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Cerrig Sea Defences

Statement to Inform Habitat Regulations Appropriate Assessment

June 2019

Prepared for:	Prepared by:
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Document Review

Revision	Date of Review	Prepared By	Reviewed By	Approved By
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1 INTRODUCTION

1.1 Purpose of the Report

This report has been prepared to provide information to the Isle of Anglesey County Council (IoACC) ("the competent authority") on the implications of the Cerrig Sea Defences Maintenance (herein after referred to as 'the Scheme') with regard to the requirements of the Conservation (Natural Habitats &c.) Regulations 2017, known as and referred to in this report as 'the Habitats Regulations'. This report comprises both the Stage 1 (Screening) and Stage 2 (Appropriate Assessment) stages of the Assessment of Implications on European Sites (AIES) process.

1.2 Requirements of the Habitats Regulations

The European Community Habitats Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive) provides legal protection for habitats and species of European importance. The Directive is transposed into UK law by the Conservation (Natural Habitats &c.) Regulations 2017.

Before deciding to give consent for a plan or project, the competent authority (in this case, the IoACC) must consider under the requirements of Regulation 61 whether the plan or project –

a. is likely to have a significant effect on a European site (either alone or in combination with other plans or projects); and
b. is not directly connected with or necessary to the management of that site, and in such cases, they must make an 'appropriate assessment 'of the implications for that site in view of its conservation objectives.

In the light of the conclusions of the assessment, the competent authority may agree to the plan or project only after having ascertained that the project will not, alone or in combination with other plans and projects, adversely affect the integrity of the European site. The only exceptions are where there are no alternatives and there are imperative reasons of overriding public interest (IROPI), in which case compensatory measures must be adopted if the Scheme is to proceed.

The assessment primarily assesses the consideration of the likely significant effects of the proposed Scheme, its reasonable alternatives and the Do Minimum scenario on the European designated sites. In the case of any likely significant effects arising, consideration of effects in relation to the conservation objectives will be assessed.

1.3 Guidance Used in Preparing the Report

This report has been prepared in accordance with Conservation (Natural Habitats &c.) Regulations 2010 (as amended) (1). With reference to The Planning Series: 16 – Habitat Regulations Assessment (2).

1.4 Experience of the Surveyors and Authors of this Report

The author of this report was Alan Cowlishaw. The report was reviewed by Dr Richard Furniss. Surveys were carried out by Alan Cowlishaw.

Alan is Egniol's Senior Ecologist and has over 10 years' experience in ecological research and consultancy. He has experience in survey and mitigation for a variety of projects in construction, energy and transport infrastructure, including habitat and botanical survey, bats, badgers, breeding birds, reptiles and amphibians.

Dr Richard Furniss is a Senior Consultant at Egniol Environmental Ltd. having over 10 years' experience in a range of environmental engineering projects including review of project proposals specifications, site work and reporting.

1.5 Why the Scheme is Needed

The current occupiers, Mr. and Mrs. Hodari have owned the land retained by the sea wall since 2015. Damage was reported following severe storms on 3rd March 2018, Thomasons were instructed to carry out a visual inspection of the sea wall that that is retaining land occupied by a large detached property, and to provide a structural report on the general condition and likely causes of defects. It has been recommended that the wall is underpinned and repaired otherwise erosion of the foundation will continue, resulting in collapse.

See **APPENDIX A** for a location map.

1.6 Scheme Description

The purpose of the scheme is to remove the existing plinth and haunch and replace with a structure of equivalent size and shape, with the addition of sheet pilings to prevent a reoccurrence of the recently sustained damage.

Demolition and subsequent reconstruction will require access on to the beach to carry out the following tasks:

- relocate the existing rock armour
- break out and remove the existing plinth and haunch
- insert sheet piling along the length of the section concerned
- cast in-situ a reinforced concrete plinth
- replace the rock armour

1.7 Alternatives Considered

An alternative plan was considered to carry out the works from the garden behind the sea wall however it was considered that the sea wall would not be sufficiently strong to support an excavator with sufficient reach to carry out the required operations.

The option of doing nothing risks continued deterioration of the existing defences resulting in erosion and potentially undermining the foundations of the dwelling.

2 DESCRIPTION OF THE SCHEME

2.1 Detailed Scheme description

Access

Access would be gained from the public car park at Ordnance Survey Grid Reference SH 62070 79062.

A 21 or 23 tonne tracked excavator and 9 tonne swivel skip tracked dumper, both with low ground pressure tracks, will be removed back off the beach and stored above mean high water following each daily working shift.

This equipment has been chosen as being adequate to carry out the sheet pile installation, to remove, import and place the rock armor and to carry materials such as the reinforcing cages etc.

The only means of access to the works area for plant will be via the local authority owned car park at Aberlleiniog, a short distance to the South West of the proposed work site as indicated on the plan in **APPENDIX B**.

Access between the car park and the working site will be restricted to a 4m wide corridor centered on barren shingle habitat.

No turning would take place on the beach itself, with all movements limited to forward and backward.

The concrete will be delivered via a concrete pump parked in the field adjacent to the house using an extending boom to deliver the concrete directly to where it is required.

Works

All works will be contained within a strip 10m wide and 46m long. Works will commence 1.5 hours after high tide and cease 2 hours before the following high tide.

Rock armour will be stockpiled on a strip of barren shingle adjacent to the proposed works allowing a 6m working corridor.

The works which would be undertaken from beach level assisted by the excavator and dumper would include:

a) Removal and setting aside existing rock armor to provide sufficient working space for the construction plant
b) Excavator with a rock breaker attachment to break up the displaced concrete plinth / toe
c) Dumper to remove displaced concrete plinth / toe
d) Dumper to transport sheet piles from the Lleiniog car park to the works area
e) Excavator with a pile driving attachment to drive the sheet piles into the ground to the point where 500mm of the pile remains above ground. Steel piles are sacrificial and shall remain in situ as part of the permanent works
f) Dumper to transport the steel reinforcement cage to the works site
g) Steel pile vertical joints and corners to be sealed to prevent seepage of concrete when placed and vibrated
h) When the concrete plinth is cast, the excavator shall replace the rock armor back against the sheet piles to offer protection in the form of wave displacement

The estimated timescale for completion of these works is 1 month.

2.2 Distance from Designated Sites

The proposed maintenance works are located near to the following designated sites:

- **Menai Strait and Conwy Bay SAC** **0.0km**
- **Glannau Penmon – Biwmaris SSSI** **0.0km**
- **Lavan Sands SPA** **1.3km**
- **Liverpool Bay SPA** **2.0km**
- **Anglesey Terns SPA** **2.4km**
- **Puffin Island SPA** **3.2km**

2.3 Physical Land-take of the Project

During the construction phase there will be a temporary physical land take of 1500m^2. Once construction is complete there will be a net-zero land take.

2.4 Key Stages of the Project

Stage 1 – Access

Stage 2 – Relocation of rock armour

Stage 3 – Removal of existing haunch

Stage 4 – Sheet Piling

Stage 5 – Installation of concrete reinforcement

Stage 6 – Pouring of concrete

Stage 7 – Reinstatement of rock armour

2.5 Waste Products arising during Construction and Operation

The defunct haunch to be removed will be broken up and taken off site in the dumper.

2.6 Emissions

- Excavator
- Dumper
- Concrete pump
- Petrol generator (if required)

2.7 Excavation Requirements

None

2.8 Transportation Requirements

Delivery of materials including geo-textile and sub-base for access ramp, and sheet piling, reinforcement and concrete for replacement haunch.

2.9 Structures

- Existing sea wall
- Replacement haunch.

3 DESCRIPTION OF DESIGNATED SITES POTENTIALLY AFFECTED BY THE SCHEME

3.1 Menai Strait and Conwy Bay SAC

3.1.1 Site Location and Distance from the Scheme

The Menai Strait and Conwy Bay SAC is situated in north-west Wales and includes the whole of the Menai Strait, from its south-western entrance at Abermenai Point through to Red Wharf Bay and Conwy Bay to the north. See **APPENDIX C**.

The Scheme is located within the SAC. Access to the site will take place through the SAC.

3.1.2 Physical area of the site

The Menai Strait and Conwy Bay SAC covers an area of 26482.67ha.

3.1.3 Site Description

The following site description has been taken from the publication 'Menai Strait and Conwy Bay Special Area of Conservation European Marine Site – Advice Provided by the Countryside Council for Wales in Fulfilment of Regulation 33 of the Conservation (Natural Habitats, &c.) Regulations 1994, Issue 2 (NRW, 2018) (3).

