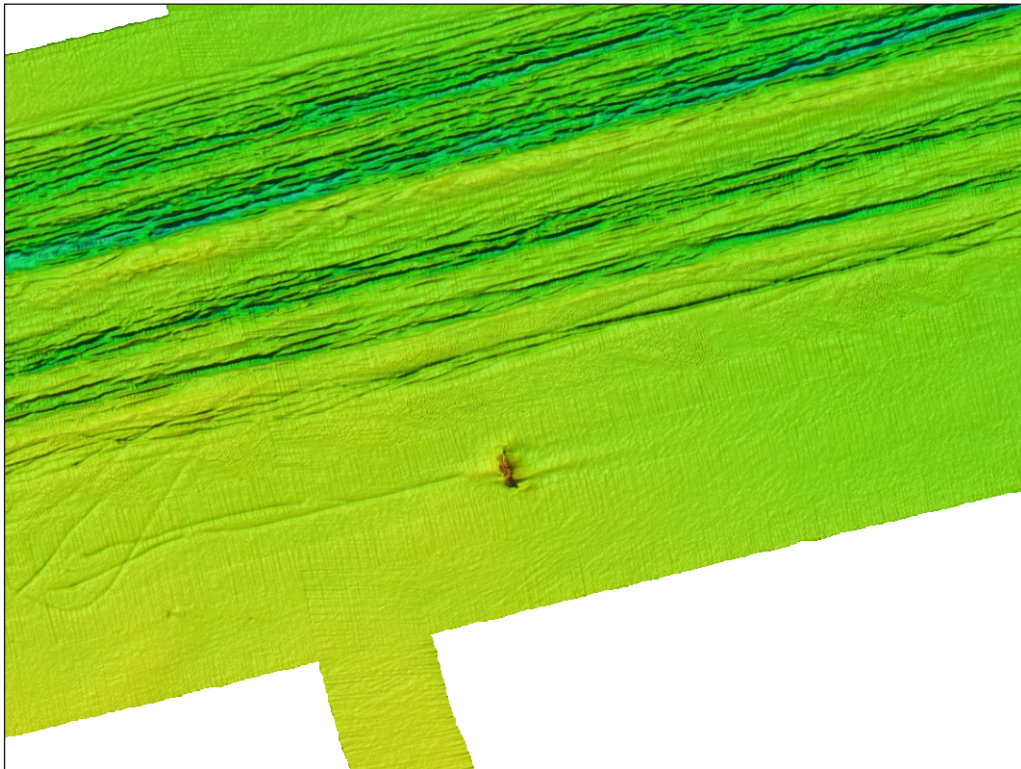




Aggregate Area 478

Year 9 Annual Monitoring Report
Archaeological Assessment of Geophysical Data



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Summary

Wessex Archaeology was commissioned by Fugro GB Marine Limited to undertake an archaeological assessment of geophysical survey data as part of the heritage annual monitoring process for aggregate extraction Area 478. The data comprised sidescan sonar and multibeam echosounder data acquired by Fugro GB Marine Limited.

The aim of this report is to provide an archaeological review of the effects of dredging on known archaeological sites, previously identified geophysical anomalies of possible archaeological interest and to assess the most recent geophysical data for any new anomalies that may be of potential archaeological interest.

Five anomalies of archaeological potential have been identified within the study area. One of the anomalies (**7004**) has been classified as A1 – Anthropogenic origin of archaeological interest. This wreck has been identified in all previous monitoring assessments, it has an existing 100 m Archaeological Exclusion Zone and it is recommended that this is maintained.

A further four anomalies (**7000**, **7006**, **7007** and **7008**) have been classified as A2 – Uncertain origin of possible archaeological interest. No new Archaeological Exclusion Zones are recommended for these features, however heightened vigilance should be implemented at their locations during dredging activity.

Anomaly **7006** is situated within the previously dredged area, and it is recommended that operational vigilance is undertaken in the vicinity of this anomaly during dredging operations.

It is recommended that if any objects of possible archaeological interest are recovered during dredging operations from Area 478 that they should be reported using the established Marine Aggregate Industry *Protocol for reporting finds of archaeological interest* (BMAPA and English Heritage 2005).



Acknowledgements

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The geophysical data were provided by Fugro GB Marine Limited.



Aggregate Area 478

Year 9 Annual Monitoring Report Archaeological Assessment of Geophysical Data

1 INTRODUCTION

1.1 Project background

- 1.1.1 Wessex Archaeology was commissioned by Fugro GB Marine Limited (Fugro) to undertake an archaeological assessment of geophysical survey data acquired from aggregate extraction in Area 478, located in the English Channel 40 km south of Beachy Head, East Sussex (Figure 1). The data were acquired by Fugro in 2019 as part of the heritage impact annual monitoring process implemented for Area 478.
- 1.1.2 The report consists of an assessment of geophysical survey data comprising sidescan sonar (SSS) and multibeam echosounder (MBES) data sets acquired from the Active Dredge Zone (ADZ) within Area 478.
- 1.1.3 The study area for the Licence Area, as provided by Fugro, are delimited by the following coordinates (WGS84 UTM31N).

Table 1 Delimiting coordinates for Area 478 study area

Easting	Northing
309912	5585641
307846	5584514
294082	5581153
295505	5582149
296155	5582377
307417	5585127
309250	5585555
309914	5585694

- 1.1.4 Although the geophysical survey extents are larger than the study area, only geophysical anomalies identified within the study area are included within this report.
- 1.1.5 As required by the licence conditions for the dredging area, geophysical monitoring surveys are undertaken in order to ascertain any changes to the archaeological baseline. This report presents the archaeological assessment of the most recently acquired geophysical survey data for the area (Year 9).
- #### 1.2 Previous work
- 1.2.1 Initial investigations at Area 478 began in 2007, this consisted of a pre-dredge archaeological assessment of geophysical data in support of a licence application. All previous work is detailed in Table 2.

