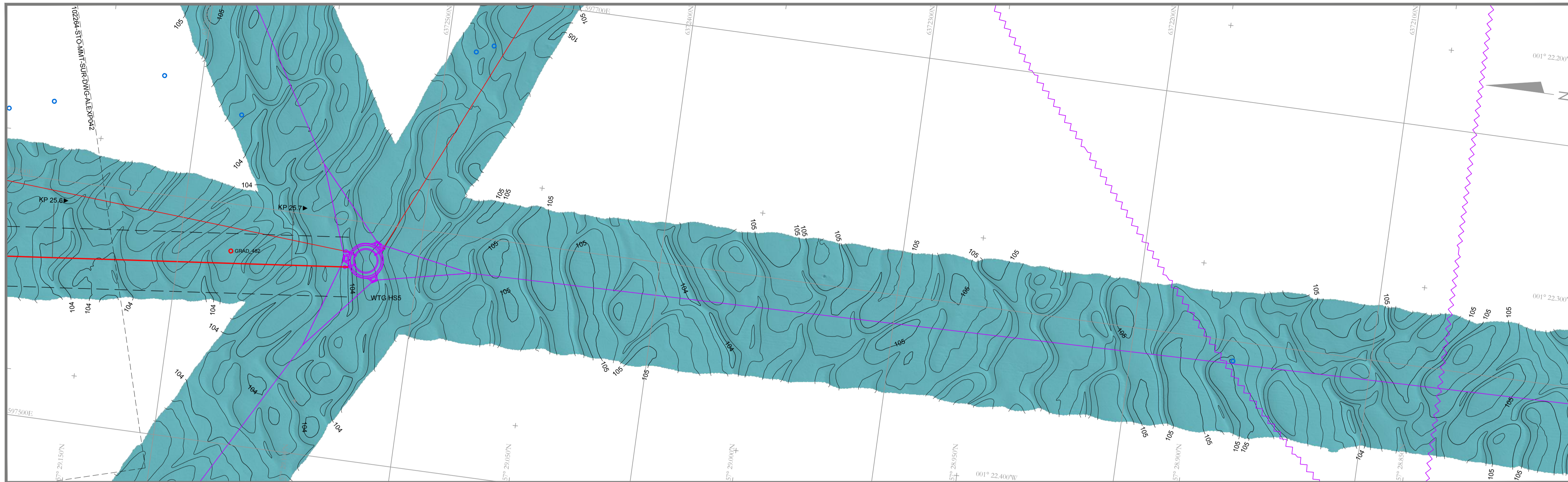


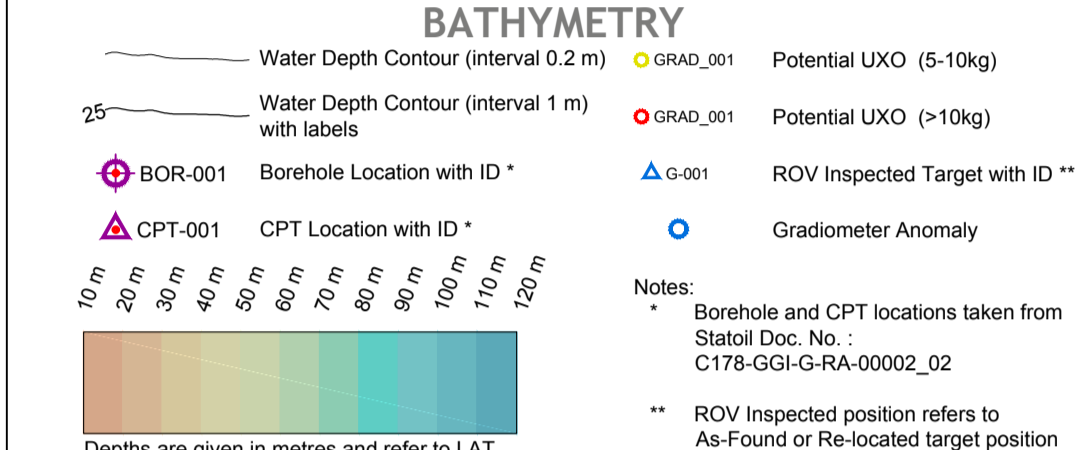
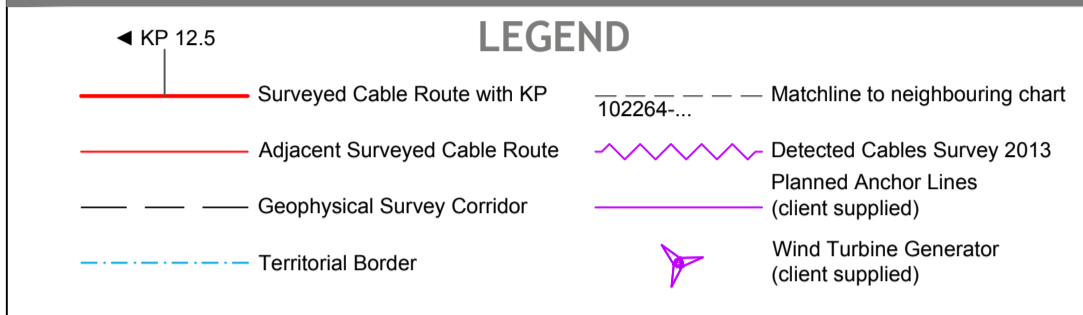
BATHYMETRY - Horizontal Scale 1:1000