"The Menai Strait and Conwy Bay SAC is mostly subtidal but also includes a few areas of foreshore. In places the landward boundary abuts the boundary of SACs encompassing terrestrial / coastal habitats and species and some intertidal areas that are part of the marine SAC have been notified as Sites of Special Scientific Interest (SSSI). The SAC also overlaps wholly or in part with a number of Special Protection Areas (SPAs) classified under the Birds Directive. Of particular note are the intertidal parts of the sea caves and reefs around the Great and Little Ormes, intertidal mudflats and sandflats, and much of the foreshore on the north and south side of the Menai Strait. These intertidal areas of conservation interest will gain a certain level of protection given that they are immediately adjacent to the SAC."

3.1.4 Qualifying interests of the site

For the qualifying habitats the SAC is considered to be one of the best areas in the UK for:

- Mudflats and sandflats not covered by seawater at low tide
- Reefs
- Sandbanks which are slightly covered by seawater all the time
- Support a significant presence of:
    - Large shallow inlets and bays,
    - Submerged or partially submerged sea caves,

There are no Annex II species that are primary reasons for selection of the site or which are present as a qualifying feature.

3.1.5 Conservation objectives of the site

The following conservation objectives have been taken from the publication 'Menai Strait and Conwy Bay Special Area of Conservation European Marine Site – Advice Provided by the Countryside Council for Wales in Fulfilment of Regulation 33 of the Conservation (Natural Habitats, &c.) Regulations 1994, Issue 2 (NRW, 2018) (3).

In order to meet the aims of the Habitats Directive, the conservation objectives seek to maintain (or restore) the habitat and species features, as a whole, at (or to) favourable conservation status (FCS) within the site.

The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing.

The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded.

This includes a need for nutrient levels in the water column and sediments to be:

- at or below existing statutory guideline concentrations
- within ranges that are not potentially detrimental to the long-term maintenance of the features species populations, their abundance and range.
- Mudflats and sandflats not covered by seawater at low tide
- Reefs
- Sandbanks which are slightly covered by seawater all the time
- Large shallow inlets and bays
- Submerged or partially submerged sea caves

Contaminant levels in the water column and sediments derived from human activity to be:

- at or below existing statutory guideline concentrations
- below levels that would potentially result in increase in contaminant concentrations within sediments or biota
- below levels potentially detrimental to the long-term maintenance of the feature species populations, their abundance or range taking into account bioaccumulation and biomagnification.

The landward boundary of the SAC is unmodified in many locations, though there are many sea defences in some areas, which include rock armour, gabions and sea walls as well as many areas of 'unofficial' sea defences, where private properties have been protected with gabions, rock armour, building rubble or garden waste. These sea defences are predominantly outside of the SAC, though they may have 'adjacent effects' on SAC features.

3.2 Glannau Penmon - Biwmares SSSI

3.2.1 Site Location and Distance from the Scheme

The site extends along 6km of the Anglesey shore of the Menai Strait, from the Coastguard Station at Penmon in the north to the old swimming pool at Beaumaris in the south. See **APPENDIX C**.

The Scheme is located within the site.

3.2.2 Physical area of the site

Biwmares SSSI covers an area of 170.7 hectares.

3.2.3 Site Description

The following site description has been taken from the publication "SSSI_0545_Citation_EN001b6c6 " (4)

Is selected for its geological and marine biological features. The south-east facing shore is sheltered from wave-action and consists of a complex mixture of boulders, cobbles, gravels, sands and muds. The solid geology of the site consists of Ordovician shales in the southern part of the site and Carboniferous Limestone towards the north. The coastal cliffs consist of boulder clay and glacial sands and gravels.

3.2.4 Qualifying interests of the site

The site is of special interest for its intertidal communities of animals and plants typical of mixed sediment and of muddy gravel shores; four intertidal communities of restricted national distribution; two species-rich intertidal communities of marine plants and animals; a succession of ice-age sediments, exposed in the soft coastal cliffs and foreshore at Lleiniog.

- Communities of animals and plants of mixed sediment and of muddy gravel shores.
- Four communities of restricted national distribution:
    - Piddocks burrowed into lower shore limestone overgrown with serrated wrack.
    - Sponges, sea-squirts and serrated wrack on tide-swept lower shore rock.
    - Sponges, sea-squirts, red seaweeds and serrated wrack found on a tide swept mixture of mud, sand, cobbles and pebbles.
    - Lower shore muddy gravel inhabited by a diverse group of small marine worms.
- Two species-rich communities of marine plants and animals:
    - Sponges, sea-squirts and sea-mats on bedrock overhangs.
    - Serrated wrack and various animals under lower shore boulders.
- A succession of ice-age sediments exposed in the soft coastal cliffs and foreshore at Lleiniog.

As well as the features listed above, Glannau Penmon - Biwmares SSSI has other habitats that contribute to the special wildlife interest. These include other marine communities and maritime cliffs. This diversity of habitats is important for a wide range of species. Except where specified below, management of this site should aim to look after these habitats as well as the listed features of interest

3.2.5 Conservation objectives of the site

The following conservation objectives have been taken from the publication "SSSI_0545_SMS_EN001c104 " (5)

To maintain or enhance the condition or integrity of the SSSI and interest features within the context of a dynamic coastal system.

- **Communities of mixed sediment and of muddy gravel shores.** Sixteen marine communities typical of mixed sediment and/or muddy gravel have been recorded at the site, making it the best example of such shores in this area. This range of communities, and the area covered by each, should be maintained, subject to natural variation in the marine environment.
- **Four communities of restricted national distribution.** The important lower-shore communities dominated by seaweeds, piddocks, sponges, sea-squirts and worms should continue to be found on the site and should not decrease significantly in extent, subject to natural variation in the marine environment.
- **Two species-rich communities of marine plants and animals.** The bedrock-overhang and under-boulder communities on the site should continue to be found here. Each contains at least ten major groups ('phyla') of plants and animals (such as worms, sponges, red seaweeds, shelled animals) and the overall diversity of species in each community is high. The presence and diversity of these communities should be maintained, subject to natural variation in the marine environment.
- **A succession of ice-age sediments exposed in the soft coastal cliffs at Lleiniog.** The coastal cliffs and foreshore at Lleiniog should be maintained in as natural state as possible. They should continue to remain unobscured allowing continued access for scientific study and education.

3.3 Traeth Lavan/Lavan Sands SPA

3.3.1 Site Location and Distance from the Scheme

Traeth Lavan/Lavan Sands SPA is located in Conwy Bay lying between Bangor and Llanfairfechan in north-west Wales. This large area of intertidal sand- and mudflats lies at the eastern edge of the Menai Strait.

The proposed development is 1.3km south of the SPA. See **APPENDIX C**.

3.3.2 Physical area of the site

Traeth Lavan/Lavan Sands SPA covers an area of 2,643 hectares.

3.3.3 Site Description

The following site description has been taken from the publication "Core Management Plan Including Conservation Objectives for Traeth Lafan/Lavan Sands, Conway Bay SPA" (6)

This large area of intertidal sand- and mudflats lies at the eastern edge of the Menai Strait. The area has a range of exposures and a diversity of conditions, enhanced by freshwater streams that flow across the flats. The site is of importance for wintering water birds, especially Oystercatcher (Haematopus ostralegus) and Curlew (Numenius arquata). In conditions of severe winter weather, Traeth Lafan acts as a refuge area for Oystercatchers displaced from the Dee Estuary. The site is also an important moulting roost for Great Crested Grebe (Podiceps cristatus) in late summer/early autumn.

3.3.4 Qualifying interests of the site

Over winter the area regularly supports Oystercatcher (Haematopus ostralegus) (Europe & Northern/Western Africa), 1.4% of the population in Great Britain.

Conservation objectives of the site

The following conservation objectives have been taken from the publication "Core Management Plan Including Conservation Objectives For Traeth Lafan/Lavan Sands, Conway Bay SPA" (6)

Traeth Lafan should consist of a quiet and relatively undisturbed area of sandflats and mudflats where shellfish and invertebrate populations are self-maintaining and sufficient to support good numbers of a range of over wintering migratory birds, particularly waders with nationally important numbers of oystercatcher. Other species of wader should occur along the shore including curlew, ringed plover, dunlin, knot, bar-tailed godwit, redshank and small numbers of greenshank. Turnstone should generally occur along the rockier sections of the coastline. Significant numbers of ducks should be present, especially shelduck, mallard, wigeon and teal where fresh water enters the site, such as at Aber Ogwen.

In late summer and early autumn, the inshore waters of the site should support large numbers of great crested grebe that gather to moult. During the winter, a range of divers, grebes and other ducks will be found, especially off Llanfairfechan including, red-throated diver, Slovenian grebe, the occasional black necked grebe, red-breasted merganser, goldeneye, and common scoter.

The site should comprise a variety of marine sediment habitats on the shore between low and high tide that reflect the range of wave action across the site and the influence of freshwater from the Afon Ogwen. The lower shore should consist mainly of clean mobile sands and gravels, supporting marine worms, shrimps and bivalves. Further away from the lower shore, where wave exposure is less, the shore should become muddier, with lugworm and cockle beds. The upper shore is characterised by muddy sediments with bivalves and ragworm. Dwarf eelgrass beds should persist

on the upper shore at Aber and near Porth Penrhyn and are an important marine habitat in their own right.

