

# Scapa Deep Water Quay Environmental Impact Assessment Report: Non - Technical Summary

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Note: The above image is indicative and provided for information purposes only

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September 2025

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# *Introduction*

## *Background*

In August 2020, Orkney Islands Council Harbour Authority (OICHA) launched the Orkney Harbours Masterplan Phase 1, (after Orkney Island Council (OIC) Members approval in April 2020) a proposed and ambitious £230 million infrastructure vision to be completed over a 20 year period. Proposals focus on harbour infrastructure enhancements that will generate jobs, additional revenue and attract new business. It represents the first step in a review of Orkney Harbour Authority infrastructure to create a base for innovation and to secure the long-term future for the community associated with maritime activities.

The Masterplan embraces and supports decarbonisation and transition away from fossil fuels. The infrastructure proposals have been designed to enable Orkney to manage this transition while continuing to generate social and economic benefit from the oil and gas industry while it slowly declines.

Phase 1 of the Masterplan considers five main locations on the Orkney Mainland, namely and in no priority:

1. Scapa Deep Water Quay;
2. Hatston Pier and Harbour;
3. Existing Scapa Pier;
4. Kirkwall Pier and Harbour; and
5. Stromness.

The Phase 2 of the Masterplan exercise has recently commenced and will address the condition and development requirements of smaller harbours and piers across the archipelago.

## *Consenting Process*

The Environmental Impact Assessment (EIA) was undertaken under both the Town & Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 and the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the Marine EIA Regulations').

The purpose of this Non-Technical Summary (NTS) is to provide a summary of the findings of the EIA. The purpose of the EIA is to determine whether the Scapa Deep Water Quay development will have significant effects on the environment. Where significant effects are predicted, the EIA considers the scale and magnitude of these effects, together with measures to mitigate them. This NTS sets out the scope of the EIA, the methods used, and the findings of the assessment.

## *Supplementary*

### *Environmental Information*

The Supplementary Environmental Information Report (SEIR) reports on the likely significant environmental effects of updated environmental information and changes to the scheme assumptions.

The SEIR (dated May 2025) contains the following as appendices:

- A. Consultee Comments/Signpost Report
- B. Habitat Regulations Appraisal
- C. Ornithology Report
- D. Seal Risk Assessment
- E. Basking Shark Risk Assessment
- F. Marine Mammal Risk Assessment
- G. Dredging Best Practicable Environmental Option Report
- H. Drawing
- I. Outline Construction Environmental Management Document

## *The Site*

Scapa Deep Water Quay will be situated within a rural area of the Orkney Mainland, circa 4km south from the existing Scapa Pier, and ~6km from the centre of Kirkwall – within the parish of Holm, in the vicinity of Deepdale. The site at present is largely pastureland, with isolated residential dwellings and farmsteads located along the extent of the A961.

The site itself is currently undeveloped coastline comprising a gravelly beach and in places exposed rock bordered on the landside by a rock face circa 3m in height. The land above the rock face comprises rough grazing which slopes upwards to the east and the A961. The Burn of Deepdale is to the north with a rocky promontory forming a natural barrier to the south. There is currently a rough track from the A961 to the coastline.



*Above: Site Location Plan*

Gaitnip Hill Local Nature Conservation Site (LNCS) is located immediately to the north of the Burn of Deepdale. The Royal Oak designated war grave, and consequent Military Wreck exclusion zone is located ~1,200m to the northwest of the site, and a fish farm is situated ~835m to the south.

## *Structure of this Non-Technical Summary*

The NTS is set out in the same order as the EIA Report (EIAR) and SEIRs, to facilitate cross-referencing and to offer a summary of the environmental findings that will be submitted. The sections within this NTS are therefore as follows:

- 1 Introduction
- 2 Proposed Development
- 3 EIA Methodology and Scoping
- 4 Water Environment
- 5 Biodiversity
- 6 Archaeology and Cultural Heritage
- 7 Seascape, Landscape and Visual Impact Assessment
- 8 Socio-Economics
- 9 Airborne Noise
- 10 Supporting Assessments
- 11 Summary of Significance of Effects

The overall suite of documents associated with the applications comprises the following:

- The EIAR –reports the potentially significant environmental effects of the proposed development on the environment, and is made up of the following:
  - o Volume 1: Written Statement – contains discussion of potentially significant environmental effects and proposed mitigation measures
  - o Volume 2: Figures – this volume includes figures, drawings and diagrams which support Volume 1
  - o Volume 3: Technical Appendices – this volume contains the technical background reports written and used to inform the environmental assessment.

- Supplemental Environmental Information Reports: have been produced to address consultee queries and supplemental information to the EIAR.
- Pre-Application Consultation (PAC) Report: this provides information on the community engagement which has been undertaken prior to this submission with regards to the proposed development, and details public engagement initiatives and attitudes towards the proposed development.
- Non-Technical Summary (NTS) (this document provides a description of the EIA process and its findings in non-technical language).

# *The Proposed Development*

## *Need for Development*

There are specific market opportunities in the offshore wind sector that need access to deep water pier infrastructure, both deep water access and laydown and working areas. However, there is currently no such facility located on the Orkney Mainland coast, and an under provision of such facilities generally in Scotland and the UK. As part of the Orkney Harbours Masterplan Phase 1 development, consideration was given to several possible locations for a deepwater quayside facility, with the site at Deepdale, to the south of the existing Scapa Pier being the final preferred option following a multi-criteria appraisal of multiple options.

The main purpose of this facility would be to undertake multiple industrial activities that require both deepwater berthing and large laydown area. It is envisaged that the main activity will be the construction/assembly and

maintenance of offshore wind turbines, particularly, and in the first instance, associated with ScotWind developments, which support Scotland's approach to transforming the energy sector.

Since the Masterplan was adopted, the overall concept and business case for Scapa Deep Water Quay (SDWQ) has evolved and been redefined. This includes the refinement of the siting of the proposed development, which was originally positioned in an area to the north of the Burn of Deepdale. Following initial site investigations and preliminary ecological surveys, it was concluded a move of the development to its current location would be preferable. The move was a result of the engineering and environmental considerations as listed below:

- The quantity of rock and soil to be removed was determined to be greatly reduced by re-positioning the development on the land to the south of the burn;
  - The current site selected avoided crossing the Burn of Deepdale; and
- Moving the development footprint to the south avoided encroachment into the Gaitnip Hill LNCS, which would have been the case if it were situated to the north of the Burn of Deepdale.

## *The Proposed Development*

### *Original Exemplar Design*

The original exemplar design comprised a 597m long main quayside berth face constructed of steel tubular piles with interlocking sheet piles forming a combi wall solution with a further inner tied sheet pile anchor wall. The anticipated tubular steel piles (approx. 2.1m dia.) for the quay wall required drilled rock sockets to provide suitable pile toe below -15m Chart Datum (CD) dredge level. These works would incorporate Bauer BG41

Drill rigs or similar working over water from temporary piling platforms from the reclamation bund or a jack up barge with silt booms placed to the seaward side. This combi quay wall was to support a concrete cope and deck directly behind followed by general hardcore surfaced laydown reclamation area and drainage.

This exemplar design solution was initially assessed as appropriate at the scheme design stage, however, as stated within Volume 3: Technical Appendix 2.1 of the EIAR, this design *“...may vary once final design and build tender procurement is progressed and contractors individual construction methods are known”*.

### Caisson Design

Following ongoing and recent design work an alternative caisson design approach was identified which focuses on an alternative quay design based on concrete caissons which is suitable given the existing ground conditions and the high operational loads.

A caisson is a large, hollow, precast concrete structure used in marine infrastructure. It is floated to position and then carefully sunk onto a prepared foundation, typically consisting of crushed rock or exposed bedrock. Once in place, it serves as a gravity-based retaining structure capable of withstanding lateral earth and hydrostatic pressures, vessel impacts, and environmental forces. Caissons are particularly suitable for deep-water quays due to their robustness, modularity, and adaptability to various seabed conditions.

