



Awel y Môr Offshore Wind Farm

Category 6: Environmental Statement

Volume 4, Annex 2.4: Seafloor and Shallow Geological Results (Array) (Part 3)

Date: April 2022

Revision: A

Application Reference: 6.4.2.4.3

Pursuant to: APFP Regulation 5(2)(a)



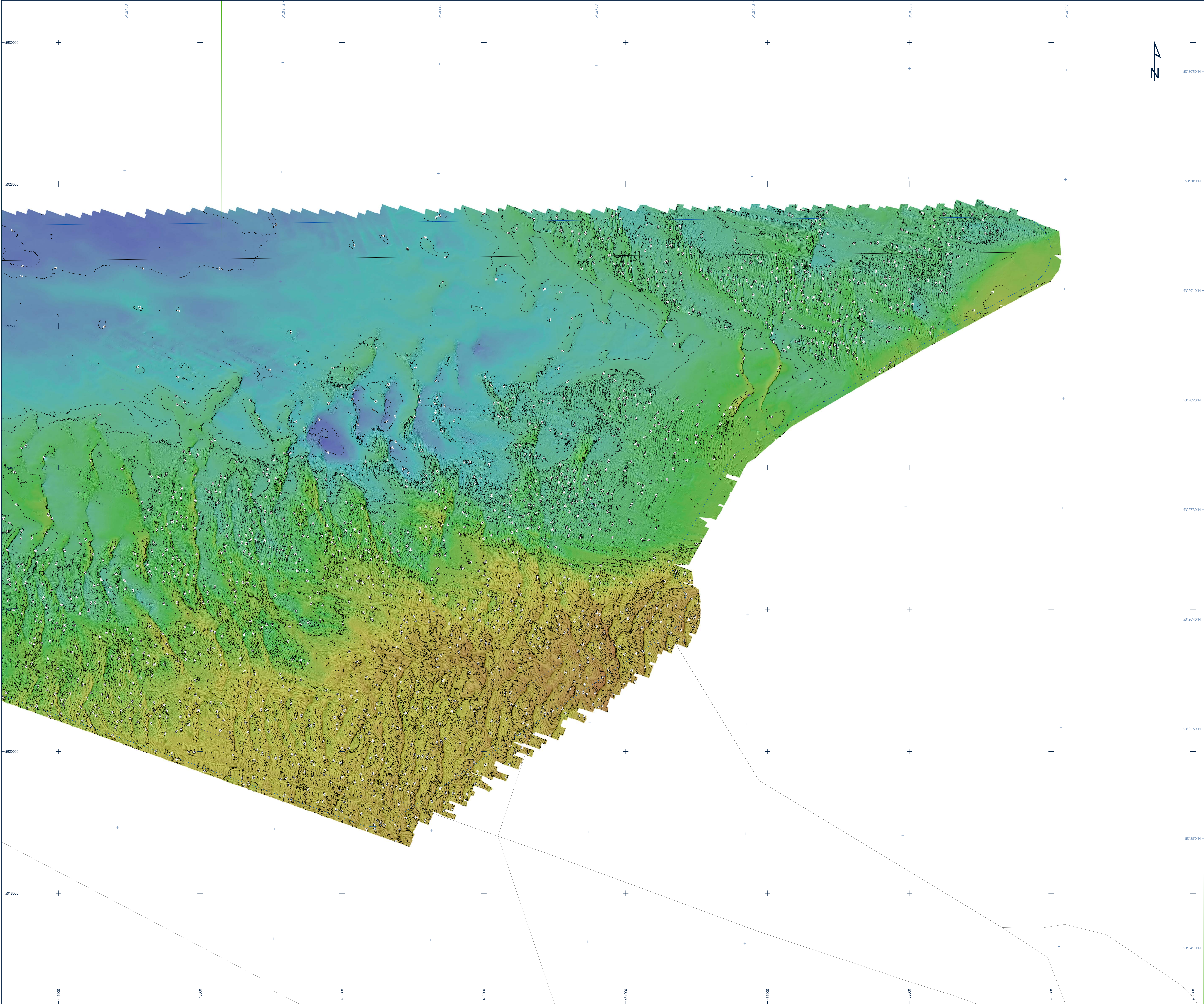
REVISION	DATE	STATUS/ REASON FOR ISSUE	AUTHOR:	CHECKED BY:	APPROVED BY:
A	March 2022	ES	Fugro	RWE	RWE

www.awelymor.cymru

RWE Renewables UK
Swindon Limited

Windmill Hill Business Park
Whitehill Way
Swindon
Wiltshire SN5 6PB
T +44 (0)8456 720 090
www.rwe.com

Registered office:
RWE Renewables UK
Swindon Limited Windmill
Hill Business Park Whitehill
Way
Swindon



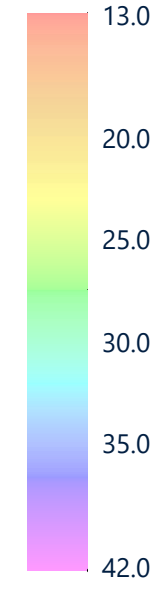
Legend

- UTM Grid
- Geographical Grid
- Chart Extent
- Wind Farm Extent
- Array Survey Extent
- Export Cable Route Survey Extent

Bathymetry

1 m Contour

Water Depth
(m below LAT)



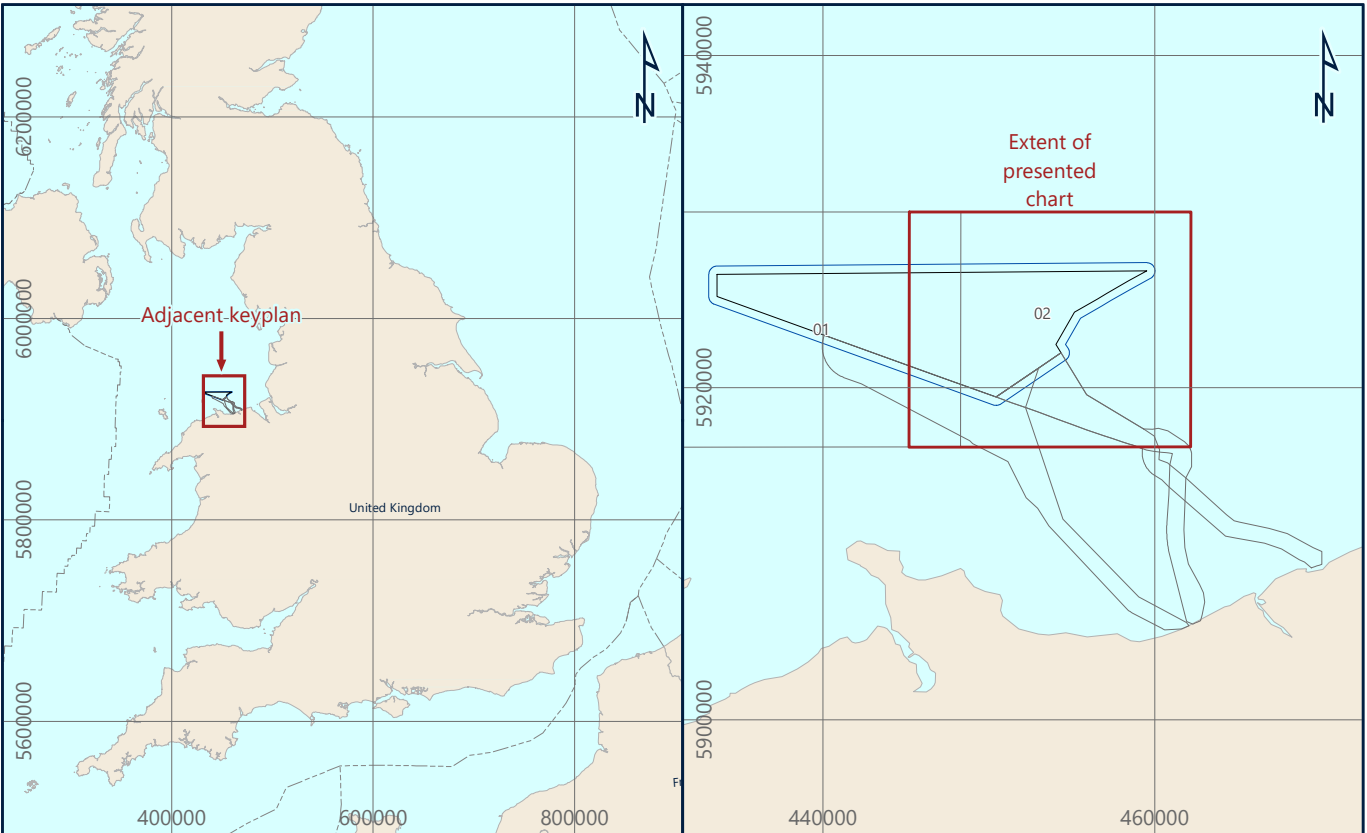
Notes

- 1) Bathymetry from Teledyne RESON SeaBat T50-400 kHz dual-head multibeam echosounder, processed with 0.25 m bin size (charted at 1 m bin size).
- 2) Hillshade is illuminated at sun angle 31° and azimuth 45°.
- 3) Bathymetry contours are created using a smoothed raster surface.

This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for that commission. Unauthorised use of this document in any form whatsoever is prohibited.

Geodetic Parameters

Geodetic datum	World Geodetic System 1984
Ellipsoid	WGS84
Semi-Major Axis	6,378,137.000 m
Inverse Flattening	298.257223563
Projection	WGS84 / UTM Zone 30N (EPSG: 32630)
Central Meridian (CM)	03°00'00" W
Latitude of Origin	07°00'00" N
False Easting	500,000 mE
False Northing	0 mN
Scale factor at CM	0.9996
Vertical datum	Lowest Astronomical Tide (LAT) - calculated using the Vertical Offshore Reference Frame (VORF)



Awel Y Môr Offshore Wind Farm Ltd
Trigona Bât, Windnet H&I Business Park, Whitefriar Way, Swindon, SN1 6PS, United Kingdom

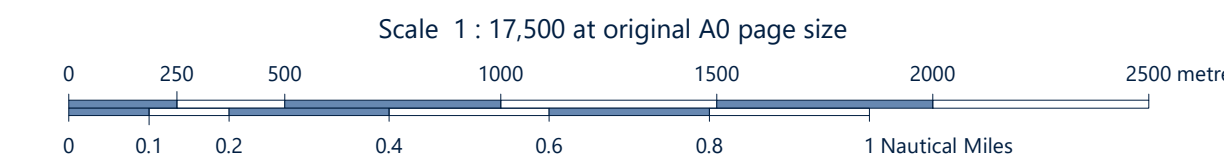
AWEL Y MÔR

Fugro

Victory House, Trelleborg Wharf Unit 161, Hamilton Road, Portsmouth PO6 4PX
Tel: +44 23 9220 3500



COLOUR SHADED BATHYMETRY OVERVIEW
AWEL Y MÔR OFFSHORE WIND FARM
GEOPHYSICAL SURVEY 2020
UK IRISH SEA

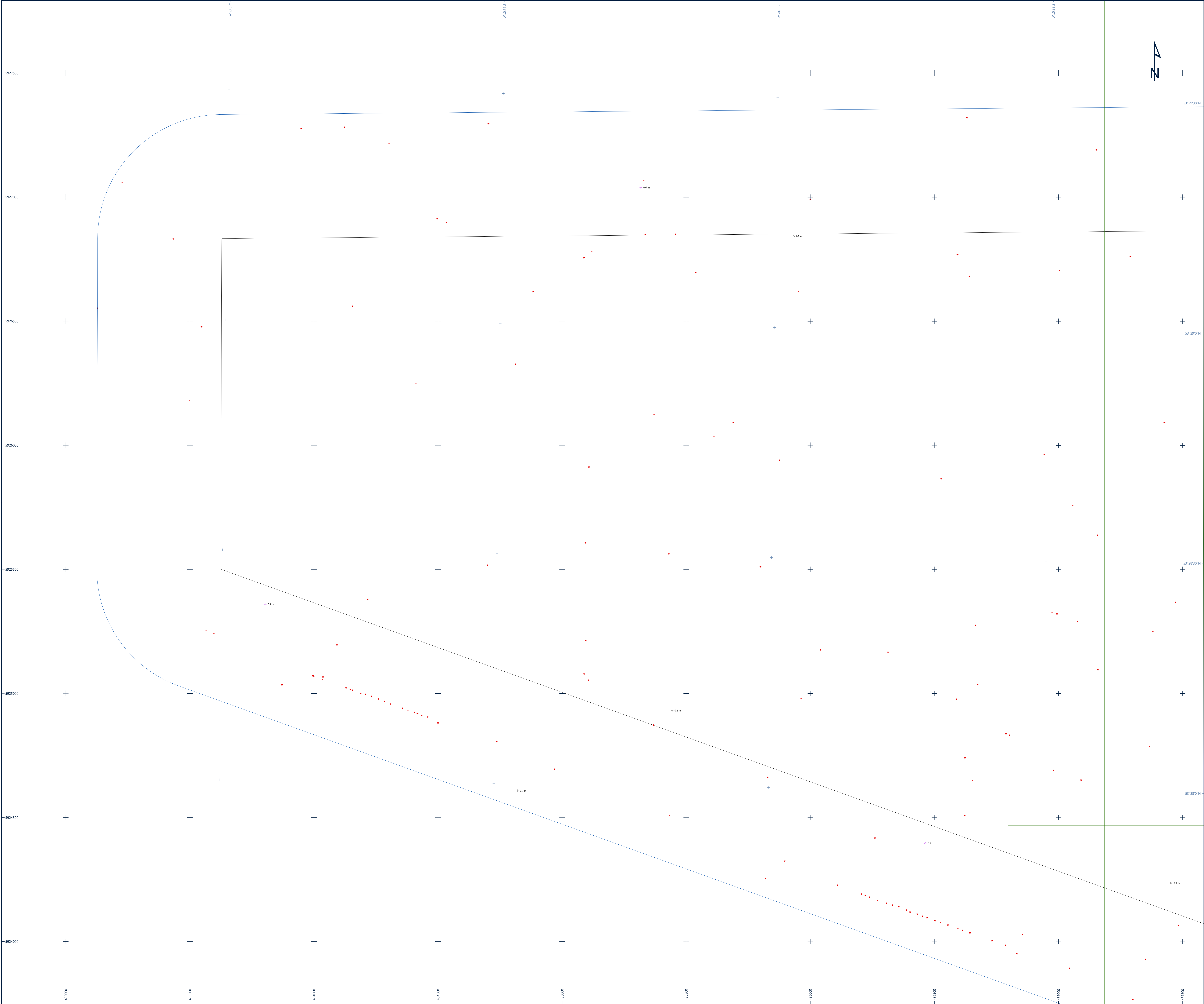


Issue	Date	Status	Interpreted	Prepared	Checked	Approved
01	01 December 2020	Final Issue - Revision 1	N/A	DS	SB	JS
02	04 February 2021	Final Relissue - Revision 2	N/A	DS	SB	JS
-	-	-	-	-	-	-
-	-	-	-	-	-	-

Fugro Project No.	Vessel(s)	Survey Date
200655	Fugro Mercator	10 June to 11 August 2020
File Name		Chart No.
200655_Array_ColourShadedBathymetry_Overview_02		02 of 02

Appendix E

Charts – Seabed
Characterisation



Legend

- UTM Grid
- Geographical Grid
- Chart Extent
- Wind Farm Extent
- Array Survey Extent
- Export Cable Route Survey Extent
- Seabed Sediments
 - SAND
 - Sandy GRAVEL
- Seafloor Features
 - Gwynn y Môr Windfarm Turbine
 - MetMast C Borehole
 - Cable
 - Debris
 - Rock Dump
 - Scour
 - Wreck
 - Megaripples
 - Sand Waves
- Seabed Targets
 - Boulder (Height [m])
 - Debris (Height [m])
 - Linear Debris (Height [m])
 - Mound (Height [m])
 - Wreck (Height [m], Length [m], Width [m])
 - Magnetic Anomaly

