Scottish Isles Fibre Optic Cable Project

Shetland Routes:

Historic Environment Baseline and Impact Appraisal

Technical Report

January 2022

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Project No: 908

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Cover image: Shoreline at Route 2.1 landfall and BMH location, Belmont, Unst

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Authorised for Distribution by: [redacted]	Date: 14th January 2022

Title:	R100 Scottish Isles Fibre Optic Cable Project: Historic Environment Baseline and Impact Appraisal Technical Report. Shetland Routes
Author(s):	[redacted]
Derivation:	
Origination Date:	01 July 2021
Revised by:	[redacted]
Date of last revision:	14th January 2022
Version:	5.0
Status:	Final
Summary of Changes:	Minor revisions after Intertek review and to Section 6.2 and 6.3 text, removing reference to EMP, after BT/GM reviews; minor text changes in Executive Summary, sections 5.7 and 6.2.5 ensuring more consistency with separate Fair Isle document; changes to cover text and document dates; minor revisions on marine corridor as per BT comments
Circulation:	ORCA, Intertek, BT/Global Marine Group
Required Action:	Client Approval
File Name / Location:	ORCA_Projects_1905_908_Baseline&IA Shetland V5 tracked
Approval:	[redacted]

Executive Summary

This document is a standalone historic environment baseline and impact appraisal technical document. This report identifies any sites of archaeological or historical importance within any of the marine cable corridors and at their associated landfalls within the Shetland geographical area of the proposed fibre optic telecommunications cable project. The report appraises the potential impacts of the works on the historic environment and identifies mitigation and management strategies to address any identified issues and impacts concerning the archaeological and heritage resource. This document supports the Environmental Appraisal (MEA) submitted for the Marine Licence Application and planning permission.

Avoidance of known assets is the primary embedded mitigation, using exclusion zones where required, and supported by undertaking desk-based, walkover and marine geophysical surveys in order to identify any historic environment assets that might be impacted, and thus reduce or eliminate that risk. A Protocol for the accidental discovery of archaeological finds and remains (PAD) will be instated for the reporting of discoveries to the appropriate authorities for both the marine and the onshore works.

Movement of the Beach Man Hole (BMH) location and the landfall trench to it is recommended at Belmont Unst (Route 2.1) due to the potential direct impacts on an Inventoried Garden and Designed landscape with associated feature. Consultation with Shetland Islands Council Planning Archaeologist and Historic Environment Scotland will be required to manage this.

All identified known sites have been or will be avoided with the use of the measures described above.

Various specific mitigations, including archaeological watching briefs, usually due to potential for submerged paleoenvironmental deposits in intertidal zones, or the potential for the discovery of sites in onshore dune systems are recommended at specific landfalls.

The mitigation and management strategies proposed will reduce or eliminate any significant impacts on historic environment assets at the landfalls or in the marine corridors. The implementation of these strategies result in there being no or negligible effects on most known historic environment assets, and a potential minor significance of effect on some known assets and on unknown historic assets that may be present.

Contents

1 Introduction

ORCA was commissioned by Intertek Energy and Water Consultancy Services (Intertek) on behalf of Global Marine Group (GMG) and BT to assess potential impacts on the onshore and marine historic environment by the proposed installation of five inter-island fibre optic cables and their associated landfalls within the Shetland geographical area. This document specifically addresses those five routes and their associated landfalls, including the Shetland landfall and marine corridor in Shetland waters of Route 2.3, between Orkney and Shetland.

In general, the historic environment is considered to be the physical evidence for human activity, including objects, structures, landscapes and features, whether buried, above ground or underwater (*Our Place in Time*, Scottish Government 2014).

The marine historic environment is considered to encompass submerged landscapes where human beings and early hominids previously lived or hunted on terrain which was at that time dry land, or where they exploited fish and shellfish on the coast which is now submerged, submerged aircraft wrecks, and all evidence of human exploitation of maritime resources such as shipwrecks, shipyards, harbours, piers, fish traps, ballast piles and anchorages. Marine historic assets are defined in the Marine (Scotland) Act 2010, section 73, paragraph 5) as:

- a vessel, vehicle or aircraft (or a part of a vessel, vehicle or aircraft),
- the remains of a vessel, vehicle or aircraft (or a part of such remains),
- an object contained in, or formerly contained in, a vessel, vehicle or aircraft,
- a building or other structure (or a part of a building or structure),
- a cave or excavation, or
- a deposit or artefact (whether or not formerly part of a cargo of a ship) or any other thing which evidences, or groups of things which evidence, previous human activity.

This document is a standalone historic environment baseline and impact appraisal technical document. This report identifies any sites of archaeological or historical importance that might be affected by the landfalls and marine corridors and identifies strategies for mitigating and managing any identified issues and impacts concerning the archaeological and heritage resource. This document supports the Environmental Appraisal (MEA) submitted for the Shetland Geographical Area application.

This report includes:

- A review of relevant historic environment legislation and policy;
- A review of key data sources to identify known sites in the marine corridors and landfall areas, and the potential for unidentified sites and areas;
- A review of the marine survey data from each marine corridor;
- A review of the cultural heritage sites identified during walkover surveys of the landfall areas;
- A tabular presentation of the results of the DBA and walkover surveys (Appendix 1);
- An impact appraisal and mitigation strategies; and
- A tabular presentation of the results of the impact appraisal (Appendix 2).

2 Context and Aims of the Report

This report identifies any potential historic environment issues or constraints; evaluates the suitability and acceptability of the marine corridor and landfall and comments upon the sensitivity of the planned route at the landfall in order to support the MEA chapter. It aims to:

- Review existing databases on the historic environment in the marine cable corridors and landfall areas, including wrecks, onshore cultural heritage sites, submerged landscapes in the intertidal zone, and relative sea-level change;
- Identify known or likely sensitive historic environment assets in the marine cable corridors and landfall areas and the potential for unknown remains;
- Categorise sites in terms of importance (or sensitivity) and local, regional, national or international relative importance; and
- Recommend any further work and suggest any further assessment, mitigation or management strategies, identifying any potential issues, sensitivities or constraints.

The report uses the following terms for different aspects of the project:

Marine and intertidal cable corridor: 500m wide marine cable route corridor to MHWM;

Beach Man Hole (BMH) buffer study area: 500m radius area around the proposed BMH location (see Section 4.2 below);

Landfall corridor: 500m wide intertidal and onshore corridor at each landfall site and extending inland as appropriate to and beyond the BMH location; and

Walkover survey area: the area subjected to an archaeological walkover survey, the same as the Landfall corridor. Any additional areas walked are specifically mentioned in Section 4.4 below.

3 Legislative Framework and Policy Context

The Project is located within Scotland and Scottish and UK Territorial Waters. There are a number of international legally binding conventions, UK and Scottish legislation, policy frameworks and guidance to consider in relation to the historic environment, both marine and onshore, all of which include the requirement to address potential impacts on the historic environment. Relevant guidance and legislation relating to the historic environment and assessment of impacts on it are discussed below.

3.1 International legislation and policy

The following conventions promote the protection of underwater heritage, with provisions for appropriate recording and recovery if disturbance is unavoidable:

The *United Nations Convention of the Law of the Sea* (UNCLOS) was ratified by the UK in 1997. Article 303 stipulates that ‘states have a duty to protect objects of an archaeological and historical nature found at sea and shall co-operate for this purpose’;

The Annex to the UNESCO *Convention on the Protection of the Underwater Cultural Heritage 2001* has been signed up to by the UK Government. As such, the rules of the Annex will be considered in deciding any license applications. Rule 1 of the Annex stipulates that ‘The protection of underwater cultural heritage through in situ preservation shall be considered as the first option. Accordingly, activities directed at underwater cultural heritage shall be

authorised in a manner consistent with the protection of that heritage, and subject to that requirement may be authorised for the purpose of making a significant contribution to protection or knowledge or enhancement of underwater cultural heritage';

The *European Convention on the Protection of the Archaeological Heritage* (revised), known as the Valletta Convention, was ratified by the UK Government in 2000. This contains provisions for the protection of archaeological heritage both underwater and on land, preferably in situ, but with provisions for appropriate recording and recovery if disturbance is unavoidable; and

The *European Landscape Convention* (ratified by the UK government in 2006), promotes the protection, management and planning of landscapes, including the historical and cultural aspects of landscapes.

3.2 UK legislation and policy

Key UK legislation and policy includes:

The primary piece of UK legislation concerning archaeology is *The Ancient Monuments and Archaeological Areas Act 1979* (AMAAA), concerning sites that warrant statutory protection due to being of national importance and are Scheduled under the provisions of the Act. The Act is administered in Scotland by Historic Environment Scotland.

Such sites or areas may include any "monument which in the opinion of the Secretary of State is of public interest by reason of the historic, architectural, traditional, artistic or archaeological interest attaching to it". A monument is defined within the Act as:

"any building, structure or work above or below the surface of the land, any cave or excavation; any site comprising the remains of any such building, structure or work or any cave or excavation; and any site comprising or comprising the remains of any vehicle, vessel or aircraft or other movable structure or part thereof" (Section 61 (7))", with the additional definition of "any thing, or group of things, that evidences previous human activity" derived from section 14 of the *Historic Environment (Amendment) (Scotland) Act 2011*;

The *Merchant Shipping Act 1995*; requires that all recovered wreck landed in the UK is reported to the Receiver of Wreck, whether recovered from within or outside UK waters and even if the finder is the owner;

Section 1 of *The Protection of Wrecks Act 1973*, which provides for wrecks to be designated because of historical, archaeological or artistic value, was repealed in Scotland on the 1st November 2013 and replaced by protection under the Marine (Scotland) Act 2010 (see 3.3 below);

The *Protection of Military Remains Act 1986* (PoMRA) has the principal concern to protect the sanctity of vessels and aircraft that are military maritime graves. Any aircraft lost while in military service is automatically protected under this Act;

The *Marine and Coastal Access Act 2009* devolves marine planning, licensing and conservation powers including 'the need to protect the environment' (section 69a), which in section 115(2) states is inclusive of 'any site Including any site comprising, or comprising the remains of, any vessel, aircraft or marine structure) which is of historic or archaeological interest', in Scottish inshore (0-12nm) and offshore waters (12-200nm) to the Scottish Ministers; and

The *UK Marine Policy Statement* (2011) states heritage assets should be conserved through marine planning in a manner appropriate and proportionate to their significance. Many heritage

assets with archaeological interest are not currently designated as scheduled monuments or protected wreck sites but are demonstrably of equivalent significance. The absence of designation for such assets does not necessarily indicate lower significance and the marine planning authority should consider them subject to the same policy principles as designated heritage assets (include those outlined) based on information and advice from the relevant regulator and advisors.

3.3 Scottish legislation and policy

Relevant Scottish legislation and policy includes:

The *Town and Country Planning (Scotland) Act* (1997) and amendments, *Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997* and amendments, and *The Planning etc. (Scotland) Act 2006* are the primary legislation which govern both onshore development planning and development management in Scotland in relation to the historic environment. Planning authorities, prior to granting planning permission, consult with Historic Environment Scotland as a statutory consultee on any development proposals that may affect the site or setting of a Scheduled Monument, an A-Listed building, an Inventoried Garden or Designed Landscape, or an Inventoried Historic Battlefield. This means that the presence of such sites within the area of a proposed development and the protection of its setting are material considerations in the planning process.

The Town and Country Planning (General Permitted Development) (Scotland) Order 1992, and as amended, including by *The Town and Country Planning (General Permitted Development and Use Classes) (Scotland) Amendment Order 2020*, which came into force April 2021, allows for permitted development rights (PDR) on the grounds that other legal protections and good practice guidance should mitigate any potential negative impacts. PDR in areas designated for their cultural heritage (conservation areas; settings of listed buildings and scheduled monuments; historic gardens and designed landscapes) should be subject to prior notification / approval to assess potential impacts on archaeology and cultural heritage.

The *Historic Environment Policy Statement for Scotland* (HEPS) 2019 includes policies that decisions affecting any part of the historic environment should be informed by an inclusive understanding of its breadth and cultural significance; that detrimental impacts on the historic environment should be avoided, but where these are identified and unavoidable, these should be minimised, and steps should be taken to demonstrate that alternatives have been explored and mitigation measures put in place;

Historic Environment Scotland Designation Policy and Selection Guidance 2019 stands alongside HEPS 2019 and outlines the principles and criteria that underpin the designation of historic sites and places;

Scottish Planning Policy (SPP), revised in 2020, states that authorities should protect archaeological sites and monuments (and a range of other historic assets) as an important, finite and non-renewable resource and preserve them in situ wherever possible. Where preservation in situ is not possible, authorities should ensure that developers undertake appropriate excavation, recording, analysis, publication and archiving before and/or during development. If archaeological discoveries are made during any development, they should be reported to the authority to enable discussion on appropriate mitigation measures;

The Scottish Government's *Planning Advice Note (PAN 2/2011) Planning and Archaeology 2011* states that for all developments, the principles of preservation in situ, or mitigation where necessary equally apply to sites on land or underwater;

The *Marine (Scotland) Act 2010* requires licensing activities in the marine environment to consider potential impacts on the marine environment including features of archaeological or historic interest and in Section 73 defines marine historic assets (see section 1.0 above). Historic Environment Scotland is a statutory consultee on any development proposals that may affect the site or setting of an Historic Marine Protected Area.