The geotechnical assessment based on recent ground investigations leads to a materials balance where reuse of material either dredged or excavated is prioritised.

The Caisson Design option has been selected as the preferred option for various reasons, including the mitigation of potential significant

environmental effects. The prefabrication of caissons off site in Spain allows for a shortened construction programme and reduces environmental impacts from underwater and airborne noise and vibrations/impact as there is no requirement for marine piling or drilling for the caisson design solution.

### Design Criteria

The design, manufacture, and construction of both temporary and permanent marine works shall adhere to current good practice and comply with all relevant and up-to-date Eurocodes, British Standards, Codes of Practice, and other applicable international standards and regulations. This includes structural, geotechnical, maritime, corrosion protection, drainage, and other discipline-specific codes necessary to ensure safety, durability, and regulatory compliance.

The design of the marine structures for the SDWQ Project is based on a minimum design life of 60 years, ensuring resilience in a highly aggressive marine environment, with salt spray, seawater immersion, and scour action. The quay structure must be designed for a return period of 570 years, while the revetment has a return period of 200 years, reflecting different failure probabilities for each element (10% for the quay and 20% for the revetment).

Key design parameters include:

- **Dredging Requirements:** The operational depths of -15.0m CD and -20.0m CD must be achieved.
- **Environmental Conditions:** Consideration of climate change and sea-level rise scenarios (A projected sea level rise of 0.9 m by 2100 is considered, based on national climate projections), with tidal lag and wave conditions (1/50-year, 1/200-year, 1/570-year return periods) integrated into the design.

- **Materials:** Concrete and reinforcement materials must comply with Eurocodes and British Standards, with specifications for exposure classes, cement types, and aggregate properties.
- **Caisson Design:** The caissons are designed with a focus on durability, using concrete that is resistant to corrosion in marine environments. Concrete properties, cement types, and aggregate characteristics have been carefully specified to ensure a long lifespan.
- **Foundations and fill:** Crushed igneous rock is used as the foundation layer, with strict controls on durability and strength. Fill materials inside and behind caissons are selected for high density and internal friction to ensure stability.
- **Scour Protection:** Concrete scour protection mattresses and rock armour is installed to mitigate seabed erosion caused by vessel thrusters and propellers near the quay.
- **Load types considered:** Includes structural dead loads and imposed loads, wave loads, buoyancy effects, hydrostatic pressures, vessel impacts, and backfill pressures.
- **Structural Stability:** The strength and stability of the marine works are evaluated for failure modes such as sliding, overturning, bearing capacity, and structural integrity following BS 6349, Eurocode, and PIANC guidelines. Additional considerations include buoyancy, hydrostatic pressure, and surcharge loads.

These criteria form the foundation for the design of a robust, long-lasting marine structure, ensuring safety, stability, and durability under challenging environmental conditions.

- **Site Setup and Access Road Construction:** The access road design utilises the exemplar design alignment retaining the swale on the northern side and footpath

on the southern side. The road surface has been modified to a fully flexible solution to meet the requirements of the proposed design vehicle and loading.

Safe access and egress from the A961 will be achieved with reflective signage, 2-way lights as necessary, and the utilisation of banksmen.

The contractor will carry out the topsoil strip, overburden removal and elements of rock cut for the new access road. The contractor will place the subbase and surcharge it to act as a robust haul road during the construction programme. This will take cognisance of Scottish Environment Protection Agency (SEPA) comments on the need to protect Groundwater Dependent Terrestrial Ecosystems (GWDTE) in Deepdale.

The contractor will install the service trenching, drainage and ducting as the works progress to ensure water is managed effectively, services can be connected to the esplanade and a safe road is completed prior to temporary traffic using it. Upon completion of the project, the contractor will trim the surcharge and carry out the final surfacing.



The phasing details are:

#### Phase 1

- Installation of the access road from the A961 to the site;

- Excavation of current landform along with reclamation of shore to form 12Ha of laydown area bounded by bunds on the north and eastern edges;
- Creation of 450m of berthing by formation of a quay 320m x ~46m wide; and
- Dredging adjacent to the newly formed Phase 1 quay and proposed Phase 2 quay (i.e. one dredge campaign) to provide -15m CD water depth.

#### **Phase 2**

- Excavation of current landform along with reclamation of shore to form an additional 6 Ha of laydown area to the south of Phase 1 laydown area. The bund on the eastern edge will be extended along the length of the new laydown area and partially along the southern edge; and
- Extension of the Phase 1 quay area by 275m x ~46m to the south

#### **Phase 3**

- Dredging on the southern side of the newly formed quay extension to provide a berthing pocket with -20m CD water depth.
- A separate application will be submitted to MD-LOT at a later stage for the Phase 3 dredge.

- It should be noted that as a design principle, it has been attempted to balance any dredging or cut into the land with construction and/or reclamation requirements. This has avoided the requirement to import virgin material to create the development platform. Sea disposal of dredging material will be avoided as far as possible.

#### **Working Hours**

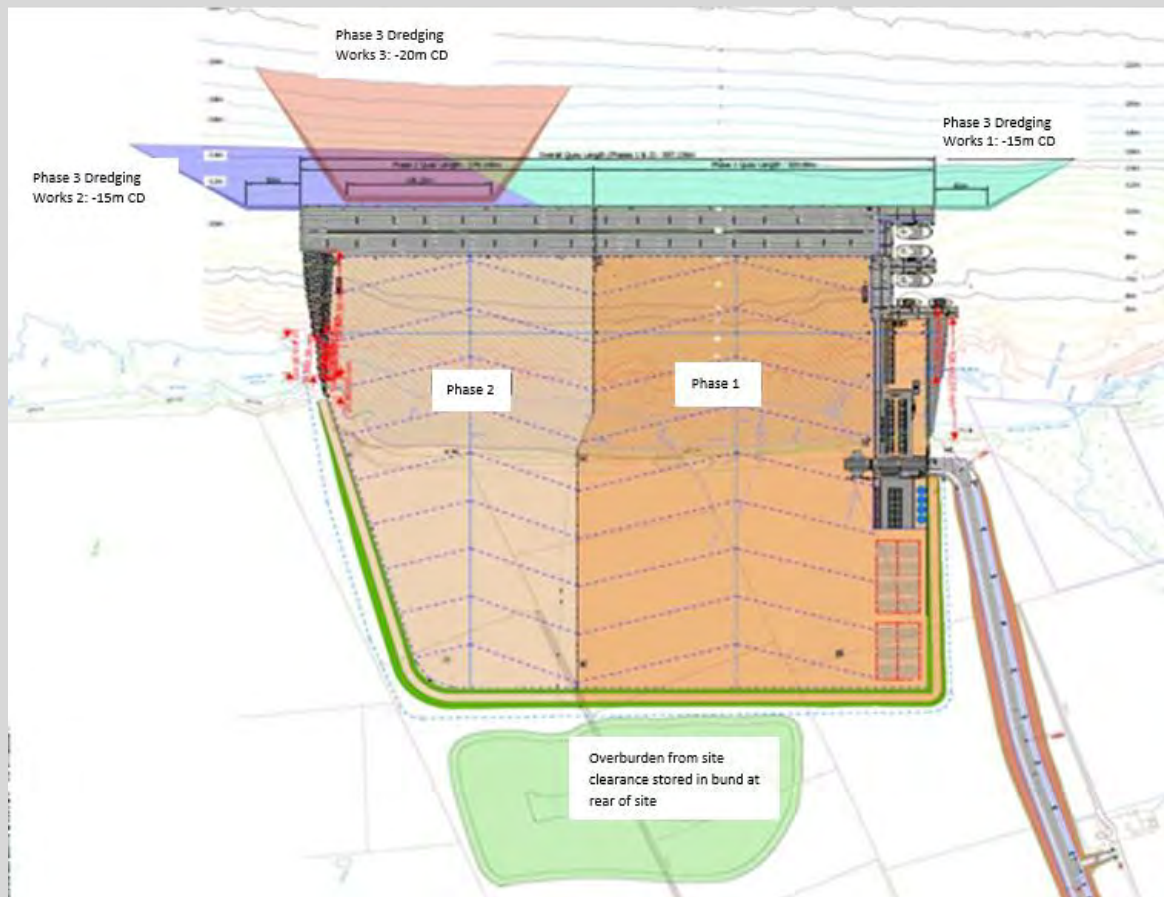
The normal working hours for construction are expected to be Monday – Saturday 7am to 7pm and Sunday 7am until 2pm. Dredging and drilling would be 24 hours, 7 days a week.