Table 2 Previous work undertaken in Area 478

Year	Type	Company	Reference
2007	Licence application	Maritime Archaeology Limited	Maritime Archaeology Limited 2007
1	Monitoring assessment	EMU	EMU 2010
2	Monitoring assessment	EMU	EMU 2011
3	Monitoring assessment	EMU	EMU 2012
4	Monitoring assessment	Sea Change Heritage Consultants Limited of behalf of EMU	Sea Change 2013a; EMU 2013
5	Substantive review	Sea Change Heritage Consultants Limited on behalf of EMU	Sea Change 2013b; EMU 2013
6	Monitoring assessment	Sea Change Heritage Consultants Limited	Sea Change 2015
8	Monitoring assessment	Wessex Archaeology	Wessex Archaeology 2017

- 1.2.2 There is one reported British Marine Aggregate Producers Association (BMAPA) Protocol for Reporting Finds of Archaeological Interest record within Area 478, indicating evidence of maritime and aviation activity within the study area. This was reported in Year 13, 2017 – 2018 (Table 3).

Table 3 Marine Aggregate Protocol finds associated with Area 478

Report ID	Find ID	Description	Date	Material	Licence Area	Wharf/Vessel	Year
DEME_08 17	-	Globe valve	Modern	Metal	478 (centre point)	Victor Horta	13 (2017-2018)

1.3 Seabed geology

- 1.3.1 According to the British Geological Survey (BGS), the seabed sediments within the study area consist of sandy gravel and muddy sandy gravel (BGS Sheet Sea Bed Sediments, 50°N-00°E). The underlying Tertiary sediments are the Middle Eocene Barton formation (Hamblin *et al.* 1992). The overall nature of the seabed is relatively flat with the edge of a channel running along the south-west extents.

1.4 Aim

- 1.4.1 The aim of this report is to:

- confirm the presence of known or previously located marine sites of archaeological potential and to comment on their apparent character;
- identify, locate and characterise hitherto unrecorded marine sites of archaeological potential;
- comment on the effects of dredging on known archaeological sites; and
- provide recommendations for archaeological mitigation.

1.5 Co-ordinate system

- 1.5.1 The survey data was acquired in WGS84 UTM31N and the results are presented in the same coordinate system.



2 METHODOLOGY

2.1 Introduction

2.1.1 The methodology adopted for this assessment conforms to the Standard and Guidance for Archaeological Desk-based Assessment published by the Chartered Institute for Archaeologists (CIfA 2014) and the BMAPA and English Heritage (2003) Marine Aggregate Dredging and the Historic Environment guidance note.

2.2 Data sources

2.2.1 A number of data sources were consulted during this assessment, including:

- geophysical survey datasets acquired by Fugro;
- recorded wreck and obstruction data acquired through the United Kingdom Hydrographic Office (UKHO);
- past reports as detailed in Section 1.2.

2.3 Geophysical data – technical specifications

2.3.1 Geophysical data were acquired by Fugro in January 2019. The survey line spacing was undertaken at 90 m intervals and orientated east northeast to west southwest. Cross lines were surveyed at 2 km intervals. Further details on the equipment used is in Table 4.

Table 4 Summary of survey equipment

Survey Company	Data Type	Equipment	Data Format
Fugro	MBES	Dual-head Teledyne Reson SeaBat 7125 SV2 FP3 multibeam echo sounder	.xyz
	SSS	Edgetech 4200 sidescan sonar (300/900 kHz)	.xtf
	Positioning	Fugro Starfix DGNSS (+/- 0.15 m accuracy in x and Y, 0.25 m in Z)	N/A

2.4 Geophysical data – processing

2.4.1 All of the SSS and MBES data were assessed over the study area; each dataset was processed separately using the following software (Table 5).

Table 5 Software used for geophysical assessment

Dataset	Processing Software	Interpretation and rationalisation
MBES	QPS Fledermaus v7.7.5	ArcMap v10.5
SSS	CodaOctopus Survey Engine v7.5	

2.4.2 The MBES data were analysed to identify any unusual seabed structures that could be shipwrecks or other anthropogenic debris. The data were gridded at 1 m and analysed using QPS Fledermaus software, which enables a 3-D visualisation of the acquired data and geopicking of seabed anomalies.

2.4.3 The high frequency .xtf SSS data files were converted to .cod format using CodaOctopus File Utilities and then processed using CodaOctopus Survey Engine Sidescan+ software. This allowed the data to be replayed with various gain settings in order to optimise the



quality of the images. The data were interpreted for any objects of possible anthropogenic origin. This involves creating a database of anomalies within Coda by tagging individual features of possible archaeological potential, recording their positions and dimensions, and acquiring an image of each anomaly for future reference.

- 2.4.4 A mosaic of the SSS is produced during this process to assess the quality of the sonar towfish positioning. This process allows the position of anomalies to be checked between different survey lines and for the positioning to be further refined if necessary.
- 2.4.5 The form, size and/or extent of an anomaly is a guide to its potential to be an anthropogenic feature and therefore of archaeological interest. 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.

2.5 Geophysical data – data quality

- 2.5.1 Once processed, the geophysical data sets were individually assessed for quality and their suitability for archaeological purposes, and rated using the following criteria (Table 6).