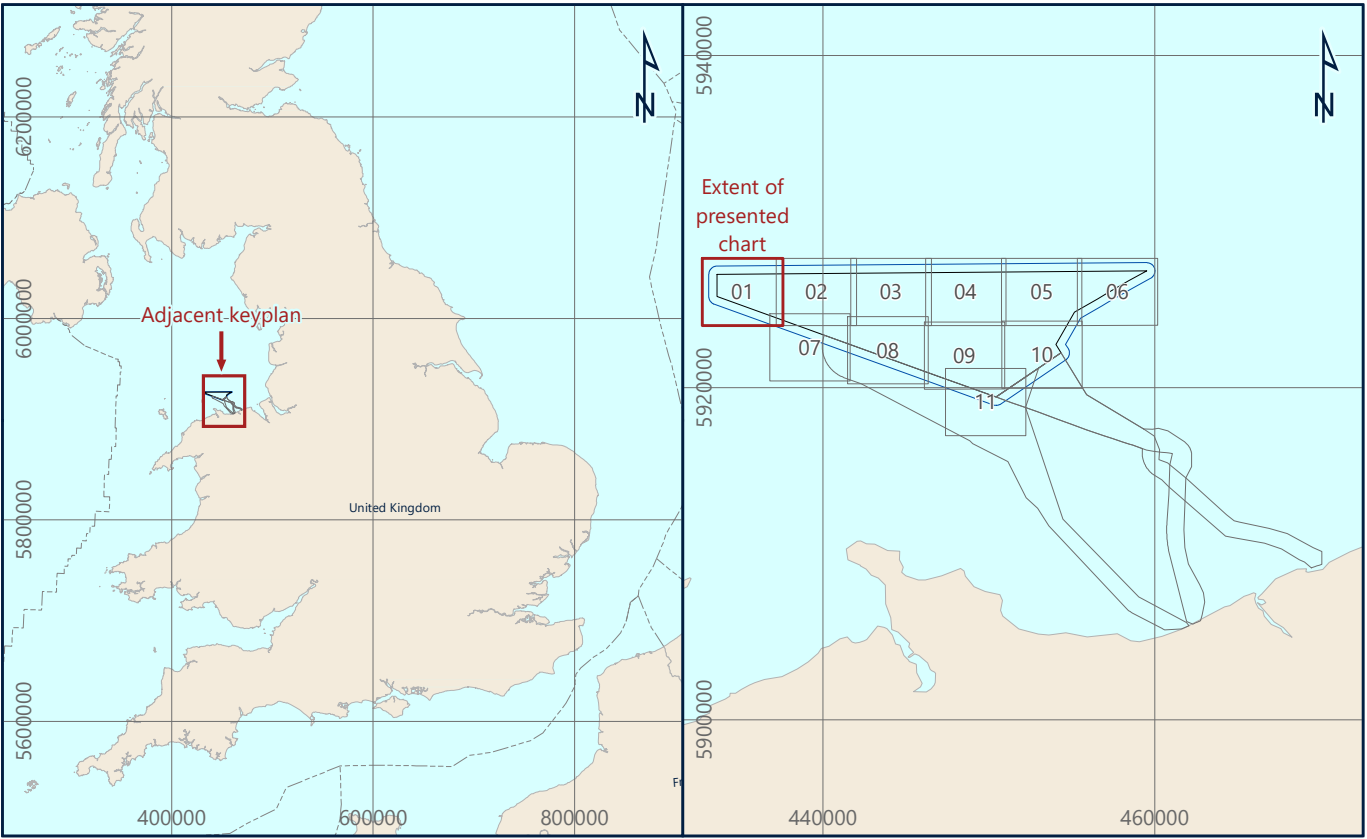
Notes

1) Seabed characterisation has been derived primarily from SSS reflectivity, with reference to MBES, SBP and ground truthing through benthic grab samples

This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for that commission. Unauthorised use of this document in any form whatsoever is prohibited.

Geodetic Parameters

Geodetic datum: World Geodetic System 1984
Ellipsoid: WGS84
Semi-Major Axis: 6,378,137.000 m
Inverse Flattening: 298.257222563
Projection: WGS84 / UTM Zone 30N (EPSG: 32630)
Central Meridian (CM): 03°00'00" W
Latitude of Origin: 00°00'00" N
False Easting: 500,000 mE
False Northing: 0 mN
Scale factor at CM: 0.9996
Vertical datum: Lowest Astronomical Tide (LAT) - calculated using the Vertical Offshore Reference Frame (VORF)



Awel Y Môr Offshore Wind Farm Ltd
Tregaron Bldg, Wrexham Hill Business Park, Whitwell Way, Swindon, SN3 6PL, United Kingdom

AWEL Y MÔR

Fugro
Victory House, Trafalgar Wharf Unit 161, Hamilton Road, Portsmouth PO6 4PX
Tel: +44 23 9220 3500

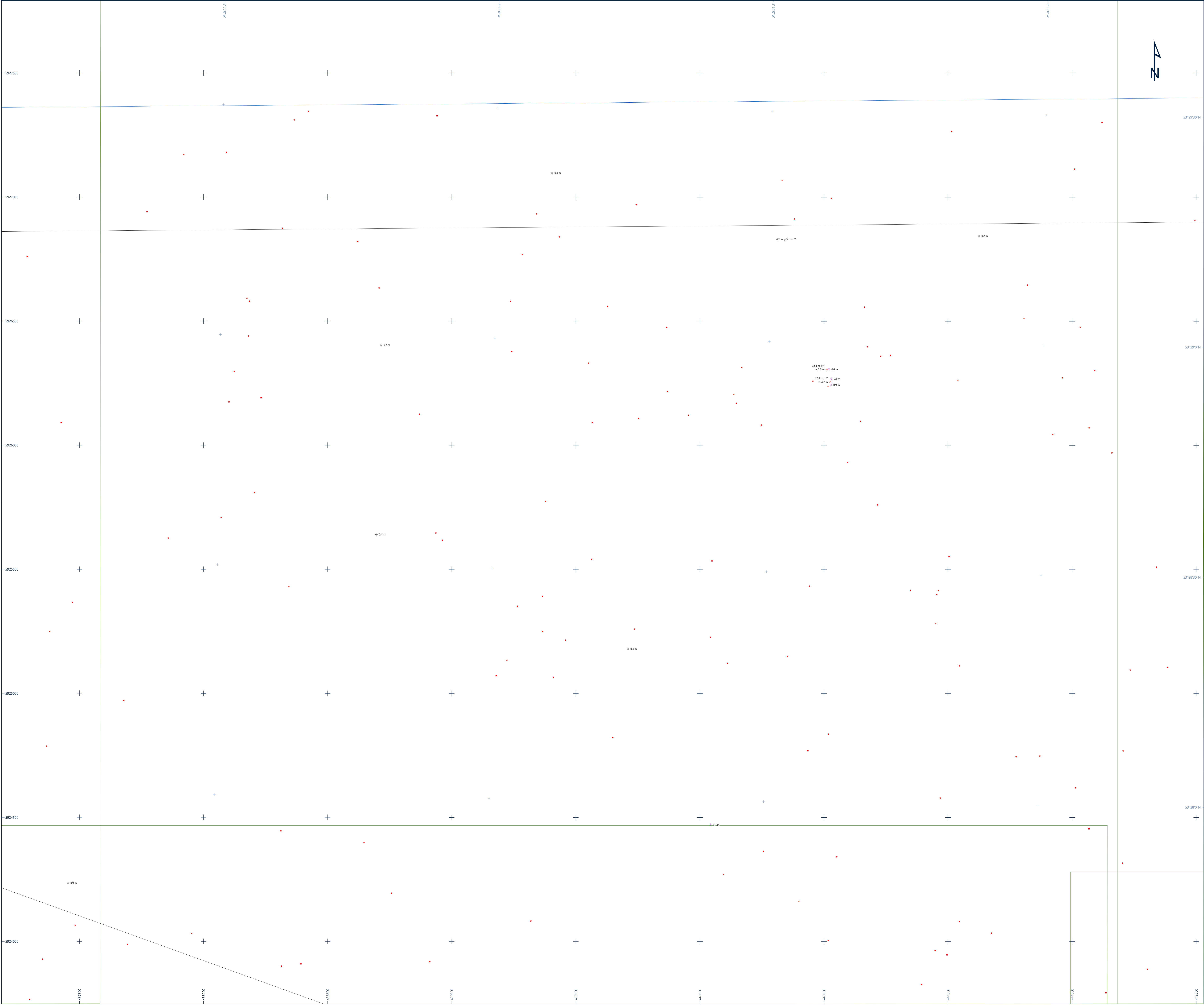
FUGRO

SEABED CHARACTERISATION
AWEL Y MÔR OFFSHORE WIND FARM
GEOPHYSICAL SURVEY 2020
UK IRISH SEA

Scale 1 : 5,000 at original A0 page size
0 50 100 200 300 400 500 metres
0 0.025 0.05 0.1 0.15 0.2 0.25 Nautical Miles

Issue	Date	Status	Interpreted	Prepared	Checked	Approved
01	07 October 2020	Draft Issue - Revision 1	OOT	DS	SB	BPT
02	01 December 2020	Final Issue - Revision 2	OOT	DS	SB	BPT
03	04 February 2021	Final Release - Revision 3	OOT	DS	SB	BPT
-	-	-	-	-	-	-

Fugro Project No.	Vessel(s)	Survey Date
200655	Fugro Mercator	10 June to 11 August 2020
File Name		Chart No.
200655_Array_SeabedCharacterisation_01		01 of 11



Legend

- UTM Grid
- Geographical Grid
- Chart Extent
- Wind Farm Extent
- Array Survey Extent
- Export Cable Route Survey Extent
- Seabed Sediments
 - SAND
 - Sandy GRAVEL
- Seafloor Features
 - Gwynn y Môr Windfarm Turbine
 - MetMast C Borehole
 - Cable
 - Debris
 - Rock Dump
 - Scour
 - Wreck
 - Megaripples
 - Sand Waves
- Seabed Targets
 - Boulder (Height [m])
 - Debris (Height [m])
 - Linear Debris (Height [m])
 - Mound (Height [m])
 - Wreck (Height [m], Length [m], Width [m])
 - Magnetic Anomaly

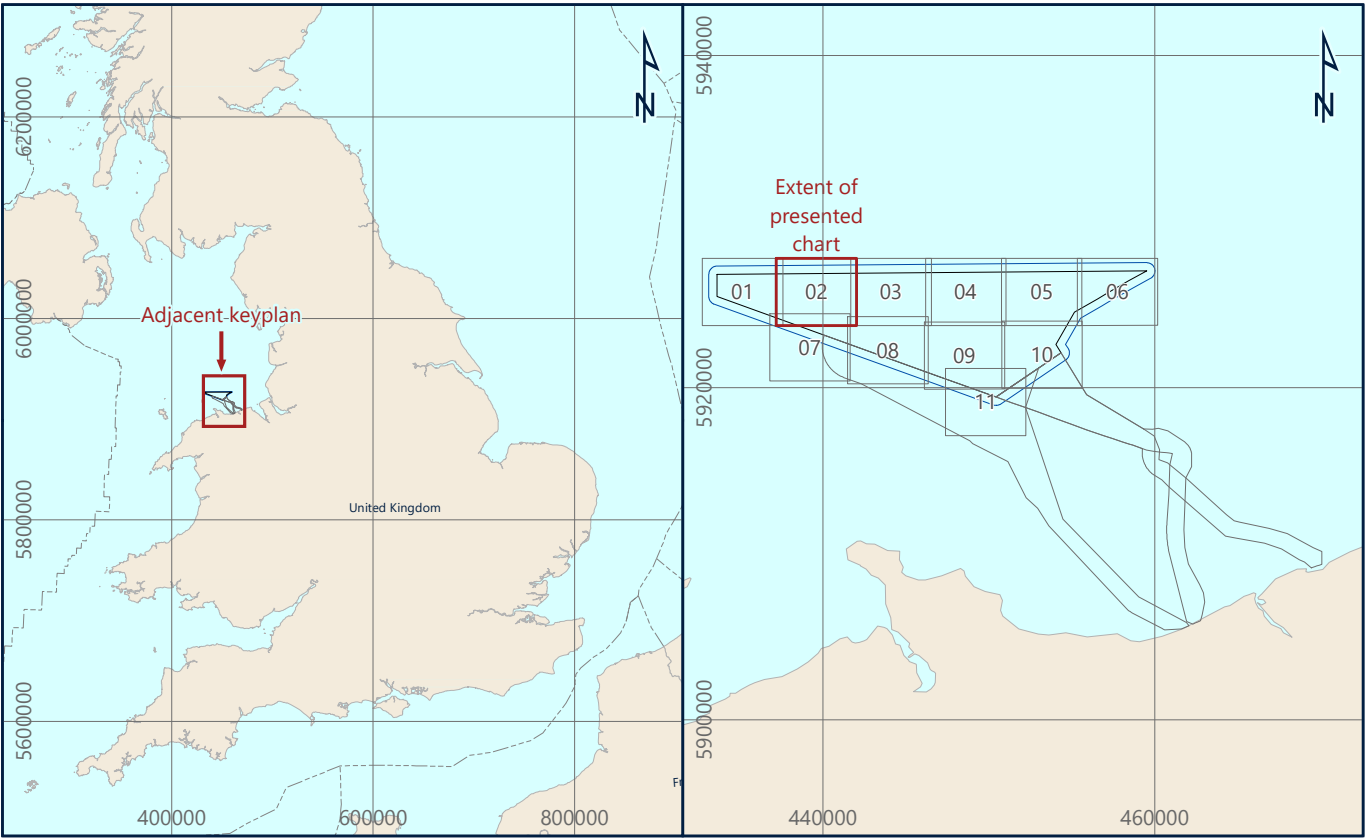
Notes

1) Seabed characterisation has been derived primarily from SSS reflectivity, with reference to MBES, SBP and ground truthing through benthic grab samples

This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for that commission. Unauthorised use of this document in any form whatsoever is prohibited.

Geodetic Parameters

Geodetic datum	World Geodetic System 1984
Ellipsoid	WGS84
Semi-Major Axis	6,378,137.000 m
Inverse Flattening	298.257223563
Projection	WGS84 / UTM Zone 30N (EPSG: 32630)
Central Meridian (CM)	03°00'00" W
Latitude of Origin	00°00'00" N
Fake Easting	500,000 mE
Fake Northing	0 mN
Scale factor at CM	0.9996
Vertical datum	Lowest Astronomical Tide (LAT) - calculated using the Vertical Offshore Reference Frame (VORF)



Awel Y Môr Offshore Wind Farm Ltd
Tregaron Bldg, Windmill Hill Business Park, Whitland Way, Swindon, SN3 6PE, United Kingdom

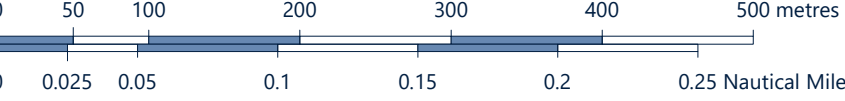
AWEL Y MÔR

Fugro
Victory House, Tregear Wharf Unit 161, Hamilton Road, Porchester PO6 4PX
Tel: +44 23 9220 5500

FUGRO

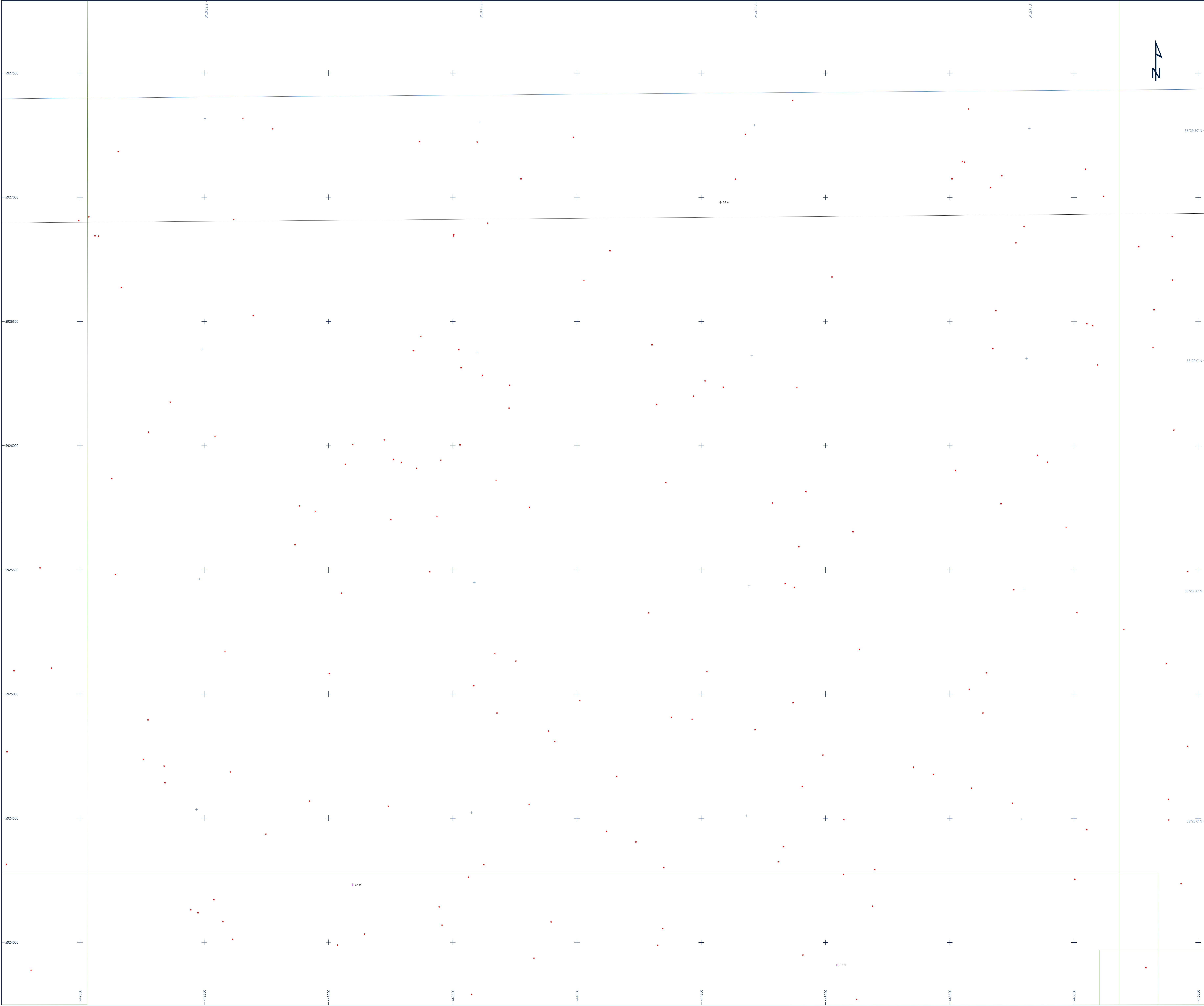
SEABED CHARACTERISATION
AWEL Y MÔR OFFSHORE WIND FARM
GEOPHYSICAL SURVEY 2020
UK IRISH SEA