#### **Operational Phase**

The development will create new high value-added jobs requiring specific skills. There would also be opportunities during both the construction and operational phases for training and apprenticeships.

#### **Decommissioning Phase**

For a development of this type, decommissioning is not envisaged. Should decommissioning ever be planned in the future Statutory Regulators would be consulted and applications made at that time under whatever future regulatory regime exists at that point in the future.



**Above Proposed SDWQ site**

## Programme

The following provides an overview of the proposed programme and critical paths through the programme.

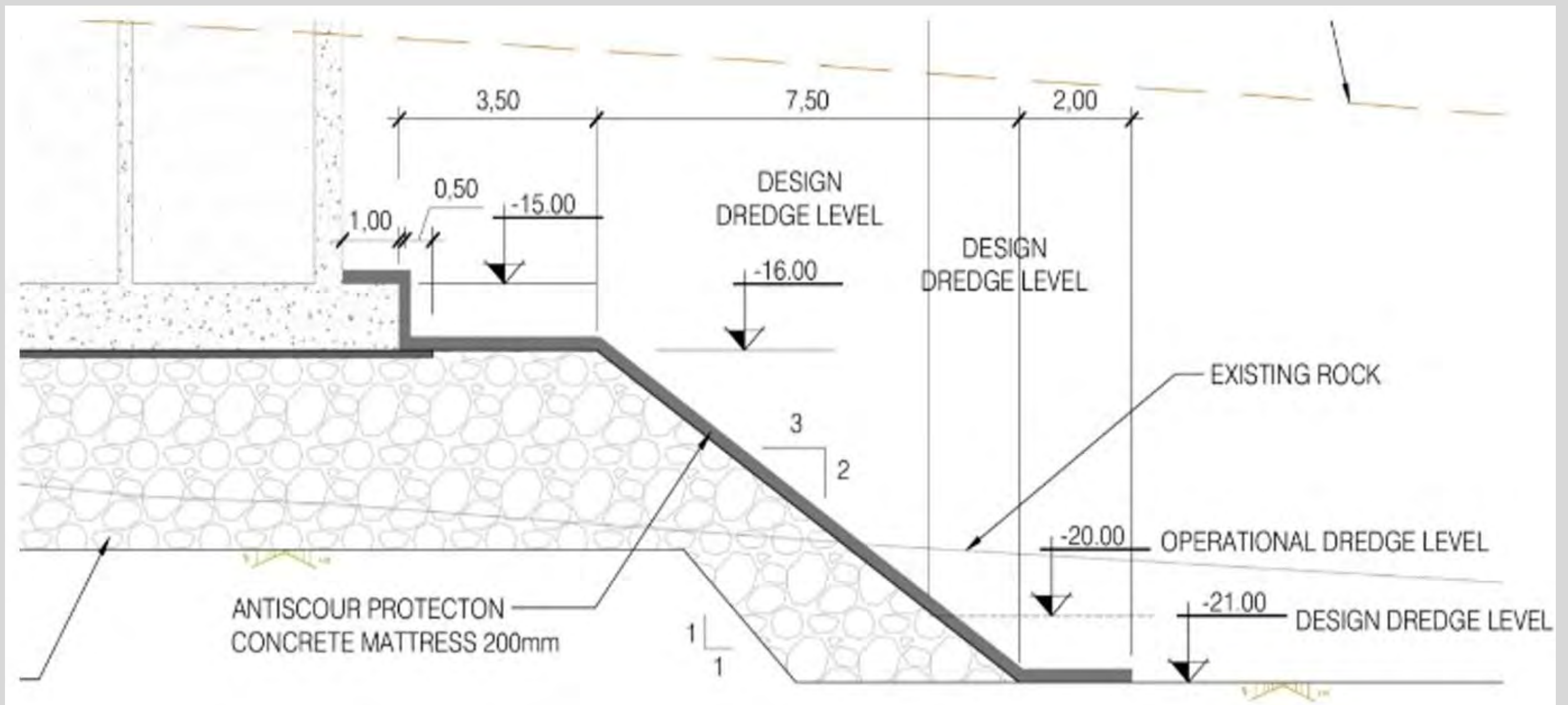


**Above: Proposed Programme**



**Above: Critical path through programme**





Above: Concrete mattress on rock

# *EIA Methodology*

## *& Scoping*

### *General EIA Methodology*

The purpose of an EIA is to identify and evaluate the likely significant effects of a proposed development on the environment, both direct and indirect, and then identify measures to mitigate or manage any significant adverse effects before a planning or marine application is determined.

The EIA process provides an opportunity to 'design out' adverse effects wherever possible by making alterations to the design of the proposed development before the application is submitted and based upon feedback from consultees.

Where significant adverse effects cannot be designed out, mitigation measures can be proposed to avoid, compensate, or reduce significant environmental effects to an acceptable level.

The environmental information gathered during the EIA is derived through a methodical process of identification, prediction, and evaluation of the likely significant environmental effects of the proposed development. This process includes: -

- identifying the sensitivity of the baseline conditions / receptors;
- predicting the magnitude of potential impacts;
- predicting the significant effect of the impacts;
- detailing mitigation measures to limit impacts; and

- predicting the potential residual effects as well as the potential cumulative impacts.

The results and findings are presented in full within the EIAR and summarised in this document.

### *Scoping as part of the EIA Process*

Scoping is defined as 'the way in which key issues are identified from a broad range of potential concerns for inclusion in EIA studies, the areas affected, and the level to which they should be studied.' The scoping process enables the topics to be covered in the EIAR to be agreed, and for those topics not considered pertinent to be scoped out of the study or reduced in scope (i.e. topics where it is unlikely that significant environmental effects will occur).

Scoping Requests were submitted to OIC and Marine Scotland – Licensing Operations Team (MS - LOT) on 31<sup>st</sup> March 2021. A Scoping Opinion was received from OIC on 13<sup>th</sup> October 2021, and from MS-LOT on 22<sup>nd</sup> October 2021.

### *Consultation*

Consultation responses were obtained from the following organisations in respect of the Scoping Reports issued to OIC and MD-LOT:

- Airfield Superintendent;
- Crown Estate Scotland;
- Defence Infrastructure Organisation (Ministry of Defence);
- Fisheries Management Scotland (FMS);
- Health and Safety Executive;
- Highlands and Islands Airports Ltd.;
- Historic Environment Scotland (HES);
- Holm Community Council;
- Kirkwall Airport – Senior Pilot;

- Kirkwall Fisheries Office;
- Marine Safety Form;
- Marine Scotland;
- Marine Services;
- Marine Scotland Science (MSS);
- Marine Scotland – Marine Analytical Unit (MAU);
- Marine Scotland Planning and Policy;
- Maritime and Coastguard Agency;
- NatureScot;
- Northern Lighthouse Board;
- OIC departments;
- Orkney Marine Planning Partnership;
- Orkney Sustainable Fisheries;
- Orkney Trout Fishing Association;
- Orkney Fisheries Association;
- Royal Society for the Protection of Birds (RSPB);
- Royal Yachting Association Scotland (RYA Scotland);
- Scottish Environment Protection Agency (SEPA);
- Scottish Fishermen’s Federation;
- Scottish Fishermen’s Organisation;
- Scottish Sea Farms;
- Scottish Water;
- Scottish Wildlife Trust;
- Transport Scotland;
- UK Chamber of Shipping;
- VisitScotland; and
- Whale and Dolphin Conservation.

