Neath Port Talbot County Borough Council

Aberavon Promenade Coastal Defences

Preliminary Habitats Regulations Assessment (HRA) Stage 1: Screening

Final issue | 28 April 2017

Job number 252723

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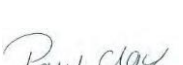
ARUP

Document Verification

ARUP

Job title		Aberavon Promenade Coastal Defences			**Job number** 252723
Document title		Preliminary Habitats Regulations Assessment (HRA) Stage 1: Screening			**File reference** 4-50
Document ref					
Revision	**Date**	**Filename**	Aberavon HRA Report draft.docx		
Draft 1	23 Feb 2017	**Description**	First draft		
			Prepared by	Checked by	Approved by
		Name	Gareth McIlquham	Gareth McIlquham	Paul Clack
		Signature			
Final issue		**Filename**			
		Description	Aberavon HRA Report final issue		
			Prepared by	Checked by	Approved by
		Name	Gareth McIlquham	Gareth McIlquham	Paul Clack
		Signature			
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Issue Document Verification with Document	✓

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1 Introduction

Ove Arup and Partners (Arup) is working with Neath Port Talbot County Borough Council (CBC) to assess the feasibility of reducing coastal erosion and flood risk to the Sandfields area of Aberavon. This project focuses on Aberavon Promenade, located within the Sandfields West and Sandfields East wards of Neath Port Talbot CBC, north of the Port Talbot Steelworks and the River Afan and south of the Baglan Burrows sand dunes and the River Neath. The area along the Aberavon Seafront was developed in the 1940s/'50s and primarily built on former dunes and low lying coastal plain.

The study area extends from the breakwater in the south of Aberavon Sands (National Grid Reference (NGR): SS7479589169), north to the ward boundary between Sandfields West and Baglan located beyond the promenade within the sand dunes (NGR: SS7290491203). Site Location Plans are provided in Figure 1 and Appendix A; Environmental Constraints Plans are provided in Appendix B.

The promenade is approximately 2km long and sits on a wave return sea wall and is retained by revetments; see Figure 1. The eastern section consists of a rock armour revetment, whilst the western half is retained by a concrete terraced revetment. The concrete revetment has a vertical sheet pile toe, with sections of rock armour protection. The project also considers a 0.6km section, transitioning from a cliffed dune partially protected by rock armour into the Baglan Burrows dunes with a front face natural in formation.

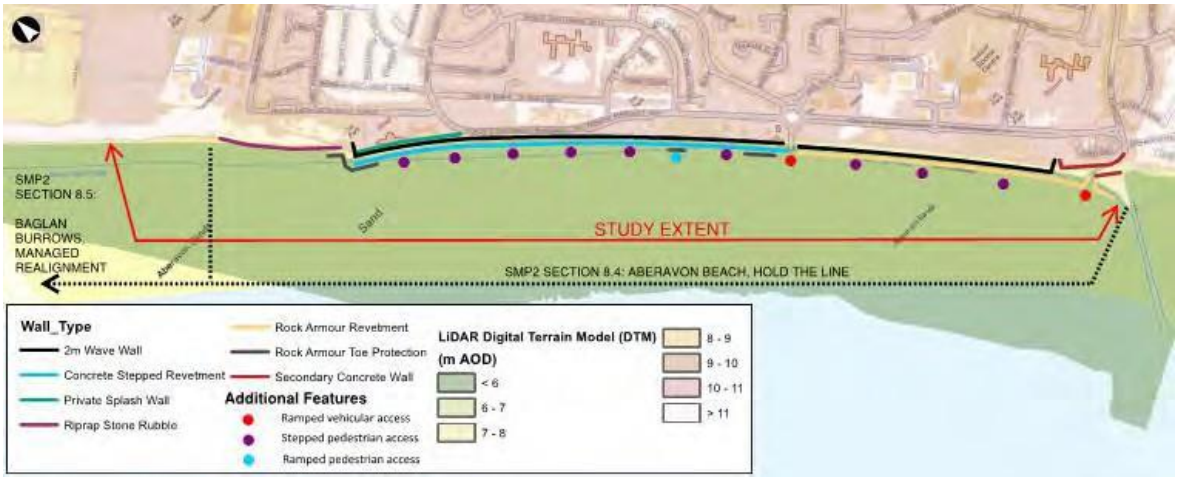

Figure 1 – Location Plan showing Aberavon Promenade

The project aims to enhance the protection to accommodate a 1 in 200 year storm event over a 100 year design life; equivalent to 2118 and integrating climate change adaptation. The proposed flood defence improvements are predicted to protect against potential inundations of up to one or two metres in certain locations; e.g. Sunken Gardens. Flood risk maps indicating the baseline flood risk and the modelled benefit of the proposed works are provided in Appendix C.

The current phase of the project requires production of an Outline Business Case (OBC) to investigate options for increasing flood resilience and to prepare an outline design of the preferred solution. The OBC will be submitted to Welsh

Government to apply for 75% of the potential funding required to progress detailed design and full construction of improved coastal flood defences, under the Coastal Risk Management Programme. As such, no progression of the works is currently confirmed and would be dependent upon Welsh Government funding. Confirmation as to whether the proposals are likely to constitute EIA Development will be an important consideration when establishing the risks and cost forecast for the project.

