

D. Preliminary Environmental Impact Report

Central Rhyl Coastal Defences – Preliminary Environmental Impact Report

Final

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Balfour Beatty & Denbighshire County Council

sir ddinbych Cyngor
denbighshire County Council  **Balfour Beatty**



JBA Project Manager

Sam Wingfield
Mersey Bank House
Second Floor
Barbould Street
Warrington
WA1 1WA

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Contract

This report describes work commissioned by Balfour Beatty, on behalf of Denbighshire County Council. Ben Sullivan of JBA Consulting carried out this work.

Prepared by Ben Sullivan MSci GradIEMA

Environmental Consultant

Reviewed by Mark Cope BSc MSc FGS MIEMA CEnv
REIA

Principal Environmental Consultant

Purpose

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Abbreviations

AoNB	Area of Outstanding Natural Beauty
CBC	Conwy Borough Council
CEMP	Construction Environmental Management Plan
CPAT	Clwyd-Powys Archaeological Trust
DCC	Denbighshire County Council
EIA	Environmental Impact Assessment
HMWB	Heavily Modified Waterbody
HRA	Habitat Regulation Assessment
ILP	Indicative Landscape Plan
LWS	Local Wildlife Site
MHWS	Mean High Water Spring
NCR	National Cycle Route
NRW	Natural Resources Wales
PEIR	Preliminary Environmental Impact Report
PRoW	Public Right of Way
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SPA	Special Protection Area
SMP	Shoreline Management Plan
SSSI	Site of Special Scientific Interest
WFD	Water Framework Directive

1 Background

1.1 Introduction

This Preliminary Impact Report (PEIR) assesses the environmental baseline for a proposed coastal defence scheme along the beach in Central Rhyl, outlining key environmental issues and recommending further study and potential mitigation. The findings from this report will be used to inform the Outline Business Case for the scheme, and be considered in the options appraisal, to arrive at a preferred option.

1.2 Site Description

The site is located on the seafront at Rhyl, North Wales (Figure 1-1). There are some existing coastal flood defences within the site, these include a sea wall, some areas of rock armour and groynes. The Shoreline Management Plan (SMP) policy for this section of coastline is to 'hold the line', therefore further coastal flood defence works are required to maintain and improve the existing defences.

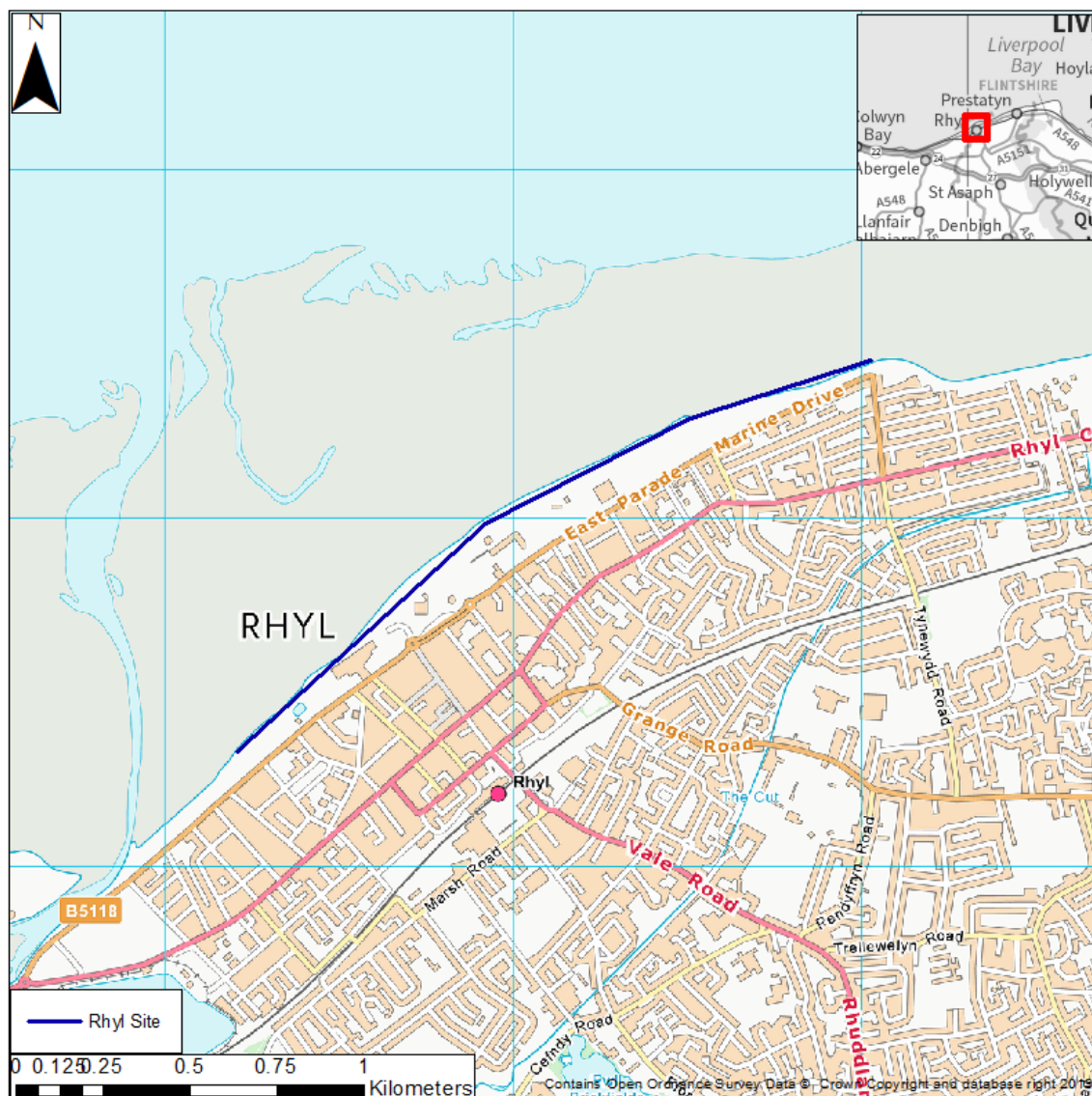


Figure 1-1: Location of site on the seafront at Rhyl

1.3 The Problem

The Central Rhyl coastal defences span a distance of 2.6km along Rhyl beach, from River Street to Tynewydd Road. They protect Rhyl Promenade and seafront from coastal erosion and flooding. They currently consist of a series of stepped revetments, recurve walls and vertical walls in various states of repair. Whilst much of the wall is in good condition, some sections contain concrete deterioration. In these areas, bulging, voiding, cracking, spalling and chipping, with sealant loss, is compromising the condition of the sea defence. It is estimated that without significant intervention and development, breaches would form in the defence by the year 2033. By 2063, breaches would be expected along the entire length of the wall, leading to failure. This would place the town of Rhyl under serious flood risk and not meet the policy of 'hold the line' for this stretch of coast, as described in the SMP.



Figure 1-2: An example of current coastal protection at Central Rhyl

1.4 Assessment Methodology

Desk-based searches have been undertaken to identify environmental constraints, which have been listed in Table 1-1 and as illustrated in the Environmental Constraints Plan provided in Appendix A. Internationally and nationally designated wildlife sites were noted at distances up to 5km away. All other constraints were noted at distance up to 2km.

Table 1-1: Desktop searches website information sources

Source of Information	Information Sought
https://magic.defra.gov.uk/MagicMap.aspx	Ramsar Sites Sites of Special Scientific Interest (SSSIs) Special Areas of Conservation (SACs) Special Protection Areas (SPAs) National Nature Reserves (NNRs)
https://www.archwilio.org.uk/her/chi1/arch.html?county=Denbighshire&lang=eng	Scheduled Monuments Listed Buildings Conservation Areas Shipwrecks Registered Battlefields Registered Parks and Gardens
lle.gov.wales/map#l=46	Areas of Outstanding Natural Beauty (AoNBs) Local Nature Reserves (LNRs) Historic Landfill LANDMAP Cultural Landscape LANDMAP Geological Landscape LANDMAP Visual Sensory Landscape LANDMAP Historical Landscape LANDMAP Landscape Habitats
https://www.bing.com/maps	Public Rights of Way (PRoWs) National Cycle Routes (NCR) Land use observations
Waterwatchwales.naturalresourceswales.gov.uk	River waterbodies Coastal waterbodies Transitional waterbodies Groundwater waterbodies

1.5 Uncertainties

Information obtained from third party sources has been assumed to be correct at the time of writing (March 2019).

Any material changes to the outline design or preferred option for the scheme should be reassessed against the information in this PEIR, to ensure that this report remains relevant to the proposals. If the report no longer remains relevant, it should be updated, and its conclusions reconsidered in light of the new proposals.

Impacts on environmental receptors have been assessed where sufficient information was available. However, where information was not available at the time of writing, assumptions have been made. These have been stated in the text.

2 Project Development

The preferred design for the proposed flood defences was decided by the determination of a long-list of potential options, which, through optioneering, was limited to two potential schemes. The initial long-list, and the environmental considerations, is displayed in Table 2-1.

Table 2-1: Long-listed options

Ref	Option	Environment / Ecology considerations
1	Do nothing, cease all maintenance	May not hold the line as per the SMP.
2	Continue with existing maintenance regime	Little potential for ecological enhancement. Future risk of coastal squeeze requiring provision of compensatory habitat. Some potential for amenity improvements to Wales Coast Path to benefit users.
3	New concrete sea wall	Little potential for ecological enhancement within design. Future risk of coastal squeeze requiring provision of compensatory habitat. Potential for amenity improvements to Wales Coast Path to benefit users.
4	New sheet pile sea wall	Little potential for ecological enhancement within design. Future risk of coastal squeeze requiring provision of compensatory habitat. Potential for amenity improvements to Wales Coast Path to benefit users.
5	Rock armour revetment	Potential for ecological enhancements to be included in rock armour design (e.g. bioblocks). Future risk of coastal squeeze requiring provision of compensatory habitat.
6	Concrete stepped revetment	Little potential for ecological enhancement within design. Future risk of coastal squeeze requiring provision of compensatory habitat.
7	Rock scour protection (just to toe of defence)	Little potential for ecological enhancement within design. Future risk of coastal squeeze requiring provision of compensatory habitat.
8	Encasement of the existing primary defence	Little potential for ecological enhancement within design. Future risk of coastal squeeze requiring provision of compensatory habitat.
9	Encasement of the existing primary defence with rock scour protection	Little potential for ecological enhancement within design. Future risk of coastal squeeze requiring provision of compensatory habitat.
10	Enhance existing groynes	If rock, potential for ecological enhancements to be included in rock design (e.g. bioblocks). Little potential for amenity

Ref	Option	Environment / Ecology considerations
		improvements to Wales Coast Path to benefit users.
11	Beach nourishment / recharge	Future risk of coastal squeeze requiring provision of compensatory habitat. Little potential for amenity improvements to Wales Coast Path to benefit users.
12	Offshore sandscaping	Future risk of coastal squeeze requiring provision of compensatory habitat. Little potential for amenity improvements to Wales Coast Path to benefit users.
13	Additional offshore options	Future risk of coastal squeeze requiring provision of compensatory habitat. Little potential for amenity improvements to Wales Coast Path to benefit users.

From this longlist of options, options 6 and 9 were brought forward to a shortlist, alongside options 1 & 2, which are kept in as good practice. A further option was also added, which was a combination of options 6 and 9.

From the four options that were considered in the shortlist, a multi-criteria analysis approach was used to separate them. The following engineering and environmental considerations were included in the analysis;

- Engineering;
 - o Capital Costs;
 - o Maintenance Costs;
 - o Buildability;
 - o Standard of Protection – Erosion;
 - o Standard of Protection – Flood Risk;
 - o Design Life;
 - o Ease of Maintenance;
 - o Risk of scour / beach lowering / defence undermining;
 - o Reliance on existing infrastructure; and
 - o Climate Change Adaptability;
- Environmental
 - o Coastal Processes
 - o Biodiversity & Nature Conservation;
 - o Landscape and Visual;
 - o Archaeology;
 - o Population, Human Health and Socio-economics;
 - o Climate Change and Sustainability;
 - o Water Quality;
 - o Strategic Policy (SMPs);
 - o Consents and Licenses; and

- o Public Health and Safety.

Each consideration was given a score between 1 and 5 for each option (1 = very negative, 5 = very positive).

From this multi-criteria analysis, option 6, concrete stepped revetment, emerged as the preferred option, after scoring the highest in both the engineering and environmental considerations, thereby overall. The concrete stepped revetment option scored '5' (considered as having a very positive impact) in the following criteria;

- Maintenance Costs & Ease of Maintenance – Costs are considered to be very low once the construction is complete and maintenance is thought to be relatively easy;
- Standard of protection for both Erosion and Flood Risk - considered that it will significantly reduce the impacts of both erosion and flood risk along the front at Central Rhyl;
- Design Life – considered to have a longer design life than any other option considered;
- Reliance on existing infrastructure – A concrete revetment option would be an entirely new structure that would not rely on existing infrastructure;
- Landscape and Visual – Considered that a stepped revetment would positively contribute to local landscape character, views from the Rhyl Coast Road and the setting of the beach;
- People, Health and Social Care – The increase in access to the beach caused by the presence of a new stepped revetment is expected to improve the amenity of Rhyl town centre, local residents, the Wales Coast Path and National Cycle Route (which both run along the Promenade) and local tourist assets.
- Fulfils the Shoreline Management Plan Policy of 'Hold the Line'

Despite the overall high score of the scheme, it scored low on the following criteria;

- High capital cost – the structure is expected to confer a high upfront cost;
- Due to the large volumes of concrete needed for the structure, it is considered to have a relatively large contribution to climate change (concrete has a high level of embodied carbon in the structure).

2.1 The Preferred Option

A combination of rock armour scour protection and stepped revetment from options 6 and 9 have been chosen as the preferred option, with the former proposed for Sections A-D and the latter at Sections D-H as illustrated in Figure 2-1.

Along the stretch of coastline between the corner of Tynewydd Road (302016, 382437) and Rhyl Events Arena (300747, 381842), rock armour scour protection would be installed at the toe of the existing defences. The existing promenade would remain unmodified and the existing sea walls and revetments in this area would receive concrete repairs. The rock armour toe would be predominantly buried under the sand on Rhyl Beach. It would be formed of a double interlocking layer of rock. At the seaward end of the rock armour there will be HPS11 Geotextile, and the largest rock, acting as a keystone. The rock armour toe will be buried to a depth of 2.6mAOD in areas where there is a no stepped revetment and 0.5mAOD where it will sit at the base of the existing revetment. The rock armour toe will be approximately 2m

tall, 6m long, and 1.4km wide. Figures Figure 2-2 and Figure 2-3 below show drawings of the proposal.

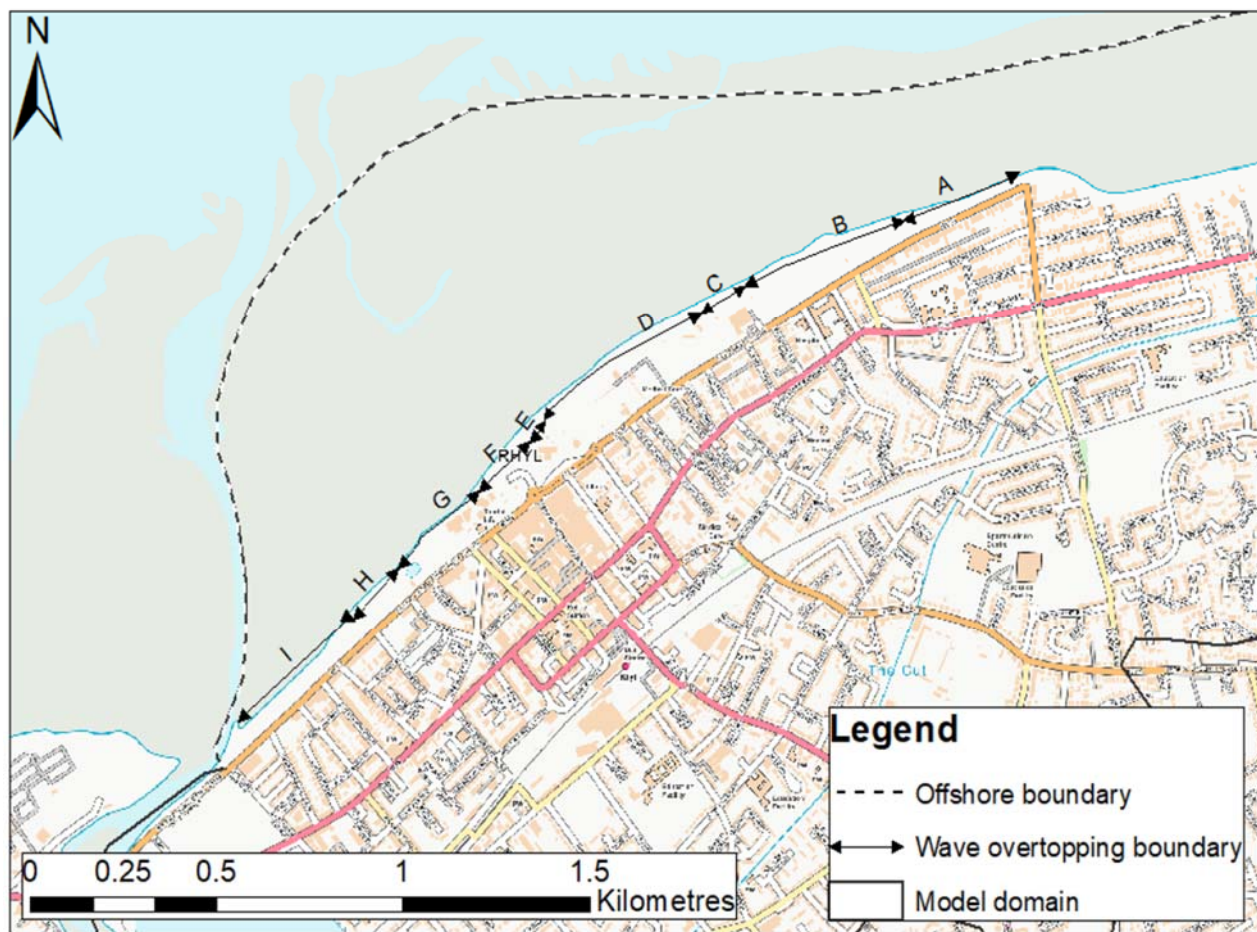


Figure 2-1: Proposed scour protection (Sections A-D) and stepped revetment (Sections D-H)

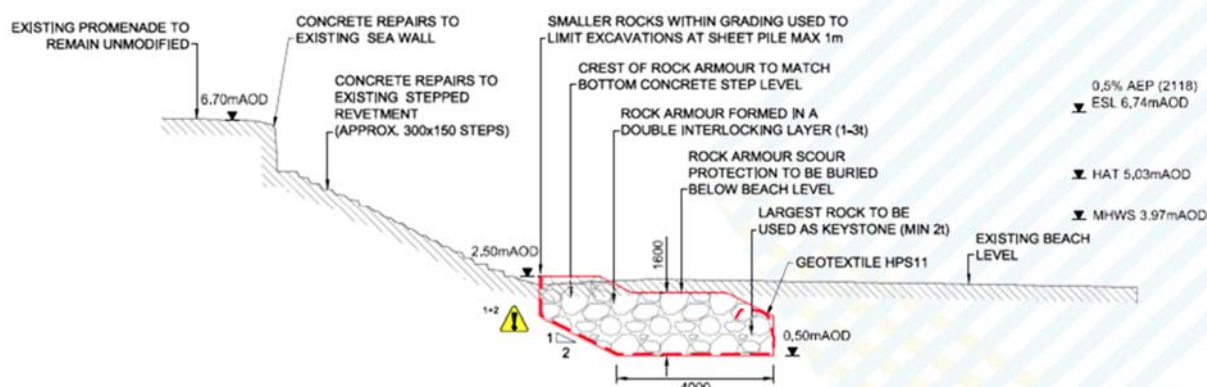


Figure 2-2: Proposed rock armour toe between Tynewydd Road and Rhyl Events Arena, where there is an existing revetment

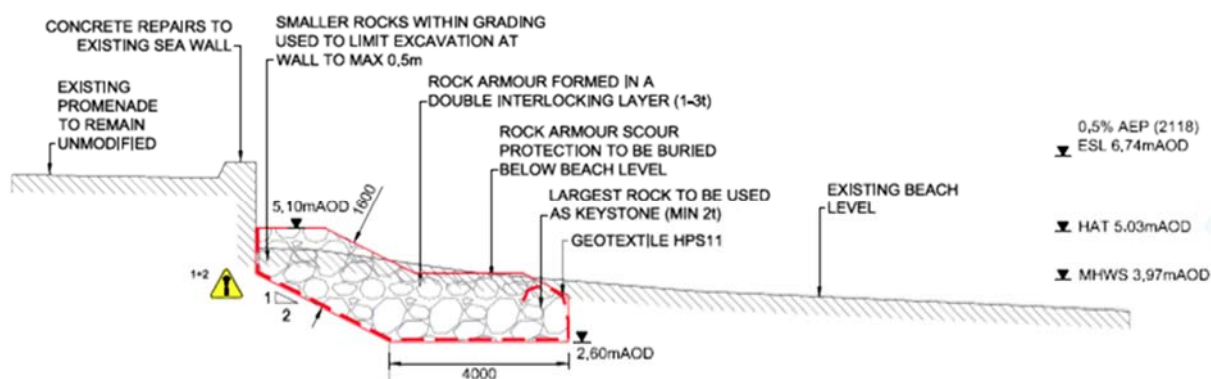


Figure 2-3: Proposed rock armour toe between Tynewydd Road and Rhyl Events Arena, where there is no revetment

Along the stretch of coastline between Rhyl Events Arena (300747, 381842) and the corner of West Parade and John Street (300233, 381338), a stepped concrete revetment is proposed. The revetment will extend up to 30m out onto Rhyl Beach from the new sea wall, that will be in the place of the existing wall. The steps themselves will be 15m in width and have a 1:3 gradient, with approximately 40% of the stepped revetment submerged beneath intertidal sand. Below the concrete steps there will be a gravel filter layer, class 6N fill and geotextile to retain the fill. The new sea wall will rise to a height of 9.05mAOD. The new stepped revetment will rise from a height of 2.70mAOD (below intertidal sand) to 7.85mAOD. Figure 2-4 below shows a drawing of the proposed revetment.

