14. Marine Archaeology

This chapter of the Scoping Report describes the potential impacts arising from the construction, operation (including maintenance and repair) and decommissioning of the Eastern Green Link 3 (EGL 3) hereafter referred to as 'the Project' on offshore archaeology and cultural heritage receptors.

Offshore archaeological and cultural heritage receptors located within the Study Area for the topic will be considered against the following categories:

- Submerged prehistory: including palaeolandscapes (A past (usually prehistoric) landscape), palaeolandscape forms, palaeoenvironmental (Of or relating to a past (usually prehistoric) environment.) remains and prehistoric artefacts and sites;
- Maritime and intertidal archaeology: broadly comprising vessel remains, wreckage/debris, cargo and sites/structures within the offshore area (MHWS); and
- Aviation archaeology: comprising all military and civilian aircraft crash sites and related wreckage.

14.1. Study Area Definition

The Scoping Boundary for the Project extends from MHWS in England to MHWS in Scotland. It is nominally 1 km wide which reflects the area surveyed by a marine cable reconnaissance survey, however this may be wider in places to accommodate any potential optionality such as routeing around a seabed feature or habitat, or to allow for the footprint of installation vessels. The Project will begin on the Lincolnshire coast, at either Anderby Creek or Theddlethorpe and route to Sandford Bay in Northeast Scotland.

The Study Area for offshore archaeology comprises a 2 km zone measured from the Scoping Boundary (Drawing: C01494a-ARCH-001-B). The onshore section of the Study Area extends for 200 m, measured from MHWS. This Study Area is considered suitable for characterising the offshore archaeological resource of the Project, as it will examine assets potentially susceptible to direct and/or indirect impacts. Should further information demonstrate a potential for impacts to offshore heritage assets beyond this Study Area, this may be amended in agreement with the Applicant and key stakeholders.

14.2. Data Sources

14.2.1. Site-specific Survey Data

Primary data will be obtained from geophysical and geotechnical surveys covering the Project (scope of works described in Chapter 6). This will be collected and assessed following best practice professional guidance for marine archaeology including, but not limited to:

- Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for Renewable Energy Sector (Gribble & Leather 2011); and
- Marine Geophysics Data Acquisition, Processing and Interpretation Guidance Notes (English Heritage and Bates, R., Dix, J. K., Plets, R. 2013) (document currently under review by MSDS Marine).

14.2.2. Publicly Available Data

14.2.2.1. Baseline Summary for the Scoping Report

The baseline summary for offshore archaeology was informed by a range of publicly available data sources.

The submerged prehistory baseline was informed by sea level modelling studies and projects mapping onshore and offshore palaeolandscape features (sources referenced in text below). The outputs of these studies included GIS shapefile data, which were reviewed for the baseline assessment.

The baseline of known archaeological and cultural heritage receptors within the Study Area refers to data obtained from the following sources:

- United Kingdom Hydrographic Office (UKHO) data: comprising records relating to charted wrecks and other seabed obstructions that are considered navigational hazards;
- Historic England (HE) National Record of the Historic Environment (NRHE) data: World Heritage Sites, Protected Wrecks, Scheduled Monuments, Listed Buildings, Registered Battlefields, Registered Parks and Gardens and Conservation Area records for England;

- Historic Environment Scotland (HES) data: World Heritage Sites, Historic Marine Protected Areas, Scheduled Monuments, Listed Buildings, Inventory of Historic Battlefields, Gardens and Designed Landscapes, Conservation Areas and Properties in Care records for Scotland;
- Canmore data: archaeological and historic environment records for onshore and offshore heritage assets in Scotland; and
- Local Historic Environment Record (HER) data: archaeological and historic environment records for onshore and offshore heritage assets in Aberdeenshire and Lincolnshire.

All spatial data utilised in forming the offshore archaeological baseline was converted to and presented in Universal Transverse Mercator (UTM) Zone 30 North projected from a European Terrestrial Reference System (ETRS) 1989 datum.

14.2.2.2. Sources for the Future Desk-Based Assessment

The desk-based assessment (DBA), as part of the MEA, would include further, detailed examination of the data sources used for the baseline summary. In addition, a range of relevant published academic articles, books and grey literature reports would be reviewed to inform the baseline. Where applicable and accessible, reports relating to the archaeology of nearby offshore developments would also be reviewed during the DBA.

As referenced in Section 14.2.1 above, further primary data would be obtained from geophysical and geotechnical surveys covering the Project. The data would be subject to archaeological review to provide a full assessment of known and potential offshore heritage receptors. An intertidal walkover survey would be undertaken at the landfall options in Scotland and England to ground truth previously recorded heritage receptors and to identify any new receptors that may be of relevance to the assessment. The results would be incorporated into a DBA, which would be undertaken using data from the United Kingdom Hydrographic Office (UKHO), national and local authority sources, and other relevant data sources.

The character and potential of submerged prehistoric landscapes and remains would be based on a review of geological mapping of seabed sediments, solid geology and bathymetry from published British Geological Survey (BGS) sources. This would be enhanced by the geoarchaeological review of geotechnical and geophysical datasets gathered for the Project.

Regarding the assessment of intertidal heritage receptors, whilst some assessment has been provided within this Scoping Report, it is intended that a range of national and local HER datasets and further relevant data (such as Rapid Coastal Zone Assessment Surveys) would be used to inform the MEA in this area. An intertidal walkover survey will also help to identify and characterise any heritage assets within this area.

14.3. Consultation

Consultation will be undertaken with relevant stakeholders, ensuring that key considerations are included in the DBA and any issues can be resolved at an early stage. Stakeholder feedback may also supplement the DBA, providing information that may not be obtainable through the aforementioned data sources. The following bodies will be consulted, as a minimum:

Table 14-1: List of stakeholders to be consulted.

England	Scotland
Marine Management Organisation (MMO)	Marine Directorate Licensing Operations Team (MD-LOT)
Historic England	Historic Environment Scotland
Lincolnshire County Council	Aberdeenshire County Council

Further details and responses from stakeholder consultation will be included in the Marine Archaeology chapter of the MEAp.

14.4. Baseline Characterisation

14.4.1. Introduction

The baseline summary for submerged prehistory is based on a preliminary review of geological mapping of seabed sediments and solid geology from published British Geological Survey (BGS) sources, enhanced by the high-level and localised results of regional and national archaeological and geoarchaeological studies.

The baseline of known archaeological and cultural heritage receptors within the Study Area was formed through preliminary review of data obtained from the UKHO and historic environment data archives.

This section has been split into the following sub-sections to provide an overview of the known offshore archaeological resource:

- Overview;
- English baseline characterisation; and
- Scottish baseline characterisation.

14.4.2. Overview

14.4.2.1. Submerged prehistory

The North Sea contains prehistoric submarine archaeological remains which date back to almost one million years ago, encompassing the known chronology of hominid activity in the British Isles. The earliest dated remains of hominid activity in Britain, dating to c. 900,000 Before Present (BP), were recovered from the intertidal Site 3 at Happisburgh, Norfolk, c. 100 km southeast from the proposed English Landfalls. Investigation of this site and others in the vicinity place them in a Middle Pleistocene palaeolandscape characterised by grassland, conifer forest, braided river systems and megafauna (Pathways to Ancient Britain, 2023). A range of regional studies, both geologically and archaeologically focussed, have been undertaken over the past 60 years to develop understanding of the palaeogeography and how humans may have interacted with the palaeolandscapes of the North Sea.

These studies have shown that the coastline along the southeast of Scotland and northeast of England has the potential for the presence of as-yet undiscovered in situ prehistoric sites, artefacts and deposits of palaeoenvironmental interest, located within the inundated nearshore and offshore palaeogeography. Palaeolandscape features such as lake deposits, tunnel valleys, palaeochannels, submerged peat and submerged forests have the potential to contain palaeoenvironmental and archaeological remains. A detailed review of geological units identified within the Project (by site-specific geophysical and geotechnical surveys) and their inherent archaeological and palaeoenvironmental potential would be undertaken to inform the DBA for the MEA.

14.4.2.2. Maritime and intertidal archaeology

Maritime archaeological sites comprise two broad categories: the remains of vessels that have been lost by stranding, foundering, collision, enemy action and other causes, and those sites that consist of vessel-related material. Vessel-related material can include (but is not limited to): equipment lost overboard or deliberately jettisoned, such as fishing gear, ammunition and anchors; or the only surviving remains of a vessel, such as its cargo or a ballast mound. Shipwrecks on the seabed provide an insight on the types of vessels used in the past, the nature of shipping activity in the wider area and the changing usage of the marine environment through different periods. Such remains are considered more likely to survive in sediments which promote the preservation of wreck sites (e.g., finer grained sediments that are not subject to high levels of mobility).

The Study Area includes numerous records relating to archaeological and heritage assets in England and Scotland. Designated heritage assets comprise:

- England:
  a) Six Listed Buildings;
- Scotland:
  a) Two Scheduled Monuments;
  b) Two hundred and eighty-seven (287) Listed Buildings; and
  c) Three Conservation Areas.

Non-designated assets comprise:

- England:
  a) One hundred and six (106) wreck records (UKHO; Drawing: C01494a-ARCH-002-B);
  b) Sixty-eight (68) archaeological sites (Lincolnshire HER);
- Scotland:
  a) Twenty-five (25) wreck records (UKHO; Drawing: C01494a-ARCH-002-B);
  b) Three hundred and forty (340) wreck records and 486 onshore heritage records (Aberdeenshire HER); and
  c) Four hundred and fifty-five (455) heritage records, 340 maritime records and three areas of heritage interest (Canmore).

In several cases, records from various data sources may correlate with others for the same site or findspot. Any such instances will be highlighted by the DBA and the resultant total sum of heritage and wreck records would be less than indicated above.

