



Design and Access Statement Scapa Deep Water Quay

August 2023

Note: the above image is indicative and provided for information purposes

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1 Introduction

1.1 Purpose

This Design and Access Statement (DAS) relates to the proposed Scapa Deep Water Quay (herein “the proposed development”). The proposed development is approximately 8km south of Kirkwall at Bay of Deepdale, Scapa Flow. The proposed development aims to develop a deep-water quayside facility at Deepdale, to the south of Scapa Pier. The closest existing deep-water facility that could provide the same scale and depth as the proposed development is in Denmark requiring vessels to travel a long distance to access one.

The proposed development is formally described within the planning application as follows: *“The creation of a 575m of quayside with water depth of -15m CD, plus a 110m x 75m quay extension with water depth of -20m CD and formation of 18 hectares of laydown area (not including the quay areas). The proposals also include the access road leading from the A961 to the laydown area.”*

This DAS explains and illustrates the design principles, and constraints within the project area which have determined the selected design and layout. During the selection and design development process, issues relating to access to accommodate all users have been considered with suitable measures included.

The DAS has been prepared in accordance with the Town and Country Planning (Scotland) Act 1997, as amended by the Planning etc, (Scotland) Act 2006 and the Town and Country Planning

(Development Management Procedure) (Scotland) Regulations 2013.

This document forms part of a comprehensive package of information submitted with the planning application and marine licence application for the proposed development, which includes the following other supporting documents:

- Environmental Impact Assessment Report (EIAR)
- Planning Support Statement
- Pre-Application Consultation Report
- Planning Application and associated Drawings
- Flood Risk Impact Assessment*
- Habitat Regulation Assessment (HRA)*

**Appended to the EIAR*

1.2 Applicant and Agent Details

Orkney Islands Council Harbour Authority is the **Applicant** for the proposed development, whose contact details are below:

Orkney Islands Council Harbour Authority
Harbour Authority Building
Old Scapa Rd
Scapa
Kirkwall
KW15 1SD
harbours@orkney.gov.uk

The **Planning Authority** will be Orkney Islands Council, and Marine Directorate Licensing Operations Team (MD-LOT) are the regulatory authority for the Marine Licence:



Orkney Islands Council
School Pl
Kirkwall
KW15 1NY

Marine Scotland
1A South
Victoria Quay
Edinburgh
EH6 6QQ
marinescotland@gov.scot

EnviroCentre are the lead Environmental Impact Assessment (EIA) consultants for the proposed development, and will co-ordinate and submit the planning application, the Environmental Impact Assessment Report (EIAR) and all supporting documents. Sweco is an independent European engineering and environmental consultancy working with EnviroCentre to deliver the EIAR.

1.3 Background

The proposed development

Orkney Islands Council Harbour Authority (henceforth OICHA or 'the developer') is seeking consent to develop a deep-water quayside facility at the Bay of Deepdale to create the proposed development.

This proposed development will comprise the following:

- Creation of a 575m of quayside with a water depth of approximately 15m below chart datum;
- a 110m x 75m quay extension with water depth of 20m below chart datum;

- formation of 18 hectares of laydown area (not including the quay areas); and
- a new access road leading from the A961 to the laydown area.

Scapa Deep Water Quay is the result of a robust optioneering process, and is supported by a strong business case, strategic environmental assessment, and environmental impact assessment.

The proposed development will endeavour to balance any dredging or cut into the land with construction and/or reclamation requirements. Sea disposal of dredging material will be avoided as far as possible.

The proposed development will be constructed in the following phases. Phases 2 and 3 will be dependent on the economic need for these facilities.

Phase 1

- Installation of an 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 6Ha 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.



Note: the above image is indicative and provided for information purposes

Orkney Harbours Masterplan

The proposed development is one of five harbour improvement projects within Phase 1 of the Orkney Harbours Masterplan (the Masterplan). The Masterplan has been produced by Orkney Islands Council Harbours Authority (OICHA) and was approved by OIC (Orkney Islands Council) in April 2020. The Masterplan seeks to improve and expand existing harbours and marine assets within Orkney. This will increase capacity for commercial activities, create employment, and ultimately fuel economic development. Offshore wind is a key strategy as part of the UK's energy security plan. The Masterplan will seek to ensure sufficient port infrastructure is available to enable Orkney to serve as a hub for offshore wind development.

An optioneering exercise was undertaken as part of the Masterplan development. Optioneering incorporated:

- Stakeholder discussions and workshops;
- OICHA internal discussions with staff; and
- Market assessments in conjunction with desk-based research.

Through this process an extensive list of proposals for harbour improvements was identified. These options were then assessed against the Strategic Environmental Assessment (SEA) Objectives. The SEA also considered the likely changes to the environment as a result of not implementing any of the alternative options. Full details of the SEA process including alternatives considered, and potential environmental impacts of each alternative are reported in the SEA Environmental Report.

The draft Orkney Harbours Masterplan Phase 1, and the SEA Environmental Report were consulted on in summer 2019 and consultee's views have been taken into account within the finalised Masterplan. The SEA Post Adoption Statement summarises the options appraisal undertaken during the SEA and explains the reasons for adoption of the final Masterplan which incorporates the proposed development.

The proposed development is also supported by an Outline Business Case (OBC) which identifies a number of anticipated economic benefits across a range of sectors. Primarily, the OBC assessed that the proposed development will facilitate growth within the offshore renewables, and aquaculture sectors.

Orkney is an optimal hub for offshore wind owing to its geography and existing infrastructure. The OBC highlights that investment in harbour infrastructure and facilities is required to attract offshore wind to Orkney, particularly for:

- construction and assembly;
- mobilisation and operations & maintenance (O&M) activity in the near term; and
- heavy maintenance, renewal and decommissioning in the medium to longer term.

1.4 Design overview & goals

The design of the proposed development incorporates a new quayside, laydown area and access road.

Scapa Deep Water Quay is one of five harbour improvement projects within Phase 1 of the Orkney Harbours Masterplan. The proposed development is supported by an Outline Business Case (OBC)¹ which identifies a number of anticipated economic benefits across a range of sectors. Primarily, the proposed development will facilitate growth within the offshore renewables sector.

There are few ports in Northern Europe where large structures such as semi-submersible rigs, platforms and accommodation vessels can come alongside. The design of the proposed development will provide a deep-water quayside facility with a water depth of 20m below chart datum and anchorages in close proximity. This will allow the proposed development to accommodate large vessels and structures for repair, supplies and crew changes.

Orkney is an optimal hub for offshore wind owing to its geography and existing infrastructure and proximity to the ScotWind sites amongst others. The OBC highlights that investment in harbour

infrastructure and facilities is required to attract offshore wind to Orkney. Offshore wind activities include:

- construction and assembly;
- mobilisation;
- operations and maintenance (O&M) activity in the near term; and
- renewal and decommissioning.

The proposed development will accommodate these activities, increasing growth in the renewables sector.

The design of the proposed development has ensured that the new quay and associated infrastructure will accommodate these offshore wind activities.

¹ Orkney Islands Council & Orkney Islands Council Marine Services and Transportation, 2022, Outline Business Case Orkney Harbours Masterplan Phase 1

2 Policy and Design Guidance

Regulation 13 of The Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013, provides that certain scales and types of planning application require either a mandatory Design and Access Statement, or a mandatory Design Statement where certain criteria are met. A Design and Access Statement must accompany all “national” and “major” category applications. In terms of scale, sizes of 2 ha or more require a Design and Access Statement. Consequently, the proposed development exceeds these scales.

