

DEEP WATER PORT STORNOWAY



ENVIRONMENTAL IMPACT ASSESSMENT REPORT:

NON-TECHNICAL SUMMARY

NOVEMBER 2018





DEEP WATER PORT, STORNOWAY

Environmental Impact Assessment Report: Non-Technical Summary

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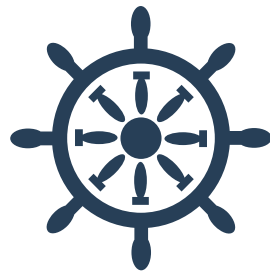
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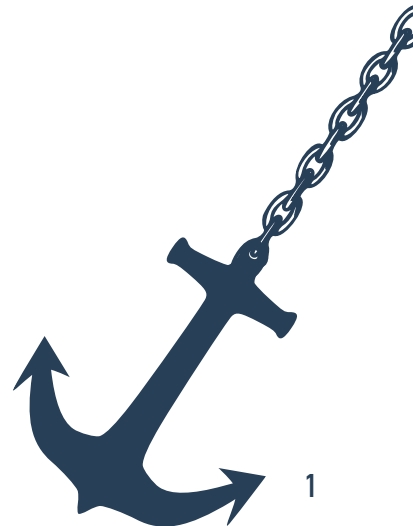
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1. INTRODUCTION



BACKGROUND

1.1

Stornoway Port Authority (SPA) proposes to develop a new Deep Water Port facility on the west shore of Glumaig Bay, within Stornoway Harbour. This will provide a facility to attract more cruise ship visits, including large vessels, as well as expanding the capacity of the existing port facilities for other uses such as freight, oil and gas decommissioning and renewable energy. The proposed development forms part of the Port Masterplan published in 2017.

The development will be carried out in up to four phases. SPA wishes to proceed with Phase 1 at this stage. Later phases will be developed according to demand. A phasing plan is shown in Figure 3 of the appendix to this document.



CONSENTING PROCESS

1.2

This development is covered by three consenting regimes: a Harbour Revision Order (issued by the Scottish Government) for the port-related uses, Marine Scotland for marine-based work and Comhairle nan Eilean Siar (CnES) for land-based work not covered by the Harbour Revision Order. The Harbour Revision Order will cover all phases of the development. The applications to Marine Scotland and CnES will be for Phase 1 only; later phases will be the subject of future applications.

The regulations for these consents required SPA to carry out an Environmental Impact Assessment (EIA). The purpose of this Non-Technical Summary (NTS) is to provide a summary of the findings of the EIA. The purpose of EIA is to determine whether the Deep Water Port development will have significant effects on the environment. Where significant effects are predicted, the EIA considers the scale and magnitude of these effects and measures to mitigate them. This NTS sets out the scope of the EIA, the methods used and the findings of the assessment.

Where environmental assessment has predicted potential negative effects on the environment, measures to address and control effects (known as mitigation measures) have been identified. The assessment then presents the overall effects remaining after mitigation has been applied; these are referred to as the residual effects.

The focus of the EIA is Phase 1 of the development. However, the EIA considers in outline the environmental impacts of Phases 2, 3 and 4. Full details of the EIA are set out within the EIA Report.

The EIA Report will be submitted to CnES, Marine Scotland and Transport Scotland for consideration as part of the respective applications for consents. Members of the public may make representations to these organisations during the formal consultation process for each consent. Details of how and when representations can be made will be publicised in The Stornoway Gazette and, in the case of the HRO, The Edinburgh Gazette. The period for representations for each consenting regime will depend on the date of the respective application to each consenting body.

THE SITE

1.3

The site of the proposed development is located approximately 1.1 km south of Stornoway Town Centre, in the sheltered inlet of Glumaig Bay. The site is bound by land to the west, south and east and has views north towards Stornoway Town and Harbour. The western shoreline comprises undeveloped rocky and boggy moorland whilst Arnish Point Industrial Estate and the associated load out quay occupy the south-eastern

shoreline, giving the area an industrial character. Road access is via the Arnish Road, which connects to the A859. There is no active land use associated with the landward slopes which form the western side of the site and the heathland behind them.



Above: Existing Arnish facility with proposed site to the right of the shot.



STRUCTURE OF THIS NON-TECHNICAL SUMMARY

1.4



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

1. INTRODUCTION
2. PROPOSED DEVELOPMENT
3. EIA METHODOLOGY & SCOPING
4. LANDSCAPE & VISUAL
5. ECOLOGY
6. CULTURAL HERITAGE & ARCHAEOLOGY
7. NOISE
8. WATER ENVIRONMENT
9. TRAFFIC & TRANSPORT
10. OTHER ISSUES
11. CONCLUSIONS

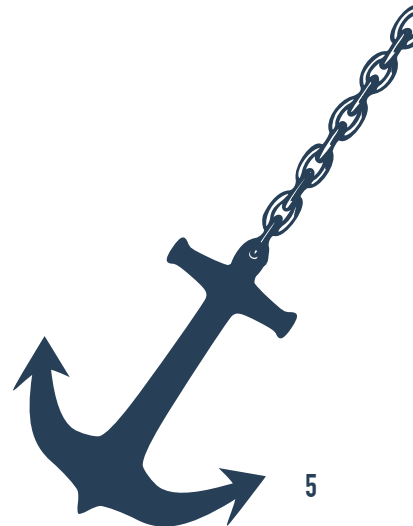
The overall suite of documents associated with the EIA includes the following:

- The Environmental Impact Assessment Report (EIAR) – which reports upon the potentially significant environmental effects of the proposed development on the receiving environment, and comprises of the following:
 - o Volume 1: Written Statement – this includes the written assessment and contains discussion of potentially significant environmental effects
 - o Volume 2: Figures – this volume includes figures, drawings and diagrams which support Volume 1
 - o Volume 3: Technical Appendices – this volume contains the technical background reports written and used to derive the environmental assessment
- Pre-Application Consultation (PAC) Report – this provides information on the community engagement which has been undertaken prior to this submission with regards to proposed development, and details public engagement initiatives and attitudes towards the proposed development
- Non-Technical Summary (NTS) – this document
- Licence Applications submitted to Marine Scotland include:
 - o European Protected Species
 - o Marine Construction
 - o Marine Dredge and Disposal





2. THE PROPOSED DEVELOPMENT



NEED FOR THE

2.1

PROPOSED DEVELOPMENT



The Deep Water Port is required to provide facilities for larger ships that cannot currently berth alongside the existing piers. Stornoway welcomed 43 cruise ships in 2017 but attracts few larger vessels, as those over 156m in length are unable to use current facilities and passengers have to be brought ashore by tender. To maintain and grow the cruise market, the harbour requires a facility to accommodate vessels of up to 350m long. It is anticipated that the development will attract an additional 35–40 vessels per year. This will result in a considerable increase in passenger numbers due to the ability to attract larger cruise ships and thereby create further business opportunities on the island.

The proposed development will also provide a freight ferry berth, adding resilience to the current ferry service. It will also accommodate larger cargo ships and

provide additional space for unloading and storage, thus reducing transport costs and supporting further growth.

The third aim of the proposed development is to support the development of the renewable energy, offshore oil and gas sector, as well as decommissioning activities.

The facility has been designed with future expansion in mind. Phase 1 is the primary subject of this EIA. Future phases 2, 3 and 4 will be developed in response to demand and will be considered fully prior to implementation. Construction of phase 1 is anticipated to begin in 2019 and to be completed by 2021, with an estimated 18-month construction period.

THE PROPOSED DEVELOPMENT

2.2

At this stage the proposed Deep Water Port development will comprise the following:

- Dredging of approximately 400,000 m³ of sea bed in Glumaig Bay to a depth of 10.5m below Chart Datum (CD) alongside the berth and 9.5m in the remaining area of dredge¹

- Re-using dredged material to create reclaimed land along the western shore of Glumaig Bay; the shortfall in dredged material will be made up by blasting and excavation of approximately 600,000m³ of rock within the site
- Rock armouring along reclamation edges other than the quay wall (approximately 30,000m³)
- 250m long quay wall
- 180m long multifunctional, double-sided finger pier
- 10 hectare reclaimed and levelled area for port activities, industrial and storage uses

¹ The difference in dredge depths is to allow operational flexibility of the berth.

THE PROPOSED DEVELOPMENT

2.2



- Cutting/filling, extraction and reshaping of the land including excavation of peat
- Heavy lift area
- Freight ferry facility with a linkspan providing a roll-on, roll-off (ro-ro) berth
- Access road to existing Arnish Road
- Link road along the coast to existing Arnish Industrial Estate
- Utility and services infrastructure (drainage, water, electricity, ICT, fuel)



Above: The Deep Water Port with an indicative cruise ship, as seen from the existing ferry terminal.

These images give an illustration of Phase 1 of the Deep Water Port at Phase 1, as seen from the existing ferry terminal.

A plan of the proposed layout is included as Figure 3 in the appendix. The layout of future phases 2, 3 and 4 is shown in Figure 3.



Left: Aerial visualisation of development.

CONSTRUCTION

2.3

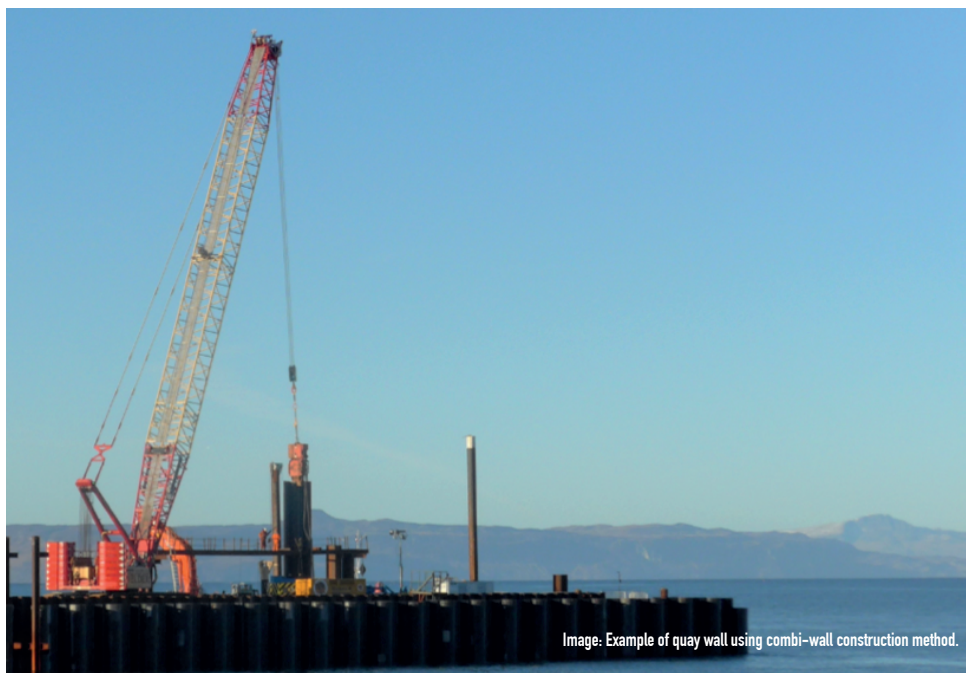
TECHNIQUES

DREDGING

The preferred method of constructing the reclamation is to make as much re-use as possible of site-won materials i.e. excavated rock and dredge up-risings. This will minimise the amount of surplus material to be deposited at sea.

The total dredged volume is approximately 400,000m³ taken from an area of seabed 200,000m² in area. The dredge area is detailed within Figure 1 of the appendix. It is expected that 90% of this sandy-gravel material can be re-used in the reclamation. The remaining dredge arisings are expected to contain silty material, which is unsuitable for use in the reclaimed area. This will be deposited at the Marine Scotland-approved sea disposal site at the approach to Stornoway Harbour.

A cutter-suction dredger will pump the sea-bed uprisings along a floating pipe network to the reclamation site ashore. If the material is not suitable for piping, a backhoe dredger and barge will be used to excavate and bring material ashore.



PEAT

The rocky and boggy moorland to the west of Glumaig Bay has a covering of peat. This peat will be removed from the area to be levelled and re-used elsewhere on the site. A detailed assessment will determine the exact quantities and uses. A Peat Management Plan will be developed and agreed with SEPA and CnES before construction begins. Potential re-uses of peat include placement in excavated areas along the perimeter of the development area and rehabilitation of areas of peat degraded by grazing.

EXCAVATION & LEVELLING

To facilitate the construction of the proposed development, an element of rock blasting will be required. Approximately 600,000m³ will be excavated by blasting. Crawler rock drillers will be used to drill blast holes into the rock. Blasted rock will be broken down into suitable sizes for use as rock armour and infill material. It will be transported from the excavation site and placed into position. Infill material will be compacted in layers in the reclamation area.

