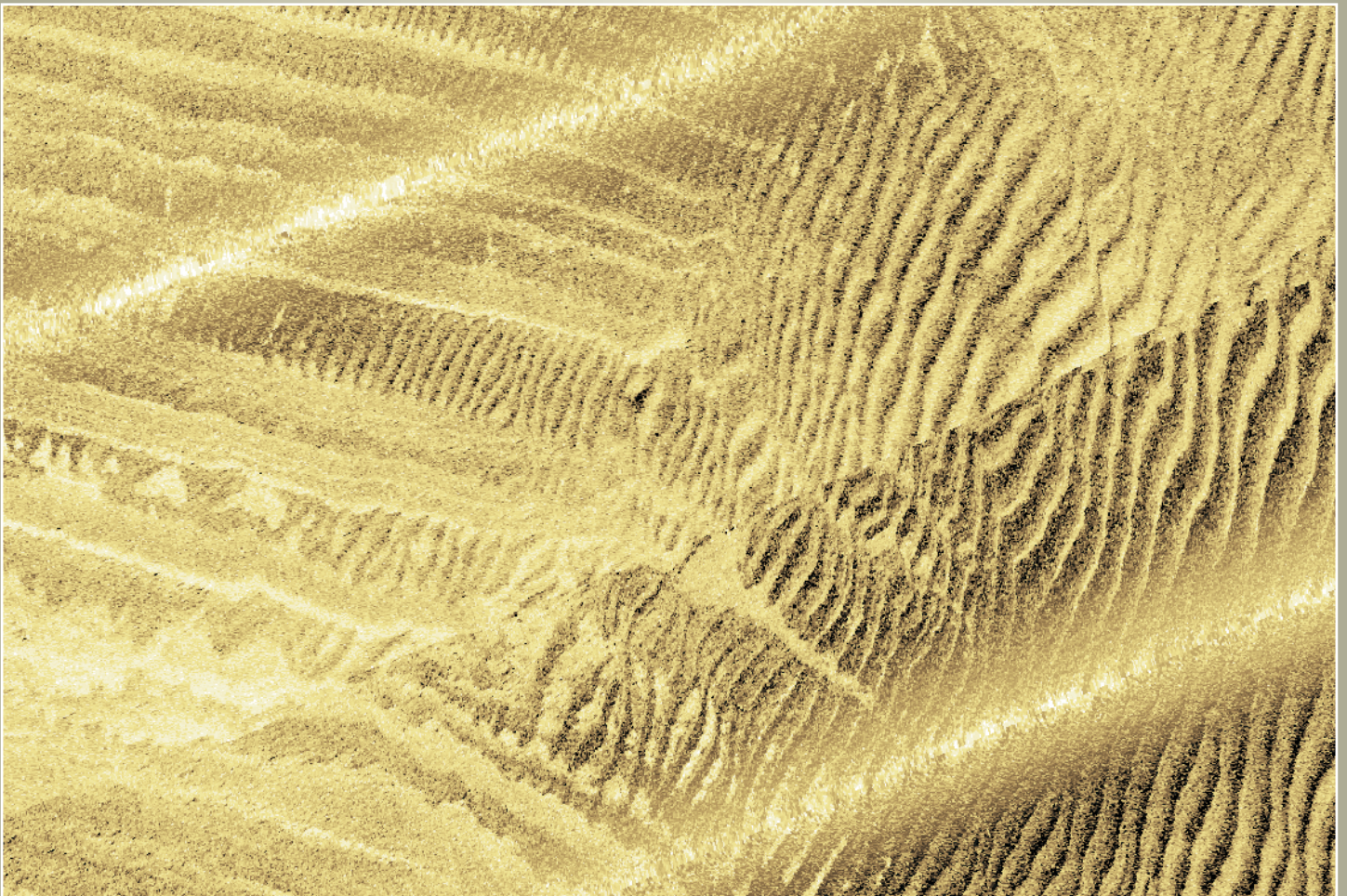




## Aggregate Dredging Licence Area 472

Archaeological Assessment of Marine Geophysical Data

Pre-dredging Monitoring Report



**AGGREGATE DREDGING LICENCE**  
**AREA 472**

**ARCHAEOLOGICAL ASSESSMENT OF MARINE GEOPHYSICAL DATA**  
**PRE-DREDGING MONITORING REPORT**

Prepared for:

**The Resource Management Association**

Comprising:

CEMEX UK Marine Ltd.  
Hanson Aggregates Marine Ltd.  
United Marine Dredging Ltd.

By:

**Wessex Archaeology Ltd.**

Portway House  
Old Sarum Park  
Salisbury  
SP4 6EB

**Ref: 69900.02**

**November 2008**

# **AGGREGATE DREDGING LICENCE**

## **AREA 472**

### **ARCHAEOLOGICAL ASSESSMENT OF MARINE GEOPHYSICAL DATA PRE-DREDGING MONITORING REPORT**

**REF: 69900.02**

---

Title:	AREA 472 AGGREGATE DREDGING Archaeological Assessment of Marine Geophysical Data Pre-dredging Monitoring Report
Author(s):	Cristina Serra (Coastal & Marine Archaeologist/Geophysicist)
Managed by:	Paul Baggaley (Project and Technical Manager)
Origination date:	September 2008
Date of last revision:	November 2008
Version:	69900.02
Status:	Final
Summary of changes:	Incorporation of client comments – minor changes
Associated reports:	48466.03
QA:	Paul Baggaley and Euan McNeill
Approval:	

---

# **AGGREGATE DREDGING LICENCE**

## **AREA 472**

### **ARCHAEOLOGICAL ASSESSMENT OF MARINE GEOPHYSICAL DATA PRE-DREDGING MONITORING REPORT**

**REF: 69900.02**

#### **Summary**

Wessex Archaeology Ltd has been commissioned by the Resource Management Association (RMA) to undertake an archaeological assessment of marine geophysical data in view of a pre-dredging monitoring heritage review for aggregate dredging Licence Area 472 and for five corridors intended for sediment monitoring outside the aggregate dredging Licence Area.