The Scottish Government's *Scotland's National Marine Plan: A Single Framework for Managing Our Seas* (March 2015) covers both Scottish inshore waters (out to 12nm) and offshore waters (12 to 200nm). It also applies to the exercise of both reserved and devolved functions. It contains policies and advice concerning the marine historic environment, including:

- Policy GEN6 Historic environment: Development and use of the marine environment should protect and, where appropriate, enhance heritage assets in a manner proportionate to their significance;
- As well as the designated marine heritage assets there are likely to be a number of undesignated sites of demonstrably equivalent significance, which are yet to be fully recorded or await discovery;
- It is recommended that Historic Marine Planning Partnerships and licensing authorities should seek to identify significant historic environment resources at the earliest stages of planning or development process and preserve them in situ wherever feasible. Adverse impacts should be avoided, or, if not possible, minimised and mitigated. Where this is not possible licensing authorities should require developers to record and advance understanding of the significance of the heritage asset before it is lost, in a manner proportionate to that significance. (Chapter 4.20-25);
- The use of the marine environment … recognises the protection and management needs of marine cultural heritage according to its significance. (High Level Marine Objective 18).

3.4 Local planning policy

The landfall and cable installation corridors falls within the remit of Shetland Islands Council, which, under the *Zetland County Council Act 1974*, has planning control out to 12 nm. The *Shetland Local Development Plan 2014* (LDP) contains various policies covering the safeguarding and sustainable management of the historic environment, which includes marine heritage as well as onshore resources. For example, General Policy GP2g that states 'Development should not adversely affect areas, buildings or structures of archaeological, architectural or historic interest'. Historic Environment Policy HE1 states that there should be a presumption 'in favour of the protection, conservation and enhancement of all elements of Shetland's historic environment, which includes buildings, monuments, landscapes and areas'. Historic Environment Policy HE4 includes, as well as the in situ preservation of nationally important cultural heritage resources in an appropriate setting, the policy that 'All other significant archaeological resources should be preserved in situ wherever feasible. Where preservation in situ is not possible the planning authority should ensure that developers undertake appropriate archaeological excavation, recording, analysis, publication and archiving in advance of and/ or during development.'

The *Shetland Islands Marine Spatial Plan 2015* (SIMSP) has been adopted as non-statutory supplementary planning guidance and policy framework by Shetland Islands Council and is a material consideration in the determination of relevant planning applications. This contains similar policies and principles as the LDP, specifically for marine and coastal heritage (Policies MSP HIS1, HIS2 and HIS3), as does the *Draft Shetland Islands Regional Marine Plan 2021* (Policies MP HIS1, HIS2, HIS3). The SIMSP recognises that there is potential for the discovery of new sites on the seabed, which itself is of possible paleoenvironmental interest, especially areas that were once dry land, where there is potential for buried deposits of archaeological interest.

4 Methodology

4.1 Codes of practice, professional guidance and standards documents

The following codes of practice, professional guidance and standards documents informed the work conducted for this report:

- The Chartered Institute for Archaeologists (CIfA) *Codes, Standards and Guidance* (various) https://www.archaeologists.net/codes/cifa;
- The *Historic Environment Policy Statement for Scotland* (HEPS) 2019, including the Annexes;
- *Historic Environment Scotland Designation Policy and Selection Guidance* 2019;
- Historic Environment Scotland's *Managing Change in the Historic Environment* guidance series;
- English Heritage. (2012). *Ships and Boats: Prehistory to Present. Designation Selection Guide*. Swindon: English Heritage; and
- Wessex Archaeology. (2011). *Assessing Boats and Ships 1860-1913, 1914-1938, 1914-1938. Archaeological Desk-Based Assessment* in 3 volumes. Salisbury: Wessex Archaeology;
- The Joint Nautical Archaeology Policy Committee and Crown Estate. (2006). *Maritime Cultural Heritage & Seabed Development: JNAPC Code of Practice for Seabed Development*. York: CBA; and
- Plets, R., Dix, J., & Bates, R. (2013). *Marine Geophysics Data Acquisition, Processing and Interpretation: Guidance Notes*. Swindon: English Heritage Publishing.

4.2 Study Area

The marine study area comprised the 500m wide cable corridor that was subject to marine geophysical survey. The desk-based marine study corridor at least 1km wide in order to capture wrecks that have no precisely known location but could be in the 500m corridor.

The onshore study area comprised the onshore landfall corridor down to MLWS and BMH location as provided in shapefiles to ORCA by Intertek with a 500m radius onshore study buffer area round the BMH to capture any potential issues in the immediate vicinity that could affect the installation (see Section 8: Figures).

Originally, the onshore buffer study area was designed to be a simple 500m radius around each BMH location. However, during the Project, BMH locations were changed as part of the iterative design process. A decision was made to not revise the search area and repeat searches after the fourth change of BMH location, except for any large changes of more than 100m.

4.3 Desk-Based Assessment

The DBA was conducted to identify possible heritage assets within each marine corridor and BMH buffer study area. It was completed in accordance with the relevant parts of the Chartered Institute for Archaeologists (CIfA) *Standard and Guidance for historic environment desk-based assessment* (updated 2020). Information on known heritage assets within each study area was used to identify the potential for the presence of unknown sites that may be affected by the proposed development.

The University of the Highlands and Islands Archaeology Institute's Dr Scott Timpany provided the assessment of the potential for intertidal and submerged paleoenvironmental evidence, archaeological deposits and features.

The DBA by ORCA and SULA Diving reviewed the following key sources:

- The National Record of the Historic Environment via the Canmore and Pastmap online databases (https://canmore.org.uk/; https://pastmap.org.uk/ [accessed July/August 2021]);
- The Shetland Sites and Monuments Record (SMR) via a search conducted by Dr Val Turner, Shetland Regional Archaeologist;
- Statutory lists, registers and designated areas, including List of Scheduled Monuments, Listed Buildings, Inventories of Gardens & Designed Landscapes and Historic Battlefields, Designated Wrecks, Historic Marine Protected Areas and local authority Conservation Areas;
- UK Hydrographic Office (UKHO) wreck register and relevant nautical charts;
- Shetland 1st edition Ordnance Survey mapping (1881);
- Google Earth satellite imagery;
- Larn, R., & Larn, B., (1998);
- Whittaker, I.G., (1998); and
- Other readily available archaeological and historical reports, databases, websites and publications that were consulted for information about the study areas are cited in the report if used and listed in the reference section.

4.4 Walkover Survey

The walkover survey was executed in accordance with the relevant sections of the Chartered Institute for Archaeologists (CIfA) Standard and Guidance for Archaeological Field Evaluation (revised 2020). The landfall corridor areas were surveyed between the 27th October and 2nd November, 2021. The walkover survey area was 500m wide at landfall and extended 200-500m inland, shown as a green-shaded area on the figures for the route (see Section 8: Figures). The walkover survey area at landfall was assumed to include all associated infrastructure, such as new tracks, laydown areas and cable trenches.

The walkover survey was undertaken in a systematic manner, with transect width appropriate to the conditions (mostly hill land, rough pasture, harbour side and sandy shore) in wet and windy and sometimes sunny weather. Any visible archaeological and heritage features or sites identified were assigned an individual ORCA site number in the same sequence as the sites identified by DBA. They were located by handheld GPS and briefly recorded on proforma sheets and digital photographs and handheld GPS and evaluated. Sites identified during the DBA and on satellite imagery were also visited if within the walkover survey area and evaluated.

The sites and features from the DBA and walkover surveys are presented in Appendix 1, and a list of photographs taken during the walkover surveys is reproduced in Appendix 3. Photographic images can be supplied on request.

4.5 Marine Geophysics Data

As well as the marine corridor DBAs, SULA Diving were also commissioned to evaluate the marine remote sensing survey data (Multi-Beam Echo Sounder (MBES), Side Scan Sonar (SSS), and Magnetometer (Mag)) obtained by survey company Fugro during 2021 on behalf of GMG and BT. All geophysical survey images reviewed are listed route by route in Appendix 4.

The marine geophysical survey corridors were 500m wide. The survey specifications exceeded those recommended for reconnaissance level surveys in Plets et al. (2013) and are outlined in Fugro's report for each Route:

- Fugro Report Ref 124376-R-012-(01) *Yell - Unst Results Report - 2.01*;
- Fugro Report Ref 124376-R-013-(01) *Shetland - Yell Results Report - 2.02*;
- Fugro Report Ref 124376-R-015-(01) *Shetland - Sanday Results Report - 2.03*;
- Fugro Report Ref 124376-R-014-(01) *Fair Isle - BU Report - 2.04*; and
- Fugro Report Ref 124376-R-011-(01) *Shetland - Whalsay Results Report - 2.08*.

The marine archaeologist reviewed the contacts and anomalies identified by Fugro as anthropogenic or giving high magnetic responses, along with high quality images of the data to check anything that looked potentially anthropogenic.

4.6 Assessment of Importance

The historic environment assets that have been identified have been assigned a value so that their potential to act as a constraint in the marine cable corridors and at landfall can be evaluated. The level of an asset's importance reflects the level of potential constraint, modified by the application of standard mitigation measures. In line with good practice, a precautionary level of importance has been assigned until proven otherwise (e.g. it may prove that a wreck considered to be of high importance has completely disintegrated). It should be noted that a site that has not been statutorily designated can still be of high importance. Table 1 summarises the criteria used to grade the importance of the cultural heritage assets identified in the DBA.

The determination of the heritage value of historic environment assets is based on statutory designation and/or professional judgement against the characteristics and criteria expressed in:

- The Historic Environment Policy Statement for Scotland (HEPS) 2019, including the Annexes;
- Historic Environment Scotland Designation Policy and Selection Guidance 2019;
- Historic Environment Scotland's Managing Change in the Historic Environment guidance series;
- English Heritage. (2012). Ships and Boats: Prehistory to Present. Designation Selection Guide. Swindon: English Heritage; and
- Wessex Archaeology. (2011). Assessing Boats and Ships 1860-1913, 1914-1938, 1914-1938. Archaeological Desk-Based Assessment in 3 volumes. Salisbury: Wessex Archaeology; and
- The Chartered Institute for Archaeologists (CIfA) Codes, Standards and Guidelines (http://www.archaeologists.net/codes/ifa).

Table 1: Importance Criteria

Importance of asset	Cultural heritage value
High (H)	• World Heritage Sites • Scheduled Monuments and sites proposed for scheduling • Category A Listed Buildings • Inventoried Gardens and Designed Landscapes • Interconnected groups of B-Listed buildings • Outstanding Conservation Areas • Historic Battlefields • Historic Marine Protected Areas and Designated Wrecks • Aircraft lost on military service • Undesignated wrecks, archaeological sites, areas and buildings of national and international importance (identified in the SMR) due to preservation, association, rarity, intrinsic value, loss of life
Medium (M)	• Category B and Category C(S) Listed Buildings • Burial Grounds • Protected heritage landscapes • Conservation Areas • Undesignated archaeological sites, areas, buildings, wrecks and cargos of equivalent regional importance (identified in the SMR), or of high local significance, due to preservation, association, rarity, intrinsic value, loss of life.
Low (L)	• Cultural heritage assets of poor preservation and/or poor survival of contextual associations • Cultural heritage assets of local value or interest for education or cultural appreciation • Undesignated archaeological sites, areas, buildings, wrecks and cargos of equivalent local importance (identified in the SMR) due to limited intrinsic, contextual or associative characteristics, or that are still common. • Unlisted historic buildings and settlements with local characteristics.
Negligible (N)	• Sites of former archaeological features, lifted or salvaged wrecks • Unlisted buildings of very minor historic or architectural interest • Poorly preserved examples of particular types of features • Single findspots • Sites of little or no known heritage importance

4.7 Assessment of Impacts

The magnitude of any potential adverse effects on historic environment receptors caused by the Project are determined using the criteria outlined in Table 2 below. It should be noted that these categories are guideline criteria, since assessments of magnitude are also matters of professional judgement.

