



**Dales Voe Ultra-Deep-Water Quay
Environmental Impact Assessment (EIA) Scoping
Report**

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CONTROL SHEET

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EnviroCentre Limited Office Locations:

Glasgow

Edinburgh

Inverness

Banchory

Registered Office: Craighall Business Park 8 Eagle Street Glasgow G4 9XA
 Tel 0141 341 5040 info@envirocentre.co.uk www.envirocentre.co.uk

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1 INTRODUCTION

1.1 Background

EnviroCentre Ltd has been appointed by Lerwick Port Authority (LPA) to undertake an Environmental Impact Assessment (EIA) for an expansion of their existing deep water quay at Dales Voe with a proposed ultra-deep water quay, adjacent to an existing facility. The proposed facility will undertake industrial activities requiring heavy lift deep-water berthing and large laydown area.

1.2 Purpose of report

The purpose of this report is to seek an EIA scoping opinion from the Shetland Islands Council (SIC) and Marine Directorate – Licensing Operations Team (“MD-LOT”) as required by The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 and The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 respectively.

1.3 The Applicant

LPA is entrusted to manage, maintain and regulate the port and harbour of Lerwick, efficiently and safely for the benefit of all stakeholders.

It satisfies customers’ needs in the delivery of competitive port services and proactively identifies new opportunities which will sustain and grow the Shetland community. With 140 years of experience, it ensures the port and its infrastructure remains relevant to future shipping generations and plays a key role in the economic life of the islands.

1.4 The Need for Development

LPA has an ambition to significantly extend the base to facilitate the offloading and decommissioning of offshore structures located in the North Sea. LPA therefore seek all the necessary consents required in order to develop the base and ultra deep water quay (UDWQ).

The main purpose of the proposed facility would be to undertake industrial activity or activities that require heavy lift deep-water berthing and a large laydown area. Such opportunities do exist in offshore renewables and conventional energy, especially oil and gas sectors and the proposed development intends to operate in those areas.

The project will build on Lerwick’s decades of experience which has made it a leading centre of support for the offshore oil & gas industry and a front-runner in decommissioning. It has the potential to transform the roles of the port and Shetland and develop the UK supply chain.

The quay will maximise the natural advantages of the deep-water, sheltered voe and its proximity to oil and gas fields and future windfarms, expanding the facilities at the existing Dales Voe Base and enhancing the UK’s ability to compete in international markets.

It will be the only ultra-deep-water quay in the UK, with Lerwick the only UK port with alongside water depth to accommodate the world’s largest crane vessels. As per the Ultra-deep water port feasibility

study report, Ultra-deep-water port is considered to be a port with 24m of water depth directly at the quayside.¹

The UDWQ also supports the ambitions of the ORION Clean Energy Project¹ to transform Shetland into a world-leading green energy island.² Also, the proposed development will support Crown Estate Scotland's Scotwind Leasing as it includes acreage east of Shetland for windfarm development.

In addition, The Islands Growth Deal is the latest in a series of Region and City Deals that have been funded by UK and Scottish Government. The Islands Growth Deal is a ten-year package of investment that will seek to drive economic growth and the creation of sustainable jobs across Shetland, Orkney and the Outer Hebrides.³

During the transitions away from a fossil fuel-based economy, redundant oil and gas platforms will require to be safely and sustainably decommissioned over an extended period. Shetland has been welcoming decommissioning projects since the early 2000's and has a strong reputation in the sector. However, the current water depths at Dales Voe, and all other UK ports, is restricting the UK's capability to compete for the larger platforms due to be decommissioned. An ultra-deep water port will increase the opportunity to secure more of the growing decommissioning sector and the developing offshore renewable sector, providing the UK with a capability to match that found overseas.

Dales Voe has been identified as the optimal location in the UK for an ultra-deep water decommissioning facility due to its sheltered approach, naturally deep-water channels and its close geographical proximity to both the existing oil and gas infrastructure and the locations that will be used for future offshore wind and low carbon energy sector. The Dales Voe Ultra-Deep Water Port project aims to create the required new facility with a minimum depth of 24 metres.

The Dales Voe Ultra-Deep Water Port project will be supported with investment of up to £9 million from the Scottish Government "Islands Growth Deal"⁴.

The need for the proposed development is reflected in the national and local planning policies as discussed below.

1.5 Planning Context

LPA is the regulatory authority responsible for the management and development of Lerwick Harbour, however, the harbour functions within the geographical context of the Shetland Isles and it is valuable to review National and Local Policy when undertaking EIA.

The EIA will identify relevant policy and review how the UDWQ project accords with the stated aims of the Development Plan. Common environmental objectives in the management of the Lerwick Harbour and coastal zone include safeguarding fishing interests, ensuring safe navigation is maintained, consideration of recreational interests, protection of the environment and natural heritage and ensuring availability of necessary infrastructure. To this end, the EIA will assess the compatibility of the proposal with the stated aims of the Statutory Authorities.

¹ [Ultra-deep Water Port Feasibility Study \(www.gov.scot\)](http://www.gov.scot)

² <https://www.orioncleanenergy.com/about>

³ <https://www.islandsdeal.co.uk/>

⁴ <https://www.islandsdeal.co.uk/leading-way-low-carbon-future/dales-voe-ultra-deep-water-port>

1.5.1 National Policy

Under the spatial planning priorities (Annex C), of the National Planning Framework 4, for the North and West Coast and Islands, it states the following:

“New infrastructure and repurposing of land will help to shift industrial activity towards supporting the offshore renewables sector. Key strategic sites for industrial investment and associated port infrastructure and facilities include plans for: Dales Voe and Scapa Flow as part of the Islands Growth Deal...”

In addition, within Section 1. Energy Innovation Development on the Islands, states:

Shetland Islands – Supporting the Opportunity for Renewable Integration with Offshore Networks (ORION) Clean Energy Project.

The classes below apply to development that is for delivery of renewable and low carbon aspects of the ORION project:

- d) *Quay to service renewable energy, energy transportation, energy decommissioning, fabrication or freight handling, including new or enhanced associated laydown or operational area at Sullom Voe, Scatsta, Lerwick, and Dales Voe (Lerwick);*

The proposed development will benefit the communities by providing employment and income for local businesses.

1.5.2 Local policy

Shetland Islands Council Local Development Plan (2014)⁵ identifies Dales Voe (Ref LK021) as being a site with development potential.

The Shetland Islands Council Main Issues Report 2022 (Draft) recommends Dales Voe (TLK004) as a preferred industrial site.⁶

The Strategic Environmental Assessment (Shetland Local Development Plan 2: Site Assessment⁷) states:

“The site is suitable as a potential allocated site for industry in the next Local Development Plan. This assessment has been reached for the following reasons:

- *This site has been established as suitable and sustainable for its current use.*
- *The proposed site is appropriate for continued industrial use.*

Notwithstanding that the principle of industrial use of this site is well-established and acceptable, any change to its current industrial use would require appropriate consideration and approval.”

⁵ <https://www.shetland.gov.uk/downloads/file/1930/local-development-plan-2014>

⁶ [main-issues-report-2022 \(shetland.gov.uk\)](https://www.shetland.gov.uk/downloads/file/4813/main-issues-report-2022)

⁷ <https://www.shetland.gov.uk/downloads/file/4813/sea-site-assessment-forms-tlk001-to-tlk024>

1.6 The Legislative Context

As the proposed development contains elements which are above and below Mean High Water Springs (MHWS) consents will be required from both Shetland Islands Council (SIC) and Marine Directorate Licensing Operations Team (MD-LOT).

The proposed development is subject to local, national and European legislation of which the following is the principal legislation:

- The Harbours Act 1964;
- The Town and Country Planning (Scotland) Act 1997, as amended by the Planning etc. (Scotland) Act 2006 (Planning Permission);
- The Marine (Scotland) Act 2010 (Marine Licences);
- The Marine and Coastal Access Act 2009;
- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (hereafter referred to as ‘the EIA Regulations’); and
- The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (hereafter referred to as ‘the Marine EIA Regulations’).

1.7 EIA Screening

It is identified that the proposed development is a Schedule 1 development as it falls within the description of Paragraph 8 (2) of both the terrestrial and marine EIA regulations. The paragraph refers to:

“Trading ports, piers for loading and unloading connected to land and outside ports (excluding ferry piers) which can take vessels of over 1,350 tonnes”.

Accordingly, an EIA is automatically required to support applications under both the Town and Country Planning (Scotland) Act and the Marine (Scotland) Act.

A screening request was submitted to Shetland Island Council and Marine Directorate for their screening opinion confirming the project is a Schedule 1 development.

A Screening Opinion was received from MD-LOT on 01 May 2024 stating that *“...it is the Scottish Ministers’ opinion that the Proposed Works are an Environmental Impact Assessment (“EIA”) project and therefore an EIA is required to be carried out in respect of the Proposed Works.”*

Within the MD-LOT Screening Opinion it is stated *“A copy of the screening opinion has been forwarded to the Shetland Islands Council planning department. The screening opinion has also been made publicly available through the Marine Scotland Information website.”*

1.8 Scoping under the Land Use and Marine EIA Regulations 2017

For projects that require EIA, the scoping exercise, undertaken early in the project, allows identification of the environmental issues which require assessment. Scoping provides an opportunity for dialogue between the applicant and the relevant Statutory and Non-Statutory Consultees, including Non-Government Organisations, to obtain their views on the proposal; identify potential impacts; identify existing environmental information; and agree methods for the assessment of the nature and significance of these impacts, thus ensuring that all relevant environmental issues are covered by the EIA.

This enables the project to be designed to avoid or minimise negative environmental impacts and provides an opportunity to incorporate positive environmental enhancements into the project.

The document has been prepared to assist MD-LOT, Shetland Islands Council and the consultation bodies in forming an opinion as to the likely effects of the development. It describes the proposal and provides information with regard to the legislative and physical environment and aims to provide information sufficient to their decision making. It seeks to identify and obtain agreement on the relevant environmental issues that are likely to be associated with the proposed development in order to ensure that the EIA is correctly focused. Equally, the scoping exercise aims to eliminate those issues that are deemed to be insignificant to this proposal.

Additional objectives of EIA Scoping are to:

- Establish the availability of baseline data,
- Request that statutory consultees provide any relevant environmental information relating to the site and surrounding area,
- Define a survey and assessment framework through which comprehensive impact assessment can be achieved, and
- Provide a focus for the regulatory authorities and the consultees' considerations – in terms of:
 - Potential impacts to be assessed,
 - Assessment methodologies to be used,
 - Other areas which should be considered, and
 - Any other environmental issues of perceived concern.

Each regulation requires that any scoping request should be accompanied by:

- A description of the location of the development, including a plan to identify the land,
- A description of the proposed development, and its likely significant effects on the environment; and
- Such other information or representations as the developer may wish to provide or make.

1.9 Structure of the report

The information contained in this document is based on the current understanding of the nature of the proposed development and preliminary assessment of the potential environmental impacts.

Key subjects addressed in the scoping report are:

- Legal requirements;
- Proposed framework for the Environmental Impact Assessment;
- Consultation;
- A description of the nature and purpose of the development;
- The proposed methodology for assessment of alternatives;
- The potential for cumulative impacts;
- A description of the development's possible effects on the environment;
- Charts and plans sufficient to identify the site and any other matters considered of relevance;
- Identification of potential principal emissions;
- Potential sensitivity of receiving environment;
- Results of initial desk studies and site surveys;
- Outline of environmental assessment methodology; and
- Comment on issues not to be addressed.

This Scoping Report has been laid out as follows:

- Section 1 introduces the proposal, the applicant, the need for the project and the regulatory background.
- Section 2 sets out a description of the proposed development to identify the aspects of the project based on which an appraisal of potentially significant environmental effects will be considered.
- Sections 4 – 15 discuss potentially significant environmental effects on a topic-by-topic basis; and
- Section 16 draws together the conclusions reached for each topic considered in the Scoping Report.

1.10 Report Usage

The information and recommendations contained within this report have been prepared in the specific context stated above and should not be utilised in any other context without prior written permission from EnviroCentre Limited.

If this report is to be submitted for regulatory approval more than 12 months following the report date, it is recommended that it is referred to EnviroCentre Limited for review to ensure that any relevant changes in data, best practice, guidance, or legislation in the intervening period are integrated into an updated version of the report.

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2 THE PROPOSED DEVELOPMENT

2.1 The Site and Surrounding Area

2.1.1 Site History

The site was first developed in 1986, with the opening of the existing base. The base was used for engineering and fabrication works as well as general storage. Previous decommissioning works were limited to the disassembly of small sub-sea equipment. The site comprised two main buildings with a third office building, a yard, a tarmac car park and rock-armoured frontage and a suspended deck pier. Work is currently in progress at Dales Voe to create additional lay down area by extracting rock from the rear of the base.

In 2015 a multi-purpose deep water facility to meet the needs of the offshore industries, including renewables and decommissioning was developed.

The project comprised the extension of the quay by 75 metres, provision of deck load-bearing capacity of 60 tonnes per square metre and a link span line load of 800 Tonne/m run of quay to enable a floating barge skid transfer of complete offshore topside modules up to 24,000 Tonne, with a minimum alongside 12.5m berth depth.

In 2018, Dales Voe was identified in an independent study for the Scottish Government as the optimal location in the UK for an UDWQ for decommissioning larger oil and gas production platforms.

It is now also recognised as a key site for supporting the assembly and deployment of large-scale floating structures for offshore windfarms.

2.1.2 Site location

The proposed development site (referred to as 'site' now onwards) is located in a coastal remote area, adjacent to existing Dales Voe Quay owned by Lerwick Port Authority on Shetland Islands. The site is centred at National Grid HU 46002 45773. The site location map is provided as Appendix A.

2.1.3 Surrounding Area

Dales Voe is a seawater inlet to the northwest of Lerwick. The current Dales Voe Base lies on the eastern shore of the inlet and was designed for inspection, repair and maintenance of drilling rigs. The base is currently part of Lerwick Port Authority's (LPA) estate.

The site is bounded by Dales Voe, extending from the northwest to the northeast, with the existing Dales Voe Quay facility situated to the west and open land to the east. A road runs parallel to the southern edge of the site, connecting it with other areas of the island.

The marine portion of the site falls under East Mainland Coast Special Protected Area (SPA). Teind barn, a scheduled monument is located at ~160m southeast from the site.

To the east of the site stands a wind turbine. Industrial/commercial units are located at ~1.1 km southeast to south of the site and further south, lies Loch of Kebister.

Major residential areas are located at ~3 km south from the site. There are a few scattered residential units on the other side of the Voe, towards the north of the site. The nearest residential unit is ~400 m north of the dredging boundary of the proposed development.

2.1.4 Connectivity

The site is connected to the rest of the island through a single road off Gremista Road (A970). In terms of maritime connectivity, Holmsgarth Ferry Terminal, Lerwick has ferry services from Aberdeen. The terminal can be accessed via the A970. Shetland can also be accessed via flights to Sumburgh Airport.

2.1.5 Site Conditions and Services

The new Dales Voe UDWQ is to be built alongside and made integral to the existing Dales Voe suspended deck, extended south solid heavy lift quay and existing 5 hectares of laydown area used for both oil and gas decommissioning and offshore renewable.

The base currently has an existing access road, parking, provision for electrical, lighting, drainage and sewage services into an existing septic tank and sea outfall. An existing office and welfare block is also on site. It is not envisaged that any existing facilities need to be increased in order to facilitate the new UDWQ development.

2.2 Consideration of Alternative

The Shetland Islands are ideally located for such a base comprising an UDWQ for a number of reasons, particularly their close proximity to the Northern North Sea oil fields and proposed offshore wind farm developments. The cost of shipping large structures is substantial, particularly if being done by heavy-lift vessel, thus for decommissioning and offshore wind the ability to limit travel distance has a significant bearing on the future financial viability of a base.

It should be noted that both National and Local planning policies support the nature of the proposed development. The need and purpose of the proposed development have been discussed previously in Section 1.4.

The 'do nothing' scenario is another option for LPA, however, this would be contrary to one of the port's key objectives of securing offshore wind development and further decommissioning projects through the expansion of its deep water facilities. Adopting the 'do nothing' approach would then delay and potentially inhibit the ability of the port to gain a stake in the emerging North Sea decommissioning market and the socio-economic benefits this would bring to Lerwick.

Lerwick Port Authority considered a second scheme option further south at Dales Voe as detailed in the 2013 Environmental Statement.⁸ The current preferred location provides more efficient dredging campaign to form a safe navigational approach.

⁸ Dales Voe Decommissioning Base Environmental Statement (June 2013)

2.2.1 Preferred Development Option

Dales Voe is one of the two preferred options for the development of UDWQ, as per the Ultra-deep water port feasibility study undertaken by Ernst & Young LLP for Scottish Government.⁹ A total of 40 quays were considered for the development and were tested against a number of hard and soft criteria as below:

1. The long list of quays was first assessed against a set of hard criteria based on the current infrastructure in place and whether it could reasonably be developed into an UDW port. Quays which do not meet the minimum requirements set by the hard criteria were removed from consideration.
2. Remaining quays underwent a practicality assessment to ascertain the feasibility of increasing the dredge depth to -24m chart datum (CD) at the quayside and increasing the approach channel depth to -14m. This assessment was performed using admiralty charts and local knowledge of the marine conditions. Quays which did not appear reasonably feasible to achieve these requirements were removed from consideration.
3. Quays remaining after stage one and stage two assessments were assessed across a range of soft criteria, with the two best options taken forward.

2.3 Scheme Proposal

2.3.1 Description

The proposed Dales Voe Ultra Deep Water Quay (UDWQ) includes the construction of temporary bunds, excavation, dredging, controlled blasting, land reclamation, construction of quay and laydown area and construction of potential industrial site.

The Dales Voe UDWQ will comprise a new harbour facility with 101m of quayside with a water depth of -21m Chart Datum (CD) and -24m CD; and a minimum of 6 hectares of laydown area (including quay areas).

There will also be a capital dredge campaign to a depth of -21m CD amounting to 305,000m³ including over dredge allowance, with anticipated trailer suction soft dredge volume being 210,000m³ and a hard dredge pre-treated backhoe dredge volume of 95,000m³.

The combined total infill volume from both land excavation (176,000m³) and dredging coming ashore is 480,800m³ together with 10,050m² of 8 to 10-tonne rock armour revetment (of which 2,400m² is reused from the existing north reclamation/car park area) together with associated drainage pipework and sea outfall.

The Quay will be formed by drilling ~2.1m diameter core sockets into hard bearing strata followed by vibro piling 1.83m diameter steel tubular pile into concreted rock sockets. The quay cope will be formed by precast and in-situ concrete units 4m deep and 2m wide with a concrete deck slab behind along with drainage, lighting and ancillary services.

⁹ Ultra-deep Water Port Feasibility Study (www.gov.scot)

The cope is supplied with fixing insert pockets for future Yokohama rubber fender units. Bollards are 100 Tonne capacity, cope rails are removable and ladders are provided along the cope. It is anticipated that 3No 25m High-level lighting masts (HLM) will be located within the laydown area.

A hydrographic and sub-bottom survey of the seabed has been obtained from Aspects Surveys and existing Ordnance Survey maps for the proposed site with all levels indicated as being relative to Chart Datum for marine and land sites.

Based on Admiralty Charts and Tide Tables, the sea levels assumed as follows based on most onerous data for quay design -

Mean High Water Springs +2.5m Chart Datum
Mean Low Water Springs +0.5m Chart Datum

0.0m Chart Datum is 1.22m below Ordnance Datum

The overall location plan, typical cross-section, plan of the new combi steel pile quay wall and overall development boundary area are provided in Appendix B.

Refer to Appendix B for drawings as listed below.

Table 2-1: List of Drawings

Drawing No	Title
202071-P-01C	Site & Dredging Layout
202071-P-03B	Quay Cross Section-Dredge Berm
202071-P-04	Piling Layout
202071-P-10B	Development Boundary

2.3.2 Laydown Site

The excavated inert stone from both land and a dredging campaign will be used to create 6 hectares of new land and quay space in the sea. Any waste material like organic soil, peat, and clays that cannot be used for this purpose will be stored in material bunds around the development site, specifically in an extended agricultural area at the south of the base.

The first step of construction involves creating a strong rock barrier in the sea (using 114,000 cubic meters of clean inert rock) lined with geotextile and additional protective layers. This barrier serves two main purposes:

1. It allows cranes and equipment to access the construction site to build the quay structure.
2. It acts as a containment area for materials from both land excavation and the dredging campaign, which are not suitable for use elsewhere.

The land excavation site (separate planning application 2023/289/PPF- Lerwick Port Authority, Dales Voe Base, Gremista, Lerwick, Shetland, ZE1 0PY) will have perimeter V ditches cut and silt retention installed ahead of land being stripped of all non- inert material (organic soil, vegetated peat along with unsuitable clays).

This shall be temporally stockpiled until the initial laydown areas are created to commence site perimeter storage bunds. Excavation would then progress to select, screen and stockpile inert stone and suitable glacial till that is free from all organic and clay material. This operation is likely to take place over several months (estimated 12 to 14 months) and will involve heavy tracked plant to both excavate and rip material, together with pre-treatment of the harder strata through drilling 100mm dia. holes and controlled delayed explosives (approx. 25Kg per hole.)



Further to previous land earthworks completed to date, the production is currently estimated at 10,000m³ / week (20,000T / week).