Scale 1 : 5,000 at original A0 page size



Issue	Date	Status	Interpreted	Prepared	Checked	Approved
01	07 October 2020	Draft Issue - Revision 1	OOT	DS	SB	BPT
02	01 December 2020	Final Issue - Revision 2	OOT	DS	SB	BPT
03	04 February 2021	Final Release - Revision 3	OOT	DS	SB	BPT
-	-	-	-	-	-	-

Fugro Project No.	Vessel(s)	Survey Date
200655	Fugro Mercator	10 June to 11 August 2020
File Name		Chart No.
200655.Array_SeabedCharacterisation_02		02 of 11



Legend

- UTM Grid
- Geographical Grid
- Chart Extent
- Wind Farm Extent
- Array Survey Extent
- Export Cable Route Survey Extent
- Seabed Sediments
 - SAND
 - Sandy GRAVEL
- Seafloor Features
 - Gwynn y Môr Windfarm Turbine
 - MetMast C Borehole
 - Cable
 - Debris
 - Rock Dump
 - Scour
 - Wreck
 - Megaripples
 - Sand Waves
- Seabed Targets
 - Boulder (Height [m])
 - Debris (Height [m])
 - Linear Debris (Height [m])
 - Mound (Height [m])
 - Wreck (Height [m], Length [m], Width [m])
 - Magnetic Anomaly

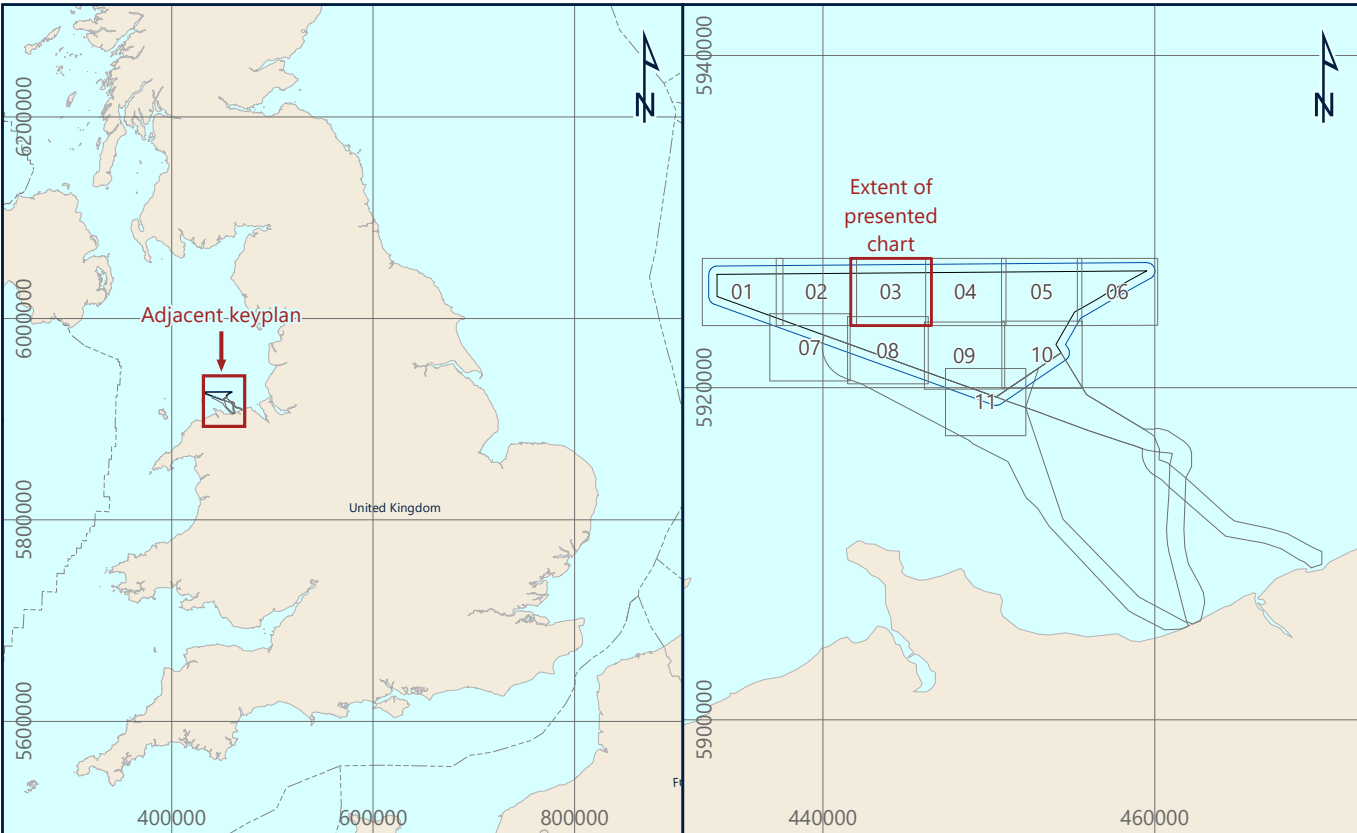
Notes

1) Seabed characterisation has been derived primarily from SSS reflectivity, with reference to MBES, SBP and ground truthing through benthic grab samples

This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for that commission. Unauthorised use of this document in any form whatsoever is prohibited.

Geodetic Parameters

Geodetic datum: World Geodetic System 1984
Ellipsoid: WGS84
Semi-Major Axis: 6,378,137.000 m
Inverse Flattening: 298.257223563
Projection: WGS84 / UTM Zone 30N (EPSG: 32630)
Central Meridian (CM): 03°00'00" W
Latitude of Origin: 00°00'00" N
False Easting: 500,000 mE
False Northing: 0 mN
Scale Factor at CM: 0.9996
Vertical datum: Lowest Astronomical Tide (LAT) - calculated using the Vertical Offshore Reference Frame (VORF)



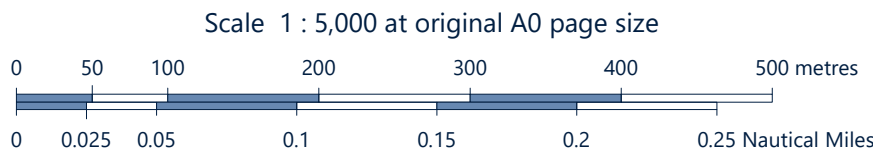
Awel Y Môr Offshore Wind Farm Ltd
Tregaron Bldg, Windmill Hill Business Park, Whitford Way, Swindon, SN3 6PE, United Kingdom

AWEL Y MÔR

Fugro
Victory House, Tregear Wharf Unit 161, Hamilton Road, Porchester PO6 4PX
Tel: +44 23 9220 5500

FUGRO

SEABED CHARACTERISATION
AWEL Y MÔR OFFSHORE WIND FARM
GEOPHYSICAL SURVEY 2020
UK IRISH SEA



Issue	Date	Status	Interpreted	Prepared	Checked	Approved
01	07 October 2020	Draft Issue - Revision 1	OOT	DS	SB	BPT
02	01 December 2020	Final Issue - Revision 2	OOT	DS	SB	BPT
03	04 February 2021	Final Release - Revision 3	OOT	DS	SB	BPT
-	-	-	-	-	-	-

Fugro Project No.	Vessel(s)	Survey Date
200655	Fugro Mercator	10 June to 11 August 2020
File Name		Chart No.
200655_Array_SeabedCharacterisation_03		03 of 11



Legend

- UTM Grid
- Geographical Grid
- Chart Extent
- Wind Farm Extent
- Array Survey Extent
- Export Cable Route Survey Extent

Seabed Sediments

- SAND
- Sandy GRAVEL

Seafloor Features

- Gwynn y Môr Windfarm Turbine
- MetMast C Borehole
- Cable
- Debris
- Rock Dump
- Scour
- Wreck
- Megaripples
- Sand Waves

Seabed Targets

- Boulder (Height [m])
- Debris (Height [m])
- Linear Debris (Height [m])
- Mound (Height [m])
- Wreck (Height [m], Length [m], Width [m])
- Magnetic Anomaly

Notes

1) Seabed characterisation has been derived primarily from SSS reflectivity, with reference to MBES, SBP and ground truthing through benthic grab samples

This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for that commission. Unauthorised use of this document in any form whatsoever is prohibited.

Geodetic Parameters

Geodetic datum	World Geodetic System 1984
Ellipsoid	WGS84
Semi-Major Axis	6,378,137.000 m
Inverse Flattening	298.257223563
Projection	WGS84 / UTM Zone 30N (EPSG: 32630)
Central Meridian (CM)	03°00'00" W
Latitude of Origin	00°00'00" N
Fake Easting	500,000 mE
Fake Northing	0 mN
Scale Factor at CM	0.9996
Vertical datum	Lowest Astronomical Tide (LAT) - calculated using the Vertical Offshore Reference Frame (VORF)

Awel Y Môr Offshore Wind Farm Ltd
Trigwynn Bldg, Windmill Hill Business Park, Whitwell Way, Swindon, SN3 6PE, United Kingdom

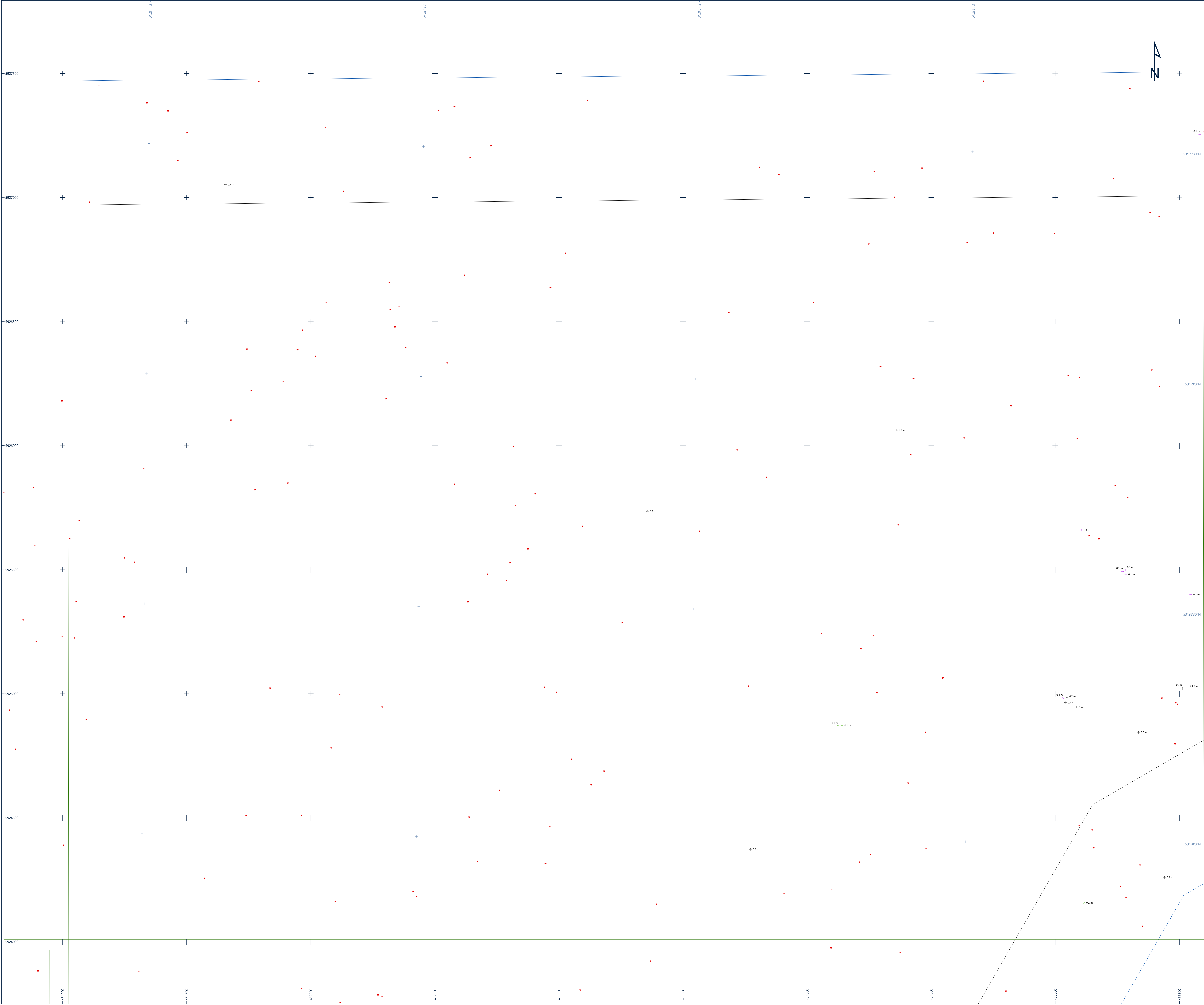
Fugro
Victory House, Trefgarra Wharf Unit 161, Hamilton Road, Portchester PO16 4PX
Tel: +44 23 9220 5500

SEABED CHARACTERISATION
AWEL Y MÔR OFFSHORE WIND FARM
GEOPHYSICAL SURVEY 2020
UK IRISH SEA

Scale 1 : 5,000 at original A0 page size
0 50 100 200 300 400 500 metres
0 0.025 0.05 0.1 0.15 0.2 0.25 Nautical Miles

Issue	Date	Status	Interpreted	Prepared	Checked	Approved
01	07 October 2020	Draft Issue - Revision 1	OOT	DS	SB	BPT
02	01 December 2020	Final Issue - Revision 2	OOT	DS	SB	BPT
03	04 February 2021	Final Release - Revision 3	OOT	DS	SB	BPT
-	-	-	-	-	-	-

Fugro Project No.	Vessel(s)	Survey Date
200655	Fugro Mercator	10 June to 11 August 2020
File Name		Chart No.
200655_Array_SeabedCharacterisation_04		04 of 11



Legend

- UTM Grid
- Geographical Grid
- Chart Extent
- Wind Farm Extent
- Array Survey Extent
- Export Cable Route Survey Extent
- Seabed Sediments**
 - SAND
 - Sandy GRAVEL
- Seafloor Features**
 - Gwynt y Môr Windfarm Turbine
 - MetMast C Borehole
 - Cable
 - Debris
 - Rock Dump
 - Scour
 - Wreck
 - Megaripples
 - Sand Waves
- Seabed Targets**
 - Boulder (Height [m])
 - Debris (Height [m])
 - Linear Debris (Height [m])
 - Mound (Height [m])
 - Wreck (Height [m], Length [m], Width [m])
 - Magnetic Anomaly