The Scottish Government’s hierarchy of Development² provides the following criteria which the proposed development falls under;

9. Other Development

“Any development not falling wholly within any single class of development described in paragraphs 1 to 8 above.” Where

“(b)The area of the site is or exceeds 2ha.”

A Planning Support Statement has been produced as a separate document, and this outlines all policy relevant to the proposed development as a whole. Policy discussed within this Design and Access Statement is broadly similar to that outlined within the Planning Support Statement. However, this document specifically

discusses policy relevant to the design, as opposed to the proposal as a whole.

The national, regional and local policy and guidance documents which informed the design of the proposed development are as follows.

2.1 National Policy

The national policy documents considered whilst developing the proposed development include:

- National Planning Framework 4³
- Draft Energy Strategy & Just Transition Plan⁴
- Scotland’s National Marine Plan⁵

National Planning Framework 4

National Planning Framework 4 (NPF4) was adopted by the Scottish Ministers on 13th February 2023.

NPF4 is a long-term plan for Scotland that sets out where development and infrastructure is needed, and supersedes National Planning Framework 3 (NPF3). NPF4 is part of the statutory ‘development plan’ as defined within the Planning (Scotland) Act 2019 (the 2019 Act).

² Scottish Government, 2009, The Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009, available at <http://legislation.data.gov.uk/sdsi/2009/9780111001714/data.htm?wrap=true>

³ Scottish Government, 2023, National Planning Framework 4, available at <https://www.gov.scot/publications/national-planning-framework-4/>

⁴ Scottish Government, 2023, Draft Energy Strategy & Just Transition Plan, available at <https://www.gov.scot/publications/draft-energy-strategy-transition-plan/>

⁵ Scottish Government, 2015, Scotland’s National Marine Plan, available at <https://www.gov.scot/publications/scotlands-national-marine-plan/>

The 2019 Act requires NPF4, where appropriate, to be a material consideration in the determination of planning permission under The Town and Country Planning (Scotland) Act 1997.

NPF4 has incorporated Scottish Planning Policy (Previously Scottish Planning Policy, 2014) and the statutory 'National Planning Framework' into a single document.

The Statement of Need is provided within Annex B of NPF4 and identifies 'national developments' required to support the 'spatial strategy'. The need, in principle, for these national developments has been determined to be required by Scottish Ministers.

The proposed development is identified within the Statement of Need (NPF4 page 101, Annex B) as a national development to support services for the renewable and marine energy and shipping sectors. The Statement of Need specifies that the proposed development will meet the following specifications:

- “New or updated on and/or offshore infrastructure for energy generation from renewables exceeding 50 megawatts capacity”;
- “Infrastructure for the production, storage and transportation of low and zero-carbon fuels (that are not electricity or heat) including renewable hydrogen; and hydrogen production related chemicals including ammonia with appropriate carbon capture linked to transport and storage infrastructure”;
- “Quay to service renewable energy, energy transportation, energy decommissioning, fabrication or freight handling, including new or enhanced associated laydown or operational area at, Scapa Flow, and Hatston (Kirkwall)”.



NPF4 also sets out pathways aligned with the Government's target for achieving net zero by 2045: “we must embrace and deliver radical change so we can tackle and adapt to climate change, restore biodiversity loss, improve health and well-being, reduce inequalities, build a wellbeing economy and create great places.”

NPF4 Policy 10 on Coastal Development

This policy intends to protect coastal communities and assets and support resilience to climate change. Policy 10 requires that developments in developed coastal areas will only be supported where the proposal:

“does not result in the need for further coastal protection measures taking into account future sea level change; or increase the risk to people of coastal flooding or coastal erosion, including through the loss of natural coastal defences including dune systems”

The NPF4 Natural Places seeks to protect, restore, and manage natural assets and designated sites, specifically:

- European Sites (Special Areas of Conservation or Special Protection Areas)
- National Parks;
- National Scenic Area;
- Site of Special Scientific Interest;
- National Nature Reserves; and
- Wild land.

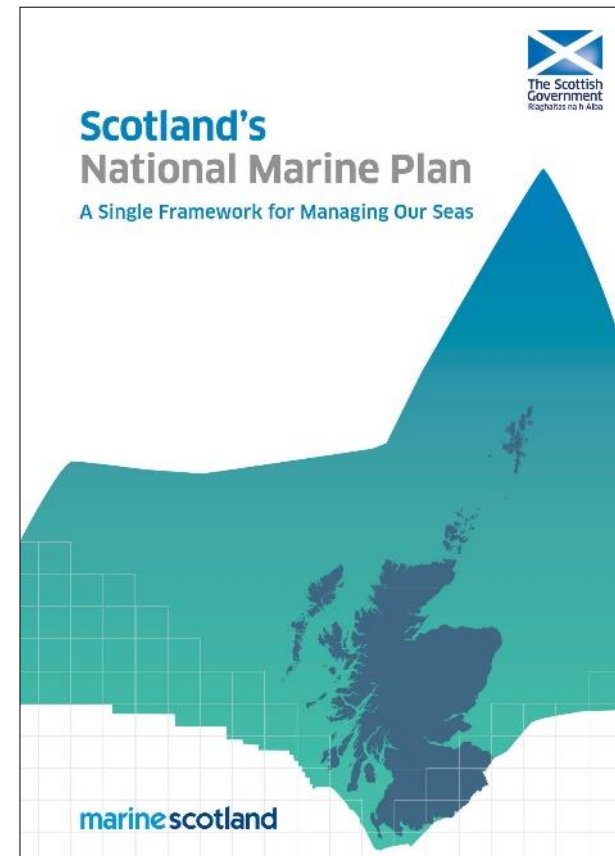
NPF4 Annex B (National Developments Statements of Need) outlines eighteen national developments which will support the spatial strategy. The Statement of Need is a requirement of the Town and Country Planning (Scotland) Act 1997 and describes developments to be considered as a national development for consent handling purposes. Annex B identifies Scapa Deep Water Quay as a key part in delivery of the 'Energy Innovation Development on the Islands' National Development.

2.2 Scotland's National Marine Plan

Scotland's National Marine Plan (the National Marine Plan) originated from the European Union (EU) Directive 2014/89/EU. The Directive introduced a framework for maritime spatial planning to promote sustainable development of marine areas and the sustainable use of marine resources. The National Marine Plan will be a specific consideration during determination of the Marine Licence required for the proposed development, and particular consideration will be given to General Policies 7 and 13. The design of the proposed development has therefore been appraised in

terms of accordance with relevant National Marine Plan policies below:

- General Policy 7 Landscape/seascape
- General Policy 9 Natural Heritage
- General Policy 13 Noise
- General Policy 14 Air Quality



2.3 Regional and Local Policy

The regional policy documents were considered during development of the Proposed development:

- Orkney Local Development Plan 2017 (OLDP)⁶
- Pentland Firth and Orkney Waters Marine Spatial Plan (the Marine Spatial Plan)⁷
- OIC Supplementary Guidance: Energy⁸
- OIC Supplementary Guidance: Natural Environment⁹

Orkney Local Development Plan

The Orkney Local Development Plan 2017 (OLDP) and Supplementary Guidance (SG) provides the local planning framework for Orkney. The OLDP provides land use planning policies which are anticipated to be a material consideration in the determination of planning applications.

