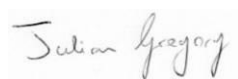
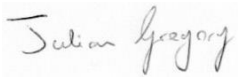


2022

Pwll Sea Wall

Habitat Regulations Assessment (HRA)



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1. INTRODUCTION

1.1 ASSESSMENT BACKGROUND

- 1.1.1 This document provides information to support an Appropriate Assessment under The Conservation of Habitats and Species Regulations 2017 (hereafter referred to as the 'Habitats Regulations') for scheduled maintenance of the Sudbrook Sea Defences on behalf of Network Rail (NR).
- 1.1.2 The project is part of the larger Network Rail RA2140 Coastal, Estuarine and River Defences (CERD's) package of works, which are comprised of multiple defence asset repairs along the British coastline. Pwll concerns the packages outlined within RA2140 - 1801.
- 1.1.3 EcoVigour Ltd have been commissioned to produce these documents for Dyer & Butler Ltd (Rail Division), the principal contractor, working on behalf of Network Rail, the client and asset owner.
- 1.1.4 The project is scheduled to begin at the earliest opportunity upon receipt of the Marine License. Estimated to occur between February 2023 to October 2023. The works will require several months over the next year to complete the masonry repairs, vegetation clearance (if required), visual scoping and manual repair to any loose masonry material.
- 1.1.5 In addition to serving the Appropriate Assessment (AA) requirements, this document will also serve notice of activities in proximity to a SSSI (S28G Notice). This assessment will be submitted to the competent authority Natural Resources Wales (NRW) due to the structure spanning the or marking the legislative boundary of adjacent designated sites.
- 1.1.6 As the works necessitate repairs to a marine defence seaward of Mean High-Water Spring (MHWS) limits of the Loughor estuary (Burry Inlet), a Band 2 License is required.
- 1.1.7 The main statutory designated site which requires consideration under the Habitats Regulations has been identified as:
- ◆ Carmarthen Bay and Estuaries - Special Area of Conservation (SAC).
 - ◆ Burry Inlet – Special Protection Area (SPA)
 - ◆ Burry Inlet – RAMSAR
- 1.1.8 Also requiring consideration in relation to seeking Site of Special Scientific Interest (SSSI) Assent for the works from NRW is:
- ◆ Burry Inlet and Loughor Estuary SSSI
- 1.1.9 Following review and consensus, this document will form part of the working methodology for the project, supporting working within a designated site.
- 1.1.10 Under the requirements of the European Council Directive 92/43/EEC 'The Habitats Directive', it is necessary to consider whether projects or plans may have significant effects upon areas of nature conservation importance designated/classified under the Directives. This requirement is translated into UK law through the 'Habitats Regulations'.
- 1.1.11 In addition to the above the assessment has been compared with the Welsh Nation Marine Plan (WNMP) documentation, which can be found within Appendix D.



1.1.12 This documented has been amended to allow for the additional void repairs found within the Sea Wall and confirmed to be a breach in the wall during August 2023.



1.2 PROJECT BACKGROUND

- 1.2.1 This long sea defence is located along north shore of the Loughor Estuary and Burry Inlet between Llanelli town to the east and Burry Port/Pembrey to the west. The defences stretch approximately 2.5km in length, with the mid to lower alignment of the defence intersecting with the MHWS along it's length, while also demarcating the boundary of the designated sites to the south. Please see figures 1 & 2 below for further context.

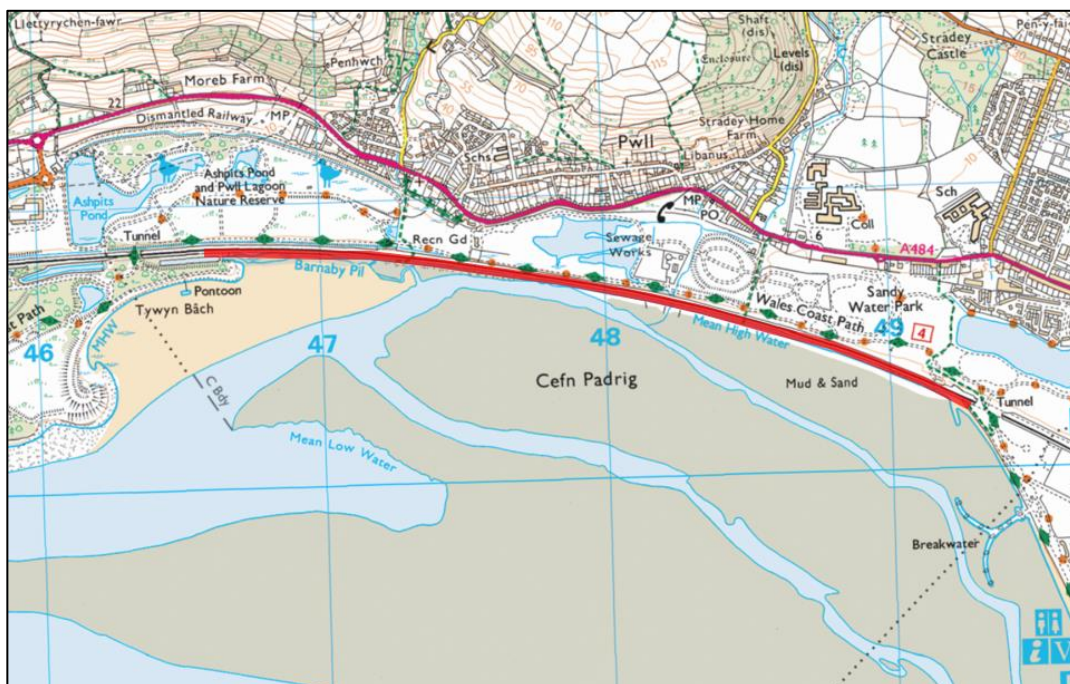


Figure 1: Project Location.



Figure 2: Section B (west) facing section E (eastern shore in distance).



1.3 ADDITIONAL WORKS

- 1.3.1 During latter summer 2023, a void was assessed below the rail corridor between the rail ballast and sea wall lining. Following dye tracing and engineer inspections completed in August 2023. It has been confirmed that the void is a result of a breach with the sea facing section of the wall, concealed by the rock armour in place.
- 1.3.2 This confirmation comes towards the end of the current Band 2, which necessitates this urgent complex change to the current marine license conditions, to undertake the repairs as soon as possible.