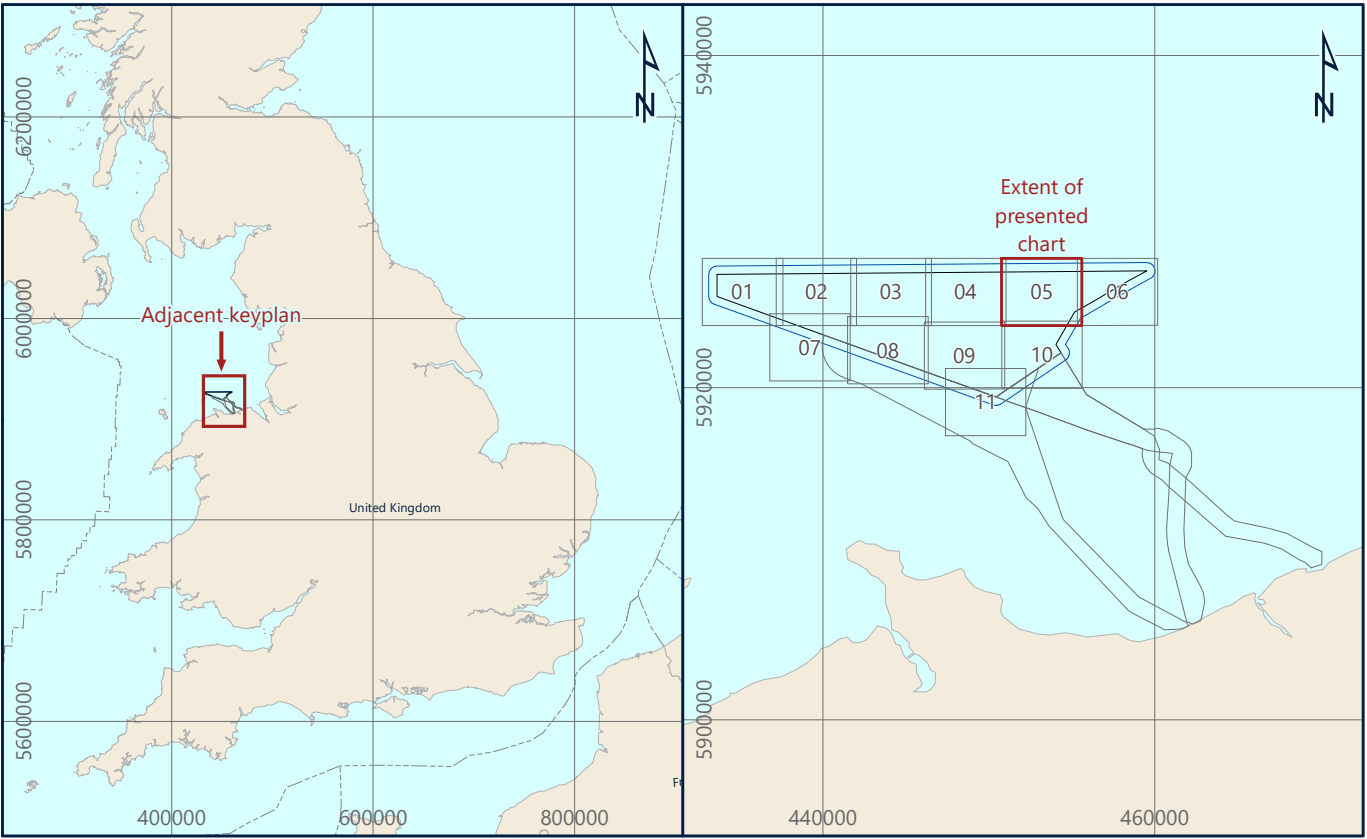
Notes

1) Seabed characterisation has been derived primarily from SSS reflectivity, with reference to MBES, SBP and ground truthing through benthic grab samples

This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for that commission. Unauthorised use of this document in any form whatsoever is prohibited.

Geodetic Parameters

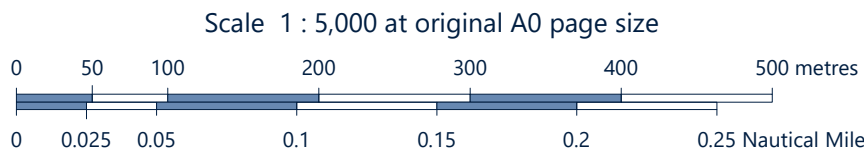
Geodetic datum: World Geodetic System 1984
Ellipsoid: WGS84
Semi-Major Axis: 6,378,137.000 m
Inverse Flattening: 298.257223563
Projection: WGS84 / UTM Zone 30N (EPSG: 32630)
Central Meridian (CM): 03°00'00" W
Latitude of Origin: 00°00'00" N
False Easting: 500,000 mE
False Northing: 0 mN
Scale Factor at CM: 0.9996
Vertical datum: Lowest Astronomical Tide (LAT) - calculated using the Vertical Offshore Reference Frame (VORF)



Awel Y Môr Offshore Wind Farm Ltd
Tregaron Bldg, Windmill Hill Business Park, Whitland Way, Swindon, SN3 6PE, United Kingdom

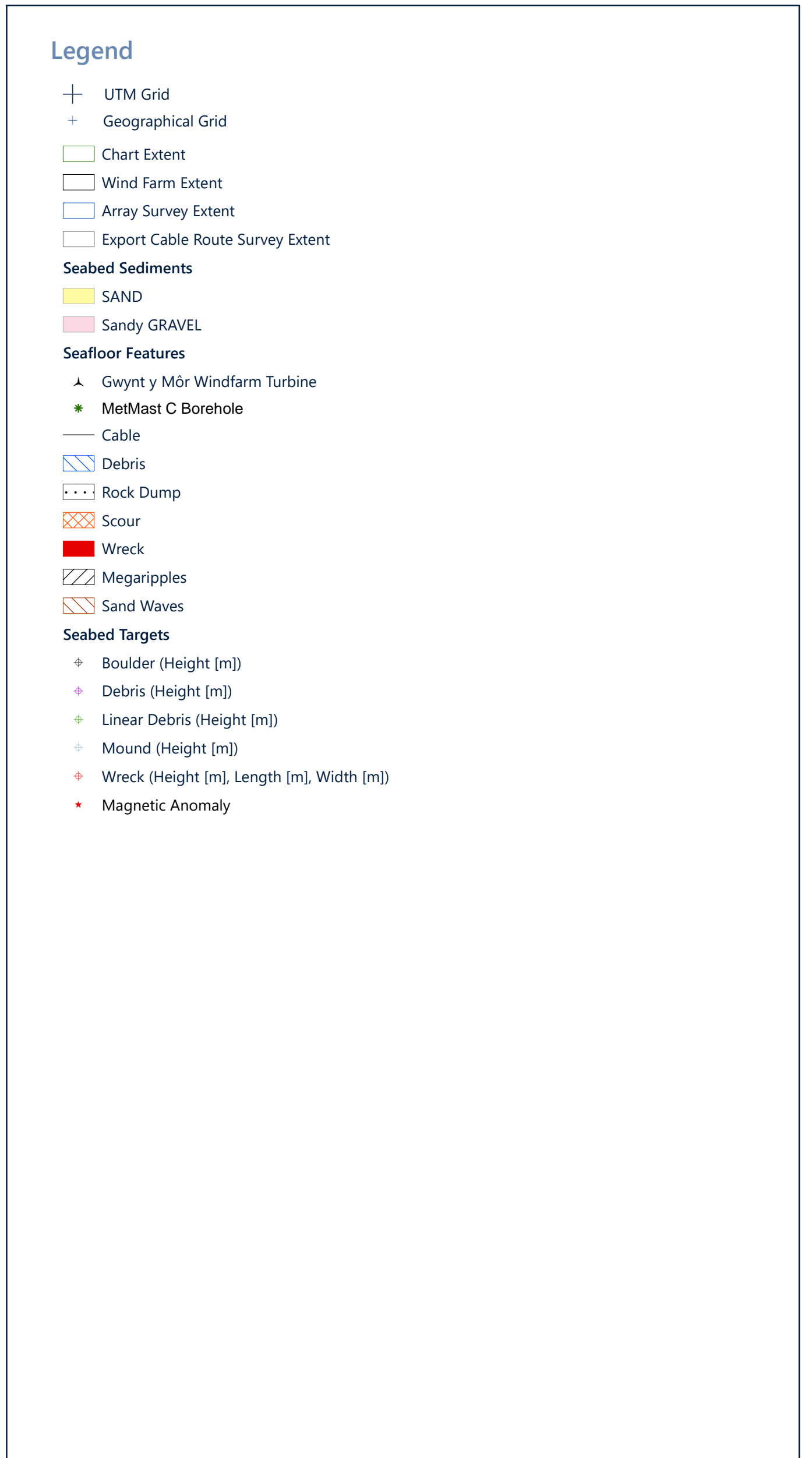
Fugro
Victory House, Tregear Wharf Unit 161, Hamilton Road, Porchester PO6 4PX
Tel: +44 23 9220 3500

SEABED CHARACTERISATION AWEL Y MÔR OFFSHORE WIND FARM GEOPHYSICAL SURVEY 2020 UK IRISH SEA

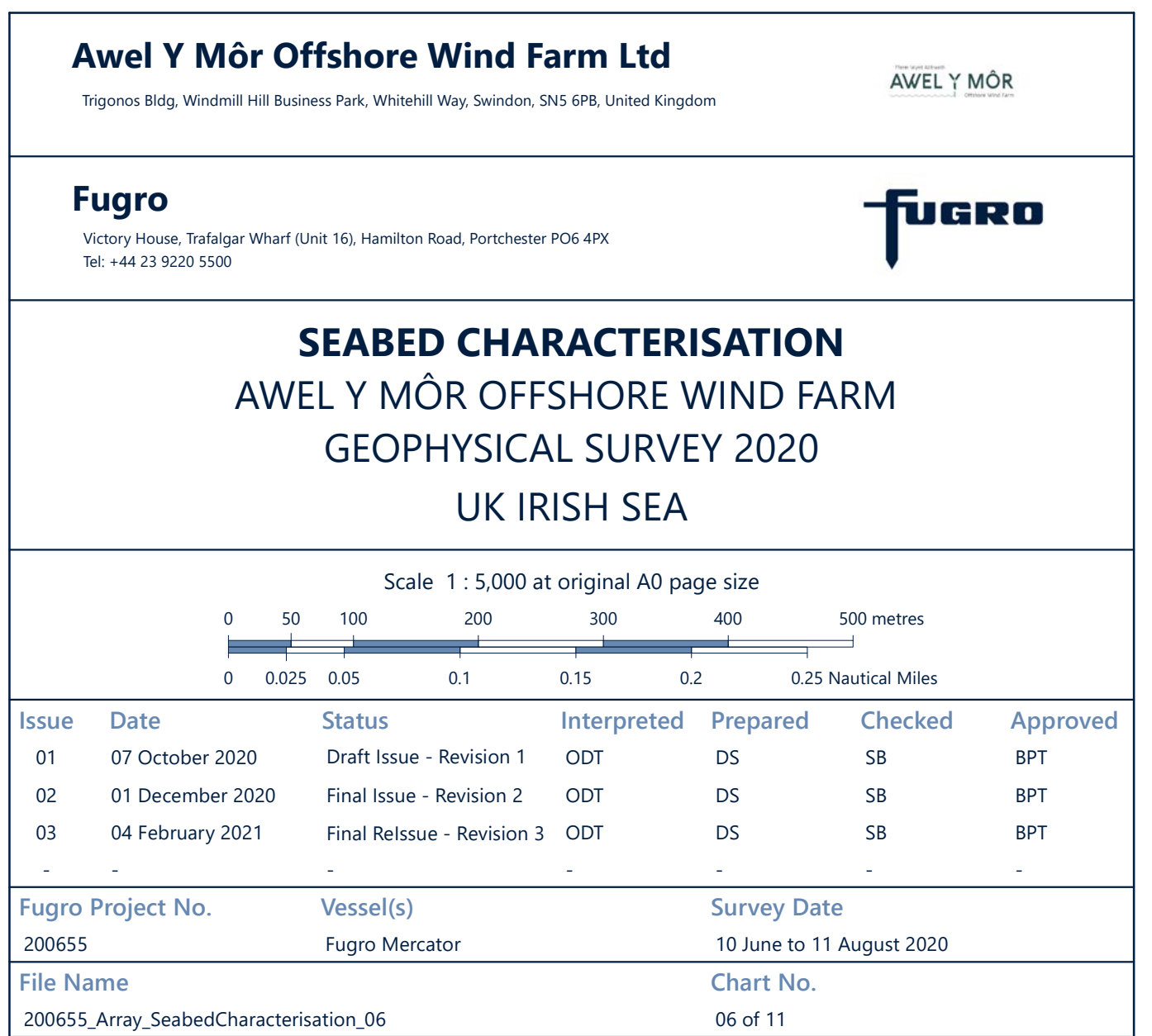


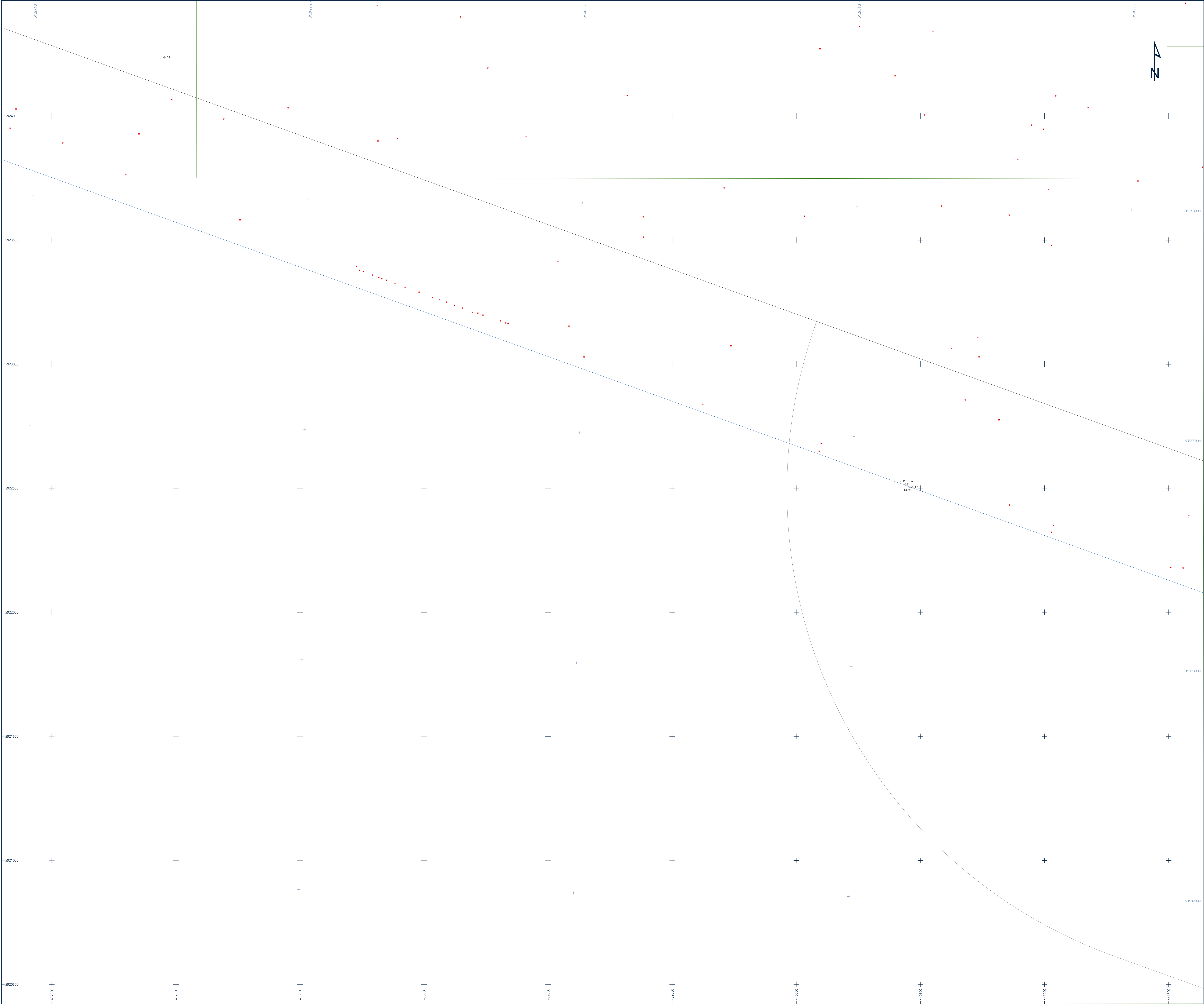
Issue	Date	Status	Interpreted	Prepared	Checked	Approved
01	07 October 2020	Draft Issue - Revision 1	OOT	DS	SB	BPT
02	01 December 2020	Final Issue - Revision 2	OOT	DS	SB	BPT
03	04 February 2021	Final Release - Revision 3	OOT	DS	SB	BPT
-	-	-	-	-	-	-