The assessed marine geophysical data consisted of 2008 sidescan sonar data covering the aggregate dredging Licence Area 472 in full and the seven sediment monitoring corridors.

This report reviews the sites highlighted during Wessex Archaeology's 2003 desk-based assessment, suggests modifications, highlights new archaeological sites identified within the limits of the aggregate dredging Licence Area 472 and suggests mitigating measures.

A total of eleven sites identified during the 2003 desk-based assessment lie within the limits of the current aggregate dredging Licence Area 472. None of these sites were re-identified in the 2008 dataset due to improved data quality, which aided interpretations, and sediment dynamics, possibly covering some of the anomalies identified in 2003. The assessment of 2008 sidescan sonar resulted in the identification of fifteen new sites of possible archaeological interest, eight within the limits of the licence dredging area and seven along the corridors of sediment monitoring, which extend beyond the licence area and will not be subject to dredging.

On the basis of the likely archaeological resource of the region and the sites identified in the sidescan sonar data, the suggested mitigation is as follows:

- Due to the nature and character of the eight sites identified during this assessment no exclusion zones are proposed. Further investigation might clarify their origin, archaeological significance or even discriminate them as objects of natural or modern origin.
- RMA companies apply the British Marine Aggregate Producers Association Marine Aggregate Dredging Protocol for reporting finds of archaeological interest.
- Appropriate training in the operation of the protocol should be given to vessel and wharf staff through material supplied as part of the Awareness Programme.
- Provision for archaeological involvement in any further benthic and geotechnical investigations in order to assert the potential survival of archaeological material and define the limits of their extent.

- Provision for post-dredging surveys to continue the monitoring of the effect of dredging on known sites and the potential exposure of sites of archaeological interest.

# **AGGREGATE DREDGING LICENCE**

## **AREA 472**

### **ARCHAEOLOGICAL ASSESSMENT OF MARINE GEOPHYSICAL DATA PRE-DREDGING MONITORING REPORT**

**REF: 69900.01**

#### **Acknowledgements**

This report was commissioned by the Resource Management Association. The marine geophysical data were acquired and supplied by Gardline Survey Ltd; Wessex Archaeology is grateful to the staff of these institutions for their co-operation.

Cristina Serra and Ben Urmston assessed the marine geophysical data. Cristina Serra compiled this report. Karen Nichols prepared the illustrations and the project was managed for Wessex Archaeology Ltd by Paul Baggaley. Quality assurance was undertaken by Euan McNeill.

#### **Data Usage and Copyright**

Details of maritime sites were re-used from previous WA assessments and obtained from the National Monuments Record. The information supplied is © Crown copyright or © English Heritage copyright.

The digital use of Chart 1152ac was made under licence (ref. HO 820/020220/11). The following notice applies:

This product has been derived, in part, from Crown Copyright Material with the permission of the UK Hydrographic Office and the Controller of Her Majesty's Stationary Office  
([www.ukho.gov.uk](http://www.ukho.gov.uk))  
All rights reserved.

**NOT TO BE USED FOR NAVIGATION.**

**WARNING:** The UK Hydrographic Office has not verified the information within this product and does not accept liability for the accuracy of reproduction or any modifications made thereafter.

# AGGREGATE DREDGING LICENCE

## AREA 472

### ARCHAEOLOGICAL ASSESSMENT OF MARINE GEOPHYSICAL DATA PRE-DREDGING MONITORING REPORT

REF: 69900.01

#### Contents

1	INTRODUCTION.....	1
1.1	PROJECT BACKGROUND .....	1
1.2	AIMS.....	2
2	DATUMS .....	2
2.1	CHART DATUM.....	2
2.2	POSITION .....	2
2.3	SEABED GEOLOGY & LANDSCAPE EVOLUTION.....	2
3	METHODOLOGY .....	3
3.1	APPROACH .....	3
3.2	TECHNICAL SPECIFICATIONS .....	3
3.3	DATA QUALITY.....	4
4	INTERPRETATION METHODOLOGY .....	4
4.1	GEOPHYSICAL DATA PROCESSING AND ANOMALY CHARACTERISATION .....	4
4.2	ANOMALY GROUPING AND DISCRIMINATION.....	5
5	RESULTS.....	5
5.1	SIDESCAN SONAR .....	5
6	MITIGATION .....	7
7	REFERENCES.....	8
	APPENDIX I: SITES OF ARCHAEOLOGICAL INTEREST IDENTIFIED WITHIN THE LIMITS OF AGGREGATE DREDGING LICENCE AREA 472.....	9

#### Figures

*Figure 1: Site location*

*Figure 2: Sites of archaeological interest*

*Figure 3: Examples of sites of archaeological interest*

# AGGREGATE DREDGING LICENCE

## AREA 472

### ARCHAEOLOGICAL ASSESSMENT OF MARINE GEOPHYSICAL DATA PRE-DREDGING MONITORING REPORT

REF: 69900.01

## 1 INTRODUCTION

### 1.1 PROJECT BACKGROUND

- 1.1.1 Wessex Archaeology (WA) was commissioned by the Resource management Association (RMA) to carry out a pre-dredging archaeological monitoring assessment of marine geophysical data covering aggregate dredging Licence Area 472, at Culver Sands. The survey area extends at least 750m beyond the boundary of the licence boundary and lies across the Wales/England median line, approximately 10 km south of Barry on the Welsh Coast and 18 km north-west of the River Parrett as it enters Bridgewater Bay on the English coast (**Figure 1**). The survey area covered a total of 34.1km<sup>2</sup> of seafloor and is defined by the following coordinates:

Node	Easting	Northing
A	484050	5680945
B	478735	5679305
C	473557	5679362
D	473234	5680924
E	479282	5683384
F	484756	5683961
G	484050	5680945

*Datum: WGS 84 Projection: UTM Zone 30N*

- 1.1.2 As part of the licence agreement, WA was also commissioned to assess the marine geophysical data covering the five corridors purposely placed to monitor the sediment dynamics surrounding aggregate dredging Licence Area 472.
- 1.1.3 In 2003 WA undertook a desk-based assessment (DBA) in view of a new dredging licence application concerning aggregate dredging Licence Area 472. The study area covered nearly 125 km<sup>2</sup>. The DBA assessed the potential effect of proposed marine aggregate dredging on archaeological remains (WA 2003).
- 1.1.4 The DBA incorporated primary and secondary data sources including known and suspected archaeological sites obtained from numerous national archives in addition to sites identified during the interpretation of marine geophysical data. The reviewed material consisted of:
- Records of wrecks, obstructions and casualties (documented losses) from the National Monuments Record (NMR).



- Records of wrecks from the Royal Commission for Ancient Historic Monuments of Wales.
- Records held by the Receiver of Wreck.
- Records of wrecks held by the UK Hydrographic Office (UKHO).
- Sites and Monuments Record (SMR) of Glamorgan and Gwent, of Somerset, of North Somerset and of the City of Bristol.
- Historic charts and surveys held by the UKHO.
- Records held by the Department for Culture, Media and Sport (DCMS).
- Records held by the Naval Staff Directorate, Ministry of Defence.
- The geophysical dataset consisting of: sidescan sonar data rolls acquired in 1999 and sub-bottom profiler (boomer) rolls acquired in 2000 by Coastal surveys Ltd.
- A selective review of relevant published works (see bibliography in WA 2003 report)

## **1.2 AIMS**

- 1.2.1 The overall aim of this report is to provide HAML with an archaeological assessment of the seafloor prior to dredging based on marine geophysical data. The project aims to confirm or modify previous interpretations and to add any new sites that might be of archaeological interest. In order to maximise the available dredging area and minimise the impact upon submerged heritage this report presents the results and may suggest the implementation of exclusion zones or highlight sensitive areas.

## **2 DATUMS**

### **2.1 CHART DATUM**

- 2.1.1 Water depths are given in metres and refer to Chart Datum, which is 6.0m below Ordnance datum. Water depths given have been taken from Admiralty Chart 1152ac (UKHO 1999).

### **2.2 POSITION**

- 2.2.1 This assessment has been carried out in WGS84 Zone UTM30 North and the results have been presented accordingly.
- 2.2.2 The results from WA's 2003 assessment were presented in Ordnance Survey of Great Britain 1936 Datum. In order to integrate these results into this assessment, these were converted into WGS84 UTM Zone 30 North.
- 2.2.3 The 2008 marine geophysical data were recorded by Gardline Surveys Ltd. in World Geodetic System WGS84 Datum, and during processing were projected on to Universal Transverse Mercator (UTM) Zone 30 North.

### **2.3 SEABED GEOLOGY & LANDSCAPE EVOLUTION**

- 2.3.1 Aggregate dredging Licence Area 472 lies in the Culver Sands within the Bristol Channel. Culver Sands is a sand bank formation orientated roughly west-south-west to east-north-east in an area where the seabed is generally c. 10-12 m below CD. The feature is charted as rising sharply to 0.9 m below CD but is of generally low relief with a thickness of sand up to 8 m at the crest. The bathymetric survey undertaken in 2003 by HAML showed that the Culver Sand formation rises to a maximum of 3.0 m below CD, and that within Licence Area 472 the seabed is no higher than 10.5 m below CD.
- 2.3.2 The Bristol Channel occupies a trough formed by erosion during successive glacial periods when sea level fell by up to 120 m. Although some deep incisions contain

Pleistocene deposits, most of the inner Bristol Channel was scoured to bedrock during the Devensian glacial period (if not earlier). The bedrock is overlain by coarse grained (gravel and sandy gravel) lag deposits that mostly form a thin veneer less than 1 m thick, deposited in the course of early Holocene sea-level rise.

2.3.3 In some places, seabed sediments attributable to the present hydrological regime overlie the lag deposits (see Velegrakis, Brand and Collins 1999; Tappin *et al.* 1994 in 2003 WA report). These recent sediments include active bedforms such as Culver Bank, which appears to have formed as a result of tidal flows around Steep Holm (HAML 2002 in WA 2003).

2.3.4 As Culver Sand formed in marine conditions during the Holocene it has no potential to include prehistoric land surfaces in its composition. Moreover, Culver Sand appears to overlie a bedrock plateau swept clean of earlier deposits during the Devensian glaciation, hence the potential for the survival of pre-Devensian (Lower and Middle Palaeolithic) deposits and artefacts is also negligible. Consequently, this assessment is concerned solely with archaeological potential arising from wrecks and other forms of sea-borne debris.

### **3 METHODOLOGY**

#### **3.1 APPROACH**

3.1.1 The methodology adopted reflects best practice in carrying out archaeological desk-based assessments, as set out by the Institute of Field Archaeologists (IFA), Standard and Guidance for Archaeological Desk-based Assessment (IFA 2001), and Marine Aggregate Dredging and the Historic Environment produced by the British Marine Aggregate Producers Association (BMAPA) and English Heritage (BMAPA/English Heritage 2003). The later document aims to ensure the effective and practical consideration of the historic environment in the licensing of marine aggregate extraction and elaborates on the guidance provided in the Code of Practice for Seabed Developers published by the Joint Nautical Archaeology Policy Committee in 1995 and revised and updated in 2006.

