

Llanddulas to Kinmel Bay Outline Construction Environmental Management Plan

Draft Report

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Contract

This report describes work commissioned by Amey Consulting. JBA Consulting carried out this work.

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Purpose

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1 Introduction

1.1 Purpose

Llanddulas to Kinmel Bay Coastal Defence Improvement Scheme is designed to alleviate flood risk and prevent flood damage to homes, businesses and critical infrastructure. The interventions span along an 11km stretch of coastline from Llanddulas to Kinmel Bay. The proposed scheme comprises of new and / or improved rock armour defences, beach replenishment, raised embankments, seawalls and new flood walls. The proposal is supported by multiple public realm and ecological enhancements across the frontage.

This Outline Construction Environmental Management Plan (CEMP) summarises the key construction-phase and operational environmental management and mitigation actions for the proposed scheme as identified in the associated Environmental Statement (ES) report. It sets out environmental management objectives and associated actions to be delivered during construction of the developments, and post-construction, and assigns these to specific members of the team responsible for the delivery of the project.

1.2 Roles

For each environmental management action, the appropriate project team member with responsibility for ensuring that action is implemented is identified. Monitoring of the actions identified in the CEMP would be undertaken by the appointed construction contractor(s), although it is recommended support is provided by an Ecological Clerk of Works (ECoW). This CEMP may be used by the contractor(s) when implementing their own Environmental Management Systems (EMS).

1.3 Environmental audits

It is recommended that site audits are undertaken by the contractor(s) on a regular basis, to ensure compliance with planning conditions and regulatory requirements.

1.4 Environmental incident reporting

As part of any contractor(s)' EMS, any environmental issues or incidents would be reported using their incident reporting system.

2 The sites, environmental receptors, and scheme proposals

2.1 Scheme backgrounds

Llanddulas to Kinmel Bay is a stretch of coastline within Conwy County which experiences extreme tidal levels combined with large wave heights along the sea front. As a consequence of climate change the number of properties at risk of flooding along this coastline will increase from 1872 properties in 2018 to 4,598 in 2118 for a 100-year return period event. The existing coastal defences comprise a combination of timber groynes, rock revetment, cobbled beaches, sea walls and floodgates. The proposed scheme has been designed to avoid significant impediment of views whilst achieving a significant reduction of flood risk and minimising the need for ongoing maintenance over the lifetime of the scheme. This will be achieved through the implementation of new or upgraded rock armour, beach replenishment, raised embankments sea walls and flood walls along the frontage.

The main objectives of the scheme, as outlined within the Outline Business Case (OBC) are as follows:

1. To reduce flood damages to the 4,471 residential and non-residential properties currently at risk in the Walkaway scenario.
2. Ensure community and stakeholder engagement to ensure 'buy-in' for the scheme, thus delivering social benefits by raising awareness and increasing community resilience.
3. To develop a scheme that is deliverable within engineering and time constraints.
4. To develop a scheme that is adaptable to change.
5. Encourage innovative solutions that deliver multiple benefits. Specifically for this scheme to sustain and/or improve the tourist and amenity benefits through continued operation of the beach and the North Wales Coastal route.

2.2 Proposed scheme below Mean High Water Spring

The interventions proposed have been divided between seven Coastal Management Units (CMUs). The proposed CMUs with interventions below the MHWS are described below:

CMU 3-2B: Llanddulas Beach. Works at this location involves upgrading the existing rock armour defence as well as an increase in embankment elevation. The new defence will stretch roughly 350m to the eastern edge of the car park to the end of the caravan site on Beach House Road, along two existing bays bound by rock groynes. The raised embankment will be tied into the existing ground to prevent the new defences being outflanked in coastal flood conditions. The level of the embankment crest will provide adequate protection considering the recommended allowances for Sea Level Rise. Only a small area section at the toe of the rock armour is below in the MHWS.