Fugro Project No.	Vessel(s)	Survey Date
200655	Fugro Mercator	10 June to 11 August 2020
File Name		Chart No.
200655_Array_SeabedCharacterisation_05		05 of 11



Geodetic Parameters	
Geodetic datum	World Geodetic System 1984
Ellipsoid	WGS84
Semi-Major Axis	6,378,137.000 m
Inverse Flattening	298.257223563
Projection	WGS84 / UTM Zone 30N (EPSG 32630)
Central Meridian (CM)	0°00'00" W
Latitude of Origin	0°00'00" N
Fake Easting	50,000.0 m
Fake Northing	0 m
Scale Factor at CM	0.9996
Vertical datum	Lowest Astronomical Tide (LAT) - calculated using the Vertical Offshore Reference Frame (VORF)





Legend

- UTM Grid
- Geographical Grid
- Chart Extent
- Wind Farm Extent
- Array Survey Extent
- Export Cable Route Survey Extent
- Seabed Sediments
 - SAND
 - Sandy GRAVEL
- Seafloor Features
 - Gwynn y Môr Windfarm Turbine
 - MetMast C Borehole
 - Cable
 - Debris
 - Rock Dump
 - Scour
 - Wreck
 - Megaripples
 - Sand Waves
- Seabed Targets
 - Boulder (Height [m])
 - Debris (Height [m])
 - Linear Debris (Height [m])
 - Mound (Height [m])
 - Wreck (Height [m], Length [m], Width [m])
 - Magnetic Anomaly

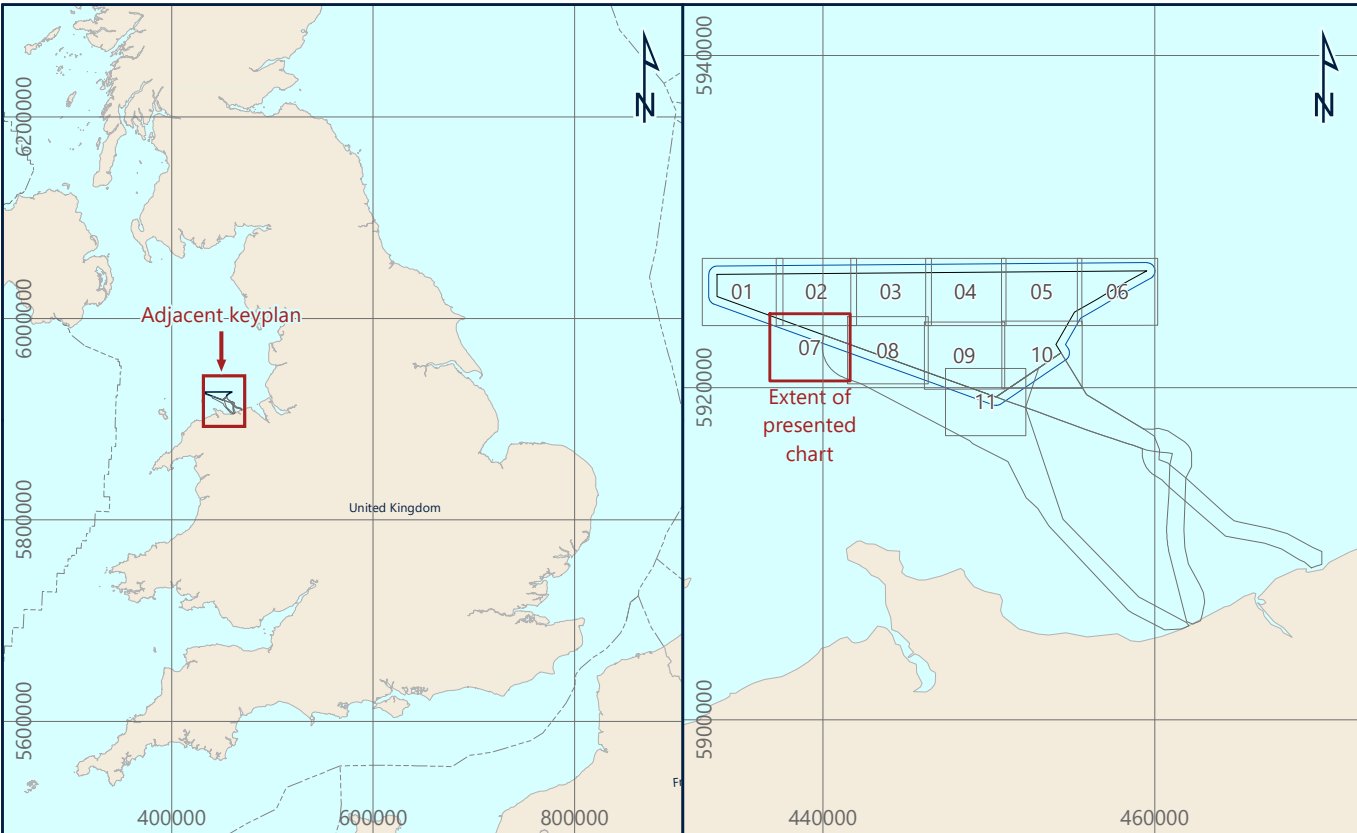
Notes

1) Seabed characterisation has been derived primarily from SSS reflectivity, with reference to MBES, SBP and ground truthing through benthic grab samples

This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for that commission. Unauthorised use of this document in any form whatsoever is prohibited.

Geodetic Parameters

Geodetic datum	World Geodetic System 1984
Ellipsoid	WGS84
Semi-Major Axis	6,378,137.000 m
Inverse Flattening	298.257223563
Projection	WGS84 / UTM Zone 30N (EPSG: 32630)
Central Meridian (CM)	03°00'00" W
Latitude of Origin	09°00'00" N
False Easting	500,000 mE
False Northing	0 mN
Scale Factor at CM	0.9996
Vertical datum	Lowest Astronomical Tide (LAT) - calculated using the Vertical Offshore Reference Frame (VORF)



Awel Y Môr Offshore Wind Farm Ltd
Tregaron Bldg, Wrexham Hill Business Park, Whitehill Way, Swindon, SN3 6PL, United Kingdom

AWEL Y MÔR

Fugro
Victory House, Tregilar Wharf Unit 161, Hamilton Road, Portsmouth PO6 4PX
Tel: +44 23 9220 5500

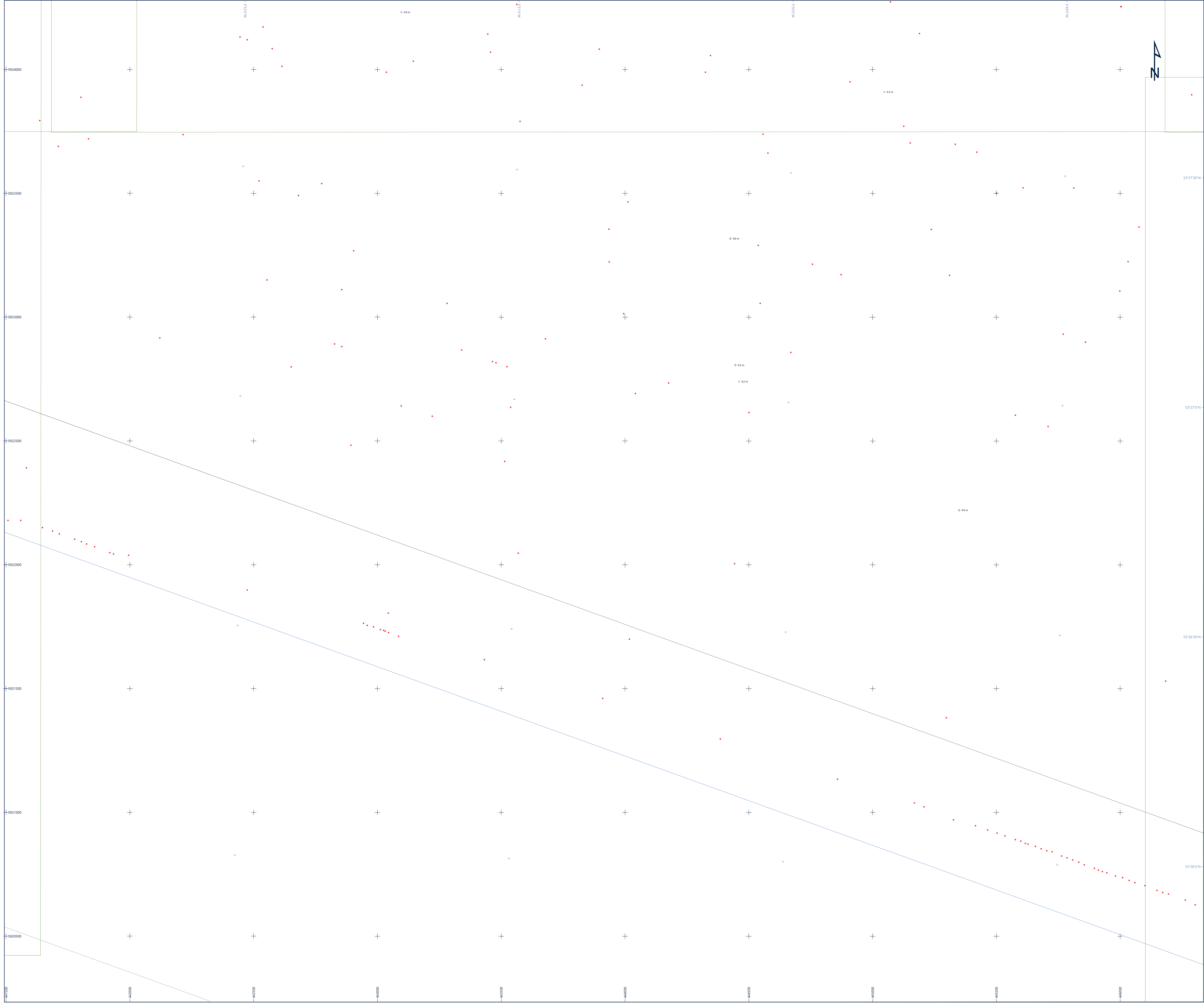
FUGRO

SEABED CHARACTERISATION
AWEL Y MÔR OFFSHORE WIND FARM
GEOPHYSICAL SURVEY 2020
UK IRISH SEA

Scale 1 : 5,000 at original A0 page size
0 50 100 200 300 400 500 metres
0 0.025 0.05 0.1 0.15 0.2 0.25 Nautical Miles

Issue	Date	Status	Interpreted	Prepared	Checked	Approved
01	07 October 2020	Draft Issue - Revision 1	OOT	DS	SB	BPT
02	01 December 2020	Final Issue - Revision 2	OOT	DS	SB	BPT
03	04 February 2021	Final Release - Revision 3	OOT	DS	SB	BPT
-	-	-	-	-	-	-

Fugro Project No.	Vessel(s)	Survey Date
200655	Fugro Mercator	10 June to 11 August 2020
File Name	Chart No.	
200655_Array_SeabedCharacterisation_07	07 of 11	



Legend

- UTM Grid
- Geographical Grid
- Chart Extent
- Wind Farm Extent
- Array Survey Extent
- Export Cable Route Survey Extent
- Seabed Sediments
 - SAND
 - Sandy GRAVEL
- Seafloor Features
 - Gwynn y Môr Windfarm Turbine
 - MetMast C Borehole
 - Cable
 - Debris
 - Rock Dump
 - Scour
 - Wreck
 - Megaripples
 - Sand Waves
- Seabed Targets
 - Boulder (Height [m])
 - Debris (Height [m])
 - Linear Debris (Height [m])
 - Mound (Height [m])
 - Wreck (Height [m], Length [m], Width [m])
 - Magnetic Anomaly

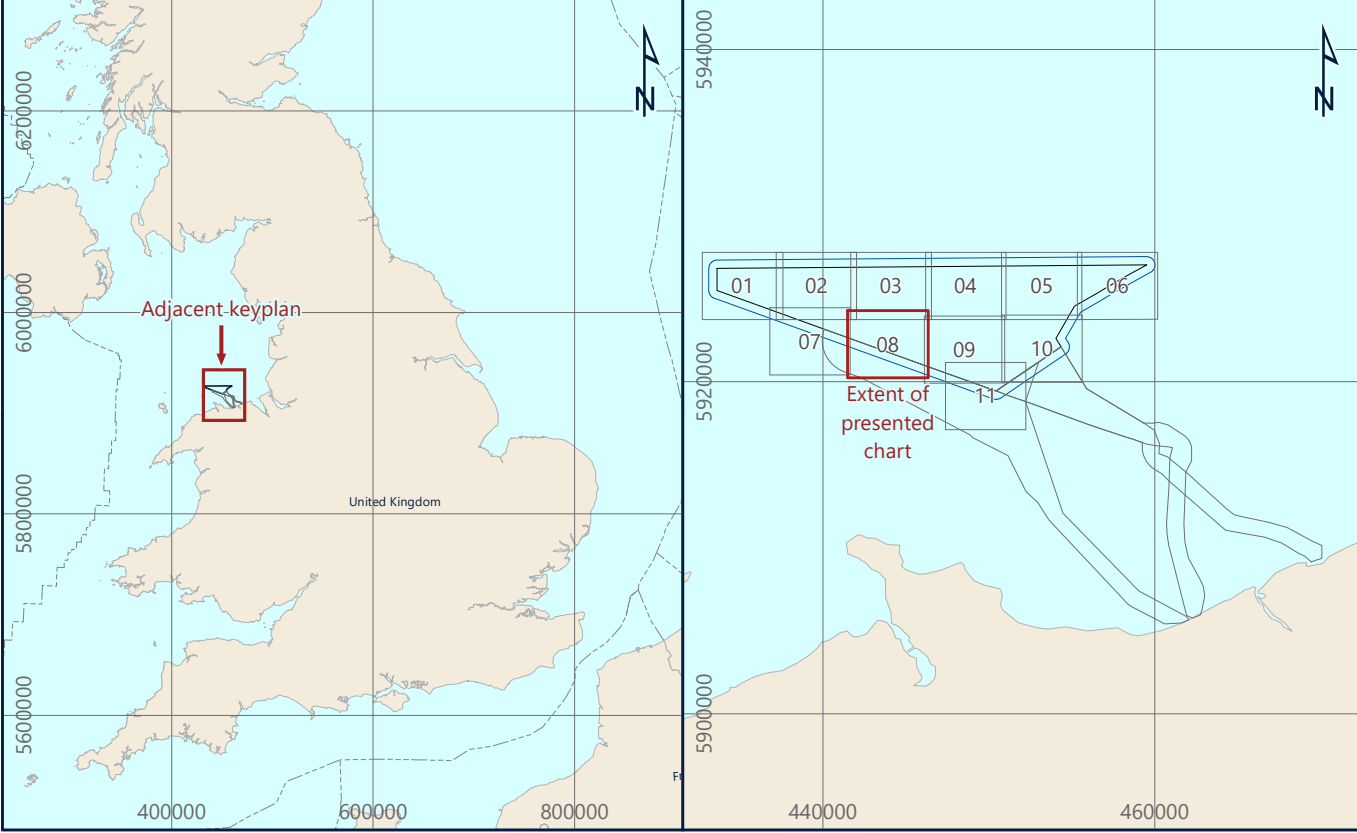
Notes

1) Seabed characterisation has been derived primarily from SSS reflectivity, with reference to MBES, SBP and ground truthing through benthic grab samples

This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for that commission. Unauthorised use of this document in any form whatsoever is prohibited.

