

By email
Reference- 290063

Permit Receipt Centre
Natural Resources Wales
Cambria House
29 Newport Road
Cardiff
CF24 0TP

Dear Sir/Madam

22/09/2023

**Environmental Impact Assessment (EIA) Screening Opinion Request
Marine Works (Environmental Impact Assessment) (Amendment)
Regulations 2017
Rhymney Great Wharf Polders
Natural Resources Wales**

Ove Arup and Partners Ltd. (Arup) is working with Natural Resources Wales (NRW) to restore and enhance priority saltmarsh habitats along the Rhymney Great Wharf. This EIA Screening Opinion request provides our view on the EIA Screening status of the proposed works for your consideration and provides for a formal request for an EIA Screening Opinion from NRW's Marine Licensing Team. This report is prepared in accordance with the Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2007; hereafter referred to as the 'EIA Regulations'.

1. Background

Rhymney Great Wharf is located approximately 5km to the north-east of Cardiff City Centre on the Severn Estuary foreshore, seaward of the Wentlooge Sea Defences (approximate grid reference ST 23126 77613 to ST 24992 78619).

The upper vegetated saltmarsh is referred to as the 'wharf' and the lower unvegetated foreshore as the 'mudflats'. The Wentlooge Sea Defences protect an area of low-lying land, of which approximately 32km² lies below Mean High Water Springs (MHWS). The wharf contributes to the flood defence by reducing the incident wave energy on the embankment. Currently there are five existing polders along Rhymney Great Wharf (Polders 1-4 constructed in 2005 and Polder 5 constructed in 1988), which have received little or no maintenance since construction.

This Project seeks to restore and enhance priority saltmarsh habitats along the Rhymney Great Wharf by installing polders and extending the polder system to the west. Polders are fences constructed of brushwood materials (e.g. willow branches) inserted between chestnut fence posts in a rectangular pattern across the mudflat at an appropriate height to facilitate accretion of sediment (c.3m below Mean High Water Springs – MHWS). Tidal currents are slowed by the fences, and wave movements reduced, so that sediment can more

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easily settle out of the water column and encourage accretion that supports saltmarsh regeneration. This will provide a multitude of outcomes and benefits, including for biodiversity, flood protection and carbon sequestration.

The upper vegetated saltmarsh is referred to as the ‘wharf’ and the lower unvegetated foreshore as the ‘mudflats’. The Wentlooge Sea Defences protect an area of low-lying land, of which approximately 32km² lies below Mean High Water Springs (MHWS). The wharf (saltmarsh) contributes to the flood defence by reducing the incident wave energy on the embankment. The Site falls within the Wentlooge Theme Area Policy Units of CAR3 [Western - Rhymney Wharf End] and WEN1 [Anchor Head to Lavernock Point] of the Severn Estuary Shoreline Management Plan (SMP) 2.

Currently there are five existing polders along Rhymney Great Wharf (Polders 1-4 constructed in 2005 and Polder 5 constructed in 1988), which have received little or no maintenance since construction.

2. Scheme Development

2.1 Proposed Scheme

Rhymney Great Wharf Polders aims to re-establish historic saltmarsh extents along the foreshore of the Severn Estuary (approximate grid reference ST 23126 77613 to ST 24992 78619). See Figure 1- Site Location Plan.



Figure 1. Site Location Plan

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The polders that were constructed approximately 20 years ago have been successful in reducing hydrodynamic energy, allowing sediment to settle and expansion of saltmarsh in the more easterly polders. By installing the polders along this frontage, the aim is to promote sediment deposition in the first instance, to reduce or ideally reverse the erosive trends currently being experienced. This should have benefits for the mudflat feature initially, and then saltmarsh may develop in areas where the conditions allow. It has been estimated that over time there is potential for up to 5.9 hectares of saltmarsh gain.

Successful delivery will promote the expansion of saltmarsh within the Special Area of Conservation (SAC) – Atlantic saltmarsh is a defined feature of the SAC - and Site of Special Scientific Interest (SSSI), functional supporting habitat of the Special Protection Area (SPA) and Ramsar site ¹ (refer to section 3.1.1 for details of these sites), a Priority Habitat of Principle Importance in Wales, a critical nursery and spawning habitat for fish, a highly efficient carbon sink, and will support coastal resilience by reducing erosional forces and encouraging further accretion.