3.4 Liverpool Bay SPA

3.4.1 Site Location and Distance from the Scheme

Liverpool Bay is located in the south-eastern region of the northern part of the Irish Sea, bordering northwest England and north Wales, and running as a broad arc from Morecambe Bay to the east coast of Anglesey.

The SPA is located 1.9km east of the proposed development. See **APPENDIX C**.

3.4.2 Physical area of the site

Liverpool Bay covers an area of 787km^2 from low water to approximately 20km offshore in the Eastern Irish Sea, extending from Anglesey in Wales to Blackpool in England.

3.4.3 Site Description

The following description comes from the document "Liverpool Bay SPA Citation" (7)

Liverpool Bay is located in the south-eastern region of the northern part of the Irish Sea, bordering north-west England and north Wales. The SPA is a broad arc from approximately Morecambe Bay to the east coast of Anglesey. The seabed of the SPA consists of a wide range of mobile sediments. Large areas of muddy sand stretch from Rossall Point to the Ribble Estuary, and sand predominates in the remaining areas, with a concentrated area of gravelly sand off the Mersey Estuary and a number of prominent sandbanks off the English and Welsh coasts. The tidal currents throughout the SPA are generally weak, which combined with a relatively large tidal range facilitates the deposition of sediments.

3.4.4 Qualifying interests of the site

Red-throated diver - Gavia stellata

Wintering red-throated divers occur throughout Liverpool Bay / Bae Lerpwl SPA with highest recorded densities off the Ribble Estuary, North Wales and the North Wirral Foreshore (Webb et al. 2006a). Red-throated divers use the SPA in wintering numbers of European importance (922 individuals, 5.4% of the GB population, 2001/02 – 2006/07).

Common scoter - Melanitta nigra

Common scoters use the SPA in winter in numbers of European importance (54,675 individuals, 3.4% of the nigra subspecies, 2001/02 – 2006/07).

3.4.5 Conservation objectives of the site

The following conservation objectives are taken from the document "Liverpool Bay / Bae Lerpwl Special Protection Area Advice under Regulation 35(3) of The Conservation of Habitats and Species Regulations 2010 (as amended)" (8)

Subject to natural change, maintain or enhance the red-throated diver and common scoter populations and their supporting habitats in favourable condition.

The interest feature red-throated diver will be considered to be in favourable condition only when both of the following two conditions are met:

(i) The size of the red-throated diver population is at, or shows only non-significant fluctuation around the mean population at the time of designation of the SPA to account for natural change;

(ii) The extent of the supporting habitat within the site is maintained.

The interest feature common scoter will be considered to be in favourable condition only when each of the following two conditions is met:

(i) The size of the common scoter population is at, or shows only non-significant fluctuation around the mean population at the time of designation of the SPA to account for natural change;
(ii) The extent of the supporting habitat within the site is maintained.

3.5 Anglesey Terns SPA

3.5.1 Site Location and Distance from the Scheme

The Anglesey Terns/Morwenoliaid Ynys Môn SPA is 2.2km north of the proposed site. See **APPENDIX C**.

3.5.2 Physical area of the site

The site extends to 1019 km^2. The Anglesey Terns / Morwenoliaid Ynys Môn potential SPA extends around most of the east, north and west coasts of Anglesey, generally from the mean highwater mark out to between 10 and 20 km from the shore. It is being proposed as a marine extension to the existing SPA designated in 1992 to protect the breeding tern colonies at Ynys Feurig, Cemlyn Bay and the Skerries, to include the marine area used by the foraging terns during the breeding season.

3.5.3 Site Description

The following description comes from the document "Proposal to extend and reclassify Ynys Feurig, Cemlyn Bay and The Skerries Special Protection Area and rename it as Anglesey Terns / Morwenoliaid Ynys Môn Special Protection Area - Advice to the Welsh Government" (9).

The SPA was classified in 1992 by the then Secretary of State of the Environment. The designated species are common tern (*Sterna hirundo*), Arctic tern (*Sterna paradisea*), roseate tern (*Sterna dougalli*) and sandwich tern (*Sterna sandvicensis*) each of which meets Stage 1.1 of the UK 1999 SPA selection guidelines (area is used regularly by at least 1% of the GB population of a species listed in Annex 1 of the Birds Directive). The extant citation for the SPA states that the site qualifies as an SPA on the basis of 840 pairs of Arctic tern, 170 pairs of common tern, 517 pairs of sandwich tern and 45 pairs of roseate tern.

The colonies of the four species of tern for which the SPA is classified are situated at three different sites: Ynys Feurig, Cemlyn Bay and The Skerries (see Figure 1). Ynys Feurig is a series of small islets off the west coast of Anglesey which are joined to the Anglesey mainland at mid to low tide. The majority of tern species nesting at this part of the SPA are Arctic terns with a smaller breeding population of common terns. The Skerries is a group of sparsely vegetated rocky islets, approximately 17ha in extent lying 3 km off the north western coast of Anglesey. The vast majority of terns breeding on The Skerries are Arctic terns with a much smaller population of common terns. The other colony which makes up this SPA is at Cemlyn Bay on the north coast of Anglesey, which comprises a saline lagoon separated from the sea by a shingle ridge. At this site, the terns (mainly sandwich terns with much smaller numbers of common and Arctic terns) breed on two small islands within the lagoon.

3.5.4 Qualifying interests of the site

Anglesey Terns / Morwenoliaid Ynys Môn draft SPA qualifies under Article 4.1 of the Birds Directive by regularly supporting more than 1% of the GB population of four species of seabirds. Therefore, this site qualifies for SPA designation in accordance with stage 1.1 of the SPA selection guidelines.

3.5.5 **Conservation objectives of the site**

The conservation objectives were taken from the following document "Anglesey Terns / Morwenoliaid Ynys Môn possible Special Protection Area: Draft conservation objectives" (10)

Feature 1: Breeding population of Arctic tern *Sterna paradisae*

The breeding population of Arctic tern should be stable or increasing. The site was designated for 1,290 pairs across the SPA.

The range and distribution of terns within the SPA and beyond is not constrained or hindered.

The extent of supporting habitats used by terns is stable or increasing. Supporting habitats are of sufficient quality to support the requirements of terns. There are appropriate and sufficient food sources for terns within access of the SPA.

The number of chicks successfully fledged in the SPA and beyond is sufficient to help sustain the population. Actions or events likely to impinge on the sustainability of the population are under control. There should be no mammalian land predators present in the SPA, and control measures should be in place to ensure that accidental introduction does not take place.

Feature 2: Breeding population of common tern *Sterna hirundo*

The breeding population of Common tern should be stable or increasing. The site was designated for 189 pairs across the SPA.

The range and distribution of terns within the SPA and beyond is not constrained or hindered.

The extent of supporting habitats used by terns is stable or increasing. Supporting habitats are of sufficient quality to support the requirements of terns. There are appropriate and sufficient food sources for terns within access of the SPA.

The number of chicks successfully fledged in the SPA and beyond is sufficient to help sustain the population. Actions or events likely to impinge on the sustainability of the population are under control. There should be no mammalian land predators present in the SPA, and control measures should be in place to ensure that accidental introduction does not take place.

Feature 3: Breeding population of roseate tern *Sterna dougallii*

The breeding population of Roseate tern should be stable or increasing. The site was designated for 3 pairs across the SPA.

The range and distribution of terns within the SPA and beyond is not constrained or hindered.

The extent of supporting habitats used by terns is stable or increasing. Supporting habitats are of sufficient quality to support the requirements of terns. There are appropriate and sufficient food sources for terns within access of the SPA.

The number of chicks successfully fledged in the SPA and beyond is sufficient to help sustain the population. Actions or events likely to impinge on the sustainability of the population are under control. There should be no mammalian land predators present in the SPA, and control measures should be in place to ensure that accidental introduction does not take place.

Feature 4: Breeding population of sandwich tern *Sterna sandvicensis*

The breeding population of Sandwich tern should be stable or increasing. The site was designated for 460 pairs across the SPA.

The range and distribution of terns within the SPA and beyond is not constrained or hindered.

The extent of supporting habitats used by terns is stable or increasing. Supporting habitats are of sufficient quality to support the requirements of terns. There are appropriate and sufficient food sources for terns within access of the SPA.

The number of chicks successfully fledged in the SPA and beyond is sufficient to help sustain the population. Actions or events likely to impinge on the sustainability of the population are under control. There should be no mammalian land predators present in the SPA, and control measures should be in place to ensure that accidental introduction does not take place.

3.6 Puffin Island SPA

3.6.1 Site Location and Distance from the Scheme

The site is located 3.2km to the north-east of the scheme. See **APPENDIX C**.

3.6.2 Physical area of the site

The site covers an area of 0.31km^2.