The stockpile material described above would then become the main inert material fill source for future reclamation and quay works. The estimated volume of fill required is 176,000m³ and will take approx. 18 weeks to produce.

Surface water management - Cut-off ditches will be created above works to prevent any water from flowing onto to site. Sustainable Urban Drainage System (SUDS) settlement ponds are likely required to minimise sediment flowing into the sea.

2.3.3 Reclamation and Quay Works

Once sufficient suitable inert fill material is won and stockpiled, it will be used to create the outer perimeter bund for reclamation, starting from the existing north reclamation area.

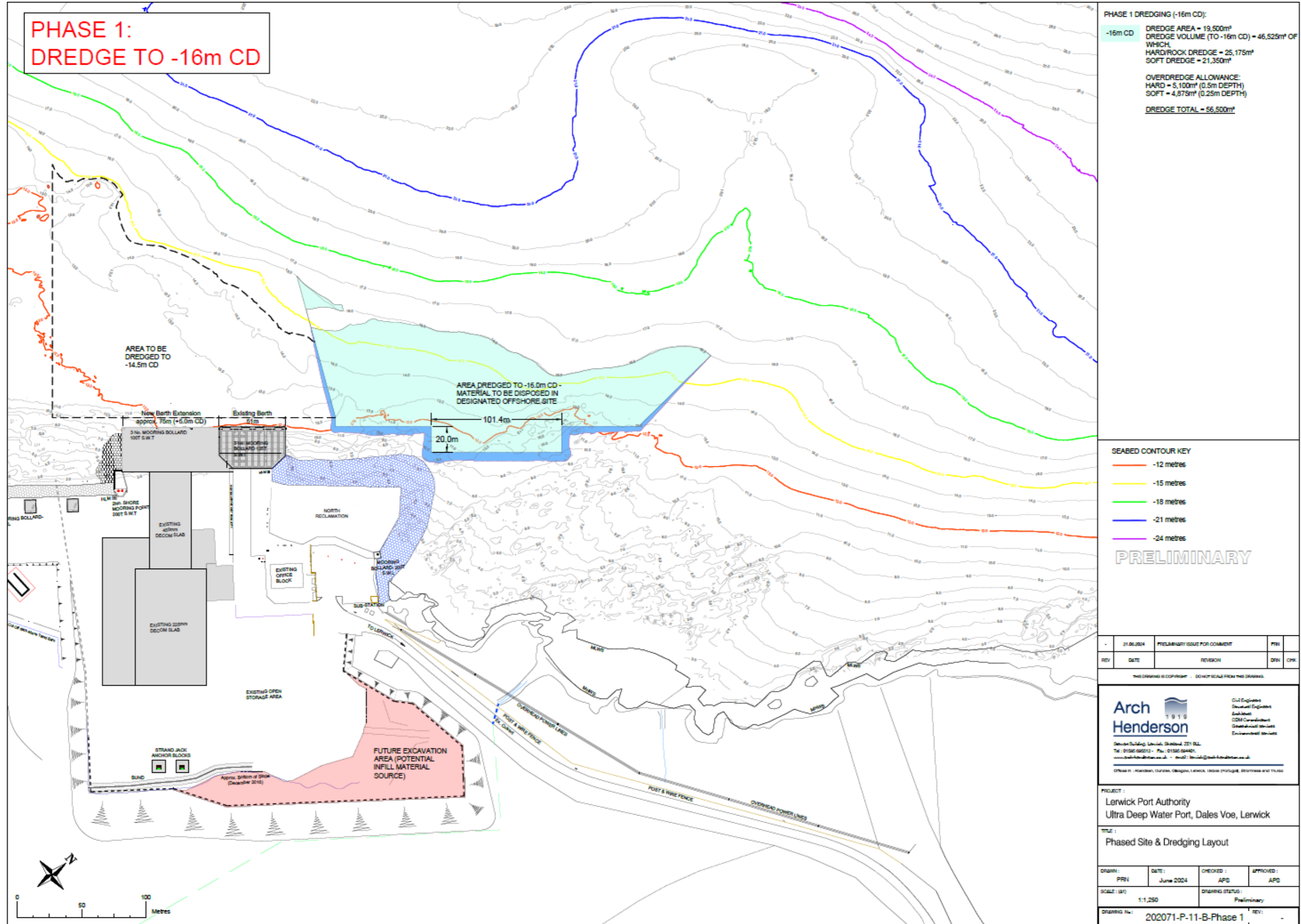
Reclamation will be carried out over 2 consecutive summers for a duration of 12 months in total with up to 6 months per year.

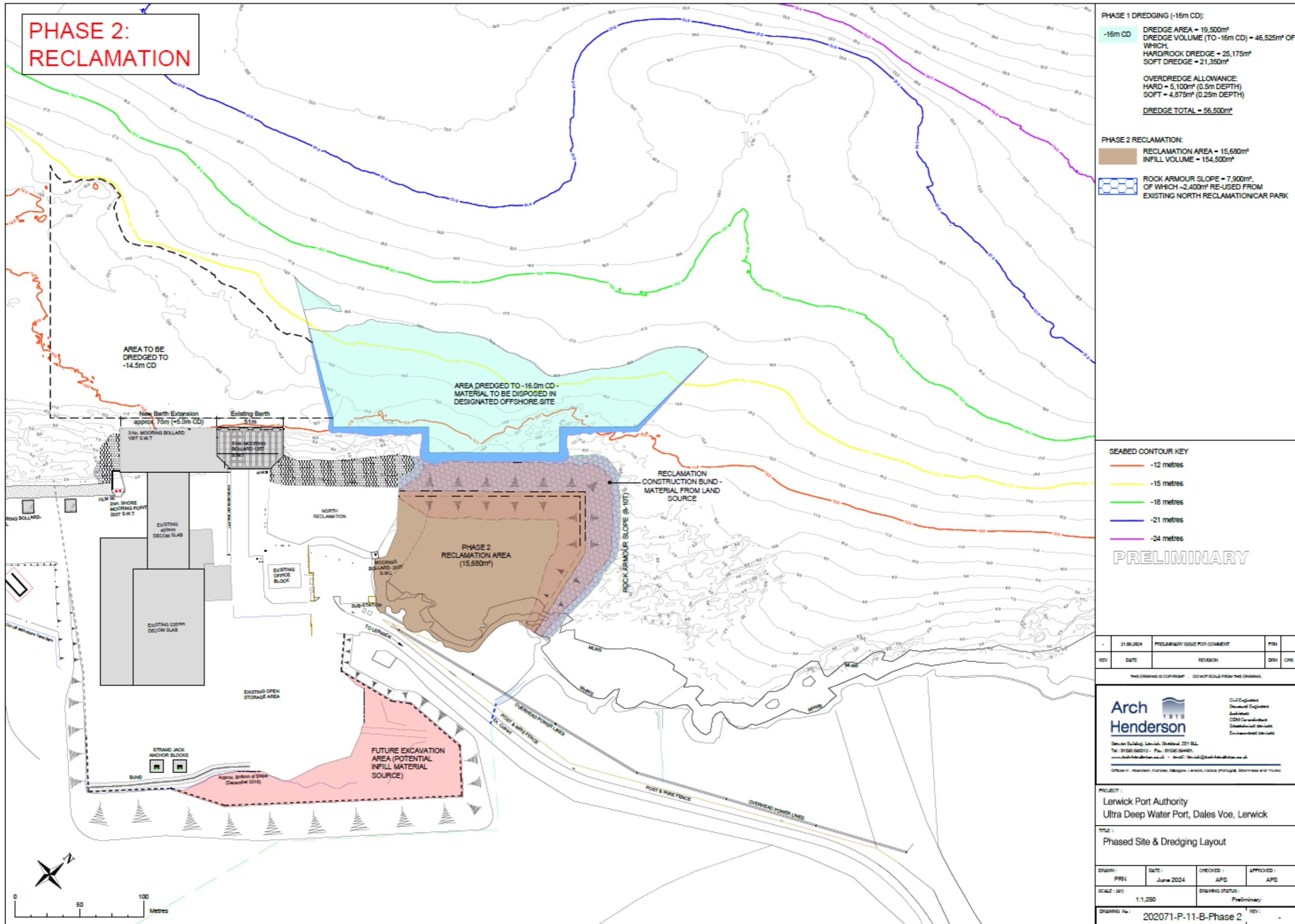
Geotextile and silt booms will be used to prevent fine materials from spreading into the sea as the bund is built. Secondary and primary rock armour will be placed on the bund slopes to strengthen them. While some secondary armour may be won on-site, it is considered that the majority of 8 to 10-tonne pieces of armour stones may need to be imported by sea to cover a rock armour slope area in two interlocking layers of approx. 10,050m². Once this reclamation perimeter bund and armour slope is formed then this shall provide the main land route to access the quay works construction site (-13m Chart Datum) for labour, plant and construction materials.

The main quay berth face will be built using steel tubular piles and interlocking sheet piles to create a strong combi wall with a further inner tied sheet pile anchor wall. This combi wall will support a concrete cope and deck, followed by a hard-core surfaced laydown area and drainage system.

The quay works will be carried out for 12 months (Refer to Figure 2-1 for details of the project phases).

Figure 2-1: Construction Phasing (Phases 1-4)





PHASE 1 DREDGING (-16m CD):

-16m CD DREDGE AREA = 19,500m²
 DREDGE VOLUME (TO -16m CD) = 46,525m³ OF WHICH:
 HARD/ROCK DREDGE = 25,175m³
 SOFT DREDGE = 21,350m³

OVERDREDGE ALLOWANCE:
 HARD = 5,100m³ (0.5m DEPTH)
 SOFT = 4,875m³ (0.25m DEPTH)

DREDGE TOTAL = 56,500m³

PHASE 2 RECLAMATION:

RECLAMATION AREA = 15,680m²
 INFILL VOLUME = 154,500m³

ROCK ARMOUR SLOPE = 7,900m²
 OF WHICH ~2,400m² RE-USED FROM EXISTING NORTH RECLAMATION/CAR PARK

SEABED CONTOUR KEY

- 12 metres
- 15 metres
- 18 metres
- 21 metres
- 24 metres

PRELIMINARY

REV	DATE	REVISION	DRN	CHK
-	21.06.2024	PRELIMINARY ISSUE FOR COMMENT	PRN	

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Arch Henderson 1919
 Civil Engineer
 Structural Engineer
 Architect
 CDM Co-ordinator
 Geotechnical Engineer
 Environmental Scientist

Shannon Building, Lerwick, Shetland, ZE1 1LL
 Tel: 01595 692211 Fax: 01595 694421
 www.archhenderson.co.uk Email: info@archhenderson.co.uk

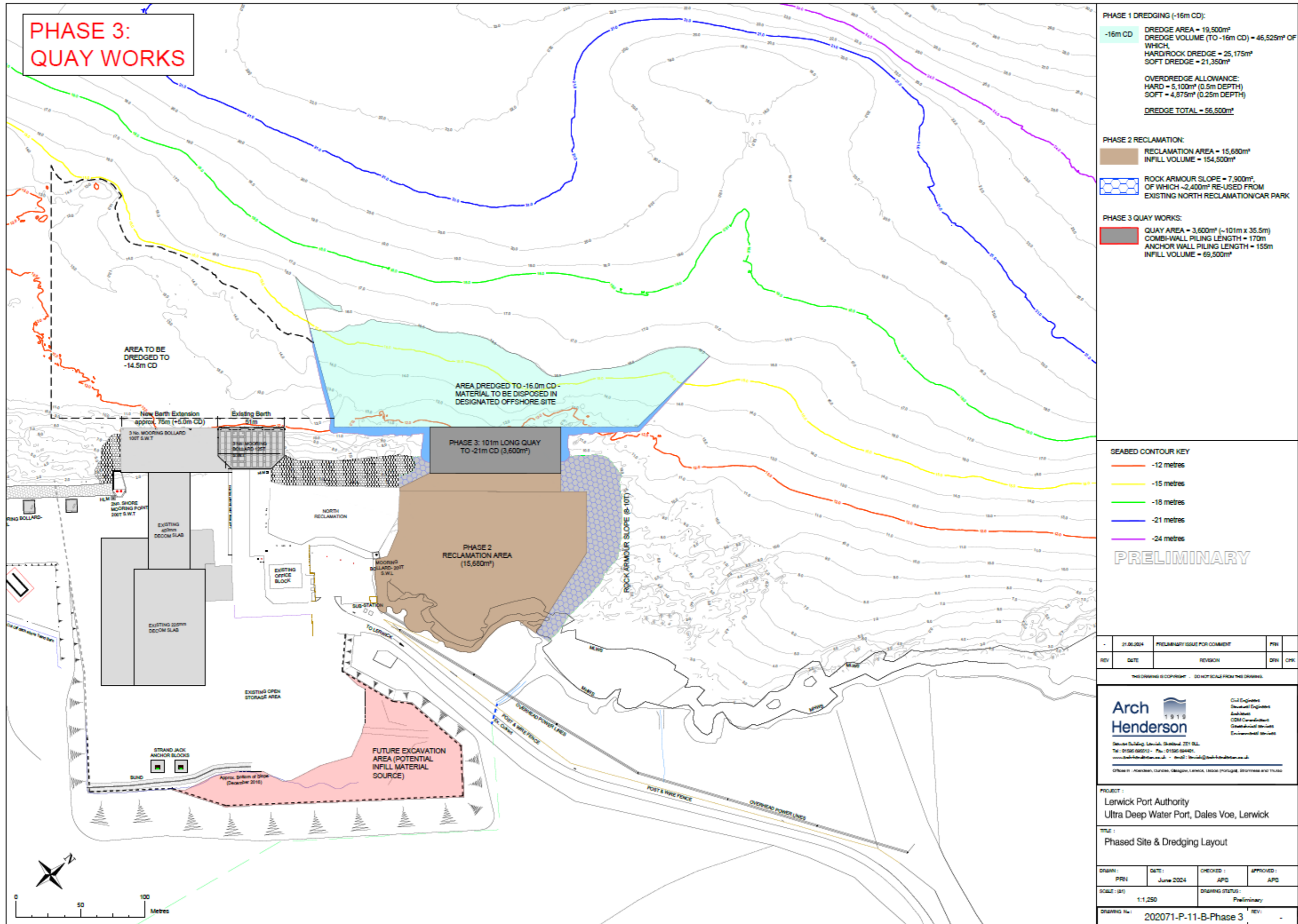
Offices in Aberdeen, London, Glasgow, Lerwick, Inverness, Perth, Sharncliffe and Thurso

PROJECT:
 Lerwick Port Authority
 Ultra Deep Water Port, Dales Voe, Lerwick

TITLE:
 Phased Site & Dredging Layout

DRAWN:	DATE:	CHECKED:	APPROVED:
PRN	June 2024	APD	APD
SCALE: (A1)	1:1,250	DRAWING STATUS:	Preliminary

DRAWING No: 202071-P-11-B-Phase 2



**PHASE 3:
QUAY WORKS**

PHASE 1 DREDGING (-16m CD):

-16m CD DREDGE AREA = 19,500m²
 DREDGE VOLUME (TO -16m CD) = 46,525m³ OF WHICH
 HARD/ROCK DREDGE = 25,175m³
 SOFT DREDGE = 21,350m³

OVERDREDGE ALLOWANCE:
 HARD = 5,100m³ (0.5m DEPTH)
 SOFT = 4,875m³ (0.25m DEPTH)

DREDGE TOTAL = 56,500m³

PHASE 2 RECLAMATION:

RECLAMATION AREA = 15,680m²
 INFILL VOLUME = 154,500m³

ROCK ARMOUR SLOPE = 7,900m²,
 OF WHICH ~2,400m² RE-USED FROM
 EXISTING NORTH RECLAMATION/CAR PARK

PHASE 3 QUAY WORKS:

QUAY AREA = 3,600m² (~101m x 35.5m)
 COMBI-WALL PILING LENGTH = 170m
 ANCHOR WALL PILING LENGTH = 155m
 INFILL VOLUME = 69,500m³

SEABED CONTOUR KEY

- 12 metres
- 15 metres
- 18 metres
- 21 metres
- 24 metres

PRELIMINARY

REV	DATE	REVISION	DRN	CHK
-	01.06.2024	PRELIMINARY ISSUE FOR COMMENT	PRN	

Arch Henderson 1919

Civil Engineers
 Structural Engineers
 Architects
 CDM Co-ordinators
 Geotechnical Services
 Environmental Services

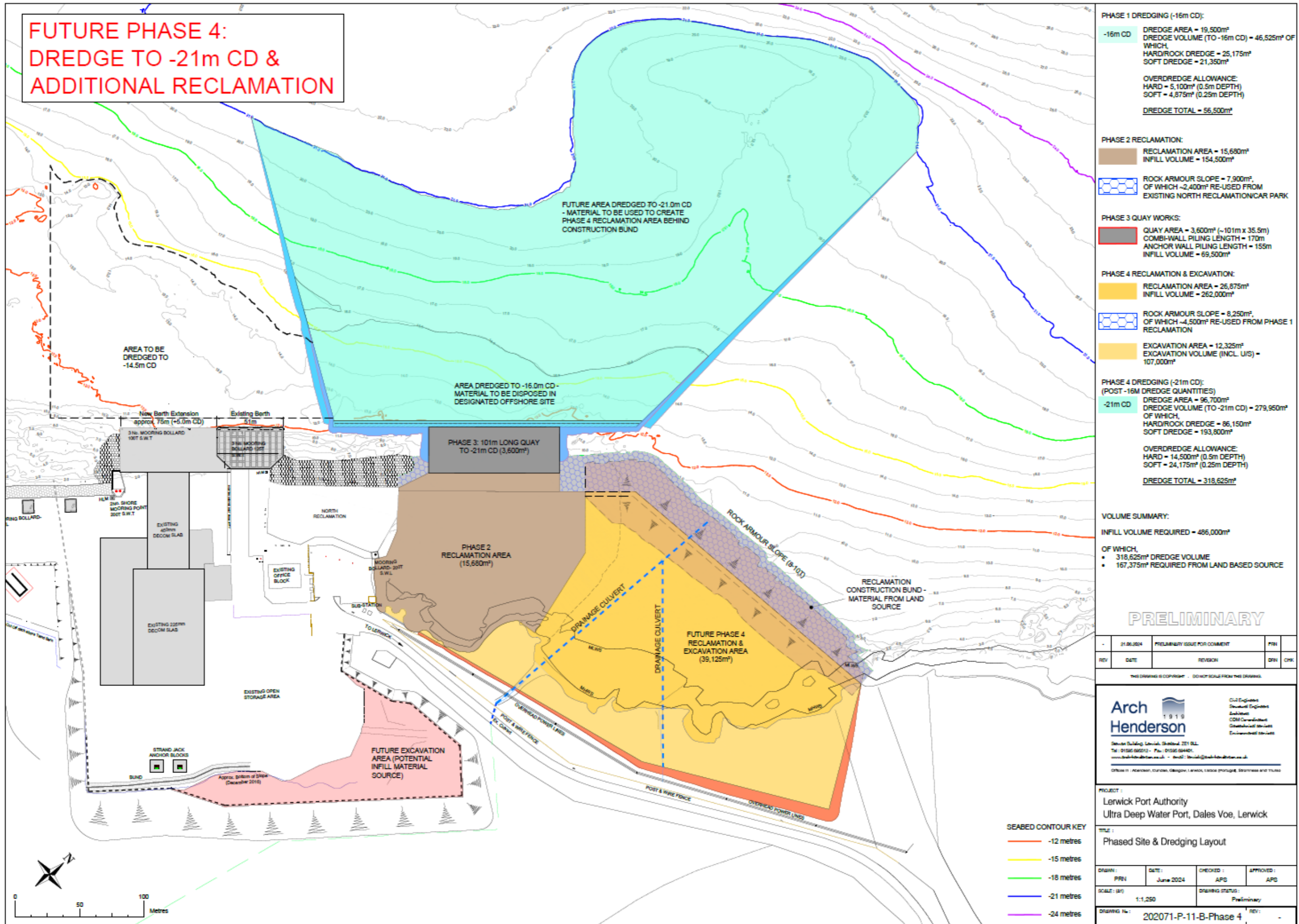
Seaton Building, Lerwick, Shetland ZE1 8LL
 Tel: 01595 665012 Fax: 01595 694421
 www.archhenderson.co.uk Email: info@archhenderson.co.uk

OFFICES: ABERDEEN, DUNDEE, GLASGOW, LONDON, LEEDS, MANCHESTER, NEWCASTLE AND TRURO

PROJECT:
 Lerwick Port Authority
 Ultra Deep Water Port, Dales Voe, Lerwick

TITLE:
 Phased Site & Dredging Layout

DRAWN:	DATE:	CHECKED:	APPROVED:
PRN	June 2024	APS	APS
SCALE: (A3)	1:1,250	DRAWING STATUS:	Preliminary
DRAWING No.:	202071-P-11-B-Phase 3	REV:	-

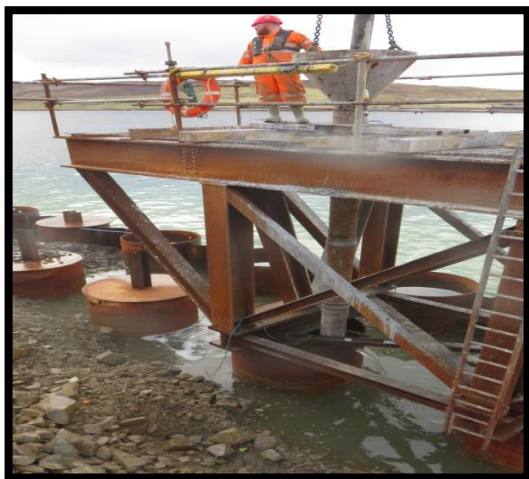


Tubular steel piles (approx. 1.83m dia.) for the quay wall will be installed with drilled rock sockets to provide suitable pile toe fixity below a future -24m dredge level. Bauer BG41 Drill rigs or similar will be used over water from temporary piling platforms over the reclamation bund or a jack up barge with silt booms placed on the seaward side.