Table 6 Criteria for assigning data quality rating

Data quality	Description
Good	Data which are clear and unaffected or only slightly affected by weather conditions, sea state, background noise or data artefacts. Seabed datasets are suitable for the interpretation of upstanding and partially buried wrecks, debris fields, and small individual anomalies. The structure of wrecks is clear, allowing assessments on wreck condition to be made. These data provide the highest probability that anomalies of archaeological potential will be identified.
Average	Data which are moderately affected by weather conditions, sea state and noise. Seabed datasets are suitable for the identification of upstanding and partially buried wrecks, the larger elements of debris fields and dispersed sites, and larger individual anomalies. Dispersed and/or partially buried wrecks may be difficult to identify. These data are not considered to be detrimentally affected to a significant degree.
Below Average	Data which are affected by weather conditions, sea state and noise to a significant degree. Seabed datasets are suitable for the identification of relatively intact, upstanding wrecks and large individual anomalies. Dispersed and/or partially buried wrecks, or small isolated anomalies may not be clearly resolved
Variable	This category contains datasets where the individual lines range in quality. Confidence of interpretation is subsequently likely to vary within the study area.

- 2.5.2 The MBES data were rated as ‘Good’ using the above criteria. The data quality and resolution of 1 m was found to be of a good standard and suitable for archaeological assessment of objects and debris over 1 m in size.
- 2.5.3 The SSS data have been rated as ‘Average’ using the above criteria table. A number of files were subject to some weather interference, such as cable snatching and striping which has affected the data quality. While the majority of the data files have a range of 100 m, a small number of files were recorded with a range of 150 m which makes the identification of small objects difficult, particularly at the edge of the SSS data range. However coverage of the area is good and overall the SSS data are considered as suitable for archaeological assessment.

2.6 Geophysical data – anomaly grouping and discrimination

- 2.6.1 The previous section describes the initial interpretation of all available geophysical datasets which were conducted independently of one another. This inevitably leads to the possibility

of any one object being the cause of numerous anomalies in different datasets and apparently overstating the number of archaeological features in the exploration area.

- 2.6.2 To address this fact the anomalies were grouped together; allowing one ID number to be assigned to a single object for which there may be, for example, a UKHO record and multiple SSS anomalies.
- 2.6.3 All geophysical anomalies that have been identified within previous monitoring reports have also been grouped at this stage and compared with the results of the most recent 2019 geophysical dataset.
- 2.6.4 All previously identified geophysical anomalies that have not been observed within the most recent dataset have been removed from the gazetteer but are still presented in Figure 2.
- 2.6.5 Anomalies that have been previously identified by Wessex Archaeology (2017) have retained their original identification number. Newly identified anomalies have been issued a new number, starting at **7006**.
- 2.6.6 Once all the geophysical anomalies and desk-based information have 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. For anomalies located on the seabed, these flags are ascribed as follows (Table 7).

Table 7 Criteria discriminating relevance of identified features to proposed scheme

Overview classification	Discrimination	Criteria	Data type
Archaeological	A1	Anthropogenic origin of archaeological interest	MBES, SSS
Archaeological	A2	Uncertain origin of possible archaeological interest	MBES, SSS
Archaeological	A3	Historic record of possible archaeological interest with no corresponding geophysical anomaly	MBES, SSS

- 2.6.7 In order to provide direct comparison with previous monitoring reports (Maritime Archaeology Limited 2007; EMU 2010; 2011; 2012; Sea Change 2013a; 2013b; 2015) the A1 classification can be considered to be High Potential (defined as an anomaly representing an object or site of anthropogenic origin and of likely archaeological interest); A2 classification can be considered to be low potential (defined as an anomaly representing an object or site of likely anthropogenic origin that would require further investigation in order to clarify its origin and establish its archaeological potential) and the A3 classification can be considered to be low potential (defined as an anomaly representing an object or site of possible anthropogenic origin and unknown archaeological interest that does not require further investigation). Discrimination, potential, and descriptions of the anomalies are provided in Appendix 1.
- 2.6.8 The grouping and discrimination of information at this stage is based on all available information and is not definitive. It allows for all features of potential 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.

3 SEABED FEATURES ASSESSMENT

3.1 Seabed features assessment results

- 3.1.1 The geophysical data were assessed to identify features of archaeological potential relating to maritime and aviation activity. The results of this assessment are collated in gazetteer format detailed in Appendix 1, and illustrated in Figures 2 - 4.
- 3.1.2 Five features have been identified as being of possible archaeological potential within the study area and are discriminated as shown in Table 8. One recorded wreck has been identified within the study area from the UKHO database (20714), and has been identified in the geophysical data.

Table 8 Anomalies of archaeological potential within the study area

Archaeological discrimination	Quantity	Interpretation
A1	1	Anthropogenic origin of archaeological interest
A2	4	Uncertain origin of possible archaeological interest
A3	0	Historic record of possible archaeological interest with no corresponding geophysical anomaly
Total	5	

- 3.1.3 Furthermore, these anomalies can be classified by probable type, which can further aid in assigning archaeological potential and importance (Table 9).

Table 9 Types of anomaly identified

Anomaly classification	Definition	Number of anomalies
Wreck	Areas of coherent structure including wrecks of ships, submarines and some aircraft (where coherent structure survives)	1
Debris	Distinct objects on the seabed, generally exhibiting height or with evidence of structure, that are potentially anthropogenic in origin	1
Dark reflector	Individual objects or areas of high reflectivity, displaying some anthropogenic characteristics. Precise nature is uncertain	3
Total		5

- 3.1.4 In previous monitoring assessments (Maritime Archaeology Limited 2007; EMU 2010; 2011; 2012; Sea Change 2013a; 2015; Wessex Archaeology 2017) 27 geophysical anomalies representing 18 features of archaeological interest were identified within the study area. Eight of these previous anomalies group with two features identified in the current dataset by Wessex Archaeology. The remaining 10 previously identified anomalies were not observed in the most recent dataset, and have either been interpreted as being natural features, or may have since been buried within the seabed sediment. All previous anomalies are presented in Figure 2.
- 3.1.5 One wreck has been identified within the study area and has been classified as A1 – Anthropogenic origin of archaeological interest, and was identified within previous monitoring reports as having high potential (Maritime Archaeology Limited 2007; EMU 2010; 2011; 2012; Sea Change 2013a; 2013b; 2015). Unnamed wreck **7004** has been identified in all previous monitoring assessments and is situated in the eastern extent of the study

area. The wreck is associated with the location of UKHO record (UKHO 20714) described as an intact, upright unnamed wreck.