## *Supplemental Environmental Information*

Following review of the 2023 EIAR, statutory consultees requested additional information and this was provided in an amended 2024 EIAR. Orkney Islands Planning and statutory consultees requested further supplemental environmental information for ornithology, seals, vessel movements within Scapa Flow and the interaction with birds and seals i.e. disturbance, displacement and potential

fatalities and potential terrestrial noise disturbance. Additional information was also requested for Biodiversity Net Gain/ biodiversity enhancement and GWDTEs. A supplemental Environmental Information Report (May 2025) was issued to Orkney Islands Council Planning and MD-LOT

In order to ensure statutory consultees were kept informed of proposed amendments and to allow for discussion on proposed methods etc. (NatureScot in particular) three Consultation Workshops were held on 21<sup>st</sup> January 5<sup>th</sup> March and 27<sup>th</sup> March 2025.

## *Scope of the Environmental Impact Assessment (EIA)*

Based on the consultation undertaken and responses received, a view was reached on the key topics to be assessed as part of the EIA. These were:

- Water Environment;
- Biodiversity;
- Archaeology and Cultural Heritage;
- Seascape, Landscape and Visual Impacts;
- Socio-Economics;
- Airborne Noise; and
- Other Supporting Assessments, including: Accidents and Natural Disasters; Air Quality; Carbon, Climate Change and Greenhouse Gas; and Transport.

# *Water Environment*

## *Introduction*

This section of the EIAR and SEIRs considered potential impacts of the proposed

development upon water quality, groundwater, tides, waves and sediment transport. The assessment was undertaken in accordance with relevant best practice guidance, by experienced hydrologists and coastal modellers.

The assessment process involved an initial desk-based review of level surveys of the land and seabed, review of literature, ordnance survey, geological mapping, nautical charts, ground investigation and sediment sampling. Consultation was undertaken with key stakeholders to obtain relevant information and to ensure any concerns were addressed within the study.

Computer modelling of tides and waves was undertaken, for both existing and future conditions.

The National Vegetation Classification (NVC) survey identified Groundwater Dependent Terrestrial Ecosystems (GWDTE) located along the cliffs within the site.



Above: GWDTE comprising a Tufa forming spring

## *Impact Assessment and Significance of Effects*

The potential impacts on the Water Environment were identified as:

- Hydrology;
- Water and sediment quality;
- GWDTE;

- Tidal regime;
- Wave climate; and
- Sediment transport.

### **Hydrology, Water and Sediment Quality**

During the construction phase, due to dredge volume, coarse nature of the sediment, and weak tidal currents, the impact of proposed dredging and land reclamation activities was found to be low within the immediate vicinity of the works, and negligible out with the works.

The potential for the operation of the proposed development to impact the water environment found that due to the small contributing catchment and the coastal location, potential impacts on the water environment and coastal processes, with appropriate mitigation in place, would be negligible.

During both phases of the development there is a risk of accidental pollution incidences affecting the water environment (i.e. coastal waters and sediment). The effect of the potential pollution incidences during construction on water quality (high sensitivity) would be dependent on the scale and nature of the incident, therefore the magnitude of impact prior to mitigation may range from low to high, giving rise to effects of moderate to major significance prior to mitigation.

### **GWDTE**

The tufa forming spring communities on the cliff face will be lost because of the proposed development. The proposed development is therefore assessed as having a high magnitude of impact on GWDTE (medium sensitivity) giving rise to effects of major significance prior to mitigation.

### **Tidal Regime, Wave Climate and Sediment Transport**

The results of computer modelling of tides and waves indicate that the impact of the

proposed development on coastal processes will be negligible. Given the negligible impact on tidal velocities and limited localised impact to the wave climate it is considered that there will be a negligible impact on sediment transport (high sensitivity) giving rise to effects of negligible significance prior to mitigation.

## *Proposed Mitigation Measures*

During the construction phase a Construction Environmental Management Document (CEMD) will be developed to ensure that the mitigation measures outlined in the EIAR are followed. The CEMD will include surface water management and pollution prevention measures which follow best practice and comply with SEPA guidance.

A suitably qualified Environmental Clerk of Works (EnvCoW) will monitor the construction works to ensure that the CEMD and associated mitigation measures are being implemented effectively.

During the operational phase, an Operational Environmental Management Document (OEMD) will be in place, and this will include surface water management and pollution prevention measures, which follow best practice and comply with SEPA guidance.

The loss of GWDTE communities will be offset by compensatory habitat creation within the cut faces of the laydown area in the northeast corner of the site.

OICHA shall undertake a planned programme of compliance monitoring to verify the effectiveness of the project's environmental management. Monitoring plans will be established and implemented with the agreement of SEPA, NatureScot and Marine Directorate.

With implementation of surface water management and pollution prevention measures, no construction or operational activities were found to have a significant effect upon the water environment or coastal processes.

As a precautionary measure, OICHA proposes to undertake turbidity monitoring to protect water quality and ensure minimal environmental impact. OICHA propose to monitor sediment re-suspension levels to prevent damage to the local ecosystem and aquaculture as high suspended sediment concentrations can contribute to suboptimal conditions and may harm fish since it affects the overall ecological balance. High turbidity can reduce photosynthetic activity, leading to lower oxygen levels, which in turn affects aquatic organisms. By monitoring turbidity, OICHA can review the site works to confirm that the works are resulting in similar conditions to that predicted in the dredge plume modelling and review the findings to confirm that there are no significant impacts associated with the works. Should the review identify turbidity levels that are higher than were predicted in the modelling works then corrective actions will be implemented.

## *Biodiversity*

### *Introduction*

The biodiversity assessment considered the impact of the proposed SDWQ on designated sites, marine and terrestrial habitats, and protected wildlife, including birds, marine mammals, otters and fish. The assessment was carried out according to the latest guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) by experienced and competent

ecologists who are all Members of CIEEM and follow its Code of Professional Conduct.

A number of studies were conducted to gather baseline information regarding sensitive features within the site and wider area. This included a review of desk-based information available from biological records and bodies such as NatureScot and Marine Directorate. Field surveys were also conducted to identify marine and terrestrial habitats, determine how birds use the site, and if there were protected species such as otter present. Computer modelling was used to determine how noise generated through construction activities would travel underwater.

Designated sites in proximity to the development and scoped into the Habitats Regulations Appraisal for assessment include:

- Scapa Flow Special Protection Area (SPA);
- Orkney Mainland Moors SPA;
- Sanday Special Area of Conservation (SAC) and East of Sanday Site of Special Scientific Interest (SSSI); and
- Hoy SAC

Habitats in close proximity to the development include:

- Unimproved acid grasslands;
- Semi-improved neutral grassland;
- Marshy grassland;
- Bryophyte dominated spring;
- Crevice/ledge vegetation;
- Coastal grassland;
- Kelp and Seaweed communities on sublittoral sediment; and
- Reefs.

Species/species groups include:

- Otter;
- Birds;
- Grey and harbour seal;
- Harbour porpoises;
- Minke whale;

- Dolphinids (Risso's dolphin, white-beaked dolphin, long-finned pilot whale, killer whale);
- Basking shark;
- Marine fish; and
- Commercial Fisheries.



*Above Underwater Orca Pod*

*Website: [20 Incredible Facts About Orcas - Passport Ocean](#)*

## *Impact Assessment and Significance of Effects*

In order to assess the significance of impacts, consideration was given to the predicted duration, frequency, timing, geographical extent and reversibility of impacts, as well as the number of individual animals in a population who would be exposed, or the area of habitat affected.

The proposed works are outside of all the designated sites, with the exception of the Scapa Flow SPA, which overlaps with the site boundary. The protected sites considered within the assessment are designated for mobile species, such as marine mammals and sea birds which could use the waters within and surrounding the site for finding food, resting, or travelling between other important habitats. It was considered that the area of habitat and number of individuals likely to be affected were small in comparison to the total habitat range and populations present within the Orkney Isles, and that with some mitigation, no significant effects would occur.