For information, an EIA Screening Opinion request for this project has also been made to Natural Resources Wales: Marine Licensing Team in accordance with the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended).

1.1 The Problem

The main coastal risk to Aberavon is from erosion and structural defects with the existing sea defences. The beach varies in width along the wall and over time. The construction of the promenade moved the shoreline seaward. Erosion and scour issues have affected the defences throughout their history. A study of coastal processes[1] concluded that the beach and foreshore along much of the frontage would appear to be in a state of dynamic equilibrium but with beach drawdown during winter storms and recovering during normal conditions. Following the extreme winter wave conditions witnessed during the winter of 2013/14, there has been evidence of consistent drawdown at the toe of the revetment of circa 1.5m in places in the winter months, with only a partial recovery throughout the summer of 2016.

Mumbles Head does not provide any significant sheltering from the predominant wave activity at Aberavon. Increased wave energy is apparent towards the very southeast of the study area. This is due to a small increase in beach slope and generally deeper offshore bathymetry along the wave approach. Recently, significant storms include February 2014 which whilst approaching from the west-southwest, fortunately coincided with neap tides. Had the storms occurred during spring tides, then beach drawdown could have been significantly greater and there could have been conditions conducive to the 1991 failure. Anecdotal observations suggest there is a net long term lowering of the beach and foreshore; however the analysis of the profiles, LiDAR datasets and photographic evidence within the last 10 years do not provide quantitative data to support this. Should a trend for long term lowering exist, then it is more likely to be a result of episodic storms events such as those in 2013/14 than from erosion during more normal events.

The revetment structure is at risk of collapse from beach drawdown at the toe. The likelihood of occurrence is relatively high as it could occur during any storm event, particularly during winter periods when the foreshore is drawn down. Damage from storms in the early 1980s led to the installation of the sheet pile toe and filling voids. Records conflict, but should the sheet piles be 3m in length as

[1] Arup (for Neath Port Talbot CBC). 2017. Aberavon Promenade Coastal Defences: Outline Business Case; Appendix E: ABPmer - Aberavon Conceptual Understanding [Coastal Processes Report].

indicated on some drawings, then records of 1.45m of pile exposure suggest the wall was close to failure[2]. This mechanism resulted in the failure of the revetment in 1991, but remedial action prevented the subsequent collapse of the sea wall. Rock armour to protect the toe was added in the mid-1990s, 2009 and 2012 to various sections however many lengths remain unprotected.

A review of existing defence structures[3] concluded the condition to be fair, based on available information. A structural inspection of the promenade in 2008 identified defects. A rock armour revetment was constructed in 2009 to address bank erosion at the western end of the promenade. However, other recommended remedial works to address defects categorised as urgent priority are outstanding. A visual inspection in 2014 recommended extending stairs to the beach, filling voids, and other essential repairs.

A Dŵr Cymru Welsh Water (DCWW) rising main runs below the promenade, so as a result this asset is also under threat from potential failure of the promenade.

Flood risk is relatively low due to the high level of the promenade (approximately 10mOD) compared to extreme sea level estimates (still water 1 in 1000 annual chance tidal event with allowance for sea level rise in 2118 is 7.3mOD). Wave overtopping estimates[4] have been applied to hydraulic modelling[5] to estimate flood inundation risk. Land and a small number of properties immediately behind the seafront were predicted at risk, with ponding in depressions such as the Sunken Garden, however the extent of inundation is relatively low. Widespread flooding beyond Princess Margaret Way is only predicted during events with a 1 in 200 annual chance and allowance for sea level rise to 2118.

The cyclical nature of beach levels at the toe of the revetment means that at times levels are elevated, with a 300m section midway along the concrete revetment particularly prone. The consequence is the nuisance of windblown sand blocking highway drains.

There is a general landward recession of dune crests and progradation at dune toes throughout the undefended frontage to the northwest. Dune toes are 4-5m above Highest Astronomic Tide level and scarping is ongoing during extreme wave and surge conditions. Evidence of dune blowout suggests that the rate of recession is not entirely due to hydrodynamically induced scarping activity, but is also influenced by wind effects.

1.2 Consequences of Doing Nothing

The baseline for the investment case is a theoretical walkaway ‘Do-Nothing’ scenario. Beach drawdown will not be managed and, as defects worsen, the risk of

[2] Arup (for Neath Port Talbot CBC). 2017. Aberavon Promenade Coastal Defences: Outline Business Case; Appendix G1: Commentary on Stability of Sheet Pile Cut-Off .
[3] Arup (for Neath Port Talbot CBC). 2017. Aberavon Promenade Coastal Defences: Outline Business Case; Appendix G2: Aberavon Existing Coastal Defence Structural Review.
[4] Arup (for Neath Port Talbot CBC). 2017. Aberavon Promenade Coastal Defences: Outline Business Case; Appendix D1: ABPmer - Aberavon Overtopping Assessment.
[5] Arup (for Neath Port Talbot CBC). 2017. Aberavon Promenade Coastal Defences: Outline Business Case; Appendix D2: Flood Inundation Modelling Report.

catastrophic collapse increases. There are seven adjacent properties in close proximity to the sea wall. Failure of the promenade and sea wall presents a risk to these properties, which include two care homes and a hospital. The failure of the promenade will also prevent access to the amenity beach, use of slipways and is likely to damage a trunk sewer rising main.