3.1.2 The approach adopted also reflects the requirements of Environmental Assessment arising from European Council Directive 85/337/EEC as amended by Directive 97/11/EC.

#### **3.2 TECHNICAL SPECIFICATIONS**

3.2.1 The archaeological assessment of marine geophysical data consisted of the interpretation of sidescan sonar data.

3.2.2 The sidescan sonar survey was conducted by Gardline Surveys Ltd. In July 2008 using an Edgetech 4200 towfish system and the available data were recorded using both high (400kHz) and low frequency (100kHz) channels. The sidescan sonar instrument was operated with a nominal range of 125m.

3.2.3 The survey consisted of 40 NE-SW survey lines covering the complete survey area at 100m line spacing, a total of 48 cross line orientated NNW-SSE covering the complete survey area at 250m line spacing. An additional five corridors, consisting of 14 survey lines, were acquired outside the main survey area (**Figure 2**).

3.2.4 The sidescan sonar range and the survey line spacing have produced a 125% coverage. This level of ensonification is considered to enhance the probability for the detection of objects and sites lying on the seabed, and allows for more accurate positioning.

3.2.5 The data were digitally recorded in XTF format and the instrument layback was corrected during acquisition. WA did not alter this during the processing and interpretation of the dataset.

3.2.6 Gardline Surveys Ltd. provided WA with a digital trackplot and survey logs.

### 3.3 DATA QUALITY

3.3.1 Prior to any processing and archaeological interpretation the data were reviewed to ensure that the quality was sufficient for analysis and archaeological assessment.

3.3.2 The data available to WA were graded according to the following the criteria:

Good	Data which are clear and unaffected by weather conditions or sea state. The dataset is suitable for the interpretation of standing and partially buried metal wrecks and their character and associated debris field. These data also provide the highest chance of identifying wooden wrecks and debris.
Average	Data which are affected by weather conditions and sea state to a slight or moderate degree. The dataset is suitable for the identification and partial interpretation of standing and partially buried metal wrecks, and the larger elements of their debris fields. Wooden wrecks may be visible in these data, but their identification as such is likely to be difficult.
Variable	This category contains datasets with the quality of individual lines ranging from good or average to below average. The dataset is suitable for the identification of standing and some partially buried metal wrecks. Detailed interpretation of the wrecks and debris field is likely to be problematic. Wooden wrecks are unlikely to be identified.

## 4 INTERPRETATION METHODOLOGY

### 4.1 GEOPHYSICAL DATA PROCESSING AND ANOMALY CHARACTERISATION

4.1.1 The sidescan sonar data were processed by WA using Coda Geosurvey software. This allowed the data to be replayed with various gain settings in order to optimise the quality of the images. The data were initially scanned to give an understanding of the geological nature of the area and were then interpreted for any objects of possible anthropogenic origin: the position and dimensions of any such objects were recorded into a gazetteer and an image of each anomaly acquired (**Appendix I**).

4.1.2 During this stage of the interpretation the sidescan sonar anomalies were ascribed an archaeological flag in order to record the geophysicists' initial assessment of the sidescan sonar anomaly. These flags were ascribed as follows:

High	Ascribed only where the geophysical anomalies clearly represent a wreck site or were very near to a previously known site.
Medium	Geophysical anomalies with no directly corroborating data but being of a size, shape or amplitude such as to suggest that they possibly relate to archaeological sites or features.
Low	Small, isolated, geophysical anomalies of uncertain origin, which are likely to be 'artefacts' in the data or natural features.
Very Low	Anomalies that are known or are highly likely to be of modern origin, and which are not archaeologically interesting (e.g. moorings, etc)

4.1.3 The form, size and/or extent of anomalies is a guide to its potential. A single small but prominent anomaly may be part of a much more extensive feature that is largely buried. Similarly, a scatter of minor anomalies may define the edges of a buried but intact feature, or it may be all that remains as a result of past impacts from, for example, dredging or fishing. The application of a ratings system is therefore a means of prioritising sites in order to inform further stages of the interpretation process and on its own is not definitive.

## 4.2 ANOMALY GROUPING AND DISCRIMINATION

4.2.1 The previous section describes the initial interpretation of all available geophysical data sets which are conducted independently of each other. This inevitably leads to the possibility of any one object being the cause of numerous anomalies in different data sets and apparently overstating the number of archaeological features in the study area.

4.2.2 To address this fact the anomalies are grouped together along with the results of the desk-based study. This allows one ID number to be assigned to a single object or site for which there may be a UKHO record, a bathymetry anomaly and multiple sidescan sonar anomalies.

4.2.3 Once all the geophysical anomalies and desk-based information has been grouped a discrimination flag is added to the record in order to discriminate against those which are not thought to be of an archaeological concern to the proposed details of the scheme. These flags were ascribed as follows:

Outside of scheme	O1	Outside horizontal footprint
	O2	Outside vertical footprint
	O3	Lifted/cleared previously
Non-Archaeological	U1	Not of anthropogenic origin
	U2	Known non-archaeological feature
	U3	Non-archaeological hazard
Archaeological	A1	Anthropogenic origin of archaeological interest
	A2	Uncertain origin of possible archaeological interest
	A3	Historic record of possible archaeological interest

4.2.4 The grouping and discrimination of information at this stage is based on all available information and is not definitive. It allows for all features thought to be of archaeological interest to be highlighted while retaining all the information produced during the course of the geophysical interpretation and desk-based assessment for further evaluation should more information become available.

4.2.5 The final gazetteer of sites is presented in **Appendix I** with site numbering starting at **7000**. These sites are also illustrated in **Figures 2** and **3**.