Surveys identified evidence of otter using the site in the form of spraints, feeding remains and paths. There are also features such as enlarged rabbit burrows along the cliff top which could be used for shelter. The site is not considered to be used for breeding. Some of these shelters will be lost within the footprint of the development. Further survey will be required to confirm their status, and the need for a protected species licence. Otter could be disturbed and avoid using the site during the construction works, but this will not affect the local population as there are alternative habitats they can use.

In relation to birds, nesting habitat for waders, such as Oystercatchers, Curlew and Lapwing, will be lost due to the creation of the access road and laydown area. However suitable habitat is prevalent in the wider site environs therefore the impact is considered to be minor.

A small area of open water foraging habitat for Terns will also be lost (i.e. 0.1% of the available habitat within the wider area). As such it is considered there will not be any long-term effect on the populations of these species in the local area.

For marine mammals and fish, the main impacts arising from construction are from underwater noise generated by activities such as dredging and/or pollution events. Underwater noise can result in changes of behaviour, disturbance, injury or even death in some circumstances when experienced at close range. As these species can all swim freely within the water, as long as they are not too close to the source of the noise when it commences, they will be able to move away before it causes an issue.

Fish kept in commercial cages do not have the option to swim away. The underwater noise model predicts that the fish farm located to

the southwest of the development site is not within the area in which permanent injury / fatality could occur as a result of dredging activities. However, the fish farm is in the area in which temporary hearing loss could occur. The temporary loss of hearing is not considered to affect the overall fitness of fish as the farmed fish will be regularly fed and therefore do not need to actively hunt for food resources. In addition, fish have the capacity to replace hair cells over time.

Once SDWQ deep-water is operational, the main impact to marine mammals and large fish such as basking shark is from the increased risk of vessel strikes, however mitigation will reduce the overall risk.

For the majority of features assessed, the impacts were considered not to be significant at any level once mitigation was taken into consideration. The loss of Priority Marine Habitat within the footprint of the development is considered to be significant within the context of the site, but not the wider Orkney Isles area.

## *Proposed Mitigation Measures*

A plan detailing all the mitigation requirements for the project will be drawn up ahead of construction, and its implementation during construction will be audited independently. This will include a detailed biosecurity plan to avoid the spread of marine invasive species as well as pollution prevention measures.

To avoid the risk of injury or death to marine mammals from activities generating loud noises underwater, a designated person (A standard marine mammal observer (MMO) protocol as per JNCC guidance to be implemented Construction ) will visually

search within a buffer area to make sure there are not any sensitive species present.

A Vessel Management Plan will be implemented which includes agreed routes and speed limits as per Harbour Authority General Directives.



Above Marine Mammal Observer

To reduce risk to offshore wildlife collisions, a Vessel Management Plan will be implemented with agreed routes and safe speed limits for all vessels using the site during construction and operation.

Although the above mitigation will reduce the risk of disturbance to marine mammals and basking shark, it cannot be ruled out entirely, so a derogation licence will be required for those species which are legally protected.

A Biodiversity Enhancement Management Plan (BEMP) will be developed for the onshore and intertidal habitats and approved by the regulators prior to construction commencing. The BEMP will include specific, measurable objectives for habitat creation and management and cover a period of 30 years, with management to be reviewed regularly and informed by monitoring data. It is anticipated that the following actions will be included:

- Creation of habitat features within the rock armour to maximise ecological niches to support a diverse range of species. This can

be achieved passively through careful selection and placement of boulders to create ledges and pools or actively through introduction of features such as ridged concrete tiles which are designed to mimic natural rock features;

- Provision of bird nest boxes suitable for a mix of marine and terrestrial species; and
- Creation of onshore insect shelters such as rock piles, dead wood piles or custom-made bug hotels;
- Progression of a native oyster (*Ostrea edulis*) re-introduction programme in conjunction with other proposed developments by OICHA.
- Funding to a PhD, which commenced in September 2024, which will investigate *"The Native Oyster (Ostrea edulis) Restoration Opportunity: optimising site selection modelling and the effect of climate change on oyster restoration."*

Monitoring will be conducted throughout construction and operational phases to check that mitigation and enhancement measures are achieving their proposed aims. If this is not the case, the mitigation strategies will be reviewed and amended to deliver enhancements as required.

## *Archaeology and Cultural Heritage*

### *Introduction*

The assessment of direct and indirect impacts on the historic environment and assets by the proposed development was a desk-based exercise. The assessment made use of project specific desk-based research, site visits, Zone

of Theoretical Visibility (ZTV), assessment of regular side scan sonar surveys undertaken on behalf of OICHA, and assessment of stratigraphic records of core samples collected during geotechnical survey work.

## *Impact Assessment and Significance of Effects*

Three potential historic environment assets were identified within the development area, comprising Deepdale Post-Medieval farmstead, a low mound with a central depression, and a dyke attached to two small sheep pens. Deepdale Farmstead will not be damaged by the development, as it is located out with areas of proposed intrusive development.

The mound with central depression may be prehistoric but will require further investigation to characterise it fully. The impact from development would result in an uncertain/moderate consequence of impact, which could be a significant impact under EIA Regulations.

The dyke and sheep pens are of negligible importance, and their entire removal would result in a minor consequence of impact, which is not a significant impact under EIA Regulations.

The potential for previously unknown archaeological assets, of low importance, to be present was identified; their entire removal would result in a moderate consequence of impact, which is a significant impact under EIA Regulations.

A single marine historic environment asset - MBES Contact 1 - was identified in the scoping report as being at risk of being impacted by dredging. However changes to the design of the development have ensured there will be no impact upon this asset.

The risk of unknown marine and intertidal historic environment assets in the area of dredging is reduced because of the previous marine geophysical surveys conducted and reviewed. However, it is not possible to entirely discount their presence, as smaller artefacts/wreckage of stone, non-ferrous materials such as aluminium and wood might not be picked up by such surveys. The likelihood of impact on such assets is considered low.

The potential that the site could have long-term effects on the setting of onshore historic environment assets and places, affecting the way in which they are understood, appreciated, and experienced, and thus their significance/importance, was considered. A number of assets and places identified in the scoping were assessed, and no significant impacts were identified.

The potential for the scouring of seabed deposits to expose and damage heritage assets and submerged prehistoric deposits was also considered; the negligible impact from scouring would result in an uncertain/minor consequence of impact, which would not be a significant impact under EIA Regulations.

No significant cumulative impacts were identified.

## *Proposed Mitigation Measures*

Further archaeological investigation, potentially comprising geophysical survey and/or archaeological trial trenching, will be agreed with OIC Planning in advance of the construction phase of the projects. This may lead to further requirements for mitigation, either before or during the construction. Specialist marine archaeological interpretation of the geophysical surveys which took place in

2021 will be undertaken and submitted to OIC and MD-LOT prior to the construction phase of the project.

A Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) to avoid or mitigate accidental impacts and manage any accidental discoveries of archaeological interest will be compiled and submitted for approval to OIC and MD-LOT and fully implemented during the construction phase of the project.

With the implementation of the mitigation measures, the significance of the residual effects will be minor, which is not a significant impact under EIA Regulations.

# *Seascape, Landscape and Visual*

## *Introduction*

A seascape, landscape and visual impact assessment has been undertaken which considers the potential landscape (including townscape) and visual effects of the proposed development.

## *Impact Assessment and Significance of Effects*

Potential effects of the proposed development have been considered for both the construction phase and the operational phase.

The development is a large-scale project proposed in an open, rural and undeveloped part of Orkney. During the construction phase there could be temporary and localised visual

impacts for local residents and visitors to the area, and the assessment has predicted that these could be significant.