The OLDP Proposals Map¹⁰ shows historically and environmentally protected areas of Orkney, and areas of Orkney which allow for sustainable development. Each allocation is supported by a policy in the OLDP.

The following OLDP policy is relevant to the design of the proposed development:

- **OLDP Policy 2 Design**

This policy seeks to deliver good design. “Where relevant, proposals must demonstrate, through consideration of scale, massing, form, proportions, plot size/density, materials, layout and landscaping, that it complies with the following fundamental principles:

- i. it reinforces the distinctive identity of Orkney’s built environment and is sympathetic to the character of its local area;
- ii. it has a positive or neutral effect on the appearance and amenity of the area; ... and
- vi. all external lighting is designed to minimise light pollution.”

⁶ Orkney Islands Council, 2017, Orkney Local Development Plan, available at <https://www.orkney.gov.uk/Service-Directory/O/Orkney-Local-Development-Plan.htm>

⁷ Scottish Government, 2016, Pentland Firth and Orkney Waters Marine Spatial Plan, available at <https://www.gov.scot/publications/pilot-pentland-firth-orkney-waters-marine-spatial-plan/>

⁸ Orkney Islands Council, 2017, Supplementary Guidance: Energy, available at <https://www.orkney.gov.uk/Service-Directory/D/energy.htm>

⁹ Orkney Islands Council, 2017, Supplementary Guidance: Natural Environment, available at <https://www.orkney.gov.uk/Service-Directory/D/natural-environment.htm>

¹⁰ Orkney Islands Council, 2017, Orkney Local Development Plan (interactive online version), available at: <https://oic.maps.arcgis.com/apps/MapJournal/index.html?appid=da0730babf6249bb8c67b749004b42fa>

- *OLDP Policy 4 Business, Industry & Employment*

This policy supports expansion of existing businesses and creation of new in appropriate locations. Generally, developments that would create significant footfall, or proposals for heavy industrial/storage and distribution, will be directed toward relevant sites within settlements unless there is a specific locational requirement for a countryside location.

- *Policy 7 Energy*

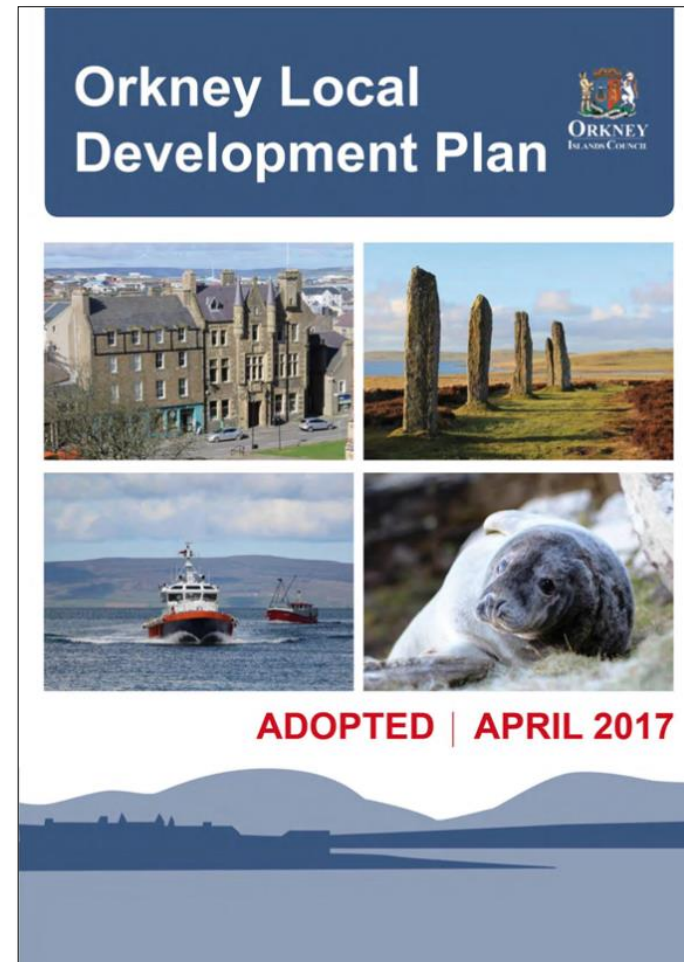
This policy supports the use of renewable and low carbon technologies and seeks to facilitate appropriate developments associated with renewable energy generation.

- *OLDP Policy 13 Flood Risk, SuDS & Waste Water Drainage*

This policy seeks to avoid supporting developments which would have a significant probability of being affected by flooding or which would increase the probability of flooding elsewhere.

- *OLDP Policy 14 Transport, Travel & Road Network Infrastructure*

This policy supports developments which make best use of existing infrastructure and reduce the need to travel. It requires developments within settlements to provide opportunities for walking and cycling to encourage healthy living.



Pentland Firth and Orkney Waters Marine Spatial Plan

The Pentland Firth and Orkney Waters Marine Spatial Plan (the Marine Spatial Plan) has been formed through collaboration between Marine Scotland, Orkney Islands Council and the Highland Council.

The Marine Spatial Plan seeks to protect and where appropriate enhance the marine environment within the Orkney and North Coast Scottish Marine Regions.

The following Marine Spatial Plan policies are relevant to the proposed development:

- *General Policy 1A: Sustainable development*

This policy supports developments where it is demonstrated that they will: avoid significant environmental or socio-economic effects, make efficient use of marine space, maintain and enhance environmental and heritage resources, and not create an unacceptable burden on existing infrastructure and services.

- *General Policy 3: Climate change*

Developments will be supported where it is demonstrated they will: minimise emissions of greenhouse gases, mitigate the effects of climate change, adapt to climate change, and demonstrate resilience.

- *General Policy 5A: Water environment*

Developments will be supported where the proposal does not cause any classified Water Framework Directive (WFD) waterbody to deteriorate or prevent achievement of the relevant River Basin Management Plan. Proposed developments will be expected to: improve the ecological status of coastal (WFD) waterbodies where possible, not cause deterioration in standards of any WFD waterbody, and account for any existing activities. This policy also requires proposals to be accompanied by sufficient information to report the anticipated effects on the water environment.

- *General Policy 5B: Coastal processes and flooding*

This policy supports developments which will not exacerbate present or future risks of flooding or erosion in line with Scottish Planning Policy, and the Flood Risk Management Act. Resilience and adaptation to the effects of climate change must be considered within the development.

- *Sectoral Policy 3: Oil and gas*

Oil and gas activities will be supported only when:

- in accordance with relevant regulations,
- an approved Oil Pollution Emergency Plan is in place,
- oil and gas platforms have in place nine nautical mile consultation zone,
- connections to shore base and associated infrastructure take into account environmental and socio-economic constraints, monitoring and restoration programmes are in place, and
- re-use of existing infrastructure is considered, and decommissioning is undertaken in line with best practice.

- *Sectoral Policy 6: Marine transport*

Developments will be supported only where it has been demonstrated there will be no adverse impacts on existing or planned shipping and ferry routes, navigational safety or access to ports and harbours.