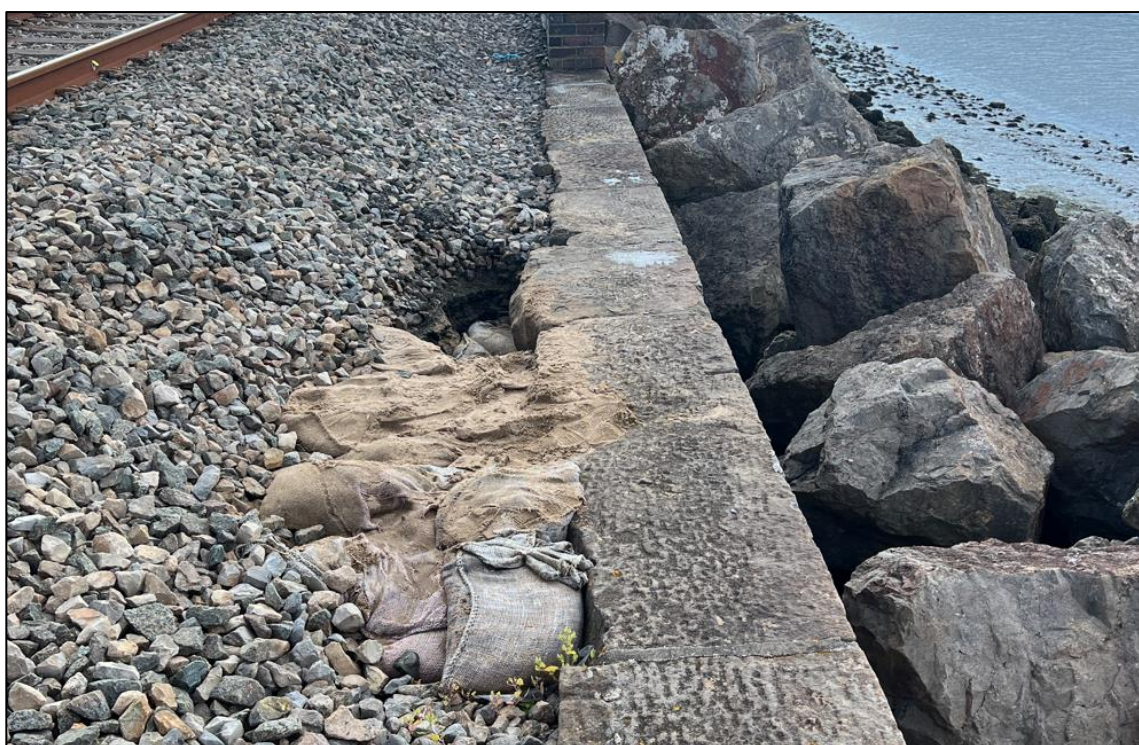
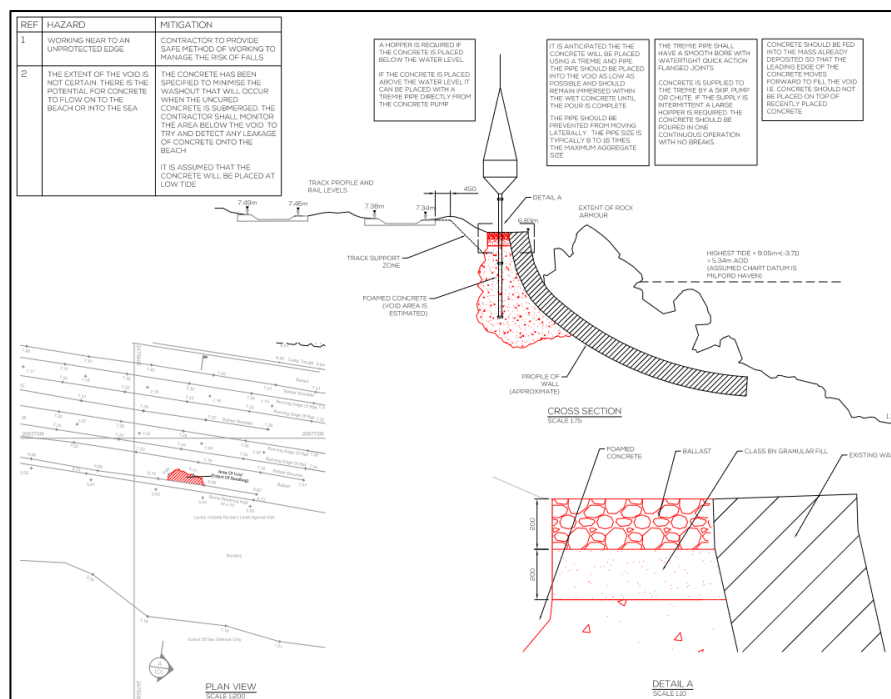


Figure 4: Temporary patched void.



2. LEGISLATIVE CONTEXT

2.1 OVERVIEW

- 2.1.1 This document provides information to support an Appropriate Assessment under the Habitats Regulations of the proposed works by (Dyer & Butler) on behalf of Network Rail.
- 2.1.2 The Habitats Directive, transposed into UK legislation through the Conservation of Species and Habitat Regulations (2017) (Article 6 of European Council Directive 92/43/EEC), any plan or project not directly connected with, or necessary to, the management of a European designated site but likely to have a significant effect, either alone or in combination with other plans or projects, shall be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives.
- 2.1.3 If the Appropriate Assessment concludes that the proposed works may have an adverse effect on the integrity of a European Site, or that such an effect cannot be ruled out (in line with the recognised precautionary principle) avoidance and mitigation measures to avoid such an effect must be considered.
- 2.1.4 If it cannot be concluded that the proposed works will not have an adverse effect upon the integrity of the site(s), further measures and assessments would be required. Potentially in the form of compensation.

3. METHODOLOGY

3.1 OVERVIEW

- 3.1.1 This assessment has been produced in-line with Habitats Regulations guidance published by the JNCC (2010), English Nature (now Natural England) (2001) and the Countryside Council for Wales (now Natural Resources Wales) (2008).
- 3.1.2 The asset is situated directly within the Carmarthen Bay and Estuaries SAC and Afon Burry Inlet and Loughor Estuary SSSI.
- 3.1.3 Additionally, there are several SSSI's and a further SAC within close proximity to the project which will be discussed in further detail within the scoping section below.
- 3.1.4 This HRA will focus on the potential likely significant effects (LSE) of the rail asset maintenance on the Carmarthen Bay and Estuaries - Special Area of Conservation (SAC), Burry Inlet – Special Protection Area (SPA) and Burry Inlet – RAMSAR



4. DESCRIPTION OF THE PROPOSED ACTIVITIES

4.1 SITE CONTEXT

- 4.1.1 The work site focuses on the areas of wall masonry and raised concrete embankment landward and seaward of MHWS. Due to the angle of the defence, it is not easily definable between landward and seaward of MHWS on the estuary facing section of the defence.
- 4.1.2 Access to the defences is provided by existing rail crossings to the west and east where there are existing rail pedestrian crossings. Further to the east is a ramp from the North Dock promenade which is large enough for vehicles to enter the estuary.
- 4.1.3 Within the rail corridor itself, there is limited safe clearance allowing for day works, which would be constrained by line blocks. Therefore, some material would need to be stored along the two ramps present only section of the sea defence (see figure 5 for locations).
- 4.1.4 In front of the masonry and concrete defence is a significant rock armour defence. No works to the rock armour is proposed in this current repair remit.



