.K. (2009). *Barbastelles in the Landscape: Ecological Research and Conservation in Dartmoor*. Research report to Dartmoor National Park Authority and SITA Trust. University of Bristol.

¹⁵ Available from <http://magic.defra.gov.uk> (accessed July 2024).

¹⁶ Available from <http://jncc.defra.gov.uk> (accessed July 2024).



- Natural Resources Wales (NRW)¹⁷ for the citation, conservation objectives and supplementary advice on conservation objectives.

Field survey information

- 2.2.7. A preliminary ecological appraisal (PEA) walkover was undertaken in April 2024, and a subsequent PEA report was produced¹⁸. The PEA identified the need for bat surveys of the bridge which will be directly impacted by the works. The bat surveys, comprising of an internal inspection of the eastern abutment and bat emergence surveys, identified brown long-eared bat day / transitional roosts within the expansion joints at both abutments and a lesser horseshoe bat day / transitional roost in the western abutment. A bat mitigation licence for the works will be sought from Natural Resources Wales. A bat technical note detailing a summary of the bat surveys has been produced.

Effect pathways

- 2.2.8. Plans or projects can adversely affect a site by:
- Causing delays in progress towards achieving the Conservation Objectives of the European Site;
 - Interrupting progress towards achieving the Conservation Objectives of the European Site;
 - Disrupting those factors that help to maintain the favourable conditions of the European Site; and,
 - Interfering with the balance, distribution and density of key species that are the indicators of the favourable condition of the European Site.
- 2.2.9. Supplementary Advice¹⁹ from Natural England, in the absence of advice from NRW, describes the measures necessary to achieving the Conservation Objectives for a European Site, comprising a range of ecological attributes that are most likely to contribute to the overall integrity of a European Site.
- 2.2.10. With reference to Conservation Objectives as detailed by NRW^{20, 21, 22} the effect pathways on the Conservation Objectives for the European Site were considered against the following list:
- **Habitat loss and fragmentation** – includes direct loss of habitats under the footprint of temporary or permanent works. Indirect effects through the loss of functionally linked habitats, i.e. habitats that support species outside of the European Site boundary;
 - **Species disturbance** (visual, noise, vibration) – this refers to disturbance during construction, operation or decommissioning works on species that may cause behavioural effects, e.g. avoidance,

¹⁷ <https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/protected-areas-of-land-and-seas/find-protected-areas-of-land-and-sea/?lang=en> (Accessed June 2024).

¹⁸ Preliminary Ecological Appraisal Report: Westfield Pill Bridge. AtkinsRéalis. May 2024.

¹⁹ Natural England. (2015) *Conservation objectives for land-based protected sites in England: how to use the site advice* [online]. Available from <<https://www.gov.uk/guidance/conservation-objectives-for-land-based-protected-sites-in-england-how-to-use-the-site-advice>> (accessed July 2024).

²⁰ Countryside Council for Wales. Core Management Plan including Conservation Objectives For Limestone Coast of South West Wales. May 2008. <https://cdn.naturalresources.wales/media/687999/eng-pembrokeshire-marine-reg-37-report-2018.pdf> [Accessed July 2024]

²¹ Natural Resources Wales: Pembrokeshire Marine Special Area of Conservation: Advice provided by Natural Resources Wales in the fulfilment of Regulation 37 of the Conservation of Habitats and Species Regulations 2017. March 2018.

<https://cdn.naturalresources.wales/media/687999/eng-pembrokeshire-marine-reg-37-report-2018.pdf> [Accessed July 2024]

²² Countryside Council for Wales. Core Management Plan including Conservation Objectives For Pembrokeshire Bat Sits and Bosherton Lakes. April 2008. <https://naturalresources.wales/media/673193/pembs-bat-sites-and-bosh-lakes-english.pdf> [Accessed July 2024]



change in foraging behaviour. Physical works, vehicle movements, light pollution and presence of staff/ workers are all considered;

- **Changes to water quality** – considers effects on species (and their prey) as a result of contamination, changes in pH, increased nutrient loads, salinity, turbidity, alterations in the thermal regime, discharges or changes in sedimentation levels;
- **Changes to air quality** – evaluates the risk of discharges to air, including fugitive dust and combustion emissions;
- **Changes to surface and groundwater hydrology** – changes to the flow, supply, availability and drainage of water, and increased risks associated with flooding; and
- **Introduction of Invasive Non-Native Species (INNS)** – the risk of introducing or spreading INNS as a result of the Proposed Scheme.

Obtaining information on other projects and plans

- 2.2.11. The Habitats Regulations requires assessment of the potential for LSE of the project ‘in combination’ with other projects and plans.
- 2.2.12. The effects of this project in combination with other projects are the cumulative effects which will, or might, result from the addition of the effects of other relevant plans or projects, and making an assessment as to whether these could be significant.
- 2.2.13. The Habitats Regulations Assessment Handbook²³ advises that any plans or projects at the following stages may be relevant to an in-combination assessment:
- Planning applications submitted but not yet determined;
 - Planning application refusals subject to appeal procedures and not yet determined;
 - Projects authorised but not yet started;
 - Projects started but not yet completed;
 - Known projects that do not require external authorisation, e.g. permitted development;
 - ‘Projects’ subject to periodic review e.g. annual licences, during the time that their renewal is under consideration;
 - Proposals in adopted plans (e.g. land use plans, transport plans, minerals and waste plans, shoreline management plans etc.); and
 - Proposals in finalised draft plans (see examples above) formally published or submitted for final consultation, examination or adoption.
- 2.2.14. The National Infrastructure Planning²⁴ website was searched for Nationally Significant Infrastructure Projects which could have effects ‘in combination’ with the Scheme.
- 2.2.15. A desktop review of local authority websites and planning portals was completed to identify plans or projects that have undergone a HRA and could have a LSE in-combination with the Proposed Scheme. Based on the scale, complexity and duration of the Proposed Scheme, a desktop review of projects and plans proposed or consented within the last five years is considered to be sufficient and precautionary in

²³ Tyldesley, D., and Chapman, C., (2013) *The Habitats Regulations Assessment Handbook*, (September 2020) edition UK: DTA Publications Limited. Available at: www.dtapublications.co.uk (Accessed July 2024).

²⁴ National Infrastructure Planning. Available at: <https://infrastructure.planninginspectorate.gov.uk/> (Accessed February 2023).

this instance. Only 'reasonably foreseeable' and 'committed' projects and plans have been included in this assessment.

2.2.16. The search included the following local authority planning website(s) for relevant planning documents, planning applications and consents, as well as a review of allocated and proposed sites:

- Pembrokeshire County Council Planning Portal²⁵;
- Natural Resources Wales²⁶; and
- Welsh Government²⁷.

2.3. Stage 1: Screening for Likely Significant Effects (LSE)

Alone

- 2.3.1. The precautionary principle (as enshrined in the Habitats Regulations) has been taken into account during this HRA. Whenever potential significant effects could not be objectively discounted, the European Site has been screened in.
- 2.3.2. Following the gathering of information on the Proposed Scheme and European Sites, and the identification of effect pathways, each European Site was screened against each potential pathway to identify whether LSE were possible or whether they could be discounted by the Proposed Scheme 'alone'.
- 2.3.3. LSE effects are assessed in reference to the Conservation Objectives of each qualifying interest feature of each European Site. The results are presented in Tables 3-4 to 3-6 in Section 3.
- 2.3.4. Any plan or project that causes the interest features of a European Site to fall into unfavourable condition is considered to have a LSE on the site. Stage 1 of the HRA process does not assess effects on the integrity of European Sites, this forms Stage 2 of the HRA process. In-combination with other plans and projects
- 2.3.5. Following the completion of the Stage 1 'alone' screening. Consideration was also given to the potential for the effects of the Proposed Scheme to combine with other plans and projects and result in additional LSEs that were discounted by the scheme 'alone'.
- 2.3.6. Any European Sites with LSE pathways 'alone', that were already screened in and requiring Stage 2 Appropriate Assessment, were not subject to 'in-combination' assessment²⁸.
- 2.3.7. Effects or effect pathways which were wholly discounted or considered to be so unlikely or limited that they were in effect nugatory or *de minimus* and, therefore, not likely to combine with anything else were not subject to 'in-combination' assessment.

²⁵ Pembrokeshire Council Available at <https://planning.agileapplications.co.uk/pembrokeshire> (Accessed June 2024)

²⁶ Natural Resources Wales (NRW) Strategies website Available at: <https://naturalresources.wales/about-us/what-we-do/strategies-and-plans/?lang=env> (Accessed June 2024).

²⁷ Welsh Government website available at: <https://www.gov.wales/>

²⁸ Regulation 63(1)(a) requires appropriate assessment if LSE is likely *either alone or in combination with other plans or projects*.

2.4. Stage 2: Appropriate Assessment

2.4.1. For European Sites where a LSE is predicted (alone or in combination with other plans or projects), or it cannot be concluded that there is no LSE, an Appropriate Assessment has been undertaken. The purpose of the Appropriate Assessment is to establish whether there are elements of the project which could have an adverse effect on the integrity (AEoI) of any European Site. The integrity of a European Site is defined as:

“..the coherence of the site’s ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/ or the populations of the species for which the site is, or will be, designated”²⁹

2.4.2. The Habitats Regulations Assessment Handbook provides guidance on the ‘integrity test’³⁰. It emphasises that the integrity of a European Site involves its ecological structure, function and ecological processes, and relates to the site’s Conservation Objectives; if the Conservation Objective for a feature will be undermined, site integrity is adversely affected.

2.4.3. The Appropriate Assessment considers each individual effect pathway separately, as well as any combination of relevant effect pathways from the Proposed Scheme and any other plans or projects. Assessment is based on the final Scheme and any necessary mitigation measures have been considered.

2.4.4. Therefore, the Appropriate Assessment:

- Outlines the elements of the Proposed Scheme that were identified as having a potential LSE on one or more qualifying features of each European Site.
- Presents available baseline data from desk study or field work, as necessary, to characterise the potential effects, e.g. whether short/ long-term, reversible or irreversible, and in relation to the proportion/ importance of the interest affected, and the overall effect on the European Site’s Conservation Objectives. This has been done in sufficient detail to ensure all impacts have been considered and sufficiently appraised.
- Assesses the effects of the Proposed Scheme on the Conservation Objectives of the relevant interest features, with reference to any Supplementary Advice.
- Determines whether or not the integrity of the European Site(s) will be affected, taking into account proposed mitigation measures.

²⁹ Natural England (2019) MPA Conservation Advice Glossary of Terms. Available here:

https://designatedsites.naturalengland.org.uk/pdfs/MPA_CAGlossary_March2019.pdf

³⁰ Section C11 The ‘integrity test’. Available here: <https://www.dtapublications.co.uk/handbook/content.aspx?section=C11>

3. Stage 1 - Screening

3.1. European Sites Identified for Screening

List of European Sites Identified

- 3.1.1. The desk study identified seven European Sites within the search areas defined in paragraph 2.2.2. These are as follows:
- **Pembrokeshire Marine / Sir Benfro Forol SAC** located 150 m north and 875 m south of the Proposed Scheme;
 - **Pembrokeshire Bat Sites and Bosherton Lakes / Safleoedd Ystlum Sir Benfro a Llynnoedd Bosherton SAC** located 8 km east of the Proposed Scheme at its closest;
 - **Limestone Coast of South West Wales / Arfordir calchfaen de Orllewin Cymru SAC** located 8.5 km south west of the Proposed Scheme;
 - **Castlemartin Coast SPA** located 8.5km south west of the Proposed Scheme;
 - **West Wales Marine / Gorllewin Cymru Forol SAC** located 12km west of the Proposed Scheme;
 - **Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro SPA** located 18.5km west of the Proposed Scheme and
 - **North Pembrokeshire Woodlands / Coedydd Gogledd Sir Benfro SAC** located 28 km north of the Proposed Scheme.
- 3.1.2. The location of the European Sites identified in relation the Proposed Scheme are given in Appendix C, Figure C-1 and Figure C-2.
- 3.1.3. There is no ARN associated with the Proposed Scheme which would trigger the need for assessment of air quality impacts in accordance with LA 105, as the works comprise safety improvement works and will therefore not impact traffic flow or volume, which will remain unchanged on completion of the proposed works.
- 3.1.4. Relevant environmental information has been obtained for the European Sites to establish whether the Proposed Scheme could give rise to a likely significant effect, including size, proximity, description, qualifying interest features, conservation objectives and management threats (or vulnerabilities). This is presented in Section 3.3 below.