PILING

The main 250m long quay wall is expected to comprise a steel wall built of steel tube piles and steel sheets (known as a combi-wall). The tube piles will be driven into the sea bed using a vibrating hammer as far as possible, then an impact hammer will be used to achieve the full depth required. The steel sheets will be driven into the sea bed by a vibrating hammer.

CONSTRUCTION

2.3

TECHNIQUES

ACCESS ROAD



This proposed road connects the site with the existing Arnish Road. The new road will cross the Allt Poll A' Choire stream. A structure known as a 'bottomless culvert'² will be used to allow the stream to flow under the road. The access road construction will include the installation of drainage paths with suitable cross drains where necessary to prevent the obstruction of surface water.

LINK ROAD TO ARNISH POINT INDUSTRIAL ESTATE



A link road to the Arnish Fabrication Yard from south of the proposed development is proposed. This will be 25m wide and will provide a level route for moving heavy loads such as large renewables components. Two options have been identified for this link road: by building out a section of reclaimed land or by levelling a stretch of the existing rock. The selected option will be determined through the design process. The options are shown in Figure 2 of the appendix.

CONSTRUCTION PERIOD



It is estimated that Phase 1 of the Deep Water Port will take up to 18 months to construct. Working times vary, with dredging occurring 24 hours a day, and other activities typically Monday to Friday from 07.00 to 20.00 and 08.00 – 13.00 on Saturdays although this will vary depending upon activity. The construction period for later phases is not known at this stage and will be determined as part of the future detailed assessment of those phases.

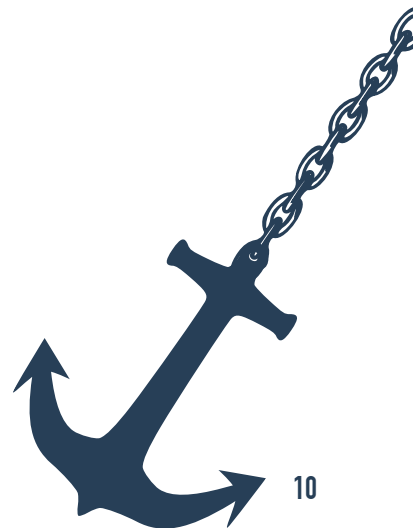


Above: Example of slope faces to be blasted.

² Effectively a bridge.



3. EIA METHODOLOGY & SCOPING



GENERAL EIA METHODOLOGY

3.1

The purpose of an EIA is to identify and evaluate the likely significant effects of a proposed development on the environment, and then identify measures to mitigate or manage any significant adverse effects before a planning application is determined. The EIA process provides an opportunity to 'design out' adverse effects wherever possible by making alterations to the design of the proposed development before the application is submitted, and based upon feedback from consultees. Where adverse effects cannot be designed out, mitigation measures can be proposed to avoid, compensate, or reduce significant environmental effects to an acceptable level.

The environmental information gathered during the EIA is derived through a systematic process of identification, prediction and evaluation of the likely significant environmental effects of the proposed development. This process includes identifying the sensitivity of the baseline conditions/receptors; predicting the magnitude of potential impacts; predicting the significant effect of the impacts; detailing mitigation measures; predicting the potential residual effects as well as the potential cumulative impacts. The results and findings are presented in full within the ES and summarised in this document.

SCOPING AS PART OF THE EIA PROCESS

3.2

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

Scoping Requests were submitted to CnES in September 2017 and Marine Scotland and Transport Scotland in December 2017. Scoping Opinions were received from CnES in November 2017 and from Marine Scotland and Transport Scotland in March 2018.



CONSULTATION

3.3

Consultation responses were obtained from the following organisations in respect of the Scoping Reports issued to CnES and Marine Scotland:



- CNES
- TRANSPORT SCOTLAND
- MARINE SCOTLAND LICENSING
- MARINE SCOTLAND SCIENCE
- SEPA
- SNH
- HISTORIC ENVIRONMENT SCOTLAND
- SCOTTISH WATER
- MARITIME COASTGUARD AGENCY
- THE NORTHERN LIGHTHOUSE BOARD
- THE ROYAL YACHTING ASSOCIATION
- OUTER HEBRIDES FISHERIES TRUST



HISTORIC
ENVIRONMENT
SCOTLAND

ÀRAINNEACHD
EACHDRAIDHEIL
ALBA



marinescotland
science



SCOTTISH
NATURAL
HERITAGE



COMHAIRLE NAN EILEAN SIAR

SCOPE OF THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

3.4



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

- Landscape and Visual
- Ecology
- Cultural Heritage and Archaeology
- Noise
- Water Environment
- Traffic and Transport
- Other Issues including socio-economic impact and population and human health

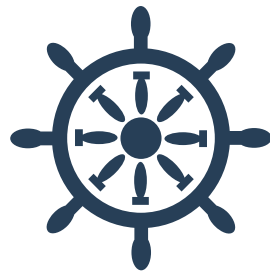
The consenting bodies agreed that the following topics did not need to be included within the EIA:

- Birds
- Air quality

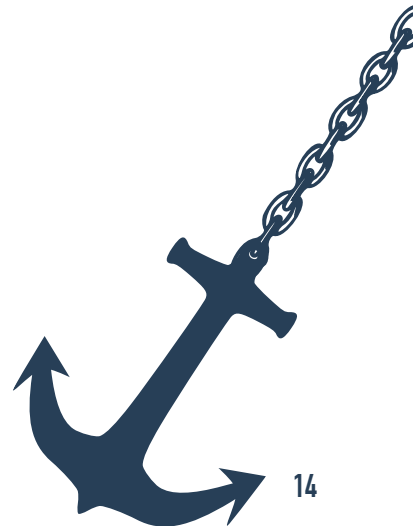
The following will be covered as part of the Construction Management Plan (CEMP), which will be developed by the appointed contractor before the start of the works:

- Control of emissions from plant
- Dust control
- Pollution





4. LANDSCAPE & VISUAL



INTRODUCTION 4.1

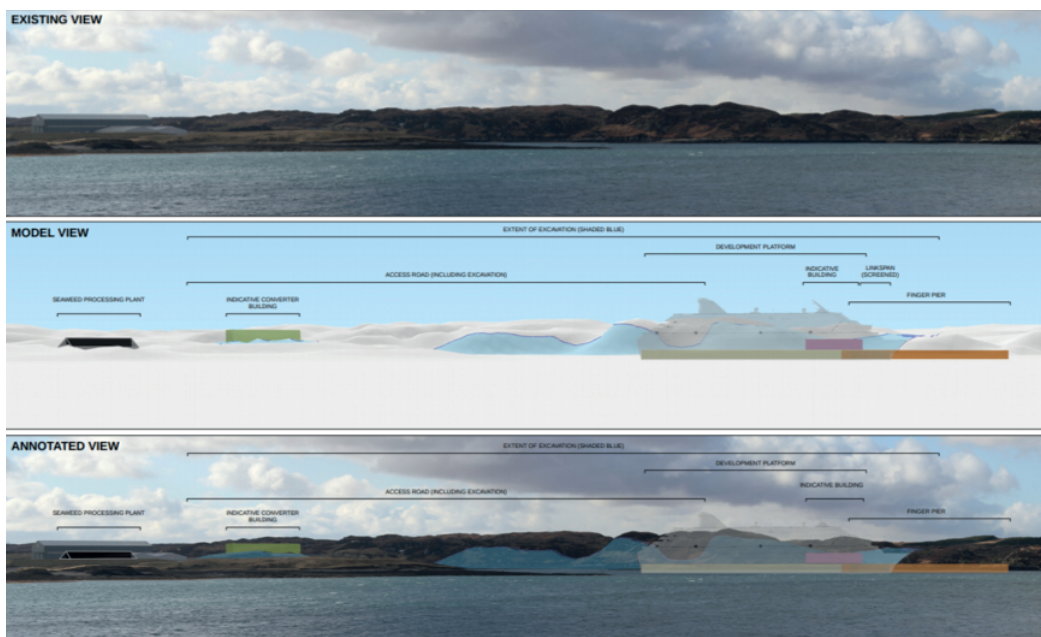
The Landscape and Visual Impact Assessment (LVIA) considered the effect of the proposed development on the landscape and visual character of the area, its coastal character and local recreational routes. The assessment follows the approach set out in the Guidelines for Landscape and Visual Impact Assessment (GLVIA) and other best practice guidance. It was carried out by a Chartered Member of the Landscape Institute.

The assessment identifies the baseline against which the effects of the proposed development are evaluated, then considers the predicted effects during the construction and operational phases. The assessment comprised a desk study, computer analysis, field work and interpretation using professional judgement. Site visits were undertaken in February and April 2018 to gain a clear understanding of the landscape.

The assessment was based upon a study area of 5km from the proposed development. This is known as the Zone of Theoretical Visibility (ZTV) and is illustrated in the plan on the following page.

The effect of Phase 1 of the proposed development on key sensitive views was assessed partly using a viewpoint analysis. The viewpoints to be considered were discussed and agreed with SNH and CnES. The locations include areas that are accessible by the public and have a high number of visitors.

The selected viewpoints are shown on the plan and comprise: Cuddy Point (1), South Beach (2), Newton Street (3), Stornoway Harbour (4), Lower Sandwick (5), Newmarket (6), Lews Castle (7), the Ferry Terminal (8), Lewis War Memorial (9), the car park at Iolaire Monument (10) and Sandwick Bay (11). The location of the viewpoints is shown in the plan on the next page.

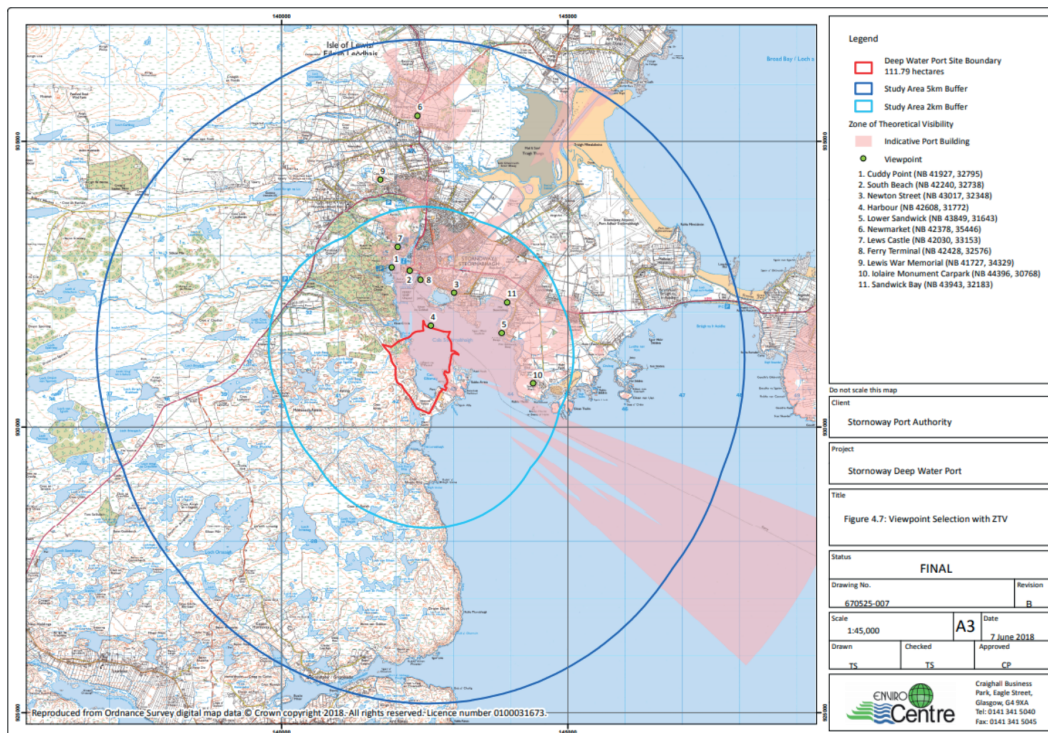


Above: Indicative visualisation looking across the harbour towards the site of the Deep Water Port Phase 1, with associated extent of rock cutting and indicative cruise ship dimensions shown.

INTRODUCTION 4.1

Viewpoints were assessed in terms of their magnitude of effects upon the landscape/coastal sensitivity for all phases. The assessment is based upon a worst-case scenario, as viewpoints were selected to represent the most open views towards the proposed development.

Detailed proposals for the industrial and storage buildings not associated directly with port activities have not yet been developed. The planning application is seeking Planning Permission in Principle for these uses. Therefore, to evaluate the landscape and visual impact of buildings on the site, an indicative building was used for assessment purposes. This was 15m high, 80m wide (east-west) and 60m deep (north-south).



Above: ZTV with viewpoint selection.



IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECTS

4.2



The area benefits from a high landscape quality. In particular, the wooded grounds of Lews Castle, designated as a nationally important Garden and Designed Landscape, provide a distinctive setting to Stornoway and its harbour. The scenic views across the harbour are an integral part of the visual amenity enjoyed by those living in, working in and visiting the town.

To help ensure that the proposed development integrates positively with its sensitive landscape, a number of design measures have been embedded into the project proposals. Variation in terrain provides some screening of the development. Care has been taken to ensure that the indicative building does not breach the local skyline, and rock extraction has been kept to the minimum required to create the development.

Potential visual impacts of the construction and operation of the Deep Water Port were modelled for construction phase and operational phase. This included future phases. This was done by superimposing a computer model of the development on the existing view from each viewpoint.

Significant visual effects during construction and operation are predicted for the following viewpoints: Cuddy Point, South Beach, Newton Street, from the harbour, Lower Sandwick and Sandwick Bay, Lews Castle, the ferry terminal and the car park of the Iolaire Monument at Holm.

During the operational stage, significant landscape and visual effects are predicted on the following: the Stornoway coastal character area, recreational users and some residents around Sandwick Bay and some residents and visitors on parts of Newton Street and South Beach.

However, these effects were found to be localised in their extent. The operational stage of the port was found to have no landscape and visual effects on the Castle Grounds.

Where significant effects have been identified as part of the Viewpoint Assessment, these are all within 1.8 km from the site.

It is anticipated that the effects of Phases 2, 3 and 4 will be similar to those identified for Phase 1. A detailed assessment will be undertaken when these are taken forward.

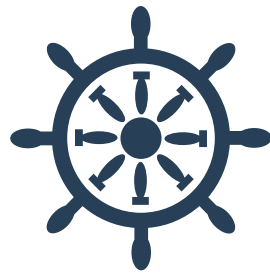
PROPOSED

MITIGATION MEASURES

4.3

The following mitigation measures will be taken into account in the design of the development:

- Design of the rock blasting to minimise the visual impact of exposed rock faces
- Locate industrial and storage buildings to take advantage of screening by the surrounding landforms
- Design buildings to blend in with the backdrop
- Minimise the impact of lighting on areas beyond the port



5. ECOLOGY



INTRODUCTION 5.1

The ecology assessment considered the impact of the Deep Water Port development on marine mammals, fish and otters. It also assessed ecological impacts onshore in relation to the construction works required to facilitate access to the port area. The ecology assessment was carried out by experienced and competent ecologists who are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow its Code of Professional Conduct.

The assessment comprised a review of existing records, field surveys and consultation with bodies such as SNH, the Outer Hebrides Fisheries Trust and Marine Scotland. In addition, computer models were developed to predict underwater noise and the impact of dredging and sediment dispersion upon marine mammals and fish. The detailed assessment focused on Phase 1 of the development.

Protected areas in proximity to the proposed development include the North East Lewis proposed Marine Protected Area (pMPA) which is 1km east of the site and Inner Hebrides and Minches Candidate for Special Area of Conservation (cSAC), 1.3km north-west of the proposed development.

Important species which comprise the focus of the assessment for both construction and operational phases included Risso's Dolphin, Harbour Porpoise, Atlantic Salmon, Sea Trout, European Eel, Short-beaked Common Dolphin, Killer Whale, Minke Whale and Grey/Harbour Seal. The assessment also considered areas of Wet Heath along the western boundary of the proposed development (an important habitat which is included within Annex 1 of the EU Habitats Directive) and a rare Bryophyte Assemblage (i.e. mosses and liverworts).



Above: Risso's dolphin (left) and harbour porpoise (right) are protected species considered in the Ecology assessment.



IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECTS

5.2



The primary receptors identified in the assessment include Wet Heath; Risso's Dolphin, Harbour Porpoise, Atlantic Salmon; Sea Trout, European Eel, Short-beaked Common Dolphin, Killer Whale, Minke Whale and Grey/Harbour Seal. Their designated habitats North-East Lewis proposed MPA (1 km north-west of the proposed development) and Inner Hebrides and Minches candidate for Special Area of Conservation (1.3km west of the proposed development) are also designated Important Ecological Features (IEF). Ecological impacts upon these receptors form the basis of the assessment.

The criteria used for predicting impact upon ecological systems considers magnitude, extent, duration, reversibility, timing and frequency of the potential effect of the proposed development. The assessment identified that underwater noise and acoustic disturbance, vibration and suspended sediment derived from marine construction works were identified as potentially significant in their impact upon the above specified marine mammals, fish and habitat receptors and therefore were assessed.

The assessment found that Phase 1 of the proposed development would not have any significant impacts upon the North East Lewis proposed Marine Protection Area and the Inner Hebrides and the Minches Special Area of Conservation. No significant impacts were found to occur on the wet heath which constitutes the shoreline, given the small amount which would be impacted upon and that integrity of this habitat would be maintained.

Impacts upon Atlantic salmon and sea trout were assessed. It was found that migrating fish would be likely to avoid areas of impact from the dredging operations of the proposed development. Some suspended sediment would be released from the dredging operation, however its impact upon migratory salmon would be negligible. The impact on migratory salmon from underwater noise from piling was also assessed. The underwater noise modelling carried out demonstrated that the 'risk zone' would be too small to reach typical migratory salmon paths.

European Protected Species found in the area (Harbour Porpoise and Risso's Dolphin) were also assessed. With the adoption of the marine mammal protection plan explained in the following section, impacts would not be significant.

The assessment found that the ecology impacts of future phases would be likely to be similar to those for Phase 1.



MARINE MAMMAL PROTECTION PLAN

A Marine Mammal Protection Plan has been prepared in consultation with SNH and in-keeping with Joint Nature Conservation Committee guidance.

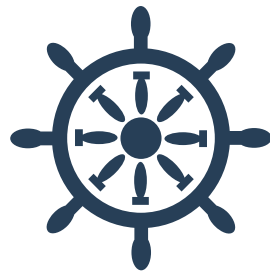
The Port Authority will employ a trained Marine Mammal Observer (MMO) as part of their team for the project. The MMO will be present during impact piling. The MMO will check for the presence of marine mammals within a designated area around the works for a minimum of 30 minutes before work starts. Piling would not start if there are marine mammals within the area or within 20 minutes of them leaving. When piling starts, the power to the pile hammer will start at a low level and ramp up gradually over a set period to allow any marine mammals still in the area to move away.

Use of acoustic deterrent devices (ADDs) have been agreed in principle with SNH for use when impact piling occurs during hours of low visibility, night time, or when the water is at Sea State 3 or above³. This involves use of an artificial noise source to be used only when an MMO cannot accurately spot marine mammals in the piling area and would be activated before piling. As harbour porpoise is the slowest species of concern, the ADD would be used for twice as long as it would take for a harbour porpoise to leave the zone of potential harm – approximately 14 minutes. Only then would piling commence.

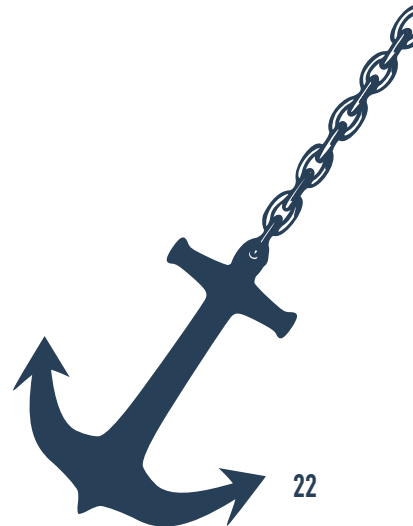
No evidence of otters was found on the site or in its vicinity. However, checks for the presence of otters will be made during construction. If signs of otters are found, measures will be taken to avoid them being disturbed.



³ This equates to wave heights of above 0.5m.



6. CULTURAL HERITAGE & ARCHAEOLOGY



INTRODUCTION

6.1

Cultural Heritage Assessment aims to identify and mitigate any effects of the proposed development on the historic and cultural environment of the study area. Heritage assets accounted for within the assessment are Scheduled Monuments, Listed Buildings, World Heritage Sites, Conservation Areas, Inventory Gardens and Designed Landscapes, Historic Battlefields and Historic Marine Protected Areas.

The Cultural Heritage Assessment was carried by a Licensed Archaeologist who is a member of the Member of the Chartered Institute for Archaeologists out in accordance with standards and guidance published by the Chartered Institute for Archaeologists. The assessment looked at the Deep Water Port site and an area of 1km beyond, which incorporates Phases 1 – 4.

The assessment involved:

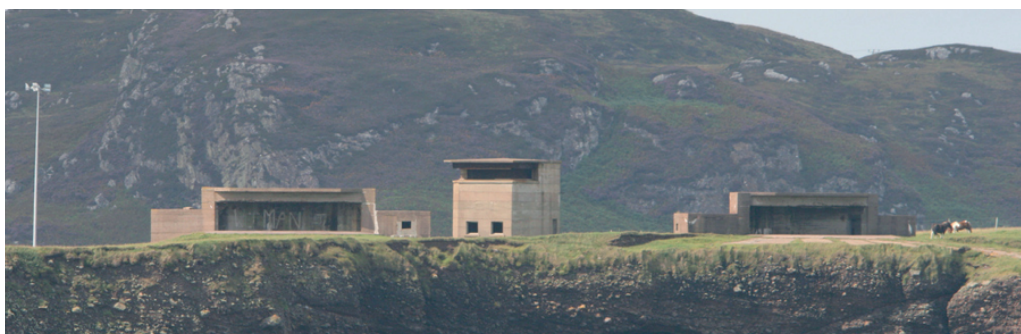
- Review of historical maps and records
- Review of the marine surveys by a marine archaeologist
- Site visits
- Computer modelling to show the Zone of Theoretical Visibility (the locations within 5km of the site from which the development would be visible)
- Assessment of the visual impact of the development on heritage assets in the area



Recent Photo: Stornoway from Castle Roof.



Historic Photo: Stornoway from Castle Roof.



Above: Arnish Point Gun Emplacements and Battery.

IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECTS

6.2



A range of medium and high importance heritage assets are located within the study area (see Figure 4 of the Appendix), including Arnish Point gun emplacements; Loch Arnish Dun and Cnoc na Croich cairn. A further 32 Listed Buildings, Stornoway Conservation Area, and the Lews Castle Inventory Garden and Designed Landscape (IGDL) were considered.

The assessment concluded that it would be possible to appreciate and understand the cultural significance of Lews Castle and its grounds, and historic existing views would not be obstructed by the proposed development. Other cultural heritage assets within the study area will not be subject to significant effects.

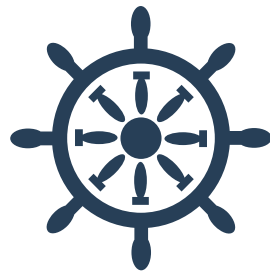


Above: Lews Castle and Lady Lever Park Inventory Garden and Designed Landscape (IGDL).

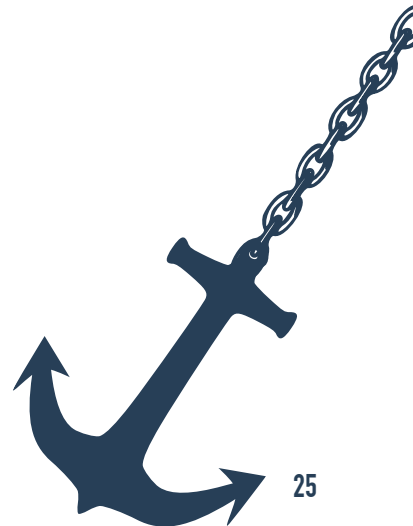
PROPOSED MITIGATION MEASURES

6.3

As the assessment predicted no significant effects on cultural heritage, no mitigation was deemed to be required.