- *Sectoral Policy 7: Ports, harbours and dredging*

This is a key piece of policy in relation to the proposed development. Policy 7 states:

“The sustainable growth of the ports and harbours within the Pentland Firth and Orkney Waters area, particularly within existing facilities, will be supported by the Plan where:

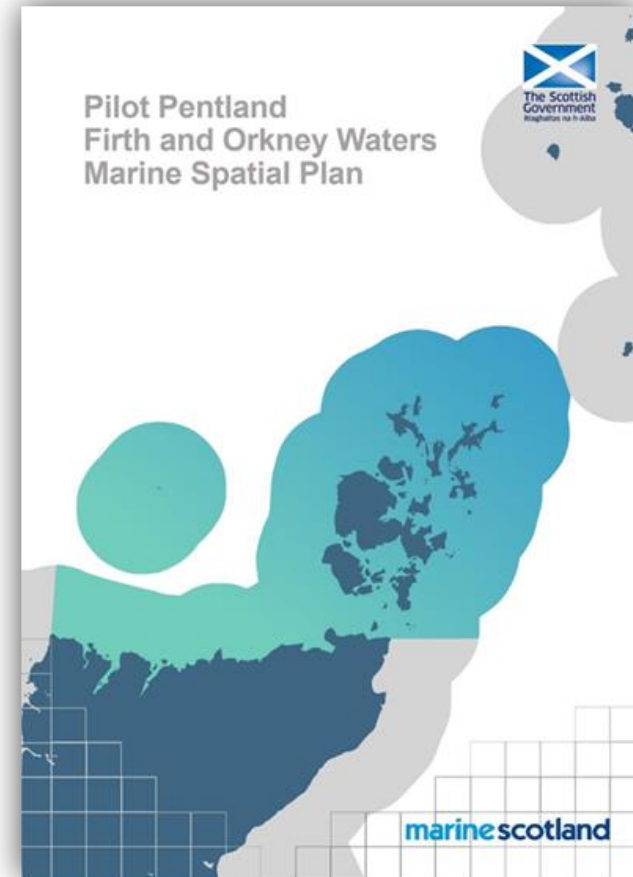
- *access to ports and harbours is not restricted*
- *safety considerations are primary*
- *navigational routes are not compromised*

Dredging within the Pentland Firth and Orkney Waters area will be supported by the Plan where:

- *dredged material is recycled or disposed of in appropriate locations”*

- *Sectoral Policy 9: Marine Aggregates*

This policy requires that new marine aggregate extraction sites ensure they do not compromise existing activities.



2.4 Design Guidance

The overarching design guidance for the proposed development is the Port Designer's Handbook¹¹. This technical guidance is now in its fourth edition and is the definitive guide to the layout, design and construction of harbours and port structures. It is fully in line with the latest PIANC (the World Association for Waterborne Transport and Infrastructure) recommendations and covers all aspects of port planning and design. The latest edition of the Port Designers Handbook provides new design and construction methods of the quay structures.

This technical guidance has been produced and accepted by the Institute of Engineers as the standard guidance for ports and harbours, therefore making it suitable for applicable to the proposed development.

In addition to the Port Designers Handbook the following standards have been followed:

- BS 6349 Part 2 Maritime Structures for Design of Quay Walls, Jetties and Dolphins;
- EN 1992 Eurocode 2 (Design of Structures); and
- EN 1997 Eurocode 7 (Geotechnical).

¹¹ Thoresen, CA, 2018, Port Designer's Handbook, Fourth Edition, Ice Publishing

¹² Orkney Islands Council Harbour Authority, 2023, Orkney harbours Masterplan, available at <https://orkneyharboursmasterplan.com/>

2.5 Supplementary Guidance

Other supplementary guidance that has informed the design include:

Orkney Harbours Masterplan

The Orkney Harbours Masterplan¹² - Phase 1 has been adopted as Planning Policy Advice. The Masterplan has status as a material consideration in the determination of relevant planning and works licence applications, and the proposed development forms a fundamental part of the Masterplan proposals.

OIC Supplementary Guidance: Energy

OIC Energy Supplementary Guidance¹³ supports developments which make use of, or facilitate heat networks, energy from waste and District Heating.

The Supplementary Guidance also supports fuel and energy storage facilities within industrial locations adjacent to or in close proximity to, port and harbour facilities.

OIC Supplementary Guidance: Natural Environment

OIC Natural environment Supplementary Guidance¹⁴ requires that opportunities to enhance wildlife and habitats within a site should be considered within the design.

¹³ Orkney Islands Council, 2017, Supplementary Guidance: Energy, available at <https://www.orkney.gov.uk/Service-Directory/D/energy.htm>

¹⁴ Orkney Islands Council, 2017, Supplementary Guidance: Natural Environment, available at <https://www.orkney.gov.uk/Service-Directory/D/natural-environment.htm>

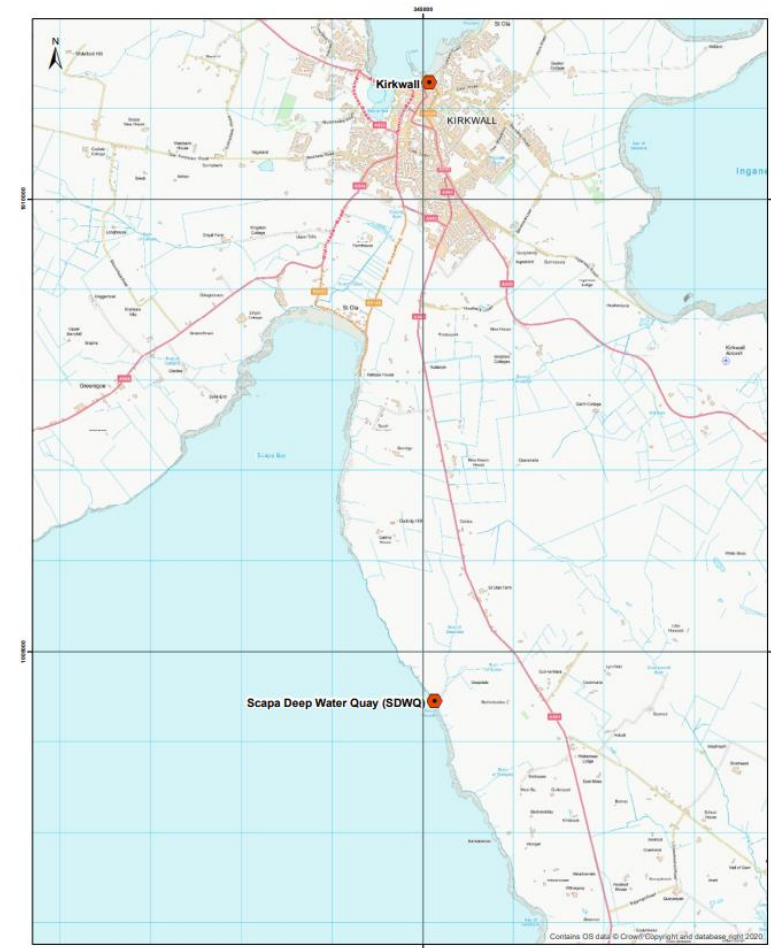
3 Site and Context Appraisal

3.1 Site Location

The proposed development will be situated within the parish of Holm, round about the Bay of Deepdale west of the A961, approximately 4km south from the existing Scapa Pier (see Figure 3-1). This is a rural area of Orkney mainland island, and is largely pastureland

The site of the proposed development is currently undeveloped coastline comprising a gravelly beach and in places exposed rock bordered on the landside by a rock face approximately 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.