European Sites Discounted

- 3.1.5. **Castlemartin Coast SPA** is located over 8.5km south west of the Proposed Scheme, and is located on the South West Wales coast beyond the mouth of the Milford Haven Waterway. The Castlemartin Coast supports chough as a qualifying feature. This species is not considered to be present within the Westfield Pill habitats impacted by the Proposed Scheme, which comprise the hardstanding of the bridge only. There is a hydrological connection between the Proposed Scheme and the SPA via the sea, however there will be no in-channel works and considering the temporary and localised nature of the works, and the distance between the works and the SAC, it is considered that the potential for impacts via the release of pollutants from the Proposed Scheme would be eliminated by dilution and estuarine mixing. Therefore, there is no risk of LSE to this SPA and it is not considered further in this report.



- 3.1.6. **West Wales Marine SAC** is located over 12 km downstream beyond the Milford Haven waterway and into the Atlantic Ocean from the Proposed Scheme and supports harbour porpoise as a qualifying feature. This species is not considered to be present within the Westfield Pill where the Proposed Scheme crosses the river, and there are no records of harbour porpoise present beyond the mouth of the Milford Haven waterway. There is a hydrological connection between the Proposed Scheme and the SAC via the Atlantic Ocean, however there will be no in-channel works and considering the temporary and localised nature of the works, and the distance between the works and the SAC, it is considered that the potential for impacts via the release of pollutants from the Proposed Scheme would be eliminated by dilution and estuarine mixing. Therefore, there is no risk of LSE to this SAC and it is not considered further in this report.
- 3.1.7. **Skomer, Skokholm and the Seas off Pembrokeshire SPA** is located over 18.5km west of the Proposed Scheme, and is located beyond the mouth of the Milford Haven Waterway. The SPA supports numerous sea birds as a qualifying feature including European storm petrel, Red-billed chough, short-eared owl, Manx shearwater, Atlantic puffin and lesser black-backed gull. Habitats impacted by the Proposed Scheme, comprise the hardstanding of the bridge only and are considered to be of limited or no value for these species. There is a hydrological connection between the Proposed Scheme and the SAC via the sea, however there will be no in-channel works and considering the temporary and localised nature of the works, and the distance between the works and the SAC, it is considered that the potential for impacts via the release of pollutants from the Proposed Scheme would be eliminated by dilution and coastal mixing. Therefore, there is no risk of LSE to this SAC and it is not considered further in this report.
- 3.1.8. The **North Pembrokeshire Woodlands SAC** is located over 28 km north of the Proposed Scheme and supports barbastelle bat as a qualifying feature (as well as old sessile oak woodlands and alluvial forests). This distance is well beyond the zone of influence for any Scheme impacts relating to direct habitat loss, habitat degradation, habitat fragmentation or disturbance. The distance is also considered to be too great for there to be a significant functional linkage between the Proposed Scheme and the qualifying feature bat populations. The distance is over four times larger than the core sustenance zones identified by the Bat Conservation Trust³¹ for barbastelle (6 km), and the Proposed Scheme is separated from the SAC by towns, villages and roads, with no continuous connectivity such as watercourses or hedgerows. In addition, features suitable for barbastelle bats will not be impacted as a result of the Proposed Scheme. On this basis, there is no risk of LSE to this SAC and it is not considered further in this report.

3.2. Information on European Sites Identified for Screening

- 3.2.1. Following the discounting of Castlemartin Coast SPA, West Wales Marine SAC and North Pembrokeshire Woodlands SAC, the following three sites were taken forward to detailed screening:
- Pembrokeshire Marine SAC
 - Pembrokeshire Bat Sites and Bosherton Lakes SAC; and
 - Limestone Coast of South West Wales SAC.
- 3.2.2. Relevant environmental information for each European Site taken from the designation citations is presented in **Tables 3-1 to 3-3** below.

³¹ Collins (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London.

Table 3-1 – Pembrokeshire Marine Special Area of Conservation

EU Site Code	UK0013116 ³²
Designation	SAC
Name	Pembrokeshire Marine
Area	138,038.5 ha
Proximity	The SAC is located 150 m north of the Site and 875 m south of the Site
Qualifying Interest Features	Annex I habitats that are a primary reason for selection of this site: 1130 Estuaries 1160 Large shallow inlets and bays 1170 Reefs Annex I Habitats present as a qualifying feature, but not a primary reason for selection of this site: 1110 Sandbanks which are slightly covered by sea water all the time 1140 Mudflats and sandflats not covered by seawater at low tide 1150 Coastal lagoons 1330 Atlantic salt meadows 8330 Submerged or partially submerged sea caves Annex II species that are a primary reason for selection of this site: 1364 Grey seal 1441 Shore dock Annex II species present as a qualifying feature, but not a primary reason for selection of this site: 1095 Sea lamprey 1099 River lamprey 1102 Allis shad 1103 Twaite shad 1355 Otter
Conservation Objectives	The Conservation Objectives for the Pembrokeshire Marine SAC³² are as follows: <i>‘Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;</i> <i>- The extent and distribution of qualifying natural habitats and habitats of qualifying species;</i> <i>- The structure and function (including typical species) of qualifying natural habitats;</i>

³² Natural Resources Wales: Pembrokeshire Marine Special Area of Conservation: Advice provided by Natural Resources Wales in the fulfilment of Regulation 37 of the Conservation of Habitats and Species Regulations 2017. March 2018.

<https://cdn.naturalresources.wales/media/687999/eng-pembrokeshire-marine-reg-37-report-2018.pdf> [Accessed July 2024]



	- <i>The structure and function of the habitats of qualifying species;</i> - <i>The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;</i> - <i>The populations of qualifying species; and</i> - <i>The distribution of qualifying species within the site'</i>
Vulnerabilities	The Conservation Advice for the Pembrokeshire Marine SAC lists the following vulnerabilities: - Docks, harbours, marinas, and shipping activities including dredging; - Construction activities including land claim, coastal protection and defences, barrages, artificial reef, hard engineered water courses, power stations, and power/communication cables; - Effluent disposal (domestic, industrial and thermal), inorganic waste/debris, urban/industrial/agricultural run-off; - Fishing activities including trawling, dredging (mussel and oyster), netting, potting, line-fishing, bait collection and collection for aquarium; - Grazing of salt marsh, gathering algae for consumption; - Aquaculture (wild stock, crustaceans, molluscan); - Exploitation of non-living resources such as water abstraction, oil and gas exploration and renewable energy generation; - Pollution incidents such as oil spills on land and at sea; - Recreational activities such as angling, boating, surfing, scuba diving, eco-tourism and coastal access (bathing/ dog walking/ coasteering); and - Military activities such as ordnance ranges and marine activities.

Table 3-2 – Limestone Coast of South-West Wales Special Area of Conservation

EU Site Code	UK0014787 ³³
Designation	SAC
Name	Limestone Coast of South West Wales
Area	1583.86 ha
Proximity	The SAC is located 8.5 km southwest of the Site
Qualifying Interest Features	Annex I habitats that are a primary reason for selection of this site: 1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts 2130 Fixed coastal dunes with herbaceous vegetation “grey dunes” Annex I Habitats present as a qualifying feature, but not a primary reason for selection of this site: 4030 European dry heaths 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>)

³³ Countryside Council for Wales. Core Management Plan including Conservation Objectives For Limestone Coast of South West Wales. May 2008. <https://cdn.naturalresources.wales/media/687999/eng-pembrokeshire-marine-reg-37-report-2018.pdf> [Accessed July 2024]



	8130 Caves not open to the public 8330 Submerged or partially submerged sea caves Annex II species that are a primary reason for selection of this site: 1304 Greater horseshoe bat 1654 Early gentian Annex II species present as a qualifying feature, but not a primary reason for selection of this site: 1395 Petalwort
Conservation Objectives	The Conservation Objectives for the Limestone Coast of South West Wales SAC³³ are detailed within the Core Management Plan (CMP) as follows: - Improvements or maintenance of habitat extent and distribution; - Habitat extent; - Population size and distribution of rare and scarce plants (including <i>Fulgensia fulgens</i>); - Condition of habitat; - Extent and distribution of bats and chough nests in the caves; and - Extent and distribution of greater horseshoe bats including their population in the core area.
Vulnerabilities	The CMP for the Limestone Coast of South West Wales SAC lists the following vulnerabilities: - Livestock grazing of habitats / mowing; - Burning of habitats; - Pollution; - Military activity (scrapes erosion); - Access and recreation; - Natural processes such as the introduction of invasive species; and - Condition of caves (habitats for species).

Table 3-3 – Pembrokeshire Bat Sites and Bosherton Lakes Special Area of Conservation

EU Site Code	UK0014793 ³⁴
Designation	SAC
Name	Pembrokeshire Bat Sites and Bosherton Lakes
Area	121.26 ha
Proximity	The SAC is located 8 km to the east at its closest point.

³⁴ Countryside Council for Wales. Core Management Plan including Conservation Objectives For Pembrokeshire Bat Sites and Bosherton Lakes. April 2008. <https://naturalresources.wales/media/673193/pembs-bat-sites-and-bosh-lakes-english.pdf> [Accessed July 2024]



Qualifying Interest Features	Annex I habitats that are a primary reason for selection of this site: 3140 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. Annex II species that are a primary reason for selection of this site: 1304 Greater horseshoe bat Annex II species present as a qualifying feature, but not a primary reason for selection of this site: 1303 Lesser horseshoe bat 1355 Otter
Conservation Objectives	The Conservation Objectives for Pembrokeshire Bat Sites and Bosherton Lakes SAC³⁴ are detailed within the CMP as follows:: - Extent of standing water, extent of <i>Chara hispida</i> within water, vegetation composition, community structure; - Population distribution (breeding roosts, winter / intermediate roosts and otter population extent); - Roost size; and - Breeding productivity (breeding roost or otter).
Vulnerabilities	The CMP for the Pembrokeshire Bat Sites and Bosherton Lakes SAC lists the following vulnerabilities: - Habitat quality (water quality); - Hydrology (natural fluctuations, anthropogenic influences); - Sediment load; - Fishery management; - Introduced species; - Changes in access and recreation to the lake; - Availability of suitable habitat (roosts or freshwater); - Availability of bat fly-ways; - Disturbance (e.g. from fumes, lighting or noise or of otter resting places); - Food availability; and - Anthropogenic mortality

3.3. Stage 1 Screening Results

Identified effect pathways

3.3.1. As outlined in paragraph 2.2.9, the following effect pathways have been identified. Each Conservation Objective has been considered against each pathway:

- Habitat loss and fragmentation;
- Species disturbance (visual, noise, vibration);



- Changes to water quality;
- Changes to air quality;
- Changes to surface and groundwater hydrology; and
- Introduction of Invasive Non-Native Species (INNS).

3.3.2. The DMRB tables for LSE Screening can be made available on request.

Likely Significant Effect Screening - Alone

3.3.3. LSE screening for the identified European Sites is provided in Table 3-4 to 3-6 below. The assessment considers the construction of the Proposed Scheme. As the Proposed Scheme comprises maintenance works, there will be no operational changes resulting from the completion of the works, and these have therefore not been considered.