3.6.3 Site Description

The site description is taken from the document "Core Management Plan Including Conservation Objectives For Ynys Seiriol/Puffin Island SPA" (11)

Ynys Seiriol / Puffin Island is located just off the eastern tip of the Isle of Anglesey in North Wales. It is a Carboniferous limestone block rising to 55 m with steep cliffs on all sides. A layer of heavily guano-enriched soil masks the limestone over much of the surface, leading to impoverished vegetation dominated by a dense mat of grasses (mainly Red Fescue *Festuca rubra* and Cock's-foot *Dactylis glomerata*), Common Nettle *Urtica dioica*, Bramble *Rubus fruticosus* and Alexanders *Smyrnium olusatrum*. Dense woodland of Elder *Sambucus nigra* has developed, particularly in the past 40 years since the loss of rabbit grazing. The sea-cliffs support a typical maritime flora including sea spleenwort *Asplenium marinum*.

3.6.4 Qualifying Interests of The Site

The site is of European importance for its breeding population of Cormorant Phalacrocorax carbo, which feed in the surrounding waters outside the SPA. The island is also of interest for other nesting seabirds breeding both on its sea-cliffs and open grassland areas. These include the four auks, (puffin, guillemot, black guillemot and razorbill), together with shag, fulmar, kittiwake, eider duck, herring gull, greater black-backed gull and lesser black-backed gull. The breeding puffin population, which formerly numbered several thousand pairs, has declined significantly to currently number less than a hundred pairs. However, old records suggest substantial population fluctuations in the past.

The island is used as a hauling out ground by Atlantic grey seals. The cave spider, Meta bourneti, has been recorded here at its only Welsh location.

3.6.5 Conservation Objectives of The Site

The conservation objective for the Cormorant is to achieve and maintain favourable conservation status, in which all the following conditions are satisfied:

- The number of breeding cormorants within the SPA are stable or increasing.
- The abundance and distribution of prey species are sufficient to support this number of breeding pairs and for successful breeding.
- The management and control of activities or operations likely to adversely affect the Cormorants, is appropriate for maintaining the feature in favourable condition and is secure in the long term."

The conservation objectives for feature 2 (intertidal habitats are the same as those for Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC. The site is of European importance for its breeding population of Cormorant Phalacrocorax carbo, which feed in the surrounding waters outside the SPA. The island is also of interest for other nesting seabirds breeding both on its sea-cliffs and open grassland areas. These include the four auks, (puffin, guillemot, black guillemot and razorbill), together with shag, fulmar, kittiwake, eider duck, herring gull, greater black-backed gull and lesser black-backed gull. The breeding puffin population, which formerly numbered several thousand pairs, has declined significantly to currently number less than a hundred pairs.

4 ASSESSMENT METHODS AND ASSUMPTIONS

4.1 Assessment Methods

The nature of potential impacts on European sites has been assessed using the guidance presented in The Planning Series 16 – Habitats Regulations Assessment published by the National Assembly for Wales Research Service (2) Each Natura 2000 site potentially affected by the Scheme has been assessed and the nature of the impacts is defined and described in terms of the following:

- Where the impact directly or indirectly affects the site.
- Loss of Area of European Site.
- Change in species population numbers of qualifying interests.
- Disturbance to species within European Site.
- Effects of fragmentation caused by the project.
- The reversibility of the impacts.
- The duration (i.e. long- or short-term).

4.1.1 Conservation objectives

Does the project have the potential to:

- Cause delays in progress towards achieving the conservation objectives of the site?
- Interrupt progress towards achieving the conservation objectives of the site?
- Disrupt those factors that help to maintain the favourable conditions of the site?
- Interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?

4.1.2 Other indicators

Does the project have the potential to:

- Cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?
- Change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?
- Interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?
- Reduce the area of key habitats?
- Reduce the population of key species?
- Change the balance between key species?
- Reduce the diversity of the site?
- Result in disturbance that could affect population size or density of the balance between key species?
- Result in fragmentation?
- Result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc)?

4.1.3 Valuation of Qualifying Features of European Sites.

All of the qualifying features of the European Sites in question are considered to be of International Importance under the Chartered Institute for Ecology and Environmental Management (CIEEM) Guidelines (12).

4.1.4 **Use of Professional Judgement**

Professional judgement was used in the carrying out of this work where specific guidance was not available and in the interpretation of results. Where there was insufficient information regarding the likelihood of qualifying interests being present or of the risk of impacts the assessment used the precautionary principle to inform judgement.

4.1.5 **Precautionary Principle**

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. A high standard of proof is required at all stages of the assessment. Objective evidence is required to justify the assessment. It will be important to provide sufficient evidence to support conclusions "beyond any reasonable scientific doubt".

5 SOURCES OF INFORMATION USED IN THE ASSESSMENT

The following sources of information have been used in the preparation of this report:

- The Core Management Plans for the European sites produced by NRW (formerly CCW).
- SPA citations published by NRW (formerly CCW) and Natural England.
- Data search provided by COFNOD.
- Phase 1 Habitat Survey published on the Welsh Assembly's Lle Portal
- Updated Phase 1 Habitat Survey carried out by Egniol Environmental Ltd. in May 2019.

5.1 Intertidal Phase 1 Habitat Survey

An Intertidal Phase 1 Habitat Survey was carried out by Alan Cowlishaw of Egniol in May 2019 to update the survey data available on the Welsh Assembly's Lle Portal.

Intertidal habitats were identified, assessed and mapped at low tide on the following dates:

- 17th May 2019
- 20th May 2019

5.2 Consideration of other plans and projects

A requirement of the Habitats Regulations (2010) is to also examine the potential for a plan or project to have a significant effect either alone or in combination with other plans and projects. These include those with spatial and/or temporal overlap with the scheme.

Many of the current planning applications in the vicinity of the Scheme and Anglesey refer to relatively small scale works i.e. extensions/conversions to private properties. These would not have any significant impact on any of the designated sites. No nature conservation initiatives that will influence the sites or their qualifying features have been identified during the project searches or during the consultation process.

Where relevant (and available), reference was made to:

- Coastal Habitat Management Plans
- Shoreline Management Plans

6 STAGE: 1 SCREENING

6.1 Screening

The Screening process forms the first stage of any HRA and is focused on the 'likely significant effect' (LSE) test. The aim of the LSE test is to determine whether the plan either alone, or in-combination with other plans and projects is likely to result in a significant effect at European site[s]. This is essentially a risk assessment process that seeks to understand whether there are mechanisms for any identified impacts arising from the plan to adversely affect the European sites (i.e. a cause-effect pathway).

The key questions asked are:

- would the effect undermine the conservation objectives for the site?
- can significant effects be excluded on the basis of objective information?

6.2 Identification of Likely Impacts

The following likely impacts have been considered:

- effects on the marine and water environment
- direct habitat loss and fragmentation
- coastal squeeze
- effects of disturbance to sea birds

6.3 Water Resources and Quality Impacts

Sites for which significant effects are likely:

- Menai Strait and Conwy Bay SAC
- Glannau Penmon – Biwmaris SSSI
- Lavan Sands SPA

Sites for which no significant effects are likely:

- Liverpool Bay SPA
- Anglesey Terns SPA
- Puffin Island SPA

The HRA Screening Assessment reviewed the potential for impacts on water resources and quality arising from construction. Issues include the potential for accidental contamination from leakage of fuels/lubricants from plant.

6.4 Habitat (and Species) Loss and Fragmentation

Sites for which significant effects are likely:

- Menai Strait and Conwy Bay SAC
- Glannau Penmon – Biwmaris SSSI

Sites for which no significant effects are likely:

- Lavan Sands SPA
- Liverpool Bay SPA
- Anglesey Terns SPA
- Puffin Island SPA

The development would likely impact upon biodiversity, with direct impacts resulting from temporary land take arising from the development of the site itself. Indirect impacts arising from the nominated site can also lead to habitat and species loss and fragmentation, such as from the result of accidental contamination.

6.5 Coastal Squeeze

Sites for which significant effects are likely:

- Menai Strait and Conwy Bay SAC
- Glannau Penmon – Biwmaris SSSI

Sites for which no significant effects are likely:

- Lavan Sands SPA
- Liverpool Bay SPA
- Anglesey Terns SPA
- Puffin Island SPA

Coastal squeeze impacts are closely related to habitat loss and fragmentation and relate specifically to situations where the coastal margin is squeezed by the fixed landward boundary. Coastal squeeze typically arises through the development of flood and sea defences and the reinforcement of coastal margins through hard engineering (construction works, drainage, infrastructure provision), thereby preventing and altering the natural transport and movement of coastal material, impacting upon species communities and habitats.

There is the potential for coastal squeeze as a result of rising sea levels and the inland migration of habitats and species being prevented by the presence of hard sea defences. Whilst there is unlikely to be an immediate effect on sediment transport and hydrology, maintenance of the structure may have unforeseen future effects on the surrounding coastline.