Figure 3-1: Scapa Deep Water Quay location



3.2 Designations and Sensitive Areas

The proposed development will be situated on the coastline of Scapa Flow, a key maritime operational hub. Scapa Flow is the largest natural harbour in Europe, covering 125 square miles, holding an area of deep and sheltered waters. This is the second largest natural harbour in the World. Since 1977, North Sea crude oil has been processed at the oil processing terminal on the island of Flotta situated inside Scapa Flow. Scapa Flow is also currently used for berthing oil and gas accommodation vessels alongside large vessels, besides ship-to-ship transfers of liquified natural gas. During the Second World War, Scapa Flow was used as the UK's main naval base owing to its remote location.

The coastal waters of Scapa Flow are classified under the Water Framework Directive (WFD) monitoring programme as a coastal waterbody. The waterbody is classified as being of overall 'Good' status in 2020, with a hydromorphological status of 'High'.

There are four statutory designated sites within 10km of the proposed development:

- Scapa Flow SPA (SPA) comprises a total area of 371km². It is located immediately south west of Deepdale and the proposed development;
- Orkney Mainland Moors Special Protection Area (SPA) comprises four areas of moorland on Mainland Orkney. At its closest point it lies within 6km of the proposed development;
- Keelylang Hill and Swartaback Burn Site of Special Scientific Interest (SSSI), is designated for breeding Hen Harrier and lies approximately 6km north west of the proposed development; and
- North Orkney SPA (SPA) is 6km north of the proposed

development.

The proposed development will partly be constructed within the Scapa Flow SPA. There are no other designated sites (SSSI, RAMSAR, SAC) associated with the proposed development. The closest Marine Protected Area (MPA) is Wyre and Rousay Sounds MPA, approximately 24km to the north.

Dolphin, porpoise, and whale are European Protected Species, and are known to be present within the waters around Orkney.

There are a number of terrestrial and intertidal habitats and species afforded legal protection and included within the UK Biodiversity Action Plan (UK BAP) which may be impacted by the proposed development. This includes a number of fish, bird, and mammal species.

There are also a number of marine historic environment assets within Scapa Flow. The HMS Royal Oak is located 1.5km to the south west of the proposed development. HMS Royal Oak is a military maritime grave and is protected from disturbance under the Protection of Military Remains Act 1986.

There is a site of medium importance immediately to the north of the site, a military installation, possibly associated with RAF Netherbutton, which lies within the study area, together with three further associated sites: a warden's house; a military camp and an engine house. There is one site of low importance within the site - Deepdale Post-Medieval farmstead.

Approximately 200m north west of the proposed development, Burn of Deepdale and Burn of Button discharge into Scapa flow. Burn of

Gangsta also discharges into Scapa Flow approximately 500m south east of the proposed development.

The Burn of Gangsta is located south of the proposed development and flows from northeast to southwest, and has a catchment of 0.88 km before discharging to Scapa Flow. A number of minor surface water features and field drains discharge to Scapa Flow from within the footprint of the development.

There are numerous other small freshwater inflows discharging into the wider Scapa Flow, as well as piped drainage outfalls, however the inflow of freshwater remains insignificant relative to the much larger volume of seawater exchanged within Scapa Flow.

There are no Marine Protected Areas (MPA) or Special Areas of conservations (SAC) within 2km of proposed development.

Isolated areas of pluvial flood risk are situated within low lying areas of the proposed development as shown by the SEPA flood maps. The lower coastal edge is at high risk of coastal flooding.

3.3 Landscape

The proposed development is located within the Coastal Basin Landscape Character Type (LCT), and the Pier to Craigiefield coastal character area (CCA). The closest National Scenic Area landscape designation Is Hoy and West Mainland NSA approximately 9km to the west.

3.4 Buildings

The most notable settlements within the vicinity of the proposed development are Kirkwall to the north, and St Mary's to the south

east. A number of farms, discrete rural properties and buildings are scattered around the vicinity of the proposed development.

There are a number of listed buildings within Kirkwall and St Mary's. The closest listed building to the proposed development is Netherbutton (LB LB46383) approximately 700m east of the proposed development. This is a category C listed building.

Within the wider Scapa Flow area there are a number of key heritage assets;

- Churchill Barrier No 3 is a category A listed building. This is part of a group of four 'Churchill Barriers' built during the second world war to link the eastern islands of Scapa Flow. The barriers form causeways preventing access from the east into Scapa Flow.
- The Italian Chapel is a category A listed building on the isle of Lambholm.

3.5 Existing Connections

The proposed development site is currently inaccessible by vehicle with only an informal track from the A961 to the Bay of Deepdale

3.6 Services

Stagecoach currently operates a bus service (the X1 service) which runs from Stromness (Hamnavoe) to St Margaret's Hope (Ferry Terminal). The current X1 service calls at the existing Hatston Quay ferry passenger terminal, and follows the route of the A961 past the site of the proposed development.

There is currently no formal designated cycling and walking route linked to the proposed development site, and no such route is associated with the A961. The A961 is a single carriageway road with no additional pedestrian pavement provision along its length where it passes the proposed development.

Serco NorthLink Ferry (SNF) connects Aberdeen in Mainland Scotland to the existing Hatston Quay at Kirkwall. Kirkwall is linked to the proposed development site via the A961. SNF operate up to seven sailings per week.

4 Design Principles & Solutions

To deliver the requirements of policy outlined above Section 2, key design principles will be considered throughout each stage of the design evolution. Design principles are derived from the key project objectives with consideration of relevant best practice and guidance. The key design principles and solutions are summarised below in Table 4-1. These principles will be followed, with additional design considerations taking into account consultation feedback from statutory and non-statutory consultees (as summarised in Section 5).

Table 4-1: Design principles and solutions

Principle	Adopting the Principle
The use, generation, and future development of renewable energy will be facilitated as far as reasonably possible.	The design has sought to accommodate use of sources such as wind and solar at the gate house and any future amenity buildings.
The design should ensure it can remain operational and safe for users during times of flood.	The proposed development is designed to incorporate Sustainable Urban Drainage Systems (SUDS) designed in accordance with the CIRA SUDS Manual (C697). This includes permeable surfaces with a French drain collection system leading to a SUDS filtration device before outfall discharge to open sea.
Drainage will avoid direct new direct discharges to the water environment, including the marine environment. Drainage design will follow principles set out within Sustainable Drainage System guidance.	The proposed development is designed to incorporate Sustainable Urban Drainage Systems (SUDS) designed in accordance with the CIRA SUDS Manual (C697). The drainage design will any discharge to the water environment will meet the relevant standards.
Eliminate requirements for materials sourced from off-site.	The proposed development has been designed to ensure all material generated during construction will as far as possible be used on site.
Minimise greenhouse gas emissions and incorporate measure to mitigate the effects of climate change	Allowance has been made in the design for berthing vessels to connect to an external power supply in the future, with the intention this could be generated from renewable sources such as hydrogen and others as these technologies develop. This would avoid the need for vessels to run diesel generators while berthing.