14.4.2.3. Aviation archaeology

Offshore aviation archaeology receptors comprise the remains, or associated remains, of military and civilian aircraft that have been lost at sea. Evidence is divided into three primary time periods, based on major technological advances in aircraft design:

- Pre-1939;
- 1939-1945; and
- Post-1945.

Several records indicate the possible location of aircraft remains within the Study Area:

- England:
  a) One UKHO record;
- Scotland:
  a) One UKHO record; and
  b) Three Canmore records.

Maritime aircraft crash sites can retain a significant amount of material and, although these can be difficult to identify and remains may be dispersed and/or buried, there is a possibility that aircraft material may be present within the Study Area. Any aircraft remains would be automatically protected under the Protection of Military Remains Act 1986.

14.4.3. English Baseline Characterisation

14.4.3.1. Submerged prehistory

The BRITICE project (Clark *et al*., 2017) mapped a series of sub-glacial tunnel valleys crossing near to the 12 NM limit of English waters. The North Sea Palaeolandscapes Project (University of Birmingham, 2011) utilised geophysical data to reconstruct the Mesolithic palaeolandscape of part of the Southern North Sea, from c. 12 NM from the Lincolnshire/Norfolk coast to Doggerbank. The results placed a southern part of the Study Area in a palaeolandscape characterised by a large valley to the northeast, the slopes of which were crossed by numerous watercourses. Earlier palaeolandscape features were also identified, including a sub-glacial tunnel valley crossing the Study Area. EMODnet data (2023) holds records for submerged peat at Mablethorpe and submerged forests at Trusthorpe, Sutton-on-Sea and Anderby, all within English waters of the Study Area.

Prehistoric coastline modelling by Brooks *et al*. (2011) suggests the Study Area up to c. 12 NM in English waters remained sub-aerially exposed until c. 8,000 BP.

Five Lincolnshire HER relate to prehistoric findspots in the English intertidal zone of the Study Area. These range in date from the Palaeolithic to Iron Age.

14.4.3.2. Maritime and intertidal archaeology (up to 12 NM)

There are currently six records within the Study Area that are subject to statutory protection as Listed Buildings. All are situated within the onshore zone of the Study Area in Lincolnshire. No records within the Study Area relate to remains or sites designated as Protected Wrecks, Scheduled Monuments (England) or under the Protection of Military Remains Act 1986.

There are 16 wreck sites recorded by the UKHO within the Study Area within 12 NM (Drawing: C01494a-ARCH-003-B; **Error! Reference source not found.**). Five of these are recorded as 'dead', indicating that they have not been detected by repeated surveys. Two further wrecks are recorded as 'lifted' indicating no, or little, remains on the seabed.

The Lincolnshire HER illustrates 68 archaeological sites within the onshore and intertidal zones of the Study Area (Drawing: C01494a-ARCH-003-B). These records include wrecks, find spots, structural remains and landscape features. No Lincolnshire HER correlate with UKHO records.

14.4.3.3. Maritime archaeology (beyond 12 NM)

There are currently no records within the Study Area (beyond 12 NM) that are subject to statutory protection as Scheduled Monuments, Protected Wrecks, Historic Marine Protected Areas or under the Protection of Military Remains Act 1986.

Ninety (90) wreck sites are recorded by the UKHO within English waters of the Study Area beyond 12 NM (Drawing: C01494a-ARCH-002-B; **Error! Reference source not found.Error! Reference source not found.**). Twenty-one (21) of these are recorded as 'foul ground'. Forty-one (41) are recorded as 'dead', indicating that they have not been detected by repeated surveys. Twenty (20) records are recorded as both 'foul ground' and 'dead'. One further wreck is recorded as 'lifted'.

No HER lay within English waters beyond 12 NM.

14.4.3.4. Aviation archaeology

One UKHO record relates to an aircraft crash site in English waters, situated within the Study Area beyond 12 NM (Table 14 2; UKHO record 9088). UKHO 9088 relates to a United States Air Force F15, ditched at a broad location in 1990, which has not been identified during subsequent surveys. It is recorded as a 'dead' location by the UKHO.

Lincolnshire has been home to an extensive aviation industry from the early 20th century and was the home of Bomber Command during the Second World War. Numerous airbases situated throughout the county hosted flight training and combat missions to the European mainland.

Table 14-2: UKHO records in English waters.

UKHO ID	Name	Type	Description	Latitude	Longitude	Source
Up to 12 NM						
85316	-	-	Dangerous wreck	53 16.022 N	0 23.589 E	UKHO
8664	LIZZIE CARTER	sailing vessel	Dangerous wreck; dead	53 27.136 N	0 18.696 E	UKHO
91943	Lincolnshire Time and Tide Bell	-	-	53 22.011 N	0 14.992 E	UKHO
8676	RAVONIA (part) (possibly)	steam ship	Dangerous wreck; broken wreckage	53 29.347 N	0 24.507 E	UKHO
8661	HMS CORFIELD	steam ship	Dangerous wreck; area of debris lying entirely within scour	53 26.94 N	0 18.899 E	UKHO
8667	FRYKEN	steam ship	Dangerous wreck	53 27.651 N	0 26.136 E	UKHO
8678	RAVONIA (part)	steam ship	Dangerous wreck	53 29.964 N	0 24.949 E	UKHO
8997	-	-	Non-dangerous wreck; dead	53 23.269 N	0 24.429 E	UKHO
9074	-	-	Non-dangerous wreck; dead; possible small wreck	53 23.036 N	0 20.229 E	UKHO
8637	STAR	sailing vessel	Non-dangerous wreck; dead	53 20.12 N	0 22.696 E	UKHO
9181	-	-	Lifted	53 17.52 N	0 19.296 E	UKHO
9094	-	Pipes/ Tubes/ Diffusers	Dead	53 22.079 N	0 15.421 E	UKHO
81776	-	-	In area of pipelines; possibly disturbed seabed	53 22.408 N	0 18.783 E	UKHO
8640	-	-	Dangerous wreck; lifted	53 20.8 N	0 23.1 E	UKHO
8651	-	fishing vessel	Wreck showing any portion of hull or superstructure	53 22.419 N	0 14.897 E	UKHO
94757	-	-	Dangerous wreck	53 16.319 N	0 19.833 E	UKHO
Beyond 12 NM						
8842	VIRGINIAN	trawler	Dangerous wreck	53 40.855 N	0 48.648 E	UKHO
8854	SCOTIA (possibly)	trawler	Dangerous wreck	53 38.639 N	0 43.601 E	UKHO
8915	PILSUDSKI	liner	Dangerous wreck	53 46.265 N	0 45.554 E	UKHO
8874	-	sailing vessel	Dangerous wreck	53 41.281 N	0 49.596 E	UKHO
87269	-	-	Dangerous wreck	53 38.897 N	0 43.92 E	UKHO
9045	RADO (possibly)	trawler	Dangerous wreck	53 41.45 N	0 39.575 E	UKHO
8860	CATFORD	steam ship	Dangerous wreck; upright; very broken up; superstructure midships	53 38.948 N	0 41.154 E	UKHO
86593	-	-	-	53 39.655 N	0 54.364 E	UKHO
6717	-	-	Pile of fishing gear (nets & ropes)	54 24.162 N	0 15.637 E	UKHO
8887	ABY (possibly)	fishing vessel	Debris; foul ground; dead	53 43.351 N	0 40.609 E	UKHO
9041	-	trawler	Dangerous wreck; poorly defined	53 41.934 N	0 54.923 E	UKHO
9040	-	steam ship	Dangerous wreck; intact	53 41.968 N	0 54.639 E	UKHO
9043	-	-	Foul ground; debris & wreck fragment	53 43.201 N	0 51.074 E	UKHO
9044	VEREINGTE (possibly)	steam ship	Dangerous wreck; bow & boiler intact; stern broken up	53 45.917 N	0 43.441 E	UKHO
6385	-	-	Non-dangerous wreck; intact	54 56.74 N	0 15.306 W	UKHO
8726	SCHIELAND (possibly)	steam ship	Dangerous wreck; upright; bows detached	53 32.761 N	0 37.162 E	UKHO
9067	-	-	Foul ground; dead; small linear contact	53 37.235 N	0 45.575 E	UKHO