6.6 Disturbance (Noise, Light and Visual)

Sites for which significant effects are likely:

- Menai Strait and Conwy Bay SAC
- Glannau Penmon – Biwmaris SSSI
- Lavan Sands SPA

Sites for which significant effects are likely (see below):

- Anglesey Terns SPA
- Puffin Island SPA
- Liverpool Bay SPA

Disturbance to habitats and species arising from works can arise during the construction phase from a number of sources, including construction traffic, movement of construction materials, generation of intermittent sounds from machinery, vehicles and plant (for example, alarms/ sirens and sheet piling), and deployment (and removal) of plant.

Noise and vibration disturbance impacts can be significant and tend to occur on a continuum where the most disturbing activities are those that are irregular, unpredictable loud noise events and movement or vibration of a long duration. Less disturbing is regular, frequent, quiet and predictable patterns of sound or vibration with limited vibration.

Given the distance of Liverpool Bay SPA, Lavan Sands SPA and Puffin Island SPA from the site, no direct impacts arising from disturbance upon designated bird species within these European sites

are considered likely. However indirect impacts may arise should impacts of disturbance arising from the nominated site and ancillary developments result in the displacement of local bird populations to neighbouring habitats including those occurring within Liverpool Bay SPA, Lavan Sands SPA and Puffin Island SPA. The influx of additional bird populations to these European sites may result in additional pressures upon breeding and overwintering sites whilst also increasing competition over food resources.

6.7 Outcome of Screening Assessment for each of the Natura 2000 Sites

In line with the screening requirement of the Habitats Directive and Regulations, an assessment was undertaken to determine the likely significant effects of the development on the six European designated sites within 5km.

The Screening Assessment identified a number of key impacts arising from the proposed development and the potential for significant effects at 2 of the European sites scoped into the screening process.

The Screening exercise determined that, with mitigation measures, the following likely significant effects are expected:

6.7.1 Menai Strait and Conwy Bay SAC

Increased levels of turbidity arising from discharge and run-off throughout all phases of the development can reduce the amount of available photosynthetic light, and together with increased sediment loads can impact upon the development and maintenance of plant communities associated with the intertidal habitats of these European sites.

Fuel and /or lubricant leaks have the potential to cause significant harm to marine organisms.

There is a significant risk of invasive non-native species being imported on plant and materials.

6.7.2 Glannau Penmon – Biwmares SSSI

Impacts on the SSSI are the same as those descrived for Menai Strait and Conwy Bay SAC.

6.7.3 Traeth Lavan/Lavan Sands SPA,

Low levels of noise disturbance as a result of sheet piling operations are possible, with a negative impact on the breeding and/or overwintering birds.

7 STAGE 2: APPROPRIATE ASSESSMENT

7.1 Introduction

The outcome of Stage 1 (Screening) was that the Scheme is unlikely to have an effect on the following sites

- Anglesey Terns SPA
- Puffin Island SPA
- Liverpool Bay SPA

However, there are likely to be significant effects on the following sites:

- Menai Strait and Conwy Bay SAC
- Glannau Penmon – Biwmaris SSSI
- Lavan Sands SPA

Impacts have been described and assessed in accordance with CIEEM Guidelines (13).

7.2 Construction Effects

7.2.1 Effects on the Marine and Water Environment

Any fuel or lubricant leaks from plant during the proposed works would result in contamination of water and harm to marine organisms.

Leakage of concrete may have a negative effect on marine species.

7.2.2 Direct Habitat Loss and Fragmentation

There will be a temporary land take within the Menai Strait and Conwy Bay SAC required during construction. This will equate to 1500m^2 including the area required for access, stockpiling and construction.

The final sea wall and rock armour will have the same footprint as the existing structures.

The area designated for these works comprises the following habitats:

- LS.LCS.Sh.BarSh – Barren littoral shingle
- LS.LSa.St.Tal - Talitrids on the upper shore and strand-line

7.2.3 Effects of Disturbance

Construction works will involve the movement of 2 vehicles, a 21 or 23 ton tracked excavator, and a swivel skip tracked dumper. Both vehicles will have low ground pressure tracks. As a result, physical disturbance to habitats and species from vehicle movements will be negligible.

There is potential for the noise produced during operations to disturb breeding and/or over-wintering birds, dependent on time of year. The local shoreline provides high tide roosting opportunities for oystercatcher, for which the Lavan Sands SPA has been designated.

Typically, for auditory disturbance to qualify as a high level (typified by regular reactions and birds moving away from the source of disturbance), it must constitute a sudden noise over 60dB (at the bird, not the source) or a more prolonged noise of over 72dB. Moderate noise effects (typified as high-level disturbance that occurs over a longer period) includes events over 55dB or prolonged

noise between 60-72dB. Low level noise is classed as that which is unlikely to cause a response. This includes noises below 55dB but can include noises between 55-72dB in disturbed areas.

Noise levels from sheet piling are unlikely to exceed 100dB at source. The Disturbance from noise to feeding birds in Lavan Sands SPA during low tide is unlikely due to the distance from the source.

Lavan Sands SPA is 1.3km from the proposed site. Where noise is 100dB at source, the standard distance decay rates of noise would result in noise levels of 34dB at the bird and is unlikely to cause a disturbance. (14)

7.2.4 Biosecurity

No INNS have been identified on site; however, Himalayan balsam (*Glandulifera* impatiens) is known to be present within 100m and montbretia (*Crocosmia*) has been identified within 1km of the proposed access route.

7.3 Operational Effects

7.3.1 Coastal Squeeze

"Coastal squeeze is one form of coastal habitat loss, where intertidal habitat is lost due to the high water mark being fixed by a defence or structure (i.e. the high water mark residing against a hard structure such as a sea wall) and the low water mark migrating landwards in response to SLR." (15).

7.3.2 Assessment of Coastal Squeeze

A terrestrial and intertidal phase 1 habitat survey was carried out in May 2019. The position and extent of intertidal habitats have been compared with historic habitat data collected by the Countryside Council for Wales (CCW) in 1979-1997 (terrestrial) (16) and 2001 (intertidal) (17). This comparison demonstrates a considerable change in both terrestrial and intertidal habitats in the intervening time period.

Intertidal habitats closest to the existing sea defences appear to have expanded and migrated seaward, demonstrating an expansion in habitat area despite the presence of a hard barrier preventing landward migration of species and habitats.

Terrestrial habitats behind the sea defences have developed from improved grassland and ruderal vegetation into semi-improved and coastal grassland.

There is no intention to permanently increase the site footprint, with all site works having a temporary presence in the intertidal zone within the SAC and SSSI.

Figure 1 - Key to phase 1 habitats.