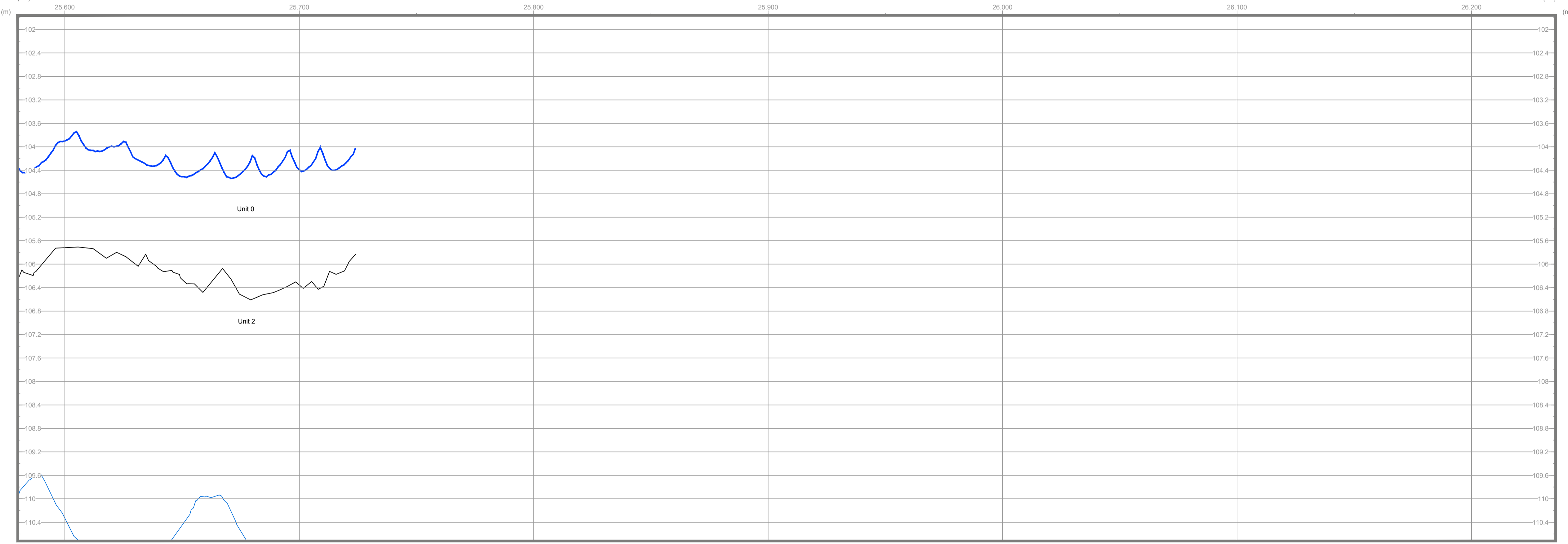
SURVEY NOTES

Horizontal Datum : WGS84, Grid north displayed in charts
 Projection : UTM Zone 30 N
 Chart Latitude and Longitude are given in format DMM mmm
 : 0.9996
 Central Scale Factor : 500 000 m
 False Easting : 0 m
 False Northing : 0 m
 Latitude Origin : 0°
 Central Meridian : 3° 00' 00"W
 Dimensions : In metres unless otherwise stated
 Vertical Reference : LAT
 Height Model : DTU10
 Reference Document : ST16826 Hywind Scotland UXO Survey Report: C178-MMT-G-RA-00005
 Coastline : From background database (for guidance only)
 Survey Date : April - May 2016

Offshore vessel : MV Edda Fonn
 Positioning : Seapath with Fugro Starpack XP
 Secondary Positioning : Fugro Starpack XP
 USBL Positioning : Kongsberg HPAP 500
 ROV : Kystdesign Supporter
 INS Primary UW Positioning : IXSEA ROVINS
 INS Secondary UW Positioning : IXSEA Octans 3000
 Multibeam Echo Sounder : Dual R2Sonic 2024 (200-400 kHz)
 Side Scan Sonar : Edgetech 4200 (300/600 kHz)
 Gradiometer : Innovatum Gradiometer Array (12 sensor)



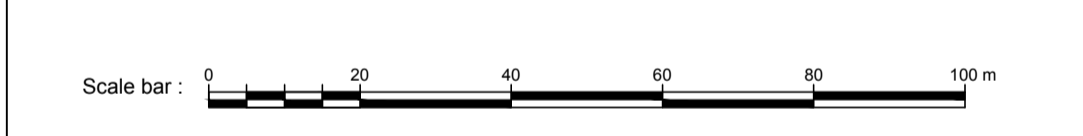
LONGITUDINAL PROFILE WITH SHALLOW GEOLOGY - Vertical Scale 1:40