UKHO ID	Name	Type	Description	Latitude	Longitude	Source
8858	SILVER QUEEN	sailing vessel	Dangerous wreck; dead	53 38.851 N	0 51.723 E	UKHO
93002	-	-	Dangerous wreck	53 39.277 N	0 51.165 E	UKHO
8856	CECIL (possibly)	sailing vessel	Dangerous wreck; almost buried	53 38.216 N	0 39.55 E	UKHO
8868	NORFOLK (possibly)	sailing vessel	Dangerous wreck; in two parts	53 40.329 N	0 51.895 E	UKHO
8879	KEYNES	steam ship	Dangerous wreck	53 42.107 N	0 44.821 E	UKHO
9030	-	trawler	Dangerous wreck; steel hull; single boiler	53 39.064 N	0 40.369 E	UKHO
93000	-	-	Dangerous wreck; suspected remains of wreck; partly buried; degraded	53 40.889 N	0 40.925 E	UKHO
93006	-	-	Dangerous wreck	53 38.108 N	0 54.979 E	UKHO
6524	CONDOR (possibly)	trawler	Non-dangerous wreck; intact	54 34.103 N	0 16.783 E	UKHO
6620	RENATE S	motor vessel	Non-dangerous wreck; dead; see also [6706]	54 40.01 N	0 13.391 E	UKHO
6666	-	-	Non-dangerous wreck; intact; probably on side	54 19.608 N	0 15.745 E	UKHO
6532	JOHNNY BOY (probably)	fishing vessel	Non-dangerous wreck; wooden hull; upright; intact	54 45.434 N	0 10.175 E	UKHO
8730	STYLIANOS CHANDRIS	steam ship	Dangerous wreck; in two parts	53 32.599 N	0 30.838 E	UKHO
8918	REBONO (probably)	trawler	Dangerous wreck; well-defined; intact	53 47.834 N	0 54.774 E	UKHO
6597	KIELDRECHT (possibly)	steam ship	Non-dangerous wreck	54 5.281 N	0 27.326 E	UKHO
9105	-	-	Non-dangerous wreck	53 53.883 N	0 42.424 E	UKHO
6603	-	-	Non-dangerous wreck; partly collapsed	54 3.299 N	0 36.591 E	UKHO
6549	-	-	Non-dangerous wreck	54 49.708 N	0 2.259 E	UKHO
8953	ROCHESTER (possibly)	trawler	Non-dangerous wreck	53 53.283 N	0 42.207 E	UKHO
8966	TWO BROTHERS	trawler	Non-dangerous wreck	53 55.416 N	0 37.924 E	UKHO
6488	APHELION	trawler	Non-dangerous wreck; dead; see [6489]	54 6.914 N	0 29.091 E	UKHO
8913	AJAX	trawler	Non-dangerous wreck; dead	53 46.017 N	0 51.89 E	UKHO
4612	-	Fisherman's Fastener	Foul ground; dead	55 28.577 N	0 22.567 W	UKHO
4614	-	Fisherman's Fastener	Foul ground; dead	55 28.793 N	0 23.367 W	UKHO
4613	-	Fisherman's Fastener	Foul ground; dead	55 28.71 N	0 22.967 W	UKHO
4609	-	Fisherman's Fastener	Foul ground; dead	55 27.56 N	0 21.067 W	UKHO
4600	-	Fisherman's Fastener	Foul ground; dead	55 23.927 N	0 25.167 W	UKHO
4619	-	Fisherman's Fastener	Foul ground; dead	55 30.443 N	0 19.933 W	UKHO
4665	-	Fisherman's Fastener	Foul ground; dead	55 19.127 N	0 24.633 W	UKHO
4659	-	Fisherman's Fastener	Foul ground; dead	55 20.543 N	0 25.617 W	UKHO
4662	-	Fisherman's Fastener	Foul ground; dead	55 20.077 N	0 24.55 W	UKHO
4625	-	Fisherman's Fastener	Foul ground; dead	55 35.077 N	0 19.25 W	UKHO
4565	-	Fisherman's Fastener	Foul ground; dead	55 5.877 N	0 20.9 W	UKHO
8940	LISMORE	trawler	Non-dangerous wreck; dead	53 52.316 N	0 42.74 E	UKHO
8968	DEVONIAN	trawler	Non-dangerous wreck; dead	53 56.216 N	0 46.49 E	UKHO

UKHO ID	Name	Type	Description	Latitude	Longitude	Source
9135	-	-	Non-dangerous wreck; dead	53 45.634 N	0 45.59 E	UKHO
67143	MILO	sailing vessel	Non-dangerous wreck; dead	53 34.418 N	0 31.043 E	UKHO
67164	SECRET	sailing vessel	Non-dangerous wreck; dead	53 34.418 N	0 31.043 E	UKHO
8759	LANCASTER	trawler	Dangerous wreck; dead	53 33.519 N	0 34.294 E	UKHO
8994	LANCASTER (possibly)	trawler	Dangerous wreck; upright; intact	53 32.172 N	0 32.295 E	UKHO
8852	ROYSTON	steam ship	Dangerous wreck; broken midships; deep trawl scours close to E	53 37.534 N	0 39.488 E	UKHO
8995	-	-	Non-dangerous wreck; dead	53 30.485 N	0 31.461 E	UKHO
8691	BEELSBY	sailing vessel	Dangerous wreck; dead	53 31.019 N	0 31.394 E	UKHO
6673	-	-	Foul ground; dead	54 13.763 N	0 14.959 E	UKHO
6655	-	-	Foul ground; dead	54 28.578 N	0 13.125 E	UKHO
6652	-	-	Foul ground; dead	54 29.711 N	0 16.475 E	UKHO
6640	-	-	Foul ground; dead	54 32.778 N	0 15.792 E	UKHO
6487	JOSEPH AND WILLIAM	sailing vessel	Non-dangerous wreck; dead	54 6.914 N	0 25.792 E	UKHO
6489	ALBATROSS	trawler	Non-dangerous wreck; dead; see [6488]	54 6.914 N	0 29.091 E	UKHO
67148	-	-	Dangerous wreck	53 34.003 N	0 29.895 E	UKHO
73566	HOLMAR I	motor vessel	Non-dangerous wreck	54 18.512 N	0 13.393 E	UKHO
8903	LARCHWOOD (possibly)	steam ship	Dangerous wreck; intact	53 41.718 N	0 54.539 E	UKHO
6516	-	-	Non-dangerous wreck; dead	54 16.513 N	0 16.892 E	UKHO
9159	-	-	Dead; possible boulder	53 34.01 N	0 36.485 E	UKHO
9160	-	-	Dead; possible pile of boulders	53 33.985 N	0 36.993 E	UKHO
8888	-	-	Dead	53 43.817 N	0 47.29 E	UKHO
78151	-	-	Non-dangerous wreck; upright; almost fully buried	54 7.152 N	0 22.165 E	UKHO
9088	**-**	**aircraft**	**Foul ground; dead**	**53 41.018 N**	**0 48.89 E**	**UKHO**
67187	-	-	Non-dangerous wreck; dead	53 43.017 N	0 46.89 E	UKHO
6529	-	Fisherman's Fastener	Foul ground; dead	54 42.759 N	0 9.392 E	UKHO
9091	STRATON (possibly)	trawler	Non-dangerous wreck; dead	53 38.302 N	0 43.359 E	UKHO
67163	SCHIELAND	steam ship	Lifted	53 32.185 N	0 33.726 E	UKHO
81021	-	-	250kg gearbox	53 50.732 N	0 48.383 E	UKHO
9145	SCOTIA (possibly)	-	-	53 37.599 N	0 47.341 E	UKHO
83321	-	-	Cylindrical tank	54 51.105 N	0 2.568 W	UKHO
6536	-	Fisherman's Fastener	Foul ground; dead	54 49.758 N	0 6.392 E	UKHO
6619	RENATE S	fishing vessel	Non-dangerous wreck; dead	54 38.51 N	0 14.191 E	UKHO
6688	-	-	Non-dangerous wreck; intact; upright	54 7.162 N	0 21.855 E	UKHO
6706	RENATE S (possibly)	motor vessel	Non-dangerous wreck; see [6620]	54 40.276 N	0 16.116 E	UKHO
8891	-	steam ship	Dangerous wreck; upright; intact; E end buried	53 44.168 N	0 50.341 E	UKHO
9058	-	-	Dangerous wreck; part of hull only; filled with large stones	53 51.233 N	0 39.891 E	UKHO
71850	-	-	Non-dangerous wreck; collapsed; highly degraded	55 23.97 N	0 22.703 W	UKHO
71848	-	-	Non-dangerous wreck; in two parts; highly degraded	55 32.506 N	0 18.754 W	UKHO

14.4.4. Scottish Baseline Characterisation

14.4.4.1. Submerged prehistory

The BRITICE project (Clark et al., 2017) mapped a series of meltwater channels and moraines crossing the Study Area up to c. 60 km offshore from the Scottish landfall and lake deposits at the northernmost part of the Study Area. Meltwater channels are also mapped up to c. 60 km offshore by EMODnet data (n.d.).

Prehistoric coastline modelling by Brooks et al. (2011) suggests the northern half of the Study Area was submerged prior to 18,000 BP.

No heritage records indicate offshore prehistoric sites or finds in Scottish waters, and few relate to onshore remains in the Study Area.

14.4.4.2. Maritime and intertidal archaeology (up to 12 NM)

There are two records within the Study Area that are subject to statutory protection as Scheduled Monuments. Both are situated within the onshore zone in Aberdeenshire. In addition, 287 Listed Buildings and three Conservation Areas lay within the same part of the Study Area. No records within the Study Area relate to remains or sites designated as Historic Marine Protected Areas or under the Protection of Military Remains Act 1986.

There are 19 wreck sites recorded by the UKHO within the Study Area within 12 NM (Drawing: C01494a-ARCH-004-B; Table 14 3). Two of these are recorded as 'foul ground'. A further seven are recorded as 'dead', indicating that they have not been detected by repeated surveys. Four wrecks are recorded as 'lifted' indicating no, or little, remains on the seabed.

Aberdeenshire HER illustrates 333 wreck sites within the Study Area (offshore) and 486 archaeological or heritage sites (onshore; Drawing: C01494a-ARCH-005-B). Canmore illustrates 455 heritage sites, three areas of heritage interest (relating to heritage sites) and 305 maritime records (Drawing: C01494a-ARCH-006-B). Several of the HER and Canmore records correspond to identified UKHO records.

14.4.4.3. Maritime archaeology (beyond 12 NM)

There are currently no records within the Study Area beyond 12 NM that are subject to statutory protection as Scheduled Monuments, Protected Wrecks, Historic Marine Protected Areas or under the Protection of Military Remains Act 1986.

Six (6) wreck sites are recorded by the UKHO within Scottish waters of the Study Area beyond 12 NM (Drawing: C01494a-ARCH-002-B; Table 14 3). One (1) of these is recorded as 'dead', indicating that they have not been detected by repeated surveys.

The Aberdeenshire HER illustrates seven wreck sites and Canmore illustrates 15 maritime records within the Study Area (Scottish waters beyond 12 NM). All six UKHO records in this area correlate with Canmore records.

