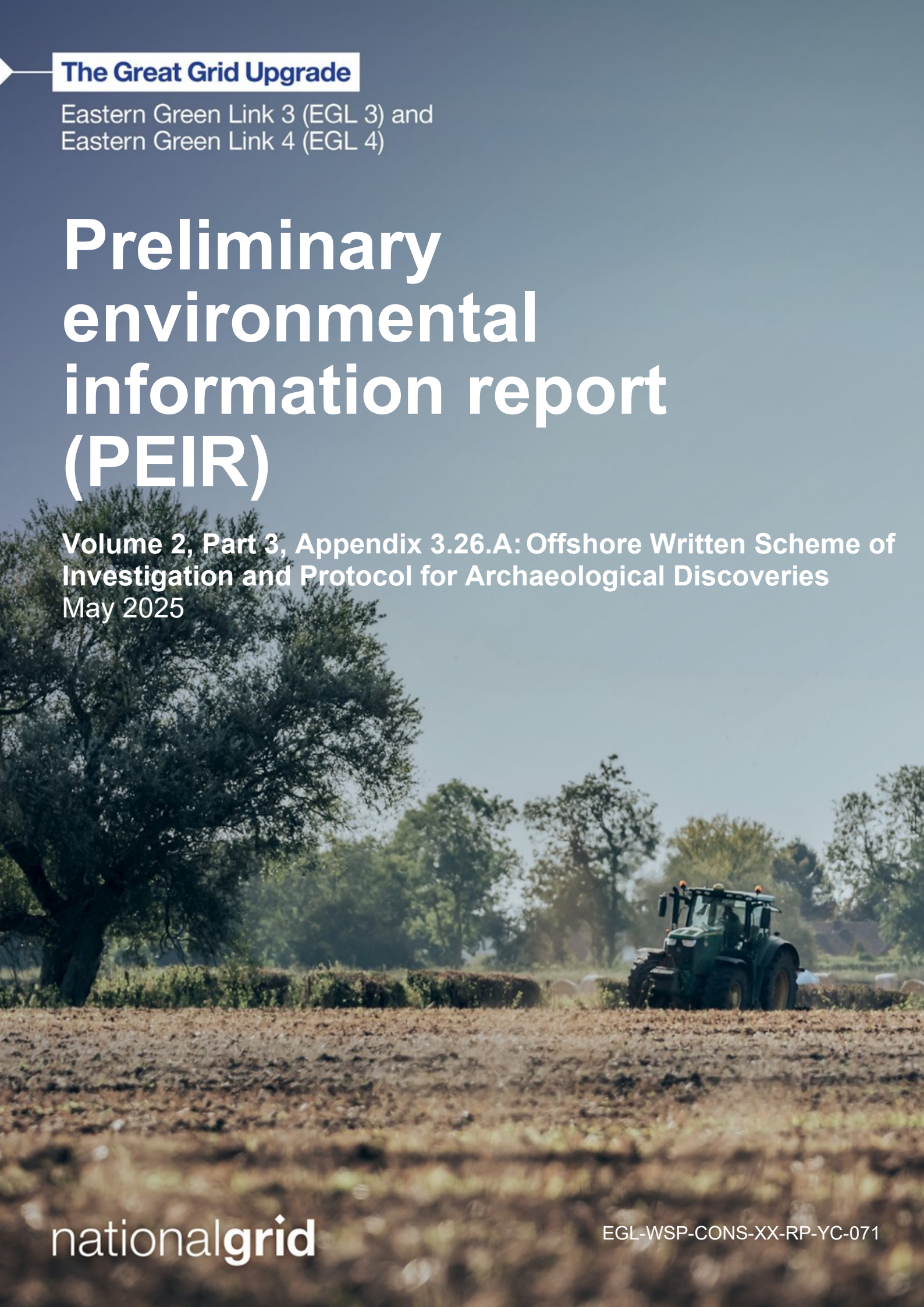
The Great Grid Upgrade

Eastern Green Link 3 (EGL 3) and
Eastern Green Link 4 (EGL 4)

Preliminary environmental information report (PEIR)

Volume 2, Part 3, Appendix 3.26.A: Offshore Written Scheme of Investigation and Protocol for Archaeological Discoveries

May 2025



nationalgrid

EGL-WSP-CONS-XX-RP-YC-071

Contents

3.26.A. Marine Archaeology Offshore Written Scheme of Investigation and Protocol for Archaeological Discoveries

3.26.A.1 Introduction

3.26.A.1.1 This document forms the Outline Written Scheme of Investigation (WSI) (hereafter referred to as the WSI) and Protocol for Archaeological Discoveries (PAD), produced in support of the English Offshore Scheme of the Eastern Green Link 3 (EGL 3) and Eastern Green Link 4 (EGL 4) projects (hereafter referred to as "the English Offshore Scheme"). This WSI has been prepared at the pre-consent stage as an Appendix to support the Preliminary Environmental Information Report (PEIR) **Volume 1, Part 3, Chapter 26: Marine Archaeology** and may be updated as necessary.

3.26.A.1.2 The purpose of the document is to outline the environmental measures for Marine Archaeology within the English Offshore Scheme, comprising the draft Order Limits of the English Offshore Scheme from Mean High Water Springs (MHWS) on the Lincolnshire coast to the Scottish Adjacent Waters boundary. This WSI also sets out the environmental measures and further work which has been recommended by **Volume 1, Part 3, Chapter 26: Marine Archaeology** and where archaeological involvement may be required in future work scopes.

3.26.A.1.3 This WSI has been produced in line with best practice guidance, in particular Archaeological Written Schemes of Investigation for Offshore Windfarm Projects (Ref 3.26.A.1).

3.26.A.1.4 Project specific WSI and PADs will follow post consent, reviewed with the detail of the Environmental Statement (ES) and will follow on the basis of this outline document.

Location

3.26.A.1.5 As detailed in **Volume 1, Part 1, Chapter 1: Introduction,** the English Offshore Scheme would be sited within the English marine environment, including inshore and offshore waters, and up to MHWS in England. The most northerly elements of the English Offshore Scheme would be located at the boundary of English waters where it meets Scottish waters, and the most southerly elements would be located at MHWS at Anderby Creek, along the Lincolnshire coastline, at landfall.

3.26.A.1.6 The key elements of the English Offshore Scheme are summarised below:

- EGL 3 Project
  - Approximately 436 km of subsea High Voltage Direct Current (HVDC) cable from the landfall at Anderby Creek, Lincolnshire, England to where it meets the marine boundary between English and Scottish waters. The submarine

cable system would consist of two bundled HVDC cables and a fibre optic cable (up to the first offshore joint) for control and monitoring purposes.

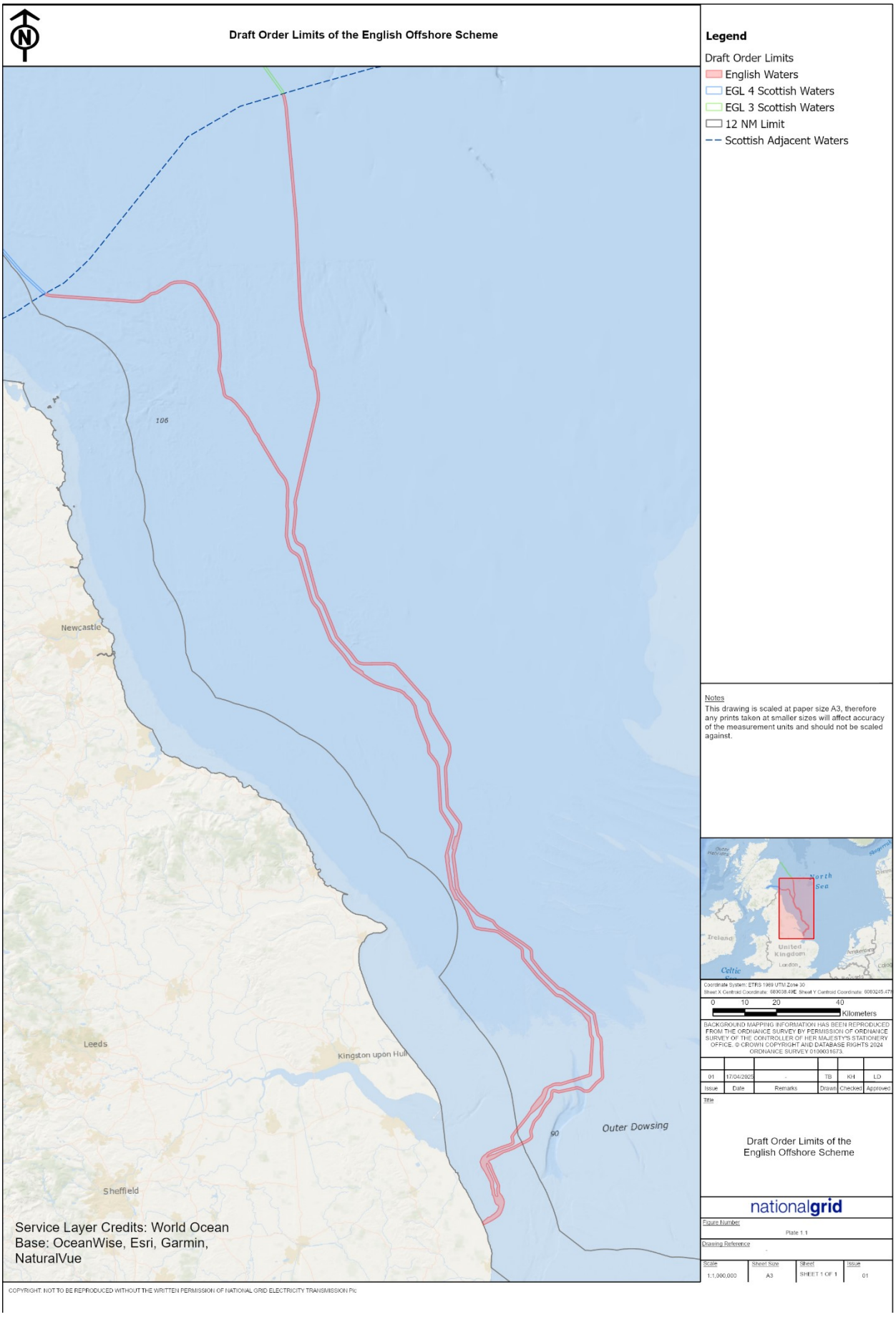
- EGL 4 Project
  - Approximately 425 km of subsea HVDC cable from the landfall at Anderby Creek, Lincolnshire, England to where it meets the marine boundary between English and Scottish waters. The submarine cable system would consist of two bundled HVDC cables and a fibre optic cable (up to the first offshore joint) for control and monitoring purposes.

3.26.A.1.7 The draft Order Limits of the English Offshore Scheme is presented by **Plate 3.26.A. A-1**.

3.26.A.1.8 A detailed description of the character and location of the English Offshore Scheme is presented by **Volume 1, Part 1, Chapter 4: Description of the Projects**.

3.26.A.1.9 A combined approach is being followed for consideration of the archaeological resource by the English Offshore Scheme and the English Onshore Scheme. To achieve this, both aspects include assessment of the baseline and impacts to archaeology, including geoarchaeology, within the intertidal zone, presenting a topic crossover between MHWS and Mean Low Water Springs (MLWS). This combined approach is ongoing and the results presented in the ES, in conjunction also with stakeholder engagement.

Plate 3.26.A. A-1: Draft Order Limits of the English Offshore Scheme



Aims and objectives

3.26.A.1.10 The objectives of the Outline WSI follow best practice guidance set out by The Crown Estate (Ref 3.26.A.1) and aim to:

- Set out the roles and respective responsibilities of the Developer, the Contractors and Retained Archaeologist and Archaeological Contractor(s) and formal lines of communication between the parties and with Archaeological Curator(s) (see **Section 3.26.A.2.1**);
- Outline the known and potential archaeological receptors that could be impacted by the project (see **Section 3.26.A.3**);
- Set out the importance of research frameworks in setting objectives that may be delivered through realisation of the known and potential archaeology (see **Section 3.26.A.4**);
- Outline the preliminary environmental measures that are to take place in various circumstances (see **Section 3.26.A.5**); and
- Provide methodologies for these archaeological actions, to be employed on archaeological work conducted in the post-consent period (see **Sections 3.26.A.6** and **3.26.A.7**).

Guidance

3.26.A.1.11 As described above, this document has been produced in line with best practice guidance, including:

- *Archaeological Written Schemes of Investigation for Offshore Windfarm Projects* (Ref 3.26.A.2);
- Historic England's (HE) *Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment* (Ref 3.26.A.3);
- Chartered Institute for Archaeologists *Code of Conduct* (Ref 3.26.A.4);
- Chartered Institute for Archaeologists *Standard and Guidance for Historic Environment Desk Based Assessment* (Ref 3.26.A.5);
- Collaborative Offshore Wind Research into the Environment *Historic Environment Guidance for the Offshore Renewable Energy Sector* (Ref 3.26.A.6);
- *Offshore Renewables Protocol for Archaeological Discoveries* (Ref 3.26.A.1);
- Collaborative Offshore Wind Research into the Environment *Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector* (Ref 3.26.A.7);
- Marine Geophysics Data Acquisition, Processing and Interpretation, Guidance Notes (Ref 3.26.A.8) (currently under review by MSDS Marine for Historic England);
- Military Aircraft Crash Sites (Ref 3.26.A.9);
- Aircraft Crash Sites at Sea (Ref 3.26.A.10); and
- Code of Practice for Seabed Development (Ref 3.26.A.11).

3.26.A.2 Implementation of the Outline WSI

3.26.A.2.1 This Section sets out the responsibilities of the Developer and lines of communication during the construction and operational phases of the English Offshore Scheme, with the aim of ensuring that the archaeological environmental measures described are fully implemented in a timely manner that does not interfere with the smooth running of the proposed development programme.

Responsibilities and communications

3.26.A.2.2 Primary responsibility for the delivery of this Outline WSI lies with the Developer. Through project documentation and procedures, the implementation of this WSI will involve a range of archaeological contractors and curators.

3.26.A.2.3 The Developer shall employ the services of a suitably qualified and experienced Archaeological Consultant (the Retained Archaeologist), to ensure the effective implementation of the WSI and other relevant commitments in relation to archaeology.

3.26.A.2.4 Additional Archaeological Contractors may be employed on an ad hoc basis, by either the Developer or the Retained Archaeologist, if this task is delegated to them by the Developer. Suitably qualified Archaeological Contractors may be called to provide a range of services relating to specialist archaeological provision (e.g. fieldwork, geotechnical analysis, etc.).

3.26.A.2.5 Historic England's Marine Planning Unit is the Archaeological Curator responsible for heritage matters in the marine environment up to MHWS in England and will be consulted regarding activities undertaken as part of this WSI. Historic England's Science Advisor for the East of England region, where relevant, will also be consulted regarding activities undertaken as part of this WSI.

3.26.A.2.6 Local authority archaeologists are also curators down to MLWS. This is relevant for the intertidal area, which lies within the area of Lincolnshire District Council's (LDC) Historic Environment Planning and Advice team. The Lincolnshire District Council's (LDC) Archaeological Curator was consulted initially regarding the English Offshore Scheme in September 2024. Post-consent consultation will precede any relevant activities undertaken as part of this Outline WSI which fall within the intertidal zone.

3.26.A.2.7 Contact with the Archaeological Curators will be administered by the Developer, under advice from the Retained Archaeologist. The Retained Archaeologist will report to the Developer's appointed project contact in relation to the implementation of the WSI. Interaction with the Developer's construction team will be administered by the project contact, advised by the Retained Archaeologist.

3.26.A.2.8 The responsibilities of the Retained Archaeologist will include:

- Maintaining, reviewing and updating the Outline WSI, as required;
- Advising the Developer on the necessary archaeological works and input required to the stipulations of this Outline WSI are met;
- Advising the Developer which elements warrant archaeological involvement;
- Advising the Developer in the course of evaluating scope of work specifications on their capacity to meet archaeological requirements;

- Advising the Developer on the necessary interaction with third parties with archaeological interests, including the Archaeological Curator;
- Advising the Developer on the implementation of generic archaeological requirements applicable to all construction activities;
- Advising the Developer on the micro-siting of infrastructure covered by this WSI, based upon archaeological results from Environmental Impact Assessment (EIA)/PEIR and pre-construction surveys;
- Advising the Developer on Method Statements for archaeological investigations;
- Preparing Method Statements for archaeological activities;
- Ensuring that the Developer copies Method Statements to the Archaeological Curator for approval;
- Implementing and monitoring the Protocol for reporting finds of archaeological interest based on the PAD;
- Monitoring the work of and liaising with Archaeological Contractors, where this is not the Retained Archaeologist;
- Monitoring the preparation and submission of archaeological reports, as appropriate, and making them available to the Archaeological Curator;
- Preparing provisions for the management of the project archives in consultation with an appropriate museum; and
- Advising the Developer on final arrangements for analysis, archive deposition, publication and popular dissemination and the necessary schedule for these deliverables.

3.26.A.2.9 Method Statements, reports or other deliverables will be submitted by the Developer to the Regulator for approval, in consultation with the Archaeological Curator.

3.26.A.2.10 All relevant key contractors engaged in the construction of the project shall:

- Familiarise themselves with the generic requirements of the WSI and make them available to their staff and/or subcontractors;
- Obey legal obligations in respect of 'wrecks' and 'treasure' under the Merchant Shipping Act (1995) and the Treasure Act (1996), respectively;
- Respect constraint maps, archaeological exclusion zones (AEZs) and temporary archaeological exclusion zones (TAEZs);
- Assist and afford access to relevant activities by the archaeologists employed by the Developer;
- Inform the Retained Archaeologist of any environmental constraint or matter relating to health, safety and welfare of which they are aware that is relevant to the archaeologists' activities; and
- Implement the protocol for reporting finds of archaeological interest.

3.26.A.2.11 Other roles are referred to within this document. Where this is the case these roles, and associated definitions, can be found within the protocol for reporting finds of

archaeological interest (see **Sections 3.26.A.8** and **Annex A: Protocol for Archaeological Discoveries: Preliminary Record Form**). These roles include the Site Champion and Nominated Contact.

Arrangements for reviewing the Outline WSI

3.26.A.2.12 Provision will be made for the Outline WSI to be revised post-consent, in line with any conditions and timings laid out in the Development Consent Order (DCO) and Deemed Marine Licences (DMLs). Any revision will be prepared by the Retained Archaeologist and submitted to the Developer, who will ensure they are submitted to and approved by the Regulator (Marine Management Organisation (MMO) Marine Licensing Team), in addition to other relevant licensing and consenting bodies in consultation with the Archaeological Curator.

Monitoring compliance with the Outline WSI

3.26.A.2.13 Compliance with this Outline WSI will be ensured by regular meetings between the Retained Archaeologist and the Developer. The regularity of meetings may alter during different phases of the development. These meetings ensure compliance through agendas which include discussions of the construction programme and any upcoming work which may require archaeological input, as per the stipulations of this WSI. The Retained Archaeologist also advises the Developer of the required scope of any necessary works and plans these works at the meetings and other meetings as required.

3.26.A.2.14 Following this advice, appropriate Method Statements will be prepared as required for each element of the project which requires archaeological involvement, in line with the requirements of the WSI. These will be submitted to the Regulator, in consultation with the Archaeological Curator, for approval. The Retained Archaeologist will ensure compliance with these Method Statements during the subsequent works, thereby also ensuring compliance with the WSI.

3.26.A.2.15 The performance of the WSI will also be monitored through the provision of archaeological reports, prepared to inform on the results of various activities undertaken under its auspices. These include a review of new geophysical, geotechnical and environmental data and the implementation of the PAD during all offshore project activities. These reports will be submitted to the Developer, who will ensure their dissemination to the Archaeological Curator.

3.26.A.2.16 The responsibility for ensuring the implementation of the PAD (**Annex A: Protocol for Archaeological Discoveries: Preliminary Record Form**) rests with the Developer, who will ensure that its agents and the contractors are contractually bound to implement the PAD.

3.26.A.2.17 Based on **Sections 3.26.A.8** and **Annex A: Protocol for Archaeological Discoveries: Preliminary Record Form**, the Developer and the Retained Archaeologist will agree the system for archaeological reporting through the PAD.

3.26.A.2.18 During any site evaluation/investigation or construction work that has the potential to affect any archaeological heritage assets, the Retained Archaeologist will advise the Developer who will liaise directly with the Archaeological Curator regarding site monitoring and reporting. The Developer will be kept informed of any contact between the Retained Archaeologist and the Archaeological Curator. A programme of monitoring visits (if deemed appropriate) by the Archaeological Curator and the Developer will be agreed in advance of the commencement of work on site.

Health and safety

3.26.A.2.19 The Retained Archaeologist will ensure that any Method Statements prepared to meet the requirements of the WSI are compliant with the requirements of the Developer's health and safety plans for the project.

3.26.A.2.20 Health and safety considerations will be of paramount importance in conducting all fieldwork. Safe working practices will override archaeological considerations at all times.

3.26.A.2.21 All work will be carried out in accordance with the Health and Safety at Work Act (1974), the Management of Health and Safety at Work Regulations (1999), the SCAUM manual *Health and Safety in Field Archaeology* (Ref 3.26.A.12) and all other relevant health and safety legislation, regulations and codes of practice in force at the time.

3.26.A.3 Summary of known and potential archaeology

3.26.A.3.1 A baseline assessment, including desk-based assessment and archaeological assessment of geophysical survey data, has been undertaken in support of the PEIR, as present in **Volume 1, Part 3, Chapter 26: Marine Archaeology**. The baseline assessment used a study area with a 2 km buffer measured from the English Offshore Scheme draft Order Limits, extending to 200 m above MHWS. The following Section contains a summary of the findings relating primarily to the draft Order Limits.

3.26.A.3.2 Data was derived from the Admiralty Data Portal (UK Hydrographic Office (UKHO)), the National Record for the Historic Environment (NRHE), the Canmore database, the Lincolnshire Historic Environment Record (HER) and the Coastal and Intertidal Zone Archaeological Network (CITiZAN) database.