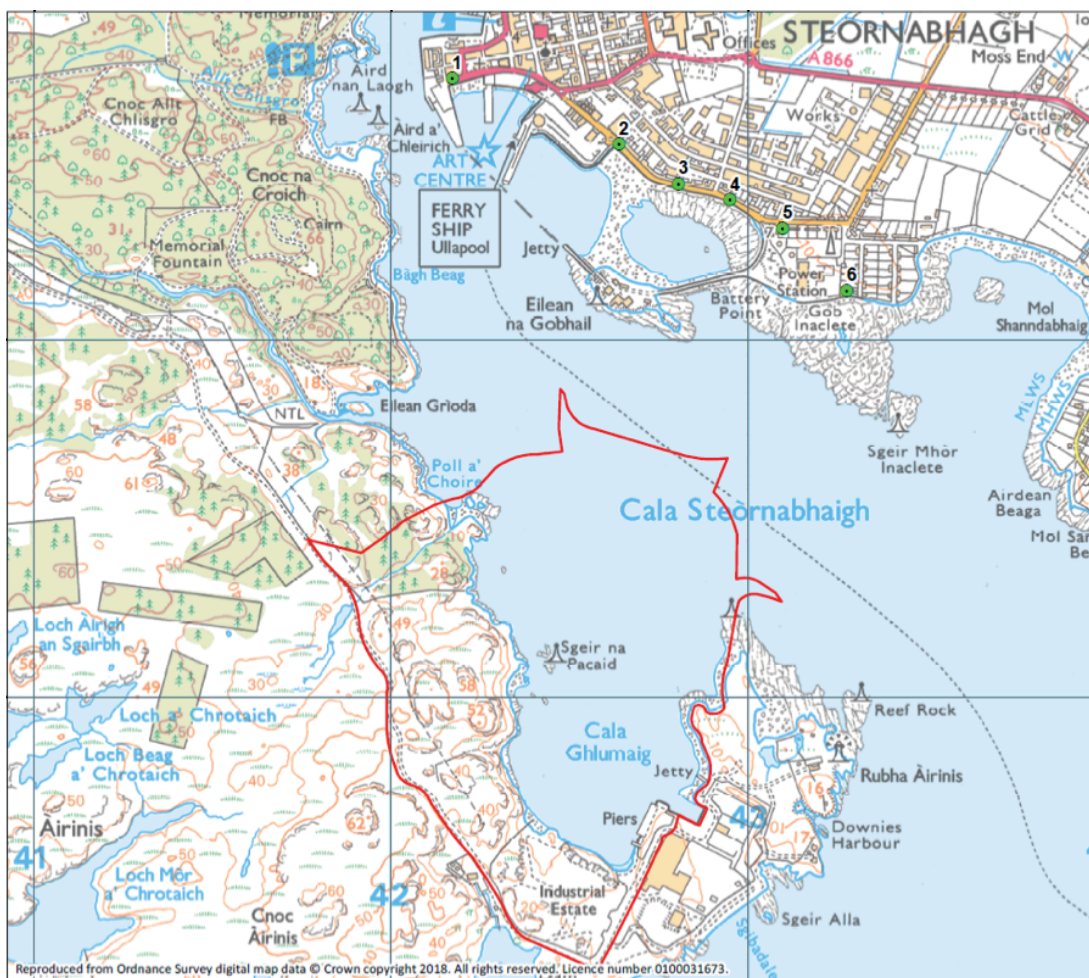
7. NOISE



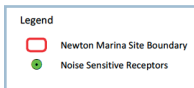
INTRODUCTION 7.1

The Noise Assessment involved measurement of existing noise levels and computer modelling of the impact of noise during the construction and operational phases of the project. Phase 1 of the project was assessed in detail whilst further phases would be assessed when they are taken forward. The assessment was carried out by a member of the Institute of Acoustics. The methodology used takes account of Scottish Government guidance on noise impact assessment and relevant British Standards.

Noise measurements were taken at selected locations to establish the existing (baseline) noise level. These locations (called Noise Sensitive Receptors within the EIA Report) were selected in consultation with CnES's Environmental Health Service. Noise sensitive receptors were located at the following representative residential location: South Beach (1 and 2), Newton Street (2 and 3), Seaview Terrace (5) and Builnacraig Street (6). Their location is shown on the plan within the Appendix of this NTS.



Reproduced from Ordnance Survey digital map data © Crown copyright 2018. All rights reserved. Licence number 0100031673.



Above: Potential noise from the proposed development was assessed at noise sensitive receptors illustrated above.

In addition, the following locations were selected as being representative of locations exposed to noise from operational traffic associated with the development: Macauley Farm (approx. 2.6km north-west), Marybank west (approx. 2.5km north-west along the A859) and Perceval Road South (approx. 2.9 km north) of the proposed development.

Construction noise modelling took account of noise from the following construction activities: movement of excavated rock and its placement as infill to the reclaimed area, dredging, piling, placement of linkspan support foundations, placement of rock armour and construction vehicle movements.

IMPACT ASSESSMENT

7.2

Impact assessment was undertaken for both construction and operational noise during daytime, evening and night time. Construction works will generally be carried out during the day or in the early evening. There are some instances where work will require to be carried out 24 hours a day, such as dredging. However, dredging would be limited to three months within an anticipated 18-month construction period.

Construction noise was calculated by considering all of the activities predicted to take place within each month of the works. Where different plant is used (e.g. piling compared to dredging), a different assessment was carried out. Various scenarios of concurrent construction activity were then modelled. These are reported in full within Chapter 7 of the EIA Report, along with the detailed methodology.

Three scenarios were considered in relation to operational noise from the port: cargo loading/unloading, decommissioning activities and a combination of both.

The modelling was carried out to predict noise levels at the selected representative locations. The predicted noise levels are at the external face of the building. The modelling also took account of noise generated by construction of the proposed Newton Marina, which is planned to overlap with works at the Deep Water Port.

A threshold noise level was calculated for each location for daytime, evening and night-time noise, taking account of the baseline noise. This is deemed to be the acceptable noise level. The predicted level was then compared with the threshold level. The significance of the effect is determined by the difference between the threshold level and the predicted level. An exceedance of the threshold level of up to 3 decibels is classed as an effect of 'slight' significance and is just perceptible, whilst an increase of between 3 and 5 decibels is considered a moderate effect.

During the construction period, there are no predicted increases in noise at receptors 1 to 5. There are predicted increases in noise at receptor 6 (Builnacraig Street), which are shown in the table below.

Construction activity	Estimated duration	Timing	Receptor no. and location	Threshold level (decibels)	Predicted noise level (decibels)	Significance
Excavation of rock, dredging (if cutter suction is used), infill reclamation area, build linkspan	3 months	24 hour working	6. Builnacraig Street	55 (evening)	57.3 (evening)	Slight
				45 (night)	46.3 (night)	Slight
Excavation of rock, dredging (if backhoe dredging is used), infill reclamation area, build linkspan	3 months	24 hour working	6. Builnacraig Street	55 (evening)	58.4 (evening)	Moderate
				45 (night)	51.9 (night)	Major
Excavation of rock, linkspan, foundations for caissons	4 months	Daytime and evening	6. Builnacraig Street	55 (evening)	55.1 (evening)	Slight

Table 1

IMPACT ASSESSMENT

7.2

The increase in noise from traffic at the selected traffic locations is predicted to be less than 1 Decibel at the locations selected to represent potential increase in noise from operational traffic. This is the case for both day and night-time noise levels.

The predicted increase in noise from the operation of the Deep Water Port is predicted to be less than 1 Decibel at receptor locations 1 to 5. The table below shows the predicted increase in noise at receptor 6 (Builnacraig Street). It should be noted that decommissioning activities would not be carried out at night, so this would have no impact on night-time noise levels.

Operational activity	Receptor no. and location affected	Threshold level (decibels)	Predicted noise level (decibels)	Significance
Cargo loading & unloading	6: Builnacraig Street	50.1 (day)	50.5 (day)	Neutral /Slight
		38.0 (night)	40.8 (night)	Slight
Decommissioning of oil and gas installations	6: Builnacraig Street	50.1 (day)	52.2 (day)	Minor
Cargo loading & unloading and decommissioning of oil and gas installations	6: Builnacraig Street	50.1 (day)	52.5 (day)	Minor

Table 2

The predicted increases from traffic noise at the selected locations were all less than 1 Decibel for both day and night-time traffic. This level of increase is not perceptible by humans.

SIGNIFICANCE OF EFFECTS

7.3

During construction, the only predicted noise effects are at Builnacraig Street. The effects are of Neutral, Moderate or Slight significance, except for night-time backhoe dredging, which is predicted to have a major effect. The anticipated duration of the dredging operation is three months. The level of effect will depend upon the dredging method employed by the appointed contractor. Due to the nature and location of the dredging operation, there are no feasible measures to reduce the noise from this activity.

However, it should be noted that the predicted noise

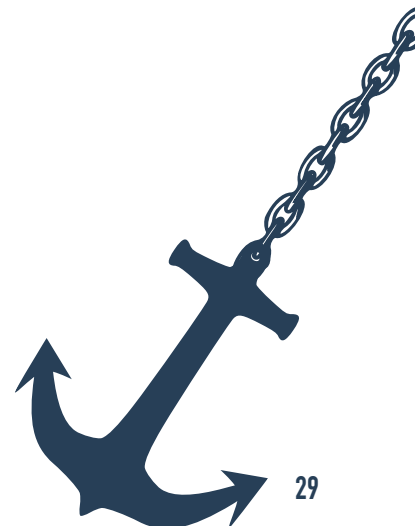
levels are a worst case scenario. Internal noise levels will be lower. The contractor will be required to consider ways to reduce noise as far as possible as part of the development of their Construction Environmental Management Plan.

The predicted increase in noise from port operations is of Neutral or Slight significance at all selected residential locations. The predicted increase in noise from operational traffic is of Slight significance at the selected receptors for traffic noise. In terms of the EIA regulations, this equates to no significant adverse effects.

For phases 2-4 of the proposed development, it is considered that the likely impacts from construction noise would be similar to those described in Phase 1. However, if and when future phase planning applications are submitted, then further construction noise modelling and assessment would be undertaken.



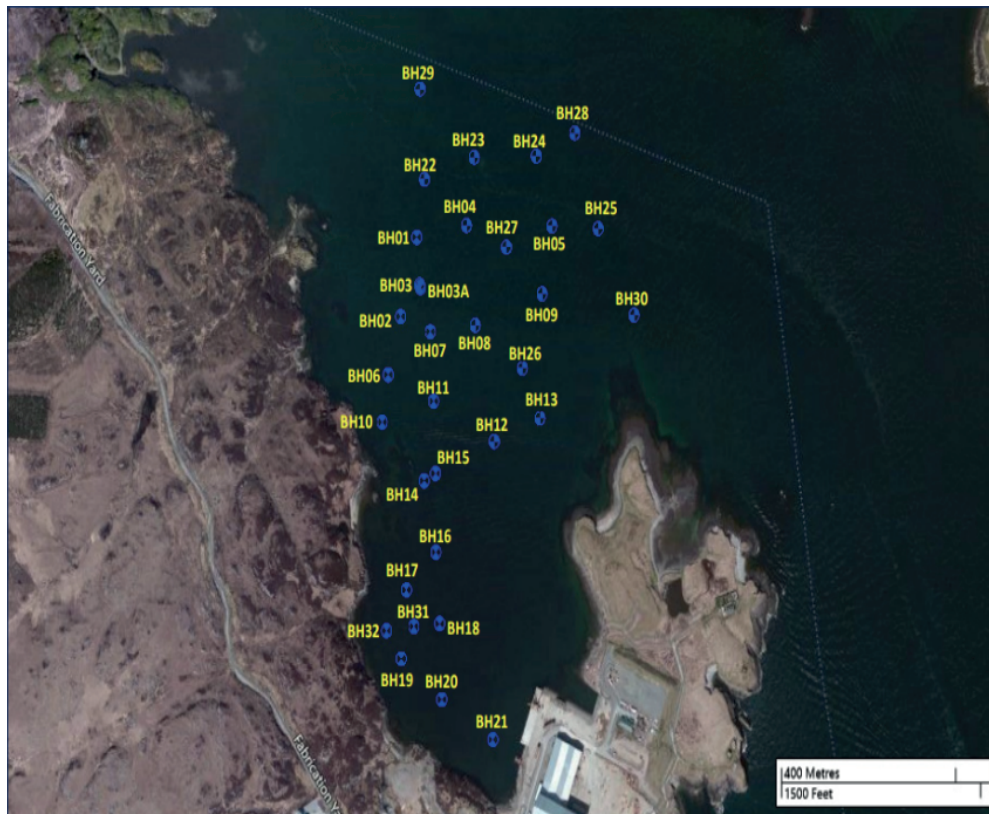
8. WATER ENVIRONMENT & COASTAL PROCESSES



INTRODUCTION 8.1

This section of the EIA Report considered potential impacts of the proposed development upon water quality, sediment transportation, wave action and coastal erosion and movement of soils. The assessment was done by experienced and qualified hydrologists and engineers. The methodology was in accordance with relevant guidance.

The assessment process involved levels surveys of the seabed and adjoining ground. Computer modelling of sediment movement and wave conditions during and after completion of the proposed development was also carried out. In addition, samples of the sea bed were taken at varying locations and were subject to laboratory analysis to determine geological type, particle size and chemical composition. The geological composition of the land to be used for the access road and for any excavation of soils was also recorded and assessed. Estimates of the structure and re-usability of the peat layers present were calculated.



Phase 1 was the key focus of the assessment, whilst information was gathered that may inform future phases.

Above and left: Subsea borehole core samples and locations across Glumaig Bay.

IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECTS

The assessment found that dredging and piling activities are predicted to have a negligible impact upon marine conservation areas, the Rivers Creed and Glen, and on the wave climate and tides. Sediment dispersion as a result of the sub-sea operations was found to be minimal.