14.4.4.4. Aviation archaeology

One UKHO record relates to an aircraft crash site in Scottish waters, situated within the Study Area beyond 12 NM (Table 14 3; UKHO record 3201). UKHO 3201 relates to wreckage identified from a helicopter in 1978 but subsequent survey failed to relocate the remains.

Three aircraft loss records held by Canmore have been identified at sea in Scottish waters of the Study Area; two within 12 NM and one beyond. No further crash sites are recorded by the HERs. As these are recorded losses, the positional data is unreliable and serves only to provide an indication of the types of aircraft that flew over this coastline, and the potential to identify remains within the Study Area. In many cases, these locations are only a set of general coordinates, a general distance and bearing from a landmark, the location of the crew's dinghy or the recovered remains of crew or aircraft.

The hinterland of Peterhead, Scotland, was home to several airfields, operational during both World Wars, resulting in significant aircraft traffic in the area during the first half of the 20th century.

Table 14-3: UKHO records for Scottish waters.

UKHO ID	Name	Type	Description	Latitude	Longitude	Source
Up to 12 NM						
78420	-	-	Dumped hawsers	57 30.16 N	1 44.15 W	UKHO
2269	WINDWARD HO (possibly)	trawler	Non-dangerous wreck; intact; upright	57 27.323 N	1 41.36 W	UKHO
73699	IJSSELSTROOM	tug	Dangerous wreck; dead	57 29.85 N	1 45.91 W	UKHO
2276	ATLAND	steam ship	Non-dangerous wreck; largely intact	57 28.777 N	1 38.244 W	UKHO
65023	SMIT-LLOYD 47	tug	Wreck showing any portion of hull or superstructure; lifted	57 29.886 N	1 47.252 W	UKHO

UKHO ID	Name	Type	Description	Latitude	Longitude	Source
Up to 12 NM						
2258	MERCATOR	steam ship	Non-dangerous wreck; dead	57 24.287 N	1 34.603 W	UKHO
65022	COLUMBINE	steam ship	Wreck showing any portion of hull or superstructure; lifted	57 30.369 N	1 46.269 W	UKHO
2272	-	-	Non-dangerous wreck; intact; upright	57 29.597 N	1 41.199 W	UKHO
2378	-	-	Wreck showing any portion of hull or superstructure; lifted	57 29.903 N	1 47.369 W	UKHO
2379	CONSTANT STAR	fishing vessel	Wreck showing any portion of hull or superstructure; intact	57 28.744 N	1 46.051 W	UKHO
2385	SEA REEFER	carrier	Wreck showing any portion of hull or superstructure; lifted	57 30.136 N	1 45.869 W	UKHO
79296	-	-	Dangerous wreck; dead	57 28.48 N	1 44.6 W	UKHO
2270	-	-	Dead	57 28.986 N	1 36.603 W	UKHO
2263	-	-	Dead	57 26.187 N	1 35.104 W	UKHO
74769	-	-	Non-dangerous wreck; degraded; in two parts; partly buried	57 25.765 N	1 36.236 W	UKHO
59197	-	Container	Dead	57 27.686 N	1 38.603 W	UKHO
2268	HMS FLOTTA (possibly)	trawler	Non-dangerous wreck; highly degraded	57 27.629 N	1 39.189 W	UKHO
2277	MARZOCCO	steam ship	Wreck showing any portion of hull or superstructure; dead	57 30.536 N	1 45.819 W	UKHO
2273	BEN TARBET	fishing vessel	Not full surveyed	57 29.746 N	1 46.355 W	UKHO
Beyond 12 NM						
2220	KAPARIKA	steam ship	Non-dangerous wreck; dead	57 1.96 N	1 7.1 W	UKHO
71576	-	-	Non-dangerous wreck; small wreck; possibly upright	56 49.927 N	0 54.076 W	UKHO
3199	AILSA	steam ship	Non-dangerous wreck	56 36.244 N	0 36.359 W	UKHO
3201	**-**	**aircraft**	**Non-dangerous wreck**	**56 31.995 N**	**0 28.11 W**	**UKHO**
73921	-	-	Non-dangerous wreck; collapsed; mostly buried	57 6.812 N	1 12.555 W	UKHO
2242	ENNISMORE (possibly)	steam ship	Non-dangerous wreck; intact; upright	57 17.614 N	1 25.938 W	UKHO

14.5. Proposed Assessment Methodology

For this Scoping Report, the baseline of known offshore archaeology and cultural heritage receptors within the Study Area refers to data obtained from the data sources listed above. The data collection has been completed in line with the Chartered Institute for Archaeologists' (CIfA) *Standard and guidance for historic environment desk-based assessment* (CIfA 2020). This information will feed into a full DBA undertaken as part of the MEA.

In addition to the receptors examined for the baseline characterisation of this Scoping Report, the MEA will examine the Historic Seascape Characterisation (HSC) of the Study Area. Any impacts to the HSC will be identified within the DBA.

The MEAp will be prepared following relevant legislation, policy and guidance for offshore archaeology, including, but not limited to, the following:

- Legislation:
  a) The World Heritage Convention (1972);
  b) Protection of Wrecks Act (1973);
  c) Ancient Monuments and Archaeological Areas Act (1979);
  d) United Nations Convention on the Law of the Sea (1982);
  e) Protection of Military Remains Act (1986);
  f) Merchant Shipping Act (1995);
  g) International Council of Monuments and Sites Charter on the Protection and Management of Underwater Cultural Heritage (1996) (the Sofia Charter);
  h) Planning (Listed buildings and Conservation Areas) (Scotland) Act (1997);
  i) UNESCO Convention on the Protection of Underwater Cultural Heritage (2001);
  j) European Convention on the Protection of Archaeological Heritage (revised) (1992) (the Valletta Convention) – ratified by the UK Government in 2000 and came into force in 2001;

k) Environmental Assessment (Scotland) Act (2005);
l) European Landscape Convention (2000) – adopted in the UK in 2007;
m) Marine and Coastal Access Act (2009);
n) Marine (Scotland) Act (2010); and
o) Historic Environment Scotland (HES) Act (2014).

- Policy, Plans, and Supporting Documents:
  a) Marine Policy Statement (2011);
  b) Planning Advice Note 2/2011: Planning and Archaeology (2011) (Scotland);
  c) East Inshore and East Offshore Marine Plans (2014) (England);
  d) Scottish Planning Policy (SPP) (2014);
  e) Our Place in Time - The Historic Environment Strategy for Scotland (2014 - currently under review);
  f) Scottish National Marine Plan (2015 – NMP2 in consultation);
  g) Historic Environment Policy for Scotland (HEPS 2019);
  h) Historic Environment Scotland Circular (2019); and
  i) North East Inshore and Northeast Offshore Marine Plan (2021) (England).

- Key Guidance:
  a) Environmental Impact Assessment Handbook: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland (HES and NatureScot 2018);
  b) Standard and Guidance for Historic Environment Desk-Based Assessment (CIfA 2020);
  c) Designation Policy and Selection Guidance (DPSG 2019);
  d) Historic Environment Circulars;
  e) Historic Environment Scotland's Managing Change in the Historic Environment series;
  f) Key Agencies Group National and Major Developments: An Agency Joint Statement on Pre-application Engagement;
  g) Scottish Government Planning Advice Notes, in particular 2/2011: Planning and Archaeology; Planning Advice Note 1/2013: Environmental Impact Assessment (amended 2017); Planning Circular 1/2017: Environmental Impact Assessment Regulations (Scottish Government 2017); and
  h) Guidance on Heritage Impact Assessments for Cultural World Heritage Properties (ICOMOS 2011).
  i) Code of Practice for Seabed Development (Joint Nautical Archaeology Policy Committee, 2008);
  j) COWRIE Historic Environment Guidance for the Offshore Renewable Energy Sector; (Wessex Archaeology, 2007);
  k) Marine Geophysics Data Acquisition, Processing, and Interpretation: Guidance Note (EH, 2013, note MSDS Marine are currently in the process of updating this guidance on behalf of Historic England);
  l) Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Gribble and Leather, 2011);
  m) Archaeological Written Schemes of Investigation for Offshore Wind Farm Projects (The Crown Estate 2021); and
  n) Protocol for Archaeological Discoveries: Offshore Renewables Projects (The Crown Estate 2014).

To define the scope of the environmental receptors, liaison between key stakeholders and Archaeological Curators may be required. Key consultees are listed in **Error! Reference source not found.**.

14.5.1. Assessment Criteria and Assignment of Significance

Following the identification of marine archaeological receptors within the Study Area, the MEA will attribute a significance of effect to each receptor, in correlation to the project-related activity which results in a direct or indirect impact. The significance of effect will be determined by identifying the sensitivity and magnitude of change for each receptor. These terms and the proposed assessment methodology to be applied are described within this Section.

Both sensitivity and magnitude of change are influenced by the value, or significance, of a receptor as a heritage asset, which will be defined prior to the assessment of impact significance.

14.5.1.1. Value

The UK Marine Policy Statement (HM Government, 2011) describes a heritage asset (including archaeological receptors) as holding a degree of significance (value) meriting consideration, where significance relates to the heritage interest of an asset and the value they hold for present and future generations.

Both designated and non-designated heritage assets can hold heritage value. Value considers whether the receptor is rare, has protected status or has importance at a local, regional, national or international level. Designated assets, such as Protected Wreck

Sites (England) or Historic Marine Protected Areas (Scotland), have been assigned the highest level of value. The value of non-designated heritage assets can be determined through professional interpretation of the values or characteristics of the asset. These factors vary in their wording slightly between England and Scotland and are listed below.