Summary of designated heritage assets

3.26.A.3.3 There are no designated marine heritage assets within the draft Order Limits. Designated assets in England and English waters comprise:

- Scheduled Monuments;
- Remains designated under the Protection of Military Remains Act (1986);
- Protected Wrecks;
- World Heritage Sites;
- Registered Battlefields;
- Listed Buildings;
- Parks and Gardens; and
- Conservation Areas.

Summary of non-designated heritage assets

3.26.A.3.4 The assessment has identified 21 non-designated heritage asset records within the draft Order Limits, comprising:

- Fourteen (14) UKHO records:
  - Nine (9) wrecks;
  - Three (3) foul ground records; and
  - Two (2) possible boulders or groups of boulders;
- Two (2) HER records;
- Four (4) CITiZAN records; and
- One (1) Canmore record.

3.26.A.3.5 One HER and one CITiZAN record likely relate to the same findspot (of a Neolithic axe fragment; **Plate 3.26.A. A-5**; TI_002; TI_013).

3.26.A.3.6 No NRHE records lie within the draft Order Limits.

3.26.A.3.7 The non-designated heritage records within the draft Order Limits are illustrated by **Plate 3.26.A. A-2** to **Plate 3.26.A. A-5** and presented in further detail within **Table 3.26.A. A-1**.

Plate 3.26.A. A-2: Wreck and Heritage Records within the Draft Order Limits (1 of 3)

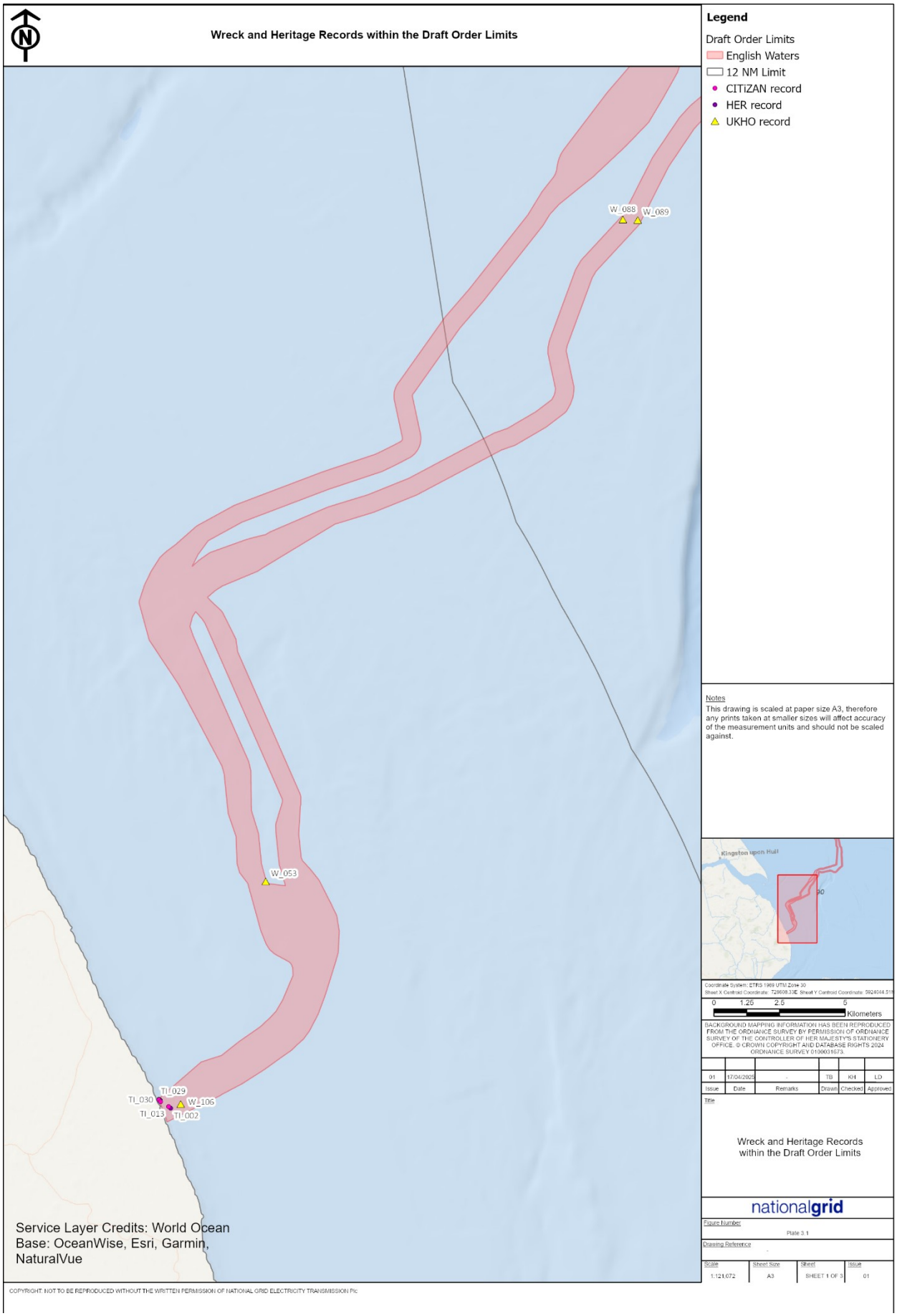


Plate 3.26.A. A-3: Wreck and Heritage Records within the Draft Order Limits (2 of 3)

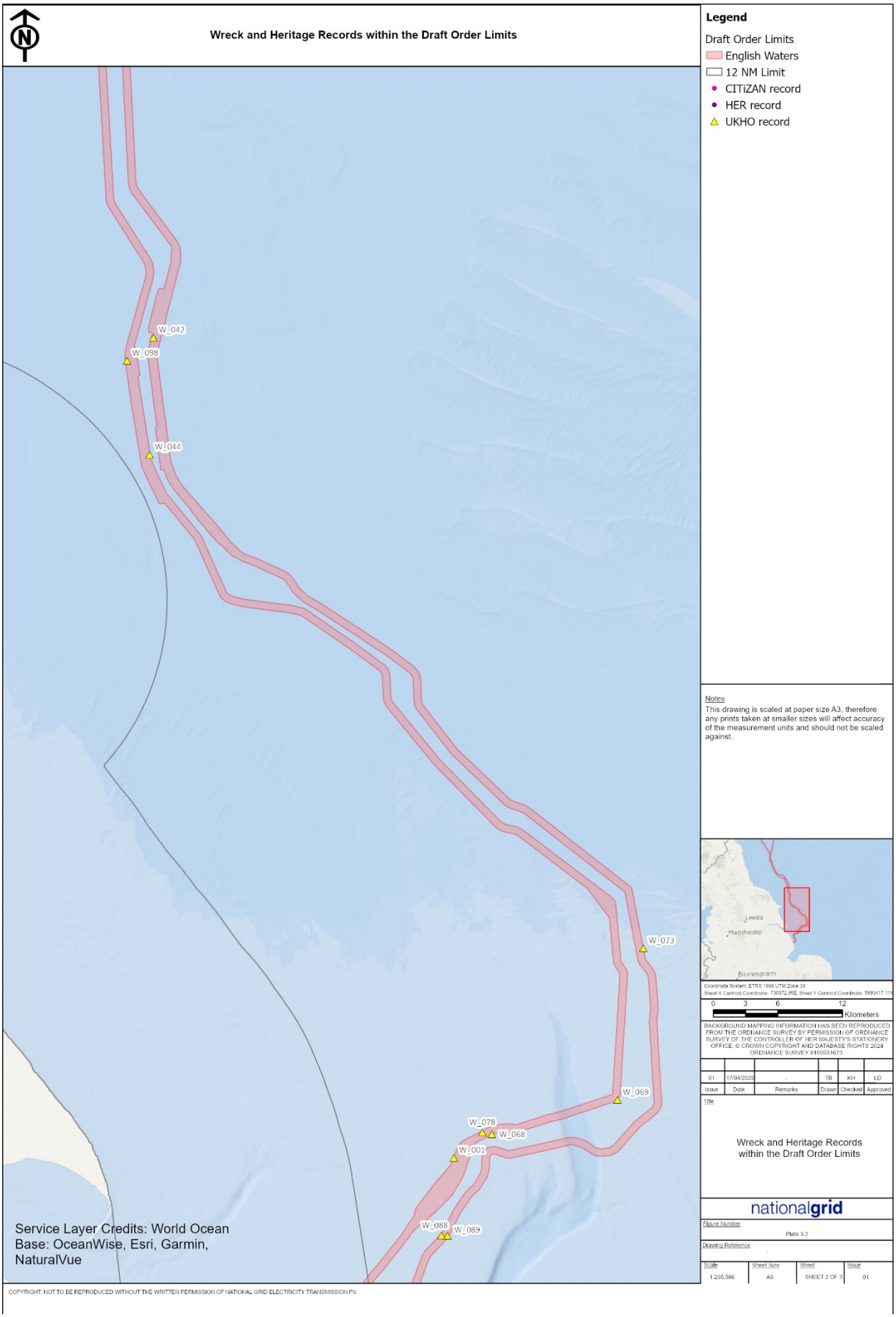


Plate 3.26.A. A-4: Wreck and Heritage Records within the Draft Order Limits (3 of 3)

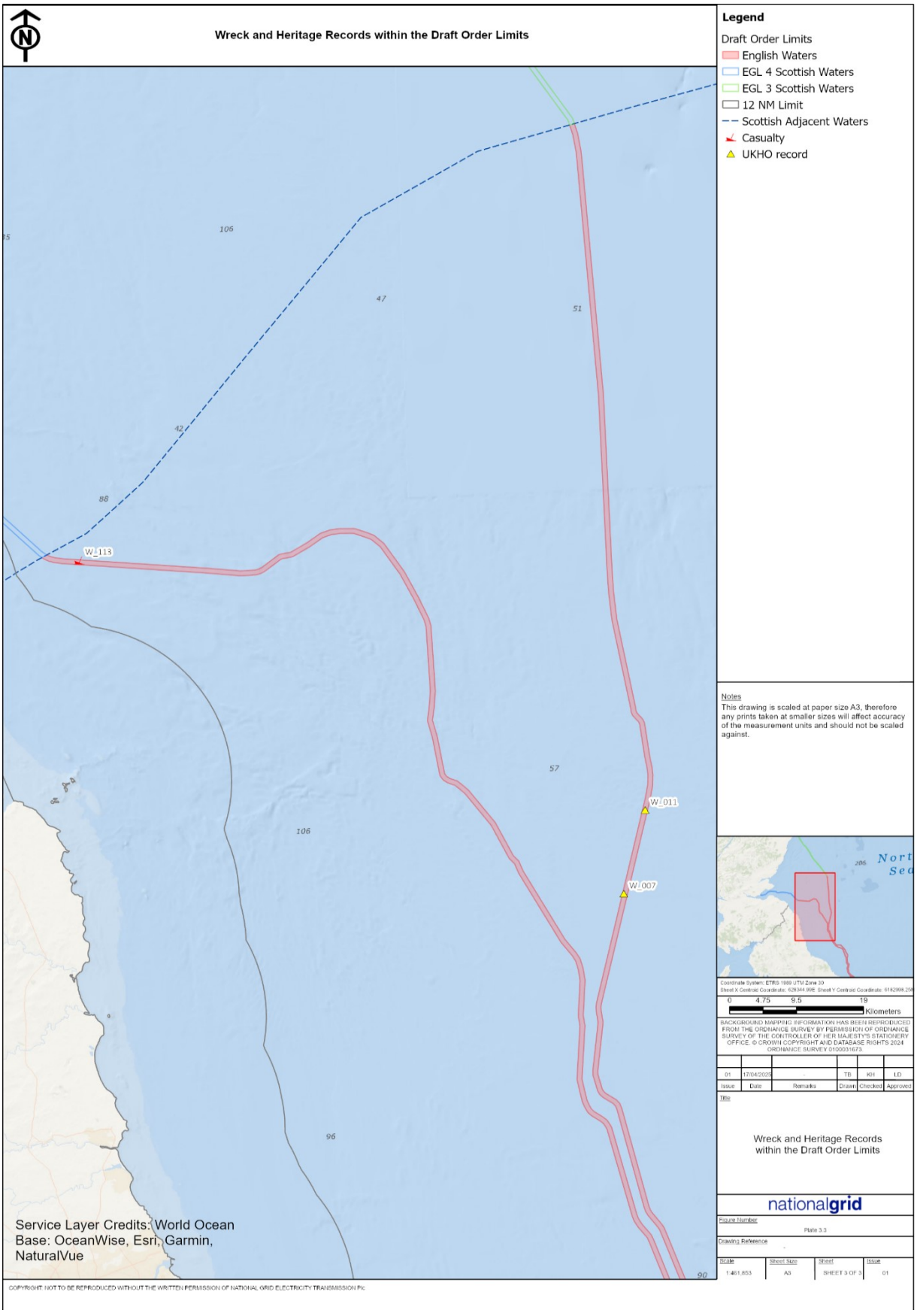


Plate 3.26.A. A-5: Intertidal and Terrestrial Heritage Assets within the Draft Order Limits

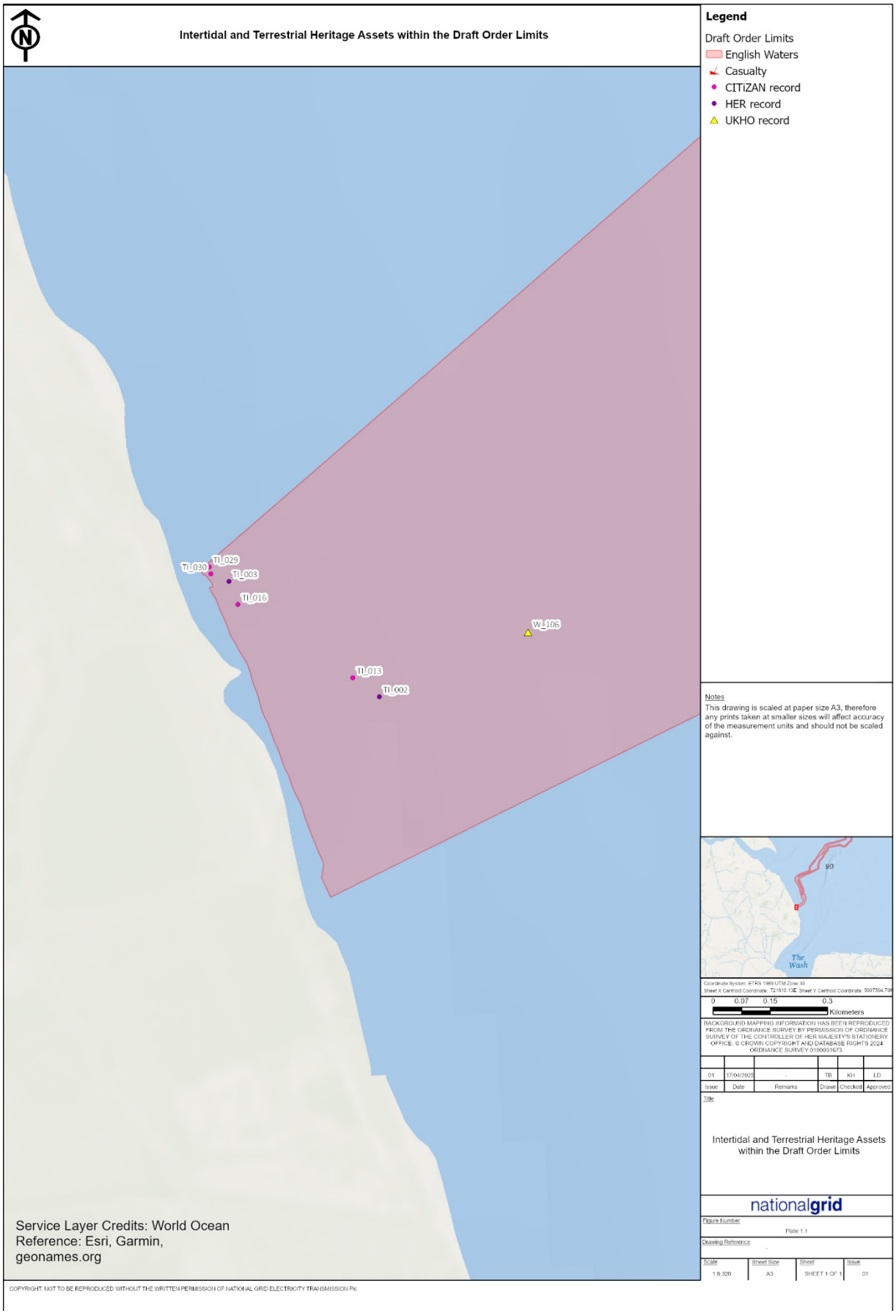


Table 3.26.A. A-1 - UKHO and Canmore Wreck and Obstruction Records within the Draft Order Limits

MSDS ID	Description/ name	Vessel type	Extended Description	Period	Latitude	Longitude	Canmore ID	NRHE ID	UKHO ID	Geophysical ID	Position taken from
W_001	Wreck	Unknown	Dangerous, unknown wreck, first recorded on 19 February 2024	Unknown	53 37.86 N	0 37.86 E	-	-	103434	EGL4_885	UKHO
W_007	Foul ground	-	Fisherman's Fastener	Unknown	55 28.577 N	0 22.567 W	-	-	4612	-	UKHO
W_011	Foul ground	-	Fisherman's Fastener	Unknown	55 35.077 N	0 19.25 W	-	-	4625	-	UKHO
W_042	Wreck	Unknown	Non-dangerous wreck first identified in 1986 and last in 1997, in waters 58 m deep. It is recorded as intact, probably laying on its side.	Unknown	54 19.608 N	0 15.745 E	-	-	6666	EGL3_240	UKHO

MSDS ID	Description/ name	Vessel type	Extended Description	Period	Latitude	Longitude	Canmore ID	NRHE ID	UKHO ID	Geophysical ID	Position taken from
W_044	Foul ground	-	'Dead' position.	Unknown	54 13.763 N	0 14.959 E	-	-	6673	-	UKHO
W_053	Wreck	Unknown	Dangerous wreck in waters 10 m deep. Possibly lifted.	Unknown	53 20.8 N	0 23.1 E	-	913209	8640	-	UKHO
W_068	CATFORD	Steam ship	Dangerous wreck lost on 31 May 1943. The wreck is recorded as upright and very broken up midships.	20th century	53 38.948 N	0 41.154 E	-	-	8860	-	UKHO
W_069	NORFOLK (POSSIBLY)	Sailing vessel	Dangerous wreck lost on 7 April 1892 following a collision. The wreck is recorded in two parts.	19th century	53 40.329 N	0 51.895 E	-	-	8868	-	UKHO
W_073	REBONO (PROBABLY)	Trawler	Probably the dangerous wreck of the *Rebono*, lost on 23 September	20th century	53 47.834 N	0 54.774 E	-	-	8918	-	UKHO

MSDS ID	Description/ name	Vessel type	Extended Description	Period	Latitude	Longitude	Canmore ID	NRHE ID	UKHO ID	Geophysical ID	Position taken from
			1914. The wreck is described as well-defined and intact.								
W_078	Wreck	Trawler	Dangerous wreck of an unidentified, steel hulled trawler detected in June 1981. The wreck lies in waters 25 m deep	Unknown	53 39.064 N	0 40.369 E	-	-	9030	-	UKHO
W_088	Unknown	-	Possible boulder. Swept clear.	Unknown	53 34.01 N	0 36.485 E	-	-	9159	-	UKHO
W_089	Unknown	-	Possible pile of boulders. Swept clear.	Unknown	53 33.985 N	0 36.993 E	-	-	9160	-	UKHO
W_098	HOLMAR I	Motor vessel	Dutch, steel hulled cargo coaster which capsized and foundered in heavy weather.	20th century	54 18.512 N	0 13.393 E	-	1525339	73566	-	UKHO

MSDS ID	Description/ name	Vessel type	Extended Description	Period	Latitude	Longitude	Canmore ID	NRHE ID	UKHO ID	Geophysical ID	Position taken from
W_106	Wreck	Unknown	Dangerous wreck, detected in waters 5 m deep in September 2020.	Unknown	53 16.319 N	0 19.833 E	-		94757	EGL3_506	UKHO
W_113	CHOICE (A 764)	Trawler	Steel hulled trawler built in 1905 and foundered 20 miles east of St Abbs Head on 27th August 1931.	20th century	426000	671000	326028	-	-	-	Canmore

Submerged prehistoric archaeology

3.26.A.3.8 This Section presents a summary of the baseline for the known and potential early prehistoric (Palaeolithic and Mesolithic; *c.* 1,000,000 to 6,000 BP) resource within the draft Order Limits and potential for as-yet undiscovered remains. Although submerged at present, the study area was sub-aerially exposed during much of early prehistory, offering opportunities for hominin and animal occupation.

3.26.A.3.9 The geology of the study area is discussed in two sub-divisions: pre-Quaternary bedrock and Quaternary deposits.

Pre-Quaternary bedrock

3.26.A.3.10 Bedrock within the draft Order Limits can generally be categorised as chalk-dominated; mudstone, gypsum-stone and sandstone; or complex. The southern section (and smaller sections further north) and northward branch of the EGL 3 Project are chalk dominated (Chalk Group). The north-west branch of the EGL 4 Project is dominated by broadly north-south aligned bands of Triassic sandstone and Permian mudstone and gypsum-stone. The central section traverses a range of geologies, summarised below:

- Cromer Knoll Group (mudstone, sandstone and tuff; or siliciclastic, argillaceous rock);
- Humber Group (mudstone and limestone; or siliciclastic, argillaceous rock with sandstone and limestone);
- Permian and Triassic rocks (mudstone, sandstone and halite);
- Kimmeridge Clay Formation (mudstone);
- Corallian Group (limestone);
- Oxford Clay Formation (mudstone);
- West Sole Group (sandstone and mudstone);
- Lias Group (mudstone and limestone);
- Triassic rocks (siliciclastic, argillaceous rock and sandstone); and
- Palaeocene rocks (mudstone, sandstone and lignite).

