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Document reference				*Issue information*	
Project	**Package**	**Issuer**	**Chrono**	**Revision**	**Status**
MED_AO6	-	TEC	70	01	A

Title	**Integration report - Geophysical and geotechnical survey – AO6 OWF Zone 2 area**			
Additional Metadata	**Discipline**	**Document Type**	**System**	**Activity**
	INT			
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27/08/2024	*00*	*IFR*	*Issued*	*RAP*	*CBC*	*AN*
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08/04/2025	*01*	*A*	*Approved with comments*	CBC	MB	*AN*

Change log:

The reports has been approved with comments. Please note that the comments presented in the next page remain open and require your attention.

4.1.3	Could you please present a SBP profile to illustrate the quality of the data?	16.09.2024	Open
4.5	"A total of 12 CPT has been acquired in Zone 2." Geotechnical factual report indicates the performance of 14 test (with 1 retest), please make it consistent.	16.09.2024	Open
Table 11	The quantities are the one of the greater "Z2" area, not the one of the refined "OWFZ2", please do not avoid confusion by mixing the name	16.09.2024	Open
Table 12	Where the RGT units come from ? Please introduce them or leave this RGT for further sections of the report	16.09.2024	Open
6	"As mentioned in the data source limitations in section 4.1, SBP data is of generally good quality. However, data were supplied with a phase rotation with a greater range of negative amplitudes values than positive" I do not see any need to repeat the statement about the data quality in this section dedicated to the Geological Framework	16.09.2024	Open
6.1	I would remove the "Regional Geotechnical Units" if it comes from an interpretation of UHRS data. You can juste propose a "soil type" in this colomn, I do not see a reason to create a regional geotechnical unit which will create confusion with other units derived from Geotechnical data	16.09.2024	Open
Figure 8-1	To what refers the Hazard level ? Which consideration ?	16.09.2024	Open
10	"This section details the geotechnical units derived for the AO6 OWF Zone 2 area based on geotechnical data referenced in Section 4.5, aided by the seismo-stratigraphic framework presented in Section 6 and its limitations" Please rephrase to clarify the approach, the units are defined from the stratigraphic framework which has been verified and completed by the data	16.09.2024	Open
Table 19	Please replace the RGT (which are confusing with these new Geotechnical units) with the stratigraphic units	16.09.2024	Open
-	Can you add a word regarding the velocity model ? Is the same velocity shall be applied for each unit? Did you made the a conversion from the units thickness in time and depth to check the velocity model ?	16.09.2024	Open
-	"Due to a similar seismic response, the distinction within the different units is not possible using the UHRS dataset." I guess it is the same case for SAND 1 and SAND 2 also for exemple or for SILT 1 and SILT 2. Could you please mention which units can be differenciated from seismic	16.09.2024	Open
-	How do you make the distinction between CLAY 1 and CLAY 2 based on geotechnical parameters ? What is the treshold ? It seem to be 80 Mpa of Su, however in B11 and B13 this treshold is exceeded from 12 to 14m but is still considered as CLAY 1	16.09.2024	Open
Table 32	The general ground model does not make sense stratigraphically and geologically speaking. -Why some geotechnical units are present within another unit (example of SAND 1 within SILT1 in the Z2_OWF_B11 or SAND 2 within SAND 1 and within CLAY 1 in Z2_OWF_B13a) -Why some unit (SSU3 for example) are described as silty CLAY and they include two Geotechnical SAND units? -How do we understand the repartition of these Geotechnical units ? The common way to perform a Ground Model is to define sub-units within stratigraphical units and to define LE, BE, HE parameters within this sub-units. The proposed approach does not present range of parameters within a stratigraphical unit so it cannot be be used as a base for further Ground Model refinement with additional data.	16.09.2024	Open
-	I would include a disclaimer section, explaining the approach considered and mentionning that the geotechnical parameters indicated for Geotechnical Units shall not be considered within a Stratigraphical Unit because some geotechnical tests used for Geotechnical Units characterisation might not be part of the considered Stratigraphical Unit.	16.09.2024	Open
MED AO6 OWF Profiles	Why is there this pink SILT unit ? I understood that there was SILT 1 and SILT 2 ? What are the characteristics of this unit ?	16.09.2024	Open
MED AO6 OWF Profiles	Why the Geotechnical units are not presented in the profiles ?	16.09.2024	Open
MED AO6 OWF Profiles	Can you please present isopachs of all the units instead of Depth of Top Limit. With this approach the information about spatial distribution and depth of many units are missing (we do not know where are localised U1, U6, etc...)	16.09.2024	Open
-	"Geotechnical units and parameters' estimates (derived from CPT data and lab testing) and presented in section 10 for each of the 7 subunits may only be valid within approximately 100 m radius of the geotechnical locations" This approach is uncorrected: The parameters are invalid even at 5m of the geotechnical locations for design purpose, however, a indicative range of parameters should be presented for soil units that are distributed over the area, otherwise this is not a ground model. Same statement as previous comment, this model can not be used as a base for further refinement. Anyway, I would remove this sentence about the validity of the parameters in the 100m radius, it does not make sense.	16.09.2024	Open
MED AO6 OWF Profiles	Please present the seismic horizon instead of the RGT units limit.	16.09.2024	Open
-	"Ground conditions and geotechnical unit distribution based on ground-truthed reflectors can be extrapolated to a 500 m radius and beyond in line with APPENDIX II – UHRS REGIONAL PROFILES. However, geotechnical parameters derived from CPT data and offshore/onshore lab testing, may only be valid for approximately a 100 m radius from the geotechnical locations."	16.09.2024	Open
-	Could you please provide recommendations for further surveys with regards to the specific Geotechnical/Stratigraphical units. Which units present large variations in terms of geotechnical parameters? Which unit is not imaged or poorly imaged by the geophysical data ? Etc...	16.09.2024	Open

TECNOAMBIENTE
A TRADEBE COMPANY

MINISTÈRE
DE LA TRANSITION
ÉCOLOGIQUE

MED_AO6 AREA
OFFSHORE WINDFARM
GEOPHYSICAL AND GEOTECHNICAL SURVEY

MED-TEC-00070_A_rev01_Integration report - Geophy/Geotech - OWF Zone 2 AO6 area

PROJECT No.
113401341

INTEGRATION REPORT

No. OF PAGES
110 + Appendices

01	*08/04/2025*	*Approved with comments*	*CBC*	*MBB*	*AN*	*FLM*	*DGEC*
01	*25/03/2025*	*Issued*	*CBC*	*MBB*	*AN*	*FLM*	*DGEC*
00	*27/08/2024*	*Issued*	*RAP*	*CBC*	*AN*	*FLM*	*DGEC*
REV	***DATE***	***DESCRIPTION***	***BY***	***CHK***	***ENG***	***PM***	***CLIENT***

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ABBREVIATIONS

ALARP	As Low as Reasonably Practicable
API	American Petroleum Institute
ASV	Assumed Sound Velocity
BE	Best Estimate
BSB	Below Seabed
c'	Cohesion
CIUc	Isotopically Consolidated Undrained Triaxial Compression
CID	Isotopically Consolidated Drained Triaxial Compression
cm	Centimetre
CPT	Cone Penetration Test
CRS	Constant Rate of Strain Test
DEM	Digital Elévation Model
DGEC	Direction Générale de l'Énergie et du Climat
DR	Relative Density
DS	Direct Shear
DSS	Direct Simple Shear
EC	Export Cable
FC	Fall Cone
GIS	Geographic Information System
HE	High Estimate
LE	Low Estimate
LS	Lower Surface
LV	Lab Vane
m	Meters
MBES	Multibeam Echosounder
ORG	Organic Matter
OSS	Offshore Substation
OWF	Offshore windfarm
PC	Piston Core
Phi'	Friction Angle

PP	Pocket Penetrometer
PSD	Particle Size Distribution
pUXO	Possible Unexploded Ordnance
q_c	Cone tip resistance
Qnet	Net cone resistance
RGTU	Regional Geotechnical Unit
SBP	Sub Bottom Profiler
SHOM	Service Hydrographique et Océanographique de la Marine
SSS	Side Scan Sonar
SSU	Seismo-stratigraphic Unit
Su	Undrained Shear Strength
SRB	Sulphate Reducing Bacteria
TA	Tecnoambiente
THIXO	Thixotropy
TRT	Thermal Resistivity Test
TV	Torvane
u_2	Pore Pressure
US	Upper Surface
UHRS	Ultra-High Resolution Seismic
UTM	Universal Transverse Mercator
UU	Undrained Triaxial Test
UUr	Undrained Triaxial Remoulded Test
UXO	Unexploded Ordnance
VC	Vibrocore
WGS84	World Geodetic System 1984
ZH	Zero Hydrographic

1. EXECUTIVE SUMMARY

DGEC contracted TECNOAMBIENTE to integrate geophysical and geotechnical data and provide an initial ground model for the AO6 Offshore Wind Farm (OWF).

The geophysical dataset used for integration consisted of Ultra-High-Resolution Seismic profiles (UHRS) acquired by Tecnoambiente across the AO6 OWF Zone 2 area. Multibeam Echosounder (MBES), Sub-bottom Profiler (SBP), and Side Scan Sonar (SSS) datasets were acquired by SHOM in previous campaigns. Prior to the geotechnical investigation, Tecnoambiente obtained 20 UXO area clearances and the corresponding ALARP certificates. Additional MBES and SSS data acquired during the export cable (EC) and UXO survey by Tecnoambiente were factored into the integration work.

The geotechnical survey was performed by Tecnoambiente. It covered a total of 8 CPT, 4 PC and 6 VC with associated offshore and onshore laboratory testing. Geotechnical data were evaluated for the following five (5) main soil types were derived and used for integration and ground-truthing purposes.

- Silt
- Sand
- Silty Sand
- Interbedded sand and clay
- Clay

As part of this integration work, geophysical data provided by SHOM (SBP lines) and Tecnoambiente (UHRS lines) were re-processed and integrated with geotechnical data to provide geotechnical units and parameters within the limitations stated herein. A comprehensive GIS database was developed by Tecnoambiente, together with a set of charts included in this report.

The following Five (5) regional geotechnical units were derived from SBP and UHRS dataset:

- RGT unit 1
- RGT unit 2
- RGT unit 3
- RGT unit 4
- RGT unit 5

The following three (3) Geotechnical Units and six (6) Subunits with geotechnical parameters estimates have been obtained within the first 30 m BSB:

- SILT (SILT1 and SILT2)
- SAND (SAND1 and SAND2)
- CLAY (CLAY1 and CLAY2)

Due to the complex geological settings and limitation of the geophysical data discussed herein, soil types (based on ground-truthed horizons) can be extrapolated within a 500 m radius of the geotechnical locations in line with APPENDIX III – INTEGRATED CHARTS. However, geotechnical units and parameters estimates (derived from CPT data and lab testing) may only be valid within approximately 100 m radius of the geotechnical locations.

1.1. SCOPE OF WORK

The objective of this report is to present the integration work performed on the geophysical and geotechnical data sets (listed in Section 4) and provide an initial ground model together with relevant geotechnical parameters to assist the preliminary foundation design of AO6 OWF Zone 2 turbines.

1.2. SURVEY AREA

The AO6 Zone 2 area is located in the Gulf of Lon off the coast of Marseille. The OWF development area is approximately 18.95 km x 24.50 km, with water depths ranging from - 71 to -128 m ZH. The AO6 Zone 2 complete survey area is divided into three sites (Figure 1-1):

- Offshore Substation (OSS) (3.97 km^2)
- Export cable (EC) (94.66 km^2)
- **Windfarm area (OWF) (311.73 km^2)**

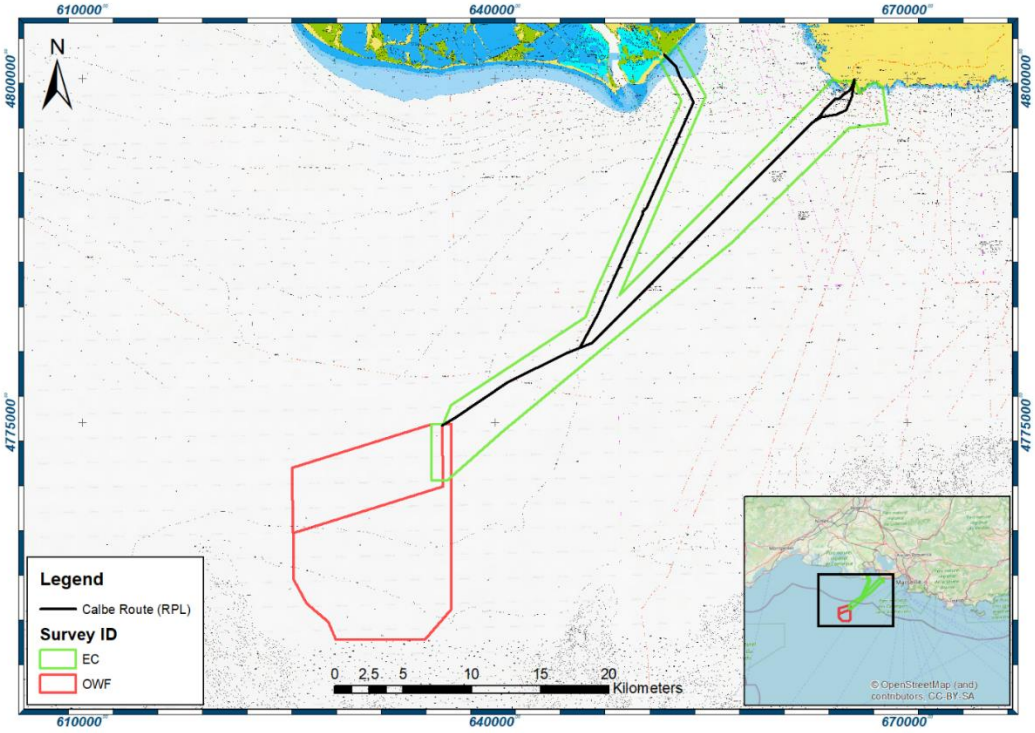


Figure 1-1 AO6 Windfarm area (OWF) and Export cable (EC) in the MED_AO6 Survey area.

2. DATA REFERENCES

The information in this report should be read in conjunction with the supplementary reports and references presented in Table 1 and Table 2.

Table 1 Seismic survey documentation and report reference names created by TA.

Document Type	Name	Ref #
Project Execution Plan	MED_TEC_02_PEP_1	**Ref. 1**
Project Execution Plan	MED_TEC_76_PEP_rev03	**Ref. 2**
Offshore Geotechnical Survey Mobilisation Report	MED_GEN_TEC_23_Mobilisation report_Geotechnical survey - AO6 OWF areas_3_A	**Ref. 3**
Offshore UXO Survey Mobilisation Report	MED_GEN_TEC_22_Mobilisation report_UXO survey - AO6 area_1_A	**Ref. 4**
Offshore Seismic Survey Mobilisation Report	MED_GEN_TEC_21_Mobilisation report_Seismic survey - AO6 area_2_A	**Ref. 5**
Offshore Geotechnical Survey Operational Report – OWF area	MED_TEC_38_Operational report - Geotechnical survey - OWF Zones 1 to 4 areas_0	**Ref. 6**
Offshore Seismic Survey Operational Report – OWF area	MED_TEC_25_Operational report - Seismic survey - OWF Zone 2 AO6 area_1	**Ref. 7**
Offshore Geophysical UXO Survey Operational Report – OWF area	MED_TEC_32_Operational report - UXO survey - OWF Zone 2 AO6 area_0_A	**Ref. 8**
Offshore Geotechnical Survey Factual Report	MED-TEC-00062_A_rev02_Factual report - Geotechnical survey - OWF Zones 1 to 4 areas	**Ref. 9**
Offshore Seismic Survey Factual Report – OWF area	MED_TEC_49_Factual report - Seismic survey - OWF Zone 2 AO6 area_3	**Ref. 10**
Offshore Geophysical UXO Survey Factual Report – OWF area	MED_TEC_56_Factual report - UXO survey - OWF Zone 2 AO6 area_0	**Ref. 11**
GIS project for AO6	RACC_FOS_area_2023-2024_Gis data	**Ref. 12**

Document Type	Name	Ref #
Offshore Seismic Survey Factual Report – OSS area	MED_PeM_TEC_00053_IFE_rev03- Factual report - Seismic survey - OSS Zone 2 AO6 area	**Ref. 13**

Table 2 References to DGEC documentation used to complete this report.

Document Type	Name	Reference name	Ref #
Reconnaissance survey AO6 Parc – Operational report	20221220_RAP_221_DGEC_EMR_Med_Parcs_Golfe_Lion_2021_2022	SHOM, 2022	**Ref. 14**
Sedimentologic cartography	20190807_NP_SHOM-DOPS-HOM-SEDIM_9-METHODE-CARTOGRAPHIE-SEDIMENTAIRE	SHOM, 2019	**Ref. 15**
Sediment grab samples	AO6-Med_T4.S3_Granulo_PARC_ZoneD_V2.0	SHOM, 2023	**Ref. 16**
Final sedimentological report	Rapport_DECF_EMR_AO6-Mediterranée_Zone_D_T4.S4_PARC_EN	SHOM, 2022	**Ref. 17**
Notice du livrable T4.S7 – Fichiers SBP EMR AO6 Méditerranée – zone parc D	Notice_SBP_AO6_parc_D	SHOM, 2022	**Ref. 18**
Rapport : Campagne de mesures Project de parc eolien en Mediterranee (zone D)	Rapport_WS13_DECF_EMR_AO6-Mediterranee_Lot4_T4.C1	SHOM, 2023	**Ref. 19**
Rapport : Analyse, traitement et qualification des données Volet << Houle>>	Rapport_DECI_EMR_AO6-Med_zoneD_Lot4_Houle_v2	SHOM, 2023	**Ref. 20**
Preliminary study of the seismotectonic context of the AO6 windfarms in the Gulf of Lion based on available data Final report	BRGM_RC-72169-FR _Final_review_final	BRGM, 2022	**Ref. 21**
6-Alpha Unexploded Ordnance Threat and Risk Assessment	9797_UXOTARA_with_RMS_AO6 Mediterranean_DNV_V4.0	6-Alpha, 2022	**Ref. 22**

Document Type	Name	Reference name	Ref #
Intermediate Interpretation and Integration Report - AO6 Deep Geotechnical Survey – Fos PEM site	F212871-INT-FOS-001_RTE-A06 - Geotechnical SI OSS FOS Intermediate Integration Report	Fugro, 2023	**Ref. 23**

2.1. BIBLIOGRAPHIC REFERENCES

[1] Andersen, K.H. & Schjetne, K. (2013). Database of friction angles of sand and consolidation characteristics of sand, silt and clay. ASCE J. of Geotechnical and Geoenvironmental Engineering., Vol. 139, No. 7, July 2013, 1140-1155.

[2] API RP 2A-WSD (2000). Recommended Practice for Planning, Designing and Constructing Fixed Offshore Platforms - Working Stress Design. API Recommended Practice, Twenty-First Edition, December 2000.

[3] ASTM D8295-19, Standard Test Method for Determination of Shear Wave Velocity and Initial Shear Modulus in Soil Specimens using Bender Elements, ASTM International, West Conshohocken, PA, 2019.

[4] Baecher, G.B., and Christian, J.T. 2003. Reliability and Statistics in Geotechnical Engineering. London and New York: Wiley.

[5] Basili R., et al., (2013). The European Database of Seismogenic Faults (EDSF) compiled in the framework of the Project SHARE. http://diss.rm.ingv.it/share-edsf/, doi:10.6092/INGV.IT-SHARE-EDSF.

[6] Belderson, R. H., Johnson, M. A., & Kenyon, N. H. (1982). Bedforms.[In]: Stride, AH (Ed.), Offshore tidal sand, processes and deposits.

[7] Catherine, P., Demange, J., Blanc-Valleron, M.-M., & Dupré, S (2017). Authigenic carbonate mounds from active methane seeps on the southern Aquitaine Shelf (Bay of Biscay, France): evidence for anaerobic oxidation of biogenic methane and submarine groundwater discharge during formation. Archimer [online] Available at: https://archimer.ifremer.fr/doc/00361/47209/47164.pdf

[8] DNV (2021a). Recommended practice — DNV-RP-C207. Statistical representation of soil data. Edition September 2019, amended September 2021

[9] DNV (2021b). Recommended practice DNV-RP-C212. Offshore soil mechanics and geotechnical engineering. Edition September 2019, amended September 2021

[10] EN1997-1: Geotechnical design – Part 1: General rules. November 2004. European Committee for Standartization.

[11] Gorini, C., Mauffret, P., Guennoc, P., Le Marrec, A., 1994. The structure of the Gulf of Lions (Northwestern Mediterranean Sea): a review. In: Mascle, A. (Ed.), Hydrocarbon and petroleum geology of France. Springer-Verlag, New York, pp. 223-243.

[12] Hicks, M.A. 2013. An Explanation of Characteristic Values of Soil Properties in Eurocode 7. In P. Arnold, G.A. Fenton, M.A. Hicks, T. Schweckendiek and B. Simpson Eds. Modern Geotechnical Design Codes of Practice: Implementation, Application and Practice.

[13] International Standardization Organization (2017a). Geotechnical investigation and testing - Identification and classification of soil - Part 1: Identification and description (ISO 14688-1:2017). https://www.iso.org/standard/66345.html

[14] International Standardization Organization (2017b). Geotechnical investigation and testing - Identification and classification of soil - art 2: Principles for a classification (ISO 14688-2:2017). https://www.iso.org/standard/66346.html

[15] International Standardization Organization (2021). Petroleum and natural gas industries - Specific requirements for offshore structures — Part 10: Marine geophysical investigations (ISO 19901-10:2021). https://www.iso.org/standard/77017.html

[16] International Organization for Standardization. (2022). Petroleum and natural gas industries - Specific requirements for offshore structures - Part 2: Seismic design procedures and criteria (ISO 19901-2:2022). https://www.iso.org/standard/77217.html

[17] Jamiolkowski, M., LoPresti, D.C.F., and Manassero, M. 2001. Evaluation of relative density and shear strength of sands from cone penetration test and flat dilatometer test. Soil Behaviour and Soft Ground Construction (GSP 119), ASCE, Reston, VA: 201-238.

[18] Jomard, H., Cushing, E.M., Palumbo, L., Baire, S. David, C., Chartier, T. (2017) Transposing an active fault database into a seismic hazard fault model for nuclear facilities – Part 1: Building a database of potentially active faults (BDFA) for metropolitan France. Nat. Hazards Earth Syst. Sci., 17, 1573–1584, 2017 https://doi.org/10.5194/nhess-17-1573-2017

[19] Kahraman, S., & Gunaydin, O. (2009). The effect of rock classes on the relation between uniaxial compressive strength and point load index. Bulletin of engineering geology and the environment, 68, 345-353.

[20] Kulhawy, F. H., & Mayne, P. W. (1990). Manual on estimating soil properties for foundation design (No. EPRI-EL-6800). Electric Power Research Inst., Palo Alto, CA (USA); Cornell Univ., Ithaca, NY (USA). Geotechnical Engineering Group.

[21] Lengkeek, H.J., Brinkgreve, R.B.J.. CPT-based unit weight estimation extended to soft organic clays and peat: An update June 2022 Cone Penetration Testing 2022 (pp.503-508)

[22] Lofi, J., 2002. La crise de salinité messinienne: conséquences directes et différées sur l'évolution sédimentaire de la marge du Golfe du Lion, Lille 1, Lille, 260 pp.

[23] Lunne, T., Robertson, P.K. and Powell, J.J.M. (1997) Cone Penetration Testing in Geotechnical Practice. Blackie Academic & Professional, London, 312 p.

[24] Oudet J. (2008). Etude terre-mer de la transition syn-rift/post-rift sur les marges de l'océan Liguro-Provençal: apports de la modélisation 3D et de la chronostratigraphie intégrée Thèse de l'Université de Provence, p. 288

[25] Oudet, J., Münch*, P., Borgomano, J., Quillevere, F., … Melinte-Dobrinescu, M. C., Demory, F., and Cornee, J. J. (2010). Land and sea study of the northeastern golfe du Lion rifted margin: the Oligocene–Miocene of southern Provence (Nerthe area, SE France). Bulletin de la Société géologique de France, 181(6), 591- 607.

[26] Thomas, F., Rizza, M., Bellier, O., Billant, J., Dussouillez, P., Fleury, J., ... and Talon, B. (2021). Assessing post-Pliocene deformation in a context of slow tectonic deformation: Insights from paleoseismology, remote sensing and shallow geophysics in Provence, France. Natural Hazards, 105(2), 1453-1490.

2.2. GIS DATABASE

SHOM and Tecnoambiente acquired the geophysical dataset in different survey campaigns. The Geophysical datasets have been developed in a project-specific GIS package for the AO6 project (Ref. 12). Geophysical data (raster and shapefiles) used to produce this report are listed in Table 3:

Table 3 Raster and shapefile datasets.

Dataset	Type	File name	File type	Created
MBES	Bathymetry	RACC_FOS_GPY_2024_1_DEM_1 m_EC_OWF_Z2	Geotiff	SHOM
	Bathymetry	RACC_FOS_GPY_2023_1_DEM_05 m_01_OWF_Z2	Geotiff	TA
Survey	Survey ID	SURVEY_ID_PLY	Shapefile	TA
	UXO OWF boxes	UXO_SEARCH_AREA_PLY	Shapefile	TA
		UXO_VALIDATED_AREAS	Shapefile	TA
		UXO_TARGET_PNT	Shapefile	TA
		UXO_ANOMALIES_AVOID-ANCE_AREAS	Shapefile	TA
		UXO_RISK_ZONE	Shapefile	TA
Nautical chart	Basemap	RACC_FOS_GPY_2023_3_NC_10m _01_OWF_n_OSS	Geotiff	Navionics
Side Scan Sonar	Geophysical SHOM survey	RACC_FOS_GPY_2023_4_SSS_01 5m_OWF_Z2_01	Geotiff	SHOM
		RACC_FOS_GPY_2023_4_SMF_1m _OWF_Z2_01	Geotiff	SHOM
		RACC_FOS_GPY_2023_4_SMF_2m _OWF_Z2_02	Geotiff	SHOM

Dataset	Type	File name	File type	Created
UHRS	Depth BSB	RACC_FOS_GPY_2023_1_UHRS_H05_Depth_BSB_10m_01_OWF_n_OSS_Z2	Geotiff	TA
		RACC_FOS_GPY_2023_1_UHRS_H20_Depth_BSB_10m_01_OWF_n_OSS_Z2	Geotiff	TA
		RACC_FOS_GPY_2023_1_UHRS_H30_Depth_BSB_10m_01_OWF_n_OSS_Z2	Geotiff	TA
		RACC_FOS_GPY_2023_1_UHRS_H35_Depth_BSB_10m_01_OWF_n_OSS_Z2	Geotiff	TA
		RACC_FOS_GPY_2023_1_UHRS_H38_Depth_BSB_10m_01_OWF_n_OSS_Z2	Geotiff	TA
		RACC_FOS_GPY_2023_1_UHRS_H40_Depth_BSB_10m_01_OWF_n_OSS_Z2	Geotiff	TA
		RACC_FOS_GPY_2023_1_UHRS_H50_Depth_BSB_10m_01_OWF_n_OSS_Z2	Geotiff	TA
SBP	SBP track lines	RACC_FOS_GPY_2023_4	Shapefile	SHOM
Contacts	Features	SEABED_FEATURES_PNT	Shapefile	TA
		SEABED_FEATURES_LIN	Shapefile	TA
		SEABED_FEATURES_PLY	Shapefile	TA
Sedimentology	Seabed classi-fication	SEABED_CLASS_PLY	Shapefile	SHOM-TA

3. GEODETIC PARAMETERS

3.1. HORIZONTAL DATUM

Geodetic parameters are included in Table 4 below.

Table 4 Geodetic parameters table.

DATUM	
Survey Datum:	WGS 84
Spheroid	GRS 1980
Semi-Major Axis (a)	6,378,137.000
Semi-Minor Axis (b)	6,356,752.31424
Inverse Flattening (1/f)	1/298.257223563

Projection parameters are included in Table 5 below.

Table 5 Projection parameters table.

PROJECTION	
Projection	UTM
False Easting	500000
False Northing	0
Latitude of Origin	0º00’00.000000’’
Central Meridian	3º00’00.000000’’
UTM Zone	31 N
Scale Factor on CM	0.9996
Units:	Meters

3.2. VERTICAL DATUM

The vertical datum used is Bathyelli v2.0 ZH geoid published by the SHOM in May 2018 (Table 6). The Bathyelli v2.0 ZH is a surface based on the GRS 1980 spheroid. It is a set of surfaces, each of which defines the separation of one vertical datum from the WGS84 ellipsoid to the vertical maritime reference Hydrographic Datum or Hydrographic Zero.

Table 6 Vertical datum.

VERTICAL DATUM	
Chart Datum	Bathyelli v2
Surface of reference	ZH (Zero Hydrographic to the ellipsoid)

4. DATA SOURCE

Data used to develop the current integration report comes from several sources, summarized in Table 7. The coverage and quality limitations encountered are described in the sections below.

Table 7 Data source of the different data types used for this integration report.

DATA TYPE	SOURCE	COVERAGE	QUALITY	GIS File
OWF POLYGONS	DGEC	-	-	SURVEY_ID_PLY RACC_FOS_GPY_2024_1 - OWF
BATHYMETRY	SHOM	Total coverage	Medium (1 x1 m)	RACC_FOS_GPY_2024_1_DEM_1m_EC_OWF_Z2
	TA	Partial coverage	High (0.5 m pixel /1500 x 1500 m spacing)	RACC_FOS_GPY_2023_1_DEM_05m_01_OWF_Z2
SIDE SCAN SONAR	SHOM	Partial coverage	Medium (1.57x1.57 m)	RACC_FOS_GPY_2023_4_SSS_015m_OWF_Z2_01
MBES backscatter	SHOM	Partial coverage	Low (1 x 1 m)	RACC_FOS_GPY_2023_4_SMF_1m_OWF_Z2_01
	SHOM	Total coverage	Low (2 x 2 m)	RACC_FOS_GPY_2023_4_SMF_2m_OWF_Z2_02
Magnetic data	SHOM	Partial coverage	-	-
SBP - SGY	SHOM	Total coverage	Good (250 m spacing)	Tracklines: RACC_FOS_GPY_2023_4
SBP - Results	SHOM	Total coverage	Low (Sediment range)	GEOLOGIC_FEATURE_PLY Sediment thickness
SBP - Results	SHOM	Total coverage	Low	-
UHRS	TA	Total coverage	Good (1500 x 1500 m spacing)	RACC_FOS_GPY_2023_1_UHRS_H05_Depth_BSB_10m_01_OWF_n_OSS_Z2 RACC_FOS_GPY_2023_1_UHRS_H20_Depth_BSB_10m_01_OWF_n_OSS_Z2 RACC_FOS_GPY_2023_1_UHRS_H30_Depth_BSB_10m_01_OWF_n_OSS_Z2 RACC_FOS_GPY_2023_1_UHRS_H35_Depth_BSB_10m_01_OWF_n_OSS_Z2 RACC_FOS_GPY_2023_1_UHRS_H38_Depth_BSB_10m_01_OWF_n_OSS_Z2 RACC_FOS_GPY_2023_1_UHRS_H40_Depth_BSB_10m_01_OWF_n_OSS_Z2 RACC_FOS_GPY_2023_1_UHRS_H50_Depth_BSB_10m_01_OWF_n_OSS_Z2
GRAB SAMPLES	SHOM	Partial coverage	-	GRAB_SAMPLE_PNT-

GEOTECHNICAL DATA	TA	-	Good	GT_SAMPLE_PNT

4.1. SBP, MBES AND SSS (SHOM)

SHOM conducted a geophysical survey during 2021 and 2022 as part of the environmental reconnaissance surveys for the future MED_AO6 OWF Zone 2.

The objective of the surveys was to obtain bathymetry, the nature and thickness of surface sediments, and the potential presence of anthropic objects. Datasets provided by the SHOM are listed in the Report references nº [Ref. 14, Ref. 15, Ref. 16 and Ref. 17].

The coverage from each geophysical survey can be checked in APPENDIX I – NORTH-UP CHARTS.

The quality and coverage of each of the data is detailed subchapters below:

4.1.1. Bathymetry (MBES)

Two different MBES raster layers provide bathymetric information for the OWF, which have different zonal extensions and resolutions (Figure 4-1): a) SHOM bathymetry that covers the entire OWF with a resolution of 1x1 m pixel; and 2) MBES acquired by TA following the UHRS seismic lines, with a resolution of 0.5 m pixel (see section 4.2). These datasets are also included in the GIS database available for the AO6 Zone 2 project (Ref. 12).

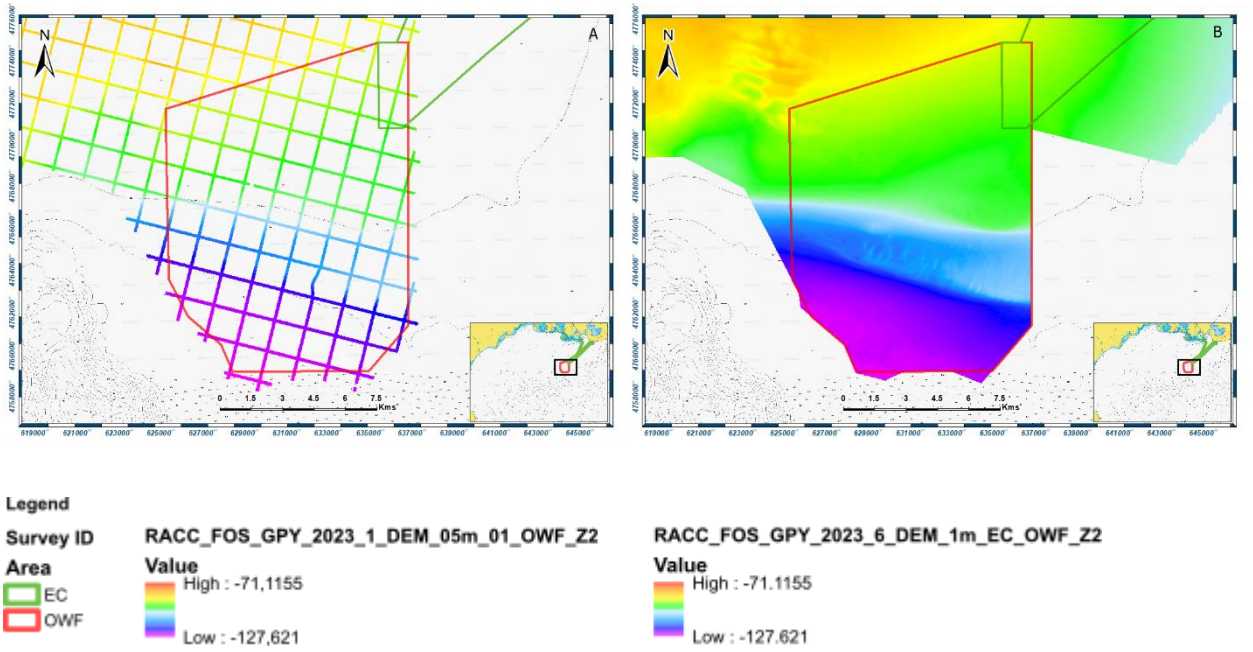


Figure 4-1 Different MBES data coverage available for the AO6 OWF Zone 2 area: a) TA, following UHRS lines, b) SHOM. The MBES depth scales are kept consistent across the figures for comparison purposes and adjusted to the study area of the OWF.

4.1.2. Side-scan sonar (SSS) and MBES backscatter

The SSS and MBES backscatter data acquired by SHOM consists of:

- Side Scan Sonar (SSS) covers the NE corner of the OWF area only with a high frequency and low frequency resolution (Figure 4-2). The quality of this dataset is considered good and was used for seabed interpretation and contact picking.

- Grid of seabed reflectivity (backscattered) derived from the Multibeam Echosounder (MBES). The resolution of the MBES backscatter data provided is 1 x 1 m (partial area) and 2 x 2 m (all the study area) (Figure 4-2). The use of MBES backscatter data entails some limitations. Its resolution is lower than the SSS, additionally, the signal received is of lower quality, with a lower contrast between high and lower reflectivity. Consequently, it can be difficult to identify the limits between seabed classes. This was also reported by SHOM and, it might be related to the acquisition parameters.

For the seabed classification and seabed features, SSS data has been used where possible, otherwise MBES backscatter data was used, as well as the bathymetric data. The ground truthing for the seabed classification interpretation was performed using the geotechnical and grab samples results, however these are limited in numbers considering the whole zone 2 area (more details of geotechnical and grab samples in sections 4.3 and 0).

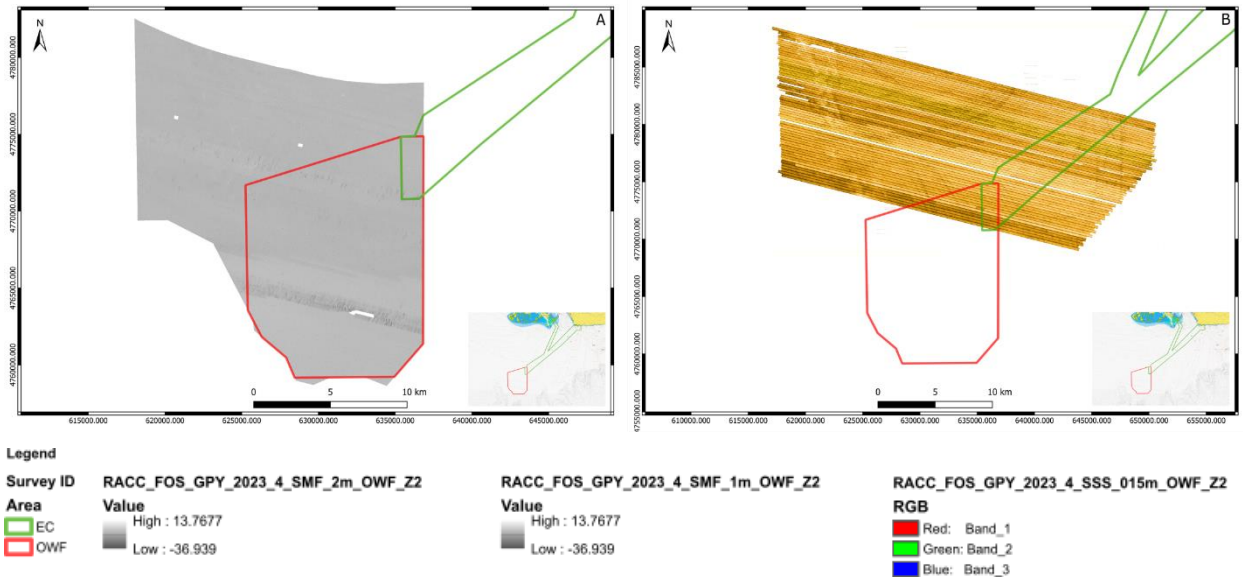


Figure 4-2 SHOM's OWF a) MBES backscatter and b) SSS data.

4.1.3. Sub-bottom profiler (SBP)

Two SHOM sub-bottom profiler datasets were provided, SEGYs, and its interpretation results. SHOM SGY's covers the whole area with approx. 250 m spaced of parallel NW-SE lines and some spaced crosslines (Figure 4-3).

SHOM SEGY dataset is considered of generally good quality (Figure 4-3).

However, it should be noted that the data was supplied with a phase rotation containing a greater range of negative amplitudes values than positive ones, which resulted in phase/amplitude response is not taken at face value (i.e. gas response would not have high amplitude negative phase as generally expected). Furthermore, the NW-SE orientation of SBP SEGY track-lines which is roughly parallel to the main geological trend and the lack of cross lines perpendicular to them, creates difficulties in geological interpretation.

Notwithstanding the issue was factored in and the SEGY data were considered still usable for integration and geological/geotechnical mapping.

SHOM provided two types of results, the raw interpretation of the SEGY with acoustic basement mapped, and a map of acoustic basement thickness (Figure 4-4). Either the format or the nature of these results do not fit the purpose of the integration report without the possibility of ground truthing, hence were not used.

SHOM SEGY was integrated with UHRS interpretation, which was ground-truthed with geotechnical data, and helped define new reflectors in the OWF area. The interpretation provided covers the entire OWF Z2 area.

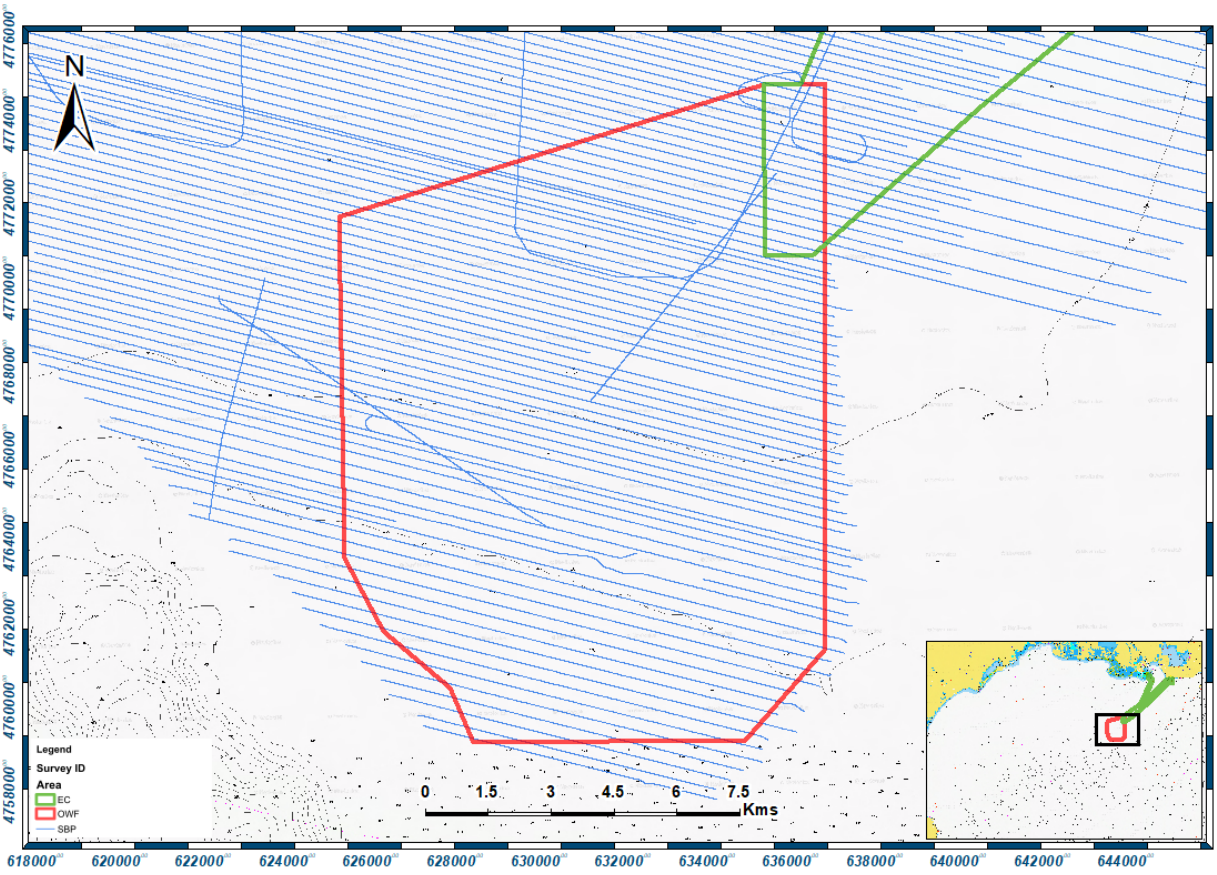


Figure 4-3 Distribution map of SBP profiles track-lines acquired by SHOM in the AO6 OWF Zone 2 area (Source: SHOM, 2022 (Ref. 14)).

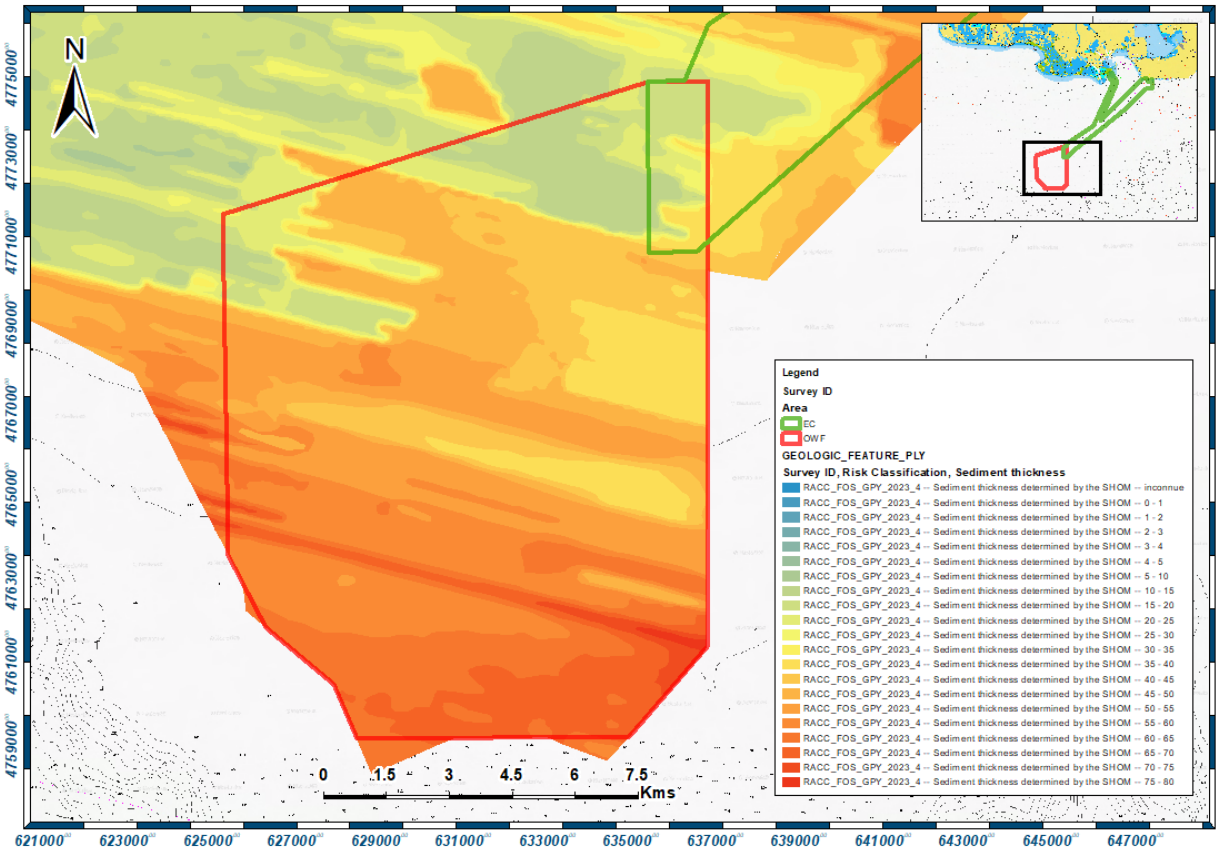


Figure 4-4 AO6 **–** OWF Zone 2 SHOM SBP sediment thickness map with sediment ranges in meters BSB of the Acoustic Basement (AB) (SHOM, 2022 (Ref. 14)).

4.2. UHRS, SBP AND MBES (TA)

Tecnoambiente carried out a geophysical survey over the proposed AO6 OWF Zone 2 site to acquire multibeam echosounder (MBES) data and Ultra-High-Resolution Seismic (UHRS) reflection profiles. MBES and SBP data were acquired along UHRS profiles at high resolution (0.5 x 0.5 m pixels) and was used to integrate SHOM's bathymetric data. Figure 4-5 shows the survey line plan for the OWF.

The quality of the UHRS data acquired by TA is good and fully covers the OWF area. For more details on the MBES, SBP and UHRS survey, refer to the dedicated Report nº [Ref. 7 & Ref. 10].

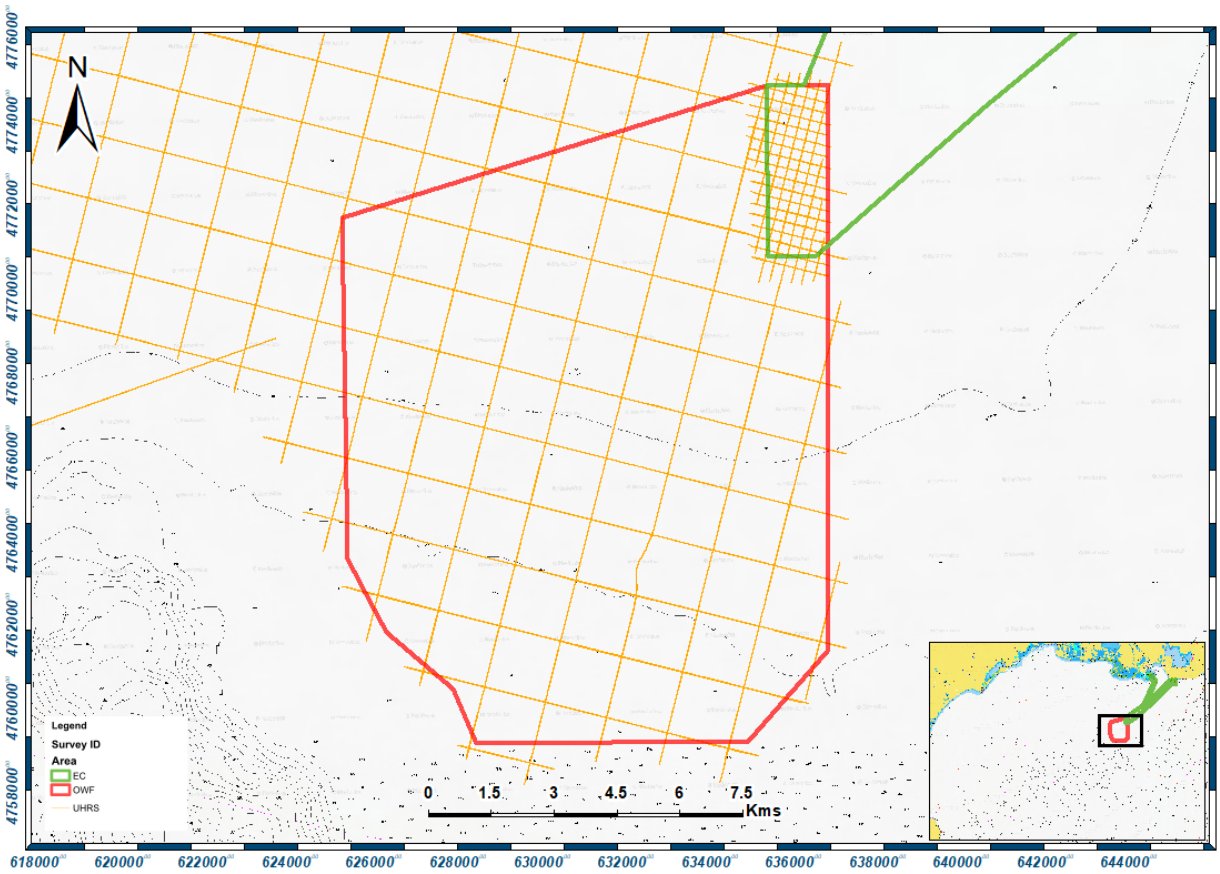


Figure 4-5 UHRS Line plan for MED_AO6 windfarm area (OWF).

For comparison and visualisation purposes, UHRS performed within the OSS area was presented in some figures, regional profiles and charts. We refer to the factual report for further information (Ref. 13).

4.3. GRAB SAMPLES (SHOM)

The ships operated by the SHOM carried out 30 grab samplings in 2021 and 2022 with a Shipeck sampler (Ref. 15, Ref. 16 & Ref. 17).

The obtained grab samples results have been used to support the seabed classification. It should be noted that grab samples are scattered and have low coverage of the area (Figure 4-6), therefore, the ground-truthing phase for the seabed classification of the area was limited.

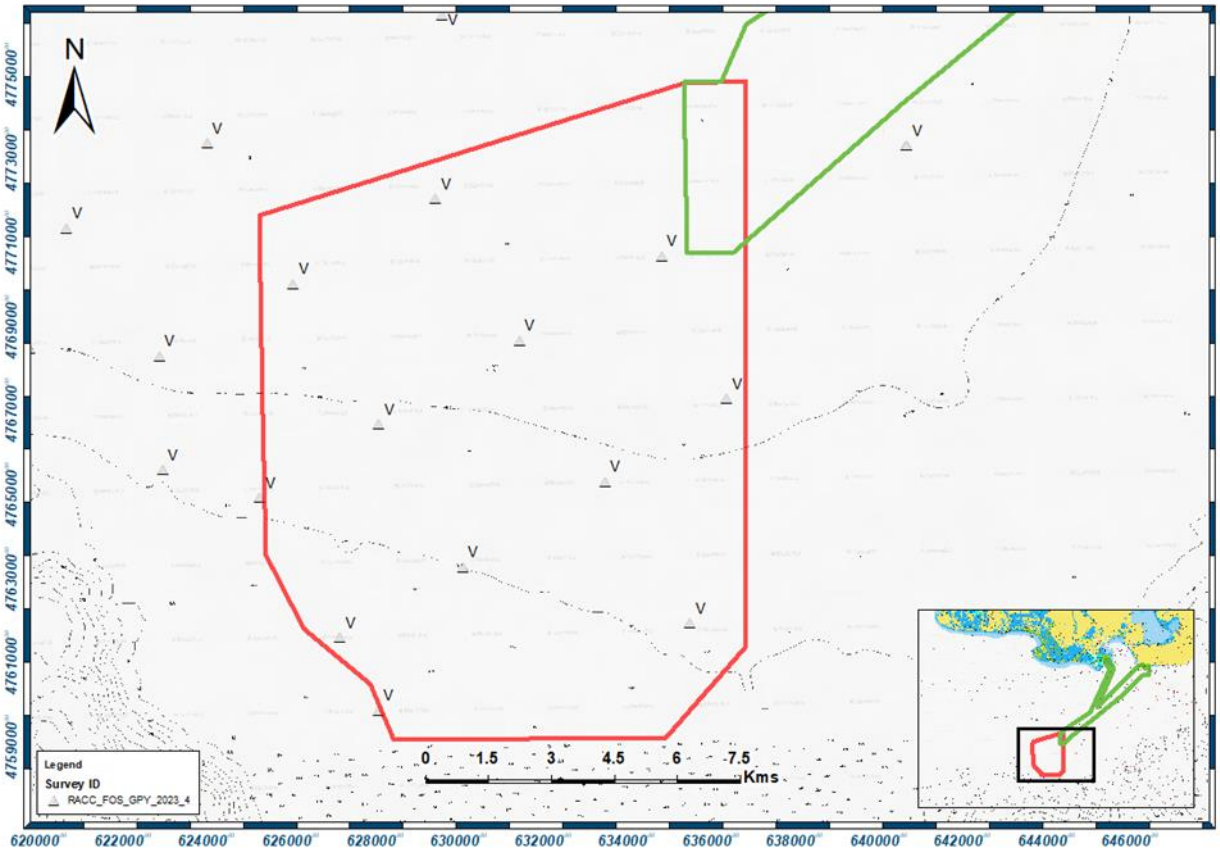


Figure 4-6 Grab samples data in the OWF area where V stands for mud.

4.4. UXO (TA)

Tecnoambiente performed a UXO survey over the planned OWF geotechnical investigation locations, acquiring MBES, SSS, and SBP datasets.

Side-scan sonar anomalies were picked and listed along the side-scan sonar lines in the UXO boxes, and they were integrated into the report and GIS geodatabase.

For the survey lines containing only SSS data, specific seabed contacts and objects were identified without ferromagnetic results. Therefore, it can be difficult to distinguish anthropogenic elements from geological elements (boulders, gravel, coarser sediments, etc.).

The location of the OWF final UXO boxes is shown in Figure 4-7.

For more details on the UXO survey, please refer to the dedicated Report nº [Ref. 4, Ref. 8 & Ref. 11].

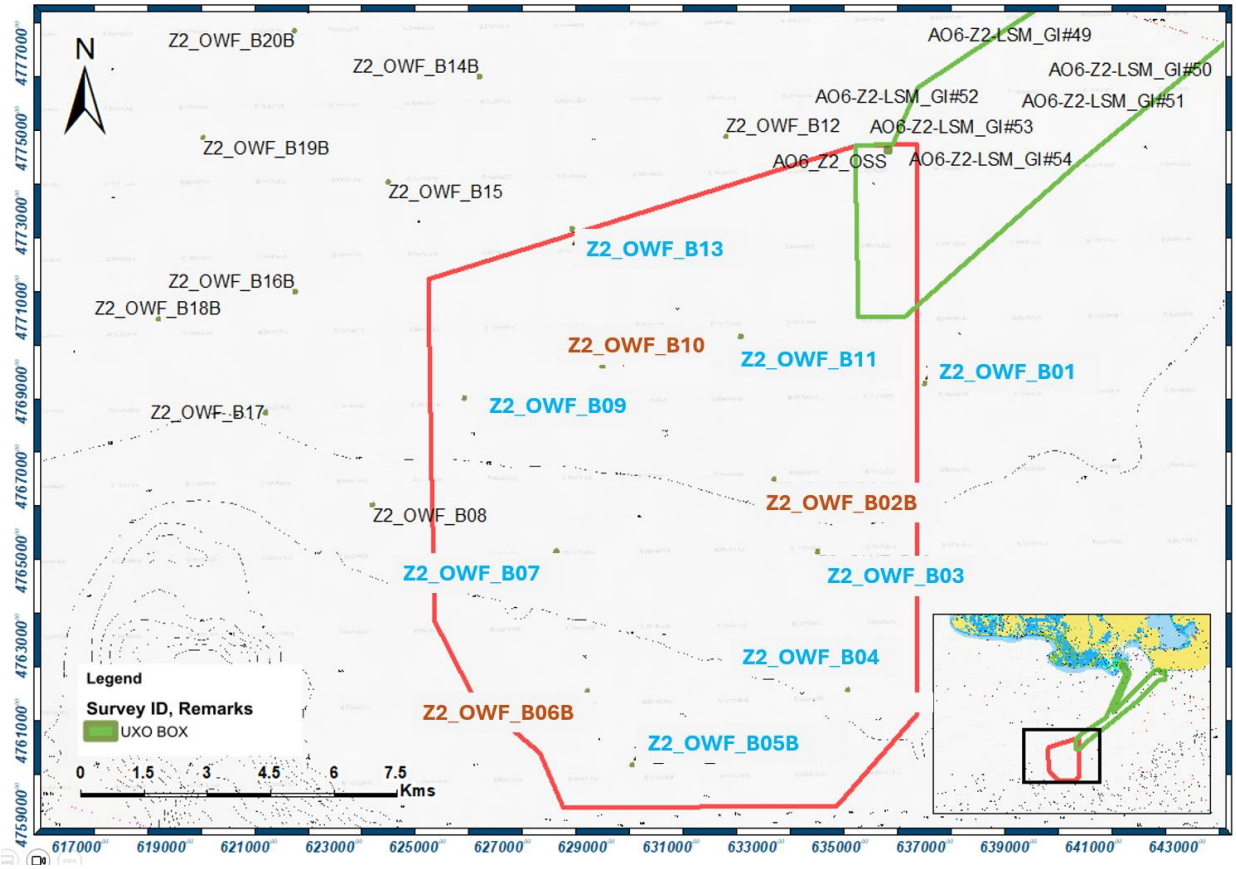


Figure 4-7 UXO box location within the AO6 OWF 2 area are highlighted in orange and blue colour. The blue ones are the ones which finally had a geotechnical location.

The 20 surveyed UXO boxes each had a total area of 900 square meters and a run length of 200 meters. Of these, 11 UXO areas are within AO6 Zone 2, and 8 of them coincide with geotechnical locations. ALARP areas of 18.000 m^2 has been found for the 20 GI locations.

4.5. GEOTECHNICAL DATA

Tecnoambiente (TA) conducted the geotechnical investigation for the AO6 Zone 2 Geotechnical Site Investigation for the offshore windfarm (OWF). TA geotechnical survey consisted of 12 CPT, 4 PC and 6 VC.

- A total of 12 CPT (1 retest) has been acquired in Zone 2. Average CPT penetration has been 7.51 m, with maximum penetration of 30.00 m and a minimum penetration 27.32 m BSB. It should be noted that Z2_OWF_B13_CPT was aborted at 2.56 m due to technical issues, subsequently the CPT unit was redeployed and Z2_OWF_B13_CPTa reaching target depth.
- A total of 4 PC locations were acquired in Zone 2 with 2 additional retests. The average PC sample recovery was 3.22 m, with a maximum recovery of 4.10 m and a minimum recovery of 2.73 m.
- A total of 6 VC were also acquired in Zone 2 with one additional 1 retest. The average VC sample recovery was 7.40 m, with a maximum recovery of 8.58 m and a minimum recovery of 3.97 m.
- Water depths for PC and VC were updated from the MBES survey data acquired by TA.

Although the geotechnical locations ware widely spaced, TA geotechnical data provided sufficient information for ground-truthing and definition of the reduced area for AO6 Zone 2 OWF floating concept. CPT data was calibrated with Vibrocore data until a maximum of 9 m BSB.
For integration and ground truthing 8 geotechnical locations were considered (Z2_OWF_B01, Z2_OWF_B03A, Z2_OWF_B04, Z2_OWF_B05A, Z2_OWF_B07, Z2_OWF_B09, Z2_OWF_B11 and Z2_OWF_B13) (Figure 4-8):

- CPT: 6 that fall within the OWF polygon and 2 in the vicinity.
- PC: 3 that fall within the OWF polygon and 1 in the vicinity.
- VC: 3 VC from the OWF survey that falls within the OWF and 1 in the vicinity.

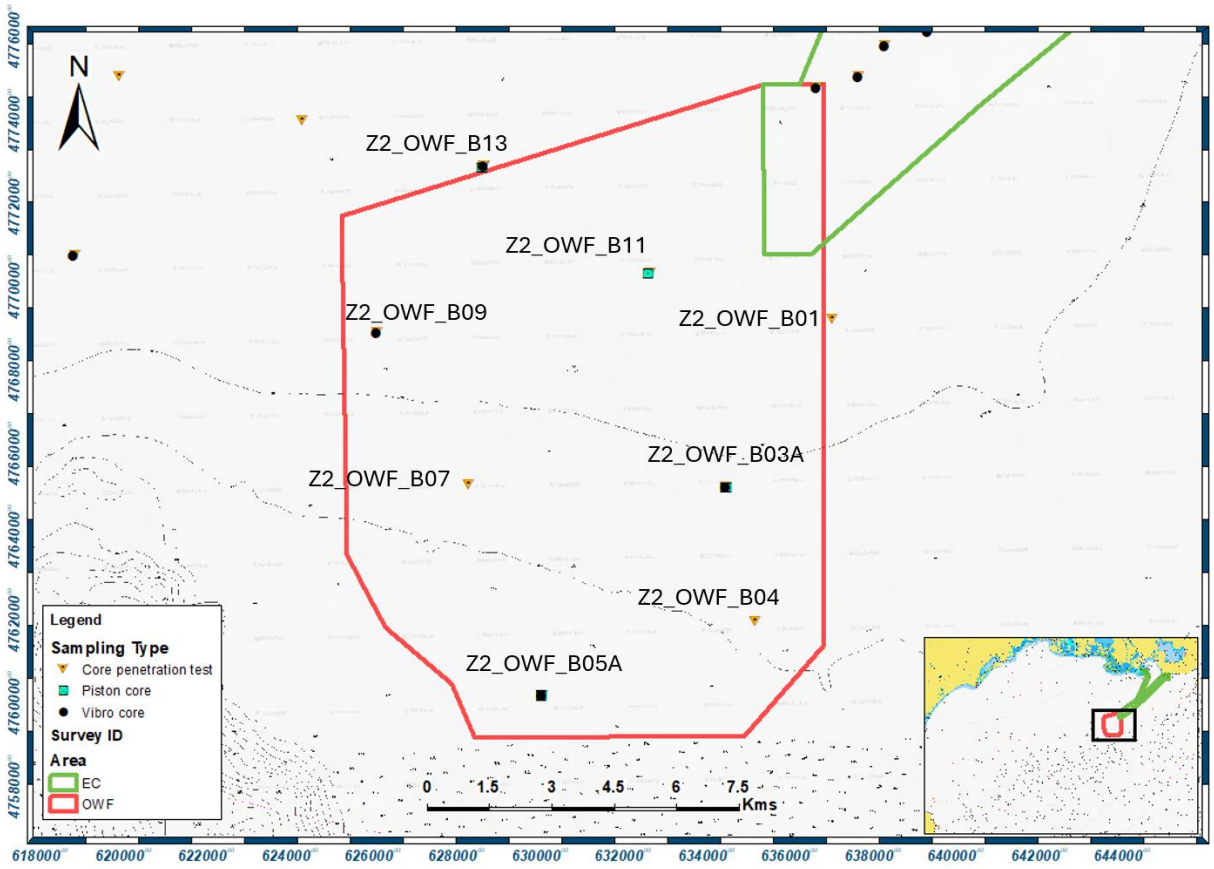


Figure 4-8 Geotechnical sample points of AO6 FOS OWF 2.