## 5 RESULTS

### 5.1 SIDESCAN SONAR

5.1.1 During the 2003 archaeological assessment a total of 26 sidescan sonar anomalies and a total of 4 reported shipping losses were highlighted within the study area designed in 2003. Given the 2003 study area covered a larger extent of seafloor, only 11 of these sites were expected within the limits of the aggregate dredging Licence Area 472. The assessment of 2008 sidescan sonar data has not re-

identified these anomalies. This might be due to an improved data quality, which aids archaeological interpretations or as a result of sediment dynamics covering the sites.

- 5.1.2 The review of sidescan sonar entailed the assessment of low frequency channels as they ensonified the 125m sidescan sonar range in full. Whenever possible, all anomalies of archaeological interest identified in low frequency channels were also re-viewed in the high frequency channels in view of confirming their potentially archaeological origins and possible provide a more detailed interpretation.
- 5.1.3 The interpretation of 2008 sidescan sonar data resulted in the identification of fifteen new sites of archaeological interest. Eight sites lie within the limits of the dredging area and all were ascribed an A2 discrimination. Seven sites lie along the corridors of sediment monitoring and are consequently outside the dredging area. Details of all sites are presented in **Appendix I** and **Figures 2-3**.
- 5.1.4 The absence of these anomalies in earlier datasets (WA 2003) could have been a result of data quality or the absence of material on the seabed at the time the surveys were undertaken. It could also have been a result of sediment volume over the newly detected features, and the exposure of sites due to sediment dynamics.
- 5.1.5 The types of sidescan sonar anomalies found within the survey area are as follows:

Anomaly Type	Area 472
Bright Reflector	1
Dark Reflector	11
Debris	3
<b>Total</b>	<b>15</b>

- 5.1.6 Site **7000** entails a group of bright reflectors approximately 80m apart lying in close proximity to a linear feature. Two of the largest objects measure 4.1m x 5.7m and 5.4m x 5.7m.
- 5.1.7 Sites **7001** is a dark and angular object identified in isolation in an area of sand waves. The object measures 7.5m x 4.3m
- 5.1.8 Site **7002** is a distinct dark reflector measuring 40.4m x 14.6m identified in isolation in an area of flat seafloor. The feature was initially identified as a vessel wake, however it re-appears in three separate survey lines acquired during different days.
- 5.1.9 Site **7003** is a distinct dark reflector in an area of small sand ripples and some bedrock outcropping. The object measures 7.5m x 3m
- 5.1.10 Site **7004** is a distinct broad and dark reflector lying in an area of sandwaves. The object measures 11.6m x 7.8m. Site **7007** lies under 200m north-east of site 7004. Site **7007** is a fairly distinct object with height measuring 9.6m x 2.1m x 0.7m.
- 5.1.11 Site **7005** is an angular object identified on the edge of large sadwaves. The object measures 11.5m x 6.4m.
- 5.1.12 Site **7006** is a distinct object amongst an area of small rocks or seabed outcrops. The object measures 15m x 5.3m x 0.7m.
- 5.1.13 Sites **7008, 7009, 7010, 7011, 7012, 7013** and **7014** are objects of archaeological interest lying outside the dredging area, along the corridors of sediment monitoring.

## 6 MITIGATION

- 6.1.1 According to heritage agencies and the principles outlined in Marine Aggregate Dredging and the Historic Environment, the preferred approach to the presence of potential archaeological sites is to preserve *'in situ'* or preservation 'by record' (BMAPA and English Heritage 2003). The mitigation suggested for marine aggregate extraction is avoidance, reduction, or remedying and offsetting, and monitoring.
- 6.1.2 The archaeological assessment has identified fifteen sites in the 2008 marine geophysical data. These have been interpreted as objects of anthropogenic origin but of unknown archaeological origin. Based on their nature and character they are unlikely to be wrecks and as isolated debris are unlikely to be of archaeological interest. It is therefore not recommended that exclusion zones are implemented around these anomalies, however, extra vigilance in terms of the operation of the BMAPA/EH finds protocol is recommended when dredging in the vicinity of these anomalies so that should they prove to be of archaeological significance appropriate action can be quickly taken.
- 6.1.3 Site-specific investigations involving further high resolution surveys or ROV/diving inspections may clarify the nature and origin of these sites and their archaeological potential or even discriminate them as natural or modern objects.
- 6.1.4 On the basis of the likely archaeological resource of the region and the sites identified in the sidescan sonar data, the additional mitigation is as follows:
- RMA applies reporting finds of archaeological interest through the BMAPA Marine Aggregate Dredging Protocol for Reporting.
  - Appropriate training in the operation of the BMAPA protocol should be given to vessel and wharf staff through material supplied as part of the Awareness Programme.
  - Provision for archaeological involvement in any further benthic and geotechnical investigations in order to assert the potential survival of archaeological material and define the limits of their extent.
  - Provision for post-dredging surveys to continue the monitoring of the effect of dredging on known sites and the potential exposure of sites of archaeological interest.

## **7 REFERENCES**

BMAPA and English Heritage, 2003, *Marine Aggregate Dredging and the Historic Environment*, English Heritage.

Institute of Field Archaeologists, 2001, *Standards and guidance for Archaeological Desk-based Assessments*.