Figure 5: Sea Defence - Pwll.

- 4.1.5 The attached Appendix highlights the current scope of works. However, the on-site works remit from that scope will be limited to the agreements in this Marine License.
- 4.1.6 The maintenance works will consist of the summarised tasks described in the section below:
 - ◆ Masonry Repairs
 - ◆ Vegetation Clearance (if required)
 - ◆ Follow up visual inspection and scoping
 - ◆ Repairs of a minor nature (e.g., reseating loose concrete embankment material by hand)



4.2 METHOD OVERVIEW – MASONARY WALL REPAIRS AND EMBANKMENT MAINTENANCE

- 4.2.1 Works are scheduled to commence end February/March 2023 for approximately 10 months in duration. Work will occur over several weeks and not constantly during the requested license period. The longer license period is requested to account for poor weather conditions and limited available light as the determination of the license will likely take until late autumn.
- 4.2.2 Works periods will be scheduled around daytime shifts primarily. However, night shifts will be required when material or equipment needs to be dropped off on the edges of the rail boundary, such as bags of mortar, water containers, mixing equipment etc.
- 4.2.3 Maintenance works to the sea walls during night is envisaged when daytime blocks are not available, or sections of the wall cannot be accessed from beach level and have to be accessed from trackside.
- 4.2.4 The project works will be monitored by an Environmental Clerk of Works (ECoW) to ensure abidance to the HRA conditions, undertaking supervision duties when required and undertaking audits. The ECoW has the authority to abort site operations in the event that works are causing disturbance to bird species. E.g., during sensitive early morning foraging periods.
- 4.2.5 Rope access system will be setup in accordance with Specialist Subcontractor RAMS and operatives will access the wall from the top down to the required location of the repair along the sea wall / embankments where required (dependent on slope angle, height and access around rock armour).
- 4.2.6 Mixing equipment will consist of a 110v paddle mixer, 3.5kVa generator and mixing buckets. The pieces of equipment can be moved by hand when required. All petrol / diesel powered equipment will be stored and operated in a plant nappy (containment system)
- 4.2.7 Localised clearance of vegetation growing from some areas of the sea wall will be removed where necessary to access the wall or prevent root systems from causing further internal damage to the walls structure. This is likely to be very minimal on the seaward facing sections of wall. This may require the use of EcoPlugs to prevent stumps from re-growing.
- 4.2.8 Pointing materials will be mixed in accordance with manufacturer's instructions. Where possible, mixing of material will occur within the rail corridor or on stable sections of the defence assets. However, some mixing may need to occur at beach level. Membrane will be placed down during beach mixing, to ensure containment.
- 4.2.9 PIC (Person in Charge) indicates rope access operatives or engineers may begin work when the tidal conditions allow access to the base of the defences (non-high tide times).
- 4.2.10 Operatives will place polythene protection to base of sea wall/embankments where possible, at the areas of works, in order to capture any arisings from the maintenance. Existing loose mortar will be removed using hand tools and collected where possible.
- 4.2.11 Operatives will document each section of works, on completion of pointing rope access operatives collect dropped pointing materials and remove from the working area.



4.3 SUPPORTING WORKS

Site Welfare - Delivery/Setup

- 4.3.1 No formal compound is required to support the works. Welfare will be provided using mobile welfare vans. These will be moved to suitable locations as the project requires. There are several laybys available along the A484 to support the works.

Vehicle Access

- 4.3.2 In terms of heavy equipment, only RRV's (Road Rail Vehicles) which is the closet equivalent of a rail mounted 360-excavator, will be used to drop off material along the rail frontage. No tracked excavators are to be used on the beach.
- 4.3.3 In terms of light vehicle use, due to the distance the defences stretch along this section of coast, and potential lack of safe rail access during the day, a Argocat vehicle is proposed to be used, to assist teams with moving equipment along the frontage.
- 4.3.4 This vehicle will also serve so render assistance should a medical emergency occur.
- 4.3.5 In terms of agreed routes, the Argocat will be limited to use on the more resilient intertidal sand/mud/cobble substrates and will not be permitted further out into the estuary in such a manner that the mudflats could be impacted.



Figure 6: Argocat Vehicle.

Emergency Plans

- 4.3.6 The contractor will ensure that emergency pollution control plans above standardised spill control plans are prepared prior to the commencement of the project. The contractor will ensure a plan on vehicle extraction from the in-channel environment is available with plant machines or equipment on site capable of retrieving a stranded machine.

Emergency Plan Fundamentals:

- ◆ Any disabled machine within the channel environment will be immediately checked for any potential release of hydrocarbons, and if discovered, spill kits and trays will be used immediately.
- ◆ The on-call emergency plant engineer provider will be requested to attend site in the event that the fault cannot be resolved by the operator.
- ◆ Should the on-call engineer be unable to repair the machine, then it should be attempted to extract the machine using a similar powered machine, using task specific chains or tethers to tow the vehicle to a safe position.
- ◆ Should this fail, then the contractor must drain the machine of all fuel and hydraulic fluid before the tidal waters encroach on the machine. NRW and the on-call Environmental Clerk of Works will be contacted immediately and made aware of the emergency and risk of a pollution event.

4.4 SITE IMAGES AND FIGURES



Figure 7: Proposed Access Routes.



Figure 8: Rear of sea wall behind network rail boundary.



Figure 9: Seawall defence protected by significant rock armour embankment.



Figure 10: Pebble and rocky foreshore habitat at the base of the rock armour defence ahead of sand beach.



Figure 11: Outfall situated between rock armour and defence wall.



4.5 ADDITIONAL WORKS

- 4.5.1 The below paragraphs are a summary of the proposed works, please refer to Appendix D - TBS001 -Pwll- Void.
- 4.5.2 All pour works will occur from the rail corridor during an approved line procession where all non-work-related rail traffic will be stopped or diverted away from this section of the South Wales Main 2 for the duration of the works.
- 4.5.3 The temporary sandbag cap will be removed by hand, with as many bags removed from the void as safely possible. Once the void is exposed, a concrete wagon situated on the millennium way footpath will use a concrete hose to pump the marine concrete mixture into the void until the cavity it filled. Estimates for the void are between 6m²-8m². Due to the nature of the void appearing to be slowly eroded consistently over time, it is not possible to provide a firm estimate of volume. If required, an additional concrete wagon will be arranged for, should the void not be filled using one delivery.
- 4.5.4 An environmental clerk of works will be present to monitor the pour and report any seepage from the known approximate location of the wall breach. A fast-curing mixture is proposed which will present substantial loss from the breach. Any seepage of concrete is anticipated to be minimal and confined to the base of the rock armour. Any excess material that reaches beyond the rock armour, will be collected as to prevent horizontal creep of the defence footprint.
- 4.5.5 It is possible for the remaining duration, that similar voids may be identified subsequently. Should any similar voids be found as a result of concealed wall breaches. Then these works will be repeated at those specific locations follow the same methodology. The marine works team will update NRW should any further voids be found, to maintain a record of repairs undertaken during the remainder of the license period.