Geodetic Parameters

Geodetic datum	World Geodetic System 1984
Ellipsoid	WGS84
Semi-Major Axis	6,378,137.000 m
Inverse Flattening	298.257222563
Projection	WGS84 / UTM Zone 30N (EPSG: 32630)
Central Meridian (CM)	03°00'00" W
Latitude of Origin	00°00'00" N
Fake Easting	500,000 mE
Fake Northing	0 mN
Scale factor at CM	0.9996
Vertical datum	Lowest Astronomical Tide (LAT) - calculated using the Vertical Offshore Reference Frame (VORF)



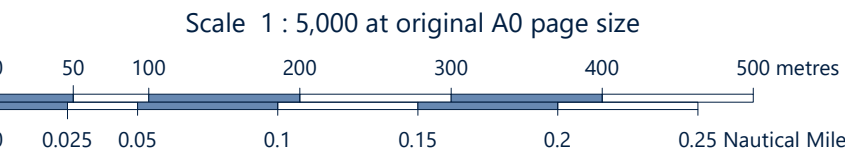
Awel Y Môr Offshore Wind Farm Ltd
Tregaron Bldg, Wrexham Hill Business Park, Whitford Way, Wrexham, SH3 6PE, United Kingdom

AWEL Y MÔR

Fugro
Victory House, Tregear Wharf Unit 161, Hamilton Road, Portchester PO16 4PX
Tel: +44 23 9220 5500

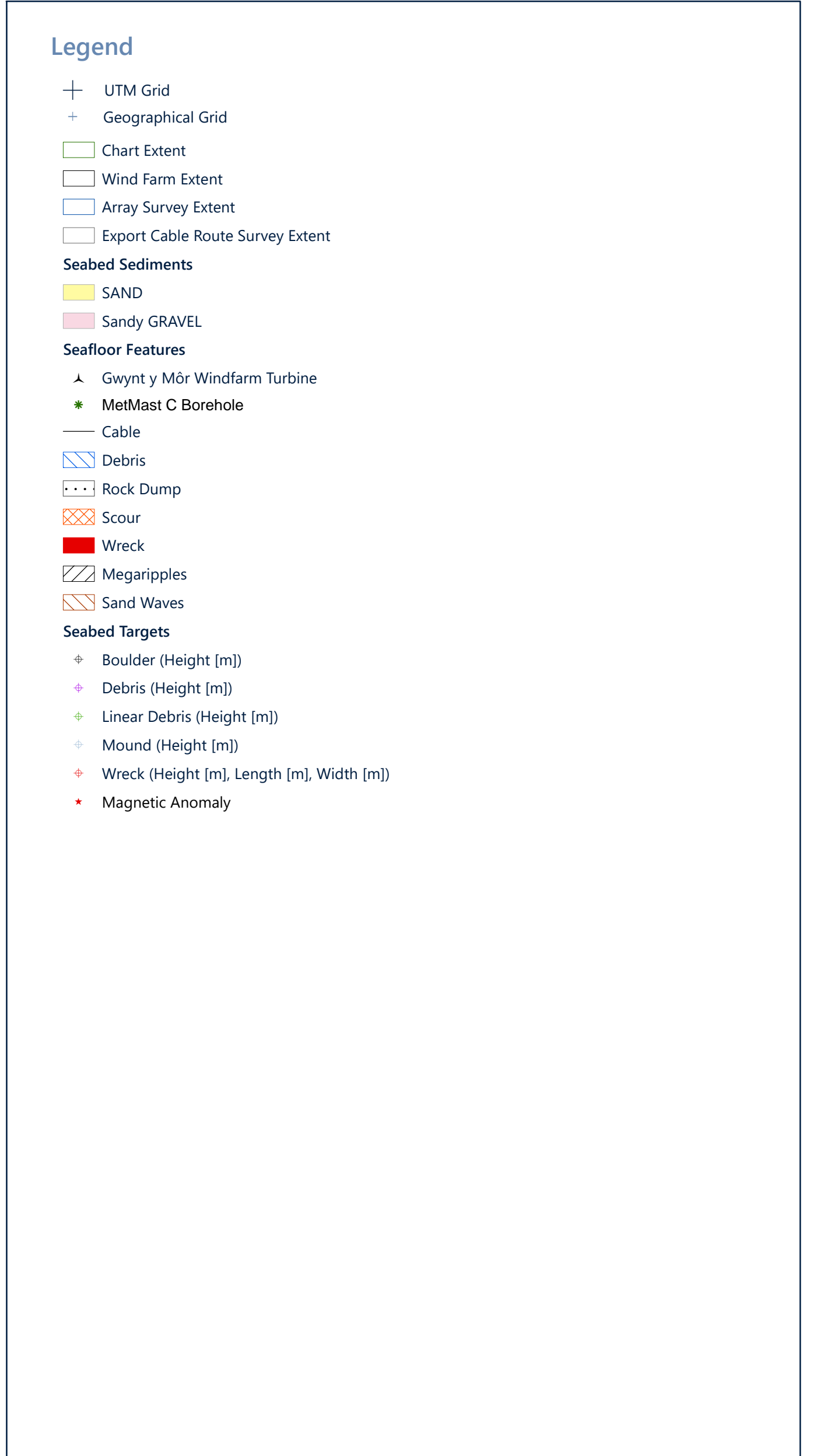
FUGRO

SEABED CHARACTERISATION
AWEL Y MÔR OFFSHORE WIND FARM
GEOPHYSICAL SURVEY 2020
UK IRISH SEA



Issue	Date	Status	Interpreted	Prepared	Checked	Approved
01	07 October 2020	Draft Issue - Revision 1	OOT	DS	SB	BPT
02	01 December 2020	Final Issue - Revision 2	OOT	DS	SB	BPT
03	04 February 2021	Final Relissue - Revision 3	OOT	DS	SB	BPT
-	-	-	-	-	-	-

Fugro Project No.	Vessel(s)	Survey Date
200655	Fugro Mercator	10 June to 11 August 2020
File Name		Chart No.
200655_Array_SeabedCharacterisation_08		08 of 11



Geodetic Parameters	
Geodetic datum	World Geodetic System 1984
Ellipsoid	WGS84
Major-Axis	6,378,137.000 m
Inverse Flattening	298.257223563
Projection	WGS84 / UTM Zone 30N (EPSG: 32630)
Central Meridian (CM)	0°00'00" W
Latitude of Origin	0°00'00" N
False Easting	500,000 mE
False Northing	0 mN
Scale factor at CM	0.9996
Vertical datum	Lowest Astronomical Tide (LAT) – calculated using the Vertical Offshore Reference Frame (VORF)





Legend

- UTM Grid
- Geographical Grid
- Chart Extent
- Wind Farm Extent
- Array Survey Extent
- Export Cable Route Survey Extent
- Seabed Sediments
 - SAND
 - Sandy GRAVEL
- Seafloor Features
 - Gwynt y Môr Windfarm Turbine
 - MetMast C Borehole
 - Cable
 - Debris
 - Rock Dump
 - Scour
 - Wreck
 - Megaripples
 - Sand Waves
- Seabed Targets
 - Boulder (Height [m])
 - Debris (Height [m])
 - Linear Debris (Height [m])
 - Mound (Height [m])
 - Wreck (Height [m], Length [m], Width [m])
 - Magnetic Anomaly

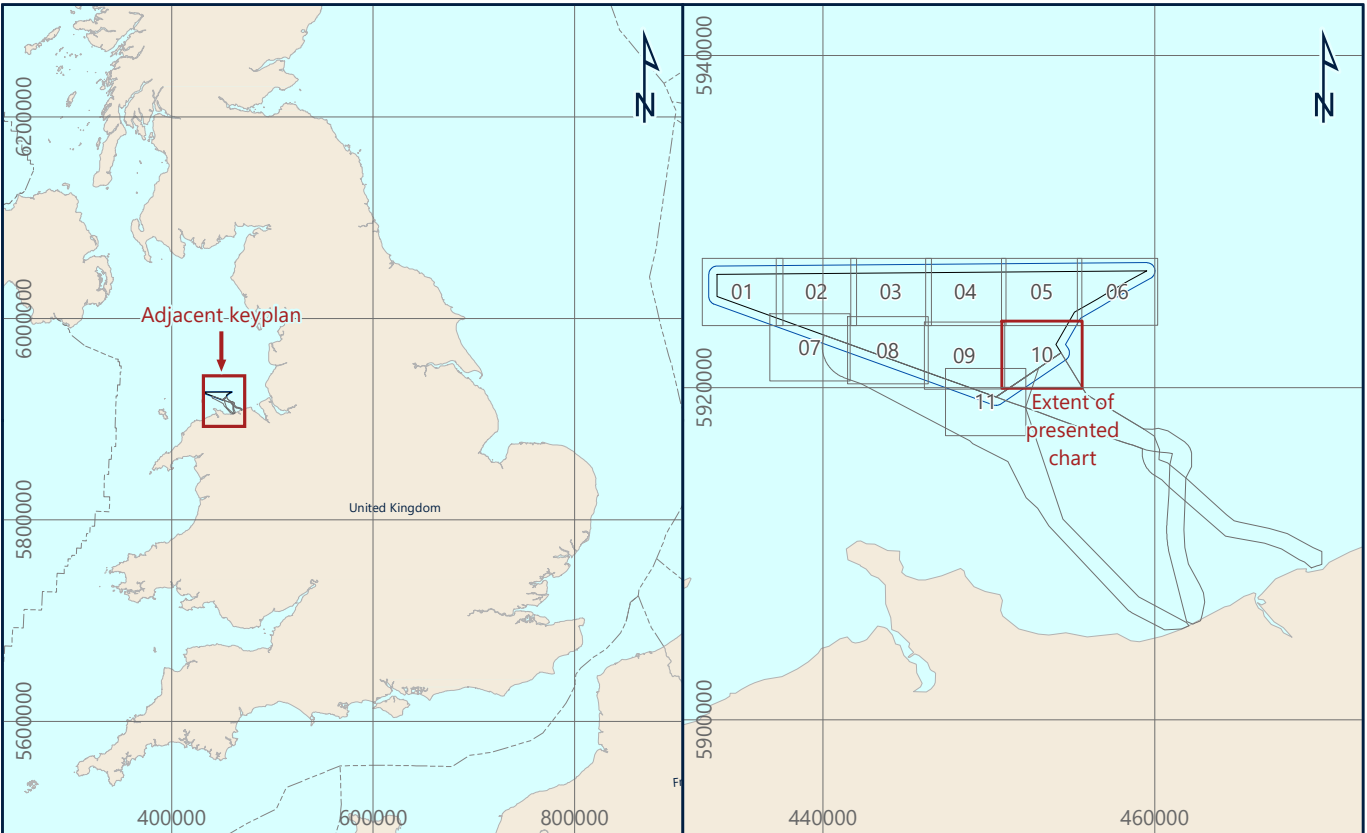
Notes

1) Seabed characterisation has been derived primarily from SSS reflectivity, with reference to MBES, SBP and ground truthing through benthic grab samples

This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for that commission. Unauthorised use of this document in any form whatsoever is prohibited.

Geodetic Parameters

Geodetic datum	World Geodetic System 1984
Ellipsoid	WGS84
Semi-Major Axis	6,378,137.000 m
Inverse Flattening	298.257222563
Projection	WGS84 / UTM Zone 30N (EPSG: 32630)
Central Meridian (CM)	03°00'00" W
Latitude of Origin	00°00'00" N
Fake Easting	500,000 mE
Fake Northing	0 mN
Scale factor at CM	0.9996
Vertical datum	Lowest Astronomical Tide (LAT) - calculated using the Vertical Offshore Reference Frame (VORF)



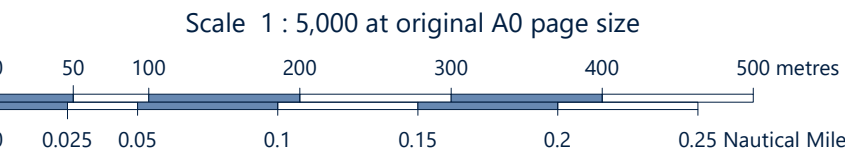
Awel Y Môr Offshore Wind Farm Ltd
Tregaron Bldg, Windmill Hill Business Park, Whitehill Way, Swindon, SN3 6PL, United Kingdom

AWEL Y MÔR

Fugro
Victory House, Tregilar Wharf Unit 161, Hamilton Road, Portchester PO16 4PX
Tel: +44 23 9220 5500

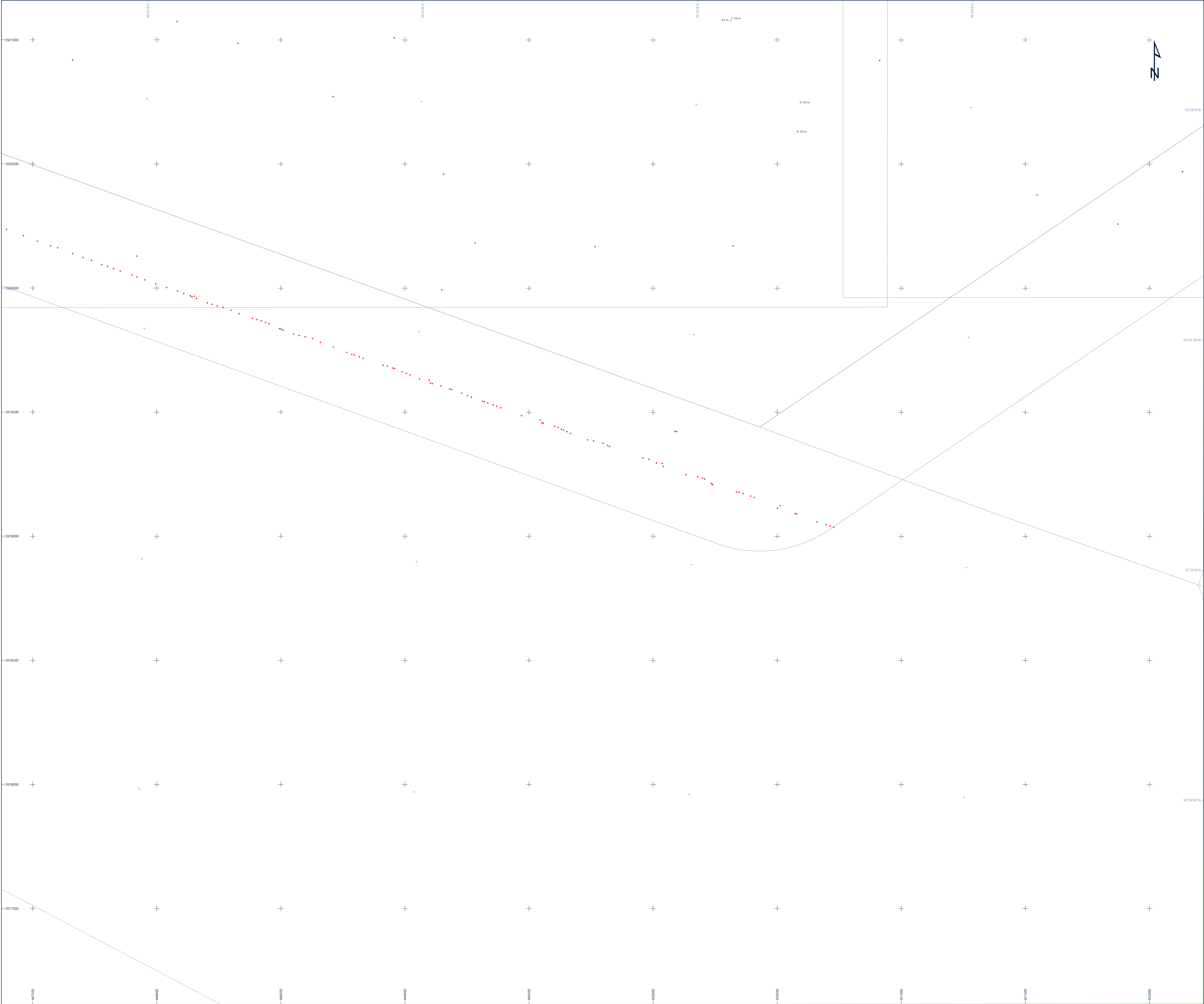
FUGRO

SEABED CHARACTERISATION
AWEL Y MÔR OFFSHORE WIND FARM
GEOPHYSICAL SURVEY 2020
UK IRISH SEA



Issue	Date	Status	Interpreted	Prepared	Checked	Approved
01	07 October 2020	Draft Issue - Revision 1	OOT	DS	SB	BPT
02	01 December 2020	Final Issue - Revision 2	OOT	DS	SB	BPT
03	04 February 2021	Final Release - Revision 3	OOT	DS	SB	BPT
-	-	-	-	-	-	-

Fugro Project No.	Vessel(s)	Survey Date
200655	Fugro Mercator	10 June to 11 August 2020
File Name	Chart No.	
200655_Array_SeabedCharacterisation_10	10 of 11	



Legend

- UTM Grid
- Geographical Grid
- Chart Extent
- Wind Farm Extent
- Array Survey Extent
- Export Cable Route Survey Extent
- Seabed Sediments
 - SAND
 - Sandy GRAVEL
- Seafloor Features
 - Gwynn y Môr Windfarm Turbine
 - MetMast C Borehole
 - Cable
 - Debris
 - Rock Dump
 - Scour
 - Wreck
 - Megaripples
 - Sand Waves
- Seabed Targets
 - Boulder (Height [m])
 - Debris (Height [m])
 - Linear Debris (Height [m])
 - Mound (Height [m])
 - Wreck (Height [m], Length [m], Width [m])
 - Magnetic Anomaly