Significant operational effects would be more widespread. The proposed lighting would be a particular source of adverse landscape and visual effects both at a local, i.e. within 2km distance from the site, and wider scale. The significant effects on seascape, coastal and landscape character would be associated principally with landscape and coastal areas on the eastern side of Scapa Flow in the southern part of the Orkney Mainland.

The significant coastal and landscape effects would principally be associated with areas within approximately 2km of the site at the Bay of Deepdale coastal pastures (the host landscape area and coastline), but also extend to areas on the southern slopes of Gaitnip Hill, immediately to the north, as from here there are views of the site. The significant effects relate to the relatively undeveloped nature of this area with an absence of large-scale infrastructure. Although anchored rigs are often positioned out to sea (within Scapa Flow), the coastline itself is relatively undisturbed and inaccessible. The effect on the Hoy and West Mainland National Scenic Area (NSA) would not be significant.

Visual effects have been assessed against seven representative viewpoints. Major adverse and significant visual effects would affect residential locations within approximately 2km of the site, however, would extend more widely. Five of the seven principal representative viewpoints assessed would be subject to long term residual significant visual effects (moderate and major). The exception to this would be the more distant views from Scorra Dale and South Ronaldsay from where the site is less visible. The undeveloped nature of this section of coastline is, however, more apparent in

views from distances of up to 5km to 7km, such as at Wester Greenigoe and Burray.

## *Proposed Mitigation Measures*

Opportunities to mitigate adverse landscape and visual effects are limited due to the scale of the

proposed development, and the visually open character of the proposed site and Orkney. Screening the proposed development using either bundled material or planting is not feasible due to the exposed coastal location and topographical context.



*Above View of the development site from West Bu (located to the southeast)*

## *Socio-Economics*

### *Introduction*

An assessment was undertaken of the likely potential socio-economics effects associated with the short-term (construction) and long-term (operation) of the proposed development.

The assessment considered potential social and economic impacts from the proposed development at the site, in the local area, and on the wider population and environment of Scotland. The assessment considered:

- The local Orkney communities;
- Local businesses;

- Marine users; and
- Other local community assets.

### *Impact Assessment and Significance of Effects*

The assessment identified potential effects during both construction and operational phases including:

- Employment opportunities;
- Local spend opportunities;
- The ability of existing local businesses to access the existing Scapa Pier and Bay of Deepdale to perform their job;
- Capacity of the local community and businesses to accommodate the inflow of workers and visitors associated with the development.

A summary of construction and operational phase effects is provided in the tables below.

### Summary of the identified likely construction effects

| Identified Construction Impacts                                                                                                                                                      | Identified Effects      | Residual Effects           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------------|
| Likely temporary increase in employment / jobs for local, regional and national workers.                                                                                             | Slight beneficial       | <b>Moderate beneficial</b> |
| Likely economic impacts to the local businesses as a result of construction workers temporarily residing in Orkney and associated spend.                                             | Slight beneficial       | Slight beneficial          |
| Potential impact on access and operational activities of local businesses and marine users currently using facilities near the development.                                          | Slight adverse          | Slight adverse             |
| Potential impact on capacity of local accommodation during peak season and / or during key events and reducing availability for visitors / attendees / organisers out with OIC area. | <b>Moderate adverse</b> | Slight adverse             |
| Potential impact on the tourist offseason in relation to additional income.                                                                                                          | Slight beneficial       | Slight beneficial          |

### Summary of the identified likely operation effects

| Identified Operation Impacts                                   | Identified Effects | Residual Effects           |
|----------------------------------------------------------------|--------------------|----------------------------|
| New, permanent jobs for local workers and wider opportunities. | Slight beneficial  | <b>Moderate beneficial</b> |
| Benefits for the Orkney economy.                               | Slight beneficial  | <b>Moderate beneficial</b> |
| Continued access and operations for existing local businesses. | Negligible         | Slight beneficial          |
| Local community capacity and council services.                 | Slight adverse     | Slight adverse             |

## Proposed Mitigation

### Measures

Proposed mitigation measures can be summarised as follows:

- Construction
  - In terms of employment opportunities, the contractor should provide local jobs and local training to benefit the local communities in terms of contractual community benefits.
  - Continue to consult with local businesses, including local tourists' groups such as Orkney Tourism Group, throughout the proposed development design and construction programme to manage significant inflow of workers during peak tourist season and large scale events, projects and activities;
  - Engage with local businesses, including marine users, to understand their access and operational requirements. The contractor and design team should ensure that current operations can reasonably continue during construction of the proposed development and effectively communicate when there are any changes to access (including short term changes);
  - Dialogue will be required with OIC and other services to ensure there is sufficient capacity in local services and infrastructure (such as housing and public facilities) to accommodate a large inflow of workers.
  - Community benefits should be maximised, such as the provision of apprenticeships, training, and work experience opportunities, especially

for people between the age of 18 – 24.

- Operation
  - o New permanent employment opportunities should be made available to residents in the first instance, in combination with appropriate training, support and access to higher skilled / paid jobs.
  - o Continued consultation with OIC and Highlands and Islands Enterprise is required, including liaison in respect to undertaking ongoing monitoring of employment forecasts to inform housing need and implications for education, training, and health.

## *Airborne Noise*

### *Introduction*

A Noise Impact Assessment (NIA) was carried out for the proposed development. Noise from the proposed development has the potential to impact surrounding existing residential receptors. Assessment of both construction noise and operational noise has been included in the EIA to address the requirements of OIC and Marine Directorate. This has been supported by measurements of baseline background noise at areas representative of the most exposed properties surrounding the development site.

### *Impact Assessment and Significance of Effects*

#### **Construction Phase**

Significant noise generating construction activities associated with the construction of the quayside and laydown area have been assessed. The greatest weekday and weekend

predicted noise levels are associated with construction Phases 1 & 2, in which activities including land reclamation, and quay works will be carried out. There is the potential that dredging and drilling may be carried out over a 24-hour period, therefore evening and night-time noise levels have been predicted for this scenario.

Terrestrial blasting will consist of approximately one blast per week over 35 weeks (no marine blasting is proposed). As noted in BS 6472-2:2008 (*Guide to evaluation of human exposure to vibration in buildings - Blast-induced vibration*) "Accurate prediction of air overpressure (from blasting) is almost impossible due to the variable effects of the prevailing weather conditions and the large distances often involved."

As referenced by guidance, it is not possible to predict with accuracy the likely levels of air overpressure that will be generated at receptors by the proposed blasting due to high level of variables involved. The best way to control air overpressure is through good blast design and an appreciation of how local weather conditions can influence levels and impacts. Best practice measures will be recommended to minimise vibration and air overpressure generation due to blasting.

The outcome of the assessment is that Neutral impacts are predicted during the day and night-time periods during all construction phases including dredging and drilling. There are no significant adverse impacts in EIA terms.

#### **Operational Phase**

The operational noise assessment considers the increase in potentially significant noise generating activities post development completion.

The following activities have been identified as having the potential to increase noise levels in the surrounding area;

- Deepwater ship berthing and mooring;
- Ship loading / unloading activities including operation of cranes;
- Movement of materials between ships and laydown area;
- Construction / assembly and maintenance of offshore wind turbines;
- Plant and Heavy Goods Vehicle (HGV) movements within quay and laydown area; and
- Loading / unloading of HGVs.

An assessment of operational noise has been conducted. During the day and night-time periods noise levels are predicted to increase by up to a maximum of 2.5 decibels (dB) at Netherbutton Cottages as a result of the operational activities at SDWQ. The maximum significance of the changes in noise levels is Neutral / Slight, which is not significant in EIA terms.

## *Proposed Mitigation Measures*

No significant adverse impacts are predicted during the construction phase.

Noise generating activities including dredging and terrestrial blasting activities during the construction phase will be carried out during the specified working hours and will follow best practice noise management techniques. No additional mitigation measures are proposed.

No significant adverse impacts are predicted during the operational phase. No mitigation measures are therefore proposed.