5. HRA METHODOLOGY OBJECTIVES

- 5.1.1 Habitats Regulation Assessment is an assessment of the potential effects of a proposed project / maintenance activity on a European site(s) (alone and/or in combination with other plans and projects). The Habitats Regulations promotes a hierarchy of avoidance, mitigation and compensatory measures. First, the project should aim to avoid significant adverse effects by identifying potential measures to avoid these effects.
- 5.1.2 Where adverse effects remain, mitigation measures should be applied to a point where these effects are no longer significant. If sufficient mitigation measures cannot be applied, the project should not be taken forward in its current form. In such a scenario, the project will require an assessment to identify alternative solutions that deliver the project in a form that avoids any significant adverse effects.
- 5.1.3 Where significant adverse effects remain, compensatory measures will be required if the project is to proceed. However, the application of such measures will only be permitted if no alternative solutions exist and the project is required for imperative reasons of overriding public interest (the 'IROPI' test).



6. DESIGNATED SITES WITHIN PROXIMITY TO SITE

- 6.1.1 There are several statutory designated sites interfacing or within proximity to the Sea Defences. Directly concerned with the Sea Defences are:
- 6.1.2 Site of Special Scientific Interest:
 - ◆ Burry Inlet and Loughor Estuary SSSI
- 6.1.3 Special Area of Conservation:
 - ◆ Carmarthen Bay and Estuaries - Special Area of Conservation (SAC).
 - ◆ Burry Inlet – Special Protection Area (SPA)
- 6.1.4 RAMSAR's
 - ◆ Burry Inlet – RAMSAR
- 6.1.5 The SSSI contains overlapping features and therefore will be viewed in combination with the SAC in terms of mitigation highlighted in the latter sections within this document.
- 6.1.6 The SAC, SPA and RAMSAR will be detailed within the same sections as the SPA & RAMSAR Ornithological features are reliant on the in-situ features present within the SAC.



7. CARMARTHEN BAY AND ESTUARIES - SPECIAL AREA OF CONSERVATION (SAC) & BURRY INLET (SPA & RAMSAR)

7.1 SAC OVERVIEW

- 7.1.1 Within NRW documentation, Carmarthen Bay and Estuaries SAC is noted for its large area encompassing the estuaries of the Rivers Loughor, Tâf and Tywi (coastal plain estuaries) and the Gwendraeth (a bar-built estuary) Including extensive areas of intertidal mudflats and sandflats with large areas of these flats dominated by bivalves. Complete sequences of saltmarsh vegetation, from pioneer vegetation through to upper saltmarsh transitions is present, which is essential for transitions from saltmarsh to sand dune and other habitats.
- 7.1.2 Carmarthen Bay is an extensive shallow bay with a variety of seabed types, including mud, sand and rock, although the majority of the seabed is sandy. The site includes Helwick Bank, a linear shallow subtidal sandbank that is unusual in being highly exposed to wave and tidal action. The Burry Inlet and Three Rivers system provides a migratory route for salmonids, lampreys and shad.
- 7.1.3 Consequently, the SAC is a multiple interest site which has been selected for the presence of ten interest features that qualify under Annex I and Annex II of the Habitats Directive.
- 7.1.4 The table below details the qualifying habitats and species of the SAC, which is considered to be one of the best areas in the UK for:

Table 1: Annex I & II features of the SAC.

EU Code	Feature
Annex I habitats that are a primary reason for selection of this site	
1110	Sandbanks which are slightly covered by sea water all the time
1130	Estuaries
1140	Mudflats and sandflats not covered by seawater at low tide
1160	Large shallow inlets and bays
1310	Salicornia and other annuals colonizing mud and sand
1330	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)
Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site	
	Not Applicable
Annex II species that are a primary reason for selection of this site	
1103	Twaiite shad <i>Alosa fallax</i>
Annex II species present as a qualifying feature, but not a primary reason for site selection	
1095	Sea lamprey <i>Petromyzon marinus</i>
1099	River lamprey <i>Lampetra fluviatilis</i>
1102	Allis shad <i>Alosa alosa</i>
1355	Otter <i>Lutra lutra</i>



7.2 SPA & RAMSAR FEATURES

7.2.1 In conjunction with the Annex features outlined in the previous section, this site also qualifies as a Wetland of International Importance by regularly supporting, during winter, over 20,000 waterfowl. Over a five year period 1985/86 to 1989/90 an average peak of 48,100 birds was recorded, comprising 12,500 wildfowl and 35,600 waders.

7.2.2 Furthermore, the site qualifies for its elevated status by supporting internationally or nationally important wintering populations of the following species of migratory waterfowl.

7.2.3 The Ornithological features present within the SPA are listed below:

- ◆ Curlew (*Numenius arquata*)
- ◆ Dunlin *Calidris alpina* alpina
- ◆ Grey plover *Pluvialis squatarola*
- ◆ Knot *Calidris canutus*
- ◆ Oystercatcher *Haematopus ostralegus*
- ◆ Pintail *Anas acuta*
- ◆ Redshank *Tringa tetanus*
- ◆ Shelduck *Tadorna tadorna*
- ◆ Shoveler *Anas clypeata*
- ◆ Teal *Anas crecca*
- ◆ Turnstone *Arenaria interpres*
- ◆ Wigeon *Anas penelope*

7.2.4 The table below indicates the current condition assessment of species from the NRW SPA Indicative Site Level Assessment 2018 – Report No: 236.

Table 2: Indicative condition assessments for Burry Inlet SPA

Common Name	Latin Name	Indicative Condition Assessment	Confidence in Assessment
Oystercatcher (wintering)	<i>Haematopus ostralegus</i>	Unfavourable	High
Knot (wintering)	<i>Calidris canutus</i>	Favourable	High
Turnstone (wintering)	<i>Arenaria interpres</i>	Unknown	High
Pintail (wintering)	<i>Anas acuta</i>	Favourable	High
Shoveler (wintering)	<i>Anas clypeata</i>	Unfavourable	High
Teal (wintering)	<i>Anas crecca</i>	Favourable	High
Wigeon (wintering)	<i>Anas penelope</i>	Unfavourable	High
Dunlin (wintering)	<i>Calidris alpina</i>	Favourable	High
Curlew (wintering)	<i>Numenius Arquata</i>	Unfavourable	High
Grey plover (wintering)	<i>Pluvialis squatarola</i>	Favourable	High
Redshank (wintering)	<i>Tringa totanus</i>	Favourable	High
Shelduck (wintering)	<i>Tadorna tadorna</i>	Unfavourable	High
Waterbird assemblage (wintering)	Not applicable	Favourable	High



7.2.5 In relation to Monitoring, the project is situated within the DB030 of the BTO Research Report No.467 monitoring areas (see figure below).