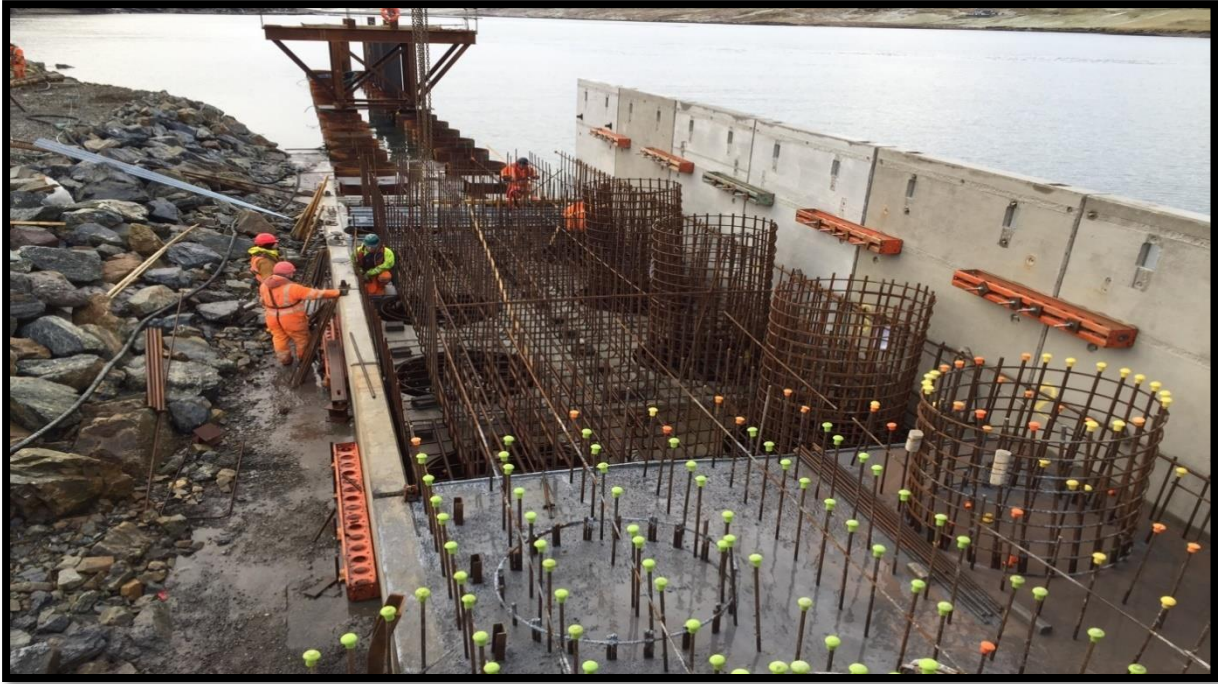


Drill cuttings would be directed to temporary filter and silt beds on land with no discharge of cuttings to sea or watercourse. Tubular piles and sheet piles are expected to be vibro hammered to the required depth (20 to 40 meters /day) with no impact hammers anticipated at this stage. Piles will then be filled with tremie concrete.

The quay works advancing north will be followed by the reclamation fill.



The reclamation fill and quay fill will be compacted using vibro methods to reduce future settlement. Plate bearing tests will ensure fill stability. Tie rods will be installed between the quay wall and rear sheet pile wall, and a concrete cope will be placed.



After suitable compaction and testing, a concrete deck will be placed behind the quay face placed (generally no less than 6 months after fill takes place). The remaining reclamation and laydown areas will be capped and compacted with graded hard-core surfacing, including proper drainage systems.

2.3.4 Dredging

Dredging will be undertaken using trailer suction and backhoe methods to remove material from the seabed in front of the new quay face. The target depth is -21 meters relative to CD.

The dredged material, which includes inert stone waste, will be transferred to a split hopper barge. This material will then be deposited either behind the quay wall for reclamation purposes or, if it is not suitable for this purpose, it will be taken to Lerwick licensed offshore disposal site'.

The total estimated volume of material to be dredged is 305,000 m³, including an allowance for over-dredging. The trailer suction dredge volume is expected to be 210,000 m³, while the backhoe dredge volume after pre-treatment is estimated at 95,000 m³. Out of this, ~5% of this material (15,000 m³) is considered waste. The pre-treatment could include drilling & blasting which will be carried out for one spring/summer season. Holes would likely be drilled in a 3m x 3m grid pattern then detonated using explosives. The blasting frequency will be up to 1 blast a day and will be carried out for ~1 month.

The dredging campaign is expected to take ~10 months to complete from start to finish.

2.3.5 Precautionary measures

Only experienced marine contractors will be invited to tender for the works and they will be asked to submit a Construction Environmental Management Plan (CEMP), Risk Assessment Method Statement (RAMS) and Contractor Waste Management Plan (WMP) for approval by statutory authorities and construction contract as required and before any works commence on site. The CEMP will include measures and methods for preventing and dealing with fuel and material spillage during the works.

Setting Out and Marking: The extent of the marine works will be determined using fixed control stations on land, linked to Ordnance Survey coordinate grid system. Moored marker buoys will be placed along the perimeter within the marine waters to clearly mark the work area.

Material Use: Only inert stone fill free of all fine clay and organic material from adjacent site excavation will be used for forming proposed marine access and reclamation core bund construction.

Sediment Control: Before filling operations start from the shore, a silt boom will be placed in the water to contain sediment and prevent it from spreading. A silt boom will move along with the construction progress to protect the advancing front of the bund.

Geotextile Membrane: As filling progresses and advances inside moored marker buoys, a geotextile membrane will be placed on exposed slope profiles of the bund to prevent sediment migration. Once the slope work is completed and checked, primary and secondary stone armour will be placed over the geotextile membrane to secure it in place permanently.

Monitoring and Mitigation: A banksman will monitor marine activities, sediment movement, and material handling throughout construction. Mitigation measures will be implemented as needed due to changing weather, waves, and tides.

2.4 Project Timeline

The overall construction programme including dredging is anticipated as follows:

- Award of the Contract - First Quarter of 2026;
- Start of the Quay Works – Second Quarter of 2026;
- Start of Dredging – Fourth Quarter of 2026;
- Completion of Dredging – Third Quarter of 2027;
- Completion of the Quay Works - Fourth Quarter of 2027.

3 APPRAISAL OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL EFFECTS

3.1 Introduction

The proposed development will fall under Schedule 1 of the 2017 EIA and Marine EIA Regulations. It is therefore appropriate to request a Scoping Opinion from each regulatory body under the EIA and Marine EIA Regulations. As required, sufficient baseline information has been provided regarding the proposed development and the surrounding and receiving environment upon which to base a decision.

This Scoping Report is submitted to SIC Planning and MD-LOT with the intention that it should form the basis of their Scoping Opinion.

3.2 Previous Environmental Impact Assessment and Environmental Statement

Two previous Environmental Impact Assessment and Environmental Statements were prepared for proposals located at Dales Voe, these were:

- Dales Voe Decommissioning Base Environmental Statement (June 2013); and
- Dales Voe Quay Extension Environmental Statement (October 2014).

The topics included for assessment within the Environmental Statements are as follows:

2013 Environmental Statement	2014 Environmental Statement
Topics Included within the ES <ul style="list-style-type: none"> • Terrestrial Ecology • Marine Ecology • Water Environment • Environmental Noise • Landscape and Visual • Archaeology and Cultural Heritage 	Topics Included within the ES <ul style="list-style-type: none"> • Terrestrial Ecology • Marine Ecology • Water Environment • Noise • Landscape and Visual • Archaeology and Cultural Heritage

The information contained in this document is based on our current understanding of the nature of the site (with reference to the previous information and data gathered for the previous EIAs and Environmental Statements) and a preliminary desk based assessment of the potential environmental impacts associated with the proposed development.

3.3 Topic Area

The topics to be addressed within the Scoping Report are listed below:

- Air Quality;
- Land Environment;
- Water Environment and Coastal Processes;
- Biodiversity;

- Airborne Noise;
- Archaeology and Cultural Heritage;
- Seascape, Landscape and Visual;
- Transport, Shipping & Navigation;
- Accident and Natural Disaster;
- Climate Change;
- Material and Waste; and
- Population and Human Health

The approach to the appraisal of each of these topic areas is outlined in Sections 4 – 15 with the inclusion of baseline data where available. The appraisals will consider the potential environmental impacts related to both the construction and operational phases, where applicable, and either “scope in” or “scope out” the need for further assessment through the EIA process.

3.4 Cumulative Assessment

It is not proposed to incorporate a section within the EIA report dedicated to cumulative assessment. Instead, the chapter for each environmental discipline will consider the potential for cumulative impacts within their individual impact assessments.

A review of The Shetland Islands Council Planning Portal¹⁰ was undertaken to identify any planning application which could have cumulative effects on the environment and the following planning applications were identified in the vicinity of the site.

Table 3-1: Projects in the area as per Shetland Island Council

S/N	Title	Ref No	Applicant	Status
1	Proposed installation of a substation	2024/131/SCR	Mossy Hill Shetland Ltd	Non EIA development
2	The Proposed Development replaces two previously consented wind turbines at Luggies Knowe, Gremista and will comprise the construction and operation of one wind turbine with a ground to blade tip height of up to 149.9 m, battery energy storage system units, site access tracks and associated infrastructure	2024/006/PPF	Mr Brendan Hall	Pending Consideration
3	Creation of access track	2024/040/PPF	Morgan Sindall Group plc	Pending Consideration
4	Extraction of material from Staney Hill Quarry outside approved 2013/222/PPF boundary, plus subsequent reinstatement of the same area	2024/077/PPF	Staney Hill Quarry	Pending Consideration

¹⁰ Reviewed on 29 Jan 2024

A review of the MD-LOT portal¹¹ was undertaken for Dales Voe, and the following license was granted in the area.

Table 3-2: Projects in the area as per MD-LOT

S/N	Title	Ref No	Applicant	Start	Expire	Type
1	New Shellfish Farm - Muckle Ayre, Dales Voe, Shetland	06865	Blueshell Mussels Ltd	2019-04-25	2025-04-24	Fish (including shellfish) farm
2	Arven Offshore Wind Farm	SCOP-0048	Arven Offshore Wind Farm Ltd.			Renewables - Wind

¹¹ Reviewed on 29 Jan 2024

4 AIR QUALITY

4.1 Introduction

This section addresses air quality aspects and identifies any potential significant effect associated with the proposed development.

4.2 Study Area

The study area encompasses a buffer of up to 2 kilometres from the site boundary.

4.3 Baseline Conditions

The site is situated on an island and is subject to the influence of maritime weather conditions. Air Quality in Shetland is good.

No Air Quality Management Areas (AQMA) have been designated within The Shetland Islands Council (SIC) Area. The council does not conduct automatic (continuous) monitoring or non-automatic (passive) NO₂ monitoring within its jurisdiction. This decision is based on historical monitoring data, which consistently showed concentrations below national objectives, negating the need for further monitoring¹².

To assess the current air quality in the area, we obtained relevant 1km background air quality concentration maps from the Scottish Air Quality and DEFRA websites. Based on the measured annual average concentrations of NO₂, PM₁₀, and PM_{2.5} for Shetland in 2019, it is evident that the air quality is good, as pollutant concentrations are significantly below the applicable National Air Quality Objectives of 40µg/m³ for NO₂, 18µg/m³ for PM₁₀, and 10µg/m³ for PM_{2.5}.

In terms of sensitive receptors, there are a few scattered residential units on the Voe, towards the west of the site. The nearest residential unit is ~400 m west of the dredging boundary and ~800m from the land boundary of the proposed development. Major residential areas are located at ~3 km south from the site.

There are three ecological receptors, East Mainland Coast SPA, Easter Rova Head Sites of Special Scientific Interest (SSSI) and South Bight of Rova Local Nature Conservation Sites (LNCS) within the study area.

4.4 Potentially Significant Effects

To identify the potential impact on local air quality due to vehicular emissions, "*Land-Use Planning & Development Control: Planning For Air Quality by IAQM*", was referred to. The proposed development was tested against the following screening criteria of the guidance.

¹² <https://www.shetland.gov.uk/downloads/file/4784/monitoring-statement-2022>

1. Cause a significant change in Light Duty Vehicle (LDV) traffic flows on local roads with relevant receptors. (LDV = cars and small vans <3.5t gross vehicle weight).

During the construction phase, the increase in LDV traffic flows would primarily be a result of construction personnel which is envisaged to be short-term and insignificant.

During the operational phase, the increase in LDV traffic flows due to employees and workers will be insignificant as the number of employees required for the intended industrial activity/activities such as offshore windfarms and oil and gas decommissioning projects are not significant.

2. Cause a significant change in Heavy Duty Vehicle (HDV) flows on local roads with relevant receptors. (HDV = goods vehicles + buses >3.5t gross vehicle weight).

During the construction phase, it is anticipated that the marine assets and supplies will largely be brought to and from the site by sea and hence potential increase in the HGV flows on local roads is expected to be insignificant and also short-term.

During the operational phase, the proposed facility will undertake industrial activities requiring heavy lift deep-water berthing and an appropriately sized large laydown area, as required by offshore windfarms and oil and gas decommissioning projects. The majority of transportation is anticipated to be by sea and the increase in the HGV flows on local roads is expected to be insignificant.

- 3. Realign roads, i.e. changing the proximity of receptors to traffic lanes.**
- 4. Introduce a new junction or remove an existing junction near to relevant receptors.**
- 5. Introduce or change a bus station.**
- 6. Have an underground car park with extraction system.**
- 7. Have one or more substantial combustion processes, where there is a risk of impacts at relevant receptors. NB. this includes combustion plant associated with standby emergency generators (typically associated with centralised energy centres) and shipping.**

The proposed development does not propose to realign any existing road, introduce a new junction, remove any existing junctions, introduce or change any bus stand, propose any underground car park or propose one or more substantial combustion processes.

To assess the potential to impact local air quality due to construction dust, "Guidance on the assessment of dust from demolition and construction by IAQM" was referred to. The proposed development was tested against the screening criteria of the guidance.

There are no human receptors within

- **250m from the proposed development site or;**
- **50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).**

The site is located on a remote edge of Mainland Shetland, and based on the desktop survey of Openstreet map, it can be stated that there are no human receptors within the criteria mentioned above.

In terms of ecological receptors, there is only one designated site, East Mainland Coast SPA within:

- **50 m of the boundary of the site; or**
- **50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).**

Based on the above criteria, a Construction Dust Impact Assessment will be undertaken and a site-specific Dust Management Plan as part of a Construction Environmental Management Plan (CEMP) will be developed. The dust impact assessment requires specific information on site operations during construction, including preparatory earthworks, general construction, and the potential for track out. Currently, this information is still being finalised. It is therefore proposed to defer the construction dust impact assessment and formulation of a Construction Dust Management Plan until details on construction activities have been finalised.

4.5 Inclusion or Exclusion from EIA

Based on the above information, it is proposed to scope out, "Air Quality", from the EIAR. A Construction Dust Management Plan will be produced and submitted to Shetland islands Council for approval prior to construction of the proposed development.

5 LAND ENVIRONMENT

5.1 Introduction

This section addresses soil quality and geological aspects and identifies any potential significant effect associated with the proposed development.

5.2 Baseline Conditions

5.2.1 Soil

To understand the soil type on the proposed development site, National soil map of Scotland¹³ was referred and according to it, the terrestrial area of the site contains Peaty podzols soil type. Table 5-1 provides more details on the soil classification.

Table 5-1: Soil classification

S/N	Particular	Details
1.	Soil Association	Strichen
2.	Component Soils	Peaty gleyed podzols with peaty gleys with peaty rankers
3.	Major Soil Group	Podzols
4.	Major Soil Subgroup	Peaty gleyed podzols
5.	Parent Material	Drifts derived from arenaceous schists and strongly metamorphosed argillaceous schists of the Dalradian Series
6.	Land Form	Hill sides with strong to very steep slopes: moderately to very rocky
7.	Generalised Soil Type	Peaty podzols

5.2.2 Geology

Geology viewer¹⁴ of British Geological Survey, was referred to understand the geology at the site and it indicated that the superficial deposit consists of Peat and the bedrock consists of Quartzite of Dales Voe Grit Member and Metalimestone of Whiteness 'division'.

5.2.3 Geological Conservation Review Sites

With reference to the NatureScot SiteLink database¹⁵, there are two Geological Conservation Review Sites (GCRS) within 2 km from the proposed development sites, Hawks Ness and Easter Rova Head (Refer to Appendix A).

¹³ [Scotland's Soils - soil maps \(environment.gov.scot\)](https://environment.gov.scot)

¹⁴ [BGS Geology Viewer \(BETA\)](#)

¹⁵ [SiteLink - Map Search \(nature.scot\)](#)

Hawks Ness¹⁶

The Hawks Ness GCR site provides a well-exposed and instructive representative section through a metasedimentary sequence extending from the top of the Whiteness Group (the Laxfirth Limestone) through the lower part of the Clift Hills Group (the Asta Spilitic Formation and the Clift Hills Phyllitic Formation) in the Dalradian succession of Shetland. These units are currently thought to be broadly equivalent to the Tayvallich Subgroup of the Scottish mainland succession. The sequence demonstrates deposition in a progressively deepening marine environment with sub-marine volcanism marking the onset of rapid subsidence.

Structural and metamorphic features within the GCR site make a significant contribution to the interpretation of the deformational and metamorphic history of the Shetland Dalradian. Deep-water turbiditic strata (in the Dales Voe Grit) preserve sedimentary structures from which opposing stratigraphical younging can be deduced, confirming that the sequence has been affected by short-wavelength, isoclinal folding, which is commonly shown by individual beds. A phyllitic mineral assemblage (muscovite-biotite-chlorite-quartz-plagioclase) formed during deformation-related metamorphism and staurolite, garnet, biotite and chlorite were produced during post-tectonic, regional metamorphism.

Easter Rova Head¹⁷

This site has excellent exposure of very coarse conglomerates of Middle Devonian age. It is of importance in attempts to understand the depositional processes of the very coarse alluvial-fan conglomerates found at the margins of the Orcadian Basin, as it demonstrates the stream-transported nature of the conglomerates. The site has also been used to illustrate an unusual type of conglomerate sheet-flood deposition in the Old Red Sandstone.

5.2.4 Sites of Special Scientific Interest (SSSI)

According to the NatureScot database¹⁸, Easter Rova Head, also a GCRS, is the only SSSI with geological features near the site.

Easter Rova Head¹⁹

Non-marine Devonian is the notified geological natural feature.

Part of the coast at Rova Head, 4km north of Lerwick, including the adjacent small island of Easter Rova Head, has excellent exposures of very coarse conglomerates (rocks made up of pebbles and boulders) that were deposited during the Middle Devonian Age, about 380 million years ago.

The exposures are important for an understanding of how the conglomerates were transported by rivers and streams and then deposited at the margins of the ancient Orcadian Basin. The site has examples of alluvial fan deposition and sheet flood deposition of the conglomerates.

¹⁶ [Hawks Ness — SGT Geosites Project \(scottishgeologytrust.org\)](http://scottishgeologytrust.org)

¹⁷ [Easter Rova Head — SGT Geosites Project \(scottishgeologytrust.org\)](http://scottishgeologytrust.org)

¹⁸ [SiteLink - Map Search \(nature.scot\)](https://www.naturescot.gov.uk)

¹⁹ [SiteLink - Easter Rova Head SSSI \(nature.scot\)](https://www.naturescot.gov.uk)

5.2.5 Contaminated Land

The potential for ground contamination at the site has been considered.

Concrete hardstanding is present within all areas of the current Dales Voe site. Such surfacing is considered sufficient to preclude the downward migration of potential pollutants arising from the site. We understand, from discussions with LPA, that it is unlikely to be a contamination source, especially given the time elapsed since placement. Although it is always possible that some localised contamination may exist at the site, based on the information available, the probability is low.

Within the terrestrial redline boundary, the site is coastal grazing land with no historic contamination recorded.

5.3 Potentially Significant Effects

It is proposed to increase the size and scale of the operations at the Dales Voe Base, thus the site footprint will be increased. The extension of the existing facility will include earthworks along the coastal front, with deposition of clean infill, rock armouring and new areas of concrete hardstanding.

During the construction of the new facility the surface soils will be removed, dredged seabed materials will be placed as coastline infill and there will be a requirement for piling and rock armour construction. This will be part of the generation of a deep water berth at the site.

The proposed development is ~850 m to 1.4 km away from the designated GCRS and SSSI sites. The nearest SSSI (Easter Rova Head) is more than 1km east of the site. It is not envisaged that the proposed development will damage or adversely affect the designated GCRS and SSSI sites.

With regard to soils, limited areas of natural soils appear to be present in the landward area and no land of agricultural interest is noted as present. Therefore, further consideration of the loss of soil resources is not considered necessary.