3.26.A.3.11 Faulting is common within the surrounding bedrock, with several faults mapped crossing the draft Order Limits.

Quaternary deposits

3.26.A.3.12 The Quaternary period of geologic history began *c.* 2,588,000 years ago and continues into the present (Ref 3.26.A.13), thus encompassing the known period of hominin existence in the British Isles. Quaternary deposits therefore have the potential to contain evidence of hominin activity and other remains of archaeological interest.

3.26.A.3.13 The Quaternary geological sequence within the draft Order Limits was determined through correlation of the initial interpretations of the project-specific geophysical survey reports (Ref 3.26.A.14, Ref 3.26.A.15, Ref 3.26.A.16, Ref 3.26.A.17), preliminary geotechnical results (Ref 3.26.A.18, Ref 3.26.A.19, Ref 3.26.A.20, Ref

3.26.A.21) and regional offshore regional reports prepared by the British Geological Survey (Ref 3.26.A.22 and Ref 3.26.A.23).

3.26.A.3.14 Most units comprise sediments laid down in glacigenic, glaciomarine or marine environments and therefore have minimal potential for *in situ* archaeological remains. Except for glacigenic deposits, a provisional low to moderate overall potential for palaeoenvironmental remains of interest has been identified. Marine and glaciomarine sediments may contain evidence of dinoflagellates, ostracods and other microfauna which can infer details such as temperature and depth of the depositional environment. The palaeoenvironmental potential of units within the draft Order Limits may be revised for the ES following review of the geophysical and geotechnical results and any additional, relevant data.

3.26.A.3.15 The provisional Quaternary sequence comprises 14 Units, as presented by **Table 3.26.A. A-2**. This interpretation may be revised in the ES, upon receipt of new data and/or improved interpretations. Any amendments shall be carried through to subsequent revisions of this Outline WSI.

3.26.A.3.16 The provisionally identified units of archaeological and/or palaeoenvironmental interest and the rationale behind this identification are presented below.

Unit 1: Surficial sediments

3.26.A.3.17 Unit 1 represents the uppermost marine sediments and are present throughout large parts of the draft Order Limits. Although laid down in marine environments, precluding the potential for *in situ* remains of prehistoric activity, there remains a potential for prehistoric artefacts to be contained within Unit 1 sediments which have been eroded from their primary contexts and translocated. Realisation of this potential is demonstrated by the findspot of a Neolithic axe fragment within the intertidal zone (**Plate 3.26.A. A-5**; TI_002; TI_013).

3.26.A.3.18 Palaeoenvironmental potential within Unit 1 is demonstrated by the findspots of peat chunks in the intertidal zone, both within the draft Order Limits (**Plate 3.26.A. A-5**; TI_016) and beyond in the study area.

3.26.A.3.19 *Ex situ* prehistoric and palaeoenvironmental remains may be present within the intertidal and nearshore zones. *In situ* peatshelf, of palaeoenvironmental interest, may also be present, as identified within intertidal zone of the study area (beyond the draft Order Limits). Similar remains may also be present further offshore, as suggested by the wider Mesolithic archaeological potential of the North Sea (see **Volume 1, Part 3, Chapter 26: Marine Archaeology**).

Unit 2C: Botney Cut Formation

3.26.A.3.20 Unit 2C has been provisionally correlated with the Botney Cut Formation, a Late Devensian and Early Holocene (MIS 2 to 1) formation comprising glaciogenic, glaciomarine and glaciolacustrine deposits.

3.26.A.3.21 Unit 2C has been interpreted as the infill of a series of palaeochannels in the nearshore zones of each Project and the offshore zone of EGL 4. The deposition timeline of the Botney Cut Formation in correlation with sea level modelling suggests that the former may have coincided with a period of warmer climatic conditions in the southern North Sea that would have been favourable for human occupation. Regional studies, including the North Sea Palaeolandscape Project

(Ref 3.26.A.24), demonstrates a former terrestrial landscape traversed by the English Offshore Scheme which would have been occupied by Late Pleistocene and Early Holocene flora and fauna and could have supported human populations.

3.26.A.3.22 A potential for archaeological and palaeoenvironmental remains within Unit 2C has been suggested, should this unit contain lacustrine and/or fluvial deposits, indicative of warmer depositional environments. Glaciomarine/glaciolacustrine and glacigenic elements would be attributed low to moderate and negligible potential, respectively (see paragraphs 3.26.A.3.35 and 3.26.A.3.37 for rationale).

Unit 2D: Largo Bay Member, Forth Formation

3.26.A.3.23 Unit 2D has been provisionally correlated with the Largo Bay Member of the Forth Formation, characterised within the North Sea as a series of estuarine to offshore marine sediments. Some uncertainty about the interpretation remains regarding this Unit. Although it has been identified by the geophysical interpretation reports within the offshore sections of the English Offshore Scheme and the EGL 3 nearshore zone, this Member does not fall under the nomenclature used by the British Geological Survey south of 55°N.

3.26.A.3.24 The Largo Bay Member is generally present within the Firth of Forth and, to a lesser extent, elsewhere within the 12 NM zone of east Scotland and north-east England. It is equivalent to the St Abbs Formation, which, in turn, is equivalent to the Botney Cut Formation. Unit 2D deposits south of 55°N may therefore generally correlate with the Botney Cut Formation within the draft Order Limits.

3.26.A.3.25 Unit 2D is more widely interpreted north of 55°N along the EGL 3 Project.

3.26.A.3.26 Unit 2D has been provisionally attributed a low archaeological and moderate palaeoenvironmental potential. Estuarine deposits, which the wider Largo Bay Member partly comprises, may contain palaeoenvironmental remains derived from the terrestrial hinterland, with the potential to inform understanding of the Late Devensian to Early Holocene transition in and around the North Sea.

Unit 3: Marr Bank Formation

3.26.A.3.27 Unit 3 has been provisionally correlated with the Marr Bank Formation, a Late Devensian, glaciomarine formation.

3.26.A.3.28 Unit 3 has not been explicitly interpreted within the draft Order Limits, instead having been grouped with the Bolders Bank Formation and broadly identified south of 55° within the EGL 4 offshore section. The Marr Bank Formation does not fall within nomenclature used by the British Geological Survey this far south; therefore, it is unclear whether these deposits actually correlate with the Marr Bank Formation. The British Geological Survey map the Marr Bank Formation further north, including within the northernmost parts of the draft Order Limits, however, no Unit 3 deposits have yet been identified here.

3.26.A.3.29 Unit 3 has been attributed a negligible archaeological potential and a low to moderate palaeoenvironmental potential. The latter has been attributed on the basis of inclusions of wood fragments identified within core samples of the Marr Bank Formation elsewhere within the North Sea, with the potential to inform understanding of palaeoenvironments of the Late Devensian North Sea (see

paragraph 3.26.A.3.35 for further justification of palaeoenvironmental potential within glaciomarine deposits).

Unit 6: Egmond Ground Formation

3.26.A.3.30 Unit 6 has been provisionally correlated with the Egmond Ground Formation, a Hoxnian-age marine formation.

3.26.A.3.31 Unit 6 has been identified within the nearshore section of the EGL 3 Project. Provisional interpretation of the seismic data for the EGL 4 offshore section grouped the Egmond Ground, Aberdeen Ground and Swarte Bank formations as a single unit, interpreting this intermittently along the EGL 4 Project. The southernmost identified spread of this composite unit broadly correlates with the British Geological Survey mapping of the westernmost extent of the Egmond Ground Formation.

3.26.A.3.32 Unit 6 has been attributed a negligible archaeological potential and a moderate palaeoenvironmental potential. The latter has been attributed on the basis of inclusions of freshwater fern (*Azolla filiculoides Lambert*) spores (Ref 3.26.A.22).

Unit 9: Aberdeen Ground Formation

3.26.A.3.33 Unit 9 has been identified within the northern part of the EGL 4 Project offshore section. The provisional interpretation report grouped the Aberdeen Ground, Swarte Bank and Egmond Ground formations when interpreting Unit 9, however, the extent of interpretation does not correlate with British Geological Survey mapping.

3.26.A.3.34 The Aberdeen Ground Formation was deposited over a considerable period of time, spanning a range of depositional environments. As such, the archaeological and palaeoenvironmental potential is particularly to each facies. Further analysis is required to define the Aberdeen Ground Formation categorically from the Swarte Bank and Egmond Ground formations and determine the lithology, age and depositional environment(s) of any confidently interpreted Aberdeen Ground Formation deposits.

Palaeoenvironmental potential

3.26.A.3.35 Most Quaternary geological units have potential to contain evidence relating to palaeoenvironments and the environmental conditions under which they formed. Evidence including diatoms, ostracods and dinoflagellates can be found within marine, glaciomarine and glaciolacustrine deposits which and be analysed to infer water temperature, depth and proximity to land at the time of deposition.

3.26.A.3.36 As such, Units 2A, 2B, 2E, 5, 7 and 8 have a low to moderate potential for containing evidence of palaeoenvironmental remains.

3.26.A.3.37 Glacigenic deposits, however, that is deposits which have formed beneath glaciers and commonly typified as till or diamict, do not hold such potential, given the conditions and circumstances of the formation of such units. Therefore, Units 4A and 4B have a negligible palaeoenvironmental potential.

Table 3.26.A. A-2 - Provisional Quaternary Sequence within the Draft Order Limits

Unit	Formation	Present within				MIS	Depositional environment	Potential	
		EGL 3 Nearshore	EGL 4 Nearshore	EGL 3 Offshore	EGL 4 Offshore			Prehistoric archaeology	Palaeoenvironmental
1	Surficial sediments	Y	Y	Y	Y	1	Marine	Low to negligible	High
2A	St Andrew's Bay Member, Forth Formation	Y	Y	Y	Y		Shallow marine, possibly beach and/or fluviomarine	Negligible	Low to moderate
2B		Y	Y	Y	N			Negligible	Low to moderate
2C	Botney Cut Formation	Y	Y	N	Y	2 to 1	Partly glaciolacustrine/ glaciomarine. Possibly glaciogenic (lower member)	Moderate potential should lacustrine or fluvial elements be identified. Negligible otherwise.	
2D	Largo Bay Member, Forth Formation	Y	N	Y	Y	2	Estuarine to offshore marine	Low	Moderate
2E	St Abbs Formation	N	N	N	Y		Glaciomarine	Negligible	Low to moderate
3	Marr Bank Formation	N	N	N	?		Shallow glaciomarine	Negligible	Low to moderate
4A	Bolders Bank Formation	Y	Y	Y	Y		Sub-glacial/supra-glacial	Negligible	Negligible

Unit	Formation	Present within				MIS	Depositional environment	Potential	
		EGL 3 Nearshore	EGL 4 Nearshore	EGL 3 Offshore	EGL 4 Offshore			Prehistoric archaeology	Palaeoenvironmental
4B	Wee Bankie Formation	N	N	N	Y		Glaciogenic	Negligible	Negligible
5	Coal Pit Formation	N	N	Y	N	6 to 3	Mostly glaciomarine; upper member locally interpreted as intertidal	Negligible	Low to moderate
6	Egmond Ground Formation	Y	N	N	Y	11	Temperate, shallow marine	Negligible	Moderate
7	Sand Hole Formation	Y	N	N	N			Negligible	Low to moderate
8	Swarte Bank Formation	N	N	N	Y	12	Upward transition from sub-glacial, glaciofluvial, to glaciolacustrine to shallow marine	Negligible	Low to moderate
9	Aberdeen Ground Formation	N	N	N	Y	100 to 13	Delta-front/pro-delta/nearshore/open marine	Uncertain	Uncertain

Significance of submerged prehistoric remains

3.26.A.3.38 The rarity of *in situ* prehistoric sites in offshore contexts, particularly in the central North Sea, suggests that any such sites encountered in the draft Order Limits will be of at least national interest. The cultural significance of these sites would be derived from their potential to contribute to international and national research objectives through interpretation of in situ anthropogenic material and palaeoenvironmental remains. These may hold a combination of evidential, historical and aesthetic value which may contribute to several regional, national and international research objectives (see **Section 3.26.A.4**) and may be considered of up to the highest importance.

3.26.A.3.39 Isolated finds of prehistoric archaeological material within secondary contexts may preserve evidential and/or historical value, however, these may have diminished on the loss of their primary deposition environment and contexts. Such remains would likely be of no greater than medium importance. Palaeoenvironmental material derives a key part of its importance from its primary context and *ex situ* remains may be considered of limited to no value. An exception to this may occur where material is able to be reassociated with *in situ* deposits, such as may be possible in linking chunks of derived peat from the foreshore to contiguous peatshelf beneath the beach deposits.

Maritime and coastal remains

3.26.A.3.40 The coastal and maritime archaeology encompasses remains and evidence of human interaction with the marine environment, ranging from the immediate Late Pleistocene and Flandrian marine transgressions to the present. This timespan includes all archaeological periods from the Upper Palaeolithic to the Modern. Archaeological evidence in this context may comprise (but is not limited to):

- Vessels (including evidence of their construction, use and maintenance);
- Navigational aids (including lighthouses and buoys);
- Infrastructure (including harbours and jetties);
- Evidence of resource gathering (including fish traps, salterns); and
- Individual or groups of artefacts (including cargo).

3.26.A.3.41 The non-designated heritage assets within the draft Order Limits largely fall within the category of maritime and coastal archaeology (see Section 0).

3.26.A.3.42 The baseline assessment examined the draft Order Limits and study area, identifying a larger number of records than the draft Order Limits alone. Within the study area were identified:

- One hundred and seven (107) UKHO records, including 68 wreck sites;
- Thirty-nine (39) NRHE records, comprising:
  - Ten (10) offshore wreck records (all correlating with UKHO records, though the UKHO record for one is situated 15 km west from the NRHE record);
  - Four (4) foul ground records (all correlating with UKHO records, though the UKHO record for one is situated beyond the study area);

  - Thirteen (13) intertidal sites, monuments or findspots (including one (1) wreck, correlating with a CITiZAN record);
  - Six (6) terrestrial sites, monuments or findspots (above MHWS);
  - Four (4) documented loss records;
  - One (1) offshore record relating to the recovery of two pieces of peat; and
  - One (1) record relating to multi-period finds at Wold Farm (likely incorrect location data);
- Ten (10) Canmore records, including five (5) wrecks (all relating to UKHO records);
- Eleven (11) Lincolnshire HER records in the intertidal and terrestrial zones, comprising:
  - Seven (7) artefact findspots; and
  - Four (4) structures (sites of former structures or existing); and
  - Fifty-seven (57) CITiZAN records in the intertidal and terrestrial zones, comprising:
  - Twenty-five (25) records within the intertidal zone (including one (1) wreck correlating with an NRHE record); and
  - Thirty-two (32) terrestrial records for sites or artefact findspots.

3.26.A.3.43 The sample of wreck, obstruction and heritage records demonstrates a wider potential for hitherto unidentified archaeological remains within the draft Order Limits. Any such remains would most likely relate to post-medieval or modern activity, reflecting the increased maritime activity of these periods and survivability of more modern materials. Individual artefacts from earlier periods of history or prehistory may also be encountered within secondary contexts, such as the fragment of a Neolithic stone axe encountered in the intertidal zone of the draft Order Limits (**Plate 3.26.A. A-5**; TI_002; TI_013).

3.26.A.3.44 The UKHO holds records for 14 wreck or obstruction locations within the draft Order Limits, illustrating a vignette of the late 19th and 20th century maritime activity within the North Sea. Other wrecks of unknown provenance within the UKHO dataset may relate to this period or earlier. The UKHO wrecks within the draft Order Limits are described below.

W_001

3.26.A.3.45 W_001 (UKHO ID: 103434) represents a dangerous, unknown wreck, first recorded on 19 February 2024 in general water depth of 19 m. The sonar dimensions are given as 8.58 m (L) by 3.03 m (W) by 0.6 m (H). W_001 directly corresponds with medium potential geophysical anomaly EGL4_885.

W_007

3.26.A.3.46 W_007 (UKHO ID: 4612) represents a foul ground record or ‘Fisherman’s Fastener’. First detected in January 1971 and last in 2009, the position is now recorded as ‘dead’.

W_011

3.26.A.3.47 W_011 (UKHO ID: 4625) represents a foul ground record or ‘Fisherman’s Fastener’. First detected in January 1971 and last in 2009, the position is now recorded as ‘dead’.

W_042

3.26.A.3.48 W_042 (UKHO ID: 6666) represents a non-dangerous wreck first identified in 1986 and last in 1997, in waters 58 m deep. It is recorded as intact, probably laying on its side, with sonar measurements of 30 m (L) by 12 m (W) by 4.7 m (H). W_042 directly corresponds with high potential geophysical anomaly EGL3_240.

W_044

3.26.A.3.49 W_044 (UKHO ID: 6673) relates to foul ground detected in 1986. The position is recorded by the UKHO as ‘dead’.

W_053

3.26.A.3.50 W_053 (UKHO ID: 8640) represents a dangerous wreck in waters 10 m deep. The circumstances of the sinking are not recorded by the UKHO, however, the wreck is recorded as lifted and the position for filing only. It is unclear when the wreck was lifted, as the date of first detection is given as 1923 and last as 2014.

W_068

3.26.A.3.51 W_068 (UKHO ID: 8860) represents the dangerous wreck of the *Catford*, a British-flagged steam ship built in 1919 and lost on 31 May 1943. The wreck is recorded as upright and very broken up midships, measuring on sonar 79 m (L) by 25.5 m (W) by 4.4 m (H), in waters 25 m deep.

W_069

3.26.A.3.52 W_069 (UKHO ID: 8868) represents the dangerous wreck of the *Norfolk*, a British-flagged sailing vessel lost on 07 April 1892 following a collision. The wreck is recorded in two parts, measuring on sonar 94 m (L) by 25 m (W) by 4.6 m (H), in water 25 m deep.

W_073

3.26.A.3.53 W_073 (UKHO ID: 8918) probably represents the dangerous wreck of the *Rebono*, a British-flagged trawler lost on 23 September 1914. The wreck is described as well-defined and intact, measuring on sonar 55 m (L) by 8 m (W) by 3.7 m (H), in waters 32 m deep.

W_078

3.26.A.3.54 W_078 (UKHO ID: 9030) represents the dangerous wreck of an unidentified, steel hulled trawler detected in June 1981. The wreck lies in waters 25 m deep and is given sonar measurements of 30.2 m (L) by 12.4 m (W) by 2.36 m (H).

W_088

3.26.A.3.55 W_088 (UKHO ID: 9159) represents a small sonar contact identified in 1993. The contact was detected in waters 18 m deep, with sonar measurements of 8 m (L) by 2 m (W) by 1.8 m (H). Provisionally interpreted as a boulder, the position was further investigated and swept clear, recording no foul. The UKHO record the position as 'dead'.

W_089

3.26.A.3.56 W_089 (UKHO ID: 9160) represents a small sonar contact identified in 1993. The contact was detected in waters 19 m deep, with sonar measurements of 18 m (L) by 4 m (W) by 1.6 m (H). Provisionally interpreted as a pile of boulders, the position was further investigated and swept clear, recording no foul. The UKHO record the position as 'dead'.

W_098

3.26.A.3.57 W_098 (UKHO ID: 73566) represents the wreck of the *Holmar* I, a Dutch-flagged motor vessel lost in bad weather c. 30 miles north-east of Flamborough Head on 11 January 1978. The record does not mention accurate positioning, although measurements (not sonar) are provided as 50 m (L) by 8.5 m (W) by 3.4 m (H).

W_106

3.26.A.3.58 W_106 (UKHO ID: 94757) represents a dangerous wreck, detected in waters 5 m deep in September 2020 (*c*. 400 m below MLWS). Sonar measurements of 26 m (L) by 15 m (W) by 0.5 m (H) are given. W_106 directly corresponds with high potential geophysical anomaly EGL3_506.

Results of geophysical and hydrographic assessment

3.26.A.3.59 Archaeological review of the geophysical data (within the study area) has identified:

- A total of 1,303 surface geophysical anomalies of archaeological potential, comprising:
  - Three (3) high potential anomalies (two correlating with UKHO records);
  - Twenty-three (23) medium potential anomalies (one correlating with a UKHO record);
  - One thousand, two hundred and seventy-seven (1,277) low potential anomalies; and
- A total of 14,928 magnetic anomalies, of which 8,135 are over 5.0 nT and do not correlate with known, or visible, features or infrastructure.

3.26.A.3.60 The geophysical anomalies have been identified and graded according to their potential to be of anthropogenic origin and thus of archaeological interest (see **Table 3.26.A. A-3**). Magnetic anomalies can potentially represent material of archaeological interest with a ferrous component.

3.26.A.3.61 The distribution of geophysical and magnetic anomalies within the study area, as identified through review of the geophysical and hydrographic data, is presented

below by **Plate 3.26.A. A-6** and **Plate 3.26.A. A-7**, respectively. A full gazetteer of geophysical anomalies of archaeological potential is presented within **Volume 2, Part 3, Appendix 3.26.C: Gazetteer of Geophysical Anomalies**.

3.26.A.3.62 The distribution of geophysical and magnetic anomalies presents a broad potential for further, hitherto unidentified, remains of archaeological interest upon the seabed and within seabed sediments.

Table 3.26.A. A-3 - Archaeological Potential of Geophysical Anomalies

Archaeological potential	Count		
	EGL 3	EGL 4	Total
High	3	0	3
Medium	9	14	23
Low	316	961	1,277
Total	328	975	1,303

3.26.A.3.63 A total of 14,928 magnetic anomalies were identified within the study area, ranging in amplitude from 1.0 to 4,865 nT (see **Plate 3.26.A.** A-7 and **Table 3.26.A. A-4**). Of these, 8,135 are over 5.0 nT and do not correlate with known, or visible, features or infrastructure. Whilst the vast majority of these are unlikely to be of archaeological interest, some may represent anthropogenic material. All isolated anomalies of 50 nT or less are likely to be of limited archaeological significance, however, a low amplitude may be the result of distance between the anomaly and the sensor. Magnetic anomalies of >100 nT are typically described as large and have the potential to be of archaeological significance.