- 3.1.6 The wreck has dimensions of 45.0 m x 27.0 m x 3.8 m and is orientated in a north northwest to south southeast direction on a relatively flat and even area of the seabed. The vessels hull appears to be intact with some deck standing structure preserved and visible in the SSS and MBES data. Linear dark reflector objects with bright shadows are discernible, and where visible in the SSS data either the bow or stern end of the vessel looks to be poorly preserved. There is a large amount of scouring associated with this wreck, particularly to the east of the vessel, measuring up to 75 m across. Sediment build up is also present around the hull of the vessel which may be masking further associated debris. In the MBES data the wreck is visible as an oval shaped mound with uneven height across its extent, lying at a general water depth of 43 m Chart Datum (CD) (Figure 3).
- 3.1.7 One linear item of debris has been identified within the study area and has been discriminated as A2 archaeological potential, this was also identified in the previous monitoring assessment (Wessex Archaeology 2017). Debris **7000** is a long and thin linear dark reflector object with a bright shadow. The object has very slight scouring associated, orientated to the northeast. The object has dimensions of 6.7 x 0.7 x 0.3 m and is isolated on the seabed. This has been interpreted to be a possible linear item of debris (Figure 4).
- 3.1.8 Three dark reflector objects have been identified within the study area and discriminated as A2 archaeological potential rating, none of which have been identified in any of the previous monitoring surveys. The largest dark reflector is **7008** with dimensions of 2.7 x 1.5 x 0.7 m. This is visible in the SSS data as a distinct, semi-circular shaped dark reflector object with a long and bright shadow. This is an isolated anomaly situated on a flat area of the seabed and could be a natural feature or item of debris (Figure 4).
- 3.1.9 Dark reflector **7006** is a small and oval shaped dark reflector object with a long, thin and bright shadow. The object measures 1.6 x 0.5 x 0.7 m and has an indistinct, long and thin linear dark reflector with no shadow attached to it measuring 26.0 x 0.4 m. The linear anomaly is orientated in a northwest direction on the seabed and may be a rope or chain. This object is situated at the edge of a dredged area and could be a natural feature or scar, or a debris object with a rope or chain attached (Figure 4).
- 3.1.10 Dark reflector **7007** has dimensions of 2.1 x 0.9 x 0.5 m and is visible in the SSS data as a slightly angular dark reflector object with a long and bright shadow. This is an isolated anomaly on a relatively flat and even area of the seabed with some slight sediment build up surrounding it. This could be a natural feature or item of debris (Figure 4).
- 3.1.11 All anomalies discriminated as A2 archaeological potential rating in this report are the equivalent of a low archaeological potential rating assigned to anomalies in previous reports (Maritime Archaeology Limited 2007; EMU 2010; 2011; 2012; Sea Change 2013a; 2015) (see Appendix 1).

4 CONCLUSIONS AND RECOMMENDATIONS

- 4.1.1 With regards to mitigation of archaeology the marine planning authority, working with the relevant regulator and advisors, take account of the desirability of sustaining and enhancing the significance of heritage assets and adopt a general presumption in favour of the conservation of designated heritage assets within an appropriate setting (HM Government 2011; DCLG 2012).

4.1.2 The assessment of the geophysical data within the study area resulted in a total of five anomalies identified as being of possible archaeological interest. These are summarised as follows:

- one wreck has been assigned an A1 archaeological rating (Anthropogenic origin of archaeological interest);
- a total of four anomalies have been assigned an A2 archaeological rating (Uncertain origin of possible archaeological interest).

4.1.3 A current 100 m Archaeological Exclusion Zone (AEZ) is already in place around the location of wreck **7004**, and it is recommended that this is maintained in accordance with the current licence. The centre point has moved marginally with the most recent geophysical data interpretation (see Table 10).

Table 10 Recommended AEZs within the study area

ID Number	Classification	Original Assessment	Position (WGS84 UTM31N)		Status	Exclusion Zone
			Easting	Northing		
7004	Wreck	MA 2007	305414	5584019	Reviewed - retained unchanged	100 m buffer around centre point

4.1.4 For features assigned A2 archaeological discrimination rating, no AEZs are recommended at this time. However, operational vigilance is undertaken in the vicinity of these anomalies during dredging operations.

4.1.5 In the previous monitoring assessment (Wessex Archaeology 2017), four dark reflector anomalies were identified. Three of these (**7001**, **7003** and **7005**) were not identified in the most recent geophysical dataset. The MBES data indicates that no recent dredging activity has taken place over these locations suggesting possible burial of the features at present. Therefore, operational vigilance is to be undertaken if activity takes place in the vicinity of these previously reported anomalies. Anomaly **7002** has been deemed to be a natural feature and removed from the most recent gazetteer.

4.1.6 Anomaly **7006** is situated within the area dredged, and it is recommended that operational vigilance is undertaken in the vicinity of this anomaly.

4.1.7 It is recommended that if any objects of possible archaeological interest are recovered during dredging operations from Area 478, that they should be reported using the established Marine Aggregate Industry *Protocol for reporting finds of archaeological interest* (BMAPA and English Heritage 2005). This will establish whether the recovered objects are of archaeological interest and recommend appropriate mitigation measures.