The presence of peaty podzol at the site is anticipated, so excavations as part of the formation of the onshore elements of the proposal have the potential to lead to oxidation and loss of Peaty Podzol soils. A Soil Waste Management Plan (SWMP) will be prepared as part of the Construction Environmental Management Plan (CEMP) to address any potential impacts associated with soil during the construction phase. A detailed assessment will be addressed under the Water Environment of the EIAR.

In terms of contamination, the site has no historic contamination recorded and there is no evidence to suggest that contamination will be present at the site, although it cannot be entirely ruled out; any contamination encountered can be managed during the construction process by applying pollution prevention best practice.

The natural marine deposits will be affected by dredging but beyond that will remain largely unchanged following development. Therefore, it is considered that further assessment of impacts on geology is not warranted. The geological information will however be used to inform the baseline in other topic assessments such as ecology and water environment.

5.4 Inclusion or Exclusion from EIA

Further assessment of the potential impact on the geology and soils, as described above, at Dales Voe will be scoped out of the EIAR.

6 WATER ENVIRONMENT

6.1 Introduction

The water environment is considered to encompass hydrology, hydrogeology, and water quality, whilst coastal processes are considered to encompass tides, waves, and sediment transport processes. This section of the Scoping Report will therefore address all of these subject areas, in addition to geology. The associated interactions between the water environment, ecology and fisheries will be considered within the ecology section of this document.

The Water Framework Directive (WFD) (Council Directive 2000/60/EC) aims to protect and enhance water bodies within Europe and covers all estuarine and coastal waters out to 1 nautical mile. This requires that there is no deterioration in the quality of surface or groundwater bodies and aims to achieve good ecological status or potential. The implications of the WFD must be considered when assessing this project and the details of how compliance will be achieved will be provided in the EIAR.

The development proposals for construction, and associated dredging, have the potential to cause changes to the baseline hydro(geo)logical conditions and the ongoing coastal processes at the site, and in the wider area. Given the importance of water as a valued resource, coastal processes to the surrounding environment, and ensuring sustainable development, this initial assessment of the water environment and coastal processes is considered essential.

6.2 Baseline Conditions

6.2.1 Site Description

Dales Voe is a shallow sea loch located north of Lerwick. The site is located on the southern coastline of Dales Voe. The present coastline has been modified by the development of the existing pier and rock armoured revetment. The coastline around the site is largely natural headland with some areas protected by rock armoured revetments. Small shingle beaches are located between the headlands.

In many areas of the Voe, the seabed is composed of a thin veneer of sediment over hard ground, with extensive rock exposure. Through the axis of the inlet (deepest areas) sedimentary deposits have accumulated to thicknesses of up to around 20m. Geotechnical investigations were carried out by Fugro Seacore in support of the June 2013 Environmental Statement identified superficial deposits in the vicinity of the development and in its associated dredge area to be predominantly sands, gravels and cobbles with minor fine sediment content.²⁰ Deposits range from recent sediments, glacial sediments (glacio-fluvial and till-type deposits) and locally alluvium. The average content of silt, sand, gravel and cobbles encountered from all boreholes within recent deposits (established by carrying out particle size distribution tests) were as follows:

- Silt 3%
- Sands 45%
- Gravels 49%; and
- Cobbles 3%.

²⁰ Fugro Seacore Ltd, Interpretative Report on site Inverigation

The glacio-fluvial deposits encountered had an average clay/silt percentage content of 5%. Alluvium presence within the sediment sequence was limited to only two locations.

6.2.2 Flood Risk

A desktop review of SEPA’s Flood Map²¹ was undertaken to identify any flood risk associated with the site and according to it, there is no likelihood of surface water or river flooding in the area, but proposed development site is subject to “High Likelihood” of coastal flooding i.e. each year this area has a 10% chance of flooding.

6.2.3 Hydrology and Water Quality

A desktop review of Scotland’s Environment Interactive Map²² was carried out to identify the water bodies i.e. river, loch, estuary and coastal waterbodies in or around the site.

The coastline outside the site consists of natural headland.

The area of Dales Voe to the west of the site has been designated as “Shellfish Water”. A Non-permanent Shellfish farm is located ~500m to the southwest of the site.

The Burn of Kebister flows along the southwestern boundary of the Dales Voe facility. The burn has been culverted over a short distance before discharging to Dales Voe.

A desktop review of Scotland’s Environment Interactive Map¹⁷ was carried out for the site and Shetland groundwater (ID: 150687) is found to be having good overall water quality with low to very low aquifer productivity.

Dales Voe (South Mainland) coastal water body (ID: 200250) is classified as being of overall ‘Good’ status in 2022, with a hydromorphology status of ‘High’ (Table 6-1).²³

Table 6-1:Water Classification for Dales Voe (South Mainland) coastal water

Parameter	2022	2020	2019	2018	2017
1: Overall status	Good	Good	Good	Good	Good
1-1: Pre-HMWB status	Good	Good	Good	Good	Good
1-3: Overall ecology	Good	Good	Good	Good	Good
1-3-1: Physico-Chem	High	High	High	High	High
1-3-1-4: Dissolved Oxygen	High	High	High	High	High
1-3-1-8: Dissolved inorganic nitrogen	High	High	High	High	High
1-3-2: Biological elements	Good	Good	Good	Good	Good
1-3-2-3: Invertebrate animals	Good	Good	Good	Good	Good
1-3-2-3-4: Benthic invertebrates (IQI)	Good	Good	Good	Good	Good
1-3-2-7: Macroalgae	-	-	-	-	-
1-3-2-9-1: Phytoplankton	High	High	High	High	High
1-3-3: Specific pollutants	Pass	Pass	Pass	Pass	Pass
1-3-3-15: Unionised ammonia	Pass	Pass	Pass	Pass	Pass

²¹ SEPA Flood Maps <https://beta.sepa.scot/flooding/flood-maps/>

²² Map | Scotland's environment web

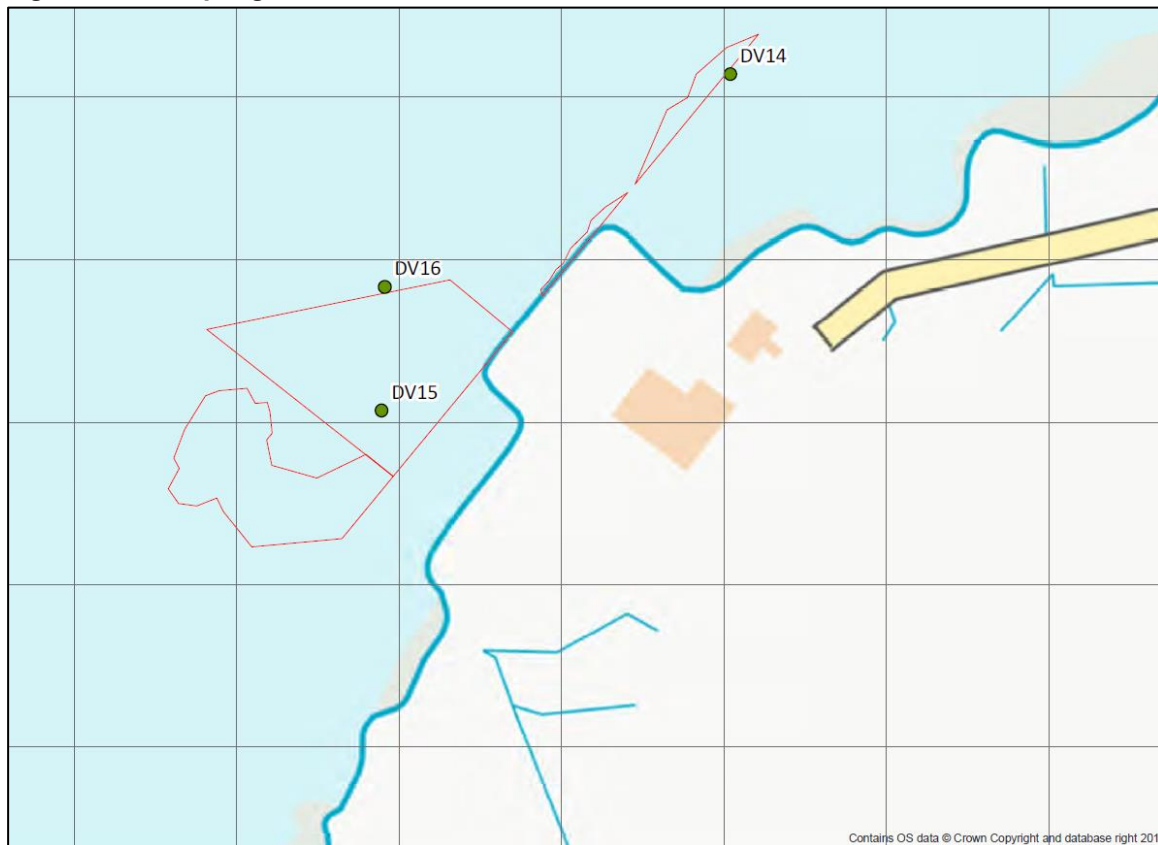
²³ <https://www.sepa.org.uk/data-visualisation/water-classification-hub/>

1-3-4: Hydromorphology	High	High	High	High	High
1-3-4-1: Morphology	High	High	High	High	High
4-1: Water quality	Good	Good	Good	Good	Good

With reference to the Lerwick Pre-Dredge Sampling Sediment Quality Report (2017), the following is a summary of three Grab samples collected at Dales Voe by EnviroCentre in 2017, and analysed by Fugro. The sampling was part of a wider sampling campaign and is detailed within EnviroCentre Report 7869 October 2017.

- The samples collected at the Dales Voe site were DV14, DV15 and DV16.
- The samples were described as being a mixture of fine light brown sand with clay (DV14), coarse sand from shells (DV15) and a mixture of possible coral and shell sand. PSD analysis described them as fine sand, medium sand and coarse sand respectively and coarse shelly sand (DvV16).
- Analytical results showed that key contaminant levels of concern were below Action Level 1 for all samples and analytes with the exception of DV14 which recorded a marginal exceedance of zinc recording a sample concentration of 149mg/kg against Action Level 1 of 130mg/kg.
- No exceedances of Action Level 2 were recorded.
- The results reflect the fact that there is limited use of the site which is located away from heavy industry and other potential significant contamination sources. In addition to this, the ground conditions on site reflect the energy environment i.e. not particularly sheltered, so no significant accumulation of silt or clays at surface which present a higher potential for contaminants to be present through natural sediment and geochemical interactions.

Figure 6-1: Sampling Locations



6.3 Potentially Significant Effects

The key hydrological issues or potential environmental impacts associated with the proposed development have initially been identified as follows:

- Potential changes to runoff and drainage patterns caused by extension of the slab, impermeable surfaces and drainage network;
- Potential changes to water chemistry and quality associated mainly with land-based construction and operation activities but also the dredge works;
- Potential changes in interactions between ecology and hydrology;
- Potential changes in the hydrodynamic flow current patterns within the environment;
- Potential interaction between water environment and ecology; and
- Possible impacts of climate change on the proposed development.

The above impacts are all initially considered to be of potential significance and therefore require investigation and assessment.

6.4 Inclusion or Exclusion from EIA

The construction activities involved within the proposed development including dredging, construction of the quay, land reclamation and dredging as described in Chapter 2 all have the potential to impact the coastal processes. However, the development site is considered to have low energy without significant sediment transport, with an absence of fine sediment. In this context it is considered that a qualitative assessment of the impact of the proposed development on coastal processes, including wave action, tidal current and sediment transport is appropriate.

As mentioned in Section 5.3, the excavations as part of the formation of the onshore elements of the proposals have the potential to lead to oxidation and loss of peaty podzol soils. Assessment of the impacts on peaty podzol soils will be included within the EIAR and mitigation proposed as appropriate.

SEPA flood maps do not show a risk of fluvial flooding within the site or immediate surroundings, and a review of mapping does not show the presence of mapped watercourses. Therefore, it is proposed to scope out the further assessment of fluvial flood risk.

The proposed development is noted to be water-compatible for operational reasons. It is considered that given the scale of proposals, the proposed land reclamation works would have a negligible impact on local sea levels. The development design will take account of extreme sea levels and future sea level rise predictions, as appropriate. Therefore, it is proposed to scope out the further assessment of coastal flood risk.

The construction of the site has the potential to generate pollutants/contaminants which could impact the water quality of the nearby water environment. The prevention of pollution during the construction and operation of the UDWQ will be a key focus of the EIA. It is considered that if best practice is implemented following appropriate guidance, the creation of a pollution prevention plan and surface water management plan, and the installation of sustainable urban drainage measures, there will not be detrimental effects on the existing environmental conditions.

The 2013 Environmental Statement (ES) found that Water energy flow (wave/wind/tide) in Dales Voe is either low, intermittent or of variable character.²⁴ Sediment transport rates are therefore low and are effectively restricted to high energy events (strong winds, storm waves). The coast is rock-bound. All these factors indicate a likely minimum impact on coastal processes as a result of the changed morphology brought about by reclamation. The 2013 ES also stated, proposed subsea dredging can alter the tidal current velocities and flow patterns leading to potential alteration of the sedimentation pattern within Dales Voe. It should be noted that has been confirmed that maintenance dredging will not be required for the proposed development.

Based on the above, it is proposed to scope out further assessment of water contamination.

6.5 Assessment Methodology

Assessment will be undertaken in accordance with current Legislation, Guidance and Best Practice. The development design team will be consulted with regard to hydrological and hydrogeological data and it is expected that there will be collaboration between hydrologists, ecologists and engineers in order to develop an optimum outline design with regard to surface water management.

The assessment will follow standard EIA procedures and will include:

- Desk-based review of the proposed development and surrounding water environment;
- Consultation with key stakeholders to obtain relevant information and ensure their concerns are addressed within the EIAR;
- Establish baseline conditions:
 - Review of coastal processes including bathymetry, tidal currents, wave action, seabed sediment and sediment transport;
 - Review of hydrology, water quality and drainage;
 - Review of geology and soils on site; and
 - Reporting of baseline conditions to help inform potential impacts from the development.
- Carry out an EIA assessment:
 - Identify potential sensitive environmental receptors and environmental constraints;
 - Identify any potential impacts and impact significance;
 - Identify potential sea dredge deposit site dispersion impacts;
 - Identification and assessment of appropriate mitigation measures to reduce and avoid any potential impacts of the proposed development; and
 - Statement of residual impacts.

Baseline data will be used along with expert opinions to qualitatively assess the potential impacts of the proposed development and the significance to receptors. The potential impacts will be evaluated in comparison with water quality standards and objectives, environmental quality standards and sediment quality standards.

²⁴ Dales Voe Decommissioning Base,: Environmental Statement (June 2013)

7 BIODIVERSITY

7.1 Introduction

This section describes the known baseline conditions and highlights the potential impacts of the proposed development on the ecology of the area. For the purposes of the assessment, the ecological interests are subdivided into Terrestrial Habitats (including faunal interests), Marine Habitats (including faunal interests) and Ornithology.

The associated interactions between the water environment, ecology and fisheries (i.e. aquaculture) will be considered within the ecology section of this document.

There is a significant amount of legislation to be considered in relation to ecology. The key legislation and policy relevant to the Ecological Impact Assessment (EIA) includes the following:

- Marine (Scotland) Act 2010;
- The Conservation (Natural Habitats, &c) Regulations 1994 (as amended), hereafter referred to as the Habitats Regulations;
- The Nature Conservation Act 2004 (as amended);
- The Wildlife and Habitats (Scotland) Act 1981 (as amended);
- National Planning Framework (NPF) 4; and
- The Shetland Islands Biodiversity Action Plan.

7.2 Baseline Conditions

To inform the scoping report a desk study was completed. The desk study involved a search for any statutory and non-statutory designated sites, notable habitats and species within a 5km radius of the site using the following sources:

- Shetland Islands Council²⁵;
- NatureScot SiteLink²⁶ was searched for information on statutory designated sites;
- Scotland's Environment²⁷
- NBN Gateway²⁸ was reviewed for records of protected or notable flora and fauna i.e. BAP species;

7.2.1 Physical Environment

Dales Voe is a sea loch orientated southwest to northeast between Kebister Ness to the south and Fora Ness to the north. It is the southernmost of four voes (going north, Lax Firth, Wadbister Voe and Cat Firth) which comprise Area 12 of the Marine Nature Conservation Review (MNCR) Sector 1. It is 7.3 km² in area and reaches 39 m (BCD) at its deepest point. It is moderately exposed towards the seaward end and extremely sheltered at the loch head. The loch is fully saline except for local freshwater drainage

²⁵ <https://www.shetland.gov.uk/natural-historic-environment/natural-heritage>

²⁶ <https://sitelink.nature.scot/map>

²⁷ <https://map.environment.gov.scot/sewebmap/>

²⁸ <https://nbnatlas.org/>

at the head and tidal currents are negligible with a tidal range of 1.7 m (mean springs) (JNCC 1999).²⁹ It has a catchment area of approximately 15 km². Flushing time for the Voe is 6 days (SEPA 2011).³⁰

The shores are bordered by a low-lying area at the head with gradually sloping ground along the rest of its length. The intertidal habitats comprise hard substrata of vertical cliffs, terraced bed rock and boulders with areas of cobble and pebble beach in coves in the outer, more exposed areas. Within the more sheltered areas there are areas of boulders, shingle and mixed muddy sediments. There is an extensive area of sediment and saltmarsh at the head of the loch which has an area of poorly sorted mud in the shelter behind a shingle spit but with coarser poorly sorted sediment outside. A burn discharges through this area.

Sublittoral substrata comprises terraced bedrock with vertical faces down to 10 to 15 m (BCD). Below this soft sediments predominate. In the outer voe below 10 m, this is fine sand grading into stable sublittoral mud at 20 m. Deeper still, east of Breiwick, the sediment is shell sand with gravel.

7.2.2 Designated Sites

The location of all designated sites is provided in Appendix C.

Special Protection Areas (SPA)³¹

The marine portion of the proposed development falls within the East Mainland Coast Shetland SPA. Noss SPA is located at ~7 km southeast of the site.

East Mainland Coast Shetland SPA

The East Mainland Coast, Shetland SPA stretches from Fish Holm and Lunna Ness in the north southwards, encompassing Whalsay, to the north coast of Bressay. Through much of the site, water depths are generally less than 40 m but in the north depth rapidly increases. The east coast of Shetland is relatively sheltered compared to the west and much of the shore is cliff albeit well interspersed with sandy beaches and bays such that the sediments are largely gravel and sand. The diversity of fish, polychaete worms, gasteropods and bivalve molluscs dependent upon the sediments and seaweeds present form potential prey for waterbirds frequenting the area.

The East Mainland Coast, Shetland SPA qualifies under Article 4.1 by regularly supporting a non-breeding population of European importance of the following Annex 1 species: great northern diver *Gavia immer* (a mean peak annual non-breeding population of 182 individuals (7.3% of the Great Britain (GB) population) for the years 2007/08 to 2009/10) and Slavonian grebe *Podiceps auritus* (a mean peak annual non-breeding population of 54 individuals (4.9% of the GB population) for the years 2006/07 to 2010/11).

The site also qualifies under Article 4.1 by regularly supporting a population of European importance of the Annex 1 species <Redacted> during the breeding season. The foraging area is available to 205 pairs of birds breeding on the nearby islands (15.8% of the GB population in 2006).

²⁹ MNCR Sector 1 Shetland Area Summary (JNCC 1999) <https://data.jncc.gov.uk/data/7160cd2a-70ad-448c-98c7-82f57596b79d/jncc-mncr-sector-1-part-2.pdf>

³⁰ <http://apps.sepa.org.uk/shellfish/pdf/112.pdf>

³¹ [SiteLink \(nature.scot\)](#)

Noss SPA

Noss SPA is an offshore island lying 5 km east of Lerwick, Shetland. It supports breeding seabirds on cliffs and also on inland heathlands and grasslands.

The boundary of the SPA overlaps that of the Noss SSSI and National Nature Reserve and the seaward extension extends ~2 km into the marine environment to include the seabed, water column and surface.

Noss qualifies as a SPA under Article 4.2 of the EC Wild Birds Directive by regularly supporting populations of European importance of the migratory species: Northern gannet *Morus bassanus* (6,860 pairs, 3% of the western European breeding population); great skua *Stercorarius skua* (420 pairs, 5% of EC, and 3% of western European) and common guillemots *Uria aalge* (38,970 individuals 3% of EC and 1% of western European).

The site also qualifies under Article 4.2 by regularly supporting in excess of 20,000 individual seabirds. It regularly supports 35,000 seabirds including, in addition to the species listed above, nationally important populations of the following species: Northern fulmar *Fulmarus glacialis* (6,350 pairs, 1% of the GB population) blacklegged kittiwakes *Rissa tridactyla* (7,020 pairs, 1% of the GB population) and Atlantic puffin *Fratercula arctica* (2,348 individuals, over 10% of the minimum qualifying assemblage of 20,000 individuals).

Sites of Special Scientific Interest (SSSI)

Noss SSSI

The island of Noss lies 6 km east of Lerwick, separated from Bressay by the narrow Noss Sound.

Noss is one of Britain's largest seabird colonies. It contains 6% of the GB Gannet population, over 3.5% of the GB Great Skua population and up to 3% of the GB Guillemot population. Breeding kittiwake and Arctic skua are also present in locally important numbers. Noss SSSI is designated as Noss SPA for the birds listed below.