Table 3-4 - Pembrokeshire Marine Special Area of Conservation

Pembrokeshire Marine SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
Annex I habitats that are a primary reason for selection of this site: 1130 Estuaries	The extent and distribution of qualifying natural habitats and habitats of qualifying species; The structure and function (including typical species) of qualifying natural habitats; The structure and function of the habitats of qualifying species; and The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely	Construction	Habitat loss and fragmentation	As the Scheme is restricted to the bridge deck only, with no impacts on any other habitats, no impacts to habitats associated with the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	N/A	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway, including estuaries off the waterway. Excavated materials including surface planing and carriageway debris will be set aside and removed from Site along with other waste materials during the works. Uncontrolled pollution during the construction works could result in changes to the water quality of the SAC downstream.	Yes
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex I habitats that are a primary reason for selection of this site: 1160 Large shallow inlets and bays	The extent and distribution of qualifying natural habitats and habitats of qualifying species; The structure and function (including typical species) of qualifying natural habitats; The structure and function of the habitats of qualifying species; and The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely	Construction	Habitat loss and fragmentation	As the Scheme is restricted to the bridge deck only, with no impacts on any other habitats, no impacts to habitats associated with the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	N/A	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway, a natural bay. The large shallow inlet and bays are located over 15 km downstream, on the Welsh coast of the Atlantic Ocean. It is considered that the potential for impacts via the release of pollutants from the Proposed Scheme would be eliminated by dilution and estuarine mixing.	No
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result, there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex I habitats that are a primary reason for selection of this site: 1170 Reefs	The extent and distribution of qualifying natural habitats and habitats of qualifying species;	Construction	Habitat loss and fragmentation	As the Scheme is restricted to the bridge deck only, with no impacts on any other habitats, no impacts to habitats associated with the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	N/A	No

Pembrokeshire Marine SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
	The structure and function (including typical species) of qualifying natural habitats; The structure and function of the habitats of qualifying species; and The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely		Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway, where reef habitats are known to persist. Excavated materials including surface planing and carriageway debris will be set aside and removed from Site along with other waste materials during the works. Uncontrolled pollution during the construction works could result in changes to the water quality of the SAC downstream.	Yes
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result, there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex I Habitats present as a qualifying feature, but not a primary reason for selection of this site: 1110 Sandbanks which are slightly covered by sea water all the time	The extent and distribution of qualifying natural habitats and habitats of qualifying species; The structure and function (including typical species) of qualifying natural habitats; The structure and function of the habitats of qualifying species; and The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely	Construction	Habitat loss and fragmentation	As the Scheme is restricted to the bridge deck only, with no impacts on any other habitats, no impacts to habitats associated with the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	N/A	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway. Uncontrolled pollution during the construction works could result in changes to the water quality of the Cleddau Ddu, however sandbanks are located along the coastal periphery of Wales, located beyond the mouth of the Milford Haven Waterway over 15 km downstream along the coast. It is considered that the potential for impacts via the release of pollutants from the Proposed Scheme would be eliminated by dilution and estuarine mixing.	No
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result, there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck Excavated materials including surface planing and carriageway debris will be set aside and removed from Site along with other waste materials during the works.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex I Habitats present as a qualifying feature, but not a primary reason for selection of this site: 1140 Mudflats and sandflats not covered by seawater at low tide	The extent and distribution of qualifying natural habitats and habitats of qualifying species; The structure and function (including typical species) of qualifying natural habitats;	Construction	Habitat loss and fragmentation	As the Scheme is restricted to the bridge deck only, with no impacts on any other habitats, no impacts to habitats associated with the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	N/A	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway, where mudflats form due to the shelter provided by the estuary. Excavated materials including surface planing and carriageway debris will be set aside and	Yes

Pembrokeshire Marine SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
	The structure and function of the habitats of qualifying species; and The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely			removed from Site along with other waste materials during the works. Uncontrolled pollution during the construction works could result in changes to the water quality of the SAC downstream.	
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result, there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex I Habitats present as a qualifying feature, but not a primary reason for selection of this site: 1150 Coastal lagoons	The extent and distribution of qualifying natural habitats and habitats of qualifying species; The structure and function (including typical species) of qualifying natural habitats; The structure and function of the habitats of qualifying species; and The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely	Construction	Habitat loss and fragmentation	As the Scheme is restricted to the bridge deck only, with no impacts on any other habitats, no impacts to habitats associated with the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	N/A	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m high above the Cleddau Ddu, leading into the Milford Haven waterway, where coastal lagoons are formed from tributary estuaries of the waterway. Excavated materials including surface planing and carriageway debris will be set aside and removed from Site along with other waste materials during the works. Uncontrolled pollution during the construction works could result in changes to the water quality of the SAC.	Yes
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex I Habitats present as a qualifying feature, but not a primary reason for selection of this site: 1330 Atlantic salt meadows	The extent and distribution of qualifying natural habitats and habitats of qualifying species; The structure and function (including typical species) of qualifying natural habitats; The structure and function of the habitats of qualifying species; and The supporting processes on which qualifying natural habitats	Construction	Habitat loss and fragmentation	As the Scheme is restricted to the bridge deck only, with no impacts on any other habitats, no impacts to habitats associated with the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	N/A	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway, where Atlantic Salt Meadows are isolated upstream a tributary at Dale towards the mouth of the Milford Haven waterway, this is located over 15 km downstream. .. It is considered that the potential for impacts via the release of pollutants from the Proposed Scheme would be eliminated by dilution and estuarine mixing.	No
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak	No

Pembrokeshire Marine SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
	and the habitats of qualifying species rely			times. As a result, there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex I Habitats present as a qualifying feature, but not a primary reason for selection of this site: 8330 Submerged or partially submerged sea caves	The extent and distribution of qualifying natural habitats and habitats of qualifying species; The structure and function (including typical species) of qualifying natural habitats; The structure and function of the habitats of qualifying species; and The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely	Construction	Habitat loss and fragmentation	As the Scheme is restricted to the bridge deck only, with no impacts on any other habitats, no impacts to habitats associated with the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	N/A	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway. Uncontrolled pollution during the construction works could result in changes to the water quality of Cleddau Ddu. However caves are located along the coastal periphery of Wales located over 15 km downstream. It is considered that the potential for impacts via the release of pollutants from the Proposed Scheme would be eliminated by dilution and estuarine mixing.	No
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex II species that are a primary reason for selection of this site: 1364 Grey seal	The structure and function of the habitats of qualifying species; The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; The populations of qualifying species; and The distribution of qualifying species within the site	Construction	Habitat loss and fragmentation	As the Scheme is restricted to the bridge deck only, with no impacts on any other habitats, no impacts to habitats associated with the qualifying species of the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	Grey seal are a qualifying species for the SAC, they are predominantly found on the islands off the coast of Wales and breed on the cobbled beaches. They are known to occasionally venture into Milford Haven waterway, and up the Cleddau Ddu to feed ³⁵ . Habitats adjacent to the Scheme are not suitable for breeding grey seal, but provide some limited suitable foraging habitat. However, as the works are restricted to the bridge deck over 30m above the Cleddau Ddu, no disturbance impacts to grey seal are considered likely.	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway. Uncontrolled pollution during the construction works could result in changes to the water quality of the SAC, and therefore impact the qualifying species which rely on the water and habitats.	Yes
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak	No

³⁵ <https://www.pembrokeshiremarinesac.org.uk/> [Accessed August 2024]

Pembrokeshire Marine SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
				times. As a result there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex II species that are a primary reason for selection of this site: 1441 Shore dock	The structure and function of the habitats of qualifying species; The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; The populations of qualifying species; and The distribution of qualifying species within the site	Construction	Habitat loss and fragmentation	As the Scheme is restricted to the bridge deck only, with no impacts on any other habitats, no impacts to habitats associated with the qualifying species of the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	N/A	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway. Uncontrolled pollution during the construction works could result in changes to the water quality of the SAC, however given that the closest known populations of shore dock are over 15 km downstream ³⁵ , along the coast, any pollution resulting from the minor works is unlikely to have a detrimental impact on shore dock.	No
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex II species present as a qualifying feature, but not a primary reason for selection of this site: 1095 Sea lamprey	The structure and function of the habitats of qualifying species; The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; The populations of qualifying species; and The distribution of qualifying species within the site	Construction	Habitat loss and fragmentation	As the Scheme is restricted to the bridge deck only, with no impacts on any other habitats, no impacts to habitats associated with the qualifying species of the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	Sea lamprey are a mobile species that are known to breed up freshwater rivers, but spend their lives at sea in saltwater habitats. There are known sea lamprey populations within the Cleddau rivers ³⁵ . However, as the works are restricted to the bridge deck over 30m above the Cleddau Ddu, disturbance impacts to sea lamprey are considered unlikely. Furthermore, as the bridge is a well used road bridge with an adjacent marina there is baseline level of habituation to disturbance through motorised vehicles.	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway. Uncontrolled pollution during the construction works could result in changes to the water quality of the river habitats immediately below the bridge where there are known populations of sea lamprey.	Yes
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	No

Pembrokeshire Marine SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex II species present as a qualifying feature, but not a primary reason for selection of this site: 1099 River lamprey	The structure and function of the habitats of qualifying species; The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; The populations of qualifying species; and The distribution of qualifying species within the site	Construction	Habitat loss and fragmentation	As the Scheme is restricted to the bridge deck only, with no impacts on any other habitats, no impacts to habitats associated with the qualifying species of the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	River lamprey are a mobile species that are known to breed up freshwater rivers, but spend their lives at sea in saltwater habitats. There are known river lamprey populations within the Cleddau rivers ³⁵ . However, as the works are restricted to the bridge deck over 30 m above the Cleddau Ddu, disturbance impacts to river lamprey are considered unlikely. Furthermore, as the bridge is a well used road bridge with an adjacent marina there is baseline level of habituation to disturbance through motorised vehicles.	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30m above the Cleddau Ddu, leading into the Milford Haven waterway. Uncontrolled pollution during the construction works could result in changes to the water quality of the river habitats immediately below the bridge where there are known populations of lamprey.	Yes
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	No
			Changes to surface and groundwater hydrology	As the Scheme is maintenance repairs, and the expansion joints will be replaced like for like, there will be no changes to drainage from the bridge as a result of the works.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex II species present as a qualifying feature, but not a primary reason for selection of this site: 1102 Allis shad	The structure and function of the habitats of qualifying species; The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; The populations of qualifying species; and The distribution of qualifying species within the site	Construction	Habitat loss and fragmentation	As the Scheme is restricted to the bridge deck only, with no impacts on any other habitats, no impacts to habitats associated with the qualifying species of the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	Allis shad are a mobile species that are known to breed up freshwater rivers in gravel, but spend their lives at sea in saltwater habitats. There are few records of allis shad within the Pembrokeshire Marine SAC ³⁵ . However, as the works are restricted to the bridge deck over 30 m above the Cleddau Ddu, disturbance impacts to allis shad are considered unlikely. Furthermore, as the bridge is a well used road bridge with an adjacent marina there is baseline level of habituation to disturbance through motorised vehicles.	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30m high above the Cleddau Ddu, leading into the Milford Haven waterway. Uncontrolled pollution during the construction works could result in changes to the water quality of the SAC, and therefore impact the qualifying species which rely on the water and habitats.	Yes
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result, there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	No

Pembrokeshire Marine SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex II species present as a qualifying feature, but not a primary reason for selection of this site: 1103 Twaite shad	The structure and function of the habitats of qualifying species; The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; The populations of qualifying species; and The distribution of qualifying species within the site	Construction	Habitat loss and fragmentation	As the Scheme is restricted to the bridge deck only, with no impacts on any other habitats, no impacts to habitats associated with the qualifying species of the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	Twaite shad are a mobile species that are known to breed up freshwater rivers in gravel, but spend their lives at sea in saltwater habitats. There are few records of twaite shad within the Pembrokeshire Marine SAC ³⁵ . However, as the works are restricted to the bridge deck over 30 m above the Cleddau Ddu, disturbance impacts to twaite shad are considered unlikely. Furthermore, as the bridge is a well used road bridge with an adjacent marina there is baseline level of habituation to disturbance through motorised vehicles.	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway. Uncontrolled pollution during the construction works could result in changes to the water quality of the SAC, and therefore impact the qualifying species which rely on the water and habitats.	Yes
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result, there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex II species present as a qualifying feature, but not a primary reason for selection of this site: 1355 Otter	The structure and function of the habitats of qualifying species; The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely; The populations of qualifying species; and The distribution of qualifying species within the site	Construction	Habitat loss and fragmentation	As the Scheme is restricted to the bridge deck only, with no impacts on any other habitats, no impacts to habitats associated with the qualifying species of the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	The river banks adjacent to the Cleddau Ddu are heavily wooded are considered suitable to support otter holts or resting sites. No holt locations or resting sites were identified on the walkover undertaken in April 2024 in habitats immediately underneath and directly adjacent to the bridge. The PEA report ¹⁸ details only one recent record of otter has been recorded, located 1.3 km southwest of the Scheme. The Cleddau Ddu and Milford Haven waterway provides suitable commuting and foraging habitat for otter. It is therefore possible that otter may be present in habitats beneath the bridge. However, as the works are restricted to the bridge deck over 30 m above the Cleddau Ddu, no disturbance impacts to this species are considered likely. Furthermore, as the bridge is a well used road bridge with an adjacent marina there is baseline level of habituation to disturbance through motorised vehicles.	No
			Changes to water quality	As habitats beneath the bridge are considered suitable for commuting, foraging and holt creation it is likely that otter may be present. As otter rely on foraging for species within the waterway, pollution from the Scheme may bioaccumulate in prey and have a consequential impact on otter or may result in a direct reduction of otter prey items. Excavated materials including surface planing and	Yes