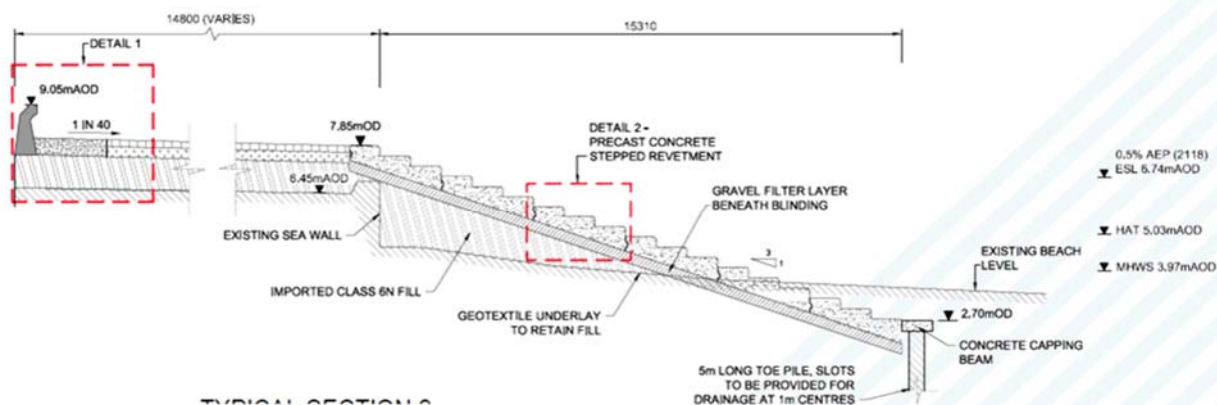


Figure 2-4: Proposed concrete revetment between Rhyl Events Arena and John Street

2.2 Stakeholder Engagement

2.2.1 Natural Resources Wales pre-workshop advice

In a letter dated April 2nd, 2019, NRW advised that the following overarching matters should be considered prior to the submission of a planning application for the proposed scheme (the full response is provided in Appendix B):

- An EIA Screening Opinion should be sought from DCC;
- Potential cumulative impacts with other committed development should be considered;

- A Water Framework Directive Assessment should be carried out to determine compliance with objectives for river and coastal waterbodies.

They also suggested that a Flood Consequence Assessment (FCA) would be required to provide overview of the flood risk benefits of the proposed scheme. NRW noted that coastal defence structures of large scales can result in changes to local coastal processes, and that a smaller scheme would be desirable. They also noted that the concrete stepped revetment and combined options would result in a considerable loss of intertidal habitat. Climate change, foreshore steepening, sea level rise and increased storminess should all be considered for the final design.

2.2.2 Stakeholder engagement event

Consultation Advice was received from Natural Resources Wales prior to the stakeholder engagement event, on April 2nd 2019. This is available in Appendix B for reference.

A stakeholder engagement workshop on the proposed scheme was held at Rhyl Community Fire Station on April 3rd, 2019. Representatives from DCC, NRW, Sustrans, Ion Developments, Balfour Beatty, JBA Consulting, Flintshire County Council, the Clwyd-Powys Archaeological Trust (CPAT) and the Royal Society for the Protection of Birds (RSPB) were in attendance. The short-list of the options was presented to the attendees, who were asked their opinions, which went on to influence the preferred option decision.

At the workshop, NRW expressed concerns that the footprint of the proposed scheme and the associated loss of intertidal habitat was too great. They asked whether less intensive options, such as sheet piling, could be considered. JBA responded by explaining that less intensive options had been considered during the options appraisal process, but they did not have a long enough design lifetime (a sheet pile wall would have a lifetime of approximately 50 years).

NRW also questioned whether the proposals were in line with SMP policy for this coastal sub-cell. A representative from DCC confirmed that the current policy was Hold The Line, and therefore it did meet the local SMP policy.

A representative for CPAT noted that the proposals have minimal intrusion into the beach levels. They stated that precise depths and areas would need to be confirmed to them once they are known. They noted that any scheme more intrusive than a Do Nothing or Do Minimum option would require archaeological assessment.

2.2.3 Future community and stakeholder engagement

Community and stakeholder engagement will also be required under the Planning (Wales) Act 2015 to undergo the Statutory Pre-Application Consultation Period prior to submission of the Planning Application, as is compulsory for all applications for major development in Wales. Advertisement of the scheme for stakeholders to comment would also be required for the Marine Licence Application.

3 Key Environmental Issues

3.1 Landscape

A Landscape Appraisal has been undertaken for the proposed coastal defence scheme. A site visit, to inform the appraisal, was undertaken by a chartered landscape architect on April 16th 2019. Potential effects are described below;

The appearance of the sea defences in the area will permanently change. There will also be a significant loss of beach area along sections D-H (See Figure 2-1).

Consideration needs to be given as to how the elevated promenade will tie back in to existing levels to minimise sudden or prolonged elevation changes that present difficulty for pedestrians.

The western extent of the works, where the new stepped revetment is proposed, is well screened from the road and residential properties through landform and the existing leisure and amenity features and buildings that sit immediately behind the promenade. There is also expected to be no impact on pedestrians and vehicles moving along the B5118.

To the eastern extent of the works, beyond the Pavilion Theatre, there are no leisure or amenity buildings to screen the view. This area has large areas of amenity grass and there is the possibility that residential properties along East Parade may have views from first floor windows (and above). However, due to the nature of the proposals, it is expected that it will still not be visible even from these elevated viewpoints. There is also expected to be no impact on pedestrians or vehicles moving along East Parade.

Users of the promenade and beach will observe the greatest change along the entire length of the development. This is because there will be a combined impact of a new structure and a loss of beach.

3.1.1 Impacts during construction

Access along the promenade and sea wall may be restricted during construction. Site compounds and haulage access routes are yet to be confirmed but it is reasonable to assume that this will have a localised impact for residents, as there could be regular and frequent HGV movements and material stockpiling. There could also be a temporary impacts on users of the promenade, Wales Coast Path and National Cycle Route, as it could be temporarily closed or diverted.

3.1.2 Mitigation measures

There is limited scope for more conventional landscape mitigation through the use of vegetation to screen the view, as this could impact upon views and landscape character more than the development itself.

During construction, the movement of plant and materials may require a temporary traffic management system to minimise inconvenience to other road users.

The use of rock armour as part of the development may create opportunities for rock pooling, eventually blending into its marine surrounding.

3.2 Species and Habitats

A Preliminary Ecological Appraisal (PEA) for the scheme is provided in Appendix D and has been used to inform the recommendations in the following sections.

3.2.1 Statutory Designated Sites

Liverpool Bay SPA is approximately 300m to the north of the scheme. It is designated for the populations of the following waterbirds – Red Throated Loon, Little Gull, Black-headed Gull, Little Tern and Common Tern. Due to the reasons for designation, the proposed scheme has the potential to impact upon qualifying features of the SPA.

The proposed scheme is approximately 5km west of the Dee Estuary, which is designated as an SAC and an SPA. In the same location lie other designations also, Gronant Dunes & Talacre Warren SSSI and Gronant Dunes LNR. These designations would not be impacted during construction but could experience adverse impacts if the proposed scheme were to cause changes in the coastal processes in the area.

It is therefore likely that HRA Screening will be required to assess likely significant impacts upon Natura 2000 sites (SPAs & SACs).

3.2.2 Non-statutory Designated Sites

There is the potential for adverse impacts on a number of Local Wildlife Sites (LWSs) in the vicinity of the proposed scheme. Those sites, and their reasons for designation, are described in Table 3-1.

Table 3-1: Names and designations of nearby LWSs

LWS Name	Description and reasons for designation
Clwyd Estuary and Adjacent Fields	An estuary including mudflats, where large numbers of birds feed, saltmarsh, a disused tip with botanical interest and supporting ground nesting birds, and adjacent fields and waterbodies which support significant numbers of wintering waders and waterfowl. There is approximately 50ha of saltmarsh which forms an integral part of the estuary in providing nutrients and supports distinctive saltmarsh flora. A strip of coastal grassland adjacent to the marsh supports the rare Babington's Orache and Lyme Grass. The disused tip is an important refuge for breeding birds including Skylark, Grasshopper Warbler, Grey Partridge and Ringed Plover. The latter two are Red Data species on account of the UK breeding population, there are also a number of uncommon plants, Wild Parsnip, Bristly Ox-tongue and Hairy Buttercup.
Foryd Dunes (Horton's Nose)	Dune Grassland.
Foryd Coastal Strip	Deep intertidal mud.
Foryd Junction Grassland	No information available upon request from DCC.
Afon Clwyd Saltmarsh	Saltmarsh.
Kinmel Bay Dunes	Extent of interest in western section uncertain
Y Ffrith Prestatyn	This site comprises sand dune and herb rich grassland. The dune is an important natural sea defence although a sea wall has been built along the coast in front. Bare ground and sparse vegetation occurs as a result of erosion caused by public access and sea defence works. The main species is Marram and there are other unusual seaside plants including Sea Holly, Sea Beet, Sea-buckthorn, Bristly Ox-

LWS Name	Description and reasons for designation
	tongue, Spiny Restharrow, Wild Parsnip and Lyme Grass.

3.2.3 Habitats

The scheme will likely result in small-scale losses of intertidal sediment, possibly replaced by intertidal rocky shore habitat. Considering the substantial area of intertidal habitat along the North Wales coast, this is not considered to be significant. There is scope for consideration of enhancements added to it to increase its biodiversity value.

Given the geomorphological processes operating along the coast of North Wales, there is potential for any impacts on coastal processes locally affect habitats further afield. Should the scheme result in a change to coastal processes, there is potential for adverse impacts to the shingle spit at Gronant Dunes & Talacre Warren SSSI, where there is a nationally important breeding population of Little Terns (the largest breeding population of this species in Wales).

3.2.4 Invertebrates

The scheme could impact resident populations of *Sabellaria alveolata* on Rhyl Beach through an alteration of the sediment regime. There are also populations of polychaete worm in the proximity of study area. Given the abundance of adjacent similar habitat, it is not anticipated that the scheme will have an impact upon populations of this species. Nevertheless, any potential impacts on marine invertebrates would need to be investigated and assessed, to inform any requirements for HRA and/or EIA.

3.2.5 Birds

Due to the high availability of other suitable habitat in the area, and the large amounts of other disturbance in the area from humans, the scheme would not be expected to impact upon wading bird populations in the area.

However, if construction of the scheme were to result in large amounts of suspended sediment being disturbed, it could impede upon the ability of diving and fish-eating birds to forage locally within the Liverpool Bay SPA.

3.2.6 Fish

It is likely that the proposed scheme would result in a small amount of intertidal habitat becoming inaccessible to fish during high tide, although the impact would be very localised and therefore negligible. However, if the scheme results in large-scale mobilisation of fine sediment, it could result in reduced foraging efficiency of visual predators and minor gill irritation. Any impact on fish arising from coastal processes and/or construction impacts would need to be assessed, to inform any requirements for HRA and/or EIA.

3.2.7 Reptiles and Amphibians

Habitat suitable for reptiles or amphibians has not been identified in the vicinity of the scheme, and therefore no impacts are envisaged. Impact upon suitable reptile habitat during construction will be assessed when more detail is known.

3.2.8 Mammals

It is likely that small numbers of marine mammals, such as Grey Seal and Harbour Porpoise, are infrequently present in Liverpool Bay. The intertidal

habitat around Rhyl is suitable for basking by seals, it this area is highly disturbed, and so the present of basking seal is considered unlikely.

Seal and other marine mammals can be affected by the underwear noise from construction activities (i.e. piling operations). An underwater noise assessment may therefore be required to assess the impact of underwater noise from construction activities.

There are otter populations in the nearby River Clwyd, but it is unlikely works would impact on otter.

Potential impacts on mammals during construction will be assessed when more detail is known.

3.3 Habitat Regulations Assessment Screening Assessment

Given the close proximity of the outline proposals to Liverpool Bay SPA and potential for impacts on European designated sites in the Dee Estuary, Habitats Regulations Assessment (HRA) Appropriate Assessment would be required under the Conservation of Habitats and Species Regulations 2017. A HRA Screening appraisal has been undertaken and is provided in Appendix E, however when further detail regarding the proposals is known then a more detailed HRA Screening would need to form part of the Planning and Marine Licence Applications.

3.4 Cultural Heritage

An archaeological desk-based assessment (provided in Appendix F) was undertaken for the proposed scheme by the Clwyd-Powys Archaeological Trust. Rhyl foreshore has a relatively rich archaeological heritage, containing finds ranging in age from the prehistoric era to the present day. The proposed scheme does have the potential to impact upon some known heritage assets on Rhyl foreshore.

With regard to designated assets, there are 27 listed buildings (all of which are Grade II), 2 aircraft crash sites and 2 conservation areas (Rhyl Central and Rhyl, River Street) within the study area. There are also 51 undesignated assets within the study area, including 12 find spots and 10 shipwrecks. It is not clear whether the aircraft crash sites still contain any wreckage remains.

The desk-based assessment identified potential direct impacts on heritage assets on Rhyl foreshore associated with sea-level changes since the last glaciation. These assets have the potential to contain palaeoenvironmental remains, and evidence of human habitat of this area during the Mesolithic and Bronze Ages. Other structure on the foreshore that could be impacted by construction include possible fish traps and a causeway or track.

It is not expected that the proposed development would have any long-term visual impacts on listed buildings or conservation areas within the town. However, depending on locations of site compounds, there could be some small-scale temporary impacts.

3.5 Water Framework Directive Screening Assessment

A Coastal Water Framework Directive (WFD) Screening Assessment has been undertaken for the scheme and is provided in Appendix G. A description of the WFD waterbodies within proximity of the scheme is below.

North Wales Coastal Waterbody (GB641011650000) covers the area of the north Wales coast between Talacre and Great Ormes Head. It is designated as a Heavily Modified Waterbody (HMWB) for coastal protection use. It has a moderate overall status, fail chemical status and a moderate ecological potential. The reasons for not achieving good overall status are high levels of

both dissolved inorganic nitrogen, and mercury and its compounds, in the waterbody.

Clwyd Transitional Waterbody (GB541006608000) covers the estuary of the River Clwyd, covering the stretch of the River from its mouth between Rhyl and Kinmel Bay to Rhuddlan. It is designated as a HMWB for coastal protection use. It has a moderate overall status, good chemical status and moderate ecological potential. The reason for not achieving good ecological potential is for angiosperms in the watercourse.

The groundwater body present below the development is the Clwyd Permo-Triassic Sandstone Groundwater Waterbody (GB41001G202100). It stretches from the north coast of Wales (Prestatyn to Llanddulas), south to Ruthin. It has overall, quantitative and chemical statuses all of good.

Impacts on the Clwyd Permo-Triassic Sandstone Groundwater Waterbody were screened out, as the proposed scheme does not involve groundwater abstraction and would not be intrusive enough to impact upon its chemical status.

As the scheme is of a significant scale and within the North Wales Coastal Waterbody, impacts upon the waterbody could not be ruled out and therefore it was screened into the assessment. The proposed scheme's close proximity to the Clwyd Transitional Waterbody also means that adverse impacts during construction could not be ruled out. As a result, it was also screened into the assessment.

3.6 Socio-economics

The proposed scheme has the potential to impact upon local residents and the local economy of Rhyl, both beneficially during operation through an increased standard of flood defence, and adversely during construction.

The construction area would be predominantly on Rhyl Beach close to the centre of the town. The construction could result in the closure of a large area of Rhyl Beach to the public, which is frequently used by both residents of Rhyl and visitors to the area. As a result, the inaccessibility of this area of recreational space during the construction period, this could impact upon the physical and mental health of residents.

Construction is also likely to result in the diversion of both the Wales Coast Path and National Cycle Route 5, which both run along Rhyl Promenade. This is unlikely to impact upon residents but may discourage some visitors and tourists from the area.

The construction site would, in some locations, be in close proximity to residential properties. Residents of these properties could therefore experience significant disruption and disturbance, due to increased noise, vibration and light levels and potential small-scale degradations in air quality, arising from the construction. The construction of structures seaward of MHWS could only be limited to low tide, meaning these disturbances could occur at all times of day, even during anti-social hours e.g. at night or during weekends.

3.7 Traffic and Transport

The proposed development could require the delivery of a large amount of construction material to the site. Delivery methods are yet to be determined but could be by road or potentially by sea. A Traffic Impact Assessment would need to be undertaken to assess the potential for construction traffic to impact on the local road network in Rhyl.

Should rock armour be transported to the site via barge, there is potential for impacts on the Liverpool Bay SPA which would need to be assessed.

3.8 Climate Change and Sustainability

The proposed scheme is itself a response to a changing climate, which is expected to result in rising sea levels and more frequent and severe storm events. More significant coastal defences are needed to protect Rhyl and maintain its viability as a settlement and regional economic centre into the future.

The proposed scheme would result in a contribution to climate change however, via the embodied carbon of construction materials, the transportation of these materials to site, and construction activities. The emissions arising from the proposed construction would likely be significant on a local and regional scale.

4 Next Steps

4.1 Consenting and regulatory requirements

The outline proposals would require planning consent under the Town & Country Planning Act 1990 from the Local Planning Authority (Denbighshire County Council, DCC). Given works would be required below Mean High Water Spring (MHWS), a Marine Licence under the Marine and Coastal Access Act 2009 would also be required from Natural Resources Wales (NRW).

The requirement for statutory Environmental Impact Assessment (EIA) has not yet been determined by DCC Planning or NRW Marine Licencing. Nevertheless, the outline proposals fall within the Town & Country Planning (Environmental Impact Assessment) Regulations (Wales) 2017 Regulation 2(1) thresholds for EIA, provided in Schedule 2 Paragraph 10(m). The proposals also fall within Regulation 8(1) of the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended). Given the length of coastline that would be affected by the proposals, there is potential to alter coastal processes, in particular when considered cumulatively with committed development at East Rhyl. Although coastal processes operating along this section of coastline are generally weak, there is potential for an impact mechanism on European designated habitats to be complex and permanent.

Given the potential for impacts on European designated sites in the Dee Estuary, together with the scheme's close proximity to Liverpool Bay SPA, Habitats Regulations Assessment (HRA) Appropriate Assessment would be required under the Conservation of Habitats and Species Regulations 2017. An HRA Screening Assessment would therefore need to form part of the Planning and Marine Licence Applications.

Under Regulation 26 of the EIA Regulations 'coordination of assessments' would be required, with particular regard on species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC, under the premise of the precautionary principle. Given the recent European Court of Justice ruling on *People Over Wind and Sweetman v Coillte Teoranta*, it is important to note that any mitigation measures identified as part of EIA cannot be used inform the requirement for HRA Appropriate Assessment.

The requirements of information for inclusion in Environmental Statements is set out in Schedule 4 of the EIA Regulations. Where information about the construction or operation of the proposals is not sufficiently known to inform these requirements, the premise of the Rochdale Envelope is employed (referring to a judgement made on the planning law case *R. v Rochdale MBC ex parte Milne* in 2000). This follows that the more detailed the proposal, the easier it will be to ensure compliance with the Regulations, but where such detail is unavailable, 'appropriate parameters' would need to be defined for the purpose of EIA.

Section 55 of the Town and Country Planning Act of 1990 defines development as 'the carrying out of building, engineering, mining or other operations in, on, over or under the land, or the making of any material change in the use of any buildings or other land'. Case law provided by *Parkes vs Secretary of State for the Environment* (1978) follows that the first half, 'operations', comprises activities which result in some physical alteration to the land which has some degree of permanence in relation to the land itself. The second half 'use' comprises activities which are done in, alongside or on the land, but do not interfere with the actual physical characteristics of the land. Operation and use are therefore material planning considerations and will need to be set out in sufficient detail for the purpose of planning, marine licencing, EIA and HRA.

The outline proposals would comprise a new activity within the North Wales coastal waterbody, and therefore falls within the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. A Coastal WFD Screening Assessment has identified that detailed WFD compliance assessment would be required as part of the Marine Licence Application. The detailed assessment would need to demonstrate the scheme would not result in a degradation in status of any waterbodies or make it more difficult for any waterbody to achieve its objectives.

Rhyl Beach is located within Rhyl East Bathing Waters, designated under the Bathing Water Regulations 2013. A Bathing Water Assessment is therefore required as part of the Planning Application.

In light of the potential for coastal processes impacts on European designated habitats, and the potential for construction of the proposals to impact on coastal processes (suspended sediment, turbidity and patterns of erosion and deposition), coastal ecosystems and unknown archaeology, it is recommended that detailed investigations are undertaken at the pre-planning stage to inform the impact assessment that will be required for EIA, HRA, WFD and Bathing Water assessments.

4.2 Recommendations for detailed investigations

4.2.1 Further Landscape Assessment

The area that would contain the proposed new sea defence is a large area of flat, sandy beach. The area already contains a large seawall, but the proposed development would represent a significant increase in flood defence infrastructure on Rhyl Beach, and could have an adverse impact on local landscape character. A detailed Landscape and Visual Impact appraisal will be carried out to assess the landscape constraints and opportunities associated with the proposed development.

4.2.2 Further Ecological Surveys and Proposals

The scope of further survey work and associated coastal processes work, will need to consider the potential for impacts to qualifying features of the Liverpool Bay SPA adjacent to the scheme and other Natura 2000 designations along the coastline. A coastal processes assessment may therefore be required in order to determine potential impacts on wider habitats and species along the north Wales coastline from operation of the proposed scheme. The little tern colony at Gronant Dunes is a particular concern. Little Tern have very particular requirements for their nesting habitat and as a result are susceptible to changes in their environment at any scale.

Impacts on birds and other species along the Rhyl foreshore will be further assessed when the further details of the outline proposals are known.

4.2.3 Further Archaeological Proposals

It is recommended that a monitoring programme of the intertidal area should take place for approximately 6 months to determine the extent of the submerged peat forest which present on Rhyl foreshore.

A geophysical survey of the sea bed in the area is recommended in order to locate ship wrecks and fish traps. A detailed site survey before construction works begin, to assess the palaeoenvironmental and dendrochronology samples present on the foreshore.

If any previously unknown archaeological finds are located on Rhyl Beach during construction, all works in that location should cease with immediate effect, and an archaeologist should be contacted.