Table 2: Example criteria for the assessment of impacts on historic assets

Magnitude of Effect	Direct Impacts	Indirect Impacts
High	Works would result in the complete loss of the site, or the loss of an area, features or evidence fundamental to the historic character and integrity of the site, severance of which would result in the complete loss of physical integrity.	The removal of, or a fundamental and irreversible change to, the relationship between a heritage asset and its relevant setting. Major change that removes or prevents appreciation, understanding or experience of a heritage asset and its key characteristics, or permanent change to or removal of surroundings of a less sensitive asset. A noticeable change to a key relationship between a heritage asset and a highly sensitive, valued or historically relevant setting over a wide area or an intensive change to a less sensitive or valued asset or setting over a limited area.
Medium	Works would result in the loss of an important part of the site or some important features and evidence, but not areas or features fundamental to its historic character and integrity. Severance would affect the integrity of the site, but key physical relationships would not be lost.	Noticeable change to a non-key relationship between a heritage asset and its relevant setting. Relationship, asset, or context tolerant of moderate levels of change. Small changes to the relationship between a heritage asset and its setting over a wide area or noticeable change over a limited area.
Low	Works or the severance of the site would not affect the main features of the site. The historic integrity of the site would not be significantly affected.	Minor changes to the relationship between a heritage asset and its setting over a wide area or minor changes over a limited area. Relationship, asset, or setting considered tolerant of change.
Negligible	Works or the severance of the site would be confined to a relatively small, peripheral and/or unimportant part of the site. The integrity of the site, or the quality of the surviving evidence would not be affected.	Changes to that cannot be discerned or perceived in relation to the heritage asset or environment.
Unknown	Groundbreaking works over features that have not been fully interpreted would reduce the chance of interpretation in the future. In the event of significant features this would constitute impact of high magnitude; for sites of lesser significance it is less problematical. Nevertheless, it remains an issue where features have not been or could not be interpreted.	Changes to a setting, where it is uncertain how these contribute to our understanding, appreciation or experience of the site because the feature or asset itself could not or has not been understood or interpreted.
Positive	An enhancement to the baseline condition of the asset.	An enhancement to the baseline setting of the asset.

Indirect impacts have been scoped out of any further consideration in this report because the onshore cable and BMH will be undergrounded and the surface restored to its original appearance. Indirect impacts on marine heritage assets have also been scoped out of any further consideration in this report because the marine cable will be buried where possible, and

where surface laid will be protected by concrete mattresses and rock bags, thus preventing abrasion from movement of the cable.

Magnitude of impact is combined with the historic importance or sensitivity of the receptor to produce an overall effect significance. In order to manage any impact on sites identified as of Uncertain importance, it has been assumed that they could be of high importance. As per the assessment of magnitude of impact, Table 3 is a guide and the final assessment of significance of effect will also require professional judgement. In this methodology, moderate and major effects are considered significant effects that may require control, management and mitigation (Table 4). However, it should be noted that impacts that lead to non-significant minor effects may still benefit from management or mitigation.

Table 3: Significance of effect matrix

Asset Importance or Sensitivity	Magnitude of Impact					
	High	**Medium**	**Low**	**Negligible**	**Uncertain**	**Positive**
High	Major	Major	Moderate	Minor	Uncertain/ Major	Positive
Medium	Major	Moderate	Minor	Minor	Uncertain/ Moderate	Positive
Low	Moderate	Minor	Minor	Negligible	Uncertain/ Minor	Positive
Negligible	Minor	Negligible	Negligible	Negligible	Uncertain/ Negligible	Positive
Uncertain	Uncertain/ Major	Uncertain/ Moderate	Uncertain/ Minor	Uncertain/ Negligible	Uncertain/ Negligible	Positive

Table 4: Definitions for Significance of effect

Effect	Significance	
Positive	Positive – to be encouraged	Positive
Major	Highly significant and requires immediate action. May be intolerable risk or significance	Significant impact under EIA Regulations
Moderate	Significant – requires additional control measures and/or management	
Minor	Not significant – however may require some management to ensure remains within acceptable levels	Insignificant impact under EIA Regulations
Negligible	Not Significant	

5 Baseline

5.1 Statutory designations

No current marine historic environment statutory designations have been identified in any of the marine corridors.

There are statutory historic environment designations present in seven of the onshore BMH 500m radius buffer study areas. These comprise six Scheduled Monuments (Belmont Unst, Route 2.1; Brough/Burravoe Yell, Route 2.2; Sumburgh Mainland, Route 2.3; Fair Isle, Route 2.4), sixteen Listed Buildings (Belmont Unst, Route 2.1; Gutcher Yell, Route 2.1; Brough/Burravoe Yell, Route 2.2; Mossbank Mainland, Route 2.2; Sumburgh Mainland, Route 2.3; Fair Isle, Route 2.4; Whalsay, Route 2.8) and one Inventoried Garden and Designed Landscape (Belmont Unst, Route 2.1).

5.2 Submerged Palaeo Landscapes

Relative sea-level (RSL) change on Shetland has been relatively little studied and the RSL change for Shetland has largely been based on the work of Hoppe (1965), such as in Shennan and Horton (2002) or in other RSL studies of the British Isles, such as Shennan, Milne and Bradley (2012), the RSL curve for Caithness has been used. The RSL data produced by Hoppe (1965) was based on radiocarbon dates from submarine peats and wood from Whalsay and as such may reflect more local RSL change than that for the whole of Shetland. The data from Hoppe (1965) indicates sea-levels rose rapidly from around 7000 cal BC where it is calculated to be -16m OD to the present-day level of 0m OD. Data from Orkney and Caithness also suggests a rapid rise of some 8 m during the period 8500 cal BC to 5500 cal BC, with RSL then rising more gradually to the present day reaching a current level of between +1 and +2m OD (Bates et al. 2013; Dawson & Smith, 1997). Although the more gradual rise in RSL is not recorded by Hoppe (1965) it appears likely this may have been the case and more research is needed to confirm.

Physical evidence for lower shorelines, former terrestrial land surfaces and the past environment of Shetland's landscape is reflected in the presence of intertidal peats recorded in Shetland (e.g. Hoppe, 1965; Harkness and Wilson 1974; Birks and Peglar, 1979). The high potential of such former terrestrial deposits in providing valuable evidence for landscape change is demonstrated in the study by Birks and Peglar (1979) at Sel Ayre on the western coast of Mainland, who recorded peat deposits formed during the Ipswichian interglacial period, radiocarbon dated to 44,359-35,657 cal BC (SRR-60; 36800±900/800 BP). Palynological information from these deposits have given important biodiversity and landscape information for Shetland during this inter-glacial period showing an open grassland vegetation cover that subsequently changed to heathland as the onset of glaciation approached (ibid.).

The potential for archaeological remains as well as submerged peat to be present on the seabed along the cable routes is highlighted by the recovery of a Neolithic polished axe and waterlogged wood from Bressay Sound highlighted by Bicket and Tizzard (2015), in their review of evidence for submerged landscapes across the British Isles. Anthropogenic deposits have also been recorded around the Shetland coastline, including at West Voe where an Early Mesolithic shell midden was found and radiocarbon dated to 7023-6638 cal BC (OxA-1417; 7881±38 BP) (Edwards *et al*, 2009).

There is strong potential for cable landfalls located on shorelines or in sheltered bays with small stone or soft deposits to discover previously unrecorded intertidal peat deposits of high palaeoenvironmental and archaeological potential, with intertidal peats having been previously identified on two islands with landfall locations: Mainland (Hoppe, 1965; Birnie, 1981) and Whalsay (Hoppe, 1965).

5.3 Aircraft

No aircraft are known to be located in any of the corridors. There are two aircraft noted as accidental losses off Sumburgh that could be in the corridor for Route 2.3, but have never been located, and have unverified notional locations assigned in Canmore. Bristol Blenheim aircraft T1949 from 404 Squadron RAF crashed into the sea east of Sumburgh Head, with three crew killed, on 06/10/1942. Handley Page Halifax aircraft R9453 of 76 Squadron RAF was lost 12 miles south of Sumburgh Head, with all seven crew killed, on 31/03/1942. A number of aircraft went missing without trace around Shetland and the chances of finding one within any of the corridors, although not likely, cannot be completely discounted. Review of the geophysical survey data has helped to reduce this risk. Any aircraft lost on military service (including the two above) would automatically fall under the Protection of Military Remains Act 1986.

5.4 Route 2.1: Unst to Yell

5.4.1 Wick of Belmont, Unst

A total of fifty-nine sites were identified in the BMH buffer study area (Section 8: Figure HEA 2.1 Belmont; Appendix 1 Table A1.1). Of these, ten sites (**Sites U-53** to **U-62**) were identified during the walkover survey. The description below includes sites that are now outwith the 500m study area around the current proposed BMH location (see Figure HEA 2.1 Belmont).

The Prehistoric Period (c.9000 BC to c.AD 800)

The Scheduled Monument of the Iron Age broch at Hoga Ness (**Site U-1**) lies to the southwest outwith the BMH buffer study area. Much of the landscape around the broch is covered by cairns (**Site U-3**), mounds and standing stones (**Site U-4**) of prehistoric date, and it is probable that these extend into the study area. A series of stone cists (**Site U-5**) are reputed to have been located close to the broch and within the study area, but there is no visible indication or local knowledge of their presence.

Further inland, to the east of Belmont House, are a series of dykes (**Sites U-13**, **U-17**, **U-33**, **U-35**, **U-38**, **U-40**, **U-45** and **U-48**) regarded as being prehistoric. These comprise turf, coursed walling and upright stones, and variations in build-type along the length of the dykes indicate that these are multi-phase structures. The longest of these, **Site U-40**, is almost 800m in length. It is cut at one point by a cart track (**Site U-41**) exposing a cup mark in the surface of the bedrock. Further cup marks (**Site U-52**) are visible in the bedrock surface at the Norse house site of Belmont-South (**Site U-24** below), with a cup mark also being visible in the gable end of one of the houses. Cup marked stones are generally regarded as dating from the Bronze Age.

Other prehistoric features to the east of Belmont comprise a pair of standing stones (**Site U-25**), though it is also possible that these were once part of the nearby, heavily denuded prehistoric dyke (**Site U-45**), and an oval, grass-covered mound (**Site U-32**), up to seven metres in diameter which appears to contain a set stone on the south side.

The Medieval Period (c.AD 800 to 1614)

Amongst the prehistoric dykes to the east of Belmont House lies the Norse farmstead of Belmont-South (**Site U-24**). The partially excavated remains are designated as a Scheduled Monument (SM7656) and appear to at least four buildings and associated fields and dykes (**Site U-23**). A stone and turf building, also considered to be of Viking/Norse date, lies approximately 100m to the south (**Site U-27**) and this may be an early shieling. Two similar Norse structures

(**Site U-29** and **U-30**) lie further south towards Sheetsburg, the latter associated with a turf and stone dyke (**Site U-31**).

There is a group of at least eight boat-shaped stone settings (**Site U-28**) extending across the southeast edge of the search area. Boat-shaped settings are often associated with Viking/Norse graves. The four within the boundary measure between 4.4m and 5.4m in length, with two of these being denuded. No other features or artefacts have been associated with these stone settings.

The later medieval sites include potential antecedents at the locations of later structures such as the mill (**Site U-7**) and horizontal mill (**Site U-11**) between the Loch of Belmont and the Wick of Belmont, and a quarry (**Site U-43**) to east of the Wick of Belmont. In addition, there is the probable planticrub (**Site U-30**) built into the side of the Viking/Norse structure on the site and the later dyke at **Site U-23**.

The Post-medieval Period (1614 to 1900)

Much of the study area covers that of the formal landscape surrounding Belmont House, which is a nationally designated Garden & Designed Landscape (GDL00054). The created landscape (**Site U-8**) dates from c.1775 and features gardens, parkland, drives and footpaths with Belmont House (**Site U-9**) at its centre. The garden and boundary walls, gateways and gate piers form the hard landscape framework. The house, a neo-classical mansion, was built c.1777 and is a Category A Listed Building (LB17474) which is mainly unaltered other than the addition of an east wing in the early nineteenth century. To the north of the house is the Belmont steading (**Site U-10**), comprising cottage, two byres, stable, bothy and granary, all of which form part of the listing and GDL designation.

The House and landscape were laid out to a formal plan with a central design axis linking the farm steading immediately to the north and the sea gates to the south, with the House. This combined a strong classical design with practical considerations, and reflected the importance of the farm and the sea for income and transport. The main approach was from the shore, to the south, from where an avenue leads northwards, along the central design axis. This route forms a steady ascent, passing through sets of gates and gate piers before reaching the forecourt of the house.

The south boundary wall has a single storey roofless trading booth incorporated in it (**Site U-62**). The boundary wall butts against both sides of the booth indicating that the booth may pre-date the creation of the formal landscape.

A pair of possible nousts (**Site U-55**) are located close to the booth. These comprise shallow hollows with earth and stone side walls, and a drystone revetment wall. These are significantly eroded along their south ends. A further group of possible nousts (**Site U-54**), also heavily denuded and eroded are situated on the shoreline close to the central gate within the Belmont House south boundary wall. Close by, a linear stonework feature (**Site U-53**) comprising an arrangement of boulders was identified during the walkover survey and considered to be a former dyke or groin. Close to the shore of Wick of Belmont were two sub-circular settings of earth-fast stones, both approximately 1m in diameter. The first (**Site U-56**) comprised well-consolidated beach cobbles with occasional larger sub-angular stones around the edges. The second (**Site U-57**) comprised only beach cobbles. These may be former settings for mooring posts or similar.

On the edge of the southwest corner of the Belmont House landscape are the remains of a mill (**Site U-7**) and a horizontal mill (**Site U-11**). Their relationship with the formal landscape is unclear. It is possible that one, or both, were new additions built as part of the landscape alterations, and their presence may obscure the evidence for earlier structures. The burn between the Loch of Belmont and the Wick of Belmont is an ideal location for a mill and it is highly probable that such a structure would have been situated here during the medieval period. Close to the mills, a sub-oval structure (**Site U-59**), possibly an enclosure or sheepfold, was identified during the walkover survey.