Table 3.26.A. A-4 - Magnetic Anomalies Greater than 5 nT

Amplitude (nT)	Count		
	EGL 3	EGL 4	Total
>200	26	48	74
100 to 200	31	42	73
50 to 100	80	108	188
5 to 50	3,106	4,694	7,800
Total	3,243	4,892	8,135

Plate 3.26.A. A-6: Distribution of Archaeological Anomalies within the Draft Order Limits

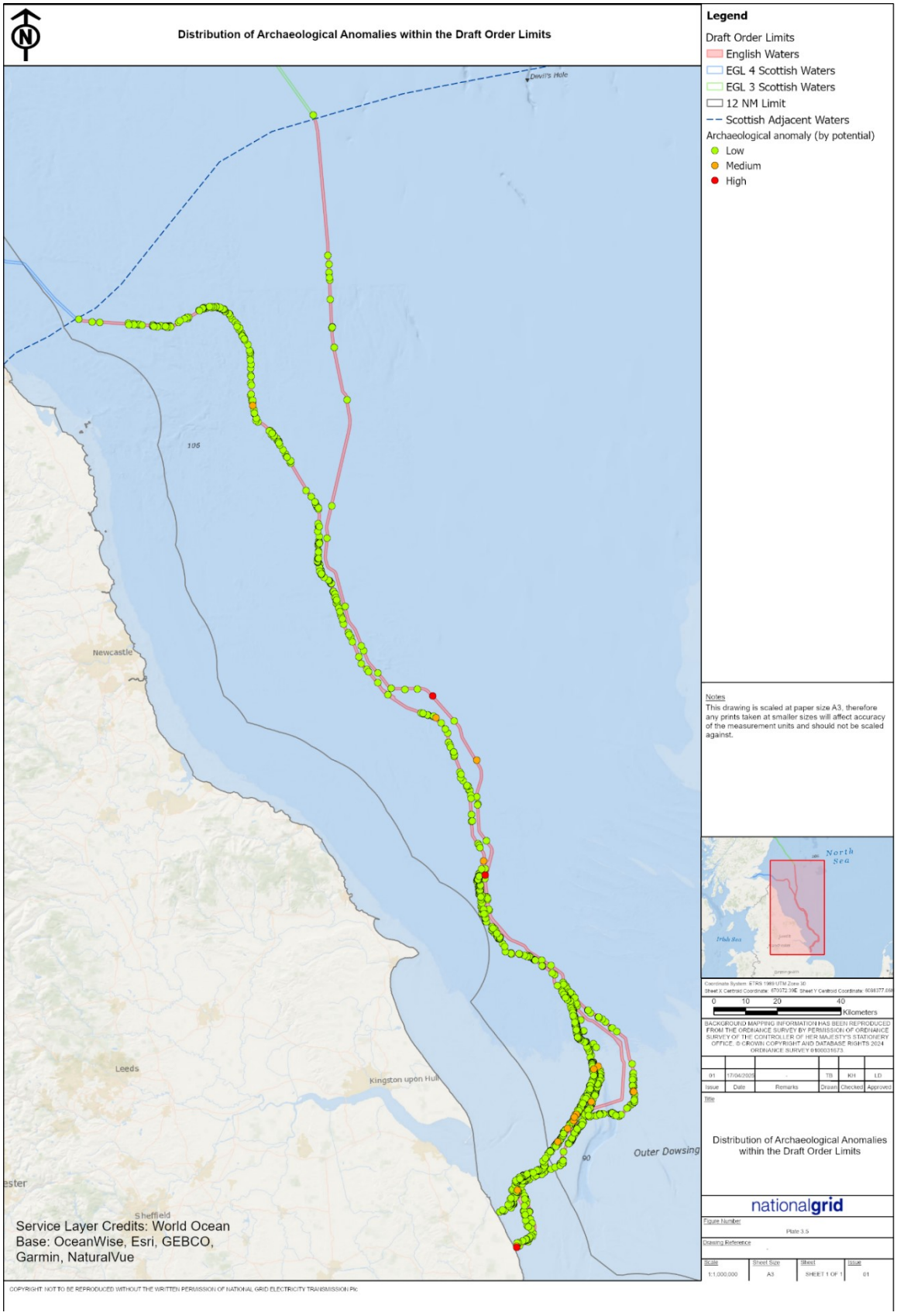
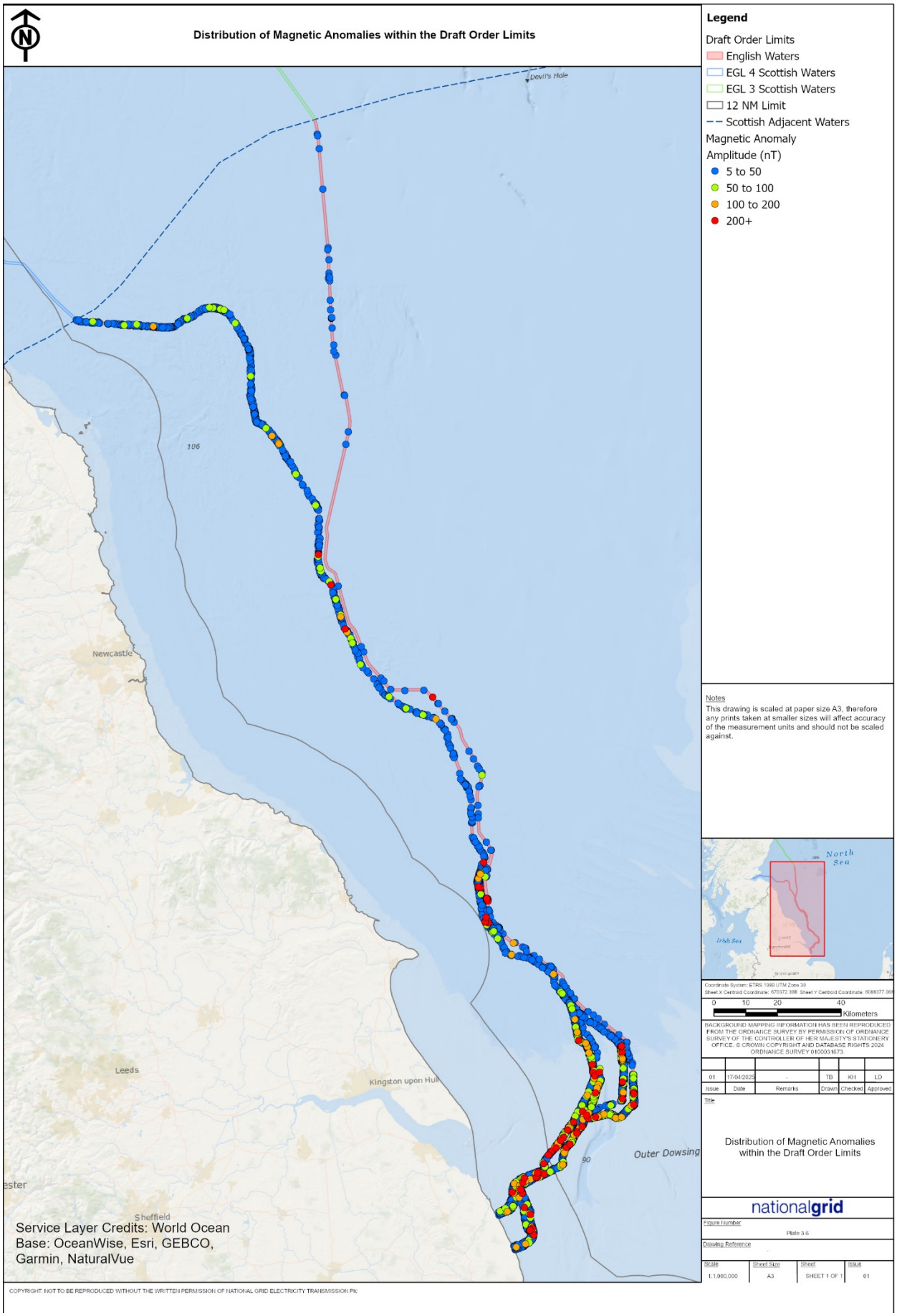


Plate 3.26.A. A-7: Distribution of Magnetic Anomalies within the Draft Order Limits



Intertidal heritage records

3.26.A.3.64 The Marine Archaeology baseline identified six heritage records within the intertidal zone of the draft Order Limits, comprising four CITiZAN and two HER records (**Plate 3.26.A. A-5**).

3.26.A.3.65 Two of these records relate to natural remains relating to the now-submerged landscape of the Neolithic. Large chunks of peat have been identified on the beach within the northern part of the intertidal zone (TI_016) and a large oak branch, found close by and originally thought to form part of an early medieval ship, was dated to 5,020±28 BP (TI_003) (Ref 3.26.A.25). Other records within the study area (beyond the draft Order Limits) relate to additional finds of peat chunks and *in situ* peatshelf and sea level modelling suggests that this part of the Lincolnshire coastline was characterised by a sub-aerial, terrestrial environment up to *c*. 6,000 BP (Ref 3.26.A.26). A detailed assessment of the pre-Flandrian marine transgression palaeolandscape is presented within **Volume 1, Part 3, Chapter 26: Marine Archaeology**.

3.26.A.3.66 Two further findspot records within the intertidal zone of the draft Order Limits indicate the possibility for nearby Neolithic activity, representing polished axe fragments, though the separate CITiZAN and HER records likely relate to the same artefact (TI_002; TI_013).

3.26.A.3.67 The remaining two intertidal records relate to a findspot of possible wreckage of ship's timbers of post-medieval age (TI_030) and a possible coastal landing site, also of post-medieval age (TI_029). The NRHE record states that the latter comprises more than one bank and an inlet, suggested by the 1st Edition Ordnance Survey map, however, further research shows this detail on an 1824 Ordnance Survey sheet, illustrating a possible raised bank running from the tide mark line in the east to the sea bank in the west (Ref 3.26.A.27), rather than the 1st Edition (surveyed and published in the late 19th century). Neither record is known to relate to *in situ* physical remains within the intertidal zone at present, however, remnants of the bank (or banks) may feasibly remain.

Aviation remains

3.26.A.3.68 There are no known aviation remains within the draft Order Limits. A single documented loss relating to aircraft is recorded within the study area, however, this is not known or suspected to relate to physical remains at the recorded UKHO position.

3.26.A.3.69 Any physical remains relating to, or suspected to relate to, aircraft losses may automatically fall under the Protection of Military Remains Act (1986) and therefore be considered of the highest heritage importance.

Geophysical data quality and limitations

3.26.A.3.70 No significant limitations relating to Marine Archaeology were identified during the baseline assessment that affect the robustness of the preliminary impact assessment of the potential significant effects of the English Offshore Scheme (see **Volume 1, Part 3, Chapter 26: Marine Archaeology**).

3.26.A.3.71 Any data gaps identified will be addressed by the acquisition of suitable data and archaeological review of this. The baseline and impacts for Marine Archaeology will subsequently be amended, as appropriate.

3.26.A.4 Research agendas

3.26.A.4.1 The best practice guidance within Archaeological Written Schemes of Investigation for Offshore Windfarm Projects (Ref 3.26.A.2) indicates that a WSI should "set out the importance of research frameworks in setting objectives that are delivered through realisation of the work".

3.26.A.4.2 Several research frameworks are of relevance to the archaeological remains and area of the English Offshore Scheme. These include:

- The North Sea Prehistory Research and Management Framework (Ref 3.26.A.28);
- A Mesolithic Research and Conservation Strategy for England (Ref 3.26.A.29);
- The East Midland Historic Environment Research Framework (Ref 3.26.A.30);
- The Archaeology of the East Midlands. An Archaeological Resource Assessment and Research Agenda (Ref 3.26.A.31); and
- A Maritime Archaeological Research Agenda for England (Ref 3.26.A.32).

3.26.A.4.3 Other frameworks, including those concerning specific themes other than those set out above, may also be relevant, depending on the specific work package undertaken. Any archaeological activities and reporting under this Outline WSI will tie research into the relevant research frameworks, ensuring that the project contributes to archaeological knowledge of areas where research frameworks demonstrate a need for further understanding. The objectives of the research framework will be used to guide work and recommendations made by the Retained Archaeologist to the Developer.

3.26.A.4.4 The connection with the specific work package to be undertaken and the relevant research framework, aims and objectives will be identified within the Method Statements which will precede archaeological work. The Method Statement(s) will also set out how the work undertaken will be tied into the relevant research framework during the Online Access to the Index of Investigations (OASIS) reporting (see **Section 3.26.A.7**).

3.26.A.5 Impacts and environmental measures

Overview

3.26.A.5.1 This Section presents the proposed activities within the draft Order Limits with the potential to impact on Marine Archaeology receptors. The activities and their extents are derived from the Project Design Envelope (PDE) and may be altered within the scope of the maximum design parameters.

3.26.A.5.2 The worst-case scenarios identified in **Volume 1, Part 3, Chapter 26: Marine Archaeology**, informed by the maximum design parameters as at the time of writing, have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group.

3.26.A.5.3 The impact assessment and PDE activities relevant to Marine Archaeology presented within the PEIR will be reviewed for the ES and this Outline WSI will be reviewed and amended as necessary post-consent.

3.26.A.5.4 A summary of activities for each Project phase with the potential to impact Marine Archaeology receptors is given below.

Construction phase

3.26.A.5.5 The following construction activities are anticipated or may be employed:

- Surveys and site investigation:
  - Two-dimensional (2D) and three-dimensional (3D) seismic surveys;
  - Multibeam Echo Sounder (MBES);
  - Side Scan Sonar (SSS);
  - Magnetometer;
  - Sub-Bottom Profiler (SBP);
  - Remotely Operated Vehicles (ROVs);
  - Deep push seabed Cone Penetration Test (CPT) frames;
  - Shallow CPT;
  - Vibrocores;
  - Boreholes;
- Route preparation:
  - Pre-lay grapnel runs (PLGR);
  - Boulder clearance;
  - Sandwave clearance and disposal of material;
  - Removal of out of service cables;
- Cable installation, with all seabed sections of cable buried where possible;
- Installation of cable protection, where cable burial is not achievable and at cable crossings;

- Crossings over existing infrastructure;
- Trenchless cable laying (Horizontal Directional Drilling – HDD) at landfall; and
- Anchoring/jack-up of construction installation vessels.

Operational phase

3.26.A.5.6 The operational phase of the English Offshore Scheme is anticipated to last a minimum of 40 years and may be extended to 60 years. Operational activities will include:

- Inspection surveys, including geophysical surveys;
- Cable repair (if required);
- Reburial, remedial protection or maintenance and reinstatement of external cable protection features; and
- Anchoring/jack-up of vessels.

3.26.A.5.7 Cable repair may involve the laying of replacements cable sections beyond the as-laid footprint of the construction phase, resulting in impacts beyond this.

Areas of work

3.26.A.5.8 The draft Order Limits will be the focus for all English Offshore scheme construction and operational activities. Route preparation, cable installation and cable maintenance activities will be contained within this area.

Environmental measures

3.26.A.5.9 The Applicant has committed to a series of environmental measures to mitigate impacts to Marine Archaeology, as presented within **Table 3.26.A. A-5**. These follow standard mitigation measures, engaged to manage the marine archaeological resource in line with current policy and guidance.

Table 3.26.A. A-5 - Environmental Measures for Marine Archaeology

Environmental measure
Implementation of AEZs or TAEZs around identified known or potential Marine Archaeology receptors.
Archaeological input into specifications for and archaeological analysis of any further pre-construction surveys, including (but not limited to) UXO, Remotely Operated Vehicle (ROV), diver, geophysical and geotechnical surveys.
Obtaining geotechnical cores for archaeological review. Implementation of a staged process of geoarchaeological works, as necessary.
Implementation of a protocol for recording finds of archaeological interest, following the guidance for the Protocol for Archaeological Discoveries.
Operational awareness of the location of geophysical/magnetic anomalies identified as having a low archaeological potential. Reporting through the PAD will be undertaken should material of potential archaeological interest be encountered.

Environmental measure
Archaeologists to be consulted in the preparation of site preparation activities or other pre-construction operations and, if appropriate, to carry out archaeological monitoring of such work.
Mitigation of unavoidable direct impacts on known sites of archaeological significance. Options include i) preservation by record; ii) stabilisation; and iii) detailed analysis and safeguarding of otherwise comparable sites elsewhere.
Written Scheme of Investigation: implementation of a protocol for avoiding, mitigating and managing finds of archaeological interest, following the guidance for the PAD (See **Section 3.26.A.8** and **Annex A: Protocol for Archaeological Discoveries: Preliminary** Record Form**).**

3.26.A.5.10 The undertaking of such activities as described within **Table 3.26.A. A-5** and with the potential to interact with Marine Archaeology receptors should be preceded by task-specific Method Statements, to be prepared and agreed with the Archaeological Curator on an 'as-needed' basis. Further detail of additional activities would be provided within the associated Method Statement.

Exclusion zones

Archaeological Exclusion Zones

3.26.A.5.11 Best practice favours the *in situ* preservation of archaeological remains. Therefore, the preferred mitigation for archaeological remains is avoidance (Ref 3.26.A.6). AEZs will be implemented within the draft Order Limits that prohibit development-related activities within their extents, which vary depending upon the nature of the site.

3.26.A.5.12 The establishment, position, extents and rationale for AEZs will be presented in the ES and subsequent revision to this Outline WSI, to be agreed with the Archaeological Curator. These will be incorporated into constraints mapping and provided to all the contractors and sub-contractors, typically within Vessel Information Packs (VIPs).

3.26.A.5.13 In view of their potential archaeological significance, AEZs should be placed around high and medium potential geophysical survey anomalies within the draft Order Limits. These anomalies will be recommended AEZs based on the size of the anomaly, the extents of any debris, the potential significance of the anomaly, the potential impact of the development and the seabed dynamics within the area.

3.26.A.5.14 AEZs should be recommended as a distance from the extents. Particularly in the case of shipwrecks, which tend to be greater in length than width, the use of a circle provides unequal protection around the extents. This not only impacts the protection afforded but does not present proportional mitigation.

3.26.A.5.15 Provisionally recommended AEZs are presented by **Plate 3.26.A. A-8** to **Plate 3.26.A. A-16** and may be subjected to future amendment.

Plate 3.26.A. A-8: Archaeological Exclusion Zones (1 of 9)

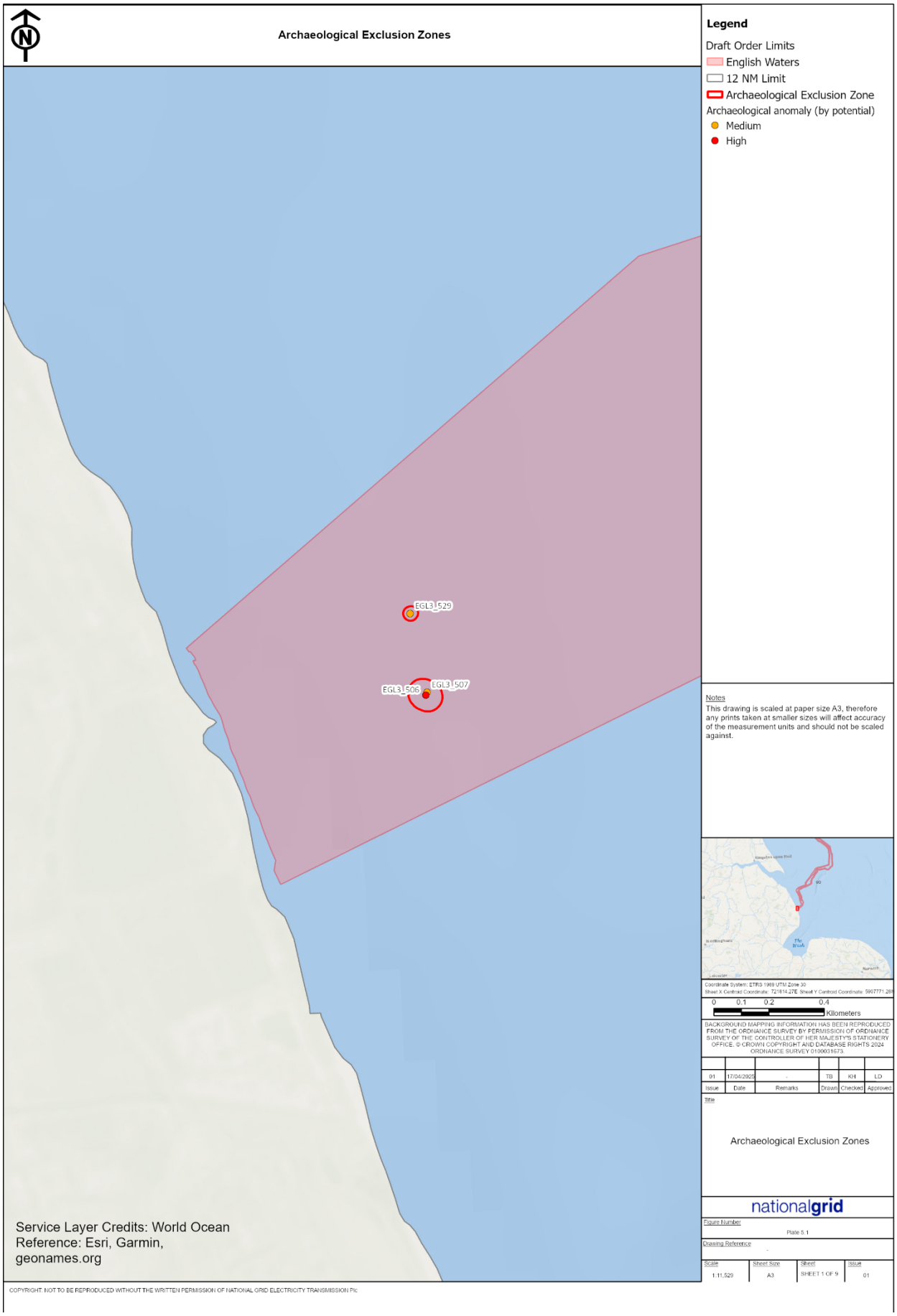


Plate 3.26.A. A-9: Archaeological Exclusion Zones (2 of 9)