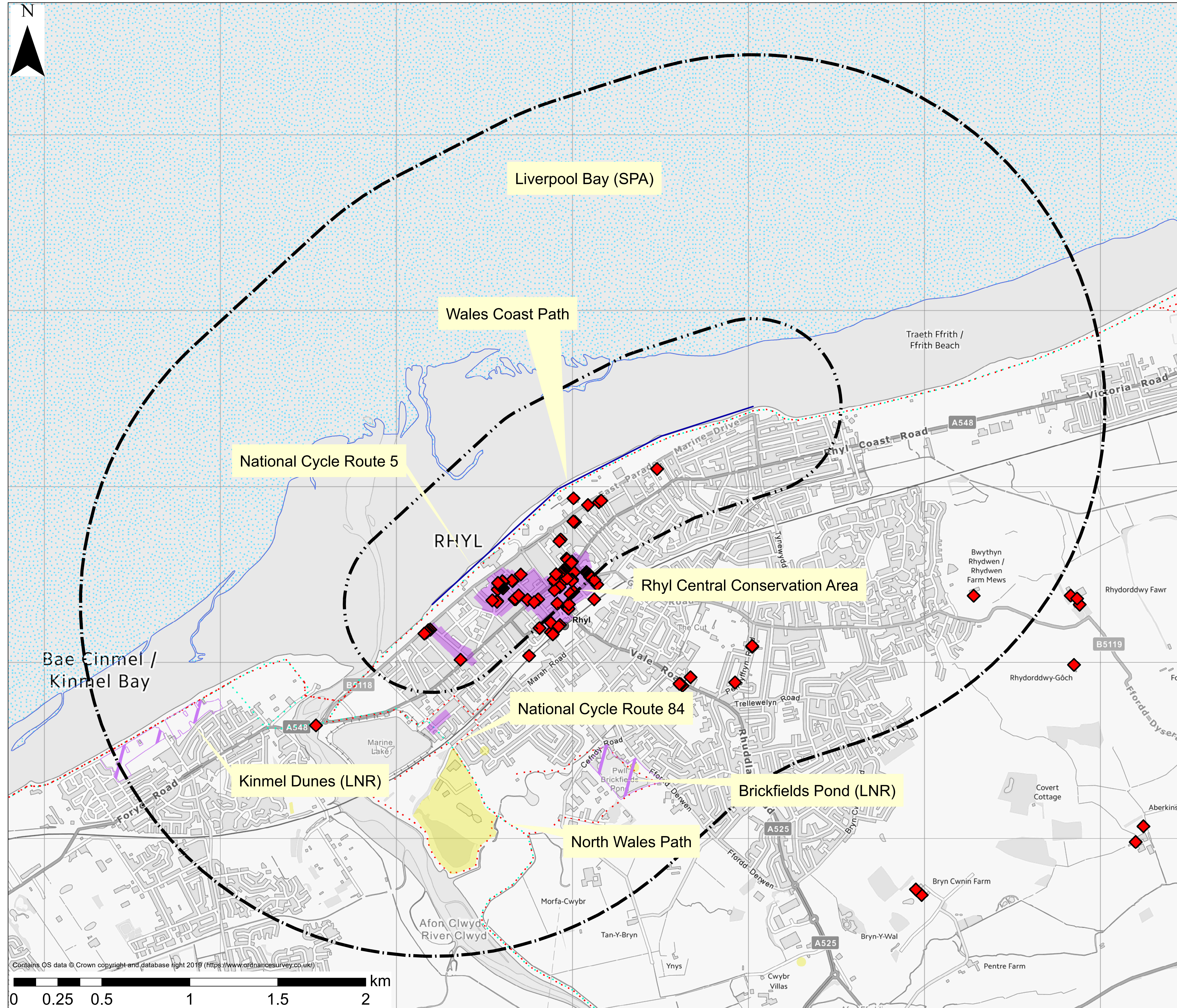
4.3 Potential Opportunities for Environmental Enhancement

The scheme may present opportunities for habitat creation and enhancement, particularly the creation of rocky shore habitat should rock armour be utilised. This can be in the form of bioblocks or the drilling of holes to create niches and rock pools which provide habitat to a wide range of intertidal rocky shore species.

An improved standard of coastal defence could enhance tourism in the area. A stepped revetment design for the defences is likely to improve the amenity of the beach to tourists, resulting in Rhyl being a more appealing destination to visit.

Improvements to Rhyl Promenade could be incorporated into the final design, improving the amenity value of the area. This could include, among other improvement, more seating provision, information signs educating the public about local wildlife in the area, or art installations.

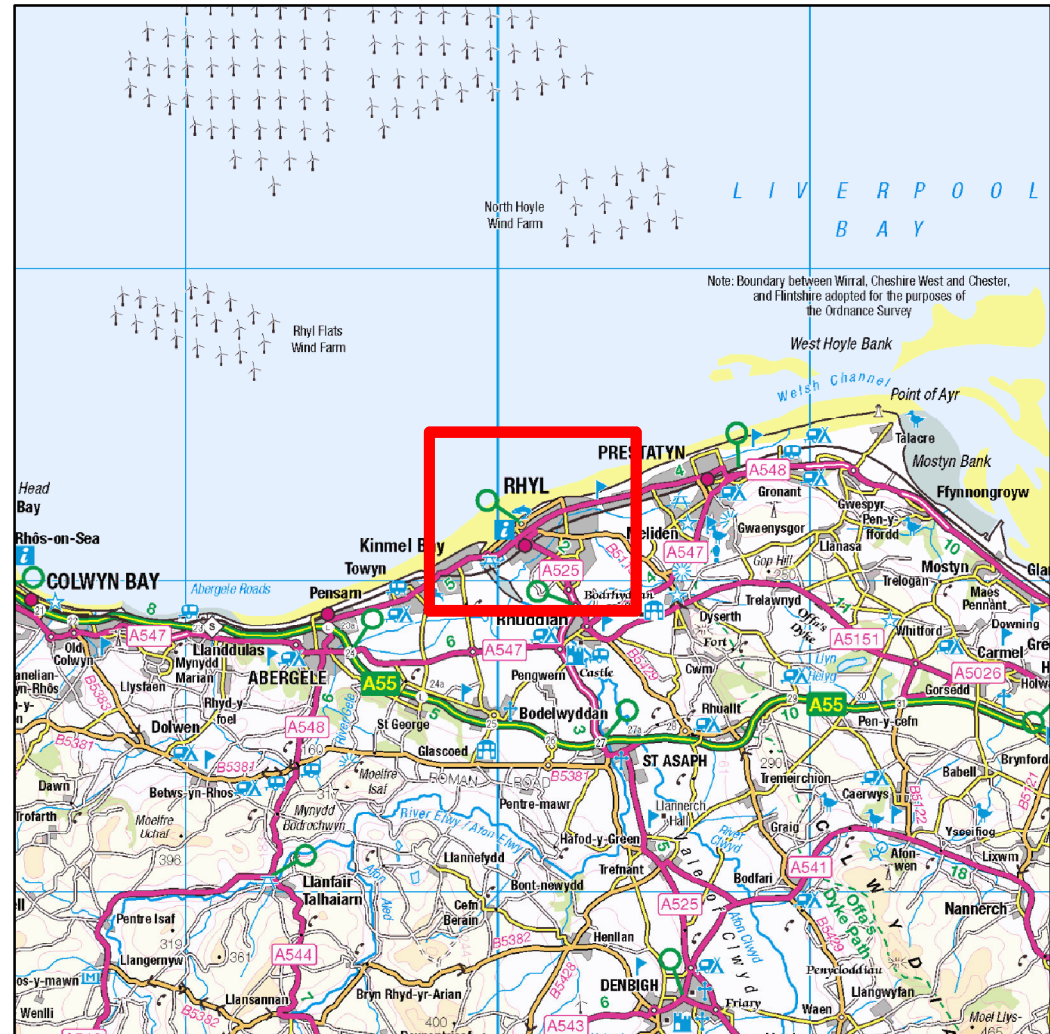
Appendix A Environmental Constraints Plan



LEGEND

- Rhyl Site
- Central Rhyl 2000m buffer
- Central Rhyl 500m buffer
- Special Protection Area (SPA)
- Local Nature Reserve (LNR)
- Historic Landfill Sites
- Listed Buildings
- conservation Areas
- Cycle paths
- Walking Routes

KEY PLAN



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Rev.	Modifications	Date	Drawn	Checked	Approved
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Kings Chambers
7 - 8 High Street
Newport
South Wales
NP20 1FO
United Kingdom
www.jbaconsulting.co.uk
+44 (0)1633 413 514
+44 (0)8456 627 772
info@jbaconsulting.co.uk

Other offices at Colchester, Doncaster, Dublin, Edinburgh, Exeter, Glasgow, Haywards Heath, Isle of Man, Leeds, Limerick, Newcastle, Peterborough, Saltlake, Skipton, Tadcaster, Thirsk, Wellingford, Warrington

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Environmental Constraints Plan

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Drawing Number:					

Appendix B NRW Consultation Response

Tim Carter
JBA Consulting
Kings Chambers
7-8 High Street
Newport
NP20 1FQ

Dyddiad/Date: 2nd April 2019

Annwyl/Dear Mr Carter,

Rhyl and Prestatyn OBC Stakeholder Workshop Wednesday 3rd April 2019

Thank you for your enquiry dated 6th March 2019.

We have considered your enquiry in relation to our Development Planning "Consultation Topics" document (<https://cdn.naturalresources.wales/media/686847/dpas-consultation-topics-august-2018-eng.pdf?mode=pad&rnd=131819256840000000>). We advise that the following matters are relevant to your proposed development and suggest you consider these further prior to the submission of any planning application:

Overarching queries:

- Has an EIA screening opinion been sought from the Local Planning Authorities?
- Any potential cumulative impacts with other developments?
- Water Framework Directive Assessment for compliance with coastal and river waterbodies objectives?

Flood Risk

A Flood Consequences Assessment would be required to provide overview of the flood risk benefits of the proposed coastal defence improvement scheme. This should also:

- Consider impacts of flood risk elsewhere – wave refraction adversely affecting others?
- Consider the impacts of Climate Change on the performance of the scheme.
- Consider impacts of the project on coastal sediment movements? Could this deplete downstream sections of coastline reliant on sediment supply e.g. coastal sand dune systems protecting communities down shore?
- Consider scheme impacts on land drainage. Outfalls along the coastal frontage could be impacted. Appropriate drainage interception will need to be included in the project.
- Consider impact of realigned defences on Rhyl Pumping Station (SJ0293282492). Could the proposals affect operation of pumps and cause increased reliance on pumping infrastructure? Will the pumping infrastructure be exposed to increased risks because of climate change and because of the re-aligned section of defence at the golf course?
- Consider loss of potential fluvial flood plain storage (Rhyl Cut – Main River). We are in the process of concluding a comprehensive study of Rhyl Cut and Prestatyn Gutter to better

understand fluvial flood risks from these watercourses and the project will need to consider how the coastal works could influence fluvial risk in the communities behind the coastal defences.

- Consider impact of additional “drain-down” culverts on the integrity and performance of the sea wall. Does the introduction of outfalls increase the risk of defence failure and introduce additional residual risks because of operational failures? How will this be managed?
- The Rhyl Golf Course storage area will likely be subject to Reservoir Regulation – this should influence the design, construction, operation and de-commissioning of the scheme.

Temporary Works and Additional Considerations

- Ensure standard of flood protection is maintained throughout construction stages.
- Consider how project could affect Welsh Water’s operations/future projects. In particular we are aware that Welsh Water/Dwr Cymru are looking at options to store surface water in vicinity of the Rhyl Golf Course to reduce pressures on the sewer network. We would strongly recommend early engagement/consultation with Welsh Water / Dwr Cymru.

Coastal Processes

General over-arching Coastal Processes comments:

The difference in footprint compared to what is presently there can have impacts on:

1. Policy position – is the new scheme Advancing the Line?
2. Pinch points, increased erosion or accretion up or down drift
3. Loss of intertidal area
4. Change in hydrodynamics
5. Cutting off sediment to the dune area behind
6. Sediment plumes during construction
7. Disturbing sediment pathways permanently

From an environmental perspective the setting back of defences and smaller footprint schemes are desirable.

Schemes which have less of a footprint such as sheet piling with sediment backfill would be preferred if possible.

1. Central Rhyl:

Option 6 - Concrete stepped revetment

Install a concrete stepped revetment

1. Large scheme and significant loss of intertidal area
2. Could this be considered - Advance the line and a policy change needed
3. Wave recurve a long way from MHWS
4. Changes to hydrogeomorphology
5. What beach level adjustment will occur – 1.8m down to concrete capping
6. Careful consideration will be needed to tie-in adjacent coastline to avoid erosion pinch points
7. Consideration of climate change; foreshore steepening, SLR and increased storminess

Option 9 - Encasement of the existing primary defence with rock scour protection to toe

Concrete facing to existing sea wall to reduce rate of deterioration of wall in combination with rock works to reduce risk of scour.

1. Smaller scheme and loss of intertidal although still needs calculating
2. Less impact to hydrogeomorphology
3. Beach level variation needs understanding
4. Could you use sheet piling instead of rock armour and infill to top up beach levels
5. What is the proposed defence lifetime?

2. Central Prestatyn:

2.1. Options to manage the risk of potential breaches in Section K

Option 5 - New concrete sea wall with rock armour revetment

Install a new concrete sea wall and a rock armour revetment, as a long-term option

1. Large scheme and significant loss of intertidal area
2. Could this be considered - Advance the line and a policy change needed
3. Wave recurve seems a little odd in schematic
4. Cuts off sand transport to dune behind
5. Careful consideration will be needed to tie-in adjacent coastline to avoid erosion pinch points
6. Consideration of climate change; foreshore steepening, SLR and increased storminess

Option 7 - Setback defences

Setback defences within Section K

1. Smaller scheme and no loss of intertidal
2. Less impact to hydrogeomorphology allows coast to adapt to climate change
3. Tie-in to adjacent schemes may need rock armour
4. What is the proposed defence lifetime?
5. Good to see biodegradable matting
6. Could you use appropriate dune flora to seed matting
7. Foreshore strewn with erratic boulders, will these be 'tidied up'?

2.2 Frontage wide options to manage the risk of deterioration and reducing performance of structures

Option 8 - Replace existing aggregate-bitumen toe with rock armour revetment

Breakout existing aggregate-bitumen toe and install rock armour revetment as toe protection

1. Footprint - loss of intertidal needs calculating
2. What will happen to beach arisings – need to dig down to place rock armour
3. Beach level variation – needs understanding
4. Standard of protection, quite shallow (is it more for erosion protection)

Option 20 - Raise and extend promenade with new concrete sea wall with rock armour revetment

Install a new concrete sea wall at the existing sea defence toe location and a rock armour revetment, as a long-term option

1. Large scheme and significant loss of intertidal area
2. Could this be considered - Advance the line and a policy change needed
3. Potential for sediment plumes close to terns and dunes during construction
4. Permanent sediment pathway disturbed eastwards
5. Changes to hydrogeomorphology

6. Scheme tie-in to adjacent coastline
7. Consideration of climate change; foreshore steepening, SLR and increased storminess

Landscape

The scheme lies 1.5 kilometres from the Clwydian Range and Dee Valley Area of Outstanding Natural Beauty (AONB). We will require for a Landscape and Visual Impact Assessment (LVIA) to assess impact on the AONB, and to specifically cover views from Prestatyn Hillside and Offa's Dyke footpath.

Protected Sites

The site lies within close proximity to the following protected sites:

- Dee Estuary SAC/SPA/RAMSAR/SSSI
- Liverpool Bay SPA
- Gronant Dunes and Talacre Warren SSSI

We advise that Regulation 63 of the Conservation of Habitats and Species Regulations 2017 applies to this proposal and a test of likely significant effects on the SACs, SPAs and Ramsar sites listed above will be required. If that assessment concludes there is likely to be a significant effect, we may also advise on the further, appropriate assessment that would be required under the Regulations.

Protected Species

Full ecological surveys will be required on the following – Water voles, bats nearby, Reptile, Amphibian, Invasive Non-Native Species surveys.

Pollution/Waste/Water Quality

A full Construction Environmental Management Plan will be required for the works – this should also limit construction impact on bathing waters. This should include a Site Waste Management Plan – where will any waste be disposed to?

Where will the site depot be? Will there be a Materials handling/storage facility?

Prestatyn Golf Club Abstraction point from Prestatyn Gutter since 1960s. We recommend liaison with the Golf Club to minimise any discolouration/disruption to this supply.

The applicant acknowledges that the content of any advice or assistance provided by NRW is advisory only and that it shall not be deemed to bind or in any other way restrict NRW in performing its statutory functions.

In particular the recipient acknowledges that:

- any advice given, or materials or documentation provided by NRW do not constrain or bind NRW in respect of its statutory functions or its role as a statutory consultee or any decision NRW may make in relation to any application for a licence or permit;

- any advice given by NRW does not bind NRW in respect of any future representations it may make as statutory consultee or any decision NRW may make in relation to any application for a licence or permit;
- any views or opinions expressed by NRW are without prejudice to the consideration NRW may be required to give to any application or any future representations as statutory consultee or any decision NRW may make in relation to any application for a licence or permit;
- the final decision as to any representations made by NRW as statutory consultee will be based on all the relevant information available to NRW at the time it makes such representations;
- NRW cannot and does not give any guarantee as to the representations it may make as statutory consultee; and,
- any advice given by NRW may be overtaken by changes in available information, law, policy and guidance relevant to the subject matter of the advice.

Please note the view expressed in this letter is a response to a pre-planning enquiry only. We trust these comments will prove helpful, but they should not set a precedent for any future Natural Resources Wales' response to any formal application for planning permission or other legal consent. Such applications shall be assessed on the information submitted and regulations of relevance at that time. The details contained in this letter are based on the information available to date.

We advise that in addition to planning permission, it is the applicant's responsibility to ensure that they secure all other permits/consents relevant to their development.

If you have any queries concerning the above, please contact me on the details below.

Yn gywir / Yours' faithfully,



Mr. GARETH THOMAS

Cynghorydd Cynllunio Datblygiad / Development Planning Adviser

Ebost/Email: NorthPlanning@cyfoethnaturiolcymru.gov.uk

Deialu uniongyrchol/Direct dial: (0300) 065 3786 **Siaradwr Cymraeg / Welsh Speaker**



Appendix C Landscape Appraisal and Indicative Landscape Plan

Rhyl Outline Business Case – Landscape Appraisal

April 2019

www.jbaconsulting.com

JBA – Project Manager

Sam Wingfield
Mersey Bank House
Second Floor
Barbould Street
Warrington
WA1 1WA

Revision history

Revision Ref/Date	Amendments	Issued to
12/04/2019	Draft Report	Tim Carter
12/04/2019	Final Report	Sam Wingfield

Purpose

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1 Landscape and Visual Appraisal

1.1 Introduction

This study aims to assess the impacts on landscape and visual resource by the proposed coastal defence scheme intended to manage coastal erosion and tidal flood risk at Rhyl. A site visit was undertaken by a landscape architect on April 16th, 2019.

The site visit was carried out to understand the key components, features and characteristics of the area, and identify the key issues and constraints that the proposed works are likely to have on the landscape and visual amenity of the area.

The sensitivity of a landscape is determined by an area's quality, condition and ability to accommodate change. The assessment considered the changes imposed by the proposed flood defences along the coastal edges, and surrounding area. Where possible, recommendations for mitigation measures to reduce the foreseeable negative impacts of the proposed flood defences and enhancement measures to improve the environment have been provided. An Indicative Landscape Plan (ILP) has been prepared which provides a description of the proposed works, highlights key issues and suggests likely mitigation measures and opportunities in relation to the proposed scheme. The ILP is included in Appendix A Figure 1.

The assessment of landscape and visual effects has been prepared with reference to guidance published by the Landscape Institute and the Institute of Environmental Management and Assessment in 2013.

1.2 Baseline environment

The site covers the area of seafront in Central Rhyl along the promenade, aligned approximately with John Street to the west and Tynwydd Road to the east. The preferred option of the OBC will be designed to protect residential and commercial properties in central Rhyl from wave overtopping and breaching.

The existing defences are comprised of concrete sea wall with concrete promenade, which extend along the coast line adjacent the urban centre of Rhyl. Extensive sandy beaches are present on the seaward side of the defences.

A nominal central point for the site is based on the RNLI lifeboat station located on the main promenade, East Parade, Rhyl, at the national grid reference of 300930, 381936.

The study area includes the beach, current coastal defences and inter-tidal area as well as the main promenade that runs immediately behind this and offers intermittent access / egress points between the beach and the walkway.

1.3 Visual character

The study area is predominantly one of a coastal resort with a range of shops and leisure features typically associated with British seaside locations, some which are open year-round and others that reflect the seasonality of the British holiday season.

During the periods of low tide, the beach area is quite expansive and sweeping, and gently sloping towards the sea. The wide promenade sits several metres above the beach and is a flat area suitable for pedestrians and cyclists to circulate from one end to the other.

Residential properties are separated from the promenade and beach front by the B5118, West Parade / East Parade / Marine Drive. Although some of the residential properties along this route, particularly at the eastern end of the proposed scheme, are within 40m of the promenade, others are as far away as 100m and it is expected that views of the proposed scheme will be limited by distance, localised topography,

as well as traffic movement and the amenity features and buildings that are located along the promenade itself.

1.4 Landscape character: baseline

1.4.1 National Landscape Character Areas (NLCA)

Wales has been divided into 48 National Landscape Character Areas (NLCAs) with descriptive profiles for the individual character areas, highlighting what distinguishes one from another similar landscape character. Each NLCA is accompanied by a character description explaining the influences and features which determine the character of the area.

The site lies within **NLCA 8, North Wales Coast**.

The key characteristics of the area which are considered relevant to the proposals are as follows:

- The mouth of the Vale of Clwyd – a broad flat coastal plain centred on Rhyl, including the small estuary of the River Clwyd, including a network of medium scale pastoral fields of regular pattern, with ditches and, to a lesser extent mixed, managed hedgerow, and occasionally interspersed with small stands of mixed farm woodland.
- A generally man-made coastal edge – promenades, sea walls, groynes, rock armour and other forms of protecting the coastal edge run for most of the length of the coastline.
- Seaside resort towns - urban development and arterial road and railway routes along coast, constricted in places by topography and rising hills. Much 19th century development with more recent suburbia. Some caravan parks and holiday camps between Llanddulas to Prestatyn coalesce settlements.

NLCAs are high-level, strategic assessments which cover a comparatively wide area. They would not normally be assessed in relation to a proposal of this scale and it is considered unlikely that the proposed development will have an influence on landscape character at this level. The study therefore focuses on the local character assessment described below.

1.4.2 Local Landscape Character: LANDMAP

LANDMAP (Landscape Assessment and Decision-Making Process) is a landscape assessment process developed by the Countryside Council for Wales (now Natural Resources Wales) to provide a system to cover the whole of Wales.

The site is included within the following LANDMAP character areas:

Visual and Sensory

Coast West of Prestatyn (Lowland/Coastal/Intertidal - Level 3)

A stretch of coastline with a sea wall and promenade which gives a formal and managed character to the area. Adjacent to the town of Prestatyn and Rhyl, it is a mostly naturally occurring coastal beach with a significant stretch of visually imposing sea wall, necessary for sea defence. There are attractive views looking out at large open expanses of often tempestuous seas. Less attractive views are mainly around the Rhyl seafront promenade, of neglected seafront buildings. The area is large and with a mixture of landcover types. It features an extensive coverage of shingle and sand beach that is a valuable resource with excellent public access, and basic amenities.

Prestatyn/Rhyl (Development/Built Land/Urban – Level 3)

An area of continuous urban coastal development that has resulted in the merging of Prestatyn and Rhyl through coastal fringe tourist accommodation development. Prestatyn and Rhyl are two distinct settlement centres, with Prestatyn maintaining much of its original small coastal town character with a fine display of stone fronted buildings and less developed tourist influenced atmosphere. Rhyl is the focus on the north Wales coastline for budget holiday travel and has undergone rapid over development in the last 30-40 years. Economic decline of the tourist industry has led to deprivation and neglect within the town which is beginning to be counteracted through new economic input and regeneration.