CMU 3-4: Pensarn Beach. The proposed works at this location involve an initial substantial capital beach nourishment, to achieve a minimum beach crest width to reduce overtopping to less than 10 l/s/m at this region in a 1 in 200-year coastal flood event while also providing erosion protection to the currently exposed sea wall.

The works also involve a programme of maintenance including periodical beach recharge (estimated to be 3 to 5-yearly), providing the needed supply of material to a starving beach. This will facilitate the recovery of the ridge and vegetation to establish enhancing Traeth Pensarn SSSI. The majority of the beach replenishment is below the MHWS.

CMU 3-5A: Belgrano Beach. The coastal defence upgrades at this location have been divided into two. At the western end of Belgrano beach, rock armour will be placed in front of the existing sea wall extending for 500m. The rock armour is designed to offer an over-topping protection of 1 l/s/m for a 1 in 200-year event in 2041.

The eastern site will involve a new rock armour, extending eastward from the existing rock armour at Lyndale Holiday Park with a newly raised embankment behind. This rock armour will extend 300m, and also offer wave over-topping protection of 1 l/s/m for a 1 in 200-year event in 2041. Approximately half of the bottom section of the rock armour is below MHWS.

CMU 3-5B: Towyn Revetment. The proposed works involve upgrades to the current rock armour, keeping the current slope angle but increasing the crest width and height to offer a standard of protection of 1 l/s/m for a 1 in 200-year event up to the year 2041. The new design will make every effort to reuse and repurpose the current rock armour material. Only a small area at the toe of the rock armour is below in the MHWS.

CMU 3-5C: Kinmel Bay Beach. The coastal defence upgrades along this section include increase in height of the seawall create along the entire until by 300m, and upgrade/replace flood gate at carpark to be at the same level as the wall. The level of the seawall crest will be increased to provide improved wave overtopping flood protection considering the recommended allowances for Sea Level Rise up to 2041. The proposed works also include re-profiling the level of the entrance will provide flood protection landwards by preventing water entering the main town, with any flood water returned to the sea by flap gates. The existing rock revetment at the western eastern end of Kinmel Bay Beach will be enhanced and upgraded, the length of the new rock armour unit will be 420m. Maintenance in terms of periodical recharge will be required at the western end downdrift the enhanced revetment at Towyn, where downdrift erosion may reach the seawall. Only a small area at the toe of the rock armour is below in the MHWS.