- Seabird assemblage
- Gannet *Morus bassanus*
- Great skua *Catharacta skua*
- Guillemot *Uria aalge*
- Kittiwake *Rissa tridactyla*
- Puffin *Fratercula arctica*
- Fulmar *Fulmarus glacialis*

Lochs of Tingwall and Asta SSSI

Lochs of Tingwall and Asta SSSI is located in the Tingwall Valley in the central mainland of Shetland. It covers the two connected lochs of Tingwall and Asta, the Holm of Setter and small areas of wet grassland and tall herb vegetation. It is notified for its mesotrophic lochs (of moderate nutrient level).

The lochs of Tingwall and Asta overlie a band of crystalline limestone. Their aquatic flora is one of the richest in Shetland and includes the nationally and locally rare Shetland pondweed *Potamogeton rutilus*, a species confined to one other site in Shetland and a few places in the Hebrides and on the mainland of Scotland. The site also comprises two small areas of loch shore which contain fine examples of loch margin vegetation and wet neutral grassland.

South Whiteness SSSI

South Whiteness SSSI is located on the west coast of the Shetland Mainland, 12 kilometres north-west of Lerwick. White Ness is a peninsula lying between Whiteness Voe and Stromness Voe.

This site lies on the largest continuous outcrop of crystalline limestone in Shetland. It is not influenced by drainage from other rocks and represents the best example of limestone grassland in the islands.

The flora of South Whiteness includes the Shetland mouse-ear hawkweed *Pilosella flagellaris* ssp. *bicapitata*, one of only three sites for this endemic subspecies. Although not notified features of the SSSI other species of note include the locally rare stone bramble *Rubus saxatilis* and maidenhair spleenwort *Asplenium trichomanes* as well as species more typical of Shetland limestone flora such as fairy flax *Linum catharticum*, moss campion *Silene acaulis*, hoary whitlowgrass *Draba incana*, lady's-mantle *Alchemilla filicaulis*, common milkwort *Polygala vulgaris*, meadowsweet and long-stalked yellow-sedge *Carex lepidocarpa*.

The site also includes one of the best saltmarshes in Shetland with a varied flora, notably narrow *blysmus* *Blysmus rufus*, and a large mixed colony of common and black-headed gulls.

Loch Girlsta SSSI

The Loch of Girlsta SSSI, 11km north of Lerwick, is the only site in Shetland for Arctic charr (*Salvelinus alpinus*) and one of the best deep valley mesotrophic lochs in Shetland (i.e. one of moderate nutrients).

Arctic charr are adapted to cold, deep waters and were among the first fish to re-enter freshwater when the last ice age ended.

Although the loch is surrounded by deep acid peatlands, it overlies a band of crystalline limestone and contains plants characteristic of a mesotrophic loch. The loch has steep sides and, at around 25 metres, is the deepest in Shetland. This results in the vegetation being restricted to a narrow band around the edge.

Sandwater SSSI

Sandwater SSSI, ~14km northwest of Lerwick, Shetland, is notified as an example of a mesotrophic loch and for its open-water transition fen (extensive beds of common club-rush *Schoenoplectus lacustris*).

Sandwater supports a diverse community of submerged aquatic plants with six species of pondweed *Potamogeton* including the nationally scarce *P. filiformis* and is the largest and best example in Shetland of club-rush swamp.

The loch is relatively shallow, which, though surrounded by dwarf shrub and acid moorland, is mesotrophic with a neutral pH because of the strong influence of an underlying band of crystalline limestone.

Catfirth SSSI

Catfirth SSSI, 13km north of Lerwick, is a small limestone ravine containing relict scrub vegetation. The scrub contains hazel, rowan and rose and is the best example of such scrub in Shetland.

National Nature Reserves (NNR)

Noss NNR

The island of Noss, off the east of Shetland, is one of the most important seabird colonies in Scotland. In the summer months, the cliffs are alive with breeding seabirds. Inland, both Arctic and great skuas nest on the rough grazing and heathland.

7.2.3 Other designations

There are no Special Areas of Conservation, Ramsar Sites, Marine Protected Areas (MPAs), Biogenetic reserves, Biosphere reserves or Local Nature Reserves in the area.

Local Nature Conservation Sites (LNCS)

South Bight of Rova LNCS

Clickimin Loch LNCS

The main features of Clickimin Loch LNCS are the diversity of aquatic plants, migrant and wintering wildfowl, amenity woodland planting and accessibility and biodiversity interest.

Seal Conservation Area

Shetland is a designated Seal Conservation Area for harbour seals (*Phoca vitulina*) and grey seal (*Halichoerus grypus*).

Significant Seal Haul-Out

Holm of Beosetter is a significant Seal haul-out site located ~2 km east of the site and it protects any species of seal, all year round. Other seal haul-out sites are E South Shetland, Eswick Holm, Hoo Stack and Scudilis Wick.

Shellfish Water Protected Areas

The site falls within the Dales Voe Shellfish Water Protected Area.

Shellfish Water Protected Area



Active Shellfish Sites



7.2.4 Habitats and Species

Terrestrial Habitats

The shoreline to the east and west of the site (beyond the Dales Voe facility) is characterised by rocky outcrops and shallow cliffs interspersed with small sandy bays. The cliffs are displaying localised signs of erosion that appear to be caused by sheep accessing the shoreline.

An acid heath mosaic comprising acid grassland, wet flushes and a neutral grassland element is found along the cliff tops. This habitat is being gradually influenced by the current sheep grazing regime such that species indicating nutrient enrichment are appearing in the sward.

Information provided by Lerwick Port Authority indicates that the inshore seabed comprises medium coarse-grained sand and intertidal rocky platforms at Dales Voe Base.

Intertidal mudflats and saltmarsh of local importance are found at the head of Dales Voe and within the Voe shingle bars of geomorphological interest are present.

To the southeast, inland of the development site the land rises and dry heath characterised by mature heather stands dominates the habitat type. Numerous small drainage grips have been dug around the site boundary.

<Redacted>

There are historic records of <Redacted> being present within Dales Voe Base.

Birds

Dales Voe lies within the East Mainland Coast, Shetland SPA.

The SPA qualifies under Article 4.1 by regularly supporting a non-breeding population of European importance of the following Annex 1 species:

- Great Northern Diver (*Gavia immer*) (a mean peak annual non-breeding population of 182 individuals (7.3% of the Great Britain (GB) population) for the years 2007/08 to 2009/10); and
- Slavonian Grebe (*Podiceps auratus*) (a mean peak annual non-breeding population of 54 individuals (4.9% of the GB population) for the years 2006/07 to 2010/11).

The site also qualifies under Article 4.1 by regularly supporting a population of European importance of the Annex 1 species <Redacted> during the breeding season. The foraging area is available to 205 pairs of birds breeding on the nearby islands (15.8% of the GB population in 2006).

Wintering Bird Surveys was undertaken during October 2023 till May 2024 and Breeding Bird Surveys are being undertaken from May 2024.

Marine Mammals

With reference to the Seawatch Foundation,³² there have been recent marine mammal sightings. It should be noted that eight sightings were on the 18th February 2023:

- Killer whale (x4) - The Knab, Shetland at 16:20 on 2 Aug 2023
- Minke whale (x1) - Gulberwick, Shetland at 07:20 on 2 Jun 2023
- Risso's dolphin (x10) - Kirkabister, Shetland at 11:00 on 19 Apr 2023
- Killer whale (x5) - Gulberwick, Shetland at 16:10 on 23 Mar 2023
- Killer whale (x8) - Fladdabister, Shetland at 14:37 on 18 Feb 2023
- Killer whale (x8) - Quarff, Shetland at 14:23 on 18 Feb 2023
- Killer whale (x8) - Gulberwick, Shetland at 14:05 on 18 Feb 2023
- Killer whale (x8) - Knab, Lerwick at 13:48 on 18 Feb 2023
- Killer whale (x8) - Bressay lighthouse, Kirkabister at 13:36 on 18 Feb 2023

³² <https://www.seawatchfoundation.org.uk/1-shetland/page/5/>

- Risso's dolphin (x8) - Ness of Trebister, Lerwick at 12:36 on 18 Feb 2023
- Risso's dolphin (x5) - Bressay lighthouse, Kirkabister at 12:19 on 18 Feb 2023
- Risso's dolphin (x12) - Ord, Bressay at 11:16 on 18 Feb 2023

Fish

The fish fauna in the northern North Sea is distinct from that in the south as function of depth and temperature. The fauna is dominated by demersal species such as whiting *Merlangius merlangus* and haddock *Melanogrammus aeglefinus*, and pelagic species including mackerel *Scomber scombrus*, horse mackerel *Trachurus trachurus*. In shallow waters (50–100 m depth), haddock, whiting, herring *Clupea harengus*, dab *Limanda limanda* and plaice *Pleuronectes platessa* are found. There are also a number of boreoarctic species that are rare further south (e.g. Vahl's eelpout *Lycodes vahlii* and Esmark's eelpout *L. esmarkii*). Common skate *Dipturus batis*, a species of conservation interest, occurs in this region, primarily off the Shetland Isles.

Within Dales Voe the fish fauna will likely include demersal species which are associated specific habitats such as kelp forest (ballen wrass *Labrus bergylta*, lump sucker *Cyclopterus lumpus* and long spined sea scorpion *Taurulus bubalis*), intertidal rocky shores (butter fish *Pholis gunnellus*), and sedimentary substrata (dab *Limanda limanda*), plaice (*Pleuronectes platessa*) and Anglerfish (*Lophius piscatorius*).

The coastal waters and surrounding sea area of the Shetland Isles are identified as having the following fisheries resources:

- High intensity nursery area;
 - blue whiting (*Micromesistius poutassou*);
 - anglerfish (*Lophius piscatorius*);
- Low intensity nursery area;
 - mackerel (*Scomber scombrus*);
 - spurdog, (*Squalus acanthias*);
 - common skate (*Dipturus batis-complex*);
 - spotted ray (*Raja montagui*);
 - herring (*Clupea harengus*);
 - cod (*Gadus morhua*);
 - whiting (*Merlangius merlangus*);
 - ling (*Molva molva*);
 - European hake (*Merluccius merluccius*);
 - Sandeels (*Ammodytidae*);
- Low intensity spawning areas;
 - cod (*Gadus morhua*);
 - whiting (*Merlangius merlangus*); and
 - Sandeels (*Ammodytidae sp.*)

Cod spawn between December and June, whiting, from January to July and sandeels between November and February.

The nearest fin-fishing areas are for mackerel to the East of Bressay approximately 12 km from the site.

Shetland is home to a major white fish fleet and local to the Dales Voe area there are scallop fishing interests between Whalsay and Bressay.

The lack of clean sandy habitat suggests that sand eels (*Ammodytes* sp) are not likely to be found in the voe. The principal areas for sand eels are in the south eastern coast of the mainland.

Dales Voe is a designated Shellfish Water Protected Area. There historically has been commercial fish farming to the west-southwest of the proposed development site and commercial mussel harvesting activity also has taken place in Dales Voe.

The following white fish and shellfish are caught commercially within the 12 mile nautical limit of Shetland:

- Cod (*Gadus morhua*);
- Haddock (*Melanogrammus aeglefinus*);
- Whiting (*Merlangius merlangus*);
- Monkfish (*Lophious piscatorius*);
- Veined squid (*Loligo forbesi*);
- Saithe (*Pollachius virens*);
- Lythe or Pollack (*Gadus pollachius*);
- Velvet crab (*Necora puber*);
- Edible brown crab (*Cancer pagurus*);
- Lobster (*Homarus gommarus*);
- Norway Lobster (*Nephrops norvegicus*);
- King Scallop (*Pecten maximus*);
- Queen Scallop (*Aequipecten opercularis*); and,
- Common Whelk (*Buccinum undatum*).

There is no commercial fishing in Dales Voe. Furthermore as Dales Voe is an enclosed sealoch the construction and operational areas will not conflict with the passage of fishing vessels between ports and fishing grounds.

There are healthy populations of wild brown and sea trout in most of the lochs in the Shetland Islands and this is likely to be the case at Dales Voe. Lochs within 5km of Dales Voe comprise:

- Loch of Clickimin (1km south west);
- Sandy Loch (2km south west);
- Loch of Trebister (2.5km south west);
- Loch of Beosetter (3km north east); and
- Loch of Brough (5km east).

Invasive Non-native Species (INNS)

Scotland's Marine Atlas suggests that some marine INNS were established in Scottish seas. Since 2011 more records of a number on NNS have been found, and better verifiable records have been kept. Data from 2018 (Table 7-1) show that Shetland is a "Region of Some Concern" Table 7-1 lists the most important non-native species that are recorded in Shetland.³³

³³ <https://marine.gov.scot/sma/assessment/non-native-species>

Table 7-1: Assessment summary and species verified for each Scottish Marine Region.

Scottish Marine Region	2018 assessment	Verified high-impact non-native species records	Verified records of medium, low and unknown impact non-native species (UK TAG, 2015)
Shetland Isles	Region of some concern	None recorded	<i>Corella eumyota</i> <i>Caprella mutica</i> <i>Diadumene lineata</i> <i>Fenestrulina delicia</i> Red seaweeds (including <i>Bonnemaisonia hamifera</i> and <i>Asparagopsis armata</i>) <i>Schizoporella japonica</i>

7.3 Potentially Significant Effects

The potential impacts of the proposed Dales Voe UDWQ shall be identified for each aspect and stage of the development, thereafter an ecological impact assessment (EclA) shall be carried out using quantitative and qualitative approaches.

The current understanding of the site and its ecological sensitivities allow us to predict that the EclA will be based on the following broad themes:

- Direct habitat loss;
- Loss of foraging, roosting and breeding opportunities;
- Severance;
- Loss of life;
- Physical disturbance;
- Noise and vibration disturbance;
- Dust impacts;
- Invasive Non-Native Species; and
- Coastal processes and hydrological impacts on ecology.

European Protected Species (EPS) are protected from disturbance by The Conservation Regulations 2017 legislation. Marine mammals are sensitive to noise and vibration as they use sound for communication, navigation, and the detection of prey. Sound is classed as one of the main factors with the potential to cause disturbance to marine protected species.

Activities that have the potential to cause acoustic disturbance to marine mammals include construction works, dredging, rock dumping; e.g. installation of rock armour revetments and land reclamation, pile driving and vessel movements. The mitigation measures required to limit marine mammal disturbance from noise are well known and include a soft start to operations (i.e. pile driving) integrated with marine mammal observations. The EclA will establish whether Dales Voe is an important habitat for marine mammals and hence the need and scope of any necessary mitigation.

The EclA will seek to evaluate site habitats and species, both marine and terrestrial and place them into context-based consultation and published guidance. The characteristics of the impact will be identified and an assessment of the impact on sensitive or valued ecological receptors will be made in order to ascertain whether the impacts will be significant.

7.4 Inclusion or Exclusion from the EIAR

The EcIA shall be reported as a topic chapter within the EIAR.

7.5 Assessment Methodology

The methodology used during the EcIA and for the subsequent EIAR topic chapter will be based on the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines.

Further ecological survey to inform the EcIA and the overall EIA is considered necessary. The following surveys and assessments are advised:

- Habitat Survey;
- Invasive Non-native Species (INNS) Survey
- Otter Survey;
- Fish (qualitative);
- Marine Benthic Survey;
- Cetacean Assessment (including underwater noise);
- Breeding Bird Survey: and
- Wintering Bird Survey.

The assessment of predicted impacts will be undertaken against a baseline and the significance of effects assessed using standard EIAR criteria (i.e. as developed by the Institute of Environmental Management and Assessment (IEMA)).

The methodology for the Ecological Impact Assessment (EcIA) will follow the Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, Version 1.1 (CIEEM, 2018 (updated 2019)). The British Standard for Biodiversity: Code of Practice for Planning and Development (BS 42020:2013) cites the CIEEM EcIA Guidelines as the acknowledged reference on ecological impact assessment. The guidelines are consistent with the British Standard, which provides recommendations on topics such as professional practice, proportionality, pre-application discussions, ecological surveys, adequacy of ecological information, reporting and monitoring.

The assessment will include all direct and indirect, lethal and non-lethal impacts on ecology that could reasonably occur during construction work and in operation of the development.

Generic mitigation is provided below as a guide to the types of requirements that the proposed development may be required to employ to meet current wildlife legislation.

- The implementation of SEPA Guidance for Pollution Prevention (GPP's) as part of pollution control;
- Light pollution prevention measures (e.g. directing light onto the site only and preventing overspill onto the sea;
- European Protected Species (EPS) licence application may be required prior to works commencing.

Ornithology

EnviroCentre has been commissioned by Lerwick Port Authority to undertake a programme of Wintering Bird Surveys at the proposed Dales Voe UDWQ throughout the current winter 2023/24, following on from surveys carried out at the site in 2010 for an EIA for the previous UDWQ development.

Survey Approach

Overwintering birds

The surveys conducted have comprised vantage point (VP) surveys. These have been undertaken from two VP locations on the south side of Dales Voe, either side of the Dales Voe base. The VPs were selected to cover as much of Dales Voe as possible. From each VP, the visible sea area out to 2km distance has been scanned for target species over a (maximum) 2-hour period, with all bird activity recorded. If small areas of inshore waters are not visible from the VP, effort has been made to record birds within these areas. For reporting purposes, the viewsheds have been divided into sectors. Where viewsheds overlap, counts from one VP have been used to avoid double-counting.

The VP surveys have been undertaken twice a month, other than a single visit in October 2023, and have been done on a single day on each occasion. They have been carried out through a range of tide heights and sea states.

The wintering surveys was continued till May 2024 to capture data on key species such as Great Northern Diver and Slavonian Grebe, which typically stay beyond March. A second year of overwintering bird surveys is proposed in October 2024 – May 2025, following the same methodology.

Breeding birds

As one of the SPA qualifying features is breeding <Redacted> , VP Surveys will continue through the summer (through to September 2024) to determine if the area is used by this species for foraging, particularly during the chick rearing period (mid-June to September). The surveys will follow the same methods as above and will be carried out for a year.

The terrestrial site boundary plus a 500m buffer will be surveyed, recording all species present within this survey area.

8 AIRBORNE NOISE

8.1 Introduction

The proposed development and expansion of the Dales Voe Base aims to meet future requirements of port users, particularly the energy sector, which includes oil & gas, decommissioning, and renewables, for windfarm developments offshore and onshore, which has the potential to change the ambient noise environment which could impact local receptors (e.g. residents). The noise assessment will define the local ambient noise levels at the site and assess the significance of the impact from noise generated by construction activities and during operation of the proposed development.

8.2 Baseline Conditions

Existing sources

The proposed development will be located immediately adjacent to the existing Dales Voe Decommissioning Base which is located in a remote rural location, with the main hub of industrial activity surrounding Lerwick to the southwest of the site. A road runs adjacent to the site on the southern boundary. There is a wind turbine at about 250 m east of the site. (Refer to Appendix A). Also, there are a few industrial units at ~1 km in the east to southeast from the site.

Sensitive receptors³⁴

The study area lacks any significant human habitation. There are scattered residential areas in the Tingwall which is separated by the Dales Voe coastal water body. The nearest residential unit is ~400 m west of the dredging boundary of the proposed development. Other residential areas are in the south of the site near Gremista industrial estate at ~3 km south of the site.

There are three ecological receptors, East Mainland Coast SPA, Easter Rova Head SSSI and South Bight of Rova LNCS within the study area.

The nearest school is Tingwall Primary School at ~2.5 km northwest of the site. The other school in the area is Bell's Brae Primary School. Gilbert Bain Hospital is located ~4.5 km south (straight line) of the site at South Road, Lerwick.

8.3 Potentially Significant Effects

Construction of the proposed UDWQ will include land clearance, excavation, drilling, controlled delayed blasting, piling, stockpiling of earthen material, construction activities and vehicular movements that may lead to generation of noise.

Noise-generating activities which shall be carried out during the operational phase include industrial activities such as deep-water 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 and plant movements within quay and laydown area.

³⁴ <https://data.spatialhub.scot/>

Given the proposed change in the scale of activity at the base operational noise is anticipated to be a key issue.

There is the potential for underwater noise impacts on marine mammals; this has been addressed in Chapter 7: Biodiversity.

8.4 Inclusion or Exclusion from EIA

Based on the above information, it is proposed to include an Airborne Noise Assessment for the construction and operational phases in the EIAR for consideration of potential impacts on human receptors and waterbirds in the surrounding area. Underwater noise is addressed in Chapter 7 (Biodiversity).

8.5 Assessment Methodology

The potential for impact upon avian receptors will be assessed in accordance with guidance contained within Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance (2009) and the Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning & Construction Projects (2013), both prepared by the Institute of Estuarine and Coastal Studies.

8.5.1 Baseline Noise Monitoring

It is proposed to carry out existing baseline noise monitoring, the results of which shall be used to determine the sensitivity of human and avian receptors alongside calculated predicted levels in the assessment of construction and operational noise impacts.

The existing baseline noise monitoring shall comprise of the following stages;

1. Measurement of existing baseline environment at a sample of 1 or 2 locations considered to be representative of the most exposed areas surrounding the site. The location of the proposed monitoring locations will be confirmed through consultation with SIC and MD-LOT;
2. The monitoring shall be carried out during weekdays and nights, and repeated at each position on more than one date; and
3. The monitoring is likely to incorporate a mixture of attended and unattended monitoring, allowing subjective observations to be noted at each position and considered period.