1.3 Consequences of Do-Minimum

The status-quo Do-Minimum scenario shares the Do-Nothing risk of the promenade revetment failure in the absence of remedial works to address erosion at the toe of the revetment, exposing the toe sheet pile and creating voids. Emergency capital replacement and reinstatement works would be required, as they were in 1991. Following the absence of maintenance and repairs to address structural defects, the scale of work required to maintain the status quo is significant. Flood warnings and emergency response would continue to be provided by NRW and Neath Port Talbot CBC respectively.

1.4 Promenade - Sand Dune Transition

The Lavernock Point to St. Ann's Head Management Plan (SMP2)[6] sets out the policy for how the shoreline should be managed over the next 100 years. Aberavon Sands is within the Lavernock Point to St. Ann's Head SMP2 Policy Unit (PU) 8.4: *Port of Port Talbot to Baglan Burrows (Aberavon Beach)*. The SMP2 sets out a policy to 'Hold the Line' for the beach and town, but 'managed realignment' for dune systems.

The focus of the project is safeguarding the existing Aberavon promenade; however, the study area included an increasingly undeveloped frontage. To the northwest of the promenade, SMP2 Policy Unit 8.4 with a 'hold the line' policy includes some 300m of cliffed dune with some rock armour in the area of Scarlet Avenue, before transitioning into Policy Unit 8.5: Baglan Burrows with a policy of 'managed realignment'.

West of the promenade Neath Port Talbot CBC constructed a car park adjacent to the hospital site in 2014. The settlement boundary extends slightly further northwest along the coast than the car park boundary, but thereafter the Neath Port Talbot CBC Local Development Plan (LDP) designates the area as undeveloped coast.

Following extension of the rock armour revetment in 2009 to address bank erosion at the western end of the promenade, there is no case for formalising the frontage protection. Opportunities to reinstate dunes are likely to be limited by ground contamination, and uncontrolled recreational use. Opportunities for development will be limited by the need to safeguard the area from coastal erosion, and consideration must be given to the effect of any mitigation on the adjacent undeveloped frontage.

[6] http://www.southwalescoast.org/content.asp?id=58&

1.5 Purpose of this Document

As part of the OBC, Arup have prepared a Preliminary Habitats Regulation Assessment (HRA) Stage 1: Screening Report in compliance with the requirements of the Conservation of Habitats and Species Regulations 2010 (as amended); hereafter referred to as the 'Habitats Regulations'. This report precedes any detailed design work and is based solely on outline design; as such this Preliminary HRA will be updated during detailed design to provide the formal assessment.

This document has been prepared by Arup to provide preliminary information to inform Neath Port Talbot CBC, as the competent authority, of the potential for effects on European Sites from the implementation of the Aberavon Promenade coastal defence improvements as required by Regulation 61(2) of the Habitats Regulations.

This report is to be reviewed and updated during any subsequent detailed design process to ensure that no additional risks arise. In particular, in-combination effects of up-to-date plans and projects will need to be revised and further consultation undertaken with Natural Resources Wales (NRW) to confirm conclusions.

1.6 The HRA Process

Regulation 61 of the Habitats Regulations requires a competent authority before deciding to undertake or give consent for a plan or project which (a) is likely to have a significant effect on a European site (either alone or in combination with other plans or project), and (b) is not directly connected with or necessary to the management of that site to make an 'appropriate assessment' of the implications of the plan or project for that site in view of its conservation objectives. In light of the conclusions of the assessment, the competent authority may proceed with or consent to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site.

All plans and projects should identify any possible effects early in the plan/project making process and then either alter the plan/project to avoid them or introduce mitigation measures to the point where no adverse effects remain. The 'competent authority' shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and if appropriate having obtained the opinion of the general public.

The assessment of a project under the Habitats Regulations can be split into several sections as shown in Appendix D[7]; however there are effectively four stages to the assessment.

Stage 1 is the assessment of the likelihood of a plan or project having a significant effect on a European site or its features. This is the trigger for the need for an Appropriate Assessment as set out in Regulation 61(1). The Appropriate

[7] Tyldesley & Chapman, 2017. The Habitats Regulations Assessment Handbook, January 2017 Edition, UK: DTA Publications Limited.

Assessment (Stage 2) is the detailed consideration of the potential effects of the plan or project in relation to the conservation objectives for the European Site(s) to determine if there is likely to be an adverse effect on the integrity of the site (i.e. an effect that would compromise the site meeting its conservation objectives. Providing it can be demonstrated that with appropriate mitigation measures the plan or project would not give rise to an adverse effect on the integrity of a European Site, the plan or project can proceed.

Where this cannot be demonstrated or there is uncertainty, the assessment would then need to consider if there were any other alternatives to the plan or project (Stage 3) that would not give rise to adverse effects on the integrity of the European Site. If there are no alternatives, Stage 4 would then consider if there are any Imperative Reasons of Overriding Public Interest (IROPI), only at this stage can Compensatory Measures be considered. It is very unusual for plans for projects to be considered in Stages 3 or 4.