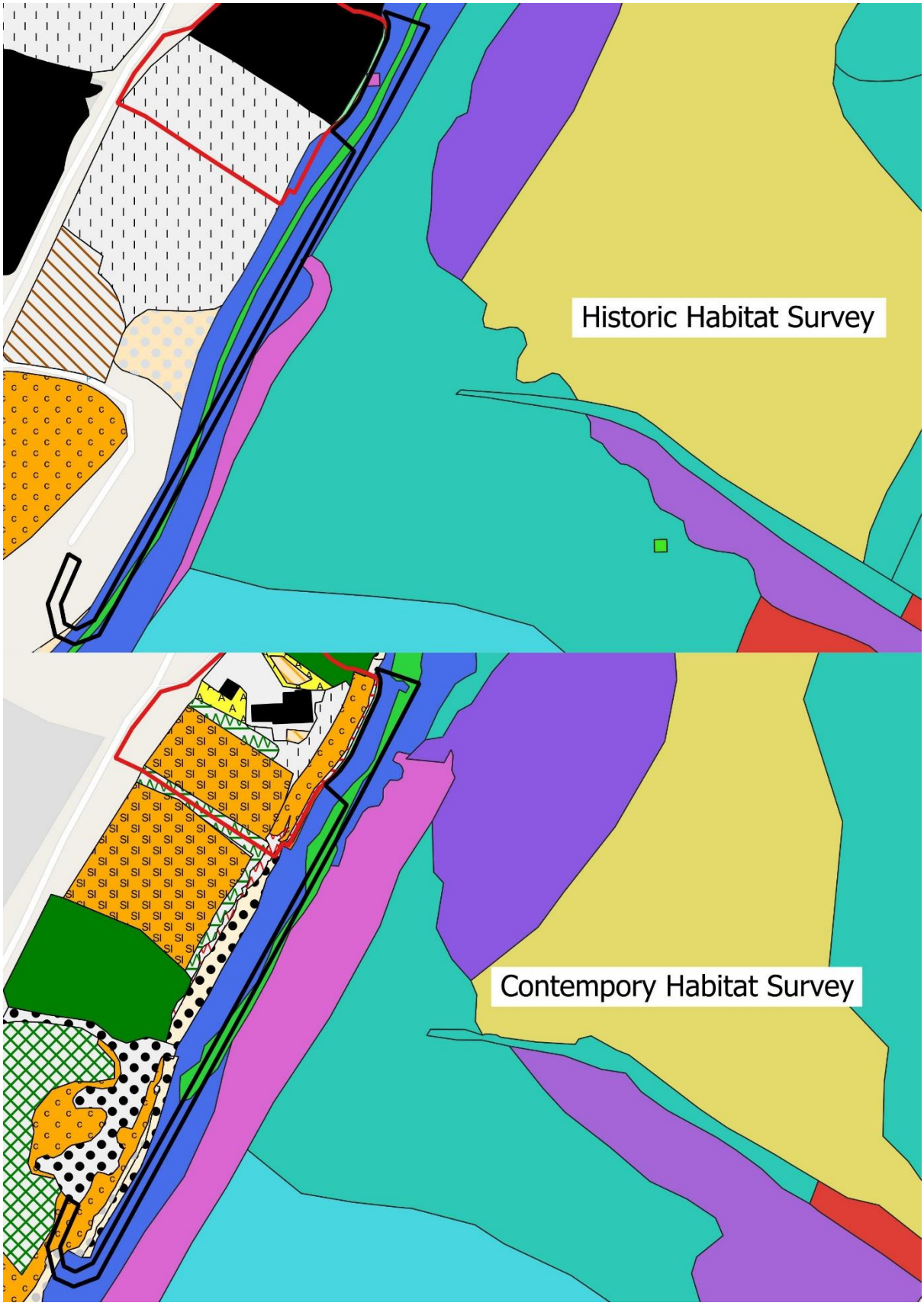

Figure 2 - Comparison of historic and contemporary phase 1 habitat surveys.

8 MITIGATION AND ASSESSMENT OF RESIDUAL EFFECTS

8.1 Summary of effects without mitigation

As established in the above sections, in the absence of mitigation, the Scheme could have a significant impact on:

- Fuel and lubricant leaks may affect marine organisms.
- Concrete leaks
- Physical disturbance to species and habitats.
- Invasive Non-Native Species (INNS)

8.2 Mitigation by Design

8.2.1 Design of Structure

The design of the replacement haunch, plinth and rock armour will be the same dimensions as the original structure resulting in no net loss of intertidal habitat.

Existing rock armour will be stockpiled adjacent to the proposed works on the barren shingle to prevent disturbance to more sensitive habitats.

The specified pumped concrete mix is P45/UCS with an anti washout additive which has been specified by the Designers to mitigate accidental seepage. If some seepage occurs through the steel sheet piles, then the anti-washout additive will prevent further spread and aid swift containment. Steel pile vertical joints and corners will be sealed to prevent seepage of concrete.

8.2.2 Control of Materials

Whilst the concrete is being pumped through to its required location, the contractor would have two or three operatives receiving and guiding the outlet nozzle ensuring correct and accurate placement whilst colleagues would be closely on watch for any accidental seepage and to form the required surface finish to the concrete which will form a new 2 meter wide filleted reinforced plinth.

All materials will be stored on dry land and no loose debris will be left on the beach. All waste materials will be removed from the beach immediately.

8.2.3 Vehicles

The excavator and dumper will have low ground pressure tracks to minimise disturbance to the sand and shingle substrate. All vehicle movements will be restricted to the strip of barren shingle and sand at the top of the beach. Vehicles will avoid turning wherever possible to minimise disturbance.

8.2.4 Biosecurity

All vehicles will be cleaned prior to arrival on site to prevent the introduction of INNS to the Glannau Penmon-Biwmares SSSI and the Menai Strait and Conwy Bay SAC.

All contractors and staff will be briefed to ensure they are aware of potential non-native species and issues associated with them through toolbox talks and site inductions.

If non-native species are subsequently identified to maintain good site hygiene when dealing with any non-native species:

- A fence that can be clearly seen will mark out the area of issue. Signs will be erected to warn people working there that the area is infested / contaminated.

- Where contaminated soil, materials or water are located, signage will be erected to indicate them.
- Personnel working on or between sites will ensure their clothing and footwear are cleaned where appropriate to prevent spread
- Tracked vehicles will not be used within the area of infestation.
- All vehicles leaving the infested area and / or transporting infested soil/materials must be thoroughly pressure-washed in a designated area before being used for other work.
- Where cross-contamination is possible (i.e. from one site to another), vehicles or machinery will be designated to specific sites to prevent spread.
- Material / water left after vehicles have been pressure-washed will be contained, collected and disposed of appropriately.
- All chemicals used for the control of non-native species will be stored and used in a responsible manner.
- All wash facilities including wastewater from washing vehicles, equipment or personnel will be managed in a responsible way so as not to not cause harm to the environment.

8.2.5 Pollution control measures

Construction activities will be undertaken in accordance with the Pollution Prevention Guidelines (PPG) published by the EA, including:

- PPG1 - General guide to the prevention of water pollution;
- PPG2 - Above ground oil storage tanks;
- PPG 5 - Works in, near or liable to affect watercourses; and
- PPG 6 - Working at construction and demolition sites,

Prior to being delivered and deployed for the first time on site the equipment shall be fully serviced and inspected and recorded as such. All plant deployed to work on the beach shall then be inspected daily, at the commencement and end of each shift with particular note to look for fluid leaks. Each item of plant will carry with them emergency oil absorbent mats so that in the unlikely event of a small leak occurring, it can be contained by using these mats / pads. If used, the pads will be contained within a yellow hazardous waste bag, sealed and disposed of in the appropriate manner via the OBR Construction Waste Protocols.

Small items of plant such as petrol driven generators (example opposite), if used shall be sited on a containment bund or plant nappy as they are commonly referred to and again these shall not be left on site during non- working periods.

Wherever possible, small power tools such as drills shall be battery powered but for the works which are anticipated it may be a requirement to utilize a generator such as shown to provide increased and consistent power levels to facilitate the required task.

8.3 Effectiveness of Mitigation

The mitigation measures described above are based on industry best practice guidance such as the Environment Agency's Pollution Prevention Guidelines (PPGs). Therefore, measures are standard best practices which have been developed by statutory environmental bodies.

Restriction of all vehicle movements and stockpiling of rock armour to the strip of barren shingle and sand will effectively prevent any disturbance to sensitive intertidal habitats.

Strict biosecurity controls will prevent the spread of INNS.

Thorough inspection and maintenance of vehicles will prevent fuel/lubricant leaks.

Careful inspection of sheet piling and monitoring of concrete supply will prevent spills.

8.4 Mechanisms for Delivery

A series of other specific Environmental Action Plans (EAPs) will be produced as part of the CEMP and will detail measures required to reduce the potential impacts on sensitive environmental features and will provide control procedures to all staff on dealing with environmental issues during the construction phase. These include the following:

- Site Waste and Materials Management Plan
- Pollution Control and Contingency Plan
- Environmental Landscape and Ecology Aftercare and Management Plan
- Noise and Vibration Management Plan: This would include the avoidance of work such as piling during the bird breeding season.

8.5 Assessment of residual effects

Provided the mitigation measures as outlined above are implemented fully, no residual effects on habitats or species in the designated sites considered are expected.

It is considered that there will be no in-combination effects with other developments.

9 PROPOSALS FOR MONITORING AND REPORTING

9.1 Pre-construction monitoring

A pre-construction assessment will be carried out to ensure that there have been no significant changes to the habitats within and adjacent to the proposed scheme.

A survey of birds present within the vicinity of the scheme will be carried out to provide a baseline against which to assess disturbance during operations.

9.2 Monitoring during construction

During the first day of sheet piling a suitably qualified and experienced ecologist will be present to assess the level of disturbance to birds.

9.3 Post-construction monitoring

A post-construction assessment of the habitats within and adjacent to the scheme will be carried out to ensure there has been no disturbance to habitats and/or species.

9.4 Criteria for success

There should be no significant change in habitats and species over the course of the proposed operations.

There will be no habitat loss as a result of the scheme.

9.5 Reporting

Following completion of the scheme a report will be made to IoACC and NRW detailing any issues that may have occurred during operations and highlighting any changes in habitats or species.

10 CONSULTATIONS

10.1 Isle of Anglesey County Council (IoACC)

Pre-application advice was sought from IoACC regarding application number PAH/2019/21. Consultations within the council included:

- Ecological and Environmental
- Highways and Transportation
- Heritage
- Landscape
- Environmental Health

Recommendations were made to consult the following external consultees:

- CADW
- Welsh Water
- Natural Resources Wales

10.2 Natural Resources Wales (NRW)

Preliminary pre-application advice was sought from NRW. Advice was provided on the following topics:

- Shoreline Management Plan
- Protected Sites
- Marine and Coastal Access
- Flood Risk Management
- European Protected Sites
- Designated Landscapes

11 CONCLUSIONS

11.1 Is the proposal directly connected with or necessary to site management for nature conservation?

The proposals relate to maintenance of sea defences and are neither connected with nor necessary to the management of the designated sites discussed.