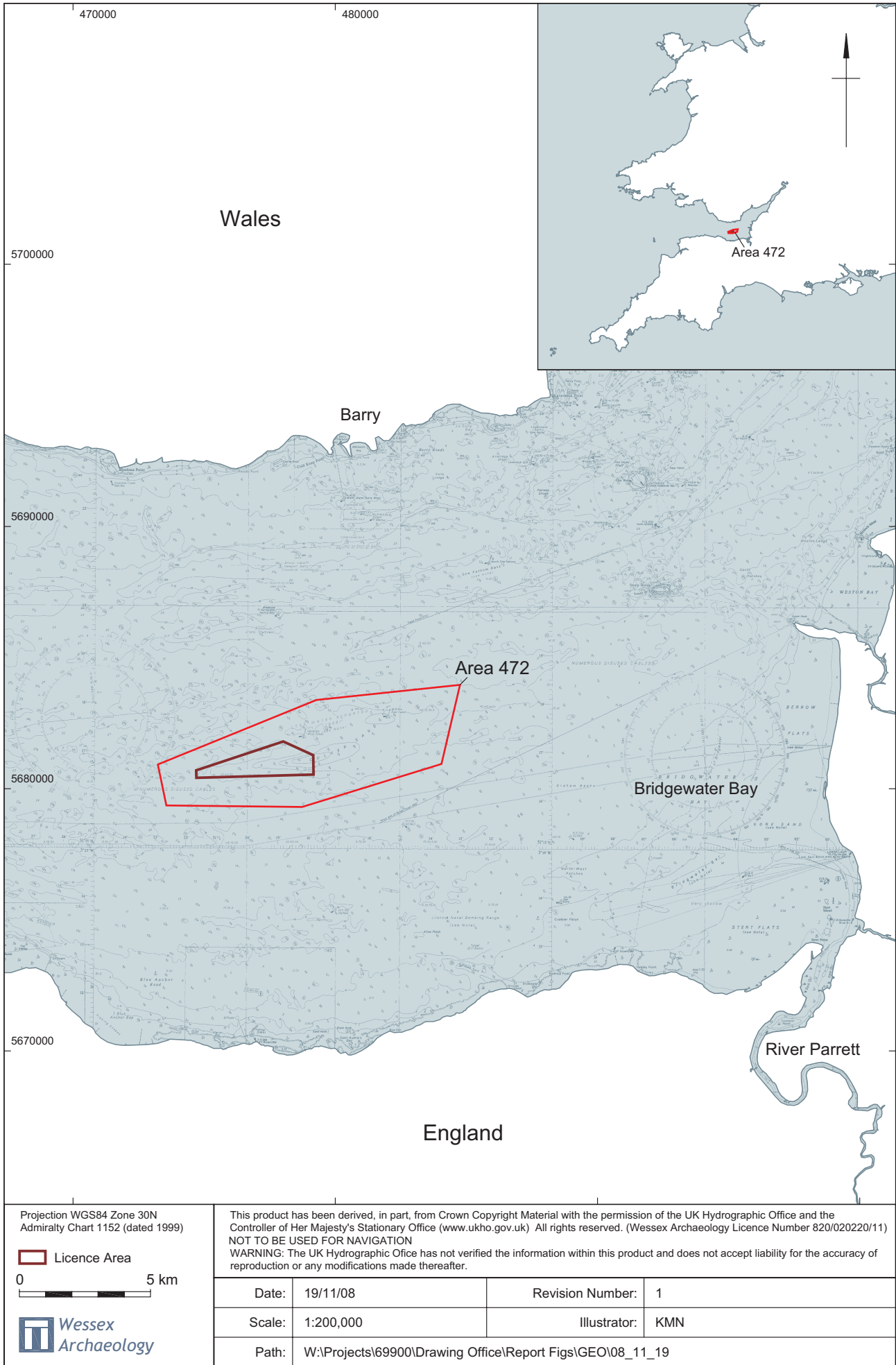
UKHO, *Admiralty Chart 1152ac*, 1999, Bristol Channel.

Wessex Archaeology, 2003, Area 472-Culver Sand, Marine Aggregate Dredging. Environmental Assessment: Archaeology. Technical Report Ref: 48644.03