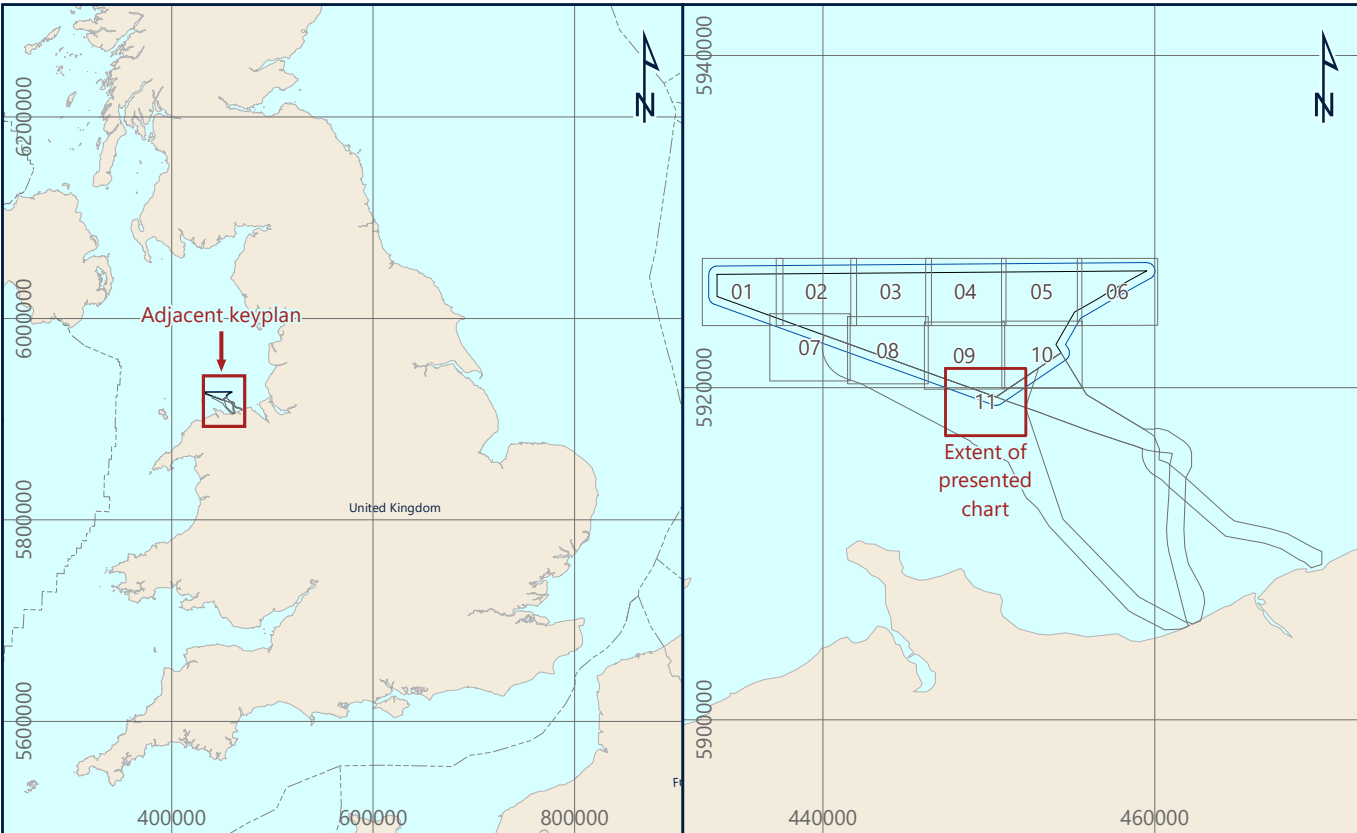
Notes

1) Seabed characterisation has been derived primarily from SSS reflectivity, with reference to MBES, SBP and ground truthing through benthic grab samples

This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for that commission. Unauthorised use of this document in any form whatsoever is prohibited.

Geodetic Parameters

Geodetic datum	World Geodetic System 1984
Ellipsoid	WGS84
Semi-Major Axis	6,378,137.000 m
Inverse Flattening	298.257222563
Projection	WGS84 / UTM Zone 30N (EPSG: 32630)
Central Meridian (CM)	03°00'00" W
Latitude of Origin	00°00'00" N
Fake Easting	500,000 mE
Fake Northing	0 mN
Scale factor at CM	0.9996
Vertical datum	Lowest Astronomical Tide (LAT) - calculated using the Vertical Offshore Reference Frame (VORF)



Awel Y Môr Offshore Wind Farm Ltd
Tregaron Bldg, Wrexham Hill Business Park, Whitford Way, Wrexham, SH3 6PL, United Kingdom

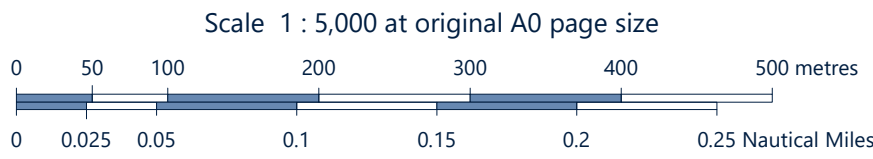
AWEL Y MÔR

Fugro

Victory House, Tregilar Wharf Unit 161, Hamilton Road, Portchester PO16 4PX
Tel: +44 23 9220 5500

FUGRO

SEABED CHARACTERISATION
AWEL Y MÔR OFFSHORE WIND FARM
GEOPHYSICAL SURVEY 2020
UK IRISH SEA



Issue	Date	Status	Interpreted	Prepared	Checked	Approved
01	07 October 2020	Draft Issue - Revision 1	OOT	DS	SB	BPT
02	01 December 2020	Final Issue - Revision 2	OOT	DS	SB	BPT
03	04 February 2021	Final Release - Revision 3	OOT	DS	SB	BPT
-	-	-	-	-	-	-

Fugro Project No.	Vessel(s)	Survey Date
200655	Fugro Mercator	10 June to 11 August 2020
File Name	Chart No.	
200655_Array_SeabedCharacterisation,11	11 of 11	

Legend

- + UTM Grid
- + Geographical Grid
- Chart Extent
- Wind Farm Extent
- Array Survey Extent
- Export Cable Route Survey Extent
- Seabed Sediments**
 - SAND
 - Sandy GRAVEL
- Seafloor Features**
 - Gwynth y Môr Windfarm Turbine
 - MeiMast C Borehole
 - Cable
 - Debris
 - Rock Dump
 - Scour
 - Wreck
 - Megaripples
 - Sand Waves
- Seabed Targets**
 - Boulder (Height [m])
 - Debris (Height [m])
 - Linear Debris (Height [m])
 - Mound (Height [m])
 - Wreck (Height [m], Length [m], Width [m])
 - Magnetic Anomaly

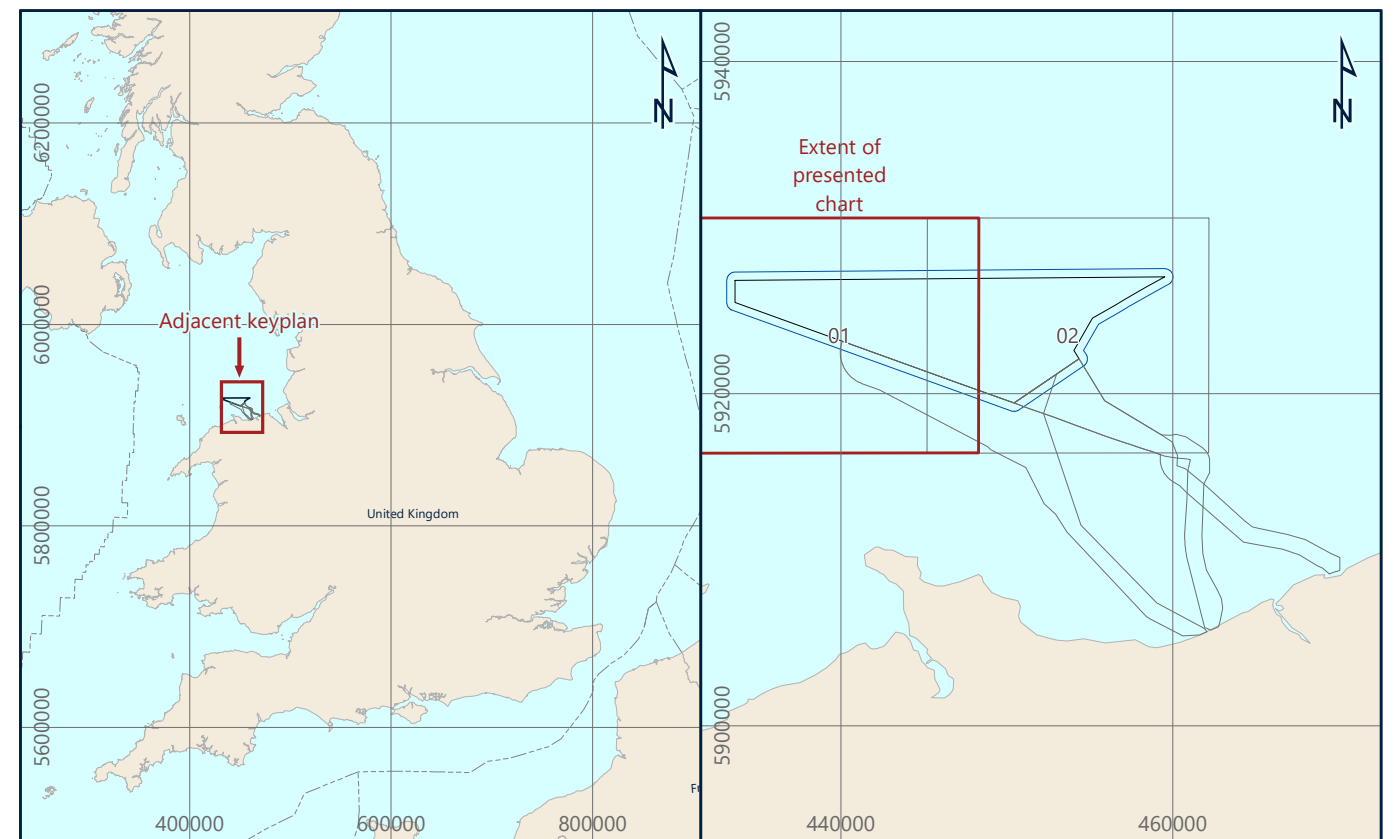
Notes

1) Seabed characterisation has been derived primarily from SSS reflectivity, with reference to MBES, SBP and ground truthing through benthic grab samples

This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for that commission. Unauthorized use of this document in any form whatsoever is prohibited.

Geodetic Parameters

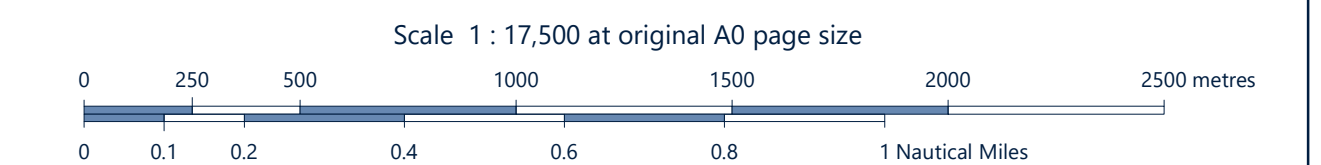
Geodetic datum	World Geodetic System 1984
Ellipsoid	WGS84
Semi-Major axis	6,378,137.000 m
Inverse Flattening	298.257223563
Projection	WGS84 / UTM Zone 30N (EPSG 32630)
Central Meridian (CM)	03°00'00" W
Latitude of Origin	00°00'00" N
False Easting	500,000 mE
False Northing	0 mN
Scale Factor at CM	0.9996
Vertical datum	Lowest Astronomical Time (LAT) - calculated using the Vertical Offshore Reference frame (VORF)



Awel Y Môr Offshore Wind Farm Ltd
Trigonos Bldg, Windmill Hill Business Park, Whitehill Way, Swindon, SN2 6PB, United Kingdom

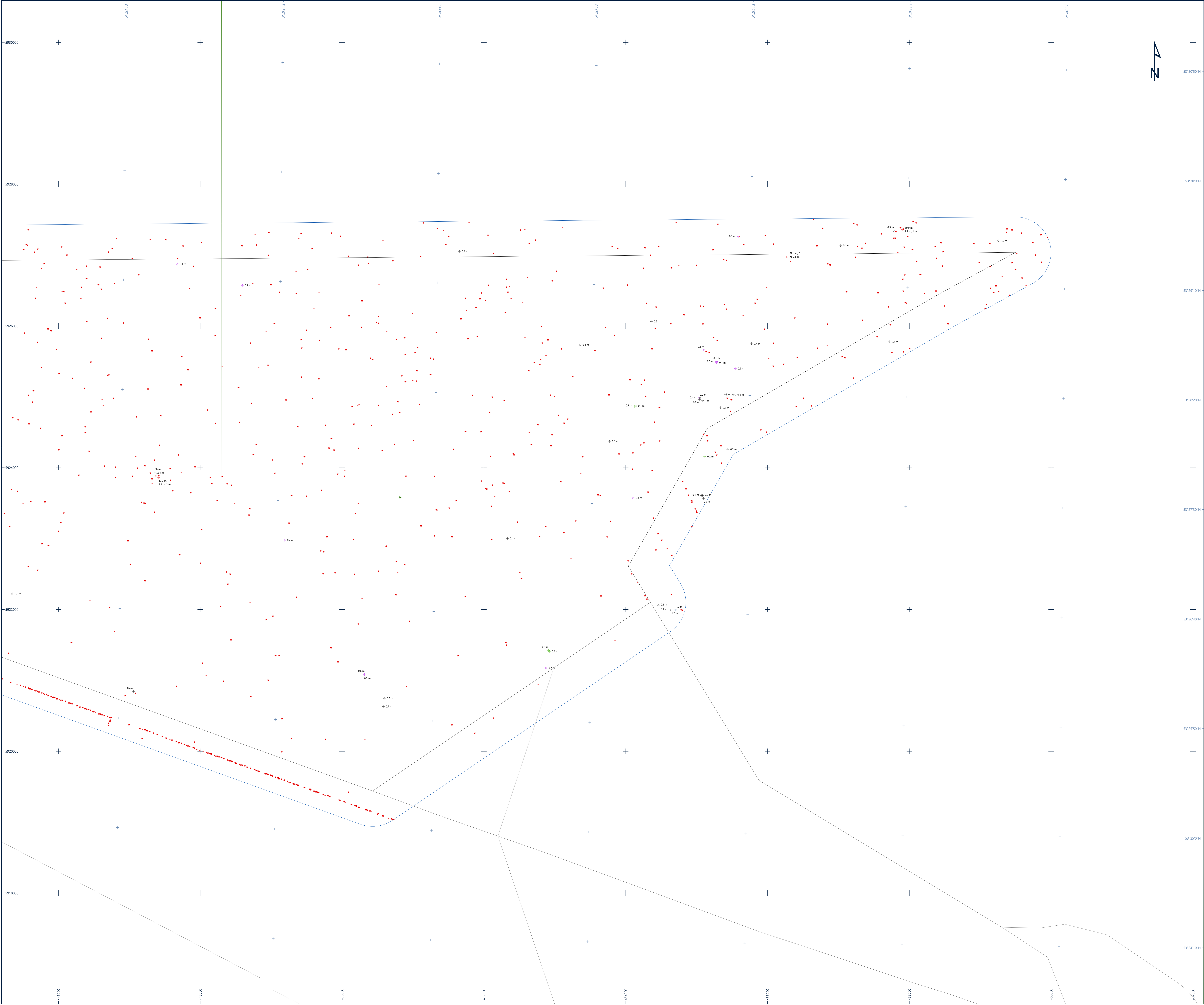
Fugro
Victory House, Trafalgar Wharf (Unit 16), Hamilton Road, Portchester PO6 4PX
Tel: +44 23 9220 5500

SEABED CHARACTERISATION OVERVIEW
AWEL Y MÔR OFFSHORE WIND FARM
GEOPHYSICAL SURVEY 2020
UK IRISH SEA



Issue	Date	Status	Interpreted	Prepared	Checked	Approved
01	01 December 2020	Final Issue - Revision 1	ODT	DS	SB	BPT
02	04 February 2021	Final ReIssue - Revision 2	ODT	DS	SB	BPT
-	-	-	-	-	-	-

Fugro Project No.	Vessel(s)	Survey Date
200655	Fugro Mercator	10 June to 11 August 2020
File Name	Chart No.	
200655_Array_SeabedCharacterisation_Overview_01	01 of 02	



Legend

- UTM Grid
- Geographical Grid
- Chart Extent
- Wind Farm Extent
- Array Survey Extent
- Export Cable Route Survey Extent
- Seabed Sediments
 - SAND
 - Sandy GRAVEL
- Seafloor Features
 - Gynt y Môr Windfarm Turbine
 - MetMast C Borehole
 - Cable
 - Debris
 - Rock Dump
 - Scour
 - Wreck
 - Megaripples
 - Sand Waves
- Seabed Targets
 - Boulder (Height [m])
 - Debris (Height [m])
 - Linear Debris (Height [m])
 - Mound (Height [m])
 - Wreck (Height [m], Length [m], Width [m])
 - Magnetic Anomaly