There are a number of farmsteads, buildings and enclosures across the surrounding landscape shown on the First Edition Ordnance Survey maps (Shetland VIII.9 (Unst) 1880). The largest farmstead is Hoganess (**Site U-19**) and comprises two large, and one small, roofed buildings and a sub-rectangular enclosure. There are a number of smaller buildings (**Site U-2**, **U-20**, **U-21** and **U-22**), mostly ruinous, but still extant with some being recorded by the Scotland's Rural Past Project. Earthworks on the north side of Site U-6 observed during the walkover survey may indicate the presence of a further, unmapped structure or enclosure. A croft house with a kale yard (**Site U-37**) is present towards the southeast edge of the study area, with a curving dyke and an associated, small clearance cairn (**Site U-39**).

There is a drystone dyke (**Site U-12**) within Belmont House Gardens which may be part of the designed landscape. It is possible, however, that the dyke may pre-date it and reflect earlier township boundaries. To the southeast of Belmont House Gardens are the remnants of a cart track (**Site U-16**), orientated northwest-southeast, with the north end truncated by the A968. Further to the east are a number of drystone (**Site U-42** and **U-47**) and earth-and-stone dykes (**Site U-49** and **U-50**), as well as a second cart track (**Site U-41**) which cuts through prehistoric dyke **Site U-40**.

The Modern Period (after 1900)

The disused, former pier (**Site U-18**) at the Dock of Belmont is located to the northeast of the vehicular ferry terminal. The dilapidated pier is constructed of stone and concrete.

Features of Uncertain Date

A number of sites have been identified which have not been adequately characterised to enable any date range to be attributed to them. These comprise mainly dykes (**Site U-36**, **U-44** and **U-46**), a possible collapsed structure (**Site U-34**), an enclosure (**Site U-51**) and an irregular scatter of stones, which may be associated with an earthwork (**Site U-26**).

Two mounds were identified by the walkover survey. Between the Loch of Belmont and the Wick of Belmont was a low mound (**Site U-58**) approximately 8m in diameter and 1m high. South of the Belmont House boundary wall, on the Ayre of Belmont was a large mound (**Site U-61**) with its west side marked by a line of boulders. This appears to have been truncated by later activity.

5.4.2 Gutcher, Yell

A total of thirty-eight sites were identified in the landfall study area. No additional sites were identified during the walkover survey (Section 8: Figure HEA 2.1 Gutcher; Appendix 1 Table A1.2).

The Prehistoric Period (c.9000 BC to c.AD 800)

In 2017, a stone axehead (**Site Y-U 6**) of Shetland riebeckite felsite was discovered by chance, and there is no known site associated with it. The surface had been carefully ground and

polished to a medium sheen which was still visible, though the colour of the stone has been altered slightly by its deposition in a peat environment. The object is now in the Shetland Museum.

The Medieval Period (c.AD 800 to 1614)

The site of South Haa is reputed to be the location of a chapel, possibly dedicated to St John, with a graveyard adjacent (**Site Y-U 7**). The exact location is not known, and given the lack of evidence it is considered that the chapel is more likely to date from the Medieval period rather than later. Its possible location is duplicated in two SMR entries, but nothing is visible.

The Post-medieval Period (1614 to 1900)

There was a horizontal mill (**Y-U9**) on a burn leading into the west side of the Loch of Gutcher shown on the Six-inch First Edition Ordnance Survey map (Shetland, sheet VII (includes: Yell) 1881) that is no longer extant. Though this would appear to be of post-medieval date, it is possible that it occupied the site of an earlier mill. In the1950s, a timber object (**Site Y-U 8**) interpreted as a mill paddle was recovered during peat digging at a depth of 2.1m. There is no evidence for a water-powered mill at the location and the topography would seem unsuitable for one.

The township of Gutcher (**Site Y-U 10**) is likely to have medieval Norse origins, but as shown on the First Edition OS map now comprises post-medieval sites, including a post office, four unroofed structures, a number of enclosures, a head dyke, wells and a footbridge (**Sites Y-U 9 to 37**). Most of these structures remain, though some are ruinous and the level of modification for those buildings still in use is variable. Also within the township boundary is the rubble pier (**Site Y-U 3**), built in the nineteenth century, which runs parallel to the modern ferry terminal. Other harbour related features are two winches (**Sites Y-U 1** and **2**) and a hand-capstan (**Site Y-U 5**) which are all recorded as remaining *in-situ* in the NRHE database. These no longer appear to be extant and were not identified during the walkover survey.

A small portion of the island of Linga falls within the study area, and this contains a post-medieval sheepfold (**Site Y-U 38**) which is still visible.

The Modern Period (after 1900)

Close to the harbour, a telephone kiosk (**Site Y-U 4**) stands alongside the A968 highway outside the former post office and pier building. It is a standard K6 kiosk, a type designed by Sir Gilbert Scott and produced from 1936 onwards. It is designated as a Listed Building (Category B).

5.4.3 Unst to Yell Marine and Intertidal Corridor

Shipwrecks

None of the sources consulted (see Appendix 1, Table 1.3), including the UKHO, have identified any wrecks in or close to the marine corridor for Route 2.1 (Section 8: Figure HEA 2.1; Appendix 1 Table A1.3). Review of the geophysical survey datasets from the corridor (SSS, MBES and Mag, see Appendix 4) has identified no shipwrecks or manmade objects, only rocks, boulders natural linear features and geological magnetic features. Any contacts marked as ‘debris’ by the survey were examined and considered to be rocks. The review has therefore reduced the risk of any wrecks with unverified locations being present in the corridor to Negligible.

There are no reports of any mine lines laid along this route and Bi Monthly minesweeping reports show no mines found in this area., nor has review of the marine geophysical survey datasets from the corridor identified any.

Submerged deposits and features

The Belmont landfall is at a sand and shingle shoreline in a sheltered bay, and therefore there is moderate potential for paleoenvironmental deposits to survive below the surface sediments of the beach and intertidal zone. The Gutcher landfall is not conducive to such preservation, and it is considered there is negligible potential for such remains here, although there will likely be sediments of paleoenvironmental interest in the Loch of Gutcher to the north.

Potential for undiscovered marine sites

As a maritime nation with a reliance on marine based trade and exchange, there have been countless shipwrecks around UK waters from all periods – many of which remain unreported. As such, there is a moderate to high probability for unknown, unrecorded vessels to have sunk in the study area. However, wrecks stranded at or close to shore were usually salvaged, and wooden wrecks are unlikely to survive in the open waters further out, thus reducing the risk to Low-Negligible. The geophysical survey data for the corridor has been reviewed, and nothing of interest noted. Thus, the potential risk of unidentified sites being present in the corridor is considered Negligible.

5.4.4 Route 2.1: Landfalls and Marine Baseline and Constraints Summary

There are two Scheduled Monuments within the current BMH 500m radius buffer study area at Belmont Unst (**Sites U-24** and **U-52**), and a further one (**Site U-1**) now outwith that study area.

There is one GDL (**Site U-8**), and a set of -Listed Buildings (Sites **U-9** and **U-10**) that are core to the GDL, and associated buildings (**Site U-62**) present in the onshore BMH buffer study area at Belmont, Unst. The proposed landfall and BMH location at Belmont are within the boundary of the GDL, in the rough grazing between the south boundary wall and the shore, where there are associated features such as nousts (**Sites U54** and **U55**). Making landfall and siting the BMH within the GDL will require consultation with Shetland Islands Council and Historic Environment Scotland.

The current BMH location site is at **Site U-61**, a large truncated mound on the south side of the Belmont House south boundary wall, on the Ayre of Belmont.

There is one listed building (**Site Y-U 4**, the B-Listed telephone kiosk) present in the onshore BMH buffer study area at Gutcher, Yell, which is also the closest site to the BMH location, some 20m to the east.

There are no known submerged peats or woodland at either landfall, although there is moderate potential for such deposits to survive below the sands in the intertidal zone and the shoreline deposits in the landfall corridor at Belmont, Unst. The potential for such survival is considered Negligible at Gutcher, Yell.

No marine historic environment statutory designations have been identified in the marine corridor.

There are no known submerged peats or woodland in the marine corridor.

5.5 Route 2.2: Yell to Mainland

5.5.1 Brough, Yell

A total of twenty-eight sites were identified in the BMH 500m radius study area (Section 8: Figure HEA 2.2 Brough; Appendix 1 Table A1.4). No additional sites were identified during the walkover survey.

The Prehistoric Period (c.9000 BC to c.AD 800)

Burravoe is the site of a broch (**Site Y-M 7**) which is visible as a large turf-covered mound, 26m in diameter and 5m high, with a curving rampart. Part of the outer wall stonework is visible on the east side, but much stone appears to have been robbed during the medieval period to build a chapel which once stood on the site. A ruinous, modern fish drying hut on the site also appears to have also used stone from the site for its construction. The site is designated as a Scheduled Monument.

The Medieval Period (c.AD 800 to 1614)

The presence of a chapel at Burravoe Broch (**Site Y-M 7**) indicates medieval settlement of some form in the area and the village of Burravoe (**Site Y-M 26**) may have Medieval antecedents even though the existing structures are post-medieval in date.

The Post-medieval Period (1614 to 1900)

The Old Haa of Brough (**Site Y-M 2**) was built c.1672 for the laird, Robert Tyrie. The house was positioned to allow monitoring of all boats attempting to enter Burra Voe, and the original track to the shore passed through its courtyard. The house was originally surrounded by yard walls with a row of cottages to the west. There appears to have been some modifications c.1900 including the raising of one of the house wings by a storey. The house has been restored and contains a local history museum. It is a designated Listed Building (Category B).

At the north end of the village stands the rectory (**Site Y-M 1**) associated with the adjacent St Colman's Episcopal Church (**Site Y-M 27**). The church was built towards the end of the nineteenth century and is a designated Listed Building (Category B) but the rectory, which has no designation, appears to be a later construction as the 25-inch Second Edition Ordnance Survey map (Zetland XXII.15 (Yell) 1901) shows a smaller building identified as a 'Post Office'. The Second Edition map also shows a Wesleyan Methodist chapel (**Site Y-M 24**) close to the church. The chapel building is still present and appears to have been converted into a domestic dwelling.

Around the church and the Laird's house, the 25-inch First Edition Ordnance Survey map (Shetland XXII.15 (Mid & South Yell) 1880) shows a number of farmsteads, unroofed structures, enclosures, wells and planticrubs (**Sites Y-M 8**, **9**, **11**, **12**, **14**, **15**, **17**, **19**-**23**, **25**, **28**). The majority of these structures remain, though some are ruinous and the level of modification for those buildings still in use is variable. There are two mills (**Sites Y-M 10** and **13**) shown on the First Edition map and it is possible that these overlay earlier antecedents. The former is visible as low earthworks, whereas the latter is no longer extant.

The First Edition map shows the location of stepping stones (**Site Y-M 16**) across the Burn of Brough, which are no longer extant. The First Edition map also shows a Post Office (**Site Y-M 18**) at the south end of the village. This is identified as a 'Public House' on the Second Edition

map. The original post office lies close to the waterfront. Here, there is a rubble pier (**Site Y-M 5**) with a two-storey, four-bay storehouse and trading booth (**Site Y-M 4**) at the landward end. This appears to have originally been a single storey structure which was modified c.1900, and a shop front has also been added. The building is designated as a Listed Building (Category C). Close to the pier and storehouse, a former boatyard with attached barrel store (**Site Y-M 6**) was identified by a walkover survey in 2004. This still survives in good condition.

The Modern Period (after 1900)

Outside the shop front of the former storehouse (see **Site Y-M 4** above) stands a telephone kiosk (**Site Y-M 3**). It is a standard K6 kiosk, a type designed by Sir Gilbert Scott and produced from 1936 onwards. It is designated as a Listed Building (Category B).

5.5.2 Mossbank, Mainland

A total of twenty-three sites were identified in the BMH 500m radius study area with one of these sites (**Site Y-M 51**) being identified during the walkover survey (Section 8: Figure HEA 2.2 Mossbank; Appendix 1 Table A1.5).

The Prehistoric Period (c.9000 BC to c.AD 800)

Evidence for prehistoric activity in the study area is limited to a possible house site (**Site Y-M 48**) at least 350m to the northwest of the BHM, and a claystone axe (**Site Y-M 50**) found by chance c.1911, with no associated site identified.

The Medieval Period (c.AD 800 to 1614)

No sites from this period have been identified.

The Post-medieval Period (1614 to 1900)

Within the Mossbank township is a church (**Site Y-M 32**), shown on the First Edition OS map and which is still in use, and a fishing bothy (**Site Y-M 34**) later used as a dwelling before being repurposed as an agricultural shed. The remaining features within the village are former farmsteads, roofless buildings, enclosures and wells (**Sites Y-M 35**-**47**). The majority of these structures remain, though some are ruinous and the level of modification for those buildings still in use is variable. The Smithy farmhouse (**Site Y-M 43**) was seen to be no longer extant during the walkover survey. Close to Hamar (**Site Y-M 35**), a pair of nousts (**Site Y-M 51**) were identified during the walkover survey. These were situated within a cleft in the outcropping rock and are currently filled with modern rubbish and rubble.