Final geotechnical combined logs for TA survey are presented in APPENDIX IV – COMBINED CPT-VC-PC LOGS, digital data are included in APPENDIX V – DIGITAL GEOTECHNICAL DATA.

Geotechnical data were evaluated for the following five (5) main soil types were derived and used for integration and ground-truthing purposes.

- Silt
- Sand
- Silty Sand
- Interbedded sand and clay
- Clay

The table overleaf shows the list of geotechnical points from AO6 study area (Table 8 and Table 9).

Table 8 CPT locations TA geotechnical survey from AO6 OWF Zone 2**.**

Point ID	Type	Actual E (m)	Actual N (m)	Water Depth (ZH) – MBES (m)	Penetration (m)
Z2_OWF_B01_CPT	CPT	637024.84	4769227.74	-95.10	29.94
Z2_OWF_B03A_CPT	CPT	634504.84	4765192.27	-108.99	29.62
Z2_OWF_B04_CPT	CPT	635190.67	4761968.41	-119.80	30
Z2_OWF_B05A_CPT	CPT	630077.47	4760196.74	-125.57	29.83
Z2_OWF_B07_CPT	CPT	628284.57	4765251.63	-114.24	29.84
Z2_OWF_B09_CPT	CPT	626098.61	4768886.32	-94.14	29.8
Z2_OWF_B11_CPT	CPT	632657.34	4770337.94	-94.42	29.76
Z2_OWF_B13_CPTa	CPT	628669.72	4772887.26	-88.04	29.79

Table 9 VC and PC locations TA geotechnical survey from AO6 OWF Zone 2**.**

Point ID	Type	Actual E (m)	Actual N (m)	Water Depth (ZH) – MBES (m)	Actual Pene-tra-tion (m)	Recovery (m)	Recovery (%)
Z2_OWF_B03A_PC	PC	634495.33	4765188.57	-109.29	4.95	3.38	68%
Z2_OWF_B03A_PCa	PC	634508.24	4765200.42	-108.89	5	3.23	65%
Z2_OWF_B05A_PC	PC	630072.42	4760202.97	-125.56	2.8	2.73	98%
Z2_OWF_B05A_PCa	PC	630079.15	4760201.4	-125.58	3.5	2.86	82%
Z2_OWF_B11_PC	PC	632650.31	4770339.21	-94.41	5	4.1	82%
Z2_OWF_B13_PC	PC	628652.03	4772877.67	-88.01	4.85	3	62%
Z2_OWF_B03A_VC	VC	634501.96	4765196.31	-109.02	9	8.58	95%
Z2_OWF_B05A_VC	VC	630074.78	4760190.00	-125.57	3.97	5	126%
Z2_OWF_B05A_VCa	VC	630082.98	4760192.86	-125.58	6.3	8.2	130%
Z2_OWF_B09_VC	VC	626091.29	4768887.04	-94.11	9	7.66	85%
Z2_OWF_B13A_VC	VC	628664.11	4772888.32	-88.03	9	7.4	82%

Further details of the geotechnical methodology can be found in the Factual report - Geotechnical survey - OWF Zones 1 to 4 areas (Ref. 9).

For comparison purposes, boreholes performed within the OSS area were presented in some figures, regional profiles and charts, however, were not used for geotechnical parameters calculations. We refer to the Intermediate Interpretation and Integration report for further information (Ref. 23).

4.5.1. Geotechnical equipment

All Geotechnical data were acquired using different techniques and equipment, dividing the methodologies in the 3 main types: CPT, PC and VC as detailed in Table 10.

Table 10 Geotechnical equipment details**.**

Technique	Equipment
CPT	CPT Manta-200 SW
	Geomil CPT Cone
	CPT Ballast Plate
PC	Carma Piston corer
VC	Vibrocorer Geocorer 3000+6000 engine
Winch	DEGRA Winch DWH34
	Vime Winch JAL2100

4.5.2. Geotechnical laboratory testing

The summary of completed laboratory tests to date for all the PC and VC locations of the wider area the OWF Z2 is presented in the following tables.

Table 11 Overview of offshore laboratory testing complete for AO6 OWF Zone 2 samples.

Type	Test	OWF Zone 2
Chemical	SRB	18
Undrained Shear Strength	Hand Torvane	15
	Pocket Penetrometer	13
Thermal Resistivity	TRT	48

Index tests, such as PP and TV, are used for an indicative assessment of soil strength, whereas the other onshore strength tests have been used for parameter evaluations.

Table 11 Overview of onshore laboratory testing and laboratory testing standards for OWF Z2 samples.

Type	Test	N° of Results OWF Zone 2	Lab. standard
Classification	EN-ISO soil description with PP and TV in cohesive material plus photograph	4xPC 6xVC	EN-ISO
	Water content	38	ISO 17892-1:2014
	Particle density	1	ISO 17892-2:2014 - Method 5.1
	Min. & Max. Density	16	ASTM D4254-16 - Method A
	Submerged Unit weight	38	ISO 17892-2:2014 - Method 5.1
	Atterberg limits	16	ISO 17892-12:2018
	PSD wet sieve (sedimentation if fines are more than 15%)	59	ISO 17892-4:2016
	Sedimentation	59	ISO 17892-4:2016
Strength	Lab Vane	13	ASTM D4648/D4648M-16
	Fall cone	17	ISO 17892-6:2017
	Pocket Penetrometer	28	ISO19901-8:2014
	Torvane test	28	ASTM D8121/D8121M - 19
	UU (Undrained Triaxial)	8	ISO 17892-8:2018
	UUr (Undrained Triaxial Remoulded)	5	ISO 17892-8:2018
	CIUc (Isotropically Consolidated Undrained Triaxial Compression (Ciu))	3	ISO 17892-9:2018
	DS (Direct Shear at (20, 40 and 80 kPa)	16	ISO 17892-10:2018
	CIDc (Isotropically Consolidated Drained Triaxial Compression)	7	ISO 17892-9:2018
	DSS (Direct Simple Shear)	2	ASTM D6528-17
	THIXO (Thixotropy)	5	ISO 19901-8:2014 - ISO 17892-6:2017
	Oedometer CRS	4	ASTM D4186 / D4186M-20
Chemical and thermal	$CaCO_3$	12	ISO 10693-14
	ORG	1	ASTM D2974-20 - Method C
	Thermal Conductivity	7	ASTM D 5334-22

5. OWF FOUNDATION LAYOUT AND CONCEPT

At the time of writing, locations and foundation type for the planned AO6 zone 2 wind turbines have not yet been defined. This report presents a generalised assessment of the ground conditions and geotechnical parameters, limited to a 100m radius from the CPT locations and depths.

6. GEOLOGICAL FRAMEWORK

The geological map of the area (Figure 6.1) extracted from the Report Ref. 21 provides a general overview of the geology of the Gulf du Lion.

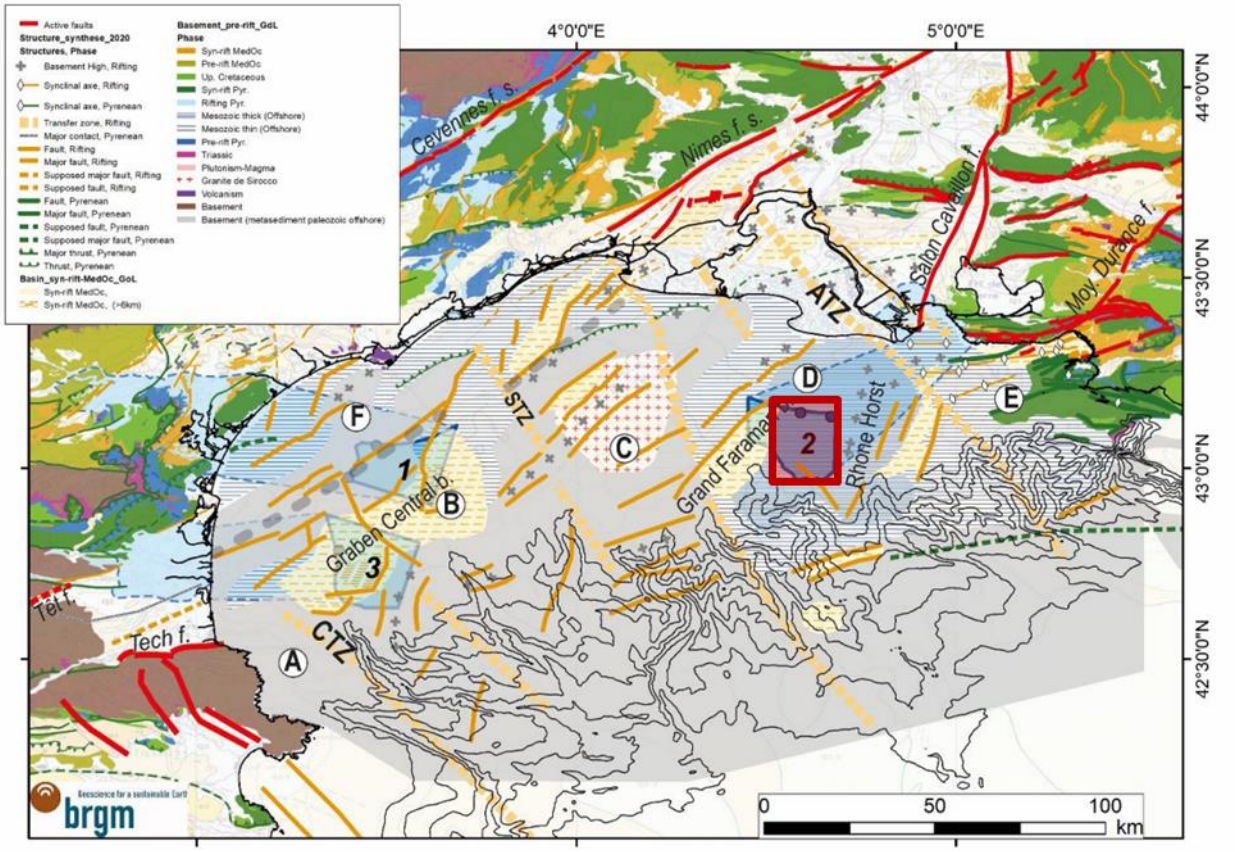


Figure 6-1 Geological map of the Gulf of Lion shelf (Report Ref. 21). The AO6 Z2 OWF is located within the red rectangle.

The Gulf of Lion is in the northwestern sector of the Mediterranean Sea bounded by the Pyrenees and the Alps. It comprises a wide shelf and continental slope, before descending to the abyssal area of the Algero-Balearic Basin. The basin formed as a result of tectonic rifting during the

Oligocene – Miocene period (Gorini, et al. 1994, Bib. Ref. [11]), leading to the accumulation of a large amount of clastic sediments forming a thick wedge on the inner shelf, and more than 2 km on the outer shelf (Lofi, 2002, Bib. Ref. [22]). The continental shelf edge leads to the prograding margin observed in the Gulf of Lions during the end of the last glacial cycle. The geology within the Golf of Lion is described as a relatively low energy passive prograding margin, dominated by a rapid period of sedimentation during the Late Pleistocene, with layers of reworked sediments at a time when sea levels were about 100 m lower. At the end of the Last Glacial Maximum, sea levels were cyclically higher and lower as ice masses in the two hemispheres contracted and advanced. The deglacial succession overlies the major erosional discontinuity related sea level rises since the Last Glacial Maximum. It consists of basal transgressive deposits, subsequently reworked into dunes and sand ridges, interbedded with regressive prograding, marine derived sediments. The shelf ‘relict’ sands, pass rapidly into marine muds. The transition between sand and mud is outlined by a distinct regional step in seafloor morphology.

The geological stratigraphic sequence and the lithological descriptions provided below are derived from the integration and ground truthing with the geotechnical data set obtained within the AO6 OWF 2 area, of the SHOM SBP, TA UHRS (Ref. 17 and Ref. 10, respectively) and the regional geological literature. All depths are indicative and quoted in meters below seabed (m BSB).

For integration and ground truthing 8 geotechnical locations were considered (Z2_OWF_B01, Z2_OWF_B03A, Z2_OWF_B04, Z2_OWF_B05A, Z2_OWF_B07, Z2_OWF_B09, Z2_OWF_B11 and Z2_OWF_B13) (Figure 6-2):

- CPT: 6 that fall within the OWF polygon and 2 in the vicinity.
- PC: 3 that fall within the OWF polygon and 1 in the vicinity.
- VC: 3 VC from the OWF survey that falls within the OWF and 1 in the vicinity

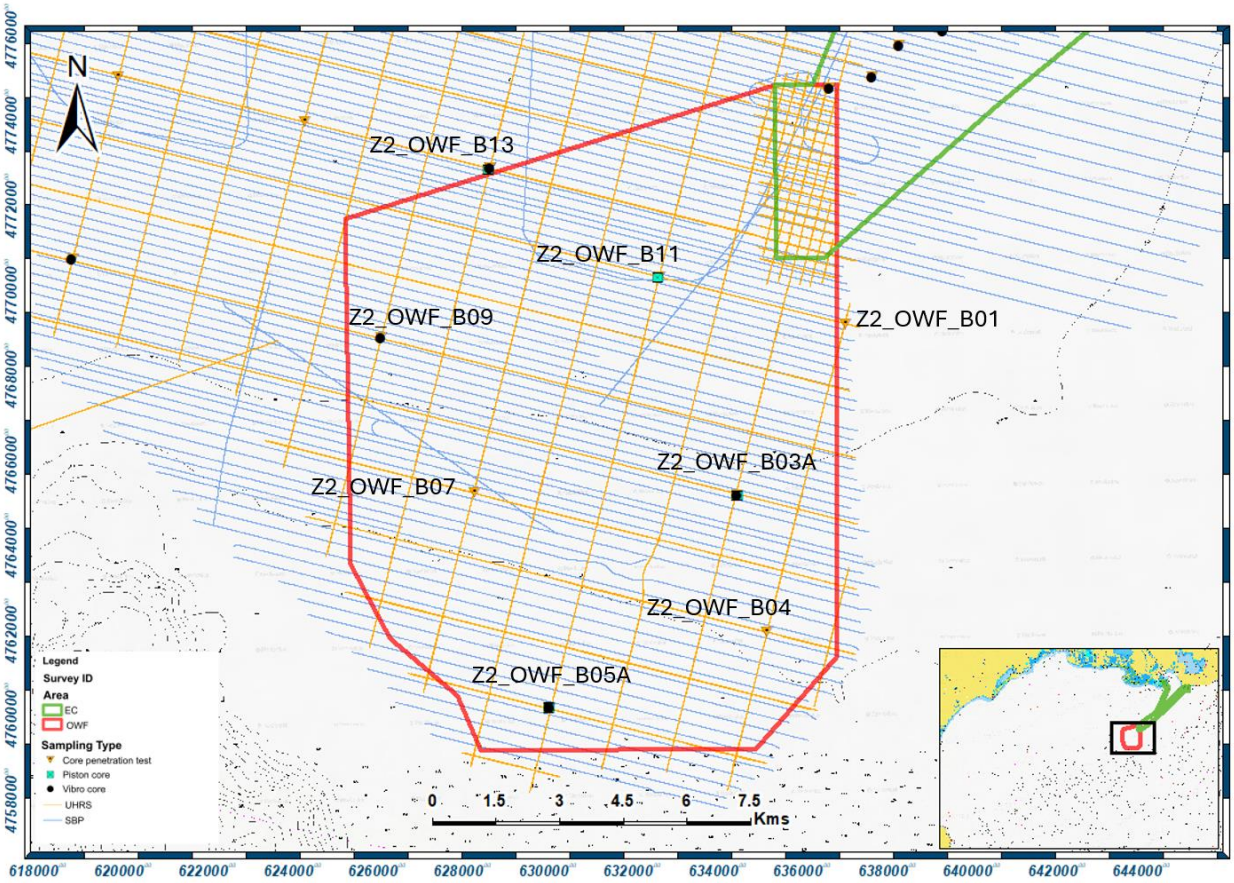


Figure 6-2 Location of the geotechnical investigated sites within the OWF area. UHRS seismic profiles track-lines are shown in orange and SBP track-lines in blue colored lines.

6.1. SBP AND UHRS GROUND TRUTHING

After TA assessment of interpretation results provided by SHOM of their SBP data (raw interpretation and sediment thickness map with thickness ranges) was concluded this data was not usable, because these results are for the acoustic basement (maximum profiler signal penetration), a surface not relevant for the geology of the study area. Therefore, SHOM SBP SEGYs were integrated with UHRS datasets and results. UHRS had good penetration, reaching a maximum seismic depth of approximately 30 m below seabed (BSB), allowing to ground truth and refining UHRS interpretation results. This process was conducted based on geotechnical information identifying Regional geotechnical units and differs from the previous UHRS Interpretation process, where seismo-stratigraphic units were identified. Nevertheless, the new interpretation of

SHOM SBP data can be related to the previous results as shown in Table 12, and the following text.

Table 12 Correlation between shallow seismo-stratigraphic units of the AO6 OWF 2 survey area and new Regional Geotechnical Units.

SS. U.: Seismo-stratigraphic Unit; U.S: Upper Surface; L.S: Lower Surface. RGT.U.: Regional Geotechnical Unit.

SSU	U.S.	L.S.	Depositional Environment	Seismic character (UHRS)	RGT. U.	U.S.	L.S.	Geotechnical Description
1	Seabed	H03	Shallow marine, a drape of sediment deposited since sea level rise and the area was exposed	Acoustically quieter unit with parallel bedded reflectors within. Mapped off the TA SBP data	RGT Unit 1	Seabed	Top RGT Unit 2	Sandy, clayey SILT Extremely low shear strength.
	H03	H05			RGT Unit 2	Top RGT Unit 2	Top RGT Unit 2	Where GT Unit 2 is thick (CPT 09) interbedded SAND and CLAY elsewhere it is sandy SILT Shear strengths are low to moderate
2	H05	H20	Exposed above sea level, interpreted as estuarine depositional environment with evidence of small erosional surfaces interpreted as channels	Discontinuous reflectors, acoustically chaotic layer. Acoustically of higher amplitude than the surrounding units. Evidence of unconformities, small channeling, contourites within.	RGT Unit 3	Top RGT Unit 3	Top RGT Unit 4	Sandy CLAY Low to moderate shear strength
3	H03, H05, H20	H30	Exposed above sea level, interpreted as estuarine depositional environment with evidence of small erosional surfaces interpreted as channels Marine deposited, acoustically quieter, finer sediments and well layered	Acoustically chaotic layer, similar in sedimentary characteristics to Unit 2 above, but with a strong change in dip pattern suggesting a sequence change and unconformable surface between the two. The basal reflector is undulatory in some areas, compressed by the viewing scale.	RGT Unit 4	Top RGT Unit 4	Top RGT Unit 5	Silty CLAY Low to moderate shear strength

SSU	U.S.	L.S.	Depositional Environment	Seismic character (UHRS)	RGT. U.	U.S.	L.S.	Geotechnical Description
4	H30	H40		Acoustically quiet unit with parallel reflectors within.	RGT Unit 5	Top RGT Unit 5	H40	CLAY prone Moderate to high shear strength
5	H35	H38	A wedge of sand with an undulatory upper surface, interpreted as relict sand dune and a flat basal reflector.	Acoustically quiet discontinuous reflectors, a package of sediment marking multiple events of depositional reworking and erosion. Top of the unit characterized by a strong reflector (normal phase); the base is usually marked by a reverse phase reflector.	RGT Unit 5.1	H35	H38	Very Dens SAND
4	H38	H40	-	-	RGT Unit 5	Top RGT Unit 5	H40	CLAY prone Moderate to high shear strength
6	H40	-	Marine deposited, acoustically quieter, finer sediments and well layered	Acoustically quiet unit with no, or very few, structures within it.	-	-	-	-

The data from the geotechnical locations were used to ground truth the SBP and UHRS seismic datasets, shown in Figure 6-3, Figure 6-4 and Figure 6-5. Based on the correlation with the geotechnical data, an Assumed Sound Velocity (ASV) of 1600 m/s was proven to be accurate for the time-depth conversion of the SBP and UHRS interpretation. There is good correspondence between the geotechnical data, interpretations and the various sub-seabed geophysical data.
The shallow sequence is split into five Regional geotechnical units and horizons have been picked/created at the top and base of each unit.

RGT Unit 1 extends across the entire area and is generally 1 to 3 m thick. It is thicker in the far north of the area and across an east-west trending belt in the south of the area. The interval consistently tests as sandy, clayey SILT with extremely low shear strength. The interval is seismically transparent with a weak reflector at its base. This unconformity is approximately equivalent to H03, a reflector picked on the SBP and UHRS data (Ref. 10).

RGT Unit 2 has a scattered distribution within the area of interest and is generally around 2 m thick. The interval is better developed through an east-west trending zone in the centre of the area where it is up to 15m thick. This part of the unit is progradational, deposited from the north. Where RGT Unit 2 is thick, CPT 09 records interbedded SAND and CLAY, elsewhere it is sandy SILT. Shear strengths are low to medium. The top of this unit is approximately equivalent to H03, the base of RGT Unit 2 is approximately equivalent to H05.

RGT Unit 3 is thicker in the north (~7 m) and pinches out in the centre of the study area. It comprises sandy CLAY with low to medium shear strength. The top of this unit is approximately equivalent to H05, and H03 where RGT Unit 2 is not present. The base of RGT Unit 3 is approximately equivalent to H20.

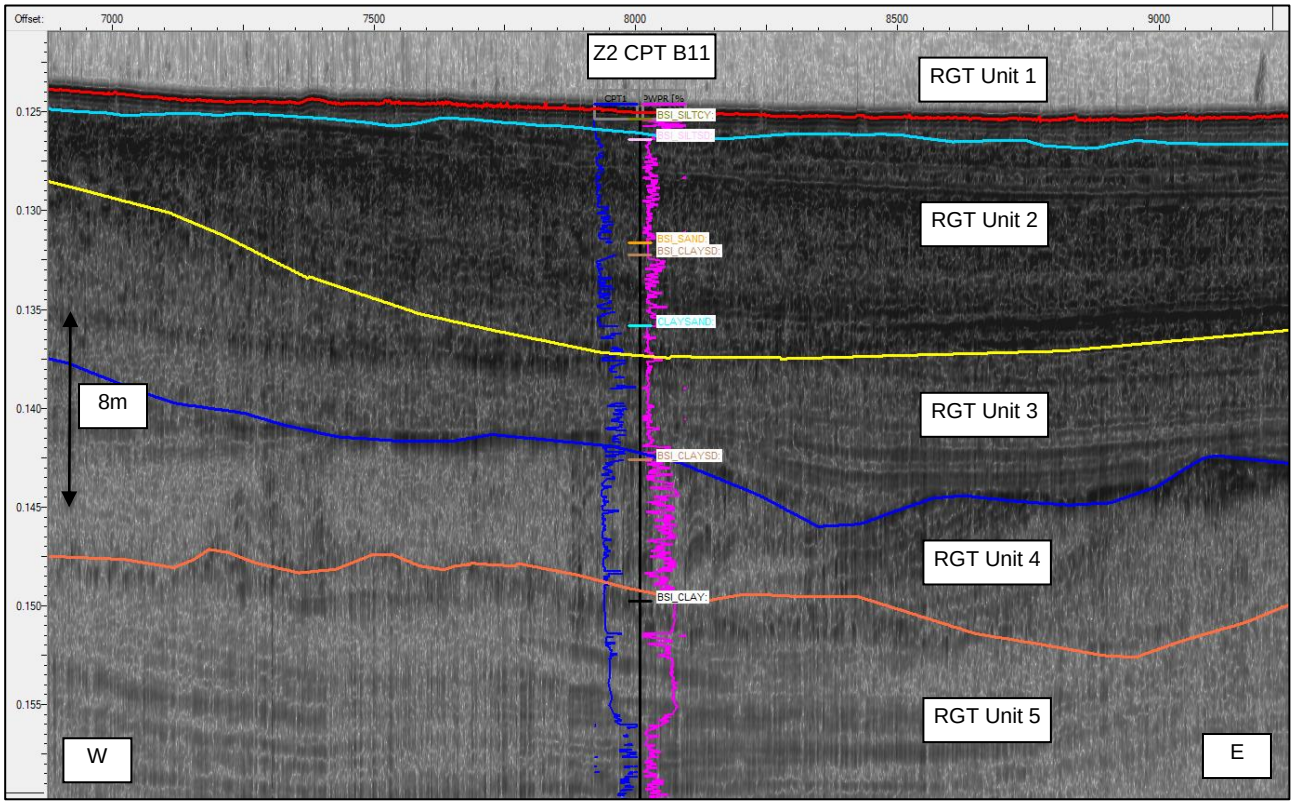


Figure 6-3 Geotechnical location CPT B11 on SHOM SBP data.

RGT Unit 4 extends across the northern and central parts of the area and is up to 20 m thick, though is more typically 4 to 10 m thick. It comprises silty CLAY of medium to high shear strength. The top of this unit is approximately equivalent to H03, H05 and H20, (depending on whether RGT Units 1, 2 or 3 occur above RGT Unit 4). The base of RGT Unit 4 is approximately equivalent to H30.

RGT Unit 5 underlies the units listed above. It consistently tests as CLAY prone and has high shear strength. In the northeast of the OWF area within this RGTU 5 it is identified a local subunit RGTU 5.1, composed of more sandy deposits and cross by the OSS Boreholes (Figure 6-4). Regional geotechnical Unit 5 is closer to the seabed in the south of the area as RGT Units 2, 3 and 4 were sourced from the north and pinch out to the south. This leaves the RGT Unit 5 CLAY under a thin drape of RGT Unit 1 sandy, clayey SILT. The top of RGT Unit 5 is approximately equivalent to H30.

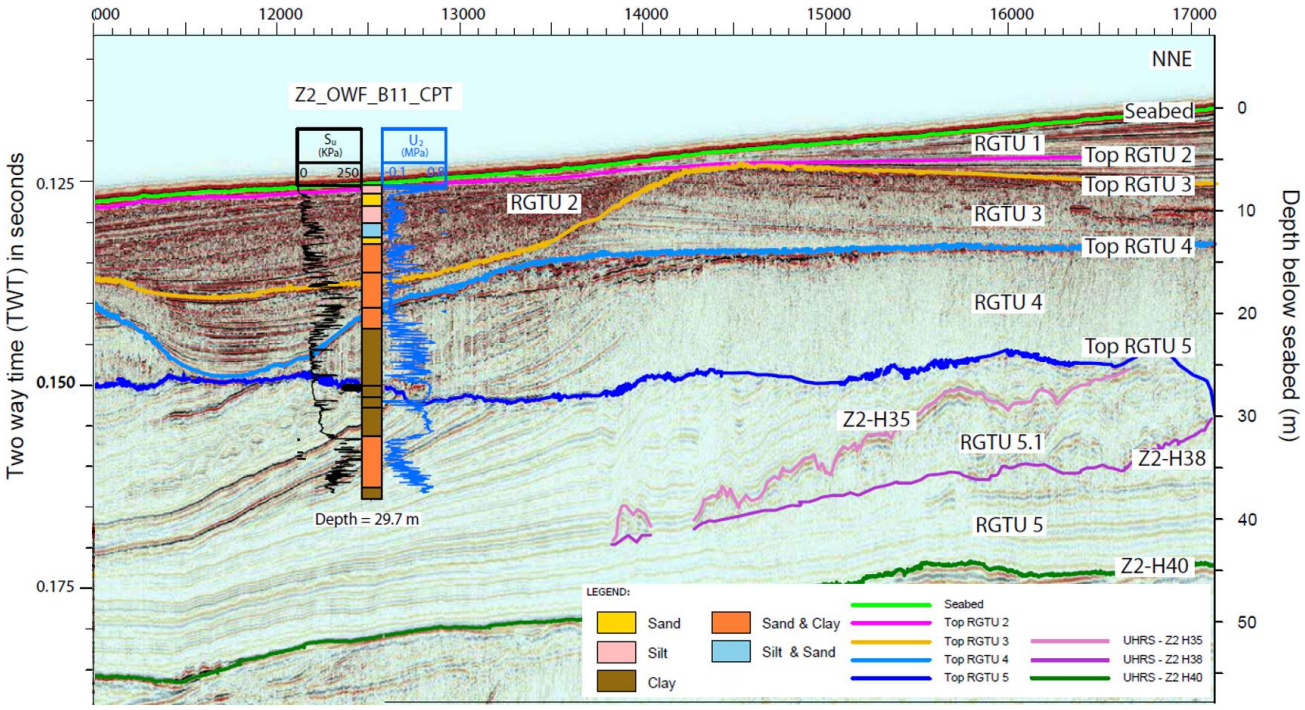


Figure 6-4 Geotechnical location CPT B11 on UHRS on an SSW-NNE section.

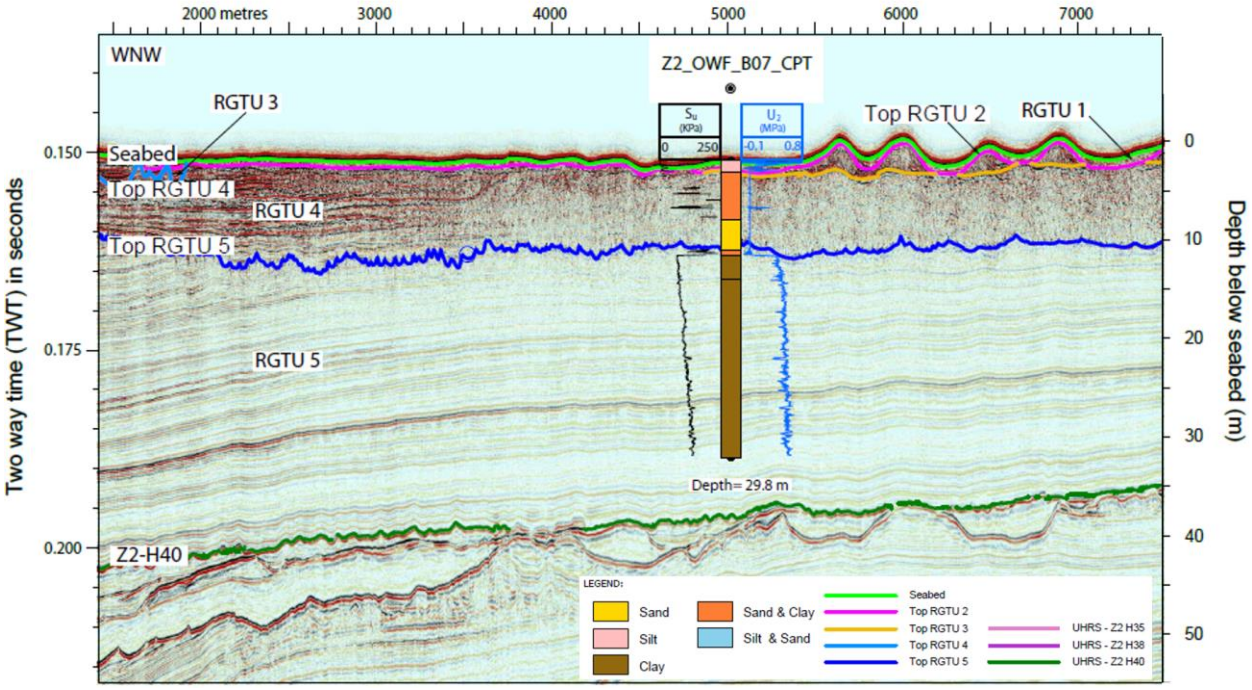


Figure 6-5 Geotechnical location CPT B07 on UHRS on an WSW-ENE section.

6.2. UHRS REGIONAL PROFILES

Six UHRS seismic profiles covered in four charts, integrated with the geotechnical data, have been selected for representing the regional geology and stratigraphic units of the AO6 windfarm area (Figure 6-6). UHRS regional profiles can be found at APPENDIX II – UHRS REGIONAL PROFILES.

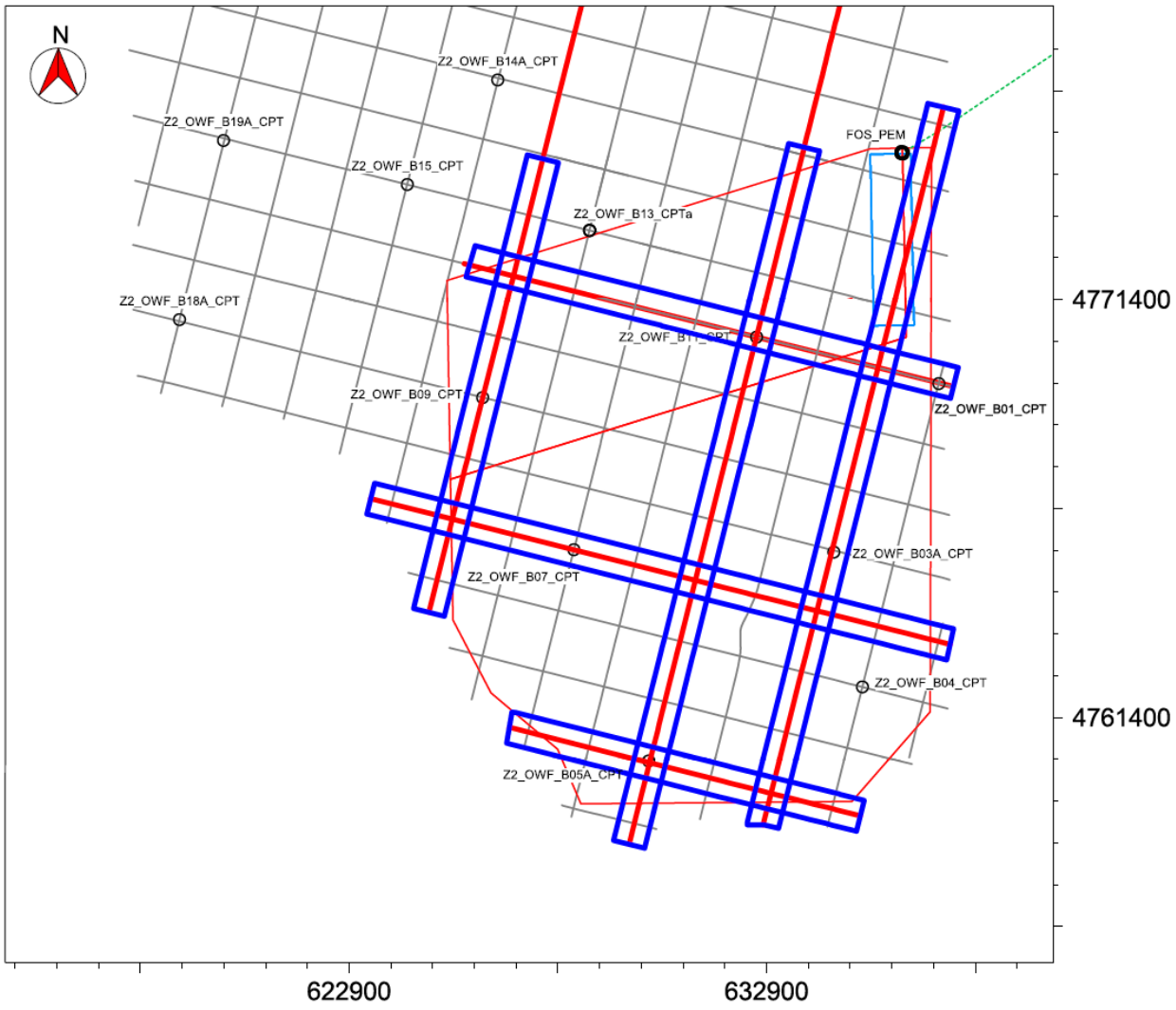


Figure 6-6 UHRS lines selected for depicting the seismic regional profiles.

7. SEABED CONDITIONS

This section summarises the main seabed features and constraints identified within the AO6 OWF Zone 2 area.

APPENDIX I – NORTH-UP CHARTS includes eight (8) north-up charts presenting: MBES bathymetric model, MBES slope model, SSS and MBES backscattered mosaics, SSS seabed classification and features, including UXO surveyed area contacts, and 4 new ground truthed SBP-UHRS surfaces (Top of RGT Unit 2, 3, 4 and 5).

7.1. BATHYMETRY

The bathymetry of the AO6 OWF Zone 2 area is presented in the north-up chart 1 in APPENDIX I – NORTH-UP CHARTS with 1 x 1 m and 0.5 x 0.5 m pixel resolution and Figure 7-1. Bathymetric details are summarized in Table 13. Figure 7-2 presents three bathymetric profiles and the slope relevant to the AO6 OWF Zone 2 area.

All descriptions are based on SHOM bathymetry, the only data source covering the whole AO6 OWF 2 area. In post-processing, MBES data was adapted to fit the AO6 OWF 2 survey polygon.

Bathymetry within the AO6 OWF 2 area can be divided into three sections based on depth and slope characteristics, with a general trend of increasing depth towards the south. In the AO6 OWF 2 area, moving from north to south, the depth increases slightly and gradually, with a gentle and constant slope (first section), until a sudden steepening and depth increase occurring in two stages, one drop of 11.6 m and the other of 12.6 m. Ripples and sand waves are distinctly observed in areas where the slope remains gentle before these abrupt changes (second section). After the previously mentioned drops, a gentle and constant slope is resumed, with a tendency for the depth to increase towards the south (third section).

The first and third sections have a much smoother texture, in contrast to the second section, where ripples, sand waves, and seabed mounds are present.

Table 13 Summary of bathymetry along the AO6 OWF Zone 2 area.

Attribute along the OWF area	Value	Location
Minimum water depth	-87.09 m ZH	N region of the OWF area.
Maximum water depth	-127.48 m ZH	S region of the OWF area.
Average (natural) seabed gradient	0.75°	-
Maximum gradient	41.17°	Sand Waves

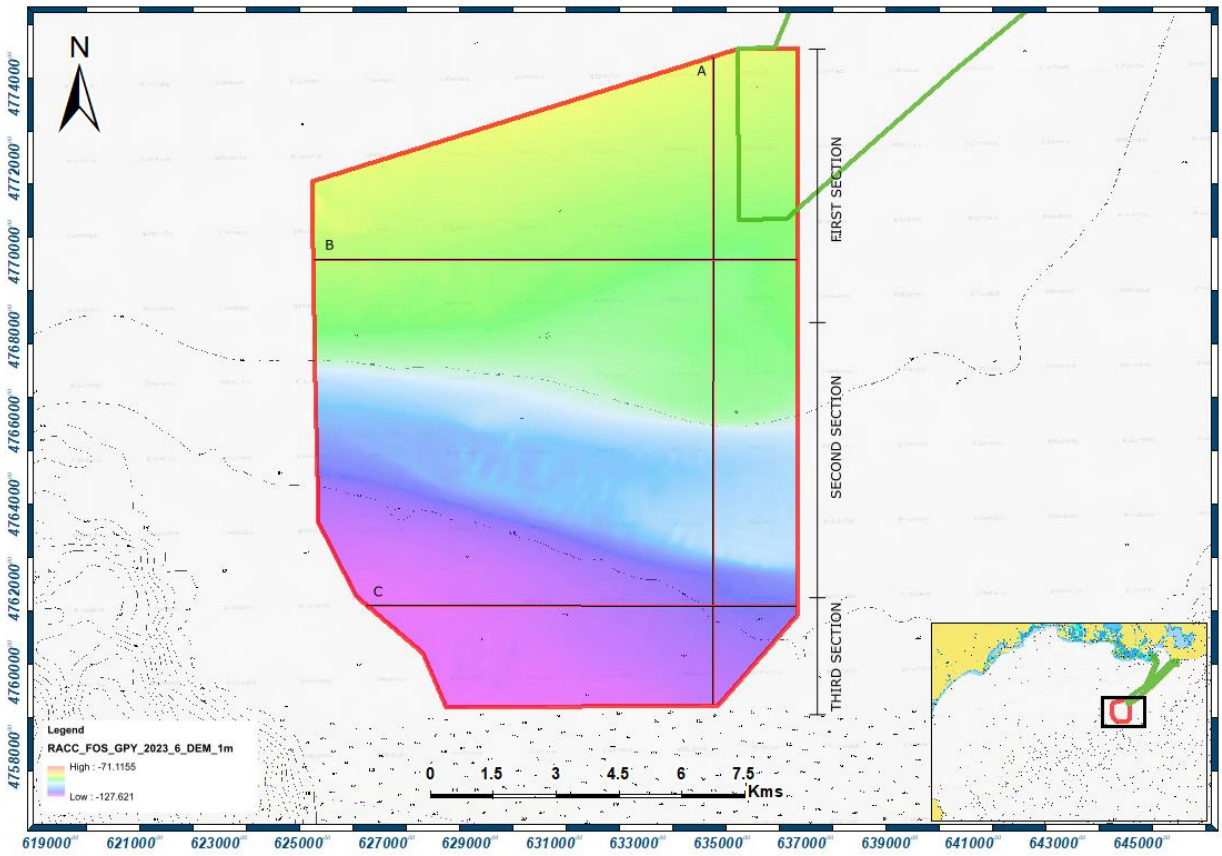
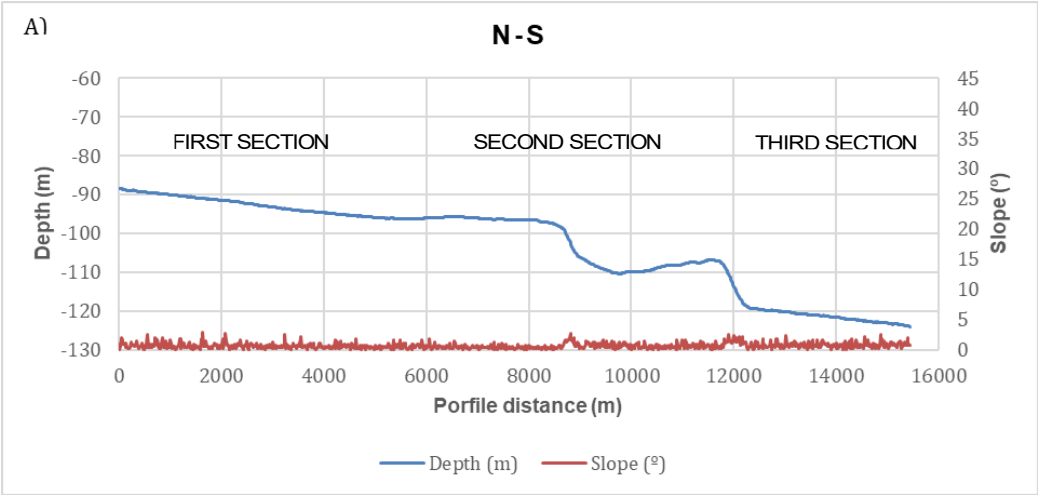


Figure 7-1 AO6 OWF SHOM Bathymetry with the localization of the three different profiles.



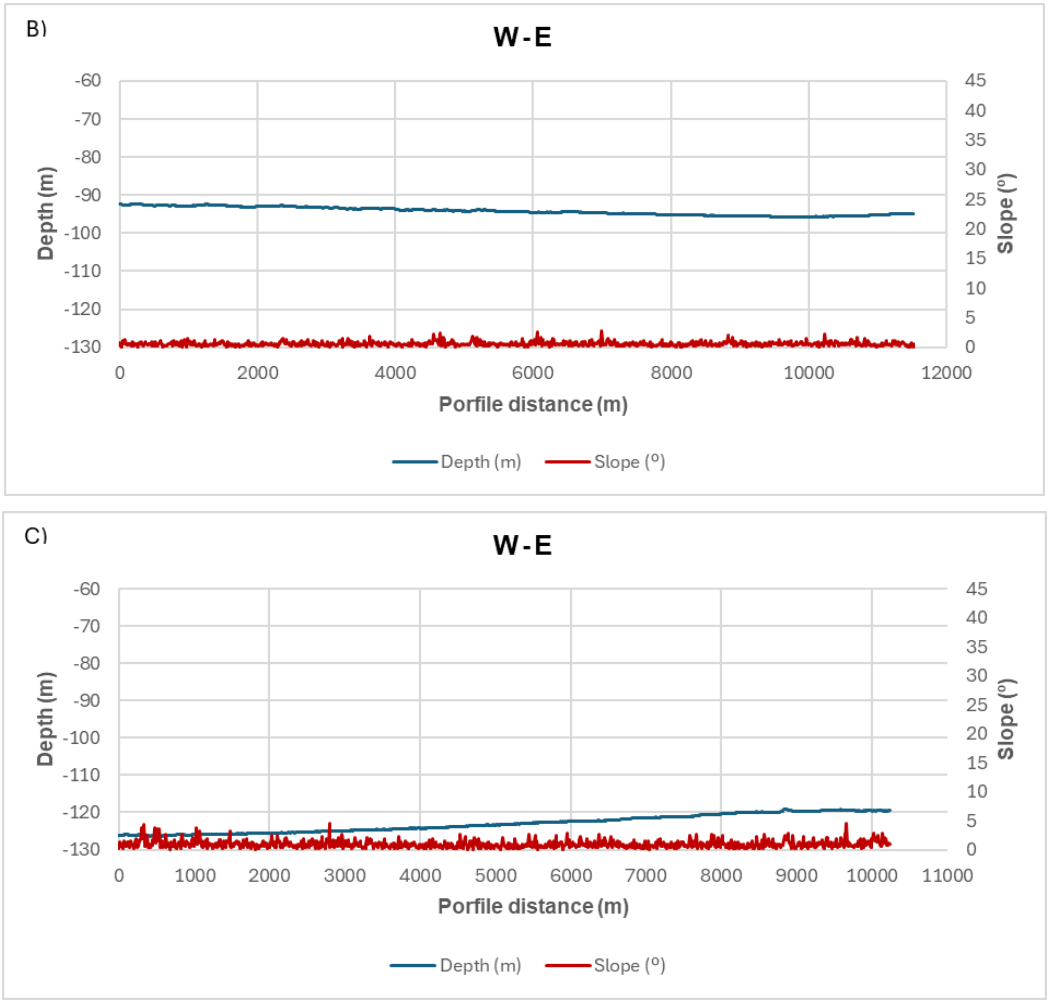


Figure 7-2 Profiles a), b) and c) with the bathymetry as the blue line and the slope as the red one. The locations of these profiles can be found in Figure 7-1.

7.2. AREAS OF STEEP GRADIENT

The slope along the AO6 OWF Zone 2 area is presented in the north-up chart 2 in APPENDIX I – NORTH-UP CHARTS based on 1 x 1 m pixel resolution. Gradient statistics data were cut to fit the AO6 OWF study area polygon.

Seabed slope on the AO6 OWF Zone 2 area has an average value of 0.75º, with a maximum value of 41.17º. High slopes are encountered on the sand wave and ripple morphologies, present in the study area.

Table 14 provides the colour and gradient classification for the slope and Figure 7-3 shows a general distribution of the slope at AO6 OWF Zone 2 area. Figure 7-2 three slope profiles along and across the OWF area.

Table 14 Seabed gradient classification over the AO6 OWF area.

Slope classification	Gradient (º)	Colour
Very gentle	<1º	
Gentle	1º - 5º	
Moderate	5º – 10º	
Steep	10º - 15º	
Very steep	>15º	

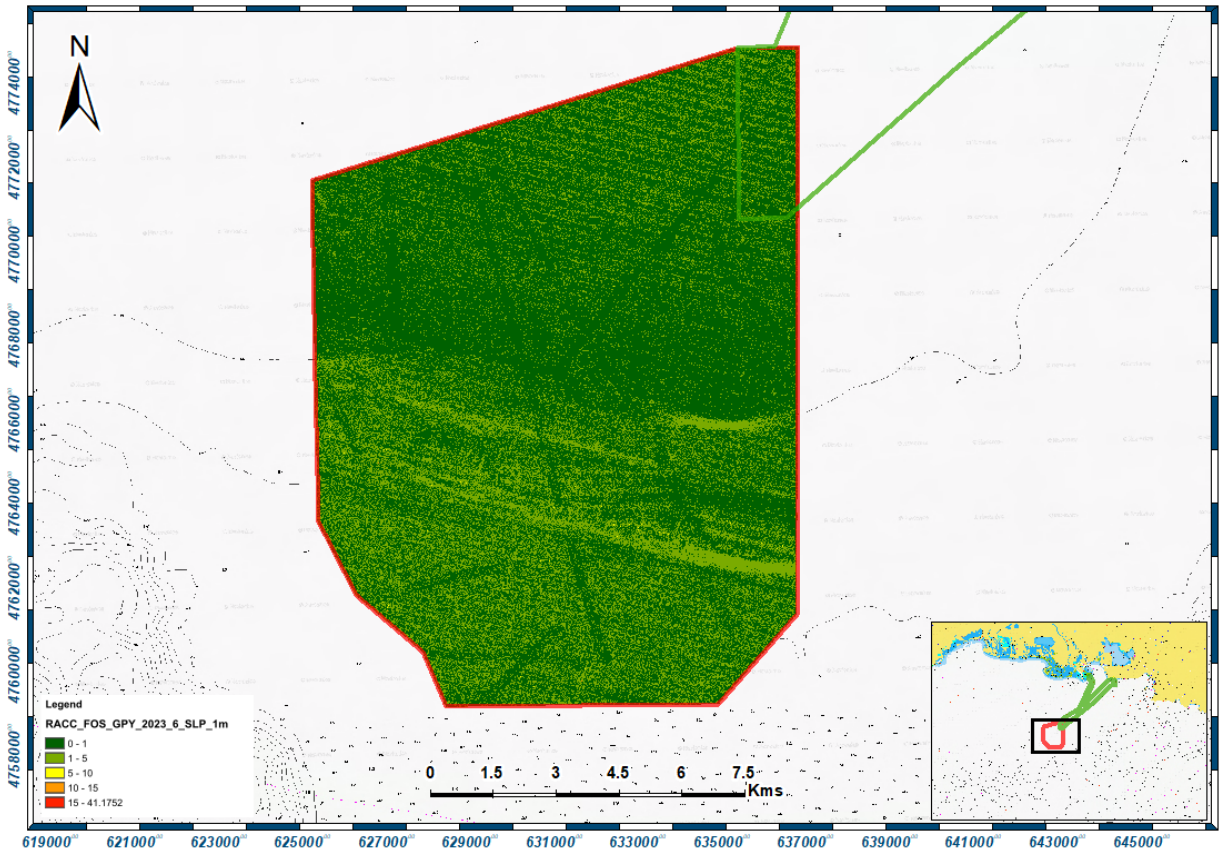


Figure 7-3 Slope map from AO6 OWF area. Slope raster calculated from the SHOM bathymetry raster, with 1 x 1 m pixel resolution.

7.3. BEDFORMS

Sediment classification and sediment features along the AO6 OWF Zone 2 area are presented in chart 4 of APPENDIX I – NORTH-UP CHARTS.

The identification and characterization of seafloor bedforms along the OWF area was conducted using available marine geophysical survey data, specifically bathymetry from multi-beam echo sounder (MBES) (Figure 7-1). Geotechnical data and grab samples results were also used together with the bathymetric data for the seabed classification and seabed features (Figure 7-4).

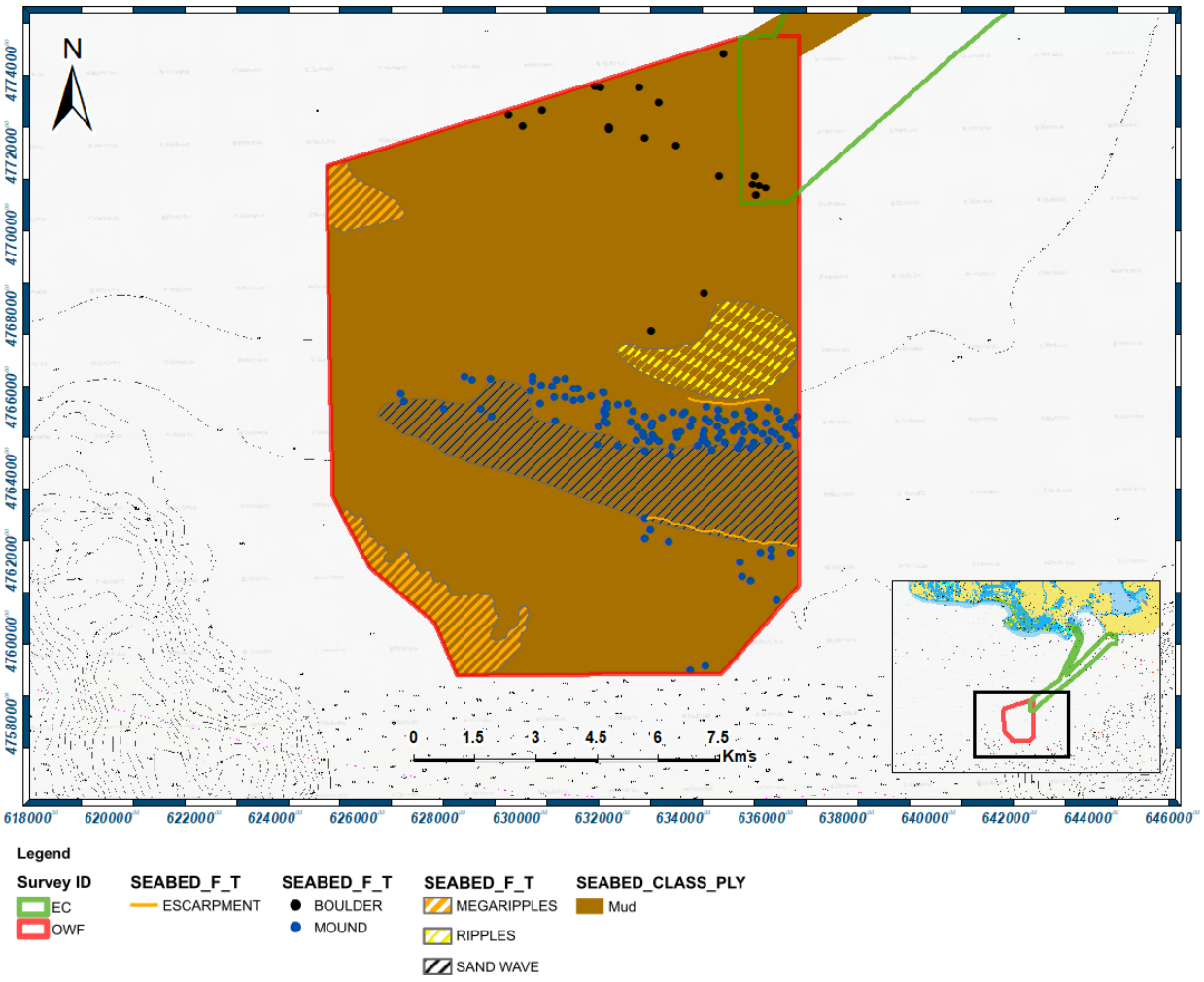


Figure 7-4 Bedforms interpretation from AO6 OWF Zone 2.

7.3.1. Areas of scour and escarpments

Two main escarpments have been interpreted within the AO6 OWF Zone 2. These are up to 12.6 m in height and 2 to 4 km in length with northwest-southeast orientations (Figure 7-1, Figure 7-2, Figure 7-3, Figure 7-4 & Figure 7-5). The origin of these escarpments is uncertain; however, it is suggested that they may be linked to current bedforms, given their specific location to sand waves and ripples (Figure 7-4).

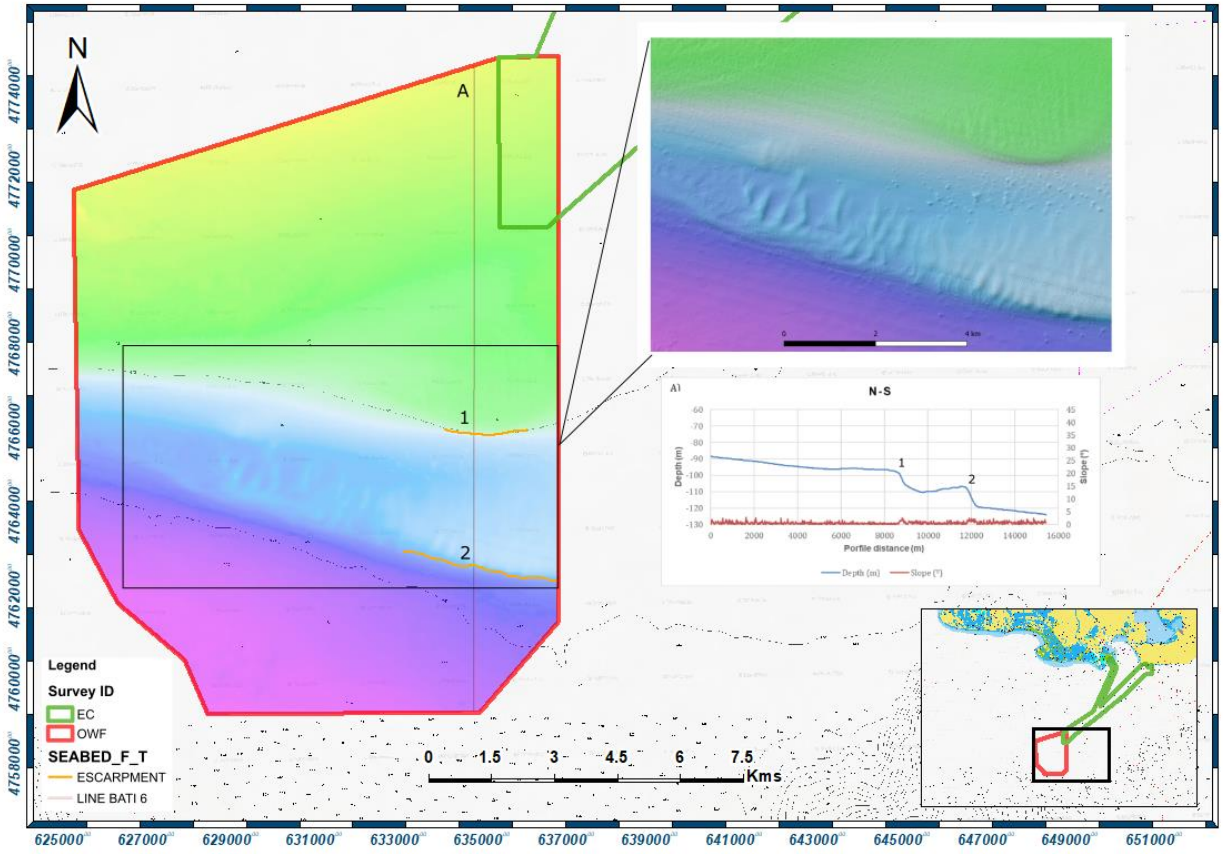


Figure 7-5 Interpretation of escarpments within the AO6 OWF Zone 2.

7.3.2. Seabed Mounds

Numerous seabed mounds are interpreted within the AO6 OWF Zone 2 survey area. These mounds are round structures ~ 50 m (occasionally 20 m or > 110 m) in diameter and varying in height from 10 cm to 2 m, examples of these seabed mounds are presented in Figure 7-6. These features may be authigenic carbonate mounds formed by the presence of gas (relic and/or

present-day) (Bohrmann et al., 1998, Catherine et al. (2017) (Bib. Ref.[7])). The SBP & UHRS lines that cross these mounds did not display significant acoustic blanking that is usually associated with the presence of gas. The lack of observed acoustic blanking suggests that these mounds could be relic gas-related features or gas release may be episodic. Alternatively, their formation could be unrelated to gas.

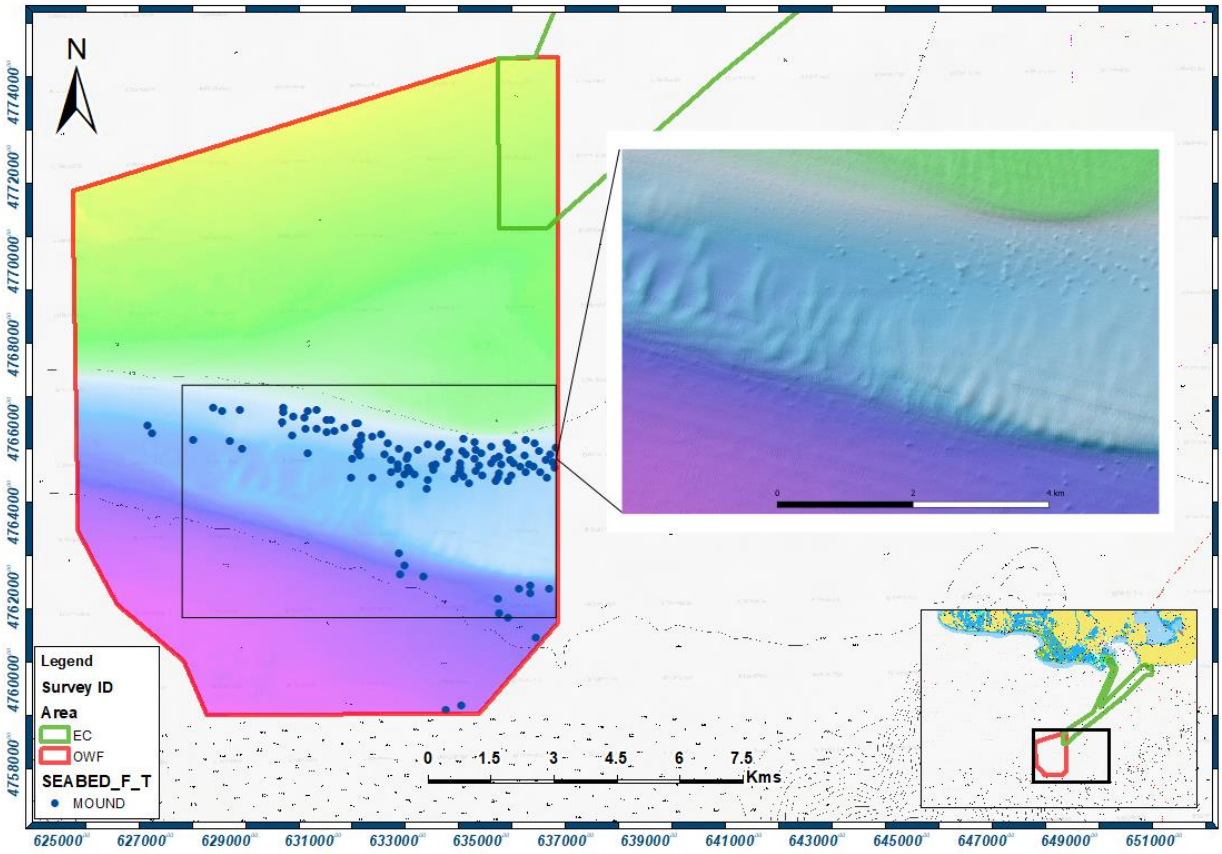


Figure 7-6 Magnified view of seabed mounds in the center area of the OWF.

7.3.3. Current related bedforms

Currents-related bedform morphologies have been interpreted based on their wavelength and height values, as reported in Table 15. It is important to note that while ripples and mega ripples could fit into different categories, the classification in OWF 2 is primarily based on their height.

Table 15 Current related bedform characteristics from Belderson et al. (1982) (Bib. Ref. [6]).

Bedform Type	Wavelength (m)	Height (m)
Sand Wave	>60	>1.5
Mega Ripple	5-60	0.5-1.5
Ripple	<5	<0.5

Ripples morphologies are present in the central-eastern part of the OWF area (Figure 7-7), with heights ranging between 0.1 to 0.5 m and wavelengths ranging between 100 to 270 m.