An additional key aim of the project is to provide flood risk benefits. There is already a significant embankment in this location, and works have been undertaken previously to place rock armour at the edge of the saltmarsh and within creeks to protect the remaining saltmarsh that is present. There is significant flood risk behind the structure and the long-term SMP policy is *Hold the Line*. The project aims to delay more significant investment/works to the more formal/traditional flood risk infrastructure, which would likely involve raising the embankment, and protection works to the toe of the structure due to mudflat/saltmarsh erosion etc. These alternatives may be needed eventually, but there is an opportunity to at least delay a project of that nature, and potentially avoid it.

2.1.1 Temporary Works

We anticipate the following construction methodology:

- The scheme will be constructed using specialist plant operating on the foreshore. This will be a combination of tracked and amphibious plant, selected to suit the soft underlying ground. Specialist plant means that damage to intertidal habitat will be minimal and recovery is anticipated within a short time frame.
- Plant will access the site area using the existing access routes from Wentloog Avenue, subject to agreement with third party landowners. Minor works may be required to widen accesses through fences or to create passing places. Specialist plant means that damage to intertidal habitat will be minimal, and recovery is anticipated within a short time frame.
- A new temporary access ramp onto the foreshore will be required, crossing the existing revetment. This will be constructed from stone and would be removed following construction to allow for habitat recovery.
- The Project will require temporary access onto the foreshore for the installation of wooden stakes to form the polders, utilising specialist tracked vehicles. Where possible, polder openings will align with existing naturally occurring channels to minimise disturbance to the sediment and work with natural processes.
- Construction is planned to take place over the summer of 2024, to avoid the wintering bird season. A temporary storage compound location remains to be confirmed, but any temporary construction

¹ Ramsar sites are internationally important wetlands, designated under the Convention on Wetlands of International Importance especially as Waterfowl Habitat. Ramsar (Iran), 2 February 1971. UN Treaty Series No. 14583. As amended by the Paris Protocol, 3 December 1982, and Regina Amendments, 28 May 1987.

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infrastructure will be located within areas of lower ecological sensitivity – informed by knowledge of existing habitats and agreed with NRW before construction starts, including any discussions around mitigation to reduce temporary impacts such as bog mats.

3. Environmental Baseline

3.1 Biodiversity

3.1.1 Statutory and Non-Statutory Designated Sites

Internationally Designated Sites

The site location is located within the Severn Estuary SAC, SPA and Ramsar site (collectively known as Severn Estuary European Marine Site), refer to appendix A- Environmental Constraints Plans.

The Severn Estuary SAC hosts the following Annex I habitats that are a primary reason for selection of this site: estuaries, mudflats and sandflats not covered by seawater at low tide, and **Atlantic salt meadows (*Glauco-Puccinellietalia maritima*)**. Whilst the primary focus of this project is to restore and expand the saltmarsh (salt meadow) SAC feature, the project is also likely to support the intertidal sand and mud feature by retaining sediment and also retaining or restoring transition zones between the two habitats. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site include sandbanks which are slightly covered by sea water at all times, and reefs. The site also supports Annex II species that are a primary reason for selection: sea lamprey (*Petromyzon marinus*), river lamprey (*Lampetra fluviatilis*) and twaite shad (*Alosa fallax*).

The Severn Estuary SPA supports passage ringed plover (*Charadrius hiaticula*) and overwintering Bewick's swan (*Cygnus columbianus bewickii*); curlew (*Numenius arquata*), dunlin (*Calidris alpina*), pintail (*Anas acuta*), redshank (*Tringa tetanus*), and shelduck (*Tadorna tadorna*).

Severn Estuary SPA qualifying interest features:

- Internationally important populations of regularly occurring Annex 1 species - Bewick's swan.
- Internationally important populations of regularly occurring migratory bird species - European white-fronted goose, dunlin, redshank, shelduck, gadwall.
- Internationally important assemblage of waterfowl - Bewick's swan, European white-fronted goose, dunlin, redshank, shelduck, gadwall, wigeon, teal, pintail, pochard, tufted duck, ringed plover, grey plover, curlew, whimbrel, spotted redshank, lapwing, mallard and shoveler.