Clwyd Estuary (Water/Coastal Waters/Estuary – Level 3)

Consists of tidal mud banks, sand and remnant grazing marsh. It retains strong coastal features in spite of the proximity to urban development and provides some exceptional views. The tidal estuary gives the area an added value as the appearance changes throughout the day. It is a working coastal environment that is used by recreational vessels as well as working ships. The area includes the Fforyd Harbour and Marina at Rhyl and further downstream it is crossed by the Fforyd Harbour bridge and fronted on both sides with the settlement edges of western Rhyl (Marine Lake) and more densely at Kinmel Bay on the Conwy CBC side of the estuary.

Land Map Character Areas – Historic

Rhyl-Prestatyn (Urban Settlement – Level 4)

Rhyl is a mid-19th century resort which has adapted in the 20th century and which now faces challenges. The area is traditionally associated with Sunday School trips and seaside holidays. Chronological periods which are culturally dominant include; Post 1950, Inter War, Victorian and Edwardian. The area currently faces economic and cultural challenges and is vulnerable to further decline and sudden local social change.

1.4.3 Marine Character Areas

Natural Resources Wales (NRW) has produced a series of assessments that cover the coast line of Wales defined as Marine Character Areas (MCA) with the site falling within MCA 02, Colwyn Bay & Rhyl Flats.

The MCA also follows the River Clywd some way in land as part of its defined boundary.

The Key characteristics of note are:

- Low-lying coastline backed by coastal levels associated with the broad mouth of the Vale of Clwyd to the eastern half of the area.
- Long sandy beaches and shingle storm beaches. All the soft coastline is protected by various coastal defences including groynes, rock armour, beach recharging, walls and traditional promenades.
- Shallow waters (<20m) with gently shelving beaches and extensive network of offshore sandbank and flats.
- Developed coastline with many seaside resort towns, notably Llandudno (and pier), Colwyn Bay (and pier), Rhyl and Prestatyn, the latter having many caravan and chalet parks on their fringe. The coast serves as a traditional holiday destination.
- Wales Coast Path and a popular cycleway run the length of the coastline. Collectively, the A55, A548 and main Holyhead to Chester railway line follow close to the coastline.
- Both Colwyn Bay and Rhyl are popular shore and boat angling areas. Rhyl includes the main harbour along this stretch of coast.

The seasonal nature of the area is captured in the Aesthetic and perceptual qualities section which notes:

The area's long-standing popularity as a holiday destination results in a busy seascape with activities along the coast and out to sea creating much movement and colour. The coastline is brought to life particularly in the summer months, whilst the scene can be dramatically different in mid-winter, with facilities closed down and beaches relatively empty with natural influences, notably bracing winds, replacing human activity.

The 25 offshore turbines (134 metres to blade tip) which make up the Rhyl Flats Wind Farm often dominate offshore views. The presence of the turbines reduces the overall sense of tranquillity and remoteness but does not affect the feeling of exposure associated with the vast open sandy beaches.

1.4.4 Area of Outstanding Natural Beauty (AONB)

The Clwydian Range and Dee Valley AONB is located approximately 5km south-east of the development site. Given the distance from the site and the built-up area surrounding most of the site, is not considered to have an effect on this landscape designation and is therefore not considered further.

1.5 Preferred option

A range of options have been assessed with two selected and designed to concept design level.

A combination of Rock armour scour protection and concrete repairs and Stepped revetment have been chosen with the former proposed for Sections A-D and the latter at Sections D-H.

This is shown in Appendix A.

Further details regarding the shortlist options within the Design Technical Note, CR-JBA-01-00-TN-C-0002-S3-P01-All_Options_Design.

2 Potential Effects

Potential effects are expected to arise from the permanent change to the appearance of the sea defences and loss of beach area through the construction of a larger stepped concrete revetment, over the existing revetment, which will also result in raising the current level of the promenade to accommodate this larger structure. This will occur in sections D-H.

With regards to sections A-D, the use of partially buried rock armour at the toe of the existing defences, as well as concrete repairs, is the proposed solution along this section of the promenade.

Consideration will need to be given as to how the elevated promenade will tie back in to existing levels to minimize sudden or prolonged elevation changes that present difficulty for pedestrians and users of non-motorised wheeled access.

The western extent of the works, where the new stepped revetment is proposed, is well screened from the road and residential properties through landform and the existing leisure and amenity features and buildings that sit immediately behind the promenade. There is also expected to be no impact on pedestrians and vehicles moving along the B5118.

To the eastern extent of the works, beyond the Pavillion Theatre, there are no leisure or amenity buildings to screen the view. This area has large areas of amenity grass and there is the possibility that residential properties along East Parade may have views from first floor windows (and above). However due to the proposed nature of the solution, it is expected that it will still not be visible even from these elevated

viewpoints. There is also expected to be no impact on pedestrians and vehicles moving along East Parade.

Users of the promenade and the beach (at low tide) will observe the greater change, along the whole extent, as in addition to the new structures there will also be the loss of beach to accommodate the structures.

Sensitivity may vary depending upon the tide level and may be easier to accommodate when the tide is fully out as the proposed defences are seen within the context of a large, wide sandy beach with intermittent existing groins. During periods of high tide, the temporary obscuring of the whole beach may focus attention onto the structures themselves and possible increase sensitivity.

2.1 Construction Phase

The nature and scale of works may result in restricted access along the promenade and along certain sections of the sea wall, which will work its way along the entire reach as the work progresses.

The location of the site compound, and possible haulage access routes, have yet to be confirmed. It is reasonable to assume that this will have localised impact for residents living directly opposite and there will be regular movement of vehicles and operatives to / from the compound during the construction period as well as possible stock piling of materials

There will also be a medium to short-term impact for users of the promenade which also forms part of the Wales Coast Path and National Cycle Network Route 5, which may result in temporary diversions or closures. There may also be similar measures in place along the B5118.

2.2 Operational Phase

Post completion of the works, the majority of the changes will be limited to the length of the existing sea wall, with either an increase in size of the existing stepped revetment or the introduction of large boulders at the toe of the existing stepped revetment; this will depend upon the area in which the works have taken place, as defined in section 1.5.

In addition to this the promenade may be raised from its current level where the increased stepped revetment has been introduced by a difference of approximately 1m.

This change in elevation of the promenade may make movement along it more visible.

2.3 Mitigation measures

There is limited scope for more conventional landscape mitigation through the use of vegetation to screen the view as this would be more incongruous than the development itself, particularly as the more open views across the bay form a large part of the appeal of Rhyl's seafront.

During construction, the movement of plant and materials will require a robust temporary traffic management system to minimise inconvenience on the local traffic network.

The retention and improvement of the existing public access points down the proposed concrete revetment will ensure that safer, defined access and egress is clearly denoted.

The use of rock armour along those sections where it is installed, may also create opportunities for rock pooling during low tide and eventually blend into its marine surrounding by weathering in.

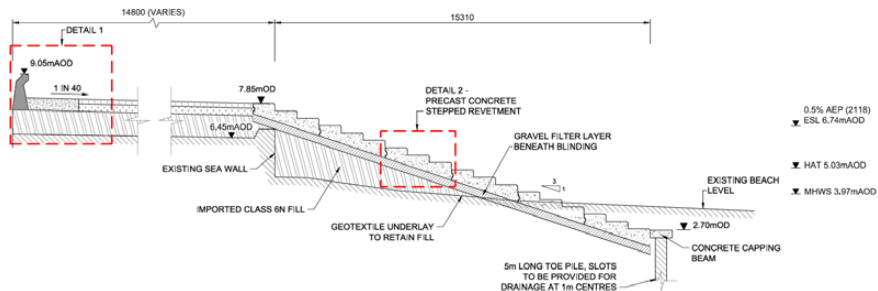
Appendix A

Figure 1 – Indicative Landscape Plan

1



Existing stepped revetment not currently providing adequate flood protection.



Proposed stepped revetment to be constructed over existing defences.

Construction of revetment likely to result in the loss of intertidal habitat

Opportunity to mitigate loss of intertidal habitat through habitat creation

Opportunity to improve parts of the Wales Coast Path through the integration of the route within the proposed structure

Potential to lose accessibility to the beach through loss of stepped access points

Opportunity to provide new stepped beach access points to a higher design standard

Construction of rock armour revetment likely to result in the loss of intertidal habitat

Opportunity to mitigate loss of intertidal habitat through habitat creation

Opportunity to provide additional beach access points in stretches where these are not currently present

Opportunity to improve access permeability to key attractions and public spaces along waterfront

1



Promenade in Rhyl forms part of the Wales Coast Path and National Cycle Route 5.

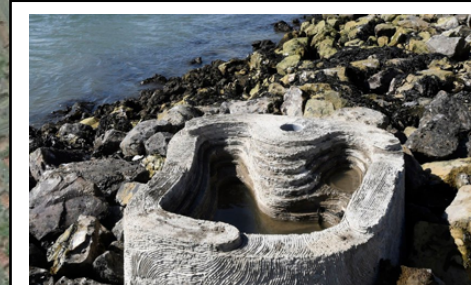


Potential opportunity to add new benches along the Wales Coast Path, providing places to rest and enjoy views along the route.



Potential opportunity to add new interpretation boards along the Wales Coast Path, providing information about the area.

2



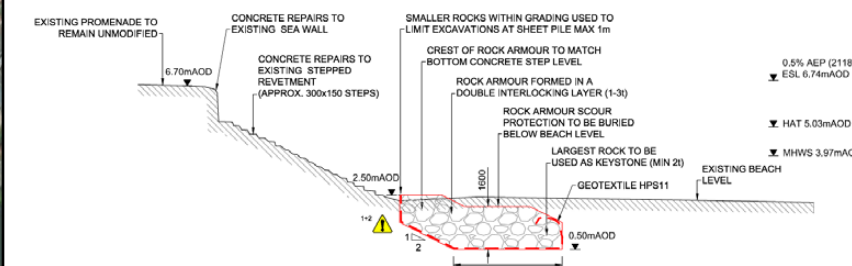
Opportunity to create habitats for rocky shore species by integrating prefabricated bio-blocks within rock armour defences, and textured concrete to stepped revetment



2



Existing stepped revetment not currently providing adequate flood protection.



Proposed rock armour revetment to be constructed along toe of existing revetment.

Key

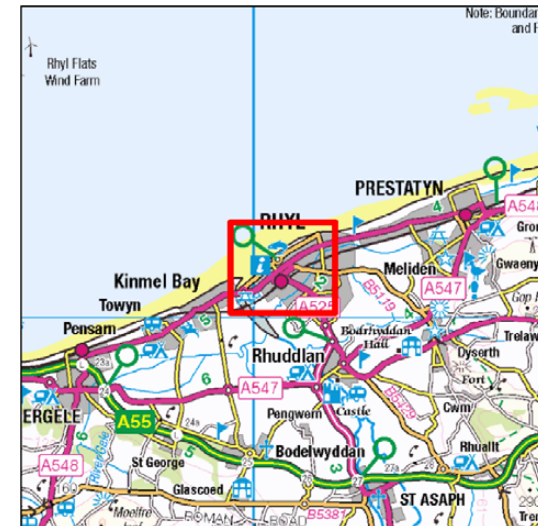
- Wales Coast Path / NCR 5
- ↔ Beach access point
- Open stepped access
- Public open space
- New visitor accommodation and facilities
- Extent of proposed defence scheme

Key Issues

Scheme Proposals

Potential Opportunities

Location Plan



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JBA
consulting

Kings Chambers
7-8 High Street
Newport
South Wales
NP20 1FQ
www.jbaconsulting.com
(01633) 413 514

Denbighshire County Council

Central Rhyl OBC
Indicative Landscape Plan

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2018s1313 - Central Rhyl OBC - ILP
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Warrington

Registered Office

South Barn
Broughton Hall
SKIPTON
North Yorkshire
BD23 3AE
United Kingdom

+44(0)1756 799919
info@jbaconsulting.com
www.jbaconsulting.com
Follow us:  

Jeremy Benn Associates Limited

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Appendix D Preliminary Ecological Appraisal

Central Rhyl OBC

Preliminary Ecological Appraisal Report

Final Report

23rd November 2018

www.jbaconsulting.com

Balfour Beatty

5000 Lakeside
Cheadle Royal Business Park
CHEADLE HULME
Cheshire
SK8 3AX

Balfour Beatty

JBA - Project Manager

Samuel Wingfield
JBA Consulting
Mersey Bank House
Second Floor
Barbould Street
Warrington
WA1 1WA

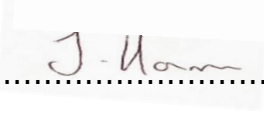
Revision history

Revision Ref/Date	Amendments	Issued to
V1.0 27/11/2018	Draft Report	Graham Manners

Contract

This report describes work commissioned by Graham Manners, on behalf of Balfour Beatty. Jonathan Harrison of JBA Consulting carried out this work.

Prepared by  Adam Jones BSc, MSc, Grad CIEEM
Assistant Ecologist

.....  Jonathan Harrison BSc Msc
Senior Ecologist

Reviewed by  Tim Carter BSc (Hons), MSc, CMLI, MIEMA, CEnv
Technical Director

Purpose

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Abbreviations

BAP	Biodiversity Action Plan
BCT	The Bat Conservation Trust
CIEEM	Chartered Institute of Ecology and Environmental Management
EPS	European Protected Species
HRA	Habitat Regulations Assessment
JNCC	Joint Nature Conservation Committee
LNR	Local Nature Reserve
MAGIC	Multi-Agency Geographic Information for the Countryside
NERC	Natural Environment and Rural Communities
NNR	National Nature Reserve
PEA	Preliminary Ecological Appraisal
PPW	Planning Policy Wales
SAC	Special Area of Conservation
SINC	Sites of Importance for Nature Conservation
SPA	Special Protection Area
SPI	Species of Principle Importance
SSSI	Site of Special Scientific Interest
TAN	Technical Advice Notes
UKBAP	United Kingdom Biodiversity Action Plan
WCA	Wildlife and Countryside Act

1 Introduction

1.1 Overview

JBA Consulting were commissioned by Balfour Beatty to undertake a Preliminary Ecological Appraisal (PEA) of the site at Central Rhyl, North Wales (see Figure 1-1). The PEA is to inform the Outline Business Case (OBC) for coastal flood defence works at Central Rhyl.

This report provides an ecological baseline of the scheme area and highlights likely constraints prior to the development of a preferred option for the works. The report will make recommendations for any further ecological surveys if required, and present mitigation measures where appropriate.

The approach to this appraisal follows best practice guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM) including Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017a) and Guidelines for Ecological Report Writing (CIEEM, 2017b).

1.2 Site location and description

The site is located on the sea front at Rhyl, North Wales (see Figure 1-1). There are some existing coastal flood defences within the site, these include a sea wall, some areas of rock armour and groynes. The shoreline management plan (SMP) policy for this section of coastline is to 'hold the line', therefore further coastal flood defence works are required to maintain and improve the existing defences.



Figure 1-1: Site Location

1.3 Proposed works

The design and extent of the proposed coastal flood defence works at Central Rhyl are currently unknown but may include installation of rock armour and groynes. This PEA report will be used to inform the OBC and the final designs for the works.

2 Legislation and Policy

2.1 Legislation

2.1.1 Conservation of Habitats and Species Regulations 2017

The Conservation of Habitats and Species Regulations 2017 (Her Majesty's Stationery office (HMSO), 2017) are the means by which the EC Habitats Directive (92/43/EC) is transposed in England and Wales and update and consolidate previous legislation. These Regulations provide protection for European Protected Species (animals and plants listed in Annex IV of the Habitats Directive which are resident in the wild in Great Britain). The Regulations place duties on public bodies to help "preserve, maintain and re-establish habitat for wild birds". The designation and protection of European Sites including Special Protection Areas (SPA) and Special Areas of Conservation (SAC) also falls within these Regulations.

2.1.2 Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act (WCA) 1981 (as amended) (HMSO, 1981) is the primary legislation for England and Wales for the protection of flora, fauna and the countryside. Part 1 of the Act deals with the protection of wildlife. Most European Protected Species are now covered under the Conservation of Habitats and Species Regulations 2017 (see above), but some activities are still covered by the WCA such as obstructing access to a bat roost.

All British birds, their nests and eggs are protected in law. It is an offence to deliberately take, kill or injure any wild bird or to take, damage, or destroy any nest or egg of any wild bird under Section 1 of the Act. In addition, certain species such as the Barn Owl *Tyto alba* are included in Schedule 1 of the Act and are protected against disturbance while nesting and when they have dependent young. Offences against birds listed on Schedule 1 are subject to special penalties.

The WCA also provides the mechanism for the designation and protection of Sites of Special Scientific Interest (SSSIs).

Section 14(1) of the WCA makes it illegal to plant or otherwise cause to grow in the wild any plant listed in Schedule 9 of the Act, including; Himalayan Balsam *Impatiens glandulifera*, Montbretia *Crocasmia x crocosmiiflora*, Rhododendron *Rhododendron ponticum* and Three-cornered Garlic *Allium triquetrum*.

2.1.3 Environment (Wales) Act 2016

The Environment (Wales) Act 2016 delivers a programme for the Welsh Government's commitment to introduce new legislation for the environment. Part 1 of the Act, regarding sustainable management of natural resources, includes provisions for Biodiversity and Resilience of Ecosystems Duty. This duty replaces and enhances the Natural Environment and Rural Communities (NERC) Act 2006, by requiring all public authorities to not only "*maintain and enhance biodiversity*" when carrying out their functions in Wales but also to "*promote the resilience of ecosystems*". This links biodiversity with the long-term health and functioning of Welsh ecosystems, aligning the biodiversity duty with the framework for sustainable natural resource management, also provided within the Environment Wales Act.

The Act also provides a list of the living organisms and types of habitat which are of principal importance for the purpose of maintaining and enhancing biodiversity in Wales (Section 7). This list replaces the habitats and species of principal importance from Section 42 of the NERC Act 2006 and includes those previously listed under UK Biodiversity Action Plans (BAP).

2.2 Policy

2.2.1 Draft Planning Policy Wales (Edition 10, February 2018)

Planning Policy Wales (PPW) is the national land-use planning policy document for Wales. PPW sets out the land use policies of the Welsh Government and provides context for land use planning in Wales. Revisions to PPW are currently under consultation. The draft of PPW Edition 10 has been reviewed during the production of this report to ensure that any changes to PPW likely to take place in the coming months are considered and this report remains current.

PPW sets out the land use planning policies of the Welsh Government and provides the context for land use planning in Wales. It is supplemented by a series of Technical Advice Notes (TAN) and policy clarification letters.

The Natural and Distinctive Places policy theme covers: landscape, historic environment, biodiversity and habitats, coastal characteristics, air quality, soundscape, water services, flooding and other environmental risks.

Section 5.13 states that "Development plan strategies, policies and development proposals should be formulated to look to the long-term protection and enhancement of the special characteristics and intrinsic qualities of places, be these of natural, historic or built environments, ensuring their longevity in the face of change. This means both protecting and enhancing landscapes, habitats, biodiversity and the historic environment in their own right as well as other components of the natural world, such as water resources or air quality. Problems should be prevented from occurring or getting worse. Biodiversity loss should be reversed, pollution reduced, environmental risks addressed, and overall resilience of ecosystems improved. When appropriate development is proposed, it must be taken forward in an integrated way to ensure common issues are considered and accommodated early on and multiple benefits secured, such as safeguarding or securing green infrastructure."

Section 5.19 states that "Sites designated for their landscape or nature conservation importance are fully considered and their special characteristics and features protected and enhanced, whilst the network of sites should be recognised as being at the heart of improving the resilience of ecosystems."

Section 5.42 highlights the role the planning system performs in reversing the decline in biodiversity and increasing the resilience of ecosystems by ensuring appropriate mechanisms are in place to protect against loss and secure enhancement. Development proposals must take into account the need to:

- "Promote the conservation of biodiversity, in particular the conservation of wildlife and habitats;
- Ensure action in Wales contributes to meeting international responsibilities and obligations for biodiversity and habitats;
- Ensure statutorily designated sites are properly protected and managed;
- Safeguard protected species and existing biodiversity assets from impacts which directly affect their nature conservation interests and compromise the resilience of ecological networks and the components which underpin them, such as water and soil; and
- Seek enhancement of and improvements to ecosystem resilience by improving diversity, condition, extent and connectivity of ecological networks."

Section 5.57 details the protection for non-statutory designated sites and acknowledges that although the designation carries less weight than statutory designated sites, they make a significant contribution to delivering an ecological network for biodiversity and resilient ecosystems and should be given adequate protection in policy and decision making.

Planning authorities should follow a step-wise approach to protecting and enhancing biodiversity and building resilient ecological networks by ensuring that any adverse environmental effects are minimised and mitigated. Firstly, by retaining biodiversity and green-infrastructure features wherever possible. Secondly, where significant effects are predicted, alternative sites that would result in less or no harm have been considered. Thirdly, attaching planning conditions, obligations or advisory notes to a permission to secure beneficial biodiversity outcomes. And when all options have been exhausted and are insufficient to secure beneficial environmental outcomes, offsite compensation for unavoidable damage should be sought. Finally, where the adverse effect on the environment clearly outweighs other material considerations, the development should be refused.

2.2.2 Technical Advice Note (TAN) 5- Nature Conservation and Planning (2009)

TAN 5 outlines a number of key principles of positive planning for nature conservation. When deciding planning applications, local authorities should:

- *"Pay particular attention to the principles of sustainable development, including respect for environmental limits, applying the precautionary principle, using scientific knowledge to aid decision making and taking account of the full range of costs and benefits in a long-term perspective.*
- *Contribute to the protection and improvement of the environment, so as to improve the quality of life and protect local and global ecosystems, seeking to avoid irreversible harmful effects on the natural environment.*
- *Protect wildlife and natural features in the wider environment, with appropriate weight attached to priority habitats and species in Biodiversity Action Plans.*
- *Ensure that all material considerations are taken into account and decisions are informed by adequate information about the potential effects of development on nature conservation.*
- *Ensure that the range and population of protected species is sustained.*
- *Adopt a step-wise approach to avoid harm to nature conservation, minimise unavoidable harm by mitigation measures, offset residual harm by compensation measures and look for new opportunities to enhance nature conservation; where there may be significant harmful effects local planning authorities will need to be satisfied that any reasonable alternative sites that would result in less or no harm have been fully considered."*

In relation to protected species, TAN 5 states that *"The presence of a protected species is a material consideration when a local authority is considering a development proposal that, if carried out, would be likely to result in disturbance or harm to the species or its habitat. It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material consideration may not have been addressed in making the decision. It is considered best practice that such a survey is carried out before planning application is submitted. Planning permission should not be granted subject to a condition that protected species surveys are carried out and, in the event protected species are found to be present, mitigation measures are submitted for approval"*.