Mega ripples are identified in the top northwestern and bottom southwestern part of the OWF area (Figure 7-7), with heights ranging between 0.3 to 1.2 m and wavelengths ranging between 140 to 430 m.

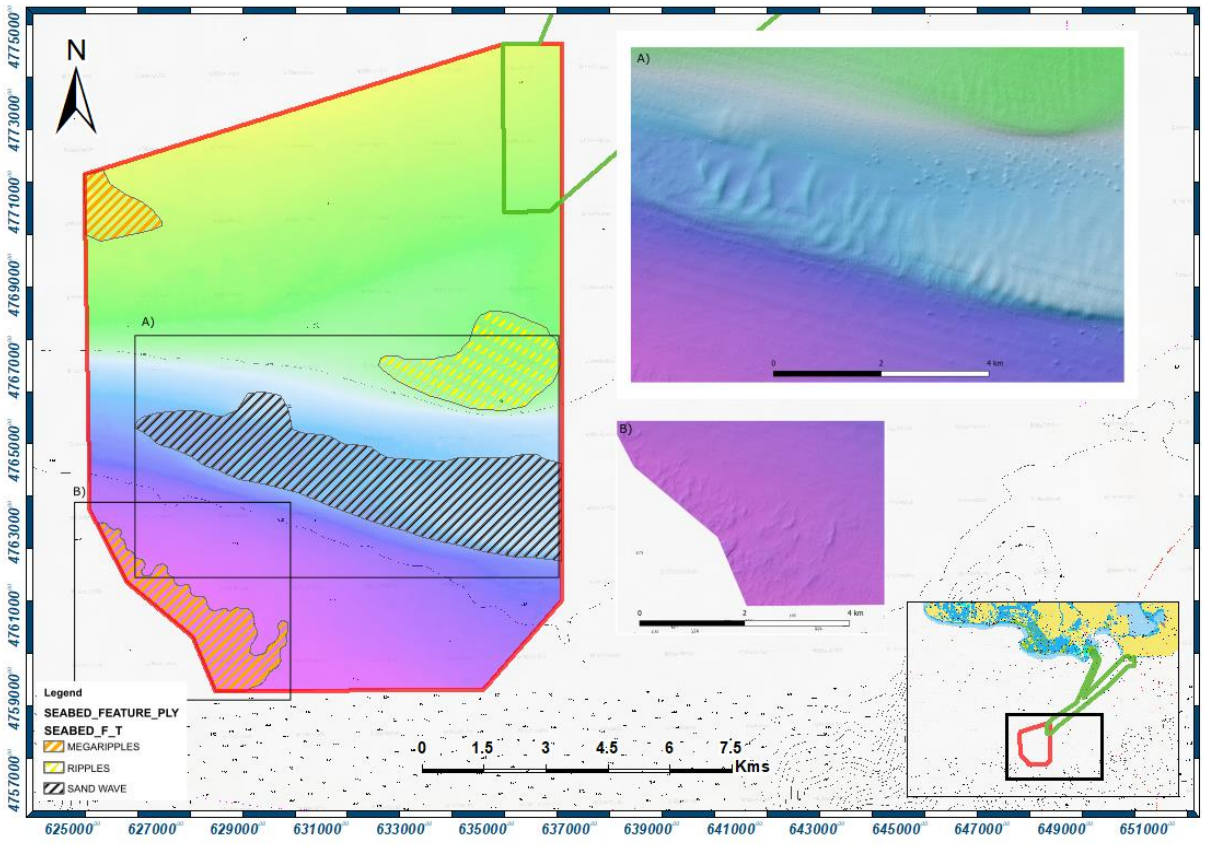


Figure 7-7 Magnified view of mega ripples and ripples in the center area of the OWF**.**

Additionally, Sand waves are mainly found in a central elongated zone, oriented NW-SE. These bedforms are found in the study area with heights ranging between 0.3 to 2.5 m and with wave-lengths ranging between 350 to 170 m. Furthermore, Figure 7-7 shows a magnified view of ripples, mega ripples and sand waves in the OWF.

7.4. SEDIMENT INTERPRETATION

Mud is the main seabed sediment classification in the offshore windfarm area (Figure 7-8).

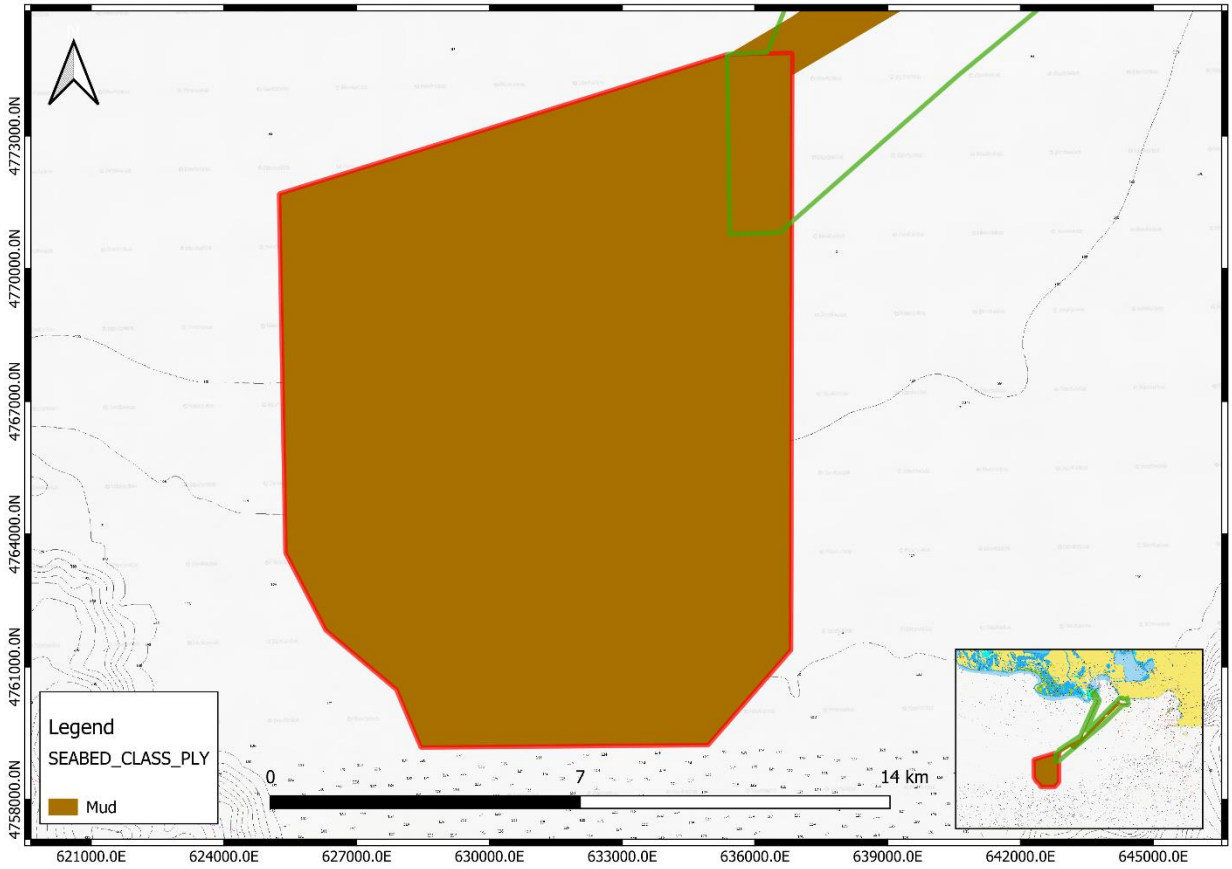


Figure 7-8 Seabed classification of the AO6 OWF area.

7.5. GEOLOGICAL FAULTS

The OWF area is characterized by a succession of horst and grabens, oriented NE-SW to NNE-SSW. The identified tectonic faults are sealed by the Messinian Erosional Surface, and no fault

with a significant vertical offset has been identified (Oudet, 2008; Oudet et al., 2010, Bib. Ref. [24] and [25]).

Recent studies do not map active faults in the zone of interest for building windfarms. However, Salon-Cavaillon and Moyenne Durance active faults are near the landfall area of zone 2 (Jomard et al., 2017; Thomas et al., 2021 (Bib. Ref.[18] and [26])) (Figure 6-1). Therefore, BRGM (Report Ref. 21) recommends checking geological faults, for example, by using very-high-resolution seismic data, as it remains unclear whether the onshore active faults extend offshore.

7.6. pUXO Contacts

During the UXO survey, two hundred fifty-seven (257) side scan sonar and sixty (60) sub-bottom profiler contacts were detected. This data can be consulted in the UXO Factual report (Ref. 11) and the GIS package for AO6 OWF Zone 2 project (Ref. 12). A total ALARP area of 9.900 m^2 was obtained for the 11 Geotechnical locations within the area of interest. From these 11 ALARP areas, only 8 were finally surveyed in the geotechnical survey.

Punctual objects have been identified, but it was not possible to specify if there are ferromagnetic elements. Therefore, it can be difficult to distinguish anthropogenic elements from geological elements (boulders, gravel, coarser sediments, etc.). Thus, any anomaly corresponds to a potential UXO.

A 15 m avoidance distance was established from any isolated anomaly. Consequently, 8 out of the 20 GI boxes had to be relocated to an area that would not interfere with the safety buffers (Table 16).

Table 16 Final GI box location. In pink are the GI boxes where an alternative location had to be found**.**

ID	Name GI	Easting UTM31N	Northing UTM31N	Within AO6 Zone 2	Geotechnical survey
1	**Z2_OWF_B01**	**637022.00**	**4769227.00**	**YES**	**YES**
2	**Z2_OWF_B02B**	**633436.17**	**4766958.53**	**YES**	NO
3	**Z2_OWF_B03**	**634468.00**	**4765244.00**	**YES**	**YES**

ID	Name GI	Easting UTM31N	Northing UTM31N	Within AO6 Zone 2	Geotechnical survey
4	**Z2_OWF_B04**	**635191.00**	**4761969.00**	**YES**	**YES**
5	**Z2_OWF_B05B**	**630076.80**	**4760198.55**	**YES**	**YES**
6	**Z2_OWF_B06B**	**629018.45**	**4761945.89**	**YES**	NO
7	**Z2_OWF_B07**	**628283.00**	**4765253.00**	**YES**	**YES**
8	Z2_OWF_B08	623919.00	4766350.00	NO	NO
9	**Z2_OWF_B09**	**626097.00**	**4768888.00**	**YES**	**YES**
10	**Z2_OWF_B10**	**629371.00**	**4769628.00**	**YES**	NO
11	**Z2_OWF_B11**	**632656.00**	**4770340.0**	**YES**	**YES**
12	Z2_OWF_B12	632298.00	4775070.00	NO	NO
13	**Z2_OWF_B13**	**628659.00**	**4772883.00**	**YES**	**YES**
14	Z2_OWF_B14B	626460.24	4776487.12	NO	NO
15	Z2_OWF_B15	624293.00	4773989.00	NO	NO
16	Z2_OWF_B16B	622079.69	4771393.76	NO	NO
17	Z2_OWF_B17	621375.00	4768536.00	NO	NO
18	Z2_OWF_B18B	618837.08	4770755.42	NO	NO
19	Z2_OWF_B19B	619896.18	4775041.59	NO	NO
20	Z2_OWF_B20B	622067.95	4777572.56	NO	NO

7.7. SHIPWRECK, ANTHROPOGENIC OBJECTS AND POSSIBLE BLAST MARKS

As mentioned in the previous section, punctual objects have been identified. Still, it was not possible to specify if there are ferromagnetic elements and it is challenging to distinguish anthropogenic elements from geological ones.

Two potentially anthropogenic objects were found in the OWF AO6 Zone 2 (Figure 7-9), which are located between -88 and -95 m ZH.

Anchoring marks are located between 95 and 90 m ZH to the northeast of the OWF AO6 Zone 2. Additionally, trawl marks have been identified almost everywhere in the OWF AO6 Zone 2 area.

Figure 7-9 shows the location of all potential anthropogenic objects mentioned above.

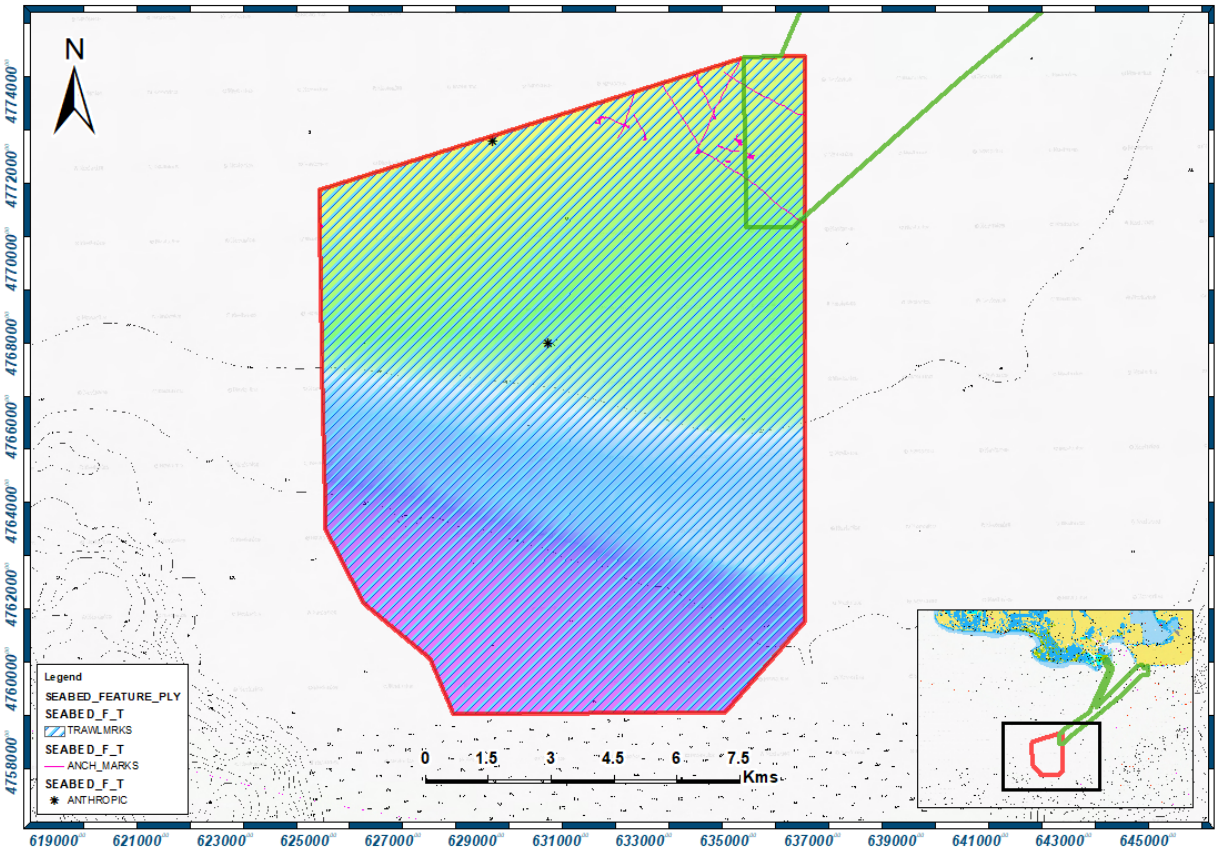


Figure 7-9 Location of anthropogenic objects.

8. GEOHAZARDS

This section presents the possible geohazards identified across the AO6 OWF Zone 2 area; Table 17 presents a qualitative classification based on the observed indicators listed.

Table 18 summarizes the potential geohazards encountered in the AO6 OWF Zone 2 area. Moreover, Figure 8-1 shows the four gas hazard levels identified and described within the depth of interpretation (upper 30 m) in the OWF survey area. There is some evidence of gas migration

from lower levels not interpreted here, as the interpretation of the anomalous seismic amplitudes has been limited to the upper 30 m. It is worth noting that in the current polygon of the OWF area, there are very few gas levels identified (Figure 8-1). More details about the gas levels can be found in report Ref. 10.

It should be noted that Table 18 assessment is limited to the coverage (line spacing), resolution and quality of the datasets available.

Table 17 Criteria for geohazards estimation.

Class	Description
High	Indicators observed in the area within the data sets.
Moderate	Some indicators observed in the area within the data sets.
Low	No indicators observed in the area within the data sets.

Table 18 Geohazards and soil conditions summary for AO6 OWF area.

Geohazard	Likeli-hood	Description	Notes
Ground condi-tion variability	Low	Mud is the main seabed sediment classifica-tion in the offshore windfarm area.	The seabed classification interpretation was performed using the geotechnical and grab samples results; however, these are limited in numbers considering the whole zone 2.
Irregular sea-floor | High Slope areas	Moderate	Higher slope gradients are encountered within mega ripple and ripple bedforms mor-phologies present in the study area.	Turbine foundations and cable installation in slopes higher than 10 degrees are deemed possible with appropriate design and seabed mitigations in place.
Gravel, and pebbles accu-mulations	Low	No accumulations of gravel and cobbles are abundantly present in the study area.	Uncertainties on vertical and lateral variability of granular sediments at seabed are still pre-sent, considering the datasets.
Superficial Boulders	Moderate	Superficial boulders have been identified in the OWF area.	The presence of buried boulders cannot be ruled out, considering the geological settings.
Seabed mounds	High/Mod-erate	Numerous seabed mounds are interpreted within the AO6 OWF Zone 2 survey area.	The lack of observed acoustic blanking sug-gests that rather than being gas pockets; these mounds could be relic gas-related fea-tures, or gas release may be episodic; alter-natively, their formation could be unrelated to gas.

Geohazard	Likeli-hood	Description	Notes
Migrating bed-forms	Moderate	Diverse types of bedforms have been de-scribed in the area: ripples, mega ripples, and sand waves.	Currents create bedforms due to sediment transport and may show internal structures and variations in sediment grain size. Relevant to scour potential and on-bottom stability.
Shallow gas	Low	A few gas were identified and described within the recent OWF survey area, with their locations shown in Figure 8-1 and further de-tails available in the Ref 10 report.	There is some evidence of gas migration from lower levels not interpreted here, as the inter-pretation of the anomalous seismic ampli-tudes has been limited to the upper 30m.
Seismogenic faults	Low	No fault scarps have been observed at sea-bed in the data sets.	Anchor structures and cables shall be located at a safe distance from seismogenic faults.

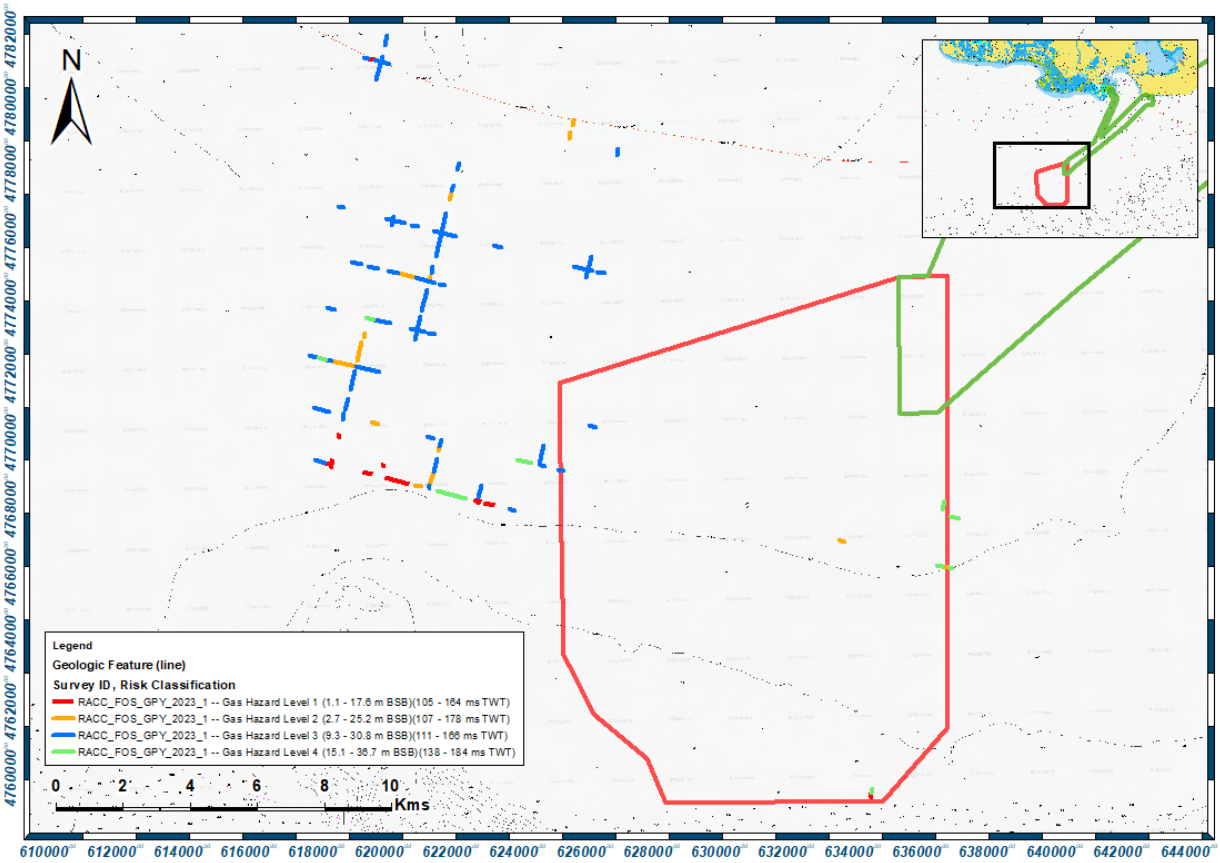


Figure 8-1. Shallow gas hazards. Refer to **Ref. 10** for further details.

9. GEOTECHNICAL PARAMETERS

All the offshore and onshore laboratory analyses and methodologies are detailed within the geotechnical operational and factual reports with Ref. 6, Ref. 9 and Ref. 11. This section presents the different methodologies used to obtain the derived geotechnical parameters in this report.

9.1. SOIL GEOTECHNICAL PARAMETERS

Geotechnical parameters relevant for floating turbine foundation design were derived based on the data referenced in section 4.5 and summarised in subchapters below.

9.1.1. Submerged unit weight

Unit weight was derived from CPT data using method published by Lengkeek and Brinkgreve 2022 (Bib. Ref. [21]) and from bulk density derived in the lab multiplied by 9.81m/s^2; then submerged unit weight was derived by subtracting the unit weight of seawater (10.1 kN/m^3).

9.1.2. Plasticity Index

Soil plasticity is evaluated based on results of Atterberg limit tests in the lab. Atterberg limits were executed on cohesive specimens or on the fines fraction of granular samples. In the latter case the coarse fraction was discarded.

9.1.3. Cone Penetration Test (CPT) tip resistance

Cone Penetration Test tip resistance (q_c) is a geotechnical parameter utilised in various pile design and drivability methods, representing the in-situ density and strength of the soils. Pore pressure (u_2) is also provided to identify the variance of the cohesive and partially drained layers along the profile.

9.1.4. Relative density

Relative density was derived for SAND1, SAND2, units from CPT data. Relative density is derived following the below equation by Jamiolkowski et al. 2001 (Bib. Ref.[17]):

Relative density (D_r) in Relative_Density_2 is defined as:

$$D_r = 100 \cdot \left[C_1 \cdot ln\left(\frac{q_t/\sigma_{atm}}{\sqrt{\sigma'_{vo}/\sigma_{atm}}}\right) + C_2 \right]$$

Jamiolkowski et al. (2001), NCHRP Synthesis 368 pp 41-42

Where:

C_1 is stored in the Relative_Density_2_C1 field. Published value is 0.268 for all sands

C_2 is stored in the Relative_Density_2_C2 field. For average compressibility: $C_2 = -0.675$, for high compressibility and sands of carbonate or calcareous composition: $C_2 \leq 1.0$, for low compressibility: $C_2 \geq 2.0$.

Figure 9-1 Equation used to derive the relative density parameter from CPT data.

9.1.5. Friction angle

Friction angle was derived for SAND1 and SAND2 from Sheabox (DS), CID onshore lab testing and from CPT data following the method by Kulhawy and Mayne 1990 (Bib. Ref. [20]), which was found to be the most representative correlation for the ground conditions at AO6 OWF below 3 m BSB.

The angle of internal friction of sand (Φ') in Friction_Angle_3 is defined as:

$$\Phi' = C_1 + C_2 \cdot log(q_{t1})$$

Kulhawy and Mayne (1990), NCHRP Synthesis 368 p 38

Where:

C_1 is 17.6° in the published formula, and is stored in the Friction_Angle_3_C1 field.

C_2 is 11.0° in the published formula, and is stored in the Friction_Angle_3_C2 field.

This correlation of Φ' is only applicable for Sands and hence will only be calculated if the Soil_Type_1 field value is *coarse* or *mixed*.

Figure 9-2 Equation used to derive the friction angle parameter from CPT data.

9.1.6. Undrained shear strength

Values of undrained shear strength for cohesive units SILT1, SILT2, CLAY1 have been derived using the following methods:

- UU triaxial compression
- CIU triaxial compression
- Direct simple sheal DSS
- Lab vane LV
- Fall cone FC
- Cone penetration tests (CPT)

Undrained Shear Strength (Su) has been empirically derived from CPT data using Nkt factors 15 and 20, using the following relationship from Lunne et al., (1997) (Bib Ref.[23]).

$$Su = \frac{Qnet}{Nkt}$$

where:

Su = Undrained shear strength

Qnet = net cone resistance

Nkt = conversion factor

Figure 9-3 Equation used to derive the Su parameter from CPT data.

The selection of Nkt factors as 15 and 20 was confirmed after shear strength results from UU, DSS and CIU tests obtained in SILT1, SILT2, and CLAY1 samples were compared with the CPT-derived method. Engineering judgment was used to compare UU, DSS and CIU results from cohesive samples affected by sand partings and partially drained behaviour.
Remoulded undrained shear strength was derived from the following lab tests:

- Remoulded Lab vane (LV_R)
- Remoulded Fall cone (FC_R)
- Remoulded unconsolidated undrained triaxial (UU_R)

Soil sensitivity was derived by dividing the intact shear strength by the remoulded shear strength Index strength tests performed offshore, such as pocket penetrometer and hand torvane results, present high level of scatter due to manual testing, hence are not considered for comparison.

9.1.7. Strain at 50% strength (E50)

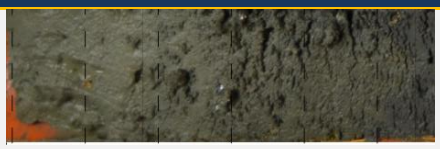
Epsilon 50 (E50), defined as the soil strain at 50% of maximum deviatoric stress, is derived from UU and CIU tests on intact samples and is typically used to inform the deformation characteristics of cohesive soils. Epsilon 50 is of particular interest for designing piles subject to lateral loads that significantly depend on soil resistance along the pile as a function of pile deflection.

10. GEOTECHNICAL UNITS

This section details the geotechnical units derived for the AO6 OWF Zone 2 area based on geotechnical data referenced in Section 4.5, aided by the seismo-stratigraphic framework presented in Section 6 and its limitations.

Geotechnical units were derived based on the lab and/or CPT interpreted soil description of primary and secondary soil constituents and consistency according to ISO 14688-1 (2017b), and ISO 14688-2 (2017c). Table 19 presents the units and soil mechanical behavior derived for AO6 OWF Zone 2 soil characterization.

Table 19 Geotechnical units differentiated for the AO6 OWF area.

RGT Unit	Soil behaviour	Geotechnical unit	Description	Sample Photo
1	Undrained or cohesive	**SILT1**	Extremely low to low shear strength clayey SILT	
2 and 3	Transitional or partially drained	**SILT2**	Low to medium shear strength sandy SILT	
2 and 3	Drained or granular	**SAND1**	Medium dense to dense silty SAND	
3 and 4	Drained or granular	**SAND2**	Dense to very dense silty SAND	
4 and 5	Undrained or cohesive	**CLAY1**	Medium to high shear strength silty CLAY	
5	Undrained or cohesive	**CLAY2**	High shear strength silty CLAY	Not intercepted by VC or PC

Digital geotechnical data used are included in APPENDIX V – DIGITAL GEOTECHNICAL DATA. Location-specific summary logs have been developed to provide ground conditions profiles for each geotechnical location to 30 m BSB, based on a minimum unit thickness of 0.5m (Figure 10-1).

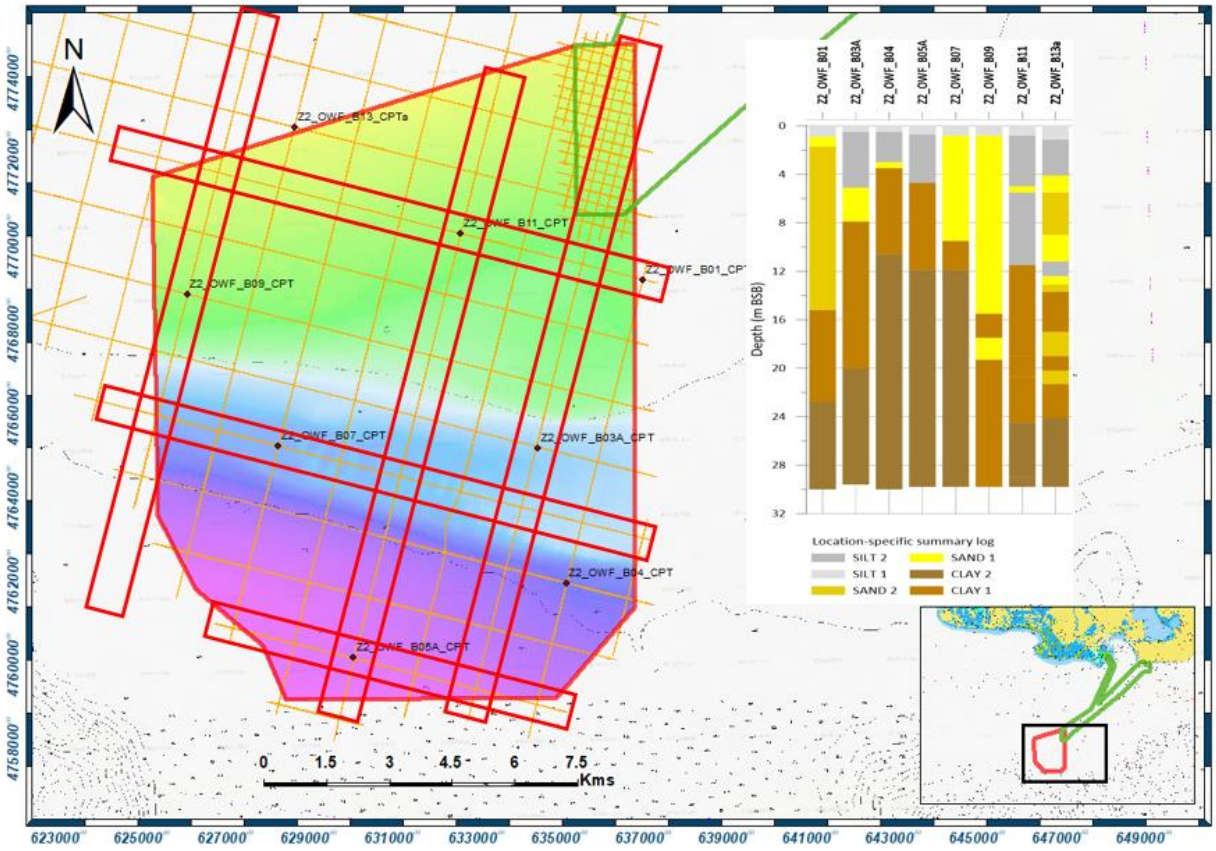


Figure 10-1 Geotechnical Units AO6 OWF Z2.

Geotechnical locations have been grouped to create longitudinal and transversal profiles that display the evolution of the units across the OWF. The location of geotechnical units within each soil profile is shown from Figure 10-2 to Figure 10-7.

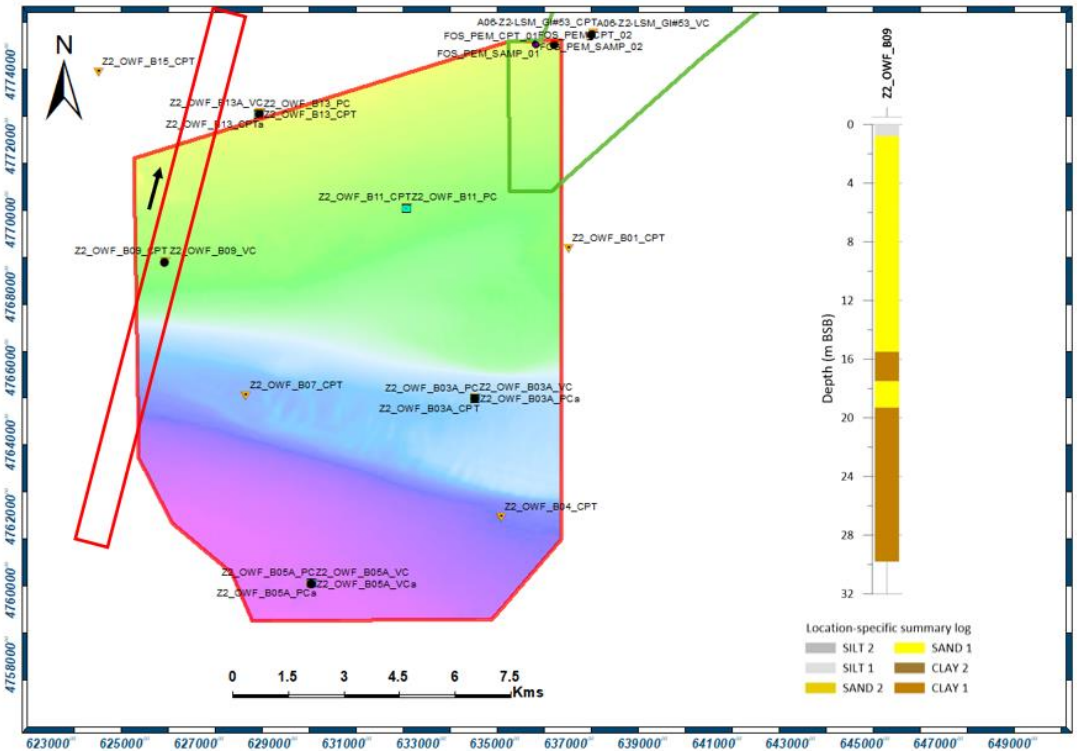


Figure 10-2 Geotechnical Units within the CPT of Soil Profile 1.

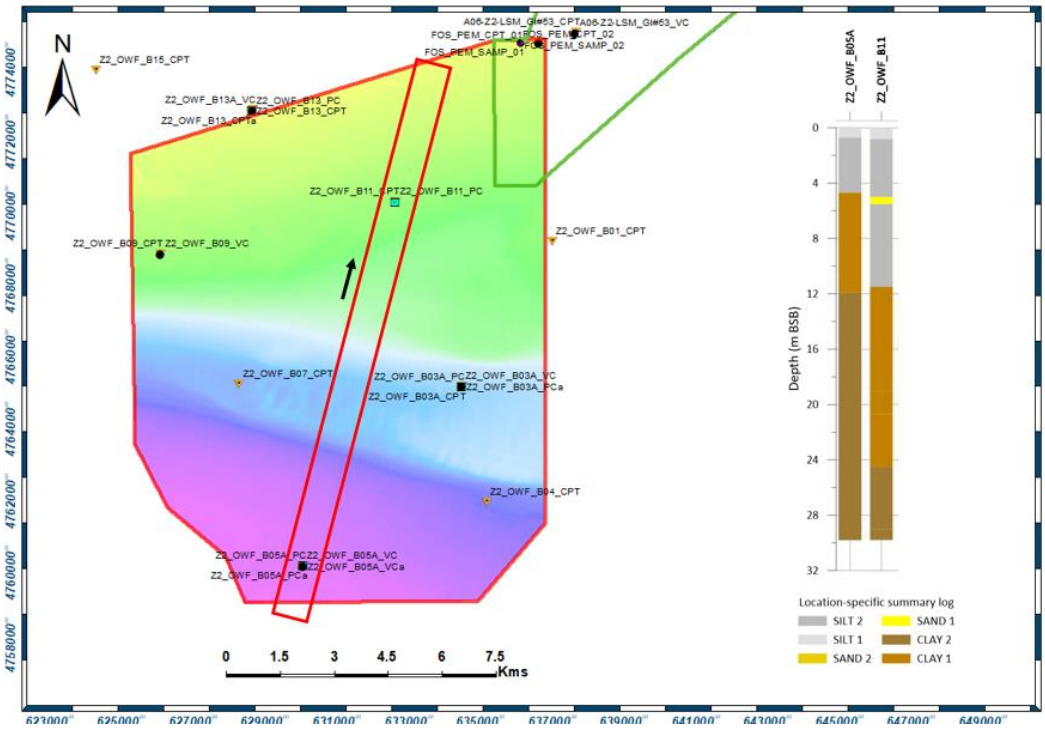


Figure 10-3 Geotechnical Units within the CPT of Soil Profile 2.

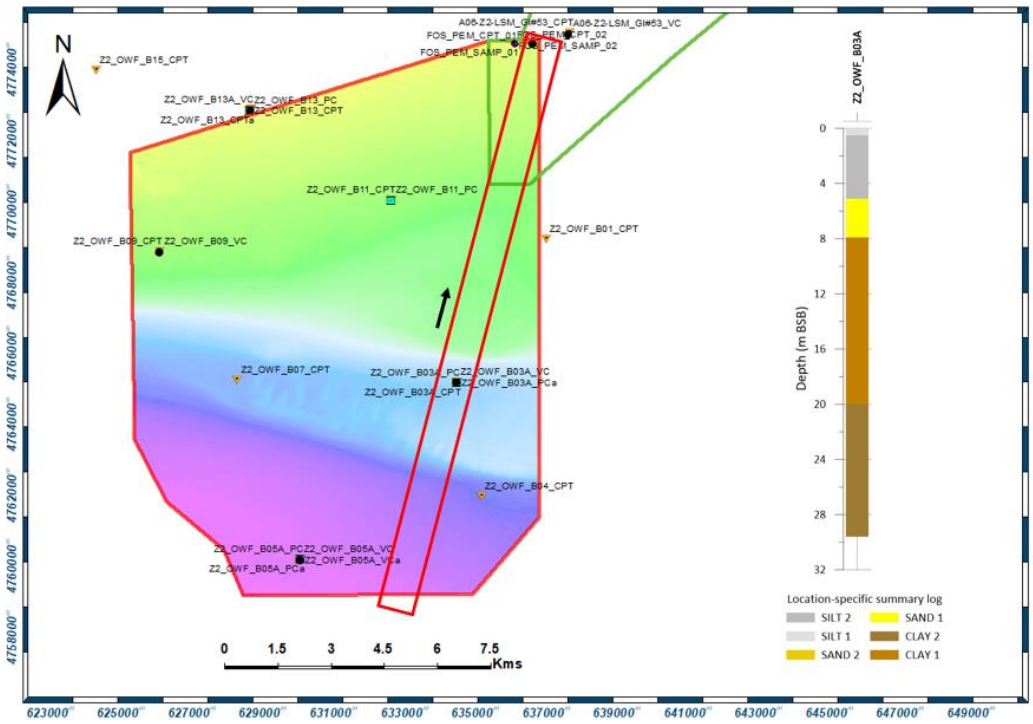


Figure 10-4 Geotechnical Units within the CPT of Soil Profile 3.

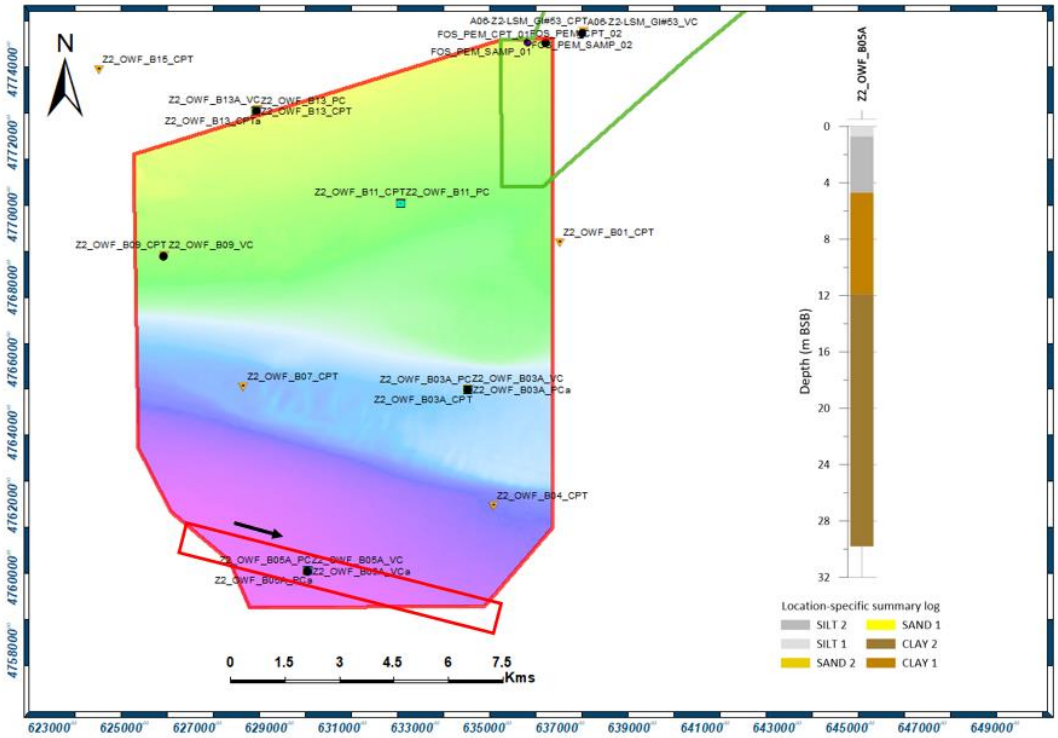


Figure 10-5 Geotechnical Units within the CPT of Soil Profile 4.

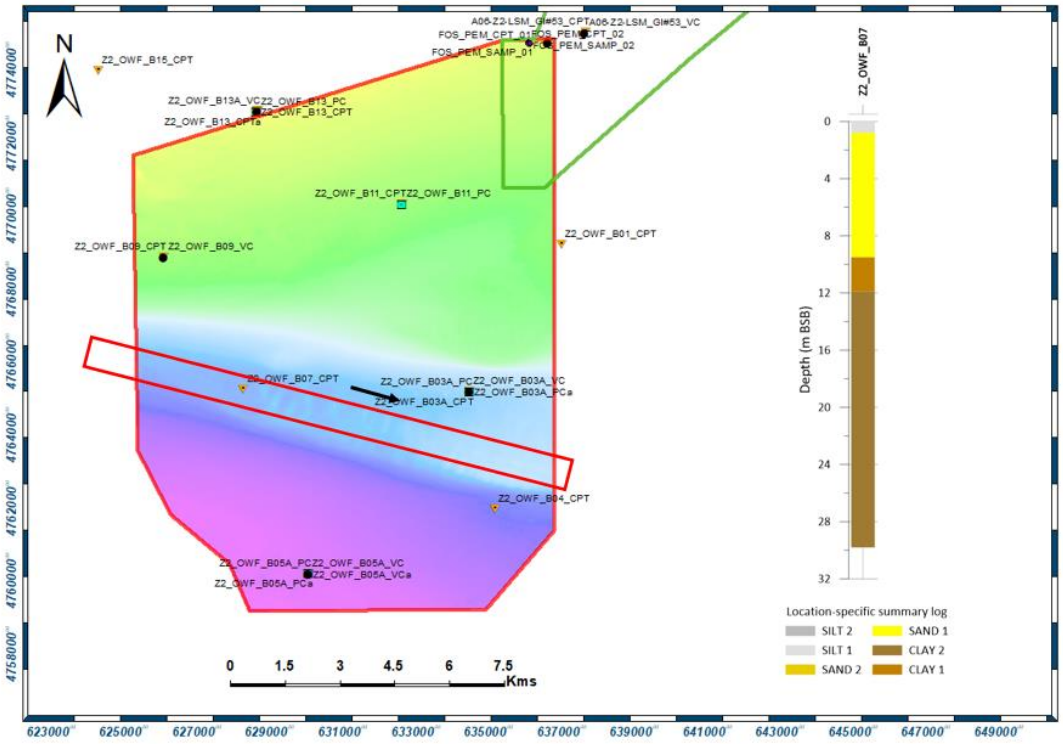


Figure 10-6 Geotechnical Units within the CPT of Soil Profile 5.

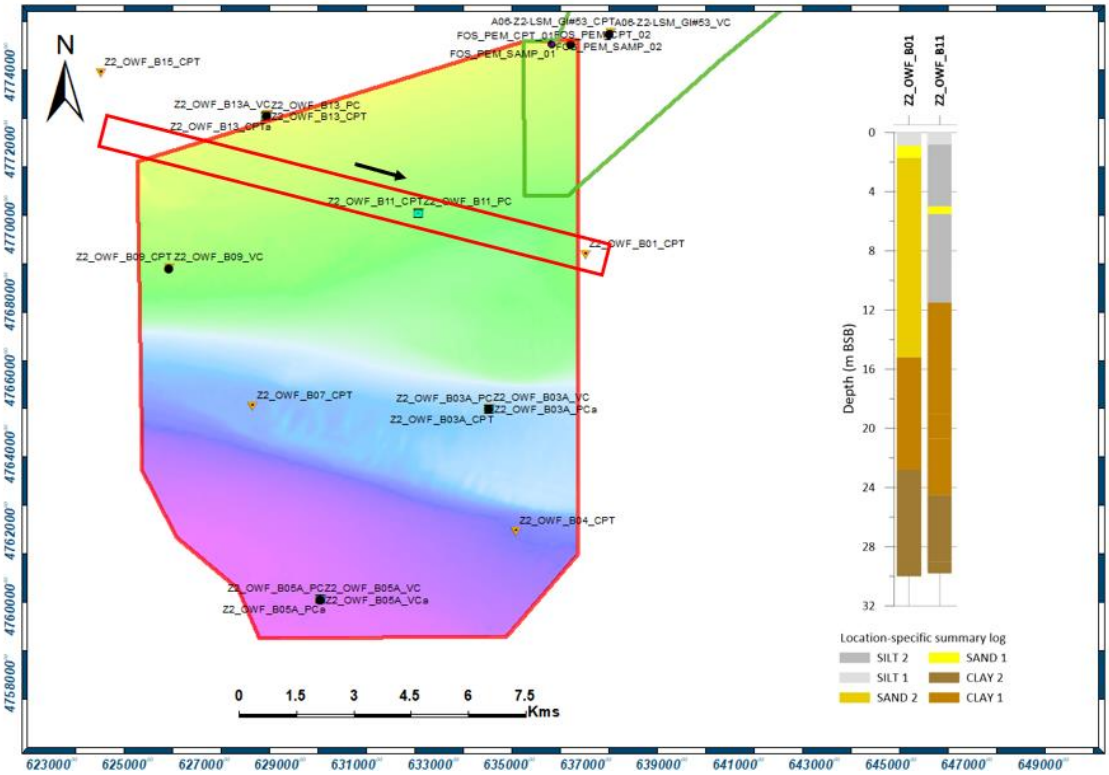


Figure 10-7 Geotechnical Units within the CPT of Soil Profile 6.

A statistical approach combined with engineering judgment in line with the methods recommended by Hicks Bib. Ref. [12] and Baecher Bib. Ref. [4] was used to derive integrated geotechnical parameters considering the limitation of the multiple data sets. Due to the lateral variability associated with the encountered ground conditions, the geotechnical parameters provided are deemed suitable for preliminary foundation sizing in proximity or up to a 100 m radius of the geotechnical locations.

The geotechnical parameters provided are based on the following workflow:

- Assessment of spatial soil variability within the AO6 OWF Zone 2 area on geophysical and geotechnical results.
- Selection and presentation of geotechnical parameters for 3 main units with associated 6 subunits.
- Correlation of in situ CPT and laboratory test data to interpret derived geotechnical parameters in soil units.
- Geotechnical parameter assessment for typical parameter value ranges and assignment of best (BE), low (LE) and high (HE) estimates for selected parameters, where possible.
- The mechanical behaviour of the soils within the study area is mainly described by shear strength in cohesive soils (i.e. clay and silt) and relative density in granular soils (i.e., sand and gravel).

Geotechnical parameters low estimate (LE), best estimate (BE) and higher estimate (HE) are presented for the relevant units in the sections below.

10.1. SILT

The SILT unit is further divided into two sub-units SILT1 and SILT2, based on the consistency and mechanical behaviour, as detailed below.

10.1.1. SILT1

The SILT1 unit is present at seabed at all investigated locations, generally consisting of extremely low to low shear strength non plastic clayey SILT, locally sandy.

Geotechnical locations, detailed soil description and top and bottom depths associated with SILT1 unit are presented in table below.

Table 20 SILT1 locations, depths and detailed soil description.

Location ID	Top (m)	Bottom (m)	Thickness (m)	Description SILT1
Z2_OWF_B01	0.0	0.9	0.9	Extremely low to low shear strength clayey SILT
Z2_OWF_B03A	0.0	0.5	0.5	Extremely low to very low shear strength sandy clayey SILT
Z2_OWF_B04	0.0	0.5	0.5	Extremely low shear strength sandy SILT
Z2_OWF_B05A	0.0	0.7	0.7	Extremely low shear strength sandy SILT
Z2_OWF_B07	0.0	0.8	0.8	Extremely low shear strength sandy clayey SILT
Z2_OWF_B09	0.0	0.8	0.8	Extremely low to low shear strength sandy SILT
Z2_OWF_B11	0.0	0.8	0.8	Extremely low shear strength sandy SILT
Z2_OWF_B13a	0.0	1.1	1.1	Extremely low to low shear strength sandy SILT

Indicative geotechnical parameters for SILT1 are presented in table below.

Table 21 Geotechnical parameters for SILT1.

SILT1						Submerged unit weight (kN/m3)			Cone tip resistance (MPa)			Plasticity Index (%)		
min-Top depth (m)	Max Top depth (m)	min Bottom Depth (m)	Max Bottom Depth (m)	Min Thickness (m)	Max Thickness (m)	LE	BE	HE	LE	BE	HE	LE	BE	HE
0	0	0.5	1.1	0.5	1.1	6.5	7	7.5	0.02	0.05	0.1	5	10	15
						Water Content (%)			Undrained shear strength (kPa)			E50 (%)		
						LE	BE	HE	LE	BE	HE	LE	BE	HE
						30	40	60	5	5	15	2	3	4

10.1.2. SILT2

The SILT2 unit generally consists of low to medium shear strength low plasticity sandy SILT, locally with thin to thick beds of very loose silty sand. Due to the frequent beds of sand this unit may present a partially drained behaviour. Geotechnical locations, detailed soil description and top and bottom depths associated with SILT2 unit are presented in table below.

Table 22 SILT2 locations, depths and detailed soil description.

Location ID	Top (m)	Bottom (m)	Thickness (m)	Description SILT2
Z2_OWF_B03A	0.5	5.1	4.6	Low to medium shear strength sandy SILT with thin to thick beds of very loose silty sand
Z2_OWF_B04	0.5	3.0	2.5	Low to medium shear strength sandy SILT
Z2_OWF_B05A	0.7	4.7	4.0	Low to medium shear strength sandy SILT
Z2_OWF_B11	0.8	5.0	4.2	Low to medium shear strength sandy SILT with thin beds of loose silty sand
Z2_OWF_B11	5.5	11.5	6.0	Low to medium shear strength sandy CLAY with thin to thick beds of loose to medium dense silty sand
Z2_OWF_B13a	1.1	4.1	3.0	Low to medium shear strength sandy SILT
Z2_OWF_B13a	11.2	12.4	1.2	Medium shear strength sandy SILT with thin to thick beds of loose to medium dense silty sand

Indicative geotechnical parameters for SILT2 are presented in the table below.

Table 23 Geotechnical parameters for SILT2.

SILT2						Submerged unit weight (kN/m3)			Cone tip resistance (MPa)			Plasticity Index (%)		
min-Top depth (m)	Max Top depth (m)	min Bottom Depth (m)	Max Bottom Depth (m)	Min Thickness (m)	Max Thickness (m)	LE	BE	HE	LE	BE	HE	LE	BE	HE
0.5	11.2	3.0	12.4	2.5	6.0	7.0	7.5	8.5	0.5	1.0	2.0	5	7	10
						Water Content (%)			Undrained shear strength (kPa)			E50 (%)		
						LE	BE	HE	LE	BE	HE	LE	BE	HE
						10	25	40	20	40	80	1.5	2	3.5

10.2. SAND

The SAND unit is further divided into two sub-units SAND1 and SAND2 based on the relative density as detailed below.

10.2.1. SAND1

The SAND1 unit is locally present in the majority of the investigated locations, generally consisting of medium dense to dense silty SAND, locally with thin to thick beds of low to medium, locally high, shear strength sandy clay.
Geotechnical locations, detailed soil description and top and bottom depths associated with SAND1 unit are presented in table below.

Table 24 SAND1 locations, depths and detailed soil description.

Location ID	Top (m)	Bottom (m)	Thick-ness (m)	Description SAND1
Z2_OWF_B01	0.9	1.7	0.8	Medium dense to dense silty SAND with thin beds of low shear strength clay
Z2_OWF_B03A	5.1	7.9	2.8	Medium dense to dense silty SAND with thin beds of medium to high shear strength clay
Z2_OWF_B04	3.0	3.5	0.5	Medium dense to dense silty SAND
Z2_OWF_B07	0.8	9.5	8.7	Medium dense to dense silty SAND with thin to thick beds of medium to high, locally vey high, shear strength sandy clay
Z2_OWF_B09	0.8	6.1	5.3	Medium dense to dense silty SAND
Z2_OWF_B09	6.1	15.5	9.4	Medium dense to dense SAND, locally very dense with thin to thick beds of low to medium, locally high, shear strength sandy clay
Z2_OWF_B09	17.5	19.3	1.8	Medium dense to dense silty SAND
Z2_OWF_B11	5.0	5.5	0.5	Medium dense SAND
Z2_OWF_B13a	4.1	5.5	1.4	Medium dense to dense SAND with thick beds of medium strength clay
Z2_OWF_B13a	9.0	11.2	2.2	Medium dense to dense silty SAND with thin to thick beds of medium shear strength sandy clay
Z2_OWF_B13a	12.4	13.1	0.7	Loose to medium dense SAND with thin to thick beds of medium shear strength sandy clay

Indicative geotechnical parameters for SAND1 are presented in table below:

Table 25 Geotechnical parameters for SAND1.

SAND 1						Submerged unit weight (kN/m3)			Cone tip resistance (MPa)			Relative Density (%)			Friction angle (ºdeg)		
Min Top depth (m)	Max Top depth (m)	Min Bottom Depth (m)	Max Bottom Depth (m)	Min Thickness (m)	Max Thickness (m)	LE	BE	HE	LE	BE	HE	LE	BE	HE	LE	BE	HE
0.9	17.5	1.7	19.3	0.8	9.4	9	9.5	10	5	10	30	30	50	70	30	32	35

10.2.2. SAND2

The SAND2 unit is generally consisting of dense to very dense slightly gravelly silty SAND Geotechnical locations, detailed soil description and top and bottom depths associated with SAND2 unit are presented in table below.

Table 26 SAND2 locations, depths and detailed soil description.

Location ID	Top (m)	Bottom (m)	Thickness (m)	Description SAND2
Z2_OWF_B01	1.7	15.2	13.5	Dense to very dense slightly gravelly silty SAND
Z2_OWF_B13a	5.5	9.0	3.5	Dense to very dense SAND
Z2_OWF_B13a	13.1	13.7	0.6	Dense silty SAND
Z2_OWF_B13a	17.0	19.0	2.0	Dense silty SAND
Z2_OWF_B13a	20.2	21.3	1.1	Dense silty SAND

Indicative geotechnical parameters for SAND2 are presented in table below.

Table 27 Geotechnical parameters for SAND2.

SAND 2						Submerged unit weight (kN/m3)			Cone tip resistance (MPa)			Relative Density (%)			Friction angle (ºdeg)		
Min Top depth (m)	Max Top depth (m)	Min Bottom Depth (m)	Max Bottom Depth (m)	Min Thickness (m)	Max Thickness (m)	LE	BE	HE	LE	BE	HE	LE	BE	HE	LE	BE	HE
1.7	20.2	9.0	21.3	0.6	13.5	9.5	10	10.5	25	35	40	80	90	100	32	35	37

10.3. CLAY

CLAY was found in two subunits of different strengths CLAY1 and CLAY2. Due to a similar seismic response, the distinction within the different units is not possible using the UHRS dataset.

10.3.1. CLAY1

CLAY1 unit consists of medium to high shear strength intermediate plasticity silty CLAY, locally sandy, locally with thin and thick beds of loose to medium dense silty sand
Geotechnical locations, detailed soil description and top and bottom depths associated with CLAY1 are indicated in table below.

Table 28 CLAY1 locations, depths and detailed soil description.

Location ID	Top (m)	Bottom (m)	Thickness (m)	Description CLAY1
Z2_OWF_B01	15.2	18.6	3.4	Medium to high shear strength sandy CLAY with thick beds of medium dense silty sand
Z2_OWF_B01	18.6	22.8	4.2	Medium to high shear strength silty CLAY
Z2_OWF_B03A	7.9	20.0	12.1	Medium to high shear strength silty CLAY
Z2_OWF_B04	3.5	10.6	26.5	Medium to high shear strength silty CLAY
Z2_OWF_B05A	4.7	11.9	25.1	Medium to high shear strength silty CLAY
Z2_OWF_B07	9.5	11.9	2.4	Medium to high shear strength silty CLAY
Z2_OWF_B09	15.5	17.5	2.0	Medium to high shear strength sandy CLAY with thin to thick beds of very loose to loose silty sand
Z2_OWF_B09	19.3	29.8	10.5	Medium to high shear strength silty CLAY
Z2_OWF_B11	11.5	13.8	2.3	Medium to high shear strength sandy CLAY with thin to thick beds of loose to medium dense silty sand
Z2_OWF_B11	13.8	19.0	5.2	Medium to high shear strength sandy CLAY with sand partings
Z2_OWF_B11	19.0	20.7	1.7	Medium shear strength CLAY
Z2_OWF_B11	20.7	24.5	3.8	Medium to high shear strength silty CLAY
Z2_OWF_B13a	13.7	17.0	3.3	Medium to high shear strength sandy CLAY with partings of loose sand
Z2_OWF_B13a	19.0	20.2	1.2	Medium to high shear strength sandy CLAY
Z2_OWF_B13a	21.3	24.1	2.8	Medium to high strength sandy CLAY

Indicative geotechnical parameters for CLAY1 are presented in table below.

Table 29 Geotechnical parameters for CLAY1

CLAY1						Submerged unit weight (kN/m3)			Cone tip resistance (MPa)			Plasticity Index (%)		
min-Top depth (m)	Max Top depth (m)	min Bottom Depth (m)	Max Bottom Depth (m)	Min Thickness (m)	Max Thickness (m)	LE	BE	HE	LE	BE	HE	LE	BE	HE
3.5	21.3	11.9	26.5	1.2	26.5	8.5	9.0	9.5	1.0	2.0	2.5	15	20	25
						Water Content (%)			Undrained shear strength (kPa)			E50 (%)		
						LE	BE	HE	LE	BE	HE	LE	BE	HE
						25	27	30	60	70	90	1.5	2	2.5

10.3.1. CLAY2

CLAY2 unit consists of high shear strength silty CLAY, locally sandy, locally with thin and thick beds of loose to medium dense silty sand

The table below indicates geotechnical locations, detailed soil descriptions, and top and bottom depths associated with CLAY2.

Table 30 CLAY2 locations, depths and detailed soil description.

Location ID	Top (m)	Bottom (m)	Thickness (m)	Description CLAY2
Z2_OWF_B01	22.8	30.0	7.2	High shear strength slightly silty CLAY
Z2_OWF_B03A	20.0	29.6	9.6	High shear strength silty CLAY
Z2_OWF_B04	10.6	30.0	19.4	High shear strength silty CLAY
Z2_OWF_B05A	11.9	29.8	17.9	High shear strength silty CLAY
Z2_OWF_B07	11.9	29.8	17.9	High shear strength silty CLAY
Z2_OWF_B11	24.5	27.6	3.1	High to very high shear strength sandy CLAY with thin to thick beds of loose to medium dense silty sand
Z2_OWF_B11	27.6	29.0	1.4	High to very high shear strength sandy CLAY
Z2_OWF_B11	29.0	29.8	0.8	High to very high shear strength silty CLAY
Z2_OWF_B13a	24.1	29.8	5.7	High shear strength silty CLAY with thin to thick beds of loose silty sand

Indicative geotechnical parameters for CALY2 are presented in the table below.

Table 31 Geotechnical parameters for CLAY2

CLAY2						Submerged unit weight (kN/m3)			Cone tip resistance (MPa)			Plasticity Index (%)		
min-Top depth (m)	Max Top depth (m)	min Bottom Depth (m)	Max Bottom Depth (m)	Min Thickness (m)	Max Thickness (m)	LE	BE	HE	LE	BE	HE	LE	BE	HE
10.6	27.6	27.6	30.0	0.8	19.4	9	9.5	10	1.5	2.5	3.5	n/a	n/a	n/a
						Water Content (%)			Undrained shear strength (kPa)			E50 (%)		
						LE	BE	HE	LE	BE	HE	LE	BE	HE
						n/a	n/a	n/a	70	90	140	n/a	n/a	n/a

11. LOCATION SPECIFIC GEOTECHNICAL PARAMETERS

The geotechnical results acquired from both offshore and onshore lab testing, and CPT have been analysed as part of the integration work and consolidated into the following sections.

Table 32 below presents a summary of the correlation established among geotechnical and seismo stratigraphic units applicable in proximity of the geotechnical locations.

Table 32. Seismo-stratigraphic, geological and geotechnical units of the AO6 OWF area.

SS. U.: Seismo-stratigraphic Unit; U.S: Upper Surface; L.S: Lower surface; RGT. U: Regional Geotechnical Unit; G. U: Geotechnical Unit.

Geophysics			Geology - Regional Geotechnics				Geotechnics
SSU	U.S.	L.S.	RGT.U.	U.S.	L.S.	Description	Geotechnical Units
1	Seabed	H03	RGT Unit 1	Seabed	Top RGT Unit 2	Sandy, clayey SILT Extremely low shear strength.	SILT 1
1	H03	H05	RGT Unit 2	Top RGT Unit 2	Top RGT Unit 2	Where GT Unit 2 is thick (CPT 09) interbedded SAND and CLAY elsewhere is sandy SILT Shear strengths are low to moderate	SILT 2, SAND 1
2	H05	H20	RGT Unit 3	Top RGT Unit 3	Top RGT Unit 4	Sandy CLAY Low to moderate shear strength	SILT 2, SAND 1, SAND 2, CLAY1
3	H03, H05, H20	H30	RGT Unit 4	Top RGT Unit 4	Top RGT Unit 5	Silty CLAY Low to moderate shear strength	SILT 2, SAND 1, SAND 2, CLAY1
4	H30	H40	RGT Unit 5	Top RGT Unit 5	H40	CLAY prone Moderate to high shear strength	CLAY1

Geophysics			Geology - Regional Geotechnics				Geotechnics
SSU	U.S.	L.S.	RGT.U.	U.S.	L.S.	Description	Geotechnical Units
5	H35	H38	RGT Unit 5.1	H35	H38	Very Dens SAND	SAND2
4	H38	H40	RGT Unit 5	Top RGT Unit 5	H40	CLAY prone Moderate to high shear strength	CLAY2
6	H40	-	-	-	-	-	

Due to the complex geological settings and limitation of the geophysical data discussed herein, soil types (based on ground-truthed horizons) can be extrapolated within a 500 m radius of the geotechnical locations in line with APPENDIX III – INTEGRATED CHARTS.

Detailed logs for all the combined CPT, PC and VC locations are presented in the Geotechnical factual report (Report Ref. 9) and are included in the APPENDIX IV – COMBINED CPT-VC-PC LOGS.