# *Supporting Assessments*

## *Accidents & Natural Disasters*

### **Introduction**

Major accidents and/or disasters should be considered where the development has the potential to cause loss of life, permanent injury and / or temporary or permanent destruction of an environmental receptor. This section considers the potential for such eventualities.

### **Impact Assessment and Significance of Effects**

The potential for major accidents and / or disasters was considered in accordance with the recent Institute of Environmental Management and Assessment (IEMA) guidance document “*Major Accidents and Disasters in EIA: A Primer*,” hereafter referred to as “The Primer.” Informed by The Primer, the assessment considered the following:

- The development itself was considered in regard to being a source of major accidents or vulnerability to disasters;
- Interactions with external hazards or associated activity; and
- If a major accident or disaster occurred would the existence of the development increase risk of significant effects to environmental receptors.

The Site is not located within an area of significant seismic activity, nor are climatic factors prone to creating natural disasters such as tsunamis, hurricanes or catastrophic fluvial flooding.

It should also be noted that:

- OICHA have an existing Safety Management System, which aims to enhance safety within the Harbour Authority area by ensuring that all marine navigation hazards are identified, control measures are in place, and levels of risks are acceptable.
- OICHA are compliant with the Department for Transport Port Marine Safety Code; and
- The OIC Marine Services division of OICHA ensures that all operations under their jurisdiction are done in such a manner so as to keep safe its users, the public, the harbour area and the surrounding environment.

The assessment, conducted in accordance with The Primer, concluded that:

1. The development itself is not a source of a hazard that could result in a major accident and / or disaster.
2. The development does interact with external sources of hazard as the creation of the new deepwater quay will result in additional vessel movements. Vessel movement hazards were therefore assessed further.
3. The development will not increase the risk of significant effects due to other hazards occurring.

Regarding the potential hazards associated with vessel operations, a Navigation Risk Assessment (NRA) was undertaken to take into account the proposed development. All construction and operational phase hazards identified were assessed in accordance with the International Maritime Organisation Formal Safety Assessment methodology. No hazards were found to be in the High Risk or Significant Risk band.

The NRA also identified that there are a number of over-arching merchant shipping regulations that apply in all ports / harbours in

the UK. There are also additional Risk Control Measures currently in place within Scapa Flow.

The NRA concluded that both existing and anticipated future traffic levels will be relatively low on top of an already low baseline.

On the basis of the NRA the risk of major accident and / or disaster from shipping associated with the development is not considered significant.

### **Proposed Mitigation Measures**

As no significant adverse impacts were predicted, the only mitigation considered necessary is the ongoing updating and review of existing protocols described above, either in response to legislative changes, if port operations are modified in the future, or as part of normal OICHA periodic review.

## *Air Quality*

### **Introduction**

A construction dust risk assessment was completed to allow for mitigation measures to be identified during the construction phase. Likely changes to local air quality, owing to the Proposed Development, have also been considered.

### **Impact Assessment and Significance of Effects**

Potential impacts were identified and can be summarised as follows:

- Construction Phase:
  - Scapa Flow SPA is adjacent to the proposed development. Given the construction dust control measures proposed, the SPA is unlikely to be significantly impacted upon by the proposed development with regards to construction dust emissions.
  - The dust risk assessment concluded that there is a low risk of dust impacts from

earthworks, construction activities and trackout.

- **Operational Phase:**
  - No further assessment is required as the number of vessel movements associated with SDWQ will be less than 100 per annum. Given the low number of ship movements per annum, the proposed development has no significant adverse impact on human receptors or the Scapa Flow SPA.
  - With respect to operational traffic, there will be limited HGV's (i.e. 3 – 4 per week) accessing the port during operation as all heavy goods will come via sea. The access road will be used by staff in private vehicles and four parking spaces will be available close to the shoreline to allow leisure trips from local residents. Given the low number of vehicle movements associated with the operational phase, and within the context of existing good baseline air quality, the change in traffic will be negligible, resulting in no significant local air quality impacts to human or ecological receptors.

### Proposed Mitigation Measures

To further reduce any potential emissions to air, shore side power for vessels will be provided via a suitable high voltage grid connection power supply (estimated to be 9 MegaVolt Amperes (MVA)). This will include the pilot vessels and tugs operated by the Harbour Authority which will relocate to SDWQ.

The following mitigation measures are recommended in line with the low risk of impact identified:

- **Communications:** including displaying the name and contact details of the person accountable for air quality and any dust

issues on site, and developing and implementing a Dust Management Plan.

- **Site management:** including record of all dust / air emissions incidents and complaints, and making the record log available.
- **Monitoring:** including regular site inspections and increasing these when activities with a high potential to produce dust are being carried out, and during prolonged dry or windy conditions.
- **Site Maintenance:** plan site layout to locate machinery and dust causing activities away from receptors; have barriers around dust activities and avoid site runoff of water or mud.
- **Operations and Waste Management:** equipment fitted or in conjunction with suitable dust suppression techniques; ensuring adequate water supply; use of enclosed chutes and covered skips and conveyors; and minimise drop heights and use fine water sprays where appropriate.
- **Vehicle and Plant Operation:** ensure engines are switched off when stationary and avoid diesel- and petrol-powered generators where possible.

## Carbon, Climate Change and Greenhouse Gas Emissions

### Introduction

The purpose of this assessment was to establish the carbon emissions associated with the construction and maintenance of the proposed development.

PAS 2080 - Carbon Management in Infrastructure is a specification for whole life carbon management within the infrastructure sector (transport, energy, water, waste and communications) and sets out the general principles of a carbon management process, to promote carbon and cost reduction in infrastructure delivery. The framework looks

to reduce carbon and cost through more intelligent design, construction, and use.

### Impact Assessment and Significance of Effects

The total carbon emission for the project with updated construction methodology is **95,299** tCO<sub>2</sub>e which is **37.85%** less compared to carbon emissions from the previous construction method, i.e. 153,341 tCO<sub>2</sub>e. Considering 20% of risk allowance with the updated method, the total carbon emission will be **114,359** tCO<sub>2</sub>e, so the reduction would still be **25.42%** compared to the previous construction method.

Climate change projections suggest a general trend of warmer, drier summers and milder, wetter winters. With the development in close proximity to the coastline, it is likely that sea level rise and storm surges, as an indirect impact to the projected changes in climate, will become more of a threat to the development in Orkney. The development has therefore been designed at a height that sustains current high tide and projected sea level rise height.

### Proposed Mitigation Measures

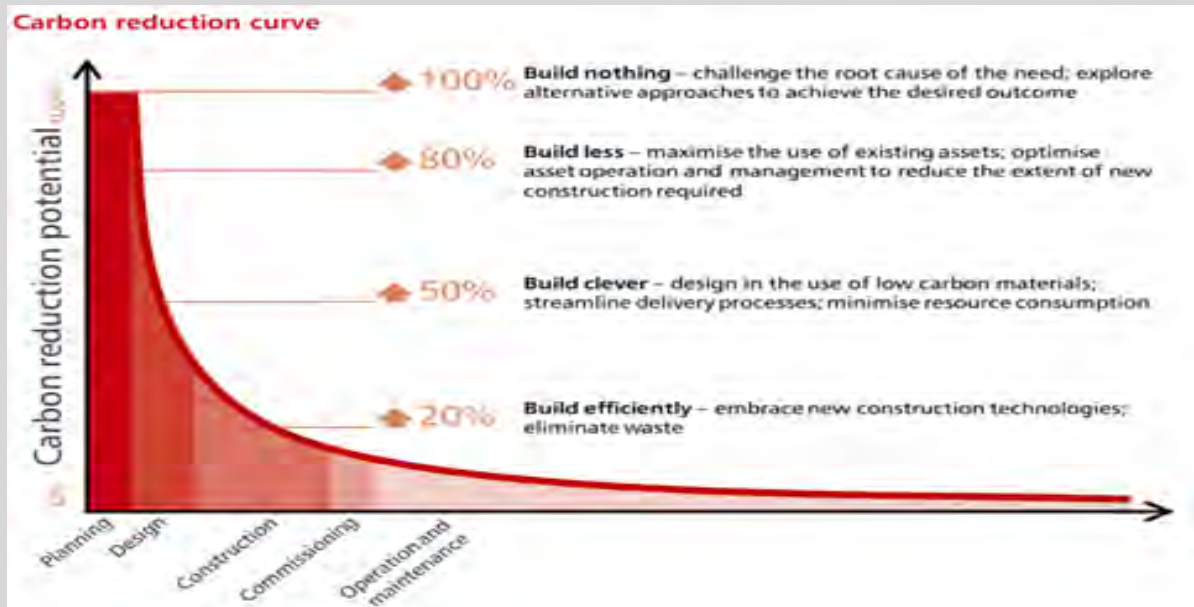
Carbon mitigation measures can be summarised as follows:

- Construction:
  - **Materials:** Using materials with a lower carbon impact (for example, low carbon concrete or recycled steel) would significantly reduce emissions. The proposed development will aim to use site won material and will only import materials from further afield where absolutely necessary. Doing so will minimise emissions associated with transporting materials to site during the construction phase.
  - **Material efficiency:** Only use the necessary quantity and type of materials. Build efficiently and optimise
- the use of materials through design, procurement, and the construction phase.
- **Construction site management:** Sourcing energy efficient plant, regular vehicle maintenance and putting in place good practice site procedures (for example, reducing vehicle/plant idling) to make operations more efficient.
- **Site Waste Management Plan:** Promoting the reduction and effective management of waste during construction, following the waste mitigation hierarchy and relevant national waste reduction policies. This will fall within the Construction Environmental Management Plan that will be produced.
- Operation
  - **Consideration** to measures of emission reduction should follow the Energy Hierarchy to reduce energy demand and therefore decrease the related carbon emissions (refer to Graph over page).
  - **Clean fuels** for shipping will be a critical requirement to achieving the UK and Scottish Governments' net zero targets by 2050 and 2045, respectively. In the short term cleaner fuels are needed to enable shipping to meet emissions regulations set by the International Maritime Organisation (IMO). The Future Fuels Hub project, as part of the Islands Deal, could provide storage, supply and bunkering of low and zero carbon fuels at SDWQ.
  - **Shore side power** for vessels will be provided via a suitable high voltage grid connection power supply (estimated to be 9 MegaVolt Amperes (MVA)). This would provide sufficient energy to accommodate future electricity requirements as plant transitions from diesel to electricity as well as further

reduce any potential emissions to air for vessels.

- **Shore power** connections for the pilot vessels and tugs operated by OICHA will also be maintained at SDWQ for when they are at berth.

- As the site is developed other means to reduce the carbon footprint of the development will be considered (i.e. solar power, battery storage etc).



Above: PAS 2080 Carbon Reduction Hierarchy

## Transport - Aviation

### Introduction

An Assessment of Instrument Flight Procedures (IFP) was undertaken to consider the operation of SDWQ, especially the construction of turbines, in respect to the operations of nearby Kirkwall Airport, which is operated by Highlands and Islands Airports Ltd. (HIAL).

### Impact Assessment and Significance of Effects

The assessment considered operations of aircraft in various scenarios in relation to the elevations of the built turbines. The assessment concluded that for the majority of scenarios, the proposed development would have no impact on the various Kirkwall Airport IFPs apart from:

- RNP RWY 27 which relates to missed approach procedures considering the worst case scenario;
- Visual Circling; and
- The South East Quadrant minima of the published Minimum Sector Altitudes (MSA's).

As such mitigation measures are required.

### Proposed Mitigation Measures

OICHA have, since the assessment being completed, established regular meetings with HIAL safeguarding and operational team in order to keep them informed of progress and any new information that comes to light such as turbine construction processes.

Mitigation measures identified include:

- Continuing discussions with HIA to identify suitable mitigation measures, such as altering the airports IFP's; and
- Liaising with Loganair (operator of internal and external scheduled air services) in respect to their operational procedures.

## *Transport - Roads*

### **Introduction**

Based on information supplied on the operation of the proposed development, it is considered that the construction phase will generate a higher level of traffic than the operational phase. This is because during the operational phase, the majority of goods will be transported by sea, reducing the need for materials to come by road and reducing potential impacts on traffic. On this basis, only the construction phase has been considered within this section.

### **Impact Assessment and Significance of Effects**

For the new quay at SDWQ, onsite cut and fill will be utilised, removing the need for material to be transported onto site.

A worst case of 10 HGVS per day have been assumed in the assessment, as well as 160 cars per day associated with staff.

The traffic flows have been based on staff commuting in private vehicles, however, the contractor, depending upon the mix of staff living on and off-site, in combination with the location and distribution of associated accommodation, may choose to organise transport to the site for workers, which would reduce the impact associated with the project on the road network.

The threshold assessments show there is a 9% increase in vehicles exiting and accessing the site from the north and 2% from the south. Therefore, it is predicted there will be a

negligible impact on the surrounding road network.

Overall, the likely land-based traffic impacts resulting from the construction phases of SDWQ are insignificant, and therefore no detailed assessment has been provided.

The traffic generated during the operation phase is lower than that in the construction phase and will therefore also have an insignificant impact on the surrounding road network.

### **Proposed Mitigation Measures**

The creation of active travel modes will provide added community benefit, making this section of the coastline accessible.

## *EIAR*

## *Conclusions*

### *Schedule of Mitigation*

The mitigation and enhancement measures identified by the specialist environmental studies throughout the EIA process are compiled to form a Schedule of Mitigation. The Schedule is designed to provide a comprehensive summary of all mitigation measures that would require to be carried out in the construction and operation of the proposed development, to ensure that the environmental assessment outcomes discussed throughout this EIAR are reached, e.g. to ensure that significant adverse effects are avoided where applicable and possible.

The Schedule of Mitigation would form the basis of the subsequent Construction Environmental Management Document (CEMD).

The CEMD would be a working document which would be updated throughout the construction phase of the project. It would also provide a clear roadmap of the key roles and responsibilities during construction works. An Environmental Manager would be identified who would be responsible for the implementation of the CEMD ensuring that all measures identified within the Schedule of Mitigation are applied and adhered to.

The CEMD and BEMP documents would be approved with the regulators prior to construction works commencing.

## *Summary of Significance of Effects*

This NTS reports upon the findings of the EIAR and subsequent SEIR, which has been shaped by survey, consultation and assessment. The purpose of the EIAR, and the EIA process, is to establish potentially significant environmental effects and avoid or mitigate these where applicable.

The table below details the residual effects of the proposed development after the mitigation measures outlined in the Schedule of Mitigation have been applied.

### **Summary of Significance of Effects (Residual Post-Mitigation)**

| <b>Topics</b>                                                                                                                                                                                       | <b>Construction Phase Impact</b> | <b>Operational Phase Impacts</b> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------------------|
| <b>Water Environment</b>                                                                                                                                                                            | <b>Not Significant</b>           | <b>Not Significant</b>           |
| <b>Biodiversity</b>                                                                                                                                                                                 | <b>Not Significant</b>           | <b>Not Significant</b>           |
| <b>Archaeology and Cultural Heritage</b>                                                                                                                                                            | <b>Not Significant</b>           | <b>Not Significant</b>           |
| <b>Seascape, Landscape and Visual</b>                                                                                                                                                               | <b>Significant</b>               | <b>Significant</b>               |
| <b>Socio-Economics</b>                                                                                                                                                                              | <b>Not Significant</b>           | <b>Not Significant</b>           |
| <b>Airborne Noise</b>                                                                                                                                                                               | <b>Not Significant</b>           | <b>Not Significant</b>           |
| <b>Topics Not Requiring Full EIA (inc. Accidents and Natural Disasters, Air Quality, Carbon, Climate Change and Greenhouse Gas Emissions and Transport (Aviation, Marine Navigation and Road)).</b> | <b>Not Significant</b>           | <b>Not Significant</b>           |