At the north end of Mossbank is the nineteenth-century jetty (**Site Y-M 29**), rubble-built, and noted on the 25-inch First Edition Ordnance Survey map (Shetland XXV.8 (Delting) 1880) as having a hand crane close to the seaward end. There is currently no evidence for this crane. Close to the jetty are two houses considered to contribute to the character and setting of the waterfront, and both are designated as Listed Buildings (Category C). The earliest is Mossbank Haa (**Site Y-M 31**), built in the eighteenth century, a three-bay asymmetrical house with a complex of linked outbuildings and surrounding wall which are very well-preserved. The house is currently occupied. Erlangen (**Site Y-M 30**) dates from the nineteenth century and is a three-bay symmetrical house that stands across the jetty road from Mossbank Haa. It is marked as a post office on the 25-inch First Edition map and is currently occupied as a domestic dwelling.

The Modern Period (after 1900)

Moss bank was the site of an anti-aircraft battery during the Second World War (**Site Y-M 34**), now seen as two slight earthwork gun positions either side of a modern mast.

5.5.3 Yell to Mainland Marine and Intertidal Corridor

Shipwrecks

The UKHO has two wrecks (Unknown 1 and Unknown 2) marked near to but outwith the corridor (Section 8: Figure HEA 2.2; Appendix 1 Table A1.6). There are at least fourteen wrecks known to have been lost but with no known locations (see Appendix 1, Table A1.6) that could be in the marine corridor for Route 2.2. These mostly include nineteenth-century vessels of low interest due to the common vessel type and cargo. The only vessel that would be of high archaeological importance is the *King Soloman*, a merchant ship from Hamburg lost at Burravoe in 1680.

Review of the geophysical survey datasets from the corridor (SSS, MBES and Mag, see Appendix 4) has identified no shipwrecks or manmade objects, only rocks, boulders and geological magnetic features. Any contacts marked as 'debris' by the survey were examined and considered to be rocks. Two gas pipelines running into Firths Voe can be clearly seen on the southern edge of the MBES and Mag data. The review has therefore reduced the risk of any wrecks with unverified locations being present in the corridor to Low-Negligible.

There are no reports of any mine lines laid along this route and Bi Monthly minesweeping reports show no mines found in this area., nor has review of the marine geophysical survey datasets from the corridor identified any.

Submerged deposits and features

The Burravoe landfall is at a sand and shingle shoreline in a small bay, and therefore there is moderate potential for paleoenvironmental deposits to survive below the surface sediments of the beach and intertidal zone. The Mossbank landfall is not conducive to such preservation, and it is considered there is negligible potential for such remains here.

Potential for undiscovered marine sites

As a maritime nation with a reliance on marine based trade and exchange, there have been countless shipwrecks around UK waters from all periods – many of which remain unreported. As such, there is a moderate to high probability for unknown, unrecorded vessels to have sunk in the study area, as well as those losses which have been recorded but not found, listed in Appendix 1, Table 1.6. However, wrecks stranded at or close to shore were usually salvaged, and wooden wrecks are unlikely to survive in the open waters further out, thus reducing the risk to Low-Negligible. The geophysical survey data for the corridor has been reviewed, and nothing of interest noted. Thus, the potential risk of unidentified sites being present in the corridor is considered Negligible.

5.5.4 Route 2.2: Landfalls and Marine Baseline and Constraints Summary

There is one Scheduled Monument (**Site Y-M 7**), four Listed Buildings (Sites **Y-M 2, 3, 4, 27**) present in the within the onshore BMH 500m radius buffer study area at Brough/Burravoe, Yell.

The current BMH location site is 25m from the scheduled boundary of **Site Y-M 7**. The next closest site is an occupied building (**Y-M 17**) some 40m to the east.

There are two Listed Buildings (**Site Y-M 30 and 31**), present in the onshore BMH buffer study area at Gutcher, Yell, Site Y-M 31 is also the closest site to the BMH location, some 10m to the south-east.

There are no known submerged peats or woodland at either landfall, although there is moderate potential for such deposits to survive below the intertidal sands and storm beach deposits in the landfall corridor at Brough/Burravoe, Yell. The potential for such survival is considered Negligible at Mossbank, Mainland.

No marine historic environment statutory designations have been identified in the Sanday and Orkney Waters part of the marine corridor.

There are no known submerged peats or woodland in the marine corridor.

5.6 Route 2.3 Orkney to Shetland: Sumburgh Landfall and Shetland Waters

5.6.1 Sumburgh, Mainland

A total of thirty-six sites were identified in the BMH 500m radius buffer study area around Grutness Voe, Sumburgh (Section 8: Figure HEA 2.3 Sumburgh; Appendix 1 Table A1.7). Of these, one site was identified during the walkover survey (**Site S-S 46**). The description below includes sites that are now outwith the 500m study area around the current proposed BMH location (see Figure HEA 2.3 Sumburgh).

The Prehistoric Period (c.9000 BC to c.AD 800)

The study area extends into the designated area of the Jarlshof Scheduled Monument (**Site S-S 37**). The remains at Jarlshof span the Bronze Age, the Iron Age (including the remains of a broch and a post-broch settlement), Pictish, Viking, late Medieval and early Post-medieval structures. Lithics and pottery pre-dating the broch have been recovered from the grounds of the Sumburgh Hotel (**Site S-S 36**) adjacent to Jarlshof.

The Medieval Period (c.AD 800 to 1614)

During drain laying in the early 1940s, workmen exposed a timber boat (**Site S-S 1**), approximately 50m long with a beam in excess of 5m. The hull planking was fixed to the ribs by wooden pegs, a Nordic or Viking tradition that continued for many centuries, although metal nails are more usual. It is possible the vessel dates from the medieval or early post-medieval period. The location is unknown other than it was 50-60m back from the beach at the head of Grutness Voe.

During sand extraction at the Links of Sumburgh, a wall of a medieval croft and an associated midden (**Site S-S 34**), along with fragments of a human skeleton, were exposed. Part of the croft wall is still visible in the landscape. It was also noted that an earlier layer of soil was exposed and this lay between two phases of aeolian sand deposition. A further midden (**Site S-S 39**) was exposed close to Westvoe farm during sand quarrying. This was a kitchen midden which also contained a bone pin and a small piece of sandstone inscribed with a bird. These items are considered to be of a probable Viking date.

Across Compass Head there are a number of linear banks (**Sites S-S 13**, **21** - **23**). Two of these, **Sites S-S 22** and **23**, appear to be associated with level areas and have been interpreted as a lynchets. Such earthworks are usually associated with ancient field systems. The two remaining earthworks may be similar structures but the possibility remains that any of these earthworks are associated with the numerous military remains scattered across Compass Head (see Modern Period below).

The Post-medieval Period (1614 to 1900)

A shore station (**Site S-S 6**) and a jetty (**Site S-S 2**) were constructed in the early nineteenth century as waterfront facilities for Sumburgh Lighthouse. The store is three-bay, flat-roofed structure with octagonal chimneys that match the design of the lighthouse pavilions. It is a Category C Listed Building. A winch (**Site S-S 5**) is recorded as standing close to the landward end of the pier, but this is no longer extant. The 25-inch First Edition Ordnance Survey map (Shetland LXVII.10 (Dunrossness) 1880) shows a quarry (**Site S-S 42**) to the southeast of the shore station. This was built over in the twentieth century.

Immediately to the northwest of the shore station, a fishing station (**Site S-S 4**) is depicted on the 25-inch Second Edition Ordnance Survey map (Zetland LXVII.10 (Dunrossness) 1901). The buildings and fish liver boiling tanks are in a state of good preservation, and excavations here exposed an extensive midden containing coins, tobacco pipes and pottery dated to the seventeenth century. Close to the fishing station are a possible planticrub (**Site S-S 3**) and a well, which is still shown on the current mapping though the planticrub is now visible only as a turf-covered mound. There are also a series of stepping stones (**Site S-S 43**) shown on First Edition OS map, crossing an area of marsh. These are not depicted on later editions and are no longer present in the landscape, probably as the result of improved drainage and the formation of a pond. This may be connected with the construction of the modern Grutness Ferry Terminal (**Site S-S 7**) and the metalled highway which provides access to it.

The study area extends into land associated with Sumburgh Home Farm and Sumburgh House. Sumburgh Home Farm, possibly dating from the late seventeenth century, was built to replace the Old House of Sumburgh at Jarlshof. The farm complex which also includes buildings dating from the eighteenth and nineteenth centuries, lies outwith the study area to the southeast. Sumburgh House (**Site S-S 36**) was built in 1867 for the Bruce family to replace the farmhouse at Home Farm. It was originally comprised a two-storey L-plan range wrapping around a two-storey L-plan entrance range, but has been added in 1897 and the later twentieth century giving a much altered appearance. The building is now in use as a hotel and is a Category B Listed Building. There is one further farmstead, that of Westvoe (**Site S-S 40**) which is shown on the 25-inch First Edition OS map which is still occupied.

In the area to the east of the modern airport a field, or large enclosure, an unroofed structure and a sheepfold are shown on the First Edition OS map and these are recorded in the NRHE as the Wils Ness field system (**Site S-S 47**). None of these features are currently visible in the landscape.

On the north shore of Grutness Voe, a possible linear feature (**Site S-S 46**) comprising rubble and beach stones was identified during the walkover survey. This may be the remains of a former dyke or groyne.

The Modern Period (after 1900)

Highlighting Shetland's role in the Second World War, there are a number of military installations within the study area. Sumburgh Airport (**Site S-S 45**) is itself a former RAF airfield of which some elements, such as the control tower, survive. Close to the south runway is an artificial pond (**Site S-S 35**) with bank and mounds to form an 'S'-shape as an air recognition symbol for military pilots. There is a gun emplacement (**Site S-S 38**) close to the West Voe shore shown on aerial photography produced in the 1940s, though this seems to be no longer extant. To the southeast of the Sumburgh Airport runway there are three underground oil storage tanks (**Site S-S 33**) in the hillside. A large bank covers (**Site S-S 8**) the fuel pipes which ran from Grutness pier to the fuel tanks. There are a number of structural remains scattered around the Compass

Head hinterland which are related to military installations and activities (**Sites S-S 11**, **12**, **16**), and on the track leading out to the North Kills Wick there are the remains of three concrete bases (**Site S-S 10**), probably for Nissen huts. The remains of a sea mine (**Site S-S 9**), lies at Grutness, and is no longer live.

Features of Uncertain Date

The First Edition OS map shows a sub-circular feature (**Site S-S 41**) between Westvoe farm and a trackway that leads to Sumburgh House. The feature is still visible on current aerial imagery.

Close to Compass Head is a series of four, oval-shaped depressions (**Site S-S 20**) which probably mark stone quarrying activities.

5.6.3 Shetland Waters to Sumburgh Marine and Intertidal Corridor

Shipwrecks

The proposed routes all UKHO charted wrecks. The SS *Dana* is listed by the UKHO as ‘’Position to vague to chart’’ but was reported as 5 miles south of Sumburgh Head (see Figure HEA 2.3 Shetland-Sanday). The submarine HMS *C-34* was sunk by a torpedo from the German U-boat *U-52*. This also is listed by the UKHO as ‘Position Approximate, some 12 miles east of the corridor (see Figure HEA 2.3 Shetland-Sanday). The *C-34* would have been armed with torpedoes and there was no report of secondary explosions from these in the KTB (log book) of the *U-52* so these could still be within the vessel.

There are no other wrecks marked as Position Approximate (PA) that research shows could be along the route corridor. However, there are at least twenty-one wrecks known to have been lost but with no known locations (see Appendix 1, Table A1.8) that could be in the marine corridor for the Shetland Waters part Route 2.3.

These mostly include nineteenth- and twentieth-century vessels of low interest due to the common vessel type and cargo. There are four vessels that would be of medium archaeological importance - S.S. *Lorenzo Semprun* (an early steamship lost in 1866), the *Lerwick Packet* (a sloop wrecked off Grutness Voe in 1824), the *Freemason* (a sloop that foundered at the entrance to Grutness Voe in 1820 while carrying materials for Sumburgh Lighthouse), and the *James* (a sloop from Shetland trading with Hamburg, wrecked at Grutness Voe in 1741).

Along with the submarine HMS *C-34*, the only other vessel of high importance would be the British Revenue cutter *Curlew*, which foundered off Sumburgh Head in 1796.

Review of the geophysical survey datasets from the corridor (SSS, MBES and Mag, see Appendix 4) has identified no shipwrecks or manmade objects, only rocks, boulders and geological magnetic features. Any contacts marked as ‘debris’ by the survey were examined and considered to be rocks. The review has therefore reduced the risk of any wrecks with unverified locations being present in the corridor to Low-Negligible.

The route corridor passes north of the Northern Barrage WW1 minefield. Many mines that were swept in 1919 or broke loose were sunk by gunfire. Although unlikely, there is a possibility that unexploded mines could be found along the cable route. However, review of the marine geophysical survey datasets from the corridor has not identified any.