Geotechnical units and parameters' estimates (derived from CPT data and lab testing) and presented in section 10 for each of the 7 subunits may only be valid within approximately 100 m radius of the geotechnical locations.

The complete set of geotechnical parameters presented in the geotechnical plots consists of:

- Submerged unit weight (kN/m^3);
- Moisture content (%) ;
- Plasticity index (%);
- CPT q_c (MPa), Porewater pressure u_2 (MPa);
- Relative density (%) derived from CPT for noncohesive units;

- Effective peak Friction angle Phi'(º) and cohesion c´ (kPa), derived from shear box tests/CID tests and CPT.
- Undrained shear stress strength (kPa) for fine-grained cohesive soils (CPT derived parameter with Nkt of 15 & 20) and CIU and UU triaxial tests
- Strain at 50% strength (E50, %) derived from CIU and UU.
- Chemical properties as Carbonate content (%) and Water-soluble sulphide and Chloride content (mg/l).

11.1. LOCATION Z2_OWF_B01

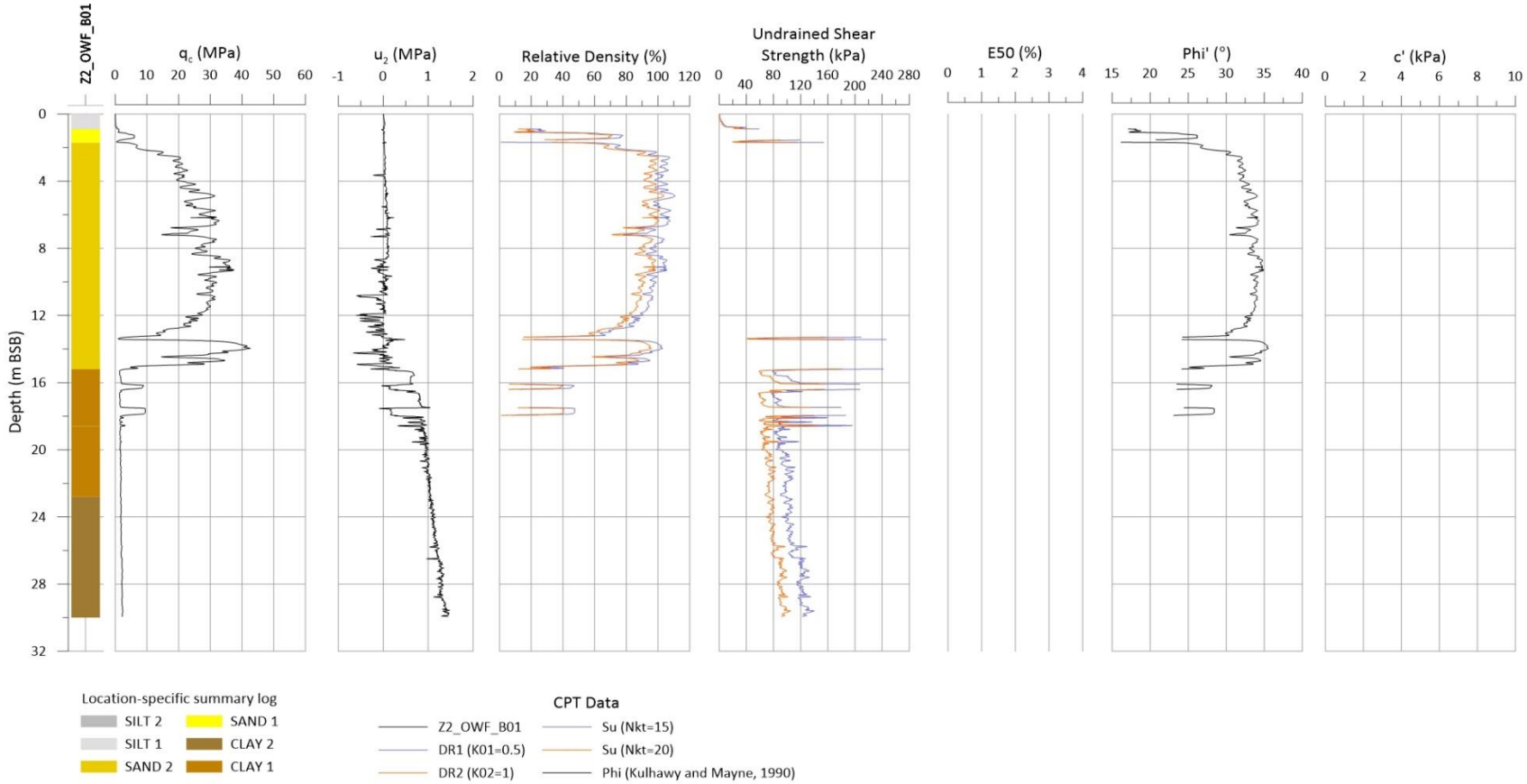


Figure 11-1 qc, u2, relative density, Su, E50, Phi' and c' for Z2_OWF_B01.

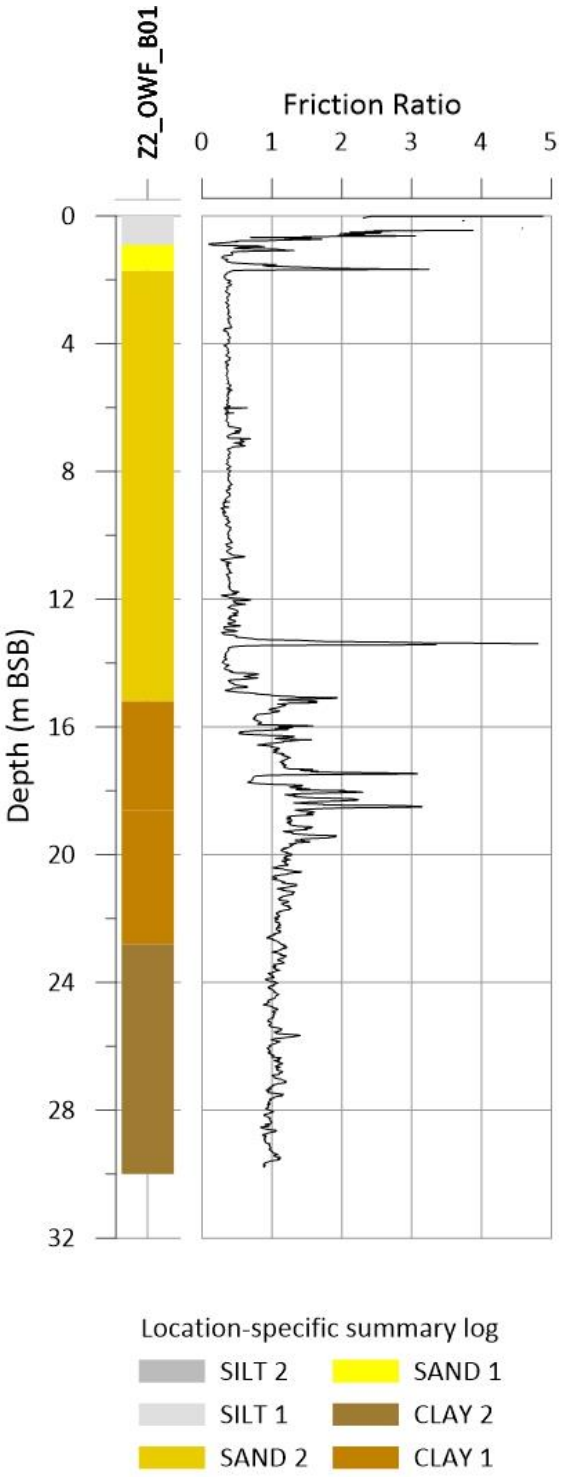


Figure 11-2 Friction ratio for Z2_OWF_B01.

11.2. LOCATION Z2_OWF_B03A

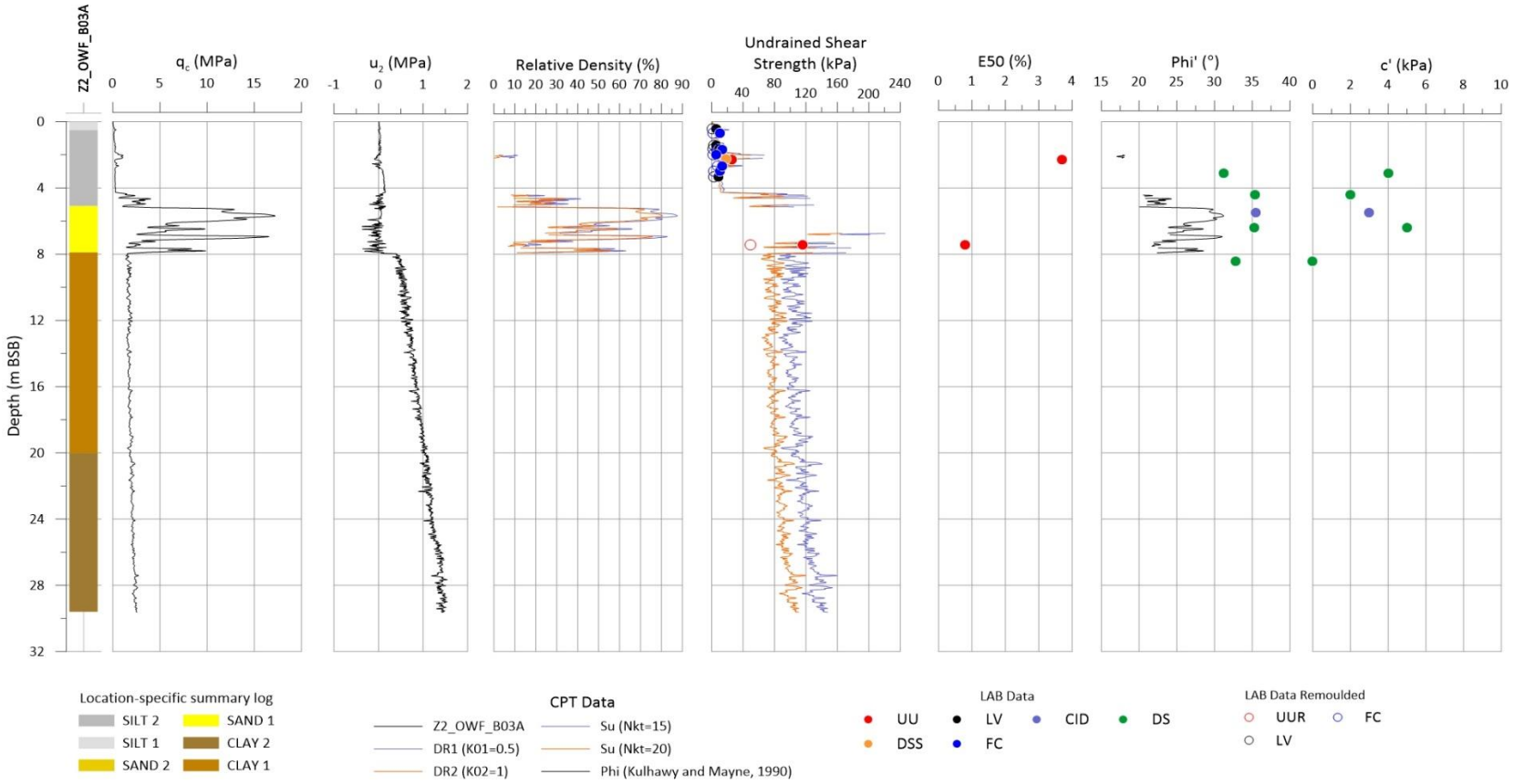


Figure 11-3 qc, u2, relative density, Su, E50, Phi' and c' for Z2_OWF_B03A.

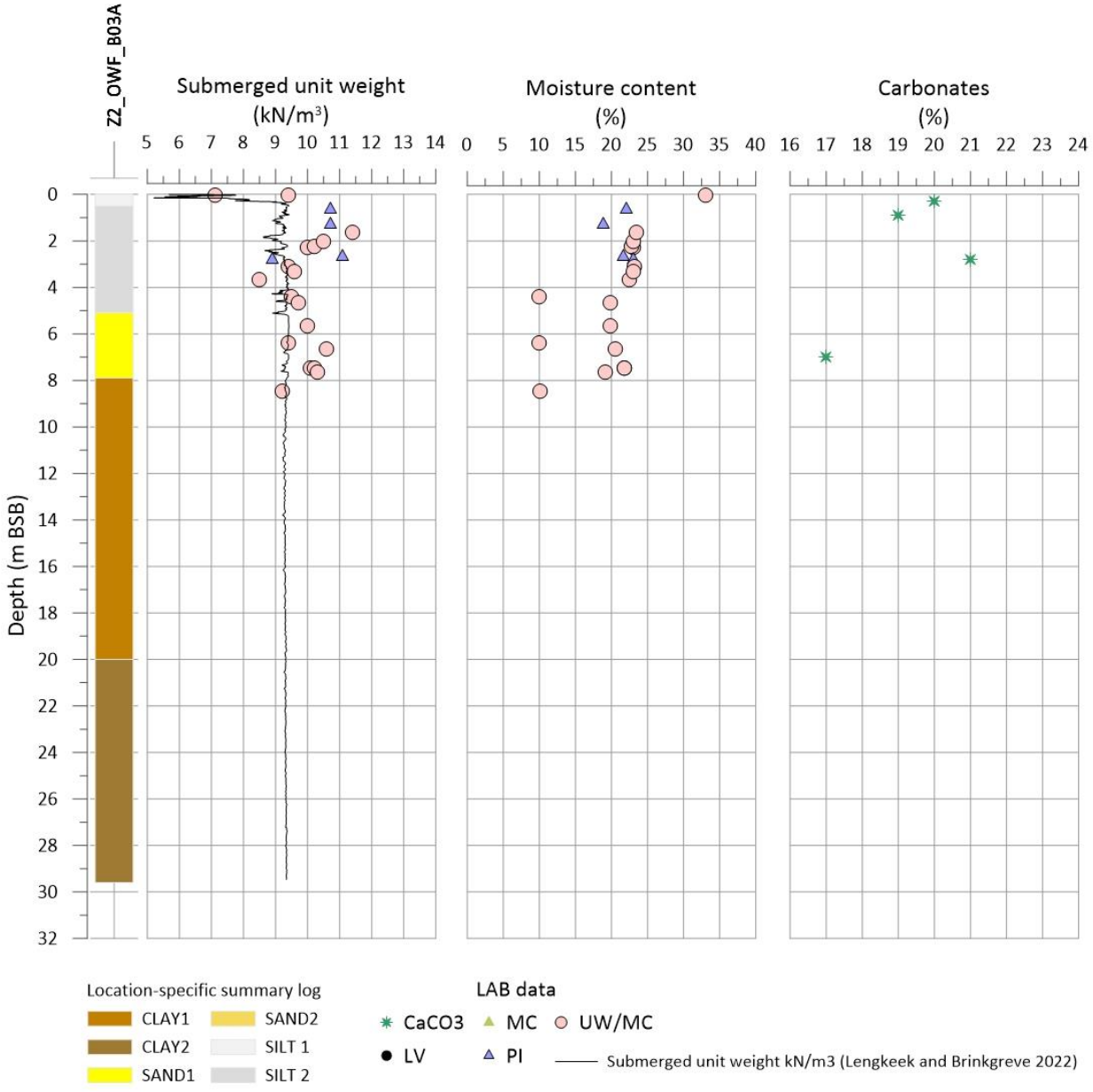


Figure 11-4 Submerged unit weight, moisture content and Carbonate content for location Z2_OWF_B03A.

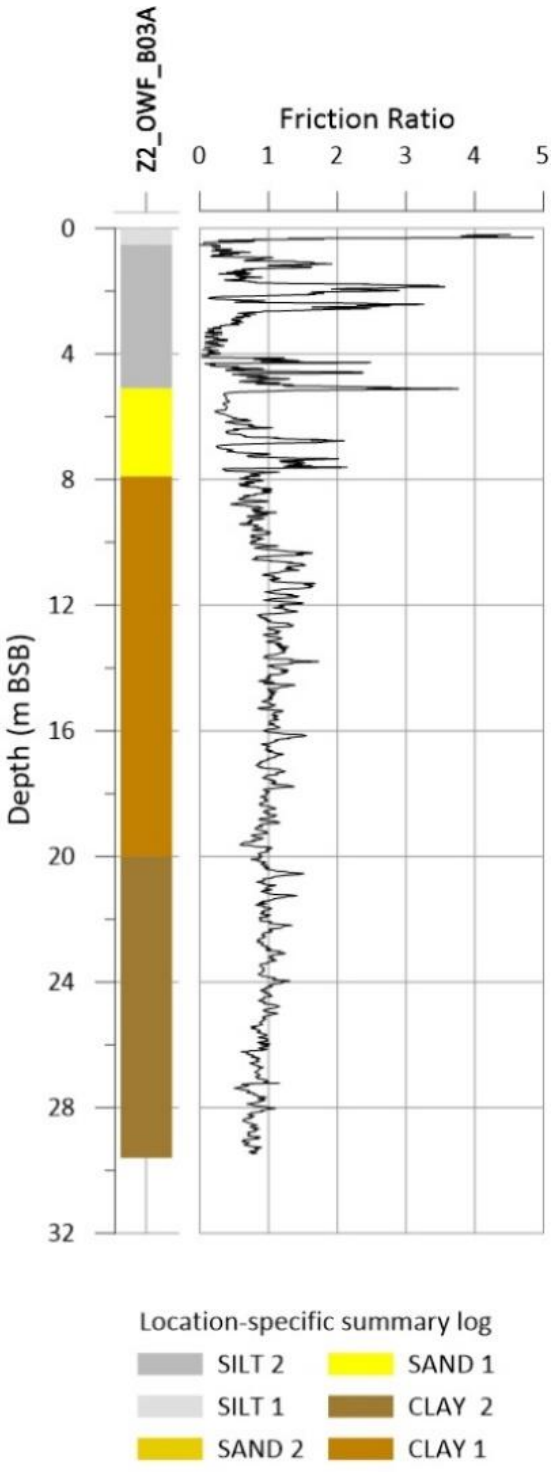


Figure 11-5 Friction ratio for Z2_OWF_B03A.

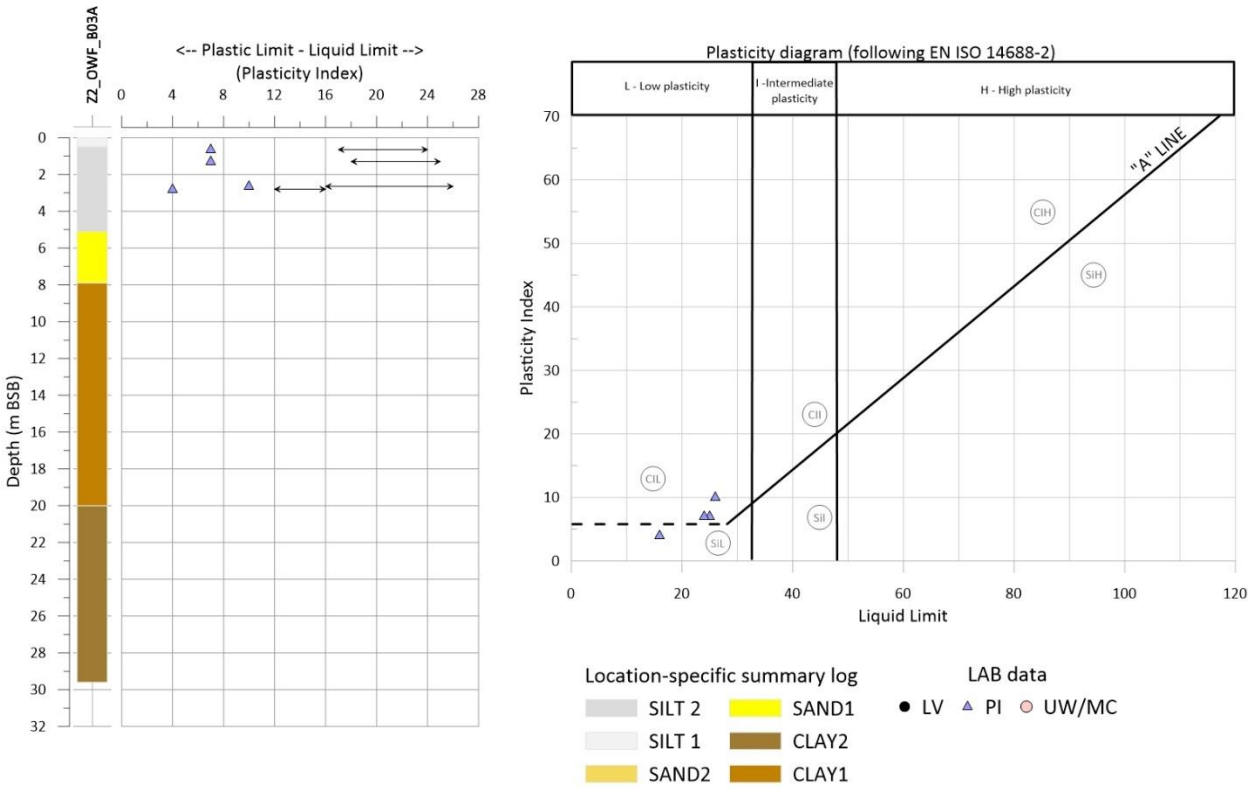


Figure 11-6 Plasticity for Z2_OWF_B03A.

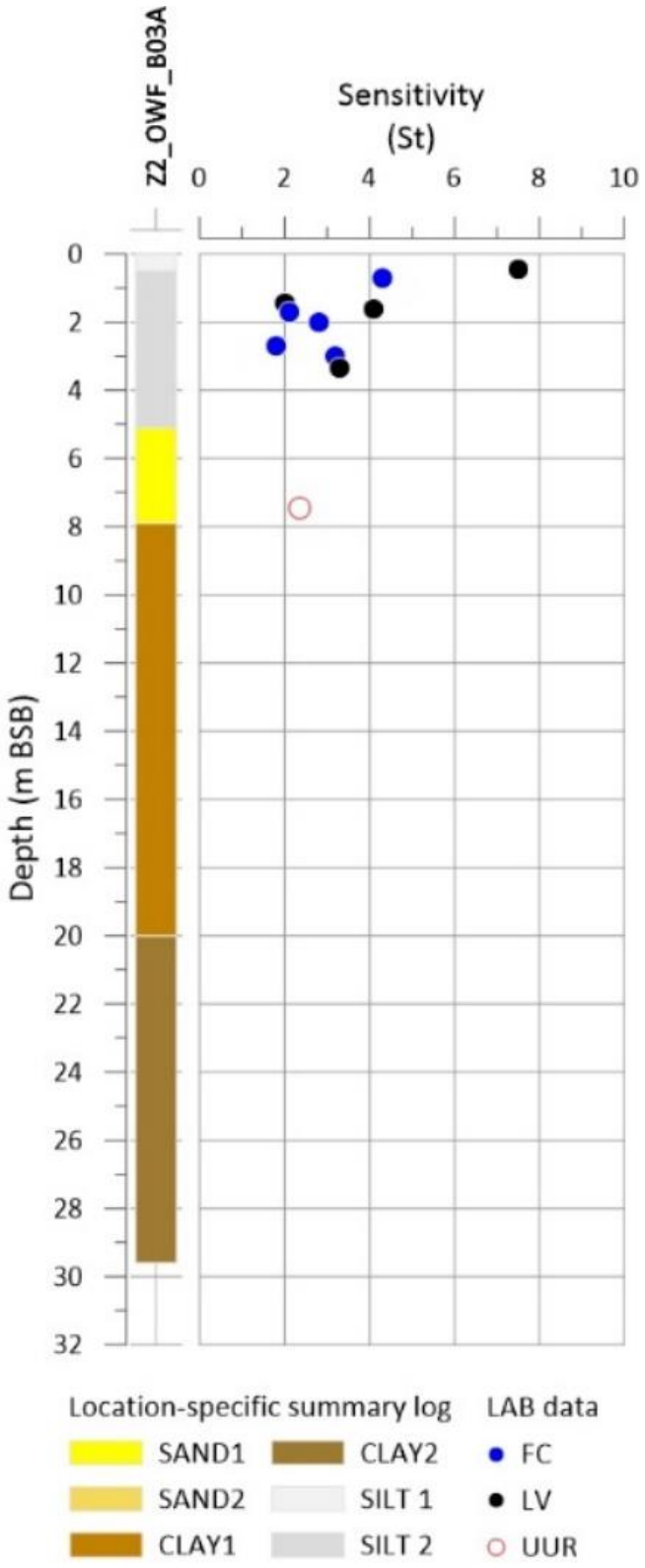


Figure 11-7 Sensitivity for Z2_OWF_B03A.

11.3. LOCATION Z2_OWF_B04

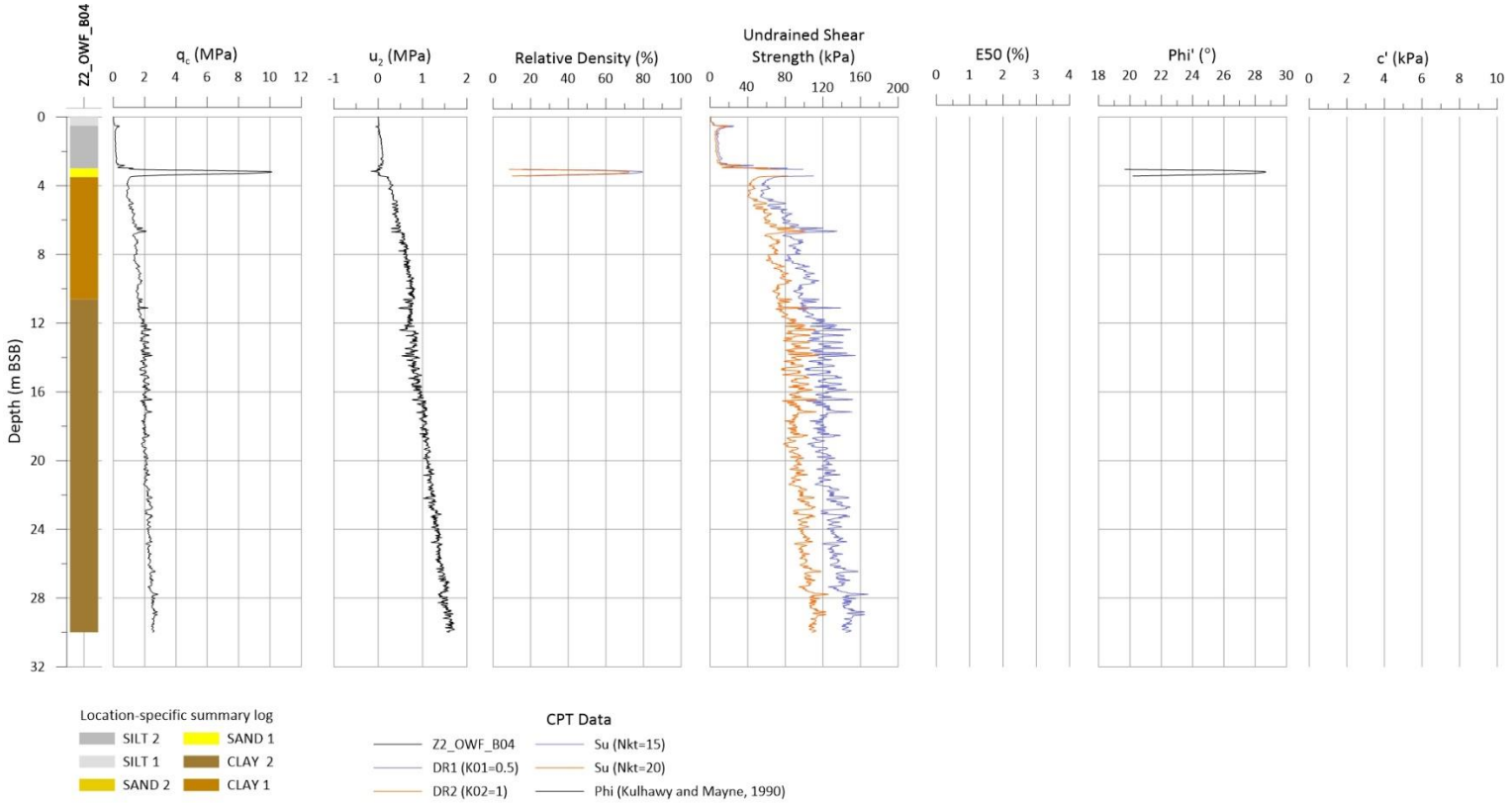


Figure 11-8 qc, u2, relative density, Su, E50, Phi' and c' for Z2_OWF_B04.

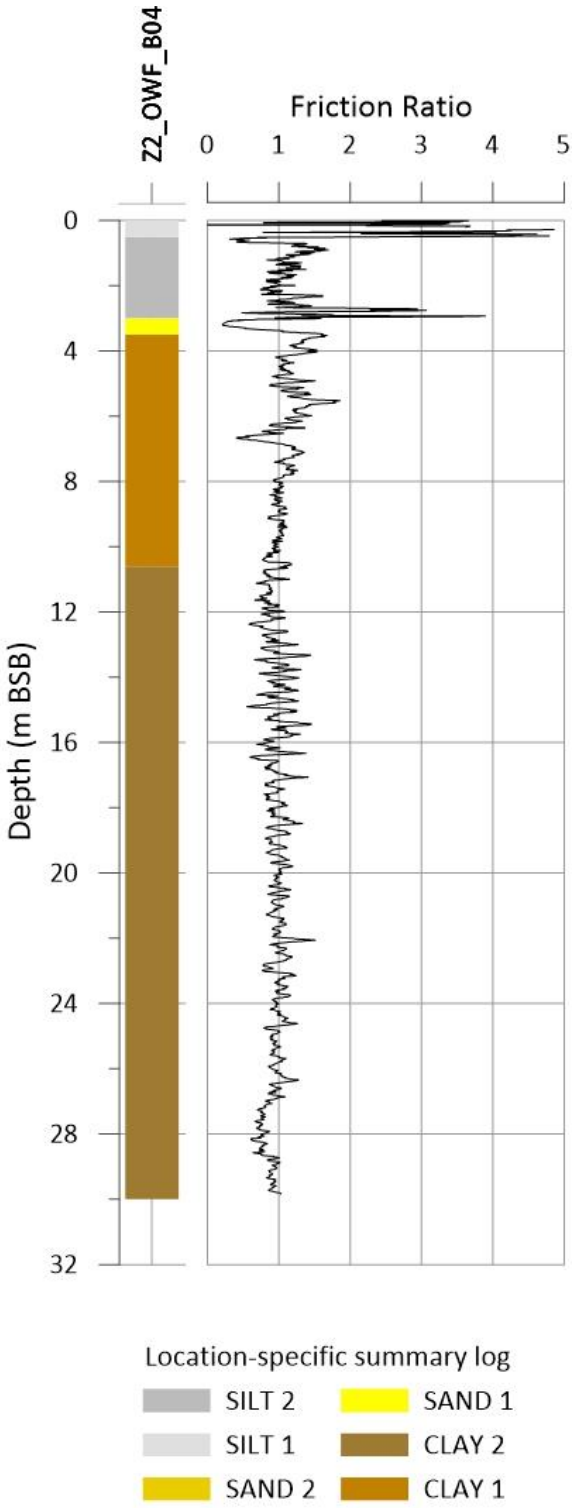


Figure 11-9 Friction ratio for Z2_OWF_B04.

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11.4. LOCATION Z2_OWF_B05A

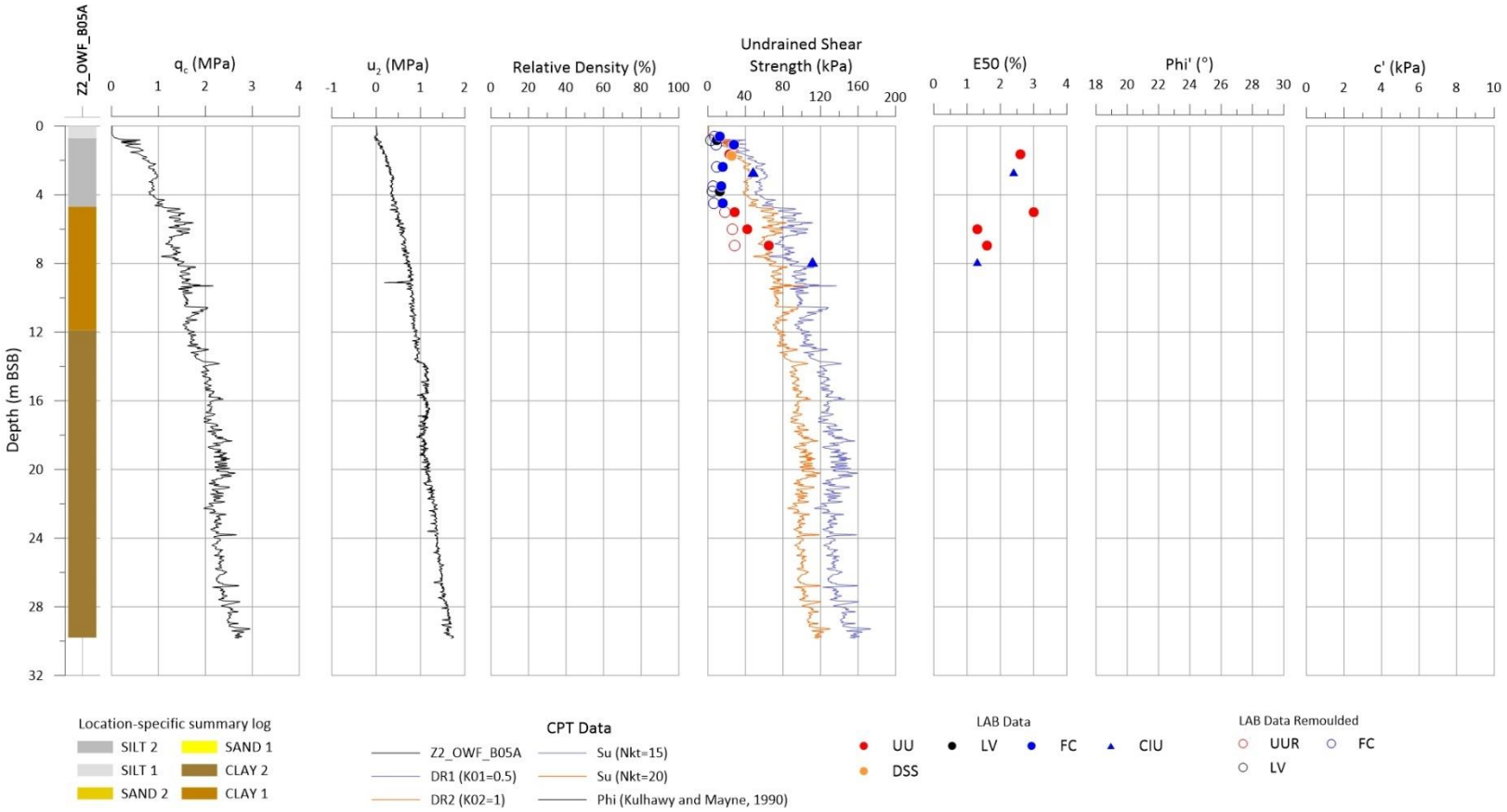

Figure 11-10 qc, u2, relative density, Su, E50, Phi' and c' for Z2_OWF_B05A.

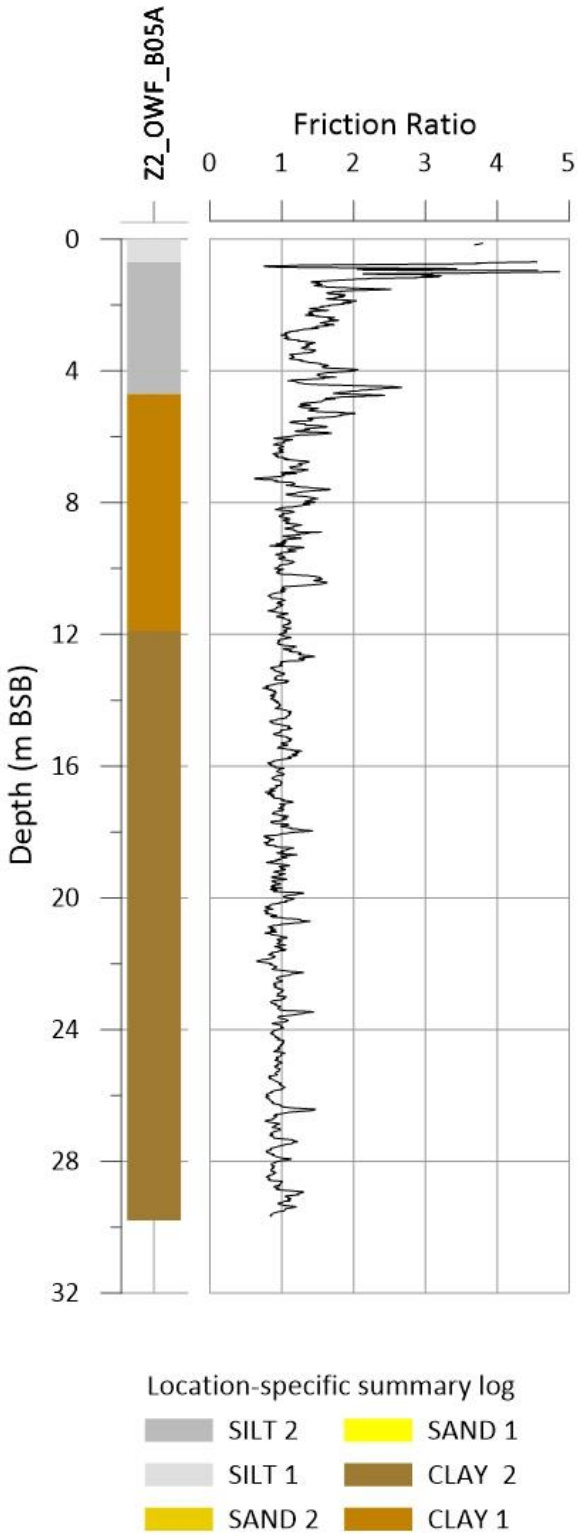

Figure 11-11 Friction ratio for Z2_OWF_B05A.

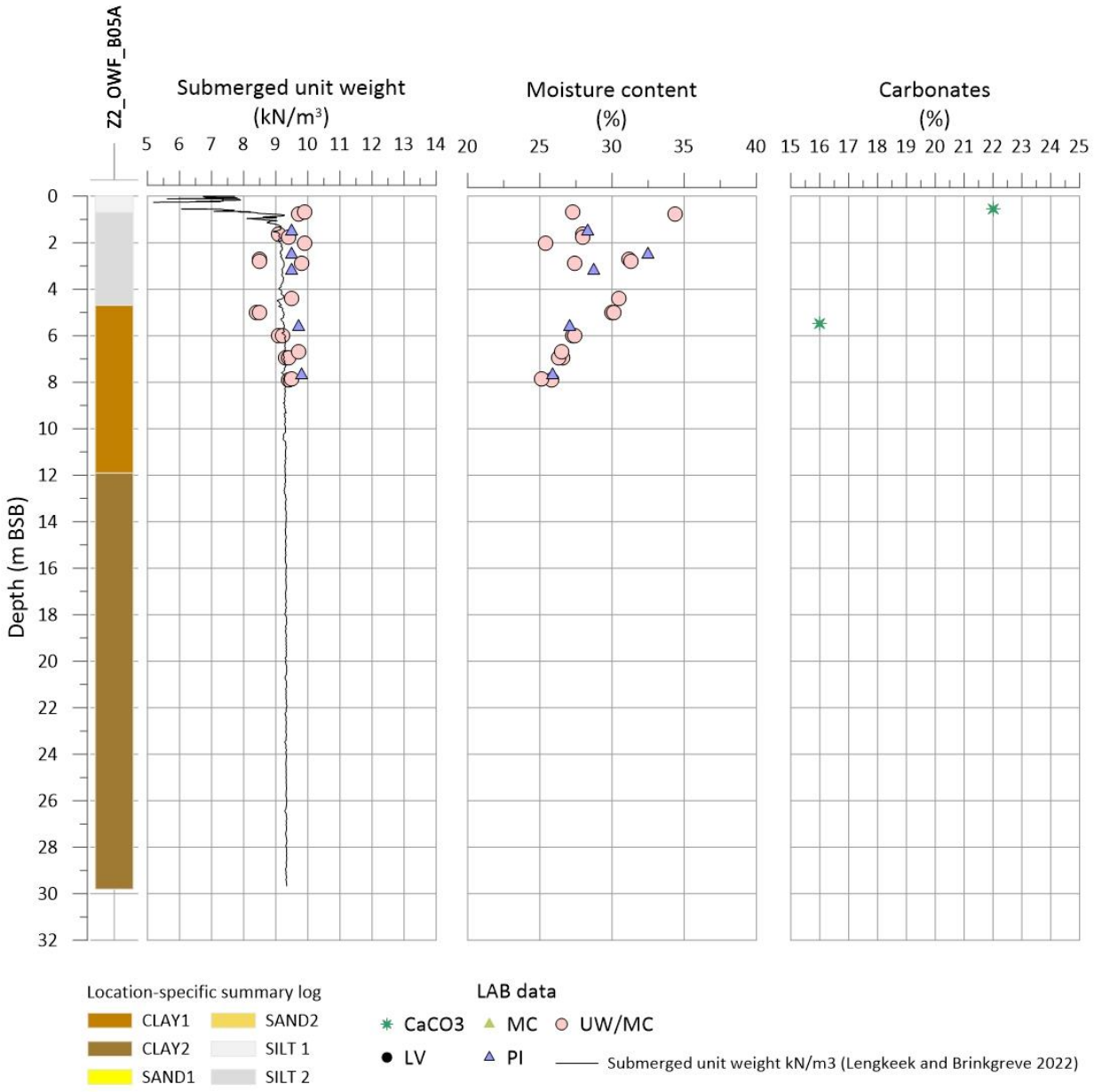

Figure 11-12 Submerged unit weight, moisture content and Carbonate content for Z2_OWF_B05A.

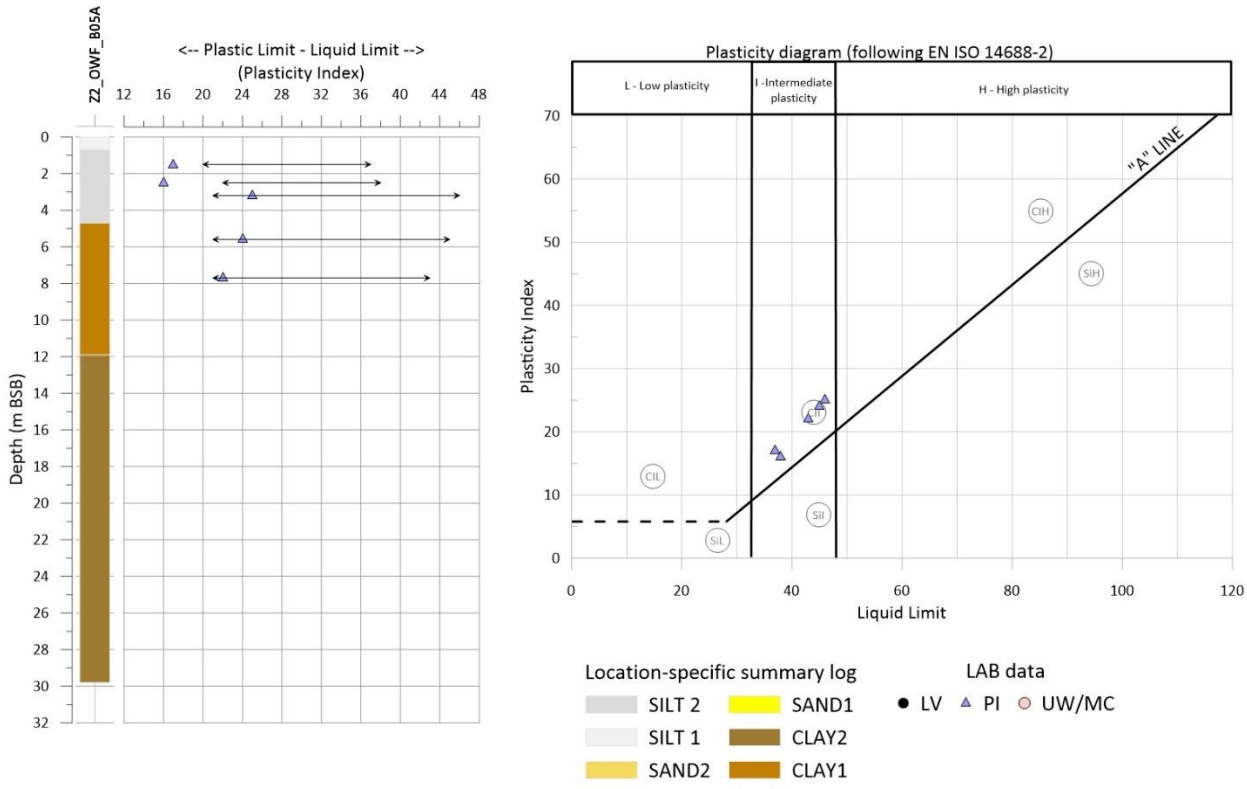

Figure 11-13 Plasticity Z2_OWF_B05A.

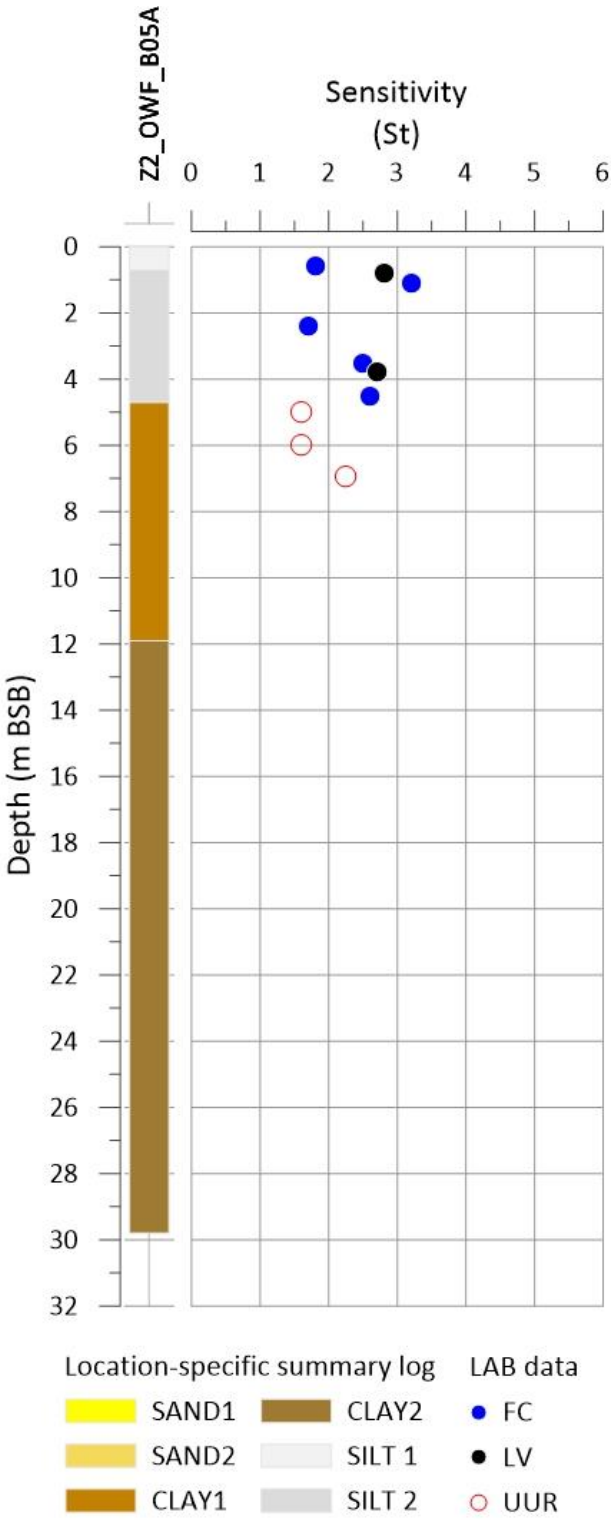

Figure 11-14 Sensitivity for Z2_OWF_B05A.

11.5. LOCATION Z2_OWF_B07

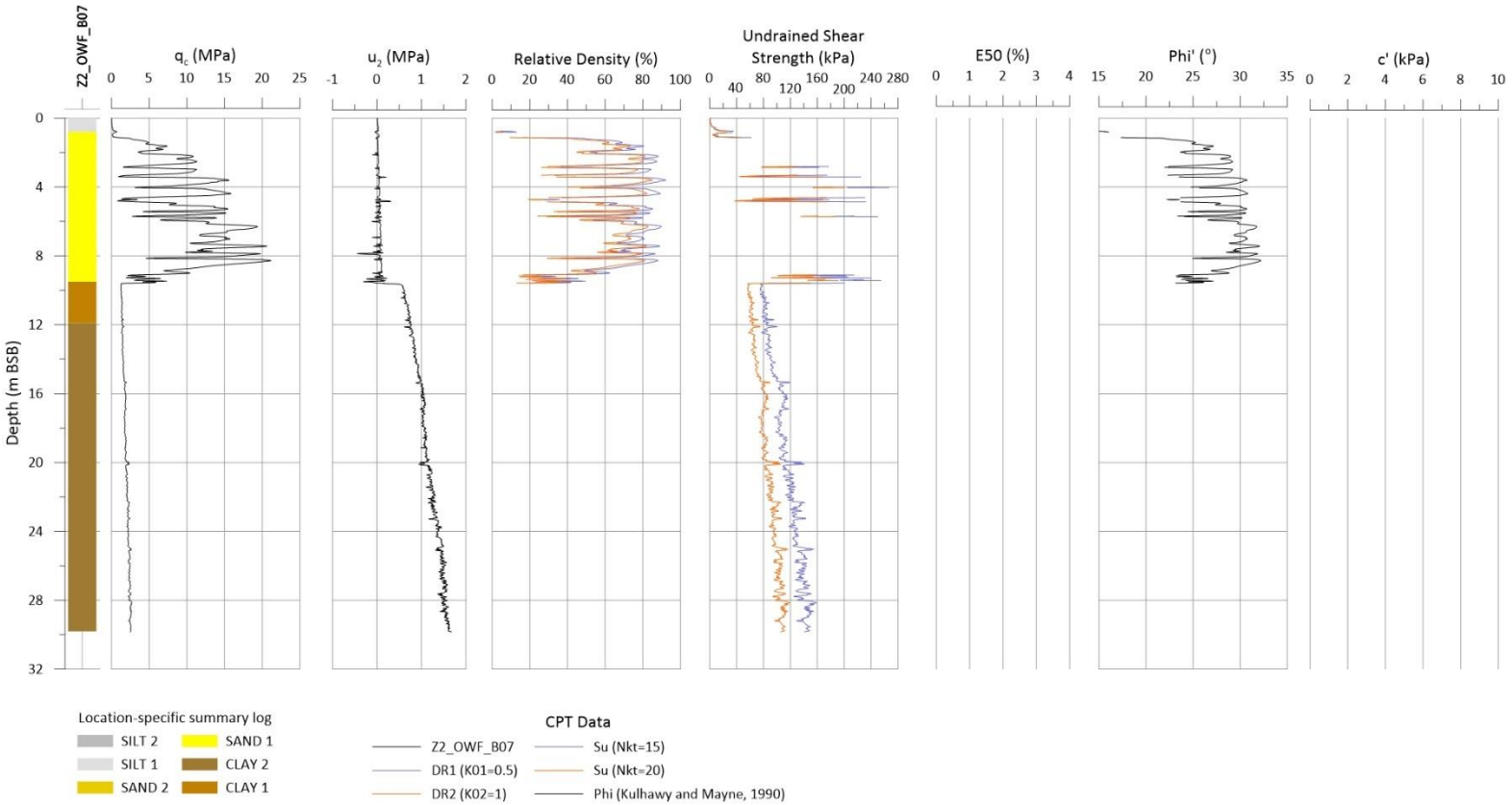

Figure 11-15 qc, u2, relative density, Su, E50, Phi' and c' for Z2_OWF_B07.

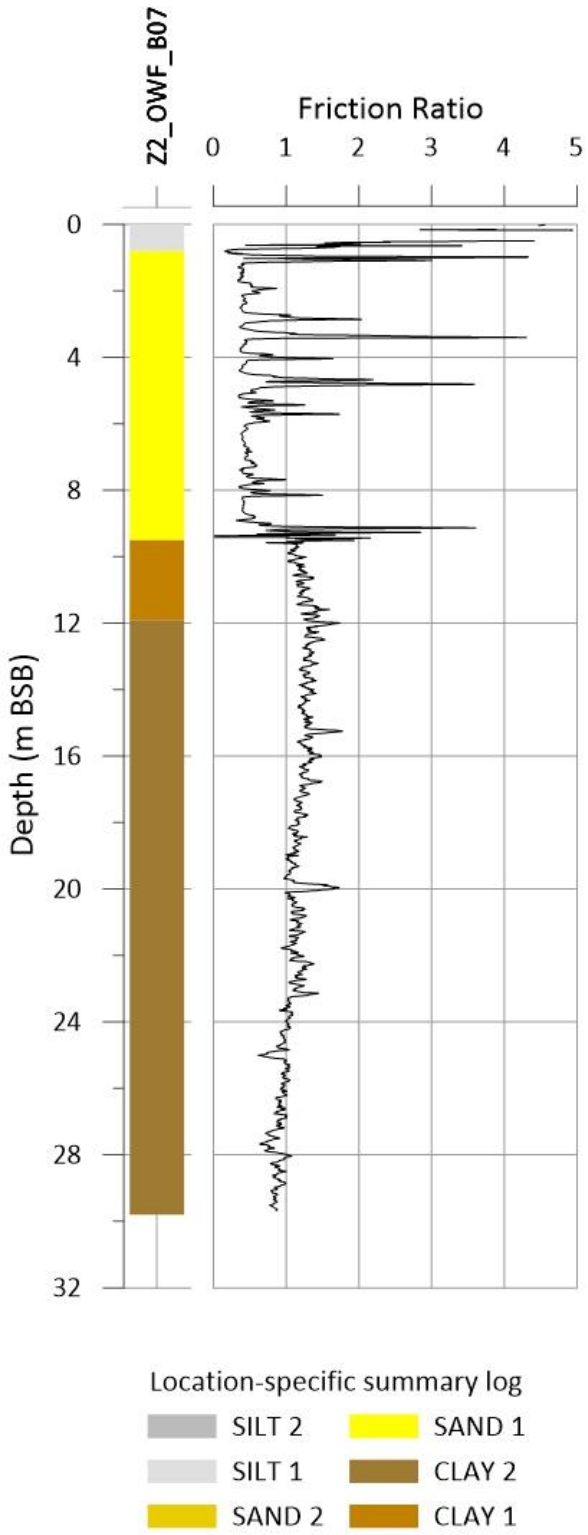

Figure 11-16 Friction ratio for Z2_OWF_B07.

11.6. LOCATION Z2_OWF_B09

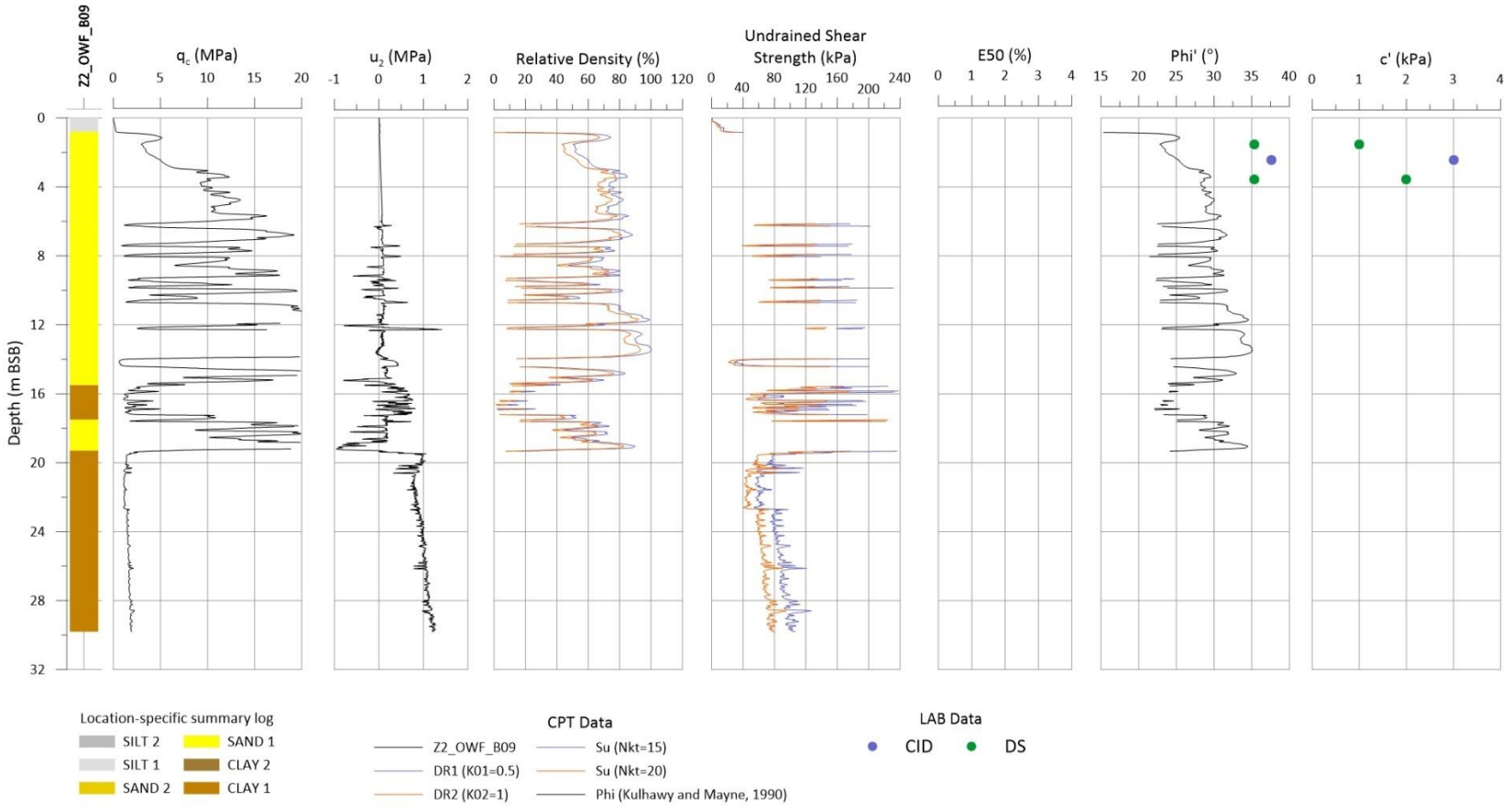

Figure 11-17 qc, u2, relative density, Su, E50, Phi' and c' for Z2_OWF_B09.

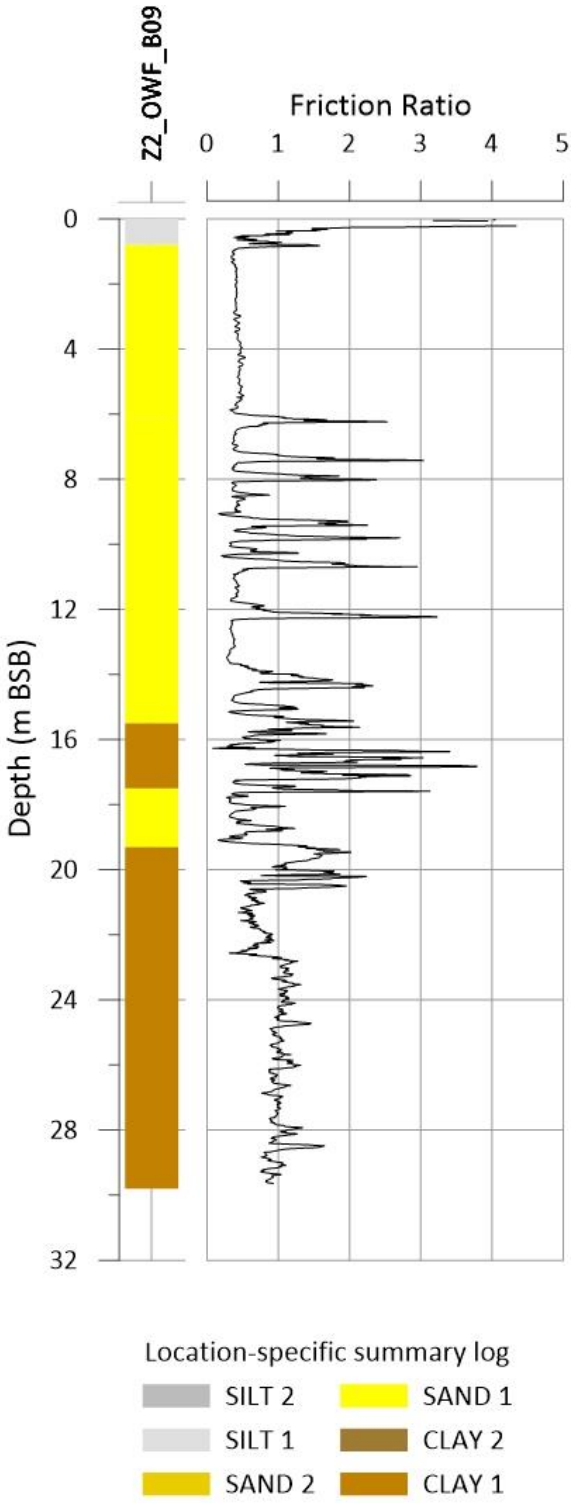

Figure 11-18 Friction ratio Z2_OWF_B09.

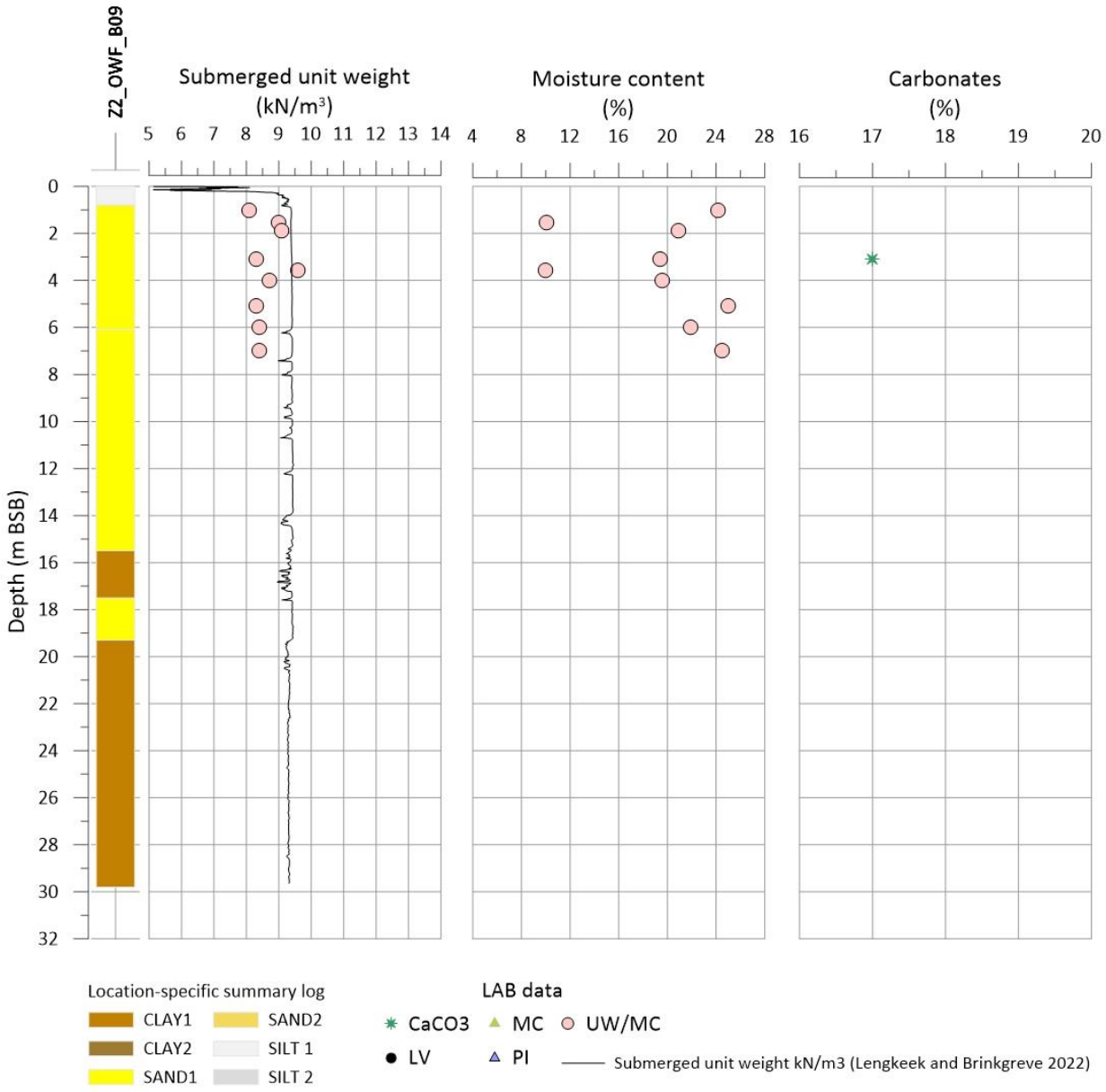

Figure 11-19 Submerged unit weight, moisture content and Carbonate content for Z2_OWF_B09.