Pembrokeshire Marine SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
				carriageway debris will be set aside and removed from Site along with other waste materials during the works. Uncontrolled pollution during the construction works could result in changes to the water quality of the SAC, and therefore impact the qualifying species which rely on the water and habitats.	
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result, there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No

Table 3-4 – Limestone coast of South-West Wales Special Area of Conservation

Limestone coast of South-West Wales SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
Annex I habitats that are a primary reason for selection of this site: 1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts	Improvements or maintenance of habitat extent and distribution; Habitat extent; Condition of habitat.	Construction	Habitat loss and fragmentation	Habitats associated with the SAC are located 8 km in a direct line or 14 km through hydrological connectivity, no impacts to habitats associated with the qualifying species of the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	N/A	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway. Excavated materials including surface planing and carriageway debris will be set aside and removed from Site along with other waste materials during the works. Uncontrolled pollution during the construction works could result in changes to the water quality of the Milford Haven waterway The Scheme is hydrologically connected to the SAC over a distance of 14 km by water. However, considering the temporary and localised nature of the works, and the distance between the works and the SAC, it is considered that the potential for impacts via the release of pollutants from the Proposed Scheme would be eliminated by dilution and estuarine mixing.	No
			Changes to air quality	The Limestone Coast of South West Wales SAC is 8.5 km southwest at its closest point. This is well beyond the zone of influence for any construction phase atmospheric pollution. The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result, there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck. Excavated materials including surface planing and carriageway debris will be set aside and removed from Site along with other waste materials during the works.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex I habitats that are a primary reason for selection of this site: 2130 Fixed coastal dunes with herbaceous vegetation “grey dunes”	Improvements or maintenance of habitat extent and distribution; Habitat extent; Condition of habitat.	Construction	Habitat loss and fragmentation	Habitats associated with the SAC are located 8.5 km in a direct line or 14 km through hydrological connectivity, no impacts to habitats associated with the qualifying species of the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	N/A	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway. Excavated materials including surface planing and carriageway debris will be set aside and removed from Site along with other waste materials during the works. Uncontrolled pollution during the construction works could result in changes to the water quality of the Milford Haven waterway The Scheme is hydrologically connected to the SAC over a distance of 14 km by water. However, considering the temporary and localised nature of the works, and the distance between the works and the SAC, it is considered that the potential for impacts via the release of pollutants from the Proposed Scheme would be eliminated by dilution and estuarine mixing.	No

Limestone coast of South-West Wales SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
			Changes to air quality	The Limestone Coast of South West Wales SAC is 8.5 km southwest at its closest point. This is well beyond the zone of influence for any construction phase atmospheric pollution. The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result, there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex I Habitats present as a qualifying feature, but not a primary reason for selection of this site: 4030 European dry heaths	Improvements or maintenance of habitat extent and distribution; Habitat extent; Condition of habitat.	Construction	Habitat loss and fragmentation	Habitats associated with the SAC are located 8.5 km in a direct line or 14 km through hydrological connectivity, no impacts to habitats associated with the qualifying species of the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	N/A	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway. Uncontrolled pollution during the construction works could result in changes to the water quality of the Milford Haven waterway The Scheme is hydrologically connected to the SAC over a distance of 14 km by water. However, considering the temporary and localised nature of the works, and the distance between the works and the SAC, it is considered that the potential for impacts via the release of pollutants from the Proposed Scheme would be eliminated by dilution and estuarine mixing.	No
			Changes to air quality	The Limestone Coast of South West Wales SAC is 8.5 km southwest at its closest point. This is well beyond the zone of influence for any construction phase atmospheric pollution. The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result, there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck. Excavated materials including surface planing and carriageway debris will be set aside and removed from Site along with other waste materials during the works.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex I Habitats present as a qualifying feature, but not a primary reason for selection of this site: 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia)	Improvements or maintenance of habitat extent and distribution; Habitat extent; Condition of habitat.	Construction	Habitat loss and fragmentation	Habitats associated with the SAC are located 8.5 km in a direct line or 14 km through hydrological connectivity.	No
			Species disturbance (visual, noise, vibration)	N/A	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway. Excavated materials including surface planing and carriageway debris will be set aside and removed from Site along with other waste materials during the works. Uncontrolled pollution during the construction works could result in changes to the water quality of the Milford Haven waterway The Scheme is hydrologically connected to the SAC over a	No



Limestone coast of South-West Wales SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
				distance of 14 km by water. However, considering the temporary and localised nature of the works, and the distance between the works and the SAC, it is considered that the potential for impacts via the release of pollutants from the Proposed Scheme would be eliminated by dilution and estuarine mixing.	
			Changes to air quality	The Limestone Coast of South West Wales SAC is 8.5 km southwest at its closest point. This is well beyond the zone of influence for any construction phase atmospheric pollution. The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result, there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex I Habitats present as a qualifying feature, but not a primary reason for selection of this site: 8130 Caves not open to the public	Improvements or maintenance of habitat extent and distribution; Habitat extent; Condition of habitat.	Construction	Habitat loss and fragmentation	Habitats associated with the SAC are located 8.5 km in a direct line or 14 km through hydrological connectivity, no impacts to habitats associated with the qualifying species of the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	N/A	No
			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway. Excavated materials including surface planing and carriageway debris will be set aside and removed from Site along with other waste materials during the works. Uncontrolled pollution during the construction works could result in changes to the water quality of the Milford Haven waterway The Scheme is hydrologically connected to the SAC over a distance of 14 km by water. However, considering the temporary and localised nature of the works, and the distance between the works and the SAC, it is considered that the potential for impacts via the release of pollutants from the Proposed Scheme would be eliminated by dilution and estuarine mixing.	No
			Changes to air quality	The Limestone Coast of South West Wales SAC is 8.5 km southwest at its closest point. This is well beyond the zone of influence for any construction phase atmospheric pollution. The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result, there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex I Habitats present as a qualifying feature, but not a primary reason for selection of this site:	Improvements or maintenance of habitat extent and distribution; Habitat extent; Condition of habitat.	Construction	Habitat loss and fragmentation	Habitats associated with the SAC are located 8.5 km in a direct line or 14 km through hydrological connectivity, no impacts to habitats associated with the qualifying species of the SAC are expected.	No
			Species disturbance (visual, noise, vibration)	N/A	No

Limestone coast of South-West Wales SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
8330 Submerged or partially submerged sea caves			Changes to water quality	The Scheme is restricted to the bridge deck which is located over 30 m above the Cleddau Ddu, leading into the Milford Haven waterway. Excavated materials including surface planing and carriageway debris will be set aside and removed from Site along with other waste materials during the works. Uncontrolled pollution during the construction works could result in changes to the water quality of the Milford Haven waterway. The Scheme is hydrologically connected to the SAC over a distance of 14 km by water. However, considering the temporary and localised nature of the works, and the distance between the works and the SAC, it is considered that the potential for impacts via the release of pollutants from the Proposed Scheme would be eliminated by dilution and estuarine mixing.	No
			Changes to air quality	The Limestone Coast of South West Wales SAC is 8.5 km southwest at its closest point. This is well beyond the zone of influence for any construction phase atmospheric pollution. Furthermore, anticipated air pollution for the duration of the works is not anticipated to be above baseline.	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansion joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex II species that are a primary reason for selection of this site: 1304 Greater horseshoe bat	Extent and distribution of bats and chough nests in the caves; and Extent and distribution of greater horseshoe bats including their population in the core area.	Construction	Habitat loss and fragmentation	Habitats directly associated with the SAC, including caves where bats may roost, are located 8 km in a direct line or 14 km through hydrological connectivity. No habitats where greater horseshoe bats may roost, commute or forage will be lost as a result of the Scheme as works are restricted to the bridge deck only. There are therefore no impacts resulting in habitat loss or fragmentation.	No
			Species disturbance (visual, noise, vibration)	The walkover survey undertaken in April 2024 identified the bridge itself as providing suitable roosting habitat for bats, including open access into the abutments and crevices within the expansion joint. Further bat surveys have been undertaken in June and July 2024 which have confirmed roosting brown long-eared bats within the expansion joints at both abutments, and lesser horseshoe bats roosting within the eastern abutment. No greater horseshoe bats have been observed roosting, or have been recorded passing on the emergence surveys undertaken in June and July 2024. The desk study records obtained for the PEA report ¹⁸ did not identify any records of greater horseshoe bats within 2 km of the Scheme. Habitats along the Cleddau Ddu river provide suitable commuting and foraging habitat for bats. As the works are located on the bridge deck, any lighting is unlikely to significantly illuminate habitats used by bats for commuting and foraging. As the bridge has not shown any evidence of use by greater horseshoe bats there is no risk of disturbance to individual bats in their roosts as a result of the scheme.	No
			Changes to water quality	N/A	No
			Changes to air quality	The works will involve the use of machinery in order to undertake the break outs and planing of the deck. However, the use of machinery will not be above existing levels from traffic usage at peak times. As a result there is not expected to be an increase in air pollution as a result of the works and therefore no changes to air quality are expected.	No
			Changes to surface and groundwater hydrology	N/A	No
			Introduction of Invasive Non-Native Species (INNS)	N/A	No

Limestone coast of South-West Wales SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
Annex II species that are a primary reason for selection of this site: 1654 Early gentian	Improvements or maintenance of habitat extent and distribution; Habitat extent; and Population size and distribution of rare and scarce plants (including <i>Fulgensia fulgens</i>).	Construction	Habitat loss and fragmentation	Habitats directly associated with the SAC, including calcareous grassland and scrubland where early gentian may be found, are located 8.5 km in a direct line or 14 km through hydrological connectivity. No habitats where early gentian may grow will be impacted by the Scheme, as works are restricted only to the bridge deck.	No
			Species disturbance (visual, noise, vibration)	Early gentian favours grazed chalk grasslands and no chalk grasslands are located within or adjacent to the Scheme. As early gentian is a plant species it is not mobile and is therefore unlikely to be present in the vicinity on the Cleddau river. Furthermore, as a plant early gentian is not vulnerable to disturbance.	No
			Changes to water quality	N/A	No
			Changes to air quality	The Limestone Coast of South West Wales SAC is 8.5 km southwest at its closest point. This is well beyond the zone of influence for any construction phase atmospheric pollution. Furthermore, anticipated air pollution for the duration of the works is not anticipated to be above baseline.	No
			Changes to surface and groundwater hydrology	N/A	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex II species present as a qualifying feature, but not a primary reason for selection of this site: 1395 Petalwort	Improvements or maintenance of habitat extent and distribution; Habitat extent; and Population size and distribution of rare and scarce plants (including <i>Fulgensia fulgens</i>).	Construction	Habitat loss and fragmentation	Habitats directly associated with the SAC, including coastal dunes where petalwort may be found, are located 8km in a direct line or 14 km through hydrological connectivity. No habitats where petalwort may grow will be impacted by the Scheme, as works are restricted only to the bridge deck.	No
			Species disturbance (visual, noise, vibration)	Petalwort favours calcareous dunes and no dunes are located within or adjacent to the Scheme. As petalwort is a plant species it is not mobile and is therefore unlikely to be present in the vicinity on the Cleddau river. Furthermore, as a plant petalwort is not vulnerable to disturbance.	No
			Changes to water quality	N/A	No
			Changes to air quality	The Limestone Coast of South West Wales SAC is 8.5 km southwest at its closest point. This is well beyond the zone of influence for any construction phase atmospheric pollution. Furthermore, anticipated air pollution for the duration of the works is not anticipated to be above baseline.	No
			Changes to surface and groundwater hydrology	N/A	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No

Table 3-5 – Pembrokeshire Bat Sites and Bosherton Lakes Special Area of Conservation