## APPENDIX I: SITES OF ARCHAEOLOGICAL INTEREST IDENTIFIED WITHIN THE LIMITS OF AGGREGATE DREDGING LICENCE AREA 472

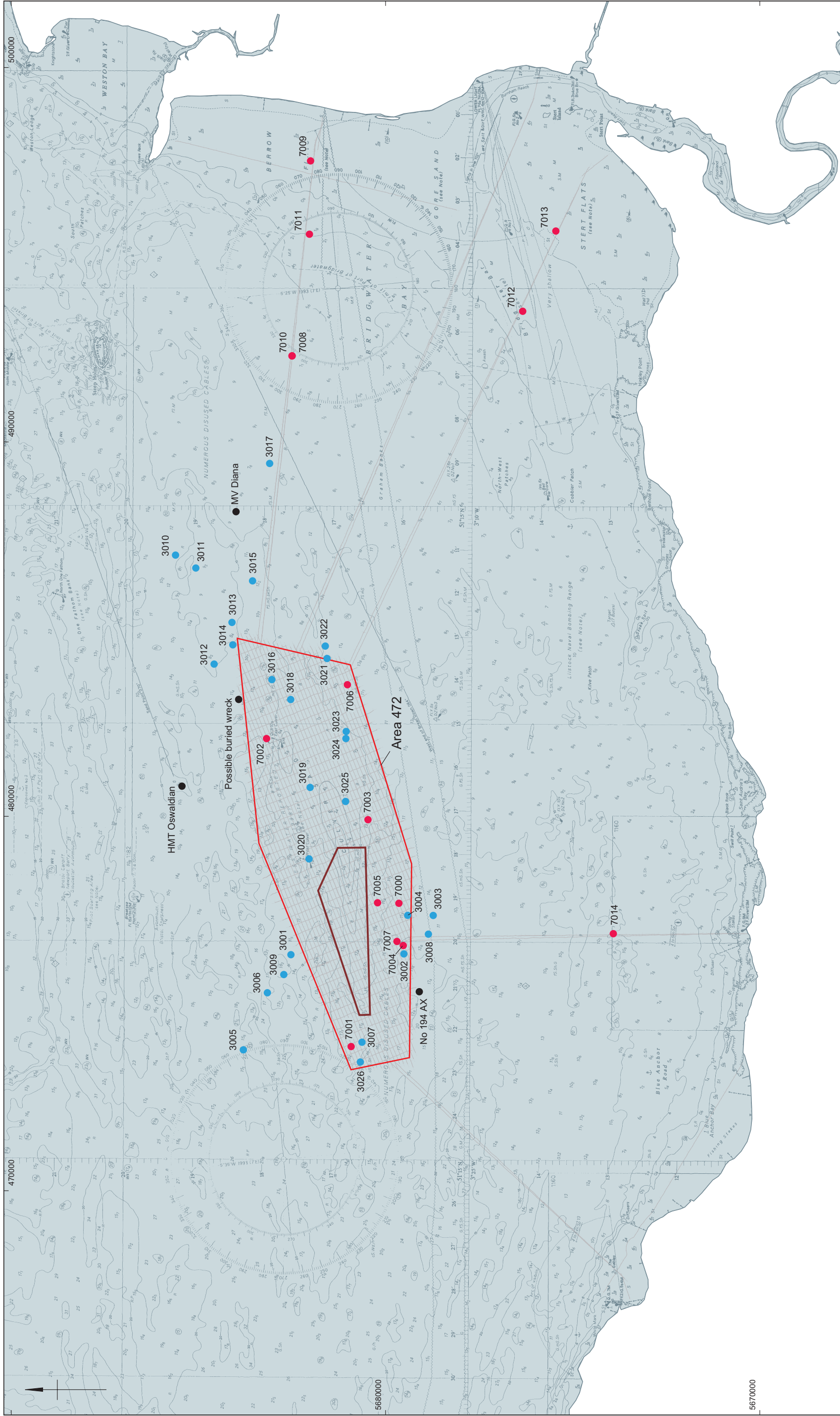
WAID	Classification	Easting	Northing	Notes	Discrimination	Sources	External References
7000	Bright reflectors	477680	5679644	Two objects approximately 80m apart, lie in close proximity of a linear feature. Objects measure 4.1m x 5.7m and 5.4m x 5.7m	A2	3507, 3508	None
7001	Dark Reflector	473853	5680920	Isolated object measuring 7.5m x 4.3m	A2	3003	None
7002	Dark Reflector	482079	5683180	Isolated object measuring 40.4m x 14.6m. Believed to correspond to a vessel wake but it has been identified in three separate survey lines.	A2	3020	None
7003	Dark Reflector	479913	5680470	Isolated object measuring 7.5m x 3m	A2	3026	None
7004	Dark reflector	476552	5679527	Distinctively broad and dark reflector measuring 11.6m x 7.8m	A2	3509	None
7005	Dark reflector	477694	5680214	Angular object measuring 11.5m x 6.4m	A2	3510	None
7006	Debris	483518	5681020	Distinct object measuring 15m x 5.3m x 0.7m	A2	3501	None
7007	Debris	476661	5679696	Distinct object measuring 9.6m x 2.1m x 0.7m	A2	3512	None
7008	Dark Reflector	492302	5682495	Isolated object measuring 5.7m x 4.2m	O1	3015	None
7009	Dark Reflector	497510	5682004	Isolated object measuring 8.8m x 7m	O1	3016	None
7010	Dark Reflector	492301	5682502	Isolated object measuring 6.5m x 6m	O1	3017	None
7011	Dark Reflector	495551	5682034	Isolated object measuring 18.2m x 1.4m	O1	3019	None
7012	Dark Reflector	493493	5676336	One of at least seven objects lying in close proximity. Object dimensions: 6.8m x 2.4m	O1	3028	None
7013	Dark Reflector	495636	5675451	Isolated object measuring 24.1m x 8.9m	O1	3029	None
7014	Dark Reflector	476868	5673915	Isolated object within seafloor disturbance 21.1m x 5.2m	O1	3031	None





Site Location

Figure 1



Projection WGS84 Zone 30N  
 Admiralty Chart 1152 (dated 1999)

● Sites of archaeological interest identified in 2003 sidescan sonar data  
● Records of shipping losses highlighted in 2003 desk-based assessment  
● Sites of archaeological interest identified in 2008 sidescan sonar data

Licence Area

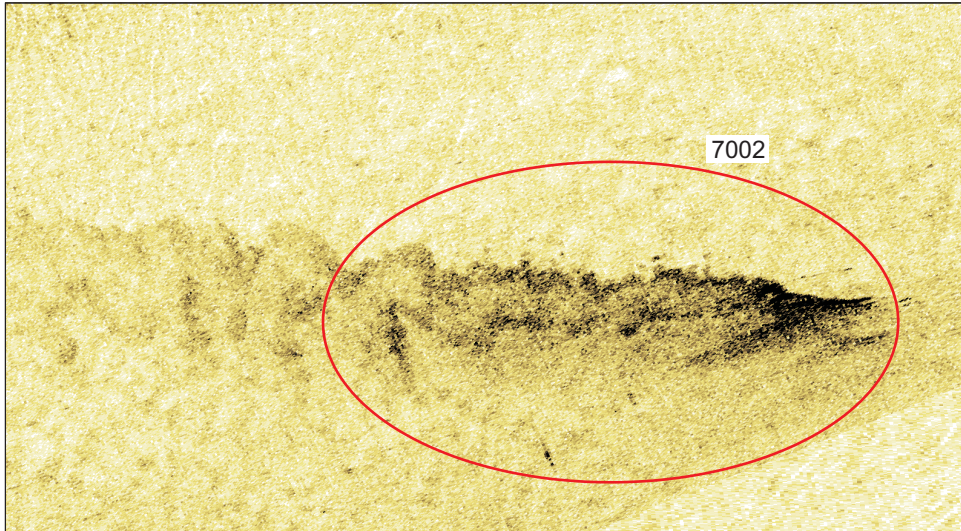
This product has been derived, in part, from Crown Copyright Material with the permission of the UK Hydrographic Office and the Controller of Her Majesty's Stationary Office (www.ukho.gov.uk). All rights reserved. (Wessex Archaeology Licence Number 820/0220/11)  
**NOT TO BE USED FOR NAVIGATION**  
 WARNING: The UK Hydrographic Office has not verified the information within this product and does not accept liability for the accuracy of reproduction or any modifications made thereafter.