Analysis of the seabed samples demonstrated that the dredged material not used for reclamation can be safely disposed of at sea. The Marine Scotland-approved disposal site just beyond Arnish Point will be used for this purpose.

A new crossing is proposed over the Allt Poll a Choire stream as part of the new access road. The potential impacts upon this stream were found to be negligible. The risk of impacts from pollution during construction will be managed through the Construction Environmental Management Plan, to be prepared by the contractor before work commences.

Surface water drainage will be designed to comply with SEPA guidelines.

PROPOSED MITIGATION MEASURES

The risk of pollution during construction and operation of the port will be mitigated by operation of an environmental management plan which complies with SEPA Guidance on Pollution Prevention.

8.2



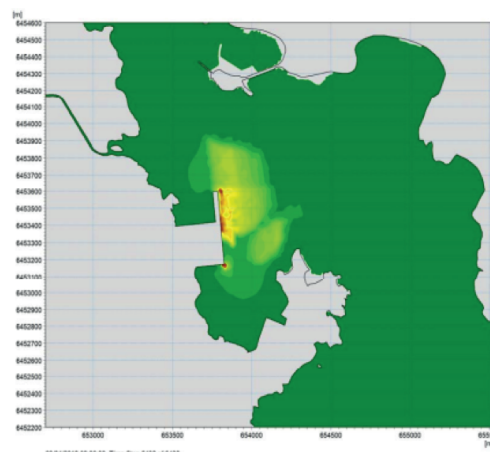
Above: Wave Climate Modelling for Glumaig Bay, Stornoway Harbour and the North Minch.

During the construction phase, alterations to water movement patterns, changes to the tidal regime and changes to sediment transportation were found to be of negligible effect. Changes to the wave climate in respect of the coastal waters and sediment within Glumaig Bay, impacts upon soils, impacts arising from pollution incidences, and localised sediment dispersion were all found to be of minor effect during the construction period. With implementation of surface water management and pollution prevention measures, no construction activities were found to have a significant effect upon the water environment.

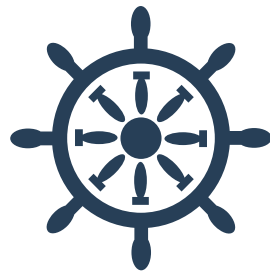
During operation of the proposed development, changes to the wave climate in Glumaig Bay and incidences of localised pollution were found to have a minor effect. All other impacts during operation were considered to be negligible. Operational effects were assessed as being not significant.

For phases 2-4 of the proposed development, it is considered that the likely impacts from construction would be similar to those described in Phase 1. However, if and when future phase planning applications are submitted, then further modelling and assessment would be undertaken.

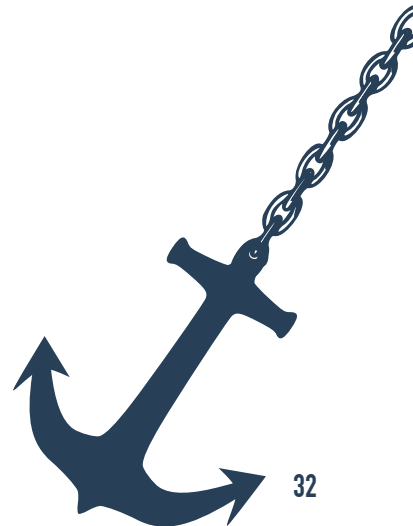
8.3



Left: Sediment transport and deposition modelling for Glumaig Bay, Stornoway.



9. TRAFFIC & TRANSPORT



INTRODUCTION 9.1

The traffic and transport assessment within the EIA Report considered the impact of the proposed development upon the local road network and its users. The assessment included both construction and operational stages of the development. It was carried out by members of the Chartered Institute of Highways and Transportation in accordance with guidance from the Institute of Highways & Transportation and the Institute of Environmental Management and Assessment.

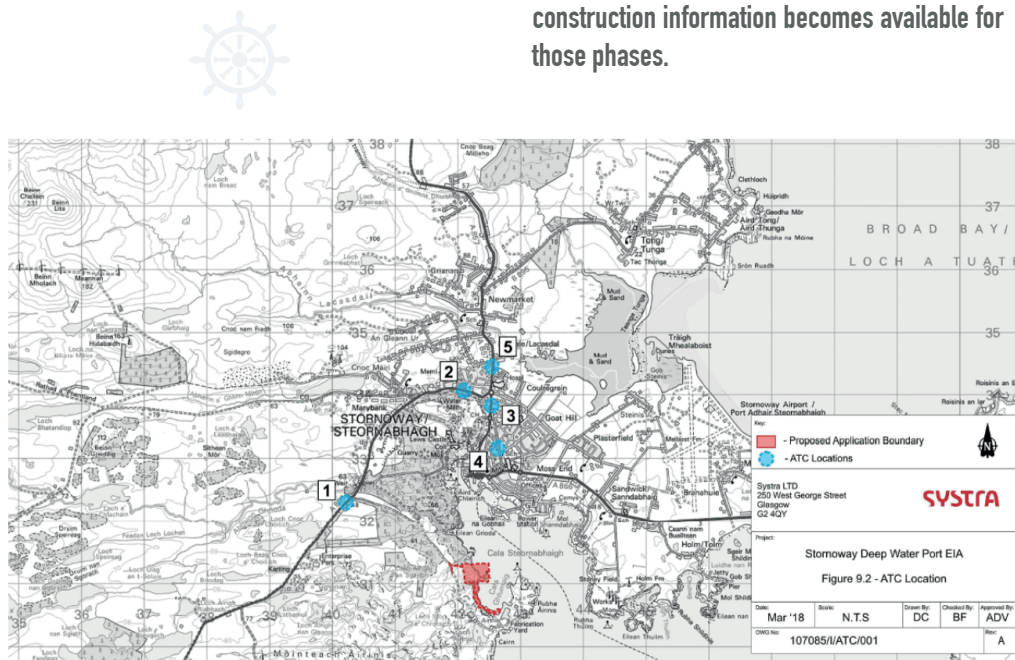
The type of impacts assessed included:

- Accidents and safety
- Driver delay
- Pedestrian delay
- Pedestrian amenity (i.e. the experience of using the road network)
- Severance (i.e. the impact of traffic on dividing a community)
- Dust and dirt

The study area was based on the location of the site access point and took account of the following roads: the Arnish Road, the A859 from the Arnish Road along Willowglen Road up to Manor Roundabout, the A857 between the roundabout with Matheson Road and the junction with the B985, and Matheson Road.

The routes to be assessed were agreed with CnES Roads Department, and traffic counts were taken using automatic counters at the locations shown on the plan below. An estimate was made of the number of vehicle trips generated during the construction stage of the project. A computer model of traffic flows was developed using specialist software. This predicted numbers of vehicles along each of the routes. The assessment took account of additional traffic associated with other anticipated concurrent developments in the vicinity.

Phases 2-4 would be assessed when detailed construction information becomes available for those phases.



Above: Traffic count locations in relation to the proposed development.

IMPACT ASSESSMENT AND SIGNIFICANCE OF EFFECTS

9.2

The guidance for the traffic assessment states that the criteria for a potentially significant effect are: a predicted increase of over 30% in HGVs / coaches, estimated increase in overall traffic of over 30%, or a predicted increase in traffic of over 10% in sensitive area (the town centre and Matheson Road).

When added to data from the traffic counts, the predicted greatest construction impacts are on Matheson Road. However, impacts were assessed as 'slight and that the overall effect upon severance, driver delay, pedestrian delay accidents and safety would be minor, which is not significant in terms of EIA guidance.

In terms of operational effects, a forecast was made of 2021 baseline traffic levels to represent the year of opening. Assessment of operational effects on the road network were carried out, including HGV movements and coach trips associated with cruise passengers. To ensure a robust assessment, the forecast included HGV's associated with the freight ferry terminal at the Deep Water Port. However, in practice there would be a corresponding reduction in the baseline traffic flows, which include HGVs using the existing freight ferry.

Before mitigation is applied, the A859 Willowglen Road, and Matheson Road were predicted to have increases in HGVs /coaches that exceeded the 30% threshold and therefore there is potential for significant effects. It should be noted that coaches transporting cruise ship passengers would only operate on the days when a cruise ship is in port (estimated to be 50 days per year).

Willowglen Road is assessed as experiencing only minor effects. This is due to the predicted increase in traffic being able to be accommodated within low existing traffic flows.

Estimates of peak construction traffic were calculated based on estimates of material quantities supplied by the marine engineers. The peak months for construction traffic are anticipated to be month 11 to month 14, when rock for protecting the sides of the reclaimed area will be transported to site. The overall traffic generation is expected to be as follows:

- 1,800 deliveries over an 18-month period
- 5 deliveries per day on average over the 18-month period
- 15 deliveries per day on average during the busiest months
- 50 deliveries per day as a maximum on the worst-case day during the peak months

In addition to HGV movements, there will be vehicle trips associated with the construction phase for staff movement. It was assumed that there will be a maximum of 40 staff vehicles travelling to the site at any one time.

Materials for construction will as far as possible be sourced via dredge material and by blasting of the rock face locally. Some components of construction could arrive by sea, for example piles. However, as a conservative estimate, the traffic model assumes that 50% of material may be sourced from Marybank Quarry, so these trips have therefore been factored into traffic calculations.

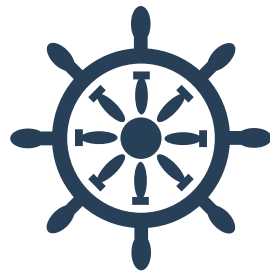
PROPOSED MITIGATION MEASURES

9.3

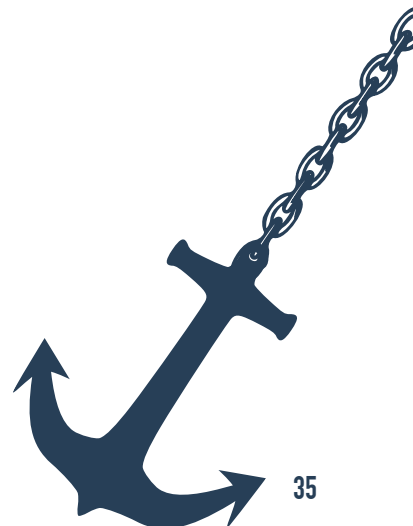
To reduce the impact of additional traffic on Matheson Road, it is proposed that HGV and coach movements would be minimised during school peak periods (i.e. before school, during lunch and after school). These vehicles may be re-routed during this time via Cromwell Street to reach the passenger drop off point at the bus station.

This will reduce the impact on Matheson Road. A Traffic Management Plan detailing the mitigation measures to be taken will be agreed with CnES.

With this mitigation, the assessment predicts no significant effects upon the road network because of the proposed development.



10. OTHER ISSUES



SOCIO-ECONOMIC

10.1

The Deep Water Port has the potential to attract business in a range of growing sectors in the Outer Hebrides including cruise ships, commercial freight (bulk handling), renewables, and oil and gas decommissioning. Increased activity in these areas will have positive, indirect effects on businesses throughout the island.

In terms of employment, Phase 1 of the proposed development is expected to offer approximately 52 full time equivalent (FTE) construction jobs at the outset of the initial construction phase in 2019. Construction jobs are expected to peak in 2020 when it is anticipated that up to 126 FTE jobs will be available. In total, 240 FTE jobs will be required between 2017 and 2021.

By the time it becomes operational, Phase 1 of the Deep Water Port is expected to support approximately 48 FTE operational jobs by 2021, which may rise to 224 FTE jobs when all phases are constructed by approximately 2036.

Other anticipated impacts of the proposed development include:

- Increase in cruise ship visits – estimated to double from 43 to 86 per year and an anticipated increase in total gross tonnage of ships from 360,000 gt to 3,500,000 gt
- Cruise ship passenger numbers will increase, leading to spend of approximately £3 million per annum in the local economy
- Improvements in bulk cargo handling, making the Port more resilient by providing additional facilities and improving business efficiency
- Provision of facilities to facilitate renewable energy growth and delivery of components, bringing jobs to the area
- Ability to attract oil and gas decommissioning operations, bringing jobs to the area
- Infrastructure for fuel unloading and storage

240

Total FTE construction jobs.

101

FTE operational phase jobs by 2026.

224

Anticipated FTE jobs on completion of all phases.

The number of jobs created by later phases of the Deep Water Port will depend on the specific activities proposed for expanded facility.

POPULATION AND HUMAN HEALTH

10.2



The predicted impacts of the Deep Water Port development on population and human health are positive for Stornoway and the Outer Hebrides. The pre-application consultation indicated that the local population is aware of the socio-economic benefits associated with the employment impacts of the proposed development. These will contribute to better living standards, health and well-being opportunities (as a result of investment in local services and infrastructure). The proposed development will make a contribution towards addressing the forecast decline of people of working age living on the island.