1.7 Structure of this Report

This report uses the following structure:

- Section 2 provides a description of the proposed development (the 'project');
- Section 3 provides information on the data and methodology used in the assessment;
- Section 4 provides information on the European Sites that are considered within the assessment;
- Section 5 documents the assessment of the likelihood of significant effects occurring;
- Section 6 provides a summary and conclusions.

2 Project Description

Plans of the indicative outline designs of the preferred solutions are included in Appendix E.

2.1 Promenade (Chainage 0 to 950): Rock Armour Revetment

The south-eastern section of the wall features an upper wave return wall, a mid-level promenade, and a rock armour revetment extending down to beach level and into the sand. It is thought to be in fair condition and experiences less severe drawdown compared to the north-western section. Here, the preferred solution is to perform essential maintenance work to bring the structure to a state of good repair. This is primarily to fill voids in the rock armour, under the walkway and within the promenade, with a suitable marine-grade concrete. Reinforced patch repairs should be undertaken in areas where surface spalling has occurred. Other maintenance work required includes cleaning and resealing existing joints. These repairs are expected to significantly improve the life and resilience of the structure.

2.2 Promenade (Chainage 950 to 2000): Concrete Terraced Revetment

The south-eastern section of the wall features an upper wave return wall, a mid-level promenade, and a concrete terraced revetment extending down to beach level, with steel sheet piles forming toe protection. Recurring beach drawdown periodically lowers the level of the sand enough to expose the sheet piles at the base of the structure encouraging erosion and risk of void-formation. There are two components to the preferred solution here: repairing the wall itself, and armouring the toe of the structure.

Works to repair the existing wall are similar to those described for Section 3.4.1 above. It comprises filling voids under the walkway and promenade and in the seawall with concrete. Reinforced patch repairs should be undertaken in areas where surface spalling has occurred. Other requisite maintenance work includes cleaning and resealing the joints. These repairs are expected to significantly improve the life and resilience of the structure.

The toe of the structure is to be strengthened via rock armour. The existing sheet piles will remain, but double layer 1-3 tonne rock will be placed in front of them (approx. 1.8m deep section), extending and tapering down for a distance of approximately 12m laterally in front of the piles. A double underlayer of 100-300kg rock is provided below. Excavated sand material is to be re-used in place over the rock armour to extend the surface of the beach up to the existing terraced revetment. Additional locally-sourced beach material may be used to supplement the base of the defence if needed.

The five existing concrete access steps are to be extended down to the beach along this section; they are to be supported by either piling or crushed rock sub-base.

2.3 Promenade (Chainage 2100): New Sloped Access Ramp

A new accessible ramp with landings is to be retrofitted onto the existing concrete terraced revetment and extended down to beach level at the western end. The rock armour treatment is to be transitioned into the existing rock armour at this end of the structure.

2.4 Baglan Burrows Sand Dunes

This project does not currently propose works in the dune areas at the western end of the site. Some monitoring is advisable of the dune behaviour and possible retreat. A nominal budget allowance of £30k has been included in the OBC for dune management and environmental interpretation improvements.

2.5 Main Benefits

The town relies on the benefits from the tourism, regeneration, recreation and amenity that the seafront supports. The project will safeguard the frontage, reducing the risk of failure of the existing coastal defence structures. The project will significantly extend the life of the structures and protect the properties behind. The project will bring the frontage into line with the SMP2 policy of 'hold the line' whilst avoiding costly reactive structural replacement and the impact of failure of the promenade.

The project will also enhance beach access whilst addressing the current health and safety risk of falls from height during periods of beach drawdown at the toe of existing structures.

3 Guidance and Methodology

This section sets out the guidance and evidence base used in assessing the potential effects of the proposed works.

3.1 Guidance and Policy

This information has been informed by the following guidance and policy documents:

- Planning Policy Wales - Technical Advice Note (TAN) 5: Nature Conservation and Planning[8]; and
- The Habitats Regulations Assessment Handbook, January 2017 edition, UK: DTA Publications Limited[9].

This guidance is intended to improve understanding of how projects are regulated under the Habitats Directive. This guidance draws on experience throughout Britain and on case law in Britain and Europe.

3.2 Desk Study Information

In addition to the guidance noted above, the following websites were used to gather information on the European Protected Sites;

- Natural Resources Wales (NRW) website;
- Magic (Multi-Agency Geographic Information for the Countryside) website, and;
- Joint Nature Conservation Committee (JNCC).

Information on the interest features of European Sites has been obtained from the information provided on the Joint Nature Conservation Committee (JNCC) website, the Magic (Multi-Agency Geographic Information for the Countryside) website and Natural Resources Wales (NRW) website[10]. In particular the Core Management Plans for European Sites, and Regulation 35 information[11] containing advice on European Marine Sites where relevant, were obtained and have been used to inform this assessment.

These documents provide the main elements of NRW's management plan for European Sites along with the Conservation Objectives for the qualifying features. The qualifying features will be considered to be in Favourable Conservation

[8] Welsh Government. (2009). Planning Policy Wales - Technical Advice Note 5: Nature Conservation and Planning. Cardiff: Welsh Government.
[9] Tyldesley & Chapman, 2017. The Habitats Regulations Assessment Handbook, January 2017 Edition, UK: DTA Publications Limited.
[10] http://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/find-protected-areas-of-land-and-seas/designated-sites/?lang=en
[11] http://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/find-protected-areas-of-land-and-seas/advice-for-developers-and-marine-planners/?lang=en

Status only when the conservation objectives are being met. These objectives therefore provide an indication of the type of effects which could affect the features of European Site. An effect which could affect the ability of a site or feature meet its objective could be considered to be an adverse effect on the integrity of the European Site concerned.