Pembrokeshire Bat Sites and Bosherton Lakes SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
Annex I habitats that are a primary reason for selection of this site: 3140 Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	Extent of standing water, extent of <i>Chara hispida</i> within water, vegetation composition, community structure.	Construction	Habitat loss and fragmentation	Habitats associated with the SAC are located 8 km in a direct line with no hydrological connectivity as the sites sit upstream of the Scheme. Tas the works are restricted to the bridge deck, there will be no loss of habitats associated with this SAC.	No
			Species disturbance (visual, noise, vibration)	N/A	No
			Changes to water quality	There is no hydrological connectivity between the Scheme and the SAC. Therefore, there is no potential impacts on water quality.	No
			Changes to air quality	The Pembrokeshire Bat sites and Bosherton Lakes SAC comprises of multiple sites the closest of which is located 8 km to the east. This is well beyond the zone of influence for any construction phase atmospheric pollution.	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex II species that are a primary reason for selection of this site: 1304 Greater horseshoe bat	Population distribution (breeding roosts, winter / intermediate roosts and otter population extent); Roost size; and Breeding productivity (breeding roost or otter).	Construction	Habitat loss and fragmentation	Habitats directly associated with the SAC are located 8 km in a direct line with no hydrological connectivity, as the sites sit upstream of the Scheme. No habitats where greater horseshoe may roost, commute or forage will be lost as a result of the Scheme as works are restricted to the bridge deck only. There are therefore no impacts resulting in habitat loss or fragmentation.	No
			Species disturbance (visual, noise, vibration)	The walkover survey undertaken in April 2024 identified the bridge itself as providing suitable roosting habitat for bats, including open access into the abutments and crevices within the expansion joint. Further bat surveys have been undertaken in June and July 2024 which have confirmed roosting brown long-eared bats within the expansion joints at both abutments, and lesser horseshoe bats roosting within the eastern abutment. No greater horseshoe bats have been observed roosting, or have been recorded passing on the emergence surveys undertaken in June and July 2024. The desk study records obtained for the PEA report ¹⁸ did not identify any records of greater horseshoe bats within 2 km of the Scheme. Habitats along the Cleddau Ddu river provide suitable commuting and foraging habitat for bats. As the works are located on the bridge deck, any lighting is unlikely to significantly illuminate habitats used by bats for commuting and foraging. As the bridge has not shown any evidence of use by greater horseshoe bats there is no risk of disturbance to individual bats in their roosts as a result of the scheme.	No
			Changes to water quality	N/A	No
			Changes to air quality	The Pembrokeshire Bat sites and Bosherton Lakes SAC comprises of multiple sites the closest of which is located 8 km to the east. This is well beyond the zone of influence for any construction phase atmospheric pollution.	No
			Changes to surface and groundwater hydrology	N/A	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex II species present as a qualifying feature, but not	Population distribution (breeding roosts, winter / intermediate	Construction	Habitat loss and fragmentation	Habitats directly associated with the SAC are located 8 km in a direct line with no hydrological connectivity, as the sites sit upstream of the Scheme. No habitats where lesser horseshoe may	No

Pembrokeshire Bat Sites and Bosherton Lakes SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
a primary reason for selection of this site: 1303 Lesser horseshoe bat	roosts and otter population extent); Roost size; and Breeding productivity (breeding roost or otter).			roost, commute or forage will be lost as a result of the Scheme as works are restricted to the bridge deck only. The works are proposed to be undertaken over a phased period, as such half of the expansion joint will be removed at any one time and therefore the other half will be retained as a roosting location throughout the duration of the works.	
			Species disturbance (visual, noise, vibration)	The walkover survey undertaken in April 2024 identified the bridge itself as providing suitable roosting habitat for bats, including open access into the abutments and crevices within the expansion joint. Further bat surveys have been undertaken in June and July 2024 which have confirmed roosting brown long-eared bats within the expansion joints at both abutments, and lesser horseshoe bats roosting within the eastern abutment. The desk study records obtained for the PEA report ¹⁸ also identified six field records of lesser horseshoe bats within 2 km of the Scheme. Habitats along the Cleddau Ddu river provide suitable commuting and foraging habitat for bats. As the works are located on the bridge deck, any lighting is unlikely to significantly illuminate habitats used by bats for commuting and foraging. Lesser horseshoe bats are considered to have a core sustenance zone (CSZ) of 2 km ³⁶ . Although the distance between the SAC and the Scheme is greater the CSZ in the absence of further information it has been assumed that the bats could have functional linkage to the populations associated with the Pembrokeshire Bat Sites and Bosherton Lakes on a precautionary basis. Therefore, as lesser horseshoe bats have been confirmed roosting within the bridge, the works may results in the disturbance of these qualifying species.	Yes
			Changes to water quality	N/A	No
			Changes to air quality	The Pembrokeshire Bat sites and Bosherton Lakes SAC comprises of multiple sites the closest of which is located 8 km to the east. This is well beyond the zone of influence for any construction phase atmospheric pollution.	No
			Changes to surface and groundwater hydrology	N/A	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No
Annex II species present as a qualifying feature, but not a primary reason for selection of this site: 1355 Otter	Population distribution (breeding roosts, winter / intermediate roosts and otter population extent); Roost size; and Breeding productivity (breeding roost or otter).	Construction	Habitat loss and fragmentation	Habitats associated with the SAC are located 8 km in a direct line, and a commuting route up the rivers is possible. Otters are known to us extensive habitat, which can be up to 20 km ³⁷ . As the Cleddau Ddu provides suitable commuting and foraging habitat for otters, and the adjacent river bank provides suitable holt or resting site opportunities, it is possible that any otters present may be functionally linked to this SAC. As works are restricted to the bridge deck, the works will not result in the loss of fragmentation of any habitats suitable to support otter.	No
			Species disturbance (visual, noise, vibration)	As otters are mobile species, otter associated with the SAC may travel to habitats adjacent to the Scheme. The river banks adjacent to the Cleddau Ddu are heavily wooded are considered suitable to support otter holts or resting sites, although no holt locations or resting sites were identified on the walkover undertaken in April 2024. The PEA report ¹⁸ details only one recent record of otter has been recorded, located 1.3 km southwest of the Scheme. The Cleddau Ddu and Milford Haven waterway provides suitable commuting and foraging habitat for otter. It is therefore possible that otter may be present in habitats beneath the bridge. However, as the works are restricted to the bridge deck over 30 m above the Cleddau Ddu, no disturbance impacts to this species are	No

³⁶ Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London

³⁷ [Species – Otter – Mammal Society](#) [Accessed August 2024]



Pembrokeshire Bat Sites and Bosherton Lakes SAC Qualifying Feature(s)	Conservation Objectives	Aspect/ Phase of Proposed Scheme which may cause an effect	LSE risk pathway	LSE conclusions	Potential LSE
				considered likely. Furthermore, as the bridge is a well used road bridge with an adjacent marina there is baseline level of habituation to disturbance through motorised vehicles.	
			Changes to water quality	Although there is no hydrological connectivity to the habitats of the SAC, as otter are a mobile species they may be found in suitable habitats beneath the bridge. As otter rely on foraging for species within the waterway, pollution from the Scheme may bioaccumulate in prey and have a consequential impact on otter or may result in a direct reduction of otter prey items. Uncontrolled pollution during the construction works could result in changes to the water quality of the SAC, and therefore impact the qualifying species which rely on the water and habitats.	Yes
			Changes to air quality	The Pembrokeshire Bat sites and Bosherton Lakes SAC comprises of multiple sites the closest of which is located 8 km to the east. This is well beyond the zone of influence for any construction phase atmospheric pollution.	No
			Changes to surface and groundwater hydrology	Minor excavations are required to the bridge deck to break out the existing expansions joints. However, no excavations within the SAC are required and excavations are confined only to the bridge deck. Excavated materials including surface planing and carriageway debris will be set aside and removed from Site along with other waste materials during the works.	No
			Introduction of Invasive Non-Native Species (INNS)	As the Scheme is restricted to the bridge deck only, no introduction of INNS is considered likely.	No

Likely Significant Effect Screening – In-combination

- 3.3.4. The screening assessment above did not identify potential LSE's 'alone' for the Limestone Coast of South West Wales SAC, as such an in-combination screening for LSE has been undertaken below (see Table 3-7).
- 3.3.5. As the Screening assessment identified potential LSEs 'alone' for the Pembrokeshire Marine SAC and Pembrokeshire Bat Sites and Bosherton Lakes, the in-combination assessment will be deferred until Stage 2, see Section 5 of this report.

Table 3-7 – In-Combination LSE for Limestone Coast of South West Wales

Competent Authority	Project/Plan Name	HRA Reference	Findings of HRA	In-combination assessment
Local Planning Authority – Pembrokeshire County Council	Milford Haven Wind Farm (Planning reference 23/0340/NS)	Dragon Energy. Environmental Statement: Appendix 5.5 Report to Inform a Habitats Regulations Assessment (June 2023) ¹	Proposed scheme to install three wind turbines, associated access roads and a control building in land near Milford Haven. The HRA assessed potential for LSE on the Limestone Coast of South West Wales SAC through habitat fragmentation and disturbance to greater horseshoe bat.	No LSE in-combination identified: The Proposed Scheme will not result in any habitat loss for any greater horseshoe bats and no greater horseshoe bats have been recorded utilising the Site. The potential for disturbance from the scheme is restricted to lighting only which will be wildlife sensitive, providing the required mitigation is followed the overall disturbance risk to and greater horseshoe bats will be negligible.
Pembrokeshire County Council Local Development Plan 2 2017-2033 Habitats Regulations Appraisal Report – Deposit Plan	Local Plan HRA	Pembrokeshire County Council Local Development Plan 2 2017-2033 Habitats Regulations Appraisal Report – Deposit Plan Public Consultation	The HRA Deposit Plan Report concluded that there was the risk of LSE at 13 European Sites, including the Pembrokeshire Marine SAC and the Pembrokeshire bat Sites and Bosherton Lakes SAC. This is through development plans considering countryside growth, port and energy related development, strategic employment provision, visitor economy, transport infrastructure and accessibility, waste prevention and management, resource efficiency and low carbon proposals, mixed use housing proposals,	No LSE in-combination identified: the HRA report concludes that the Deposit Plan is unlikely to have a significant effect on any designated sites providing that the mitigation measures are followed, however also provides a caveat that for each development this

		Version 15 th January 2020 – 11th March 2020 ¹	protection and enhancement of the historic environment, farm diversification, marinas, transport routes, working of minerals, coastal change, tourism and waste management.	should still be assessed on a case by case basis.
--	--	---	--	--



Stage 1 Screening Conclusions

- 3.3.6. A total of seven sites were identified in site selection as identified utilising the criteria set out in paragraph 2.2.2. Of these four sites were discounted from LSE screening as impacts could be ruled out; this included the Castlemartin Coast SPA, West Walkes Marine SAC, Skomer, Skokholm and the Seas of Pembrokeshire SPA and North Pembrokeshire Woodlands SAC.
- 3.3.7. The remaining three, Pembrokeshire Marine SAC, Pembrokeshire Bat Sites and Bosherton Lakes SAC and Limestone Coast of South West Wales SAC were subjected to LSE screening. Following the LSE screening LSE could not be discounted for the Pembrokeshire Marine SAC and Pembrokeshire Bat Sites and Bosherton Lakes SAC (see Table 3-8 below).
- 3.3.8. LSE were discounted for the Limestone Coast SAC alone and in combination with other plans and projects.
- 3.3.9. Therefore, Appropriate Assessment is required for Pembrokeshire Marine SAC and Pembrokeshire Bat Sites and Bosherton Lakes SAC.

Table 3-8 - Summary of Identified LSE Pathways

European Site	Qualifying Feature	Scheme Stage	LSE pathway screened in
Pembrokeshire Marine SAC	1130 Estuaries 1170 Reefs 1140 Mudflats and sandflats not covered by seawater at low tide 1150 Coastal lagoons 1364 Grey Seal 1095 Sea lamprey 1099 River lamprey 1102 Allis shad 1103 Twaite shad 1355 Otter	Construction	Changes to water quality
Pembrokeshire Bat Sites and Bosherton Lakes	1303 Lesser horseshoe bat	Construction	Species disturbance (visual, noise, vibration)
	1355 Otter	Construction	Changes to water quality



4. Stage 2 - Appropriate Assessment

4.1. Introduction

4.1.1. Following completion of the HRA Stage 1 Screening assessment, one or more LSE were identified for one or more qualifying features/ criteria of each of the following sites (see Table 3-7):

- Pembrokeshire Marine SAC; and
- Pembrokeshire Bat Sites and Bosherton Lakes.

4.1.2. Therefore, Stage 2 Appropriate Assessment is required for each of these sites.

4.2. Mitigation and Control Measures

4.2.1. The following measures will be employed during the works to avoid and reduce ecological impacts including avoiding causing any adverse effects on any European designated site. These measures are taken into account in the Appropriate Assessment below.