Principle	Adopting the Principle
	Consideration has been made in the design to use low carbon energy solutions where possible and also minimize the use of high carbon materials during construction.
Consider and mitigate the effects of climate change, including the effects of coastal flooding and erosion. Incorporate appropriate resilience within the design.	<p>A wave study has been undertaken. Quay deck height, reclamation finished ground levels and outer rock armour wave protection are designed to be above highest predicted levels. This will take into consideration predicted future sea level rises and storm surge.</p> <p>Erosion risk of the reclamation areas will be mitigated by the incorporation of suitable geotextile membranes under primary and secondary stone armour on perimeter slopes.</p>
Consider providing walking and cycling routes and access to Deepdale as part of the development. Consider rest stops and whether local art can be incorporated into places of interest.	The design has considered access to Deepdale beach and provided a new carpark to accommodate this.
Enhance visual amenity and biodiversity.	<p>A robust Environmental Impact Assessment Report has been prepared. This recommend mitigation and/or compensatory measures which will be considered and included within the design where appropriate.</p> <p>All high-level lighting masts and heads will be designed and specified to create suitable illuminance, while ensuring no light pollution outside the immediate area or into the path of approaching vessels. Soft landscaping, and public access enhancements will be incorporated where appropriate and in line with existing local development plans.</p>
Balance any dredging or cut into the land with construction and/or reclamation requirements. Sea disposal of dredging material will be avoided as far as possible.	The design has sought to re-use as much of the dredging material as possible. Only unsuitable material will be taken off-site.

5 Analysis and Design Evolution

5.1 Overview

The proposed development will create 575m of new deep-water quayside, a deep water quay extension, new laydown area, and a new access road.

This chapter sets out the design proposals and how the design has evolved through the project considering the project objectives, outputs from consultees and public engagement, physical constraints and relevant policy and design principles (outlined in Table 4-1).



Note: this image is indicative and provided for information purposes only

5.2 Consultation

Engagement was core to the development of the earlier Orkney Harbours Masterplan Phase 1. This initial engagement has been built upon with ongoing opportunities for the public, harbour users, and wider stakeholders to learn about the proposed development, ask questions and inform the detailed design.

Consultations have been undertaken to:

- seek feedback and comments from Statutory and Non-Statutory consultees on the proposed development;
- to ensure Statutory consultees, other Non-Statutory bodies and local people are informed about the proposed development and are provided an opportunity to comment;
- to obtain information relevant to the proposed development and to inform the environmental assessments; and
- to agree survey and assessment methodologies, where relevant.

The first public consultation events were held in Spring 2018 to exhibit the proposed Scapa Deep Water Quay development as part of the draft Masterplan. This event provided information on the outline design, allowing local people to ask any questions and provide their views on the proposed project and the wider Masterplan.

Prior to the formal pre application consultation process, a key main design development was the siting of the proposed development which was originally positioned in an area to the north of the Burn of Deepdale. Moving the development footprint to the south avoided encroachment into the Gaitnip Local Nature Reserve (LNR) which would have been the case if it was situated to the north of the Burn of Deepdale.

In line with the relevant Regulations, the Pre Application Consultation strategy for the proposed development undertaken by the Applicant has included:

- The submission of a Pre Application Notification (PAN) at least 12 weeks prior to submission of the planning application and Marine License application
- Pre-Application meetings and discussion with the Planning Authority and Marine Scotland
- Formal PAN notification sent all Statutory Consultees
- Notification emails, containing details of drop-in/ briefing events, public consultation events and PAN submission, sent to all elected members
- Newspaper adverts placed within The Orcadian, a local newspaper with at least two weeks prior notice of the public consultation events (1st December 2022 and 8th February 2023)
- Two public consultation events held on 1st December 2022, and 8th February 2023.
- A4 posters with details of the events were distributed across eight various venues including supermarkets, and local shops.
- Interview on Radio Orkney with the project team live on the 1st of December prior to the first event happening that day.
- Elected members and Local Community Councils were invited to attend the events in advance of them opening to the public and we sent a further copy of the PAN and links to the online consultation portal in February.
- Information about the public events and public exhibition materials was also made available on Orkney Islands Council (OIC) website at (Masterplan | Orkney Islands Council Harbour Authority (orkneyharbours.com))

The two public events (1st December 2022 and 8th February 2023) provided the local community with the opportunity update them on progress of the project, to present them with the latest information and most importantly to give them the chance to continue to comment on and contribute to the proposed development and the evolving design. All information made available at the public consultation events is publicised online with an accompanying online comment form¹⁵. For further information, please refer to the Scapa Deep Water Quay Pre-Planning Application Consultation (PAC) Report.

Image 1 illustrates the consultation timeline alongside each stage of the EIAR.

Feedback from public consultation events helped to shape the design. This included:

- re-use of excavation and dredging arisings during construction as far as possible; and
- consultation with renewable developers resulting in a quay length of 600m to ensure sufficient space for berthing, loading and unloading of large vessels associated with offshore wind operations.
- Local community capacity was assessed as part of the EIAR Chapter 8 and mitigations have been recommended including:

- Engagement and consultation with local authority and Orkney Harbour Council to ensure there is sufficient capacity in council services and infrastructure to accommodate influx in workers.
 - Ongoing monitoring of employment forecasts to inform housing need assessments and implications for education and health.
- Consideration of the potential for light pollution to otherwise dark skies resulting from the proposal. The visual effect of lighting from the different phases of the proposed development has been assessed in the EIAR chapter 7.

Image 2 and 3 summarises how the design responded to feedback and comments received.

¹⁵ Orkney Harbour Masterplan, 2023, available at:
<https://storymaps.arcgis.com/stories/72cd0e5e2095439991a4cb9b3e372088>