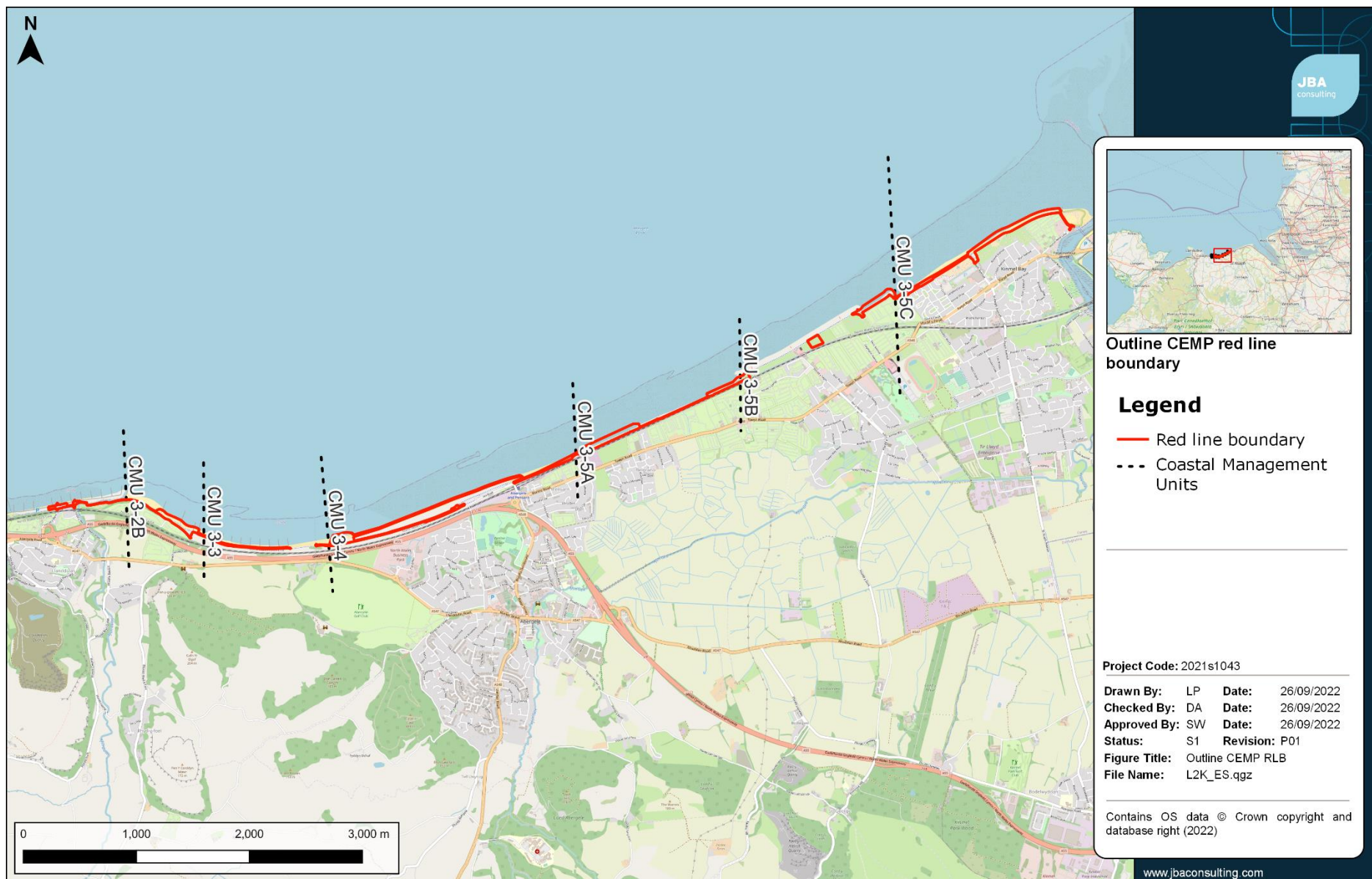


Figure 2-1: Red line boundary of the proposed scheme

3 Outline CEMP

The CEMP is a live document that will be updated as the project progresses through the consenting process and pre-construction phase and throughout the construction of the schemes. A construction contractor has not yet been appointed. The following outline CEMP (see Table 3-1) has been produced to support the marine licence. It will be developed further by the construction contractor prior to the start of construction to address any consent conditions imposed and to reflect the detailed construction methodology.

Table 3-1: Outline Construction Environmental Management Plan

Ref.	Environmental Objective	Action Proposed	Relevant development site	Responsibility	Reference to further information	Further comment
Coastal processes						
CP1	SOC_09 Effects on coastal change and flooding	Potential coastal process impacts would be mitigated through the adoption of good construction practices. As much work as possible should be conducted under dry conditions during periods of low water to minimise the mobilisation of sediments and construction materials.	All sites	Construction contractor	Coastal Processes Chapter Section 1.11	
CP2	SOC_09 Effects on coastal change and flooding	All work schedules should be assessed two weeks in advance to confirm compliance with the stated mitigation measures. Works should cease during storm events, where increased wave activity could mobilise sediments and present hazardous working conditions.	All sites	Construction contractor	Coastal Processes Chapter Section 1.11	
CP3	SOC_09 Effects on coastal change and flooding	Ecological enhancements will be incorporated into the scheme in the form of carved rockpools in boulders within the intertidal zone. These indentations in the emplaced boulders retain tidal water creating habitat availability and ecological opportunities for colonisation by intertidal species. Attention needs to be given to the placement of modified boulders, so they are suitably positioned to receive and retain water during each tidal cycle.	All sites	Construction contractor	Coastal Processes Chapter Section 1.11	
CP4	SOC_09 Effects on coastal change and flooding SOC_08	Beach monitoring (e.g., topographic surveys) are already undertaken on an annual basis. It is recommended that this continues, post-construction, at the same/similar time each year to identify changes in beach slope gradient and elevation. Monitoring will provide insight to any potential impacts associated with the newly constructed defenses and the morphological	All sites	Construction contractor	Coastal Processes Chapter Section 1.11	