Figure 12: BTO Monitoring Areas.

- 7.2.6 In terms of behaviour within this survey unit. The predominant use of roost by Oystercatcher during periods leading up to and after low tide is roosting. With areas such as DB013 to the west being used for feeding during these times, more so than DB030 where the project will be situated.
- 7.2.7 Only the very north eastern section of DB031 may be utilised for ATV access from the existing beach ramp, should over ramp access further north not be viable. Similar to DB030, 031 is predominantly used for roosting.
- 7.2.8 In terms of size, DB030 is a relatively large survey area noted to contain 313ha of preferred habitat.



8. BURRY INLET AND LOUGHOR ESTUARY SSSI

8.1 OVERVIEW

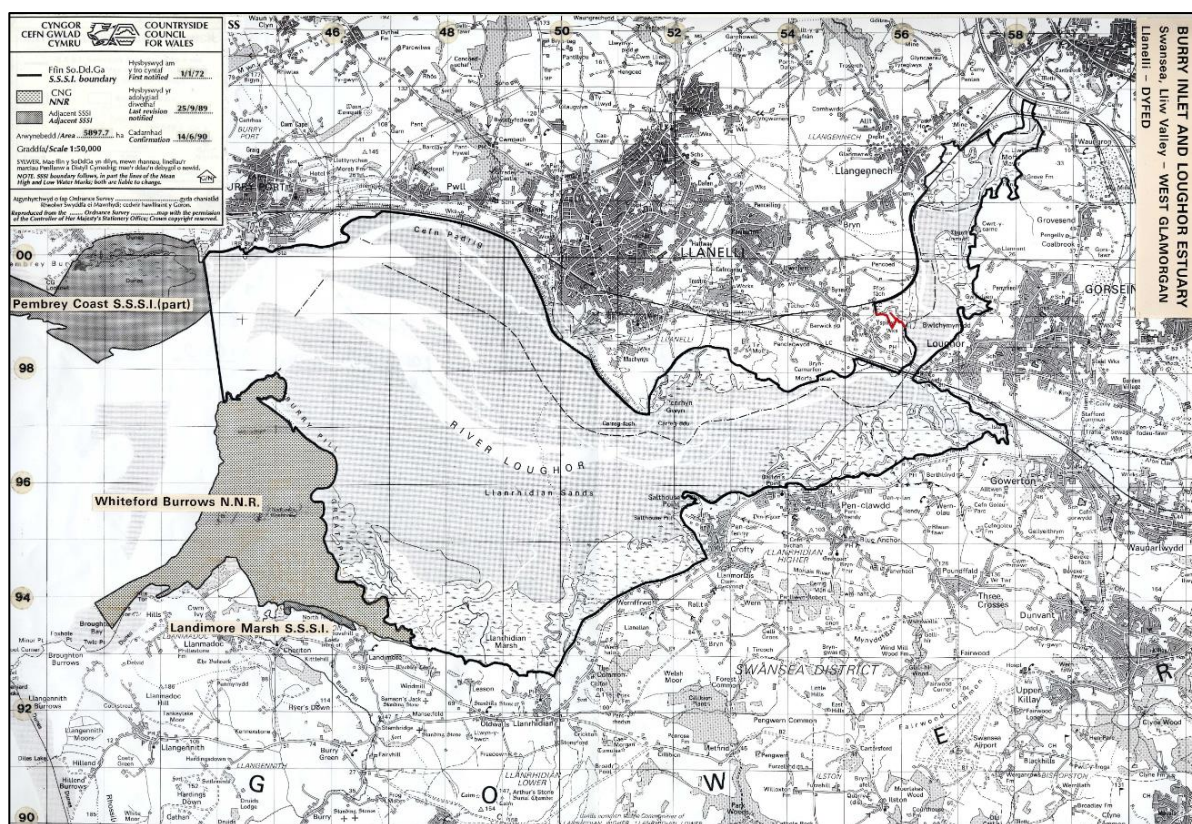


Figure 13: SSSI Designated Site boundary in relation to project area (blue overlay).

- 8.1.1 Noted as the largest estuarine complex within old West Glamorgan county and Borough of Llanelli. The SSSI is comprised of extensive areas of grazed saltmarsh, sand and mud flats, the area is internationally significant for its wader and wildfowl populations with overwintering totals averaging in excess of 46,000 birds, therefore is SPA and RAMSAR designation.
- 8.1.2 The Burry Inlet exhibits a particularly wide tidal range (approx. 8m) with its estuarine form deriving from the effects of glacial processes.
- 8.1.3 Whilst fine sands comprise the bulk of the sediments within the estuary, smaller particle sizes predominate in more sheltered areas where tidal velocities are reduced. The saltmarshes formed in areas where plants have subsequently been able to colonise are the most extensive in Wales and cover an area more than 1600 ha.



8.2 SITE MANAGEMENT STATEMENT

8.2.1 The competent authorities (NRW & NE) both produce Site Management Statement's (SMS's), which outline the features that inform the overall status of a designated site. The features that inform the site in question are:

- ◆ Saltmarsh
- ◆ Geomorphology consisting of a range of sediment deposition including the formation of intertidal mudflats and sandflats
- ◆ Brackish swamps, reedbeds and grassland
- ◆ Important numbers of wildfowl and waders
- ◆ Intertidal features

8.2.2 In addition to the highlighted features of importance. The SMS also outlines potential damaging vectors to a designated site features, summarised as Potentially Damaging Operations (PDO) lists. Below are the activities considered relevant to the proposed project (Table 3 below).

Table 3: PDO list from NRW Designated Site Finder Tool.

SMS Ref No:	Type of operation
19.	Erection and repair of sea defences or coast protection works, including cliff or landslip drainage or stabilisation measures.
21.	Destruction, construction, removal, rerouting, or regrading of roads, tracks, walls, fences, hardstands, banks, ditches or other earthworks, including soil and rock exposures.
22.	Storage of materials.
23.	Erection of permanent or temporary structures or the undertaking of engineering works, including drilling or the laying, maintenance or removal of pipelines and cables, above or below ground.
26.	Use of vehicles, or craft.