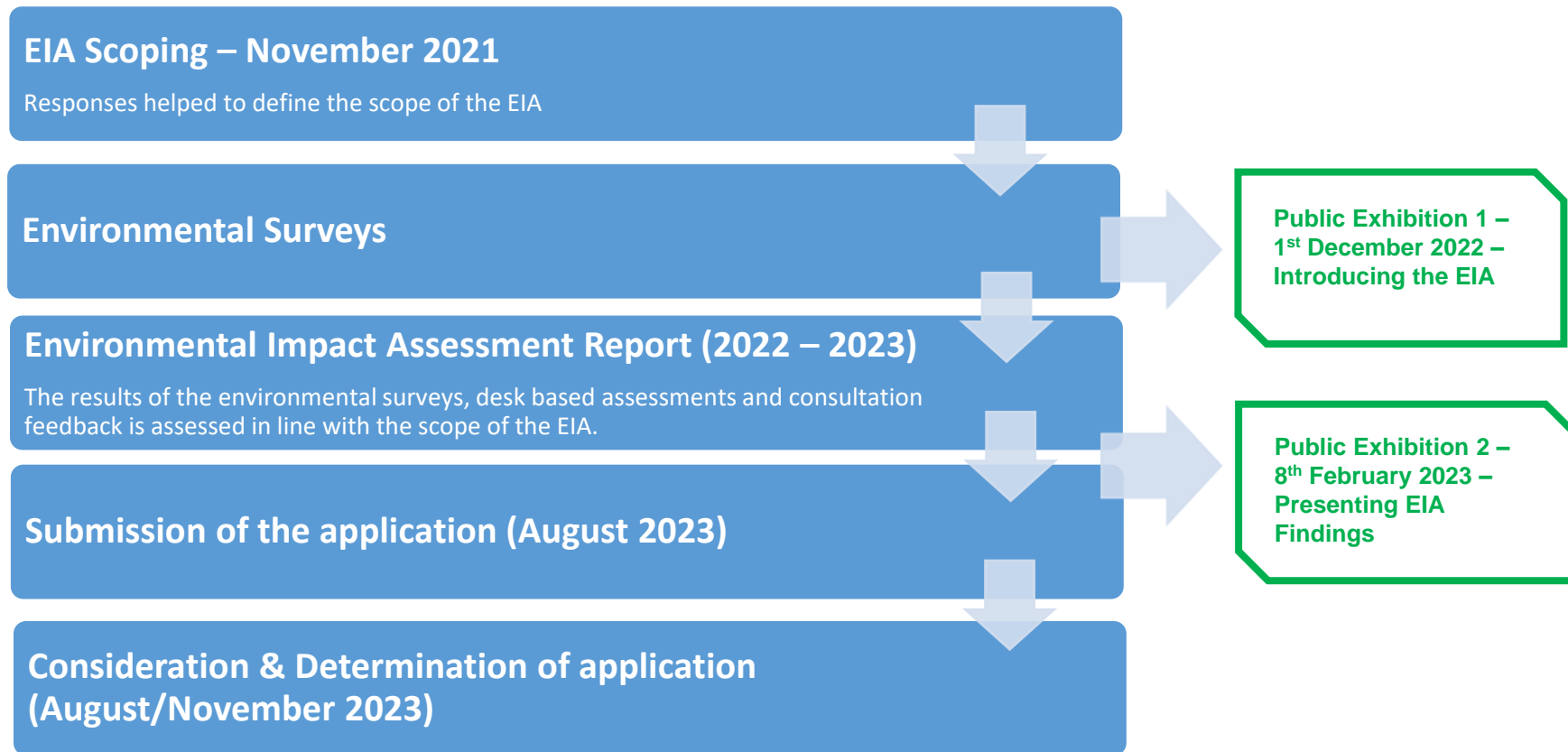



Image 1: EIA consultation timeline

Image 3: You Said / We Did

<p>YOU SAID</p>	<p>Have the projects considered renewables to supply the sites?</p>	<p>Could Orkney Logistics Base include a facility to haul boats out of the water for maintenance?</p>	<p>Are you going to consider the impacts upon birds and wider nature impacts?</p>	<p>Can provision for sea kayakers be made?</p>	<p>What will the scheme look like?</p>	<p>What will the impacts on Scapa SPA be?</p>	<p>What provision will there be for active travel?</p>	<p>Will this create jobs for young people who live in Orkney?</p>	<p>How does the proposed development relate to Flotta/Lyness with regards to green energy?</p>
									
<p>WE DID</p>	<p>The design will be futureproofed providing sufficient space to accommodate battery storage or other renewable energy infrastructure.</p>	<p>The design will accommodate travel lift dock.</p>	<p>Yes, surveys and assessments have been undertaken as part of the EIA.</p>	<p>The design will provide a new site access road with car park. This will provide public parking spaces and access to Deepdale Beach area</p>	<p>A visualisation has been produced and reported in the Design and Access Statement.</p>	<p>Consultation has been undertaken with NatureScot and Orkney Islands Marine Advisory Group during the EIA etc</p>	<p>Consultation has been undertaken and is ongoing with sustrans regarding provision of pathways.</p>	<p>Yes, during operation and construction. The contractor will also have set targets with regards to providing opportunities to the local workforce during construction.</p>	<p>The design has been future proofed and provision of green energy will be considered during the design-to-build phase</p>

As part of the consultation process, and design response to comments and feedback received, illustrative visualisations of the new SDWQ were prepared and can be seen in **Appendix A**.

5.3 Sustainability & Environment

Good design is a key consideration in achieving sustainability within the proposed development. The requirement of sustainability has been incorporated into all stages of the design process.

The Sustainable Development Goals (SDGs), established by the UN in 2015, provide a global vision of sustainability and it is recognised that to achieve the SDGs it is imperative to unlock opportunities presented by the infrastructure sector. In particular, the proposed development aligns with SGD, 7, 9, 11, 12, 13, 14, and 15.

Mitigation and enhancement measures have been incorporated into the proposed development design to minimise negative impacts on environmental receptors. These measures are described within the EIAR which has been provided in support of the application. The following sections summarise key design considerations which, through delivery of the SDGs, align the design with relevant design principles and policy outlined in Section 2 and Table 1.

Ecology & Biodiversity (SDG 15 Life on land)

The proposed development will include construction within Scapa Flow SPA. This site is designated owing to populations of a number of bird species. A robust EIAR has been produced in support of the proposed development which considered construction effects.

Prior to works commencing on site (including any site clearance or preparatory works) a Construction Environment Management Plan (CEMP) detailing site specific mitigation and monitoring will be

agreed with planning authority and implemented to avoided and reduce negative impacts.

During construction, non-impact piling will be employed to minimise noise impacts on nearby ecology. This piling method has been proven to be effective in areas with similar seabed characteristics. The design has been developed to accommodate the use of non-impact piling, and the feasibility of this methodology has been confirmed through marine site investigations.



Energy Use (SDG 7 Affordable and Clean Energy)

Allowance has been made in the design for berthing vessels to connect to an external power supply, with the intention this could be generated from renewable sources in the future such as Hydrogen, as these technologies come forward. This would avoid the need for vessels to run diesel generators while berthing therefore limiting carbon emissions during operation. The design has ensured service ducts and draw pits will allow vessels to connect to shore power in future.

Flood Risk and Drainage (SDG 9 Industry, Innovation and Infrastructure)

The proposed development is designed to incorporate Sustainable SUDS designed in accordance with the CIRA SUDS Manual (C697). This includes permeable surfaces with a French drain collection system leading to a SUDS filtration device before outfall discharge to open sea.

Improved Accessibility (SDG 11 Sustainable Cities and Communities)

The design will include a new access road connecting the proposed development to the existing A961. A footpath running along this new road will provide the local community with access to Deepdale Bay which (from anecdotal evidence) appears to be a popular spot for picnics and access to the water for recreational activities such as canoeing.

In addition, the design will provide a carpark at the lower north area of new site access road. This will provide four public parking spaces and access to Deepdale Beach area.

Terrestrial & Coastal Waterbodies (SDG 14 Life Below Water)

The drainage design, and new discharges to the marine environment will be compliant with the relevant regulations and guidance.

As stated above, standard construction phase runoff controls will be implemented to reduce migration of fine material into the terrestrial or marine water environment. Impact piling methods will not be employed.

Aggregates & materials (SGD 12 Responsible Consumption and Production)

The proposed development will reclaim approximately 6.5ha of additional land.

Marine dredging will be required as part of the proposed development to create the required water depth. Arisings resulting from this dredging will be recycled and used entirely on-site as part of construction as far as possible. Any unsuitable material will be disposed offshore, although this is likely to be minimal.

Climate Change & Resilience (SDG 13 Climate Action)

The design will accommodate future provision of alternative (less polluting/carbon-free) fuels and provision of shore power to vessels where viable. The proposals for shore power will allow the development to generate renewable energy for onsite use.

Re-use of dredging arisings and cut produced on-site will remove the requirement for importing additional fill material from off-site. This will assist in reducing transport requirements and capital carbon.