England

Historic England's *Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment* (HE, 2008) defines the significance of a heritage asset as "*the diverse cultural and natural heritage values that people associate with it, or which prompt them to respond to it*". HE recommend use of the following valuation criteria to determine heritage significance:

- Evidential value: the potential of an asset to yield evidence about past human activity;
- Historical value: the ways in which past people, events and aspects of life can be connected through an asset to the present, tending to be illustrative or associative;
- Aesthetic value: the ways in which people draw sensory and intellectual stimulation from an asset; and
- Communal value: the meanings of an asset for the people who relate to it, or for whom it figures in their collective experience or memory. Communal values are closely bound up with historical (particularly associative) and aesthetic values but tend to have additional and specific aspects.

Scotland

Historic Environment Scotland use similar principles for the attribution of value, alongside a slightly different set of valuation criteria (HES, 2019):

- Intrinsic characteristics: how the physical remains of an asset contribute to our knowledge of the past;
- Contextual characteristics: how an asset relates to its surroundings and/or to our existing knowledge of the past; and
- Associative characteristics: how an asset relates to people, practices, events and/or historic and social movements.

Within the MEA, identified assets will be assigned value alongside the relevant regional guidance documents and terminology (i.e. HE guidance for assets in England and HES guidance for those in Scotland). Although the terminology may vary, the similarity of the valuation criteria will result in equivalent attributed levels of significance.

The value of known archaeological assets will also be assessed on a five-point scale, using professional judgement informed by criteria provided in Table 14-4.

Table 14-4: Criteria to assess the heritage value of receptors.

Value	Definition
High	Internationally or nationally important. Within a marine or intertidal context, high value heritage assets can include: ▪ World Heritages Sites and assets of acknowledged international importance or that can greatly contribute to international research objectives; ▪ Sites designated under national legislation, i.e. Scheduled Monuments, Protected Wreck Sites, Historic Marine Protected Areas, etc. ▪ Buildings designated under the Planning (Listed Buildings and Conservation Areas) Act 1990 (England) or Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997. Additionally, any remains which are not currently designated but have equivalent significance to a designated asset are considered to be of high value.
Medium	Within a marine or intertidal context, medium value assets include: ▪ Heritage assets that are not designated and that do not meet the criteria for designation, but display notable values or characteristics; and ▪ Heritage assets, groups of assets or landscapes that contribute to regional research objectives.
Low	Within a marine or intertidal context, low value assets include: ▪ Heritage assets displaying limited values or characteristics; and ▪ Heritage assets, or groups of assets, that contribute to a limited degree to regional research objectives.
Negligible	Within a marine or intertidal context, negligible value assets include: ▪ Heritage assets with very little or no surviving archaeological interest and little or no heritage value or characteristics; and ▪ Heritage assets or groups of assets that cannot appreciably contribute to regional research objectives.
Uncertain	Assets for which the importance of the resource has not been or cannot be ascertained.

While a designation (e.g., as a Scheduled Monument, Listed Building, etc.) indicates that a receptor has been identified as being of high value, non-designated archaeological assets are not necessarily of lesser value. Non-designated receptors that can be demonstrated to be of equivalent value to designated sites would be of equivalent significance, as included within Table 14-4.

The nature of the marine archaeological resource is such that there is a high level of uncertainty concerning remains on the seabed. Often data regarding the nature and extent of assets are limited or out of date and the precautionary principle will be applied to all aspects of archaeological impact assessment in the MEA.

14.5.1.1. Sensitivity

The sensitivity of a receptor is a function of its capacity to accommodate change and reflects its ability to recover if it is affected. Sensitivity is determined by consideration of the value, adaptability, tolerance and recoverability of a receptor. These criteria are determined through professional judgement and relevant experience and are described further below:

- Value: a measure of the receptor's heritage significance (criteria and specific assessment methodology detailed above);
- Adaptability: the ability of a receptor to adapt to or avoid an external factor;
- Tolerance: the susceptibility (ability to be affected or unaffected) of a receptor to an external factor; and
- Recoverability: the ability of a receptor to return to a state close to that which existed before the activity or event caused change within a specific period of time.

The guidelines presented in Table 14 5 will be adopted in the MEA to define the sensitivity of a receptor.

Table 14-5: Sensitivity levels for receptors

Sensitivity	Description
High	Receptor has very limited capacity to avoid, adapt to, accommodate or recover from the anticipated impact.
Medium	Receptor has limited capacity to avoid, adapt to, accommodate or recover from the anticipated impact.
Low	Receptor has some tolerance to avoid, adapt to, accommodate or recover from the anticipated impact.
Negligible	Receptor is generally tolerant to and can accommodate or recover from the anticipated impact.

The National Planning Policy Framework (NPPF, 2023) states that heritage assets should be recognised as "an irreplaceable resource" and to "conserve them in a manner appropriate to their significance".

Heritage receptors cannot typically adapt, tolerate or recover from direct impacts resulting in material damage or loss caused by development. Consequently, the sensitivity of each receptor is predominantly quantified only by their value. Where receptors can adapt to, tolerate or recover from indirect impacts, these factors will be incorporated into an assessment of their sensitivity as part of the MEA.

In some instances, the value of a receptor is recognised by means of designation and the 'value' element recognises and gives weight in the assessment to that designation. However, irrespective of the recognised value, all receptors will exhibit a greater or lesser degree of sensitivity to the potential changes brought about by the Project. The assessment of sensitivity is a matter of judgement applied using professional expertise, based on the receptors and impacts identified within the Study Area.

14.5.1.2. Magnitude of change

The magnitude of change is defined by the level of alteration to a receptor resulting from project-related impacts, as measured from that receptor's baseline state and condition, alongside environmental factors and natural variability. The assessment of magnitude will consider both positive and negative changes to a receptor.

The criteria to be used in assessed are set out in Table 14-6. Definitions have been established with reference to key documentation, including the Marine Policy Statement (HM Government, 2011) and Scottish National Marine Plan (Marine Scotland, 2015).

Table 14-6: Magnitude of change definitions

Magnitude of change	Definition	
	Positive change (beneficial)	Negative change (adverse)
High	▪ Large scale improvement of asset or attribute quality; and/or ▪ extensive restoration or enhancement.	▪ Substantial loss or harm to the heritage asset and/or integrity of the heritage asset or severe damage to key characteristics, features or elements, such that the heritage asset is lost or its significance is totally altered; and/or

Magnitude of change	Definition	
	Positive change (beneficial)	Negative change (adverse)
		▪ Permanent/irreplaceable change which is certain to occur.
Medium	▪ Improvement to, or addition of, key characteristics, features or elements of the resource; and/ or ▪ Improvement to attribute quality.	▪ Loss of, or alteration to, key characteristics, features or elements; and/or ▪ Measurable change in significance, attributes, quality or vulnerability, such that the heritage asset and its significance is altered.
Low	▪ Minor improvement to, or addition of, one or a small number of characteristics, features or elements; and/or ▪ Very minor improvement to attribute quality.	▪ Minor loss of, or small alterations to, one or a small number of characteristics, features or elements; and/or ▪ Noticeable change in attributes, quality or vulnerability.
Negligible	No change or unquantifiable change to the receptor and its significance.	

14.5.1.3. Significance of impact

The significance of an impact on a heritage receptor, whether a direct or indirect impact, is determined by correlating the sensitivity of the archaeological receptor (Table 14-5) and the magnitude of the change (Table 14-6). The impact will be presented as of major, moderate, minor or negligible significance and can be positive (beneficial) or negative (adverse). The matrix in Table 14-7 provides a guide to the assessment but is not a substitute for professional judgement and interpretation, particularly where the sensitivity or effect magnitude levels are not clear or are borderline between categories.

Table 14-7: Significance of impact matrix

		Magnitude of change			
		High	Medium	Low	Negligible
Value / sensitivity of receptor	High	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Minor	Minor
	Low	Moderate	Minor	Minor	Negligible
	Negligible	Minor	Minor	Negligible	Negligible

Table 14-8 provides further rationalisation of the implications and definition of each level of impact significance set out in Table 14-7, in relation to historic assets.

Table 14-8: Significance of impact definitions

Significance of impact	Definition	
	Beneficial	Adverse
Major	Development will deliver a highly positive contribution and/or better reveal the value of a heritage asset of recognised national or international value, such that an application should be treated very favourably.	Substantial harm or total loss of the value of a designated heritage asset (or asset worthy of designation), such that development should not be consented unless substantial public benefit is delivered by the development.
Moderate	Development will deliver a positive contribution and/or better reveal the value of a designated heritage asset (or asset worthy of designation), such that an application should be treated favourably.	Less than substantial harm or total loss of the value of a designated heritage asset or an asset of designable quality, such that the harm should be weighed against the public benefit delivered by the development to determine consent. Harm to a non-designated heritage asset of a greater degree than that perceived of as minor adverse, which should be considered in determining an application.
Minor	Development will deliver a positive contribution and/or better reveal the value of a non-designated heritage asset.	Less than substantial harm to the value of a designated heritage asset, of a lesser degree than that perceived as moderate adverse, but which should still be weighed against the public benefit delivered by the development to determine consent.

Significance of impact	Definition	
	Beneficial	Adverse
		Harm to a non-designated heritage asset that can be adequately compensated through the implementation of a programme of industry standard mitigation measures.
Negligible	No discernible change to the receptor and its significance.	

14.5.2. Mitigation

Impacts to both known and potential marine archaeological receptors will be addressed through the application of embedded mitigation. In line with current policy and guidance, mitigation aims first to avoid adverse impacts on historic assets, minimise impacts where they cannot be avoided or mitigate impacts where they cannot be minimised.

Known receptors (identified through the assessment) would be avoided through the application of Archaeological Exclusion Zones (AEZs), Temporary Archaeological Exclusion Zones (TAEZs) and subsequent micro-siting of infrastructure on the seabed, as necessary.