8.5.2 Construction Noise

The noise from construction activities has the potential to impact avian and human receptors in the area. Construction details have not been finalised at this stage. The degree of impact during each phasing stage will depend upon:

1. The nature of construction activities being carried out; this includes the type and size of machinery/plant involved, combinations of activities occurring simultaneously and HGV routes in and around the site;
2. Location of construction activities relative to the closest noise-sensitive receptors;
3. Duration of proposed activities;
4. Construction site operating times; and
5. The extent of noise mitigation measures in place.

Noise from construction activities shall be predicted following guidance provided in BS5228-1:2009; Code of Practice for Noise and Vibration Control on Construction and Open Sites. Predicted increases in levels above baseline shall be assessed in order to determine the significance of the effects. The results of the assessment can be used to inform a construction noise management plan to help mitigate any adverse impacts.

The construction noise assessment sites shall comprise of the following stages;

1. Review of construction activities, locations and noise data;
2. Calculation and assessment of construction noise in accordance with BS5228-1:2009+A1:2014; Code of Practice for Noise and Vibration on Construction and Open Sites. A combination of calculation and 3D computer noise modelling using CadnaA software shall be used in the compilation of noise contours for the area surrounding the development site and to determine noise impacts upon avian and human receptors;
3. Only significant noise-generating construction stages shall be considered within the above assessment; and
4. If required, recommend mitigation measures to reduce construction noise impact upon avian and human receptors and to inform construction noise management plan.

8.5.3 Operational Noise

Predicted increases in levels above baseline shall be assessed in order to determine the significance of effects upon human and avian receptors. The results of the assessment can be used to inform operational noise mitigation measures to be employed at the site and if required, to inform the heights of the proposed bunds surrounding the laydown area. Noise control at source is anticipated to be most important given the flight paths of birds will render physical mitigation measures such as barriers and bunds redundant.

The operational noise assessment shall comprise of the following stages;

1. Review of proposed operational activities, locations and noise data;
2. Prediction of operational noise from proposed development using CadnaA 3D noise modelling software to compile noise contours for the area surrounding the development site and to determine noise impacts upon human and avian receptors; and
3. If required, make recommendations on mitigation measures to reduce any operational noise impact upon avian receptors and to inform the operational noise management plan.

9 ARCHAEOLOGY & CULTURAL HERITAGE

9.1 Introduction

This section addresses archaeological and cultural heritage aspects and identifies any potentially significant effects associated with the proposed development.

9.2 Study Area

The study area encompasses a buffer of up to 1 kilometre from the site boundary.

9.3 Baseline Conditions

9.3.1 Scheduled Monuments

Teind Barn, 120m N of Kebister, is the only scheduled monument within the study area (Refer to Appendix A).

Teind barn, 120m N of Kebister³⁵

The monument consists of the excavated remains of a substantial post-medieval structure identified as a probable teind barn dating from the early 16th century, and perhaps built for Henry Phankouth, archdeacon of Shetland (1501-1529).

The interior and an area around the exterior of the monument was excavated in the 1980s as it was threatened by the construction of an adjacent oil rig supply base at Dales Voe. It was built overlying the remains of earlier medieval, rectangular stone structures, contained within an enclosure wall, probably a chapel and associated enclosure. It is situated within a complex and multi-period landscape, which was bounded by a dyke (the March dyke) to the N, S and E and by the sea to the W. The site is now dominated by the oil rig supply base to the NW.

The barn was a substantial building, erected on foundations up to 1.5m wide, and is aligned E-W with its long axis running parallel with the slope. It had maximum dimensions of 17m by 7.2m, with walls 1m thick, which today stand to a maximum of 1.5m high, and was partitioned into three units of unequal size. The thickness of the walls and the large amounts of rubble present when the building was excavated, suggest that it may have originally stood two storeys high. There was a single entrance through the W gable, immediately outside of which was found an armorial panel that would originally have been situated above the doorway. The arms have not been identified, but the work is sophisticated, shows ecclesiastical influences, and is likely to date from the late 15th/early 16th century, suggesting that it was produced in an ecclesiastical context for an ecclesiastical patron such as Henry Phankouth. It bears the Latin inscription 'sine paulusper'.

³⁵ [Teind barn, 120m N of Kebister \(SM11262\) \(historicenvironment.scot\)](https://historicenvironment.scot)

A corn-drying kiln was later inserted into the central space of the building, probably during the mid-17th century, after a period of abandonment and ruination. This kiln was remodelled in the late 17th or early 18th century.

The area to be scheduled comprises the building and an area around it where associated archaeological features would be expected to survive. The area is rectangular in shape and has maximum dimensions of 22m E-W and 16m transversely.

The monument is of national importance as the remains of what has been identified as a pre-Reformation teind barn. Teind barns are an extremely rare type of building with only two other surviving examples identified in Scotland; Whitekirk (East Lothian) and Foulden (Berwickshire). In both cases, the buildings have been significantly altered and Foulden is a post-Reformation example. In a Shetland context, a teind barn would therefore be a unique and significant structure which illuminates a little-known aspect of Shetland's past; the ecclesiastical organisation of the Islands and the collection of the archdeaonry teinds and rents. It is the only probable teind barn found in the Northern Islands, and it is one of the very few high-status late medieval/early modern structures to survive on the archipelago.

9.3.2 Listed Buildings

The closest listed building to the proposed development is the Bod of Gremista, ~2.5 km to the south.

9.3.3 Other designations

There are no World Heritage sites, Gardens and Designed Landscapes, Historic Battlefields, Conservation Areas, Listed Buildings or Historic Marine Protected Areas within the study area.

During the previous EIA (Dales Voe Decommissioning Base: Environmental Statement, Dated June 2013), numerous prehistoric sites were recorded within 1km of the centre of the proposed development, many of which were identified during the fieldwork carried out prior to the construction of the supply base. Several probable Iron Age round house have been found close to the supply base, at least one of which was built over a Neolithic settlement site. There are also several prehistoric burnt mound sites in the immediate area and a prominent grassy knoll close to the burn of Kebister was evaluated and found to contain prehistoric cist and urn burials.

A medieval or post-medieval settlement site is still visible at Kebister, ~100m south of the supply base and this appears unroofed on the 1st edition Ordnance Survey of 1881. A long dyke, known as the March Dyke, encloses an area of 20ha around the settlement (taking in the teind barn and the supply base). Within this area intricate field systems, including sub-peat dykes and numerous clearance cairns were recorded. These are thought to date to the medieval/post-medieval period. A number of hut sites have also been identified in the area and although undated some of them were thought to be either post-medieval or prehistoric depending on their form.

Multi-phase sites are common in Shetland, and once a settlement site was established it might stay in use for centuries or even millennia. In this case, it appears that the site of the teind barn has been a focus for human settlement and activity for up to a thousand years. Although fieldwork in the area has identified and excavated sites with visible surface expression, the potential for further archaeological remains which cannot be traced above ground is relatively high. It is assumed that construction of the supply base has removed all archaeological potential within its present footprint and that there is no further potential within that area.

9.3.4 Canmore Assets

Canmore assets within the study area are listed below in Table 9-1.

Table 9-1: Canmore assets

CANMOREID	NAME	ALTNAME	BROAD CLASS	SITE TYPE
102899	Unknown: Holm of Califf, Dales Voe	North Sea, Foul	Maritime Craft	Obstruction
241503	Louise Charlotte: Brei Wick, North Sea	Louisa Charlotte, Braewick, Dales Voe, Tingwall, Louise Charlotte	Maritime Craft	Brig (19th Century)
241508	Express: Bight of Vatsland, North Sea	Lerwick, Express	Maritime Craft	Schooner (19th Century)
241510	Seagull: Dales Voe, North Sea	Sea Gull, Tingwall, Seagull	Maritime Craft	Sloop (20th Century)
241511	Dove: Dales Voe, North Sea	BF 871, Vales Voe, Tingwall, Dove (BF 871)	Maritime Craft	Steam Drifter (20th Century)
290866	Unknown: North Sea	Earl's Baa, Dales Voe, Tingwall, Unknown 1600	Maritime Craft	Craft (17th Century)

9.4 Potentially Significant Effects

Teind Barn, a scheduled monument, is located at ~275m southwest of the proposed development site. The proposed development includes excavation, drilling and controlled delayed blasting during the construction phase that might result in structural damage due to vibration and excavation. Dust emissions during the construction phase might also result in damage to building fabric. There might be adverse impacts on the settings and to the monument amenity through noise and disturbances. The only road connecting the monument to other parts of the island is adjacent to the south boundary of the site.

There is potential for significant effects on unknown prehistoric heritage assets, which will be scoped into an EIA, and a negligible likelihood for any impacts on unknown medieval, post-medieval and modern assets, which are scoped out. Mitigation strategies prior to and during construction could reduce or eliminate such effects. Such strategies would include a walkover survey as part of the EIA in order to identify if any remains are visible, intrusive archaeological evaluations prior to construction and an archaeological watching brief during construction could reduce or eliminate such effects. If such strategies are agreed prior to the EIA process then there would be no requirement to include impacts on unknown prehistoric heritage assets in an EIA process, because the necessary mitigations to reduce/eliminate impacts would already be in place. Management of the risk is likely to be part of planning consent conditions.

9.5 Inclusion or Exclusion from EIA

Based on the above information, it is proposed to include Archaeology and Cultural heritage impact assessment for the construction phase in the EIAR. The assessment will also include a vibration assessment to identify potential significant impacts on the scheduled monument.

9.6 Assessment Methodology

The assessment methodology will be based on the following framework.

1. Consultation Responses: All the preliminary consultation responses received during the scoping stage will be reviewed and relevant information will be incorporated into the assessment.
2. Study Area: An appropriate study area will be identified taking into consideration the footprints of the proposed development, the sensitivity of the area and potential environmental effects due to the proposed developmental activities.
3. Baseline Studies: Identification and review of the current status of designated sites/areas, sensitive receptors and geographical features within the study area will be undertaken.
4. Impact Assessment: Potential environmental impacts will be identified taking into consideration the proposed construction activities. Once identified, the assessment will be carried out to understand the significance of those impacts.
5. Mitigation Measures: If any significant impact is identified, then appropriate mitigation measures will be proposed to nullify or reduce the impact.
6. Monitoring Measures: Where appropriate, measures for the monitoring of mitigation measures and the proposal should be presented to ensure that mitigation is enacted effectively and that the actual impacts are consistent with the predicted impacts.

10 SEASCAPE, LANDSCAPE AND VISUAL

10.1 Introduction

This section addresses seascape/landscape and visual aspects and identifies any potentially significant effect associated with the proposed development.

10.2 Baseline Conditions

Dales Voe Base is located on the eastern shore of Dales Voe, on Mainland Shetland north of, and over the hill from, Lerwick. The Base, which is owned by Lerwick Port Authority, was opened in 1986 and was originally designed for inspection, repair, and maintenance of drilling rigs. It is therefore an established site.

The existing Base is a large-scale port development on the Dales Voe coastline and is linked with Lerwick North Harbour activities by the road which runs from the current Dales Voe Base along the northern coastline via Valley of Keelhamar, Greenhead and Point of Scattland to join the A970 at Gremista.

The landscape character is defined by the mass of hills that rise to 120m AOD, separating the Dales Voe from Lerwick; and the northwestern aspect of the Banks of the Lees which grade steeply to the shores of Dales Voe, gradually reducing in height towards the existing Base and levelling down to the sea towards the north at Kebister of Ness. This landform has resulted from the Dales Voe slicing into the upland spine that defines the South Mainland. This is a natural landscape, generally of moorland and coastal grassland, both pasture and rough grazing.

The land is undeveloped, apart from the existing Base, and there are no properties within the locality of the Base. Across Dales Voe, opposite the Base, the land is farmed with a scattered pattern of settlement located on the enclosed land of the lower-lying, gently sloping transitional coastal slopes. There is a generally linear trend following the more amenable lowland from South Califf through North Califf and North to Breiwick. The properties are well distributed and not numerous.

The sensitive visual receptors have been identified as the residents and visitors associated with properties located on the opposite side of the Voe and road users facing the existing Base and also those sailing in the Voe.

10.2.1 National Scenic Area

The Planning etc. (Scotland) Act 2006 and Town and Country Planning (National Scenic Areas) (Scotland) Designation Directions 2010 define National Scenic Areas (NSAs). The legislation defines NSAs as areas “of outstanding scenic value in a national context”, for which special protection measures are required.

Seven separate small areas of coastal landscape in Shetland have been identified as of outstanding scenic interest. These seven designated areas make up the NSA and comprise Shetland’s scenic highlights and epitomise the range of coastal forms varying across the island group. The seven individual areas of the NSA are Fair Isle, Southwest Mainland, Foula, Muckle Roe, Eshaness, Fethaland, and

Hermaness. None of the NSAs are within or adjacent to the proposed development site, with South West Mainland being the nearest at 5.1 km from the site.³⁶

South West Mainland

The stunning variety of the extensive coastline: Stretching from Fitful Head (Old Norse hvitfugla, white birds) to the Deeps, displays greatly contrasting coastlines:

- Clifed coastline of open aspect in the south to long voes at Weisdale and Whiteness.
- Numerous small islands and stacks, notably in the area west of Scalloway.
- St. Ninian's Isle with its fine tombolo.

Coastal views: views of St Ninian's Isle from South West Mainland

Coastal settlement and fertility within a large hinterland of unsettled moorland and coast: Within South West Mainland the larger islands of Burra and Trondra show the underlying crofting settlement pattern, although this is now tending to be lost through modern development. The areas adjacent to Bigton and the Loch of Spiggie show crofting farmland and are a more fertile, enclosed and humanised landscape. Bigton Farm is recorded in the early 18th century and was noted for its productivity even then. St Ninian's Isle is renowned for its early medieval chapel and silver hoard found on the island.

10.2.2 Local Landscape Areas³⁷

These are non-statutory designations, designated by the local planning authority to protect areas with locally appreciated scenic values. There are two local landscape areas within 5 km of the proposed development.

- Aith Ness and Noss³⁸
- Gletness and Skellister³⁹

Aith Ness and Noss is ~2.7 km at its closest point (straight line) east of the proposed development at Dales Voe. Aith Ness and Noss is not visible from the proposed development site, or vice versa.

Gletness and Skellister is ~4.5 km at its closest point (straight line) north of the proposed development at Dales Voe. It is unlikely that the proposed extension to an existing decommissioning base will have a significant landscape impact on the locally designated site.

All the designated sites are provided in Appendix D.

10.2.3 Other designations

There are no National Parks, Regional Parks, or Country Parks within the study area.

³⁶ <https://sitelink.nature.scot/site/9148>

³⁷ [Local Landscape Areas - Scotland - Local Landscape Areas - Spatial Hub Scotland](#)

³⁸ Local Landscape Areas, Supplementary Guidance, Shetland Local Development Plan 2014 (Pg 29)

³⁹ Local Landscape Areas, Supplementary Guidance, Shetland Local Development Plan 2014 (Pg 31)

10.2.4 NatureScot National Landscape Character Assessment

With reference to the NatureScot National Landscape Character Assessment, the site falls under 'Farmed and Settled Voes and Sounds' and 'Major Uplands' category.

Farmed and Settled Voes and Sounds⁴⁰

Key Characteristics

- Narrow, low-lying coastal strips of gently sloping or undulating land around enclosed waters.
- Complex, indented coastline which provides shelter.
- Mainly agricultural land use on improved and unimproved pastures with heathland, wetland and wet pastures which add variety.
- Area near Walls has 'knock and lochan' topography with exposed, glaciated rock.
- Unusual grassland and heathland on base-rich soils on Unst and Fetlar.
- Scarce broadleaf tree cover found in very small remnant woodland patches and recent plantations.
- Mostly traditional crofting in linear or scattered patterns, with some estates.
- Larger settlements around harbours with historic built heritage.
- Mainly inland, minor road network with branches to beaches and harbours.
- Abundant archaeology across all periods of human settlement.
- Rural areas provide a contrasting backdrop and setting for settlements.
- Rural areas and settlements contrast with the surrounding, large-scale hill land.
- Views are ever-changing due to the complex coastline and interlocking landforms.
- Remote settlements have a strong sense of isolation and tranquillity.

Major Uplands⁴¹

Key Characteristics

- Rounded hills, occurring either in series connected by high-level rounded ridges along a linear band, or as isolated single hills or hill groups.
- Often steep slopes at the coast, or cliff edges with dramatic natural coastal landforms.
- Exposed, frost shattered rock and boulder fields in Ronas Hill.
- Mainly simple landcover of peat bog and heather moorland grading to rough grassland on some lower slopes, contrasting with the ordered fields of adjoining lowlands and the intricate coastline.
- Hill grazing and low-key peat cutting.
- Mainly uninhabited and often difficult to access on foot or by road, with roads mainly absent on higher land.
- In some areas, tracks ascend to hillside or hilltop features such as masts, wind turbines, isolated farms and peat cuttings.
- Exposed high land with panoramic views, forming landmark features which themselves are often visible for miles.
- Relatively expansive, although scale is difficult to discern and reduced by the presence of manmade structures.
- A sense of remoteness and wild character in places.

⁴⁰ [LCT 354 - Farmed and Settled Voes and Sounds - final pdf.pdf \(nature.scot\)](#)

⁴¹ [LCT 349 - Major Uplands - final pdf.pdf \(nature.scot\) - https://www.nature.scot/sites/default/files/LCA/LCT%20349%20-%20Major%20Uplands%20-%20final%20pdf.pdf](https://www.nature.scot/sites/default/files/LCA/LCT%20349%20-%20Major%20Uplands%20-%20final%20pdf.pdf)

10.2.5 Visual Receptors

Visual receptors are the people who could be affected by the changes in views resulting from the proposed development. Visual receptors include:

- Residents within the study area have a direct view of the site - There are a few scattered residential units on other site of the Voe, towards the north of the site. The nearest residential unit is ~600 m north of the dredging boundary of the proposed development.
- People travelling through the area - though there is no major road passing by the Proposed development site, except people visiting Teind Barn.
- People visiting the area - There are several recreational, historic, and scenic locations in the study area, and it is assumed that the area could be receiving a significant number of visitors.

10.3 Potentially Significant Effects

Key issues to be assessed are considered to include the following:

The proposed development is an expansion of the existing industrial facility; it is potentially significant in scale and will create a change, of an industrial nature, in a coastal landscape that is currently undeveloped. This will be the key issue to be addressed with regard to landscape impacts, with a focus on the landscape character and interruption of the coastline.

With regard to the visual impact, the sensitive receptors will be limited in number. The main visual impact is anticipated to be upon those living and working across the Voe at Califf and those sailing through the Voe. The quay and decommissioning slab will be low profile but will alter the shape and colour of the coastline and present an alteration in view. The issue will therefore be whether the changes in geometry and reflectance will have a significant impact and if so how this might be mitigated. The use of artificial light will also be a potential issue, particularly during the winter months.

The construction phase will be associated with a range of impacts related to movement, lighting and scale of plant used. However, it must be reiterated that this will be adjacent to an existing decommissioning facility. Timescale and phasing will be important factors in this regard.

Operation will affect the landscape character and visual experience through movement and the berthing of vessels and increased operational activities at the Base.

The low profile of the proposed development and the surrounding topography reduce the distance from which the base can be viewed. Long-distance visual impacts assessment will therefore be largely scoped out. Viewpoints will be agreed with NatureScot before the assessment is carried out.

10.4 Inclusion or Exclusion from EIA

Based on the findings of this appraisal and the associated likely potential for some significant effects during construction and post-completion, it is recommended that a full Seascape, Landscape and Visual Impact Assessment (SLVIA) is undertaken as part of an EIA.

10.5 Assessment Methodology

The methodology for conducting SLVIA will be based on “Guidelines for Landscape and Visual Assessment 3rd Edition” Landscape Institute and Institute of Environmental Management and Assessment 2013 (GLVIA3).

Foremost, the SLVIA aims to identify, predict and evaluate any likely significant effects during the construction and operational phases of the proposed development, on the landscape, seascape and visual resources of the site, its setting and the wider study area. Where any significant adverse effects are identified, mitigation measures are considered, and where possible, embedded within the design of the proposed development.

As an overview, the objectives of the SLVIA are to:

- provide a summary description of the scoping and consultation responses relating to landscape, coastal and visual issues;
- describe the assessment methodology and significance criteria used to inform the assessment process;
- identify the main landscape-related policy, legislation and guidance;
- identify and assess the landscape, coastal and visual baseline conditions;
- identify and evaluate the potential landscape, coastal and visual effects, including direct, indirect and cumulative, based on the worst-case parameters as currently known;
- identify broad design principles for subsequent project development and other mitigation measures that may be appropriate to address likely residual significant effects; and
- evaluate any residual effects remaining, following the implementation of any further mitigation measures suggested.

11 TRANSPORT, SHIPPING & NAVIGATION

11.1 Introduction

This section addresses traffic, shipping and navigational aspects and identifies any potentially significant effect associated with the proposed development.

11.2 Baseline Conditions

Shetland Island is well connected with the rest of the UK through ferries and flight services.

Ferries depart all year round, seven nights a week in both directions on the Aberdeen-Lerwick route. There are daily flights from major UK cities - London, Glasgow, Edinburgh, Aberdeen, etc to Sumburgh Airport, ~36 km from the proposed development site.

11.3 Potentially Significant Effects

The construction materials and resources will be mostly imported via sea route and may increase marine traffic in the area.

Once operational, there is potential for an increase in marine traffic in the wider area however, vessel movements will be determined on a project-by-project basis during the operational phase.