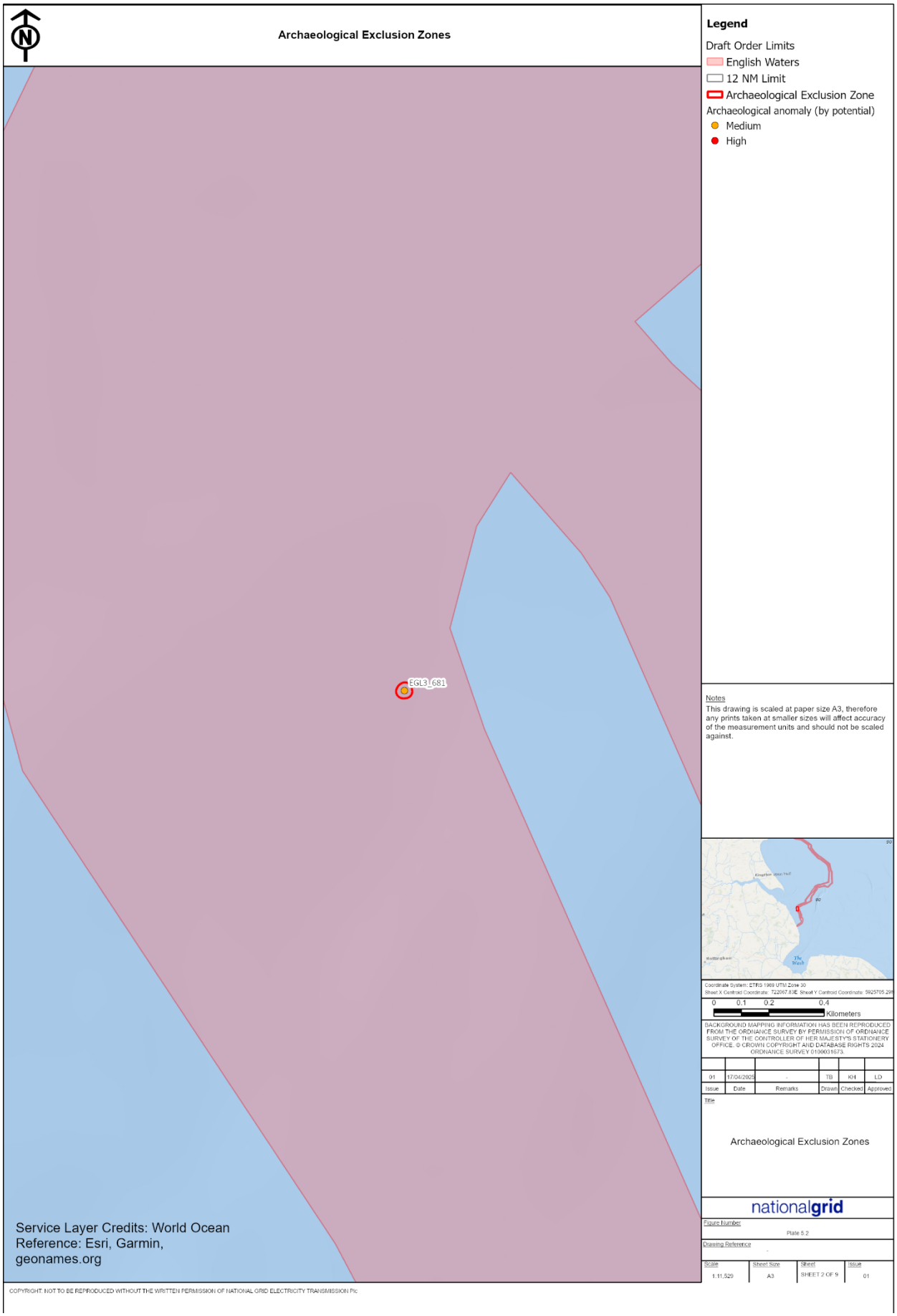


Plate 3.26.A. A-10: Archaeological Exclusion Zones (3 of 9)

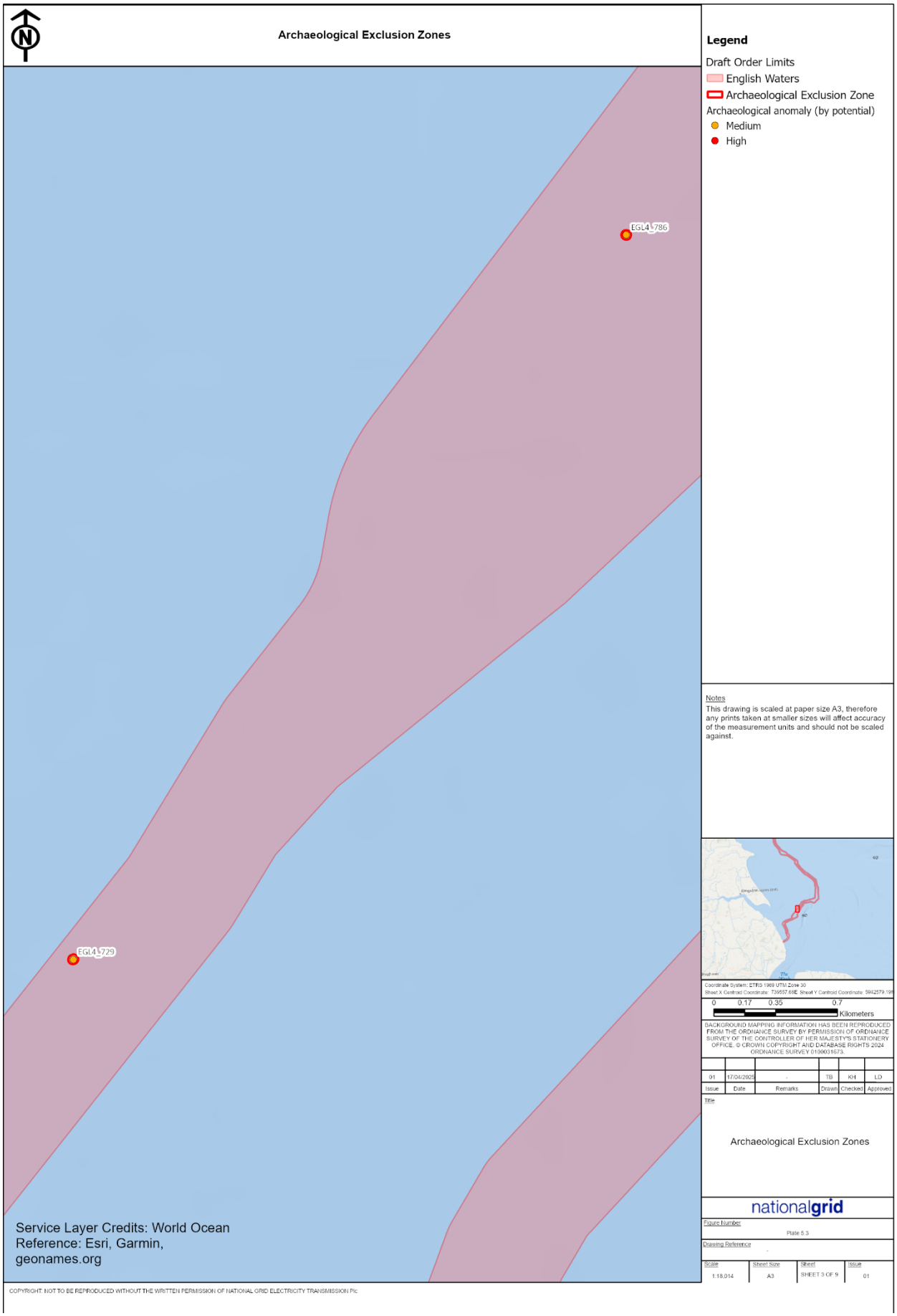


Plate 3.26.A. A-11: Archaeological Exclusion Zones (4 of 9)

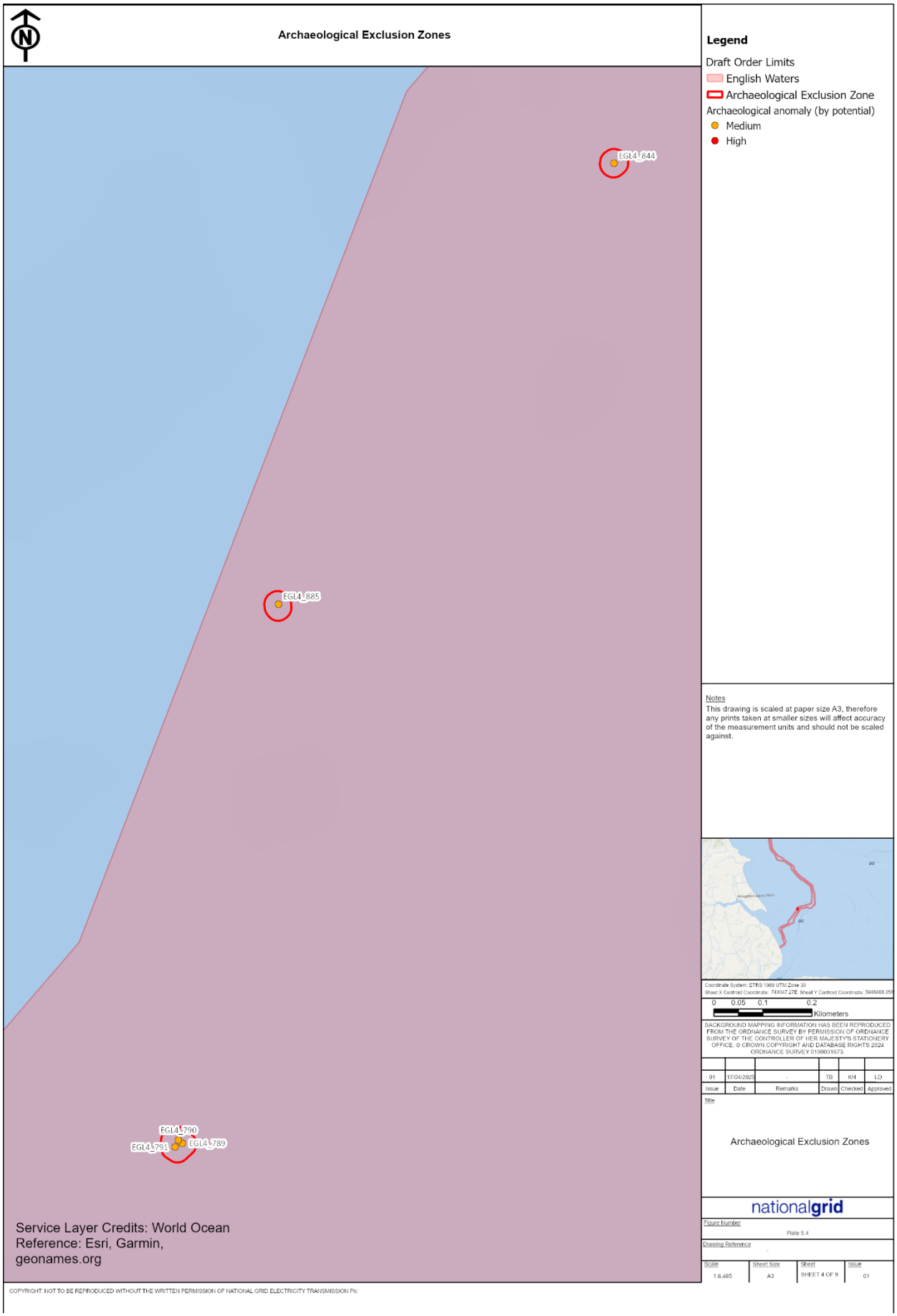


Plate 3.26.A. A-12: Archaeological Exclusion Zones (5 of 9)

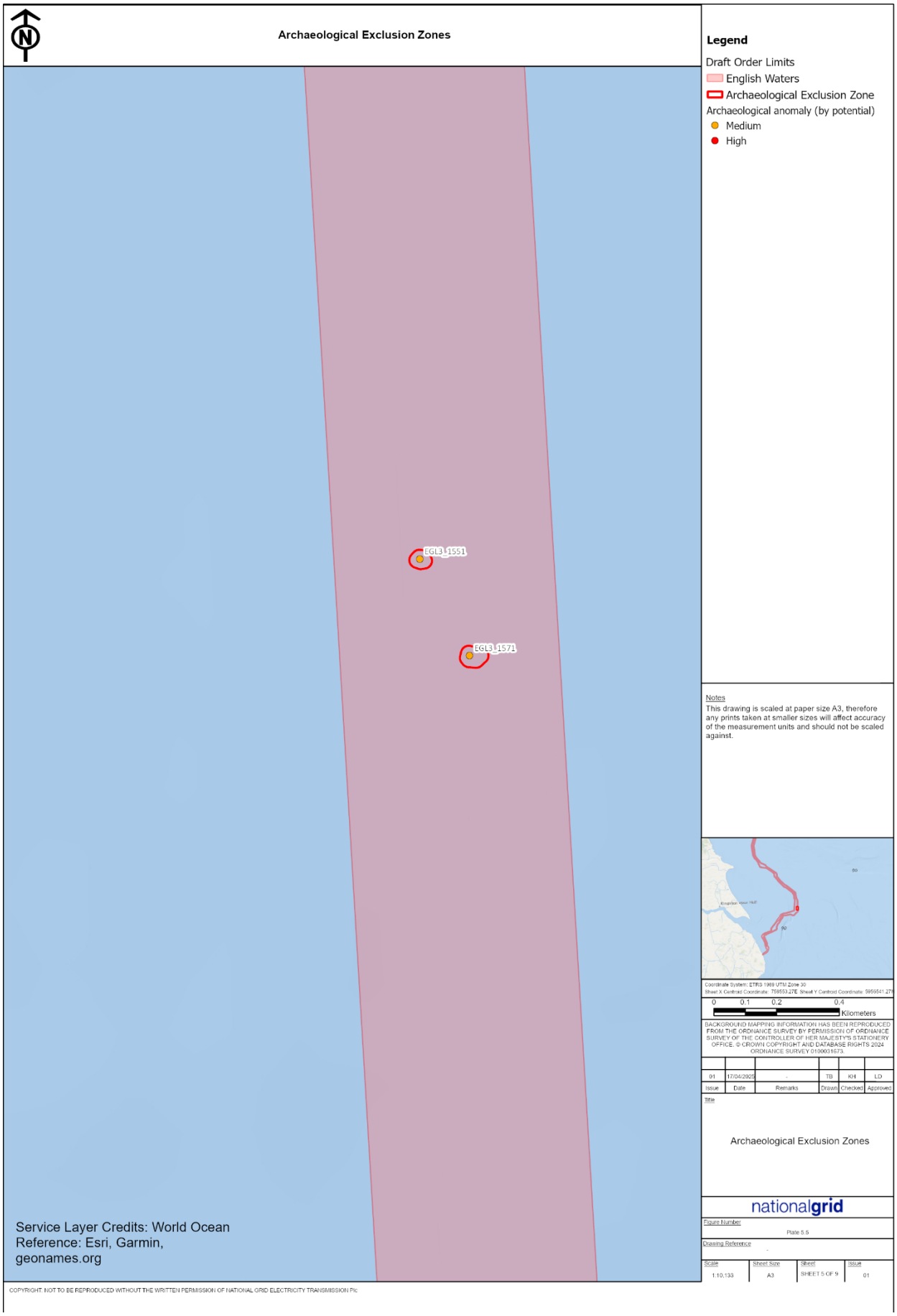


Plate 3.26.A. A-13: Archaeological Exclusion Zones (6 of 9)

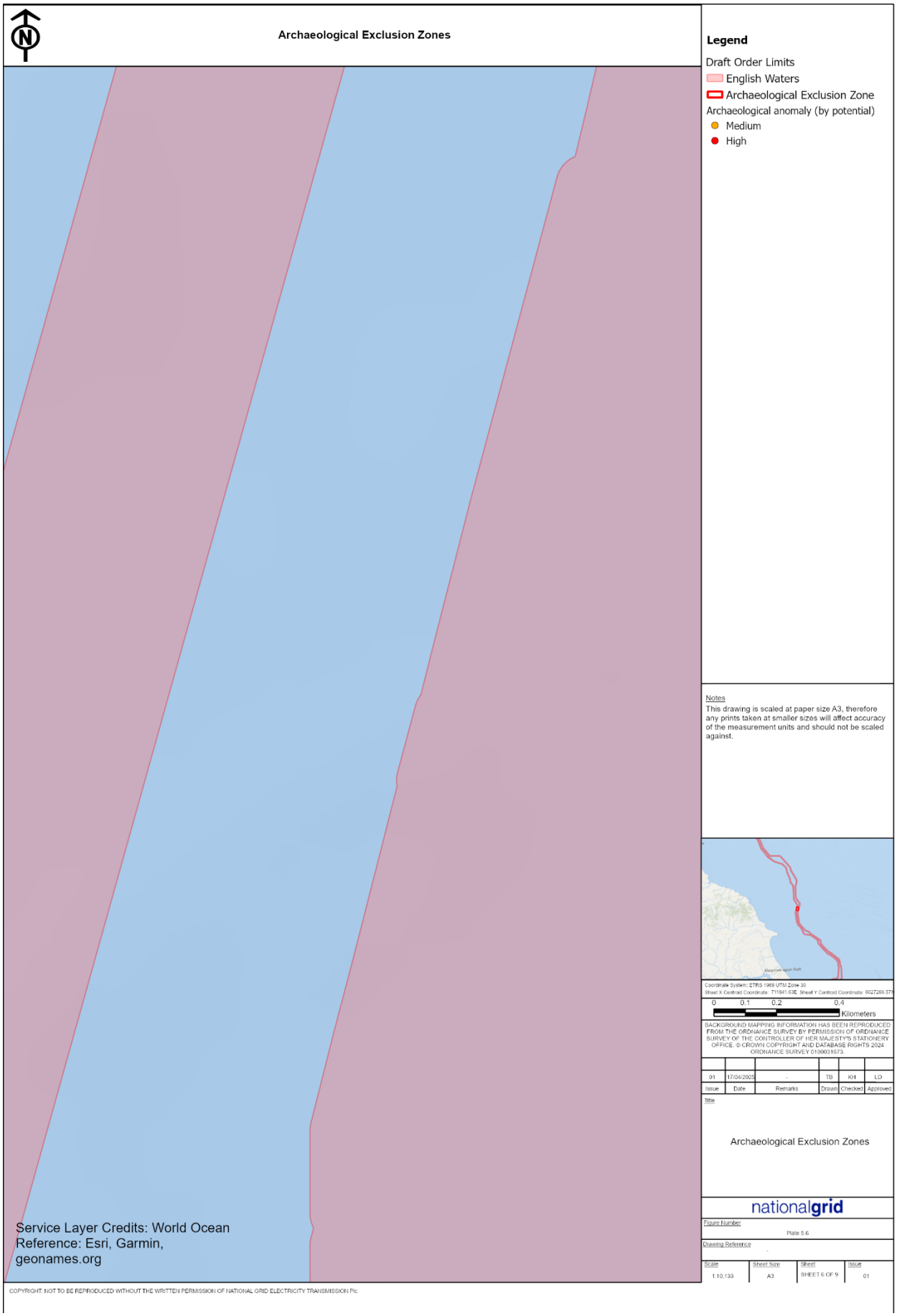


Plate 3.26.A. A-14: Archaeological Exclusion Zones (7 of 9)

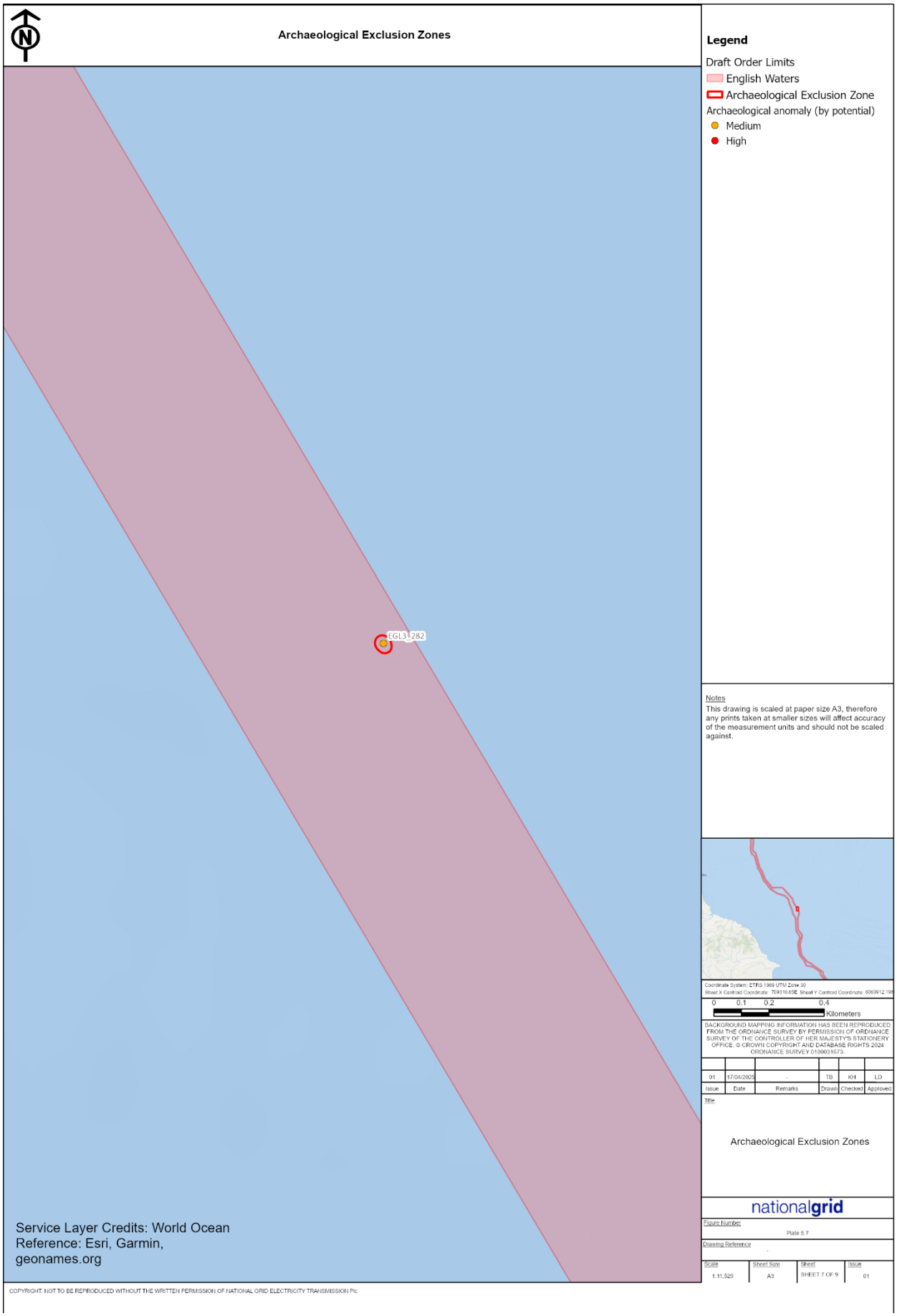


Plate 3.26.A. A-15: Archaeological Exclusion Zones (8 of 9)