3.3 Habitats Regulations Assessment Methodology

3.3.1 Identifying sites

In order to understand the potential implications for European Sites from the proposed project it is necessary to identify those sites that are located close to the project or are linked by pathways which could join sources of impacts with European Sites.

All European Sites and European Marine Sites within 10km of the proposed works were identified using Geographic Information System data from datasets downloaded from the JNCC and NRW. In addition European Sites with a direct hydrological connection with the location of the proposed works were also identified and included within the screening assessment.

3.3.2 Understanding qualifying interests and conservation objectives

For each of the sites identified the qualifying interests were established and the conservation objectives for each feature were obtained. Information was also sought to understand the potential vulnerability of the features to any effects that might arise from the proposed project.

3.3.3 Identification of the potential effects of the project

Any potential pathways for effect on European Sites resulting from the proposed improvement works were identified prior to consideration of best practice procedures (e.g. Guidelines for Pollution Prevention[12] and CIRIA guidance) or the integration of any mitigation measures.

3.3.4 Identification of plans or projects considered for in-combination effects

An ‘in-combination’ assessment is required where the project may have an effect on a European site, but on its own the effects would not be significant. The potential effects of the project should be considered in-combination with other plans or projects that similarly may have an effect, but where on their own those effects would not be significant. The combined effects may therefore become significant.

[12] http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/

Details of other plans and projects which are currently proposed or consented within the vicinity of the European Sites identified were obtained to inform the in-combination assessment of the proposed project.

3.3.5 Consideration of the significance of potential effects

The significance of potential effects was assessed in the absence of avoidance or other mitigation measures other than those which are standard construction practices such as pollution control or those incorporated into the scheme. The assessment has been made with awareness of the conservation objectives for the features of the European Sites, although as stated in the relevant guidance the assessment of the project against the conservation objectives is not required until the Appropriate Assessment stage of the HRA process.

In the assessment of the significance of effects, professional judgement was applied using the following criteria, as often insufficient information about the elements and interests is available:

- The vulnerability/sensitivity of the receiving environment/features of interest;
- When the risk of effects are likely to occur (e.g. construction and/or operation);
- The likely geographical extent of the effects; and
- Likelihood of significant effects (e.g. those above negligible in magnitude) occurring based on previous experience with similar elements, where available.

Professional judgement was used in the carrying out of this work where professional guidance was not available. Where there was not enough information about the risk of qualifying interest being present, or of the risk of effects, the assessment used the precautionary principle to inform the judgement. The precautionary principle has been applied to ensure that any assessment errs on the side of caution, without being overly cautious. This principle means that the conservation objectives should prevail where there is uncertainty or that harmful effects will be assumed in the absence of evidence to the contrary.

4 European Sites Potentially Affected by the Proposal

4.1 Environmental Baseline

Aberavon Promenade is not located within a European site. The nearest European sites are the Crymlyn Bog / Cors Crymlyn Special Area of Conservation (SAC) and Crymlyn Bog Ramsar Site[13], located approximately 3.1km northeast of Aberavon Sands. Appendix B1: Environmental Constraints Plan (Regional Context) shows the location of the proposed works in relation to European Sites within 10km of the improvement works; features of these sites are described in Table 1 below.

The European Sites identified within 10km of the improvement works are as follows:

- Crymlyn Bog / Cors Crymlyn SAC; 3.1km northeast.
- Crymlyn Bog Ramsar Site; 3.1km north-east.
- Kenfig / Cynffig SAC; 6.5km south.

Due to the mobile nature of harbour porpoise (*Phocoena phocoena*) the Bristol Channel Approaches / Dynesfeydd Môr Hafren candidate Special Area of Conservation (cSAC) was considered as part of this assessment; however, this site has been scoped out of the assessment due to the distance of the site from the proposed works (approximately 37km west) and lack of pathway for effect.

An Extended Phase 1 Habitat Survey was carried out on 13th December 2016 (Appendix B3; Extended Phase 1 Habitat Survey Plans); a summary of the report is presented below[14].

The majority of the beach at Aberavon Sands is made up of fine intertidal sand. The majority of sand is inundated with sea water daily; a sparse strandline exists at the northern boundary of the beach. The existing coastal defences form the only hard substrate for colonisation by intertidal species along the study area; the smooth homogenous form of the stepped revetment result in negligible colonisation whilst the rock armour section provides a more diverse array of habitats and thus a greater species richness. The rock armour maintains immature colonies of fucoids (*Fucus vesiculosus* - bladder wrack and *F. serratus* - serrated wrack) and commonly occurring fauna including: common limpet (*Patella vulgata),* common periwinkle (*Littorina littorea)* and common acorn barnacle (*Semibalanus balanoides).* Restricted growth may be attributable to the recent deployment of the rock armour, the season in which the survey took place or due to the high exposure associated with the site.