Due to its remote location, the proposed development is not anticipated to impact the road infrastructure utilised by local residents as detailed in Section 4.3. However, it is acknowledged that there will be a notable increase in marine traffic during both the construction and operational phases, which is expected to have a significant effect.

11.4 Inclusion or Exclusion from EIA

Based on the above information, it is proposed to include shipping and navigation risk but exclude Road Traffic Assessment from the EIAR.

11.5 Assessment Methodology

The assessment methodology will be based on the following framework.

1. Consultation Responses: All the preliminary consultation responses received during the scoping stage will be reviewed and relevant information will be incorporated into the assessment.
2. Study Area: An appropriate study area will be identified taking into consideration the footprints of the proposed development, the sensitivity of the area and potential environmental effects due to the proposed developmental activities.
3. Baseline Studies: Identification and review of the current status of shipping and navigational traffic within the study area will be undertaken.
4. Impact Assessment: Potential environmental impacts will be identified taking into consideration the proposed developmental activities. Once identified, assessment will be carried out to understand the significance of those impacts.

5. Mitigation Measures: If any significant impact is identified, then appropriate mitigation measures will be proposed to nullify or reduce the impact.
6. Monitoring Measures: Where appropriate, measures for the monitoring of mitigation measures and the proposal should be presented to ensure that mitigation is enacted effectively and that the actual impacts are consistent with the predicted impacts.

12 ACCIDENTS & NATURAL DISASTERS

12.1 Introduction

Major accidents and/or disasters is a topic introduced by the 2014/52/EU EIA Directive and subsequent national legislation. 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 will consider the potential for such eventualities in the context of the construction and operation of the proposed development, as described in Section 2.

12.2 Potentially Significant Effects

The Institute of Environmental Management and Assessment (“IEMA”) ‘Major Accidents and Disasters in EIA: A Primer’ (September 2020), hereafter referred to as ‘The Primer’ was reviewed and informed whether there was potential for significant impacts to occur as a result of the development. The Primer provides 3 tests as follows:

Is the development itself a source of major accidents or is vulnerable to disasters?

The proposed site of the UDWQ facility does not represent a significant source of major accidents. The construction work would also be covered by the Construction and Design Management (CDM) Regs which have been developed to prevent accidents and fatalities from occurring.

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. Coastal flooding and sea level rise are considered within the Water Environment and Coastal Processes of this report.

Taking the above into account it is considered that the development itself will not be a source of major accidents or will be vulnerable to disasters.

Does the Development Interact with external hazards or associated activity?

The construction phase works are focussed to the east of the existing decommissioning facility and the only external interaction will be related to the import of material to the site as part of the works.

Once operational, the UDWQ will be utilized for industrial activities that require heavy lift deep-water berthing and large laydown areas such as offshore renewables and oil and gas decommissioning.

It is therefore considered that the development is unlikely to interact with external hazards or associated activities.

If an external major accident or disaster occurred would the existence of the development increase the risk of significant effects to environmental receptors?

As noted above the proposed works are concentrated to the east side of the Dales Voe facility. The construction area will be segregated from the operational areas by fencing and the area will be covered by the CDM Regs under the control of the principal contractor.

A Construction Environmental Management Document (CEMD) will be developed taking into account industry standards and development-specific mitigation measures. (Note: The development-specific mitigation measures will be identified through the EIAR process.)

The construction works are considered to be temporary in nature. Once the work to construct the UDWQ are complete the area would return to being under the control of LPA as the port operators with the Marine Safety Management System / Standard Operating Procedures being enforced.

As such it is considered that should an external major accident or disaster occur the existence of the development would not increase the risk of significant effects to environmental receptors occurring.

12.3 Inclusion or Exclusion from EIA

As the development is compliant with the 3 tests noted above it is unlikely it will increase the risk of significant effects occurring during the construction phase. The consideration of accidents and natural disasters is therefore scoped out of the EIAR.

13 CLIMATE CHANGE

13.1 Introduction

This section addresses carbon, climate change and greenhouse gases aspects and identifies any potentially significant effect associated with the proposed development.

13.2 Climate Change and Resilience

As per IEMA guidance related to Climate Change Resilience & Adaptation, factors to consider when assessing the risks to a project are:

1. Its reliance on interconnected networks (be this a transport network, power supplies or telecoms for example),
2. Its vulnerability to the impact of weather on both normal operations and extreme weather-related disaster scenarios.

The probability of the occurrence of an extreme weather event and any induced impact on the proposed development directly or indirectly is unlikely.

13.3 Carbon and GHG emissions

Similar to any development project, the proposed development will have some Greenhouse Gas (GHG), and carbon emissions associated with it. To understand the GHG and carbon emissions related to the construction phase of the proposed development, a carbon impact assessment will be carried out. This assessment will calculate the embodied carbon of the construction materials used for the development, emission from construction machinery and emission from transportation of the construction materials.

The baseline considered will be the 'business as usual' scenario. It considers the carbon emission without the proposed development at the site.

The study area for the assessment incorporates a broader scope than the site boundary due to the consideration of embodied carbon emissions from materials, the transportation of materials to the site and installation processes on site.

13.4 Potentially Significant Effects

There will be various developmental activities that contribute to GHG and carbon emissions and will be included in the assessment such as

- Land clearance will result in loss of carbon sink as the soil found on the site is peaty podzol that are considered to be important in terms of carbon sink.
- Concreting, piling and metalwork will be a major part of the construction of the proposed development and hence the embodied carbon emission associated with those materials will be significant.
- Being in a remote location, most of the materials used for the proposed development will be transported from remote locations and this will result in transportation emissions.

13.5 Inclusion or Exclusion from EIA

Considering the above information, 'Climate Change and Resilience' is proposed to be scoped out, but the 'Carbon Impact Assessment' is proposed to be scoped into the EIAR.

13.6 Assessment Methodology

Carbon Impact Assessment will be undertaken by calculating GHG emissions following IEMA's six-step framework for a GHG emissions assessment.

1. Set the scope and boundaries of the GHG assessment.
2. Develop the baseline.
3. Decide upon the emissions calculation methodologies.
4. Data collection.
5. Calculate/determine the GHG emissions inventory.
6. Consider mitigation opportunities and repeat steps 4 & 5.

14 MATERIAL AND WASTE

14.1 Introduction

This section addresses material consumption and waste generation aspects and identifies any potential significant effect associated with the proposed development.

14.2 Potential Significant Effects

In order to screen the proposed developed for material asset and waste, the IEMA's guide, "*Materials and Waste in Environmental Impact Assessment*" has been referred to. The proposed development has been tested against the following factors to screen it with respect to material assets and waste.

"Consumption of materials impacts upon their immediate and long-term availability; resulting in the depletion of natural resources and adversely impacts the environment."

"Generation and disposal of waste leads to reduction in landfill capacities. Landfill is a finite resource, and hence – through the ongoing disposal of waste – there is a continued need to expand existing and develop new facilities. This requires the depletion of natural and other resources which, in turn, adversely impacts the environment."

Volumes of dredge material are estimated to be 305,000m³ including over dredge allowance with anticipated trailer suction soft dredge volume being 211,000m³ and a hard dredge pre-treated backhoe dredge volume 94,000m³. The unsuitable waste is expected to be ~5%, i.e.15,000m³. The estimated volume of fill required is 176,000m³.

The excavated materials will undergo a select, screen and stock process to separate inert stone and suitable material that is free from all organic and clay material that would be stockpiled. The stockpile material would be the primary source of inert fill material for the reclamation area and any unsuitable overburden will be stored and landscaped in permanent bunds and, or restoration around the perimeter of the site.

This approach will reduce the requirements of extraction of new fill material and also reduce the waste material going to the landfill.

The proposed Construction Environmental Management Plan (CEMP) will include a Site Waste Management Plan (SWMP) for the construction phase. SWMP shall contain the measures to be undertaken for various types of waste generated. For the operational phase, applicable permits and licenses will be acquired and relevant best practices will be followed.

Comparing the scale of the proposed development with landfill capacities and availability of natural resources at the regional and national levels, it is not envisaged that the proposed development would satisfy any of the above-mentioned factors and would not be significant.

14.3 Inclusion or Exclusion from EIA

Based on the above information, "Material assets and Waste", are proposed to be scoped out of the EIAR.

15 POPULATION AND HUMAN HEALTH

15.1 Introduction

This section addresses population and human health aspects and identifies any potential significant effect associated with the proposed development.

15.2 Potentially Significant Effects

In order to scope the proposed development for Population and Human Health, the IEMA's guide, "*Effective Scoping of Human Health in Environmental Impact Assessment*" has been referred to. The proposed development has been tested against the following topics related to population and human health.

15.2.1 Biophysical environment

Degradation in bio-physical environmental conditions such as air quality, water quality and availability, land quality and noise level can have an adverse impact on human health. Detailed information on each segment is already discussed in previous sections of the scoping report.

Air quality, land environment and radiation are scoped out, while water environment and airborne noise are scoped in but do not have any concerns with respect to human receptors. The mitigation measures proposed will ensure that the consequent impacts on human health are insignificant.

15.2.2 Behavioural aspects

A development can stimulate behavioural change among its receptors that can have either adverse or beneficial health impacts on them. Considering the nature of the proposed development, it neither restricts nor promotes any physical activity or healthy food behaviour among residents.

Restrictive measures during the construction phase, under the Construction Environmental Management Plan, and during the operational phase, under policy and procedures, will be undertaken to restrict the use of alcohol and cigarettes by the workers/employees.

15.2.3 Healthcare Infrastructure

Lerwick, being a populated town, does have healthcare infrastructure. Gilbert Bain Hospital and Montfiled Hospital are located at ~4.5 km south of the proposed development site. The anticipated increase in the workforce will be considerable during construction phase, however, during the operational phase of the development is expected to be low.

Considering the location and size of the proposed development, it is not anticipated to affect the existing healthcare infrastructure serving the community.

15.2.4 Social environment

The proposed development does not involve any population relocation adversely affecting local community identity and culture or facilitating any increment in crime or injury risk affecting community safety.

The proposed development is not envisaged to burden the existing housing supply as preference will be given to local workers/employees and the accommodation requirements during the construction and operational phase will not be significant to impact the local housing market.

The site is located in a remote area and does not adversely affect the transportation infrastructure used by the local population. The development is proposed over a land that is fit for grazing and does not affect any places and spaces used for any social networking.

15.2.5 Socioeconomic

The proposed development will provide employment opportunities during the construction and operational phase of the development, both directly and indirectly, benefiting the local population. Though limited, the influx of outside workers will also support the local businesses to grow. Hence, there would be a positive impact in terms of socioeconomic.

15.3 Inclusion or Exclusion from EIA

Based on the above information, Human Health and Population is proposed to be scoped out of the EIA.

16 ENVIRONMENTAL MANAGEMENT PLAN

Following completion of the Environmental Impact Assessment Report (EIAR), an Environmental Management Plan (EMP) will be developed to deliver the mitigation and monitoring proposed in the EIAR.

The EMP will be developed in conjunction with the lead contractor to assist them in achieving compliance with the conditions set out in the marine construction licence, planning permission, and dredging & disposal marine licence. The EMP will establish roles and responsibilities of the team, with a lead Environmental Manager, who will be responsible for the implementation of the Environmental Management Plan, ensuring that all agreed measures are implemented.

17 CONCLUSIONS

The conclusions of the detailed scoping appraisals identified that the topic areas listed below are considered to merit a full impact assessment and thereby documented within an EIAR.

- Biodiversity;
- Water Environment;
- Airborne Noise;
- Archaeology & Cultural Heritage;
- Seascape, Landscape and Visual;
- Transport, Shipping & Navigation (shipping); and
- Climate Change (Carbon Impact Assessment' is proposed to be scoped in).

In addition to the above, a Habitats Regulations Appraisal (HRA) will be undertaken to assess any potential Likely Significant Effect(LSE)on the qualifying species of East Mainland Coast Shetland SPA.

Based on professional judgement and the findings of the scoping appraisal, full EIA's are not considered necessary for the following topics, however supporting statements and information will be provided for each topic within the introductory chapters of the EIAR:

- Air Quality;
- Land Environment;
- Accidents & Natural Disasters;
- Material and Waste; and
- Population and Human Health.

The Highland Council Guidance Note – Construction Environmental Management Process for Large Scale Projects⁴² sets out a robust Environmental Management Process that incorporates the findings of the EIAR as well as other requirements from consents, licenses, legislation and best practices. It is proposed that a Construction Environmental Management Document and Plans (CEMD and CEMPs) be developed in accordance with this Guidance Note to provide site-specific practical mitigation measures to ensure that during the construction phase, the environment is protected. The CEMD and associated CEMPs 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 and associated CEMPs, ensuring that all agreed measures are applied and adhered to.

Note: The CEMD and associated CEMPs would be finalised on receipt of Planning / Marine Consent and would aid discharge of planning/marine license conditions. It would also form part of the tender documents during the contracting phase of the development.

⁴² The Highland Council Guidance Note – Construction Environmental Management Process for Large Scale Projects, dated August 2010.

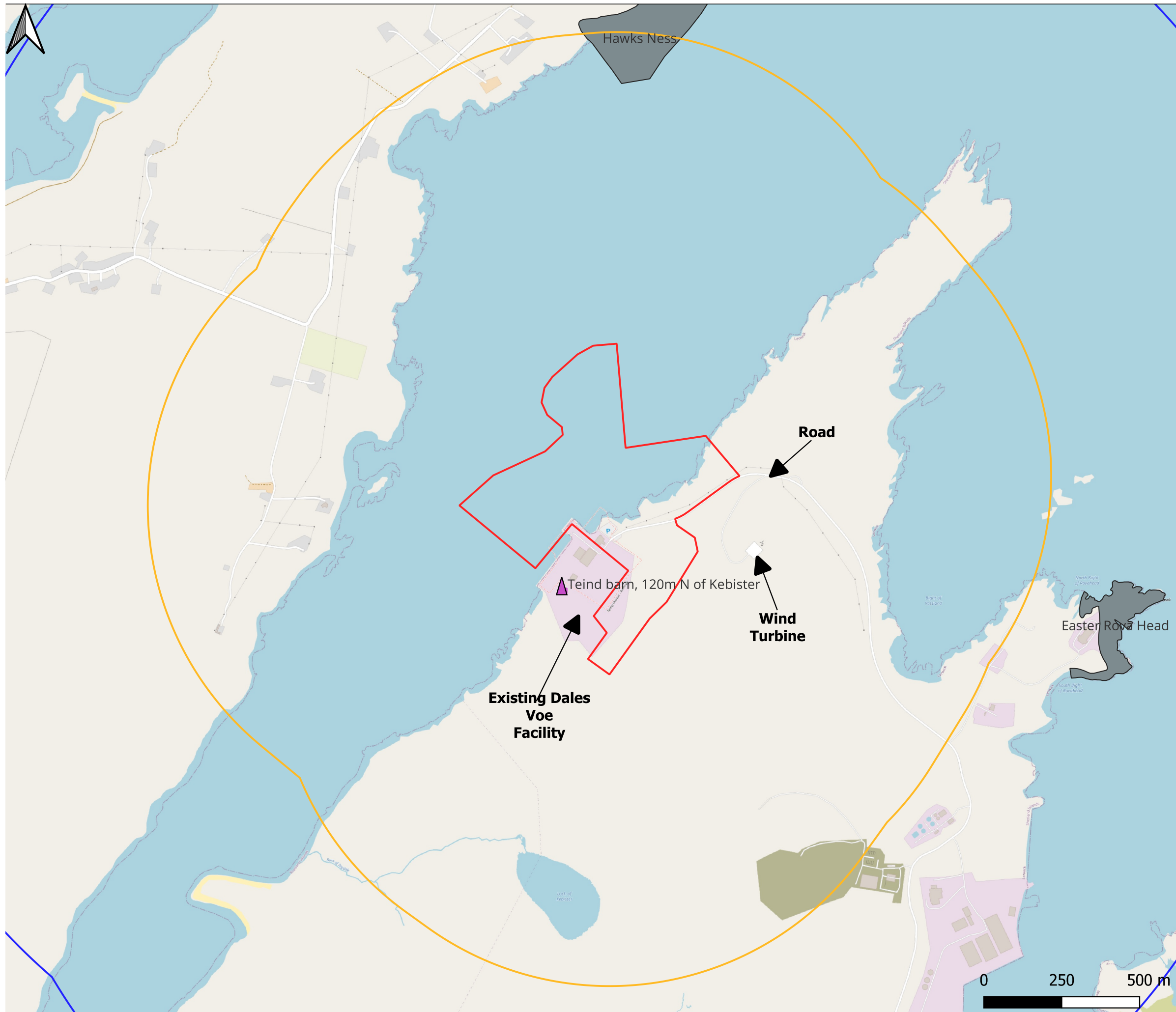
18 GLOSSARY

AOD	Above Ordnance Datum
AQ	Air Quality
BGS	British Geological Survey
BPEO	Best Practicable Environmental Option
CD	Chart Datum
CEMD	Construction Environmental Management Document
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
ECoW	Ecological Clerk of Works
EHD	Environmental Health Department
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EIA Regulations	Town & Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017
EnvCoW	Environmental Clerk of Works
GHG	Greenhouse Gas
Ha	Hectares
HGV	Heavy Goods Vehicles
IEF	Important Ecological Features
IEMA	Institute of Environmental Management and Assessment
IES	Institute of Environmental Science
IMO	International Maritime Organisation
JNCC	Joint Nature Conservation Committee
mAOD	Metres Above Ordnance Datum
MD-LOT	Marine Directorate Licensing Operations Team
Marine EIA Regulations	Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017
MMPP	Marine Mammal Protection Plan
MMO	Marine Mammal Observer
mNNIS	Marine Non Native Invasive Species
MWHS	Mean Water High Springs
NVC	National Vegetation Classification
NTS	Non-Technical Summary
O&M	Operations & Maintenance
PAC	Pre-Application Consultation Report
PEA	Preliminary Ecological Appraisal
PMF	Priority Marine Features
PPG	Pollution Prevention Guidance
RAMS	Risk Assessments and Method Statements
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SPA	Special Area of Protection
SBL	Scottish Biodiversity List
DVUDWQ	Dales Voe Ultra Deep Water Quay
SEPA	Scottish Environmental Protection Agency
SLVIA	Seascape, Landscape & Visual Impact Assessment
SPA	Special Area of Protection

SPMT	Self-Propelled Modular Transporter
SSSI	Sites of Special Scientific Interest
SUDS	Sustainable Urban Draining System
SWMP	Site Waste Management Plan
WFD	Water Framework Directive
WSI	Written Scheme of Investigation
ZOI	Zone of Influence
ZTV	Zone of Theoretical Visibility

APPENDICES

A LOCATION MAP



Legend

- Project Boundary
- 1 km buffer
- Geological Conserveation Review Sites
- Scheduled monuments

Do not scale this map

Client
Lerwick Port Authority (LPA)

Project
Dales Voe Ultra-Deep-Water Quay

Title
Location Map

Status
Final

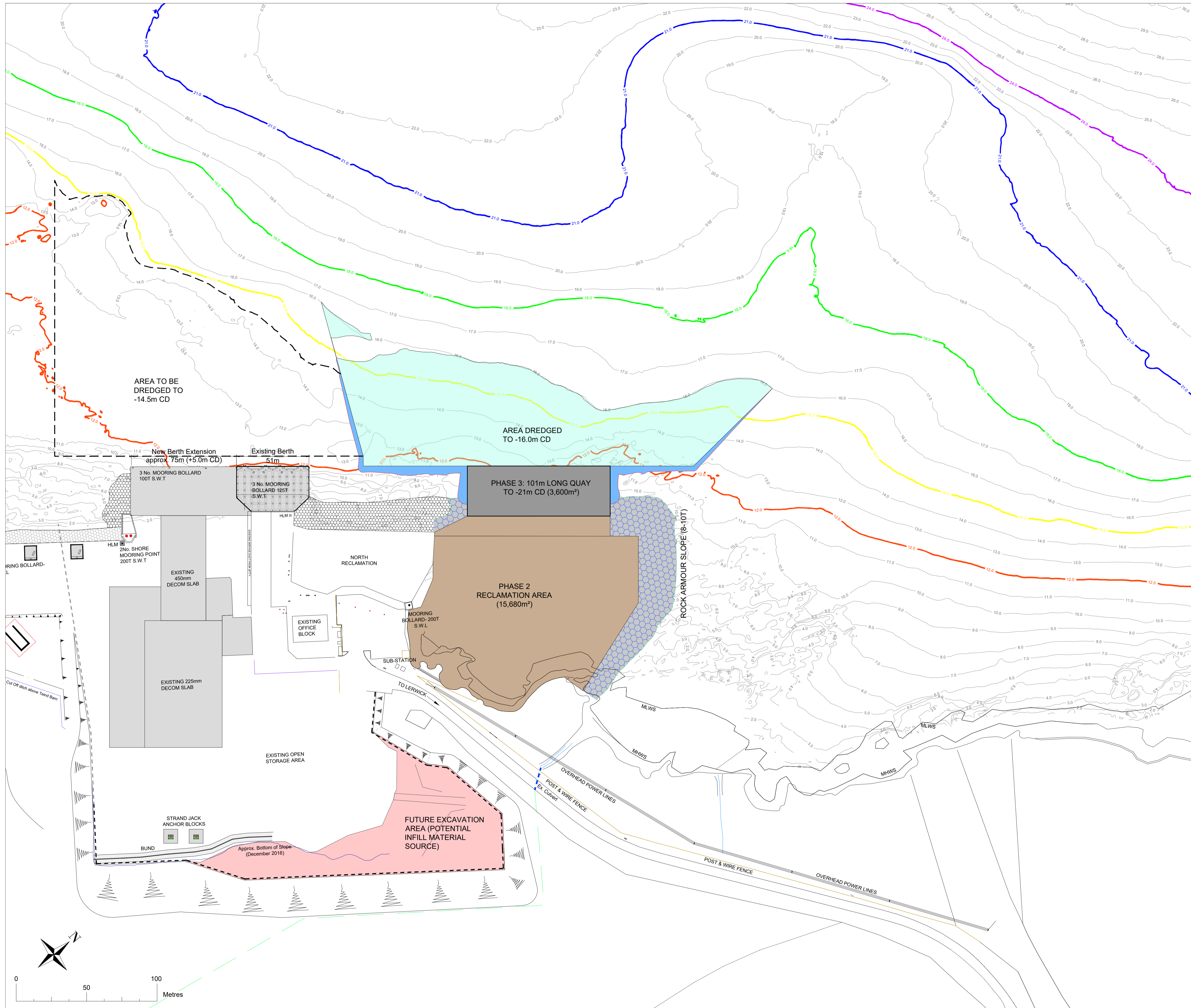
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envirocentre
 8 Eagle Street, Craighall Business Park, Glasgow, G4 9XA.
 T: 0141 341 5040 E: info@envirocentre.co.uk
 W: www.envirocentre.co.uk