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APPENDICES

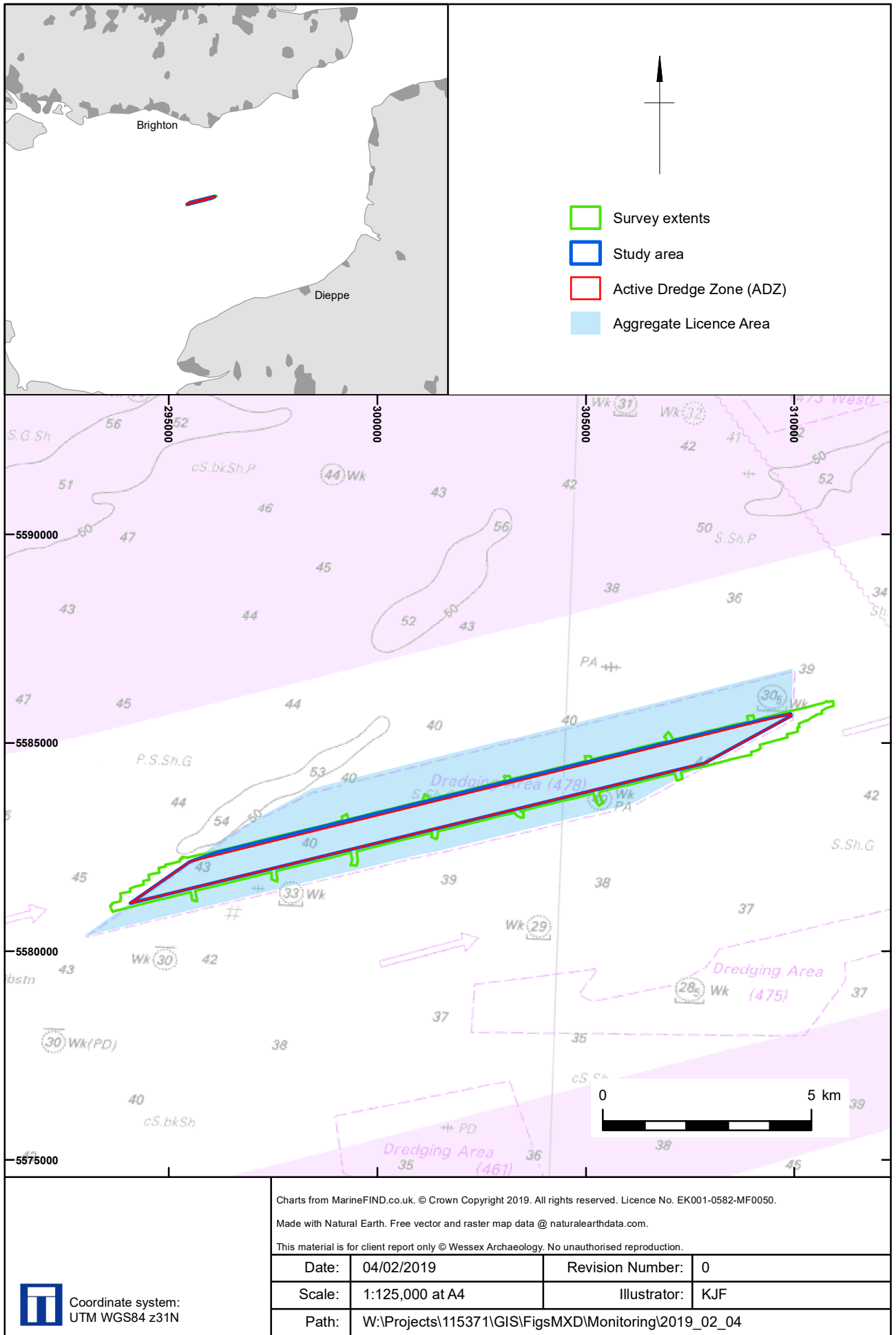
Appendix 1 Seabed features of archaeological potential

ID	Classification	Easting	Northing	Archaeological Discrimination	Length (m)	Width (m)	Height (m)	Description	Potential Rating	External References
7000	Debris	294408	5581314	A2	6.7	0.7	0.3	A long and thin linear dark reflector object with a bright shadow, the object has very slight scouring to the northeast. This is an isolated possible item of linear debris and was identified in the previous monitoring report (Year 8).	Low	-
7004	Wreck	305414	5584019	A1	45.0	27.0	3.8	A large narrow wreck that appears mostly intact, the wreck is orientated in a north northwest to south southeast direction on a relatively flat and even area of the seabed. The vessels hull appears to be intact with some deck standing structure preserved. Internal dark reflector linear anomalies are visible with significant height off the seabed, there is possible circular boiler in middle of vessel and some surrounding debris. The surrounding seabed is disturbed and the vessel has significant amounts of sediment build up surrounding it, particularly on its eastern edge which may be disguising further buried debris in the vicinity. In the MBES data the wreck is visible as an oval shaped mound with uneven height across its extent. This wreck is recorded in the UKHO data as an unknown wreck and has been identified in all previous monitoring surveys, this wreck has a 100 m AEZ associated.	High	SW2 (Maritime Archaeology Limited 2007); Contact0002_Wreck_0002 (EMU 2010); Emu_ADZ0167 (EMU 2011); EMU0238 (EMU 2012); SC_0002 (Sea Change 2013a); SC_14_0001 (Sea Change 2015); UKHO 20714