Aircraft

There are two aircraft noted as accidental losses off Sumburgh that could be in the corridor for Route 2.3, but have never been located, and have unverified notional locations assigned in Canmore. These are described in Section 5.3 above, and would automatically be protected by The Protection of Military Remains Act 1986.

Review of the marine geophysical survey datasets from the corridor did not identify any anomalies interpreted as the remains of aircraft. The review has therefore reduced the risk of the aircraft being present in the corridor to Low-Negligible.

Submerged deposits and features

The Grutness Voe landfall at Sumburgh is at a sandy dune-fringed shoreline in a small bay, and therefore there is moderate potential for paleoenvironmental deposits to survive below the surface sediments of the dunes, the beach and the intertidal zone.

Potential for undiscovered marine sites

As a maritime nation with a reliance on marine based trade and exchange, there have been countless shipwrecks around UK waters from all periods – many of which remain unreported. As such, there is a moderate to high probability for unknown, unrecorded vessels to have sunk in the study area, as well as those losses which have been recorded but not found, listed in Appendix 1, Table 1.8. However, wrecks stranded at or close to shore were usually salvaged, and wooden wrecks are unlikely to survive in the open waters further out, thus reducing the risk to Low-Negligible. The geophysical survey data for the corridor has been reviewed, and nothing of interest noted. Thus, the potential risk of unidentified sites being present in the corridor is considered Negligible.

5.6.4 Route 2.3: Landfalls and Marine Baseline and Constraints Summary

There is one Scheduled Monument (**Site S-S 37**), and two Listed Buildings (Sites **S-S 6** and **36,**) present in the onshore BMH 500m radius buffer study area at Sumburgh. These are either outwith the landfall corridor, or on its very edge, some 300m from the proposed BMH location.

The closest known site to the proposed BMH location (apart from Sumburgh airfield **Site S-S 1**) is some 140m to the south-east, comprising human remains and parts of a medieval croft and midden (**Site S-S 34**) found in a sand-dune complex during sand extraction. This, along with discoveries such as the wooden boat found somewhere at the head of Grutness Voe, 50-60m back from the beach (**Site S-S 1**), indicate that there is at least a moderate risk for the discovery of other archaeological remains in the sands and dunes at Grutness.

There are no known submerged peats or woodland at Grutness Voe, although there is moderate potential for such deposits to survive below the surface sediments of the dunes, the beach and the intertidal zone.

No marine historic environment statutory designations have been identified in the Sumburgh and Shetland Waters part of the marine corridor.

Whilst aircraft and vessels of potentially medium and high importance have been lost in Grutness Voe, the waters off Sumburgh Head and along route corridor in Shetland Waters, reviews of the geophysical survey data have reduced the risk to Low-Negligible.

There are no known submerged peats or woodland in the marine corridor.

5.7 Route 2.4: BU to Fair Isle

BU is the code of the marine connection on Route 2.3 at which Route 2.4 to Fair Isle commences (Section 8: see Figure HEA 2.3 Shetland - Sanday).

5.7.1 North Haven Landfall, Fair Isle, Shetland

A total of forty sites were identified in the BMH 500m radius buffer study area (Section 8: Figure HEA 2.4; Appendix 1, Table A1.9). Of these, six sites were not recorded in the NRHE or Shetland SMR databases and were identified during the walkover survey (Section 8: Figure HEA 2.2 Brough; Appendix 1 Table A1.4) (Figure HEA 2.4 and Appendix 1 Table A1.9, Sites FI 35-40).

The Prehistoric Period (c.9000 BC to c.AD 800)

A small promontory fort (**Site FI 12**) overlooks South Haven. This is a Scheduled Monument and comprises ramparts with medial ditches defining a triangular area 115m by 45m within which a number of indefinite foundations survive. Material recovered from the site indicate a middle to late Iron Age date (c. 100 BC to c. 500 AD). During the walkover a linear earthwork (**Site FI 39**) was identified running to the northwest from the fort's western ditch. It is unclear, without further investigation if this earthwork is part of the fort itself or a more recent addition.

There are several prehistoric cairns and a number of features within the study area of uncertain date which are potentially of prehistoric date. These cover the hillsides overlooking North Haven and South Haven and are, therefore, at some distance from the BMH and well outwith the red line boundary for planning permission.

The Medieval Period (c.AD 800 to 1614)

No sites from this period were noted.

The Post-medieval Period (1614 to 1900)

The post-medieval (and several modern) sites within the study area include those structures forming the North Haven harbour (**Site FI 16**). These include the modernised pier (**Site FI 17**) upon which stood a small hand-operated crane (**Site FI 18**) that is designated as a Scheduled Monument. The crane has been dismantled and lies on a pallet at the location where it stood. On the north side of the pier is a slip with mechanism for pulling up boats, including the ferry. Extending northwards lies a modern wharf built along east side of the harbour, and further north is a modern concrete block and boulder rubble breakwater, sheltering the pier and wharf.

The head of North Haven is a sand and storm beach isthmus, into which slip **FI 19** is set. Canmore have given an ID and defined this as a pier with a crane. It is assumed, because only a loose grid reference was given (HZ 224 725), that this is actually meant to refer to **FI 18**. However, the location is approximately that of stone-built and concreted slip, with rails for winching boats up the storm beach, so FI 19 has been allocated to this. There is no sign of a crane or its footings at this slip.

Just inland from the top of slip **FI 19** is a flagstone rubble-built storehouse (**Site FI 13**), a Category C Listed Building, a rare survivor of traditional Shetland bods. Both FI 13 and FI 19 are adjacent to and overlap with the proposed operations corridor (see Figures HEA 2.4 and HEA 2.4 Detail).

Other features of potential post-medieval date including a length of walling (**Site FI 25**), a small, stone-built structure (**Site FI 27**), and features associated with quarrying for the lighthouse (**Sites FI 30, 31**) are located on Bu Ness and away from the BMH.

The Modern Period (after 1900)

The isthmus between North and South Haven was the site of a small military camp (**Site FI 15**) during the Second World War to accommodate the personnel based at the radar station on Ward Hill. There are no obvious remains for this site present. On the east edge of the isthmus is a circular, earthen enclosure (**Site FI 20**) with flat-topped banking and a central mound interpreted as a flagpole or mast base. This is probably associated with military activity on the island. To the northwest, close to the cliff edge, is a group of three, subcircular depressions (**Site FI 10**), approximately 5m in diameter, which are interpreted as military installations. A further military installation stands on the north end of Bu Ness (**Site FI 28**).

Excluding modern adaptations of the harbour (described above), the remaining features of probable modern date are on the adjacent hillsides, away from the BMH location.

Features of Uncertain Date

There are a large number of sites within the study area that have been identified by both earlier, and the current, walkover surveys and through examination of aerial photography. The majority of these are earthwork / scattered stone features of varying shape and size and, without intrusive investigation, their exact character or date remains uncertain.

Potential for undiscovered sites

The area has been well-studied and subject to walkover surveys in the past. Therefore, it is considered that there is low potential for discovering new sites. The thin soil cover indicates low potential for discovering new sites that are not visible on the surface.

There is low-moderate potential for discovering sites or deposits covered by the sand dunes, sand blows and below the sands and cobbles of the storm beach above MHWM and in the intertidal zone.

5.7.2 Fair Isle Marine and Intertidal Corridor

Shipwrecks

There are no known maritime sites with verified locations in North Haven or along the marine corridor. There are at least eight vessels recorded as lost here or with a general location ‘off Fair Isle’ (see Appendix 1, Table A1.10), but it seems unlikely that any that are recorded as lost at North Haven survive in the harbour since it is still a working port and will have been kept clear of obstructions over the centuries.

Half of these vessels comprise late nineteenth-century vessels of low interest due to the common vessel type and cargo. There is one vessel that would be of local interest – the *Good Shepherd* K58, the Fair Isle mail boat, that was driven from its mooring and wrecked at North Haven in 1937. Another vessel would be of Medium importance due to its age – the *Joanna En Pietrenella*, a Dutch hooker wrecked at North Haven in 1816. There are two vessels that would be of high archaeological importance – *Charming Jenny* (an early steamship lost in 1866), and the SS *Signe* (a Finnish steamship sunk off Fair Isle in 1940, with all crew lost).

Review of the geophysical survey datasets from the corridor (SSS, MBES and Mag, see Appendix 4) has identified no shipwrecks or manmade objects, only rocks, boulders and geological magnetic features. Any contacts marked as 'debris' by the survey were examined and considered to be rocks. The only linear features marked in the survey datasets are large natural sand ripples. The review has therefore reduced the risk of any wrecks with unverified locations being present in the corridor to Low-Negligible.

Aircraft

A number of aircraft went missing without trace around Shetland during wartime, but the chances of finding an unrecorded aircraft at North Haven is none, because it would have been noted. Any aircraft lost on military service would automatically fall under the Protection of Military Remains Act 1986.

Submerged deposits and features

There is strong potential for cable landfalls located on shorelines or in sheltered bays with small stone or soft deposits to discover previously unrecorded intertidal peat deposits of high palaeoenvironmental and archaeological potential. However, at North Haven, a harbour in frequent use, there may only be potential for such deposits to survive below the sands and cobbles of the intertidal zone and beach at landfall, rather than in the bay itself.

Potential for undiscovered sites

As a maritime nation with a reliance on marine based trade and exchange, there have been countless shipwrecks around UK waters from all periods – many of which remain unreported. As such, there is a moderate to high probability for unknown, unrecorded vessels to have sunk in the marine study area, as well as those losses which have been recorded but not found, listed in Appendix 1, Table A1.10. However, wrecks stranded at or close to shore were usually salvaged, and wooden wrecks are unlikely to survive in the open waters further out, thus reducing the risk to Negligible. The geophysical survey data for the corridor has been reviewed, and nothing of interest noted. Thus, the potential risk of unidentified sites being present in the corridor is considered Negligible.

5.7.3 Route 2.4: North Haven Baseline and Constraints Summary

There are two statutory historic environment designations present in the onshore BMH buffer study area at North Haven, Fair Isle. The first is the Scheduled Iron Age promontory fort of Landberg (**Site FI 12**). This is 150m away from the BMH location. The second is the C-Listed storehouse (**Site FI 13**) which is 4m west of the proposed BMH location and is overlapped by the red line boundary.

The red line boundary for planning application is adjacent to the west side of the slip (**FI 19**) and overlaps the C-Listed storehouse (**FI 13**), although the BMH itself is located 4m from the outside face of the storehouse (see Figures HEA 2.4 and HEA 2.4 Detail).

All known sites onshore including **Sites FI 19** and **FI 13**, or even if of Low importance, can be avoided.

There are no known submerged peats or woodland at North Haven, although there is a low-moderate potential for such deposits to survive below the sands and storm beach in the intertidal zone at landfall.

No marine historic environment statutory designations have been identified in Route 2.04.

There are no known maritime sites with verified locations in North Haven or along the route corridor to BU. It is unlikely that any unknown wrecks survive in the harbour since it is still a working port and will have been kept clear of obstructions over the centuries.

There are no known airplane wrecks that might have crashed within or close to the search area. There is no risk of finding an unrecorded aircraft at North Haven, because it would have been noted by islanders. Any aircraft lost on military service would automatically fall under the Protection of Military Remains Act 1986.

Whilst aircraft and vessels of potentially medium and high importance may have been lost in in Shetland Waters around Fair Isle, reviews of the geophysical survey data have reduced the risk to Low-Negligible.

There are no known submerged peats or woodland in the marine corridor.

5.8 Route 2.8: Mainland to Whalsay

5.8.1 Levaneap, Mainland

A total of twenty-two sites were identified in the BMH 500m radius study area. Of these, three sites (**Sites M-W 52-54**) were identified during the walkover survey (Section 8: Figure HEA 2.8 Levaneap; Appendix 1 Table A1.11).

The Prehistoric Period (c.9000 BC to c.AD 800)

No sites of this period were identified.

The Medieval Period (c.AD 800 to 1614)

No sites of this period were identified, although there are post-medieval structures (such as horizontal mills) that could have been built on earlier versions at the same site.

The Post-medieval Period (1614 to 1900)

On the northwest edge of the study area is a group of four horizontal mills (**Sites M-W 1**-**3**, **19**), three of which are depicted on the 25-inch First Edition Ordnance Survey map (Shetland XXXVIII.6 (Lunnasting) 1880).

There are a number of post-medieval structures shown on the First Edition OS map within the study area, in addition to the horizontal mills, which highlight the farming landscape of the area. Many of these are farmsteads, the largest of which is Pund of Levaneap (**Site M-W 12**) comprising thirteen roofed buildings and four enclosures, many of which are still in use, along with Hamera Head (**Site M-W 7**) with seven roofed buildings, one unroofed and three enclosures, though only one structure appears to be still standing, and Sandyburn (**Site M-W 14**) comprising seven roofed building and an enclosure, which are still occupied. Other large farmsteads which are still visible in the landscape or currently occupied are Muckle Ayre (**Site M-W 9**) and Stackwell (**Site M-W 15**) with four roofed buildings, Hamar (**Site M-W 11**) with five, and an unnamed steading (**Site M-W 13**) close to the Pund of Levaneap with three buildings, which now appear to be ruinous. There is also a single roofed structure lying between the group of mills and the Hamar farmstead (**Site M-W 10**), and this appears to be still extant and roofed.