The assessment considered the impact of the development on air quality and concluded that there will be no significant effects.

The impact of future phases of the Port is expected to be similar in nature, bringing direct and indirect benefits associated with additional employment.

NAVIGATION

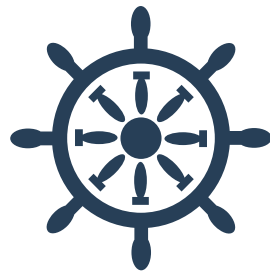
10.3

The EIA assessed the impact of the proposed development on navigational safety within the harbour. It considered effects during construction and during operation of the port.

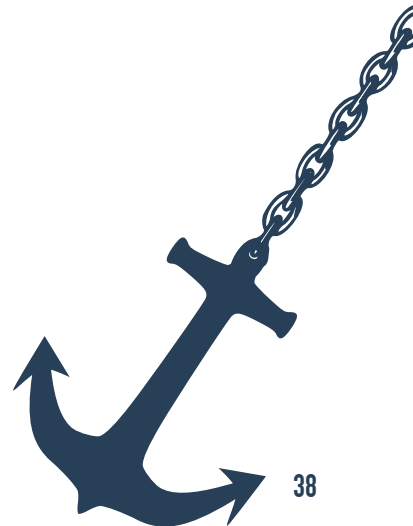
The assessment concluded that there would be no adverse impacts upon navigational safety

during either the construction or operational stages. The Port Authority will keep other harbour users informed about the construction process by means of Notices to Mariners. On completion of each phase of the development, admiralty and hydrographic charts will be updated.





11. CONCLUSIONS



CONCLUSIONS

11.1

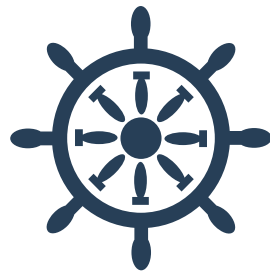
This NTS summarises the findings of the Deep Water Port EIA Report. This was shaped by several months of survey, consultation and assessment. The purpose of the EIA process is to establish potentially significant environmental effects and avoid or mitigate these where applicable.



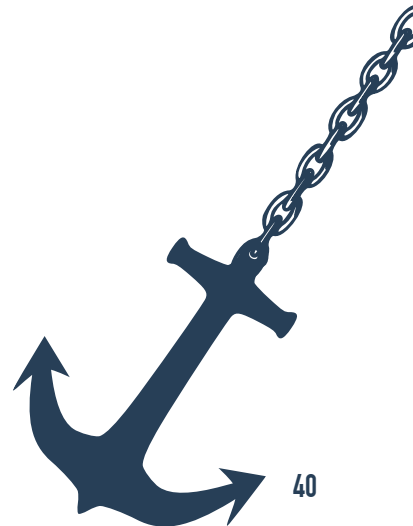
The EIA identified some potential effects, some of which are considered to be significant in nature. Mitigation proposals have been identified to address the significant effects. A detailed schedule of mitigation is included in the EIA Report. The below table shows all effects of the proposed Phase 1 development after mitigation has been applied. The mitigation actions will also apply to future phases of the Deep Water Port, subject to a detailed assessment of each future phase.

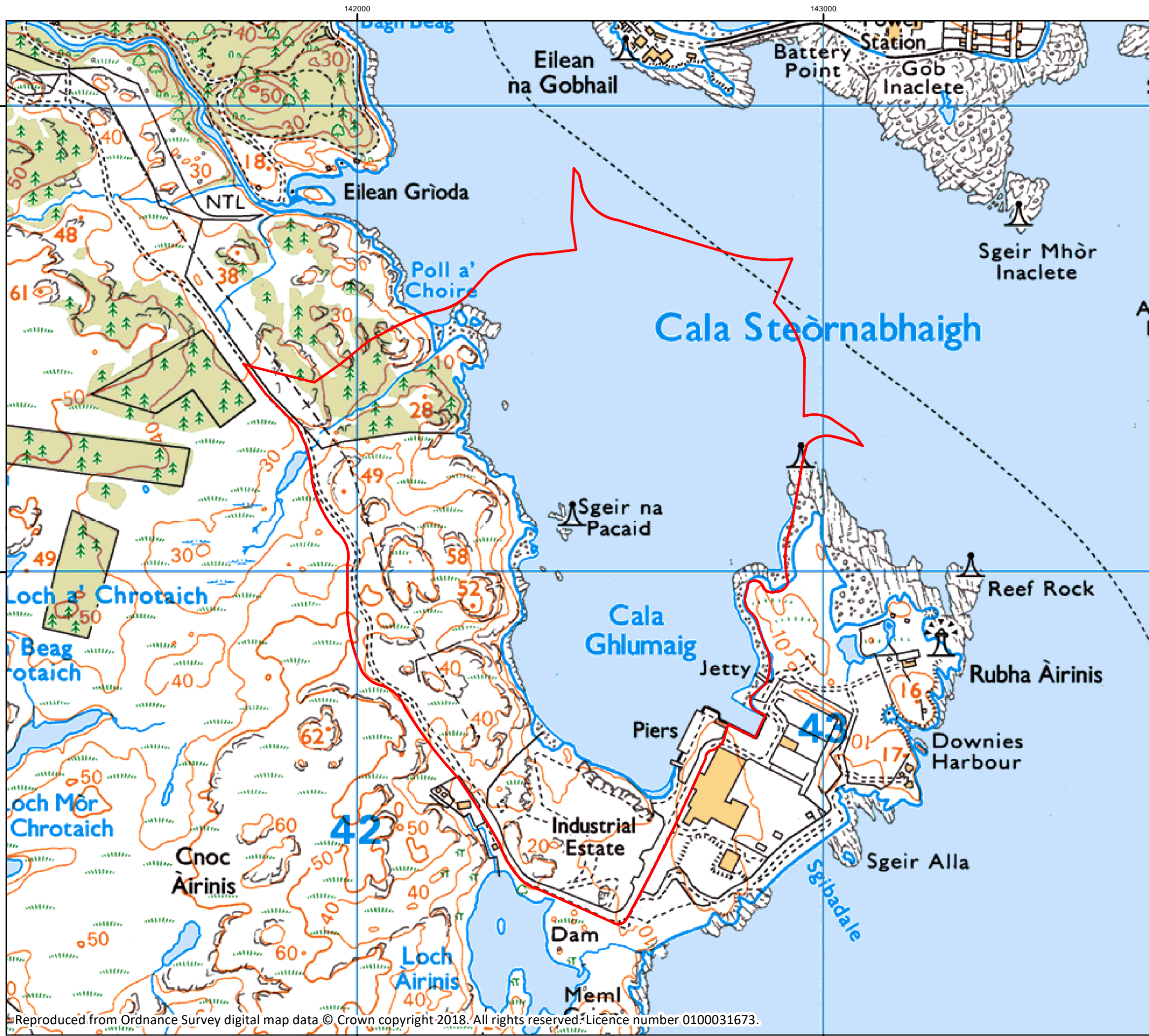
	Construction Phase Impacts (Residual post-mitigation)	Operational Phase Impacts (Residual post-mitigation)
Landscape and Visual	<p><u>Significant</u> visual effects at the following representative Viewpoints: Cuddy Point, South Beach, Newton Street, Harbour (offshore), Lower Sandwick, Lews Castle, Ferry Terminal, Iolaire Monument, Sandwick Bay.</p> <p><u>Significant</u> landscape and visual effects on the following users/features: Recreational users and some residents around Sandwick Bay, some residents and visitors on parts of South Beach and Newton Street, Stornoway Harbour Coastal Character Area and Lews Castle and Lady Lever Park IGD.</p>	<p><u>Significant</u> visual effects at the following representative Viewpoints Cuddy Point, South Beach, Newton Street, Harbour (offshore), Lower Sandwick, Lews Castle, Ferry Terminal, Iolaire Monument, Sandwick Bay .</p> <p><u>Significant</u> landscape and visual effects on the following users/features: Recreational users and some residents around Sandwick Bay, some residents and visitors on parts of South Beach and Newton Street, Stornoway Harbour Coastal Character Area.</p>
Marine Ecology	<p>All effects with mitigation would be negligible or low.</p> <p><u>Not Significant</u></p>	<p>All effects with mitigation would be negligible or low.</p> <p><u>Not Significant</u></p>
Cultural Heritage	<p>All effects are negligible.</p> <p><u>Not Significant</u></p>	<p>All effects are negligible.</p> <p><u>Not Significant</u></p>
Noise	<p>Major adverse effects on Builnacraig Street at night for 3 months as a result of dredging.</p> <p>Moderate adverse effects during the evening at Builnacraig Street for 3 months as a result of dredging.</p>	<p>Effects are Slight and <u>not significant</u>.</p>
Water	<p>With mitigation, all effects are Minor or Negligible and <u>not significant</u>.</p>	<p>With mitigation, all effects are Minor or Negligible and <u>not significant</u>.</p>
Traffic and Transport	<p>With mitigation, all effects are Minor or Negligible and <u>not significant</u>.</p>	<p>With mitigation, all effects are Minor or Negligible and <u>not significant</u>.</p>

Table 3: Summary of Significance of Effects.



APPENDIX A: FIGURES





Legend

Deep Water Port Site Boundary 111.79 hectares

Do not scale this map

Client
Stornoway Port Authority

Project
Stornoway Deep Water Port

Title
Figure 1 - Site Location

Status
FINAL

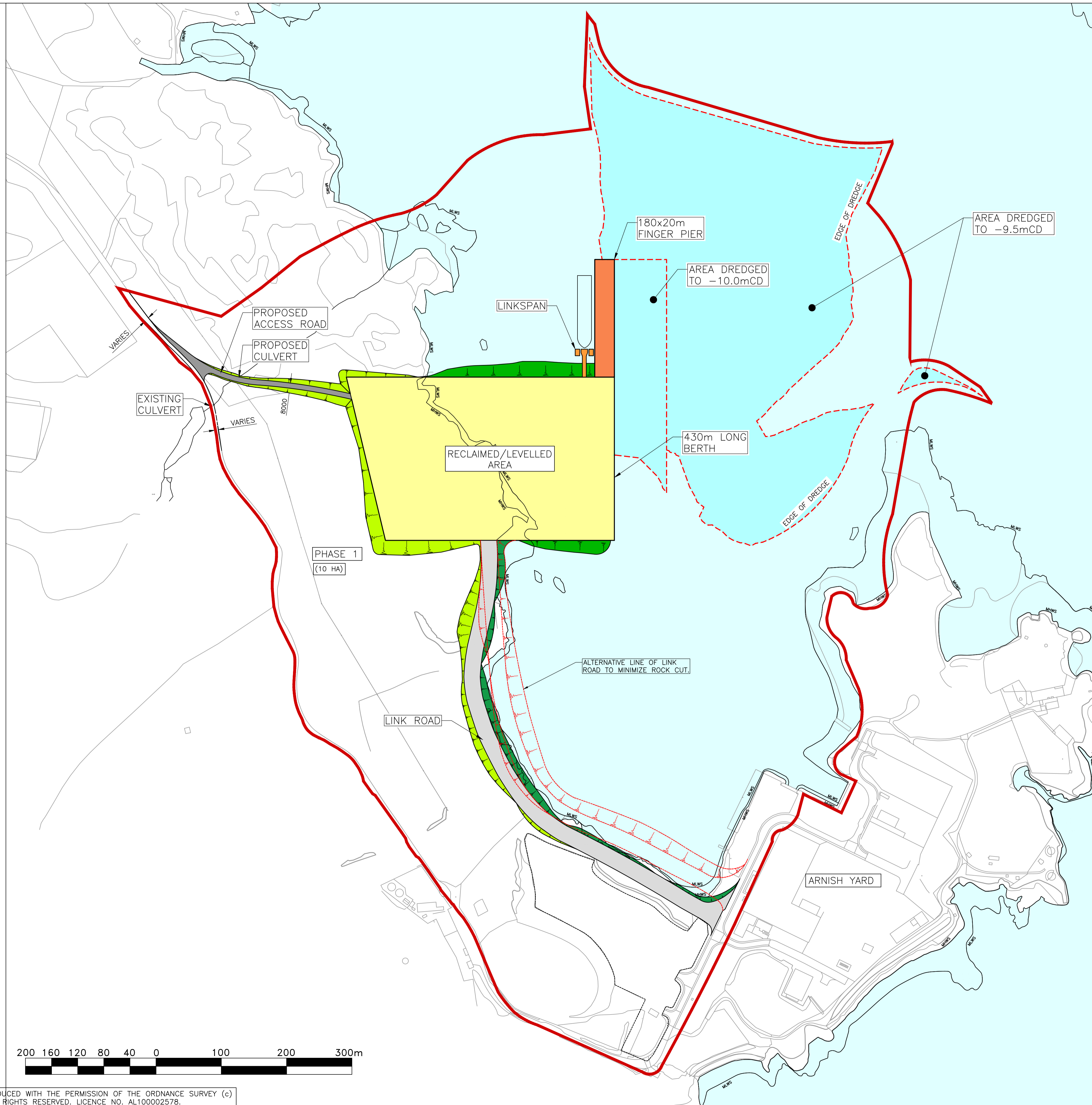
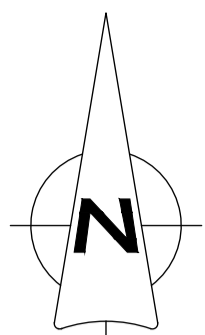
Drawing No. 670525-006	Revision
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Scale 1:8,000	A3	Date 5 April 2018
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Drawn GV	Checked GV	Approved CP
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Craighall Business Park, Eagle Street, Glasgow, G4 9XA
Tel: 0141 341 5040
Fax: 0141 341 5045