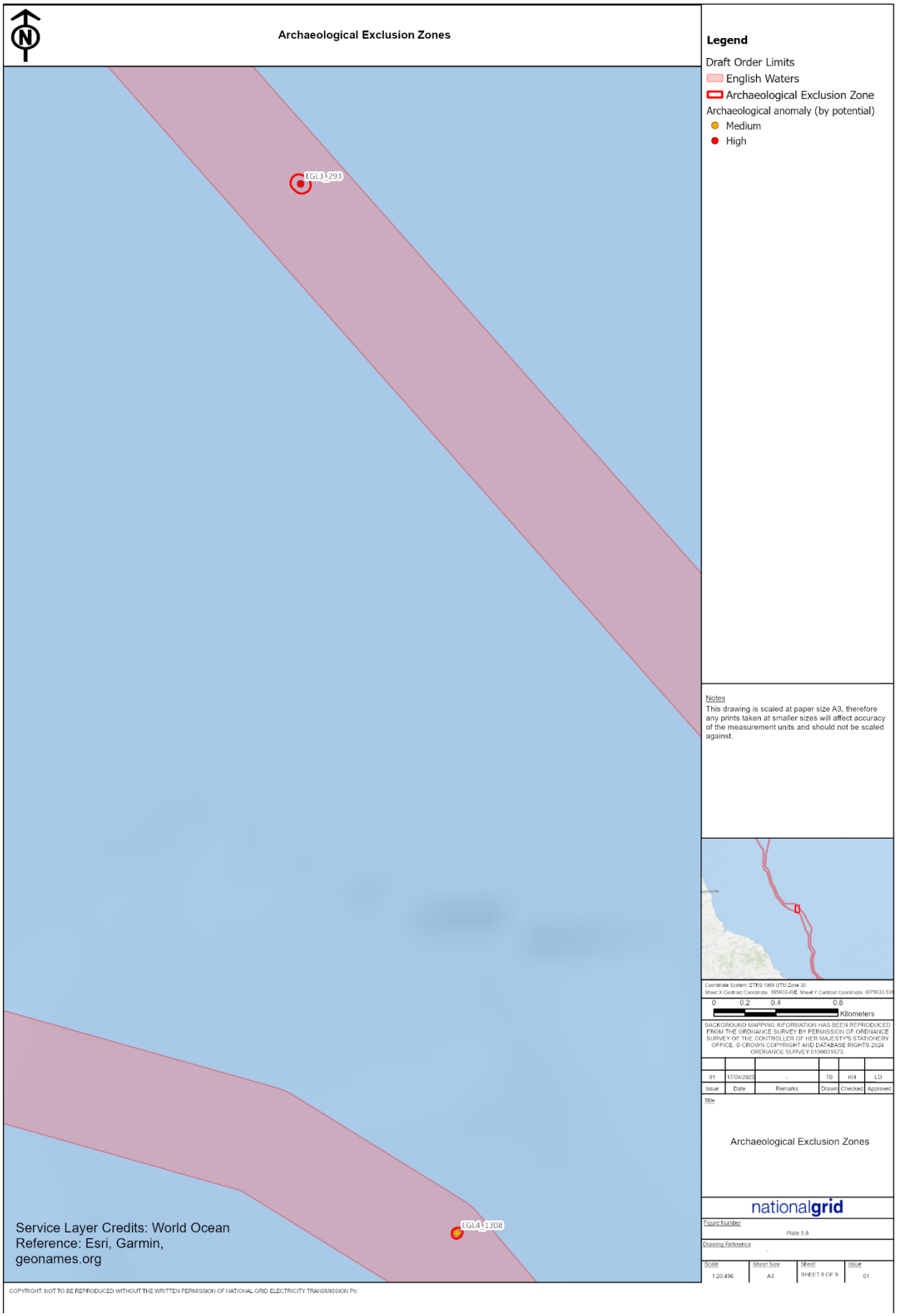
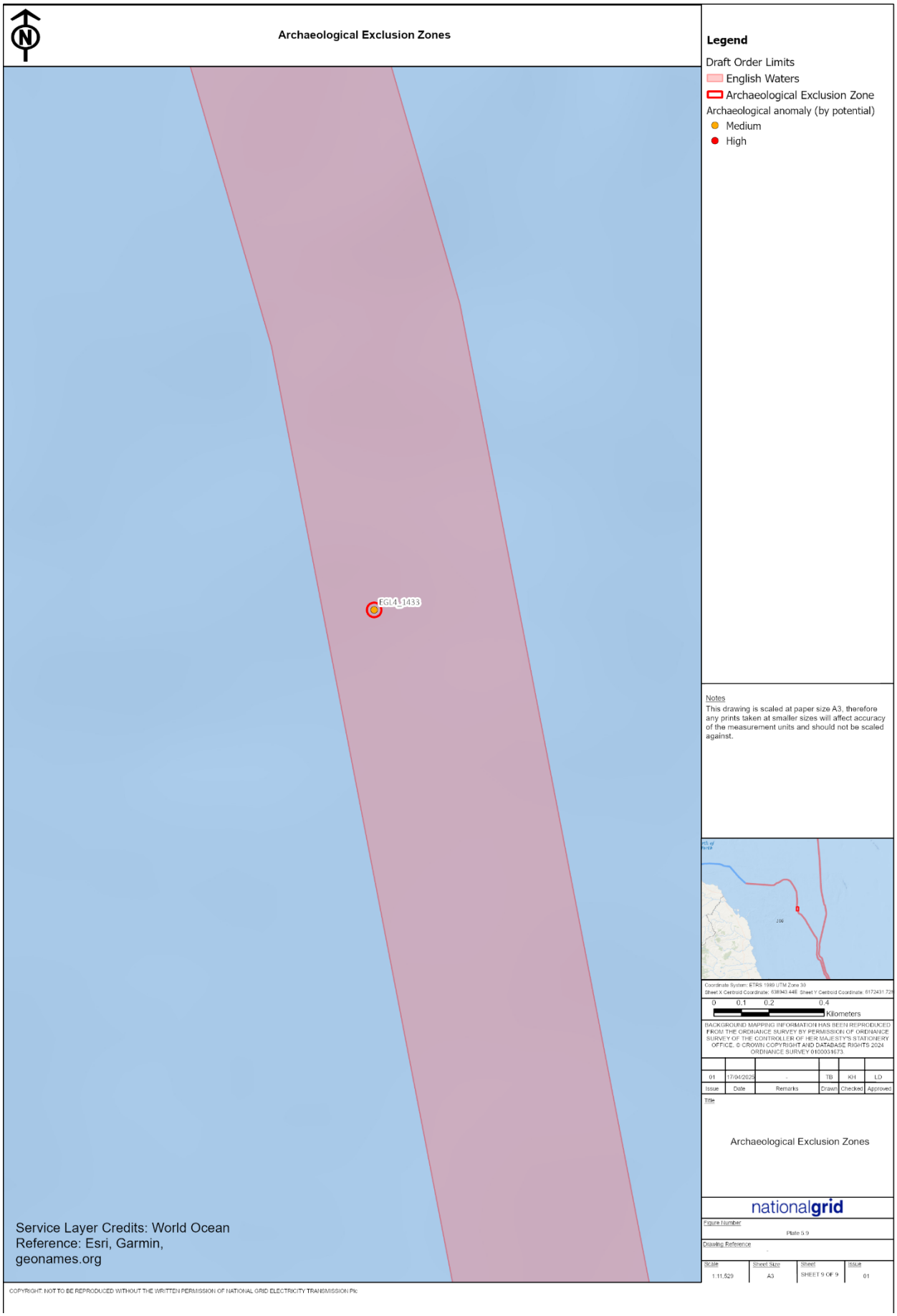


Plate 3.26.A. A-16: Archaeological Exclusion Zones (9 of 9)



3.26.A.5.16 The recommended AEZs may evolve or be removed (with the agreement of the Archaeological Curator) as the Project progresses, subject to layout designs and additional subsequent surveys that may be required. Scope will be allowed for their amendment considering further evidence and with the involvement of consultees. There will be no impacts to finalised AEZs during the construction and operational activities.

Temporary Archaeological Exclusion Zones

3.26.A.5.17 TAEZs would be recommended where an anomaly is not visible in the geophysical dataset but is known to exist, based on information from other datasets (e.g. UKHO data), where the position cannot be determined with enough accuracy for refined exclusion zones or where the extents are not fully known. They are often larger than AEZs but are identified as temporary as they are highly likely to be altered following higher resolution or full coverage data assessment, or investigation with an ROV, however, they will remain in place until alterations have been formally agreed.

3.26.A.5.18 The mechanisms and methods for adding, altering or removing AEZs are equally applicable to TAEZs.

Establishing new Archaeological Exclusion Zones

3.26.A.5.19 If new finds of archaeological importance are made during construction (or any subsequent stage of the English Offshore Scheme), they may be subject to the recommendation of additional AEZs (or TAEZs). The establishment of new AEZs may occur where additional geophysical data within the draft Order Limits is collected and subject to archaeological assessment or where activities such as ROV UXO investigations identify additional features.

3.26.A.5.20 All finds of archaeological material will be reported to the Retained Archaeologist/Nominated Contact by the Construction Contractor(s), in accordance with the PAD (see **Section 3.26.A.8** and **Annex A: Protocol for Archaeological Discoveries: Preliminary Record Form**). The Retained Archaeologist will inform the Archaeological Curator(s) and the Developer of all reports.

3.26.A.5.21 All activities that may affect the seabed in the vicinity of any find will cease until archaeological advice has been sought and received and, if necessary, an archaeological inspection of the material and site has taken place.

3.26.A.5.22 The Archaeological Curator will be consulted by the Retained Archaeologist on the need for and the design (position, extent) and implementation of any new AEZs.

Altering Archaeological Exclusion Zones

3.26.A.5.23 AEZs may be altered (enlarged, reduced, moved or removed) as a result of the results of future geophysical or ROV surveys and/or archaeological field evaluation. Archaeological field evaluation may include suitable high-resolution marine geophysical survey and/or survey by diver or ROV.

3.26.A.5.24 The alteration of AEZs will only be undertaken following consultation with the Archaeological Curator. Following alteration, a new plan giving details of the revised AEZs will be drawn up for the Developer by the Retained Archaeologist and issued by the Developer to its Construction Contractor(s) and onboard vessel representatives.

Monitoring Archaeological Exclusion Zones

3.26.A.5.25 The effectiveness of the AEZs and TAEZs (as implemented) will be monitored by regular review by the Retained Archaeologist of vessel track plots and anchor spots supplied by the Developer. This data will be reviewed monthly by the retained archaeologist, at a minimum.

3.26.A.5.26 Should a breach of an AEZ be suspected, this will be resolved by further investigation, which may include carrying out a geophysical or diver/ROV survey of the area thought to be affected.

3.26.A.5.27 On completion of the construction phase, the Retained Archaeologist will compile a report on the effectiveness of the AEZs, any alterations to them and the results of monitoring.

Areas of Archaeological Potential

3.26.A.5.28 An Area of Archaeological Potential (AAP) serves to highlight the potential for material of archaeological interest to be identified in an area, following the collection of higher resolution or denser geophysical survey data. These could originate, for example, from the identification of a high concentration of magnetic anomalies, where the positions cannot be determined and with no correlating seabed feature. An AAP by itself carries no formal mitigation, i.e. an exclusion zone.

3.26.A.5.29 Although no AAPs are proposed at the time of writing, further data acquisition and review may result in the implementation of this mitigation measure.

Archaeological monitoring

3.26.A.5.30 The following Section sets out brief methodologies for monitoring, should this be required. Monitoring activities will be supported by a task-specific Method Statement, approved by the Archaeological Curator.

Marine or intertidal watching brief

3.26.A.5.31 It remains unclear, at the time of writing, how the HDD activity at landfall may interact with the intertidal zone of the draft Order Limits, based on current understanding of the construction methodology. Furthermore, the archaeological potential of the intertidal zone is poorly understood, particularly in terms of the potential for buried sediments of archaeological potential. The baseline assessment has identified *in situ* and *ex situ* peat within the foreshore, presenting the potential for HDD activities to impact upon this resource of palaeoenvironmental interest.

3.26.A.5.32 The requirement for a marine and/or intertidal watching brief will be determined in the ES and confirmed in the subsequent revision of this Outline WSI.

Watching brief methods

3.26.A.5.33 If a watching brief is required, it would be conducted by a suitably qualified and experienced marine archaeologist, in line with the Chartered Institute for Archaeologists standards and guidance (Ref 3.26.A.33, Ref 3.26.A.34). A detailed Method Statement would also be produced and approved by the Archaeological Curator before any watching brief activities are undertaken.

3.26.A.5.34 Development activities will include provision for sampling of features and deposits to recover artefacts, ecofacts and dating evidence, to determine stratigraphic

relationships. Recording will include written, drawn and photographic elements, as conditions allow.

3.26.A.5.35 Where appropriate, sieving of bulk environmental samples will be undertaken to enhance levels of artefact recovery. Bulk soil samples may be taken specifically for artefact recovery. Any finds will be collected and allocated a record number and their position will be logged.

3.26.A.5.36 Suitable time will be allowed and resources made available within the construction programme for each such intervention.

3.26.A.5.37 If significant archaeological or palaeoenvironmental deposits are encountered, the Developer, in consultation with the Archaeological Curator, will make provision for the Archaeological Contractor to undertake a programme of investigation commensurate with the evidence discovered.

Recording and reporting

3.26.A.5.38 A site plan at an appropriate scale will be annotated with the position of areas observed in relation to the construction footprint and provided to the relevant Contractors. The plan will show the location of features observed and recorded during the investigations. The site plan should include a note of the position-fixing method and the accuracy achieved.

3.26.A.5.39 The basic record of each feature/structure identified during the watching brief should include:

- A full photographic record;
- Drawn record (plans and sections);
- Position in three dimensions; and
- A written description including initial interpretation and contextual relationships.

3.26.A.5.40 Positions will be related to a single, and agreed, Coordinate Reference System (CRS), typically this will be ETRS89 UTM Zone 30N.

3.26.A.5.41 The archaeological results will be compiled in a report by the Archaeological Contractor, in accordance with Chartered Institute for Archaeologists requirements and in accordance with reporting procedures set out in **Section 0**.

General archaeological practices

3.26.A.5.42 During all phases of the English Offshore Scheme, archaeological finds and deposits may be encountered and records may need to be produced. This situation may arise under various circumstances, for example, during watching brief activities. Where it does arise, the following general methods will be employed.

Survey and recording

3.26.A.5.43 All finds and seabed archaeological deposits will be recorded using a pro forma recording system and a running matrix of assigned contexts will be maintained for each site.

3.26.A.5.44 A full photographic record will be maintained using video and digital stills photography. The photographic record will illustrate both the detail and the general context of the principal features, finds excavated and the site as a whole.

Positioning

3.26.A.5.45 Surveys will be carried out to a single, and agreed, CRS, typically this will be ETRS89 UTM Zone 30N.

Finds and conservation

3.26.A.5.46 Objects relating to human exploitation of the area that may be identified during the English Offshore Scheme will be recovered by the Archaeological Contractor or recorded, where recovery is impracticable. All finds will be recorded by context and significant objects (‘special finds’) in three dimensions using a sequence of unique numbers.

3.26.A.5.47 Finds and other items of archaeological interest recovered offshore during investigation are the property of The Crown Estate as the landowner, with the exception of:

- All human remains;
- Items that are 'treasure' for the purposes of the Treasure Act (1996) (relevant in the intertidal zone); and
- 'Wreck', for the purposes of the Merchant Shipping Act (1995).

3.26.A.5.48 The Developer will seek permission from the landowner to donate finds to an appropriate museum service prior to depositing the archive.

3.26.A.5.49 In the event of the discovery of items that fall under the Treasure Act (1996), the Contractor will immediately notify the Retained Archaeologist, who will notify the local Coroner within 14 days. The Developer and the Archaeological Curator will be notified as soon as possible. Items falling under the Treasure Act (1996) will be removed from the site by the Archaeological Contractor and stored in a secure location, pending a decision by the Coroner.

3.26.A.5.50 All archaeological artefacts and material derived from a vessel or site of a vessel (such as if the vessel has deteriorated) are considered ‘wreck’ for the purposes of the Merchant Shipping Act (1995). For all articles of wreck recovered during the Project, the Retained Archaeologist, with the approval of the Developer, shall notify the Receiver of Wreck within 28 days of recovery.

3.26.A.5.51 Subject to these legal requirements and to the agreement reached with the museum regarding selection, retention and disposal of material, the Archaeological Contractor will retain all recovered objects unless they are undoubtedly of modern or recent origin. The presence of modern objects will be noted on context records. In these circumstances, sufficient material will be retained to elucidate the date and function of the deposit from which it was recovered.

3.26.A.5.52 Any finds and environmental samples will be processed according to professional standards for finds analysis, environmental sampling and archive preparation and in accordance with the Chartered Institute for Archaeologists’s Standard and Guidance for the collection, documentation, conservation and research of archaeological materials (Ref 3.26.A.35) and Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives (Ref 3.26.A.36).

3.26.A.5.53 Finds will be primarily conserved, bagged and boxed in accordance with guidelines set out in the United Kingdom’s Institute for Conservation’s Conservation

Guidelines No 2 (Ref 3.26.A.37). In consultation with the Developer and the Archaeological Curator, the Retained Archaeologist will advise on the implementation of passive conservation for smaller objects pending more detailed conservation strategies. The Developer will also make provision for a professional conservator to undertake a conservation assessment of assemblages, including recommendations and timescales for the conservation of the object.

3.26.A.5.54 Specialist work approved by the Developer and the Archaeological Curator on metalwork, bone (including worked bone, human remains and other organic remains), industrial waste, ceramic material, glass and lithic material will be carried out by suitable Archaeological Contractors, monitored by the Retained Archaeologist.

3.26.A.5.55 In the event of the discovery of unexpected, unusual or extremely fragile and delicate objects and deposits, such as waterlogged wood, the Retained Archaeologist, the Developer and the Archaeological Curator will be notified immediately. Additional work required to recover, record, analyse, conserve and archive such objects and deposits will be agreed with the Archaeological Curator.

Human remains

3.26.A.5.56 In the event of the discovery of any confirmed human remains, the Construction Contractor or Archaeological Contractor will immediately inform the Retained Archaeologist. The Retained Archaeologist will inform the Developer, who shall inform the Archaeological Curator and the local Police who will inform the Coroner Should the Police propose not to investigate the remains, the Retained Archaeologist shall contact the Ministry of Justice to obtain the relevant licence.

3.26.A.5.57 It is proposed that any such remains will be left in situ until the Developer, the Police and the Archaeological Curator have been informed and an onward decision made. Where Project activities will unavoidably result in disturbance, remains will be fully recorded, excavated and removed from the site subject to compliance with the relevant Ministry of Justice Licence for such activities, which will be obtained by the Retained Archaeologist.

3.26.A.5.58 The final placing of human remains following analysis will be subject to the requirements of the Ministry of Justice Licence.

3.26.A.5.59 Any human remains encountered in association with suspected aviation wreck shall be managed as laid out in **Section 3.26.A.8**.

Protocol for reporting finds of archaeological interest

3.26.A.5.60 A protocol for reporting finds of archaeological interest will be implemented during all activities relating to construction, operation, maintenance and decommissioning. It will address the reporting of unexpected finds of archaeological material, recovered from the sea during these activities.

3.26.A.5.61 The protocol will largely follow the format laid down in the document PAD: Offshore Renewables Projects (Ref 3.26.A.1). The Retained Archaeologist will operate to administer the PAD, provide initial advice to the Developer and will liaise with the Archaeological Curators, as necessary. The details of the PAD, including key roles and communication steps, are set out in **Section 3.26.A.8**.

3.26.A.5.62 Once agreed by the Developer and the Archaeological Curator(s), the PAD will be distributed in a form suitable for use onboard construction vessels. The Developer

will ensure that the relevant staff on all construction vessels are informed of and have access to the PAD, including supporting material, detailing the find types that may be of archaeological interest and the potential importance of any archaeological material encountered.

3.26.A.5.63 All finds of archaeological material will be reported by the Construction Contractor(s) to the Retained Archaeologist/Nominated Contact, who will inform the Developer and then the Archaeological Curator. If the find is 'wreck', within the meaning of the Merchant Shipping Act (1995) (see paragraph 3.26.A.5.50 of this Outline WSI), the Retained Archaeologist/Nominated Contact will also make a report to the Receiver of Wreck. Full contact details for all relevant parties will be included in the PAD.

3.26.A.5.64 The response to reported finds will be implemented through the measures set out in the PAD, including further surveys or establishment of new AEZs, if appropriate.

3.26.A.5.65 The PAD will be implemented by means of toolbox talks presented to the relevant vessel crews to ensure that all staff are made aware of what constitutes an appropriate find. The frequency and timing of these toolbox talks is determined in relation to ongoing activities. The PAD will be supported by a package of awareness training for the Developer and its contractor's and sub-contractor's staff.