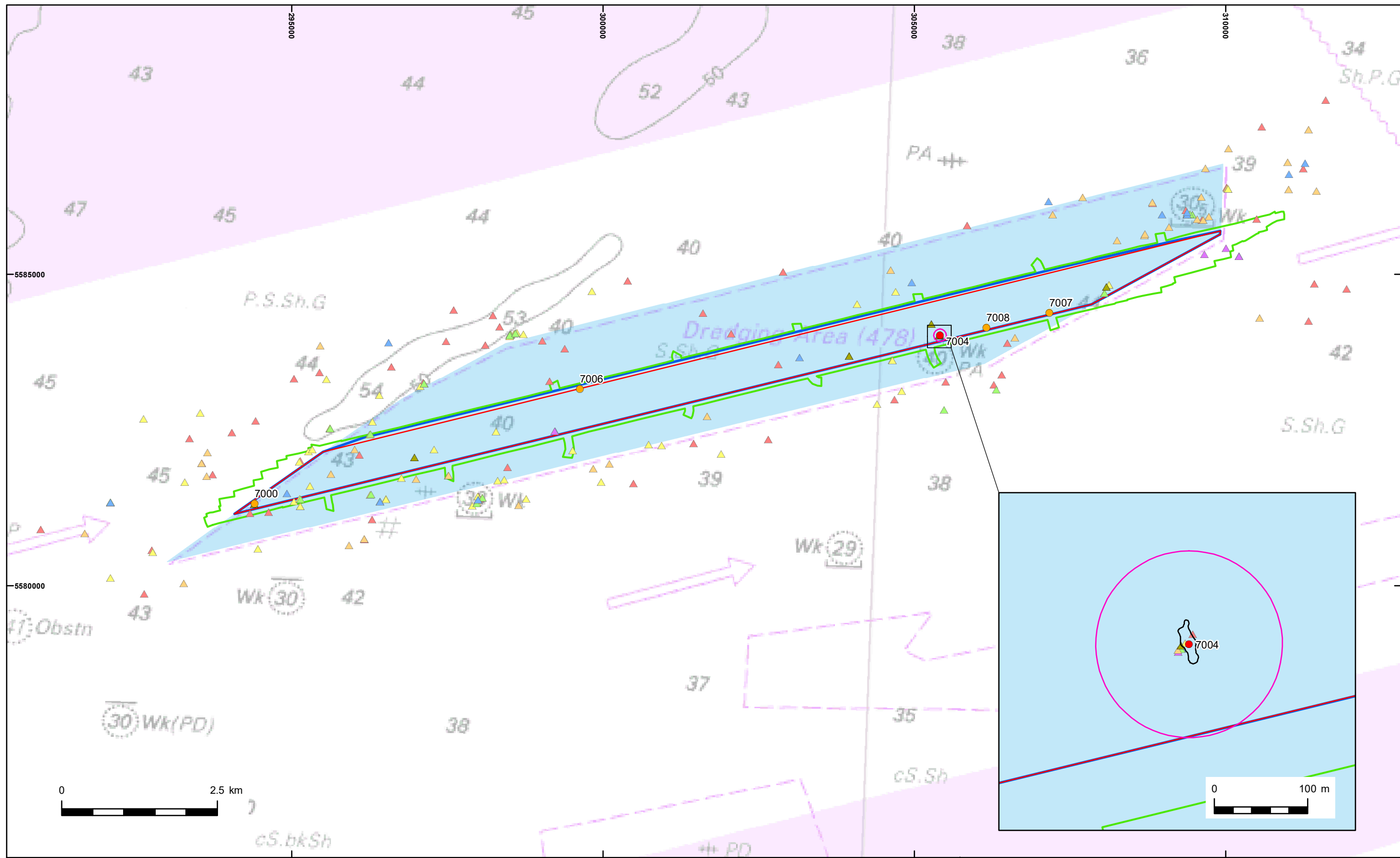
ID	Classification	Easting	Northing	Archaeological Discrimination	Length (m)	Width (m)	Height (m)	Description	Potential Rating	External References
7006	Dark reflector	299630	5583154	A2	1.6	0.5	0.7	A small and oval shaped dark reflector with a long, thin and bright shadow and significant height off the seabed. The object has an indistinct long and thin linear dark reflector with no shadow attached to it measuring 26 x 0.4 m orientated in a northwest direction on the seabed which may be a rope or chain. This is situated at the edge of a dredged area and could be a natural feature or debris object with a rope or chain attached. This was not identified in previous monitoring surveys.	Low	-
7007	Dark reflector	307174	5584380	A2	2.1	0.9	0.5	A slightly angular dark reflector object with a long, bright shadow. This is an isolated anomaly on a relatively flat and even area of the seabed with some slight sediment build up surrounding it. This could be a natural feature or item of debris. This was not identified in previous monitoring surveys.	Low	-
7008	Dark reflector	306163	5584139	A2	2.7	1.5	0.7	A distinct semi-circular shaped dark reflector object with a long and bright shadow and significant height off the seabed. This is an isolated anomaly situated on a flat area of the seabed and could be a natural feature or item of debris. This was not identified in previous monitoring surveys.	Low	-

1. Co-ordinates are in WGS84 UTM31N
2. Positional accuracy estimated ± 10 m
3. Potential ratings based on definitions in Sea Change (2013)



Location map

Figure 1



Survey extents	Archaeological Exclusion Zone (100 m)	2017 WA Anomaly (Year 8)	2011 EMU Anomaly (Year 2)
Study area	2019 WA Wreck boundary (Year 9)	2015 SC anomaly (Year 6)	2010 EMU Anomaly (Year 1)
Active Dredge Zone (ADZ)	2019 WA Anomaly (Year 9)	2013 SC Anomaly (Year 4)	2007 MA Anomaly (Pre-dredge)
Aggregate Licence Area	A1 - Anthropogenic origin of archaeological interest	2012 EMU Anomaly (Year 3)	
	A2 - Uncertain origin of possible archaeological interest		