There are five further sites comprising unroofed buildings and structures (**Site M-W 4**, **M-W 5, M-W 16**, **M-W 17**), probably related to farming activity. Three are depicted on the First and Second Edition OS maps, with a ruinous building (**Site M-W 17**) and a possible sheepfold (**Site**

M-W 18) visible on modern aerial imagery which do not appear on the historical map sources. All of these (**Site M-W 5**) are still extant.

There is a single roofed building close to the coast marked as Booth of Muckle Ayre (**Site M-W 8**) and is probably a booth for trading local produce. The structure is still in good condition, though roofless. Also along the coast, a number of nousts were identified during the walkover survey. At Little Ayre there is a pair of nousts (**Site M-W 52**), one of which is stone-lined. Both have been truncated along their seaward edges by coastal erosion. Further along the coast to the south, undulations adjacent to the surviving structures at **Site M-W 16** had the appearance of turf-built nousts.

Modern

No sites of this period were identified that were of heritage interest.

Features of Uncertain Date

Two sites were identified during the walkover survey which would require further investigation to characterise them fully. Close to the Noust of Levaneap a small pile of rubble (**Site M-W 53**) was seen where an open ditch connected with the shore. These could possibly be the remnants of a demolished structure. Inland from this was a sub-oval enclosure or earthwork (**Site M-W 54**) with earth fast stones along the south and east edges, incorporating outcropping bedrock along its northeast edge.

5.8.2 Saltness, Whalsay

A total of thirty-two sites were identified in the BMH 500m radius buffer study area. No additional sites were identified during the walkover survey. (Section 8: Figure HEA 2.8 Saltness; Appendix 1 Table A1.12). The description below includes sites that are now outwith the 500m study area around the current proposed BMH location (see Figure HEA 2.8 Saltness).

The Prehistoric Period (c.9000 BC to c.AD 800)

A low knoll on the north side of Symbister Bay is traditionally regarded as the site of a broch (**Site M-W 33**) from which a large amount of stone was removed for building during the eighteenth century. There are no obvious remains on the site, though it is believed that a sherd of prehistoric pottery held by the National Museum was recovered from this site.

The Medieval Period (c.AD 800 to 1614)

Salt Ness is recorded in the Shetland SMR as the location of a Viking ship burial (**Site M-W 51**), less than 100m from the coastal edge. The exact location is unknown and the site was not identified during a 1998 survey (Moore & Wilson 1999) nor during the current programme of walkover survey.

The Post-medieval Period (1614 to 1900)

The focus of settlement is Symbister (**Site M-W 22**) and the harbour which is split into two distinct areas on the west and east sides of Symbister Bay. The harbour area includes a number of eighteenth- and nineteenth-century structures including piers and docks (**Sites M-W 24**, **36** and **37**), a fishing booth (**Site M-W 37**), a fish store (**Site M-W 30**) and a house incorporating a sixteenth-century structure (**Site M-W 38**). All of these are designated as Category C Listed Buildings, mostly as part of two group designations based on Hem Dock and the South West Dock, except **Sites M-W 36** and **37** which are B Listed. Two roofed structures (**Sites 48** and **49**) are shown on the First Edition map, close to the east-side harbour, both of which appear to be

extant. Further to the northeast, on the edge of the study area, two unroofed structures (**Site M-W 39**) are shown. Only one of these appears to be still present in the landscape. The site of a weather warning pole (**Site M-W 34**) is now occupied by a modern weather station.

Between the south edge of the bay and an area of marsh with a pond, a flood gate (**Site M-W 46**) is marked on the First Edition OS map (Shetland XXXVIII.12 (Whalsey) 1880), but is not shown on subsequent revisions.

Modern (1900 onwards)

A small rectangular feature (**Site M-W 50**) is marked as 'Junction of Land and Submarine Telegraph' on the Second Edition OS map. This feature does not appear subsequently but a concrete structure currently at the site location is assumed to be housing for a later version of the cable.

5.8.3 Mainland to Whalsay Marine and Intertidal Corridor

Shipwrecks

There are no known wrecks with verified locations within or close close to the route corridor or any UKHO Position Approximate (PA) wrecks that research shows could be in the corridor.

There are at least seventeen wrecks known to have been lost but with no known verified locations (see Appendix 1, Table A1.13) that could be in the marine corridor for Route 2.8, especially around Symbister, Whalsay, due to its associations with Hanseatic League merchants from the sixteenth to the eighteenth century, and the continuation of international trade and fishing from the eighteenth century up to the present day. Vessels that would potentially have been at least of Medium historical importance includethe eight lost between 1695 and 1799, though the importance of some of these can be lowered because they are recorded as being broken up or refloated (see Appendix 1, Table A1.13).

Review of the geophysical survey datasets from the corridor (SSS, MBES and Mag, see Appendix 4) has identified no shipwrecks, only rocks, boulders and geological magnetic features. Any contacts marked as 'debris' by the survey were examined and considered to be rocks, except for anomaly 208_FTV_SSS_0080, which is possibly a buoy or discarded fishing gear. There are a number of linear features identified by in the SSS data by Fugro. These are likely to be discarded trawl warps, reflecting Whalsay's long-lived role as a large fishing community. The review has therefore reduced the risk of any wrecks with unverified locations being present in the corridor to Low-Negligible.

There are no reports of any mine lines laid along this route and Bi Monthly minesweeping reports show no mines found in this area., nor has review of the marine geophysical survey datasets from the corridor identified any.

There are at least seventeen wrecks known to have been lost but with no known verified locations (see Appendix 1, Table A1.13) that could be in the marine corridor for Route 2.8, especially around Symbister, Whalsay, due to its associations with Hanseatic League merchants from the sixteenth to the eighteenth century, and the continuation of international trade and fishing from the eighteenth century up to the present day. Vessels that would potentially have been at least of Medium historical importance includethe eight lost between 1695 and 1799, though the importance of some of these can be lowered because they are recorded as being broken up or refloated (see Appendix 1, Table A1.13).

Submerged deposits and features

Of the seven Shetland cable landfall areas, intertidal peat deposits are only known at Symbister Bay, Whalsay on cable route 2.8. Work by Hoppe (1965) at Symbister suggested that submerged peats here formed within the Late Mesolithic to Early Neolithic periods between 5768-5387 cal BC (6670±100 BP; St-1925) and 4693-3653 cal BC (5455±170 BP; St-1811). Initial pollen analysis of this peat carried out by Fries (in Hoppe, 1965) indicated open water fen vegetation with local stands of willow trees was present during this period. Arboreal pollen of oak, elm, birch and hazel were also recorded from these peats providing a valuable record of former woodland biodiversity for Shetland (Hoppe, 1965). However, the coast at Salt Ness is exposed and rocky and not conducive to such preservation, which is considered Negligible at the proposed BMH location. At Levaneap the coast is also steep and not conducive to such preservation, and also considered Negligible at the proposed BMH location.

Potential for undiscovered marine sites

As a maritime nation with a reliance on marine based trade and exchange, there have been countless shipwrecks around UK waters from all periods – many of which remain unreported. As such, there is a moderate to high probability for unknown, unrecorded vessels to have sunk in the marine study area, as well as those losses which have been recorded but not found, listed in Appendix 1, Table 1.13. However, wrecks stranded at or close to shore were usually salvaged, and wooden wrecks are unlikely to survive in the open waters further out, thus reducing the risk to Low-Negligible. The geophysical survey data for the corridor has been reviewed, and nothing of interest noted. Thus, the potential risk of unidentified sites being present in the corridor is considered Negligible.

5.8.4 Route 2.8: Landfalls and Marine Baseline and Constraints Summary

The Symbister harbour area includes a number of eighteenth- and nineteenth-century Listed Buildings, mostly as part of two group designations based on Hem Dock and the South West Dock, including piers and docks (**Sites M-W 24**, **36** and **37**), a fishing booth (**Site M-W 37**), a fish store (**Site M-W 30**) and a house incorporating a sixteenth-century building.

The closest potential site to current proposed BMH location site on Salt Ness is a Viking burial site (**Site M-W 51**), the exact location of which is unknown. The Shetland SMR entry places this site some 60m north of the proposed BMH location.

There are no designated historic assets present in the onshore BMH 500m radius buffer study area at Levaneap, Mainland. The closest sites are a ruined farmstead and nousts (**Sites M-W 11** and **16**) some 40m to the south-east.

Although peat deposits have been found in Symbister harbour, there are no known submerged peats or woodland at either landfall. The conditions at both landfalls are not conducive to such preservation, which considered Negligible at the proposed BMH locations at Salt Ness, Whalsay and Levaneap, Mainland.

No marine historic environment statutory designations have been identified in the marine corridor.

Whilst vessels of potentially medium importance have been lost along the route corridor in Shetland Waters, reviews of the geophysical survey data have reduced the risk to Low-Negligible.

There are no known submerged peats or woodland in the marine corridor.

6 Assessment of Impacts and Effects

6.1 Impact

The following potential impacts on historic environment assets have been identified:

- During construction and installation of the proposed cables, direct impacts to known and unknown cultural material and potentially anthropogenic geophysical anomalies on the seabed could be caused by vessel activities, seabed preparation and boulder clearance, resulting in the removal of marine cultural heritage or removal of material that forms the context of a site. Rock or mattress placement for cable protection could also impact by compressing any cultural material on which it is placed.
- During construction and installation of the proposed cables, direct impacts to known and unknown cultural material on the seabed could be caused by vessel activities, trenching and jetting. The target cable burial depth is up to 1m below the seabed offshore, and 2m between the BMH to Low Water Mark (LWM).
- At landfall, preparatory clearance works on the surface, and the creation of temporary construction compounds, equipment laydown areas and access routes could impact historic environment assets;
- At landfall, the trenching for laying of underground cables and the excavation of the BMH, as well as the surface activities described above could also penetrate the surface and impact archaeological sites and unknown assets buried in or below coastal deposits, especially dunes and beach sands;
- Where landfall is through a sloping sandy beach or a storm beach, there is a moderate risk of impacting paleoenvironmental and archaeological deposits below the surface cover. If such deposits, especially peats, are present below the surface, then they are likely to contain important information concerning the past environment of Shetland, changing sea levels and human interaction with the environment; and
- The project design means that on completion of the cable burial to the BMH location, the ground profile will be restored, and all machinery and equipment removed from site. Thus any change to setting will be very short term and, in line with standard guidance (HES 2016), is considered to have negligible effect on the setting of any asset. This potential impact is therefore scoped out.
- Significant potential impacts on the historic environment were only predicted during the construction and installation phase. None were predicted for the subsequent operations, maintenance and decommissioning phases, because no new ground or seabed will be broken.

A review of the pressures to be included in the Appraisal has excluded the following impacts from further consideration in relation to the historic environment:

- The project design means that on completion of the cable burial to the BMH location, the ground profile will be restored, and all machinery and equipment removed from site. Thus any change to setting will be very short term and, in line with standard guidance (HES 2016), is considered to have negligible effect on the setting of any asset. This potential impact is therefore scoped out.
- Significant potential impacts on the historic environment were only predicted during the construction and installation phase. None were predicted for the subsequent operations,

maintenance and decommissioning phases, because no new ground or seabed will be broken.

- Changes in bathymetry: given that each cable will be trenched and backfilled along the majority of their lengths coupled with the small footprint of each cable where trenching is not possible, i.e. where rock bags are utilised, the effect of the proposed cables on changes to bathymetry is negligible;
- Physical change to another seabed type: given that intrusion into the seabed, or disturbance on the surface of the seabed are the likely causes of any physical damage to historic environment assets, changes to another seabed type were not considered relevant; and
- Local water flow changes: given that each cable will be trenched and backfilled along the majority of their lengths, coupled with the use of rock bags/mattresses on small sections where trenching is not possible, water flow changes or cable movement creating scouring effects on the seabed thus impacting assets on the seabed will be negligible, especially because rockbags/mattresses are designed to eliminate scouring effects.

6.2 Mitigation and Management

Mitigation and management measures were developed by assessing the impacts likely from the development that could be significant by the criteria outlined in Section 4.6 above, or ensuring impacts were kept non-significant (see Appendix 2 for tabular assessment). Embedded mitigations are outlined below, followed by route-specific mitigations, presented in table summaries.

6.2.1 Embedded Mitigations

The **desk-based survey, the walkover surveys and the marine geophysical surveys** were embedded in the Project design, in order to identify any historic environment assets that might be impacted, and thus reduce or eliminate that risk.

Avoidance of known assets is the primary mitigation, embedded in the Project design. All identified known sites have been or will be avoided. The two landfalls where **movement of the BMH** will be required to achieve this are at Belmont (Route 2.1) and Fair Isle (Route 2.4), by 50m and 5-10m respectively (see sections 6.2.2 and 6.2.5 specific route mitigation tables below).