Unavoidable impacts to potential receptors would be addressed through a series of agreed mitigation measures to manage discoveries once identified. These measures would be set out in a project-specific Written Scheme of Investigation (WSI), as part of the MEAp, which would clarify the methodologies to address unavoidable impacts associated with the worst-case scenario (Project Design Envelope), in accordance with the Model Clauses for Archaeological Written Schemes of Investigation: Offshore Renewables Projects (The Crown Estate, 2021).

14.6. Scope of Assessment

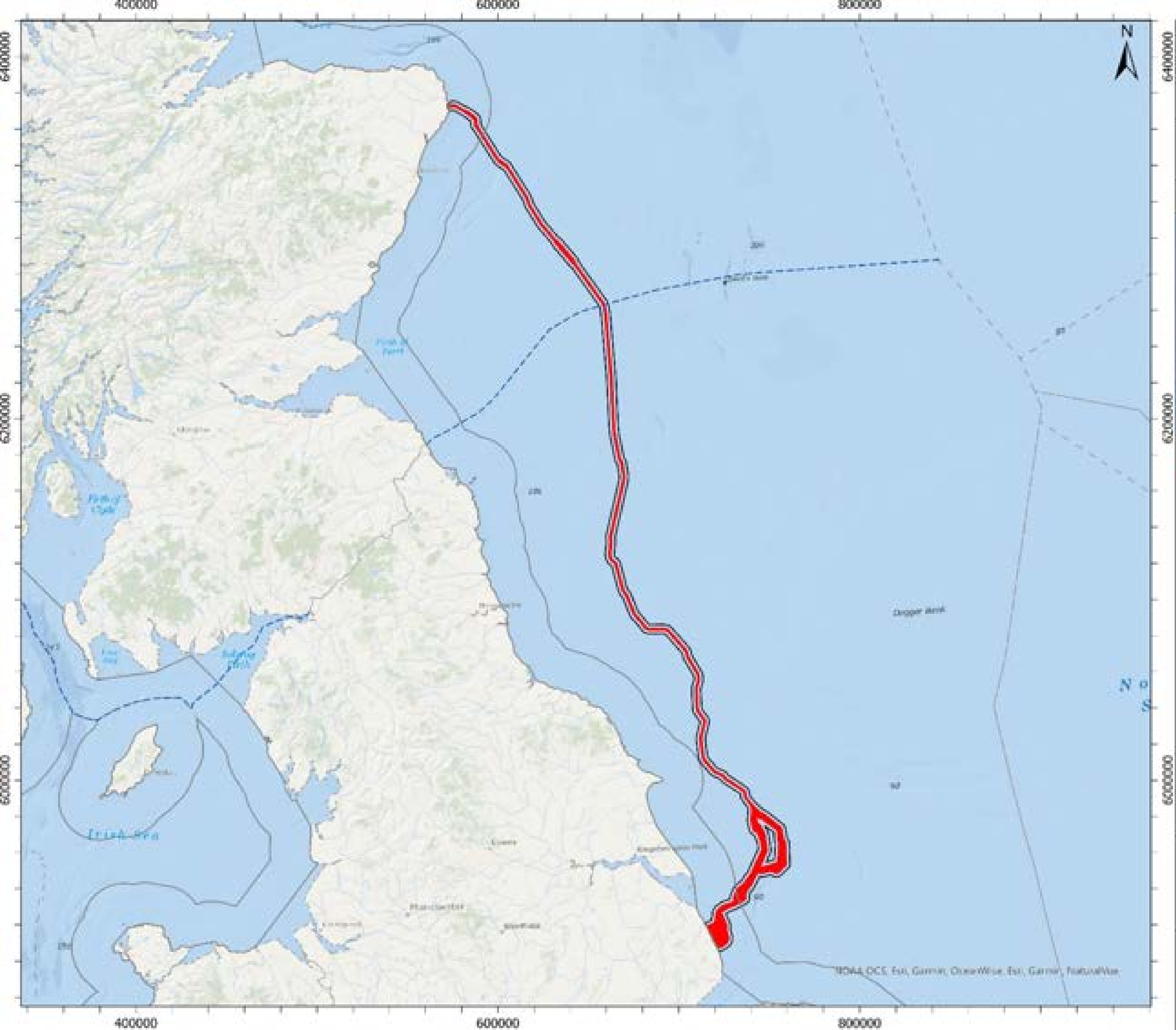
This section describes the potential impacts on offshore archaeological receptors which might potentially occur from the pre-construction, construction, operation and maintenance and decommissioning of the Project. This assessment considers the methods described within Chapter 3 – Project Description. A summary of project phases and the source of potential impacts is summarised in Table 14-9, below.

The potential for and assessment of cumulative effects to marine archaeology receptors arising will be included within the MEA, as outlined in Chapter 4 of this Scoping Report.

Table 14-9: Scoping assessment of impacts on Marine Archaeology.

Potential Impact	Project Activities	Sensitive Receptors	Scoping Justification		
			Construction	O&M	Decommissioning
Direct impacts to marine archaeology assets, resulting in damage and/or loss	Seabed preparation (e.g., boulder clearance, PLGR, pre-sweeping of sand waves, UXO identification and clearance, etc.); Cable burial and trenching; Placement of external cable protection; HDD drive path and entry/exit pits; Anchoring/jack-up foundations; Cable/cable protection repair/replacement; Removal of infrastructure.	Sub-seabed and seabed heritage receptors, including known and potential submerged prehistoric remains and known and potential maritime and aviation assets.	**IN**: Any disturbance of the seabed during preparation and construction activities could directly impact marine archaeology receptors. These effects are likely to be localised, but should they occur, they could lead to adverse and irreversible damage to known or previously undiscovered heritage assets. Where asset locations are already known, embedded mitigation measures will be adopted to avoid and preserve assets, including the application of AEZs and micro-siting.	**IN**: Localised repair/replacement works to cables or remedial external cable protection may be required. Although assets may have been identified prior to or during pre-construction and construction, further assets may remain undetected. Where O&M activities extend beyond the footprint of previous works, undetected assets may experience impacts.	**IN**: The significance of the effect during decommissioning is likely to be similar or of lower magnitude than during the construction phase. However, where decommissioning activities extend beyond the footprint of previous activities, hitherto undetected assets have the potential to experience impacts.
Indirect impacts to marine archaeology	Material deposition; Sediment removal;	Sub-seabed and seabed heritage receptors, including known and	**IN:** Seabed preparation and construction activities have the potential to destabilise or	**IN:** Indirect impacts similar to the construction phase	**IN:** Indirect impacts similar to the construction phase

Potential Impact	Project Activities	Sensitive Receptors	Scoping Justification		
			Construction	O&M	Decommissioning
assets, resulting in damage, loss, relocation and/or destabilisation	Scour around installations, anchors.	potential submerged prehistoric remains and known and potential maritime and aviation assets.	compress assets, through sediment removal and deposition. Altered hydrodynamic processes may occur around infrastructure and vessel anchors, potentially resulting in the removal of deposits of palaeo-environmental interest and destabilising nearby assets (which may lead to subsequent harm). The MEA will be informed by an assessment on marine physical processes to determine the likely extent, duration and frequency and resultant significance of impact on marine archaeological receptors.	may be experienced by receptors. Unlike direct impacts, the significance of indirect impacts would not likely be lesser in consideration of the footprint of activities.	may be experienced by receptors. Unlike direct impacts, the significance of indirect impacts would not likely be lesser in consideration of the footprint of activities.



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TRANSMISSION

Marine Archaeology Study Area

C01494a-ARCH-001-B

EGL 3 Scoping Boundary

Study Area

12 NM Limit

Exclusive Economic Zone Limit (EEZ)

Scottish Adjacent Waters

0 10 20 Miles

0 25 50 Kilometers

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Reviewed	Mark James
Authorised	Julie Drew-Murphy