General measures

- The Proposed Scheme will take place with strict adherence to the Guidance for Pollution Prevention (GPPs)³⁸ and the Intrusive Investigations Industry Research and Information Association (CIRIA) guidance³⁹ on the control of water pollution from Intrusive Investigations sites;
- An appropriately qualified and experienced Ecological Clerk of Works (ECoW) will be employed throughout the works to advise on ecological constraints;
- Machinery will be stored in an agreed site compound, outside the boundary of any designated site. Biodegradable fluid will be used in plant where possible. Appropriate interception measures will be used during any refuelling or plant maintenance;
- The ECoW will give a site induction to all site operatives, indicating the ecological sensitivities of the site and boundaries to working.

Effect Specific Measures

4.2.2. The following measures will be undertaken specifically to avoid or reduce the effect of the Proposed Scheme of ecological receptors including European Sites:

- A pre-works check for bats will be undertaken; and
- A European Protected Species Mitigation Licence (EPSML) for bats will be obtained from Natural Resources Wales due to disturbance impacts and temporary roost modification to known bat roosts.

³⁸ The GPPs provide environmental good practice guidance for the whole UK, and environmental regulatory guidance directly to Northern Ireland, Scotland and Wales only. For businesses in England, regulatory guidance is available from GOV.UK instead.

³⁹ CIRIA C762 Environmental good practice provides advice on the management of a range of environmental issues that may be encountered on site and presents good practice to reduce the environmental impacts due to construction

4.3. Assessment of Effects

- 4.3.1. Each potential LSE of the Proposed Scheme identified by the Screening stage is considered in turn below taking into account relevant specific information and mitigation measures.

Changes to water quality

- 4.3.2. The screening assessment concluded that the Proposed Scheme could result in in the deterioration of water quality. This could result in damage to designated habitat features/ criterion or result in impacts on species that use these habitats.

- 4.3.3. The following qualifying features of each European Site may be impacted.

- Pembrokeshire Marine SAC:
 - 1130 Estuaries
 - 1140 Mudflats and sandflats not covered by seawater at low tide
 - 1170 Reefs
 - 1150 Coastal lagoons
 - 1364 Grey Seal
 - 1095 Sea lamprey
 - 1099 River lamprey
 - 1102 Allis shad
 - 1103 Twaite shad
 - 1355 Otter
- Pembrokeshire Bat Sites and Bosherton Lakes SAC:
 - 1355 Otter

Assessment

- 4.3.4. The works required for maintenance bridge repair works will require the localised breaking out of existing tarmac and concrete and planing of the deck surface using machinery. The use of these materials may result in the increase in concrete dust/silt, and the accidental spillage of fuel, oil or other chemicals which may enter the watercourse 30 m below the bridge deck. The silt and fuel could have a negative impact on the integrity of habitats downstream of the Scheme, and species which rely on them.
- 4.3.5. Habitats within the Pembrokeshire Marine SAC are distributed as follows⁴⁰; mudflats and sandflats, reefs and estuary habitats are found frequently along the Milford Haven Waterway with numerous locations identified along the length of the SAC and there are three clearly identified lagoon habitats two are located up tributaries leading to the Milford Haven waterway and the third sits 150 m north of the bridge at Neyland creating the Pembrokeshire Maine SAC designation both upstream and downstream of the Proposed Scheme. Given the spread and frequency of habitats within the Milford Haven waterway (mudflats and sandflats, reefs and estuary habitats) the minor risk of pollution events, in the absence of mitigation, are unlikely have a detrimental impact on the integrity of these habitats within the SAC. The lagoon located upstream of the Proposed Scheme has been man created by the installation of a bund in

⁴⁰ <https://www.pembrokeshiremarinesac.org.uk/want-to-know-what-to-find-where/> [Accessed August 2024]

the 1980's⁴¹ as a result tidal impacts are reduced and therefore the likelihood in a pollution event of it resulting in a detrimental impact on the lagoon upstream of the bridge is limited.

- 4.3.6. Allis shad, Twaite shad, river lamprey and sea lamprey are all known to utilise the river located beneath the Proposed Scheme, in addition to the wider Milford Haven waterway and the other numerous tributaries leading to the Milford Haven waterway. The bund within the Westfield Pill waterway may reduce breeding opportunities for river and sea lamprey who utilise gravel. Otter are known to regularly frequent the river beneath the Proposed Scheme, and the adjacent woodland corridors to the river may provide suitable holt creation opportunities along the entirety of the length of the river. Given the adjacent marina and residential properties it is most likely that otter would choose to breed upstream where disturbance is reduced. The bund lagoon north of the Proposed Scheme provides optimal foraging habitat for otter. Grey seal are infrequent visitors to the tributaries of the Milford Haven waterway, and are generally known to frequent coastal habitats including island off the coast of the Pembrokeshire Marine SAC. In the unlikely scenario of a pollution event, given that it is considered unlikely that qualifying species of the SAC are utilising the river to breed and accounting for the wider habitat availability. If an uncontrolled pollution event were to occur it is unlikely that it would have a detrimental impact on the qualifying species of the SAC.
- 4.3.7. To ensure the Proposed Scheme does not result in reduction in water quality during construction, works will take place with strict adherence to the GPPs³⁸ and the CIRIA guidance³⁹ on the control of water pollution from construction sites, as detailed above. These detail good practice advice for undertaking works that have the potential to cause water pollution and will be detailed in a management plan that will be provided to the team working on Site, prior to the commencement of work, and adhered to throughout the works, to avoid the risk of incidental pollution into the environment.

Conclusion

- 4.3.8. Provided the above mitigation is adhered to, it is concluded that no adverse effect on the integrity of the Pembrokeshire Marine SAC or Pembrokeshire Bat Sites and Bosherton Lakes SAC in relation to changes in water quality.

Species disturbance (visual, noise, vibration)

- 4.3.9. The screening assessment concluded that the Proposed Scheme could result in direct disturbance through visual (lighting), noise and vibration to species associated which may be functionally linked to the designations.
- 4.3.10. The following qualifying features of each European Site may be impacted.
- Pembrokeshire Bat Sites and Bosherton Lakes SAC:
 - 1303 Lesser horseshoe bat

Assessment

- 4.3.11. The works to the proposed bridge may result in the direct disturbance of lesser horseshoe bats which are known to roost within the eastern abutment of the bridge. The noise and vibration from the works to remove the concrete and plane the tarmac off the surface will cause disturbance to any bats present within the bridge. Furthermore, any bats present may also be disturbed by the lighting required during the works.

⁴¹ [Westfield-Pill-Leaflet.pdf \(welshwildlife.org\)](#) [Accessed August 2024]

- 4.3.12. The Pembrokeshire Bat Sites and Bosherton Lakes SAC is split over multiple locations to the east and south of the Proposed Scheme, the Sites of Special Scientific Interest (SSSI) which underpin the SAC include known maternity and hibernation lesser horseshoe roosts. The Core Management Plan³⁴ details that it is unknown where the breeding lesser horseshoe bats within the SAC roost for the remainder of the year, and that these are assumed to travel several kilometres from the known roosts. The site sits beyond the understood core sustenance zone of lesser horseshoe bats, which is 2 km. There is therefore the possibility that the lesser horseshoe bats confirmed to roost within the bridge may be functionally linked to populations associated with the SAC and in the absence of mitigation disturbance to qualifying features may occur.
- 4.3.13. As the works have the potential to contravene legislation relating to bats generally a EPSML will be sought from NRW. Within the method statement of this EPSML details of how disturbance will be alleviated is detailed, this includes the works being undertaken in the transitional bat periods of either September / October or March / April in order to avoid the more significant times of years for bats where disturbance impacts could result in impacts on the favourable conservation status of lesser horseshoe bats. Works are therefore proposed to be undertaken in March or April 2025. Furthermore, works will be undertaken in phases, whereby only half of the expansion joint (across a single lane) will be removed at any one time therefore allowing half of the abutment to remain a usable roost resource throughout the duration of the works. Finally, all works to the expansion joints, where impacts to bats are considered likely, will be undertaken at night in periods of good weather, as the waterproofing layer of the deck refurbishment requires dry weather, where bats are most likely to be out of the roost foraging therefore reducing the likelihood of individual bats being subject to disturbance from noise or vibration. Prior to works which may result in disturbance to bats, an ecologist will undertake a pre-works check of the abutment, and expansion joint, to confirm that no bats are present. Lighting used for the duration of the expansion joint replacement works must follow the Bat Conservation Trust and Institute of Lighting Professionals Guidance GN08 / 23⁴².
- 4.3.14. Providing that the above measures are followed, there is no significant risk of disturbance to bats through noise, vibration or lighting which would have a detrimental effect on lesser horseshoe individual bats or the favourable conservation status of bats which may be functionally linked to the Pembrokeshire Bat Sites and Bosherton Lakes SAC.

Conclusion

- 4.3.15. Provided the above mitigation is adhered to, it is concluded that no adverse effect on the integrity of the Pembrokeshire Bat Sites and Bosherton Lakes SAC in relation to construction disturbance.

⁴² <https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/> [Accessed August 2024]

4.4. In-combination Assessment

- 4.4.1. In-combination assessment of adverse effects for the European Sites screened in for AA is provided in Table 4-1 below.



Table 4-1 - In-Combination Effect Assessment Table

Competent Authority	Project/Plan Name	HRA Reference	Findings of HRA	In-combination assessment
Local Planning Authority – Pembrokeshire County Council	Milford Haven Wind Farm (Planning reference 23/0340/NS)	Dragon Energy. Environmental Statement: Appendix 5.5 Report to Inform a Habitats Regulations Assessment (June 2023) ⁴³	Proposed scheme to install three wind turbines, associated access roads and a control building in land near Milford Haven. The HRA assessed potential for LSE on the Pembrokeshire Marine SAC through the release of contaminants resulting in habitat deterioration and species injury, and disturbance to otter; and Pembrokeshire bat Sites and Bosherton Lakes SAC through habitat fragmentation and disturbance to greater horseshoe bat and lesser horseshoe bats.	No LSE in-combination identified: Any combined effect on water quality will be negligible given the mitigation measures and the schemes are over 6 km apart. The Proposed Scheme will not result in any habitat loss for any greater horseshoe or lesser horseshoe bats, disturbance from the scheme is restricted to lighting only which will be wildlife sensitive, providing the required mitigation is followed the overall disturbance impact to lesser horseshoe bats (and greater horseshoe bats) will be negligible.
Pembrokeshire County Council Local Development Plan 2 2017-2033 Habitats Regulations	Local Plan HRA	Pembrokeshire County Council Local Development Plan 2 2017-2033 Habitats Regulations	The HRA Deposit Plan Report concluded that there was the risk of LSE at 13 European Sites, including the Pembrokeshire Marine SAC and the Pembrokeshire bat Sites and Bosherton Lakes SAC. This is through development plans considering countryside growth, port and energy related development, strategic employment	No LSE in-combination identified: the HRA report concludes that the Deposit Plan is unlikely to have a significant effect on any designated sites providing that the mitigation measures

⁴³ https://planningdocs1.pembrokeshire.gov.uk/PublicAccess_Live/Document/ViewDocument?id=6766FF76CA854833B86316A86CFF46B7



Appraisal Report – Deposit Plan		Appraisal Report – Deposit Plan Public Consultation Version 15 th January 2020 – 11th March 2020 ⁴⁴	provision, visitor economy, transport infrastructure and accessibility, waste prevention and management, resource efficiency and low carbon proposals, mixed use housing proposals, protection and enhancement of the historic environment, farm diversification, marinas, transport routes, working of minerals, coastal change, tourism and waste management.	are followed, however also provides a caveat that for each development this should still be assessed on a case by case basis.
------------------------------------	--	---	--	---

⁴⁴ <https://www.pembrokeshire.gov.uk/local-development-plan-review/habitats-regulation-appraisal> [Accessed August 2024]

5. Conclusions

5.1.1. The following seven European Sites were considered at Screening:

- Pembrokeshire Marine SAC located 150 m north and 875 m south of the Proposed Scheme;
- Pembrokeshire Bat Sites and Bosherton Lakes SAC located 8 km east of the Proposed Scheme at its closest;
- Limestone Coast of South West Wales SAC located 8.5 km south west of the Proposed Scheme;
- Castlemartin Coast SPA located 8.5 km south west of the Proposed Scheme;
- West Wales Marine SAC located 12 km west of the Proposed Scheme;
- Skomer, Skokholm and the Seas off Pembrokeshire SPA located 18.5km west of the Proposed Scheme; and
- North Pembrokeshire Woodlands SAC located 28 km north of the Proposed Scheme.