11.7. LOCATION Z2_OWF_B11

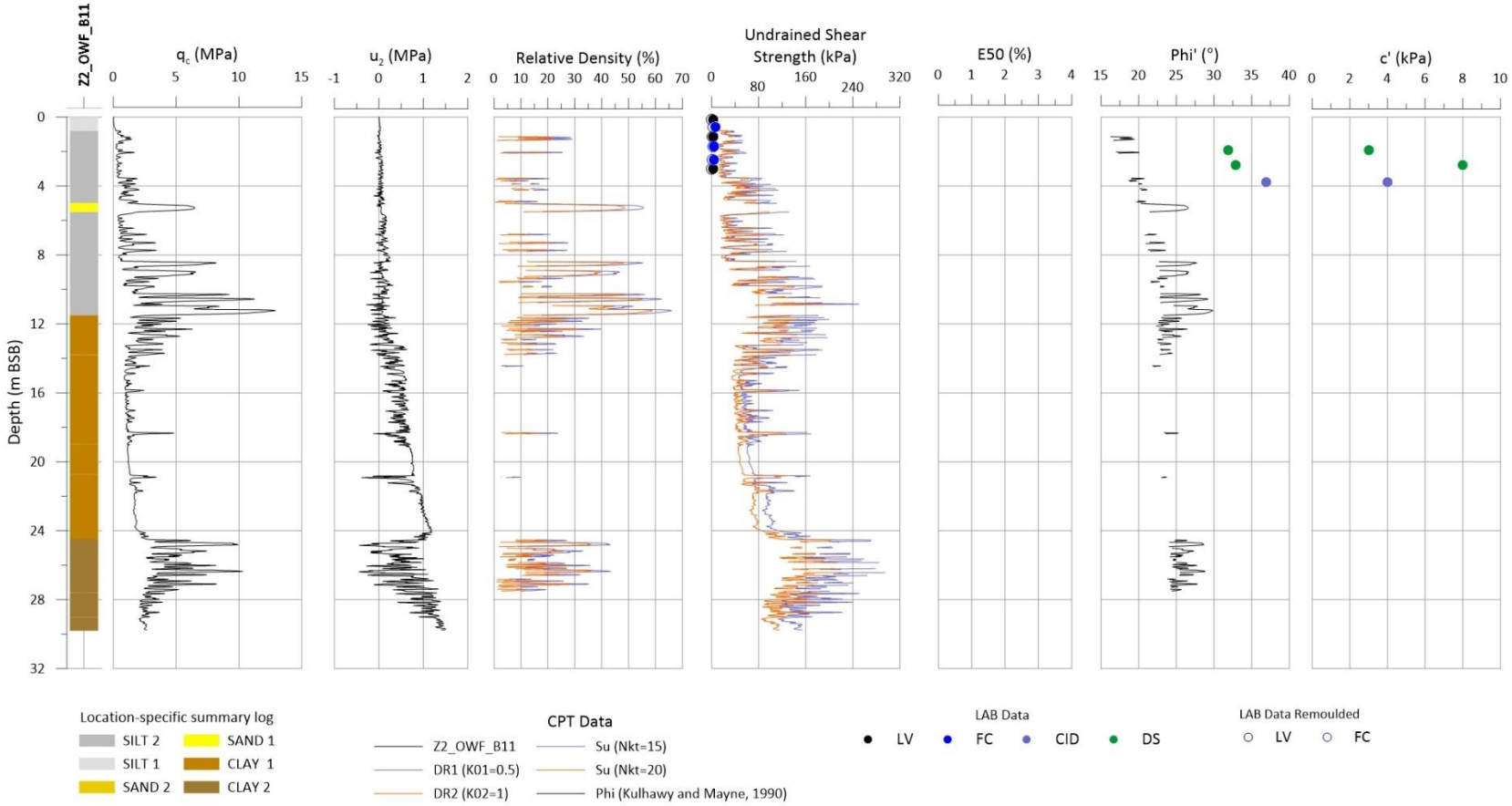

Figure 11-20 qc, u2, relative density, Su, E50, Phi' and c' for Z2_OWF_B11.

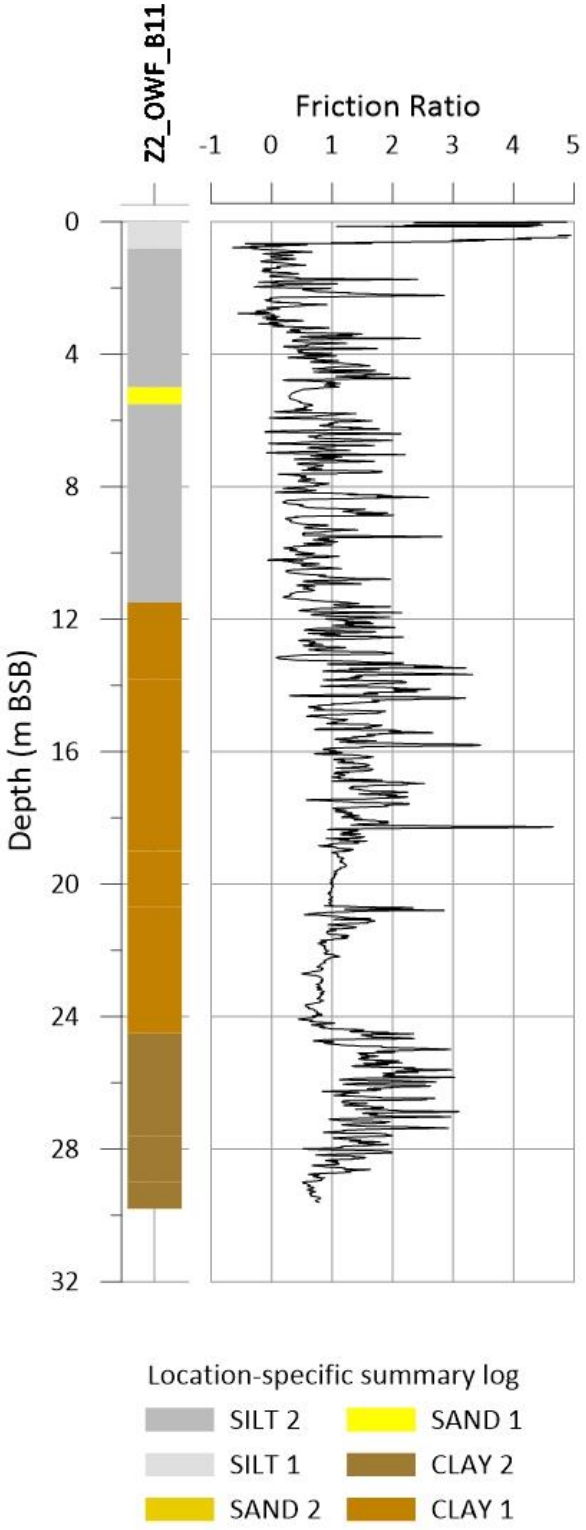

Figure 11-21 Friction ratio Z2_OWF_B11.

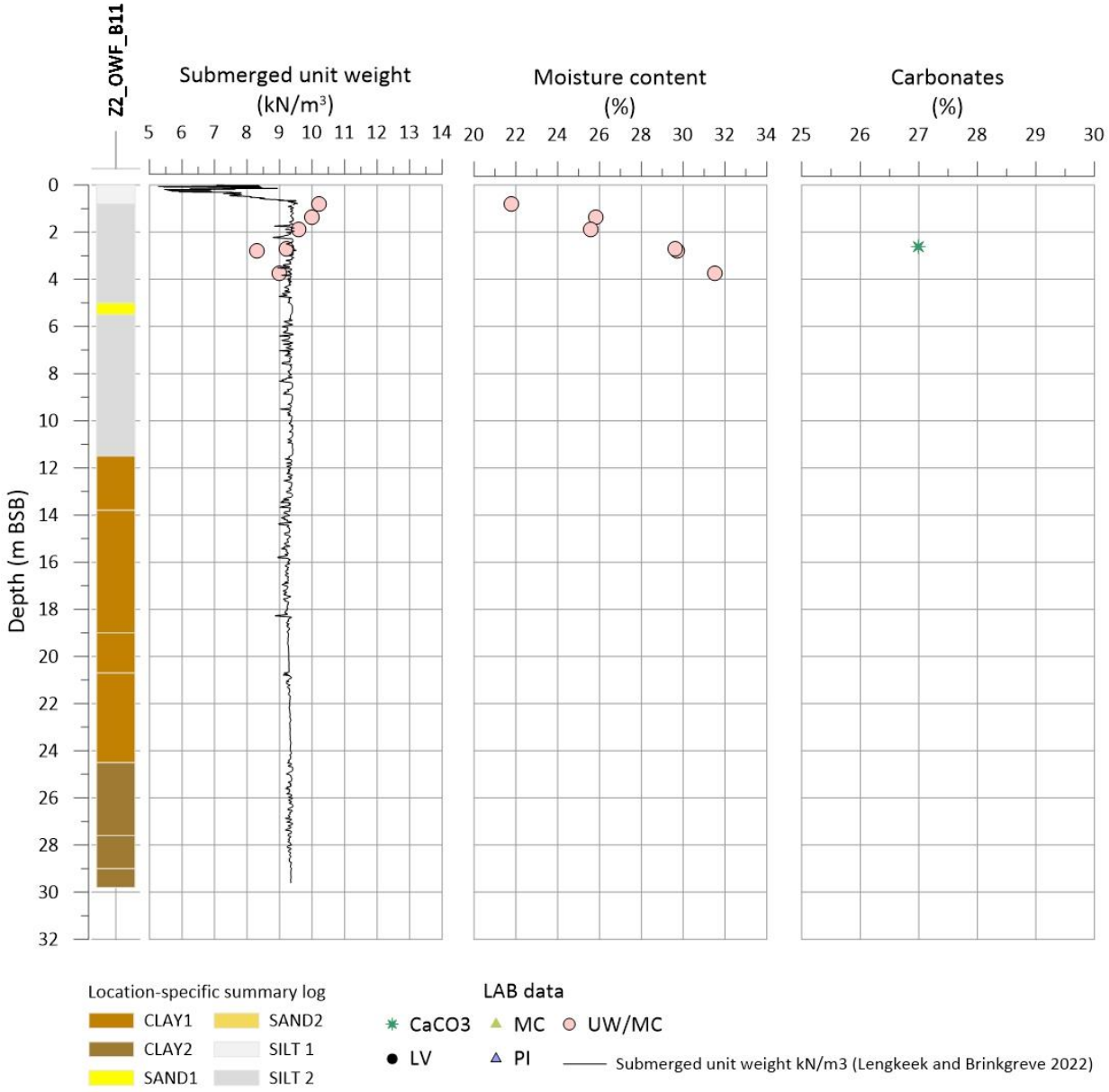

Figure 11-22 Submerged unit weight, moisture content and Carbonate content for Z2_OWF_B11.

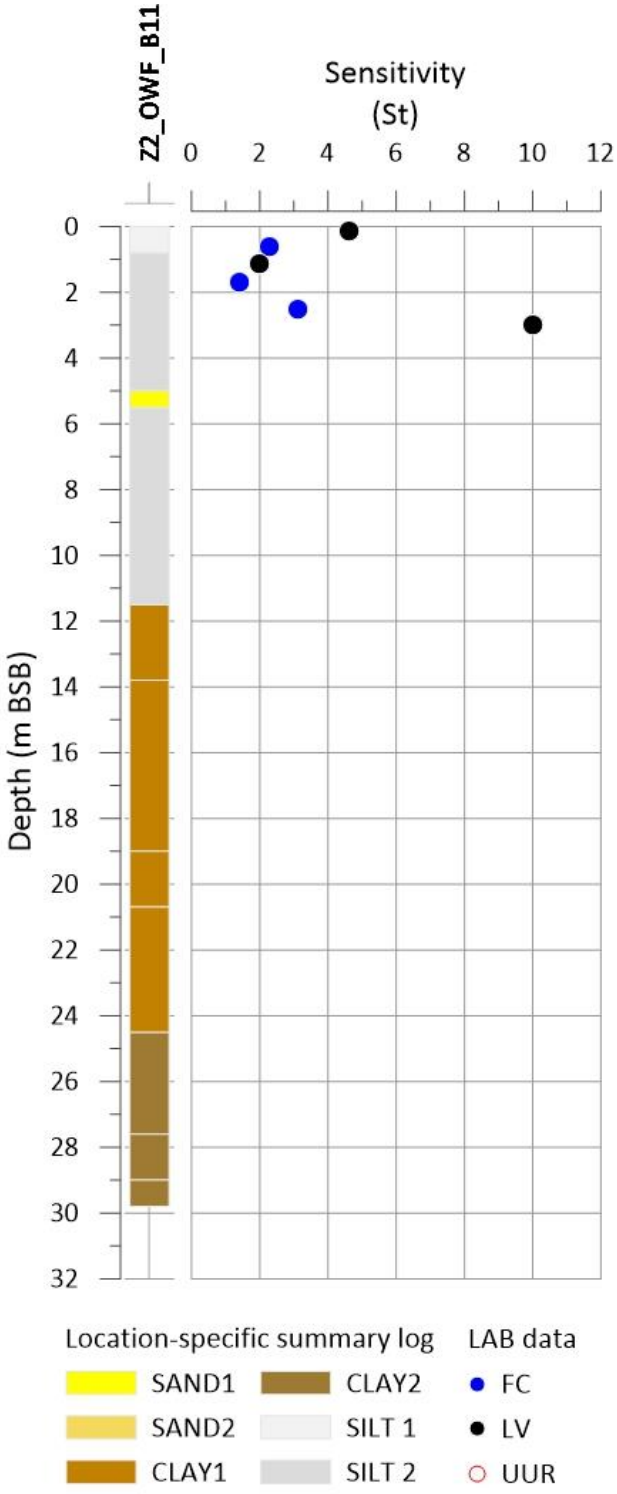

Figure 11-23 Sensitivity for Z2_OWF_B11.

11.8. LOCATION Z2_OWF_B13a

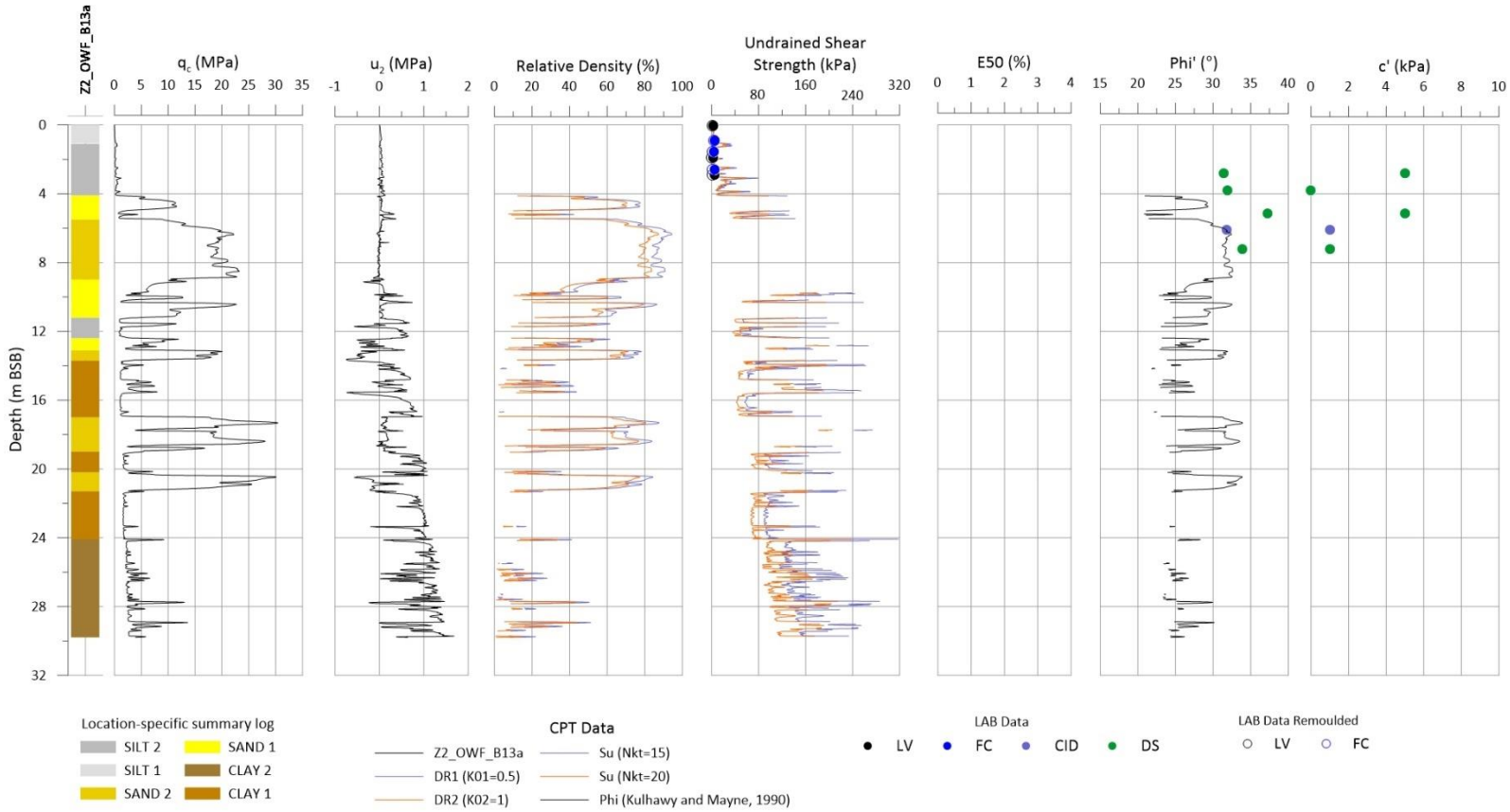

Figure 11-24 qc, u2, relative density, Su, E50, Phi' and c' for Z2_OWF_B13a.

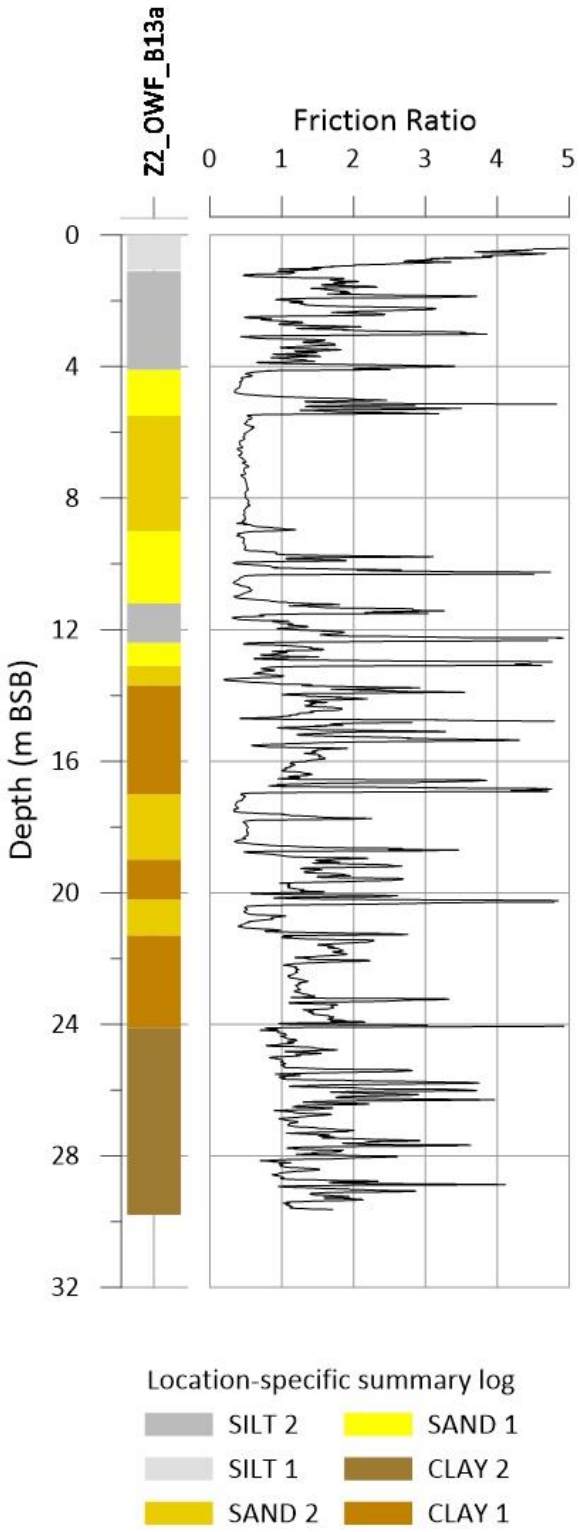

Figure 11-25 Friction ratio for Z2_OWF_B13a.

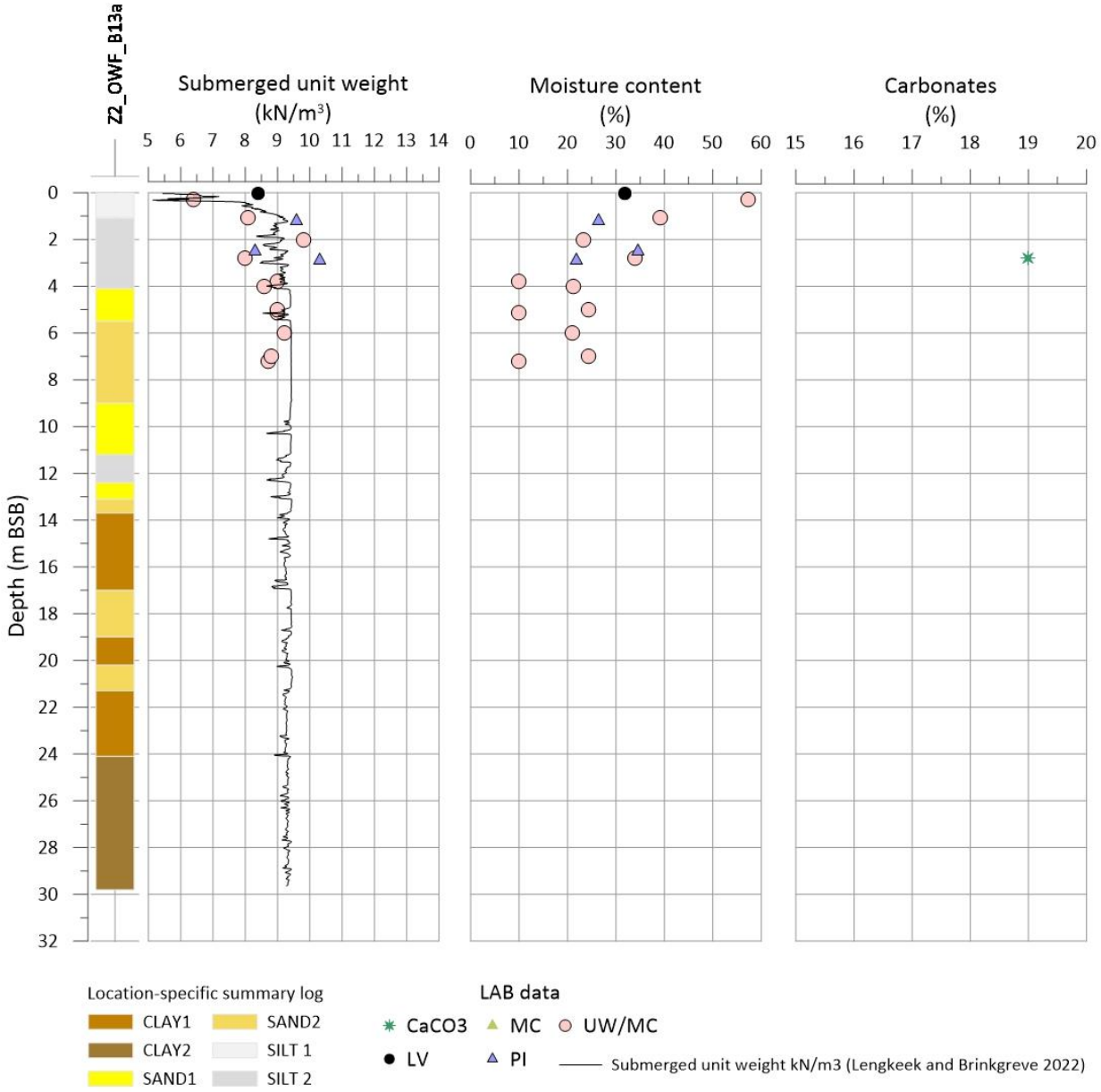

Figure 11-26 Submerged unit weight, moisture content and Carbonate content for Z2_OWF_B13a.

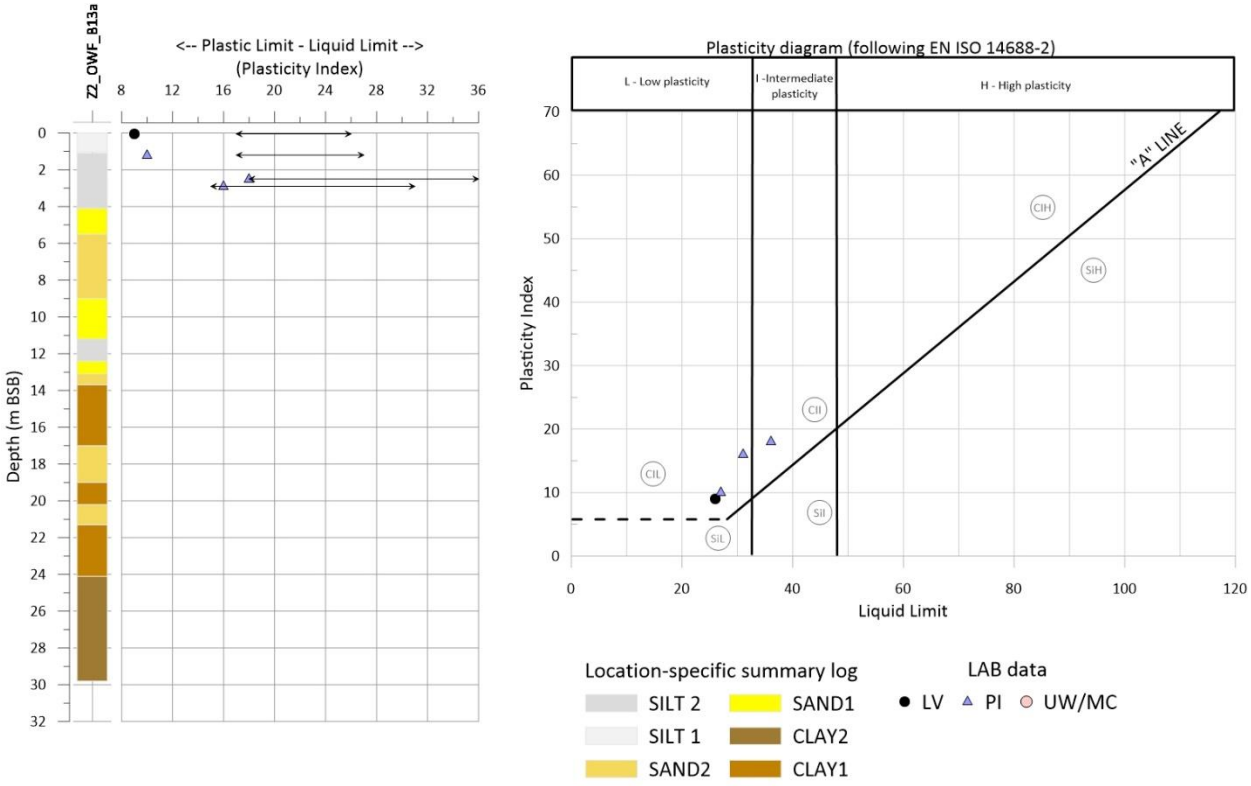

Figure 11-27 Plasticity for Z2_OWF_B13a.

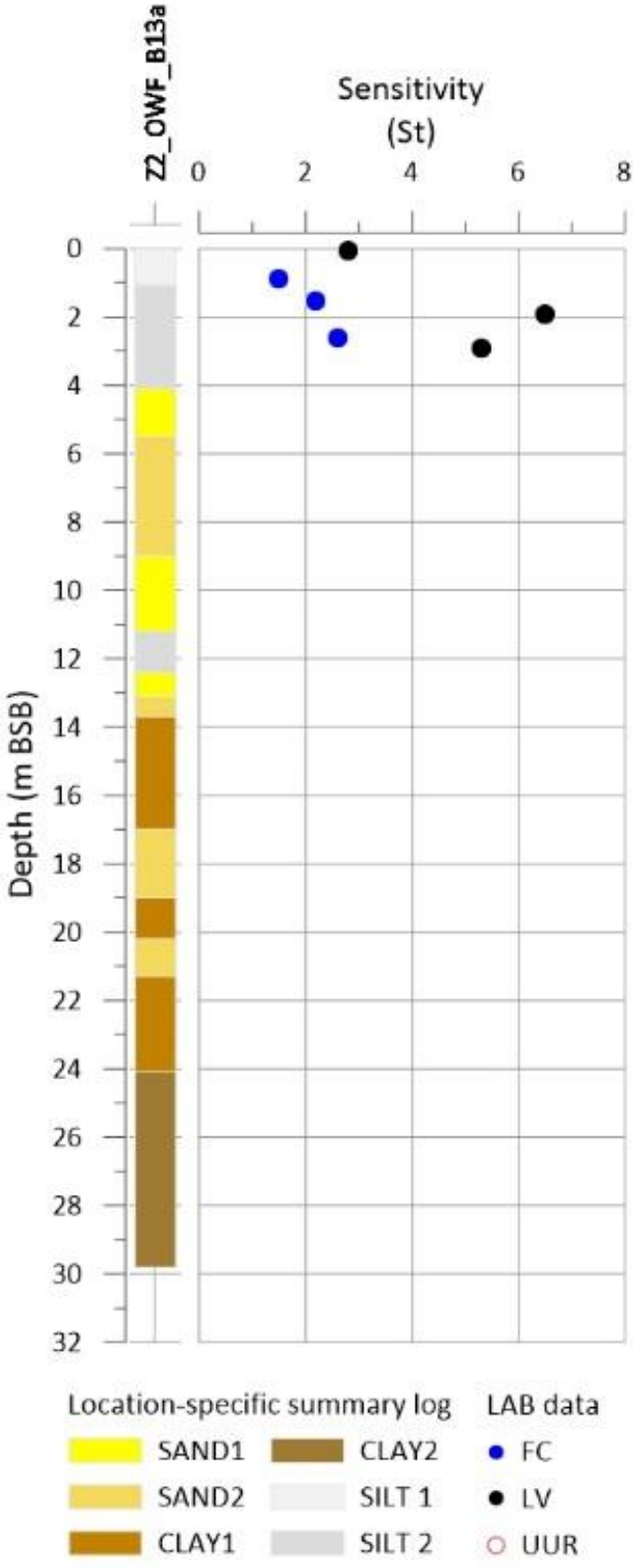

Figure 11-28 Sensitivity for Z2_OWF_B13a.

12. CHARTS

The integration of geophysical and geotechnical data is summarized in three groups of charts:

1) North-Up Charts: A total of eight (8) charts with a north-up view in DIN A1 scaled as 1:35,000 of the entire AO6 OWF Zone 2 area (Table 33).
2) UHRS regional profiles: A set of six (6) ultra-high resolution seismic regional profiles that cover the AO6 OWF Zone 2 area in four (4) charts (Table 34).
3) Integrated charts on geotechnical locations: A total of eight (8) charts centred on the geotechnical locations that cover an area of 500 x 500 m and are scaled 1:5,000 horizontal (Table 35).

North-up charts are provided in APPENDIX I, UHRS regional profiles in APPENDIX II, and Integrated charts in APPENDIX III.

Table 33 North-up charts for the AO6 OWF area.

North-Up Chart #	Contents
Chart 1	Bathymetric model
Chart 2	Slope model
Chart 3	SSS & MBES Backscatter mosaics
Chart 4	Seabed features and classification
Chart 5	Top RGT Unit 2 depth BSB
Chart 6	Top RGT Unit 3 depth BSB
Chart 7	Top RGT Unit 4 depth BSB
Chart 8	Top RGT Unit 5 depth BSB

Table 34 UHRS Regional profile charts for the AO6 OWF Zone 2 area.

Regional profile Chart #	Contents
Chart 1	MED_OWF_Z2_017_and_009
Chart 2	MED_OWF_Z2_003_and_014
Chart 3	MED_OWF_Z2_022
Chart 4	MED_OWF_Z2_026

Table 35 Integrated charts produced for the AO6 OWF Zone 2 area.

Integrated Chart #	Contents
Chart 1	LOCATION Z2_OWF_B01
Chart 2	LOCATION Z2_OWF_B03A
Chart 3	LOCATION Z2_OWF_B04
Chart 4	LOCATION Z2_OWF_B05A
Chart 5	LOCATION Z2_OWF_B07
Chart 6	LOCATION Z2_OWF_B09
Chart 7	LOCATION Z2_OWF_B11
Chart 8	LOCATION Z2_OWF_B13a

13. LIMITATIONS ON USE OF THIS REPORT

This integration report presents the deliverables in accordance with the scope of service contracted by the Client. The purpose of the investigation and any deviations, such as final geophysical line plans and final geotechnical locations coordinates and depths, as well as the extent of the laboratory testing program, was instructed, monitored and agreed by the Client. This was a significant factor in determining the scope and level of the information available for the integration work.

This integration report is based on the geophysical and geotechnical factual data and limitations as referenced herein and acknowledged by the Client prior to the integration work.

Due to the lateral variability associated with the encountered ground conditions, the geotechnical parameters estimate provided in are deemed suitable for preliminary foundation sizing in close proximity or generally up to 100 m radius from the geotechnical locations. Ground conditions and soil type distribution, based on ground-truthed horizons, can be extrapolated with caution up to 500 m radius in line with APPENDIX III – INTEGRATED CHARTS.

Charts in APPENDIX II – UHRS REGIONAL PROFILES are provided for a general overview at the regional scale. Due to the UHRS line spacing and distance among the geotechnical locations, these shall be used with caution.

Within the stated limitations, no liability is accepted concerning the provided interpretation and parameters, should ground conditions vary more than is visible in the available dataset (i.e., changes in the derived strength and density, depth and thickness of the derived units, presence of undetected boulders, etc.).

The end user of this report shall consider the limitations reported in this document and its references prior to selecting any information and/or parameter as basis of design under their own responsibility.

14. CONCLUSIONS AND RECOMMENDATIONS

This report presents integrated geotechnical units with parameters and seabed conditions for the AO6-Z2 OWF area based on the datasets, methods and limitations presented herein.

Prospective wind farm developers may perform concept-level analyses after reviewing and validating the selected information to ensure it fits their purpose. Notwithstanding the aforementioned limitations, the information provided can be used with confidence for preliminary suction anchor, driven anchor piles, or drag embedment anchor foundation design for floating offshore wind turbines subject to the OWF layout considered. Moreover, the provided information may be further integrated with additional datasets and used in the detailed design phases.

Emphasis and attentive review of geophysical data interpretation with the stated limitation is recommended to evaluate soil conditions distant from the investigated geotechnical locations.

Considering the site extension and laterally variable ground conditions with potential buried channel incisions, additional geophysical acquisition with closely spaced (i.e. 25 m line spacing) 2D UHRS lines may be considered in correspondence of final turbine locations and/or geotechnical locations. Additional MBES, SSS and SBP infill lines may be acquired to further enhance the data set and better inform seabed mapping, smaller (0.3 x 0.3 x 0.3 m) contacts picking, geohazards evaluation, seabed mobility and scour assessments.

The use of advanced geotechnical pile design methodologies would require more specific lab testing to measure soil-steel friction in sands and silts and measure strength anisotropy in clays. Due to the anticipated cyclic load of the OWF turbines geotechnical cyclic testing may also be required for detailed design.

APPENDIX I – NORTH-UP CHARTS

624000 632000 640000

4775000 4770000 4765000 4760000

N

Z2_OWF_B13_PC
Z2_OWF_B13_CPT
Z2_OWF_B13_CPTa
Z2_OWF_B13A_VC
-90
-90
-90
Z2_OWF_B11_PC
Z2_OWF_B11_CPT
Z2_OWF_B01_CPT
Z2_OWF_B09_CPT
Z2_OWF_B09_VC
-100
-100
-110
-100
Z2_OWF_B07_CPT
Z2_OWF_B03A_PC
Z2_OWF_B03A_PCa
Z2_OWF_B03A_CPT
Z2_OWF_B03A_VC
-110
-120
-120
-110
-120
Z2_OWF_B04_CPT
Z2_OWF_B05A_CPT
Z2_OWF_B05A_PC
Z2_OWF_B05A_VC
Z2_OWF_B05A_PCa
Z2_OWF_B05A_VCa

RTE

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE
A TRADEBE COMPANY

GRAPHIC SCALE:

0 750 1500 3000 m

0 0.25 0.5 1 nm

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

Geotechnical locations:

Borehole sampling type

- CPT
- PC
- VC

Survey areas:

- Offshore Substation (OSS)
- Offshore Windfarm (OWF)
- Export Cable (EC)

- Isobaths (10m)

Bathymetric model (m):

High : -87.09

Low : -127.48

PROJECT TITLE:	AREA:	CHART:
MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION	MED_AO6 OWF Zone 2	1 / 8
CHART TITLE:	**DATE:**	**SCALE:**
BATHYMETRIC MODEL	August 2024	1:35000 DIN A1 1:70000 DIN A3

624000 632000 640000

4775000 4770000 4765000 4760000

N

Z2_OWF_B13_PC
Z2_OWF_B13_CPT
Z2_OWF_B13_CPTa
Z2_OWF_B13A_VC
Z2_OWF_B11_PC
Z2_OWF_B11_CPT
Z2_OWF_B01_CPT
Z2_OWF_B09_CPT
Z2_OWF_B09_VC
Z2_OWF_B03A_PC
Z2_OWF_B03A_PCa
Z2_OWF_B03A_CPT
Z2_OWF_B03A_VC
Z2_OWF_B07_CPT
Z2_OWF_B04_CPT
Z2_OWF_B05A_CPT
Z2_OWF_B05A_PC
Z2_OWF_B05A_VC
Z2_OWF_B05A_PCa
Z2_OWF_B05A_VCa

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE
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GRAPHIC SCALE:

0 750 1500 3000 m

0 0.25 0.5 1 nm

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

Geotechnical locations:

Borehole sampling type

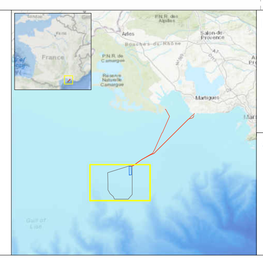
- CPT
- PC
- VC

Survey areas:

- Offshore Substation (OSS)
- Offshore Windfarm (OWF)
- Export Cable (EC)

Slope model (degrees):

- 0 - 1
- 1 - 2
- 2 - 5
- 5 - 10
- >10



PROJECT TITLE:	AREA:	CHART:
MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION	MED_AO6 OWF Zone 2	2 / 8
CHART TITLE:	**DATE:**	**SCALE:**
SLOPE MODEL	August 2024	1:35000 DIN A1 1:70000 DIN A3

624000 632000 640000

4775000 4770000 4765000 4760000

N

Z2_OWF_B13_PC
Z2_OWF_B13_CPT
Z2_OWF_B13_CPTa
Z2_OWF_B13A_VC
Z2_OWF_B11_PC
Z2_OWF_B11_CPT
Z2_OWF_B01_CPT
Z2_OWF_B09_CPT
Z2_OWF_B09_VC
Z2_OWF_B07_CPT
Z2_OWF_B03A_PC
Z2_OWF_B03A_PCa
Z2_OWF_B03A_CPT
Z2_OWF_B03A_VC
Z2_OWF_B04_CPT
Z2_OWF_B05A_CPT
Z2_OWF_B05A_PC
Z2_OWF_B05A_VC
Z2_OWF_B05A_PCa
Z2_OWF_B05A_VCa

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE
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GRAPHIC SCALE:

0 750 1500 3000 m

0 0.25 0.5 1 nm

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

Geotechnical locations:

Borehole sampling type

- CPT
- PC
- VC

Survey areas:

- Offshore Substation (OSS)
- Offshore Windfarm (OWF)
- Export Cable (EC)

SSS backscatter:

Reflectivity

Higher

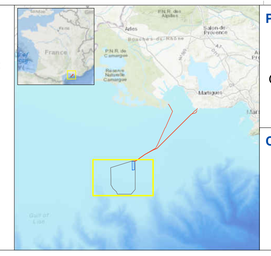
Lower

MBES backscatter (SMF):

Reflectivity

Higher

Lower



PROJECT TITLE:	AREA:	CHART:
MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION	MED_AO6 OWF Zone 2	3 / 8
CHART TITLE:	**DATE:**	**SCALE:**
SIDE SCAN SONAR AND MBES BACKSCATTER MOSAICS	August 2024	1:35000 DIN A1 1:70000 DIN A3

624000 632000 640000

4775000 4770000 4765000 4760000

N

Z2_OWF_B13_PC
Z2_OWF_B13_CPT
Z2_OWF_B13_CPTa
Z2_OWF_B13A_VC
Z2_OWF_B11_PC
Z2_OWF_B11_CPT
Z2_OWF_B01_CPT
Z2_OWF_B09_CPT
Z2_OWF_B09_VC
Z2_OWF_B07_CPT
Z2_OWF_B03A_PC
Z2_OWF_B03A_PCa
Z2_OWF_B03A_CPT
Z2_OWF_B03A_VC
Z2_OWF_B04_CPT
Z2_OWF_B05A_CPT
Z2_OWF_B05A_PC
Z2_OWF_B05A_VC
Z2_OWF_B05A_PCa
Z2_OWF_B05A_VCa

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE
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GRAPHIC SCALE:

0 750 1500 3000 m

0 0.25 0.5 1 nm

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

Geotechnical locations:

Borehole sampling type

- CPT
- PC
- VC

Survey areas:

- Offshore Substation (OSS)
- Offshore Windfarm (OWF)
- Export Cable (EC)

Seabed features (point):

- Possible boulder
- Seabed mound
- Anthropic object

Seabed features (line):

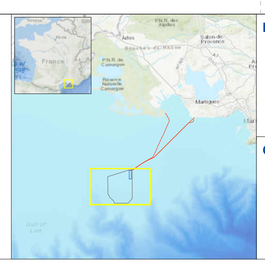
- Escarpment
- Anchoring marks

Seabed features (polygon):

- Ripples morphology
- Megaripples morphology
- Sandwaves morphology
- Trawlmarks area

Seabed classification:

- Mud



PROJECT TITLE:	AREA:	CHART:
MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION	MED_AO6 OWF Zone 2	4 / 8
CHART TITLE:	**DATE:**	**SCALE:**
SEABED FEATRUES AND SEABED CLASSIFICATION	August 2024	1:35000 DIN A1 1:70000 DIN A3

GRAPHIC SCALE:

0 750 1500 3000 m

0 0.25 0.5 1 nm

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

Geotechnical locations:

Borehole sampling type

- CPT
- PC
- VC

Survey areas:

- Offshore Substation (OSS)
- Offshore Windfarm (OWF)
- Export Cable (EC)

UHRS tracklines:

- OSS
- OWF

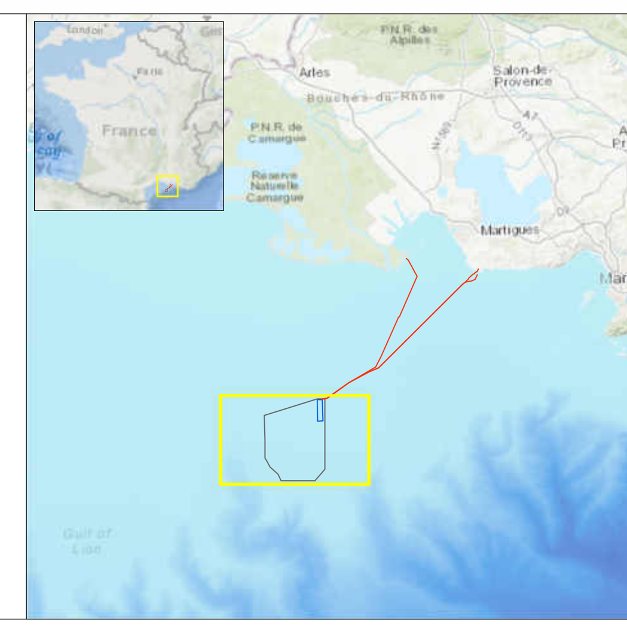
Top of RGT Unit 2 depth BSB contours:

- Major contour (2m)
- Minor contour (1m)

Top of RGT Unit 2 in Depth BSB (m):

High : 6.29

Low : 0.21



PROJECT TITLE:	AREA:	CHART:
MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION	MED_AO6 OWF Zone 2	5 / 8
CHART TITLE:	**DATE:**	**SCALE:**
TOP OF REGIONAL GEOTECHNICAL UNIT 2 DEPTH BELOW SEABED	August 2024	1:35000 DIN A1 1:70000 DIN A3

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE

A TRADEBE COMPANY

624000 632000 640000

4775000 4770000 4765000 4760000

N

MED_OWF_Z2_025
MED_OWF_Z2_023A
MED_OWF_Z2_021
MED_OWF_Z2_019A
MED_OWF_Z2_019
MED_OWF_Z2_017
MED_OWF_Z2_015
MED_OWF_Z2_015A
MED_OWF_Z2_013
MED_OWF_Z2_011
MED_OWF_Z2_009
MED_OWF_Z2_007
MED_OWF_Z2_005
MED_OWF_Z2_003
MED_OWF_Z2_001
MED_OWF_Z2_002
MED_OWF_Z2_004
MED_OWF_Z2_006
MED_OWF_Z2_008
MED_OWF_Z2_010
MED_OWF_Z2_012
MED_OWF_Z2_014
MED_OWF_Z2_016
MED_OWF_Z2_016A
MED_OWF_Z2_018
MED_OWF_Z2_020
MED_OWF_Z2_022
MED_OWF_Z2_024
MED_OWF_Z2_026
MED_OWF_Z2_028
MED_OWF_Z2_030

MED_OSS_Z2_035
MED_OSS_Z2_033
MED_OSS_Z2_031
MED_OSS_Z2_029
MED_OSS_Z2_027
MED_OSS_Z2_025
MED_OSS_Z2_023
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MED_OSS_Z2_019
MED_OSS_Z2_015
MED_OSS_Z2_013
MED_OSS_Z2_011
MED_OSS_Z2_009
MED_OSS_Z2_007
MED_OSS_Z2_003
MED_OSS_Z2_001
MED_OSS_Z2_002
MED_OSS_Z2_004
MED_OSS_Z2_006
MED_OSS_Z2_008
MED_OSS_Z2_010
MED_OSS_Z2_014
MED_OSS_Z2_016
MED_OSS_Z2_018

Z2_OWF_B13_PC
Z2_OWF_B13_CPT
Z2_OWF_B13_CPTa
Z2_OWF_B13A_VC
Z2_OWF_B11_PC
Z2_OWF_B11_CPT
Z2_OWF_B01_CPT
Z2_OWF_B09_CPT
Z2_OWF_B09_VC
Z2_OWF_B07_CPT
Z2_OWF_B03A_PC
Z2_OWF_B03A_PCa
Z2_OWF_B03A_CPT
Z2_OWF_B03A_VC
Z2_OWF_B04_CPT
Z2_OWF_B05A_CPT
Z2_OWF_B05A_VC
Z2_OWF_B05A_PC
Z2_OWF_B05A_PCa
Z2_OWF_B05A_VCa

10 10 10 10 10

RTE
MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE
A TRADEBE COMPANY

GRAPHIC SCALE:

0 750 1500 3000 m

0 0.25 0.5 1 nm

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

Geotechnical locations:

Borehole sampling type

- CPT
- PC
- VC

Survey areas:

- Offshore Substation (OSS)
- Offshore Windfarm (OWF)
- Export Cable (EC)

UHRS tracklines:

- OSS
- OWF

Top of RGT Unit 3 depth BSB contours:

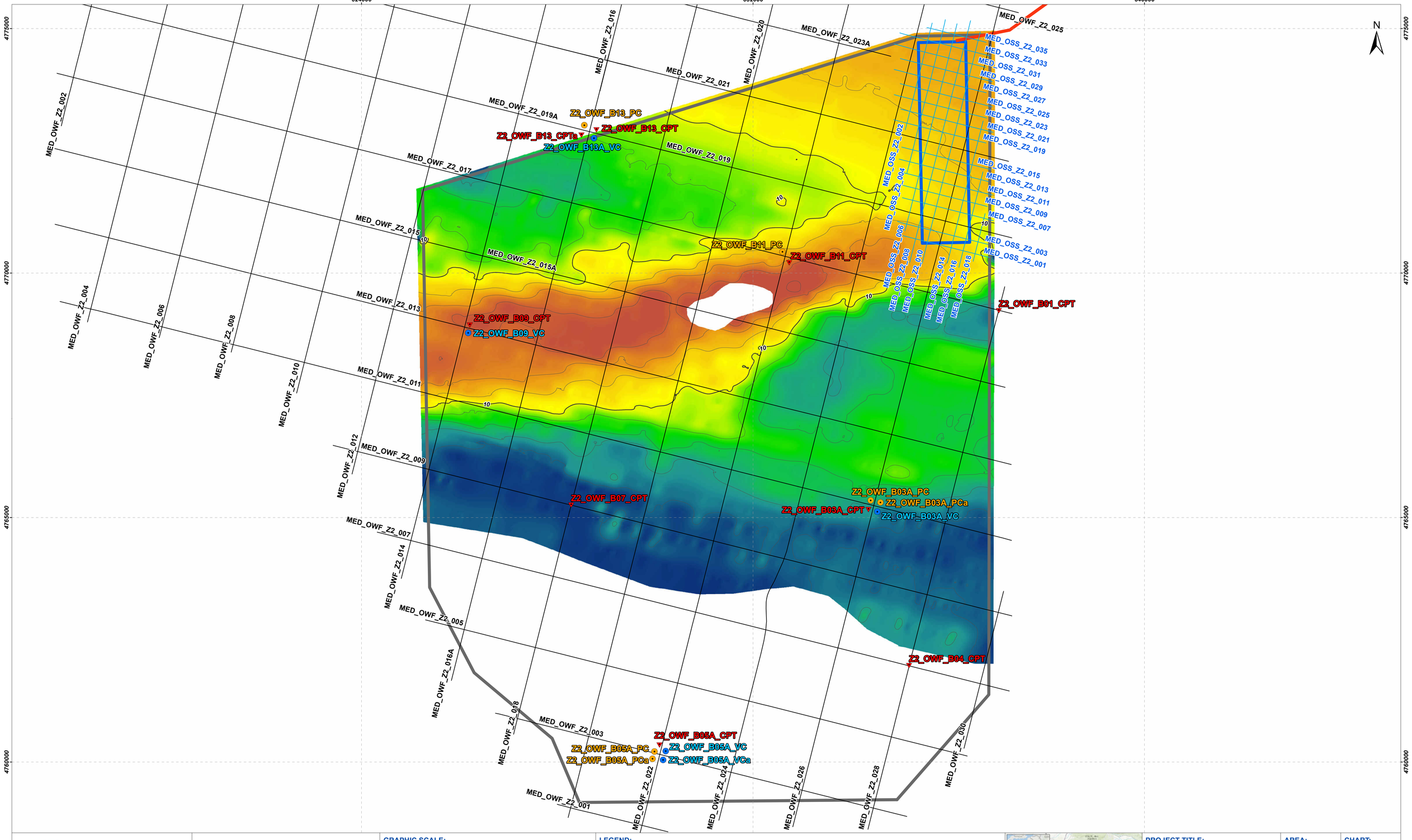
- Major contour (10m)
- Minor contour (2m)

Top of RGT Unit 3 in Depth BSB (m):

High : 15.46

Low : 0.01

PROJECT TITLE:	AREA:	CHART:
MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION	MED_AO6 OWF Zone 2	6 / 8
CHART TITLE:	**DATE:**	**SCALE:**
TOP OF REGIONAL GEOTECHNICAL UNIT 3 DEPTH BELOW SEABED	August 2024	1:35000 DIN A1 1:70000 DIN A3



MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE
A TRADEBE COMPANY

GRAPHIC SCALE:

0 750 1500 3000 m

0 0.25 0.5 1 nm

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

Geotechnical locations:

Borehole sampling type

- CPT
- PC
- VC

Survey areas:

- Offshore Substation (OSS)
- Offshore Windfarm (OWF)
- Export Cable (EC)

UHRS tracklines:

- OSS
- OWF

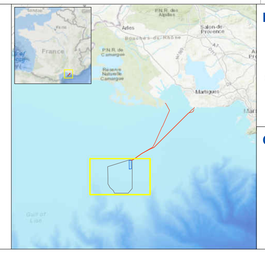
Top of RGT Unit 4 depth BSB contours:

- Major contour (10m)
- Minor contour (2m)

Top of RGT Unit 4 in Depth BSB (m):

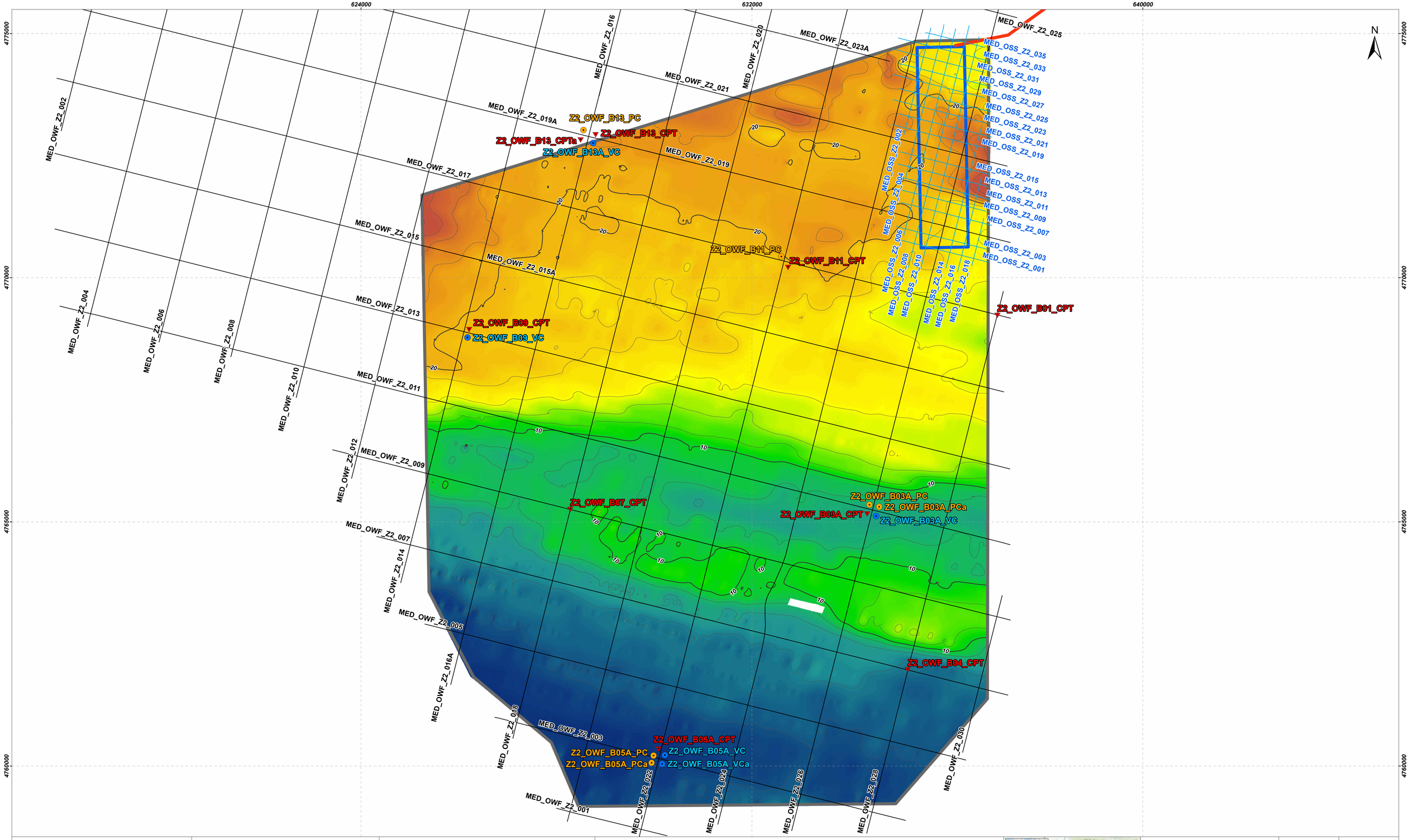
High : 18.53

Low : 0.36



PROJECT TITLE:	AREA:	CHART:
MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION	MED_AO6 OWF Zone 2	7 / 8

CHART TITLE:	DATE:	SCALE:
TOP OF REGIONAL GEOTECHNICAL UNIT 4 DEPTH BELOW SEABED	August 2024	1:35000 DIN A1 1:70000 DIN A3



RTE

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE
A TRADEBE COMPANY

GRAPHIC SCALE:

0 750 1500 3000 m

0 0.25 0.5 1 nm

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

Geotechnical locations:

Borehole sampling type

- CPT
- PC
- VC

Survey areas:

- Offshore Substation (OSS)
- Offshore Windfarm (OWF)
- Export Cable (EC)

UHRS tracklines:

- OSS
- OWF

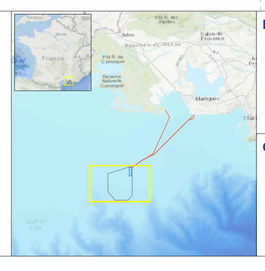
Top of RGT Unit 5 depth BSB contours:

- Major contour (10m)
- Minor contour (2m)

Top of RGT Unit 5 in Depth BSB (m):

High : 30.04

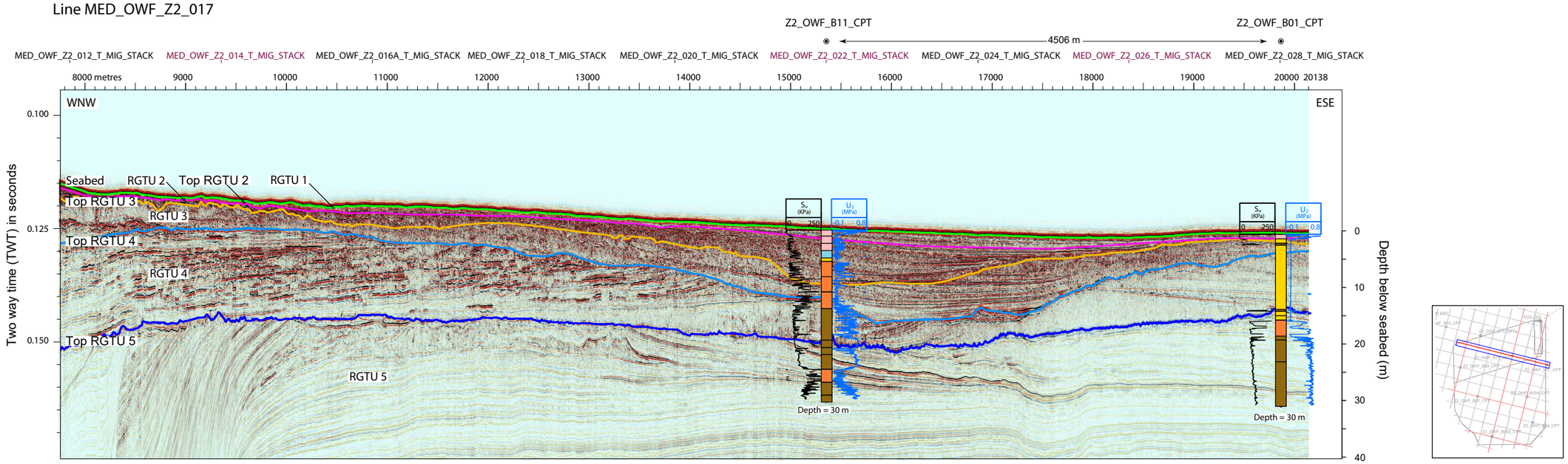
Low : 0.22



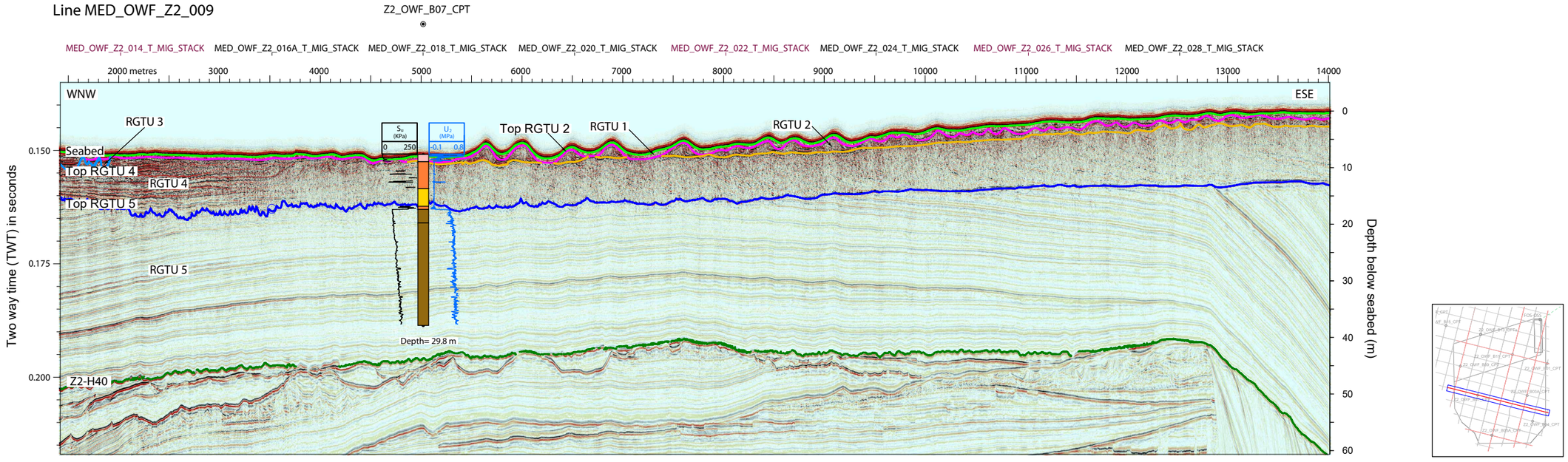
PROJECT TITLE:	AREA:	CHART:
MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION	MED_AO6 OWF Zone 2	8 / 8
CHART TITLE:	**DATE:**	**SCALE:**
TOP OF REGIONAL GEOTECHNICAL UNIT 5 DEPTH BELOW SEABED	August 2024	1:35000 DIN A1 1:70000 DIN A3