Severn Estuary Ramsar site qualifying features:

- Estuaries.
- Migratory fish species.
- Internationally important populations of waterfowl - Bewick's Swan, European white-fronted goose, dunlin, redshank, shelduck, gadwall.
- Internationally important assemblage of waterfowl (wintering - w, passage - p)-Bewick's swan (w), European white-fronted goose (w), shelduck (w), dunlin (w, p), redshank (w, p), gadwall (w), ringed plover (w, p), whimbrel (p), teal (w), pintail (w), wigeon (w), pochard (w), tufted duck (w), grey plover (w), curlew (w), spotted redshank (w).

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Nationally Designated Sites

The site is located within the Gwent Levels – Rumney and Peterstone Site of Special Scientific Interest (SSSI) and the Severn Estuary SSSI. Refer to appendix A- Environmental Constraints Plans.

The Severn Estuary SSSI is of international importance for wintering and passage wading birds. It holds most of the estuary's internationally important curlew and redshank populations, and most of its nationally important ringed plover (*Charadrius hiaticula*) and grey plover (*Pluvialis squatarola*) populations. It is of international importance for dunlin (supporting c. 7.5% of the British wintering population).

The Gwent Levels – Rumney and Peterstone SSSI is one of a series of SSSIs within the area between Chepstow and Cardiff known as the Gwent Levels. The Severn Estuary SSSI is contiguous with the southern boundary of this area. The Gwent Levels constitute the lowlands between Cardiff and Chepstow and are drained by an ordered network of drainage ditches. The Rumney and Peterstone area supports a number of important plant species including the nationally rare brackish water-crowfoot *Ranunculus baudotii* and several regional rarities including the pondweeds *Potamogeton obtusifolius* and *Potamogeton berchtoldii*.

The site also falls partially within Rhymney Great Wharf Site of Important Nature Conservation (SINC).

3.1.2 Habitats

Rhymney Great Wharf was surveyed for detailed habitat types by NRW on 25th May 2017, the results of which are summarised below. The extent and distribution of the National Vegetation Classification (NVC) types recorded is showed below (Figure 2).

The saltmarsh of this sector has a simple marsh structure that largely consists of an upper marsh zone and a lower marsh zone, with the two often separated by a small mud cliff up to 1.2 m high, or by rock armour. Middle marsh communities are infrequent and confined to the eastern extreme, where the marsh is at its widest. Most of the upper marsh is referable to SM16 *Festuca rubra* saltmarsh NVC type, with SM16c (*Festuca rubra* – *Glaux maritima* sub-community) the most frequent sub-community encountered. The seaward edge of the upper marsh is slightly raised in comparison to the landward marsh behind and here, stands of SM24 (*Elymus pycnanthus* saltmarsh) dominated by *Elytrigia atherica* have developed. At the landward boundary, along the seawall, the saltmarsh is surprisingly more transitional between *Festuca rubra* dominated vegetation and *Puccinellia maritima* dominated vegetation and is referable to SM16a (*Puccinellia maritima* sub-community). It appears to lie lower than the adjacent stands of SM16c, but it also shows signs of previous poaching, so occurrence may be the result of historic grazing, topography, or a combination of these two factors.

The lower marsh is dominated by SM6 (*Spartina anglica* saltmarsh) NVC type. The vegetation is generally species-poor and dominated by *Spartina anglica*, which occurs along with frequent bare mud and a scatter of associates such as *Aster tripolium* and *Cochlearia anglica*. At the western extreme the SM6 is fragmented; moving east stands become much more consolidated and large patches of bare mud are less frequent. Within the eastern most polder the SM6 marsh is more or less continuous.

Areas of disturbed ground (typically tracks or paths) occur at both the western and eastern extremes and although undesirable for the most part, have created a niche for *Puccinellia rupestris*. Small saltpans with affinities to SM23 (*Spergularia marina* – *Puccinellia distans* saltmarsh) were also recorded. Stands of open water and bare ground occur along the narrow western arm behind the rock armour and may indicate further erosion of saltmarsh is occurring. There is some evidence of freshwater influx with very occasional stands of S4 (*Phragmites australis* swamp and reedbed) and the presence of standing brackish water evidenced by the occurrence of small stands of S21 (*Scirpus maritimus* swamp). At the western end several of the creeks and areas behind the rock armour sea defence have been in-filled with block stone, presumably to prevent further erosion of the saltmarsh.

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Figure 2. NVC Survey Results

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3.2 Historic Environment and Landscape

The foreshore is rich in documented archaeological finds and there is a nearby Scheduled Monument (Relict Seawall – Ref. GM474). The site is located within the Gwent Levels Historic Landscape.