In relation to designated sites, TAN 5 also states: *"The conservation and enhancement of locally designated sites is an important contribution to the implementation of Biodiversity Action Plans and to the management of features of the landscape of major importance for wild flora and fauna. Developers should avoid harm to those interests where possible. Where harm is unavoidable it should be minimised by*

mitigation measures and offset as far as possible by compensation measures designed to ensure there is no reduction in the overall nature conservation value of the area or feature. Where locally designated sites may be affected, developers should consult the local planning authority and Wildlife Trust and / or Local Record Centre to agree the information that will be required to assess the implications of the development and mitigation and compensatory measures".

2.2.3 Welsh National Marine Plan

Consultation on the draft Welsh National Marine Plan (WNMP) produced by Welsh Government closed on 29th March 2018. The WNMP is directly informed by High Level Marine Objectives set out in the Marine Policy Statement (2011). These objectives align with Welsh Government's well-being goals and principles for sustainable development and also the direction provided in the EU Directive on Marine Spatial Planning 89/2014. The plan objectives, related to supporting policy objectives (i.e. in the Marine Policy Statement), of particular relevance to this report include:

- Plan Objective 8: Support the achievement and maintenance of Good Environmental Status (GES).
- Plan Objective 9: Protect, conserve, restore and enhance marine biodiversity to halt and reverse its decline.
- Plan Objective 10: Maintain and enhance the resilience of marine ecosystems and the benefits they provide in order to meet the needs of present and future generations.

2.2.4 Shoreline Management Plan

The North West England and North Wales Shoreline Management Plan (SMP) covers the North Wales Coast. The site lies in Sub-Cell 11a, between Great Orme's Head and Formby Point. The policy for the section of coast covering East Rhyl, between Clwyd Estuary to Rhyl Gold Links (11a.4.1) is "*Hold the Line*" over the next three epochs (0-20 years, 20-50 years, 50-100 years). The policy states that maintaining and improving/raising the existing defences is required. This is justified in the SMP due to the commercial, residential and amenity assets, infrastructure, cycle routes and footpaths that are vulnerable to flooding.

2.2.5 Denbighshire Local Development Plan (LDP)

The adopted Denbighshire Local Development Plan (LDP) sets out the proposals and policies for future development and use of land in Denbighshire. It sets out that by 2021 "*across the County the high-quality environment will continue to have been protected and enhanced through directing development towards existing centres. The environment, including nature conservation interests will have been enhanced through management agreements linked to development sites.*"

The Local Development Plan identifies a range of issues affecting the county, of which the following is relevant:

- There is a high quality built and natural environment in Denbighshire which should be protected and enhanced.

The objectives for 2021 include:

- Areas of Protection - the Local Development Plan will seek to protect and enhance the natural and built heritage of the County including aspects such as landscape, biodiversity, geo-diversity, designated sites and buildings and protected species.

3 Methodology

3.1 Desk study

A desk study was undertaken in November 2018 to review existing ecological information available in the public domain and to obtain ecological records held by third parties. For the purposes of the desk study, the study area was defined to include the site and a 5km radius around the site.

Information was requested from North Wales Environmental Information Service (Cofnod) for records of non-statutory designated nature conservation sites, legally protected species and species of conservation concern. Historic records (those preceding 2000) and records of species whose habitat are considered not to be relevant to the site have been excluded. The full data search results can be provided upon request.

In addition, the MAGIC database (a government website that provides authoritative geographic information about the natural environment) was searched for statutory designated sites within 2km of the site including SSSI, National Nature Reserves (NNR) and Local Nature Reserves (LNR). This was extended to 5km for European designated Natura 2000 sites (SACs and SPAs) and internationally designated Ramsar sites.

3.2 Extended Phase 1 habitat survey

The PEA was based upon an extended Phase 1 habitat survey, conducted following the Joint Nature Conservation Committee (JNCC) survey methodology (JNCC, 2010) extended to include consideration of notable / protected habitats and species such as Badgers, Dormice, reptiles, Great Crested Newts and invertebrates (CIEEM, 2013). The Phase 1 habitat survey is a standard technique for classifying and mapping British habitats where the dominant plant species are recorded, and habitats are classified according to their vegetation types. All habitats within the site were recorded during the field survey and a description of each habitat type collected. A Phase 1 habitat map is shown in Appendix A. Features of note were target noted (Appendix **Error! Reference source not found.**) and photographs of the site are shown in Appendix B. Habitats were assessed for their potential to support any legally protected species or species of conservation concern and any incidental faunal sightings, or field signs discovered during the survey, were recorded.

3.3 Marine Biotope Survey

As part of the walkover survey intertidal habitats were surveyed and classified based upon Procedural Guidelines outlined in the Marine Monitoring Handbook.

All biotopes were recorded and classified according to Connor D.W et al., 2004 and the JNCC Marine Habitat Classification.

3.4 Preliminary bat roost potential

A bat roost inspection is required where development proposals may affect trees or structures where bats and their roosts could be directly impacted if present. These surveys may also be required where bats roosting could be indirectly impacted by development activities such as lighting.

The trees and structures within the site were inspected for their bat roost potential in line with good practice guidelines (Collins, 2016). Trees were inspected from the ground with the aid of binoculars for features of potential value to bats such as holes, cracks / splits, loose bark, hollows / cavities, dense epicormic growth and Ivy *Hedera spp.* (bats may roost within it) and bird and bat boxes. Signs indicating possible use by bats were also recorded and can include scratches, staining, smoothing of surfaces around entry points, bat droppings, distinctive smell of bats and audible squeaking in warm weather.

3.5 Dates of survey and personnel

The survey was carried out on 13th November 2018 by JBA ecologist Jonathan Harrison.

3.6 Limitations

The assessments, conclusions and recommendations in this report are based on the results of the survey, the limitations described below and the available data. The conclusions and recommendations presented within this report are based on the most recent designs and current ecological features present. If any change in management occurs, or if there is a significant delay before proceeding with the works, this could result in the identified ecological features changing naturally over time. Furthermore, the final designs for the works may alter the recommendations and proposed mitigation / enhancement measures.

3.6.1 Data limitations

Data from biological records centres or online databases is historical information, and datasets might be incomplete, inaccurate or missing. It is important to note that even where data is held, a lack of records for a defined geographical area does not necessarily mean that the species is absent; the area may simply be under-recorded.

4 Baseline Ecological Conditions

4.1 Designated Sites

The location of statutorily designated sites located within 5km of the study area shown in Figure 4-1.

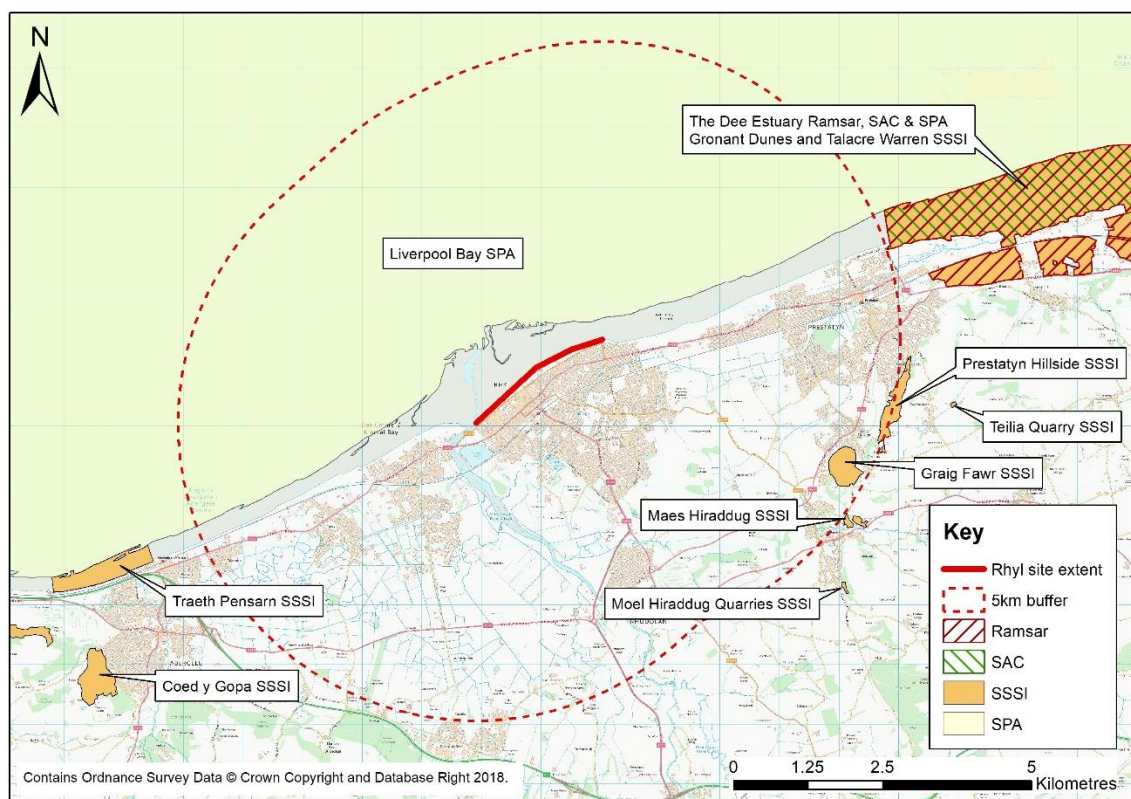


Figure 4-1: Statutory designated sites within 5km

4.1.1 Liverpool Bay Special Protection Area

Qualifying Interests

Liverpool Bay SPA is located in the south-eastern region of the northern part of the Irish Sea, bordering northern England and north Wales, and running as a broad arc from Morecambe Bay to the east coast of Anglesey (Natural England 2010). A recent extension to the site has provided protection to foraging Common Tern and Little Tern. The extension is located approximately 5km east of the proposed scheme. Following consultation, the extension to the SPA was formally classified on 31 October 2017. The site qualifies for populations of the following species:

- Red-throated Diver *Gavia stellata* (over winter)
- Little Gull *Hydrocoloeus minutus* (over winter)
- Little Tern *Sternula albifrons* (breeding)
- Common Tern *Sterna hirundo* (breeding)
- Common Scoter *Melanitta nigra* (migratory)
- Waterfowl assemblage (over winter)

Conservation Objectives

The conservation objectives for the site are listed as ensuring that the integrity of the site is maintained or restored as appropriate, and ensuring that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of qualifying species
- The structure and function (including typical species) of qualifying natural habitats
- The structure and function of the habitats of qualifying species
- The supporting processes on which qualifying natural habitats and habitats of qualifying species rely
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

Vulnerabilities

The key issues for the SPA are identified by Natural England and the Countryside Council for Wales (2012) as:

- Physical habitat loss
- Physical habitat damage
- Non-physical disturbance
- Toxic contamination
- Non-toxic contamination
- Biological disturbance
- Human-induced mortality

4.1.2 Dee Estuary Special Area of Conservation

The Dee Estuary Special Area of Conservation (SAC) (UK0030131) is representative of tidal rivers and intertidal habitats and covers c. 15,800ha (JNCC 2015). It is located approximately 5km east of the proposed project area. The following Annex 1 habitats are the primary reason for the selection of the site:

- 1140: Mudflats and sandflats not covered by seawater at low tide
- 1310: *Salicornia* and other annuals colonizing mud and sand
- 1330: Atlantic Salt Meadows (*Glauco-Puccinellietalia maritimae*)

In addition, the site also supports the following Annex 1 habitats:

- 1130 Estuaries
- 1210 Annual vegetation of drift lines
- 1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts
- 2110 Embryonic shifting dunes
- 2120 "Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")"
- 2130 "Fixed coastal dunes with herbaceous vegetation ("grey dunes")"
- 2190 Humid dune slacks

The following Annex II species are also present as a qualify feature:

- 1095 Sea Lamprey *Petromyzon marinus*
- 1099 River Lamprey *Lampetra fluviatilis*
- 1395 Petalwort *Petalophyllum ralfsii*

Conservation Objectives

The conservation objectives for the site are to maintain (or restore if in unfavourable condition) the following features in favourable condition:

- Estuaries

- Mudflats and sandflats
- *Salicornia* and other annuals colonising mud and sand
- Atlantic salt meadow
- Annual vegetation of drift lines
- River Lamprey, *Lampetra fluviatilis*
- Sea Lamprey, *Petromyzon marinus*

Vulnerabilities

Threats to the estuary's conservation come from its industrialised shorelines on the Welsh side and the impact of adjacent historic industrial use. These include land contamination from chemical and steel manufacture and localised water quality problems. Remediation works are being undertaken.

Contemporary issues relate to dock development and navigational dredging, coastal defence works and their impact on coastal process, regulation of shellfisheries, and the recreational use of sand dunes and saltmarshes.

4.1.3 Dee Estuary Special Protection Area

The Dee Estuary is designated as a SPA for European waterbirds, providing feeding and roosting sites for ducks and waders in winter, and supports Common Tern and Little Tern during the breeding season. The site qualifies for populations of the following species:

- Common Tern *Sterna hirundo* (breeding)
- Little Tern *Sterna albifrons* (breeding)
- Sandwich Tern *Sterna sandvicensis* (passage)
- Bar-tailed Godwit *Limosa lapponica* (over winter)
- Redshank *Tringa totanus* (passage)
- Black-tailed Godwit *Limosa limosa islandica* (over winter)
- Curlew *Numenius arquata* (over winter)
- Dunlin *Calidris alpina alpina* (over winter)
- Grey Plover *Pluvialis squatarola* (over winter)
- Knot *Calidris canutus* (over winter)
- Oystercatcher *Haematopus ostralegus* (over winter)
- Pintail *Anas acuta* (over winter)
- Redshank *Tringa totanus* (over winter)
- Shelduck *Tadorna tadorna* (over winter)
- Teal *Anas crecca* (over winter)
- Waterbird assemblage

Conservation Objectives

The conservation objectives for the site are listed as ensuring that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of qualifying species
- The structure and function (including typical species) of qualifying natural habitats
- The structure and function of the habitats of qualifying species

- The supporting processes on which qualifying natural habitats and habitats of qualifying species rely
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

Vulnerabilities

The following key vulnerabilities are identified:

- Physical loss (removal and smothering) of nesting, feeding and roosting habitats by removal may be caused directly by infrastructure construction and modification, coastal protection works, and land claim. Also the interruption of sediment transport from coastal defences and dredging of the main channel.
- Physical damage (siltation, abrasion and extraction)
- Non-physical disturbance (noise and visual) from industry, transport (aircraft, marine and rail) and recreational activities. Noise disturbance from boat traffic, leisure craft (and to a lesser degree fishing boats), cockle fishery, dog walking, fishing, motorcycle scrambling, water sports and the flying of model aircraft.
- Toxic contamination (introduction of synthetic compounds and non-synthetic compounds)
- Non-toxic contamination (changes in nutrient loading, organic loading and turbidity) can enter the estuarine environment in large quantities from sewage outfalls and industrial discharges, riverine inputs, agricultural run-off and from dredging works and disposal of dredged materials within the estuary.
- Biological disturbance (introduction of non-native species and translocation and selective extraction of species)

4.1.4 Dee Estuary Ramsar site

The Dee Estuary is also designated as a Ramsar site by meeting Ramsar criteria 1, 2, 5 and 6 as follows:

- Extensive intertidal mud and sand flats (20 km by 9 km) with large expanses of saltmarsh towards the head of the estuary (Criterion 1);
- The presence of the re-introduced Natterjack Toad *Epidalea calamita* (Criterion 2);
- Supporting an overall bird assemblage of international importance (Criterion 5); and
- Supporting the following species at levels of international importance: Shelduck, Oystercatcher, Curlew, Redshank, Teal, Pintail, Grey Plover, Red Knot, Dunlin, Bar-tailed Godwit, Black-tailed Godwit and Turnstone (Criterion 6)

Conservation Objectives

The conservation objectives are the combination of the Dee Estuary SAC and SPA objectives.

Vulnerabilities

The key vulnerabilities are those presented for both the SAC and SPA.

4.1.5 Special Sites of Scientific Interest (SSSI)

The Gronant Dunes and Talacre Warren SSSI is located approximately 5km to the east of the proposed scheme. The site supports a range of habitats associated with coastal dune systems including vegetated shingle, fixed and shifting dunes, saltmarshes and a number of protected species including the largest breeding colony of Little Tern *Sterna albibrons* in Wales, a population of Natterjack Toad *Bufo calamita*, and Sand Lizard *Lacerta agilis*.

Several other SSSIs are located within the 5km buffer zone surrounding the study site including Prestatyn Hillside SSSI, which is a limestone grassland and pavement and Graig Fawr SSSI which is a limestone hill with associated grasslands and heathlands. These sites are all separated from the proposed development by a large area of urban development.

There are also two other LNRs located to the south-west and west of the site; Kinmel Dunes LNR and Brickfields Pond LNR.

4.1.6 Non-statutory designated sites

Within 2km of the site there are two Local Nature Reserves (LNRs) and seven Wildlife Sites (see Table 4-1). There is also one Regionally Important Geodiversity Site (RIGS) within 2km of the proposed works, this is Splash Point RIGS. As it is not relevant to the scope of this report it will not be considered further. Data were provided by Cofnod.

Table 4-1: Non-statutory designated sites within 2km

Name	Designation	Description	Proximity to Site
Clwyd Estuary and Adjacent fields	Wildlife Site	The estuary itself supports 7 species of wildfowl and 8 species of wader which occur at levels of at least 0.1% of the national population. There is approximately 50ha of saltmarsh which forms an integral part of the estuary in providing nutrients and supports distinctive saltmarsh flora.	Within and adjacent to SW of site
Foryd Dunes (Horton's Nose)	Wildlife Site	Dune grassland	270m SW
Foryd coastal strip	Wildlife Site	Deep intertidal mud	380m SW
Foryd Junction Grassland	Wildlife Site	Neutral grassland	750m SW
Afon Clwyd Saltmarsh	Wildlife Site	Saltmarsh habitat	850m S
Kinmel Dunes	LNR	Small sand dune system home to a variety of native maritime plants such as Sea Holly, Bird's Foot Trefoil, Common Restharrow and Lucerne.	900m SW
Kinmel Bay Dunes	Wildlife Site	Dune grassland	900m SW
Brickfields Pond	LNR	Supports significant numbers of Pochard	1.2km SE
Y Ffrith, Prestatyn	Wildlife Site	This site comprises sand dune and herb rich grassland. The main species is Marram and there are other unusual seaside plants including Sea Holly, Sea Beet, Sea-buckthorn, Bristly Ox-tongue, Spiny Restharrow, Wild Parsnip and Lyme-grass. The sparsely vegetated areas support a large colony of the uncommon, Grayling butterfly.	1.5km NE

4.2 Phase 1 Habitat Survey

4.2.1 Intertidal Sand

The majority of the surveyed area consists of clean, medium to fine sand, with no coarse sand, gravel or mud present.

On fine sand shores such as that at Rhyl there is the potential for seasonal changes, with sediment accretion during calm periods and beach erosion during more stormy winter months. There may be a change in sediment particle size structure, with finer sediment grains washed out during winter months, leaving behind coarser sediments.

Fine sand shores can support a range of species including amphipods and polychaetes, and bivalves may also be present in varying numbers on the lower shore and where sediments are stable.

A benthic invertebrate survey carried out immediately adjacent to splash point on 20th June 2018 by JBA Consulting identified low numbers of polychaete worms and amphipods. The foreshore in the area of the works is highly mobile and as a result supports few macrofaunal species with large areas consistent with the biotope **LS.LSa.MoS - Barren or amphipod-dominated mobile sand shores**. In a few more sheltered areas of the beach the biotope **LS.LSa.FiSa - Polychaete/amphipod-dominated fine sand shores** is present, however, the number of individuals recorded was low.

At the top of the shore a strandline with a community of talitrid amphipods has developed where decaying seaweed accumulates. The strandline is relatively small; it is possible that the local council regularly clears this strandline.

A mussel bed habitat is recorded on MAGIC, but this was not identified during the ecological surveys. It is possible that the mussel bed is ephemeral and therefore has the potential to return in the future.

4.2.2 Intertidal Rock Habitat

Within the site of the proposed scheme there are a number of boulders already present which act as rock armour defences in front of the seawall. The majority of the existing rock armour is located at the upper end of the foreshore and consists of the biotope **LR.FLR.Eph.Ent Enteromorpha spp. on freshwater-influenced and/or unstable upper eulittoral rock**. The habitat is influenced by freshwater runoff and was dominated by a dense mat of *Enteromorpha* spp. No other species were recorded within this zone.

Towards the lower end of the existing rock defence wracks are present where larger boulders block some of the wave energy, these are predominantly Bladder Wrack *Fucus vesiculosus* and Spiral Wrack *Fucus spiralis*. Common Periwinkle *Littorina littorea* and Rough Periwinkle *Littorina saxatilis* were both recorded in low numbers along with Dog Whelk *Nucella lapillus*.

Moderately exposed or vertical sheltered eulittoral rock, or structures in the form of groynes are present along the beach the majority of the beach. These are characterised by dense barnacles *Semibalanus balanoides* and the non-native *Austrominius modestus* with occasional Common Limpet *Patella vulgata*. They also provide additional anchorage points for seaweeds such as Toothed Wrack *Fucus serratus*. Anecdotal evidence suggests that the reef forming honeycomb worm *Sabellaria alveolata* has been recorded on one or more of the timber groynes present along the foreshore. This species was not recorded on the groynes during any of the surveys but was recorded towards the low tide mark as detailed below.

A small amount of *Sabellaria alveolata* was found at the low tide mark at various points along the beach. This has been recorded at a previous survey in June 2018 and has begun to form on small areas of cobbles.

4.2.3 Hardstanding

The majority of land on the sea front is hardstanding. It consists of concrete or paved car parks, pedestrian walkways and communal open spaces and is of negligible ecological value.

Amenity Grassland

Much of the grassland along the Rhyl sea front consists of well managed amenity grassland utilised as bowling greens, formal gardens or bordering planted flowerbeds. With most areas consisting of a monoculture of perennial rye grass and is of negligible ecological value.

4.2.4 Introduced Shrub

As part of the regeneration of Rhyl seafront a number of flowerbeds have been planted with a mixture of native and non-native species. Species include Tamarisk *Tamarix* sp., palms, Lavender *Lavandula angustifolia* as well as a number of ornamental grasses and newly planted winter bedding plants.

4.2.5 Species - poor Intact Hedge

A number of hedgerows have been planted as part of the landscaping of the seafront. These consist of well managed privet *Ligustrum* sp. or lines of Tamarisk *Tamarix* sp.