11.2 Is the proposal likely to have a significant effect on the features of the sites of European importance, alone or in combination with other plans and projects?

The screening exercise identified that the proposal was likely to have a significant effect on the habitats present in the Menai Strait and Conwy Bay SAC and the Glannau Penmon – Biwmares SSSI.

11.3 What are the implications of the effects of the proposal on the sites' conservation objectives and **will it delay or interrupt progress towards achieving the objectives?**

It has been concluded that, assuming the implementation of the various mitigation measures outlined in Section 8 of this document, the Scheme proposals would not affect progress towards the achievement of any of the objectives for qualifying features of the designated sites discussed.

11.4 Can it be ascertained that the proposal will not adversely affect the integrity of the sites beyond reasonable scientific doubt?

Whether the Scheme would have an adverse effect on the integrity of the sites has been determined by assessing whether, following the implementation of the mitigation measures outlined in this report, the Scheme would affect the achievement of one or more conservation objectives set for the three European Sites considered in the Stage 2 Appropriate Assessment. The assessment concluded that the residual effects of the Scheme would not affect the achievement of any of the conservation objectives set for the designated sites considered.

11.5 Coastal Squeeze

Coastal squeeze impacts are closely related to habitat loss and fragmentation and relate specifically to situations where the coastal margin is squeezed by the fixed landward boundary.

Considering that the change in intertidal habitats adjacent to the proposed scheme has been to move away from the existing sea defences rather than towards, there is no evidence of coastal squeeze since 2001. However, there is continued uncertainty about Sea Level Rise (SLR) and different SLR scenarios may affect the scale of impact. The current management scenario is "No Active Intervention" (18).

Since the proposals are not in line with the Shoreline Management Plan (SMP) policy, it may be necessary to apply for a change of policy for this section of coastline from 'No active intervention' to 'Hold the line'.

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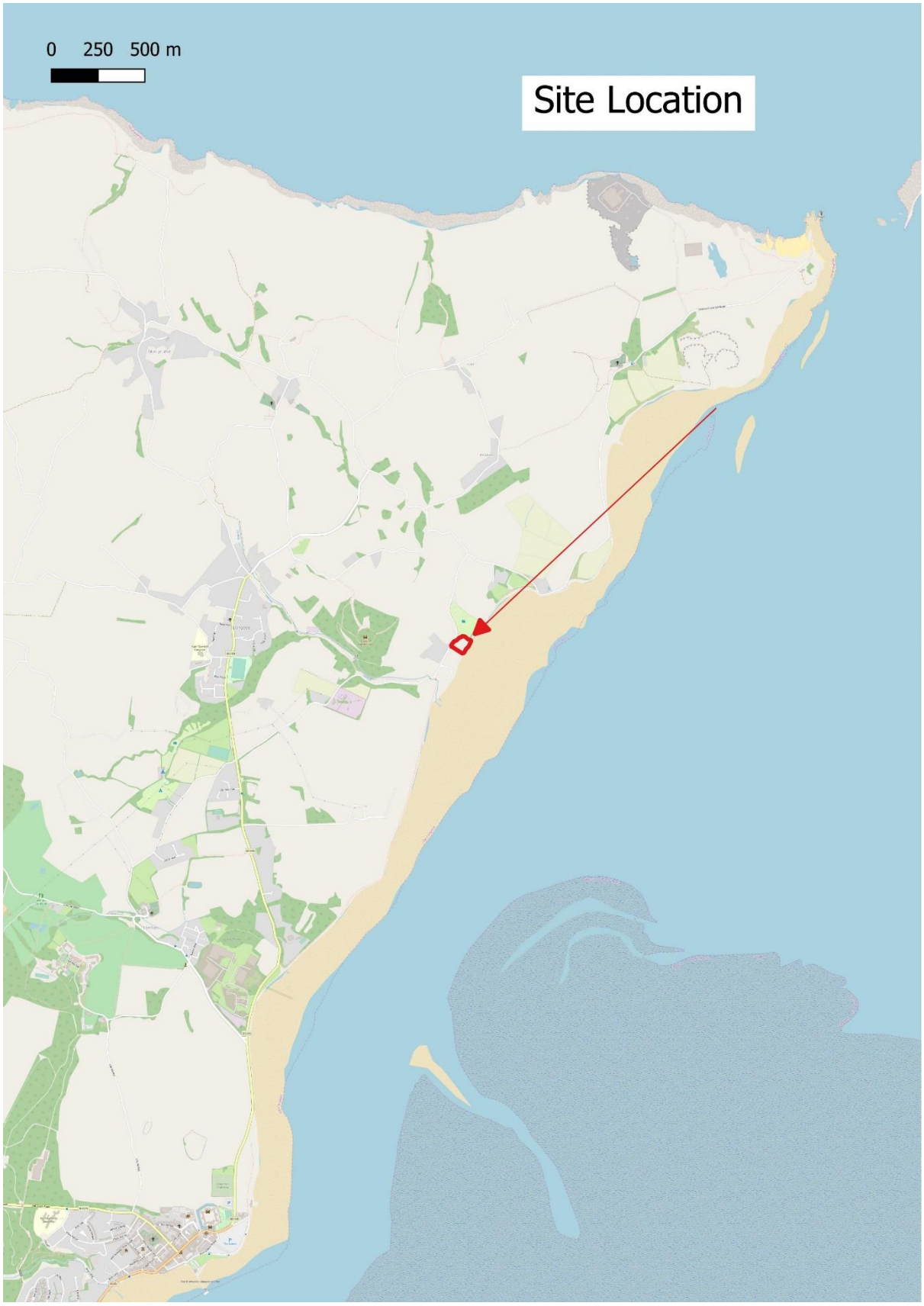
13 APPENDICES