	Resilience to coastal change and flooding	response. This will help inform any future requirements for additional beach recharge.				
Ecology Impact Assessment						
ECIA1	ENV_01 Resilient marine ecosystems	Abiding by relevant pollution prevention measures e.g. CIRIA Guidance: Control of water pollution from construction sites, Guidance for consultants and contractors (C532D) (Masters-Williams, 2001). Information useful for Toolbox Talks on working near water and pollution prevention can be found on the CIRIA website. Additional prevention of accidental oil and fuel leaks, detailed in HRA1.	All sites	Construction contractor	Ecological Impact Assessment Section 6	
ECIA2	ENV_01 Resilient marine ecosystems	Small sections of dune habitat within the Kinmel Dunes will be temporarily disturbed during the construction works. The area impacted will be limited to as small a footprint as possible and all sand temporarily removed will be replaced within the LNR under the supervision of an ECoW.	All sites	Construction contractor	Ecological Impact Assessment Section 6.2	
ECIA3	ENV_01 Resilient marine ecosystems	Appropriate environmental management measures will be implemented prior to the construction phase to ensure that water quality is not adversely affected through pollution incidents and the release of contaminants from the construction site. These measures will be recorded in a detailed CEMP and agreed with the local planning authority and NRW prior to works taking place. To minimise disturbance and habitat degradation, plant will keep to agreed haul routes and not stray outside of these areas. It is considered that in this case, the haul routes will rapidly recover following the completion of the works.	All sites	Construction contractor	Ecological Impact Assessment Section 6.3	
ECIA4	ENV_01 Resilient marine ecosystems	A small amount of Sabellaria alveolata has been recorded to the east of the scheme, however, the species was not recorded within Kinmel Bay. Given the ephemeral nature of the species there is the potential for it to colonise the scheme area before construction takes place. A survey will be	All sites	Construction contractor	Ecological Impact Assessment Section 6.7.1	

		undertaken prior to works being undertaken in the littoral zone to ensure that the species is not present.				
ECIA5	ENV_01 Resilient marine ecosystems	Should it become necessary to remove small sections of scrub for access, all vegetation clearance will be undertaken outside of the main breeding season (typically between September and end February). If this is not possible, all vegetation clearance will be supervised by an experienced ecologist. Any identified nests will be safeguarded until the chicks have fledged to ensure there are no direct impacts upon nesting birds.	All sites	Construction contractor	Ecological Impact Assessment Section 6.7.2	
ECIA6	ENV_01 Resilient marine ecosystems	Where works cannot avoid suitable reptile habitat (i.e. dunes, ecotones, rough grassland), vegetation clearance will be conducted in a sensitive manner to avoid direct harm to reptiles. Two-staged vegetation clearance will be conducted under watching brief by an Ecologist between September – October to fit between the bird breeding season and reptile hibernation. All contracted site workers will be made of aware of how to identify Common Lizard, the legal protection afforded to this species and the following actions including what to do if Common Lizard or other reptiles are found. Should large numbers of reptiles be found during site clearance works, works are to be stopped immediately and working methods evaluated and adjusted as necessary to prevent further impacts to reptiles.	All sites	Construction contractor	Ecological Impact Assessment Section 6.7.3	
ECIA7	ENV_01 Resilient marine ecosystems	There is the potential for a scheme to impact upon fish species during the construction phase. Fine sediment mobilisation has the potential to impact upon on fish species as a result of reduced foraging efficiency of visual predators and cause minor gill irritation.	All sites	Construction contractor	Ecological Impact Assessment Section 6.7.4	