8.3 HABITAT PRESENT WITHIN WORKING FOOTPRINT

- 8.3.1 A full updated Phase I survey of the entire survey area has not been undertaken to date, the data set below (Figure 9) is based on available mapping from Sewbrec and NRW dataset and should be used as a rudimentary representation of the habitat present.
- 8.3.2 Habitat below the sea defence is predominantly, intertidal sand/mud and shingle/gravel habitats at the toe of the significant rock armour protection which spans the length of the defence.
- 8.3.3 To the rear of the defences are the large amenity grasslands and public path (Millennium Coastal Path). Within these areas, large ponds, sections of small woodland and improved grasslands.
- 8.3.4 The proposed location for the temporary compound is to be situated on existing gravel/hard standing which allows access to the rear of the sea wall via the public path, which is wide enough for road vehicles.



Figure 14: Phase I Habitat Data (Cofnod 2022)

- 8.3.5 The habitat in which active works on the sea defence will take place is, H.1.1, H.1.2 and H.3.2. The vast majority of access will be along the rail corridor, however any access routes within the designated site will be predominantly within H1.1/2 Intertidal mud/cobble/sand in which a small ATV could readily traverse.
- 8.3.6 Note: the salt marsh indicated behind the sea wall and to the west of Pwll frontage will be avoided.



9. PHYSICAL PROCESSES

9.1 RELEVANT POLICIES WITHIN THE SHORE MANAGEMENT PLAN 2 (SMP2)

- | | |
|-------|---|
| 9.1.1 | As part of the Appropriate Assessment, it is necessary to compare the proposed works against the long-term policies outlined within the Shore Management Plan 2 (SMP2). Within the SMP2 there are several policy units relevant to this section of coastline and estuary. |
| 9.1.2 | The structure is contained entirely within Policy Unit PU12.10 (Pwll railway frontage (Llanelli Beach to Tywyn Bâch)). |

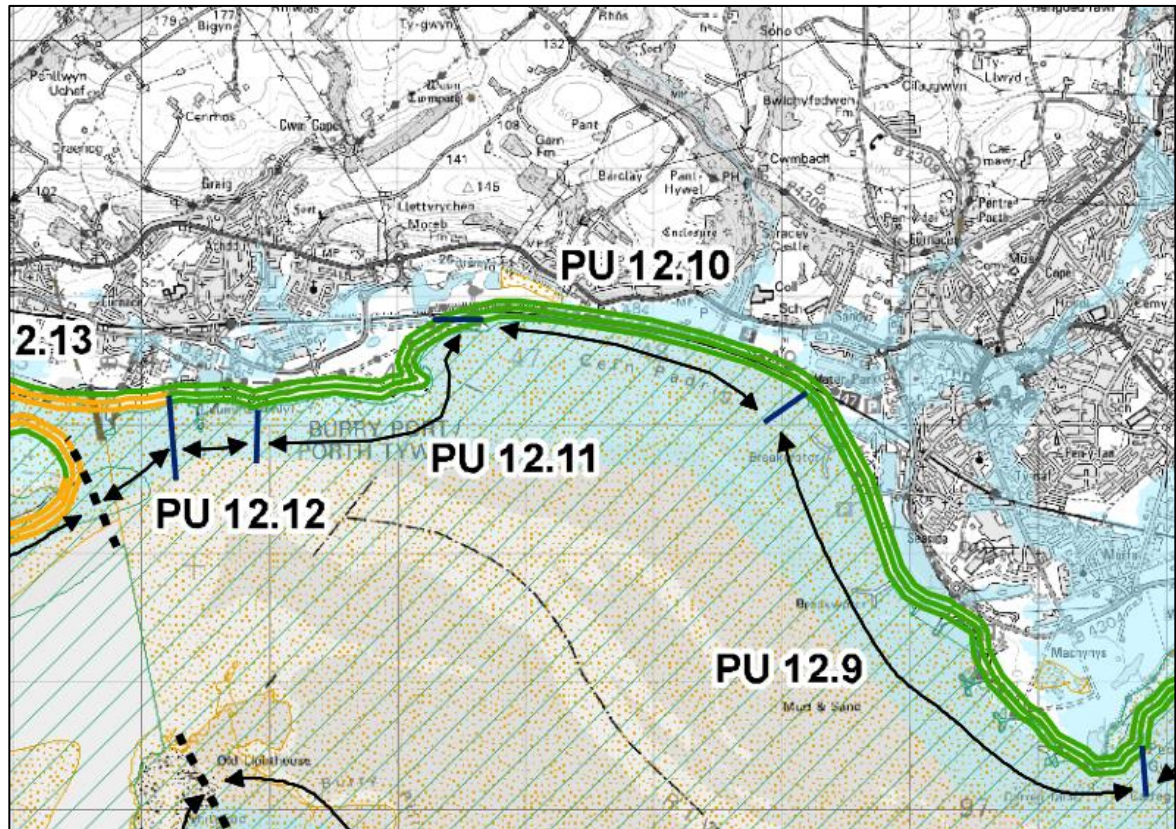


Figure 15: SMP2 - Policy Units

- 9.1.3 Management units are defined within epochs, with epoch 1 referring to periods from present to 2025, epoch 2 referring to years between 2025-2055 and epoch 3, 2055-2105.
- 9.1.4 As part of the SMP2, the chosen policies are measured against the potential economic impacts and environmental impacts projected over the course of time.



9.1.5 Table 4 below, described the project habitat loss as a consequence of the long-term preferred policy.

Table 4: Relevant Policy Unit description.

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
PU12.10	Pwll railway frontage (Llanelli Beach to Tywyn Bâch)	HTL	HTL	HTL	
Key: HTL - Hold the Line, AtL - Advance the Line, NAI – No Active Intervention MR – Managed Realignment					

9.1.6 Regarding whether the proposed works are an infringement of preferred policy, this assessment deems the project as not challenging the current preferred policy units, which is HTL zones until 2105.

9.1.7 In addition, the works fit within the definition of minor works, outlined with the recent Welsh Government position statement regarding coastal processes.

9.1.8 It is conceivable that the current structural tolerances and functions will need to be reviewed in the light of future increased occurrences of high energy weather events, combined with naturally higher tidal limits. In terms of managed realignment, this will be a topic of further discussion for any maintenance works projected to occur during 2025 onwards.

9.1.9 However, such engineering and long-term infrastructure considerations are beyond the scope of these scour works and this Appropriate Assessment.



10. ASSESSMENT OF POTENTIAL IMPACTS RESULTING FROM SPECIFIC ACTIVITIES AND PROPOSED MITIGATION MEASURES – PWLL SEA DEFENCES

This section outlines the receptors of potential damaging vectors as a result of the proposed works and proposes appropriate mitigative measures to ensure that there is not a significant likelihood of impacts.