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GENERAL NOTES

— EIA BOUNDARY

REV	DATE	DETAILS	DRAWN	CHK'D	APP'D
B	15.10.18	MINOR REVISIONS	AN	---	---
A	19.06.18	NOTES REMOVED, TITLE AMENDED, ALTERNATIVE LINK ROAD ALIGNMENT ADDED.	AB		

AMENDMENTS

CLIENT
STORNOWAY PORT AUTHORITY

PROJECT
DEEP WATER PORT

Wallace Stone
CONSULTING CIVIL ENGINEERS

GLASGOW 0141 554 8233
glasgow@wallacestone.co.uk

DINGWALL 01349 866775
dingwall@wallacestone.co.uk

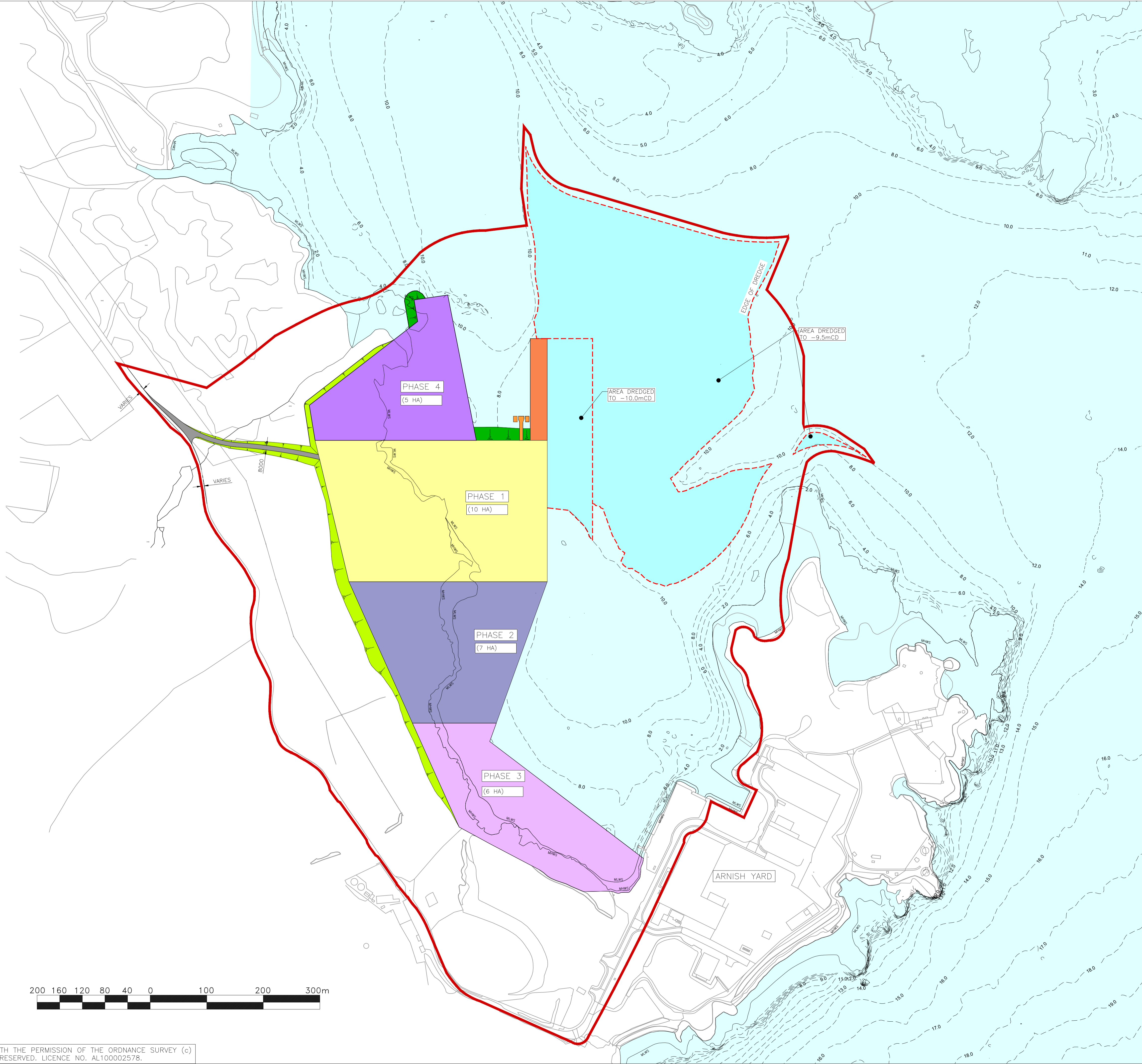
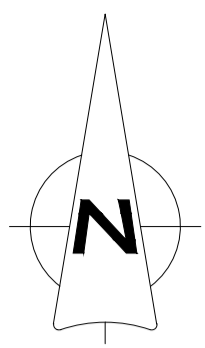
HEBRIDES 01851 612454
hebrides@wallacestone.co.uk

DRAWING TITLE
EIA
FIGURE 2.1:
SITE LAYOUT PLAN

DRAWN	CHECKED	APPROVED
AN	JP	JP
DATE	DATE	DATE
01.06.18	JUNE'18	JUNE'18

SCALE (A1)	STAGE
1:3000	CONSENTS
REVISION	
A	B

PROJECT No.	DRAWING No.
1980	2002



GENERAL NOTES

— EIA BOUNDARY

REV	DATE	DETAILS	DRAWN	CHK'D	APP'D

AMENDMENTS

CLIENT
STORNOWAY PORT AUTHORITY

PROJECT
STORNOWAY PORT MASTERPLAN

Wallace Stone
CONSULTING CIVIL ENGINEERS

GLASGOW 0141 554 8233
glasgow@wallacestone.co.uk

DINGWALL 01349 866775
dingwall@wallacestone.co.uk

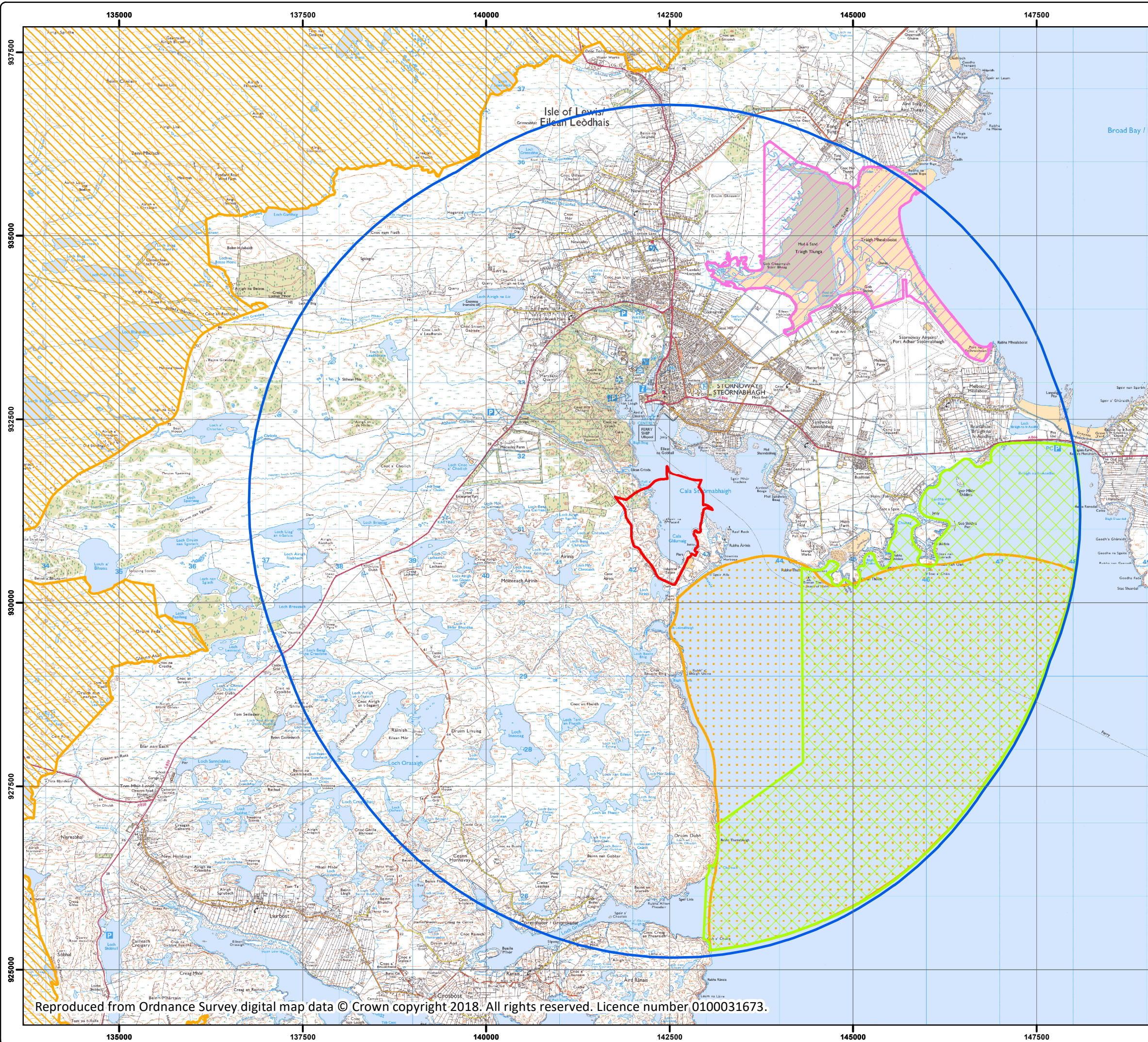
HEBRIDES 01851 612454
hebrides@wallacestone.co.uk

DRAWING TITLE
EIA
FIGURE 2.2:
FUTURE PHASING CONTEXT
PLAN

DRAWN AB	CHECKED JP	APPROVED JP
DATE JUNE'18	DATE JUNE'18	DATE JUNE'18
SCALE (A1) 1:3000	STAGE CONSENTS	
REVISION		

PROJECT No. 1980	DRAWING No. 2003
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Legend