Of greater interest was the presence of newly colonised *Sabellaria alveolata* tubes that had established within the rock armour, in addition to small mytilid colonies

[13] Wetland of International Importance designated under the Ramsar Convention 1971.
[14] Further ecological details provided in the: Aberavon Promenade Coastal Defences Preliminary Ecological Appraisal Report; Arup (2017) prepared for Neath Port Talbot CBC.

(*Mytilus edulis*), but had not yet established to form the characteristics of a 'reef' habitat for which Section 7 status applies. It is encouraging that the populations of *Sabellaria* and mytilds from the River Afan Estuary have begun to colonise the new defences and should ultimately increase biodiversity along this stretch of coastline.

Of the habitats present within the study area, the most notable are the Section 7 priority habitats of: open dune. The open dune habitat is the primary feature of the Baglan Bay SINC, and is dominated by marram grass (*Ammophila arenaria)* before grading into dune grassland to the south where dominance by marram grass continues but is further characterised by: thrift (*Armeria maritima*), spring squill (*Scilla verna)*, bladder campion (*Silene vulgaris)*, sea plantain (*Plantago maritima)*, sea rocket (*Cakile maritima)* and sea spurge (*Euphorbia paralias)*.

Bird species of note identified during the survey include 20 sanderling (*Calidris alba*) feeding on the shore at low tide, in addition to typical gulls and corvids.

Invasive Non-Native Species (INNS) identified through desk study include: three records of the Schedule 9[15] species American slipper limpet (*Crepidula fornicata*) within the site, and several records within 50m the site including: wall cotoneaster (*Cotoneaster horizontalis*), hybrid bluebell (*Hyacinthoides non-scripta* x *hispanica*), Japanese rose (*Rosa rugosa*) and white stonecrop (*Sedum album*).

None of the above were identified during the Extended Phase 1 Habitat Survey, although due to the timing of the survey their presence should not be discounted in subsequent stages.

[15] Schedule 9, Wildlife and Countryside Act 1981 (as amended).

Table 1 **Qualifying Features of the European Sites Selected**

Site	Qualifying Features	Importance	Conservation Objectives Summary	Vulnerability
Crymlyn Bog / Cors Crymlyn SAC 3.1km north-east	Alder woodlands on floodplains [Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*]. Calcium-rich fen dominated by great fen sedge (saw sedge) [Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*]. Very wet mires often identified by an unstable 'quaking' surface [Transition mires and quaking bogs].	Considered to be one of the best areas in the United Kingdom.	The extent and distribution of key habitats should be as mapped in 2005 and 2009. Key habitats should be of high quality throughout. Key habitats will also contribute to the wider fen environment of Crymlyn Bog in supporting a range of typical fenland bird, plant and invertebrate species. Factors affecting the extent and quality of the calcareous fen habitat (including water quality, atmospheric pollution, water levels, successional change, scrub encroachment and non-native species) should be under appropriate control.	Natural succession to mature habitats Human induced changes in hydraulic conditions Grazing Air pollution, air-borne pollutants Pollution to surface waters (limnic & terrestrial, marine & brackish) Soil pollution and solid waste (excluding discharges)
Crymlyn Bog Ramsar Site	Ramsar Criterion 1: Largest example of valley floodplain topogenous mire in	Considered to be one of the best areas in the United Kingdom.	The extent and distribution of key habitats should be as mapped in 2005 and 2009.	Natural succession to mature habitats

Site	Qualifying Features	Importance	Conservation Objectives Summary	Vulnerability
3.1km north-east	South Wales, and one of the largest surviving fens in the west of Britain. Very few other sites are known to support a comparable complexity and diversity of vegetation. Habitats Directive Annex I features present on the SAC include: H7140, H7210 and H91E0. Ramsar Criterion 2: Supports a substantial population of the nationally-rare slender cotton-grass *Eriophorum gracile*, and a rich invertebrate fauna including many rare and highly localised species. Ramsar Criterion 3: The site supports 199 vascular plant species including 17 regionally-		Key habitats should be of high quality throughout. Key habitats will also contribute to the wider fen environment of Crymlyn Bog in supporting a range of typical fenland bird, plant and invertebrate species. Factors affecting the extent and quality of the calcareous fen habitat (including water quality, atmospheric pollution, water levels, successional change, scrub encroachment and non-native species) should be under appropriate control.	Human induced changes in hydraulic conditions Grazing Air pollution, air-borne pollutants Pollution to surface waters (limnic & terrestrial, marine & brackish) Soil pollution and solid waste (excluding discharges)

Site	Qualifying Features	Importance	Conservation Objectives Summary	Vulnerability
	uncommon and one nationally rare.			
Kenfig / Cynffig SAC 6.5km south	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	Considered to be one of the best areas in the United Kingdom.	The overall aim for the SAC is that the natural coastal and dune-forming processes that determine the dynamics and proportions of habitats at Kenfig should be allowed to continue. Existing habitats should be maintained where possible by management of factors within human control. Approximately 57% of the site comprises sand dunes, supporting a broad range of plant community types. This range of communities, with a high proportion of sparsely vegetated and open dune slacks or wet hollows, should be maintained or increased. Natural processes, largely determine the area of the salt marsh but where possible the area should be maintained or increased. Nationally rare and scarce plants, such as petalwort and fen orchid, which are associated with the dunes, should not reduce in range within their habitats, or lose the ability to reproduce and sustain themselves through factors within human control.	Natural succession to mature habitats Offshore aggregate extraction Livestock grazing Water level and quality Natural coastal processes Recreational and visitor pressure Scrub encroachment - control of *Hippophae rhamnoides* Air quality
	Dunes with *Salix repens ssp. argentea* (*Salicion arenariae*)	Considered to be one of the best areas in the United Kingdom.		
	Humid dune slacks	Considered to be one of the best areas in the United Kingdom.		
	Hard oligo-mesotrophic waters with benthic vegetation of *Chara spp*.	Considered to be one of the best areas in the United Kingdom.		
	Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	Considered to support a significant presence.		