5.1.2. Four of these sites, Castlemartin Coast SPA, West Wales Marine SAC, Skomer, Skokholm and the Seas off Pembrokeshire SPA and North Pembrokeshire Woodlands SAC were ruled out pre-screening.

5.1.3. The HRA Stage 1 Screening Assessment concluded that for Pembrokeshire Marine SAC and Pembrokeshire Bat Sites and Bosherton Lakes SAC, LSE could **not** be discounted for all LSE pathways. Since the risk of adverse effects on the integrity on these European Sites could not be discounted at Screening, Stage 2 Appropriate Assessment was undertaken.

5.1.4. The Limestone Coast of South West Wales SAC concluded that LSE could be discounted alone and in-combination.

5.1.5. With due consideration given to the information provided above for the Appropriate Assessment, it is considered that with the mitigation proposed, the Proposed Scheme will not adversely affect the integrity of the Pembrokeshire Marine SAC and the Pembrokeshire Bat Sites and Bosherton Lakes SAC, alone or in-combination with other plans or projects.

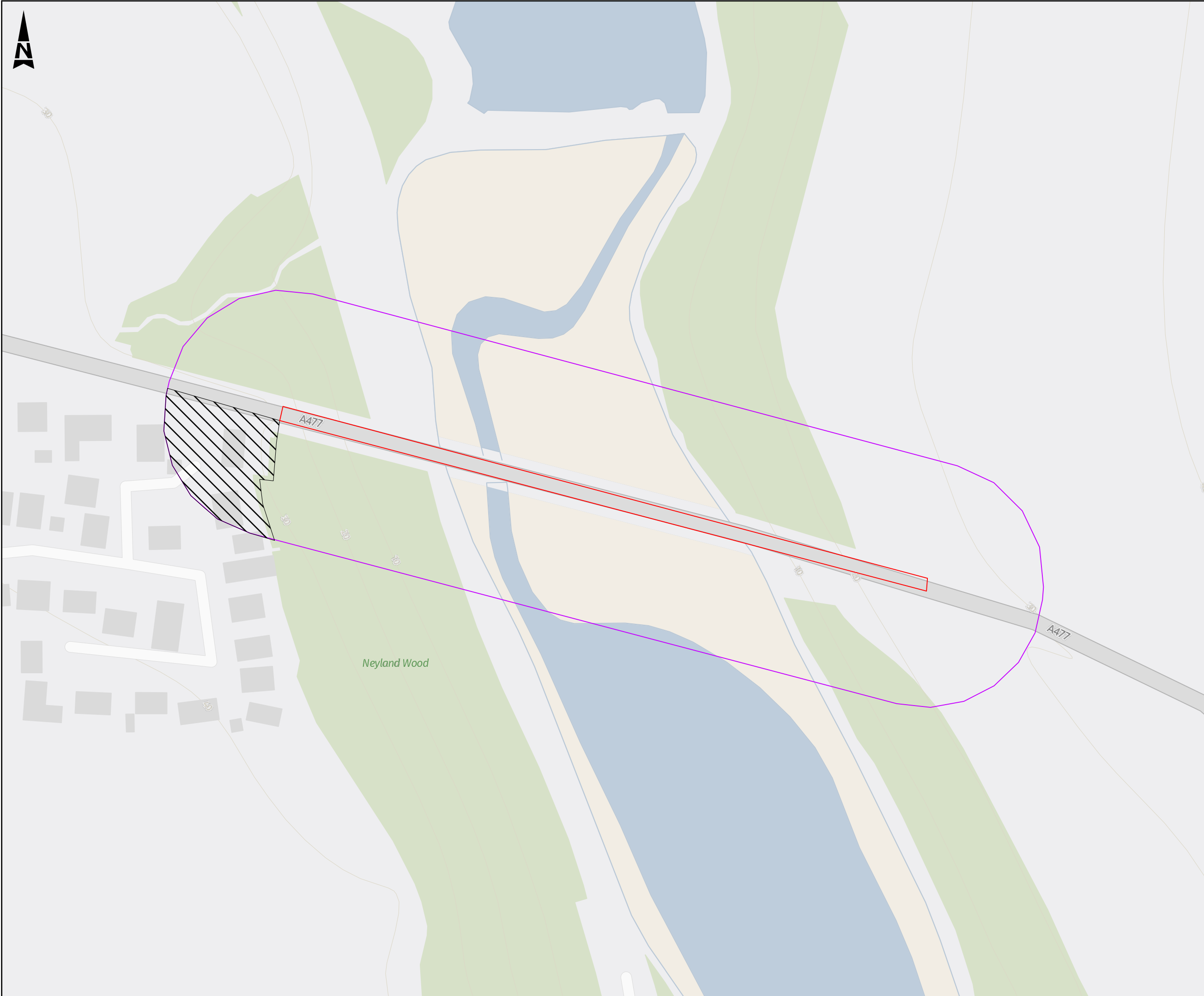
5.1.6. Therefore this report concludes that the Proposed Scheme will have no adverse effects on the integrity of any European Site.

APPENDICES

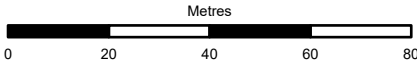
Appendix A. Scheme Location

Figure A-1 - Site Location Plan





- LEGEND
- SITE BOUNDARY
 - SURVEY AREA
 - NOT SURVEYED



Contains Ordnance Survey data © Crown
copyright and database right 2022. © Dorset Environmental
Records Centre 2022

Atkins, Member of the SNC-Lavalin Group
Nova North
11 Bressenden Place
London
SW1E 5BY



Client

PEMBROKESHIRE COUNTY COUNCIL

Project

WESTFIELD PILL BRIDGE

Title

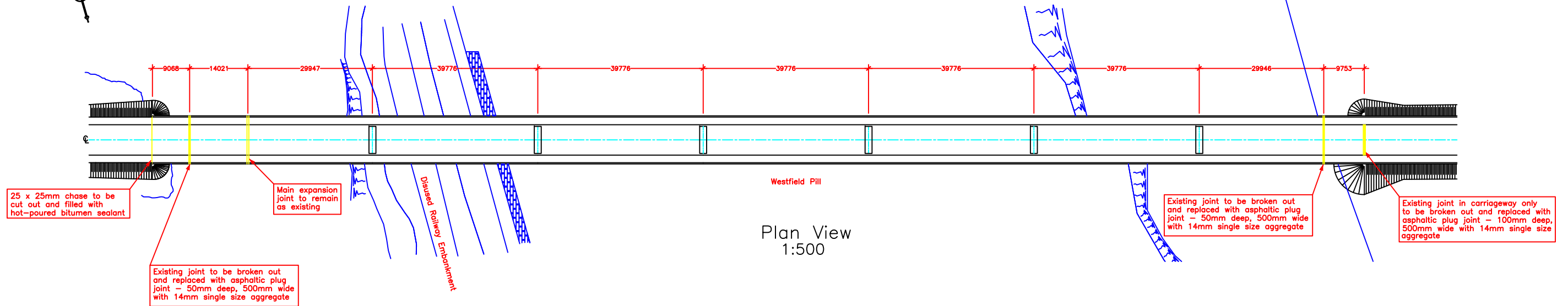
SITE LOCATION PLAN

Sheet Size	Original Scale	Designed / Drawn	Checked	Authorised
		JAM	ER	RM
A3	1:1,500	Date 16/04/24	Date 16/04/24	Date 16/04/24
		Rev 00		

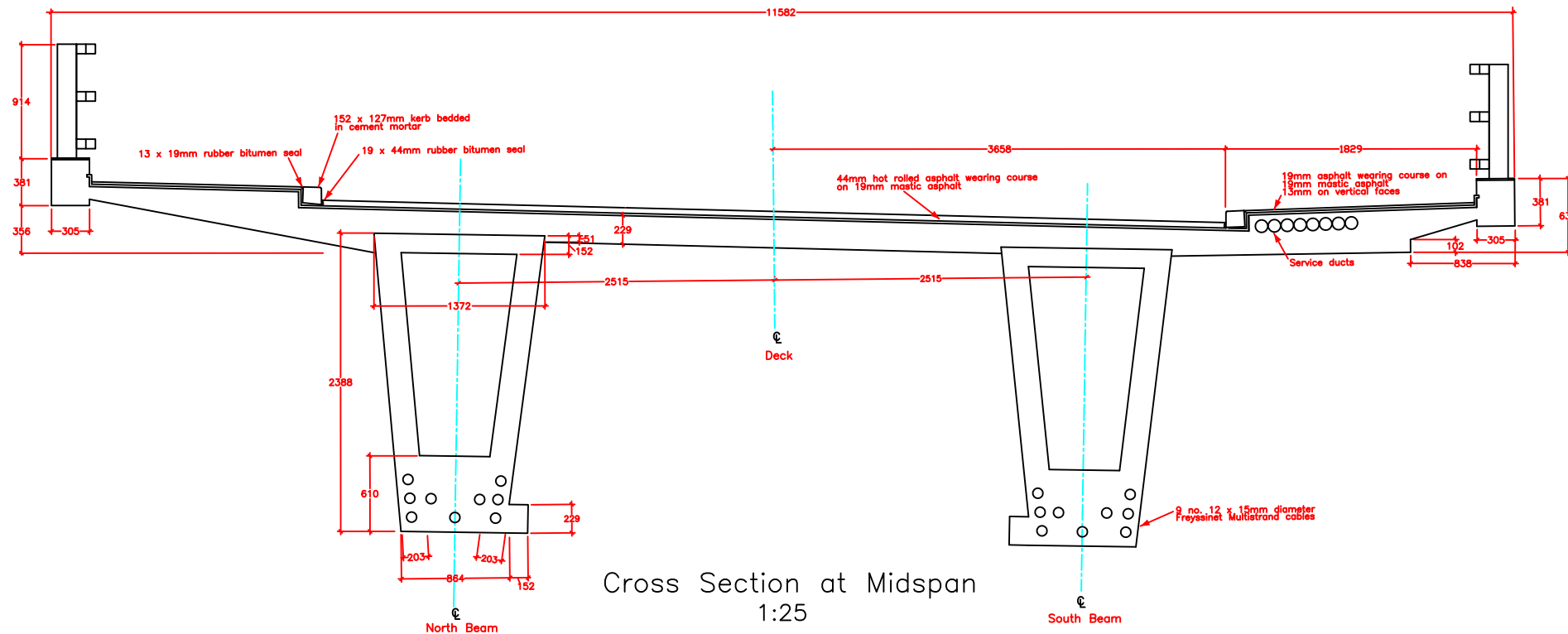
Appendix B. Scheme Detail

Figure B-1 – Scheme Overview

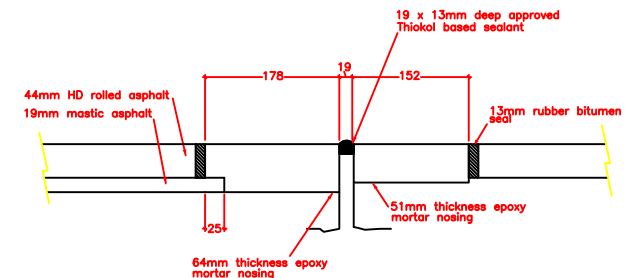




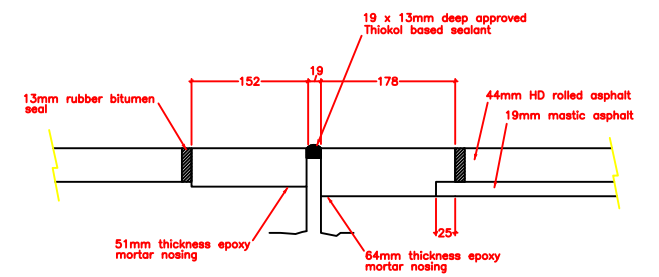
Plan View
1:500



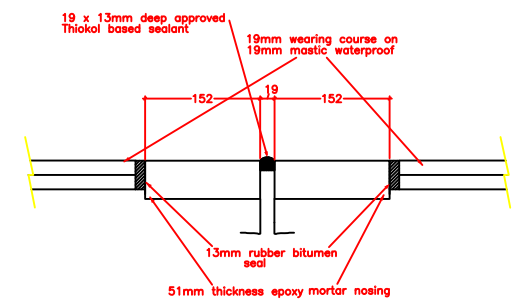
Cross Section at Midspan
1:25



Detail of Existing Deck Joint to be replaced
at West Abutment
1:5



Detail of Existing Deck Joint to be replaced
at East Abutment
1:5



Detail of Existing Footpath Joint
Both Ends
1:5



PEMBROKESHIRE
COUNTY COUNCIL

J.S. HEYS, D.G.S., M.Sc., D.T.P., C.Eng., F.C.I.W.E.M., M.I.C.E.
Director of Transportation & Technical Services.
Pembroke County Council,
Cambria House, HAVERFORDWEST,
Pembroke, SA61 1TP.
TEL: 01437 764551
FAX: 01437 769451