The design will be optimised to ensure only the necessary quantity and type of materials are used. The design will seek to accommodate the use of low-carbon materials as far as practicable. This may include:

- Recycled steel, or steel with a low carbon content will be used where possible;
- Steel used in piling will be low corrosion steel (Trade name AMLoCor) which eliminates requirement for sacrificial anodes attached to piles, and extends lifespan; and
- Low carbon concrete

A wave study has been undertaken. The new quay has been designed to ensure heights provide sufficient flood defence, including during tidal surges, taking account of rising sea levels.

The quay cope height will be 7 m above Chart Datum. The highest recorded tide for Scapa (at Stromness) is 4.906m above Chart Datum), plus climate change allowance (0.51 m) is 5.416 m above Chart Datum. This climate change allowance is the worldwide local sea level projections at mid-range sea-level projection (50th percentile) as provided by IPCC (Intergovernmental Panel on Climate Change). The design surface levels therefore provide 1.6 m of freeboard to protect against wave surges.

Furthermore, erosion risk of the reclamation areas will be mitigated by the incorporation of suitable geotextile membranes under primary and secondary stone armour on perimeter slopes.

The proposed development is designed to incorporate Sustainable Urban Drainage Systems (SUDS). The SUDS capacity will be designed to accommodate drainage volumes anticipated in future as a result of climate change.

Landscape & Visual (SDG Goal 11 Sustainable Cities and Communities)

A Seascape and Landscape Visual Impact Assessment (SLVIA) was scoped into the EIA process, and the assessment has been provided within Chapter 7 of the EIAR.

The SLVIA concluded that Seascape, coastal, landscape and visual effects would be significant and adverse during both the construction and operational phases. No landscape or visual mitigation has been incorporated into the proposed development because the nature of the proposed development means that its design must principally respond to operational and functional requirements.

However, the design will seek to incorporate a degree of tree planting to help integrate the permanent site footprint with its landscape setting. Some tree or shrubby planting associated with the proposed access road and the slightly lower and more sheltered ground at Burn of Button will be considered.

Noise (SDG Goal 11 Sustainable Cities and Communities)

As demonstrated within the EIAR Chapter 5 Biodiversity, no significant adverse effects are anticipated on marine and underwater noise receptors. This is based on the assumption that the EIAR mitigation measures are implemented as specified under EIAR Chapter 10 schedule of mitigation.

Non-impact piling will be employed to minimise noise impacts on nearby residents and businesses.

The EIAR Chapter 9.2 Airborne Noise assessment concluded that residual effects are compliant with PAN 1/2011 and result in no significant effects in EIA terms, and no adverse impacts are expected during construction and operation.

Therefore, it is considered that the proposed development is in accordance with General Policy 13 and this will be a material consideration during determination of the planning application and Marine Licence.

Air Quality (SDG Goal 11 Sustainable Cities and Communities)

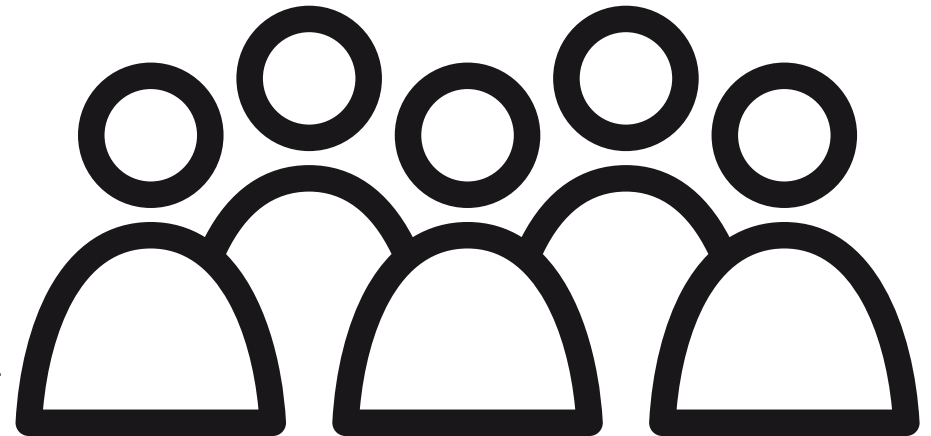
The EIAR Chapter 9 Supporting Assessment (Air Quality) recommends that renewable energy sources are considered as part of the detailed design process (wind power, battery storage, tidal and hydrogen fuel). This would reduce any potential operational phase emissions to air. The design has sought for these renewable sources to be used when ships were docked, rather than using bunkering fuel.

6 Access

6.1 Overview

Access is important for any development, but particularly so when proposing to construct new infrastructure. The proposed development has been considered and designed to maintain, enhance, or improve existing access provision. This has taken into account environment, engineering and financial constraints. During the detailed design phase, a review of relevant local and national policies and plans which set out the provision of access for all user groups has been included.

Existing access conditions have been described above in Sections 3.5 and 3.6.



6.2 Accessibility Aspirations

The siting of the proposed development in an area with rising land topography allows efficient cut and fill construction techniques. This permits a high degree of reclamation and creation of laydown area required to facilitate harbour operations including renewable energy. The proposed development aims to provide deep water pier infrastructure that will primarily serve the offshore wind sector. The design will include dredging to provide a quay berth of between 15m and 20m below chart datum. This depth will enable large vessels to safely access the quay. As the location of the proposed development is characterised by deep water, it provides an open navigational approach required by large vessels.

The design will provide a carpark at the lower north area of new site access road. This will provide four public parking spaces and access to Deepdale Beach area.

Consultation with renewable developers confirmed that up to two 250m long construction vessels would be required to berth during busy periods in April to September. For this reason, a quay length of just under 600m was incorporated into the design. This length of quay ensures there will be sufficient space for loading and unloading, together with the required laydown area behind the quay of 20ha.

Access routes inside the proposed development will be designated and separated for vehicular traffic and pedestrians. The new access road will be surfaced with a separate 1.8m wide pedestrian path along the south side. This access road will be 7.3m wide and this ensures all traffic types including HGVs can be accommodated.

7 Summary

This Design and Access Statement has summarised key policy relevant to the development of the design of the proposed Scapa Deep Water Quay. The key design principles followed during the design evolution are stated, and the most salient design considerations have been outlined.

This document demonstrates that the design of the proposed Orkney Logistics Base aligns with the relevant policy which is anticipated to be a material consideration during determination of planning consent, and the Marine Licence.

There are specific market opportunities in the offshore wind and oil and gas sectors that need access to deep water pier infrastructure. However, there is currently no such facility located on the Orkney mainland coast. The main purpose of this facility would be to undertake multiple industrial activities that require both deep-water berthing and large laydown area. It is envisaged that the main activity will be the construction/assembly and maintenance of offshore wind turbines. This is also a potential location for the development of a storage and supply hub for future marine fuels.

The proposed development has been formulated through a rigorous options appraisal and consultation. Potential for environmental effects and proposed mitigation have been considered from an early stage through the Strategic Environmental Assessment and Environmental Impact Assessment process.

In summary the design has incorporated particular specifications and elements which align with best practice and follow on from mitigation arising from consultation with statutory and non-statutory consultees, and the Environmental Impact Assessment. Principally, the design will: minimise waste during construction by re-using dredging arisings; facilitate use of renewables through increased laydown area; and ensure resilience against climate change by incorporating sustainable drainage systems while ensuring new hardstand is above relevant modelled tidal surge levels.

The other suggestions regarding accessibility improvements will be discussed and agreed with Orkney Islands Council.