4.2.6 Buildings

Numerous buildings are located along the seafront which are associated with entertainment, such as the Vue Cinema and 'SeaQuarium'. None were assessed as having above a negligible ecological value or bat roost potential.

4.3 Protected and notable species and species groups

The data search returned numerous records of protected and notable species and species groups within 2km of the proposed works location. Those of relevance to the habitats within the site are listed in Table 4-2 below. Historic records (those preceding the year 2000) have been excluded. In addition to these records there were numerous returns of common and widespread bird species as well as the bird species that are features of the Liverpool Bay SPA - Red-throated Diver, Common Scoter, Little Gull, Common Tern and Little Tern, and these species are all likely to be present within the site boundary.

Table 4-2: Records of protected and notable species within 2km

Common name	Scientific Name	Proximity to Site
Birds		
Starling	<i>Sturnus vulgaris</i>	Within the site
Oystercatcher	<i>Haematopus ostralegus</i>	Within the site
Curlew	<i>Numenius arquata</i>	Within the site
Cormorant	<i>Phalacrocorax carbo</i>	Within the site
Peregrine	<i>Falco peregrinus</i>	Within the site
Gannet	<i>Morus bassanus</i>	Within the site
Linnet	<i>Carduelis cannabina</i>	Within the site
Barn Owl	<i>Tyto alba</i>	380m SE
Amphibians and Reptiles		
Common Frog	<i>Rana temporaria</i>	Within 1km
Common Lizard	<i>Zootoca vivipara</i>	1km S
Great Crested Newt	<i>Triturus cristatus</i>	1.2km SE
Common Toad	<i>Bufo bufo</i>	1.4km S
Smooth Newt	<i>Lissotriton vulgaris</i>	1.5km SE
Palmate Newt	<i>Lissotriton helveticus</i>	2km SE
Mammals		
Otter	<i>Lutra lutra</i>	Within the site
Hedgehog	<i>Erinaceus europaeus</i>	Within the site
Water Vole	<i>Arvicola amphibius</i>	400m E
Badger	<i>Meles meles</i>	1km S
Polecat	<i>Mustela putorius</i>	1.3km S
Weasel	<i>Mustela nivalis</i>	2km S
Invertebrates		
Grayling Butterfly	<i>Hipparchia semele</i>	200m SW
Cinnabar	<i>Tyria jacobaeae</i>	750m SE
Plants		
Sea Holly	<i>Eryngium maritimum</i>	Within the site
Marram	<i>Ammophila arenaria</i>	Within the site
Spiny Restharrow	<i>Ononis spinosa</i>	Within the site
Bluebell	<i>Hyacinthoides non-scripta</i>	1.2km SE

The full data search results can be provided on request.

4.3.1 Invertebrates

The foreshore provides habitat for a range of benthic invertebrate species. A benthic invertebrate survey carried out immediately adjacent to splash point on 20th June 2018 by JBA Consulting identified low numbers of polychaete worms and amphipods.

A small amount of *Sabellaria alveolata* was found at the low tide mark at various points along the beach. This has been recorded at a previous survey in June 2018 and has begun to form on small areas of cobbles.

4.3.2 Birds

Wintering Bird Species

The foreshore at Rhyl provides potential foraging habitat for a range of wildfowl and wading bird species, some of which are features of the local European protected sites. At high tide there is also the potential for diving or other fish-eating species to utilise the intertidal areas.

A wintering bird survey was carried out between October 2016 and April 2017 at the East Rhyl foreshore by JBA Consulting to inform the potential constraints for the East Rhyl coastal defence scheme (JBA Consulting 2017) one of the vantage points used for this survey was located at Splash Point and it is considered that the results of that study can act as an initial guide to the likely bird presence in this section of the foreshore.

The survey programme consisted of 12 vantage point surveys undertaken during the main overwintering and migratory period (August 2016 to April 2017 inclusive). The foreshore at Rhyl was utilised predominantly by wading and gull species with a total of 36 species recorded during the survey. These were usually in low numbers and generally concentrated at the eastern extent of the study area. Peak numbers of birds were recorded on falling tides when the receding tide provided the best foraging opportunities. This was especially the case following storm surges when large numbers of food species such as starfish were revealed on the receding tide and heavily preyed upon by gulls.

Flocks of 5 to 6 Common Scoter were recorded within 200m of the existing sea wall, foraging when the area was covered by water. Flocks of up to, and over, 1000 were recorded over 1000m offshore. Small numbers of red-throated diver were mostly recorded commuting past the site or occasionally foraging approximately 500m out to sea.

A total of 34 further species of wading, wildfowl and gull species were recorded during the survey with a number of these species forming part of the qualifying assemblage for which Liverpool Bay SPA is designated. A peak count of wader numbers was recorded on the 9th of December where approximately 500 Oystercatcher, 20 Sanderling, 70 Dunlin, 5 Curlew, 120 Redshank and 10 Turnstone were recorded over the survey area. These birds were subject to frequent disturbance from dogwalkers and were flushed into the air continually before settling on another part of the beach.

Use of the beach by large numbers of people exercising dogs or undertaking other leisure activities was recorded during the wintering bird surveys, this caused large amounts of temporary disturbance on the beach. In these events birds would be flushed from areas used for foraging or loafing but would generally fly less than 50m before re-settling.

Large flocks of cormorants were recorded during these surveys on sand banks at the mouth of the River Clwyd. These were recorded again during the walkover survey.

Breeding Bird Species

The closest Little Tern or Common Tern nesting site is the Little Tern colony at Gronant Beach, located approximately 5km to the east of the eastern extent of the study area.

The Little Tern nests on a relatively small section of the shingle ridge on the beach in

front of the dunes, rather than in the dunes themselves. They have very particular requirements about their nesting habitat, and as such, are vulnerable to even small changes in the structure and extent of the available shingle at Gronant.

Anecdotal evidence suggests that Common and Little Tern utilise areas close to the shore for foraging during high tide.

The areas of introduced scrub and hedgerows provide potential nesting and foraging habitat for a range of passerine species.

4.3.3 Fish

The study area is within 10km of nursery grounds¹ of the following fish species that are known to occasionally be associated with shallow (10m or less) nearshore waters²: Herring *Clupea harengus*; Cod *Gadus morhua*; Sandeel *Ammodytidae*; Plaice *Pleuronectes platessa*; Sole *Solea solea*; Whiting *Merlangius merlangus*; Spotted ray *Raja montagui*; Thornback ray *Raja clavate*; Angler fish *Lophius piscatorius*. All these species are listed under Section 41 of the NERC Act.

Furthermore, the site boundary is within 10km of spawning grounds³ of the following fish species that are known to occasionally be associated with shallow (10m or less) nearshore waters: Cod *Gadus morhua*; Mackerel *Scomber scombrus*; Sandeel *Ammodytidae*; Plaice *Pleuronectes platessa*; Sole *Solea solea*; Whiting *Merlangius merlangus*. All these species are listed under Section 41 of the NERC Act.

For the 2016 fishing season, a total of 388 Atlantic Salmon *Salmo salar* and 609 sea trout were caught from the Dee catchment, and 12 Atlantic salmon and 777 sea trout from the Clywd catchment⁴; these species are listed under Section 41 of the NERC Act. Being diadromous and spending a proportion of their lives migrating through coastal waters between marine and freshwater environments, it is likely that individuals (adults migrating into freshwater and juvenile smolts migrating to sea) pass close to the site boundary during migration periods.

European eel *Anguilla anguilla* have been recorded in fish surveys undertaken since 2010 in tributaries of the Mersey, Dee, Clywd, Elwy and Conwy⁵. This species is listed under Section 41 of the NERC Act. Being diadromous and spending a proportion of their lives migrating through coastal waters between marine and freshwater environments, it is likely that individuals (adults migrating to sea and juvenile migrating into freshwater) pass close to the site boundary during migration periods.

Brook Lamprey *Lampetra planeri* and Sea Lamprey *Petromyzon marinus* have been recorded in fish surveys undertaken since 2010 in tributaries of the Clywd, Dee and Elwy⁶. Both species are listed under Section 41 of the NERC Act. As Sea Lamprey are anadromous, with adults spending a proportion of their life at sea parasitically feeding on other estuarine and marine fish species, it is possible that individuals may pass close to the site boundary⁷.

1 Ellis, J.R., Milligan, S.P., Readdy, L., Taylor, N. and Brown, M.J. 2012. Spawning and nursery grounds of selected fish species in UK waters. Sci. Ser. Tech. Rep., Cefas, Lowestoft, 147: 56 pp.

2 Ellis, J.R., Milligan, S., Readdy, L., South, A., Taylor, N., and Brown, M., (2010a) Mapping spawning and nursery areas of species to be considered in Marine Protected Areas (Marine Conservation Zones).

3 Ellis, J.R., Milligan, S.P., Readdy, L., Taylor, N. and Brown, M.J. 2012. Spawning and nursery grounds of selected fish species in UK waters. Sci. Ser. Tech. Rep., Cefas, Lowestoft, 147: 56 pp.

4 Environment Agency. 2017. Salmonid and Freshwater Fisheries Statistics for England and Wales, 2016 [online] Available at: <https://www.gov.uk/government/publications/salmonid-and-freshwater-fisheries-statistics> (Accessed 29th Sept 2018).

5 From Natural Resources Wales information. <http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

6 From Natural Resources Wales information. <http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

7 Maitland PS (2003). Ecology of the River, Brook and Sea Lamprey. Conserving Natura 2000 Rivers Ecology Series No. 5. English Nature, Peterborough.

Anecdotal evidence states that the following fish have been caught by rod and line off the beach at Rhyl: bass; mackerel; dogfish, codling, whiting, plaice⁸.

Liverpool Bay supports various fish species of commercial importance including *Clupeidae* species such as herring *Clupea harengus* and sprat *Spratus spratus* which are known to have nursery grounds in the bay; other species such as plaice *Pleuronectes platessa* and sole *Solea solea* also use the bay for spawning and as a nursery area⁹. Herring and sprat are amongst the most frequently recorded prey species of red-throated divers which is one of the primary reasons for the SPA designation, although this species is also considered to be an opportunistic feeder and can also feed on a broad range of fish species¹⁰.

4.3.4 Otter

Otter have been recorded within close proximity to the study area (see Table 4-2) and the River Clwyd is considered to provide suitable foraging and resting habitats for Otter. Otter may also venture out into the coastal waters around the beach at Rhyl. There is the potential for Otter to utilise the intertidal area for foraging, however, the existing sea walls and revetments within the study area did not provide sites suitable for holts or laying up.

4.3.5 Reptiles and amphibians

Although the desk study returned numerous reptile and amphibian records within 1km of the site, the habitats surveyed were considered unsuitable for these species.

A single ornamental pond was recorded within the landscaped areas of the Rhyl front. However, this pond is sufficiently isolated from suitable terrestrial habitat to not be considered suitable for breeding amphibians.

4.3.6 Marine mammals

No records for marine mammals were returned in the desk study, however it is likely that common species of marine mammal will use the coastal waters adjacent to the works area as well as the wider area of Liverpool Bay.

⁸ Rhyl. Fishing in Wales, 2018 [viewed 29th Aug 2018]. Available from <http://fishingwales.net/rhyl/>.

⁹ Natural England, Countryside Council for Wales. 2012. Liverpool Bay SPA Conservation Advice Package. [Online] Available at: <http://publications.naturalengland.org.uk/publication/3236717>. (Accessed 5th January 2016).

¹⁰ Guse, N., Garthe, S. & Schirmeister, B. 2009. Diet of red-throated divers *Gavia stellata* reflects the seasonal availability of Atlantic herring *Clupea harengus* in the southwestern 34 Baltic sea. *Journal of Sea Research*, 62: 268-275.

5 Evaluation and Recommendations

5.1 Statutory designated sites

There is the potential for the proposed works at Rhyl to impact upon the features of Liverpool Bay SPA

Given their reasons for designation and locality to the study site, there is the potential for direct and indirect impacts on both statutory and non-statutory designated sites.

There must be no likely significant effect on the integrity of the site once works are completed. It is likely that the scheme will require a Habitats Regulations Assessment (HRA) with regards to Liverpool Bay SPA and the Dee Estuary European Marine site.

Any project will need to demonstrate no significant effect on the qualifying features of the European designated sites. If an effect is identified, the scheme would have to demonstrate no alternative options and would then need to demonstrate that there are Imperative Reasons of Overriding Public Interest (IROPI) before consideration of habitat compensation can be made.

Impacts to the features of the sites are considered below in the relevant sections.

5.2 Non-statutory designated sites

Consultation with relevant site managers (e.g. North Wales Wildlife Trust, Denbighshire County Council) is recommended should any impacts be predicted on non-statutory wildlife sites. Table 5-1 lists the recommended action for non-statutory sites.

Table 5-1: Recommended mitigation for non-statutory protected sites

Site	Designation	Action required
Clwyd Estuary and Adjacent fields	Wildlife Site	The works will need to minimise any disturbance to the wildfowl and waders that use the estuary. The saltmarsh and estuarine habitats must be retained during and after the works.
Foryd Dunes (Horton's Nose)	Wildlife Site	Works will need to ensure no impact on botanical/geological features of site. Impacts are considered unlikely as the site is outside the works area.
Foryd coastal strip	Wildlife Site	
Foryd Junction Grassland	Wildlife Site	
Afon Clwyd Saltmarsh	Wildlife Site	
Kinmel Dunes	LNR	
Kinmel Bay Dunes	Wildlife Site	Due to the distance from the works area, any impacts are considered unlikely.
Brickfields Pond	LNR	
Y Ffrith, Prestatyn	Wildlife Site	Works will need to ensure no impact on botanical/geological features of site. There should be no disturbance to nesting birds during the works phase.

5.3 Habitats

The scheme will likely result in the small-scale loss of intertidal sediment, which will likely be replaced by intertidal rocky shore habitat. It is not considered that the small-

scale loss of this habitat will be significant given the large amount of similar habitat locally. However, intertidal habitat is a UK priority habitat.

There is also the potential to provide enhancements to any intertidal rock added.

Should the scheme include beach recharge or sandscaping there is the potential to smother intertidal benthic communities over a much wider area, causing the potential temporary loss of feeding grounds for waders.

If the beach is recharged with a grain size larger than is currently present, this may also affect the ability for benthic communities to recolonise the area as larger grain sizes often do not provide the stable environment that many benthic invertebrates require. There is also the potential that any fine silts imported with added material will be gradually washed out, causing short-term damage to nearshore benthic communities. Therefore, should the beach recharge option be undertaken, it is recommended that benthic invertebrate surveys are undertaken within the works footprint prior to the works taking place so that a better understanding of the benthic assemblage can be gained. This data will inform the need to carry out surveys following the works so that any change in the benthic community can be documented and if necessary compensation measures can be investigated.

Should the project result in the changes in geomorphological processes along the coast either during the operation or construction phase there is the potential for habitats further afield to be impacted upon including intertidal and saltmarsh habitats that can be found in the Clwyd Estuary. It is recommended that a coastal processes assessment is carried out in order to assess the design options and that this is used to inform the potential for impacts to wider habitats and species.

None of the habitats on the shore (amenity grassland, introduced shrub, species-poor intact hedge, buildings and hardstanding) are considered to have an ecological value above negligible. There are therefore no mitigation recommendations for these habitats as a result of the works.

5.4 Protected and notable species and species groups

5.4.1 Invertebrates

Sabellaria alveolata was identified during the survey colonising exposed boulders and cobbles in and round the low tide mark approximately 300m to the north of the study area. Whilst it is unlikely for the works to directly impact upon this species if works are limited to the upper shore there is the potential for the works to impact upon this species through changes in sediment regime. It is recommended that a coastal processes assessment is carried out in order to assess the design options and that this is used to inform the potential for impacts to this species. It is also recommended that a further survey is carried out prior to the works to ascertain the current extent of the species.

A benthic marine survey identified a number of other species of polychaete worms towards the low tide mark immediately adjacent to the project area, although the number of individuals was low. Given the abundance of adjacent similar habitat, it is considered likely that recruitment of similar species would be rapid were the conditions more favourable.

5.4.2 Birds

The areas of intertidal sediments provide habitat for a range of wintering wildfowl and wading bird species, many of which are qualifying features of the Liverpool Bay SPA. Waders and waterfowl using the site will need to be considered as part of the HRA required for Liverpool Bay SPA (see section **Error! Reference source not found.**).

A wintering bird survey had previously been undertaken by JBA Consulting of the intertidal habitat adjacent to the east end of the site in 2017. The survey noted that use of the beach by large numbers of people walking dogs or undertaking other leisure

activities caused large amounts of temporary disturbance to birds. Given that the birds present are already habituated to large amounts of disturbance, and the availability of alternate nearby intertidal habitat, it is considered unlikely that disturbance due to the works will result in a significant impact upon the wintering birds that form part of the qualifying assemblage of the Liverpool SPA. Birds were not recorded in high densities and given that the works will likely be carried out at low tide, it is considered that there is ample alternative foraging and loafing habitat available nearby. However, this should be properly assessed when the detailed works and working methods are known.

At high tide areas of open water close to the existing sea wall provides habitat for a range of diving and fish-eating birds including those designated as features of the European protected sites. Should construction methods result in the mobilisation of a large amount of sediment into the water column there is the potential for this to impact upon these bird species ability to dive or plunge-dive. However, it should be noted that there are already high amounts of mobile sediment in the system in this area.

Impacts upon foraging fish eating species should be considered during and following once detailed design and construction practices are known.

Should the project involve changes in coastal processes there is the potential to change the sediment regime to the shingle spit at Gronant Dunes & Talacre Warren SSSI where Little Tern nest. It is recommended that a coastal processes assessment is carried out in order to assess the design options and that this is used to inform the potential for impacts to wider habitats and species.

Any clearances to terrestrial scrub and woodland habitats to facilitate construction should be undertaken outside of the bird nesting season March to September inclusive, or first be checked by a suitably qualified ecologist.

5.4.3 Fish

It is likely that the works will result in a small amount of intertidal habitat becoming inaccessible to fish at high tide, the impact of this would be localised to the site extent and therefore negligible.

Depending on the construction methods used there is the potential for a scheme to impact upon fish species during the construction phase. Fine sediment mobilisation has the potential to impact on fish species as a result of reduced foraging efficiency of visual predators and cause minor gill irritation.

Impacts to fish species should be considered during and following detailed design and when construction methodologies have been developed.

5.4.4 Otter

There is potential for Otter to use the River Clwyd and potentially into the estuary and surrounding coast. It is considered unlikely that works will have any impact on Otter holts or resting sites, as no suitable sites were identified in the survey. However, if any works are proposed within the channel of the River Clwyd, it is recommended that a targeted Otter survey is undertaken during the detailed design phase to identify the presence of Otter holts or resting sites.

5.4.5 Reptiles and amphibians

The habitats within the current proposed works area are considered unsuitable for reptiles and amphibians. If the works area extends east beyond Tynwydd Road towards Rhyl Golf Course, reptiles and amphibians may be present and appropriate mitigation measures will need to be implemented.

5.4.6 Marine mammals

It is likely that a limited number of marine mammal species such as Grey Seal and Harbour Porpoise commute or forage infrequently in the sea near the proposed works area. Although the intertidal habitat has the potential to be utilised by seals for hauling out and basking, this is considered unlikely due to the highly disturbed nature of the area arising from its popularity as a tourist beach.

Impacts from the works are therefore likely to be restricted to temporary noise disturbance to a few foraging and commuting individuals.

However, research has shown that seals hearing can be damaged by piling operations. It is therefore recommended that should piling operations be carried out, a 'soft start' is carried out each day on any piling works as this will move seals and cetaceans away from the area.

5.5 General avoidance measures

5.5.1 Biosecurity

Good biosecurity practices are vital for preventing the spread of invasive non-native species and pathogens. Advice on biosecurity is available at the Non-native Species Secretariat website: <http://www.nonnativespecies.org//index.cfm?pageid=174>

5.5.2 Pollution prevention

Appropriate mitigation measures can be implemented to ensure that habitats within proximity of the works are not degraded as a result of pollution events during the construction phase. These are particularly important if works are being undertaken near watercourses. Mitigation could include:

- Abiding by relevant pollution prevention measures e.g. NetRegs: http://www.netregs.org.uk/media/1418/gpp-5-works-and-maintenance-in-or-near-water.pdf?utm_source=website&utm_medium=social&utm_campaign=GPP5%2027112017.
- Preventing accidental oil and fuel leaks can be achieved by the following actions:
- Any chemical, fuel and oil stores should be located on impervious bases within a secured bund with a storage capacity 110% of the stored volume.
- Biodegradable oils and fuels should be used where possible.
- Drip trays should be placed underneath any standing machinery to prevent pollution by oil/fuel leaks. Where practicable, refuelling of vehicles and machinery should be carried out on an impermeable surface in one designated area well away from any watercourse or drainage (at least 10m).
- Emergency spill kits should be available on site and staff trained in their use.
- Operators should check their vehicles on a daily basis before starting work to confirm the absence of leakages. Any leakages should be reported immediately.
- Daily checks should 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 should be removed from site immediately or positioned in a place of safety until such time that it can be removed.