		The works will be carried out at low tide in the dry and therefore the proposals should not cause any noise or vibration impacts to the marine environment.				
Habitat Regulations Assessment						
HRA1	SOC_03 Marine pollution incidents ENV_01 Resilient marine ecosystems	Following relevant guidance e.g. CIRIA Guidance: - Control of water pollution from construction sites. Guidance for consultants and contractors (C532D) (Masters-Williams, 2001), including the delivery of toolbox talks to site staff. - Any chemical, fuel and oil stores will be located on impervious bases within a secured bund with a storage capacity 110% of the stored volume. Biodegradable oils and fuels will be used where possible. - Drip trays will be placed underneath any standing machinery to prevent pollution by oil/fuel leaks. Refuelling of vehicles and machinery will be carried out on an impermeable surface in one designated area well away from any watercourse or drainage (at least 10m) with capture of any spillages. - Emergency spill kits will be available on site and staff trained in their use. - Operators will check their vehicles on a daily basis before starting work to confirm the absence of leakages. Any leakages will be reported immediately. - Daily checks will be carried out and records kept on a weekly basis and any items that have been repaired/replaced/rejected noted and recorded. Any items of plant machinery found to be defective will be removed from site immediately or positioned in a place of safety until such time that it can be removed.	All sites	Construction contractor	Habitat Regulations Assessment Section 5.1 CIRIA Guidance: control of water pollution from construction sites	

		This mitigation is industry standard practice and as a result, will be incorporated into the project through the Environmental Management Plan (EMP).				
Water Framework Directive Assessment						
WFD1	ENV_01 Resilient marine ecosystems	It is recommended that the proposed scheme seeks to contribute to any future requirement for additional mitigation measures. This should principally focus on opportunities to provide further ecological enhancement of the rock armour revetment.	All sites	Construction contractor	Water Framework Directive Section 5	
WFD2	SOC_03 Marine pollution incidents	Proposed ground investigation works, and subsequent sediment analysis should be used to determine the presence of any existing contamination within the footprint of the site. Should sampling analysis highlight the presence of contaminants of concern at concentrations above the stipulated Cefas Action Levels then mitigation measures will be required to reduce the potential mobilisation of any harmful contaminants which may be detrimental to the current and/or future WFD Status.	All sites	Construction contractor	Water Framework Directive Section 5	
WFD3	ENV_01 Resilient marine ecosystems	A Construction Environmental Management Plan (CEMP) should be prepared, which sets out the actions that will be implemented to control construction of the proposed scheme so as to avoid adverse impacts on the environment. The CEMP should form part of the construction contract. It should adhere to construction best practice for works on the coast so as to reduce the risk of environmental contamination during construction and include biosecurity procedures to prevent the spread of INNS.	All sites	Construction contractor	Water Framework Directive Section 5	
WFD4	SOC_03 Marine pollution incidents	Visual monitoring of the construction area should be undertaken daily during the construction period to identify any signs of sewage debris or any other contaminated materials, which should be removed offsite for disposal. This will minimise the risk of bacterial contamination adversely affecting beach users and construction personnel.	All sites	Construction contractor	Water Framework Directive Section 5	

WFD5	GOV_01 Cumulative effects	Where construction works coincide with the development of future proposed coastal defence and infrastructure projects within the wider sub-cell, caution should be employed to limit any potential cumulative, in-combination effects.	All sites	Construction contractor	Water Framework Directive Section 5	
Environmental Contamination						
CE1		Waste that is recyclable will be sorted within the construction compound, placed into the relevant storage disposal container, and then removed from site for disposal at an appropriate recycling facility. All potentially contaminated material will be subject to Waste Acceptance Criteria testing. Any residual waste material will be removed from site and disposed at an appropriately licenced waste management facility.	All sites	Construction Contractor		
Documentation in the process of being prepared, the CEMP will be updated once the Environmental Statement is complete, and measures are agreed with the Local Planning Authority prior to works starting on site.						

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