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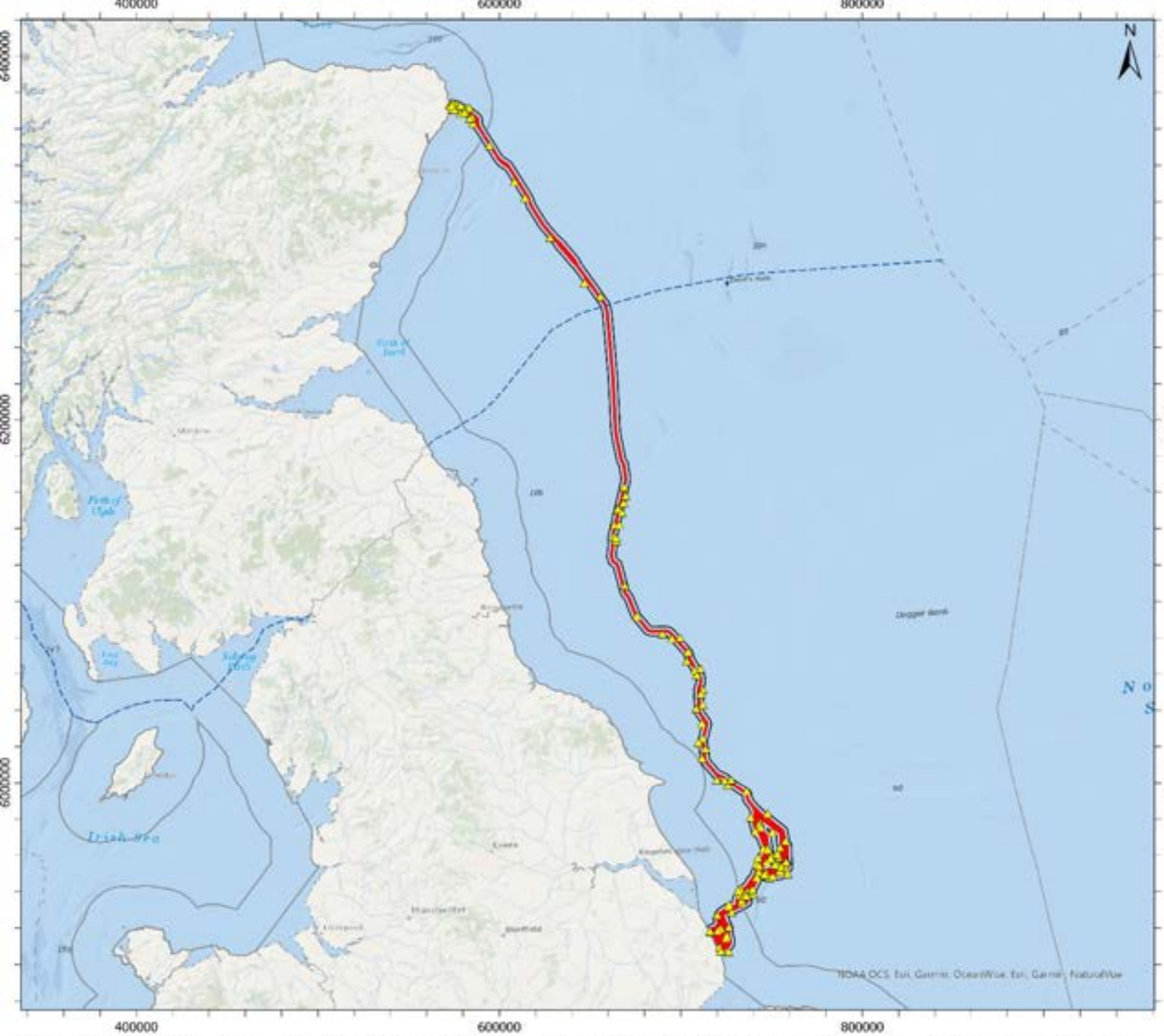

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UKHO Records in Study Area

C01494a-ARCH-002-B

- EGL 3 Scoping Boundary
- Study Area
- UKHO record
- 12 NM Limit
- Exclusive Economic Zone Limit (EEZ)
- Scottish Adjacent Waters

0 10 20 Miles

0 25 50 Kilometers

Date	20/11/2023
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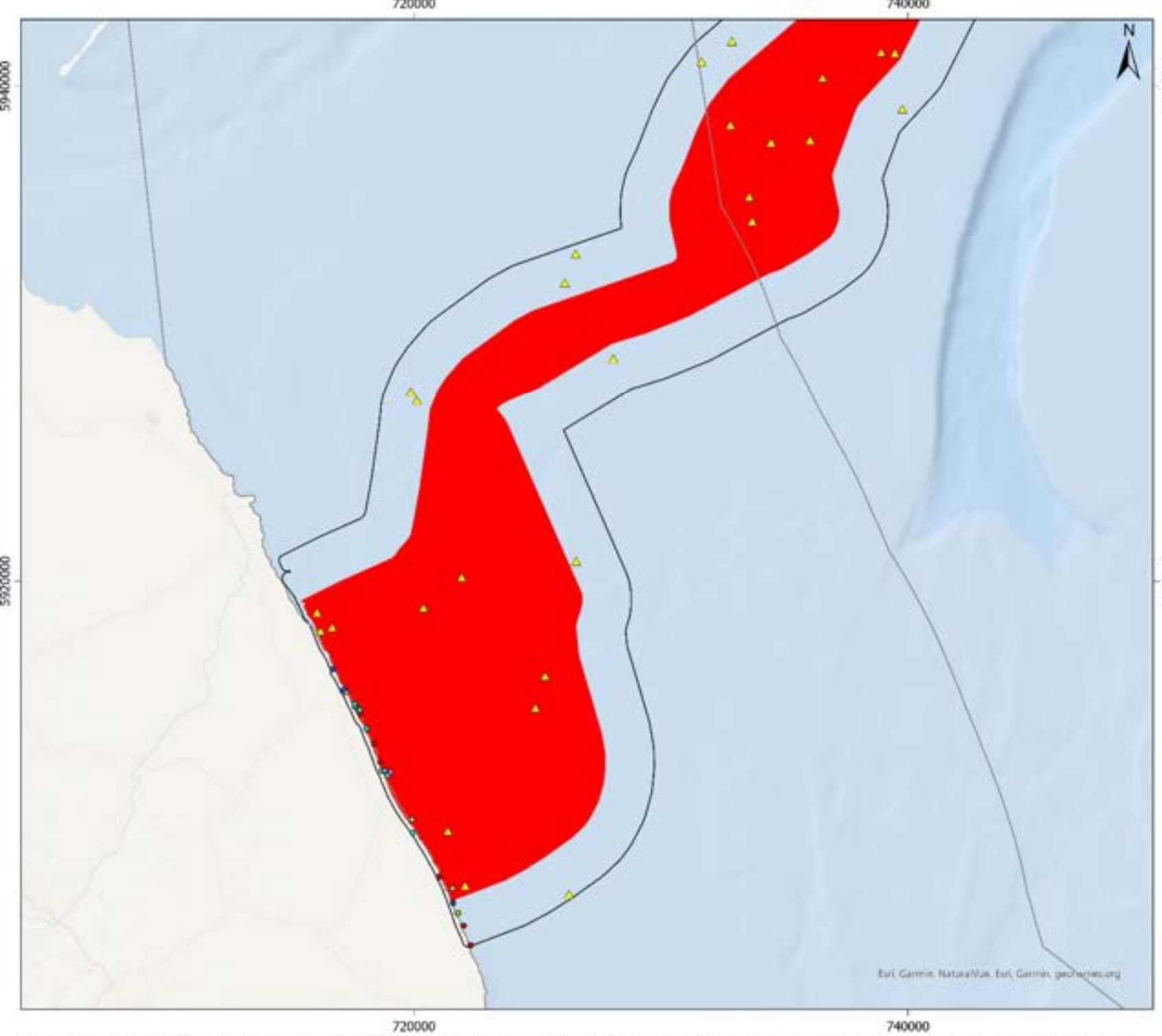

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UKHO and HER records in English waters (to 12 NM)

C01494a-ARCH-003-B

- EGL 3 Scoping Boundary
- Study Area
- UKHO record

Lincs HER point

Period

- Palaeolithic
- Neolithic
- Iron Age
- Roman
- Early medieval
- Medieval
- Post-medieval
- Modern
- Undated

- 12 NM Limit

0 2 Miles

0 5 Kilometers

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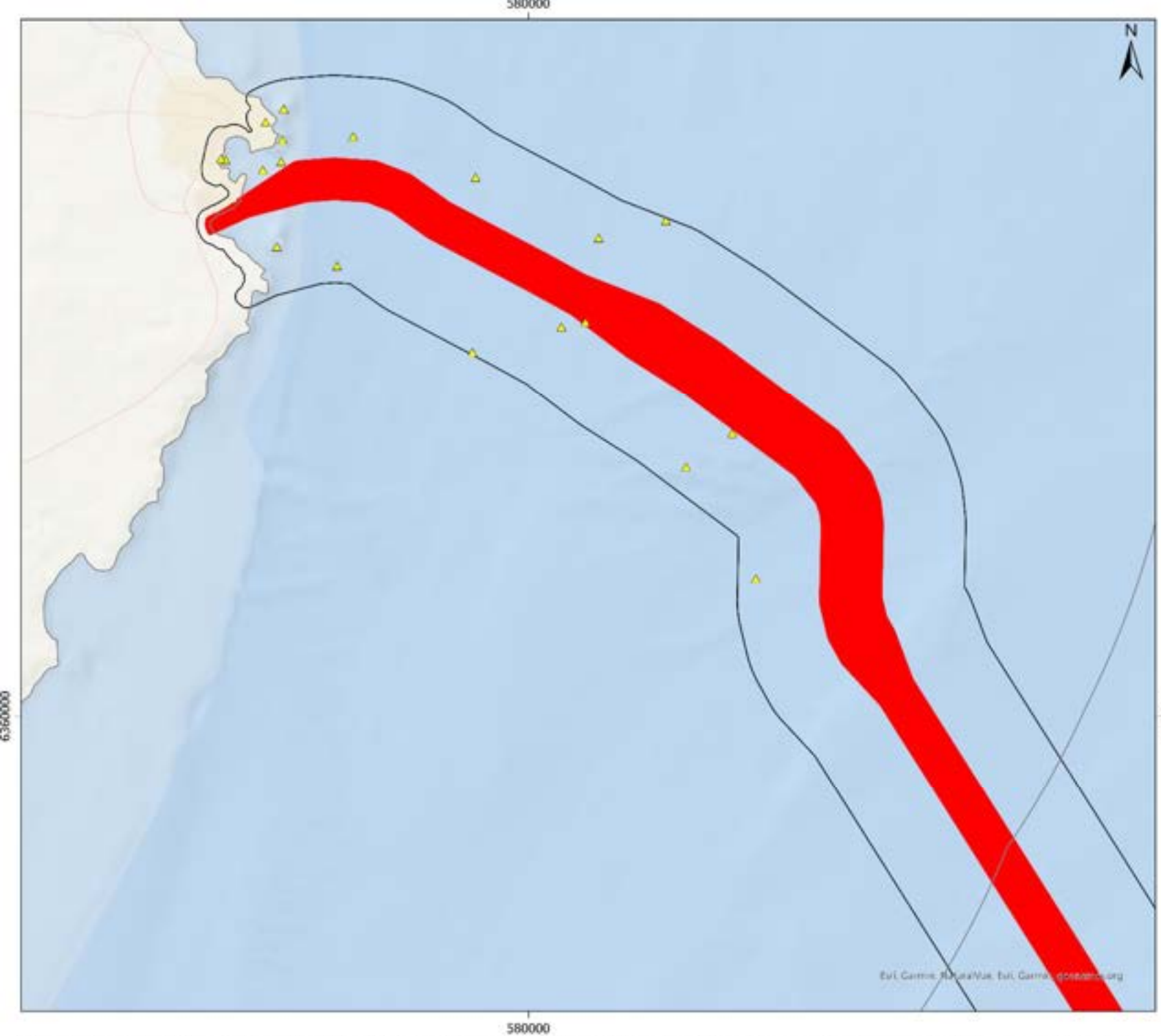