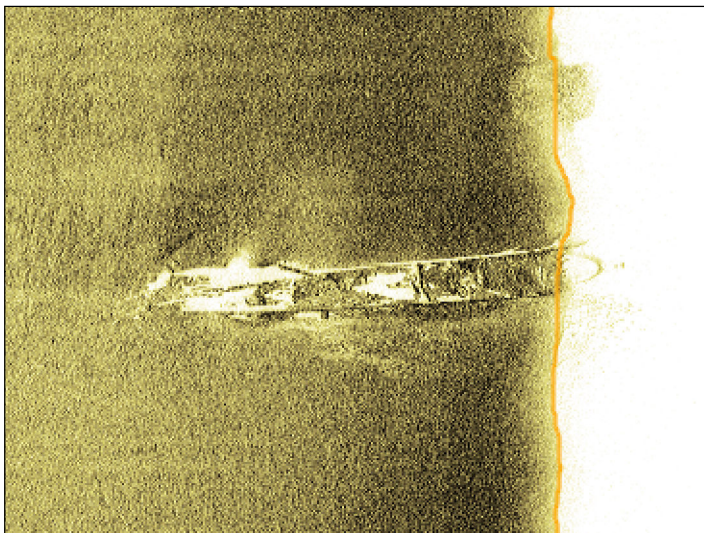
Coordinate system: UTM WGS84 z31N

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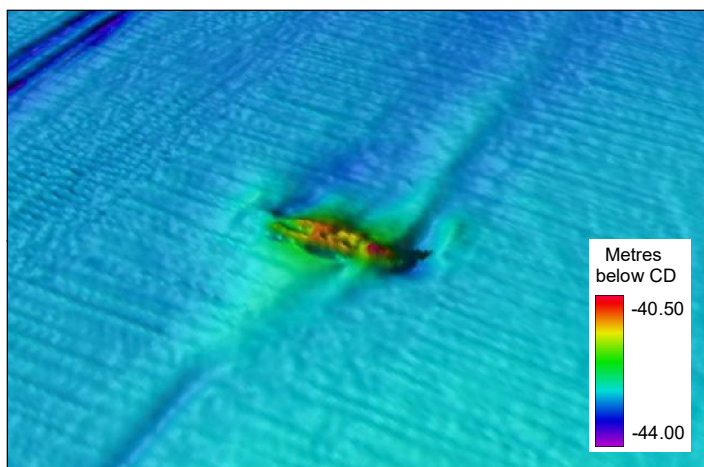
Date:	05/02/2019	Revision Number:	0
Scale:	1:60,000 & 1:4000 at A3	Illustrator:	KJF
Path:	W:\Projects\115371\GIS\FigsMXD\Monitoring\2019_02_04		

Anomalies of archaeological potential and Archaeological Exclusion Zone

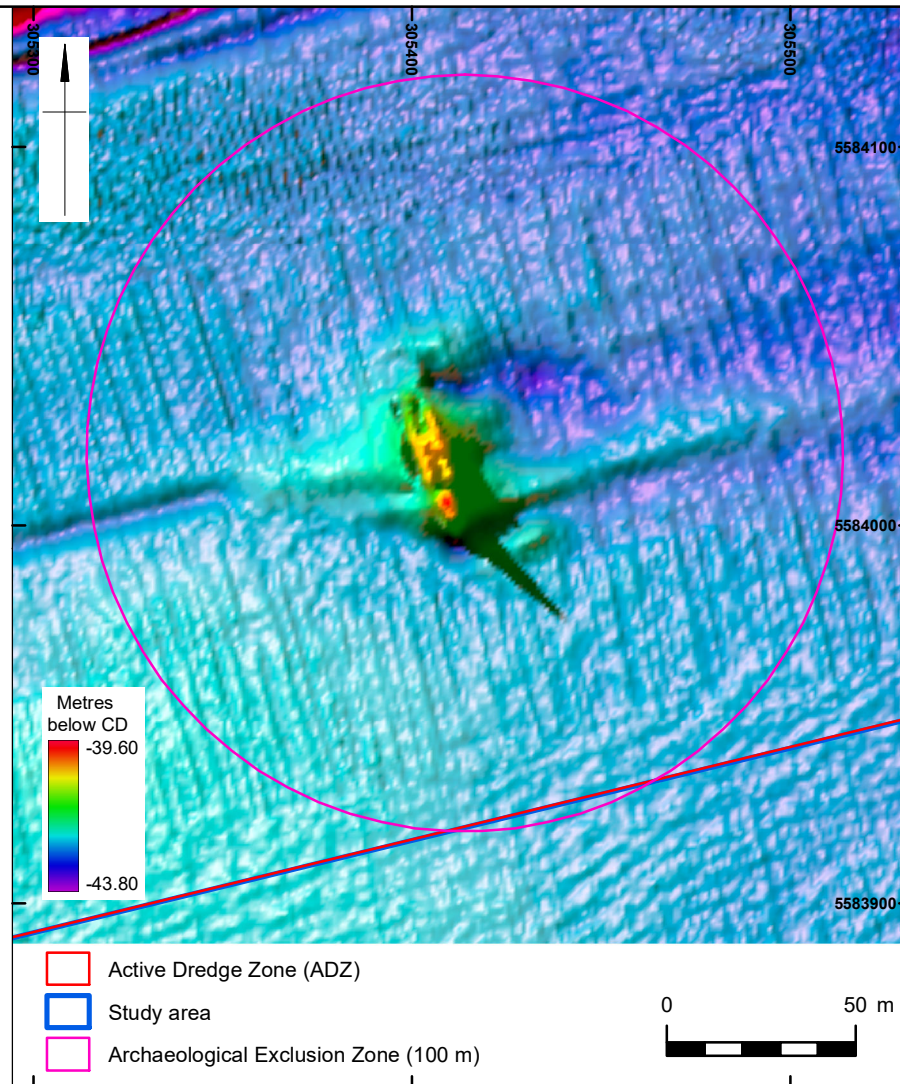
Figure 2



Sidescan sonar image of wreck **7004**, facing northeast, 45 m x 27 m x 3.8 m



Multibeam echosounder image of wreck **7004** (x1 vertical exaggeration) facing northeast