APPENDIX II – UHRS REGIONAL PROFILES

Line MED_OWF_Z2_017

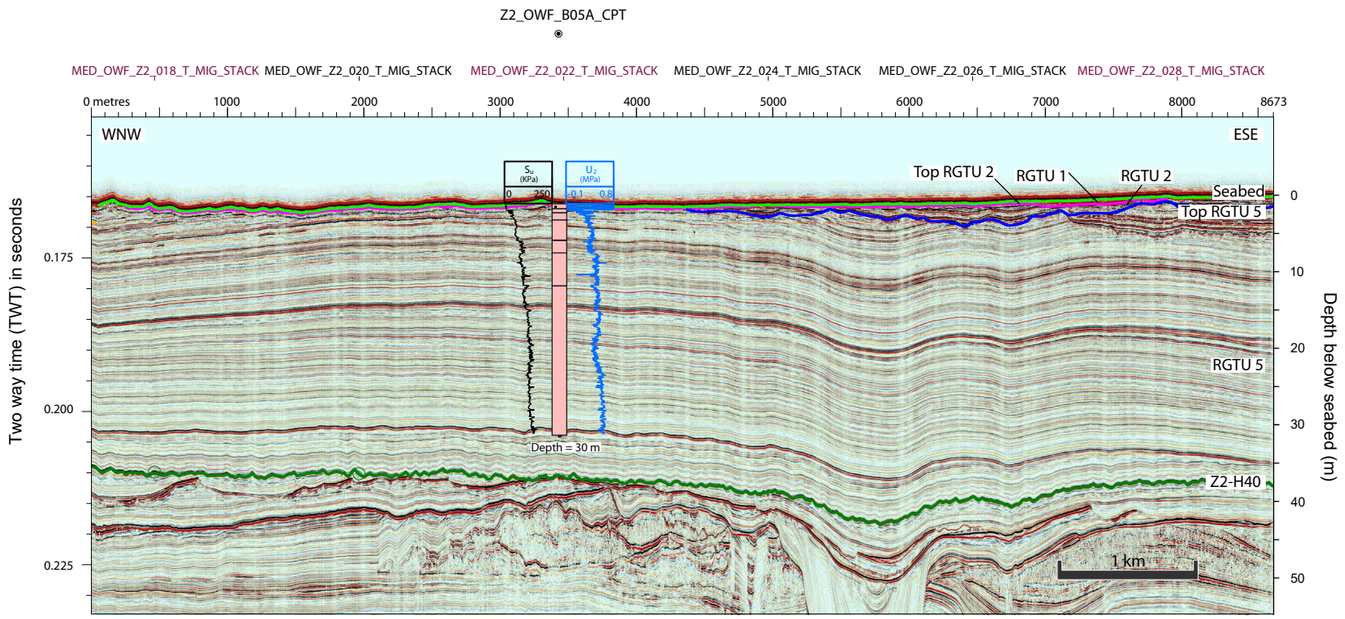


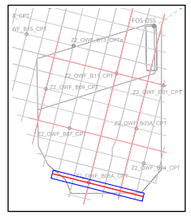
Line MED_OWF_Z2_009



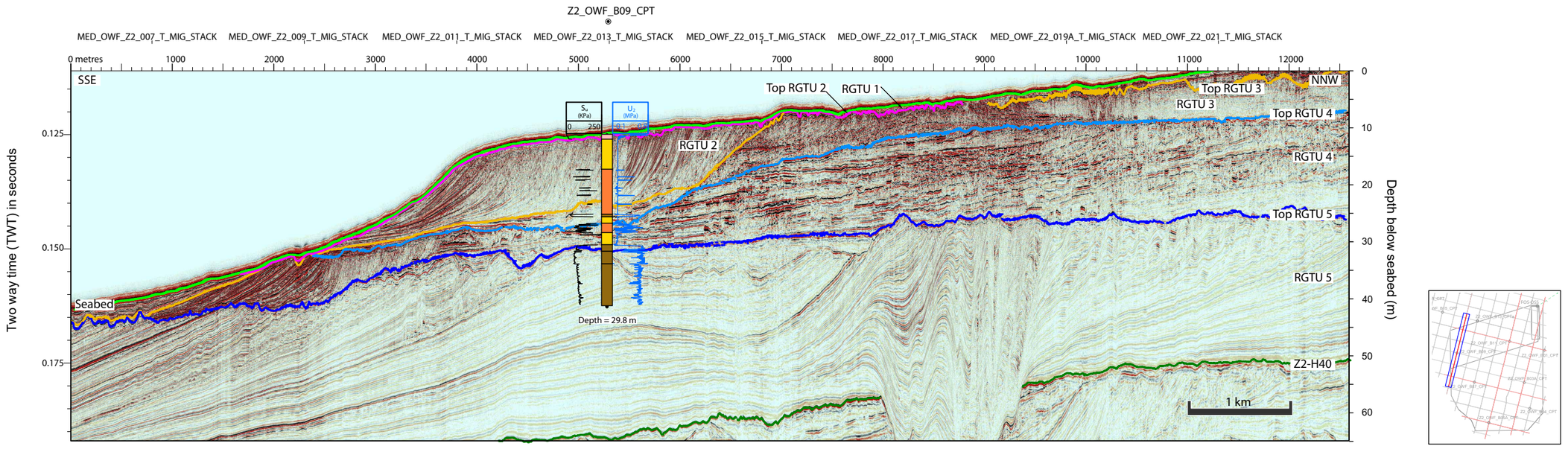
MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE	TECNOAMBIENTE A TRADEBE COMPANY	CARTOGRAPHIC INFORMATION: Elevation referred to Bathyelly v2 Geoid ZH/ell	GRAPHIC SCALE: Scales as shown on profile	DATE: August 2024	LEGEND: Sand, Silt, Clay, Sand & Clay, Silt & Sand; Seabed, Top RGTU 2, Top RGTU 3, Top RGTU 4, Top RGTU 5, UHRS - Z2 H40	Depth conversions were under taken using an assumed seismic velocity (ASV) of 1600 m/s	PROJECT TITLE: Geophysical Survey MED A06 OWF Area; AREA: MED; CHART: 1 of 4
			DATUM: WGS84; PROJECTION: UTM 31N	COMMENTS: ---			CHART TITLE: MED AO6 OWF Profiles; REFERENCE: ---; SCALE: Indicated in charts

Line MED_OWF_Z2_003

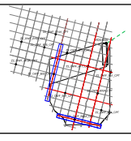




Line MED_OWF_Z2_014

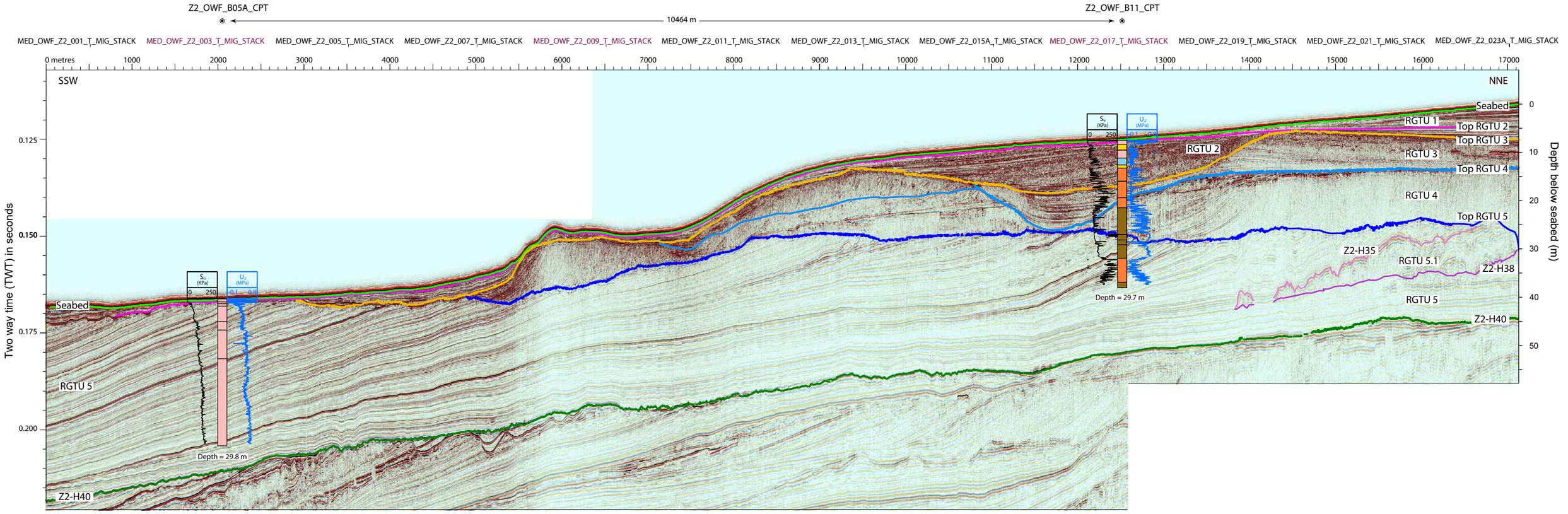


Rte / MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE	TECNOAMBIENTE A TRADEBE COMPANY	CARTOGRAPHIC INFORMATION: Elevation referred to Bathyelly v2 Geoid ZH/ell	GRAPHIC SCALE: Scales as shown on profile	DATUM: WGS84 / PROJECTION: UTM 31N	DATE: August 2024 / COMMENTS: ---	LEGEND: Sand, Silt, Clay, Sand & Clay, Silt & Sand; Seabed, Top RGTU 2, Top RGTU 3, Top RGTU 4, Top RGTU 5, UHRS - Z2 H40	Depth conversions were under taken using an assumed seismic velocity (ASV) of 1600 m/s



PROJECT TITLE:	AREA:	CHART:
Geophysical Survey MED A06 OWF Area	MED	2 of 4
CHART TITLE:	**REFERENCE:**	**SCALE:**
MED AO6 OWF Profiles	---	Indicated in charts

Line MED_OWF_Z2_022



MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE	TECNOAMBIENTE A TRADEBE COMPANY	CARTOGRAPHIC INFORMATION: Elevation referred to Bathyelly v2 Geoid ZH/ell	GRAPHIC SCALE: Scales as shown on profile	DATUM: WGS84	PROJECTION: UTM 31N	DATE: August 2024	COMMENTS: ---

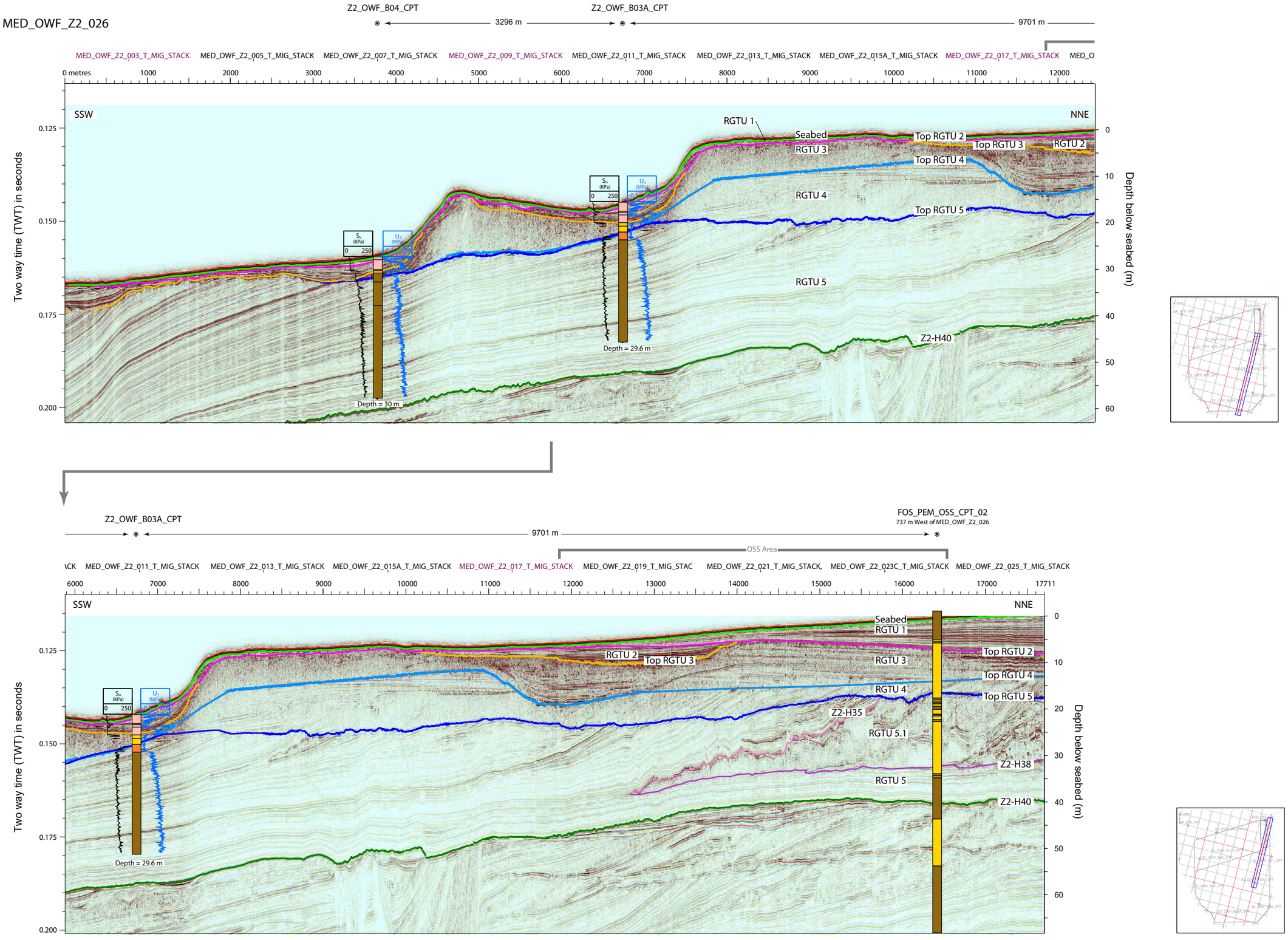
LEGEND:

- Sand
- Silt
- Clay
- Sand & Clay
- Silt & Sand
- Seabed
- Top RGTU 2
- Top RGTU 3
- Top RGTU 4
- Top RGTU 5
- UHRS - Z2 H35
- UHRS - Z2 H38
- UHRS - Z2 H40

Depth conversions were under taken using an assumed sesimic velocity (ASV) of 1600 m/s

PROJECT TITLE:	AREA:	CHART:
Geophysical Survey MED A06 OWF Area	MED	3 of 4
CHART TITLE: MED AO6 OWF Profiles	REFERENCE: ---	SCALE: Indicated in charts

Line MED_OWF_Z2_026



MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE
A TRADEBE COMPANY

CARTOGRAPHIC INFORMATION
Elevation referred to Bathyelly v2 Geoid ZH/ell

GRAPHIC SCALE
Scales as shown on profile

DATUM: WGS84

PROJECTION: UTM 31N

DATE: August 2024

COMMENTS: ---

LEGEND:
Sand
Silt
Clay
Sand & Clay
Silt & Sand
Seabed
Top RGTU 2
Top RGTU 3
Top RGTU 4
Top RGTU 5
UHRS - Z2 H35
UHRS - Z2 H38
UHRS - Z2 H40

Depth conversions were under taken using an assumed sesimic velocity (ASV) of 1600 m/s

PROJECT TITLE: Geophysical Survey MED A06 OWF Area

CHART TITLE: MED AO6 OWF Profiles

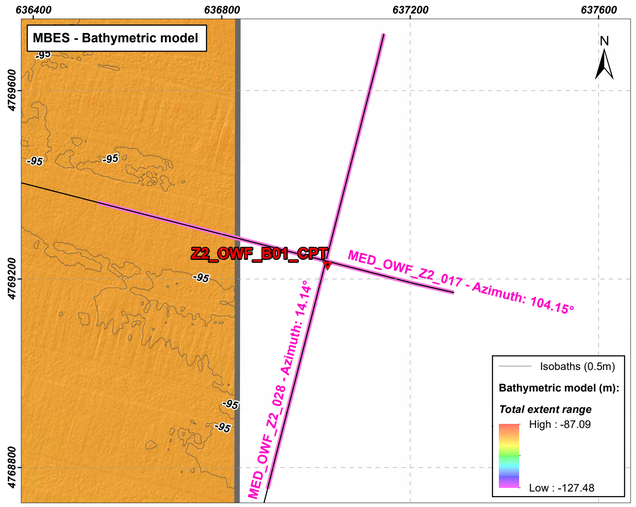
AREA: MED

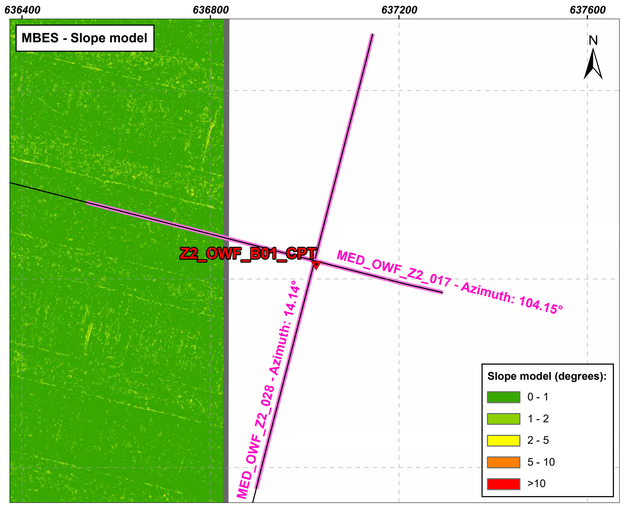
CHART: 4 of 4

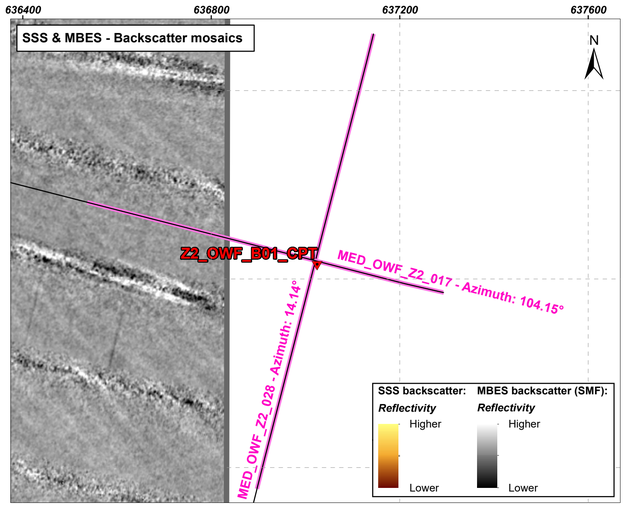
REFERENCE: ---

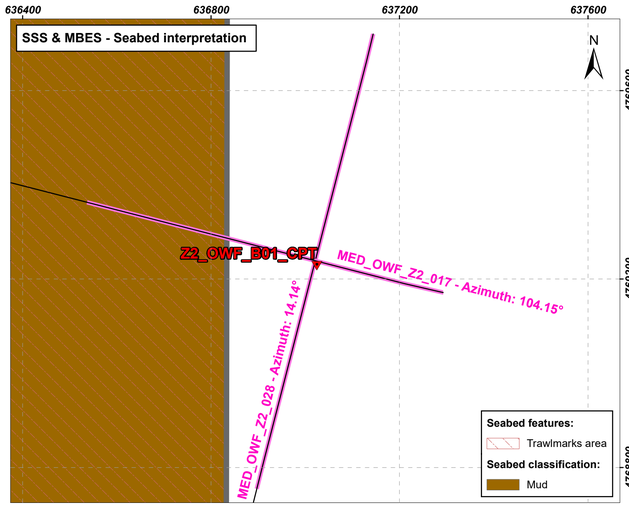
SCALE: Indicated in charts

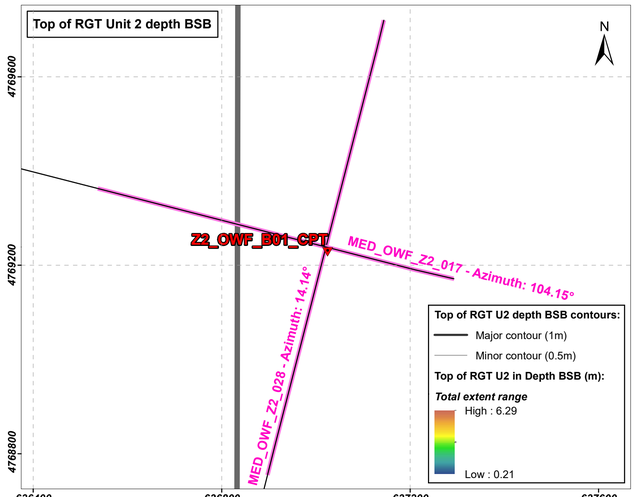
APPENDIX III – INTEGRATED CHARTS

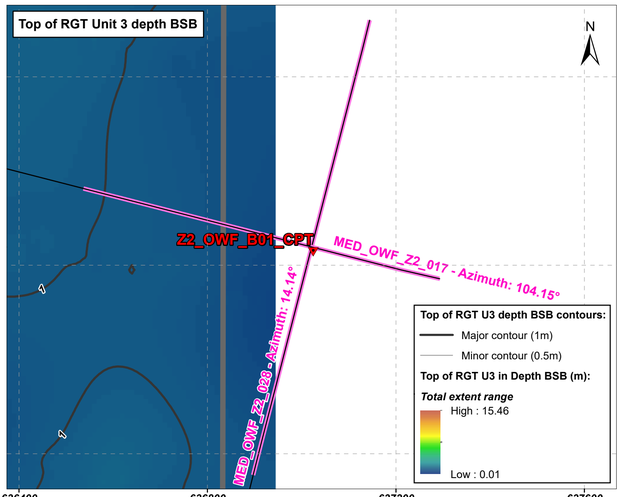


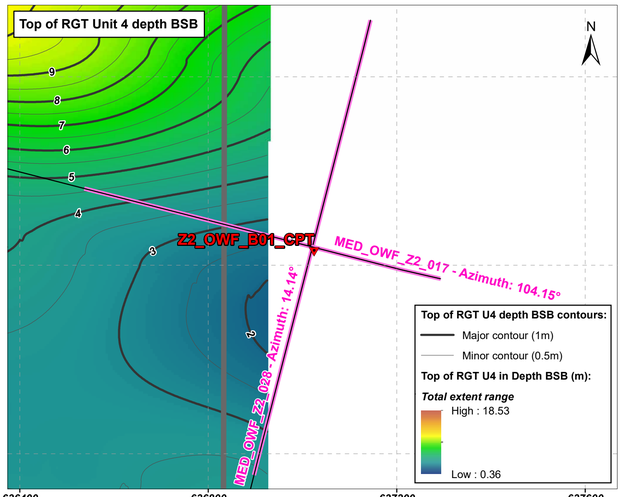


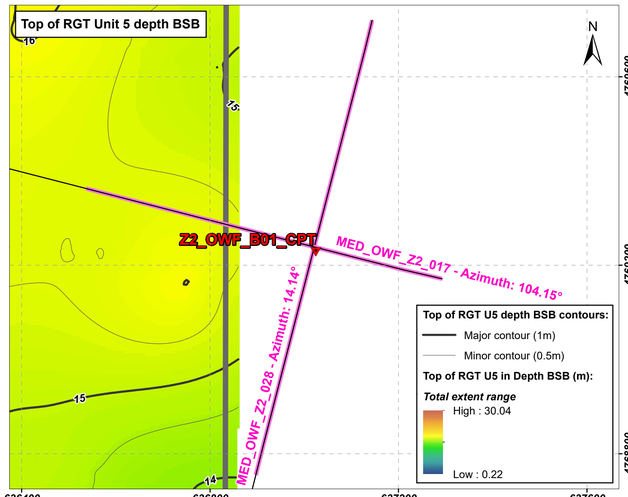


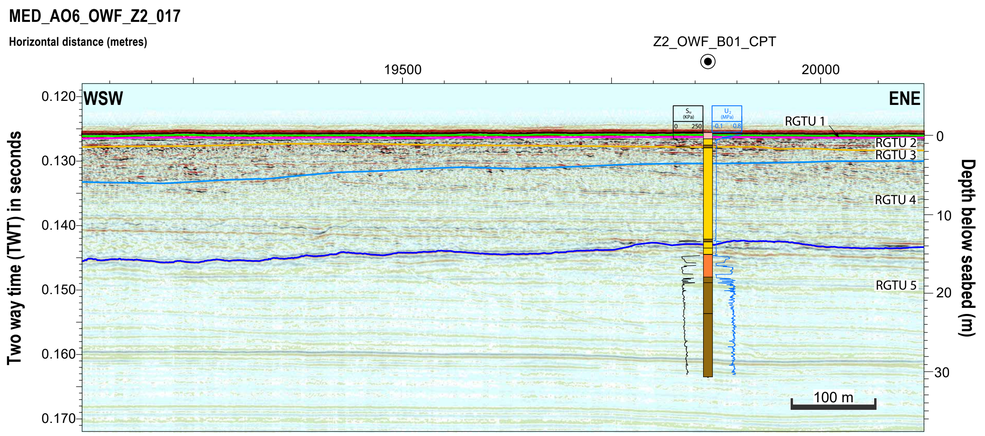


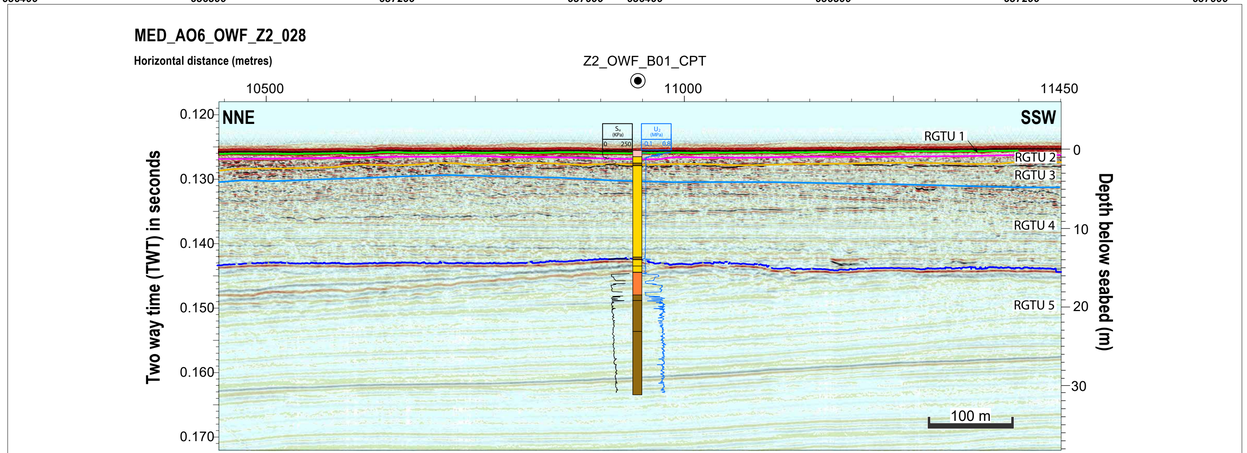












RTE — MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE — A TRADEBE COMPANY

GRAPHIC SCALE:

0 125 250 500 m

0 0.05 0.1 0.2 nm

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

Geotechnical locations:

Borehole sampling type

- CPT
- PC
- VC

Survey areas:

- Offshore Substation (OSS)
- Offshore Windfarm (OWF)
- Export Cable (EC)

UHRS tracklines:

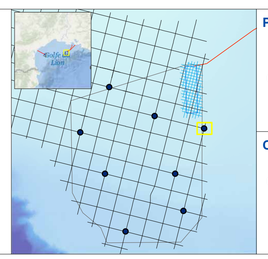
- OSS tracklines
- OWF tracklines
- Extent of the seismic profile

Seismic profile reflectors:

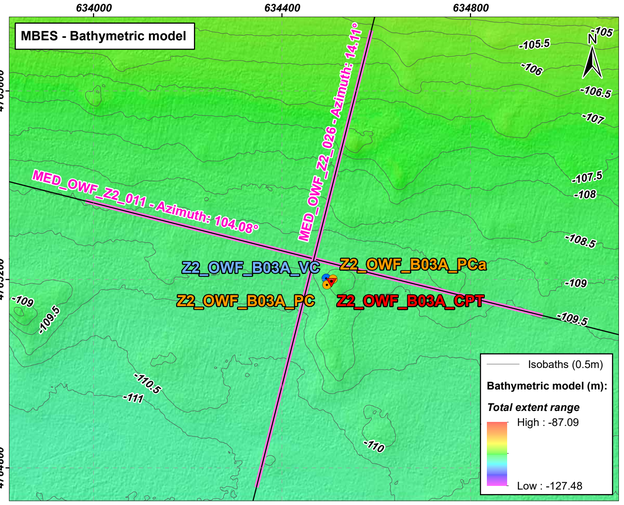
- Seabed
- Top of RGT Unit 2
- Top of RGT Unit 3
- Top of RGT Unit 4
- Top of RGT Unit 5

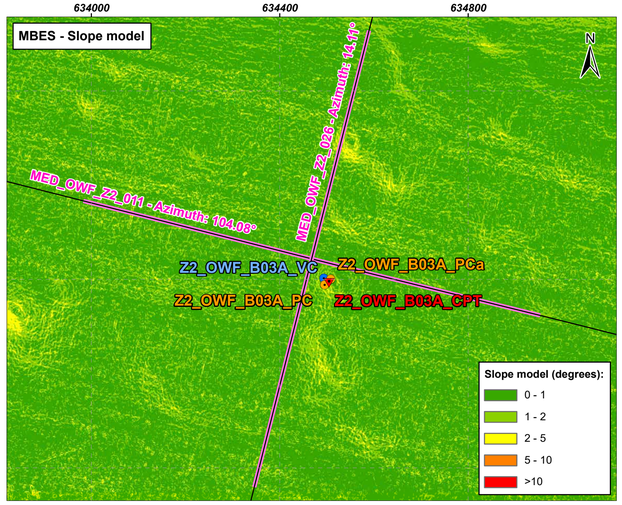
Geotechnical data:

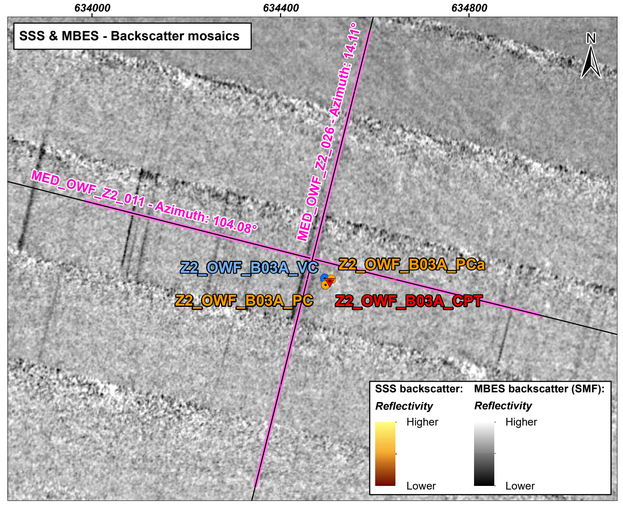
- Sand
- Silt
- Clay
- Sand and Clay
- Silt and Sand

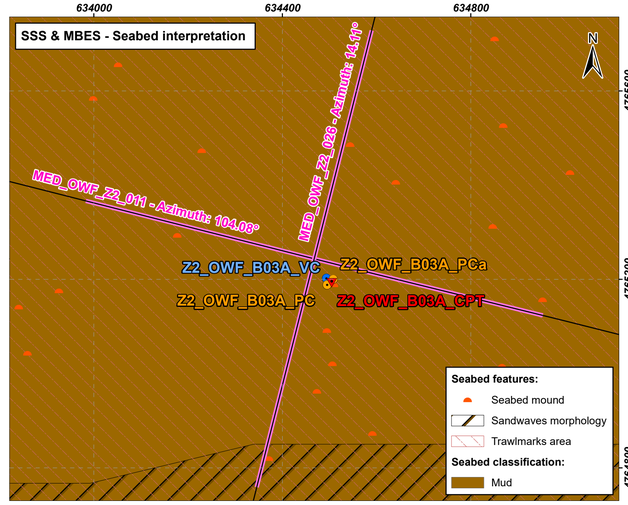


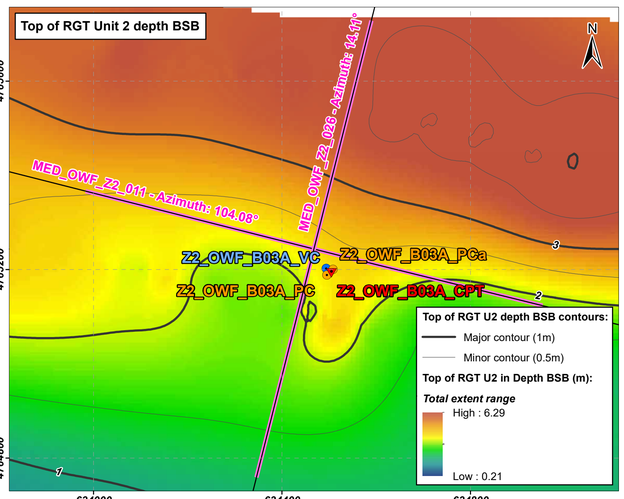
PROJECT TITLE:	AREA:	CHART:
MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION	MED_AO6 OWF Zone 2	1 / 8
CHART TITLE:	**DATE:**	**SCALE:**
GEOPHYSICAL AND GEOTECHNICAL DATA FOR BOREHOLE B01	August 2024	1:6500 DIN A1 1:13000 DIN A3

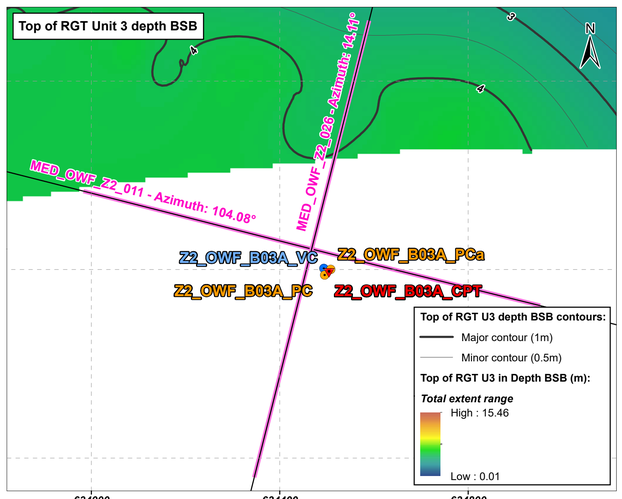


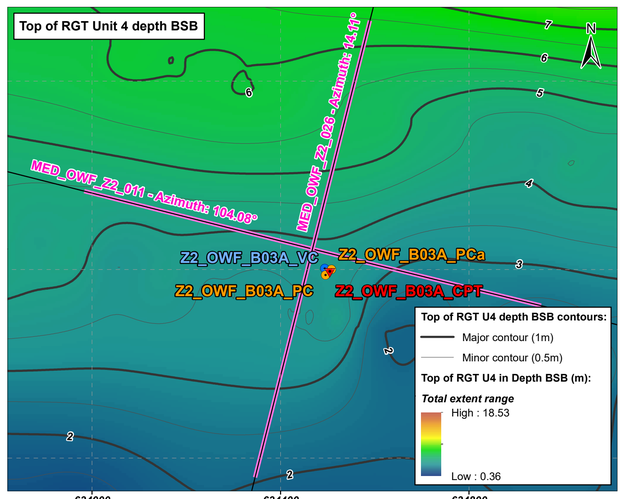


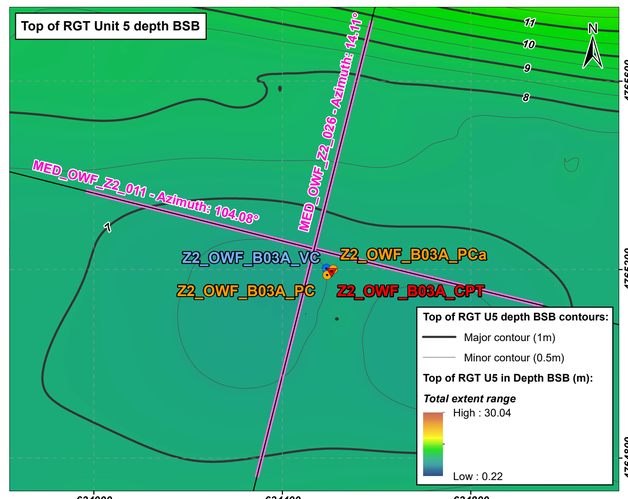


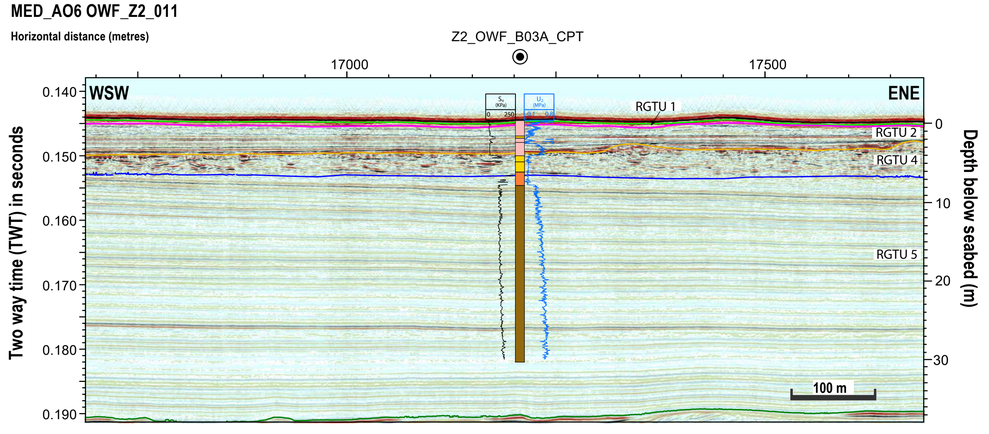


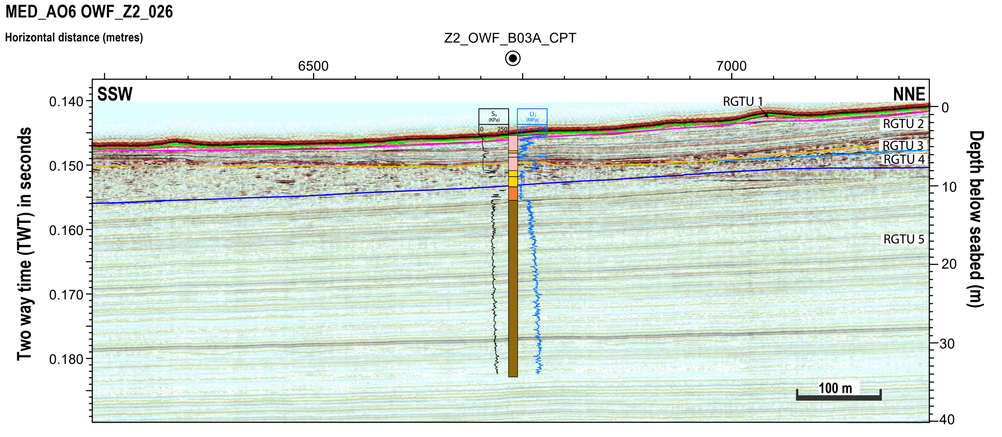












MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE
A TRADEBE COMPANY

GRAPHIC SCALE:

0 125 250 500 m

0 0.05 0.1 0.2 nm

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

Geotechnical locations:

Borehole sampling type

- CPT
- PC
- VC

Survey areas:

- Offshore Substation (OSS)
- Offshore Windfarm (OWF)
- Export Cable (EC)

UHRS tracklines:

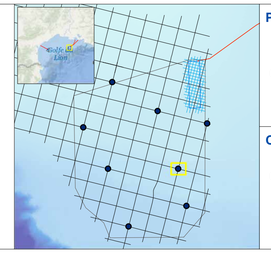
- OSS tracklines
- OWF tracklines
- Extent of the seismic profile

Seismic profile reflectors:

- Seabed
- Top of RGT Unit 2
- Top of RGT Unit 3
- Top of RGT Unit 4
- Top of RGT Unit 5

Geotechnical data:

- Sand
- Silt
- Clay
- Sand and Clay
- Silt and Sand



PROJECT TITLE:	AREA:	CHART:
MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION	MED_AO6 OWF Zone 2	2 / 8
CHART TITLE:	**DATE:**	**SCALE:**
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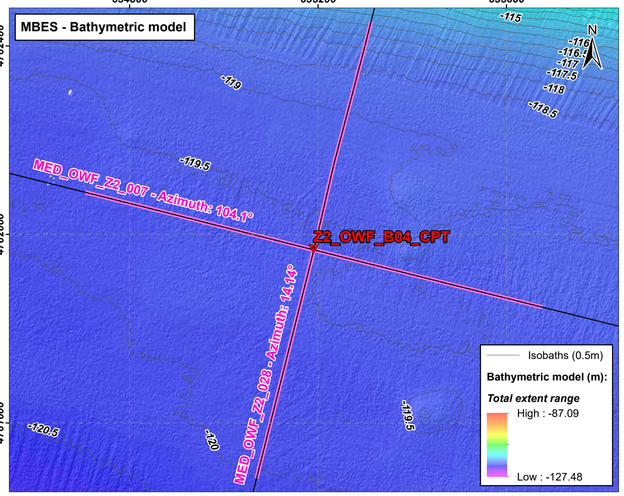
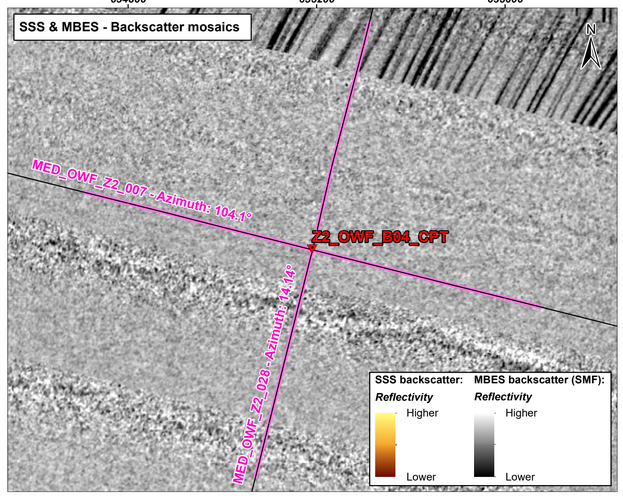
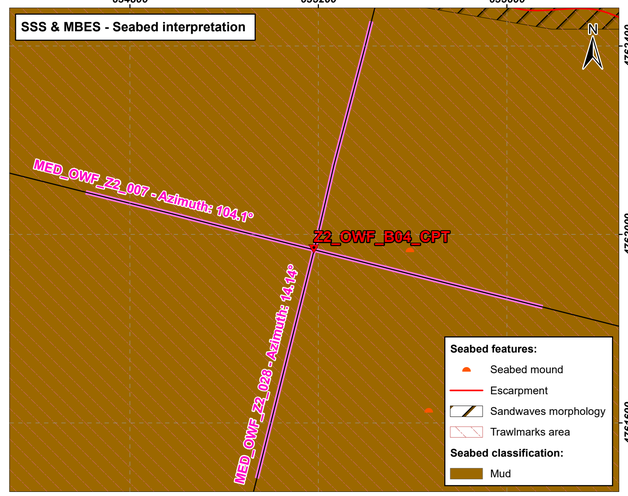
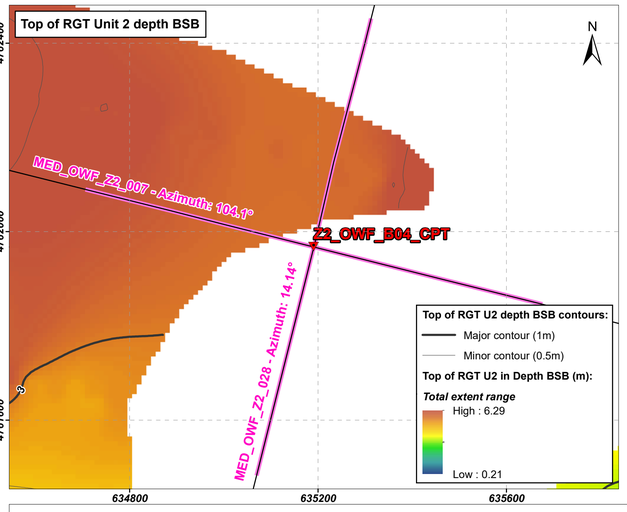
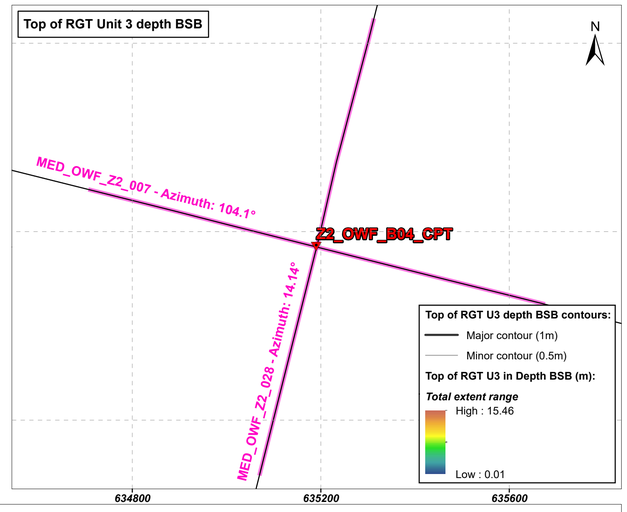
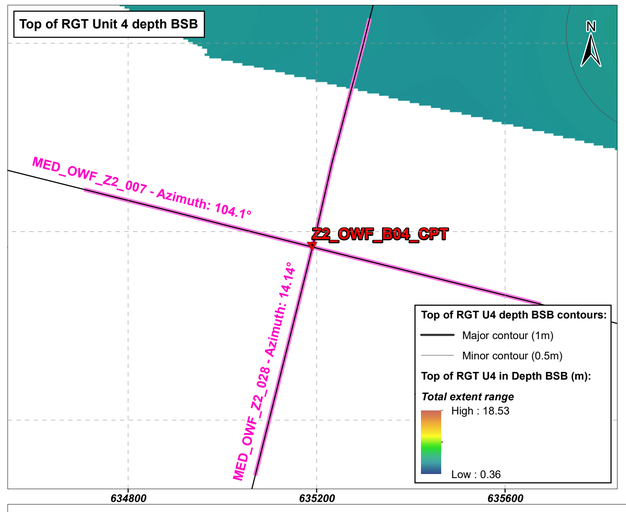


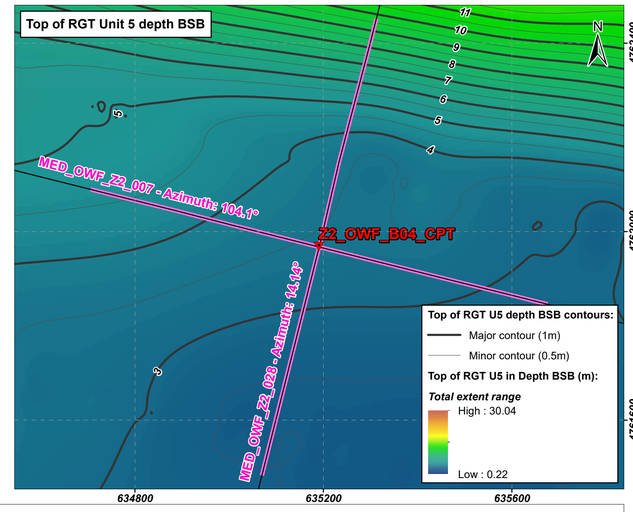


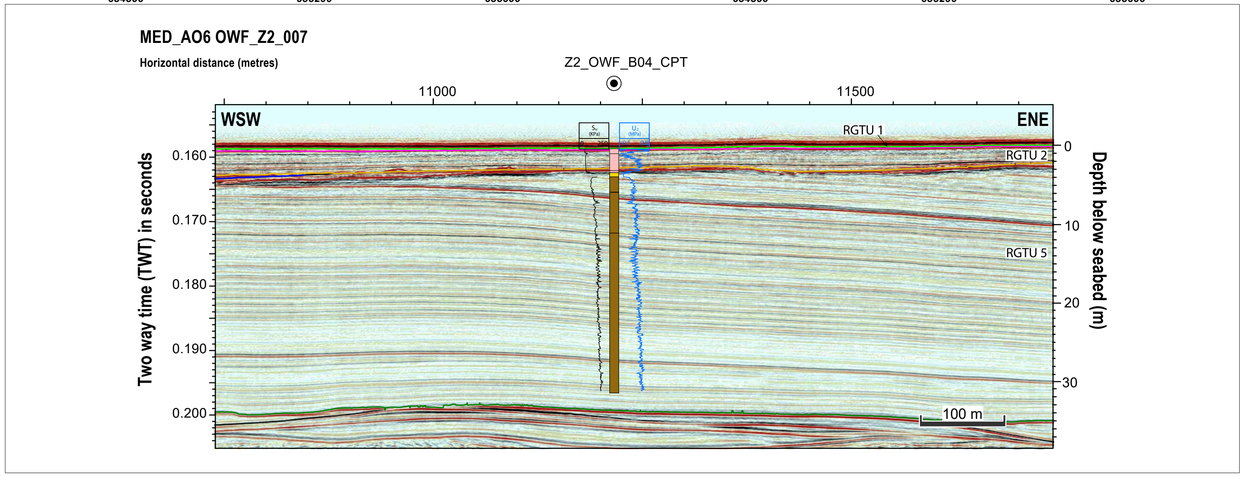


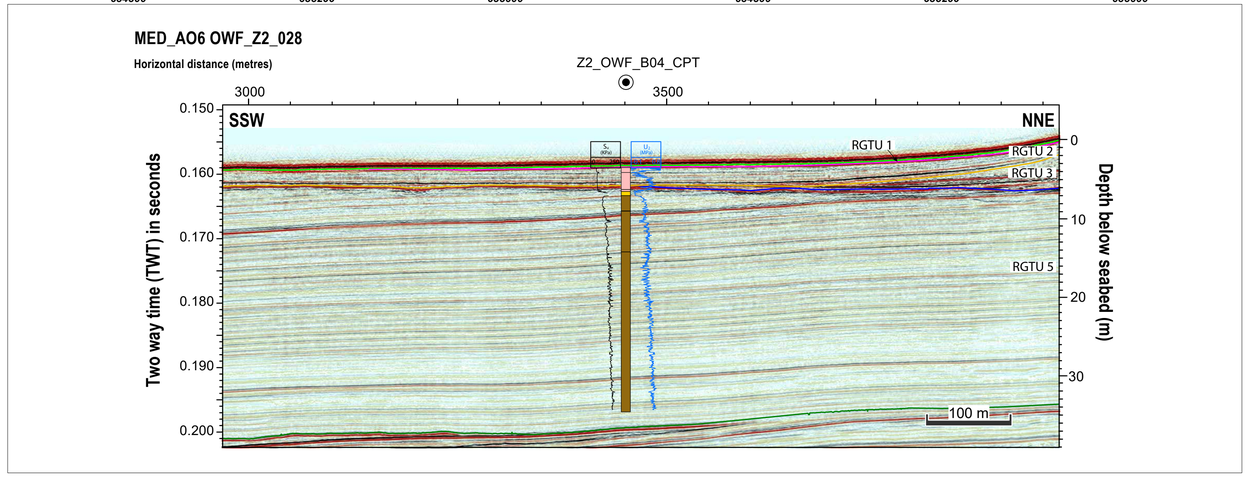












MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE
A TRADEBE COMPANY

GRAPHIC SCALE:

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

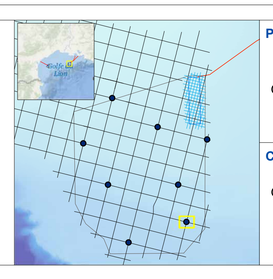
Geotechnical locations:
Borehole sampling type
- CPT
- PC
- VC

Survey areas:
- Offshore Substation (OSS)
- Offshore Windfarm (OWF)
- Export Cable (EC)

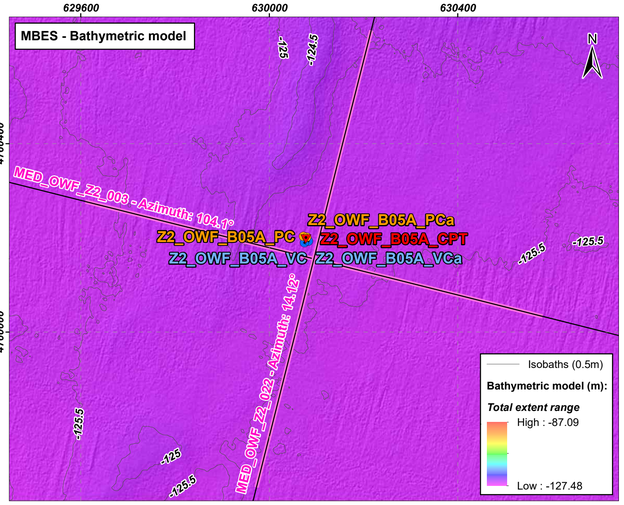
UHRS tracklines:
- OSS tracklines
- OWF tracklines
- Extent of the seismic profile

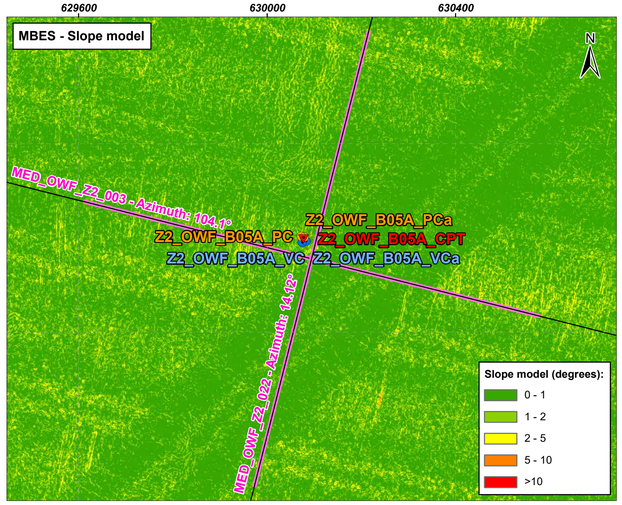
Seismic profile reflectors:
- Seabed
- Top of RGT Unit 2
- Top of RGT Unit 3
- Top of RGT Unit 4
- Top of RGT Unit 5

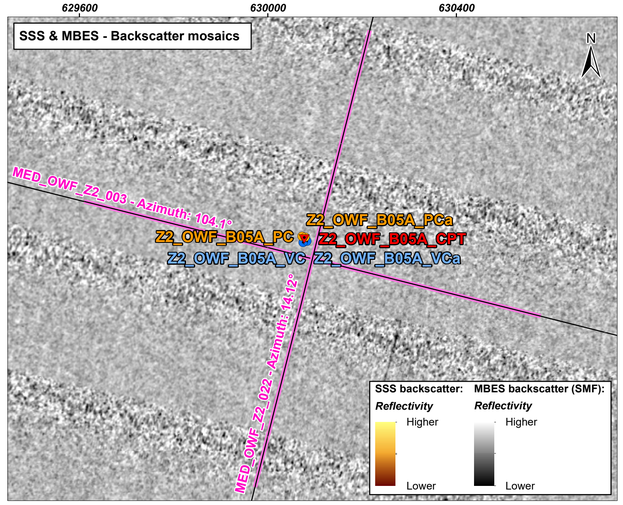
Geotechnical data:
- Sand
- Silt
- Clay
- Sand and Clay
- Silt and Sand

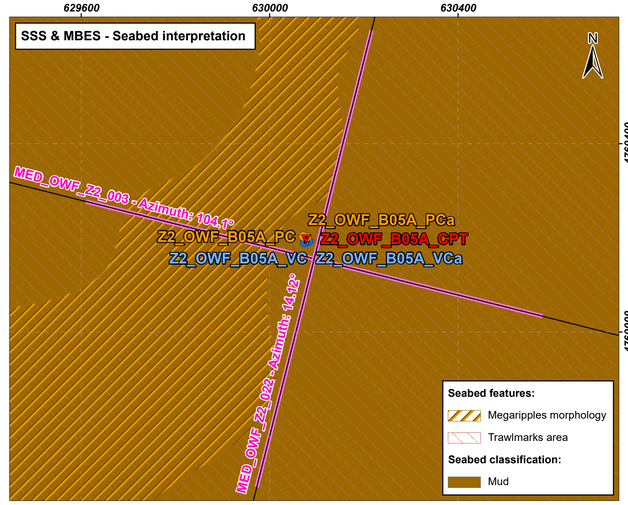


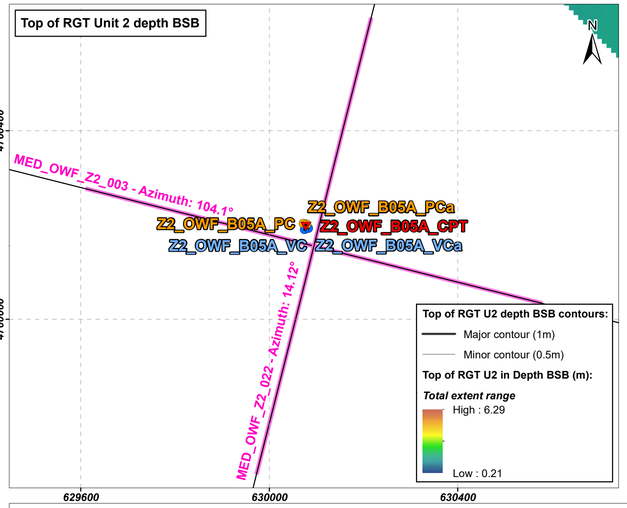
PROJECT TITLE:	AREA:	CHART:
MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION	MED_AO6 OWF Zone 2	3 / 8
CHART TITLE:	**DATE:**	**SCALE:**
GEOPHYSICAL AND GEOTECHNICAL DATA FOR BOREHOLE B04	August 2024	1:6500 DIN A1 1:13000 DIN A3

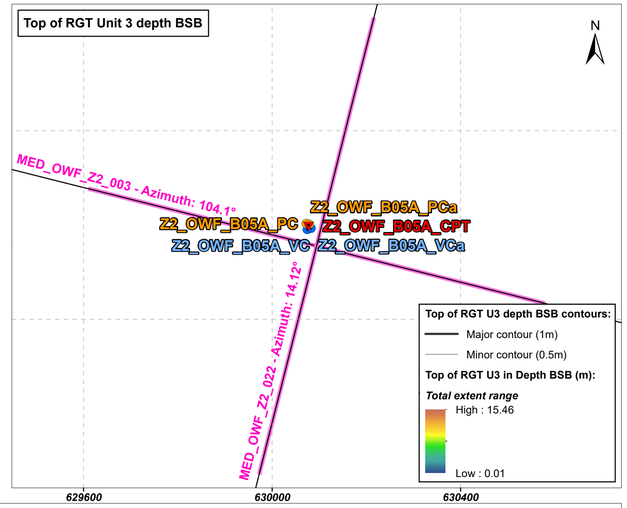


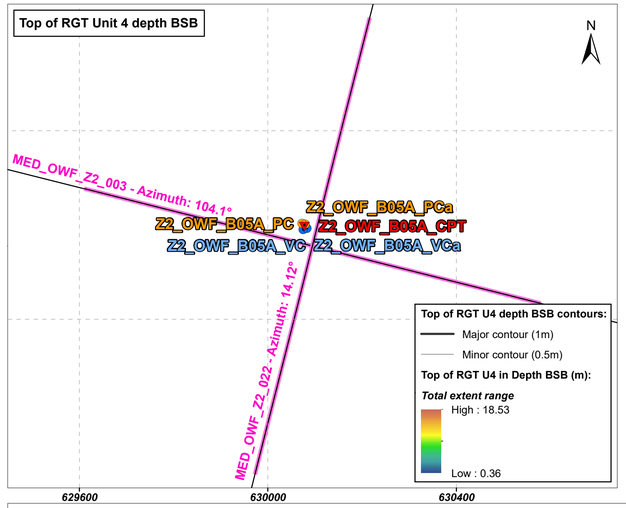


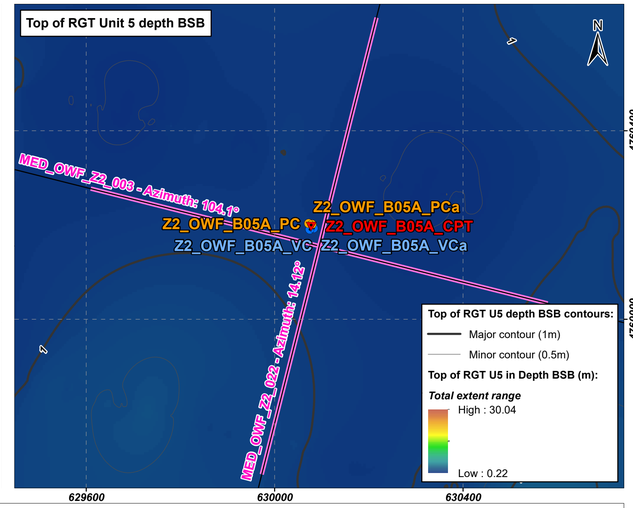


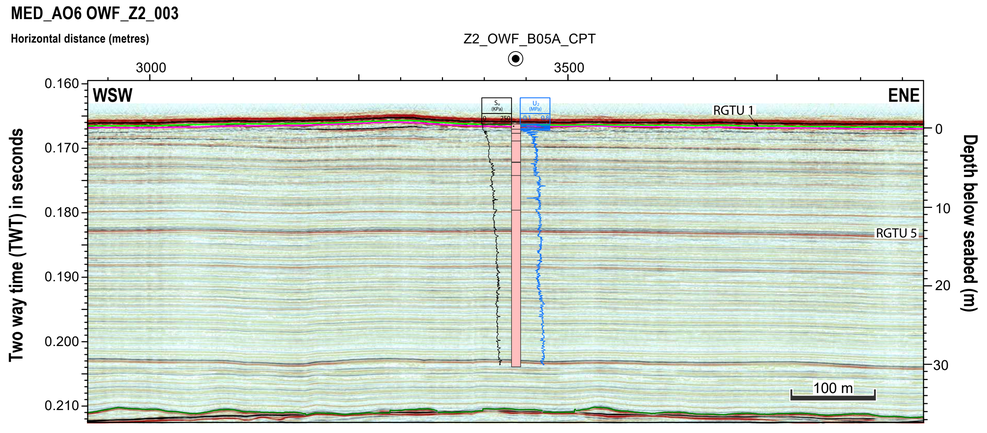


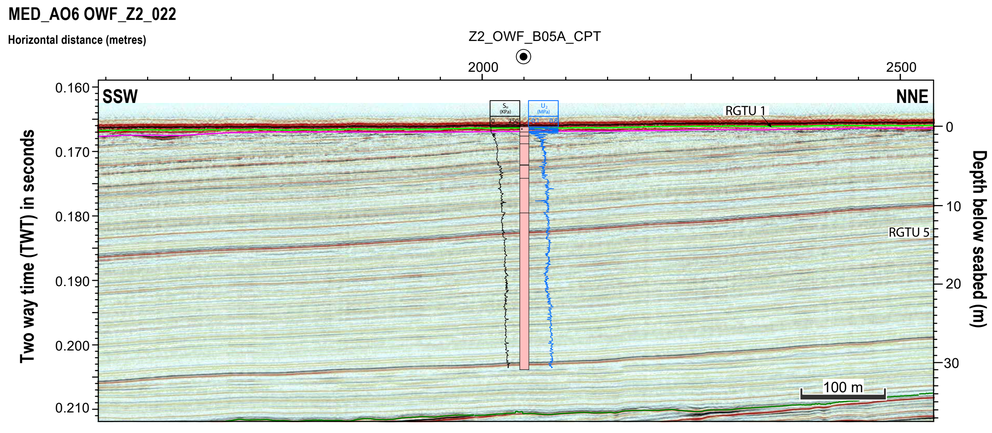












MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE
A TRADEBE COMPANY

GRAPHIC SCALE:

0 125 250 500 m

0 0.05 0.1 0.2 nm

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

Geotechnical locations:

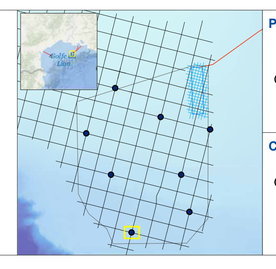
Borehole sampling type
- CPT
- PC
- VC

Survey areas:
- Offshore Substation (OSS)
- Offshore Windfarm (OWF)
- Export Cable (EC)

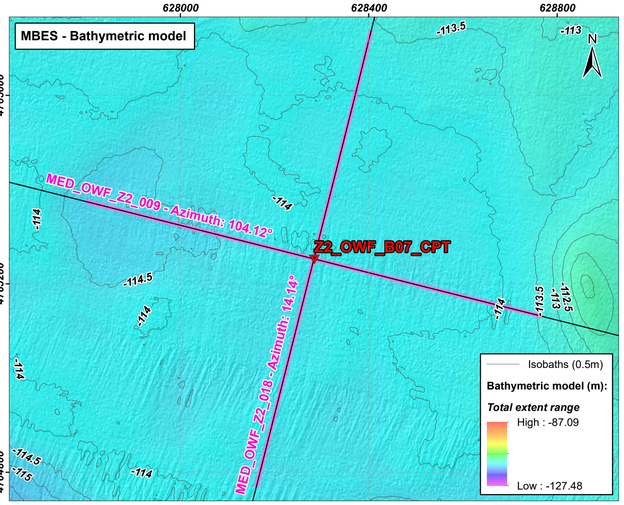
UHRS tracklines:
- OSS tracklines
- OWF tracklines
- Extent of the seismic profile

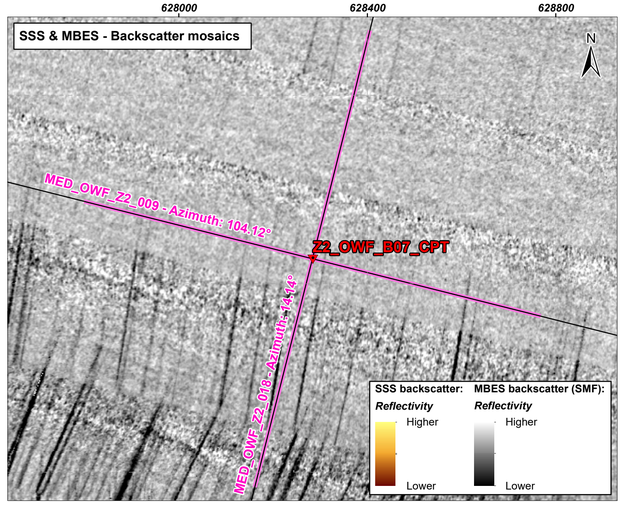
Seismic profile reflectors:
- Seabed
- Top of RGT Unit 2
- Top of RGT Unit 3
- Top of RGT Unit 4
- Top of RGT Unit 5

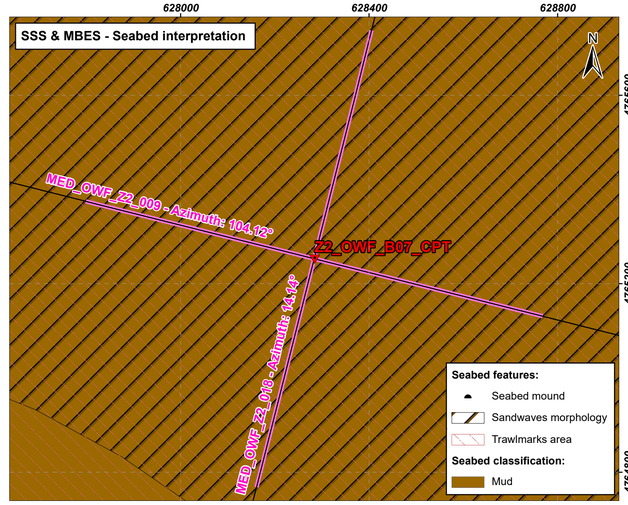
Geotechnical data:
- Sand
- Silt
- Clay
- Sand and Clay
- Silt and Sand

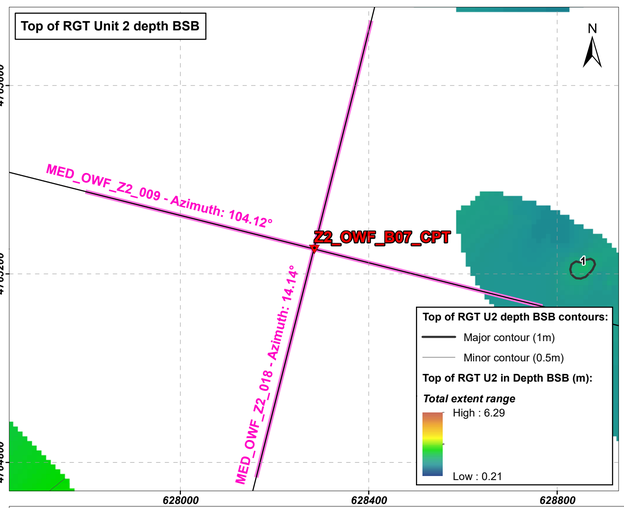


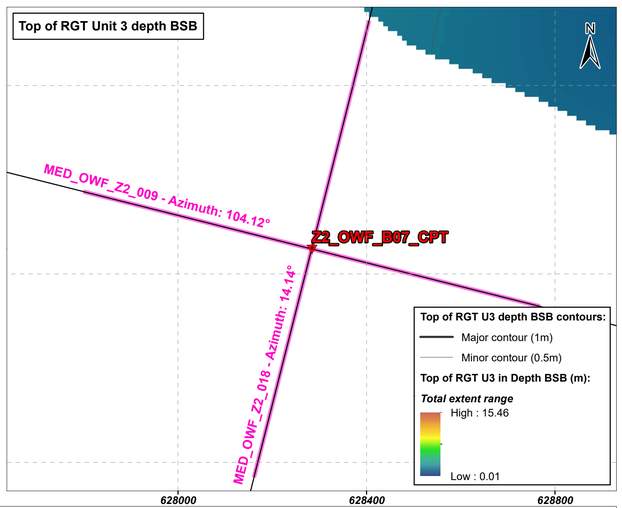
PROJECT TITLE:	AREA:	CHART:
MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION	MED_AO6 OWF Zone 2	4 / 8
CHART TITLE:	**DATE:**	**SCALE:**
GEOPHYSICAL AND GEOTECHNICAL DATA FOR BOREHOLE B05A	August 2024	1:6500 DIN A1 1:13000 DIN A3

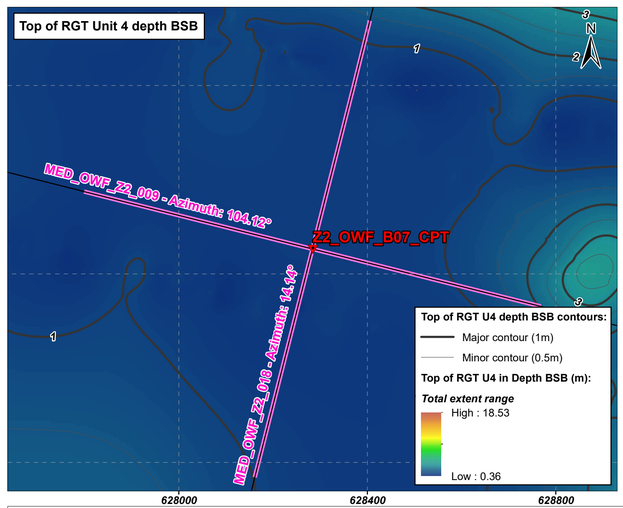


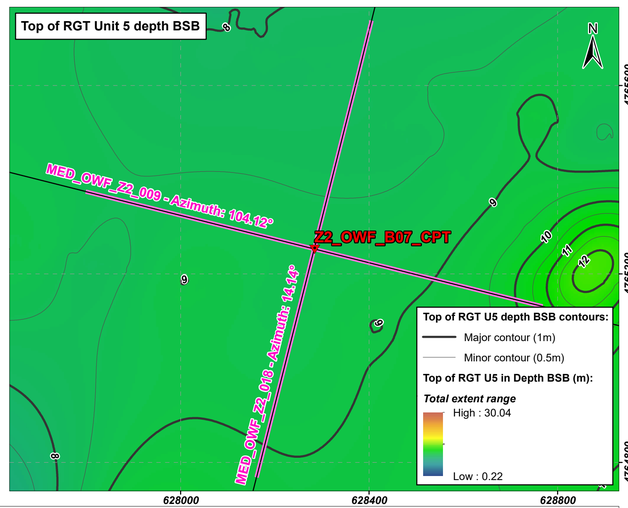


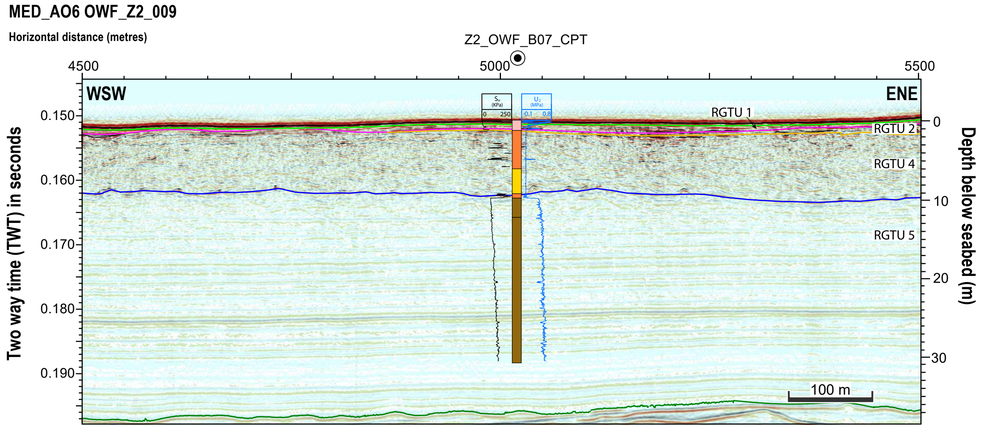


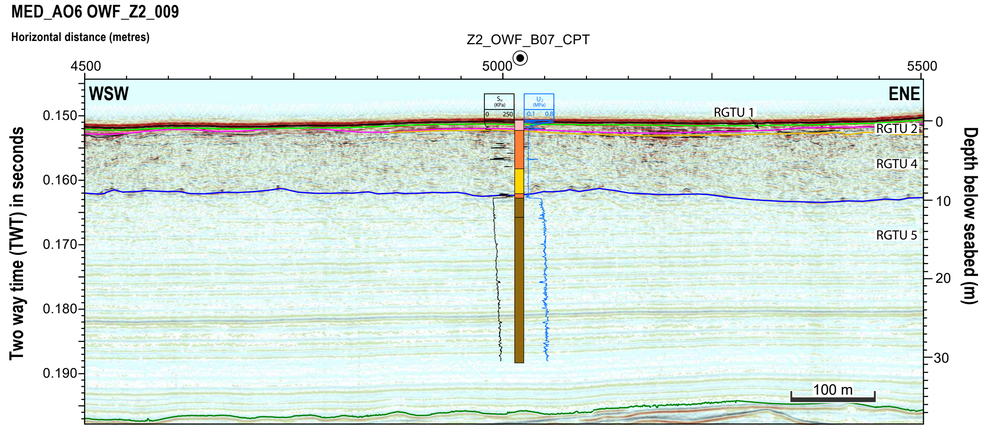












RTE

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE
A TRADEBE COMPANY

GRAPHIC SCALE:

0 125 250 500 m

0 0.05 0.1 0.2 nm

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

Geotechnical locations:

Borehole sampling type

- CPT
- PC
- VC

Survey areas:

- Offshore Substation (OSS)
- Offshore Windfarm (OWF)
- Export Cable (EC)

UHRS tracklines:

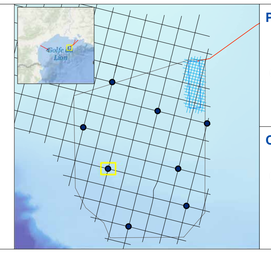
- OSS tracklines
- OWF tracklines
- Extent of the seismic profile

Seismic profile reflectors:

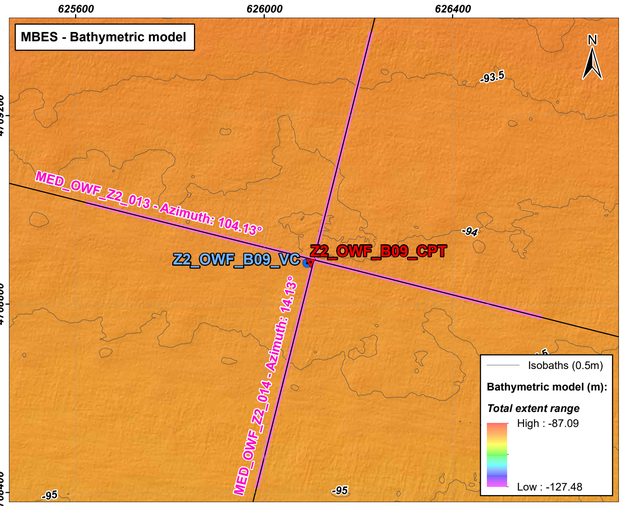
- Seabed
- Top of RGT Unit 2
- Top of RGT Unit 3
- Top of RGT Unit 4
- Top of RGT Unit 5

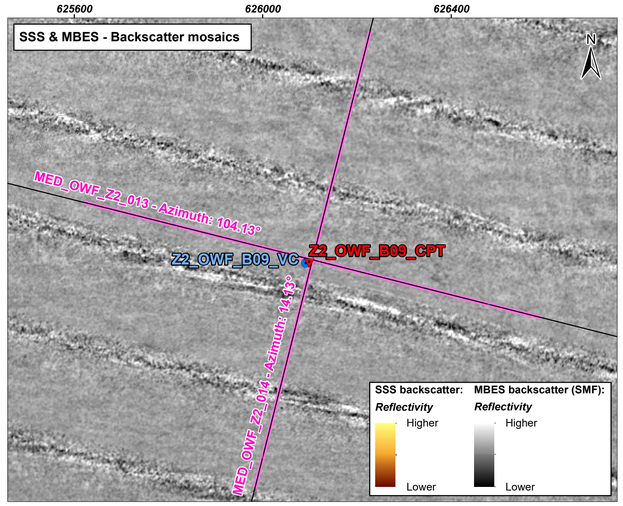
Geotechnical data:

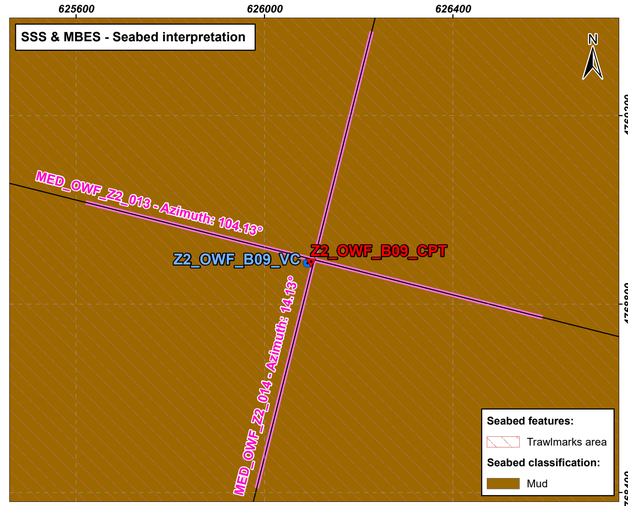
- Sand
- Silt
- Clay
- Sand and Clay
- Silt and Sand

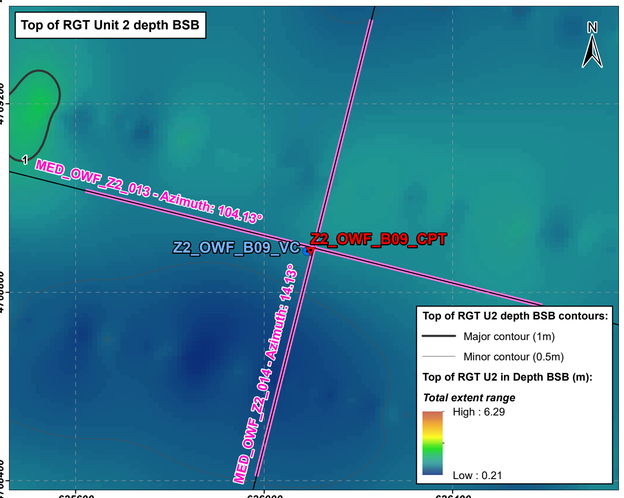


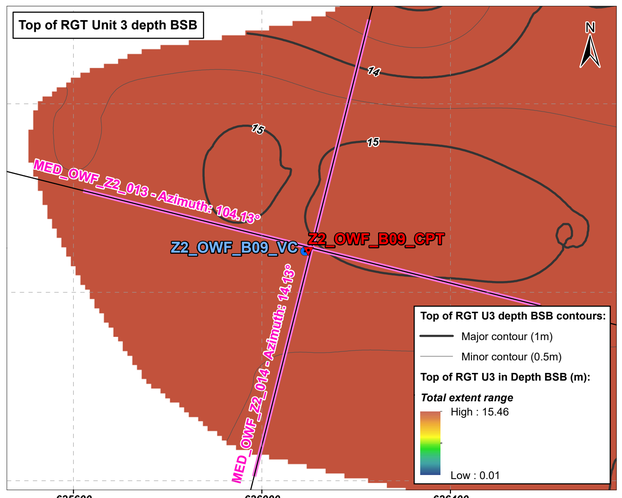
PROJECT TITLE:	AREA:	CHART:
MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION	MED_AO6 OWF Zone 2	5 / 8
CHART TITLE:	**DATE:**	**SCALE:**
GEOPHYSICAL AND GEOTECHNICAL DATA FOR BOREHOLE B07	August 2024	1:6500 DIN A1 1:13000 DIN A3

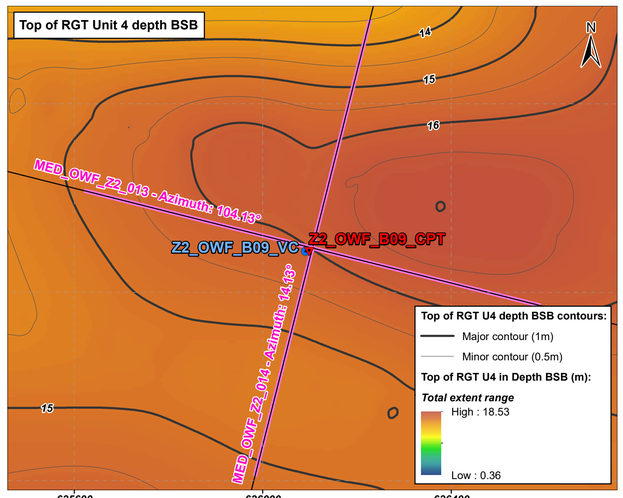


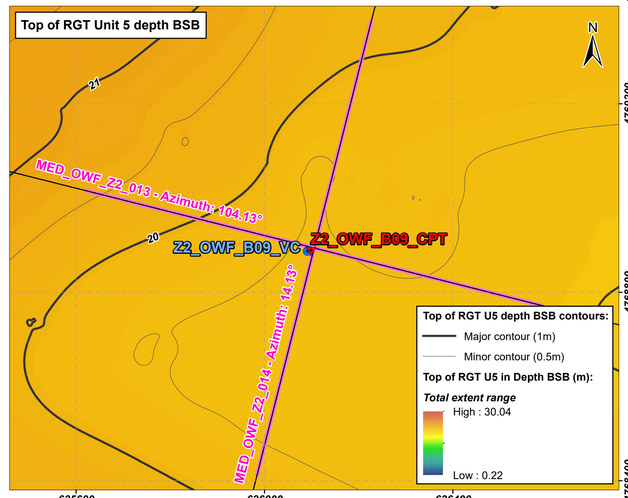


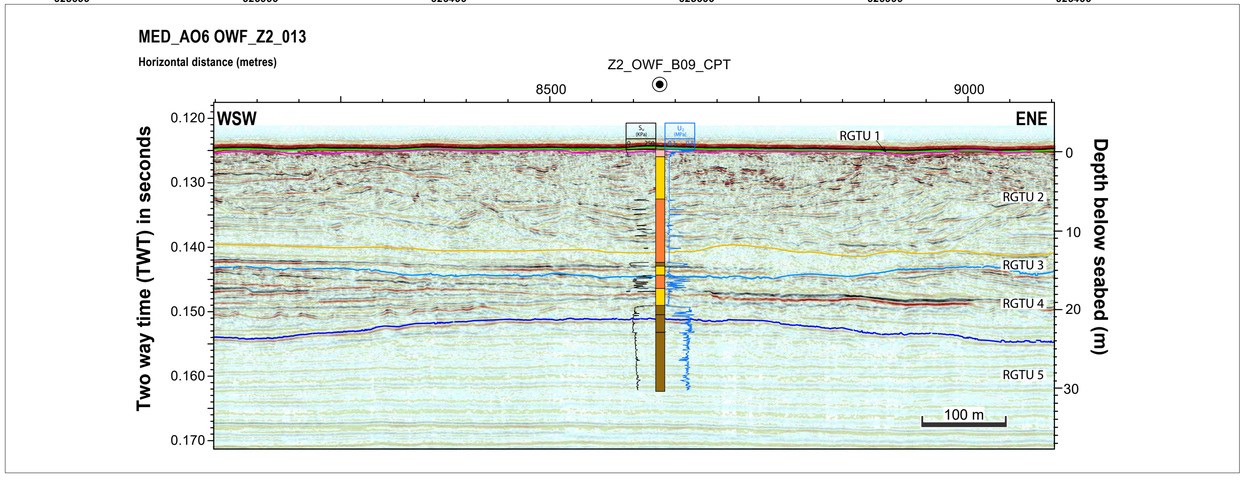


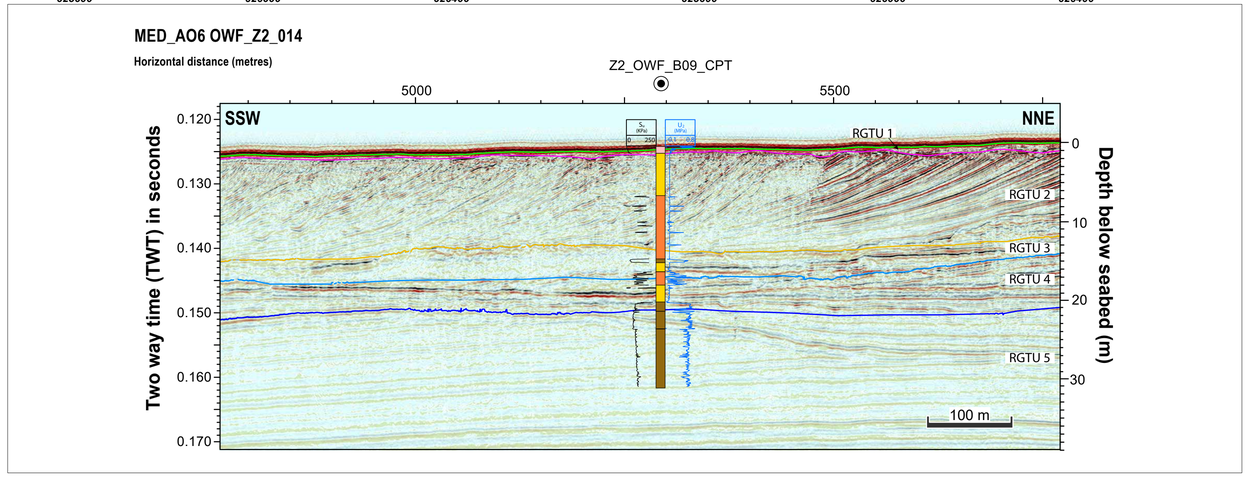












MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE
A TRADEBE COMPANY

GRAPHIC SCALE:

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

Geotechnical locations:

Borehole sampling type
- CPT
- PC
- VC

Survey areas:
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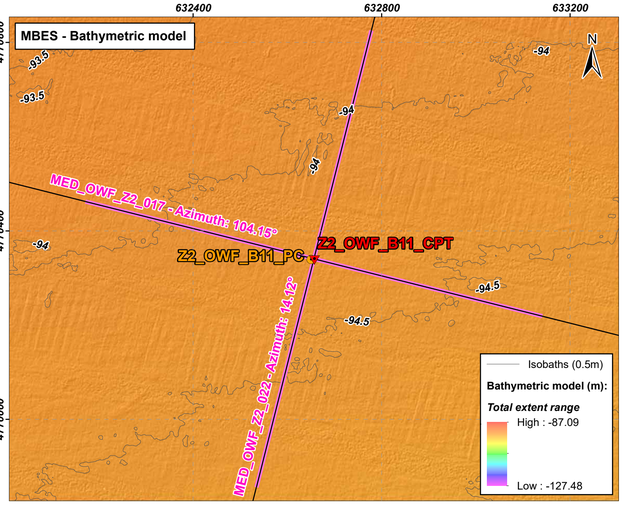
- Export Cable (EC)

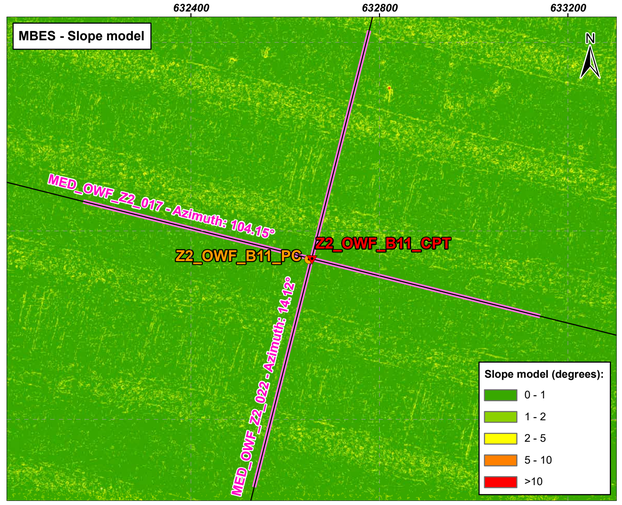
UHRS tracklines:
- OSS tracklines
- OWF tracklines
- Extent of the seismic profile

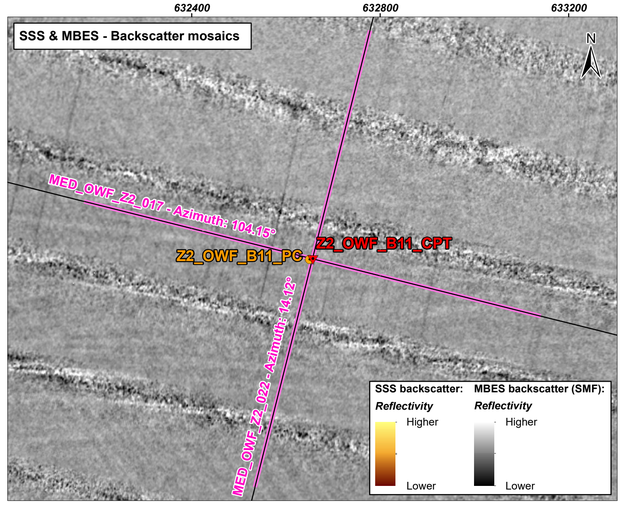
Seismic profile reflectors:
- Seabed
- Top of RGT Unit 2
- Top of RGT Unit 3
- Top of RGT Unit 4
- Top of RGT Unit 5

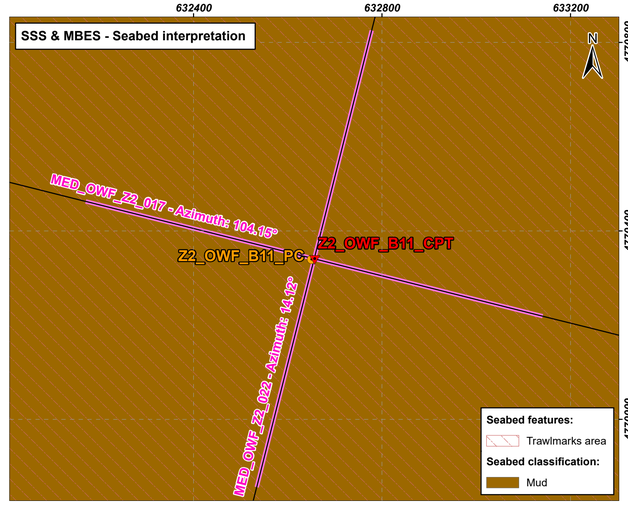
Geotechnical data:
- Sand
- Silt
- Clay
- Sand and Clay
- Silt and Sand

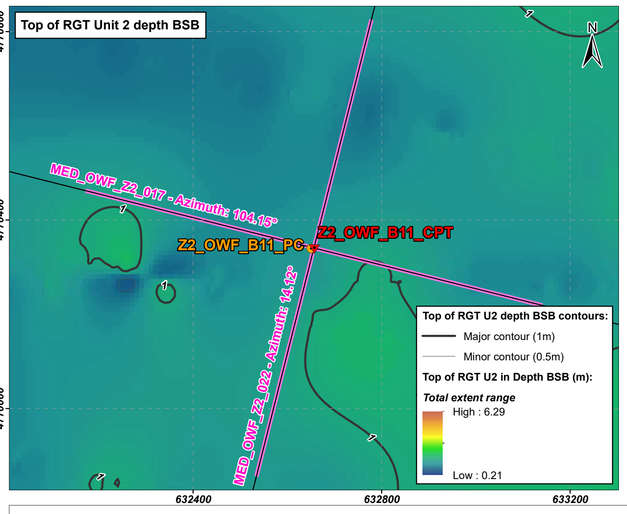
PROJECT TITLE:	AREA:	CHART:
MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION	MED_AO6 OWF Zone 2	6 / 8
CHART TITLE:	**DATE:**	**SCALE:**
GEOPHYSICAL AND GEOTECHNICAL DATA FOR BOREHOLE B09	August 2024	1:6500 DIN A1 1:13000 DIN A3

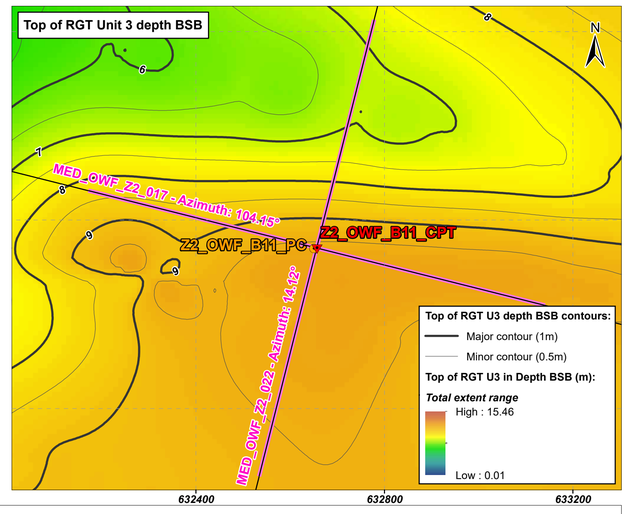


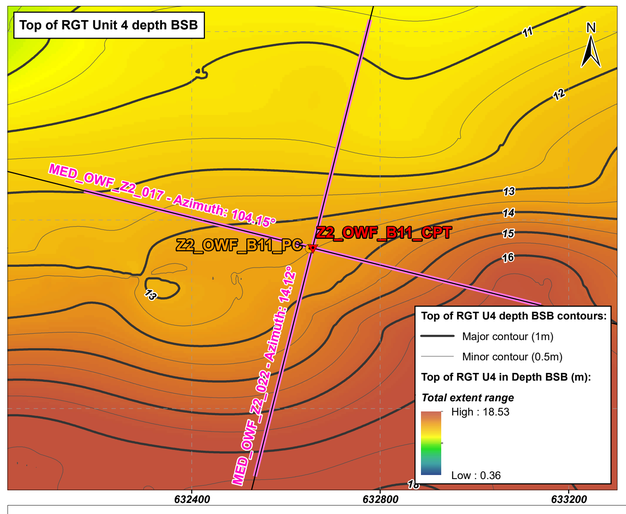


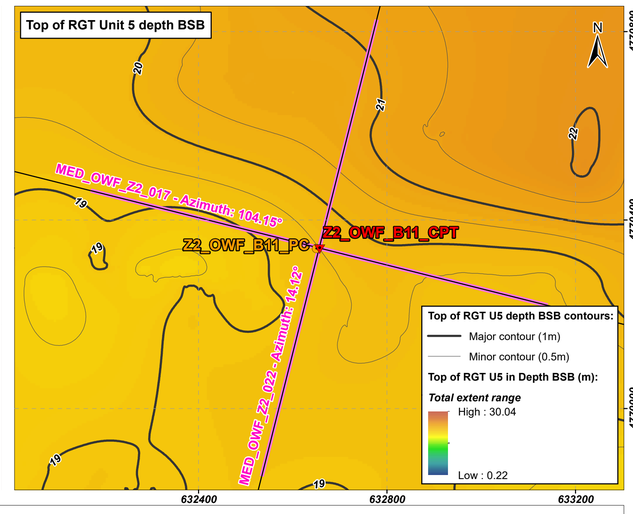


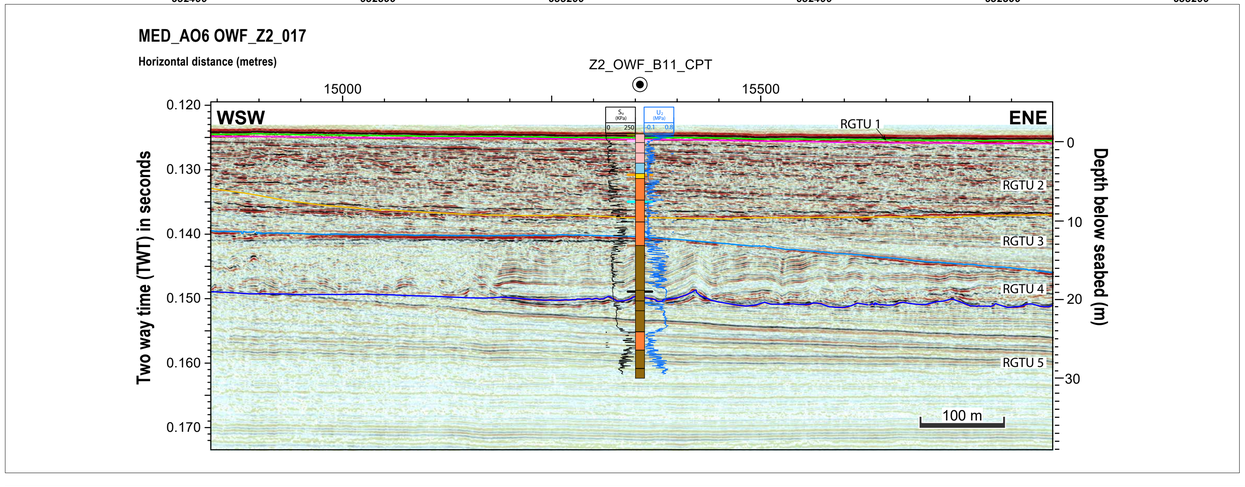


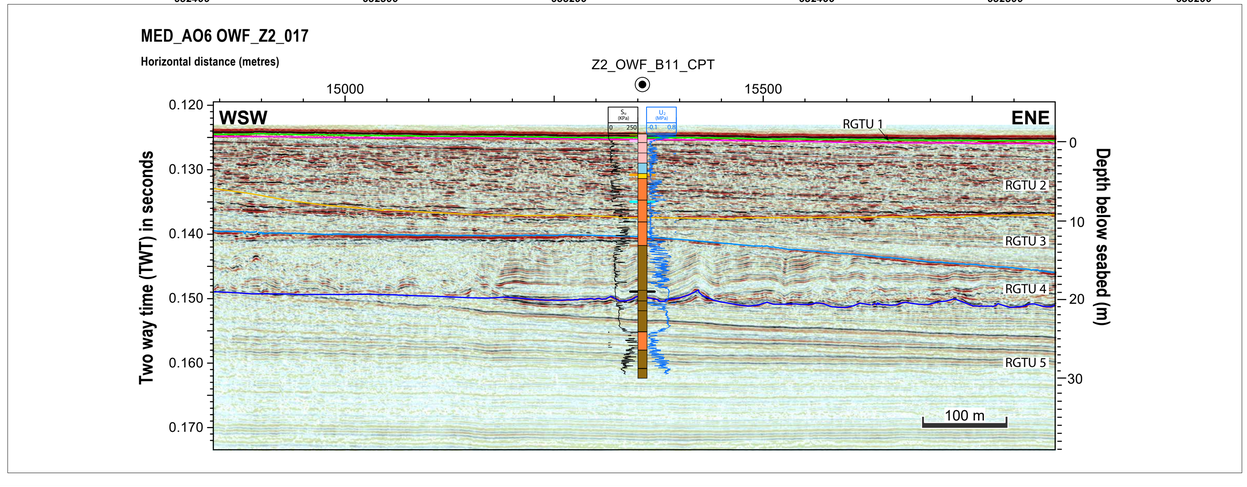












RTE

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE
A TRADEBE COMPANY

GRAPHIC SCALE:

0 125 250 500 m

0 0.05 0.1 0.2 nm

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

Geotechnical locations:

Borehole sampling type

- CPT
- PC
- VC

Survey areas:

- Offshore Substation (OSS)
- Offshore Windfarm (OWF)
- Export Cable (EC)

UHRS tracklines:

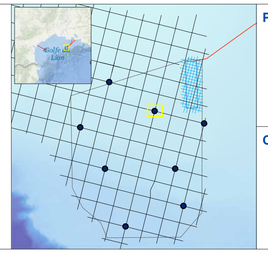
- OSS tracklines
- OWF tracklines
- Extent of the seismic profile

Seismic profile reflectors:

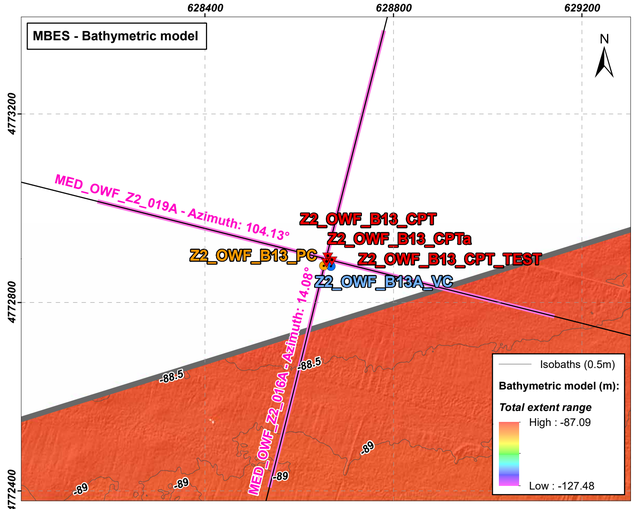
- Seabed
- Top of RGT Unit 2
- Top of RGT Unit 3
- Top of RGT Unit 4
- Top of RGT Unit 5

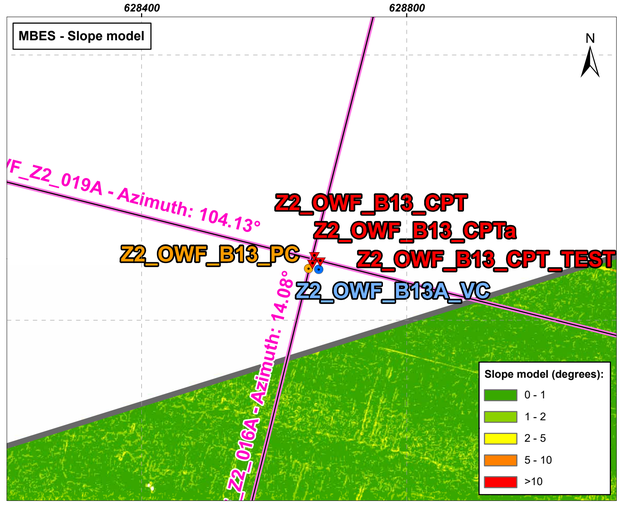
Geotechnical data:

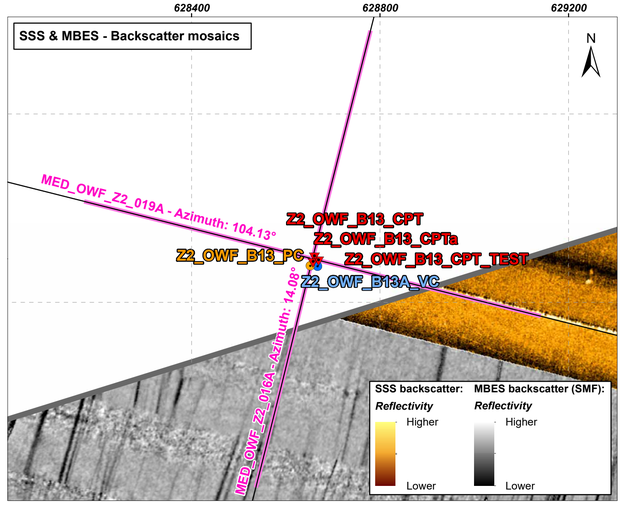
- Sand
- Silt
- Clay
- Sand and Clay
- Silt and Sand

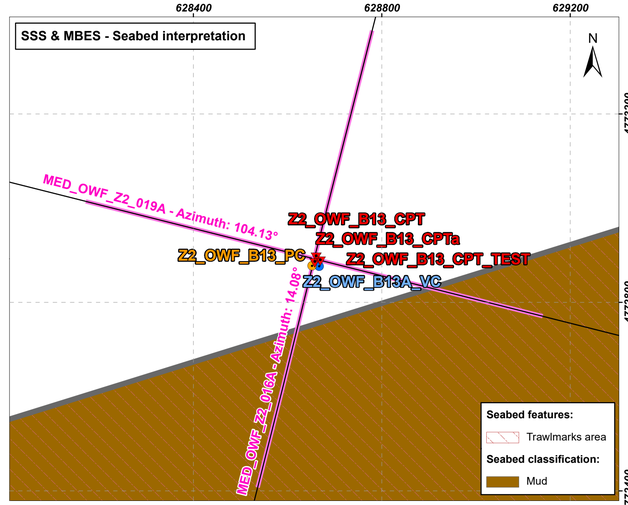


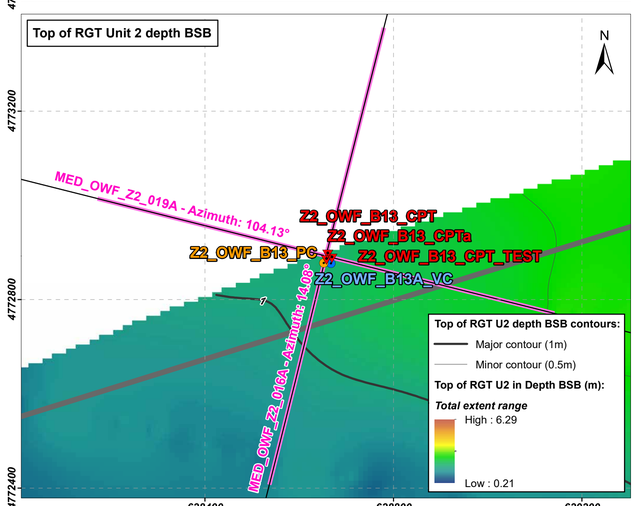
PROJECT TITLE:	AREA:	CHART:
MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION	MED_AO6 OWF Zone 2	7 / 8
CHART TITLE:	**DATE:**	**SCALE:**
GEOPHYSICAL AND GEOTECHNICAL DATA FOR BOREHOLE B11	August 2024	1:6500 DIN A1 1:13000 DIN A3

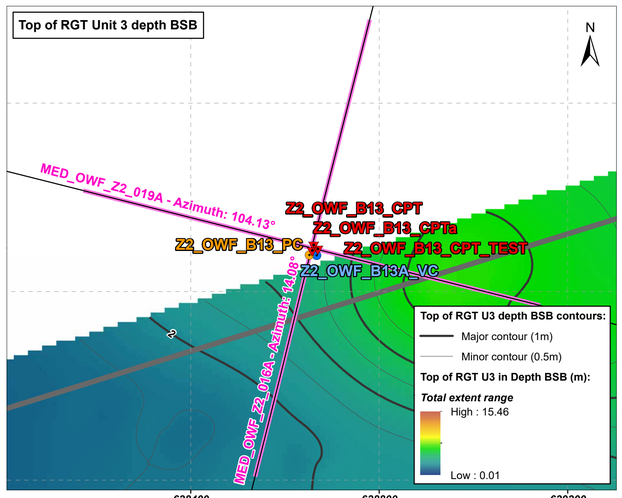


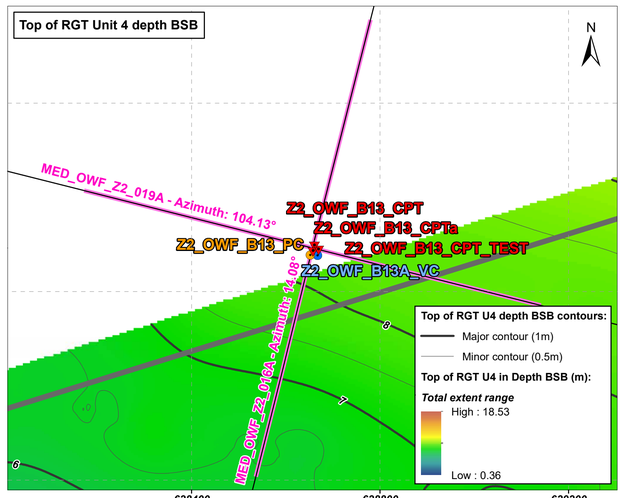


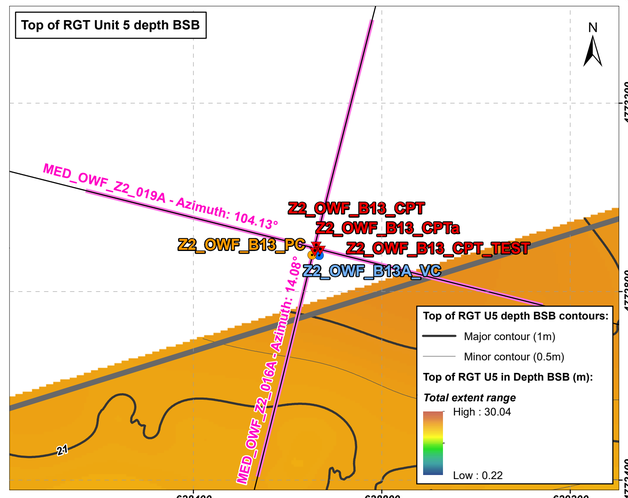


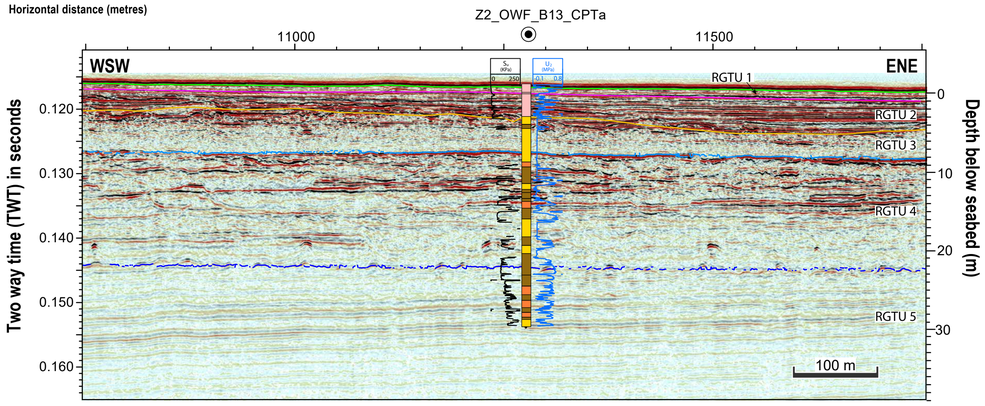


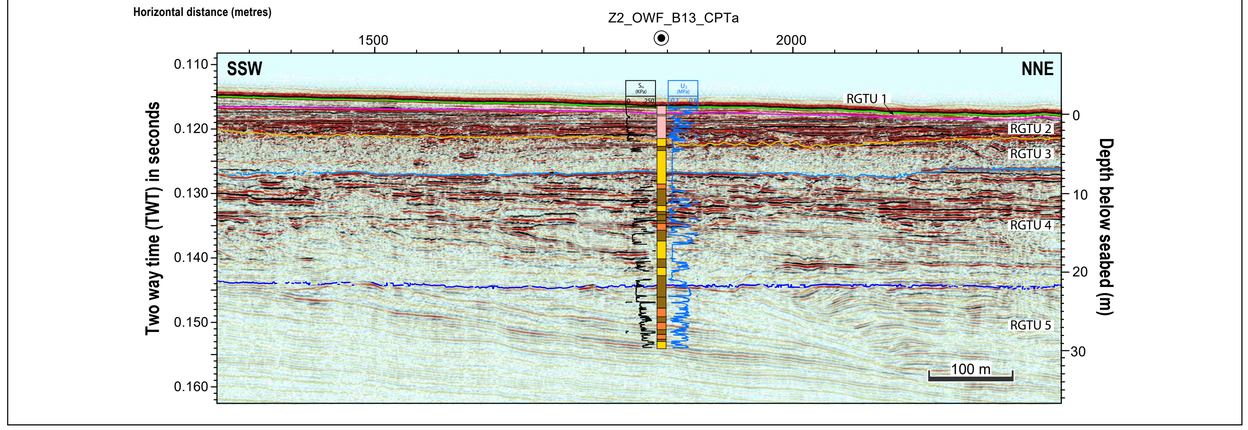












Rte

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE

TECNOAMBIENTE
A TRADEBE COMPANY

GRAPHIC SCALE:

0 125 250 500 m

0 0.05 0.1 0.2 nm

VERTICAL DATUM:	DATUM:	PROJECTION:
Elevation referred to Bathyelli v2 Geoid ZH	WGS84	UTM 31N

LEGEND:

Geotechnical locations:

Borehole sampling type

- CPT
- PC
- VC

Survey areas:

- Offshore Substation (OSS)
- Offshore Windfarm (OWF)
- Export Cable (EC)

UHRS tracklines:

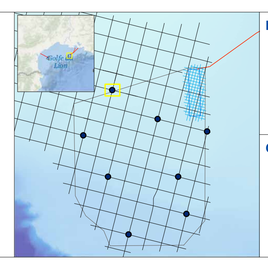
- OSS tracklines
- OWF tracklines
- Extent of the seismic profile

Seismic profile reflectors:

- Seabed
- Top of RGT Unit 2
- Top of RGT Unit 3
- Top of RGT Unit 4
- Top of RGT Unit 5

Geotechnical data:

- Sand
- Silt
- Clay
- Sand and Clay
- Silt and Sand



PROJECT TITLE:

MED_AO6 ZONE 2 AREA OFFSHORE WINDFARM GEOPHYSICAL AND GEOTECHNICAL INTEGRATION

AREA:

MED_AO6 OWF Zone 2

CHART:

8 / 8

CHART TITLE:

GEOPHYSICAL AND GEOTECHNICAL DATA FOR BOREHOLE B13 and B13A

DATE:

August 2024

SCALE:

1:6500 DIN A1
1:13000 DIN A3

APPENDIX IV – COMBINED CPT-VC-PC LOGS

DEPTH (m / ft) | SOIL PROFILE | SAMPLE NO | CPT

SOIL DESCRIPTION

0,0m Extremely low shear strength clayey SILT

... becoming very low to low shear strength sandy silt below 0.75m

0,9m Dense silty SAND
... loose down to 1.08m

1,6m Low shear strength sandy CLAY

1,7m Very dense slightly gravelly SAND
... dense down to 2.20m

... dense to very dense between 6.72m - 7.23m

CPT

Torvane_Onshore
Pocket Penetrometer_Onshore
Torvane_Offshore
Pocket Penetrometer_Offshore
CIUC Triaxal
Est. from CPT:N_{kt}=15
Est. from CPT:N_{kt}=20
UU_Onshore
UU_Onshore Rem.
Motor Vane_Onshore
Motor Vane_Onshore Rem.
Fall Cone
Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
Plastic Limit
Liquid Limit
Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B01_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	06/05/2023
		Water Depth	-95,10 m ZH
		Coordinates	E 637024,84m; N 4769227,74m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

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Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
11	36				1,7m Very dense slightly gravelly SAND *(continued)*
12	40				... becoming dense below 12.00m
13	44				13,3m Medium shear strength sandy CLAY
					13,4m Very dense gravelly SAND
14	48				14,2m Dense to very dense slightly gravelly SAND
15				CPT	... loose to medium dense below 14.95m
16	52				15,2m Medium to high shear strength sandy CLAY interbedded with medium dense silty SAND
17	56				
18	60				18,0m Medium to high shear strength sandy CLAY
19	64				18,6m Medium to high shear strength slightly sandy CLAY

▲ Torvane_Onshore ● UU_Onshore
▼ Pocket Penetrometer_Onshore ○ UU_Onshore Rem.
▲ Torvane_Offshore + Motor Vane_Onshore
▼ Pocket Penetrometer_Offshore ⊕ Motor Vane_Onshore Rem.
■ CIUC Triaxal ◆ Fall Cone
— Est. from CPT:N_{kt}=15 ◇ Fall Cone Remoulded
— Est. from CPT:N_{kt}=20

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
○ Plastic Limit
● Liquid Limit
× Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Alpha Value	0.8	Date Performed	06/05/2023
		Water Depth	-95,10 m ZH
		Coordinates	E 637024,84m; N 4769227,74m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

Z2_OWF_B01_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					18,6m Medium to high shear strength slightly sandy CLAY *(continued)*
21	68				
22	72				
					22,8m High shear strength slightly sandy CLAY
23	76				
24	80				
25				CPT	
26	84				
27	88				
28	92				
29	96				

▲ Torvane_Onshore
▼ Pocket Penetrometer_Onshore
▲ Torvane_Offshore
▼ Pocket Penetrometer_Offshore
■ CIUC Triaxal
— Est. from CPT:N_{kt}=15
— Est. from CPT:N_{kt}=20
● UU_Onshore
○ UU_Onshore Rem.
\+ Motor Vane_Onshore
⊕ Motor Vane_Onshore Rem.
◆ Fall Cone
◇ Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
○ Plastic Limit
● Liquid Limit
× Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B01_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	06/05/2023
		Water Depth	-95,10 m ZH
		Coordinates	E 637024,84m; N 4769227,74m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					Final Depth 29.94m. Depth ended due to Target Depth reached Approx. Settlement 0.79m
31	100				
32	104				
33	108				
34	112				
35	116				
36	120				
37	124				
38	128				
39					

▲ Torvane_Onshore ● UU_Onshore
▼ Pocket Penetrometer_Onshore ○ UU_Onshore Rem.
▲ Torvane_Offshore + Motor Vane_Onshore
▼ Pocket Penetrometer_Offshore ⊕ Motor Vane_Onshore Rem.
■ CIUC Triaxal ◆ Fall Cone
— Est. from CPT:N_{kt}=15 ◇ Fall Cone Remoulded
— Est. from CPT:N_{kt}=20

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
○ Plastic Limit
● Liquid Limit
× Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B01_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

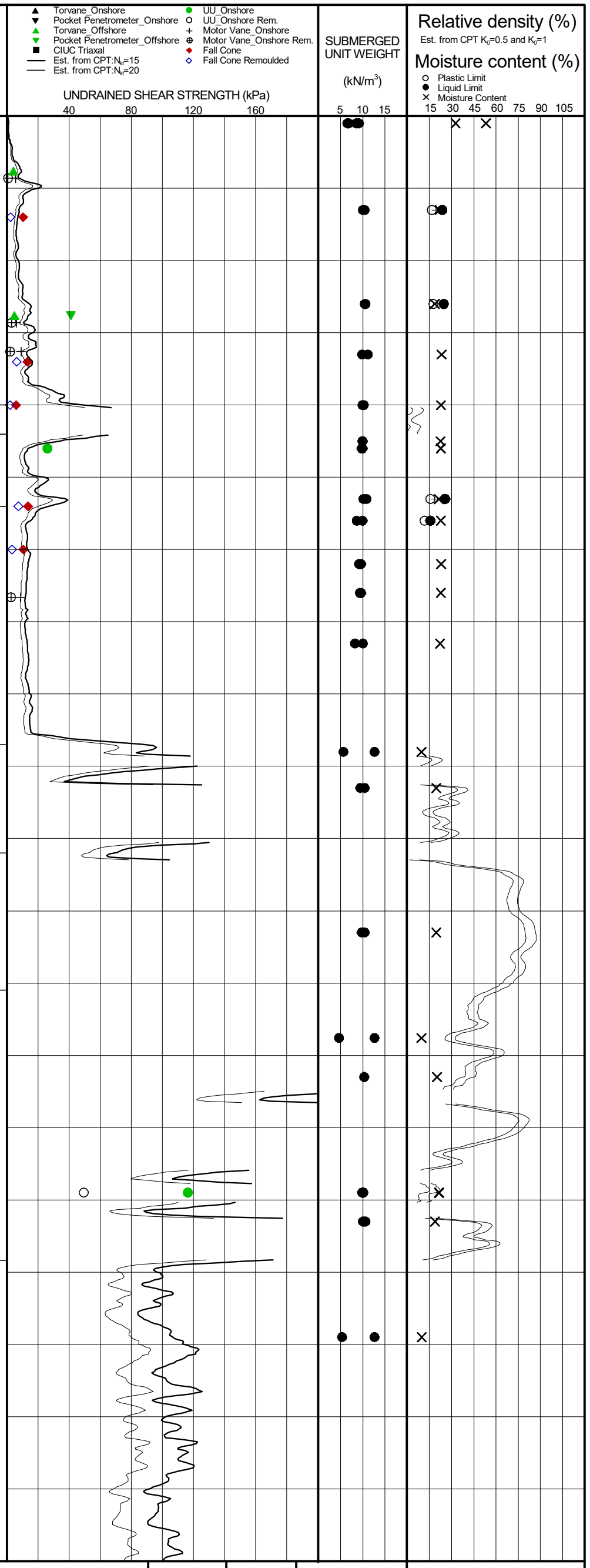
Alpha Value	0.8	Date Performed	06/05/2023
		Water Depth	-95,10 m ZH
		Coordinates	E 637024,84m; N 4769227,74m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
0					0,0m Extremely low to very low shear strength slightly sandy clayey SILT
					... becoming sandy below 0.45m
1	4				
					... becoming medium shear strength below 1.85m
2					2,0m Very loose silty SAND
	8		VC		2,2m Very low to low shear strength slightly clayey sandy SILT
3					2,7m Extremely low to very low shear strength slightly clayey SILT
	12				
4					
					4,4m Very loose to loose silty SAND with partings of low to medium shear strength clayey silt
	16			CPT	
5					5,1m Dense slightly silty SAND
6	20				6,1m Medium to high shear strength clayey SILT interbedded with loose to medium dense, locally dense, silty SAND
7	24				
8					7,9m Medium to high shear strength sandy SILT
	28				
9					
	32				



COMBINED CPT/VC LOG

Z2_OWF_B03A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	30/04/2023
		Water Depth	-108,99 m ZH
		Coordinates	E 634504,84m; N 4765192,27m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22598 / 001

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Liberté
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TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					7,9m Medium to high shear strength sandy SILT *(continued)*
11	36				
12	40				
13	44				
14	48				
15	52			CPT	
16	56				
17	60				
18	64				
19					

UNDRAINED SHEAR STRENGTH (kPa)

Torvane_Onshore
Pocket Penetrometer_Onshore
Torvane_Offshore
Pocket Penetrometer_Offshore
CIUC Triaxal
Est. from CPT:N_{kt}=15
Est. from CPT:N_{kt}=20
UU_Onshore
UU_Onshore Rem.
Motor Vane_Onshore
Motor Vane_Onshore Rem.
Fall Cone
Fall Cone Remoulded

40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3)

5 10 15

Relative density (%)

Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)

Plastic Limit
Liquid Limit
Moisture Content

15 30 45 60 75 90 105

COMBINED CPT/VC LOG

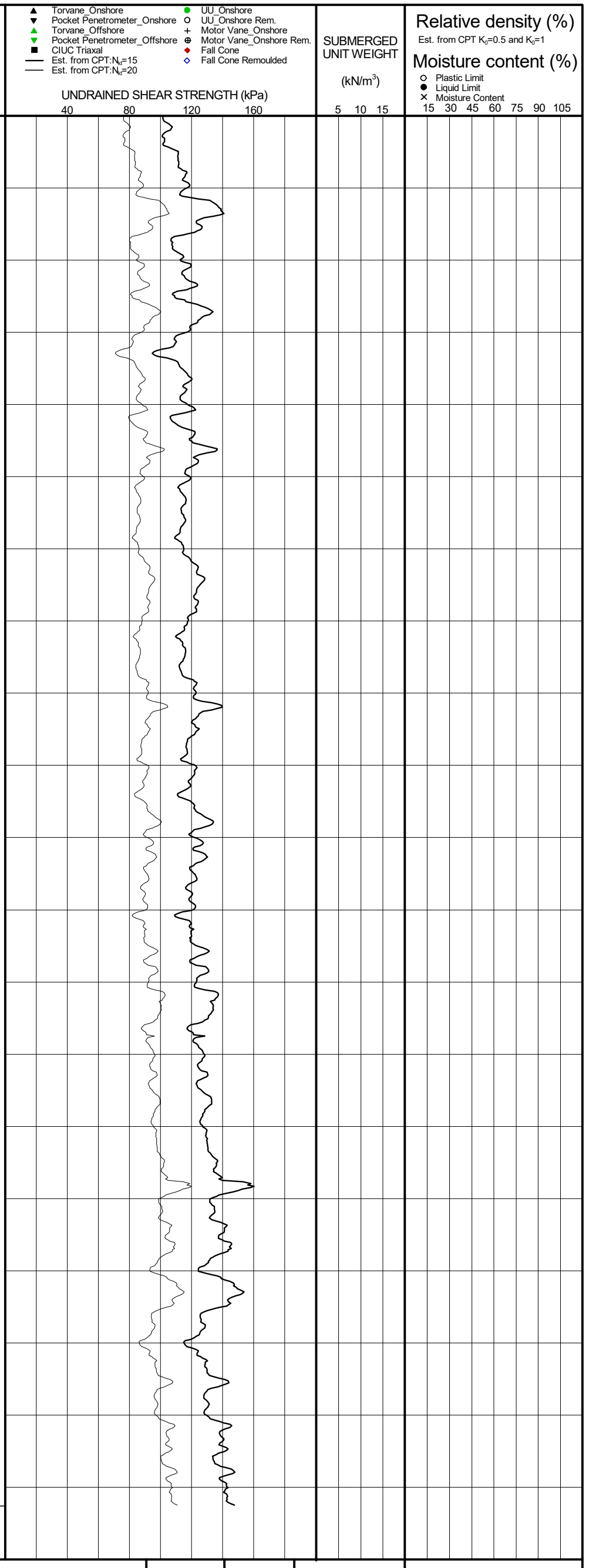
Z2_OWF_B03A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	30/04/2023
		Water Depth	-108,99 m ZH
		Coordinates	E 634504,84m; N 4765192,27m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22598 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
21	68				7,9m Medium to high shear strength sandy SILT *(continued)*
22	72				
23	76				
24	80			CPT	
25	84				
26	88				
27	92				
28	96				
29					Final Depth 29.63m. Depth ended due to Target



COMBINED CPT/VC LOG

Z2_OWF_B03A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	30/04/2023
		Water Depth	-108,99 m ZH
		Coordinates	E 634504,84m; N 4765192,27m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22598 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté
Égalité
Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					Depth reached Approx. Settlement 0.50m. Final PC Depth 3.38m. Final VC Depth 4.58m.
31	100				
32	104				
33	108				
34	112				
35	116				
36	120				
37	124				
38	128				
39					

▲ Torvane_Onshore
▼ Pocket Penetrometer_Onshore
▲ Torvane_Offshore
▼ Pocket Penetrometer_Offshore
■ CIUC Triaxal
— Est. from CPT:N_{kt}=15
— Est. from CPT:N_{kt}=20
● UU_Onshore
○ UU_Onshore Rem.
\+ Motor Vane_Onshore
⊕ Motor Vane_Onshore Rem.
◆ Fall Cone
◇ Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
○ Plastic Limit
● Liquid Limit
× Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B03A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	30/04/2023
		Water Depth	-108,99 m ZH
		Coordinates	E 634504,84m; N 4765192,27m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22598 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m ft | SOIL PROFILE | SAMPLE NO | CPT