3.26.A.5.66 At the end of the construction phase, the Retained Archaeologist will prepare a report on the results of the PAD. The results will be included in the final archaeological report in the section covering maritime sites and finds within the area affected by the Project.

Crashed aircraft procedures

3.26.A.5.67 **Volume 1, Part 3, Chapter 26: Marine Archaeology** identified a very low to negligible potential for the remains of crashed aircraft to occur within the draft Order Limits. This Section sets out the specific procedures to be followed in the unlikely event that remains of an aircraft are identified during the construction or operational phases of the English Offshore Scheme.

3.26.A.5.68 Most aircraft wrecks are military and so fall under the legal protection of the Protection of Military Remains Act (1986). Archaeological Contractors should refer to guidance outlined in COWRIE *Historic Environment Guidance* (Ref 3.26.A.6), Draft Interim Guidance on the use of the Protocol for Reporting Finds of Archaeological Interest in relation to *Aircraft Crash Sites at Sea* (Ref 3.26.A.10) and *Military Aircraft Crash Sites: Archaeological guidance on their significance and future management* (Ref 3.26.A.9).

3.26.A.5.69 Any finds that are suspected of being military aircraft will be reported immediately to the Retained Archaeologist. The Developer will be informed, as well as the Service Personnel and Veterans Agency (SPVA): Joint Casualty and Compassionate Centre (JCCC) – SO3 Historic Casualty Casework). The Retained Archaeologist should seek specialist advice for the identification of aircraft remains, where necessary.

3.26.A.5.70 Any subsequent actions will be guided by Crashed Military Aircraft of Historical Interest: Licensing of Excavations in the UK – Guidance Notes for Recovery Groups and by advice received from the SPVA. In the case of a military aircraft being investigated under licence, any human remains will be reported immediately in accordance with paragraph 14 of the guidance. In the event of encountering

suspected or likely human remains, these shall be left *in situ* and prevented from further disturbance until further notice (see paragraphs 3.26.A.5.56 to 3.26.A.5.59).

3.26.A.6 Methods for archaeological involvement in further work

Introduction

3.26.A.6.1 Archaeological involvement in further work is a key component in the ongoing process of assessing known and potential archaeological remains within the draft Order Limits, to ensure robust and proportionate mitigation for heritage assets which may be impacted.

3.26.A.6.2 A detailed Method Statement will be produced by the Retained Archaeologist, for agreement with and approval by the Developer and the Regulator, in consultation with the Archaeological Curator, in advance of each archaeological element discussed below. Overviews of methods are given below. These methods are in line with best practice guidance, set out within Archaeological Written Schemes of Investigation for Offshore Windfarm Projects (Ref 3.26.A.2).

Further surveys requiring archaeological involvement

3.26.A.6.3 Following the submission of this Outline WSI as part of the PEIR, further surveys will be undertaken to fully inform the ES, which will subsequently inform any revision to future renditions of the WSI. At the time of writing, the following planned surveys/activities will require archaeological involvement:

- Archaeological review of integrated geophysical and geotechnical data and the conclusions fed into the ES; and
- Archaeological review of additional geophysical/hydrographic data acquired during pUXO surveys prior to construction.

3.26.A.6.4 In addition, any data gaps identified will be addressed by the acquisition of suitable data and archaeological review of this. The baseline and impacts for Marine Archaeology will subsequently be amended, as appropriate.

3.26.A.6.5 Further surveys requiring archaeological involvement may include:

- Geophysical survey: requiring archaeological assessment of the survey dataset;
- UXO target investigation: requiring archaeological assessment of the survey dataset (video and positional data; investigation may involve remote and / in-person archaeological attendance);
- Diver/ROV obstruction surveys: requiring archaeological assessment of the survey dataset (video and positional data); and
- Geotechnical investigations: requiring geoarchaeological assessment and, where necessary, analysis, following the staged approach set out in **Section Geoarchaeological assessment of geotechnical data.**

3.26.A.6.6 Should archaeological material be encountered by these works, sufficient time and resources will be made available to ensure the archaeological assessment of such material. In areas where there are to be further impacts, no impacts will take place until the assessment has been conducted and mitigation actions agreed and implemented. The scope of any further assessment will be agreed with the Archaeological Curator and, where necessary, further suitable mitigation measures will be instigated in agreement with the Archaeological Curator.

Planning surveys

3.26.A.6.7 When planning geophysical and geotechnical surveys, the Developer will advise the Retained Archaeologist in advance of survey commencement with suitable lead-in time for discussion and to seek their input into the scope of work. Archaeological input will take the form of advice from the Retained Archaeologist on measures to optimise archaeological results from the planned geotechnical, geophysical and other surveys or work (such as benthic grabs). Areas to be considered will include:

- Available details on previously identified sites and/or anomalies and areas of heightened archaeological potential;
- Archaeological potential of areas where no existing sites and/or anomalies are yet known;
- Equipment, equipment settings, survey methodology(s) and data collection points that will optimise the recovery of archaeological information; and
- Requirements for data analysis, interpretation and archiving.

3.26.A.6.8 The required response to elements of archaeological input may include:

- Altering vibrocore/borehole positions to maximise the potential for the collection of archaeological/palaeoenvironmental data;
- 'Boxing' wreck sites, to provide the best possible images and positional data; and/or
- Altering grab sample positions to maximise the potential for the collection of archaeological data.

Fieldwork

3.26.A.6.9 Where further survey work has as one of its objectives the ensonification of previously identified sites and/or anomalies to alter or remove an AEZ, the Developer will make provision for a suitably qualified Archaeological Geophysical Contractor (which may be the Retained Archaeologist) to be available to provide advice and input into the survey and as the survey is ongoing. In some cases, this may include the presence of the Retained Archaeologist on the vessel alongside the vessel crew or, in most cases, this advice may be given remotely. In all cases, the archaeologist will ensure that the best possible data is collected for those anomalies subject to review.

Archaeological assessment of marine geophysical survey data

3.26.A.6.10 New marine geophysical data that covers areas of development impact and AEZs will be subject to analysis by a suitably qualified Archaeological Geophysical Contractor (the Retained Archaeologist, if suitable). Any such assessment will be preceded by a Method Statement which will set out in detail the methods to be used, along with the aims and objectives of the work. The Method Statement will be submitted to the Regulator, in consultation with the Archaeological Curator, prior to the work being conducted.

3.26.A.6.11 The Developer will seek archaeological input at the planning stage of any such works, to maximise the potential benefits of any geophysical survey.

3.26.A.6.12 Surveys will be carried out to a single datum and co-ordinate system. All survey data, including navigation (position, heading and velocity) will be acquired digitally

in industry-standard formats. Care will be taken to maintain the orientation and altitude of sensors online. Track plots will be corrected for layback (including catenary effects) and made available in digital (geographical information system - GIS) form.

3.26.A.6.13 Once the surveys have been processed to meet their primary objectives, the survey data, together with factual reports, will be made available in digital formats to the Developer's Retained Archaeologist, or a suitably qualified Archaeological Contractor for archaeological analysis and interpretation.

3.26.A.6.14 Archaeological interpretation may include:

- Examination of SSS, magnetometer, MBES and seismic data, where acquired, for areas within the vicinity of known wreck sites and previously identified geophysical anomalies;
- Examination of SSS, magnetometer, MBES and seismic data, where acquired, within areas that will be subject to development to identify any as yet unknown wreck remains; and
- Assessment of seismic data and the geotechnical interpretation report to plot the general trend of the subsurface sediments with archaeological potential.

3.26.A.6.15 An example of the criteria for assessing the archaeological potential of geophysical contacts is set out in **Table 3.26.A. A-6** below.

Table 3.26.A. A-6 - MSDS Marine Criteria for Assessment of Potential

Potential	Interpretation
Low	A contact potentially of anthropogenic origin but that is unlikely to be of archaeological significance. Examples may include discarded modern debris such as rope, cable, chain or fishing gear; small, isolated contacts with no wider context; or small, boulder-like features with associated magnetometer readings.
Medium	A contact believed to be of anthropogenic origin but that would require further investigation to establish its archaeological significance. Examples may include larger unidentifiable debris or clusters of debris; unidentifiable structures; or significant magnetic anomalies.
High	A contact almost certainly of anthropogenic origin and with a high potential of being of archaeological significance. High potential contacts tend to be the remains of wrecks; the suspected remains of wrecks; or known structures of archaeological significance.

3.26.A.6.16 The archaeological interpretation or findings of any further geophysical surveys will be compiled as a report by the Archaeological Contractor and will include likely requirements (if any) for further work or any required changes to mitigation including the addition, removal or alteration of AEZs. The report will be submitted to the Developer by the Retained Archaeologist and to the Archaeological Curator. The scope of any further work will be agreed by the Developer and the Archaeological Curator.

Archaeological assessment of diver/ROV survey data

3.26.A.6.17 Seabed photography and video footage (including that acquired during UXO target investigation) will be subject to archaeological assessment and analysis by a suitably qualified Archaeological Contractor. Any such assessment will be preceded by a Method Statement which will set out in detail the methods to be used, along with the aims and objectives of the work. The Method Statement will be submitted to the Regulator, in consultation with the Archaeological Curator, prior to the work being conducted.

3.26.A.6.18 The Developer will seek archaeological input at the planning stage of any such works, to maximise the potential benefits of any proposed diver/ROV surveys.

3.26.A.6.19 Archaeological input will take the form of advice from the Retained Archaeologist on measures to optimise archaeological results from the planned survey. Advice will include:

- Available details of sites and/or anomalies identified in **Volume 1, Part 3, Chapter 26: Marine Archaeology** and/or the forthcoming ES;
- The archaeological potential of areas where no existing sites and/or anomalies are yet known;
- The type and level of diver/ROV positioning, voice recording and video/still recording to be utilised;
- The provision of clear guidance on the types of sites and finds that are to be reported and recorded;
- Input into the scope of works to include potential archaeological sites/AEZs where more detailed mitigation planning is required, wherever possible; and
- Other specific advice, given depending on the nature and purpose of the investigations. All such areas would be outlined within the Method Statement for the work.

3.26.A.6.20 Consideration will be given to having an Archaeological Contractor (or archaeological team) present during any diver or ROV surveys, either as an observer(s) or participating diver(s), to optimise archaeological results and reduce the need for repeat survey. However, operational constraints as well as the relevance and scope of the operation, will have to be considered when trying to accommodate archaeologists aboard.

3.26.A.6.21 Following the completion of the diver/ROV survey, all data, including video footage, will be reviewed by the Archaeological Contractor. This review will identify any anomalies or sites that are potentially of archaeological interest. A report will identify those sites and/or geophysical anomalies that are of sufficient archaeological interest to warrant further investigation and/or mitigation. It will also identify those sites that are no longer of archaeological interest and hence may be removed from the list of AEZs.

3.26.A.6.22 The archaeological results of any diver/ROV survey will be compiled in a report by the Archaeological Contractor. The report will include a statement of the likely requirements (if any) for further archaeological work and mitigation.

3.26.A.6.23 The report will be forwarded to the Retained Archaeologist, who will submit it to the Developer and the Archaeological Curator for a decision on the scope of any further work where required.

Geoarchaeological assessment of geotechnical data

3.26.A.6.24 The aim of the archaeological assessment of geotechnical data, as set out within Collaborative Offshore Wind Research into the Environment *Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Ref 3.26.A.7)*, is to:

- *"investigate the deposition sequence of sediments within the area represented by the cores to identify, as far as possible, the environments within which this deposition took place;*
- *evaluate the potential for past human exploitation and occupation of these past environments;*
- *produce an overview of the geological stratigraphy to provide an indication of the prehistoric archaeological potential for the area; and*
- *comment on the archaeological importance of the identified deposits, within the context of the wider palaeoenvironmental history of the region and the UK."*

3.26.A.6.25 In line with these aims, new geotechnical surveys will be subject to archaeological input. Following best practice guidance, this input should begin prior to core collection and should proceed to a staged process of assessment and analysis (Ref 3.26.A.2).

3.26.A.6.26 Early input should seek to determine methods and specifications for geotechnical sampling (e.g. vibrocores, boreholes, etc.) and engagement with the Developer and their geotechnical team should aim to find ways to ensure archaeological aims and sampling can be conducted alongside any other requirements. Following these discussions, a Method Statement for core collection, transport, retention and storage should be produced, ensuring that cores are stored in a way which facilitates later assessment or analysis, if required. This Method Statement may also include methods for Stages 1 and 2 of the geoarchaeological assessment (see below).

3.26.A.6.27 Early input should also include recommendations on core locations from a geoarchaeologist. Typically, this process involves close collaboration with the site investigation team. Archaeological input into geotechnical core locations can allow for the greatest insights into the palaeolandscape. Round-table discussions and the review of seismic profiles tends to be a conducive method of allowing engineering and archaeological requirements to be taken into consideration when micro-siting geotechnical cores.

3.26.A.6.28 It is recommended that collected geotechnical cores undergo a staged program of geoarchaeological assessment and analysis, as the primary means of ground-truthing the potential identified in this report and of mitigating impacts to remains. In brief, the process is as follows:

- **Stage 1: Geoarchaeological review of core logs**. This stage involves a desk-based assessment of the geotechnical core logs performed by a professional geoarchaeologist to determine which cores may be of interest. The selected cores will then be recommended for further study (Stage 2). Stage 1 assessment requires all cores to be recorded such that sediments that may be of archaeological interest can be identified. The scope of any further work will be agreed by the Developer and the Archaeological Curator before proceeding to the next stage of assessment. If no further work is recommended a final report will be produced by the Archaeological Contractor;

- **Stage 2: Geoarchaeological recording**. This stage involves further study of the cores that may be of archaeological interest identified in Stage 1 to identify archaeological potential. The cores will be physically assessed by a geoarchaeologist who will confirm the sediments present within the cores and determine their archaeological potential and make recommendations for any suitable cores to be assessed further (Stage 3). At this point a report will be produced presenting the results of the Stage 1 and 2 analyses, recommending further study if necessary, and methodologies for any further work. The scope of further work will be agreed by the Developer and the Archaeological Curator. If no further work is recommended, a final report will be produced by the Archaeological Contractor;
- **Stage 3: Geoarchaeological assessment**. This stage involves taking samples from the cores with archaeological potential identified in Stage 2. The samples will be analysed to determine the age and the value surviving paleoenvironmental material contained within the samples. The aims for the palaeoenvironmental analysis included establishing the preservation, diversity, and quantity of palaeoenvironmental material for the purpose of better characterising its origin environment. Any suitable material can be recommended for further study (Stage 4) if necessary. A report for the results of the Stage 3 analysis will be produced, it will also outline whether further analysis is necessary or will state if no further work is recommended; and
- **Stages 4 and 5: Geoarchaeological analysis and publication**. This stage involves further, more detailed analysis of core samples. A report will be produced after this Stage including the results of all previous work, core location maps, sediment sequences, 2D and 3D images of the cores where necessary, drawing the data together to present a deposit model. The report will discuss the interpretation of palaeoenvironments in detail based on analysis of the cores and present all relevant information gathered during the desk-based assessments. The work will be undertaken to publication standard. The report will be forwarded to the Retained Archaeologist, who will submit it to the Developer and the Archaeological Curator.

3.26.A.6.29 This work should be undertaken by a trained geoarchaeologist. Each stage should inform the scope of the next and work may cease at any point where no recommendations for further work are made. This would be the case if, for example, cores were determined to hold no geoarchaeological potential at the end of Stage 2.

3.26.A.6.30 This geoarchaeological assessment and analysis should aim to deliver conclusions on the prehistoric archaeological and palaeoenvironmental remains within the area. Further mitigation may be required based on the results of this assessment. The geoarchaeological work should follow guidance set out within Collaborative Offshore Wind Research into the Environment *Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector* (Ref 3.26.A.7).

3.26.A.6.31 The use of an appropriate protocol for archaeological discoveries, such as the *Protocol for Archaeological Discoveries: Offshore Renewables Projects* (Ref 3.26.A.1), also provides mitigation for prehistoric and palaeoenvironmental remains.

3.26.A.6.32 Recent geotechnical surveys (undertaken in 2024) are currently undergoing geoarchaeological assessment. The results of these assessments will feed into

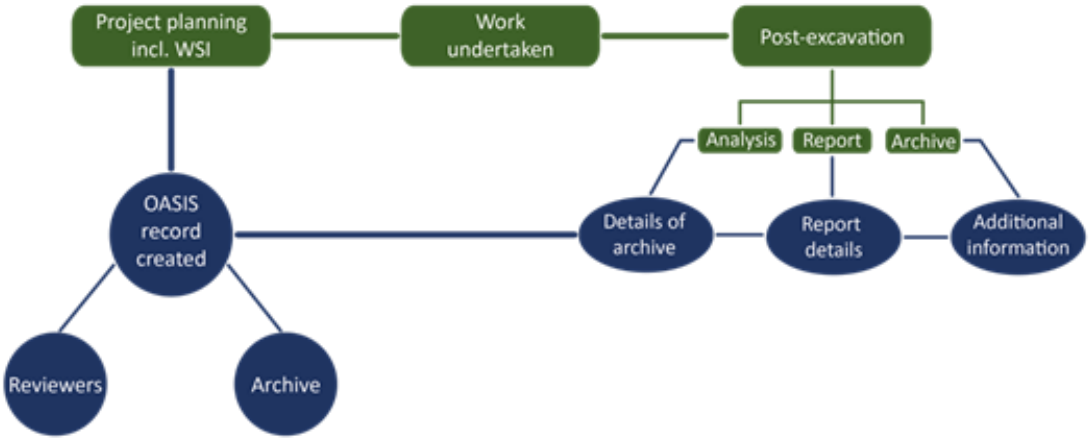
EIA, where results are available. Further work may continue into the post-consent period.

3.26.A.7 Activities subsequent to investigations

OASIS V

3.26.A.7.1 In late 2020, the OASIS version V was launched by the Archaeological Data Service (ADS). OASIS is an online form which allows for archaeological investigations to be reported to regional HERs and national heritage bodies. The system also allows for reports to be shared for public release through the ADS library. Reporting through OASIS has been incorporated within this WSI, in line with best practice.

Plate 3.26.A A-17: OASIS V Procedure and Standard Archaeological Workflow



3.26.A.7.2 In contrast to previous iterations of OASIS, OASIS V is a new, flexible system that is kept live throughout the course of a project. An overview of the new system is set out **in Plate 3.26.A A-17**. The new system recommends that an overarching OASIS record be established at project inception (for example on receipt of marine licenses and production of a WSI).

3.26.A.7.3 An OASIS record will therefore be set up following consent, to notify the relevant authorities of future work that is taking place. The Developer must then ensure that an archaeological report is agreed with and submitted to the MMO and the Archaeological Curator following completion of any survey and subsequent investigation. The Developer must then ensure that a copy of the agreed archaeological report is submitted through the OASIS form within two weeks of acceptance by the Archaeological Curator and the MMO. Sign off on the OASIS record will be by the Archaeological Contractor, who are responsible for administering the OASIS reporting system. The Developer should notify the MMO that the OASIS report has been submitted within two weeks of the submission.

Reports

3.26.A.7.4 Reports should be prepared in accordance with the guidance provided in the relevant Chartered Institute for Archaeologists Standard and Guidance documents (see http://www.archaeologists.net/codes/cifa) and with reference to any other activity or analysis specific guidance. Reports will also satisfy all requirements set out within the relevant Method Statement covering the work package.

3.26.A.7.5 The timetable for depositing archives with the receiving institution after completion of the post-fieldwork programme will be set out in the relevant Method Statement.

3.26.A.7.6 If little of significance is found during construction, a final report on the investigative work will be prepared by the Archaeological Contractor within six weeks of completion of all construction activities.

3.26.A.7.7 If significant archaeological sites and finds are recorded, the final report will be preceded by the submission to the Retained Archaeologist by the Archaeological Contractor of investigation reports following the completion of fieldwork.

3.26.A.7.8 The Archaeological Contractor will also be required to produce an assessment report which will establish the value of the recorded archaeology and provide a costing for the post-excavation analysis, publication and archiving (including deposition of archive).

3.26.A.7.9 Reports are expected to detail the work undertaken and the archaeological evidence encountered. They should discuss the importance of the results including their potential contribution to archaeological knowledge and understanding, including relevant research frameworks.

3.26.A.7.10 In accordance with guidance issued by the Crown Estate (Ref 3.26.A.2), reports will typically include:

- A non-technical summary;
- The aims and methods of the work;
- The results of the work including finds and environmental remains;
- A statement of the potential of the results;
- An explanation of how this work is relevant to the objectives and research agendas from applicable local and national archaeological research frameworks;
- Proposals for further analysis and publication; and
- Illustrations and appendices to support the report.

3.26.A.7.11 Where appropriate, the report should provide recommendations for further assessment and/or analysis requirements.

3.26.A.7.12 The Developer will provide a digital (pdf) copy of each report to the Archaeological Curator and the MMO (as appropriate), following survey completion.

3.26.A.7.13 Decisions regarding the level of post-excavation work, if required, will be taken following submission of investigation reports and consultation by the Developer and the Retained Archaeologist with the Archaeological Curator.

3.26.A.7.14 Following the production and acceptance of archaeological reports, these will be deposited with the relevant repositories by submitting an OASIS form with a digital copy of the report.

Publication

3.26.A.7.15 In consultation with the Developer and the Archaeological Curator, the Retained Archaeologist will ensure that the results of important archaeological investigations undertaken in connection with the Project will be published in an integrated manner. Publication media and all publication matters will be discussed and agreed in advance with the Developer and Archaeological Curator.

Archives

3.26.A.7.16 Archive planning will be included within detailed Method Statements for each activity undertaken. Archiving will follow best practice as laid out within:

- Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation (Ref 3.26.A.38);
- Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives (Ref 3.26.A.39); and
- Archaeological Written Schemes of Investigation for Offshore Windfarm Projects (Section 13.5: Archiving) (Ref 3.26.A.2).