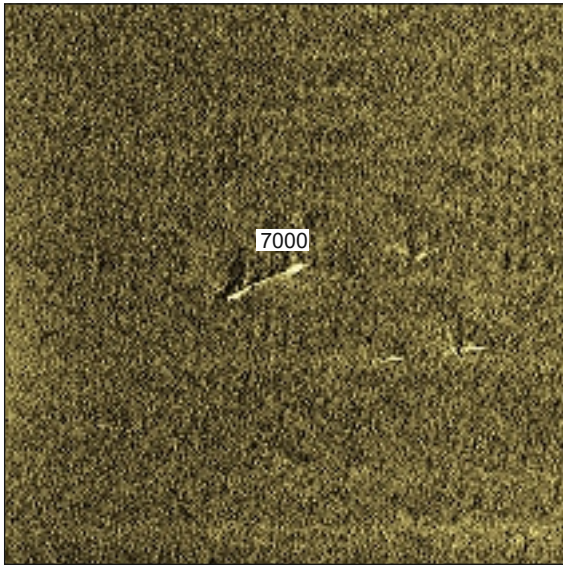
Multibeam echosounder image of wreck **7004** (x1 vertical exaggeration) from above facing northeast



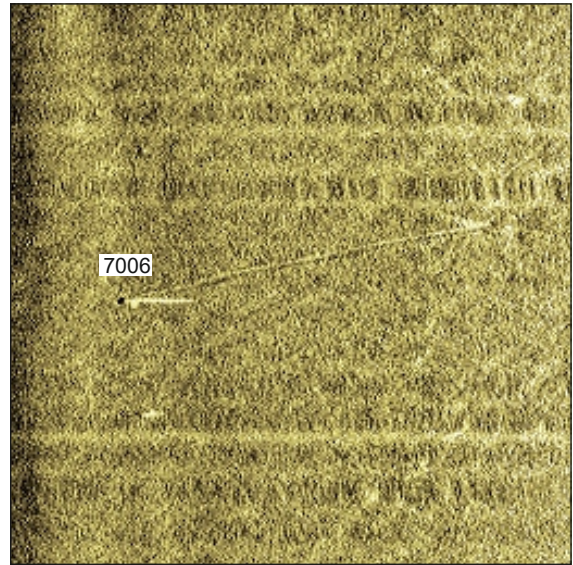
Coordinate system:
UTM WGS84 z31N

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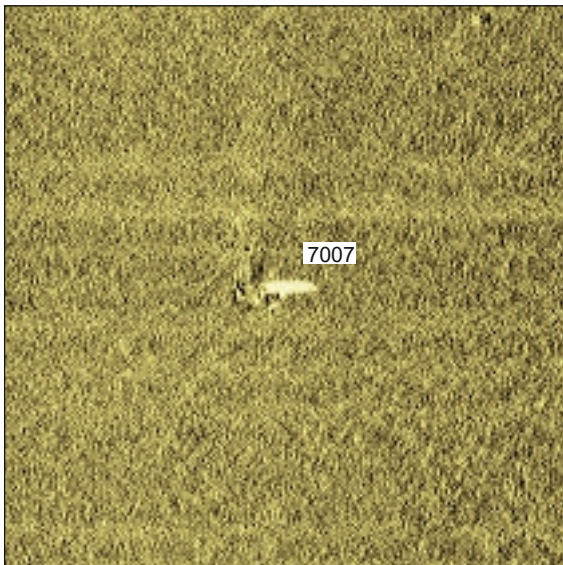
Date:	07/02/2019	Revision Number:	0
Scale:	Above image 1:2000 at A4	Illustrator:	KJF
Path:	W:\Projects\115371\GIS\FigsMXD\Monitoring\2019_02_04		



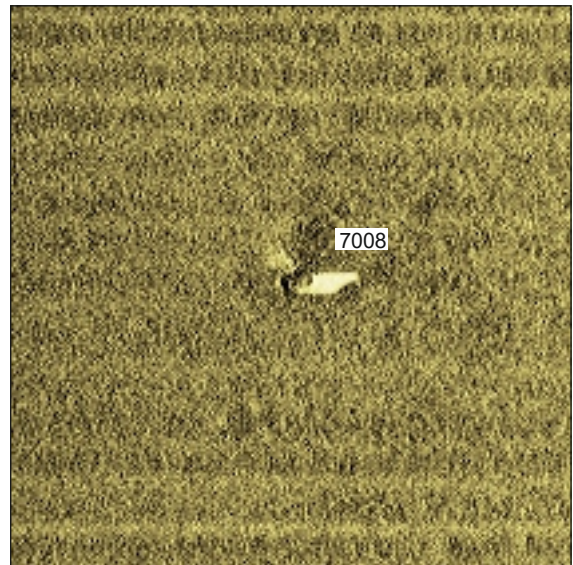
Sidescan sonar image of debris **7000**,
6.7 x 0.7 x 0.3 m



Sidescan sonar image of dark reflector **7006**,
measuring 1.6 x 0.5 x 0.7 m and linear attached
(26.0 x 0.4 m)



Sidescan sonar image of dark reflector **7007**,
measuring 2.1 x 0.9 x 0.5 m



Sidescan sonar image of dark reflector **7008**,
measuring 2.7 x 1.5 x 0.7 m



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Date: 05/02/2019

Revision Number: 0

Scale: NTS at A4

Illustrator: KJF

Path: W:\Projects\115371\Graphics_Office\Rep figs\Monitoring\2019_02_04



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