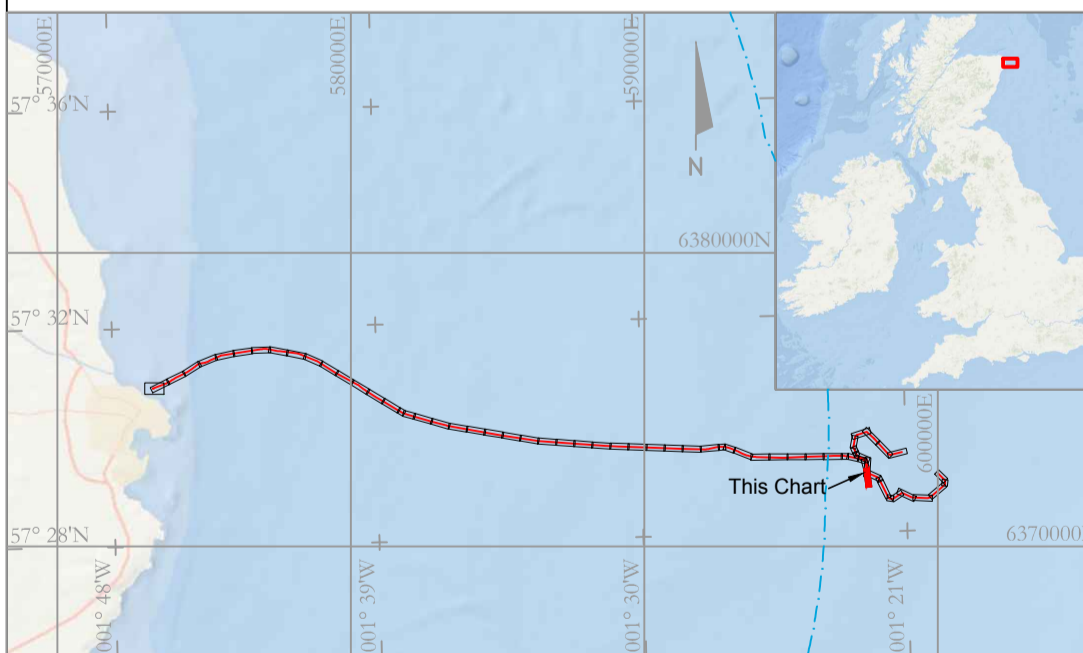
LONGITUDINAL PROFILE WITH SHALLOW GEOLOGY



Unit	Acoustic Characteristics	Geological interpretation
0	Good acoustic penetration. Medium to high reflectivity. Limited to rare internal structure.	Holocene deposits, typically consisting of gravelly silty fine to medium SAND along the cable route and slightly silty fine to medium SAND in proximity to the wind farm area.
1	Good acoustic penetration. Medium to high reflectivity. Limited to rare internal structure.	Forth Formation, slightly silty to silty, very gravelly, fine to coarse SAND.
2a	Varying degrees of penetration. Low to high reflectivity. Low to high amplitude internal reflectors alternating with transparent sections, occasionally with parallel to sub parallel internal reflectors	Witch Ground Formation - Witch member, very soft to firm, slightly silty, slightly sandy to sandy, slightly gravelly CLAY.
2b	Varying degrees of penetration. Low to high reflectivity. Low to high amplitude internal reflectors alternating with transparent sections, occasionally with parallel to sub parallel internal reflectors	Witch Ground Formation - Fladen member, soft to firm slightly sandy slightly gravelly CLAY.
3a	No acoustic penetration. Top of unit characterised by irregular high amplitude reflector. Associated with mounded numerous boulder areas where outcropping. (Usually indistinguishable from Unit 2 where buried).	Wee Bankie Formation, stiff to hard, slightly sandy gravelly CLAY.
3b	Varying degrees of penetration. Low to high reflectivity. Low to high amplitude near chaotic internal reflectors	Wee Bankie Formation, silty to very silty SAND.
4	No acoustic penetration. Top of unit characterised by irregular reflector of high amplitude.	BEDROCK



INDEX CHART



ENGINEERING DATA

A	Issued For Use	JH	HA	KG	20160712
02	For Client Review	JH	HA	KG	20160614
Revision	Revision Description	Drawn	Checked	Approved	Date
Contractor : MMT					
MMT Sven Kalifelts Gata 11 SE-426 71 Västra Frölunda Tel: +46 31 762 03 00 Sweden info@mmt.se					
Survey date:	April - May 2016	Project:	2016 Hywind UXO Survey UK EAST COAST		
Horizontal Scale:	1:1000	Title: Alignment Chart KP 25.580 - KP 25.769			
Profile Vertical Scale:	1:40	Export Cable H55 - Peterhead			
Chart size:	ISO A1 - 841 x 594 mm	Report No.	ST16826		
		Drawing No.	102264-STO-MMT-SUR-DWG-ALEXP043		
		C178-MMT-G-YA-00044-01		A	
		Client Drawing No.	Revision		