Site	Qualifying Features	Importance	Conservation Objectives Summary	Vulnerability
	Petalwort (*Petalophyllum ralfsii*)	Considered to be one of the best areas in the United Kingdom.	Populations of rare invertebrates should be maintained and the site should support a diverse invertebrate assemblage. The site should also support nationally and locally rare fungi associated with sand dune habitats. Inter-tidal communities should remain mainly undisturbed, with sustainable populations maintained by maritime influences, and tidal movement. Management of the site should promote the natural diversity of the sand dune and salt marsh habitats.	
	Fen orchid (*Liparis loeselii*)	One of only three known outstanding localities in the United Kingdom.		

4.2 Identification of Other Plans and Projects

Since progression of the proposals is dependent upon Welsh Government funding, a definitive timeframe is not available. Hence, determination of potential in-combination effects with other projects is difficult to ascertain at this stage.

No projects were identified through the Neath Port Talbot CBC Planning Application search that would be likely to have an in-combination effect with the proposed works.

A comprehensive assessment of in-combination effects will support relevant consent applications during detailed design when the requisite level of project level detail and knowledge of up-to-date plans and projects that may have an in-combination effect with the Aberavon Promenade Coastal Defence improvements.

No significant interactions are anticipated at this stage, as the scale of proposed works are defined and localised and the nature of works are unlikely to incur to any significant environmental effects.

5 Screening Assessment

5.1 Screening of European Sites

The terrestrial features within the Crymlyn Bog SAC and Crymlyn Bog Ramsar site are not considered likely to be affected by the proposed works due to their distance from the site (3.1km) and lack of pathway for effect, and have therefore been screened out of the assessment.

The Kenfig / Cynffig SAC has been screened into this assessment due to its relative proximity (i.e. within 10km; 6.5km south) to the proposed works and marine hydrological linkage.

As described above in Section 4.1, the Bristol Channel Approaches / Dynesfeydd Môr Hafren candidate Special Area of Conservation (cSAC) was screened out due to the distance of the site from the proposed works (approximately 37km west) and lack of pathway for effect.

5.2 Potential Effects of the Proposed Works

Features of the Kenfig / Cynffig SAC are either terrestrial or coastal with potential pathways for effect limited to water quality impacts and changes in coastal processes; as follows:

- Changes in coastal processes resulting from new coastal infrastructure.
- Pollutants or high sediment load in surface water runoff from construction areas.

These potential effects are considered in more detail below and in Table 2: Summary of the Screening Assessment for Likely Significant Effects.

5.2.1 Changes in Coastal Processes

The development of new coastal infrastructure has the potential to affect local and sediment transport regimes. Such potential changes in coastal processes may alter sediment supply to the frontages of the Kenfig SAC, representing a pathway for effect on coastal habitat features. The Aberavon Promenade Coastal Defences: Coastal Processes Assessment[16] (Appendix F), demonstrates that the predominant sediment transport regime and tidal regime in the regional environment comprises a relatively stable system with predominant onshore-offshore sediment transport but a minor net northerly movement; i.e. away from the Kenfig SAC.

As such, the Coastal Processes assessment confirms that there would be no change to wider-scale coastal processes through implementation of the scheme and no change in sediment supply to either element of the Kenfig SAC, particularly at a distance of 6.5km.

[16] ABPmer. 2017. Aberavon Promenade Coastal Defences: Aberavon Conceptual Understanding [Coastal Processes Report].

As such, it is reasonable to conclude that there would be **no effect** on the Kenfig SAC from changes in coastal processes.

5.2.2 Pollutants or high sediment load in surface water runoff from construction areas

Temporary effects during construction were identified as a potential pollution pathway. Relevant potentially polluting sources noted include raised suspended sediment concentrations and accidental spills, e.g. concrete or fuel oils from construction plant; no operational effects would occur due to the nature of the development.

Even in the absence of mitigation measures, the probability of a measurable effect on features 6.5km away is negligible following dilution, adsorption and prevailing transport pathways; as such this potential pathway on the Kenfig / Cynffig SAC has been screened out.

It is therefore reasonable to conclude that there would be **no effect** on the Kenfig / Cynffig SAC from pollution risk.

Regardless, all proposed works will be carried out in accordance with relevant legislation and undertaken in compliance with the relevant Guidance for Pollution Prevention (GPPs) and industry best practice (e.g. GPP5: works and maintenance in or near water, PPG 21, CIRIA best practice).

It is also assumed that the following measures will be adopted: the contractor will have a Construction Environmental Management Plan (CEMP), Environmental Action Plan (EAP), or similar document containing site-specific methods to ensure that all site activities are controlled and are in accordance with the aforementioned best practice procedures.