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Scottish & Southern Electricity Networks TRANSMISSION

UKHO records in Scottish waters (to 12 NM)

C01494a-ARCH-004-B

- EGL 3 Scoping Boundary
- Study Area
- UKHO record
- 12 NM Limit

0 1 Miles

0 2 Kilometers

Date	20/11/2023
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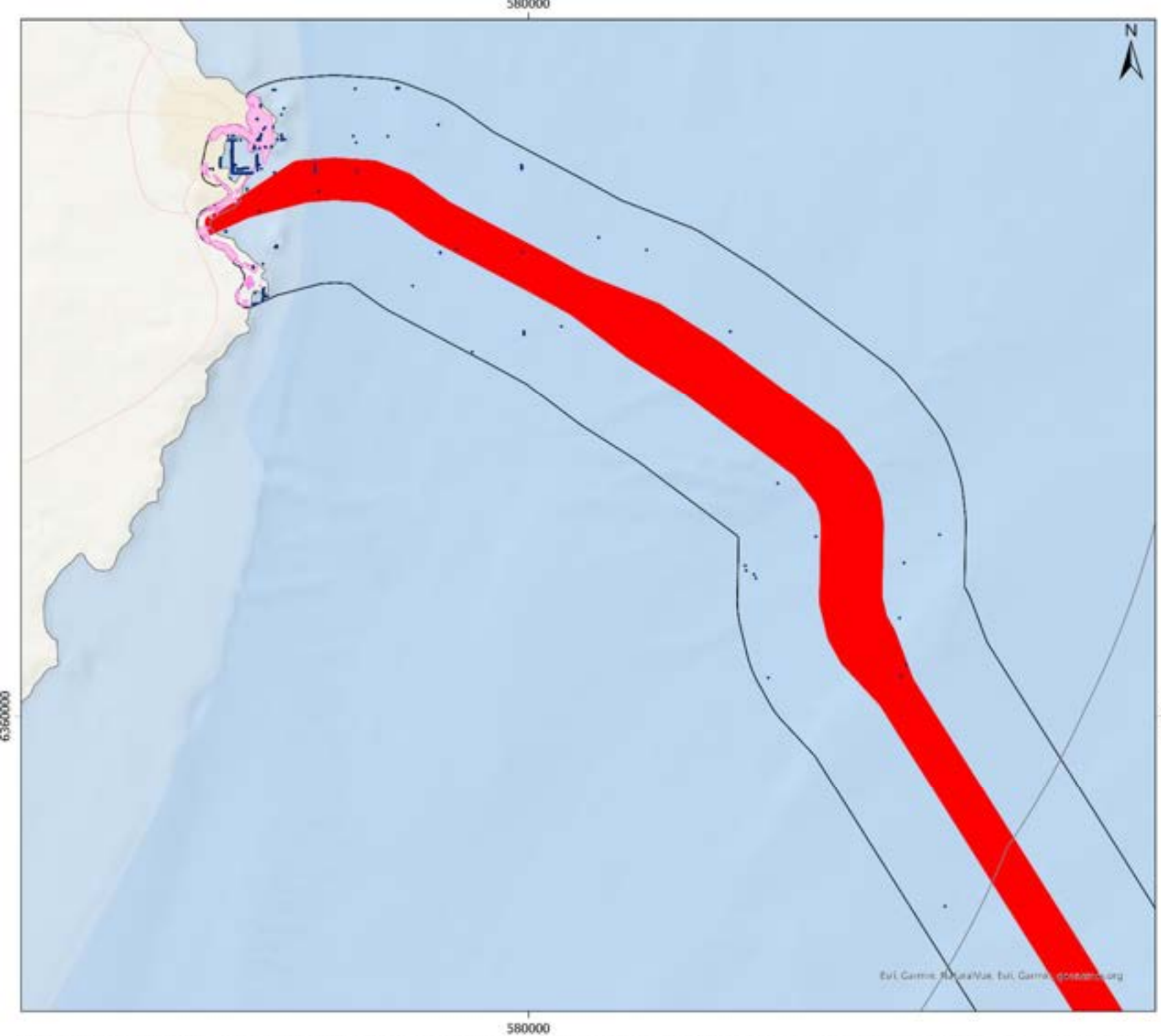

MSDS Marine

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Scottish & Southern Electricity Networks TRANSMISSION

Aberdeenshire HER in Scottish waters (to 12 NM)

C01494a-ARCH-005-B

- EGL 3 Scoping Boundary
- Study Area
- Aberdeenshire HER loss record
- Aberdeenshire HER record
- 12 NM Limit

0 1 Miles

0 2 Kilometers

Date	20/11/2023
Coordinate System	ETRS 89 / UTM Zone 30N
Projection	Universal Transverse Mercator (UTM)
Unit	Meters
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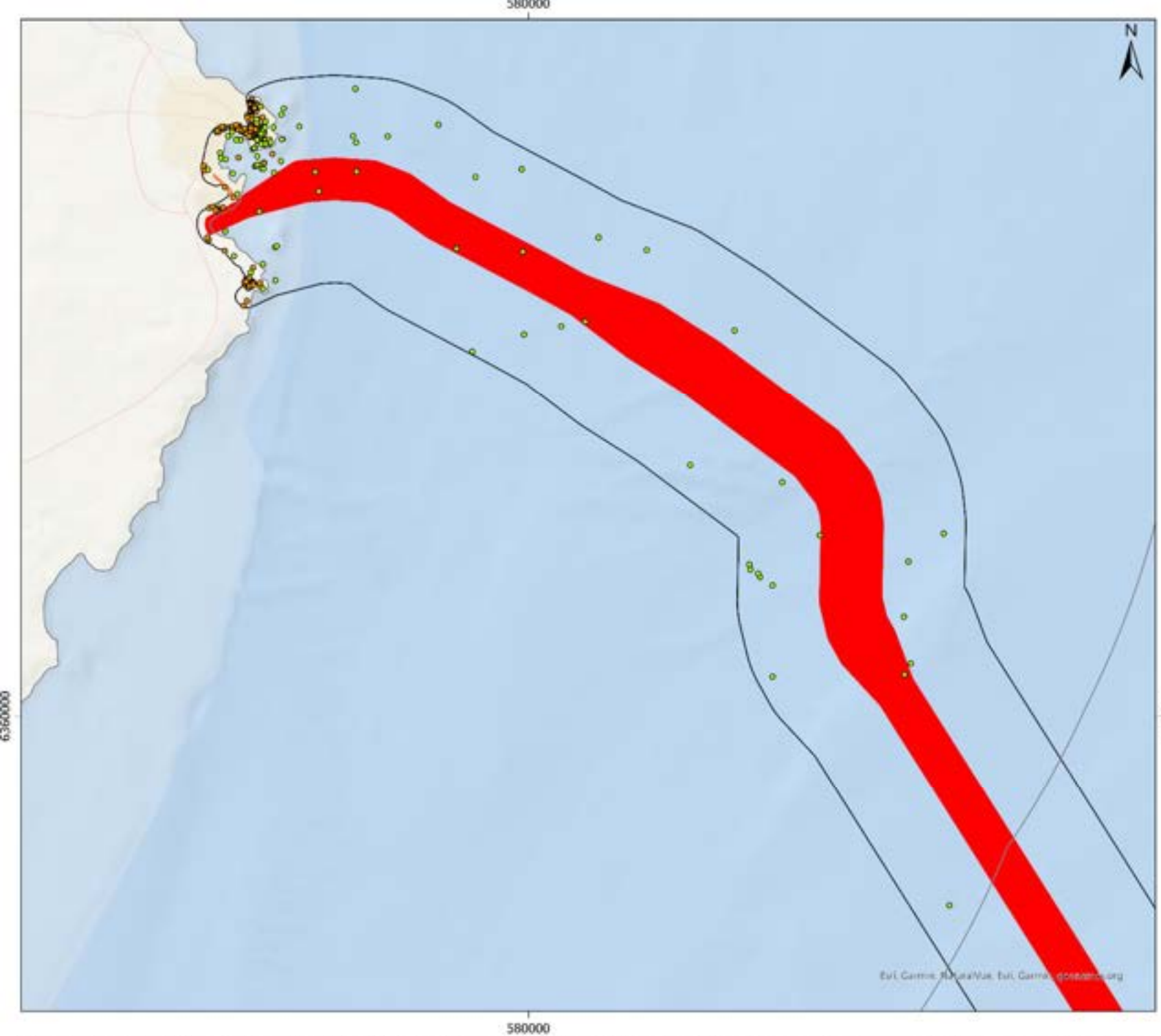

MSDS Marine

nationalgrid

Scottish & Southern Electricity Networks TRANSMISSION

Canmore records in Scottish waters (to 12 NM)

C01494a-ARCH-006-B

- EGL 3 Scoping Boundary
- Study Area
- Canmore maritime point
- Canmore point
- Canmore area
- 12 NM Limit

0 1 Miles

0 2 Kilometers

Date	20/11/2023
Coordinate System	ETRS 89 / UTM Zone 30N
Projection	Universal Transverse Mercator (UTM)
Unit	Meters
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