NOTES

1. All dimensions are in millimetres

REV.	BY	ORG	CHKD	APP	DATE	DESCRIPTION

DRAWING TITLE
Plan, Cross Section and
Joint Details

DRAWN BY: J.S. HEYS
CHECKED: J.S. HEYS
APPROVED: J.S. HEYS
SCALE: As Shown

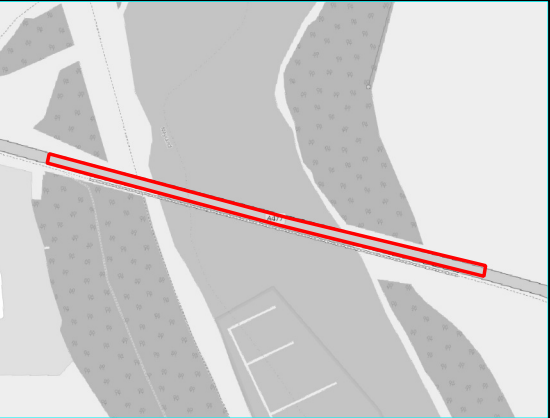
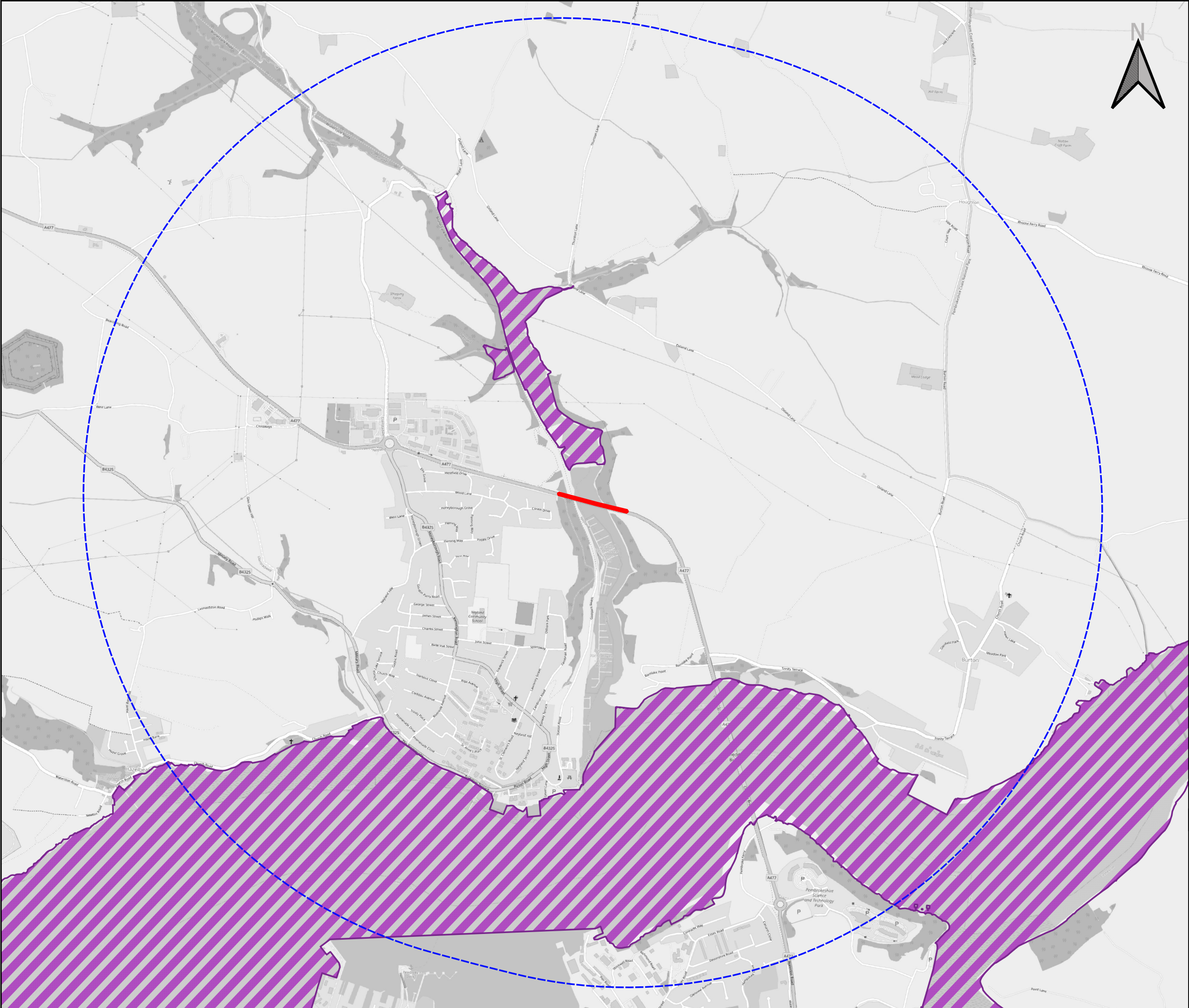
PROJECT TITLE
A477 Westfield Pill Bridge
Joint Replacement
CAD REF: CA2101_1
DRAWING No: CA 2101/1
PROJECT PHASE: P
REV:

Appendix C. European Sites Identified

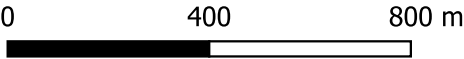
C.1. European Site Locations

Figure C-1 – European Sites Identified within 2 km





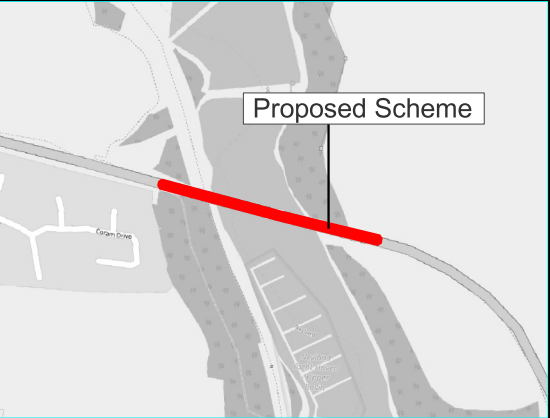
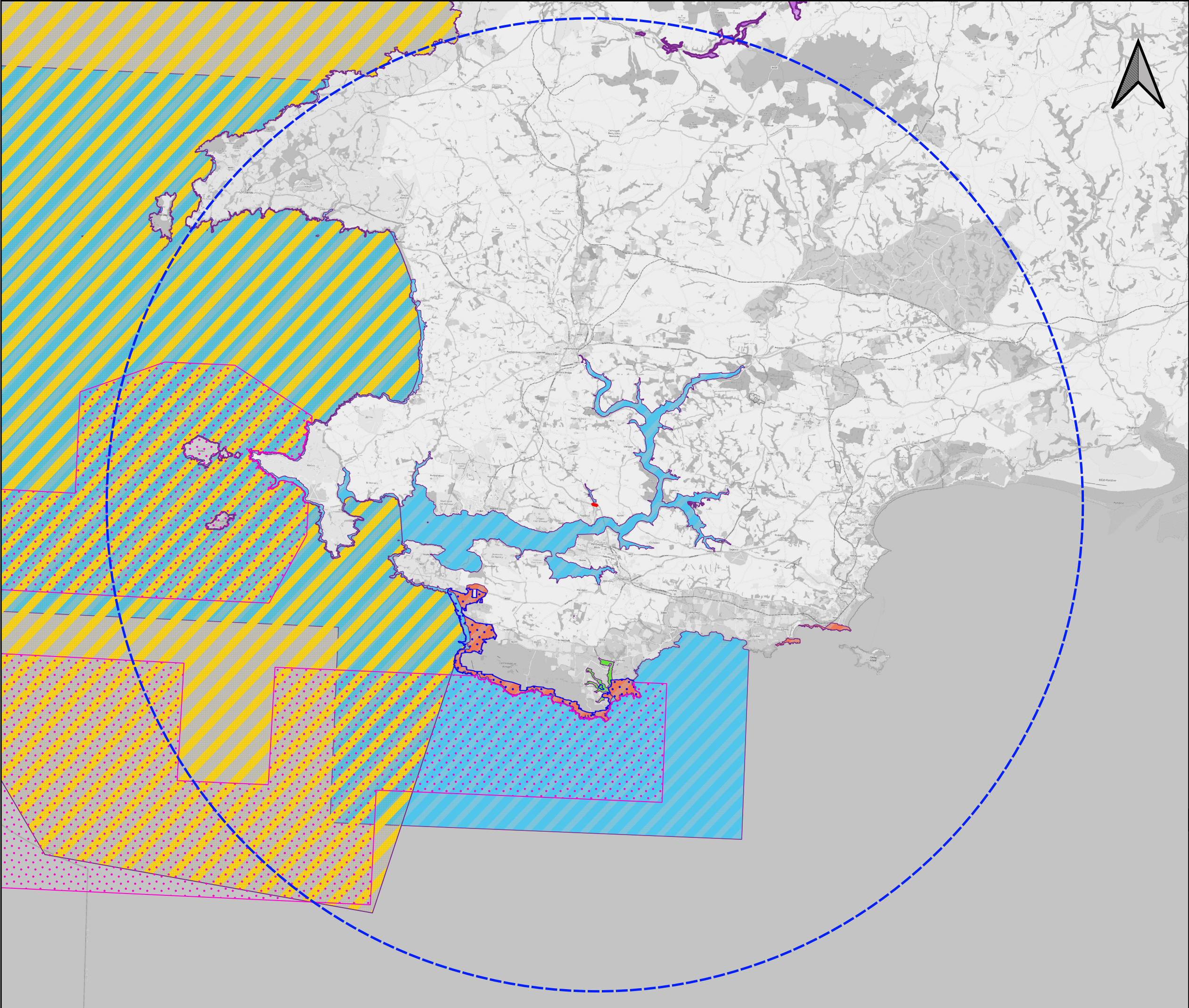
- Legend**
-  Site boundary
 -  2km buffer from Site boundary
 -  Pembrokeshire Marine SAC



Original scale: 1:15,000		Version: 1.0
Base Mapping: © OpenStreetMaps and its contributors		
Atkins Limited © Woodcote Grove, Ashley Road, Epsom, Surrey, KT18 5BW		
Client: Pembrokeshire County Council		
Project: Westfield Pill Bridge		
Job No: 5227258.200		
Title: Westfield Pill Deck Refurbishment and European Designated Sites		
Drawn by: AK		Date: xx/xx/xxxx
Date: 25/06/2024		

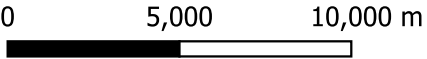
Figure C-2 – European Sites Identified within 30 km





Legend

- Site boundary
- 30km buffer from Site boundary
- Special Areas of Conservation**
 - Limestone Coast of South West Wales
 - North Pembrokeshire Woodlands
 - Pembrokeshire Bat Sites and Bosherton Lakes
 - Pembrokeshire Marine
 - West Wales Marine
- Special Protection Areas**
 - Castlemartin Coast
 - Skomer, Skokholm and the Seas off Pembrokeshire



Original scale: 1:220,000		Version: 1.0
Base Mapping: © OpenStreetMaps and its contributors		
Atkins Limited © Woodcote Grove, Ashley Road, Epsom, Surrey, KT18 5BW		
Client: Pembrokeshire County Council		
Project: Westfield Pill Bridge		
Job No: 5227258.200		
Title: European Designated Sites within 30 km which meet the screening criteria		
Drawn by: AK		
Date: 25/06/2024		

AtkinsRéalis



AtkinsRéalis Ecology
AtkinsRéalis UK Limited
The Hub
500 Park Avenue
Aztec West
Bristol
BS32 4RZ

Tel: +44 (0)1454 662000
Fax: +44 (0)1454 663333
ecology@atkinsrealis.com

© AtkinsRéalis UK Limited except where stated otherwise