B DRAWINGS



PHASE 1 DREDGING (-16m CD):

-16m CD DREDGE AREA = 19,500m²
 DREDGE VOLUME (TO -16m CD) = 46,525m³ OF WHICH,
 HARD/ROCK DREDGE = 25,175m³
 SOFT DREDGE = 21,350m³

OVERDREDGE ALLOWANCE:
 HARD = 5,100m³ (0.5m DEPTH)
 SOFT = 4,875m³ (0.25m DEPTH)

DREDGE TOTAL = 56,500m³

PHASE 2 RECLAMATION:

RECLAMATION AREA = 15,680m²
 INFILL VOLUME = 154,500m³

ROCK ARMOUR SLOPE = 7,900m²,
 OF WHICH ~2,400m² RE-USED FROM EXISTING NORTH RECLAMATION/CAR PARK

PHASE 3 QUAY WORKS:

QUAY AREA = 3,600m² (~101m x 35.5m)
 COMBI-WALL PILING LENGTH = 170m
 ANCHOR WALL PILING LENGTH = 155m
 INFILL VOLUME = 69,500m³

SEABED CONTOUR KEY

- 12 metres
- 15 metres
- 18 metres
- 21 metres
- 24 metres

PRELIMINARY

B	21.06.2024	PRELIMINARY ISSUE FOR COMMENT	PRN	
A	17.06.2024	PRELIMINARY ISSUE FOR COMMENT	PRN	
-	26.04.2024	PRELIMINARY ISSUE FOR COMMENT	PRN	
REV	DATE	REVISION	DRN	CHK

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Civil Engineers
 Structural Engineers
 Architects
 CDM Co-ordinators
 Geotechnical services
 Environmental services

Stewart Building, Lerwick, Shetland, ZE1 0LL
 Tel : 01595 695512 - Fax : 01595 694401.
 www.arch-henderson.co.uk - email : lerwick@arch-henderson.co.uk

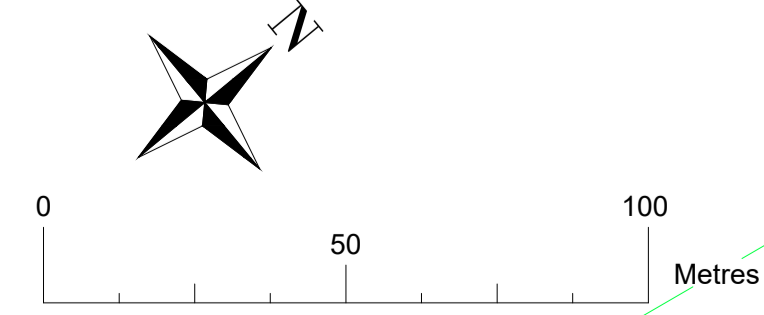
Offices in : Aberdeen, Dundee, Glasgow, Lerwick, Lisboa (Portugal), Stromness and Thurso

PROJECT :
 Lerwick Port Authority
 Ultra Deep Water Port, Dales Voe, Lerwick

TITLE :
 Phased Site & Dredging Layout

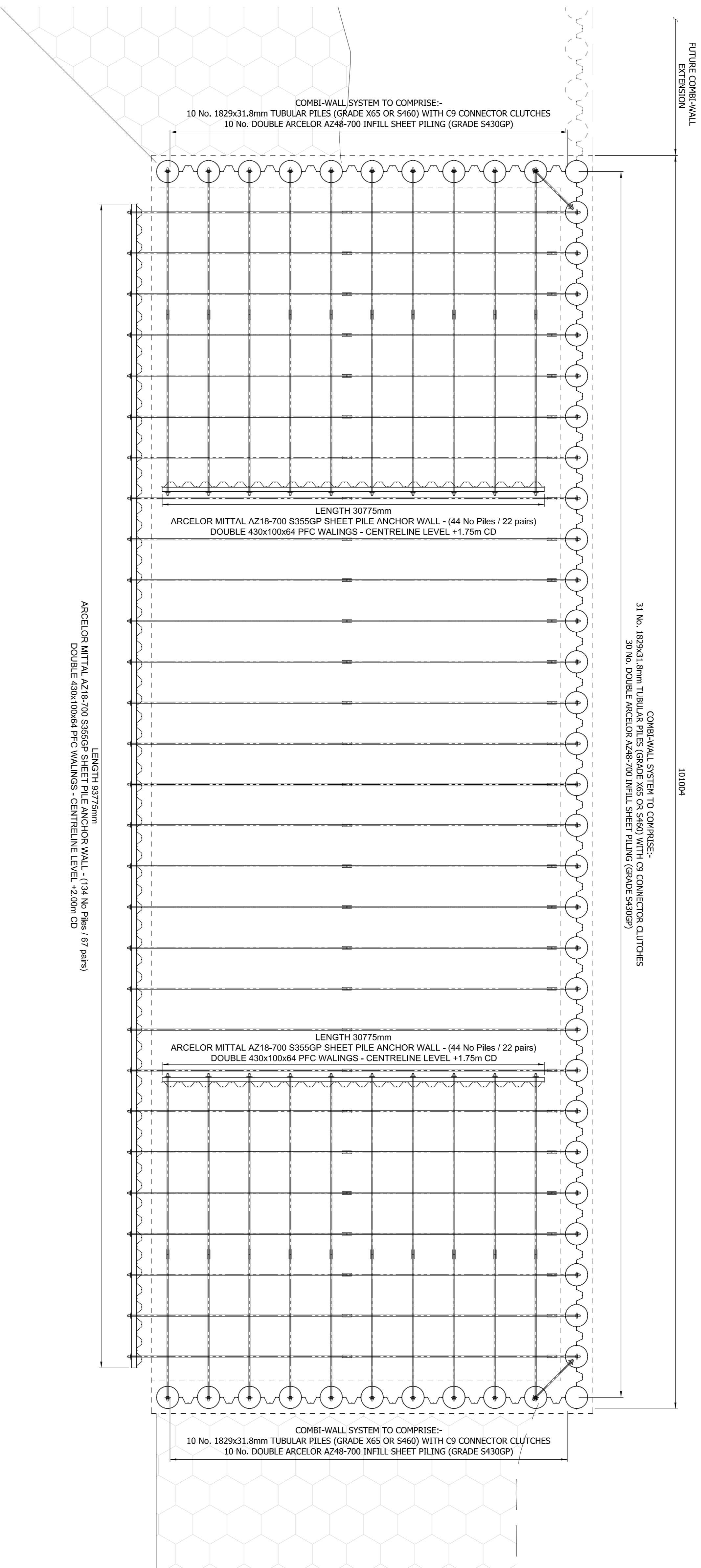
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PRN	April 2024	APS	APS
SCALE : (A1)	DRAWING STATUS :		
1:1,250	Preliminary		

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NOTES

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1 9 1 9
Stewart Building, Lerwick, Shetland, ZE1 0LL
Tel: 01595 695512 • Fax: 01595 694401
www.archhenderson.co.uk • email: lerwick@archhenderson.co.uk

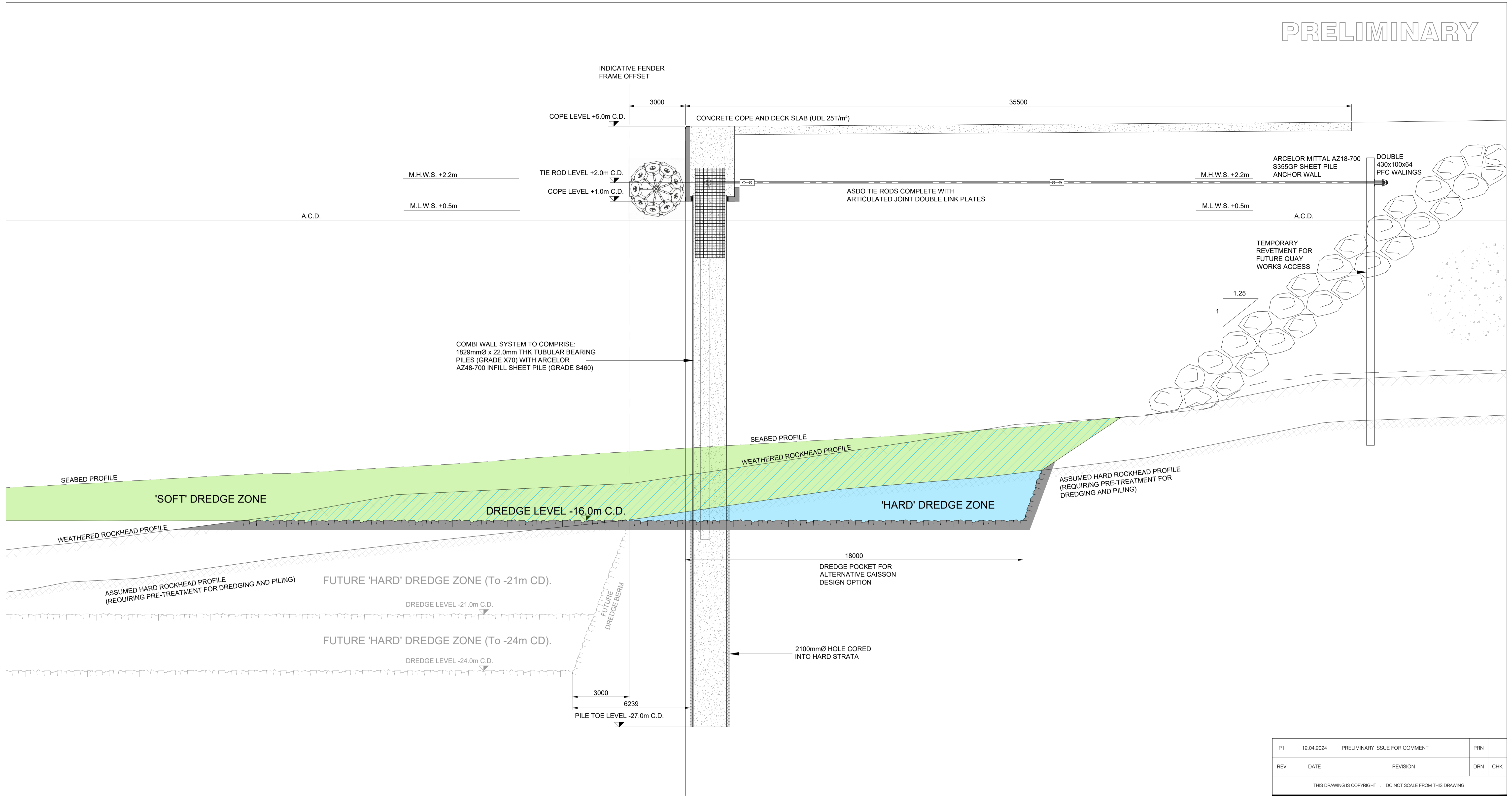
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PROJECT :
**Lerwick Port Authority
Ultra Deep Water Port, Dales Voe, Lerwick**

TITLE :
Piling Layout

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PRN	Feb 2021		
SCALE: (A1)	1:200	DRAWING STATUS: Preliminary	
DRAWING NO:	202071-P-04	REV:	-



QUAY WALL - TYPICAL CROSS SECTION
SCALE 1:100

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Architects
CDM Co-ordinators
Geotechnical services
Environmental services

Stewart Building, Lerwick, Shetland, ZE1 0LL.
Tel : 01595 695512 - Fax : 01595 694401.
www.arch-henderson.co.uk - email : lerwick@arch-henderson.co.uk

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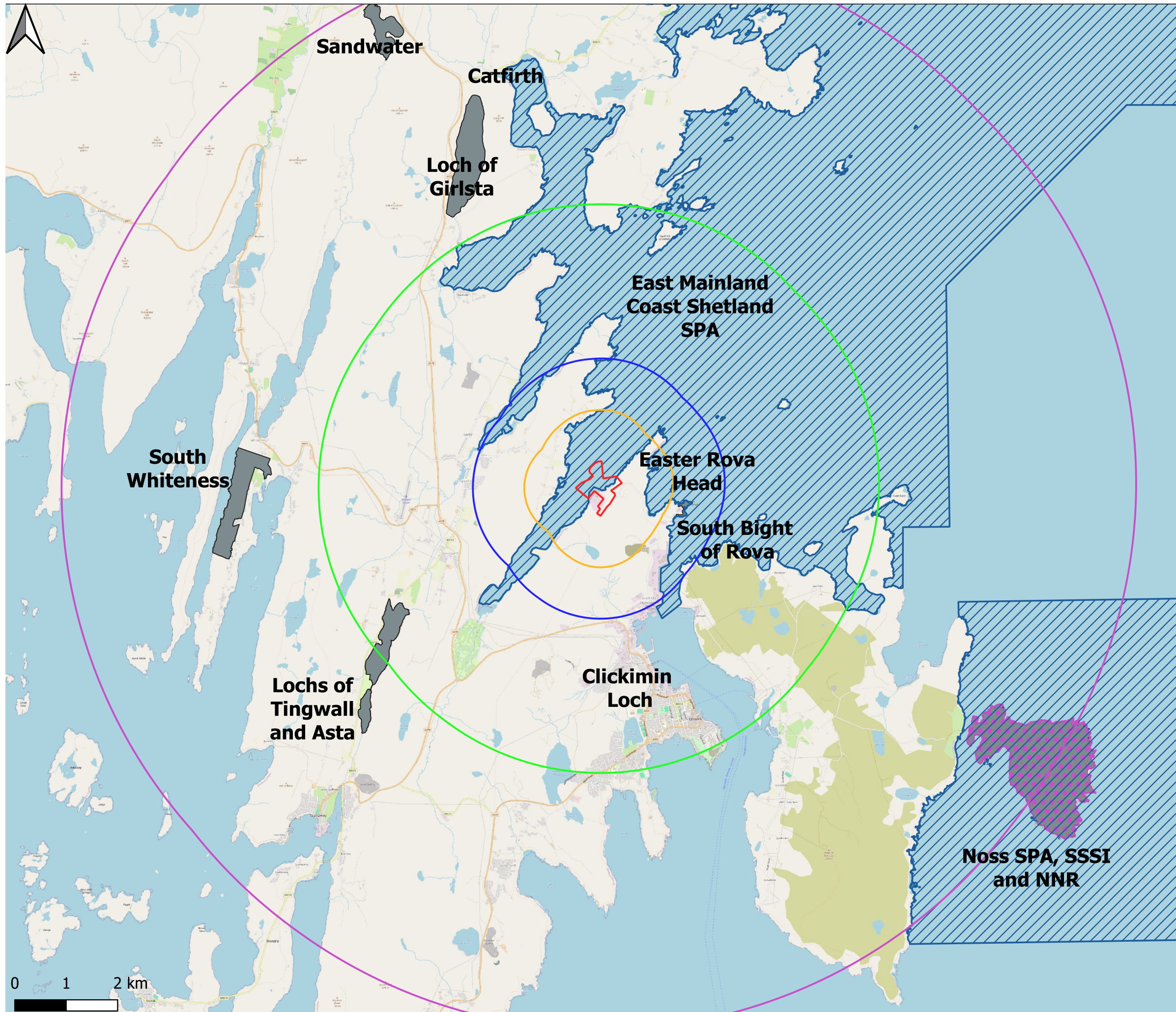
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SCALE : (A1) 1:100	DRAWING STATUS : PRELIMINARY
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C BIODIVERSITY MAP



Legend

- Project Boundary
- 1 km buffer
- 2 km buffer
- 5 km buffer
- 10 km buffer
- Special Protection Areas
- National Nature Reserves
- Sites of Special Scientific Interest

Do not scale this map

Client
Lerwick Port Authority (LPA)

Project
Dales Voe Ultra-Deep-Water Quay

Title
Biodiversity Map

Status
Final

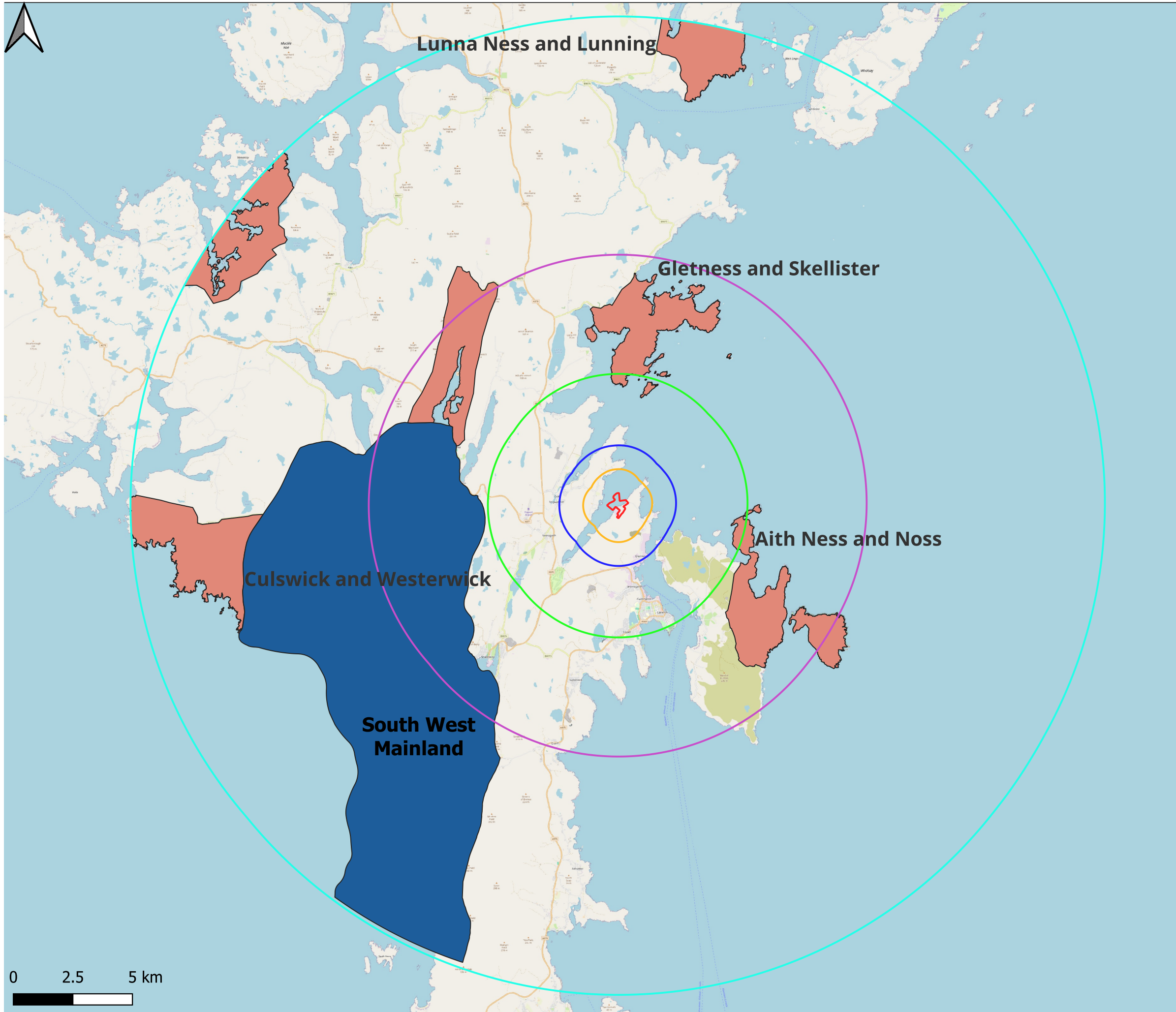
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T: 0141 341 5040 E: info@envirocentre.co.uk
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D SLVIA MAP



Legend

- Project Boundary
- 1 km buffer
- 2 km buffer
- 5 km buffer
- 10 km buffer
- 20 km buffer
- National Scenic Areas
- Local Landscape Areas

Do not scale this map

Client
Lerwick Port Authority (LPA)

Project
Dales Voe Ultra-Deep-Water Quay

Title
SLVIA Map

Status
Final

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