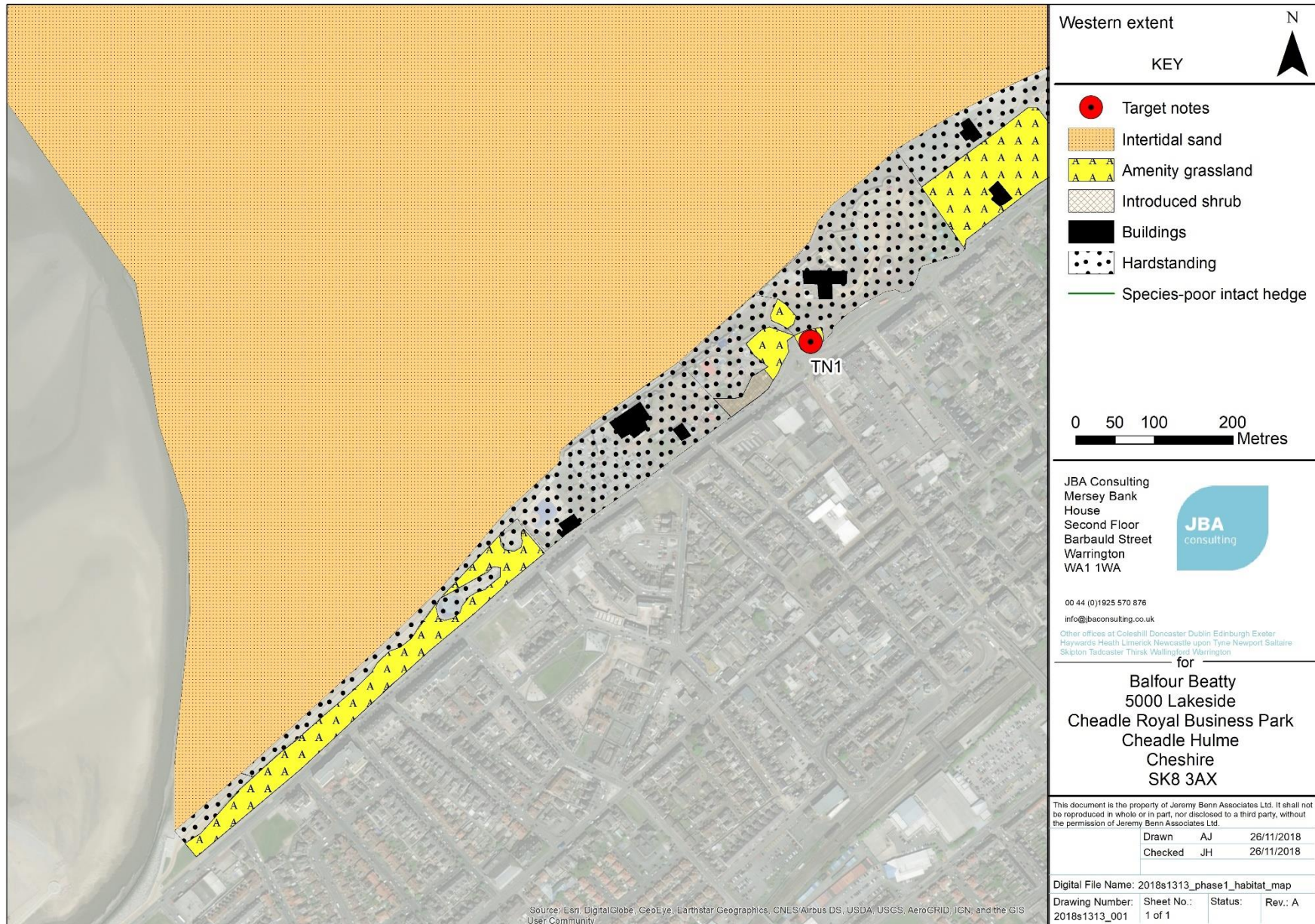
5.6 Enhancement opportunities

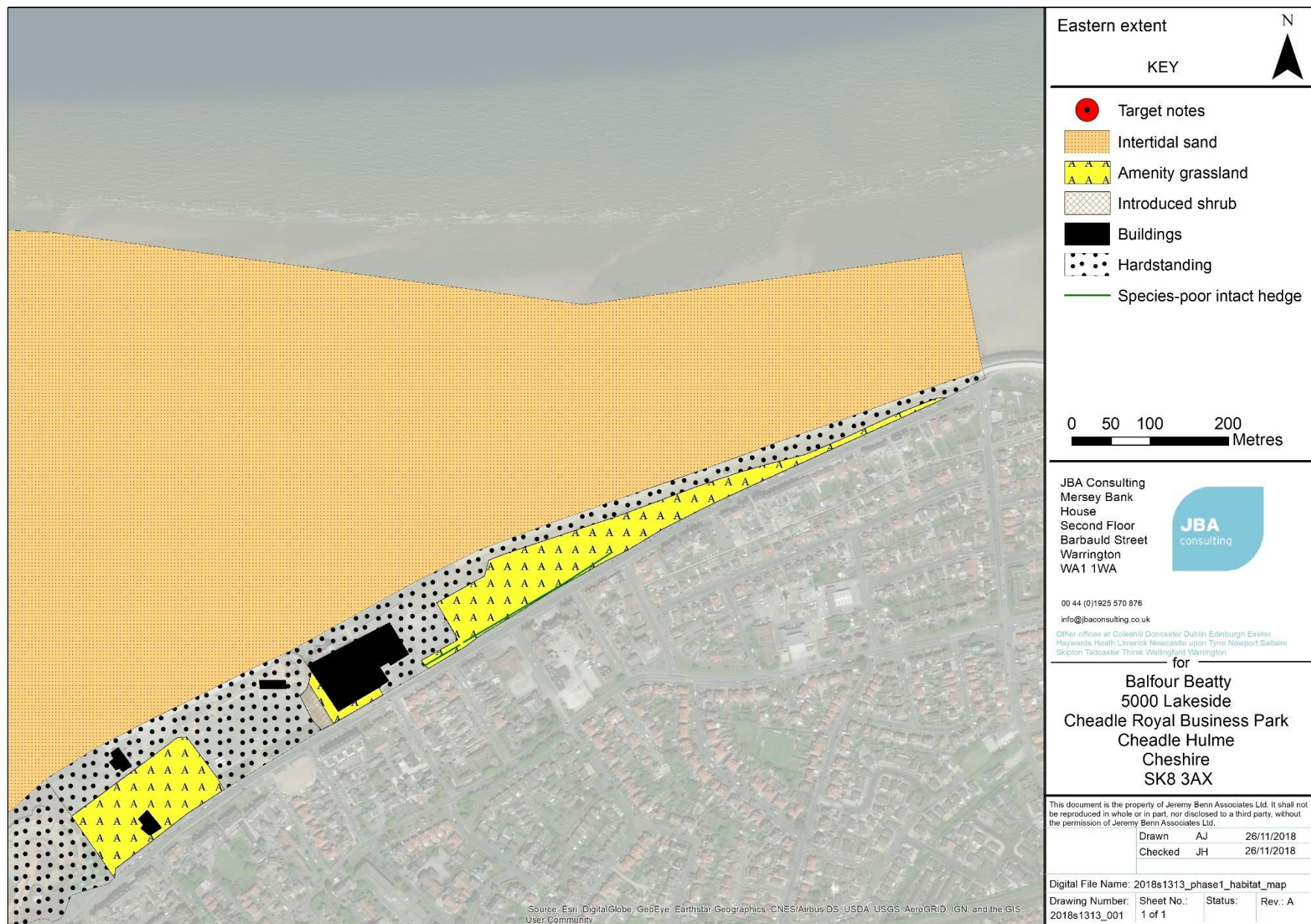
The scheme may present opportunities for habitat creation and enhancement, particularly the creation of rocky shore habitat should rock armour be utilised. This can be in the form of bioblocks or the drilling of holes to create niches and rock pools which provide habitat to a range of intertidal rocky shore species.

Appendices



A Phase 1 Habitat Map





B Photographs

1		TN1 – Small pond near the 'Seaquarium'
2		Rhyl beach looking east

3			Rhyl beach looking west
4			Rhyl seafront promenade looking west

5



Rhyl seafront
promenade
looking west

References

CIEEM (2013), Guidelines for Preliminary Ecological Appraisal. CIEEM. Winchester

CIEEM (2015), Guidelines for Ecological Report Writing. CIEEM, Winchester.

EMODnet - European Marine Observation Data Network (EMODnet) Seabed Habitats project (<http://www.emodnet-seabedhabitats.eu/>)

HMSO (Her Majesty's Stationery Office) (1981), Wildlife and Countryside Act (as amended by the Countryside and Rights of Way Act 2000). [online] Available at: <<http://www.legislation.gov.uk/ukpga/1981/69>> [Accessed November 2018]

HMSO (1992), The Protection of Badgers Act 1992. [online] Available at: <<http://www.legislation.gov.uk/ukpga/1992/51/contents>> [Accessed November 2018]

HMSO (2006), Natural Environment and Rural Communities Act. [online] Available at: <<http://www.legislation.gov.uk/ukpga/2006/16/contents>> [Accessed November 2018]

HMSO (2017), Conservation of Habitat and Species Regulations [online] Available at: <<http://www.legislation.gov.uk/uksi/2010/490/contents/made>> [Accessed November 2018]

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Broughton Hall
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BD23 3AE
United Kingdom

+44(0)1756 799919

info@JBA - consulting.com

www.JBA - consulting.com

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Appendix E Habitats Regulations Assessment Screening Appraisal

Central Rhyl OBC

Habitats Regulations Screening Assessment

Final Draft

April 2019

www.jbaconsulting.com

JBA Project Manager

Samuel Wingfield
JBA Consulting
Mersey Bank House
Second Floor
Barbould Street
Warrington
WA1 1WA

Revision History

Revision Ref/Date	Amendments	Issued to
17/04/2019	Draft report	Mark Cope
18/04/2019	Final draft report	Sam Wingfield

Contract

This report describes work commissioned by Balfour Beatty, on behalf of Denbighshire County Council. Kristian Evans and Jonathan Harrison of JBA Consulting carried out this work.

Prepared by Kristian Evans BA MSc
Assistant Environmental Analyst

..... Jonathan Harrison BSc MSc
Senior Ecologist

Reviewed by Mark Cope BSc MSc FGS MIEMA CEnv
REIA
Principal Environmental Consultant

Purpose

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Abbreviations

COSHH	Control of Substances Hazardous to Health
HRA	Habitats Regulation Assessment
OBC	Outline Business Case
SAC	Special Area of Conservation
SCI	Sites of Community Importance
SMP	Shoreline Management Plan
SPA	Special Protection Area

1 Project Details

1.1 Introduction

JBA Consulting have been commissioned by Balfour Beatty to develop an Outline Business Case (OBC) for a potential flood defence scheme at Central Rhyl. Part of the requirements of the scheme is to undertake an assessment of impacts on sites designated under the 'Habitats Directive' (See section 1.4). This report undertakes a preliminary habitats regulation assessment, so that relevant receptors that may be impacted by the works can be identified. A more detailed, formal Habitats Regulation Assessment can be undertaken at a later date in order to comply with any marine licence planning consent.

1.2 Project Summary

The proposed development seeks to improve the standard of coastal flood protection to the community of Central Rhyl in Denbighshire, North Wales. Figure 1—1 shows the proposed location of the development. The proposed defences comprise of; installation of rock armour scour protection to the toe of existing sea defences between Tynwydd Road and Rhyl Events Arena, and installation of a stepped concrete revetment between the corner of West Parade and John Street. The concrete stepped revetment will also include creation of a new sea wall, which will be raised in height.

Rhyl is a seaside resort town located East of the Clwyd Estuary. Existing sea defences are already present at the site, consisting of a mixture of rock armour, a sea wall, groynes and concrete stepped revetments. The current defences have been subject to wave overtopping, therefore in order to abide by the Shoreline Management Plan (SMP) policy for this section of coastline, which is to 'hold the line', further work is required on the defences here.

Rhyl Beach is a wide sandy beach with an extensive tidal range. It is a popular tourist destination and supports a range of recreational activities. Much of the beach is designated under the EU Bathing Waters Directive with the sub-tidal area designated as part of the Liverpool Bay Special Protection Area (SPA).

1.3 Preferred Options

The proposed development intends to improve the standard of coastal protection across the front at central Rhyl. The preferred option consists of a mixture of rock armour and stepped coastal revetments at different areas of the beach;

- Rock armour scour protection would be installed between the corner of Tynwydd Road (302016, 382437) and Rhyl Events Arena (300747, 381842). It is envisaged that the existing promenade would remain unmodified, and the existing sea walls and revetment in this area would receive piecemeal concrete repairs. It is intended that the rock armour toe would be buried under the intertidal sand.
- A stepped concrete revetment would be installed between Rhyl Events Arena (300747, 381842) and the corner of West Parade and John Street (300233, 381338). It is estimated that the steps would extend 30m out onto Rhyl beach from the sea wall.

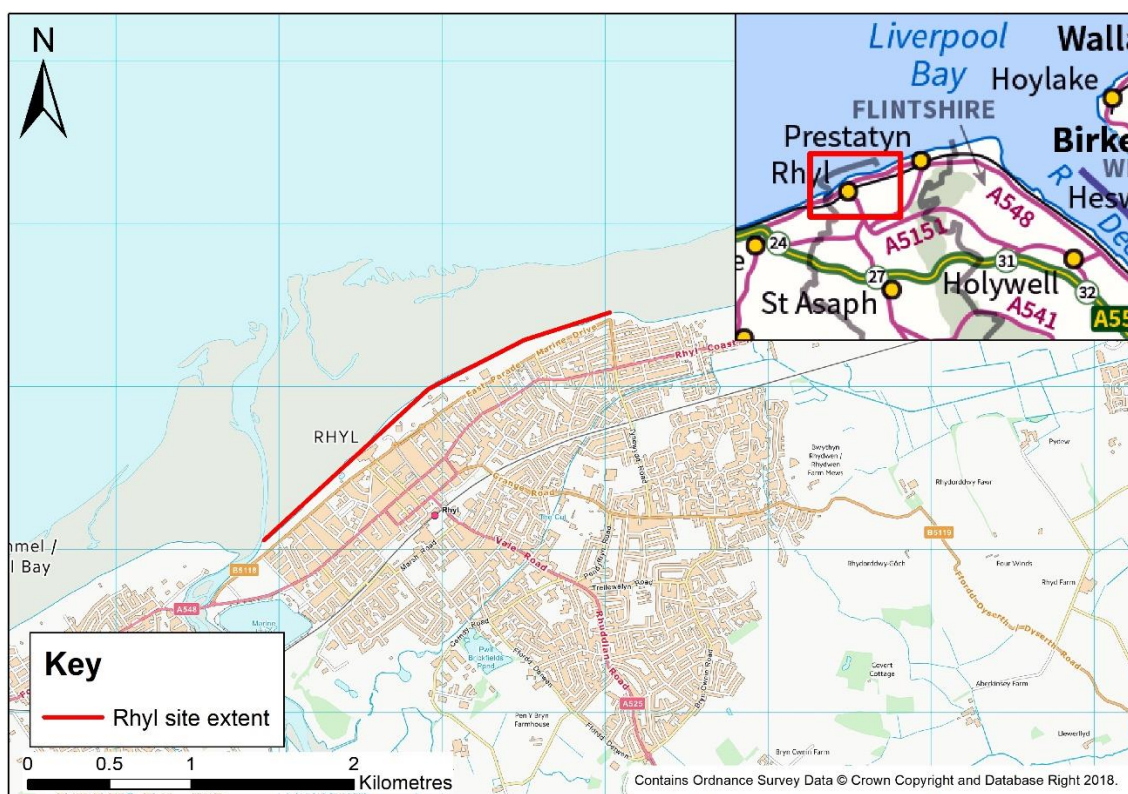


Figure 1—1: Site Location

1.4 Relevant Legislation

European Union (EU) Directive 92/43/EEC on the conservation of habitats and of wild flora and fauna (known as the 'Habitats Directive') protects habitats and species of European nature conservation importance. Together with Directive 2009/147/EC on the conservation of wild birds (the 'Birds Directive'), the Habitats Directive establishes a network of internationally important sites designated for their ecological status. SACs and Sites of Community Importance (SCIs) are designated under the Habitats Directive and promote the protection of flora, fauna and habitats. SPAs are designated under the Birds Directive to protect rare, vulnerable and migratory birds. These sites combine to create a Europe-wide Natura 2000 network of designated sites, which are generally (and hereafter in this report) referred to as 'European Sites'.

The Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations') incorporate all SPAs into the definition of 'European Sites' and, consequently, the protections afforded to European Sites under the Habitats Directive apply to SPAs designated under the Birds Directive.

In addition to sites designated under European nature conservation legislation, UK Government policy (ODPM Circular 06/2005) states that internationally important wetlands designated under the Ramsar Convention 1971 (Ramsar sites) are afforded the same level of protection as SPAs and SACs for the purpose of considering development proposals that may affect them.

A Planning Application, Marine Licence and Flood Risk Activity Permit will be required to consent the scheme at a future stage of the project's development.

1.5 Precautionary Principle

The Habitats Regulations Assessment (HRA) process is underpinned by the precautionary principle, especially in the assessment of potential impacts and their resolution. Following recent case law, screening does not take into account mitigation measures. If there is any uncertainty, and it is not possible, based on the information available, to confidently determine that there will be no significant effects on a site, then the precautionary principle will be applied, and the project will be subject to an Appropriate Assessment (HRA Stage 2). This represents a precautionary approach to the assessment.

If the Appropriate Assessment cannot determine without reasonable scientific doubt that there will be no adverse effects on site integrity, if no feasible alternative solutions can be found with no or reduced adverse effects, and if there are imperative reasons of overriding public interest (IROPI), compensatory measures are considered. These are distinct from mitigation measures and are required to ensure the coherence of the Natura 2000 network is protected, where adverse effects on site integrity cannot be discounted.

1.6 Identification of European Sites

European sites were screened up to 5km from the site of the proposed development.

The following sites occur within the screening area

- The Liverpool Bay SPA
- The Dee Estuary Marine Site; which includes;
 - Dee Estuary SPA
 - Dee Estuary SAC
 - Dee Estuary Ramsar Site

The European sites are shown in relation to the proposed works in Figure 1—2 below.

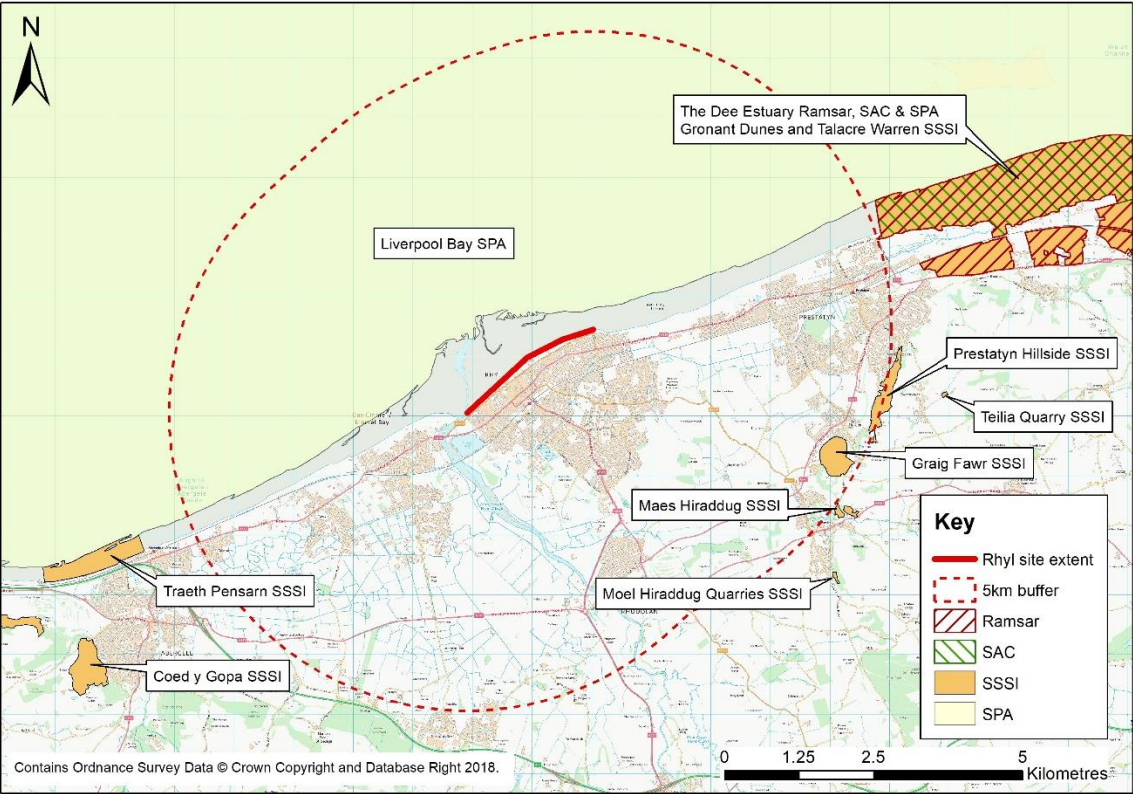


Figure 1–2: European and other statutory designated sites identified.

2 Determining the need for a Habitats Regulations Assessment

Is the whole of the project directly connected with or necessary to the management of one or more Natura 2000 sites, for the purposes of conserving the habitats or species for which the Natura 2000 site(s) is/are designated?	No
Is there a possibility that the project could affect a different Natura site to the one(s) the project is intended to conserve?	N/A
Is it necessary to carry out an HRA?	Yes

3 Considering the likelihood of a significant effect (LSE)

3.1 Grouping of Interest Features

Designation	Qualifying Interests	Group of Qualifying Interest with EA code
Liverpool Bay SPA	Red-throated Diver (over winter) Little Gull (over winter) Wetland bird assemblage (over winter)	3.10 Birds of open sea and offshore rocks (winter)
	Little Tern (Breeding) Common Tern (Breeding)	3.8 Birds of coastal habitats 3.9 Birds of estuarine habitats and 3.10 Birds of open sea and offshore rocks (breeding)
	Common Scoter (migratory)	3.8 Birds of coastal habitats 3.9 Birds of estuarine habitats, and 3.10 Birds of open sea and offshore rocks (migratory)

Designation	Qualifying Interests	Group of Qualifying Interest with EA code
Dee Estuary SAC and Dee Estuary Ramsar habitats	1140: Mudflats and sandflats not covered by seawater at low tide 1310: <i>Salicornia</i> and other annuals colonising mud and sand 1330: Atlantic Salt Meadows (<i>Glaucopuccinellietalia maritimae</i>) 1130: Estuaries	1.12 Estuarine and intertidal habitats
	1210 Annual Vegetation of drift lines 1230 Vegetated sea cliffs of the Atlantic and Baltic Coasts 2110 Embryonic shifting dunes 2120 "Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")" 2130 "Fixed coastal dunes with herbaceous vegetation ("grey dunes")" 2190 Humid dune slacks 1395 Petalwort	1.10 Coastal habitats, and 1.11 Coastal habitats sensitive to abstraction 2.04 Mosses and Liverworts <i>2.04 is included as the only species in the SAC, Petalwort, is a species restricted to habitats 2120, 2130 and 2190</i>
	1095 Sea Lamprey 1099 River Lamprey	2.05 Anadromous fish
Dee Estuary SPA and Dee Estuary Ramsar bird species	Bar-tailed Godwit (over winter) Black-tailed Godwit (over winter) Curlew (over winter) Dunlin (over winter) Grey Plover (over winter) Knot (over winter) Oystercatcher (over winter)	3.4 Birds of lowland wet grasslands 3.7 Birds of farmland 3.8 Birds of coastal habitats, and 3.9 Birds of estuarine habitats (winter)

Designation	Qualifying Interests	Group of Qualifying Interest with EA code
	Pintail (over winter) Redshank (over winter) Shelduck (over winter) Teal (over winter) Wetland bird assemblage	
	Little Tern (breeding) Common Tern (breeding)	3.8 Birds of coastal habitats 3.9 Birds of estuarine habitats, and 3.10 Birds of open sea and offshore rocks (breeding)
	Sandwich Tern (passage) Redshank (passage)	3.8 Birds of coastal habitats 3.9 Birds of estuarine habitats, and 3.10 Birds of open sea and offshore rocks (migratory)
Dee Estuary Ramsar (not already included)	Natterjack Toad	Natterjack Toad

3.2 Likelihood of significant effects (LSE) test

Which Natura 200 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 200 sites have features which could be affected by the project: Liverpool Bay SPA, Dee Estuary SPA, SAC.		
Screening assessment			
	Assessment of likelihood of significant effect The screening assessment should indicate the possible pathways through which the project may impact upon relevant Natura 2000 site features. Each designated feature (taken from the official Natura 2000 designation documents) should be recorded in the left-hand column below. Column II should indicate whether there is a potential impact pathway that would result in significant effects upon a Natura 2000 site. Column III proposes any mitigation that could remove the impact pathway or reduce the significant effects. If there are no impact pathways, then mitigation is labelled as N/A.		
	There is no impact pathway for significant effects to occur		
	There is an impact pathway in principle, but there are likely no significant effects		
	There is an impact pathway and significant effects cannot be ruled out		
	I	II	III
	Potential Hazards	Potential impact pathway	Proposed mitigation
Liverpool Bay SPA			
Interest Feature: 3.10 - Birds of open sea and offshore rocks(winter).	Land-take during construction and operation	The works would result in loss of some intertidal sand habitat during construction, but this habitat is seen as low value to birds of the open water. Whilst impacts cannot be ruled out, effects are unlikely to be significant.	A wintering bird survey would be required to determine the value of intertidal sand habitat to wetland bird species. Little tern foraging data should also be collected in summer to inform an impact assessment.