Date:	19/11/08	Revision Number:	1
Scale:	1:100,000	Illustrator:	KMN
Path:	W:\Projects\69900\Drawing Office\Report Figs\GEO\08_11_19		

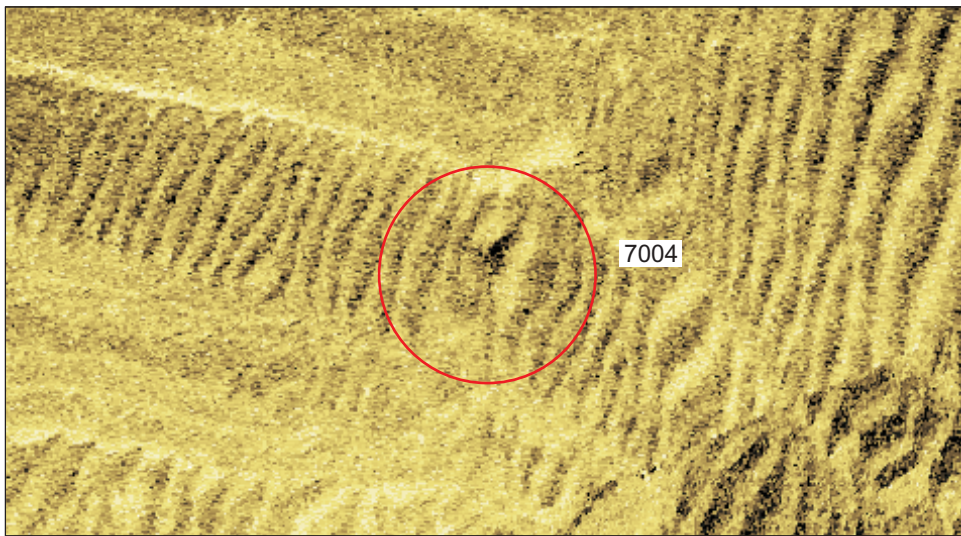
Sites of archaeological interest

Figure 2

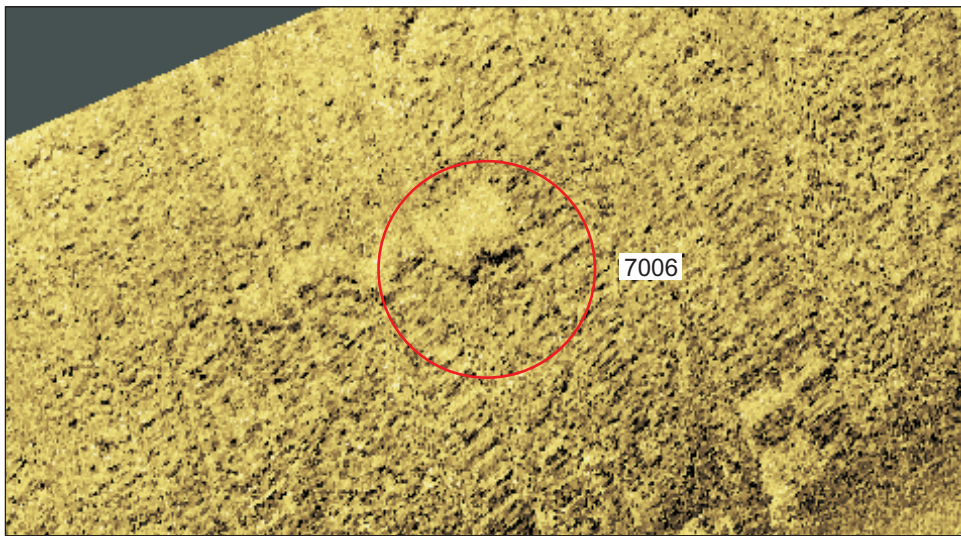





Site 7002: Isolated dark reflector measuring 40.4m x 14.6m, probably a vessel wake but identified in three separate survey lines




Site 7004: Distinctively broad and dark reflector measuring 11.6m x 7.8m



Site 7006: Distinct piece of debris measuring 15m x 5.3m x 0.7m

	Date:	01/09/08	Revision Number:	0
	Scale:	1:1250	Illustrator:	KMN
	Path:	W:\Projects\69900\Drawing Office\Report Figs\GEO\08_09_01		





**WESSEX ARCHAEOLOGY LIMITED.**

**Registered Head Office:** Portway House, Old Sarum Park, Salisbury, Wiltshire SP4 6EB.

Tel: 01722 326867 Fax: 01722 337562 [info@wessexarch.co.uk](mailto:info@wessexarch.co.uk) [www.wessexarch.co.uk](http://www.wessexarch.co.uk)

**London Office:** Unit 113, The Chandlery, 50 Westminster Bridge Road, London SE1 7QY.

Tel: 020 7953 7494 Fax: 020 7953 7499 [london-info@wessexarch.co.uk](mailto:london-info@wessexarch.co.uk) [www.wessexarch.co.uk](http://www.wessexarch.co.uk)