In order to prevent **accidental impacts** on sites near to the cable landfall, the BMH location and the marine cable route, site contractors will be informed of these locations and some may have **exclusion zones** put around them (see specific route mitigation tables below).

In order to manage the risk of the **accidental discovery** of any significant archaeological remains during marine and onshore preparation and construction works, the site contractor will be informed of the locations of all known cultural heritage assets to avoid. A Written Scheme of Investigation (WSI) will be produced and a **Protocol** for the accidental discovery of archaeological finds and remains (PAD) will be instated for the reporting of discoveries to the appropriate authorities. The WSI and PAD will include reference to the requirement for production an archaeological finds management plan for proper recording and analysis of any unexpected finds, and to the requirement for site inductions and toolbox talks, so that personnel are made aware of the potential for unknown remains, and the procedures for reporting them.

6.2.2 Route 2.1: Specific Mitigations

Sites & Potential	Location	Mitigation
Known Sites	Belmont, Unst	The proposed landfall is within an **Inventoried Garden and Designed Landscape**, in an area of grazed pasture between the shore at and the stone boundary wall that surrounds the parkland part of the GDL. **Consultation with HES and SIC is required concerning the GDL**; **Move BMH 50m** along shore to south-east to **avoid identified sites** U-54-56, U61 and U 62, and site U 53 to the east. There is a suitable gap of 100m between sites U-54 and U-61 on the west and U-53 on the east; Alternatively, move cable route to BMH so that it runs at least 5m east of Site U-54, thus avoiding all the other sites too (sites U-54-56, U61 and U 62, and site U 53). Instate **5-10m exclusion zone** round known sites; BMH installation **not to impact South boundary wall** of the formal parkland part of the GDL; BMH to **avoid being placed in central axis line** from the house through sea gates in south boundary; BMH to **be placed on south side of south boundary wall** so not visible from house while ground recovers from being reinstated.
Known Sites	Gutcher, Yell	Embedded Mitigation of **Avoidance** of known sites; Avoidance with **exclusion zone** marked as a precautionary measure around of B-listed telephone kiosk site Y-U 4, and ensure site contractors are aware.
Low/Negligible potential for significant unknown archaeological sites onshore	Belmont, Unst and Gutcher, Yell	Potential for discovery of unknown sites is considered low-negligible, therefore **embedded mitigations only**
Moderate potential for deposits below beach & in intertidal zone	Belmont, Unst	It is recommended that an **archaeological watching brief** is conducted during the excavation of the cable trench in the intertidal zone and at the beach, in order to manage the risk of impacting submerged palaeoenvironmental deposits below the beach. This work will allow for opportunity for appropriate recording and excavation of any unknown sub-surface archaeological features. If necessary, works may be called to a temporary halt where appropriate to retrieve any archaeological and environmental data, artefacts, and any other appropriate remains including carbonised deposits suitable for radiocarbon dating and environmental analysis. Procurement of radiocarbon dates would only be carried out if any appropriate material was retrieved, with specialist analysis of any appropriate material and reporting on the work forming part of this mitigation. Should the watching brief identify significant archaeological remains, discussions will be held between the developer, contractor and the Shetland Islands Council Planning Archaeologist to develop an appropriate strategy, which may include diverting the route around the site.
Low/Negligible potential for deposits below beach & in intertidal zone	Gutcher, Yell	Potential for discovery of unknown sites is considered negligible, therefore **embedded mitigations only**

Sites & Potential	Location	Mitigation
Marine sites (none identified)	Route 2.1 marine cable corridor	**Marine PAD**

6.2.3 Route 2.2: Specific Mitigations

Sites & Potential	Location	Mitigation
Known Sites	Brough/ Burravoe, Yell	**Avoidance of known sites**. Avoidance of Scheduled broch Site Y-M 7 by placing 10 m exclusion zone around the scheduled boundary as a precautionary measure; Watching brief during creation of BMH in case remains associated with the broch extend further than thought.
Known Sites	Mossbank, Mainland	Avoidance of C-Listed house and curtilage Site Y-M 31 (it virtually stands on the road); Ensure site contractors are aware of the listed building.
Low/Negligible potential for significant unknown archaeological sites onshore	Brough/ Burravoe, Yell and Mossbank, Mainland	Potential for discovery of unknown sites is considered low-negligible, therefore **embedded mitigations only**
Moderate potential for deposits below beach & in intertidal zone	Brough/ Burravoe, Yell	It is recommended that an **archaeological watching brief** is conducted during the excavation of the cable trench in the intertidal zone and at the beach, in order to manage the risk of impacting submerged palaeoenvironmental deposits below the beach. This work will allow for opportunity for appropriate recording and excavation of any unknown sub-surface archaeological features. If necessary, works may be called to a temporary halt where appropriate to retrieve any archaeological and environmental data, artefacts, and any other appropriate remains including carbonised deposits suitable for radiocarbon dating and environmental analysis. Procurement of radiocarbon dates would only be carried out if any appropriate material was retrieved, with specialist analysis of any appropriate material and reporting on the work forming part of this mitigation. Should the watching brief identify significant archaeological remains, discussions will be held between the developer, contractor and the Shetland Islands Council Planning Archaeologist to develop an appropriate strategy, which may include diverting the route around the site.
Low/Negligible potential for deposits below beach & in intertidal zone	Gutcher, Yell	Potential for discovery of unknown sites is considered negligible, therefore **embedded mitigations only**

Sites & Potential	Location	Mitigation
Marine sites	Route 2.2 marine cable corridor	**Marine PAD**

6.2.4 Route 2.3: Specific Mitigations

Sites & Potential	Location	Mitigation
Known Sites	Sumburgh, Shetland	**Avoidance of known sites** (the closest is Site S-S 34, 150m away).
Unknown sites in dunes Moderate potential for significant unknown archaeological sites in dunes	Sumburgh, Shetland	It is recommended that an **archaeological watching brief** is conducted during the excavation of the cable trench from the intertidal zone to the BMH, in order to manage the risk of impacting archaeological sites buried in the dunes. The exposure of human remains, structural features and midden layers (Site S-S 34) and the finding of a wooden boat Site S-S 01 in the vicinity show there is moderate potential for such an impact. This work will allow for opportunity for appropriate recording and excavation of any unknown sub-surface archaeological features. If necessary, works may be called to a temporary halt where appropriate to retrieve any archaeological and environmental data, artefacts, and any other appropriate remains including carbonised deposits suitable for radiocarbon dating and environmental analysis. Procurement of radiocarbon dates would only be carried out if any appropriate material was retrieved, with specialist analysis of any appropriate material and reporting on the work forming part of this mitigation. Should the watching brief identify significant archaeological remains, discussions will be held between the developer, contractor and the Shetland Islands Council Planning Archaeologist to develop an appropriate strategy, which may include diverting the route around the site.
Deposits below beach & in intertidal zone Moderate potential for such deposits	Sumburgh, Shetland	It is recommended that an **archaeological watching brief** is conducted during the excavation of the cable trench in the intertidal zone and at the beach, in order to manage the risk of impacting submerged palaeoenvironmental deposits below the beach. This work will allow for opportunity for appropriate recording and excavation of any unknown sub-surface archaeological features. If necessary, works may be called to a temporary halt where appropriate to retrieve any archaeological and environmental data, artefacts, and any other appropriate remains including carbonised deposits suitable for radiocarbon dating and environmental

Sites & Potential	Location	Mitigation
		analysis. Procurement of radiocarbon dates would only be carried out if any appropriate material was retrieved, with specialist analysis of any appropriate material and reporting on the work forming part of this mitigation. Should the watching brief identify significant archaeological remains, discussions will be held between the developer, contractor and the Shetland Islands Council Planning Archaeologist to develop an appropriate strategy, which may include diverting the route around the site.
Marine sites	Route 2.3 Shetland Waters marine cable corridor	**Marine PAD**

6.2.5 Route 2.4: Specific Mitigations

Sites & Potential	Location	Mitigation
Known Sites	Fair Isle	**Avoidance of known sites;** In order to prevent accidental impacts on sites near to the BMH location and cable route, site contractors will be informed of these locations; In order to avoid directly impacting the C-Listed storehouse (FI 13) and to prevent accidental impacts on it, an **exclusion zone** of 4m will be placed around it, in order to avoid any impact to the foundations or structure resulting from use of machinery. This exclusion zone is considered a suitable size to place around known upstanding structures and is recommended as a simple precautionary measure when the site contractors are moving around and operating in the proposed operations corridor. The slip, FI 19, will be avoided by the proposed cable and trenching for it by 2-3m. **No machinery exceeding 5 tons** will be used at the landfall and BMH location.
Low/Negligible potential for significant unknown archaeological sites onshore	Fair Isle	Potential for discovery of unknown sites is considered low-negligible, therefore **embedded mitigations only**
Low-Moderate potential for deposits below sands and storm beach at landfall	Fair Isle	It is recommended that an **archaeological watching brief** is conducted during the excavation of the cable trench in the intertidal at the beach, in order to manage the risk of impacting submerged palaeoenvironmental deposits below the beach. This work will allow for opportunity for appropriate recording and excavation of any unknown sub-surface archaeological features. If necessary, works may be called to a temporary halt where appropriate to retrieve any archaeological and environmental data, artefacts, and any other appropriate remains including carbonised deposits suitable for radiocarbon dating and environmental

Sites & Potential	Location	Mitigation
		analysis. Procurement of radiocarbon dates would only be carried out if any appropriate material was retrieved, with specialist analysis of any appropriate material and reporting on the work forming part of this mitigation. Should the watching brief identify significant archaeological remains, discussions will be held between the developer, contractor and the Shetland Islands Council Planning Archaeologist to develop an appropriate strategy, which may include diverting the route around the site.
Marine sites	Route 2.4 marine cable corridor	**Marine PAD**

6.2.6 Route 2.8: Specific Mitigations

Sites & Potential	Location	Mitigation
Known Sites	Levaneap, Mainland	**Avoidance of known sites**. Ensure contractors are aware of closest site M-W11 and M-W 16, comprising farmstead and nousts, 50m from BMH location.
Known Sites	Symbister/ Saltness, Whalsay	**Avoidance of known sites**. Ensure BMH location not accessed across **broch site M-W33** and no quarrying there for materials (some quarrying for materials has occurred here in the past); ensure site contractors are aware. **In order to avoid impact on possible burial site M-W 51**: Instate **PAD** if no new groundworks required other than in disturbed area of M-W 50; Conduct **Watching brief** if new groundworks are required outwith area of M-W 50.
Low/Negligible potential for significant unknown archaeological sites onshore	Levaneap, Mainland and Symbister,/ Saltness Whalsay	Potential for discovery of unknown sites is considered low/negligible, therefore **embedded mitigations only**
Low/Negligible potential for deposits below beach & in intertidal zone	Levaneap, Mainland and Symbister,/ Saltness Whalsay	Potential for discovery of unknown sites is considered low/negligible, therefore **embedded mitigations only**

Sites & Potential	Location	Mitigation
Marine sites	Route 2.8 marine cable corridor	**Marine PAD**

6.3 Effect

The mitigation and management strategies outlined in Section 6.2 above will reduce or eliminate any significant impacts on historic environment assets in the marine corridor or at landfall in the Shetland geographical area (see Appendix 2 for tabular assessment). The implementation of these strategies result in there being no or minor effects on known historic environment assets, and a potential minor significance of effect on any unknown assets or deposits buried onshore or in the intertidal zones and below beach deposits at landfall, as summarised in Table 5.

Table 5: Summary of Effects

Receptor	Importance	Potential Impact	Mitigation / Management	Significance of Effect
Known marine historic environment assets	Low-High	Seabed preparation, trenching, placement of cable protection	DBA and marine geophysical survey datasets review conducted. Avoidance (all outwith marine route corridor). Marine PAD	None
Unknown marine assets	Low-High	Seabed preparation, trenching, placement of cable protection	DBA and marine geophysical survey datasets review conducted. Marine PAD	None / Negligible / Minor
Known onshore historic environment assets	Low – High	Abrasion/disturbance/penetration of intertidal and onshore ground	DBA and walkover survey conducted. Avoidance. Movement of Route 2.1 Belmont BMH and landfall trench to it at Route 2.1 Belmont by 50m to south-east. Alternatively, move cable route to BMH so that it runs at least 5m east of Site U-54, thus avoiding all the other sites too (sites U-54-56, U61 and U 62, and site U 53). Construction and ancillary works will avoid known assets, with exclusion zones imposed around any assets. Project contractors will be informed of sensitive locations of any sites nearby. On completion of the cable burial the beach and onshore profile will be restored.	None-Minor
Unknown intertidal and onshore assets	Low – High	Abrasion/disturbance/penetration of intertidal and onshore ground	Walkover survey conducted to identify any unknown assets visible on the surface. Archaeologically monitor intertidal landfall and cable trenches so that any sediments with paleoenvironmental potential are noted, sampled, analysed and reported. Implementation of WSI and PAD On completion of the cable burial the beach and onshore profile will be restored.	Minor
Unknown cultural material	Low – High	Abrasion/disturbance/penetration of intertidal and onshore ground	Implementation of PAD	Minor

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