SOIL DESCRIPTION

0,0m Extremely low shear strength slightly sandy clayey SILT

0,5m Extremely low to very low shear strength clayey SILT
... sandy silt between 0.50m - 0.55m

2,7m Very low to medium shear strength sandy SILT

3,1m Dense silty SAND

3,4m Medium shear strength slightly sandy CLAY

5,6m Medium to high shear strength slightly sandy CLAY

... sandy between 6.30m - 6.80m

CPT

Torvane_Onshore
Pocket Penetrometer_Onshore
Torvane_Offshore
Pocket Penetrometer_Offshore
CIUC Triaxal
Est. from CPT:N_{kt}=15
Est. from CPT:N_{kt}=20
UU_Onshore
UU_Onshore Rem.
Motor Vane_Onshore
Motor Vane_Onshore Rem.
Fall Cone
Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
Plastic Limit
Liquid Limit
Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Alpha Value	0.8	Date Performed	06/05/2023
		Water Depth	-119,80 m ZH
		Coordinates	E 635190,67m; N 4761968,41m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

Z2_OWF_B04_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté
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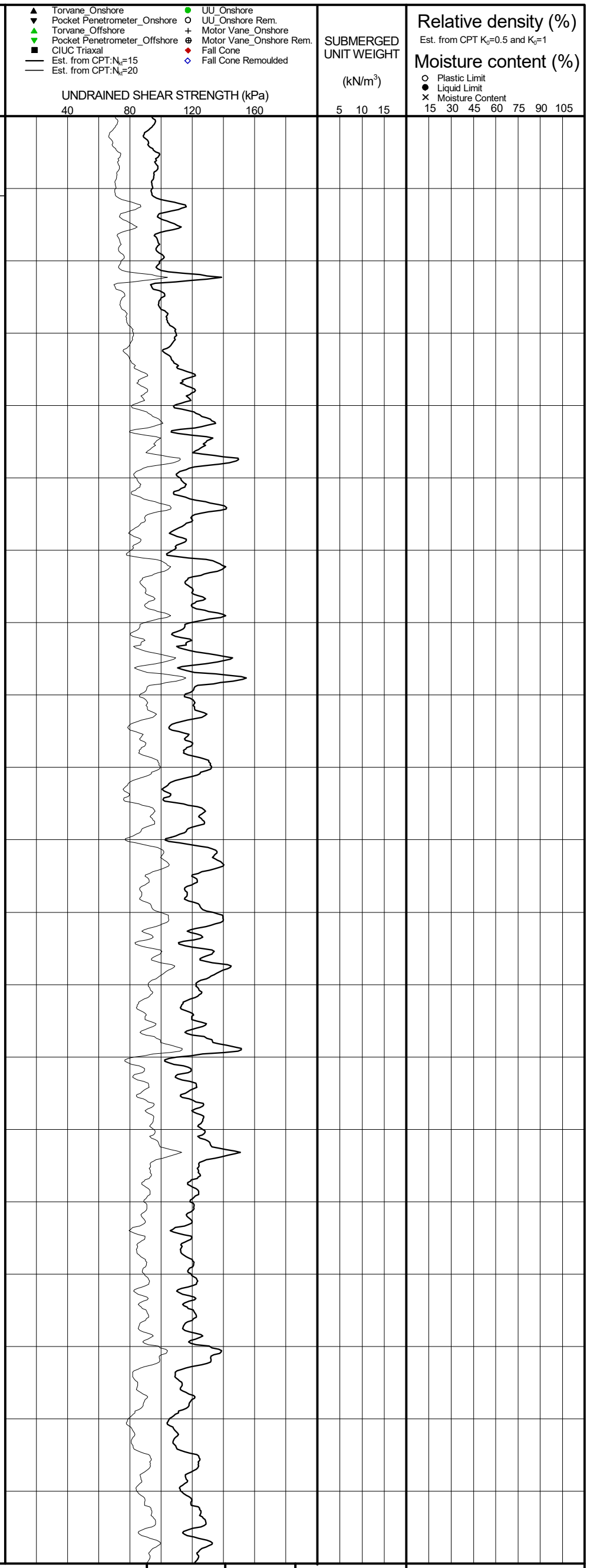
TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					5,6m Medium to high shear strength slightly sandy CLAY *(continued)*
					10,6m High shear strength slightly sandy CLAY
11	36				
12	40				... sandy between 11.90m - 16.55m
13	44				
14	48				
15				CPT	
16	52				
17	56				
18	60				
19	64				



SUBMERGED UNIT WEIGHT (kN/m³)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
Plastic Limit
Liquid Limit
Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Alpha Value	0.8	Date Performed	06/05/2023
		Water Depth	-119,80 m ZH
		Coordinates	E 635190,67m; N 4761968,41m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

Z2_OWF_B04_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
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TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					10,6m High shear strength slightly sandy CLAY *(continued)*
21	68				
22	72				
23	76				
24	80				
25	84			CPT	
26	88				
27	92				
28	96				
29					

UNDRAINED SHEAR STRENGTH (kPa)

▲ Torvane_Onshore
▼ Pocket Penetrometer_Onshore
▲ Torvane_Offshore
▼ Pocket Penetrometer_Offshore
■ CIUC Triaxal
— Est. from CPT:N_{kt}=15
— Est. from CPT:N_{kt}=20
● UU_Onshore
○ UU_Onshore Rem.
\+ Motor Vane_Onshore
⊕ Motor Vane_Onshore Rem.
◆ Fall Cone
◇ Fall Cone Remoulded

40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3)

5 10 15

Relative density (%)

Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)

○ Plastic Limit
● Liquid Limit
× Moisture Content

15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Alpha Value	0.8	Date Performed	06/05/2023
		Water Depth	-119,80 m ZH
		Coordinates	E 635190,67m; N 4761968,41m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

Z2_OWF_B04_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					Final Depth 30.0m. Depth ended due to Target Depth reached Approx. Settlement 0.81m
31	100				
32	104				
33	108				
34	112				
35	116				
36	120				
37	124				
38	128				
39					

▲ Torvane_Onshore
▼ Pocket Penetrometer_Onshore
▲ Torvane_Offshore
▼ Pocket Penetrometer_Offshore
■ CIUC Triaxal
— Est. from CPT:N_{kt}=15
— Est. from CPT:N_{kt}=20
● UU_Onshore
○ UU_Onshore Rem.
\+ Motor Vane_Onshore
⊕ Motor Vane_Onshore Rem.
◆ Fall Cone
◇ Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
○ Plastic Limit
● Liquid Limit
× Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B04_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	06/05/2023
		Water Depth	-119,80 m ZH
		Coordinates	E 635190,67m; N 4761968,41m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m ft | SOIL PROFILE | SAMPLE NO | CPT | SOIL DESCRIPTION

0,0m Extremely low shear strength slightly sandy clayey SILT

0,7m Very low to low shear strength sandy SILT

1,2m Low shear strength slightly sandy clayey SILT

2,0m Medium shear strength slightly sandy clayey SILT

4,7m Medium to high shear strength sandy clayey SILT

6,4m Medium to high shear strength clayey SILT

SAMPLE NO: VC

CPT: CPT

Torvane_Onshore
Pocket Penetrometer_Onshore
Torvane_Offshore
Pocket Penetrometer_Offshore
CIUC Triaxal
Est. from CPT:N_{kt}=15
Est. from CPT:N_{kt}=20
UU_Onshore
UU_Onshore Rem.
Motor Vane_Onshore
Motor Vane_Onshore Rem.
Fall Cone
Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
Plastic Limit
Liquid Limit
Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B05A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	03/05/2023
		Water Depth	-125,57 m ZH
		Coordinates	E 630077,47m; N 4760196,74m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

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TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m ft | SOIL PROFILE | SAMPLE NO | CPT | SOIL DESCRIPTION

Torvane_Onshore; Pocket Penetrometer_Onshore; Torvane_Offshore; Pocket Penetrometer_Offshore; CIUC Triaxal; Est. from CPT:N_{kt}=15; Est. from CPT:N_{kt}=20; UU_Onshore; UU_Onshore Rem.; Motor Vane_Onshore; Motor Vane_Onshore Rem.; Fall Cone; Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa): 40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3): 5 10 15

Relative density (%) — Est. from CPT K_0=0.5 and K_0=1

Moisture content (%): Plastic Limit; Liquid Limit; Moisture Content — 15 30 45 60 75 90 105

m	ft
11	36
12	40
13	44
14	48
15	52
16	56
17	60
18	64
19	

6,4m Medium to high shear strength clayey SILT *(continued)*

11,9m High shear strength clayey SILT

CPT

COMBINED CPT/VC LOG

Z2_OWF_B05A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	03/05/2023
		Water Depth	-125,57 m ZH
		Coordinates	E 630077,47m; N 4760196,74m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

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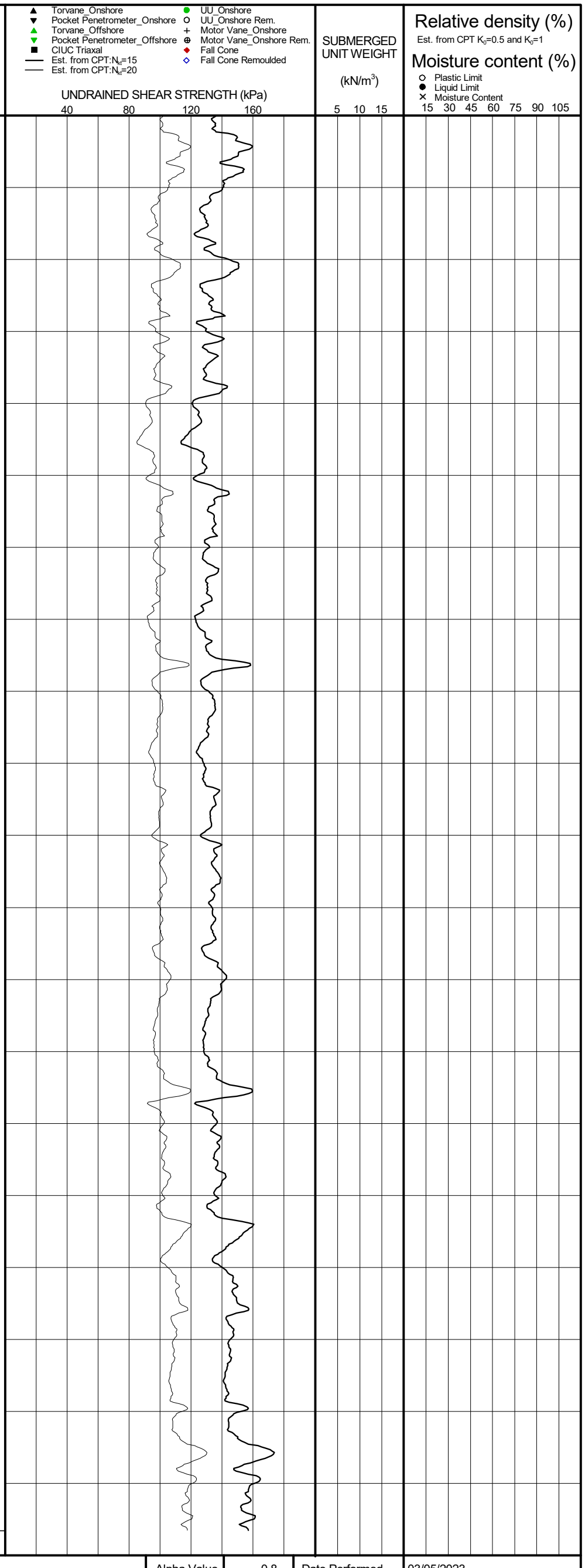
TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					11,9m High shear strength clayey SILT *(continued)*
21	68				
22	72				
23	76				
24	80				
25	84			CPT	
26	88				
27	92				
28	96				
29					



SUBMERGED UNIT WEIGHT (kN/m³)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
Plastic Limit
Liquid Limit
Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B05A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	03/05/2023
		Water Depth	-125,57 m ZH
		Coordinates	E 630077,47m; N 4760196,74m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

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TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					Final Depth 29.83m. Depth ended due to Target Depth reached Approx. Settlement 0.66m. Final PC Depth 2.86m. Final VC Depth 5.10m.

UNDRAINED SHEAR STRENGTH (kPa)

▲ Torvane_Onshore
▼ Pocket Penetrometer_Onshore
▲ Torvane_Offshore
▼ Pocket Penetrometer_Offshore
■ CIUC Triaxal
— Est. from CPT:N_{kt}=15
— Est. from CPT:N_{kt}=20
● UU_Onshore
○ UU_Onshore Rem.
\+ Motor Vane_Onshore
⊕ Motor Vane_Onshore Rem.
◆ Fall Cone
◇ Fall Cone Remoulded

40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3)

5 10 15

Relative density (%)

Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)

○ Plastic Limit
● Liquid Limit
× Moisture Content

15 30 45 60 75 90 105

m	ft
31	100
32	104
33	108
34	112
35	116
36	120
37	124
38	128
39	

COMBINED CPT/VC LOG

Z2_OWF_B05A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	03/05/2023
		Water Depth	-125,57 m ZH
		Coordinates	E 630077,47m; N 4760196,74m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

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TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m / ft | SOIL PROFILE | SAMPLE NO | CPT

SOIL DESCRIPTION

0,0m Extremely low shear strength slightly sandy clayey SILT

... very loose clayey sand between 0.75m - 0.82m

... becoming very low to medium shear strength below 1.05m

1,1m Medium to high, locally vey high, shear strength sandy CLAY interbedded with medium dense to dense silty SAND

6,0m Dense slightly silty SAND

... becoming medium dense to dense below 8.05m

9,1m High shear strength sandy CLAY interbedded with very loose to loose silty SAND

9,6m Medium shear strength slightly sandy CLAY

UNDRAINED SHEAR STRENGTH (kPa)

- Torvane_Onshore
- Pocket Penetrometer_Onshore
- Torvane_Offshore
- Pocket Penetrometer_Offshore
- CIUC Triaxal
- Est. from CPT:N_{kt}=15
- Est. from CPT:N_{kt}=20
- UU_Onshore
- UU_Onshore Rem.
- Motor Vane_Onshore
- Motor Vane_Onshore Rem.
- Fall Cone
- Fall Cone Remoulded

40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3)

5 10 15

Relative density (%)

Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)

- Plastic Limit
- Liquid Limit
- Moisture Content

15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B07_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	06/05/2023
		Water Depth	-114,24 m ZH
		Coordinates	E 628284,57m; N 4765251,63m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

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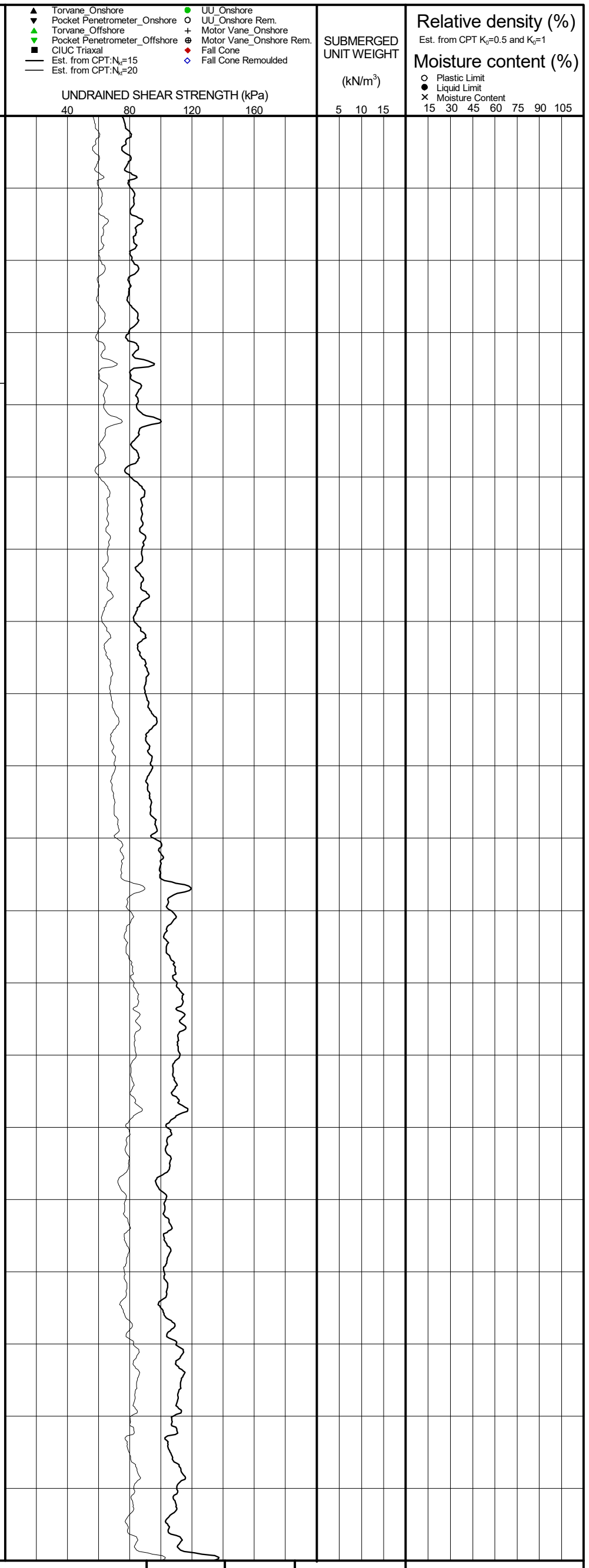
TECNOAMBIENTE
A TRADEBE COMPANY

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
11	36				9,6m Medium shear strength slightly sandy CLAY *(continued)*
12	40				11,9m High shear strength slightly sandy CLAY
13	44				
14	48				
15	52			CPT	
16	56				
17	60				
18	64				
19					



COMBINED CPT/VC LOG

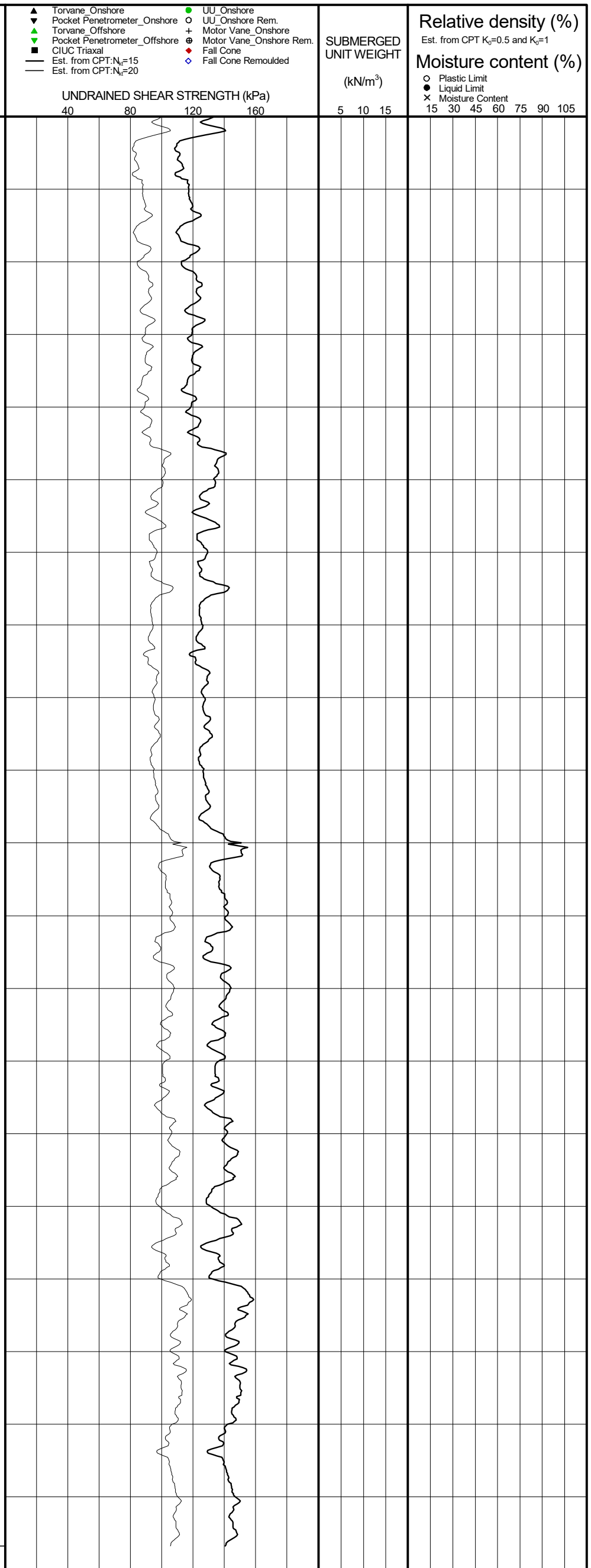
Z2_OWF_B07_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	06/05/2023
		Water Depth	-114,24 m ZH
		Coordinates	E 628284,57m; N 4765251,63m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					11,9m High shear strength slightly sandy CLAY *(continued)*
21	68				
22	72				
23	76				
24	80				
25	84				
26	88				
27	92				
28	96				
29					



SUBMERGED UNIT WEIGHT (kN/m³)

5 10 15

Relative density (%)

Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)

Plastic Limit
Liquid Limit
Moisture Content

15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Alpha Value	0.8	Date Performed	06/05/2023
		Water Depth	-114,24 m ZH
		Coordinates	E 628284,57m; N 4765251,63m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

Z2_OWF_B07_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

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Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					Final Depth 29.84m. Depth ended due to Target Depth reached Approx. Settlement 0.67m

▲ Torvane_Onshore ● UU_Onshore
▼ Pocket Penetrometer_Onshore ○ UU_Onshore Rem.
▲ Torvane_Offshore + Motor Vane_Onshore
▼ Pocket Penetrometer_Offshore ⊕ Motor Vane_Onshore Rem.
■ CIUC Triaxal ◆ Fall Cone
— Est. from CPT:N_{kt}=15 ◇ Fall Cone Remoulded
— Est. from CPT:N_{kt}=20

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1
15 30 45 60 75 90 105

Moisture content (%)
○ Plastic Limit
● Liquid Limit
× Moisture Content

m: 31 32 33 34 35 36 37 38 39
ft: 100 104 108 112 116 120 124 128

COMBINED CPT/VC LOG

Z2_OWF_B07_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	06/05/2023
		Water Depth	-114,24 m ZH
		Coordinates	E 628284,57m; N 4765251,63m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

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TECNOAMBIENTE
A TRADEBE COMPANY

DEPTH (m / ft) | SOIL PROFILE | SAMPLE NO | CPT

SOIL DESCRIPTION

0,0m Extremely low to low shear strength sandy SILT

0,8m Medium dense to dense SAND

6,1m Medium dense to dense SAND with frequent partings of low to medium, locally high, shear strength sandy CLAY

Torvane_Onshore
Pocket Penetrometer_Onshore
Torvane_Offshore
Pocket Penetrometer_Offshore
CIUC Triaxal
Est. from CPT:N_{kt}=15
Est. from CPT:N_{kt}=20
UU_Onshore
UU_Onshore Rem.
Motor Vane_Onshore
Motor Vane_Onshore Rem.
Fall Cone
Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
Plastic Limit
Liquid Limit
Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B09_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	03/05/2023
		Water Depth	-94,14 m ZH
		Coordinates	E 626098,61m; N 4768886,32m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
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TECNOAMBIENTE

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
11	36				6,1m Medium dense to dense SAND with frequent partings of low to medium, locally high, shear strength sandy CLAY *(continued)*
12	40				
13	44				
14					14,0m Low shear strength silghtly sandy CLAY
	48				14,4m Medium dense to dense silty SAND
15				CPT	... becoming loose below 15.4m
	52				15,6m Medium to high shear strength sandy CLAY interbedded with very loose to loose silty SAND
16					
17	56				17,2m Medium dense to dense silty SAND
					... high shear strength sandy clay between 17.52m -17.58m
18	60				
19					
	64				19,4m Medium to high shear strength sandy CLAY

Torvane_Onshore
Pocket Penetrometer_Onshore
Torvane_Offshore
Pocket Penetrometer_Offshore
CIUC Triaxal
Est. from CPT:N_{kt}=15
Est. from CPT:N_{kt}=20
UU_Onshore
UU_Onshore Rem.
Motor Vane_Onshore
Motor Vane_Onshore Rem.
Fall Cone
Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
Plastic Limit
Liquid Limit
Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B09_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	03/05/2023
		Water Depth	-94,14 m ZH
		Coordinates	E 626098,61m; N 4768886,32m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					19,4m Medium to high shear strength sandy CLAY *(continued)*
	68				
21					20,6m Medium shear strength silghtly sandy CLAY
	72				
22					
					22,7m Medium to high shear strength silghtly sandy CLAY
23					
	76				
24					
	80				
25				CPT	
	84				
26					
	88				
27					
	92				
28					
	96				
29					

Torvane_Onshore
Pocket Penetrometer_Onshore
Torvane_Offshore
Pocket Penetrometer_Offshore
CIUC Triaxal
Est. from CPT:N_{kt}=15
Est. from CPT:N_{kt}=20
UU_Onshore
UU_Onshore Rem.
Motor Vane_Onshore
Motor Vane_Onshore Rem.
Fall Cone
Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
Plastic Limit
Liquid Limit
Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B09_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	03/05/2023
		Water Depth	-94,14 m ZH
		Coordinates	E 626098,61m; N 4768886,32m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

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TECNOAMBIENTE
A TRADEBE COMPANY

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					Final Depth 29.80m. Depth ended due to Target Depth reached Approx. Settlement 0.57m. Final VC Depth 4.66m.

▲ Torvane_Onshore ▼ Pocket Penetrometer_Onshore ▲ Torvane_Offshore ▼ Pocket Penetrometer_Offshore ■ CIUC Triaxal — Est. from CPT:N_{kt}=15 — Est. from CPT:N_{kt}=20
● UU_Onshore ○ UU_Onshore Rem. + Motor Vane_Onshore ⊕ Motor Vane_Onshore Rem. ◆ Fall Cone ◇ Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
○ Plastic Limit ● Liquid Limit × Moisture Content
15 30 45 60 75 90 105

100	
31	
104	
32	
108	
33	
34	
112	
35	
116	
36	
120	
37	
124	
38	
39	
128	

COMBINED CPT/VC LOG

Z2_OWF_B09_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	03/05/2023
		Water Depth	-94,14 m ZH
		Coordinates	E 626098,61m; N 4768886,32m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m ft | SOIL PROFILE | SAMPLE NO | CPT

SOIL DESCRIPTION

0,0m Extremely low shear strength slightly sandy clayey SILT

0,8m Low to medium shear strength sandy SILT with partings of loose sand

2,1m Very low to low shear strength sandy SILT

3,5m Low to medium shear strength sandy SILT interbedded with very loose to loose SAND

5,0m Medium dense SAND

5,5m Low to medium shear strength sandy CLAY with frequent partings of loose silty SAND

8,4m Medium to high shear strength sandy CLAY interbedded with loose to medium dense silty SAND

▲ Torvane_Onshore
▼ Pocket Penetrometer_Onshore
▲ Torvane_Offshore
▼ Pocket Penetrometer_Offshore
■ CIUC Triaxal
— Est. from CPT:N_{kt}=15
— Est. from CPT:N_{kt}=20
● UU_Onshore
○ UU_Onshore Rem.
+ Motor Vane_Onshore
⊕ Motor Vane_Onshore Rem.
◆ Fall Cone
◇ Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m³)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
○ Plastic Limit
● Liquid Limit
× Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B11_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	29/04/2023
		Water Depth	-94,42 m ZH
		Coordinates	E 632657,34m; N 4770337,94m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22598 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité
TECNOAMBIENTE A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
11	36				8,4m Medium to high shear strength sandy CLAY interbedded with loose to medium dense silty SAND *(continued)*
12	40				11,5m Medium to high shear strength sandy CLAY interbedded with very loose to loose silty SAND
13	44				
14					13,8m Medium to high shear strength slightly sandy CLAY with occasional sand partings
15	48			CPT	
16	52				
17	56				
18	60				
19	64				19,1m Medium shear strength CLAY

Torvane_Onshore
Pocket Penetrometer_Onshore
Torvane_Offshore
Pocket Penetrometer_Offshore
CIUC Triaxal
Est. from CPT:N_{kt}=15
Est. from CPT:N_{kt}=20
UU_Onshore
UU_Onshore Rem.
Motor Vane_Onshore
Motor Vane_Onshore Rem.
Fall Cone
Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1
Moisture content (%)
Plastic Limit
Liquid Limit
Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B11_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	29/04/2023
		Water Depth	-94,42 m ZH
		Coordinates	E 632657,34m; N 4770337,94m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22598 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité
TECNOAMBIENTE A TRADEBE COMPANY

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					19,1m Medium shear strength CLAY *(continued)*
21	68				20,8m Medium to high shear strength sandy CLAY
22	72				21,8m Medium to high shear strength slightly sandy CLAY
23	76				
24	80				... sandy below 24.05m
25	84			CPT	24,5m High to very high shear strength sandy CLAY interbedded with very loose to loose silty SAND
26					
27	88				
28	92				27,6m High to very high shear strength sandy CLAY
29	96				29,0m High to very high shear strength CLAY

Torvane_Onshore
Pocket Penetrometer_Onshore
Torvane_Offshore
Pocket Penetrometer_Offshore
CIUC Triaxal
Est. from CPT:N_{kt}=15
Est. from CPT:N_{kt}=20
UU_Onshore
UU_Onshore Rem.
Motor Vane_Onshore
Motor Vane_Onshore Rem.
Fall Cone
Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
Plastic Limit
Liquid Limit
Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Alpha Value	0.8	Date Performed	29/04/2023
		Water Depth	-94,42 m ZH
		Coordinates	E 632657,34m; N 4770337,94m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22598 / 001

Z2_OWF_B11_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté
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TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					Final Depth 29.76m. Depth ended due to Target Depth reached Approx. Settlement 0.64m. Final PC Depth 4.10m.

UNDRAINED SHEAR STRENGTH (kPa)

▲ Torvane_Onshore
▼ Pocket Penetrometer_Onshore
▲ Torvane_Offshore
▼ Pocket Penetrometer_Offshore
■ CIUC Triaxal
— Est. from CPT:N_{kt}=15
— Est. from CPT:N_{kt}=20
● UU_Onshore
○ UU_Onshore Rem.
\+ Motor Vane_Onshore
⊕ Motor Vane_Onshore Rem.
◆ Fall Cone
◇ Fall Cone Remoulded

40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3)

5 10 15

Relative density (%)

Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)

○ Plastic Limit
● Liquid Limit
× Moisture Content

15 30 45 60 75 90 105

m	ft
	100
31	
	104
32	
	108
33	
	112
34	
	116
35	
	120
36	
	124
37	
	128
38	
39	

COMBINED CPT/VC LOG

Alpha Value	0.8	Date Performed	29/04/2023
		Water Depth	-94,42 m ZH
		Coordinates	E 632657,34m; N 4770337,94m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22598 / 001

Z2_OWF_B11_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH (m / ft) | SOIL PROFILE | SAMPLE NO | CPT

SOIL DESCRIPTION

0,0m Extremely low strength slightly sandy clayey SILT

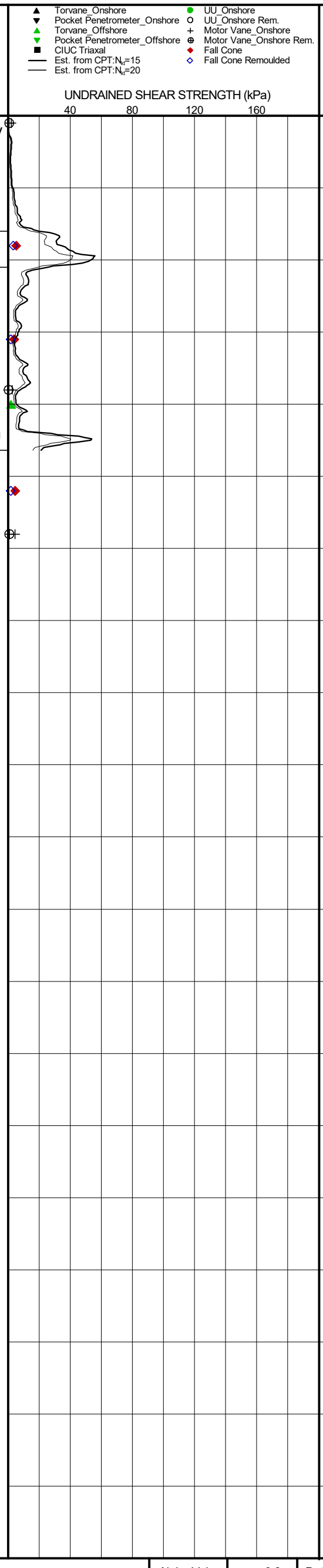
0,8m Low to medium strength sandy SILT

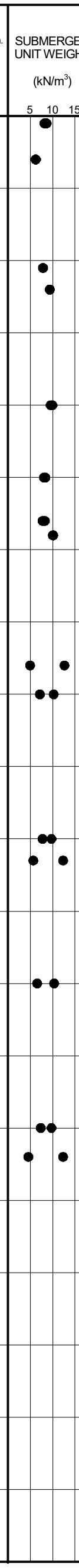
1,1m Extremely low to low strength slightly sandy clayey SILT

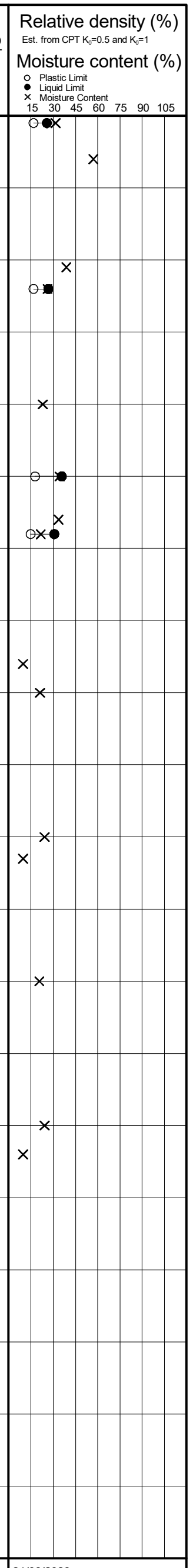
... becoming medium strength sandy below 2.25m

Final Depth 2.32m. Depth ended due to Comm. Lost
Approx. Settlement 0.58m. Final PC Depth 3.00m. Final VC Depth 4.40m.

CPT







COMBINED CPT/VC LOG

Alpha Value	0.8	Date Performed	21/03/2023
		Water Depth	-88,05 m ZH
		Coordinates	E 628660,88m; N 4772895,5m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	DS10CFIIP.S22594 / 001

Z2_OWF_B13_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté
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TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH (m / ft) | SOIL PROFILE | SAMPLE NO | CPT

SOIL DESCRIPTION

0,0m Extremely low to low shear strength slightly sandy clayey SILT

1,1m Very low to low shear strength sandy SILT

1,3m Extremely low shear strength slightly clayey sandy SILT

... becoming low to medium shear strength below 2.45m

4,1m Medium dense to dense SAND

5,0m Low to medium shear strength CLAY with partings of loose sand

5,5m Dense to very dense SAND

... becoming loose to medium dense below 8.95m

CPT

Torvane_Onshore
Pocket Penetrometer_Onshore
Torvane_Offshore
Pocket Penetrometer_Offshore
CIUC Triaxal
Est. from CPT:N_{kt}=15
Est. from CPT:N_{kt}=20
UU_Onshore
UU_Onshore Rem.
Motor Vane_Onshore
Motor Vane_Onshore Rem.
Fall Cone
Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
Plastic Limit
Liquid Limit
Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Alpha Value	0.8	Date Performed	21/03/2023
		Water Depth	-88,04 m ZH
		Coordinates	E 628669,72m; N 4772887,26m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	DS10CFIIP.S22594 / 001

Z2_OWF_B13_CPTa
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
11	36				9,8m Medium to high shear strength sandy CLAY interbedded with loose to medium dense silty SAND *(continued)*
					10,4m Medium dense to dense silty SAND
12	40				11,3m Medium shear strength sandy CLAY 11.55m -11.75m medium dense sand
					12,4m Loose to medium dense SAND ... becoming clayey below 12.80m
13	44				13,1m Dense silty SAND
14	48				13,7m Medium to high shear strength sandy CLAY with partings of loose sand
					14,4m Medium strength silty CLAY
15				CPT	14,8m High shear strength sandy CLAY interbedded with loose silty SAND
16	52				15,6m Medium shear strength CLAY below 16.45m with sand partings
17	56				17,0m Dense silty SAND @17.75m very loose clayey
18	60				@18.70m high shear strength sandy clay ... becoming loose to medium dense below 18.9m
19	64				19,1m Medium to high shear strength sandy CLAY

▲ Torvane_Onshore ▼ Pocket Penetrometer_Onshore ▲ Torvane_Offshore ▼ Pocket Penetrometer_Offshore ■ CIUC Triaxal — Est. from CPT:N_{kt}=15 — Est. from CPT:N_{kt}=20
● UU_Onshore ○ UU_Onshore Rem. + Motor Vane_Onshore ⊕ Motor Vane_Onshore Rem. ◆ Fall Cone ◇ Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
○ Plastic Limit ● Liquid Limit × Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B13_CPTa
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	21/03/2023
		Water Depth	-88,04 m ZH
		Coordinates	E 628669,72m; N 4772887,26m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	DS10CFIIP.S22594 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE A TRADEBE COMPANY

Tecnoambiente

DEPTH m / ft | SOIL PROFILE | SAMPLE NO | CPT

SOIL DESCRIPTION

20,2m Dense silty SAND
... loose clayey sand down to 20.35m

... loose clayey sand below 21.25m

21,3m Medium to high strength slightly sandy CLAY with sand partings

24,1m High shear strength sandy CLAY with sand partings

25,8m High shear strength sandy CLAY interbedded with very loose to loose silty SAND

26,6m High shear strength sandy CLAY

27,3m High shear strength sandy CLAY interbedded with very loose to medium dense silty SAND

28,2m High to very high shear strength sandy CLAY

28,9m High shear strength sandy CLAY interbedded with very loose to medium dense silty SAND

29,5m High shear strength sandy CLAY

29,8m Very loose to loose silty SAND

Torvane_Onshore
Pocket Penetrometer_Onshore
Torvane_Offshore
Pocket Penetrometer_Offshore
CIUC Triaxal
Est. from CPT:N_{kt}=15
Est. from CPT:N_{kt}=20
UU_Onshore
UU_Onshore Rem.
Motor Vane_Onshore
Motor Vane_Onshore Rem.
Fall Cone
Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
Plastic Limit
Liquid Limit
Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Alpha Value	0.8	Date Performed	21/03/2023
		Water Depth	-88,04 m ZH
		Coordinates	E 628669,72m; N 4772887,26m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	DS10CFIIP.S22594 / 001

Z2_OWF_B13_CPTa
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					Final Depth 29.79m. Depth ended due to Target Depth reached. Approx. Settlement 0.64m. Final PC Depth 3.00m. Final VC Depth 4.40m.

UNDRAINED SHEAR STRENGTH (kPa)

▲ Torvane_Onshore
▼ Pocket Penetrometer_Onshore
▲ Torvane_Offshore
▼ Pocket Penetrometer_Offshore
■ CIUC Triaxal
— Est. from CPT:N_{kt}=15
— Est. from CPT:N_{kt}=20
● UU_Onshore
○ UU_Onshore Rem.
\+ Motor Vane_Onshore
⊕ Motor Vane_Onshore Rem.
◆ Fall Cone
◇ Fall Cone Remoulded

40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3)

5 10 15

Relative density (%)

Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)

○ Plastic Limit
● Liquid Limit
× Moisture Content

15 30 45 60 75 90 105

m	ft
	100
31	
	104
32	
	108
33	
	112
34	
	116
35	
	120
36	
	124
37	
	128
38	
39	

COMBINED CPT/VC LOG

Z2_OWF_B13_CPTa
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	21/03/2023
		Water Depth	-88,04 m ZH
		Coordinates	E 628669,72m; N 4772887,26m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	DS10CFIIP.S22594 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m ft | SOIL PROFILE | SAMPLE NO | CPT | SOIL DESCRIPTION

Torvane_Onshore; Pocket Penetrometer_Onshore; Torvane_Offshore; Pocket Penetrometer_Offshore; CIUC Triaxal; Est. from CPT:N_{kt}=15; Est. from CPT:N_{kt}=20; UU_Onshore; UU_Onshore Rem.; Motor Vane_Onshore; Motor Vane_Onshore Rem.; Fall Cone; Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa): 40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3): 5 10 15

Relative density (%)

Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)

Plastic Limit; Liquid Limit; Moisture Content

15 30 45 60 75 90 105

m: 1 2 3 4 5 6 7 8 9

ft: 4 8 12 16 20 24 28 32

0,0m Extremely low shear strength slightly sandy clayey SILT

... becoming very low to low shear strength below 1.02m

1,2m Dense SAND

... loose to medium dense between 1.1m - 1.42m

... very dense between 2.55m - 3.70m

... medium dense between 4.4m - 4.53m

CPT

4,9m Medium shear strength slightly sandy clayey SILT

5,3m Medium dense to dense SAND

COMBINED CPT/VC LOG

Alpha Value	0.8	Date Performed	29/04/2023
		Water Depth	-80,82 m ZH
		Coordinates	E 626463,06m; N 4776487,28m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22598 / 001

Z2_OWF_B14A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté
Égalité
Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					5,3m Medium dense to dense SAND *(continued)*
11	36				
12	40				12,0m High to very high shear strength sandy CLAY
					12,2m Medium dense silty SAND
13	44				12,7m Medium to high shear strength sandy CLAY
					13,1m Very dense silty SAND
14	48				
15				CPT	14,9m Medium to high shear strength sandy CLAY interbedded with medium dense to dense silty SAND
	52				
16					
17	56				
18	60				
19	64				18,8m Medium shear strength sandy CLAY

▲ Torvane_Onshore ▼ Pocket Penetrometer_Onshore ▲ Torvane_Offshore ▼ Pocket Penetrometer_Offshore ■ CIUC Triaxal — Est. from CPT:N_{kt}=15 — Est. from CPT:N_{kt}=20
● UU_Onshore ○ UU_Onshore Rem. + Motor Vane_Onshore ⊕ Motor Vane_Onshore Rem. ◆ Fall Cone ◇ Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
○ Plastic Limit ● Liquid Limit × Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B14A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	29/04/2023
		Water Depth	-80,82 m ZH
		Coordinates	E 626463,06m; N 4776487,28m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22598 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
21	68				18,8m Medium shear strength sandy CLAY *(continued)*
					20,4m Medium dense silty SAND
					20,8m Medium to high shear strength sandy CLAY with partings of very loose to loose sand
22	72				
23	76				
24	80				23,6m Medium to high shear strength slightly sandy CLAY
25	84			CPT	25,0m Medium dense silty SAND ... becoming sandy CLAY below 25.42m
26					25,5m Dense to very dense silty SAND
27	88				
28	92				27,9m Medium to high shear strength sandy CLAY
29	96				29,0m High shear strength sandy CLAY interbedded with very loose to medium dense silty SAND
					Final Depth 29.67m. Depth ended due to Target

UNDRAINED SHEAR STRENGTH (kPa)

▲ Torvane_Onshore
▼ Pocket Penetrometer_Onshore
▲ Torvane_Offshore
▼ Pocket Penetrometer_Offshore
■ CIUC Triaxal
— Est. from CPT:N_{kt}=15
— Est. from CPT:N_{kt}=20
● UU_Onshore
○ UU_Onshore Rem.
\+ Motor Vane_Onshore
⊕ Motor Vane_Onshore Rem.
◆ Fall Cone
◇ Fall Cone Remoulded

40 80 120 160

SUBMERGED UNIT WEIGHT

(kN/m^3)

5 10 15

Relative density (%)

Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)

○ Plastic Limit
● Liquid Limit
× Moisture Content

15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B14A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	29/04/2023
		Water Depth	-80,82 m ZH
		Coordinates	E 626463,06m; N 4776487,28m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22598 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté
Égalité
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TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					Depth reached Approx. Settlement 0.60m. Final VC Depth 4.56m.
31	100				
32	104				
33	108				
34	112				
35	116				
36	120				
37	124				
38	128				
39					

▲ Torvane_Onshore ● UU_Onshore
▼ Pocket Penetrometer_Onshore ○ UU_Onshore Rem.
▲ Torvane_Offshore + Motor Vane_Onshore
▼ Pocket Penetrometer_Offshore ⊕ Motor Vane_Onshore Rem.
■ CIUC Triaxal ◆ Fall Cone
— Est. from CPT:N_{kt}=15 ◇ Fall Cone Remoulded
— Est. from CPT:N_{kt}=20

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
○ Plastic Limit
● Liquid Limit
× Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B14A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	29/04/2023
		Water Depth	-80,82 m ZH
		Coordinates	E 626463,06m; N 4776487,28m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22598 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH (m / ft) | SOIL PROFILE | SAMPLE NO | CPT

SOIL DESCRIPTION

0,0m Extremely low to very low shear strength slightly sandy clayey SILT

0,4m Dense to very dense gravelly SAND

... becoming very dense below 1.25m

2,7m Medium dense to dense slightly gravelly SAND
... sandy clay between 2.78m - 2.86m

3,2m Very dense to dense silty SAND
... gravelly down to 3.45m

4,4m Medium dense to dense silty SAND interbedded with high to very high shear strength sandy CLAY

... medium shear strength between 8.60m - 8.65m

8,7m Medium dense silty SAND

CPT

Torvane_Onshore
Pocket Penetrometer_Onshore
Torvane_Offshore
Pocket Penetrometer_Offshore
CIUC Triaxal
Est. from CPT:N_{kt}=15
Est. from CPT:N_{kt}=20
UU_Onshore
UU_Onshore Rem.
Motor Vane_Onshore
Motor Vane_Onshore Rem.
Fall Cone
Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
Plastic Limit
Liquid Limit
Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Alpha Value	0.8	Date Performed	29/04/2023
		Water Depth	-83,46 m ZH
		Coordinates	E 624295,46m; N 4773987,6m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22598 / 001

Z2_OWF_B15_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
11	36				10,0m Loose to medium dense silty SAND interbedded with high shear strength sandy CLAY
12	40				11,8m Loose to medium dense silty SAND
13	44				13,6m Medium to high shear strength sandy CLAY interbedded with medium dense SAND
14	48				14,5m Medium dense SAND
15				CPT	
16	52				15,5m Dense to very dense silty SAND
17	56				
18	60				
19	64				

▲ Torvane_Onshore
▼ Pocket Penetrometer_Onshore
▲ Torvane_Offshore
▼ Pocket Penetrometer_Offshore
■ CIUC Triaxal
— Est. from CPT:N_{kt}=15
— Est. from CPT:N_{kt}=20
● UU_Onshore
○ UU_Onshore Rem.
\+ Motor Vane_Onshore
⊕ Motor Vane_Onshore Rem.
◆ Fall Cone
◇ Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
○ Plastic Limit
● Liquid Limit
× Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B15_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	29/04/2023
		Water Depth	-83,46 m ZH
		Coordinates	E 624295,46m; N 4773987,6m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22598 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
21	68				15,5m Dense to very dense silty SAND *(continued)*
22	72				21,5m Medium dense to dense, locally very dense, silty SAND with occasional high to very high shear strength clay partings
23	76			CPT	
24	80				
25	84				
26	88				25,7m Dense silty slightly silty SAND ... becoming very dense below 26.7m
27					
28	92				Final Depth 27.32m. Depth ended due to High Risk of Breakage Approx. Settlement 0.45m
29	96				

UNDRAINED SHEAR STRENGTH (kPa)

▲ Torvane_Onshore
▼ Pocket Penetrometer_Onshore
▲ Torvane_Offshore
▼ Pocket Penetrometer_Offshore
■ CIUC Triaxal
— Est. from CPT:N_{kt}=15
— Est. from CPT:N_{kt}=20
● UU_Onshore
○ UU_Onshore Rem.
\+ Motor Vane_Onshore
⊕ Motor Vane_Onshore Rem.
◆ Fall Cone
◇ Fall Cone Remoulded

40 80 120 160

SUBMERGED UNIT WEIGHT

(kN/m^3)

5 10 15

Relative density (%)

Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)

○ Plastic Limit
● Liquid Limit
× Moisture Content

15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B15_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	29/04/2023
		Water Depth	-83,46 m ZH
		Coordinates	E 624295,46m; N 4773987,6m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22598 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

DEPTH m ft | SOIL PROFILE | SAMPLE NO | CPT

SOIL DESCRIPTION

0,0m Extremely low to very low shear strength slightly sandy clayey SILT

0,8m Very loose to loose silty SAND interbedded with very low to low shear strength clayey SILT

1,6m Medium dense to dense slightly silty SAND interbedded with medium to high shear strength clayey SILT

3,9m Low to medium shear strength sandy SILT

6,8m Medium dense to dense SAND

... becoming silty below 7.9m

... medium shear strength sandy clay below 9.42m

9,5m Dense to very dense SAND

UNDRAINED SHEAR STRENGTH (kPa)

- Torvane_Onshore
- Pocket Penetrometer_Onshore
- Torvane_Offshore
- Pocket Penetrometer_Offshore
- CIUC Triaxal
- Est. from CPT:N_{kt}=15
- Est. from CPT:N_{kt}=20
- UU_Onshore
- UU_Onshore Rem.
- Motor Vane_Onshore
- Motor Vane_Onshore Rem.
- Fall Cone
- Fall Cone Remoulded

40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3)

5 10 15

Relative density (%)

Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)

- Plastic Limit
- Liquid Limit
- Moisture Content

15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Alpha Value	0.8	Date Performed	03/05/2023
		Water Depth	-89,37 m ZH
		Coordinates	E 618838,51m; N 4770756,04m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	DS10CFIIP.S22602 / 001

Z2_OWF_B18A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m ft | SOIL PROFILE | SAMPLE NO | CPT | SOIL DESCRIPTION

Torvane_Onshore; Pocket Penetrometer_Onshore; Torvane_Offshore; Pocket Penetrometer_Offshore; CIUC Triaxal; Est. from CPT:N_{kt}=15; Est. from CPT:N_{kt}=20; UU_Onshore; UU_Onshore Rem.; Motor Vane_Onshore; Motor Vane_Onshore Rem.; Fall Cone; Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa): 40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3): 5 10 15

Relative density (%) — Est. from CPT K_0=0.5 and K_0=1

Moisture content (%): Plastic Limit; Liquid Limit; Moisture Content — 15 30 45 60 75 90 105

m	ft
11	36
12	40
13	44
14	48
15	52
16	56
17	60
18	64
19	

CPT

9,5m Dense to very dense SAND *(continued)*

... medium dense between 11.05m - 11.34m

12,0m Medium dense to dense slightly silty SAND

15,3m Dense to very dense silty SAND

... becoming medium dense to dense below 16.85m

17,5m Medium to high shear strength sandy CLAY

17,7m Medium dense to dense slightly silty SAND

... becoming very loose to loose below 18.9m

19,0m Medium shear strength sandy CLAY

19,2m Loose to medium dense slightly silty SAND

COMBINED CPT/VC LOG

Alpha Value	0.8	Date Performed	03/05/2023
		Water Depth	-89,37 m ZH
		Coordinates	E 618838,51m; N 4770756,04m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	DS10CFIIP.S22602 / 001

Z2_OWF_B18A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					20,0m Medium to high shear strength sandy CLAY *(continued)*
					20,3m Medium dense slightly silty SAND
21	68				
					21,7m Medium to very high shear strength sandy CLAY
22	72				22,0m Medium dense SAND
23	76				
					23,4m Very loose to loose silty SAND interbedded with medium to high shear strength sandy CLAY
24	80				23,9m Low to medium shear strength sandy CLAY
					24,5m Medium dense SAND
25				CPT	
	84				
26					26,0m Medium to high shear strength sandy CLAY
	88				26,7m Medium to high shear strength slightly sandy CLAY
27					
28	92				
29	96				

UNDRAINED SHEAR STRENGTH (kPa)

▲ Torvane_Onshore
▼ Pocket Penetrometer_Onshore
▲ Torvane_Offshore
▼ Pocket Penetrometer_Offshore
■ CIUC Triaxal
Est. from CPT:N_{kt}=15
Est. from CPT:N_{kt}=20
● UU_Onshore
○ UU_Onshore Rem.
+ Motor Vane_Onshore
⊕ Motor Vane_Onshore Rem.
◆ Fall Cone
◇ Fall Cone Remoulded

40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3)

5 10 15

Relative density (%)

Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)

○ Plastic Limit
● Liquid Limit
× Moisture Content

15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B18A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	03/05/2023
		Water Depth	-89,37 m ZH
		Coordinates	E 618838,51m; N 4770756,04m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	DS10CFIIP.S22602 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					Final Depth 29.83m. Depth ended due to Target Depth reached Approx. Settlement 0.71m. Final VC Depth 5.32m.
31	100				
32	104				
33	108				
34	112				
35	116				
36	120				
37	124				
38	128				
39					

UNDRAINED SHEAR STRENGTH (kPa)

▲ Torvane_Onshore
▼ Pocket Penetrometer_Onshore
▲ Torvane_Offshore
▼ Pocket Penetrometer_Offshore
■ CIUC Triaxal
— Est. from CPT:N_{kt}=15
— Est. from CPT:N_{kt}=20
● UU_Onshore
○ UU_Onshore Rem.
\+ Motor Vane_Onshore
⊕ Motor Vane_Onshore Rem.
◆ Fall Cone
◇ Fall Cone Remoulded

40 80 120 160

SUBMERGED UNIT WEIGHT

(kN/m^3)

5 10 15

Relative density (%)

Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)

○ Plastic Limit
● Liquid Limit
× Moisture Content

15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B18A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	03/05/2023
		Water Depth	-89,37 m ZH
		Coordinates	E 618838,51m; N 4770756,04m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	DS10CFIIP.S22602 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
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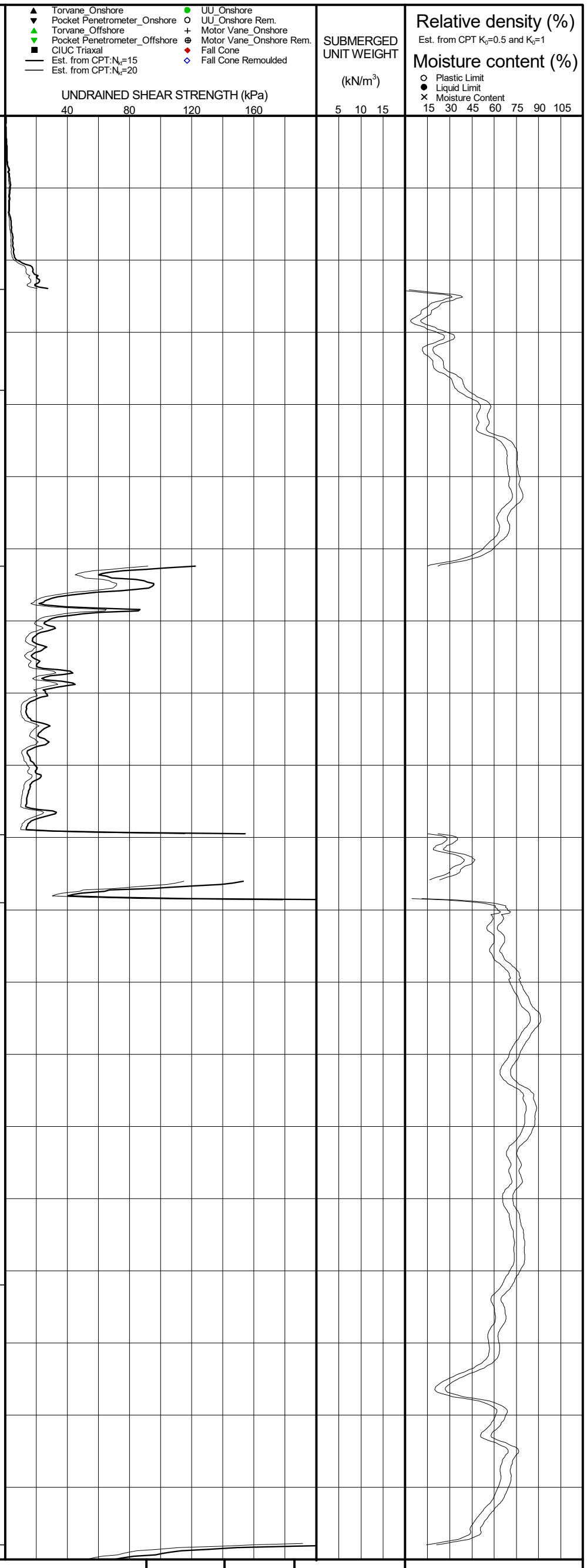
Égalité
Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
0	0				0,0m Extremely low shear strength slightly sandy clayey SILT
1	4				... becoming very low shear strength sandy clay below 1.0m
					1,2m Very loose to loose silty SAND
2	8				1,9m Medium dense silty SAND
3	12				3,1m Very low to low shear strength silty CLAY ... low to medium shear strength sandy clay down to 3.5m
4	16				
5	20			CPT	5,0m Loose to medium dense clayey SAND
6	24				5,5m Dense SAND
7	28				
8	32				8,1m Medium dense silty SAND
9					



COMBINED CPT/VC LOG

Z2_OWF_B19A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	05/05/2023
		Water Depth	-83,40 m ZH
		Coordinates	E 619896,41m; N 4775039,43m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté
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TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
11	36				9,9m Low shear strength sandy CLAY interbedded with dense silty SAND *(continued)*
12	40				11,3m Very dense gravelly SAND
13	44				12,4m Medium to high shear strength sandy CLAY interbedded with medium dense to dense silty SAND
14					13,4m Low to medium shear strength sandy CLAY with occasional sand partings of very loose sand
15	48			CPT	
16	52				
17	56				16,5m Medium shear strength slightly sandy silty CLAY
18	60				
19	64				

▲ Torvane_Onshore ▼ Pocket Penetrometer_Onshore ▲ Torvane_Offshore ▼ Pocket Penetrometer_Offshore ■ CIUC Triaxal — Est. from CPT:N_{kt}=15 — Est. from CPT:N_{kt}=20

● UU_Onshore ○ UU_Onshore Rem. + Motor Vane_Onshore ⊕ Motor Vane_Onshore Rem. ◆ Fall Cone ◇ Fall Cone Remoulded

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT (kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
○ Plastic Limit ● Liquid Limit × Moisture Content
15 30 45 60 75 90 105

COMBINED CPT/VC LOG

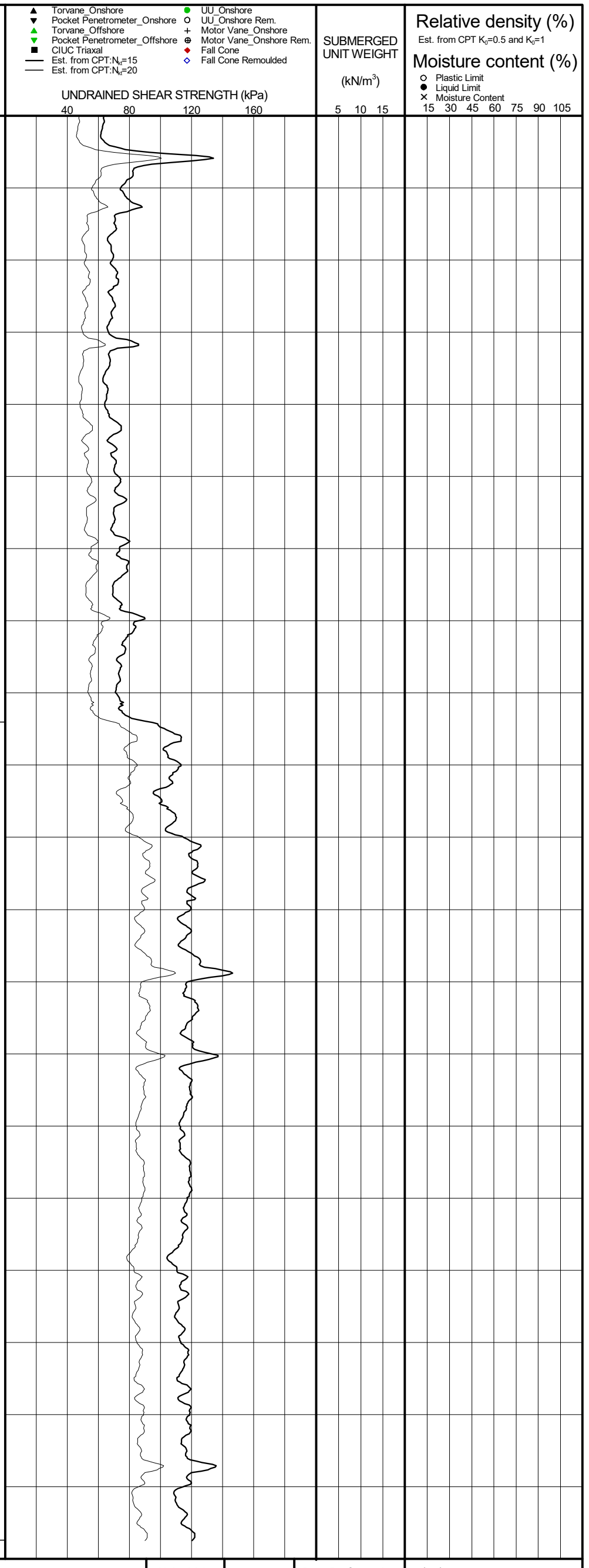
Z2_OWF_B19A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	05/05/2023
		Water Depth	-83,40 m ZH
		Coordinates	E 619896,41m; N 4775039,43m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					16,5m Medium shear strength slightly sandy silty CLAY *(continued)*
21	68				
22	72				
23	76				
24	80				24,2m High shear strength slightly sandy silty CLAY
25	84			CPT	
26	88				
27	92				
28	96				
29					



SUBMERGED UNIT WEIGHT (kN/m³)

5 10 15

Relative density (%)

Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)

Plastic Limit
Liquid Limit
Moisture Content

15 30 45 60 75 90 105

COMBINED CPT/VC LOG

Z2_OWF_B19A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	05/05/2023
		Water Depth	-83,40 m ZH
		Coordinates	E 619896,41m; N 4775039,43m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté
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TECNOAMBIENTE
A TRADEBE COMPANY

DEPTH m	DEPTH ft	SOIL PROFILE	SAMPLE NO	CPT	SOIL DESCRIPTION
					Final Depth 29.87m. Depth ended due to Target Depth reached Approx. Settlement 0.74m

▲ Torvane_Onshore ● UU_Onshore
▼ Pocket Penetrometer_Onshore ○ UU_Onshore Rem.
▲ Torvane_Offshore + Motor Vane_Onshore
▼ Pocket Penetrometer_Offshore ⊕ Motor Vane_Onshore Rem.
■ CIUC Triaxal ◆ Fall Cone
— Est. from CPT:N_{kt}=15 ◇ Fall Cone Remoulded
— Est. from CPT:N_{kt}=20

UNDRAINED SHEAR STRENGTH (kPa)
40 80 120 160

SUBMERGED UNIT WEIGHT
(kN/m^3)
5 10 15

Relative density (%)
Est. from CPT K_0=0.5 and K_0=1

Moisture content (%)
○ Plastic Limit
● Liquid Limit
× Moisture Content
15 30 45 60 75 90 105

m: 31 32 33 34 35 36 37 38 39
ft: 100 104 108 112 116 120 124 128

COMBINED CPT/VC LOG

Z2_OWF_B19A_CPT
MED-TEC_A06
Offshore Gulf de Lyon
DGEC

Alpha Value	0.8	Date Performed	05/05/2023
		Water Depth	-83,40 m ZH
		Coordinates	E 619896,41m; N 4775039,43m
		Made By/Date	SC - 14/11/2023
		Checked By/Date	AN - 17/11/2023
		Cone Number	S10CFIIP.S22602 / 001

MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté Égalité Fraternité

TECNOAMBIENTE
A TRADEBE COMPANY

Tecnoambiente

APPENDIX V – DIGITAL GEOTECHNICAL DATA

This appendix is delivered in a separate spreadsheet.