For example, all plant will be sourced from a trusted reputable company and will come with spill kits which site personnel will be trained to use. No containers or fuel will be stored on site. If required, marine specific products will be used; e.g. rapid set marine grade concrete. Minimal quantities of fuels, materials, etc. will be taken on to the foreshore to reduce the risk of pollution. All storage containers will remain within an appropriately located site compound and be suitably bunded to prevent any spillages or leaks. No storage of materials or refuelling operations will be permitted outside the site compound and all materials and manmade debris will be removed from the beach after works are complete.

This concurs with Lavernock Point to St Ann's Head SMP2 HRA[17], which concluded that no effect was anticipated on the Kenfig / Cynffig SAC, provided that pollution control measures are implemented to safeguard aquatic flora and fauna within and adjacent to the construction site, in addition to good construction management practices.

[17] http://www.southwalescoast.org/content.asp?id=58&

5.3 In-Combination Assessment

No effects are anticipated from the proposed improvement works alone, neither by potential changes in coastal processes nor potential deterioration in water quality.

Since no effects on European Sites are anticipated alone, there cannot be an in-combination effect with other plans and projects. It is therefore reasonable to conclude that the application will not have a likely significant effect in-combination with other plans and projects.

This concurs with the Lavernock Point to St Ann's Head SMP2 HRA, which determined that the SMP2 policies in Policy Units 8.4 and 8.5 will have no likely significant effect on the Kenfig / Cynffig SAC; as such, it can be ascertained that there will be no adverse effect on the integrity of the SAC.

Table 2 **Summary of the Screening Assessment for Likely Significant Effects**

Feature	Potential Effect	Incorporated mitigation / scheme design	Likelihood of significant effect
Kenfig / Cynffig SAC			
Fixed coastal dunes with herbaceous vegetation ("grey dunes")	Change in Coastal Processes Pollutants or high sediment load in surface water runoff from construction areas	Coastal Process Study confirmed no change in sediment transport regimes likely. Be undertaken in compliance with the relevant GPP and industry best practice (e.g. Guidance for Pollution Prevention: works and maintenance in or near water: GPP5, PPG 21, CIRIA best practice). Be controlled through a Construction Environmental Management Plan (CEMP), or similar document. Adhere to good practice with chemicals on site (e.g. bunded containment, spill kits etc.) If required, marine specific products will be used; e.g. rapid set marine grade concrete. Plainly established and uncontroversial (PEU) good practice measures will be sufficient to avoid any water quality issues.	No effect
Dunes with *Salix repens ssp. argentea* (*Salicion arenariae*)			
Humid dune slacks			
Hard oligo-mesotrophic waters with benthic vegetation of *Chara spp*.			
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)			
Petalwort (*Petalophyllum ralfsii*)			
Fen orchid (*Liparis loeselii*)			

6 Conclusion

The proposed works at Aberavon Promenade aim to assess the feasibility of reducing coastal erosion and flood risk to the Sandfields area of Aberavon. The main coastal risk to Aberavon is from erosion and structural defects with the existing sea defences. The beach varies in width along the wall and over time. The construction of the promenade moved the shoreline seaward. Erosion and scour issues have affected the defences throughout their history.

The project aims to enhance the protection to accommodate a 1 in 200 year storm event over a 100 year design life; equivalent to 2118 and integrating climate change adaptation. The proposed flood defence improvements are predicted to protect against potential inundations of up to one or two metres.

The improvement works aim to manage flood risk in accordance with the Lavernock Point to St Ann's Head Shoreline Management Plan (SMP2), Policy Unit (PU) 8.4: *Port of Port Talbot to Baglan Burrows (Aberavon Beach)* of 'hold the line' and PU 8.5: *Baglan Burrows* with a policy of 'managed realignment'.

An Extended Phase 1 Habitat Survey and Ecological Desk Study informed the assessment. The Kenfig / Cynffig SAC was screened into this assessment due to its relative proximity to the works and hydrological connectivity along the coastline. Potential pathways for effect from the proposed works were identified as potential changes in coastal processes and potential risk of short-term degradation in water quality. All other European sites within 10km or with mobile features and hydrological connectivity were screened out based on spatial separation and lack of pathway for effect.

The OBC Coastal Processes Study confirms that there would be no change to wider-scale coastal processes through implementation of the scheme and no change in sediment supply to the Kenfig SAC, particularly at a distance of 6.5km. Any construction phase water quality effects from the proposed works will be avoided through best practice driven by a CEMP or similar document ensuring adherence with best practice; e.g. GPP5 and CIRIA guidance.

It is therefore reasonable to conclude that there would be no effect from changes in coastal processes or pollution risk on the features of the Kenfig / Cynffig SAC located 6.5km distant during construction. As there are no effects anticipated on European Sites from the proposed improvement works alone, there cannot be an in-combination effect with other plans and projects.

It is therefore reasonable to conclude that there are no effects, either alone or in-combination with other plans and projects, resulting from the proposed improvement works.

Given the conclusion that the proposal is not likely to have a significant effect on European sites, the requirement to complete an appropriate assessment has not been triggered at this preliminary outline design stage. As a consequence, the proposed works are not considered to be contrary to the provisions of Regulation 61 of the Conservation of Habitats and Species Regulations 2010 (as amended).

This document should be kept under review as the design progresses and updated as necessary.