3.3 Water Environment

The project is located adjacent to several main rivers (identified via NRW's Flood Map for Planning):

- Tabbs Gout- running along the coast adjacent to the site.
- Rhymney- approximately 600m south west.
- Tarwick Reen- approximately 600m north north east.

The associated Water Framework Directive (WFD) River Waterbody for Tabbs Gout (identified via NRW Water Watch Wales) is Rhosog Fach Reen - source to Seven Estuary (GB109056026770). It is classified under the WFD (Cycle 3, 2021) as overall Moderate quality.

The site falls within the Severn Lower Transitional Waterbody (GB530905415401). This is classified under the WFD (Cycle 3, 2021) as overall Moderate quality and designated as Heavily Modified.

According to the Natural Resource Wales (NRW) Development Advice Map, the site is located within Flood Zone C2 - without significant flood defence infrastructure. Correspondingly, the NRW Flood Map for Planning records the site as within Flood Zones 3. There is an existing flood defence embankment that runs along the coast between the foreshore and the land.

3.4 Socio-economic

The Wales coastal path runs along the site, used recreationally by walkers. Access will be required to the foreshore at intervals across the Wales Coast Path. Temporary diversions and closures may affect local users and traffic; however, this is anticipated to be minor and temporary. The site is bordered to the north by scattered residential properties and businesses, predominately along Wentloog Avenue. The nearest school is located approximately 2.5km northwest of the site (Greenway Primary School, Rumney).

4. EIA Screening Opinion Request

4.1 Schedule A1 Assessment

The project is not of a kind described in Schedule A1 of the EIA Regulations.

4.1.1 Schedule A2 Assessment

Schedule A2 Infrastructure projects (69) includes for: *coastal work to combat erosion and maritime works capable of altering the coast through the construction, for example, of dykes, moles, jetties and other sea defence works, excluding the maintenance and reconstruction of such works*. The works are proposed within an environmentally sensitive area- the Severn Estuary European Marine Site.

Due to the works meeting the Schedule A2 description and being located within a sensitive area, the works are considered to be Schedule A2 Development and require an EIA Screening Opinion to determine whether the works constitute EIA Development.

As such, a Schedule 2 assessment is required to determine whether the works are likely to have significant effects on the environment and therefore require formal Environmental Impact Assessment and preparation of an Environmental Statement.

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4.1.2 Schedule 2 Assessment

Where a project is determined to be Schedule A2 Development, the appropriate authority must then decide whether the project would be likely to have a significant effect on the environment, having regard in particular to the relevant ‘selection criteria’. Three broad criteria which should be considered for Schedule 2 assessment are identified in the EIA Regulations and are considered in more detail below:

- i. Characteristics of the project;
- ii. Location of the project;
- iii. Types and characteristics of the potential impact.

Characteristics of Development

The proposed development comprises reinstatement and extension of sedimentation polders to restore and enhance priority saltmarsh habitats along the Rhymney Great Wharf. This will have multiple benefits, including priority habitat creation, carbon sequestration and flood defence. This will support the local community, businesses and critical assets with increased flood protection resilience.

The installation of the polders will be a temporary activity implementing specialist plant to access the intertidal. Installation will occur within intertidal mudflat that is resilient to disturbance, typically renaturalising within a short time frame.

Works within the intertidal will be undertaken at low tide to avoid any high tide roost disturbance and minimise sediment suspension. Production of waste is likely to be minimal and best practice procedures will be integrated to avoid potential pollution incidents. No risk of major accidents or disasters are relevant to the development and there is no significant risk to human health.

Overall, the characteristics of development are positive over a long duration.

Location of the project

For any Schedule A2 Development, EIA is more likely to be required if it would be likely to have significant effects on the ‘environmental sensitivity’ of areas likely to be affected. In each case, it will be necessary to judge whether the likely effects on the environment of that particular development will be significant in that particular location.