3.26.A.7.17 The Archaeological Curator will be notified of any archaeological investigation in advance of fieldwork and any specific requirements relating to the preparation and deposition of project archives will be accommodated as appropriate.

3.26.A.7.18 Where there is the likelihood of any archaeological fieldwork, the Retained Archaeologist will contact an appropriate receiving institution to discuss the intended fieldwork and seek its agreement to accept the site archive for long-term storage and curation. The Retained Archaeologist will consult the receiving institution regarding its policy on the selection, retention and disposal of excavated material and to confirm the requirements in respect of the format, presentation and packaging of archive records and materials. A museum accession number will also be sought on each occasion. For offshore digital data, it may be appropriate to archive this with a Marine Environment Data and Information Network (MEDIN) Data Archive Centre (DAC).

3.26.A.7.19 Project archives, including written, drawn, photographic and material elements (together with a summary of the contents of the archive), will be prepared and deposited by the Retained Archaeologist in accordance with the requirements of the receiving repository.

3.26.A.7.20 Written, drawn and photographic archives will be compiled to a standard that allows for the publication of a summary report. Written archives will be on clean, stable materials and will be suitable for photocopying. The materials used will be of the standard recommended in Guidelines for the Preparation of Excavation Archives for Long-term Storage (Ref 3.26.A.40).

3.26.A.7.21 Born-digital records, including digital photographs, will be stored and deposited in accordance with guidelines issued by the receiving repository, Chartered Institute for Archaeologists (Ref 3.26.A.41) and the ADS (Ref 3.26.A.42).

3.26.A.7.22 The timetable for depositing archives with the receiving repository after completion of the post-fieldwork programme will be agreed with the Developer and Archaeological Curator.

3.26.A.7.23 On completion of the English Offshore Scheme, an OASIS form will be produced, and copies of all archaeological reports will be attached as data files. Notification of the completion of the OASIS form will be sent to Archaeological Curator and the MMO (where appropriate).

3.26.A.7.24 The costs of archiving (whether digital, paper or object) will be met by the Developer. Tenders or costings by the contractors for work packages should include provision for the preparation and deposition of the expected archive.

3.26.A.8 Protocol for reporting finds of archaeological interest

Purpose of the document

3.26.A.8.1 This appendix sets out the procedure for reporting discoveries of potential archaeological interest made during construction, operation and maintenance and decommissioning activities associated with the Project.

3.26.A.8.2 The aim of the protocol for reporting finds of archaeological interest is to reduce any adverse effects of the development upon the historic environment by enabling people working on the project to report their finds in a manner that is both convenient to their every-day work and effective regarding curatorial requirements.

3.26.A.8.3 The archaeological finds made during these works are important because they shed light on past human use of the landscape, sea and seabed. The information that such discoveries bring to light can help archaeologists to better understand what happened in the past, and therefore to better protect those aspects of our history and pre-history that should be conserved on behalf of future generations.

Protocol details and version

3.26.A.8.4 The Protocol that will be used is based on the PAD for Offshore Renewables Projects introduced by The Crown Estate (Ref 3.26.A.1).

Circumstances of discovery

3.26.A.8.5 This PAD addresses finds of archaeological interest made on the seabed, intertidal zone or on-board vessels during a wide range of activities associated with construction, operation and maintenance and decommissioning of the Project.

Scope of the protocol

3.26.A.8.6 The Developer will employ a Retained Archaeologist to provide archaeological consultancy and to liaise with and report as appropriate to the Contractors, the Developer and the Archaeological Curator.

Operations of the protocol

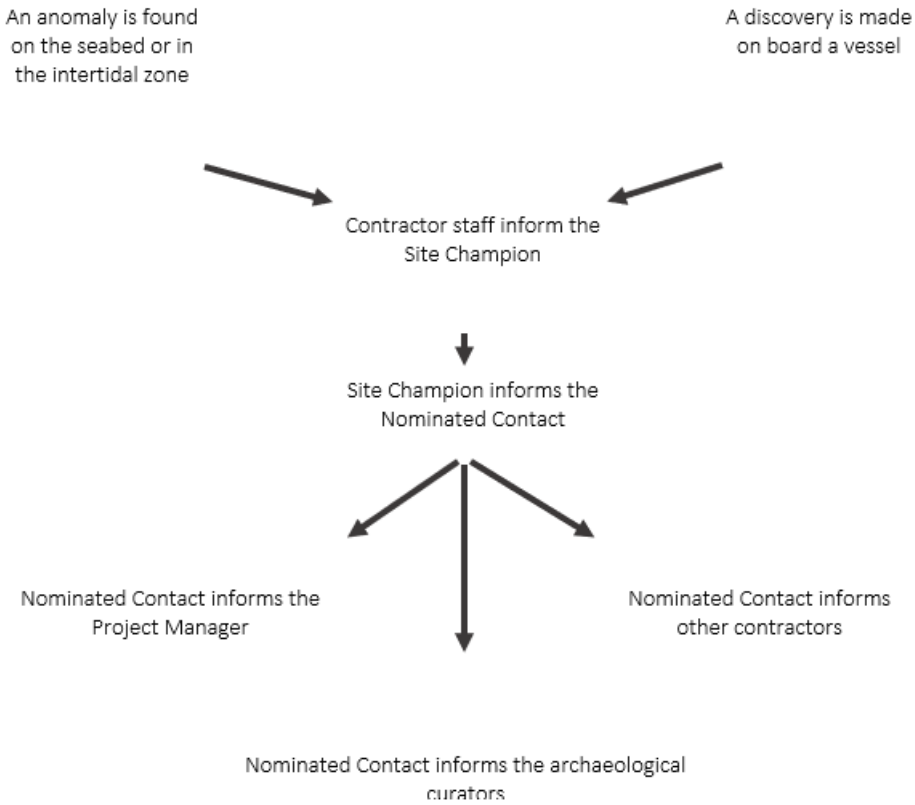
Introduction

3.26.A.8.7 The PAD has been designed to allow Developers to report unexpected finds of archaeological interest made on the seabed during the course of development works. A series of actions is defined for such cases.

3.26.A.8.8 The Protocol anticipates that discoveries made by Project Staff are reported to the Site Champion (e.g. Vessel Master or Site Foreman) on their vessel or site, who then reports to the Nominated Contact (the Retained Archaeologist is the recommended Nominated Contact).

3.26.A.8.9 The Retained Archaeologist will liaise with the Developer and the Archaeological Curator, along with any additional relevant stakeholders depending on the nature and significance of the find, and planned activities within the area. Additional mitigation may be recommended depending on the nature of the find.

Plate 3.26.A A-18: PAD Process and Roles



3.26.A.8.10 A summary of the key roles and steps in the PAD process are set out in **Plate 3.26.A A-18**.

3.26.A.8.11 On the vessel or site, the person responsible for reporting anomalies or finds will be the Site Champion. Anomalies or finds will be brought to the attention of the Site Champion by the Contractors or Project Staff. The Site Champion will inform the Nominated Contact (who can be the Retained Archaeologist).

3.26.A.8.12 The Developer's Retained Archaeologist can provide specialist advice on finds identification, assessments of significance, and technical support services relating to the mitigation of the impacts of the project on the historic environment[1].

[1] Note, the Crown Estate (2014) Protocol for Archaeological Discoveries includes an additional step whereby the report is passed to the Implementation Service who provide additional support on identification and input into mitigation. This Service is run by an archaeological contractor. The Retained Archaeologist, who has access to all project datasets and typically has a strong understanding of the archaeological potential of the area, along with specialists in maritime archaeology, is best placed to give this advice. As such there is no need for the inclusion of the additional step of corresponding with the Implementation Service, who do not have access to the up-to-date project data. They will therefore not be included within the Protocol for Archaeological Discoveries implemented during this project. The 2021 Crown Estate guidance on Archaeological Written Schemes of Investigation, which post-dates the 2014 PAD guidance, indicates that although the 2014 guidance sets out one protocol, others can also be used and further states that the 2014 guidance can be used to 'support the development of a protocol for any OWF project' (Crown Estate, 2014: 42). The approach set out here is therefore in line with existing guidance.

3.26.A.8.13 The Retained Archaeologist, along with the Developer and their contractors, shall draw to the attention of all relevant staff the potential for archaeological material to be found during survey and inform them of the possible importance of such finds.

3.26.A.8.14 Personnel working on the project will be briefed on the Protocol for Archaeological Discoveries and copies of this Protocol will be available onboard the survey vessels and on all sites.

Legal implications

3.26.A.8.15 It should be noted that if the wreck of an aircraft is encountered it may be automatically protected as a protected place under the terms of the Protection of Military Remains Act (1986) and it is an offence to tamper with, damage, or move the wreck or to remove items.

3.26.A.8.16 Furthermore, all items of 'wreck' are reportable to the Receiver of Wreck under the terms of the Merchant Shipping Act (1995). Appropriate finds will be reported to the Receiver of Wreck within the required timescales (28 days) by the Retained Archaeologist, thereby satisfying this legal requirement.

Guidelines for identifying and handling finds

3.26.A.8.17 The following guidelines can be used to identify any discovered material and must be referred to when planning appropriate handling and storage. Advice on the identification of finds has been provided following the accepted advice provided by The Crown Estate in their Protocol for Archaeological Discoveries (2014). Further advice on finds can be sought from the Retained Archaeologist.

3.26.A.8.18 Archaeological material can come in a variety of sizes, shapes and materials. Materials can degrade in different ways, so it is important that they are handled with care and that the appropriate handling and storage techniques are applied.

3.26.A.8.19 Finds are vulnerable to deterioration at all times, whether they are recovered or not. Fragile material, such as wood, can be damaged by the force of passing machinery. It is crucial that all finds be treated carefully and interfered with as little as possible.

3.26.A.8.20 Leaving finds *in situ* is the best way to manage them. Once a find is recovered to the surface, it requires conservation which can be difficult and expensive to administer.

3.26.A.8.21 General advice for finds handling and storage is:

- Handle all finds carefully;
- Photograph all sides of a find with a scale;
- Take close up photographs of any markings, glazing, or imagery;
- Keep finds wet and ensure the water is changed regularly if biological growth is detected;
- Keep finds cool and ideally in the dark;
- Keep finds in protective containers where possible;
- Label any finds;
- Follow the information below on finds storage and contact the Retained Archaeologist if further advice is required;

- Do not attempt to clean the find by removing any sediment build up, concretion, or marine life;
- Do not allow finds to dry out; and
- Do not handle finds more than necessary.

Metal

3.26.A.8.22 Metal is likely to survive in marine environment, though it may corrode when in water or form concretions of material (a hard mass of material which typically has a mineral matrix, commonly formed around ferrous objects in particular). Typical metal finds might include ingots, ballast, coins, ornaments, tools, weapons, aircraft or ship parts, and personal items. The Crown Estate guidance for the identification of metals is as follows:

Iron and steel

3.26.A.8.23 The potential range and date of iron and steel objects is so wide that it is difficult to provide general guidance. In broad terms, iron and steel objects which are covered by a thick amorphous concrete-like coating ('concretion') are likely to be of archaeological interest and should be reported. Pieces of metal sheet and structure may indicate a wreck and should be reported. Specific operational measures are likely to apply in respect of ordnance (cannonballs, bullets, shells) which should take precedence over archaeological requirements. However, discoveries of ordnance may be of archaeological interest, and they should be reported.

Other metals

3.26.A.8.24 Items made of thin, tinned or painted metal sheet are unlikely to be of archaeological interest. Aluminium objects may indicate aircraft wreckage from World War Two, especially if two or more pieces of aluminium are fixed together by rivets. All occurrences should be reported' and remains of this nature may be subject to the Protection of Military Remains Act (1986). 'Copper and copper alloy (bronze, brass) objects might indicate a wreck, or they may be very old. All occurrences should be reported. Precious metal objects and coins are definitely of archaeological interest because they are relatively easy to date. All occurrences should be reported (The Crown Estate 2014: 19).

Actions to take

3.26.A.8.25 If possible, do not recover metal. It can be difficult and expensive to conserve and some types of site, such as aircraft, are covered by specific legislation which prohibits recovery without appropriate licences.

3.26.A.8.26 For metals which are lifted, lifting should be carried out carefully and the find should be photographed. All metals should be stored in cool seawater. Different metals should not be stored together. The shape of the concretion can be used to identify the item and as such concretions should not be removed. If the find is too large to cover in seawater, wrap it in soaked material and keep wet. Some metal products e.g. lead, pewter and copper salts can be toxic, so handle with gloves or wash hands thoroughly after contact.

3.26.A.8.27 Metals can sometimes be identified from the colour of their corrosion. **Table 3.26.A. A-7** can be used to help identify the type of metal.

Table 3.26.A. A-7 - Identification of Metal Corrosion

Metal	Corrosion description
Gold	No corrosion.
Silver	White, waxy layers that turn lilac in the light.
Copper/Copper Alloy e.g. Bronze	Dark red/purple/green/blue.
Iron/Steel	Black or rusty with a crust of concretion.
Lead	Grey or white crystals.
Pewter/Tin/Lead Alloy	Grey surface, possibly crystalline, soft or friable.
Aluminium	Little corrosion.

Ceramics

3.26.A.8.28 Pottery can be made from china, porcelain, terracotta, earthenware and other clay-based materials. Typical finds might include crockery, ornaments, clay pipes, lamps, containers and tableware. Any fragment of pottery is potentially of interest, especially if it is a large fragment. Items which look like modern crockery can be discarded, but if the item has an unusual shape, glaze or fabric it should be reported (Ref 3.26.A.1). Additionally, clay pipes should be reported.

Actions to take

3.26.A.8.29 Photograph finds with a scale, especially if they have any glazing or markings. Store in saltwater.

Ceramic building material

3.26.A.8.30 Ceramic building material (CBM) can be in the form of bricks, building blocks, mudbricks or tiles. Bricks and tiles can appear unusually shaped. CBM can be evidence of a ship, or submerged settlement.

3.26.A.8.31 Bricks with modern proportions and 'V'-shaped hollows ('frogs') are of no archaeological interest. Unfrogged, 'small', 'thin' or otherwise unusual bricks may date back to Medieval or even Roman times and should be reported (Ref 3.26.A.1). Occurrences of tile should also be reported.

Actions to take

3.26.A.8.32 Photograph finds with a scale, especially if they have any glazing or markings on them. Store in saltwater.

Stone

3.26.A.8.33 Stone has been used by humans for thousands of years and is very durable underwater, making it a common find. There are different types of stone which can appear as artefacts, including quartz, limestone, marble, granite, obsidian, slate, sandstone and flint. Typical finds might include ballast, anchors, millstones, building material, shot, carvings, tools, sculptures, whetstones, flint or stone tools and other personal items.

3.26.A.8.34 Small to medium size stones that are shaped, polished and/or pierced may be prehistoric axes. All occurrences should be reported. Objects such as axe heads or knife blades made from flint are likely to be of prehistoric date and should be reported. Large blocks of stone that have been pierced or shaped may have been used as anchors or weights for fishing nets. All occurrences should be reported. The recovery of numerous stones may indicate the ballast mound of a wreck, or a navigational cairn. All occurrences should be reported (Ref 3.26.A.1).

Actions to take

3.26.A.8.35 Photograph with a scale and then store in water or wrap in soaked towelling.

Skeletal material and faunal remains

3.26.A.8.36 Skeletal finds and faunal remains can come in the form of bone, ivory, tooth, antler, baleen, tortoiseshell, tusk or shell. Typical finds might include human, or animal remains, personal items (such as combs or jewellery), carvings and tool handles.

3.26.A.8.37 Discoveries of animal bone, teeth and tusks are of archaeological interest because they may date to periods when the seabed formed dry land and should be reported. Such bones, teeth, tusks, etc. may have signs of damage, breaking or cutting that can be directly attributed to human activity. Large quantities of animal bone may indicate a wreck (the remains of cargo or provisions) and should be reported. Human bone is of archaeological interest and may, if buried and found within territorial waters, be subject to the provisions of the Burial Act (1857). Alternatively, it may be subject to the Protection of Military Remains Act (1986). Any suspected human bone should be reported and treated with discretion and respect.

3.26.A.8.38 Objects made of bone (such as combs, harpoon points or decorative items) can be very old and are of archaeological interest. All occurrences should be reported (Ref 3.26.A.1).

Actions to take

3.26.A.8.39 Skeletal finds are vulnerable to environment change, so if any are recovered, ensure they are photographed with a scale and then immediately submerge in seawater and seal in a suitable container. Change the water if biological growth occurs e.g. algae mould.

Wood

3.26.A.8.40 Wooden finds could be evidence of a wrecked vessel. Typical wooden finds might include small personal items (such as tools and bottle corks) or larger finds (such as ships timbers, furniture, chests, barrels, dwelling posts and wattle panels).

3.26.A.8.41 Light coloured wood, or wood that floats easily, is probably modern and is unlikely to be of archaeological interest. ‘Roundwood’ with bark (such as branches) is

unlikely to be of archaeological interest, although it may provide paleo-environmental evidence. However, roundwood that has clearly been shaped or made into a point should be reported. Pieces of wood that have been shaped or jointed may be of archaeological interest, especially if fixed with wooden pegs, bolts or nails – all occurrences should be reported. Objects made of dark, waterlogged wood (such as bowls, handles, shafts, etc.) can be very old and are of archaeological interest. All occurrences should be reported (Ref 3.26.A.1).

Actions to take

3.26.A.8.42 Timber finds are often very fragile and so must be lifted with care. Photograph with a scale. Do not allow the wood to dry out and ensure that it has sufficient support to stop it falling apart and submerge it in seawater. Keep the find in a cool and dark area. Change the water if biological growth is detected e.g. algae or mould. If the find is too large to store in water, try to keep it damp and cool in a darkened area.

Peat and clay

3.26.A.8.43 Peat is black or brown fibrous soil that formed when sea level was so low that the seabed formed marshy land, for example on the banks of a river or estuary. Peat is made up of plant remains and contains microscopic remains that can provide information about the environment at the time it was formed. This information helps us to understand the kind of landscape that our predecessors inhabited and about how their landscape changed. It can also provide information about rising sea-level and coastline change, which are important to understanding processes that are affecting us today. Prehistoric structures (such as wooden trackways) and artefacts are often found within or near peat, because our predecessors used the many resources that these marshy areas provided. As these areas were waterlogged and have continued to be waterlogged because the sea has risen, 'organic' artefacts made of wood, leather, textiles, etc. often survive together with the stone and pottery which are found on 'dry' sites.

3.26.A.8.44 Fine-grained sediments (such as silts and clays) are often found at the same places as peat. These fine-grained sediments also contain the microscopic remains that can provide information about past environments and sea level change. Any discoveries of such material would be of archaeological interest, and their occurrence should be reported (Ref 3.26.A.1).

Actions to take

3.26.A.8.45 Any sediments collected should be stored in a sealed container with seawater and keep cool. Do not try to break apart the deposits.

Fibre and Textiles

3.26.A.8.46 Fibrous finds are unlikely to survive in marine conditions, but occasionally they do. Typical fibrous finds might include ropes and rigging, weaving, sailcloth, sacks, clothing, basketry, fishing nets, etc.

Actions to take

3.26.A.8.47 Due to the incredibly fragile nature, once any fibrous or textile find has been recovered it must be dealt with quickly. Take photographs with a scale, but do not

use flash. Carefully place it in a sealed container. Try to keep it out of the light. If possible, keep the find in its original burial deposit e.g. the sediment it was found in, and seawater. This will help to protect the material.

Synthetics

3.26.A.8.48 In most cases, rubber, plastic, Bakelite and similar modern synthetic materials are not of archaeological interest and can be disregarded. One exception is where such materials are found in the same area as aluminium objects and structures, which may indicate aircraft wreckage. Such material should be reported (Ref 3.26.A.1).

Actions to take

3.26.A.8.49 Do not bend or clean any plastic or rubber finds. Photograph the find with a scale and then store in seawater in a cool and dark area.

Resinous or mineral substances

3.26.A.8.50 These materials include amber, jet, coal or bitumen. Typical finds might include ornaments, jewellery, beads, sealants or caulking materials, all of which would be of archaeological interest and should be reported.

Actions to take

3.26.A.8.51 These finds might appear stable, but if they are not stored properly, they may begin to deteriorate. Photograph a find with a scale and keep stored in seawater.

Glass

3.26.A.8.52 Glass finds may include bottles, beads and panes of glass from ship's windows. Unless obviously modern (beer bottles, etc.), glass finds should be reported, particularly where it occurs alongside other finds, as this may represent a wreck site.

3.26.A.8.53 Glass is likely to survive in marine conditions, but it does degrade. Glass deterioration is usually categorised by leaching, with causes an iridescent pattern to form on the glass, it looks somewhat like an oil slick. It can also begin to flake away.

Actions to take

3.26.A.8.54 Photograph with a scale before packing carefully to avoid breakage. Ensure it is covered in cool seawater in the dark.

Annex A: Protocol for Archaeological Discoveries: Preliminary Record Form

Protocol for Archaeological Discoveries (PAD)	
Preliminary record form: discoveries on the seabed/on-board/in the intertidal zone/on land	
Company Name	
Vessel/Team Name	
Site/Sea Area Name	
Date	
Time of compiling information	
Name of compiler (Site Champion)	
Name of finder	
Time at which discovery was encountered	
Vessel position at time when anomaly was encountered	
Latitude	Longitude
Datum (if different from WGS84)	
Original position of the anomaly on the seabed, if known	
Notes on likely accuracy on position stated above:	
How accurate is the position?	
Is the position the original position or has the material been moved by operations?	
Details of circumstances that led to the discovery	
Description of the find / anomaly	
Apparent size /extent of the anomaly	
Details of any find(s) recovered	
Details of any photographs, drawings of other records made of the find(s) e.g. location figure	

Protocol for Archaeological Discoveries (PAD)	
Details of treatment or storage of find(s)	
Date and time Nominated Contact informed	
General notes if discovered on the seabed:	
Derived from e.g. Obstacle Avoidance Sonar, Cable Tensiometer?	
Apparent size/ extent of anomaly (length, width, height above seabed)	
Extent of deviation/ route development	
Signed	Date

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