APPENDIX A – SITE LOCATION



APPENDIX B – SITE ACCESS

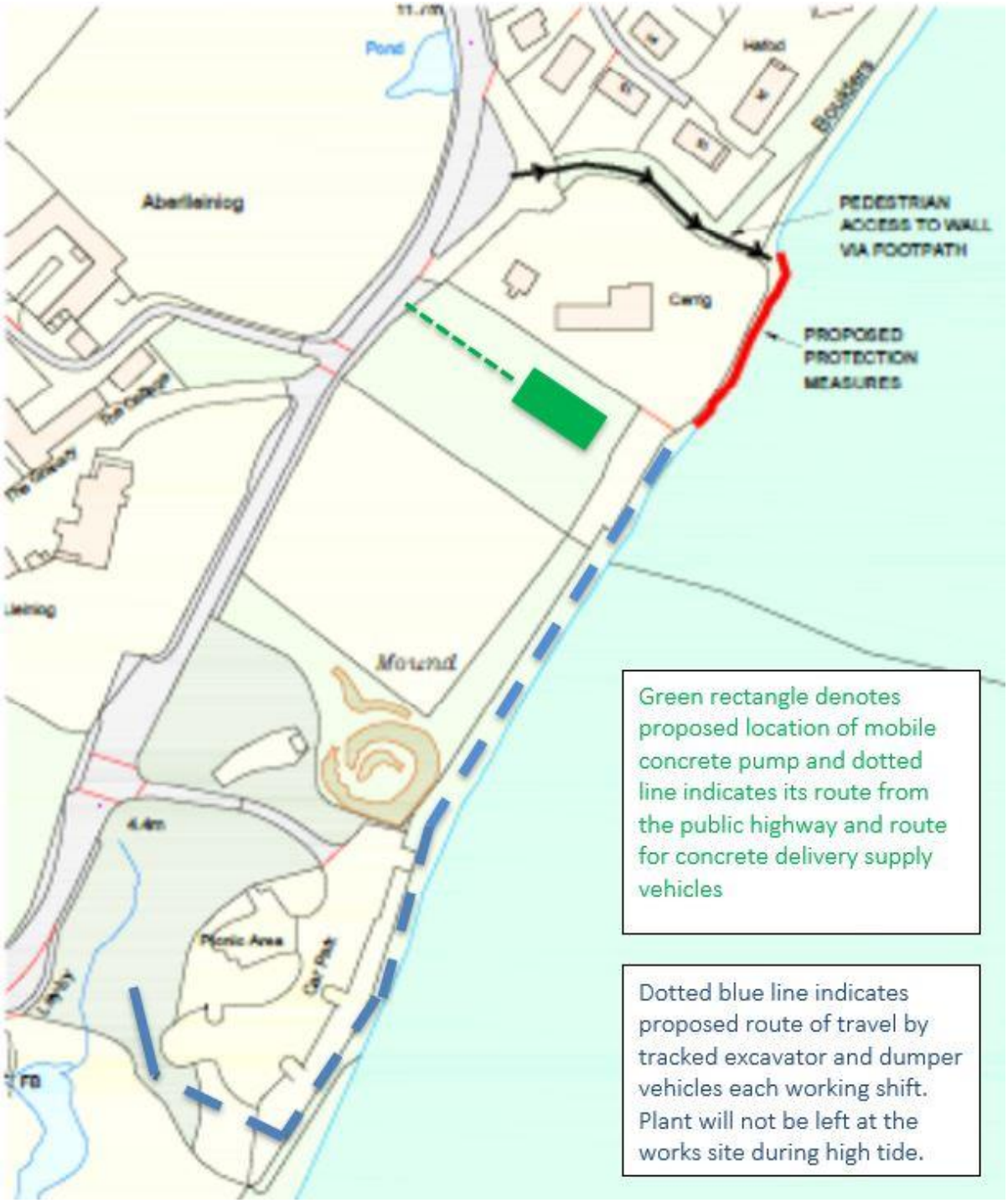


Figure 3 - Plan showing proposed access routes

APPENDIX C – DESIGNATED SITE MAPS

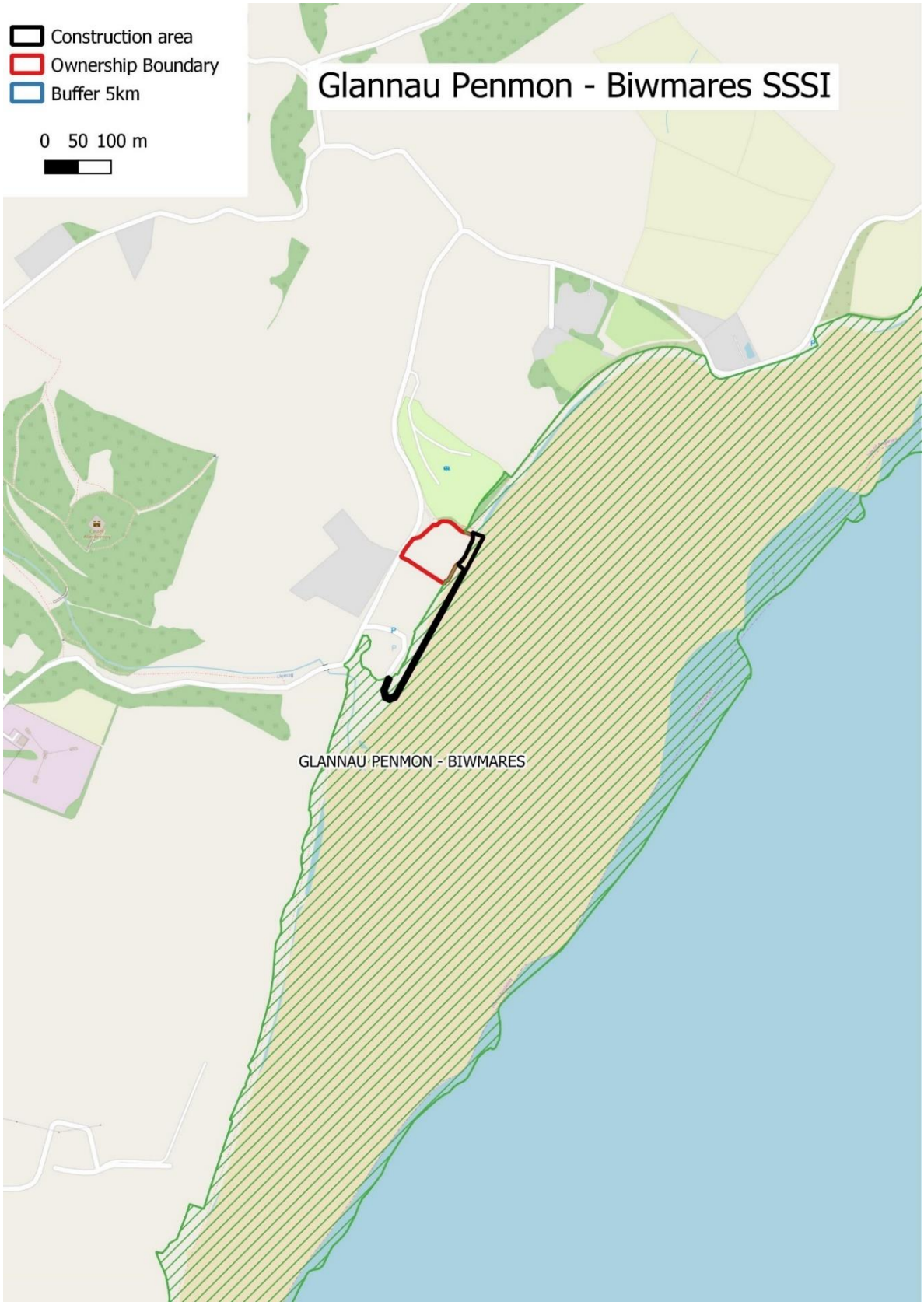


Figure 4 - Map of Glannau Penmon - Biwmares SSSI

Figure 5 - Map of Special Areas of Conservation within 5km

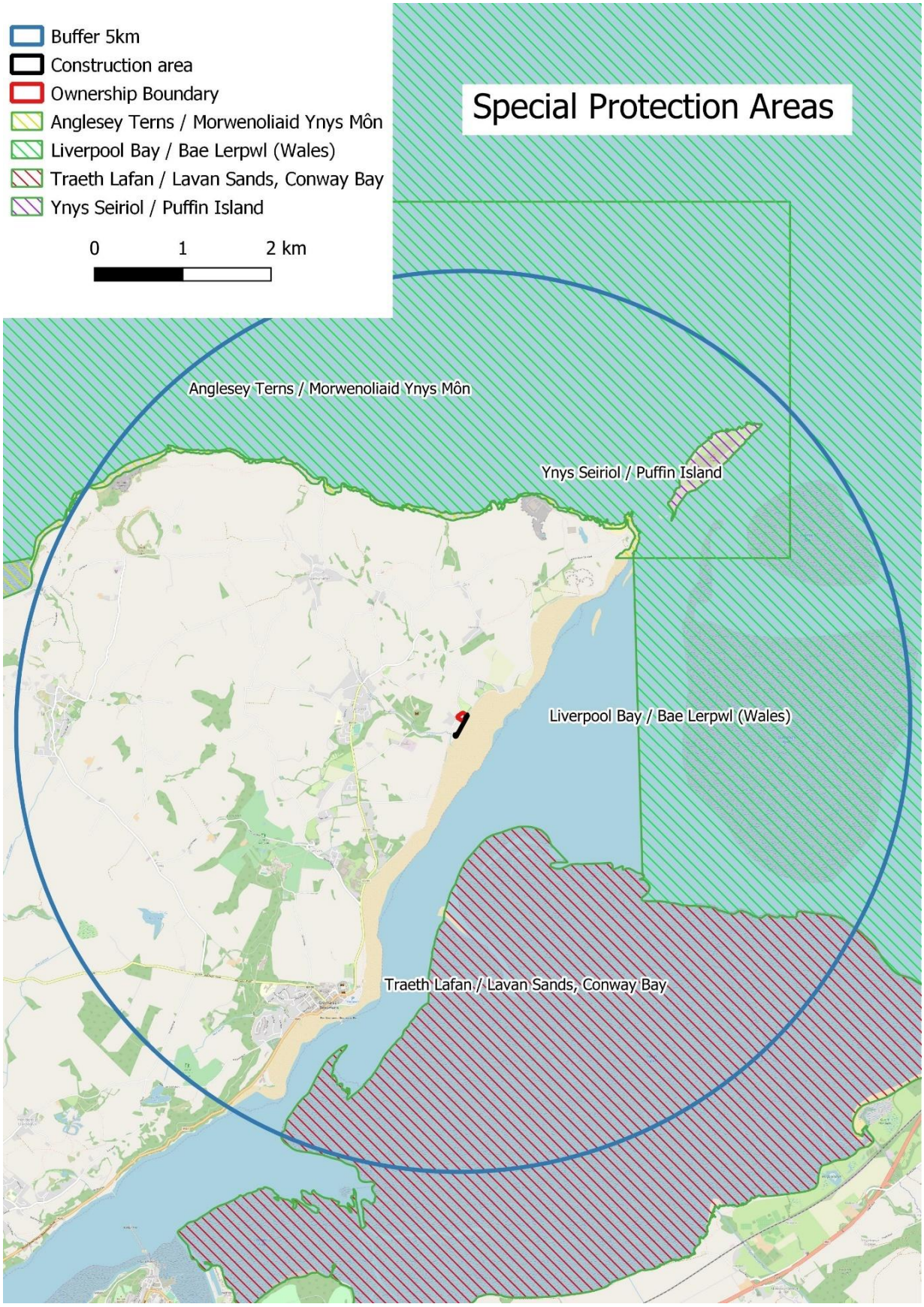


Figure 6 - Map of Special Protection Areas within 5km