The proposed development is located in a ‘sensitive area’ as defined by the EIA Regulations, with the site being within the Severn SAC, SPA, SSSI and Ramsar site. The polders will initially trap sediment and enhance the intertidal sandflat and mudflat feature, and over time, saltmarsh will gradually establish. Full coverage of saltmarsh is unlikely, and the polders will support the maintenance of a transition between the two habitats driven by localised topography and erosive pressures. Over the longer term, considering climate change impacts, hydrodynamic pressures will increase, and some saltmarsh habitat may revert to mudflat. Both saltmarsh and intertidal mudflat are under erosive pressure within the Severn Estuary; however, the extent of saltmarsh is significantly smaller than intertidal mudflat, hence the importance of restoration. A Habitats Regulations Assessment (HRA) Stage 1: Screening will be undertaken to determine any potential pathways for effect and will be submitted alongside any planning application.

Characteristics of the Potential Impact

The proposed development will have a substantial positive long-term beneficial effect on the area, creating saltmarsh habitat, improving coastal defences and providing resilience in light of potential climate change impacts, including increased storminess (frequency and intensity) and sea level rise. If this project is

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effective in delaying more substantive upgrade to the embankment/formal defence infrastructure, then it will help to avoid impacts on the protected features and habitat that may arise from those works.

The primary objective of the project is to expand saltmarsh habitats within the Severn Estuary; this activity is directly linked to the beneficial management of the SAC. Potential pathways for effect on the associated SPA and Ramsar site will be considered through the Habitat Regulations Assessment (HRA) process, in addition to other SAC features. An Information to Inform an HRA (shadow HRA) will be prepared to support the Town Planning and Marine Licence applications. Potential effects on the SSSIs will be considered and minimised through project design.

An Environmental Action Plan (EAP) will be prepared that will include measures to avoid and reduce any environmental effects identified during design development. This will be submitted in support of the Town Planning and Marine Licence applications to provide confidence that construction will be delivered implementing best environmental practice.

Consultation with both Cadw (Historic Environment) and Glamorgan and Gwent Archaeological Trust (GGAT) has been undertaken. Cadw have advised that significant impacts to the Scheduled Monument [GM474 Relict Seawall] and Registered Gwent Levels Landscape of Historic Interest are not considered likely. GGAT have advised that although the area has potential to contain archaeological remains, there are not considered to be any archaeological constraints or issues with the project. This scheme is not likely to cause any adverse impact on the character of the landscape or visual amenity. No significant impacts are anticipated to heritage interest.

A Water Framework Directive (WFD) assessment of the proposed development will be undertaken to support the marine licence and planning applications. No significant effects are anticipated.

Strict pollution prevention measures will be detailed within the EAP, biosecurity precautions and measures to prevent pollutants entering any waterbody. It is not anticipated that there would be significant effects to water quality during construction.

During installation of the polders there will be a small number of vehicles accessing the area over a short timescale; any air quality effects from vehicle emissions are therefore considered to be minimal and temporary. Dust reduction measures will be integrated into the EAP if deemed necessary. No significant noise impacts are anticipated during polder installation and no operational noise would occur. All works will take place outside of the wintering bird season. All works would occur on the marine side of the sea defence embankment that would act as a noise barrier. Regardless, noise will be considered further following confirmation of construction methodology.

4.1.3 Cumulative Effects Assessment

Marine licences were reviewed for potential applications within a radius of 1km that may have potential cumulative effects with the project. No relevant marine licence applications were found. Please could you advise if you are aware of any other developments that should be considered in relation to the project.

5. Indicative EIA Screening Conclusion

The proposed scheme is required in order to install and extend polders to allow the re-establishment and expansion of saltmarsh habitat at Rhymney Great Wharf that will also contribute to improve flood defence resilience. It is our opinion that the positive benefits of the proposals, short term nature of temporary works required to install the polders and commitment to requisite assessments (HRA, WFD) to support planning

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and marine licence applications, and best practice measures secured by a Project Environmental Action Plan, that significant effects on the environment would not be likely.

Under the EIA Regulations, the project is not considered to constitute a Schedule A1 development but are considered to be Schedule A2 Development by virtue of all coastal defence works requiring EIA consideration. The Schedule 2 Assessment concludes that the project would be unlikely to have a significant effect on the environment, whilst beneficial effects are predicted through the saltmarsh creation and re-establishment of coastal flood resilience measures. As such, the project is **not** considered to constitute EIA development and a formal EIA is not deemed to be required. Please do not hesitate to contact me should you wish to discuss this further. I look forward to hearing from you with an EIA Screening Opinion in due course.

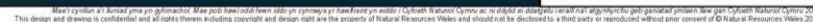
Yours faithfully

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Appendix A- Environmental Constraints Plans



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