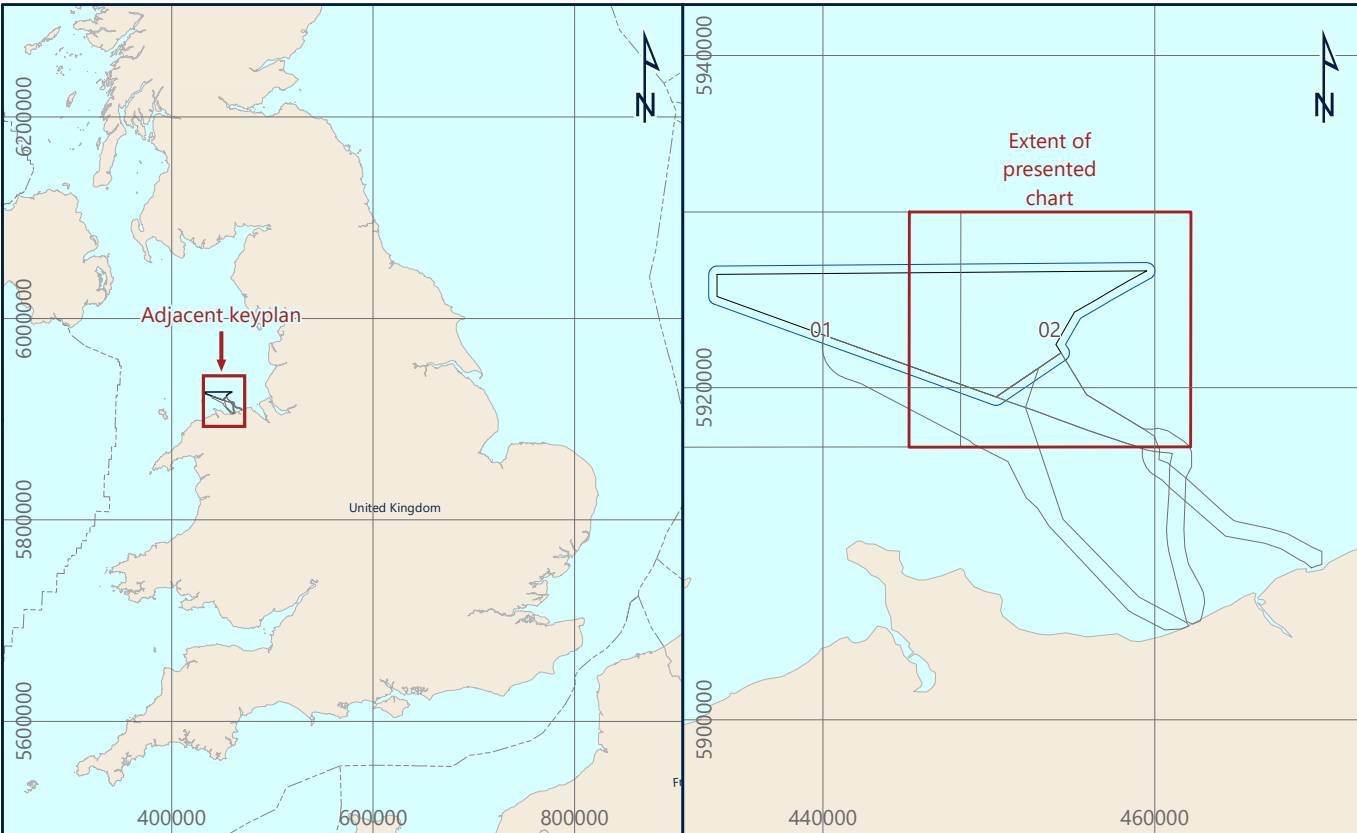
Notes

1) Seabed characterisation has been derived primarily from SSS reflectivity, with reference to MBES, SBP and ground truthing through benthic grab samples

This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for that commission. Unauthorised use of this document in any form whatsoever is prohibited.

Geodetic Parameters

Geodetic datum	World Geodetic System 1984
Ellipsoid	WGS84
Semi-Major Axis	6,378,137.000 m
Inverse Flattening	298.257223563
Projection	WGS84 / UTM Zone 30N (EPSG: 32630)
Central Meridian (Cm)	03°00'00" W
Latitude of Origin	00°00'00" N
Fake Easting	500,000 mE
Fake Northing	0 mN
Scale factor at CM	0.9996
Vertical datum	Lowest Astronomical Tide (LAT) - calculated using the Vertical Offshore Reference Frame (VORF)



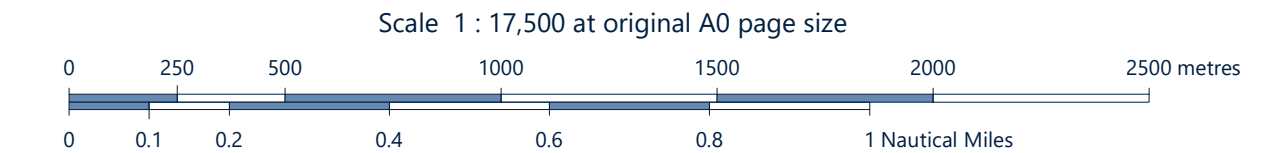
Awel Y Môr Offshore Wind Farm Ltd
Tregaron Bldg, Windmill Hill Business Park, Whitland Way, Swindon, SN1 6PE, United Kingdom

AWEL Y MÔR

Fugro
Victory House, Tregear Wharf Unit 161, Hamilton Road, Porchester PO6 4PX
Tel: +44 23 9220 5500

FUGRO

SEABED CHARACTERISATION OVERVIEW
AWEL Y MÔR OFFSHORE WIND FARM
GEOPHYSICAL SURVEY 2020
UK IRISH SEA

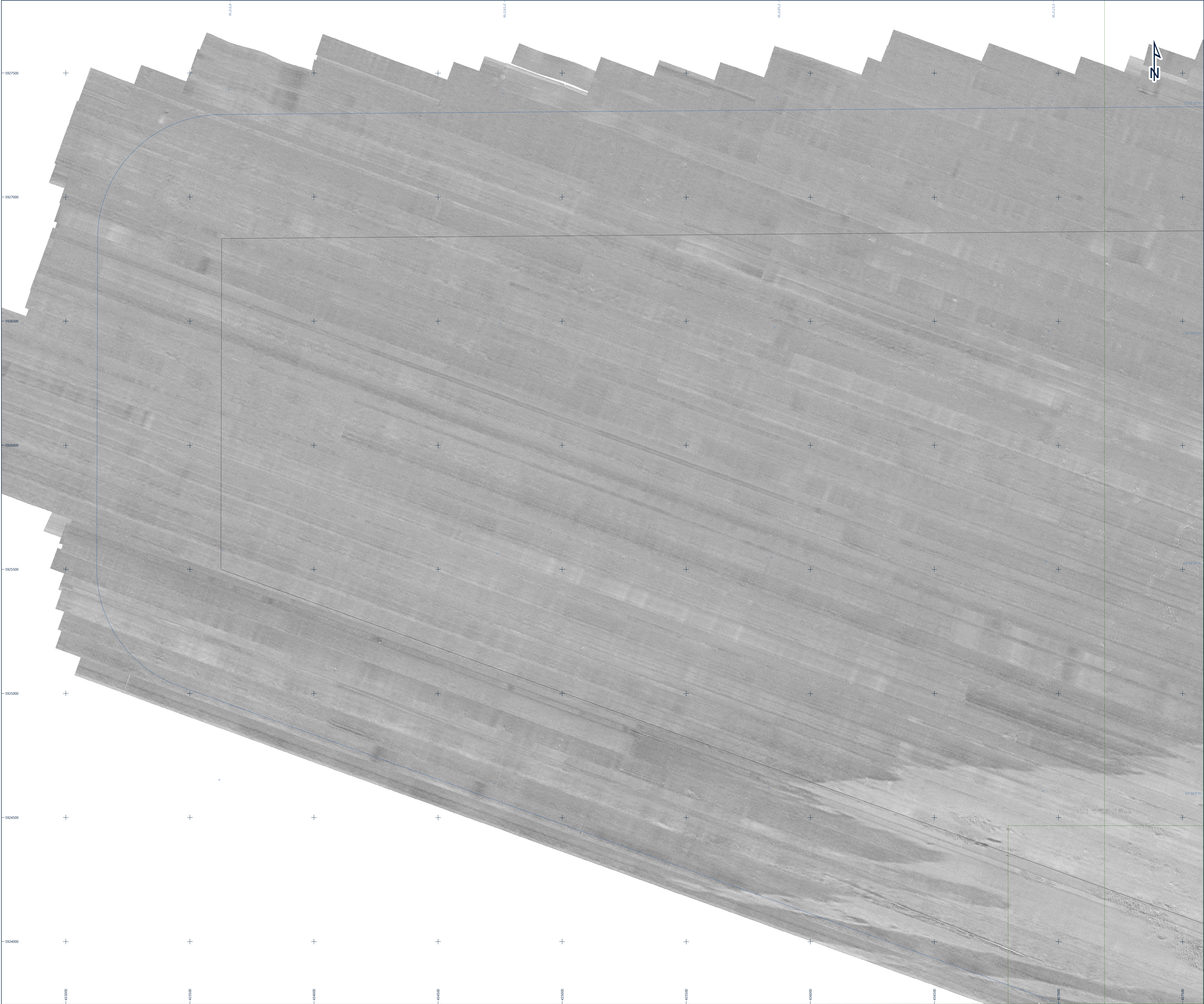


Issue	Date	Status	Interpreted	Prepared	Checked	Approved
01	01 December 2020	Final Issue - Revision 1	OOT	DS	SB	BPT
02	04 February 2021	Final Relissue - Revision 2	OOT	DS	SB	BPT
-	-	-	-	-	-	-
-	-	-	-	-	-	-

Fugro Project No.	Vessel(s)	Survey Date
200655	Fugro Mercator	10 June to 11 August 2020
File Name		Chart No.
200655_Array_SeabedCharacterisation_Overview_02		02 of 02

Appendix F

Charts – SSS Mosaics



- Legend**
- UTM Grid
 - Geographical Grid
 - Chart Extent
 - Wind Farm Extent
 - Array Survey Extent
 - Export Cable Route Survey Extent

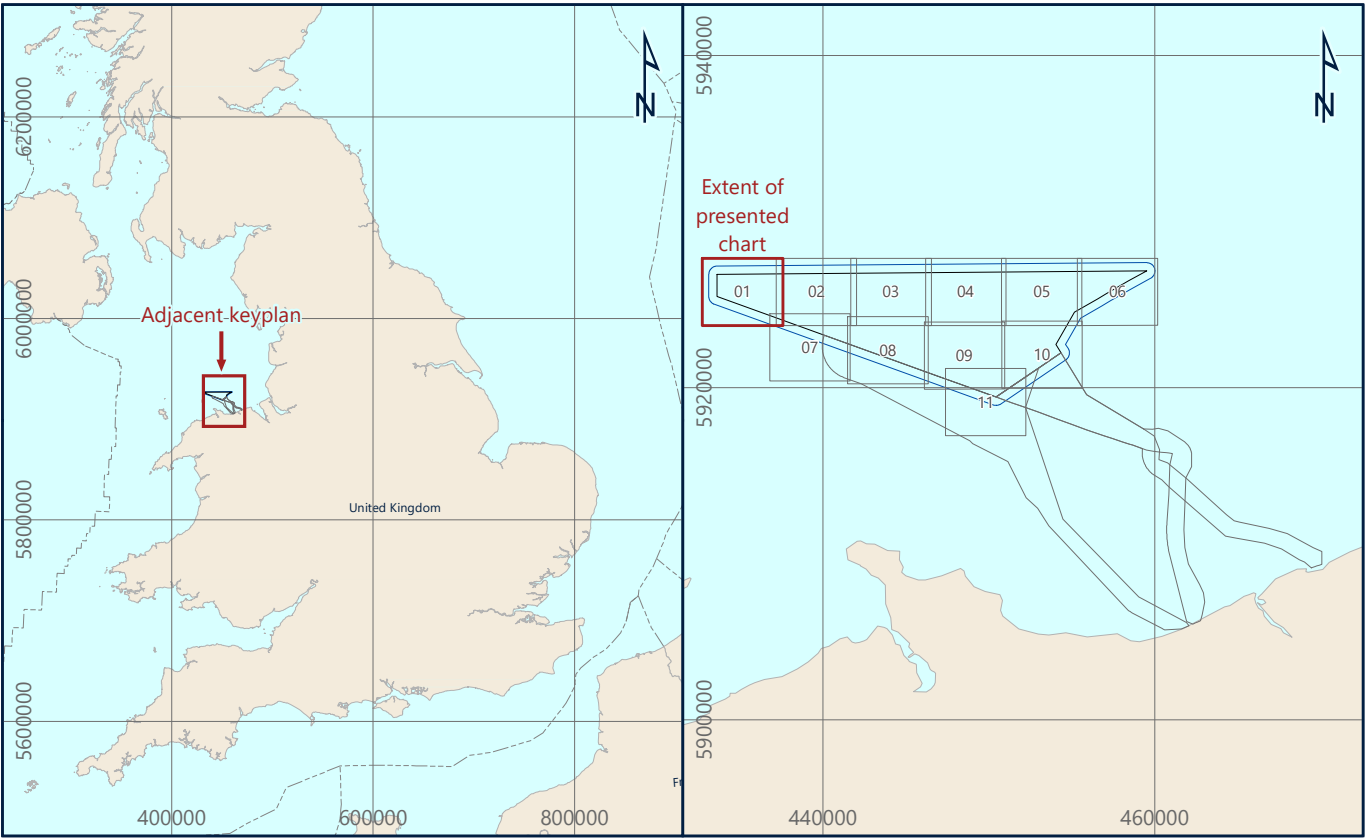
Notes

1) Side scan sonar mosaic created from Edgetech 420S simultaneous bi-frequency (230 / 540 / 850 kHz), processed with a 0.1 m cell size.

This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for that commission. Unauthorised use of this document in any form whatsoever is prohibited.

Geodetic Parameters

Geodetic datum	World Geodetic System 1984
Ellipsoid	WGS84
Semi-Major Axis	6,378,137.000 m
Inverse Flattening	298.257223563
Projection	WGS84 / UTM Zone 30N (EPSG: 32630)
Central Meridian (CM)	03°00'00" W
Latitude of Origin	07°00'00" N
False Easting	500,000 mE
False Northing	0 mN
Scale Factor at CM	0.9996
Vertical datum	Lowest Astronomical Tide (LAT) - calculated using the Vertical Offshore Reference Frame (VORF)



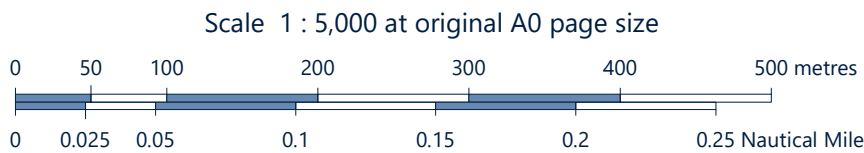
Awel Y Môr Offshore Wind Farm Ltd
Trigono Rd, Windmill Hill Business Park, Whitehill Way, Swindon, SN2 6PR, United Kingdom

AWEL Y MÔR

Fugro
Victory House, Trefgar Wharf Unit 161, Hamilton Road, Portchester PO16 4PX
Tel: +44 23 8220 3500

FUGRO

SIDE SCAN SONAR MOSAIC
AWEL Y MÔR OFFSHORE WIND FARM
GEOPHYSICAL SURVEY 2020
UK IRISH SEA



Issue	Date	Status	Interpreted	Prepared	Checked	Approved
01	07 October 2020	Draft Issue - Revision 1	OOT	DS	SB	BPT
02	01 December 2020	Final Issue - Revision 2	OOT	DS	SB	BPT
03	04 February 2021	Final Release - Revision 3	OOT	DS	SB	BPT
-	-	-	-	-	-	-

Fugro Project No.	Vessel(s)	Survey Date
200655	Fugro Mercator	10 June to 11 August 2020
File Name		Chart No.
200655_Array_SideScanSonarMosaic_01		01 of 11



RWE Renewables UK
Swindon Limited

Windmill Hill Business Park
Whitehill Way
Swindon
Wiltshire SN5 6PB
T +44 (0)8456 720 090
www.rwe.com

Registered office:
RWE Renewables UK
Swindon Limited
Windmill Hill Business Park
Whitehill Way
Swindon