- Deep Water Port Site Boundary 111.79 hectares
- Study Area 5km Buffer

SPA, SAC, Ramsar

- Lewis Peatlands

SSSI

- Tong Saltings

cSAC

- Inner Hebrides and the Minches
- North East Lewis pMPA

Do not scale this map

Client
Stornoway Port Authority

Project
Stornoway Deep Water Port

Title
Figure 4 - Environmental Designations

Status
FINAL

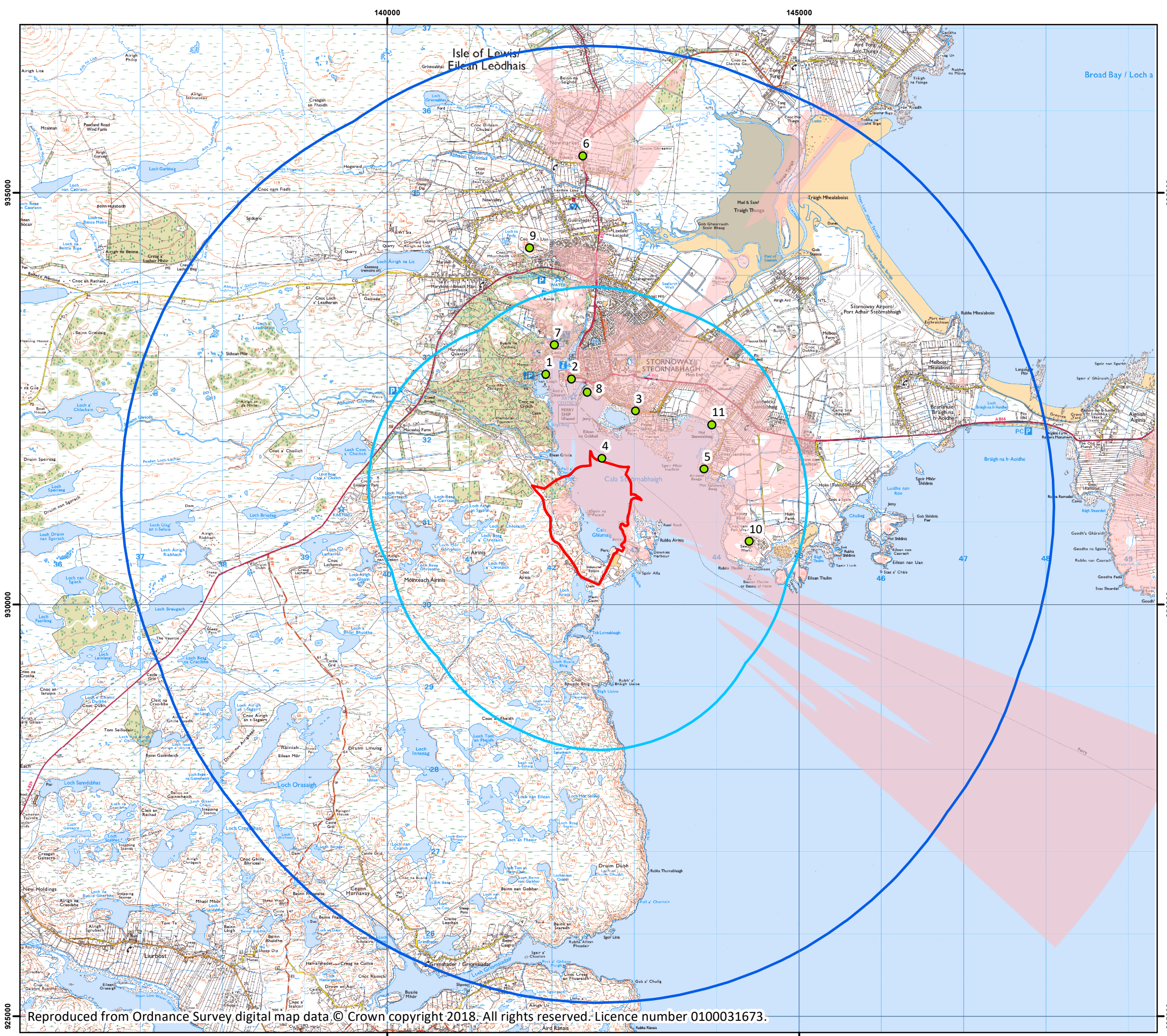
Drawing No. 670525-015	Revision
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Scale 1:50,000	A3	Date 18 June 2018
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Drawn TS	Checked TS	Approved CP
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Craighall Business Park, Eagle Street, Glasgow, G4 9XA
Tel: 0141 341 5040
Fax: 0141 341 5045

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- Legend**
- Deep Water Port Site Boundary
111.79 hectares
 - Study Area 5km Buffer
 - Study Area 2km Buffer
- Zone of Theoretical Visibility**
- Indicative Port Building
 - Viewpoint
1. Cuddy Point (NB 41927, 32795)
 2. South Beach (NB 42240, 32738)
 3. Newton Street (NB 43017, 32348)
 4. Harbour (NB 42608, 31772)
 5. Lower Sandwick (NB 43849, 31643)
 6. Newmarket (NB 42378, 35446)
 7. Lews Castle (NB 42030, 33153)
 8. Ferry Terminal (NB 42428, 32576)
 9. Lewis War Memorial (NB 41727, 34329)
 10. Iolaire Monument Carpark (NB 44396, 30768)
 11. Sandwick Bay (NB 43943, 32183)

Do not scale this map

Client
Stornoway Port Authority

Project
Stornoway Deep Water Port

Title
Figure 5 - Viewpoint Selection with ZTV

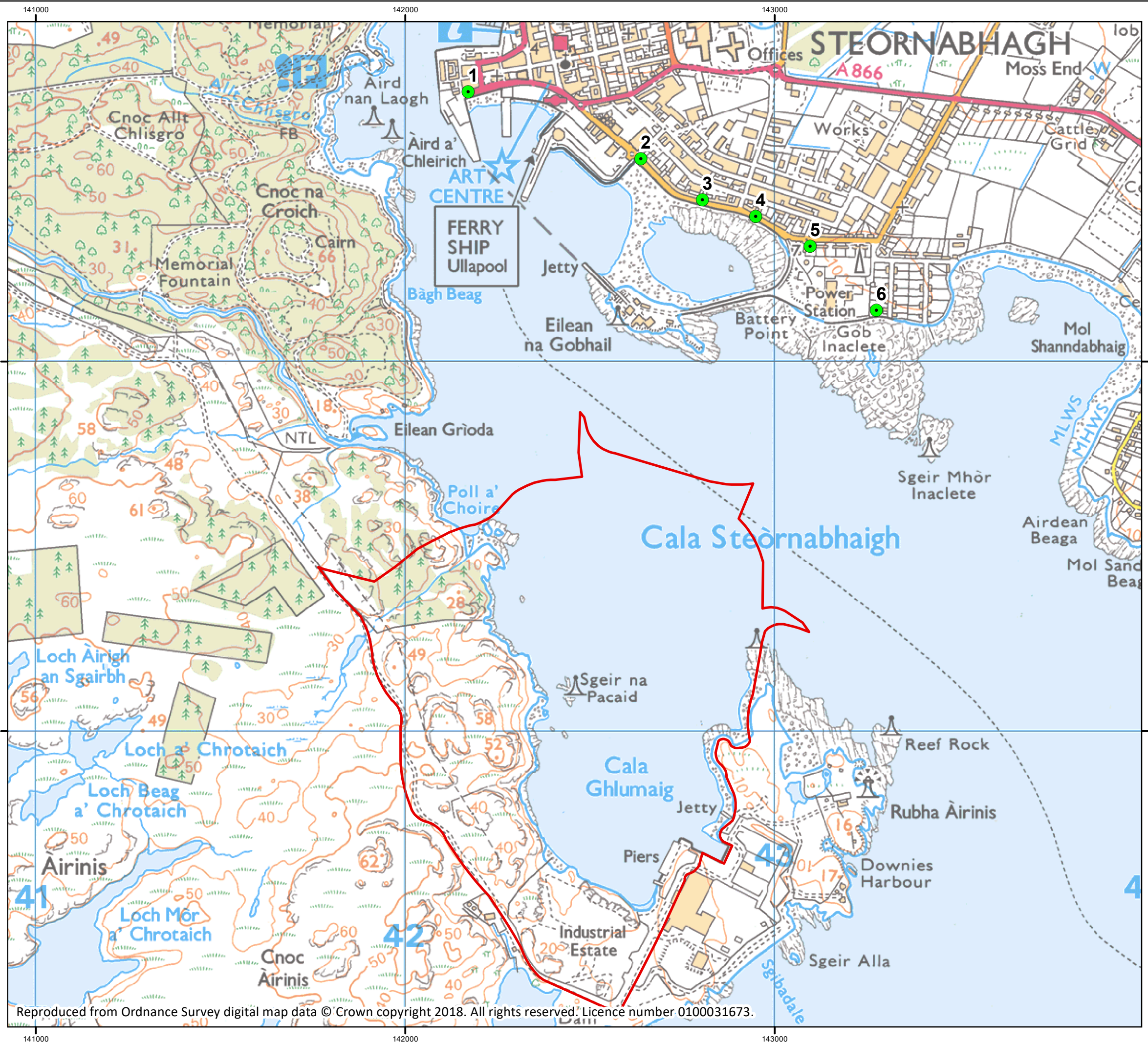
Status
FINAL

Drawing No. 670525-007	Revision B
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Scale 1:45,000	A3	Date 7 June 2018
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Drawn TS	Checked TS	Approved CP
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Legend

- Deep Water Port Site Boundary 111.79 hectares
- Noise Sensitive Receptors

Do not scale this map

Client
Stornoway Port Authority

Project
Stornoway Deep Water Port

Title
Figure 6 - Noise Sensitive Receptor Plan
Construction and Operational Industrial Noise

Status
FINAL

Drawing No. 670525-028	Revision -
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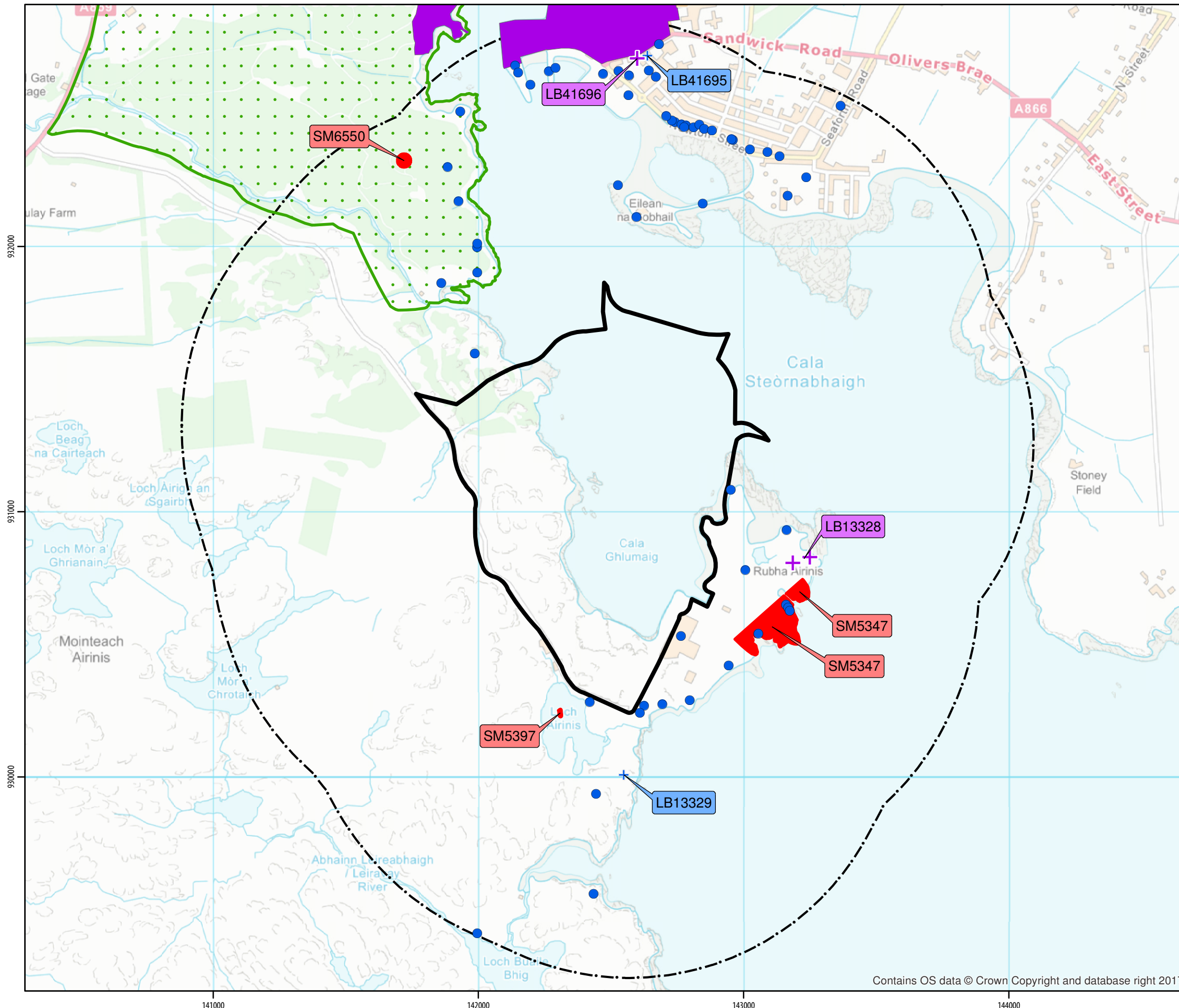
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Drawn FT	Checked CC	Approved CP
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- KEY**
- Scheduled Monument
 - + Category B Listed Building
 - + Category C Listed Building
 - Inventory Garden and Designed Landscape
 - Conservation Area
 - HER Entry
 - 1km Radius
 - Inner Study Area

HER information derived from CneS data received 25/01/18 © Crown Copyright

Scheduled Monument, Listed Building, Conservation Area and IGDL area information derived from HES data downloaded 12/03/18 © Crown Copyright

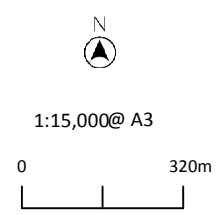


Figure 6.2
Heritage Assets within the Outer Study Area