10.1 ANNEX I HABITATS – IMPACTS & MITIGATION

Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
Estuarine habitat	SAC/SSSI	Contamination of the estuary from spillage of hydrocarbons during refuelling of equipment or due to equipment failure. Confirmation as a result of repointing of Masonry or targeted repairs. Confirmation as a result of void repairs.	All works set up and audited on a regular basis by the Environmental Clerk of Works (ECOW). A refuelling procedure will be implemented, whereby plant nappies will be placed beneath fuelling apertures during fuelling and refuelling will only be undertaken by designated, trained individuals. NR have a spillage plan and specialised contractor in place to respond to and clean up spills. The Contractor will develop and implement an Emergency Awareness and Response Plan. GPP5 Guidance for Pollution Prevention - Works and maintenance in or near water, will be referenced to. These will include: ◆ GPP 5 - Works and maintenance in or near water ◆ GPP 7 - Safe storage – The safe operation of refuelling facilities, ◆ GPP 21 - Pollution incident response planning, ◆ GPP 22 - Dealing with spills This will describe how spills will be contained and cleaned up. The emergency plan will appoint an Incident Coordinator, define roles and responsibilities during an incident, detail response procedures and contain an inventory of response equipment to be maintained on site. Equipment, when not in use, will be situated at the top of the sea wall ramp, shielded from impacts associated with the tide. The Argocat will be stored away off site when not deployed. As much as practically possible, the mixing of mortar material will be undertaken within the rail corridor (track side). If there is no safe distance	Negligible likelihood of significant impacts.



Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
			between the running rail and the works location, mixing will occur at beach/ground level. No mixing equipment, plant or machines will be used without a supply of spill kits, plant nappies and pre-works checks. All grout mixing to occur on beach level will make use of tarp or other impermeable membranes laid on the ground to prevent any overspill coming into contact with the estuarine habitat. Spill kits, drip trays and plant nappies will be placed below and near the 110v generators during operation. Where possible, plastic screening will be placed on the base of the wall to capture material broken off from the sea defences during masonry repairs (note: placement may be hampered by the position of rock armour blocks). Every practical effort will be made to collect all loose broken mortar material arising from the wall repairs and remove them from the designated site environment. All hand tools for vegetation clearance (if required) will be checked prior to use and stored in secure areas and on spill mats when not in use. Equipment will be fuelled at the layby areas indicated prior to use. No works are permitted within any Salt Marsh habitats. Concrete for the void repairs will be of marine, fast curing specification and will be delivered to site via a concrete wagon, situated outside of the marine environment.	
Intertidal mudflats & sand flats (also part of estuarine habitat)	SAC/SSSI	Contamination of the estuary from spillage of hydrocarbons during refuelling of equipment or due to equipment failure.	See comments above under estuarine habitat.	Negligible likelihood of significant impacts.
Salt marshes (also part of estuarine habitat)	SAC/SSSI	Contamination of the estuary from spillage of hydrocarbons during refuelling of equipment or due to equipment failure.	Salt Marsh is present along the rear and to the west of Pwll frontage. The contractor will ensure these areas are avoided during accessing the sections of work. No sections of working on the sea wall overlap with salt marsh habitat. See comments above under estuarine habitat.	Negligible likelihood of significant impacts.



Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
Rocky shores (also part of estuarine habitat)	SAC/SSSI	No impact	See comments above under estuarine habitat.	Negligible likelihood of significant impacts.
Reedbeds/ swamps	SAC/SSSI	No impact	See comments above under estuarine habitat	No impact
Neutral grassland	SAC/SSSI	No impact	See comments above under estuarine habitat	No impact
Estuarine Habitat	SAC/SSSI	Loss of Habitat as a result of vehicle movement.	It is possible shingle/cobble and sand/mud habitat that will be traversed along south of sea wall will be disturbed by the movement of the ATV. However, the use of a single ATV, which exhibits low ground pressures, is likely to have limited impact to the beach surface. The ATV will purposely avoid areas further away from the defences and coast, as there are more sensitive and less stable to traverse. It is expected that any disturbed sand/mud mixture flats or shingle/cobble habitat will be temporary, with sediment material remobilising following incoming tides and will quickly be deposited into its previous alignment.	Negligible likelihood of significant impacts.
Estuarine Habitat	SAC/SSSI	Loss of Habitat as a result of structure repairs.	The repairs will not cause an increase in the horizontal footprint of the defences in such a manner which could cause direct habitat loss as a result of an enlarged defence footprint. In terms of long-term impact. The repairs represent maintenance as outlined in the Welsh Government position statement on coastal squeeze and does not deviate from the Shore Line Management Plan 2 – preferred policy of Hold the Line.	Negligible likelihood of significant impacts.



10.2 ANNEX II SPECIES – IMPACTS & MITIGATION

Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
Aggregations of bird species	SSSI / SPA / RAMSAR	Noise disturbance / Visual Disturbance.	Maintenance work will result in a period of noise and visual disturbances. However, noise levels are unlikely to exceed those currently generated by trains currently utilising the rail network. Some works will be fitted around available line blocks, which will change from week to week and may require night shifts. Every effort will be made to undertake works during the day, at low tide conditions. Repair works at the defence above or seaward of MHWS during high tide is not permitted as part of the works. Some supporting works during high tide may occur within the boundary of the rail corridor. Such as mobilisation or demobilisation of rope access equipment or offloading of material to be closer to working locations. Should the aforementioned night shift be required, then the contractor will avoid working at dawn or dusk to avoid impacting the crepuscular cycle of local bird and other animal populations. Works will consist of 30-60m sections of sea defence worked on at any given time to further reduce overall cumulative noise and visual impacts. This will only impact small sections of the estuary at any one time. Paddle mixing equipment will use low noise electric motors to mix the required material. The 110v generator will only run when required and will be placed in such a way that noise emissions are intercepted by structures such as wall, or barriers to deaden noise further. Task lighting (if required) will face the relevant work locations and will not face directly out into the estuary. Task lighting will use low diffusion flat glass luminaires. Toolbox talks will be provided by the Environmental Clerk of Works prior to works commencing. This will identify potential impacts and direct localised mitigation where required.	Negligible likelihood of significant impacts.



Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
			The assessment acknowledges the importance of stable roost during winter and challenging weather conditions. As such, during poor weather conditions during winter, works will be avoided. This will both serve a safety critical component while also ensuring the bird assemblage is not unduly disturbed when looking for shelter during winter storms. In terms of visual buffers, it is a relatively large unit, stretching downstream from the rail asset. Assuming similar SPA visual guidelines to other sites. It is very likely that a 200m buffer from significant portions of the projected bird assemblages can be maintained, as when the water levels encroach on the working areas, teams will demobilise. During peak low-tide, the vast majority of these monitoring units will be undisturbed. During February, which is still an important portion of the winter wading period. Works will be catered to those which can be accessed on foot or rail predominantly. With the use of the ATV beginning during march.	
Fish Assemblage	SAC/SSSI	Contamination of the estuary from spillage	See comments under estuarine habitat	Negligible likelihood of significant impacts.
Vascular plant assemblage associated with salt marsh (part of estuarine habitat)	SAC/SSSI	No impact	See comments under estuarine habitat	Negligible likelihood of significant impacts.
Otter (Lutra Lutra)	SAC/SSSI	Noise disturbance / Visual Disturbance / Habitat Destruction.	Toolbox Talks (TBTs) will inform site personnel on identifying the Annex II Species. No otter holts have been noted to date within close proximity to the structure and are unlikely to be found during works on the seaward facing wall sections. They are noted near Pwll Lagoon and further inland. However, no works or temporary compounds will be situated near this feature.	Negligible likelihood of significant impacts.



Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
			Habitat impact is limited, and it is not anticipated that these works will have an impact on the wider population and Otter policy objectives of the Core Management Plan. Additionally, no equipment will be left in such a manner that an animal could become snared and trapped within the working area. Should an Otter be encountered during works, personnel will temporarily stand down until the animal has vacated the immediate area under its own volition. The contractor will abide by the Gwynedd Marine Code of Conduct. Salmon and other species of the assemblage, which are a prey of Otter will not be prevented from travelling up the estuary during the project. Although there will be an elevated human presence around the defences, it is unlikely that this will present a significant detrimental impact to salmon and other species of fish migrating to spawn during the coming winter months. If night working is required, directional lighting measures will be implemented to limit disturbance. Task specific lighting will be used, and the use of flood lights will be prohibited. Steps should be undertaken to ensure that otters, mammals and birds do not become trapped within working and storage areas (e.g., small pieces of equipment, or stowed away ropes are likely to be left on site on a semi-regular basis).	
Fish Assemblage	SAC/SSSI	Noise Disturbance / Visual Disturbance / Habitat Destruction.	Work will be undertaken during favorable conditions within the spawning season for migratory fish such as salmon, trout and eel (mid Oct – Mid April) but will fall within the spawning season for several species of fish which are offered protection under the Natural Environment and Rural Communities Act. Spawning periods for these species are generally between March and July. No works within the designated sites will occur until formal assent has been granted by Natural Resources Wales.	Impact Not Likely to be Significant, with appropriate mitigation



Receptor	Affected Site	Potential Hazard	Mitigation Measures	Likelihood of Impact
			Works will be undertaken within the estuary during the 2022 – 2023 spawning seasons for protected and migratory fish. ◆ The works will not present a barrier to the permanent flowing portion of the estuary. During high tide, it will be possible for fish to migrate along vast majority of the estuary without coming into proximity to any tasks being undertaken at that particular moment. ◆ Works within the estuary during low tide at bed level will be localised and low impact and will not involve any deep excavation or dredging. No increase in structure footprint is envisaged. ◆ The sea defences form part of an active and busy rail corridor. This implies that fish within the estuary are habituated to a level of noise and vibration from the structure. ◆ Best practice will be used in terms of the construction methodology to limit this i.e., modern well silenced plant, use of manual tools to rake out masonry during repointing, working on the wall and embankments during low tide. ◆ Task lighting will be designed to illuminate the works area but limit light spill into the estuary. This will be achieved through the use of LED flat glass luminaires set at a low level.	



11. POTENTIAL IN-COMBINATION EFFECTS

11.1 OVERVIEW

- 11.1.1 It is necessary to consider the potential for significant effects from this project in-combination with other plans or projects.
- 11.1.2 In addition, the plan or project must have been subject to a HRA, which has confirmed that the plan or project is not likely to have a significant effect or demonstrates that the effects have been sufficiently assessed so as to be reasonably understood.
- 11.1.3 The assessment of in-combination effects must also focus on other projects that have the potential to cause the same types of effects as the proposed maintenance (so that these effects may occur in-combination) and where similar potential impact pathways may exist.
- 11.1.4 Therefore, this assessment has focused on other projects that could give rise to noise, visual or physical impacts on the SAC species and does not consider projects that could cause different effects.

12. KNOWN PROJECTS WITHIN THE WIDER AREA

- 12.1.1 There is currently no known large-scale project in a proximity to the proposed maintenance areas which could cause in combination effects.
- 12.1.2 However, should NRW have upcoming FRAP's or other Marine Licenses in place that are soon to be undertaken or currently being undertaken, then the maintenance will be undertake at a period that achieves the least in-combination impacts possible.



13. HRA CONCLUSION

- 13.1.1 This section will combine the key features and challenges highlighted in the CMP's and proposed to mitigation to ascertain whether likely significant impacts to the designated could occur.
- 13.1.2 Limited working periods, during low tide predominately, during the day or night (not in combination), reduces the intensity of the works, while also maintaining consideration for birds during challenging winter weather conditions, will ensure birds in a vulnerable position will not be unduly disturbed.
- 13.1.3 Localised SPA bird population are likely habituated to the presence of moving trains, local fishers and walkers. Consequently, operatives access the site predominantly on foot will be unlikely to cause an excessive elevated level of normal activity. It is envisaged that the works will have little impact on the protected areas and wildlife therein, with no determinantal impact to the current condition assessment of Annex features.
- 13.1.4 The use of the Argocat will be limited to daytime usage only. The rational for this, is that the vehicle is to support a team working when rail access is not possible. During a night possession on the rail, the use of the Argocat would be limited to the more favorable access a closed rail corridor provides.
- 13.1.5 No repairs will occur during hightide, but equipment preparation of safety set up may occur ahead of a receding tide.
- 13.1.6 In terms of the fish assemblage, the works will not create underwater noise, nor will works occur within the water itself. There will be no alteration or impediment of normal migratory of foraging locations.
- 13.1.7 Refuelling and emergency response procedures as per Management Plan (MP) preparations. The implementation of this will be monitored and audited by a Project Manager from Dyer & Butler and Environmental Specialist (EcoVigour).
- 13.1.8 Localised vegetation clearance at the structures will not remove any Annex I habitats from the designated sites.
- 13.1.9 The project does not represent a deviation from the current Shore Line Management Plan policy and the scope of works is in concurrence with the Welsh Government Position Statement on coastal asset management.
- 13.1.10 The ECoW will undertake a pre check of the access routes and immediate working areas.
- 13.1.11 From the available information and proposed mitigation measures, it is assessed that the high tide habitat below the rail corridor at the works site will not be significantly impacted, nor species or features relevant to the designated site as a whole.
- 13.1.12 The exact timing of the works will be agreed with NRW, dependent on whether there are further in combination impacts that require specific working dates.
- 13.1.13 In conclusion therefore, the proposed mitigation measures will ensure that no significant impact to the designated site will occur as a result of the proposed works.



14. APPENDIX A - BIOSECURITY MANAGEMENT PLAN & RISK ASSESSMENT





15. APPENDIX B- PROJECT TECHNICAL DOCUMENTS





16. APPENDIX C - WELSH NATION MARINE PLAN (WNMP).





17. APPENDIX D