Which Natura 200 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 200 sites have features which could be affected by the project: Liverpool Bay SPA, Dee Estuary SPA, SAC.		
	Increased sediment mobilisation during construction	Potential for disturbed sediment to be mobilised at high tide. However, amount mobilised is likely to be negligible in comparison to naturally occurring sediment movements. Whilst impacts cannot be ruled out, effects are unlikely to be significant.	Construction of defences would be completed in stages, so that the total amount of sediment mobilised at one time is limited. Little tern foraging data should be collected to inform an impact assessment.
	Noise and visual disturbance during construction	There is the potential for noise and visual disturbance to impact upon designated birds. However, there is already regular noise generated from the sea front at Rhyl, and additional noise from construction is unlikely to be significant.	Construction works can be carried out outside the over-wintering period (April to September inclusive) in order to avoid noise and visual disturbance to waterfowl species.
	Release of harmful chemicals from machinery or works during construction	Any harmful chemicals would be stored in accordance with COSHH within the secure construction compounds. Most chemicals entering the tidal zone will be contained within vehicles, and therefore of small volume. Wet concrete would need to be added below the high tide level, which may negatively impact the surrounding habitat if spillages occur.	Follow standard procedures and work into a CEMP.

Which Natura 200 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 200 sites have features which could be affected by the project: Liverpool Bay SPA, Dee Estuary SPA, SAC.		
	Spread of invasive non-native species	The invasive non-native species acorn barnacle <i>Austrominius modestus</i> , has been recorded on groynes near to the site. The works therefore have the potential to cause the spread of this species.	Do not reuse any dismantled groynes where there is evidence of non-native species canonisation. Appropriately dispose of any materials containing non-native invasive species..
	Alteration of coastal morphology processes during operation	Given the length of coastline that would be affected by the proposals, there is potential to alter coastal processes, in particular when considered cumulatively with committed development at East Rhyl. Although coastal processes operating along this section of coastline are generally weak, there is potential for an impact mechanism on European designated habitats to be complex and permanent.	A detailed coastal processes study is required to understand the impact of changes to the morphology of the coastline on longshore coastal processes.
Interest Feature: 3.8 - Birds of coastal habitats 3.9 - Birds of estuarine habitats, and 3.10 - Birds of open sea and offshore rocks (breeding)	Land-take during construction and operation	The works would result in loss of some intertidal sand habitat during construction, but this habitat is seen as low value to birds of the open water. Therefore, whilst impacts cannot be ruled out, effects are unlikely to be significant.	A wintering bird survey would be required to determine the value of intertidal sand habitat to wetland bird species. Little tern foraging data should also be collected in summer to inform an impact assessment.

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Interest Feature: 3.8 - Birds of coastal habitats 3.9 - Birds of estuarine habitats, and 3.10 - Birds of open sea and offshore rocks (migratory)	Land-take during construction and operation	The works would result in loss of some intertidal sand habitat during construction, but this habitat is seen as low value to birds of the open water. Therefore, whilst impacts cannot be ruled out, there is likely no significant effect.	A wintering bird survey would be required to determine the value of intertidal sand habitat to wetland bird species. Little tern foraging data should also be collected in summer to inform an impact assessment.

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	Noise and visual disturbance during construction	There is the potential for noise and visual disturbance to impact upon designated birds. However, there is already regular noise generated from the sea front at Rhyl, and additional noise from construction would be negligible.	Construction works can be carried out outside the over-wintering period (April to September inclusive) in order to avoid noise and visual disturbance to waterfowl species.
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	Spread of invasive non-native species	The invasive non-native species acorn barnacle <i>Austrominius modestus</i> , has been recorded on	Do not reuse any dismantled groynes where there is evidence of non-native

Which Natura 200 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 200 sites have features which could be affected by the project: Liverpool Bay SPA, Dee Estuary SPA, SAC.		
		groynes near to the site. The works therefore have the potential to cause the spread of this species.	species canonisation. Appropriately dispose of any materials containing non-native invasive species.
	Alteration of coastal morphology processes during operation	Given the length of coastline that would be affected by the proposals, there is potential to alter coastal processes, in particular when considered cumulatively with committed development at East Rhyl. Although coastal processes operating along this section of coastline are generally weak, there is potential for an impact mechanism on European designated habitats to be complex and permanent.	A detailed coastal processes study is required to understand the impact of changes to the morphology of the coastline on longshore coastal processes.
Interest Feature: 3.10 - Birds of open sea and offshore rocks (migratory)	Land-take during construction and operation	The works would result in loss of some intertidal sand habitat during construction, but this habitat is seen as low value to birds of the open water. Therefore, whilst impacts cannot be ruled out, there is likely no significant effect.	A wintering bird survey would be required to determine the value of intertidal sand habitat to wetland bird species. Little tern foraging data should also be collected in summer to inform an impact assessment.
	Increased sediment mobilisation during construction	Potential for disturbed sediment to be mobilised at high tide. However, amount mobilised is likely to be negligible in comparison to	Construction of defences should be completed in stages, so that the total amount of sediment

Which Natura 200 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 200 sites have features which could be affected by the project: Liverpool Bay SPA, Dee Estuary SPA, SAC.		
		naturally occurring sediment. Therefore, whilst impacts cannot be ruled out, there are likely no significant effects.	mobilised at one time is limited.
	Noise and visual disturbance during construction	There is the potential for noise and visual disturbance to impact upon designated birds. However, there is already regular noise generated from the front at Rhyl, and additional noise from construction would be negligible.	Construction works can be carried out outside the over-wintering period (April to September inclusive) in order to avoid noise and visual disturbance to waterfowl species.
	Release of harmful chemicals from machinery or works during construction	Any harmful chemicals would be stored in accordance with COSHH within the secure construction compounds. Most chemicals entering the tidal zone will be contained within vehicles, and therefore of small volume. Wet concrete would need to be added below the high tide level, which may negatively impact the surrounding habitat if spillages occur.	Follow standard procedures and work into the CEMP.
	Spread of invasive non-native species	The invasive non-native species acorn barnacle <i>Austrominius modestus</i> , has been recorded on groynes near to the site. The works therefore have the potential to cause the spread of this species.	Do not reuse any dismantled groynes where there is evidence of non-native species canonisation. Appropriately dispose of any materials containing non-native invasive species.

Which Natura 200 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 200 sites have features which could be affected by the project: Liverpool Bay SPA, Dee Estuary SPA, SAC.		
	Alteration of coastal morphology processes during operation	Given the length of coastline that would be affected by the proposals, there is potential to alter coastal processes, in particular when considered cumulatively with committed development at East Rhyl. Although coastal processes operating along this section of coastline are generally weak, there is potential for an impact mechanism on European designated habitats to be complex and permanent.	A detailed coastal processes study is required to understand the impact of changes to the morphology of the coastline on longshore coastal processes.
Dee Estuary SAC and the habitats of Dee Estuary Ramsar site			
Interest Feature: 1.12 - Estuarine and intertidal habitats	Land-take during construction and operation	The works would be over 3km from the Dee Estuary SAC and Ramsar site so there will be no loss of habitat within the Dee Estuary SAC or Dee Estuary Ramsar site.	N/A
	Increased sediment mobilisation during construction	Unlikely that a significant proportion of sediment will be mobilised by the works and would not impact a designated site over 3km away.	N/A
	Noise and visual disturbance during construction	Any noise and visual disturbance from the scheme, or potential sources of cumulative impacts, will not affect habitats in the Dee Estuary SAC and Ramsar site over 3km away.	N/A

Which Natura 200 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 200 sites have features which could be affected by the project: Liverpool Bay SPA, Dee Estuary SPA, SAC.		
	Release of harmful chemicals from machinery or works during construction	Any harmful chemicals would be stored in accordance with COSHH within the secure construction compounds. Most chemicals entering the tidal zone will be contained within vehicles, and therefore of small volume. Wet concrete would need to be added below the high tide level, but potential spillages are unlikely to impact a designated site over 3km away.	N/A
	Spread of invasive non-native species	The invasive non-native species acorn barnacle <i>Austrominius modestus</i> , has been recorded on groynes near to the site. The works therefore have the potential to cause the spread of this species.	N/A
	Alteration of coastal morphology processes during operation	Unlikely that a significant proportion of sediment will be mobilised by the works and would not impact a designated site over 3km away.	N/A
Interest Features: 1.10 - Coastal habitats, and 1.11 - Coastal habitats sensitive to abstraction, and	Land-take during construction and operation	The works would be over 3km from the Dee Estuary SAC and Ramsar site so there will be no loss of habitat within the Dee Estuary SAC or Dee Estuary Ramsar site.	N/A

Which Natura 200 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 200 sites have features which could be affected by the project: Liverpool Bay SPA, Dee Estuary SPA, SAC.		
2.04 - Mosses and Liverworts	Increased sediment mobilisation during construction	Unlikely that a significant proportion of sediment will be mobilised by the works and would not impact a designated site over 3km away.	N/A
	Noise and visual disturbance during construction	Any noise and visual disturbance from the scheme, or potential sources of cumulative impacts, will not affect habitats in the Dee Estuary SAC and Ramsar site over 3km away.	N/A
	Release of harmful chemicals from machinery or works during construction	Any harmful chemicals would be stored in accordance with COSHH within the secure construction compounds. Most chemicals entering the tidal zone will be contained within vehicles, and therefore of small volume. Wet concrete would need to be added below the high tide level, but potential spillages are unlikely to impact a designated site over 3km away.	N/A
	Spread of invasive non-native species	The invasive non-native species acorn barnacle <i>Austrominius modestus</i> , has been recorded on groynes near to the site. The works therefore have the potential to cause the spread of this species.	N/A

Which Natura 200 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 200 sites have features which could be affected by the project: Liverpool Bay SPA, Dee Estuary SPA, SAC.		
	Alteration of coastal morphology processes during operation	Given the length of coastline that would be affected by the proposals, there is potential to alter coastal processes, in particular when considered cumulatively with committed development at East Rhyl. Although coastal processes operating along this section of coastline are generally weak, there is potential for an impact mechanism on European designated habitats to be complex and permanent.	A detailed coastal processes study is required to understand the impact of changes to the morphology of the coastline on longshore coastal processes.
Interest Feature: 2.05 - Anadromous fish	Land-take during construction and operation	The works would be over 3km from the Dee Estuary SAC and Ramsar site so there will be no loss of habitat within the Dee Estuary SAC or Dee Estuary Ramsar site.	N/A
	Increased sediment mobilisation during construction	Unlikely that a significant proportion of sediment will be mobilised by the works and would not impact a designated site over 3km away.	N/A
	Noise and visual disturbance during construction	Any noise and visual disturbance from the scheme, or potential sources of cumulative impacts, will not affect habitats for or migration of anadromous fish in the Dee Estuary SAC and Ramsar site over 3km away.	N/A

Which Natura 200 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 200 sites have features which could be affected by the project: Liverpool Bay SPA, Dee Estuary SPA, SAC.		
	Release of harmful chemicals from machinery or works during construction	Any harmful chemicals would be stored in accordance with COSHH within the secure construction compounds. Most chemicals entering the tidal zone will be contained within vehicles, and therefore of small volume. Wet concrete would need to be added below the high tide level, but potential spillages are unlikely to impact a designated site over 3km away.	N/A
	Spread of invasive non-native species	The invasive non-native species acorn barnacle <i>Austrominius modestus</i> , has been recorded on groynes near to the site. The works therefore have the potential to cause the spread of this species.	N/A
	Alteration of coastal morphology processes during operation	Given the length of coastline that would be affected by the proposals, there is potential to alter coastal processes, in particular when considered cumulatively with committed development at East Rhyl. Although coastal processes operating along this section of coastline are generally weak, there is potential for an impact mechanism on European	A detailed coastal processes study is required to understand the impact of changes to the morphology of the coastline on longshore coastal processes.

Which Natura 200 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 200 sites have features which could be affected by the project: Liverpool Bay SPA, Dee Estuary SPA, SAC.		
		designated habitats to be complex and permanent.	
Dee Estuary SPA and birds of Dee Estuary Ramsar site			
Interest Feature: 3.4 - Birds of lowland wet grasslands 3.7 - Birds of farmland 3.8 - Birds of coastal habitats, and 3.9 - Birds of estuarine habitats (winter)	Land-take during construction and operation	The works would be over 3km from the Dee Estuary SPA and Ramsar site so there will be no loss of habitat within the Dee Estuary SPA or Dee Estuary Ramsar site.	N/A
	Increased sediment mobilisation during construction	Unlikely that a significant proportion of sediment will be mobilised by the works and would not impact a designated site over 3km away.	N/A
	Noise and visual disturbance during construction	Any noise and visual disturbance from the scheme, or potential sources of cumulative impacts, will not affect habitats within the Dee Estuary SAC and Ramsar site over 3km away.	N/A
	Release of harmful chemicals from machinery or works during construction	Any harmful chemicals would be stored in accordance with COSHH within the secure construction compounds. Most chemicals entering the tidal zone will be contained within vehicles, and therefore of small volume. Wet concrete would need to be added below the high tide level, but potential spillages are unlikely	N/A

Which Natura 200 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 200 sites have features which could be affected by the project: Liverpool Bay SPA, Dee Estuary SPA, SAC.		
		to impact a designated site over 3km away.	
	Spread of invasive non-native species	The invasive non-native species acorn barnacle <i>Austrominius modestus</i> , has been recorded on groynes near to the site. The works therefore have the potential to cause the spread of this species.	N/A
	Alteration of coastal morphology processes during operation	Given the length of coastline that would be affected by the proposals, there is potential to alter coastal processes, in particular when considered cumulatively with committed development at East Rhyl. Although coastal processes operating along this section of coastline are generally weak, there is potential for an impact mechanism on European designated habitats to be complex and permanent.	A detailed coastal processes study is required to understand the impact of changes to the morphology of the coastline on longshore coastal processes.
Interest Feature: 3.8 - Birds of coastal habitats 3.9 - Birds of estuarine habitats, and 3.10 - Birds of open sea and offshore rocks (migratory)	Land-take during construction and operation	The works are over 3km from the Dee Estuary SPA and Ramsar site so there will be no loss of habitat within the Dee Estuary SPA or Dee Estuary Ramsar site.	N/A
	Increased sediment mobilisation during construction	Unlikely that a significant proportion of sediment will be mobilised by the works and would	N/A

Which Natura 200 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 200 sites have features which could be affected by the project: Liverpool Bay SPA, Dee Estuary SPA, SAC.		
		not impact a designated site over 3km away.	
	Noise and visual disturbance during construction	Any noise and visual disturbance from the scheme, or potential sources of cumulative impacts, will not affect habitats within the Dee Estuary SAC and Ramsar site over 3km away.	N/A
	Release of harmful chemicals from machinery or works during construction	Any harmful chemicals would be stored in accordance with COSHH within the secure construction compounds. Most chemicals entering the tidal zone will be contained within vehicles, and therefore of small volume. Wet concrete would need to be added below the high tide level, but potential spillages are unlikely to impact a designated site over 3km away.	N/A
	Spread of invasive non-native species	The invasive non-native species acorn barnacle <i>Austrominius modestus</i> , has been recorded on groynes near to the site. The works therefore have the potential to cause the spread of this species.	N/A
	Alteration of coastal morphology processes during operation	Given the length of coastline that would be affected by the proposals, there is potential to alter coastal processes, in particular when	A detailed coastal processes study is required to understand the impact of changes to the morphology

Which Natura 200 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 200 sites have features which could be affected by the project: Liverpool Bay SPA, Dee Estuary SPA, SAC.		
		considered cumulatively with committed development at East Rhyl. Although coastal processes operating along this section of coastline are generally weak, there is potential for an impact mechanism on European designated habitats to be complex and permanent.	of the coastline on longshore coastal processes.
Dee Estuary Ramsar			
Key Interest Feature: Natterjack Toad	Land-take during construction and operation	The works would be over 3km away from the Dee Estuary Ramsar site so there will be no loss of habitat as a result of the works.	N/A
	Increased sediment mobilisation during construction	Unlikely that a significant proportion of sediment will be mobilised by the works and would not impact a designated site over 3km away.	N/A
	Noise and visual disturbance during construction	Noise and visual disturbance resulting from the works are highly unlikely to affect Natterjack Toad habitats in the Dee Estuary habitats located over 3km away.	N/A
	Release of harmful chemicals from machinery or works during construction	Natterjack Toad is a terrestrial species and there is no terrestrial pathway for this species to be impacted by harmful chemicals	N/A

Which Natura 200 sites might be affected by the proposal?	Based on the project specification or information provided in the application, it is considered that the following Natura 200 sites have features which could be affected by the project: Liverpool Bay SPA, Dee Estuary SPA, SAC.		
		from the scheme location over 3km away.	
	Spread of invasive non-native species	The invasive non-native species acorn barnacle <i>Austrominius modestus</i> , has been recorded on groynes near to the site. The works therefore have the potential to cause the spread of this species.	N/A
	Alteration of coastal morphology processes during operation	Given the length of coastline that would be affected by the proposals, there is potential to alter coastal processes, in particular when considered cumulatively with committed development at East Rhyl. Although coastal processes operating along this section of coastline are generally weak, there is potential for an impact mechanism on European designated habitats to be complex and permanent.	A detailed coastal processes study is required to understand the impact of changes to the morphology of the coastline on longshore coastal processes.

4 Cumulative Impacts

Development	Description	Potential for cumulative effects
East Rhyl Coastal Defence Scheme	The East Rhyl Coastal Defence Scheme is a proposed development to add a rock armour revetment to strengthen the East Rhyl area from coastal flooding. The rock armour would be approximately 600m	Works should be completed by time works start, so unlikely for cumulative impact on traffic.

Development	Description	Potential for cumulative effects
	long and 30m wide. It is also proposed that the current sea wall also be replaced with a larger structure. It is expected that the construction phase of the site would be completed by the time the any work on this scheme would begin.	• Potentially cumulative impact on coastal processes that may affect sediment deposition, and therefore habitats within the designated sites • General improvements to Rhyl's coastal front could increase number of tourists visiting the area, which may have negative impacts upon the designated sites.
Prestatyn Coastal Defence Scheme	The Prestatyn Coastal Defence Scheme is a proposed development to add rock armour revetment and other defences along 4km of Prestatyn's coastline. There is the potential for the construction phase of this project to occur at the same time as this project.	• Could result in a cumulative increase in traffic along transport routes. • Potentially cumulative impact on coastal processes that may affect sediment deposition and therefore habitats within the designated sites • General improvements to the coastal front of Rhyl and Prestatyn could increase the number of tourists visiting the area, which may have negative impacts upon the designated sites. • Potential for cumulative effect of noise and visual impacts upon designated sites. • It was considered the amount of sediment disturbed by the works was negligible, however in combinations with the works at Prestatyn a cumulative effect may occur.

5 Conclusions

This assessment was carried out in order to identify designated sites that may be significantly impacted by the works. This assessment applies the precautionary principle, where if there is any uncertainty, and it is not possible based on the information available to confidently determine that there will be no significant effects on the site, then the project will be subject to a further appropriate assessment (HRA Stage 2). This represents a precautionary approach to the assessment.

This assessment has found that whilst significant effects on the designated sites are unlikely, certain impact pathways cannot be ruled out and therefore further assessment is required. Potential impact pathways to designated sites were identified only to the Liverpool Bay SPA, due to its proximity to the site. Similarly given the length of coastline that would be affected by the outline proposals, there is potential to alter coastal processes, in particular when considered cumulatively with committed development at East Rhyl. Although coastal processes operating along this section of coastline are generally weak, there is potential for a complex and permanent impact mechanism on features of the Liverpool Bay SPA, and Dee Estuary SAC, SPA and Ramsar.

A detailed coastal processes impact assessment is therefore required to understand the impact of changes to the morphology of the coastline on longshore coastal processes. Under Regulation 26 of the EIA Regulations 'coordination of assessments' with the requirements Directive 92/43/EEC and Directive 2009/147/EC would be required. Given the recent European Court of Justice ruling on *People Over Wind* and *Sweetman v Coillte Teoranta*, it is important to note that any mitigation measures identified as part of EIA cannot be used to inform the requirement for HRA Appropriate Assessment in HRA Stage 2.

References

JBA (2018) *Central Rhyl OBC Preliminary Ecological Appraisal Report*. JBA Consulting, unpublished.

JNCC (2015) *Dee Estuary Special Area of Conservation* [Online] Available at: <<http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUcode=UK0030131>> [Accessed 17th April 2019]

JNCC (2017) *Liverpool Bay Special Protection Area (SPA)* [Online] Available at: <http://jncc.defra.gov.uk/page-7507> [Accessed 17th April 2019]

Natural England & Countryside Council for Wales (2010) *The Dee Estuary Marine Site* [Online] Available at: <publications.naturalengland.org.uk/file/3947690> [Accessed 17th April 2019]

Natural England & Countryside Council for Wales (2012). *Liverpool Bay / Bae Lerpwl Special Protection Area. Advice under Regulation 35(3) of The Conservation of Habitats and Species Regulations 2010 (as amended). Version 6.5 (October 2012).* [Online], Available at: <<http://publications.naturalengland.org.uk/publication/3236717>> [Accessed 17th April 2019].

Natural England (2019) *European Site Conservation Objectives for Liverpool Bay / Bae Lerpwl Special Protection Area Site Code: UK9020294* [Online] Available at: <<http://publications.naturalengland.org.uk/publication/5089733892898816>> [Accessed 17th April 2019]

Natural England (2019) *European site Conservation Objectives for The Dee Estuary Special Protection Area Site Code: UK9013011* [Online] Available at: <<http://publications.naturalengland.org.uk/publication/6557770283220992>> [Accessed 17th April 2019]

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Appendix F Heritage Desk Based Assessment